# **ThinkStation**

# Personal Systems Reference Lenovo® ThinkStation® Workstations 2008 to 2013 - withdrawn

January 2014 - Version 449



ThinkStation S10 (left) ThinkStation D10 (right)

# **ThinkStation**



Lenovo ThinkStation E20 with Intel HD Graphics



Lenovo ThinkStation E20



Lenovo ThinkStation Graphics Card Option NVIDIA® Quadro® NVS 295 (45K1669)



Lenovo ThinkStation E20 with ThinkVision® L2440p (4420HB2)



Lenovo ThinkStation E20



Lenovo ThinkStation Graphics Card Option NVIDIA Quadro NVS 450 (57Y4398)

|          |       | Processor | GHz  |   |       | Memory<br>speed |      |                      |      | Pre-con<br>RAID | f SATA<br>optical |    | Graphics adapter(s) |      |       | Global | Avail<br>date |
|----------|-------|-----------|------|---|-------|-----------------|------|----------------------|------|-----------------|-------------------|----|---------------------|------|-------|--------|---------------|
| 4222-35L | J 4x5 | G6950     | 2.80 | 2 | 1x2GB | 1333MHz         | z No | 1x250GB <sup>2</sup> | 3.5" | No              | DVD±RW            | No | FX380               | ES50 | Pro64 | No     | Feb 10        |
| 4222-36L | J 4x5 | i3-530    | 2.93 | 2 | 2x2GB | 1333MHz         | z No | 1x500GB              | 3.5" | No              | DVD±RW            | No | FX380               | ES50 | Pro64 | No     | Feb 10        |
| 4222-37L | J 4x5 | i5-650    | 3.20 | 2 | 2x2GB | 1333MHz         | z No | 1x500GB              | 3.5" | No              | DVD±RW            | No | FX580               | ES50 | Pro64 | No     | Feb 10        |

- Faster, more efficient architecture with the latest Intel® workstation technology
- True workstation-level performance at incredibly low price point
   High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These small and medium business (SMB) models are part of the US TopSeller™ Program
  These models have a 3-year limited warranty¹
  These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  | dual-channel DDR3 memorintel Core™ i3 Processor Intel 64, Hyper-Threading integrated 1333MHz dual-and 4MB cache or Intel Core i5 Processor is Intel 64, Hyper-Threading | nnology, integrated 1066MHz ory controller, and 3MB cache or i3-530 with dual-core, Technology, Virtualization Technology, channel DDR3 memory controller, 5-650 with dual-core, Technology, irtualization Technology, TXT, channel and 4MB cache  | 6.9"W x 17.0     175mm W x     24.7 lb (11.2     32-liter     Removable I     Toolless side | ront icons   |
|--|---|--|---|--|
| Memory   | Non-ECC***, four 240-pin<br>* Maximum memory is 160<br>8GB for Non-ECC models   | GB for ECC models and ocks down for processors with 1066MHz  | Bay ② 5.25",<br>Bay ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",                                   | 1" high, internal, std disk  |
| Graphics   | two dual-link DVI-I.  Some: NVIDIA Quadro F two DisplayPort™,   | X 580, PCIe x16 adapter, 512MB, one dual-link DVI-I***, 40W  | Slot 3: half-len  | gth, full-height, PCIe 2.0 x1<br>gth, full-height, 32-bit PCI 2.3<br>gth, full-height, 32-bit PCI 2.3<br>SECURITY  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller   |   | rnal USB 2.0<br>.0Gb/s, 7200 rpm, 3.5"   |   | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  |
| Chipset  | Intel 3450 Chipset,<br>Platform Controller Hub (P<br>SMSC® SCH5147 Super I/   | CH) for PCI, ethernet, and USB,  |   | Power-on password     Administrator password     Boot sequence control   |
| Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet  | Six USB 2.0, serial (9-pin), three analog audio ports (I None High Definition (HD) Audio Internal speaker for busine One gigabit ethernet on place.                     | ine-in, line-out, mic-in)<br>, Realtek® ALC662 codec<br>ess audio  | 2.1.2 compliant   | Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all)   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Preferred Pro USB Keyboa<br>Optical Wheel Mouse (USI  | ard (USB connector), 104-key, black, Leno<br>B connector), black, Lenovo logo<br>eed fan, autosensing, 85% PSU,  |   | Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant ENERGY STAR® 5.0-compliant EPEAT™ Gold rating  |
| listed) • Rescue and F • ThinkVantage • Norton™ Inter (30 days of vi • Adobe® Read • Adobe® Rash® • Microsoft Office purchase processors | dows® 7<br>64<br>lications⁵ (only some<br>Recovery™<br>Toolbox<br>rnet Security<br>rus definitions)<br>er®  | Accessories  1GB PC3-10600 DDR3 Non-ECC UDIM 2GB PC3-10600 DDR3 Non-ECC UDIM 250GB SATA 3.0Gb/s Disk (7200 rpm) 500GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 NVIDIA Quadro 512MB NVS 450 More accessories on O-CAD sheet Other accessories at lenovo.com/acces | M 57Y4390<br>41N3015<br>43R1990<br>45J7918<br>45K1675<br>45K1669<br>57Y4398                 | LIMITED WARRANTY¹  ⇒ 3-year parts and labor  ⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ⇒ ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  • Onsite service upgrade options (in eligible locations)³  • Post warranty maintenance services  ⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378 |

|          | Slot x<br>bay | r<br>Processor | GHz  | Cores | Memory<br>DIMMs | Memory<br>speed | ECC<br>memory | Disk(s)              |      | Pre-con<br>RAID | f SATA<br>optical |    |          | ENERGY<br>STAR 5.0 |       | Global | Avail<br>date |
|----------|---------------|----------------|------|-------|-----------------|-----------------|---------------|----------------------|------|-----------------|-------------------|----|----------|--------------------|-------|--------|---------------|
| 4222-66L | 1 4x5         | i3-530         | 2.93 | 2     | 1x2GB           | 1333MH:         | z No          | 1x250GB <sup>2</sup> | 3.5" | No              | DVD±RW            | No | Intel HD | ES50               | Pro64 | No     | Aug 10        |
| 4222-67L | J 4x5         | i3-540         | 3.06 | 2     | 2x2GB           | 1333MH:         | z No          | 1x500GB              | 3.5" | No              | DVD±RW            | No | FX580    | ES50               | Pro64 |        | Aug 10        |
| 4222-68L | 1 4x5         | i5-650         | 3.20 | 2     | 2x2GB           | 1333MH:         | z No          | 1x500GB              | 3.5" | No              | DVD±RW            | No | FX1800   | ES50               | Pro64 | No     | Aug 10        |
| 4222-69L | J 4x5         | i5-660         | 3.33 | 2     | 2x2GB           | 1333MH          | z No          | 1x500GB              | 3.5" | No              | DVD±RW            | No | Intel HD | ES50               | Pro64 | No     | Aug 10        |

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   These models have a 3-year limited warranty¹
   These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | Intel 64, Hyper-Threading integrated 1333MHz dual-<br>and 4MB cache or Intel Core i5 Processor is Intel 64, Hyper-Threading Turbo Boost Technology, V                   | 'irtualization Technology, TXT,<br>channel DDR3 memory controller,  | 6.9"W x 17.0     175mm W x     24.7 lb (11.2     32-liter     Removable b     Toolless side     Toolless disk | color; metal case "D x 16.7"H (with handle) 431mm D x 425mm H kg) max configuration nandle on top front e cover removal and optical drive removal proper retartion   |
|---|---|---|---|--|
| Memory  | <b>2GB</b> or <b>4GB</b> std, 8GB max <b>Non-ECC</b> , four 240-pin DI  | x, <b>UDIMM</b> , <b>PC3-10600 1333MHz DDR3</b> , MM sockets  | <ul> <li>Toolless ada</li> <li>Illuminated for the second points.</li> </ul>                                  | ront icons   |
| Graphics  | some: NVIDIA® Quadro® two DisplayPort, o Some: NVIDIA Quadro F  | DB-15 connector and one DisplayPort™<br>supports dual independent display<br>FX 580, PCIe x16 adapter, 512MB,<br>ne dual-link DVI-I*, 40W<br>X 1800, PCIe x16 adapter,<br>ayPort, one dual-link DVI-I*, 59W   | Bay ① 5.25",<br>Bay ② 5.25",<br>Bay ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",<br>Slot 1: half-len                 | 1.6" high, access, std optical 1.6" high, access, open 1" high, access, open (media reader) 1" high, internal, std disk 1" high, internal, opt disk  opt h,full-height, PCIe 2.0 x16 (75w max)   |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller  | Serial ATA, SATA 3.0Gb/s,   | .0Gb/s, 7200 rpm, 3.5"<br>D±RW SATA 1.5Gb/s Drive<br>integrated in chipset, RAID 0, 1 support,<br>isks, two SATA connectors for opticals  | Slot 3: half-len  | gth, full-height, PCIe 2.0 x1 gth, full-height, 32-bit PCI 2.3 gth, full-height, 32-bit PCI 2.3  SECURITY  Coought, ship (see information on left)   |
| Chipset   | Intel 3450 Chipset,   | PCH) for PCI, ethernet, and USB,  |   | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable;  |
| Front ports<br>Rear ports  IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | Six USB 2.0, serial (9-pin) three analog audio ports ( Intel HD model(s): one an None High Definition (HD) Audio Internal speaker for busine One gigabit ethernet on pl | line-in, line-out, mic-in)<br>alog VGA DB-15 connector, one DisplayPo<br>, Realtek® ALC662 codec<br>ess audio   |   | prohibits side cover removal)  • Power-on password  • Administrator password  • Boot sequence control  • Boot without keyboard, mouse  • Serial port I/O control  • USB port disablement (front or all)  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Preferred Pro USB Keyboa<br>Optical Wheel Mouse (US   | ard (USB connector), 104-key, black, Lenc<br>B connector), black, Lenovo logo<br>eed fan, autosensing, 85% PSU,<br>I  |   | Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant ENERGY STAR® 5.0-compliant EPEAT™ Gold rating  |
| Preloaded oper - Genuine Wind<br>Professional 6 Preloaded applisted) • Rescue and F • ThinkVantage • Norton™ Inter<br>(30 days of vir<br>• Adobe® Read • Adobe® Flash® • Microsoft Offic<br>purchase prod | rating system <sup>20</sup> dows® 7 64 lications⁵ (only some Recovery™ ® Toolbox rnet Security rus definitions) er®   | Accessories  1GB PC3-10600 DDR3 Non-ECC UDIM 2GB PC3-10600 DDR3 Non-ECC UDIM 250GB SATA 3.0Gb/s Disk (7200 rpm) 500GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray <sup>TM</sup> Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 NVIDIA Quadro 512MB NVS 450 More accessories on O-CAD sheet Other accessories at lenovo.com/acces | M 57Y4390<br>41N3015<br>43R1990<br>45J7918<br>45K1675<br>45K1669<br>57Y4398                                   | LIMITED WARRANTY¹  ⇒ 3-year parts and labor  ⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ⇒ ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  • Onsite service upgrade options (in eligible locations)²  • Post warranty maintenance services  ⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378 |

| Type-<br>model | Slot 2 | rocessor | GHz  |   |       | Memory<br>speed |      |                      |      |    | f SATA<br>optical |       | Graphics<br>adapter(s) |      |       |    | Avail<br>I date |
|----------------|--------|----------|------|---|-------|-----------------|------|----------------------|------|----|-------------------|-------|------------------------|------|-------|----|-----------------|
| 4222-81        | J 4x5  | i5-650   | 3.20 | 2 | 1x2GB | 1333MHz         | . No | 1x250GB <sup>2</sup> | 3.5" | No | DVD±RW            | Media | Intel HD               | ES50 | Pro64 | No | Oct 10          |

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- This small and medium business (SMB) model is part of the US TopSeller™ Program
- This model has a 3-year limited warranty

  This system is Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   |  | Technology,<br>/irtualization Technology, TXT,<br>channel DDR3 memory controller,   | • 6.9"W x 17.0<br>• 175mm W x<br>• 24.7 lb (11.2                            | color; metal case "D x 16.7"H (with handle) 431mm D x 425mm H kg) max configuration  |
|---|--|---|---|--|
| Memory  | <b>2GB</b> std, 8GB max, <b>UDIM Non-ECC</b> , four 240-pin DI                         | M, PC3-10600 1333MHz DDR3,<br>MM sockets  |   | nandle on top front  |
| Graphics  |  | essor,<br>nnector and one DisplayPort™<br>ts dual independent display   | <ul><li>Toolless disk</li><li>Toolless ada</li><li>Illuminated fi</li></ul> | and optical drive removal pter retention ront icons  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller  | Serial ATA, SATA 3.0Gb/s,  |   | Bay ② 5.25",<br>Bay ③ 3.5",<br>Bay ④ 3.5",                                  | 1.6" high, access, std optical 1.6" high, access, open 1" high, access, media reader 1" high, internal, std disk   |
| Chipset   | Intel 3450 Chipset,<br>Platform Controller Hub (F<br>SMSC® SCH5147 Super I             | PCH) for PCI, ethernet, and USB,<br>/O  | Slot 1: half-len  | 1" high, internal, opt disk  gth,full-height, PCIe 2.0 x16 (75w max)  gth,full-height, PCIe 2.0 x1   |
| Front ports<br>Rear ports   | Two USB 2.0, microphone<br>Six USB 2.0, serial (9-pin)<br>three analog audio ports (   | (3.5mm), headphone (3.5mm)<br>, ethernet (RJ-45),<br>line-in, line-out, mic-in),  | Slot 3: half-len  | gtif, full-height, 32-bit PCI 2.3<br>gth, full-height, 32-bit PCI 2.3  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip  | None High Definition (HD) Audio Internal speaker for busine One gigabit ethernet on pl | ess audio   | G 1.2-compliant   | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable;  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Optical Wheel Mouse (US  |   | ovo® logo   | prohibits side cover removal)  Power-on password  Administrator password  Boot sequence control  Boot without keyboard, mouse  Serial port I/O control  USB port disablement (front or all)  |
| - Genuine Wind  |  | Accessories 1GB PC3-10600 DDR3 Non-ECC UDIM   |   | Supports ThinkVantage® technologies  |
| listed) • Rescue and F  | lications⁵ (only some  | 2GB PC3-10600 DDR3 Non-ECC UDIM<br>250GB SATA 3.0Gb/s Disk (7200 rpm)<br>500GB SATA 3.0Gb/s Disk (7200 rpm)<br>1TB SATA 3.0Gb/s Disk (7200 rpm)<br>Blu-ray™ Burner SATA 1.5Gb/s | M 57Y4390<br>41N3015<br>43R1990<br>45J7918<br>45K1675                       | GREENGUARD® certified RoHS-compliant ENERGY STAR® 5.0-compliant EPEAT™ Gold rating   |
| <ul> <li>Àdobe® Read</li> <li>Adobe Flash®</li> <li>Microsoft Office</li> <li>purchase process</li> </ul> | rnet Security<br>rus definitions)<br>er®   | NVIDIA Quadro 256MB NVS 295<br>NVIDIA Quadro 512MB NVS 450<br>More accessories on O-CAD sheet<br>Other accessories at <b>lenovo.com</b> /acces                                  | 45K1669<br>57Y4398  | LIMITED WARRANTY¹  ⇒ 3-year parts and labor Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty • Onsite service upgrade options (in eligible locations)² • Post warranty maintenance services |

services

24 hour x 7 day<sup>14</sup> toll-free support during the warranty period<sup>1</sup>
via 800-426-7378

|          | Slot 2<br>bay | rocessor | GHz  |   |       | Memory<br>speed |      | / Disk(s)            |      |    | f SATA<br>optical |       | Graphics<br>adapter(s) |      |       | Global | Avail<br>date |
|----------|---------------|----------|------|---|-------|-----------------|------|----------------------|------|----|-------------------|-------|------------------------|------|-------|--------|---------------|
| 4222-93L | J 4x5         | i3-550   | 3.20 | 2 | 2x2GB | 1333MH:         | z No | 1x500GB <sup>2</sup> | 3.5" | No | DVD±RW            | Media | FX380                  | ES50 | Pro64 | No     | Nov 10        |
| 4222-94L | J 4x5         | i3-550   | 3.20 | 2 | 1x2GB | 1333MH:         | z No | 1x250GB              | 3.5" | No | <b>DVD</b> ±RW    | Media | Intel HD               | ES50 | Pro64 | No     | Nov 10        |
| 4222-95L | J 4x5         | i3-550   | 3.20 | 2 | 2x2GB | 1333MH:         | z No | 1x500GB              | 3.5" | No | <b>DVD</b> ±RW    | Media | 600                    | ES50 | Pro64 | No     | Nov 10        |
| 4222-96L | J 4x5         | i5-650   | 3.20 | 2 | 2x2GB | 1333MH:         | z No | 1x500GB              | 3.5" | No | DVD±RW            | Media | 600                    | ES50 | Pro64 | No     | Nov 10        |
| 4222-97L | J 4x5         | i5-650   | 3.20 | 2 | 2x2GB | 1333MH          | z No | 1x500GB              | 3.5" | No | DVD±RW            | Media | 2000                   | ES50 | Pro64 | No     | Nov 10        |

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| Processor  Implementation   | integrated 1333MHz dual-<br>and 4MB cache or<br>Intel Core i5 Processor il<br>Intel 64, Hyper-Threading<br>Turbo Boost Technology, V   | Technology, Virtualization Technology, channel DDR3 memory controller,  5-650 with dual-core, Technology, (irtualization Technology, TXT, channel DDR3 memory controller,  | 6.9"W x 17.0     175mm W x     24.7 lb (11.2     32-liter     Removable b     Toolless side     Toolless disk                         | color; metal case "D x 16.7"H (with handle) 431mm D x 425mm H kg) max configuration nandle on top front cover removal and optical drive removal  |
|---|--|--|---|--|
| Memory  | <b>2GB</b> or <b>4GB</b> std, 8GB max <b>Non-ECC</b> , four 240-pin DI   | x, UDIMM, PC3-10600 1333MHz DDR3,<br>MM sockets  | <ul> <li>Toolless ada</li> <li>Illuminated fi</li> <li>Recessed po</li> </ul>   | ront icons   |
| Graphics  | some: NVIDIA Quadro two dual-link DVI-ISome: NVIDIA Quadro one DisplayPort, one DisplayPort | DB-15 connector and one DisplayPort™<br>, supports dual independent display<br>P <b>FX 380</b> , PCle x16 adapter, 256MB,  | Bay ① 5.25",<br>Bay ② 5.25",<br>Bay ② 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",<br>Slot 1: half-len<br>Slot 2: half-len<br>Slot 3: half-len | 1.6" high, access, std optical 1.6" high, access, open 1" high, access, media reader 1" high, internal, std disk   |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller  | Serial ATA, SATA 3.0Gb/s,  |  | Siot 4. Hall-lell   | SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  |
| Chipset   | Intel 3450 Chipset,<br>Platform Controller Hub (F<br>SMSC® SCH5147 Super I   | PCH) for PCI, ethernet, and USB,   |   | Security slot (in rear for optional<br>Kensington® Microsaver® cable;<br>prohibits side cover removal)     Power-on password   |
| Front ports<br>Rear ports<br>IEEE 1394 adptr<br>Audio<br>Speaker  | Six USB 2.0, serial (9-pin) three analog audio ports (Intel HD model(s): one and   | line-in, line-out, mic-in)<br>alog VGA DB-15 connector, one DisplayPo<br>, Realtek® ALC662 codec   | ort connector   | Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all)  |
| Ethernet<br>Security chip   | One gigabit ethernet on pl   |  | G 1.2-compliant   | Supports ThinkVantage® technologies  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling  | Optical Wheel Mouse (US  |  | ovo® logo   | GREENGUARD® certified RoHS-compliant ENERGY STAR® 5.0-compliant EPEAT™ Gold rating   |
| Rack mount  | Rack shelf support   | , 1041, 110111,  |   | LIMITED WARRANTY <sup>1</sup>  |
| listed) • Rescue and F • ThinkVantage • Norton™ Inter (30 days of vii • Adobe® Read • Microsoft Offie purchase prod | dows® 7<br>64<br>lications⁵ (only some<br>Recovery™<br>Toolbox<br>rnet Security<br>rus definitions)  | Accessories  1GB PC3-10600 DDR3 Non-ECC UDIM 2GB PC3-10600 DDR3 Non-ECC UDIM 250GB SATA 3.0Gb/s Disk (7200 rpm) 500GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 NVIDIA Quadro 512MB NVS 450 More accessories on O-CAD sheet Other accessories at lenovo.com/acces | M 57Y4390<br>41N3015<br>43R1990<br>45J7918<br>45K1675<br>45K1669<br>57Y4398   | <ul> <li>⇒ 3-year parts and labor</li> <li>⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)</li> <li>⇒ ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty</li> <li>• Onsite service upgrade options (in eligible locations)</li> <li>• Post warranty maintenance services</li> <li>⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378</li> </ul> |

|  |  |   |   |  |   |  |                                      |                   |  |   | •   |  |   |                               |                                      |
|--|--|---|---|--|---|--|--------------------------------------|-------------------|--|---|---|--|---|-------------------------------|--------------------------------------|
|  | Processor G  |   | DIMMs   |  | memory  | Disk(s)  | size                                 | RAID              | f SATA<br>optical  | 1394<br>adptr   | adapter(s)  |  | preload   | GMP (                         | P) date                              |
| 4220-34U 4x5<br>4220-35U 4x5<br>4220-36U 4x5<br>4220-37U 4x5   | G6950 2<br>X3430 2   | 2.93 2<br>2.80 2<br>2.40 4<br>2.53 4  | 1x2GB<br>2x2GB  |  | ECC   | 1x500GB <sup>2</sup><br>1x500GB<br>1x500GB<br>1x500GB                                | 3.5"<br>3.5"                         | No<br>No          | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW   | No<br>No<br>No<br>No  | FX380<br>FX380<br>FX580<br>FX1800   | ES50<br>ES50<br>ES50<br>ES50   | Pro64<br>Pro64<br>Pro64<br>Pro64                                | No<br>No<br>No<br>No          | Feb 10<br>Feb 10<br>Feb 10<br>Feb 10 |
|  | These m  | rkstation<br>liability v<br>nodels ha   | -level per<br>vith Indep<br>ave a 3-ye  | formance<br>endent S<br>ar limited   | e at incre<br>oftware<br>I warran   | edibly low<br>Vendors (  | price<br>ISV) c                      | point<br>ertified | applicatio   | 0,  | ECC memo  | ory suppo  | rt  |                               |                                      |
| Processor  | Intel 64, dual-cha Intel Col Intel 64, integrate and 4ME Intel Xec Intel 64, Turbo Bointegrate and 8ME Intel Xec Intel 64, TXT, Turb | Virtualiza<br>unnel DDI<br>rem i3 Pi<br>Hyper-Ti<br>d 1333M<br>3 cache con Proce<br>Virtualiza<br>d 1333M<br>3 cache con Proce<br>hyper-Ti<br>bo Boost<br>d 1333M   | R3 memorocessor nreading illaz dual-or nessor X3 ation Tech nology, illaz dual-or nessor X3 nreading Technology | nology, ir<br>ry contro<br>i3-530 w<br>Technolog<br>channel E<br>430 with<br>nology, T<br>channel E<br>140 with c<br>Technology, | ntegrate<br>ller, and<br>ith dual<br>gy, Virtu<br>DDR3 m<br>quad-c<br>XT,<br>DDR3 m<br>quad-ccgy, Virtu | d 1066MH 3MB cach -core, alization Teemory con ore, emory con                        | e or<br>echnol<br>troller<br>troller | ogy,              | 6.9"W     175m     24.7 I     32-lite     Remo     Toolle     Toolle     Toolle     Illumii     Rack     Reces | x 17.0 m W x 4 b (11.2l er vable hess side ss disk ss adaphated fr shelf sussed po 5.25", | color; meta "D x 16.7"h 431mm D x 43) max co andle on to cover remonand optica other retentic ont icons upport wer button 1.6" high, a 1.6" high, a | I (with har<br>425mm I<br>infiguration<br>op front<br>oval<br>I drive rem<br>on  | i (   | optic. ② ③ disk               | al                                   |
| Implementation   | Processo   | or in LGA   | 1156 soc  |  |   |  | \ #                                  |                   | Bay 3 Bay 4  | 3.5", <sup>-</sup><br>3.5", <sup>-</sup>  | 1" high,    a<br>1" high,    ir   | ccess,   | media re<br>std disk  |                               |                                      |
| Memory   | four 240-<br>34U/35U<br>36U/37U<br>* System<br>DDR3 m<br>** Max m  | -pin DIMI<br>I: 8GB m<br>I: 16GB<br>n automa<br>nemory conemory is  | M sockets<br>nax**, <b>No</b><br>max, <b>EC</b> 0<br>tically clo<br>ontroller<br>s 16GB fo                      | n-ECC***<br>C<br>cks down  | for prod  | R3*, UDIMI cessors wit   |                                      | 6MHz              | Slot 1: I<br>Slot 2: I<br>Slot 3: I  | nalf-len<br>nalf-len<br>nalf-len  | 1" high, ir<br>gth,full-heig<br>gth,full-heig<br>gth,full-heig<br>gth,full-heig   | ght, PCle ght, PCle ght, 32-bit ght, 32-bit  | 2.0 x1<br>PCI 2.3<br>PCI 2.3                                    | (75w m                        | nax)                                 |
|  |  | and non-  | ECC DIN   |  |   |  |                                      |                   |  |   |   | chip (see  |   |                               |                                      |
| Graphics   | Some: I<br>Some: I   | wo dual-<br><b>NVIDIA (</b><br>two Displ<br><b>NVIDIA</b> ®<br>768MB, t   | link DVI-I.<br><b>Quadro F</b><br>ayPort™,<br><b>Quadro</b> <sup>®</sup><br>wo Displa                           | 35W<br><b>X 580</b> , Po<br>one dual<br><b>FX 1800</b><br>yPort, on  | Cle x16<br>-link DV<br>, PCle x<br>e dual-li  | 6 adapter,<br>adapter, 5<br>I-I***, 40W<br>(16 adapte<br>ink DVI-I***<br>active at a | 12MB<br>r,<br>°, 59W                 | ,                 |  |   | <ul><li>Security<br/>Kensing<br/>prohibits</li><li>Power-o</li><li>Adminis</li></ul>  | prohibits of some prohibits of some prohibits of some prohibits of the covern passwood passwood prohibits of the covern passwood passwood prohibits of the covern passwood pas | side cover<br>ar for op<br>saver® der<br>remover<br>rd<br>sword | er rem<br>otional<br>cable;   | oval)                                |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller   | 500GB, Super M<br>Serial AT  | SATA 3.0<br>ulti-Burn<br>TA, SATA   | 3.0Gb/s,  | 00 rpm, 3<br>D±RW SA<br>integrate  | .5"<br>ATA 1.50<br>d in chip  | Gb/s Drive<br>bset, RAID<br>onnectors f  |                                      |                   |  |   | <ul><li>Boot wit</li><li>Serial p</li></ul>   |  | oard, mo<br>itrol   |                               | ıll)                                 |
| Chipset  |  | Controlle   |   |  | CI, ethe  | ernet, and   | JSB,                                 |                   |  |   |   |  |   |                               |                                      |
| Front ports<br>Rear ports  | Six USB  | 2.0, seri   | crophone<br>al (9-pin)<br>io ports (l   | ethernet   | (RJ-45)   |  | ım)                                  |                   |  |   | Supports  | ThinkVant  | age® tec  | hnolog                        | gies                                 |
| IEEE 1394 adpti<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | None High Def Internal s One giga  | finition (F<br>speaker t<br>abit ether  | ID) Audio<br>for busine<br>net on pl  | , Realtek<br>ss audio<br>anar, Inte  | ® ALC66   | 62 codec   | ıle (TF                              | РМ), TC           | G 1.2-con  | npliant   | GREENG<br>RoHS-cor<br>ENERGY<br>EPEAT™  | STAR® 5.0  | )-compli  | ant                           |                                      |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Optical V<br>280 watts<br>80 PLUS  | Wheel Moss with vas Bronze sower supposed   | ouse (USI<br>riable spe<br>qualified<br>oply, CPU   | 3 connect<br>eed fan, a  | tor), blac<br>utosens   | or), 104-keck, Lenovo<br>sing, 85% I   | logo                                 | ck, Len           | ovo® logo  |   | <ul> <li>3-year</li> <li>Custon parts of for selection</li> </ul>   | LIMITED V<br>parts and<br>ner Replac<br>nly (with li<br>ected parts<br>Fri coverage  | labor<br>eable U<br>imited o                                    | nit (CF<br>nsite s<br>- 5 pm, | ervice                               |
| Preloaded ope - Genuine Win Professional Preloaded app listed) • Rescue and • Microsoft Off purchase pro | dows® 7<br>64<br><b>elications</b> ⁵<br>Recovery™<br>ice 2010 pi   | Accessories  2GB PC3-10600 DDR3 Non-ECC UDIMM 57Y4390  4GB PC3-10600 DDR3 ECC UDIMM 57Y4138  1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918  More accessories on O-CAD sheet  Other accessories at lenovo.com/accessories |   |  |   |  |                                      | 138               | next business day response time)  → ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty    |   |   |  | ne)<br>see<br>anty<br>ns  |                               |                                      |

| Type- Slot<br>model bay |        | GHz  | Cores | Memory<br>DIMMs | Memory<br>speed | ECC<br>memory |                      |      | Pre-cor<br>RAID |                |       | Graphics<br>adapter(s) |      |       | Global | Avail<br>date |
|-------------------------|--------|------|-------|-----------------|-----------------|---------------|----------------------|------|-----------------|----------------|-------|------------------------|------|-------|--------|---------------|
| 4220-82U 4x5            | X3440  | 2.53 | 4     | 2x2GB           | 1333MH:         | z ECC         | 1x500GB <sup>2</sup> | 3.5" | No              | <b>DVD</b> ±RW | Media | FX580                  | ES50 | Pro64 | Global | Aug 10        |
| 4220-83U 4x5            | X3440  | 2.53 | 4     | 2x2GB           | 1333MH:         | z ECC         | 1x500GB              | 3.5" | No              | <b>DVD</b> ±RW | Media | FX1800                 | ES50 | Pro64 | Global | Aug 10        |
| 4220-84U 4x5            | X3470  | 2.93 | 4     | 2x2GB           | 1333MH:         | z ECC         | 1x500GB              | 3.5" | No              | <b>DVD±RW</b>  | Media | FX1800                 | ES50 | Pro64 | Global | Aug 10        |
| 4220-85U 4x5            | i5-650 | 3.20 | 2     | 2x2GB           | 1333MH:         | z ECC         | 1x500GB              | 3.5" | No              | <b>DVD±RW</b>  | Media | FX580                  | ES50 | Pro64 | Global | Aug 10        |
| 4220-86U 4x5            | i5-650 | 3.20 | 2     | 2x2GB           | 1333MH:         | z ECC         | 1x500GB              | 3.5" | No              | <b>DVD±RW</b>  | Media | FX1800                 | ES50 | Pro64 | Global | Aug 10        |
| 4220-87U 4x5            | i5-670 | 3.46 | 2     | 2x2GB           | 1333MH:         | z ECC         | 1x500GB              | 3.5" | No              | <b>DVD±RW</b>  | Media | FX1800                 | ES50 | Pro64 | Global | Aug 10        |
| 4220-88U 4x5            | i5-650 | 3.20 | 2     | 2x2GB           | 1333MH          | z ECC         | 1x500GB              | 3.5" | No              | DVD±RW         | Media | Intel HD               | ES50 | Pro64 | Global | Aug 10        |

- · Faster, more efficient architecture with the latest Intel® workstation technology
- True workstation-level performance at incredibly low price point
- High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These models have a 3-year limited warranty
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | Intel 64, Hyper-Threading<br>TXT, Turbo Boost Technol<br>DDR3 memory controller,<br>Intel Xeon® Processor X<br>Intel 64, Hyper-Threading   | 3440 or X3470 with quad-core,<br>Technology, Virtualization Technology,<br>ogy, integrated 1333MHz dual-channel<br>and 8MB cache  | 6.9"W x 17.0     175mm W x     24.7 lb (11.2     32-liter     Removable I     Toolless side | color; metal case  "D x 16.7"H (with handle) 431mm D x 425mm H ekg) max configuration  nandle on top front e cover removal   |
|---|--|---|---|--|
| Memory  | 4GB std, 16GB max, PC3 four 240-pin DIMM socket  | 1-10600 1333MHz DDR3*, UDIMM, ECC<br>S  | Toolless disk     Toolless ada     Illuminated fi   | ront icons   |
| Graphics  | connector on rear<br>Some: NVIDIA® Quadro®<br>two DisplayPort™,<br>Some: NVIDIA Quadro I<br>768MB, two Displ   | s in processor, DB-15 connector and one DisplayPort r, supports dual independent display FX 580, PCle x16 adapter, 512MB, one dual-link DVI-I*, 40W FX 1800, PCle x16 adapter, ayPort, one dual-link DVI-I*, 59W ay connectors are active at a time | <ul> <li>Rack shelf s</li> <li>Recessed po</li> <li>Bay ① 5.25",</li> </ul>                 | upport ower button  1.6" high, access, std optical 1.6" high, access, open 1" high, access, media reader 1" high, internal, std disk   |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller  | Serial ATA, SATA 3.0Gb/s.  |   | Slot 2: half-ler<br>Slot 3: half-ler  | ngth,full-height, PCle 2.0 x16 (75w max)<br>ngth,full-height, PCle 2.0 x1<br>ngth,full-height, 32-bit PCl 2.3<br>ngth,full-height, 32-bit PCl 2.3  |
| Chipset   | Intel 3450 Chipset,<br>Platform Controller Hub (F<br>SMSC® SCH5147 Super I   | PCH) for PCI, ethernet, and USB,  |   | SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard Mouse   | Six USB 2.0, serial (9-pin) three analog audio ports (Intel HD model(s): one ar None High Definition (HD) Audio Internal speaker for busing One gigabit ethernet on p STMicroelectronics ST191 Preferred Pro USB Keybo | line-in, line-out, mic-in)<br>nalog VGA DB-15 connector, one DisplayPo<br>o, Realtek® ALC662 codec<br>ess audio   | G 1.2-compliant   | Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all) |
| Power supply  | 280 watts with variable sp<br>80 PLUS® Bronze qualified  | eed fan, autosensing, 85% PSŬ,<br>d   |   | Supports ThinkVantage® technologies  |
| Rack mount  Preloaded open  | -  | Accessories   | 42D2022   | GREENGUARD® certified RoHS-compliant ENERGY STAR® 5.0-compliant EPEAT™ Gold rating   |
| Professional 64  Preloaded applications <sup>5</sup> (only some listed)  Professional 64  Preloaded applications (only some listed) |  | 2GB PC3-10600 DDR3 ECC UDIMM<br>4GB PC3-10600 DDR3 ECC UDIMM<br>250GB SATA 3.0Gb/s Disk (7200 rpm)<br>500GB SATA 3.0Gb/s Disk (7200 rpm)<br>1TB SATA 3.0Gb/s Disk (7200 rpm)  | 43R2033<br>57Y4138<br>41N3015<br>43R1990<br>45J7918   | LIMITED WARRANTY¹  ⇒ 3-year parts and labor  ⇒ Customer Replaceable Unit (CRU)   |

- ThinkVantage Toolbox

- IninkVantage Iooioox
   Norton™ Internet Security (30 days of virus definitions)
   Adobe® Reader®
   Adobe Flash® Player
   Microsoft Office 2010 preloaded; purchase product key to activate
   Corel® Burn.Now™ (DVD±RW)
   Corel DVD MovieFactory® (DVD±RW)

Blu-ray™ Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 45K1675 45K1669 NVIDIA Quadro 512MB NVS 450 57Y4398 More accessories on O-CAD sheet

Other accessories at lenovo.com/accessories

- Customer Heplaceable Unit (CHU) parts only (with limited onsite service for selected parts³, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time)
  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty
- - Onsite service upgrade options (in eligible locations)<sup>7</sup>
  - Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period via 800-426-7378

# ThinkStation® E31 SFF (3695) - TopSeller (August 2012) - withdrawn

|          |                |                 |        |          |             |        |             | 2nd  |               |       |        | Chassis   | PS/2 |          |
|----------|----------------|-----------------|--------|----------|-------------|--------|-------------|------|---------------|-------|--------|-----------|------|----------|
| Type-    |                | Memory          | Memory | Pre-conf | f           | Media  | SATA        | Disk | Graphics      | 1394  |        | intrusion | rear | Vertical |
| model    | Processor      | (MHz/ECC)       | DIMMs  | RAID     | Disk(s)     | reader | optical     | bay  | adapter(s)    | adptr | Global | switch    | I/O  | stand    |
| 3695-N9U | Core i3-2130   | 1600MHz Non-ECC | 1x4GB  | No       | 1x128GB SSD | Media  | Slim DVD±RW | No   | Intel HD 2000 | No    | No     | Switch    | No   | Stand    |
| 3695-NAU | Xeon E3-1245V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x180GB SSD | Media  | Slim DVD±RW | No   | Quadro 400    | No    | No     | Switch    | No   | Stand    |
| 3695-NBU | Xeon E3-1275V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x256GB SSD | Media  | Slim DVD±RW | No   | Quadro 600    | No    | No     | Switch    | No   | Stand    |

| Processor   | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)  | Small Desktop   |
|---|---|---|
|   | Intel Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache),<br>Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000,<br>DDR3 memory controller (up to 1600MHz)  | 3 disk optical  |
|   | Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache),<br>Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000,   | 2   |
| Implementation                                      | DDR3 memory controller (up to 1600MHz) One LGA1155 socket   | Raven black color; metal case     13.35"W x 15.0"D x 3.93"H   |
| Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   | 339mm W x 381.1mm D x 99.7mm H     16.53 lb (7.5kg) max configuration   |
| Additional memory disclaimers                       | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   | 11-liter     Toolless top cover removal     Toolless disk and optical drive removal   |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000  Core i7-3770: Intel HD Graphics 4000  Core i5-3450/3470/3550: Intel HD Graphics 2500  Core i3-2120/2130: Intel HD Graphics 2000  Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W  Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, | Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk  Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models  |
| Media reader<br>Optical<br>Disk(s)<br>Onboard SATA  | one DisplayPort, one dual-link DVI-I, 40W  Media: 29-in-1 Media card reader, slim, internal USB 2.0  DVD±RW, SATA, slim  250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"  150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"  Solid State Drive, SATA 6.0Gb/s, 2.5"  Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange),   | Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3  |
|   | RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)   | Intel AMT Intel AMT supported on model(s) with Xeon processor   |
| Onboard SAS Chipset                                 | Intel C216 Chipset  | Preloaded operating system <sup>20</sup>  |
| Front ports<br>Rear ports                           | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable                | Genuine Windows® 7 Professional 64     Preloaded applications⁵ (only some listed)     Rescue and Recovery®     Norton® Internet Security (30 days of virus definitions)     Adobe® Reader®     Microsoft® Office 2010 preloaded; purchase product key to activate     Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s)) |
| Audio Speaker Ethernet Security chip                | No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | SECURITY  • Security chip (see information on left)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password  • Administrator password  • Boot sequence control   |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)   |
| Limited Warranty                                    | 3-year parts and labor, more Lenovo® services see S-TS sheet  | ISV certifications Please visit www.lenovo.com/support/ISV  |
|   | - , part and takes, meter actions and a real and the second   | GRENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant More compatible accessories, please see O-ROC sheet  |

| Type-<br>model | Slot  | x<br>/ Processor | GHz C |   | Memory<br>DIMMs |         |       | Disk(s)              | Disk I<br>size | Pre-con<br>RAID | f SATA optical |       | Graphics<br>adapter(s) |      |       | Global | Avail<br>date |
|----------------|-------|------------------|-------|---|-----------------|---------|-------|----------------------|----------------|-----------------|----------------|-------|------------------------|------|-------|--------|---------------|
| 4220-91        | U 4x5 | i5-680           | 3.60  | 2 | 2x2GB           | 1333MH: | z ECC | 1x500GB <sup>2</sup> | 3.5"           | No              | DVD+RW         | Media | Intel HD               | ES50 | Pro64 | None   | Oct 10        |

- Faster, more efficient architecture with the latest Intel® workstation technology
   True workstation-level performance at incredibly low price point
   High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
   This model has a 3-year limited warranty<sup>1</sup>
   This system is Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  | TXT, Turbo Boost Technol DDR3 memory controller,                                     | Technology, Virtualization Technology, logy, integrated 1333MHz dual-channel  | Tower  Raven black color; metal case  6.9"W x 17.0"D x 16.7"H (with handle)  175mm W x 431mm D x 425mm H   |   |  |  |  |
|--|--|---|--|---|--|--|--|
| Memory   |  | 3-10600 1333MHz DDR3, UDIMM, ECC,   | • 32-liter   | explicion (3) disk  |  |  |  |
| Graphics   |  | cessor,<br>onnector and one DisplayPort™<br>rts dual independent display  | <ul><li>Toolless side</li><li>Toolless disk</li><li>Toolless ada</li></ul>   | e cover removal<br>k and optical drive removal<br>apter retention   |  |  |  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller   | Serial ATA, SATA 3.0Gb/s   |   | Illuminated front icons     Rack shelf support     Recessed power button  Bay ① 5.25", 1.6" high, access, std optical pay ② 5.25", 1.6" high, access, open pay ② 2.5", 1.6" high, access, open pay ② 2.5", 1.6" high, access, open pay ③ 2.5", 1.6" high, access, open pay ③ 2.5", 1.6" high, access, open pay ② 3.5", 1.5" high, access, open pay ③ 2.5", 1.5" high, access, open pay ⑤ 2.5". |   |  |  |  |
| Chipset  | Intel 3450 Chipset,<br>Platform Controller Hub (I<br>SMSC® SCH5147 Super             | PCH) for PCI, ethernet, and USB, I/O  | Bay ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",  | 1" high, internal, std disk   |  |  |  |
| Front ports<br>Rear ports  | Six USB 2.0, serial (9-pin<br>three analog audio ports<br>one analog VGA DB-15 c     |   | Slot 1: half-length, full-height, PCle 2.0 x16 (75w max)<br>Slot 2: half-length, full-height, PCle 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCl 2.3<br>Slot 4: half-length, full-height, 32-bit PCl 2.3  |   |  |  |  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | High Definition (HD) Audi<br>Internal speaker for busin<br>One gigabit ethernet on p |   | G 1.2-compliant  | SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)   |  |  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Optical Wheel Mouse (US  | oard (USB connector), 104-key, black, Lenc<br>SB connector), black, Lenovo logo<br>beed fan, autosensing, 85% PSU,<br>d<br>U, rear, front)  | ovo® logo  | Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password     Administrator password     Boot sequence control     Boot without keyboard mouse.  |  |  |  |
| Preloaded ope - Genuine Wind Professional (  | rating system <sup>20</sup>  | Accessories 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 250GB SATA 3.0Gb/s Disk (7200 rpm)  | 43R2033<br>57Y4138<br>41N3015  | Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all)  |  |  |  |
| <ul> <li>Iisted)</li> <li>Rescue and F</li> <li>ThinkVantage</li> <li>Norton™ Intel</li> </ul>                         | Recovery™<br>Toolbox<br>rnet Security<br>rus definitions)                            | 500GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray <sup>TM</sup> Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 NVIDIA Quadro 512MB NVS 450 More accessories on O-CAD sheet | 43R1990<br>45J7918<br>45K1675<br>45K1669<br>57Y4398  | Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant ENERGY STAR® 5.0-compliant  |  |  |  |
| <ul> <li>Adobe Flash<sup>®</sup></li> <li>Microsoft Offi<br/>purchase pro</li> <li>Corel<sup>®</sup> Burn.N</li> </ul> |  | Other accessories at lenovo.com/access  | sories   | EPEAT™ Gold rating  LIMITED WARRANTY¹  3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  Onsite service upgrade options (in eligible locations)²  Post warranty maintenance |  |  |  |

 Post warranty maintenance services

24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378

| Type-<br>model | Slot x<br>bay  | Processor | GHz  |   |       | Memory<br>speed |       | / Disk(s)            | Disk<br>size | Pre-cor<br>RAID |                |       | Graphics<br>adapter(s) |      |       | Global | Avail<br>date |
|----------------|--|-----------|------|---|-------|-----------------|-------|----------------------|--------------|-----------------|----------------|-------|------------------------|------|-------|--------|---------------|
| 4220-A3U       | J 4x5  | i3-550    | 3.20 | 2 | 2x2GB | 1333MH:         | z ECC | 1x500GB <sup>2</sup> | 3.5"         | No              | <b>DVD</b> ±RW | Media | FX380                  | ES50 | Pro64 |        | Nov 10        |
| 4220-A4U       | J 4x5  | X3430     | 2.40 | 4 | 2x2GB | 1333MH:         | z ECC | 1x500GB              | 3.5"         | No              | <b>DVD</b> ±RW | Media | 600                    | ES50 | Pro64 |        | Nov 10        |
| 4220-A5U       | J 4x5  | X3440     | 2.53 | 4 | 2x2GB | 1333MH:         | z ECC | 1x500GB              | 3.5"         | No              | <b>DVD±RW</b>  | Media | 2000                   | ES50 | Pro64 | Global | Nov 10        |
| 4220-A6U       | J 4x5  | X3440     | 2.53 | 4 | 2x2GB | 1333MH:         | z ECC | 1x500GB              | 3.5"         | No              | <b>DVD±RW</b>  | Media | 600                    | ES50 | Pro64 | Global | Nov 10        |
| 4220-A7U       | J 4x5  | X3470     | 2.93 | 4 | 2x2GB | 1333MH:         | z ECC | 1x500GB              | 3.5"         | No              | <b>DVD±RW</b>  | Media | 2000                   | ES50 | Pro64 | Global | Nov 10        |
| 4220-A8U       | J 4x5  | i5-650    | 3.20 | 2 | 2x2GB | 1333MH:         | z ECC | 1x500GB              | 3.5"         | No              | <b>DVD±RW</b>  | Media | 600                    | ES50 | Pro64 | Global | Nov 10        |
| 4220-A9U       | J 4x5  | i5-650    | 3.20 | 2 | 2x2GB | 1333MH:         | z ECC | 1x500GB              | 3.5"         | No              | <b>DVD</b> ±RW | Media | 2000                   | ES50 | Pro64 | Global | Nov 10        |
| 4220-B1U       | J 4x5  | i5-670    | 3.46 | 2 | 2x2GB | 1333MH          | z ECC | 1x500GB              | 3.5"         | No              | DVD±RW         | Media | 2000                   | ES50 | Pro64 | Global | Nov 10        |
|                | These models have a 3-year limited warranty¹     These systems are Microsoft® Office 2010 Product Key Ready (O10PKR) |           |      |   |       |                 |       |                      |              |                 |                |       |                        |      |       |        |               |

|   | These systems are Micros   | soft <sup>®</sup> Office 2010 Product Key Ready (O10  | PKR)   |   |  |  |  |
|---|--|---|--|---|--|--|--|
| Processor   | integrated 1333MHz dual-4MB cache or Intel Core i5 Processor is Intel 64, Hyper-Threading TXT, Turbo Boost Technolc DDR3 memory controller, Intel Xeon® Processor X3 Intel 64, Virtualization Techintegrated 1333MHz dual-and 8MB cache or Intel Xeon Processor X3 Intel 64, Hyper-Threading | Technology, Virtualization Technology, channel DDR3 memory controller,  5-650 or i5-670 with dual-core, Technology, Virtualization Technology, ogy, integrated 1333MHz dual-channel and 4MB cache or 3430 with quad-core, nnology, TXT, Turbo Boost Technology, channel DDR3 memory controller,  440 or X3470 with quad-core, Technology, Virtualization Technology, ogy, integrated 1333MHz dual-channel and 8MB cache | 6.9"W x 17.0     175mm W x     24.7 lb (11.2     32-liter     Removable h     Toolless side     Toolless dak     Toolless ada     Illuminated fi     Rack shelf si     Recessed po  Bay ① 5.25", Bay ② 5.25".  | ront icons upport ower button  1.6" high, access, std optical 1.6" high, access, open   |  |  |  |
| Memory  | 4GB std, 16GB max, PC3-<br>four 240-pin DIMM sockets   | -10600 1333MHz DDR3, UDIMM, ECC   | Bay ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",  | 1" high, internal, std disk<br>1" high, internal, opt disk  |  |  |  |
| Graphics  | two dual-link DVI-I<br>Some: NVIDIA Quadro 6<br>one DisplayPort™,<br>Some: NVIDIA Quadro 2   | FX 380, PCIe x16 adapter, 256MB,<br>I, 35W<br>100, PCIe x16 adapter, 1GB,<br>one dual-link DVI-I, 40W<br>1000, PCIe x16 adapter, 1GB,<br>ne dual-link DVI-I*, 62W   | Slot 1: half-length, full-height, PCle 2.0 x16 (75w m<br>Slot 2: half-length, full-height, PCle 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCl 2.3<br>Slot 4: half-length, full-height, 32-bit PCl 2.3 |   |  |  |  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller  | * Only two display<br>25-in-1 media reader, intel<br>500GB, SATA 3.0Gb/s, 72<br>Super Multi-Burner DL DV<br>Serial ATA, SATA 3.0Gb/s,  | connectors are active at a time   |  | SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  |  |  |  |
| Chipset   | Intel 3450 Chipset,<br>Platform Controller Hub (P<br>SMSC® SCH5147 Super I/  | PCH) for PCI, ethernet, and USB,  |  | Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse   |  |  |  |
| Front ports<br>Rear ports<br>IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet  | Six USB 2.0, serial (9-pin) three analog audio ports (I Intel HD model(s): one an  | line-in, line-out, mic-in)<br>ialog VGA DB-15 connector, one DisplayPo<br>n, Realtek® ALC662 codec<br>ess audio   | ort connector  | Serial port I/O control     USB port disablement (front or all)   |  |  |  |
| Security chip Keyboard  | STMicroelectronics ST19N   | NP18 Trusted Platform Module (TPM), TCC ard (USB connector), 104-key, black, Leno   |  | Supports ThinkVantage® technologies   |  |  |  |
| Mouse<br>Power supply<br>Cooling<br>Rack mount  | Optical Wheel Mouse (USI   | B connector), black, Lenovo İogo<br>eed fan, autosensing, 85% PSU,<br>I   | vo logo  | GREENGUARD® certified<br>RoHS-compliant<br>ENERGY STAR® 5.0-compliant<br>EPEAT™ Gold rating   |  |  |  |
|   | rating system <sup>20</sup>  | Accessories   |  | LIMITED WARRANTY¹   |  |  |  |
| - Genuine Windows® 7 Professional 64  Preloaded applications⁵ (only some listed)  • Rescue and Recovery™  • ThinkVantage Toolbox  • Norton™ Internet Security (30 days of virus definitions)  • Adobe® Reader®  • Adobe Flash® Player  • Microsoft Office 2010 preloaded; purchase product key to activate  • Corel® Burn.Now™ (DVD±RW)  • Corel DVD MovieFactory® (DVD±RW) |  | 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 250GB SATA 3.0Gb/s Disk (7200 rpm) 500GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 NVIDIA Quadro 512MB NVS 450 More accessories on O-CAD sheet Other accessories at lenovo.com/acces   | 43R2033<br>57Y4138<br>41N3015<br>43R1990<br>45J7918<br>45K1675<br>45K1669<br>57Y4398<br>sories   | Syean parts and rabol     Customer Replaceable Unit (CRU)     parts only (with limited onsite service     for selected parts³, 8 am - 5 pm,     Mon - Fri coverage excluding holidays,     next business day response time)     ThinkPlus™ services available; see     http://lenovo.com/thinkplus/warranty     Onsite service upgrade options     (in eligible locations)³     Post warranty maintenance     services     24 hour x 7 day¹⁴ toll-free support     during the warranty period¹     via 800-426-7378 |  |  |  |

Memory Memory Graphics ENERGY Win7 Global (G) Avail Slot x Disk Pre-conf SATA 1394 Type-model adapter(s) STAR 5.0 preload GMP (P) date bay Processor GHz Cores DIMMs speed memory Disk(s) RAID optical adptr size 4215-11U 4x5 i5-660 3.33 2 2x2GB 1333MHz ECC 1x500GB2 3.5" No DVD±RW 1394 FX1800 ES50 G P Feb 10 Pro64

- Faster, more efficient architecture with the latest Intel® workstation technology
- True workstation-level performance at incredibly low price point
- · High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- This small and medium business (SMB) model is part of the US TopSeller™ Program
- This model is part of the Global Models Plus (GMP) program with limited onsite service<sup>3</sup> 3-year limited warranty
   This system is Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | Intel Core™ i5 Processor i5-660 with dual-core, Intel 64, Hyper-Threading Technology, Turbo Boost Technology, Virtualization Technology, TXT, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache Processor in LGA1156 socket, up to one processor   | • 6.9"W x 17.0<br>• 175mm W x<br>• 24.7 lb (11.2   | color; metal case<br>"D x 16.7"H (with ha<br>431mm D x 425mm<br>kg) max configuratio  | H '   |  |  |  |
|---|--|--|---|-------|--|--|--|
| Memory  | 4GB std, 16GB max*, UDIMM, PC3-10600 1333MHz DDR3, ECC**, four 240-pin DIMM sockets  * Max memory is 16GB for ECC models and 8GB for Non-ECC models  ** ECC and non-ECC DIMMs cannot be mixed  | Toolless side  |   | moval |  |  |  |
| Graphics  | NVIDIA® Quadro® FX 1800, PCIe x16 adapter, 768MB, two DisplayPort™, one dual-link DVI-I**, 59W ** Only two display connectors are active at a time   | • Recessed power button  Bay ① 5.25", 1.6" high, access, std optical   |   |       |  |  |  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller              | None <b>500GB</b> , SATA 3.0Gb/s, 7200 rpm, 3.5" Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals   | Bay ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",  | ay ② 5.25", 1.6" high, access, open (media reader ay ③ 3.5", 1" high, access, open (media reader ay ④ 3.5", 1" high, internal, std disk ay ⑤ 3.5", 1" high, internal, opt disk ot 1: half-length, full-height, PCIe 2.0 x16 (75w max)   |       |  |  |  |
| Chipset   | Intel 3450 Chipset, Platform Controller Hub (PCH) for PCI, ethernet, and USB, SMSC® SCH5147 Super I/O  | Slot 2: half-length,full-height, PCle 2.0 x1<br>Slot 3: half-length,full-height, 32-bit PCl 2.3<br>Slot 4: half-length,full-height, 32-bit PCl 2.3 |   |       |  |  |  |
| Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet Security chip | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports in rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One gigabit ethernet on planar, Intel 82578DM STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCC | 3 1.2-compliant  | SECURITY  Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all) |       |  |  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling                                | Preferred Pro USB Keyboard (USB connector), 104-key, black, Leno Optical Wheel Mouse (USB connector), black, Lenovo logo 280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified 4 fans (power supply, CPU, rear, front)  | vo® logo   |   |       |  |  |  |

#### Preloaded operating system<sup>20</sup>

Genuine Windows® 7 Professional 64

Rack mount

#### Preloaded applications<sup>5</sup> (only some listed)

Rack shelf support

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Àdobe® Reader®
- Adobe Flash® Player
- Microsoft Office 2010 preloaded; purchase product key to activate Corel® Burn.Now™ (DVD±RW)
- Corel DVD MovieFactory® (DVD±RW)

#### Accessories

43R2033 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 57Y4138 250GB SATA 3.0Gb/s Disk (7200 rpm) 41N3015 500GB SATA 3.0Gb/s Disk (7200 rpm) 43R1990 1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 Blu-ray™ Burner SATA 1.5Gb/s 45K1675 NVIDIA Quadro 256MB NVS 295 45K1669 NVIDIA Quadro 512MB NVS 450 57Y4398 NVIDIA Quadro 256MB FX 380 45K1670 More accessories on O-CAD sheet

Other accessories at lenovo.com/accessories

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant

ENERGY STAR® 5.0-compliant

#### LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
  - Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
  - ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty
    - Onsite service upgrade options (in eligible locations)<sup>7</sup>
- Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period1 via 800-426-7378

| Type- Slo<br>model b |    |        | GHz  | Cores | Memory<br>DIMMs | Memory<br>speed | ECC<br>memory | Disk(s)              |      |    |        |      | Graphics adapter(s) |      |        | Global | Avail<br>date |
|----------------------|----|--------|------|-------|-----------------|-----------------|---------------|----------------------|------|----|--------|------|---------------------|------|--------|--------|---------------|
| 4220-65U 42          | x5 | X3450  | 2.66 | 4     | 1x2GB           | 1333MH:         | z ECC         | 1x500GB <sup>2</sup> | 3.5" | No | DVD±RW | 1394 | FX580               | ES50 | XP Pro | No     | May 10        |
| 4220-66U 4           | x5 | i5-650 | 3.20 | 2     | 1x2GB           | 1333MH:         | z ECC         | 1x500GB              | 3.5" | No | DVD±RW | 1394 | FX380               | ES50 | XP Pro | No     | May 10        |
| 4220-67U 4           | x5 | i5-670 | 3.46 | 2     | 1x2GB           | 1333MH:         | z ECC         | 1x500GB              | 3.5" | No | DVD±RW | 1394 | FX1800              | ES50 | XP Pro | No     | May 10        |

- Faster, more efficient architecture with the latest Intel® workstation technology
   True workstation-level performance at incredibly low price point
   High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
   These models have a 3-year limited warranty¹

| Processor  Implementation   | Intel 64, Hyper-Threading TXT, Turbo Boost Technolo integrated 1333MHz dualand 4MB cache or Intel Xeon® Processor X Intel 64, Hyper-Threading TXT, Turbo Boost Technolo integrated 1333MHz dualand 8MB cache Processor in LGA1156 soc | channel DDR3 memory controller,  3450 with quad-core, Technology, Virtualization Technology, ogy, channel DDR3 memory controller, cket, up to one processor  | 6.9"W x 17.0     175mm W x     24.7 lb (11.2     32-liter     Removable h     Toolless side     Toolless disk     Toolless ada     Illuminated fi   | ront icons   |  |  |  |
|---|---|--|---|--|--|--|--|
| Memory  | four 240-pin DIMM sockets   | 10600 1333MHz DDR3, UDIMM, ECC   | Rack shelf si     Recessed po   | upport L5  |  |  |  |
| Graphics  | two dual-link DVI-l<br>Some: NVIDIA Quadro F<br>two DisplayPort™,<br>Some: NVIDIA® Quadro®<br>768MB, two Displa   | le) x16 adapter, 256MB,  | Bay ① 5.25", 1.6" high, access, std optical Bay ② 5.25", 1.6" high, access, open Bay ③ 3.5", 1" high, access, open (media re. Bay ④ 3.5", 1" high, internal, std disk Bay ⑤ 3.5", 1" high, internal, opt disk |  |  |  |  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller  | None<br>500GB, SATA 3.0Gb/s, 72<br>Super Multi-Burner DL DV<br>Serial ATA, SATA 3.0Gb/s,  |  | Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3 SECURITY  |  |  |  |  |
| Chipset   | Intel 3450 Chipset,   | PCH) for PCI, ethernet, and USB,   |   | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional |  |  |  |
| Front ports<br>Rear ports<br>IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | Six USB 2.0, serial (9-pin)<br>three analog audio ports (1<br>FireWire PCI adapter, 139<br>High Definition (HD) Audio<br>Internal speaker for busine<br>One gigabit ethernet on pl  | line-in, line-out, mic-in)<br>4a-2000, 400Mbps, two 6-pin ports on rea<br>b, Realtek® ALC662 codec<br>ess audio  | <ul> <li>Boot without keyboard, mouse</li> <li>Serial port I/O control</li> <li>USB port disablement (front or all)</li> </ul>  |  |  |  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling  | Optical Wheel Mouse (US 280 watts with variable spo<br>80 PLUS® Bronze qualified<br>4 fans (power supply, CPU   |  | ovo® logo   | Supports ThinkVantage® technologies  |  |  |  |
| Preloaded ope   | Rack shelf support rating system <sup>20</sup>  | Accessories  |   |  |  |  |  |
| - Genuine Wind<br>32-bit (preinst   | lows® XP Professional<br>alled via downgrade<br>bws 7 Professional 64-bit)  | 2GB PC3-10600 DDR3 ECC UDIMM<br>4GB PC3-10600 DDR3 ECC UDIMM<br>250GB SATA 3.0Gb/s Disk (7200 rpm)   | 43R2033<br>57Y4138<br>41N3015   | GREENGUARD® certified<br>RoHS-compliant<br>ENERGY STAR® 5.0-compliant  |  |  |  |
| Preloaded app<br>listed) • Rescue and F<br>• ThinkVantage<br>• Norton™ Intel<br>(30 days of vi<br>• Adobe® Read<br>• Adobe Flash®<br>• Microsoft® Of<br>• Corel® Burn.N | lications <sup>5</sup> (only some Recovery™ Toolbox rus definitions) er®  | 500GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 NVIDIA Quadro 512MB NVS 450 NVIDIA Quadro 256MB FX 380 NVIDIA Quadro 512MB FX 580 More accessories on O-CAD sheet Other accessories at lenovo.com/acces | 43R1990<br>45J7918<br>45K1659<br>45K1669<br>57Y4398<br>45K1670<br>45K1671   | LIMITED WARRANTY¹  |  |  |  |

| Type-<br>model       | Slot x | Processor       | GHz | Cores | Memory<br>DIMMs | Memory<br>speed | ECC<br>memory | Disk(s)                         | Pre-conf<br>RAID | Diskette<br>or Media<br>reader | 1394<br>adptr | Graphics adapter(s) | ENERGY<br>STAR 5.0 | Preload (        | Global | Avail<br>date |
|----------------------|--------|-----------------|-----|-------|-----------------|-----------------|---------------|---------------------------------|------------------|--------------------------------|---------------|---------------------|--------------------|------------------|--------|---------------|
| 4222-56L<br>4222-65L |        | G6950<br>i5-650 |     |       |                 |                 |               | 1x250GB <sup>2</sup><br>1x250GB | No<br>No         | Media                          | No<br>No      | FX380               |                    | XP Pro<br>XP Pro |        |               |

- Faster, more efficient architecture with the latest Intel® workstation technology
  True workstation-level performance at incredibly low price point
  High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These small and medium business (SMB) models are part of the US TopSeller™ Program
   These models have a 3-year limited warranty¹

| Implementation Memory  | dual-channel DDR3 memorintel Core™ i5 Processor Intel 64, Hyper-Threading TXT, Turbo Boost Technolc integrated 1333MHz dual-and 4MB cache Processor in LGA1156 soo                                | nnology, integrated 1066MHz bry controller, and 3MB cache or i5-650 with dual-core, Technology, Virtualization Technology, by, brannel DDR3 memory controller, bet, up to one processor IM, PC3-10600 1333MHz DDR3**, DIMM sockets | Tower  Raven black color; metal case 6.9"W x 17.0"D x 16.7"H (with handle) 175mm W x 431mm D x 425mm H 24.7 lb (11.2kg) max configuration 32-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Recessed power button |  |  |  |
|--|---|--|---|--|--|--|
|  | ** System automatically clo<br>DDR3 memory controller<br>*** ECC and non-ECC DIN  |  | Bay ① 5.25", 1.6" high, access, std optical Bay ② 5.25", 1.6" high, access, open Bay ③ 3.5", 1" high, access, std or opt media  |  |  |  |
| Graphics   | Some: NVIDIA® Quadro® 256MB, two dual-lir   | FX 380, PCIe x16 adapter,<br>nk DVI-I, 35W   | Bay ④ 3.5",<br>Bay ⑤ 3.5",  | 1" high, internal, std disk<br>1" high, internal, opt disk   |  |  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller   | Serial ATA, SATA 3.0Gb/s,   |  | Slot 1: half-length,full-height, PCIe 2.0 x16 (75w ma<br>Slot 2: half-length,full-height, PCIe 2.0 x1<br>Slot 3: half-length,full-height, 32-bit PCI 2.3<br>Slot 4: half-length,full-height, 32-bit PCI 2.3   |  |  |  |
| Chipset  | Intel 3450 Chipset,<br>Platform Controller Hub (P<br>SMSC® SCH5147 Super I/   | CH) for PCI, ethernet, and USB,  |   | SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  |  |  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard  | Six USB 2.0, serial (9-pin) three analog audio ports (I None High Definition (HD) Audio Internal speaker for busine One gigabit ethernet on pl. STMicroelectronics ST19N Preferred Pro USB Keyboa | ine-in, line-out, mic-in)<br>, Realtek® ALC662 codec<br>iss audio<br>anar, Intel 82578DM<br>IP18 Trusted Platform Module (TPM), TCG<br>ard (USB connector), 104-key, black, Leno   | Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control  |  |  |  |
| Mouse<br>Power supply<br>Cooling<br>Rack mount   | 280 watts with variable spe<br>80 PLUS® Bronze qualified<br>4 fans (power supply, CPU<br>Rack shelf support   |  |   |  |  |  |
| - Genuine Wind   | rating system <sup>20</sup><br>lows® XP Professional  | Accessories 1GB PC3-10600 DDR3 Non-ECC UDIM  | M 57Y4389   | Supports ThinkVantage® technologies  |  |  |
| rights in Windo  | alled via downgrade<br>ows 7 Professional 64-bit)<br><b>lications</b> <sup>5</sup> (only some   | 2GB PC3-10600 DDR3 Non-ECC UDIMI<br>250GB SATA 3.0Gb/s Disk (7200 rpm)<br>500GB SATA 3.0Gb/s Disk (7200 rpm)<br>1TB SATA 3.0Gb/s Disk (7200 rpm)   | M 57Y4390<br>41N3015<br>43R1990<br>45J7918  | GREENGUARD® certified<br>RoHS-compliant<br>ENERGY STAR® 5.0-compliant  |  |  |
| <ul> <li>Rescue and F</li> <li>ThinkVantage</li> <li>Norton™ Inter<br/>(30 days of vi</li> <li>Adobe® Read</li> <li>Adobe Flash®</li> <li>Microsoft® Off</li> <li>Corel® Burn.N</li> </ul> | : Toolbox<br>rnet Security 2009<br>rus definitions)<br>er®  | Blu-ray <sup>™</sup> Burner SATA 1.5Gb/s NVIDIA Quadro 256MB NVS 295 NVIDIA Quadro 512MB NVS 450 NVIDIA Quadro 256MB FX 380 NVIDIA Quadro 512MB FX 580 More accessories on O-CAD sheet Other accessories at lenovo.com/acces       | 45K1675<br>45K1669<br>57Y4398<br>45K1670<br>45K1671   | LIMITED WARRANTY¹  ⇒ 3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ⇒ ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  • Onsite service upgrade options (in eligible locations)²  • Post warranty maintenance services  ⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378 |  |  |

#### ThinkStation® E20 Accessories

#### Partial list of accessories supported on ThinkStation E20

| M | ei | n | 0 | r۱ | 63 |
|---|----|---|---|----|----|
|   |    |   |   |    |    |

| 01/12/10 |
|----------|
| 01/12/10 |
| 01/12/10 |
| 01/12/10 |
| 03/31/09 |
| 08/04/09 |
|          |
|          |

More information on memory and processor configuration, operation and limitation, please visit:

#### www.lenovo.com/support/thinkstationaccessories

#### Optical

| DVD-ROM DL SATA1.5Gb/s 16X-48X Max4      | 41N5618 ar | n 09/26/06 |
|--|------------|------------|
| Super Multi-Burner DL DVD±RW SATA1.5Gb/s | 41N5620 ar | n 09/26/06 |
| Blu-ray™ Burner SATA1.5Gb/s              | 45K1675 ar | n 03/31/09 |

#### Storage

| 250GB SATA 3.0Gb/s Disk (7200 rpm)       | 41N3015 ann 01/24/06 |
|--|----------------------|
| 500GB SATA 3.0Gb/s Disk (7200 rpm)       | 43R1990 ann 11/06/07 |
| 1TB SATA 3.0Gb/s Disk (7200 rpm)         | 45J7918 ann 08/19/08 |
| 300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" | 43R2031 ann 03/31/09 |

#### Removable storage

| USB 2.0 Portable 320GB Hard Disk        | 45K1689 ann 03/17/09        |
|---|-----------------------------|
| USB 2.0 Portable 500GB Hard Disk        | 45K1690 ann 05/26/09        |
| USB 2.0 Portable Secure 320GB Hard Disk | 43R2019 ann 11/18/08        |
| Lenovo® Slim USB Portable DVD Burner    | 0A33988 <i>ann 06/14/11</i> |

#### Keyboard

| Preferred Pro USB Keyboard                          | 73P5220 | ann | 06/21/05 |
|---|---------|-----|----------|
| Enhanced Performance USB Keyboard                   | 73P2620 | ann | 03/23/04 |
| Lenovo USB Fingerprint Keyboard                     | 73P4730 | ann | 02/22/05 |
| Lenovo USB Smartcard Keyboard                       | 51J0155 | ann | 03/24/09 |
| Ultraslim Wireless Keyboard and Mouse <sup>52</sup> | 57Y4700 | ann | 09/15/09 |

#### More information at www.lenovo.com/support/keyboards

#### Mouse

| Lenovo Optical Mouse (USB)  | 06P4069 ann 05/21/03 |  |  |  |  |  |  |  |  |  |  |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|
| Lenovo ScrollPoint® Mouse (USB, Optical)                                      | 31P7405 ann 08/27/02 |  |  |  |  |  |  |  |  |  |  |
| Lenovo Laser Mouse (USB)  | 41U3074 ann 01/23/07 |  |  |  |  |  |  |  |  |  |  |
| Lenovo Wireless Laser Mouse - Black <sup>52</sup>                             | 45K1696 ann 11/25/08 |  |  |  |  |  |  |  |  |  |  |
| Lenovo Wireless Laser Mouse - Red/Black <sup>52</sup>                         | 51J0198 ann 11/25/08 |  |  |  |  |  |  |  |  |  |  |
| <sup>52</sup> Wireless via 2.4GHz technology using a micro-size USB receiver. |                      |  |  |  |  |  |  |  |  |  |  |

#### More information at www.lenovo.com/support/mice

#### **Monitors**

| Lenovo D186 Wide 18.5" Monitor      | 2580AB1 <i>ann 01/12/10</i> |
|-------------------------------------|-----------------------------|
| ThinkVision® L1711p 17" Monitor     | 5047HB2 ann 10/20/09        |
| ThinkVision L1900p 19" Monitor      | 4431HE1 ann 11/11/08        |
| ThinkVision L1951p Wide 19" Monitor | 2448HB6 ann 10/20/09        |
| ThinkVision L2250p Wide 22" Monitor | 2572HB6 ann 10/20/09        |
| ThinkVision L2251p Wide 22" Monitor | 2572HD6 ann 10/20/09        |
| ThinkVision L2251x Wide 22" Monitor | 2578HB6 ann 10/20/09        |
| ThinkVision L2321x Wide 23" Monitor | 4014HB6 ann 06/10/10        |
| ThinkVision L2440p Wide 24" Monitor | 4420HB2 ann 09/17/08        |
|                                     |                             |

More information at www.lenovo.com/support/monitors

#### Monitor accessories<sup>46</sup>

| ThinkVision USB Soundbar  | 40Y7616 | ann 08/23/05 |  |  |  |  |  |  |  |  |
|---|---------|--------------|--|--|--|--|--|--|--|--|
| ThinkVision Soundbar  | 45K1263 | ann 09/16/08 |  |  |  |  |  |  |  |  |
| Kensington® MicroSaver® Cable Lock                                    | 73P2582 | ann 12/29/03 |  |  |  |  |  |  |  |  |
| Kensington Twin Head Cable Lock                                       | 45K1620 | ann 09/30/08 |  |  |  |  |  |  |  |  |
| <sup>46</sup> Compatible on selected Lenovo and ThinkVision monitors. |         |              |  |  |  |  |  |  |  |  |

#### More information at www.lenovo.com/support/monitoraccessories

#### Graphics

| Graphics   |         |     |          |
|--|---------|-----|----------|
| DisplayPort to Single-link DVI-D Cable <sup>50</sup> | 45J7915 | ann | 08/05/08 |
| NVİDIA® Quadro® 256MB NVS 295                        | 45K1669 | ann | 04/21/09 |
| NVIDIA Quadro 512MB NVS 300 DMS59 <sup>65</sup>      | 0A36528 | ann | 04/26/11 |
| NVIDIA Quadro 512MB NVS 450                          | 57Y4398 | ann | 01/19/10 |
| NVIDIA Quadro 512MB 400                              | 0A36535 | ann | 06/28/11 |
| NVIDIA Quadro 1GB 600                                | 0A36183 | ann | 10/26/10 |
| NVIDIA Quadro 1GB 2000                               | 57Y4479 | ann | 10/26/10 |
| 50 Attaches to colocted DisplayPort graphic          | o oordo |     |          |

#### More information at www.lenovo.com/support/graphiccards

#### Security

| 73P2582 | ann                | 12/29/03   |
|---------|--------------------|--|
| 45K1620 | ann                | 09/30/08   |
| 57Y4303 | ann                | 08/24/10   |
| 41N3040 | ann                | 02/21/06   |
|         | 45K1620<br>57Y4303 | 73P2582 ann<br>45K1620 ann<br>57Y4303 ann<br>41N3040 ann |

For more information on accessories: www.lenovo.com/accessories Purchase Lenovo accessories

#### www.lenovo.com/support/accessories

Product specifications on Lenovo Support

#### www.lenovo.com/accessoriesguide

Option Compatibility Matrix (OCM) and accessory brochures

#### www.lenovoquickpick.com

An Options Compatibility Configurator for Lenovo systems

Attaches to selected DisplayPort graphics cards.Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA

# **ThinkStation**





Lenovo ThinkStation E30 with Intel HD Graphics



Lenovo ThinkStation E30



Lenovo ThinkStation E30



Lenovo ThinkStation E30 with ThinkVision® L2440p (4420HB2)



Lenovo ThinkStation E30 with toolless removable side cover



Lenovo ThinkStation Graphics Card Option NVIDIA Quadro NVS 450 (57Y4398)

| Type-<br>model | Slot x<br>bay | Processor    | GHz <sup>-</sup> | Cores /<br>Threads | Memory<br>DIMMs | ECC | Disk(s)      | Pre-con | f SATA<br>optical | Media<br>reader | Chassis<br>Intrusion<br>switch | 1394<br>adptr | Graphics adapter(s) | Global | Win7<br>preload |  |
|----------------|---------------|--------------|------------------|--------------------|-----------------|-----|--------------|---------|-------------------|-----------------|--------------------------------|---------------|---------------------|--------|-----------------|--|
| 7824-C4U       | J 4x5         | Core i3-2130 | 3.4              | 2C/4T              | 1x2GB           | No  | 1x500GB SATA | No      | DVD±RW            | Media           | None                           | None          | Intel HD            | No     | Pro 64          |  |

- True workstation-level performance at incredibly low price point
  High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
  This small and medium business (SMB) model is part of the US TopSeller™ Program
  This system is Microsoft® Office 2010 Product Key Ready (O10PKR)

|   | This system is Microsoft® Office 2010 Product Key Heady (Ο10PKH)   |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|
| Processor<br>Implementation                           | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) One LGA1155 socket  | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175ml w 14.2(s) move an figuration   |  |  |  |  |  |
| Memory  | UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max  | • 24.7 lb (11.2kg) max configuration     • 25-liter     • Removable handle on top front     • Toolless side cover removal     • Toolless disk and optical drive removal  |  |  |  |  |  |
| Additional<br>memory<br>disclaimers                   | <ul> <li>Actual memory operating speed is the lowest installed speed,<br/>dependent on processor memory controller speed and installed<br/>memory speed</li> <li>ECC and non-ECC DIMMs cannot be mixed</li> </ul>  | Toolless adapter retention     Illuminated front icons     Recessed power button   |  |  |  |  |  |
| Graphics  | Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports section</i> )   | Bay 1: 5.25", 1.6" high, access, for optical   |  |  |  |  |  |
| Media reader<br>Optical<br>Disk(s)<br>Disk Controller | 25-in-1 media reader, internal USB 2.0<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset,<br>RAID 0, 1 support,  | Bay 2: 5.25", 1.6" high, access, open (optical) Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Slot 1: half-length, full-height, PCle 2.0 x16 (75w max)  |  |  |  |  |  |
| Chipset Front ports Rear ports                        | two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors  Intel C206 Chipset, Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)  Two USB 2.0, microphone (3.5mm), headphone (3.5mm), Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) | Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3  |  |  |  |  |  |
|   | Intel HD models: one analog VGA DB-15 connector, one DisplayPort connector   | Intel AMT Intel AMT supported on model(s) with Xeon processor  |  |  |  |  |  |
| IEEE 1394 adptr                                       | None   | SECURITY   |  |  |  |  |  |
| Audio<br>Speaker<br>Ethernet<br>Security chip         | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One gigabit ethernet on planar, Intel 82579 STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant   | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional)  |  |  |  |  |  |
| Keyboard<br>Mouse<br>Power supply                     | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,<br>80 PLUS® Bronze qualified  | Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control  |  |  |  |  |  |
| ThinkVantage®   | Supports ThinkVantage technologies   | Boot without keyboard, mouse     Serial port I/O control   |  |  |  |  |  |
| Preload OS<br>Preloaded<br>applications               | Genuine Windows® 7 Professional 64  Rescue and Recovery  Password Manager  | USB port disablement (front or all)     Chassis intrusion switch available on selected model(s)  |  |  |  |  |  |
| .,,   | <ul> <li>ThinkVantage Toolbox</li> <li>Norton™ Internet Security (30 days of virus definitions)</li> </ul>   | ISV certifications Please visit www.lenovo.com/support/ISV  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  |  |  |  |  |  |
|   | <ul> <li>Adobe Reader<sup>®</sup></li> <li>Adobe Flash<sup>®</sup> Player</li> <li>Skype<sup>™</sup> for Windows</li> <li>Microsoft<sup>®</sup> Office 2010 preloaded; purchase product key to activate</li> </ul>   |  |  |  |  |  |  |
|   | Corel® WinDVD (for DVD±RW model(s) only)  Corel Burn.Now™ (for DVD±RW model(s) only)   | More compatible accessories, please see O-VEN sheet  |  |  |  |  |  |
|   | Ulead DVD MovieFactory® (for DVD±RW model(s) only)   | LIMITED WARRANTY <sup>1</sup>  |  |  |  |  |  |
|   |  | ⇒ 3-year parts and labor     Customer Replaceable Unit (CRU)     parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)     Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty. html     Onsite service upgrade options (in eligible locations)²     Post warranty maintenance services     ≥ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹     ✓ More Lenovo services are available on S-TS sheet |  |  |  |  |  |

| Type-<br>model | Slot x<br>bay | Processor    | GHz | Cores /<br>Threads | Memory<br>DIMMs | ECC | Disk(s)      | Pre-con<br>RAID | f SATA<br>optical | Media<br>reader | IIII GOIOII | 1394<br>adptr | Graphics<br>adapter(s) | Global | Win7<br>preload |
|----------------|---------------|--------------|-----|--------------------|-----------------|-----|--------------|-----------------|-------------------|-----------------|-------------|---------------|------------------------|--------|-----------------|
| 7783-B5U       | 4x5           | Core i3-2130 | 3.4 | 2C/4T              | 1x4GB           | ECC | 1x500GB SATA | No              | DVD±RW            | None            | None        | None          | Intel HD               | No     | Pro 64          |

- True workstation-level performance at incredibly low price point
   High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
   This system is Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Processor<br>Implementation                                      | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) One LGA1155 socket  | Raven black color; metal case     6.9"W x 17.0"D x 16.7"H (with handle)     175mm W x 431mm D x 425mm H   |
|--|--|---|
| Memory   | UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  ECC model(s): 32GB max  Non-ECC model(s): 16GB max  • Actual memory operating speed is the lowest installed speed,  | 24.7 Ib (11.2kg) max configuration     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention   |
| memory<br>disclaimers  | dependent on processor memory controller speed and installed memory speed  ECC and non-ECC DIMMs cannot be mixed   | Illuminated front icons     Recessed power button   |
| Graphics   | Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports section</i> )   |   |
| Media reader<br>Optical<br>Disk(s)<br>Disk Controller            | None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support,  | Bay 1: 5.25", 1.6" high, access, for optical open (optical) Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Slot 1: half-length, full-height, PCle 2.0 x16 (75w max) |
| Chipset Front ports Rear ports                                   | two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors  Intel C206 Chipset, Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)  Two USB 2.0, microphone (3.5mm), headphone (3.5mm), Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) | Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3   |
|  | Intel HD models: one analog VGA DB-15 connector, one DisplayPort connector   | Intel AMT Intel AMT supported on model(s) with Xeon processor   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip | None High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One gigabit ethernet on planar, Intel 82579 STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant  | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable;   |
| Keyboard<br>Mouse<br>Power supply<br>ThinkVantage®               | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified Supports ThinkVantage technologies  | prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control   |
| Preload OS<br>Preloaded<br>applications                          | Genuine Windows® 7 Professional 64  Rescue and Recovery Password Manager   | USB port disablement (front or all)     Chassis intrusion switch available on selected model(s)   |
| .,,  | <ul> <li>ThinkVantage Toolbox</li> <li>Norton™ Internet Security (30 days of virus definitions)</li> </ul>   | ISV certifications Please visit www.lenovo.com/support/ISV  |
|  | <ul> <li>Adobe Reader<sup>®</sup></li> <li>Adobe Flash<sup>®</sup> Player</li> <li>Skype<sup>™</sup> for Windows</li> <li>Microsoft<sup>®</sup> Office 2010 preloaded; purchase product key to activate</li> </ul>   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating   |
|  | <ul> <li>Corel® WinDVD (for DVD±RW model(s) only)</li> <li>Corel Burn.Now™ (for DVD±RW model(s) only)</li> </ul>   | More compatible accessories, please see O-VEN sheet   |
|  | Ulead DVD MovieFactory® (for DVD±RW model(s) only)   | LIMITED WARRANTY <sup>1</sup>   |
|  |  | 3-year parts and labor Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) Lenovo services available; see               |

lenovo.com/services\_warranty/us/en/lenovo-warranty.

during the warranty period More Lenovo services are available on S-TS sheet

Onsite service upgrade options (in eligible locations)7

Post warranty maintenance services 24 hour x 7 day<sup>14</sup> toll-free support

| Type- Slot x<br>model bay   |  | Cores /<br>GHz Threads   | Memory<br>DIMMs   | ECC   | Disk(s)   | Pre-con<br>RAID       | f SATA<br>optical   |  | Chassis<br>ntrusion<br>switch  | 1394<br>adptr  | Graphics adapter(s)  | Global  | Win7<br>preload  |
|---|--|--|---|---|---|-----------------------|---|--|--|--|--|---|------------------|
| 7824-B2U 4x5  | Core i5-2400   | 3.1 4C/4T  |   | None  | 1x250GB SATA  | A No                  | $DVD {\pm} RW$  | Media  | None   | None   | Intel HD   | No  | Pro 64           |
| 7824-B3U 4x5  | Core i5-2400   | 3.1 4C/4T  |   | None  | 1x500GB SAT   |                       | DVD±RW  |  | None   | None   | Quadro 400   |   | Pro 64           |
| 7824-B4U 4x5<br>7824-B5U 4x5  | Core i7-2600<br>Core i7-2600   | 3.4 4C/8T<br>3.4 4C/8T   |   | None<br>None  | 1x500GB SATA<br>1x500GB SATA  |                       | DVD±RW<br>DVD±RW  |  | None   | None<br>None   | Intel HD<br>Quadro 600   | No<br>No                                      | Pro 64<br>Pro 64 |
| 7024-030 433  | Ooie 17-2000   | 3.4 40/01  | TAHGD   | None  | 1X300GB SAI/  | 110                   | DVD±I (VV   | ivicula  | None   | NONE   | Quadro 000   | INO   | 11004            |
| •   | True workstation-<br>High Reliability w<br>These small and<br>These systems a  | vith Independ<br>medium busi   | ent Softwa<br>ness (SME   | are Vend<br>3) mode   | lors (ISV) certifie<br>Is are part of the                                       | d applica<br>US TopS  |   |  | mory su  | ıpport   |  |   |                  |
| Processor   | Intel <sup>®</sup> Core™ i5-   | ·2400 proces   | sor (4C/4   | T. 3.1GF  | Iz. 6MB Cache).   |                       | Tower   |  |  |  |  |   |                  |
|   | integrated Intel F   | HD Graphics 2  | 2000`,  | .,  | ,,  |                       |   |  |  |  | olor; metal ca   |   |                  |
|   | Turbo Boost 2.0<br>DDR3 memory of  |  |   | J2)   |   |                       |   | — I  |  |  | D x 16.7"H (w<br>31mm D x 42:  |   |                  |
|   | Intel Core i7-26   |  |   |   | 8MB Cache),   |                       | optica  |  |  |  | g) max config  |   |                  |
|   | integrated Intel F   | HD Graphics 2  | 2000,   | ,   | ,,  |                       | 2   | - ا <b>ل</b> ـــ   | <ul><li>25-liter</li></ul>   | • ` `  | -,   |   |                  |
|   | Turbo Boost 2.0<br>DDR3 memory of  |  |   | -lz)  |   |                       | disk  |  |  |  | andle on top fr<br>cover removal   |   |                  |
| Implementation  | •  |  | 10001111  | 12)   |   |                       |   | -   -  | <ul> <li>Toolles</li> </ul>  | s disk a   | and optical dri  |   | oval             |
| Memory  | UDIMM, PC3-10  |  | z DDR3, E   | ECC or r  | non-ECC, four 2   | 10-pin                | <b>-</b>  |  |  |  | ter retention  |   |                  |
| •   | DIMM sockets;  |  | ,   |   | •   | •                     |   |  |  |  | nt icons<br>ver button   |   |                  |
|   | ECC model(s):<br>Non-ECC model   | 32GB ma<br>16GB ma   |   |   |   |                       | (5)   |  | 110000   | ood por  | voi battori  |   |                  |
| Additional  | <ul> <li>Actual memory</li> </ul>  | y operating sp   | peed is the   |   |   |                       |   |  | 0111   |  |  |   |                  |
| memory  |  |  | nemory co   | ntroller  | speed and instal  | ed                    | Bay 1: 5<br>Bay 2: 5  |  |  |  |  |   |                  |
| disclaimers   | <ul><li>memory speed</li><li>ECC and non-</li></ul>  |  | cannot be   | mixed   |   |                       | Bay 3: 3  | 3.5", 1"   | high,  | access   | , for media  |   | r                |
| Graphics  | Some: Intel HD   |  |   |   |   | VGA,                  | Bay 4: 3  |  |  | internal<br>internal   |  |   |                  |
|   | one Displ<br>Some: <b>NVIDIA</b> ®   | ayPort™ (see   | Rear por  | ts section  | on)   |                       |   | ·  | •  |  | •  |   |                  |
|   |  | ayPort, one d  |   |   |   |                       |   |  |  |  | Cle 2.0 x16 (7<br>Cle 2.0 x1   | '5w ma  | x)               |
| Madia vandav  | Some: NVIDIA Gone Displ  | <b>Quadro 600</b> , F<br>ayPort, one d   | PCIe x16 a<br>ual-link D\   | adapter,  | 1GB,  |                       | Slot 3: h   | nalf-leng  | th, full-h   | eight, 32  | 2-bit PCI 2.3<br>2-bit PCI 2.3   |   |                  |
| Media reader<br>Optical   | 25-in-1 media re<br>Super Multi-Burr   |  |   | 1 5Gb/s   | Drive   |                       |   |  |  | Intel A  | MT   |   |                  |
| Disk(s)   | 250GB or 500GE   |  |   |   |   |                       | Intel AM  | 1T suppo   | orted on   |  | s) with Xeon p   | orocess                                       | sor              |
| Disk Controller   | Serial ATA, SATA   |  | SATA 6.0  | Ġb/s, in  | tegrated in chips   | et,                   |   |  |  | CURITY   | · · · · · · · · · · · · · · · · · · ·  |   |                  |
|   | RAID 0, 1 suppo<br>two SATA 6.0Gb/   |  | two SAT   | 4 3 0Gb   | s connectors  |                       | • Secur   | ity chip (   | _  |  |  |   |                  |
| Chipset   |  |  | -   |   |   | s <sup>®</sup> 2.0 x1 | Padlo   | ck loop (  | in rear f  | or opt p   | adlock;  |   |                  |
|   |  |  | Controller  |   | - · ·] (· · - · - · ·  - · · · - ·  |                       | 'l nadlo  | ck prohit  | oits side  | cover re   | emoval)  |   |                  |
| _   | Intel C206 Chipsethernet MAC, P  | set, Platform<br>PCI, and USB)   |   | •   |   |                       |   | itv <sup>i</sup> elot (i   | n roar fo  | r ontion   | nal <sup>′</sup>   |   |                  |
| Front ports   | Intel C206 Chipsethernet MAC, P<br>Two USB 2.0, mi   | set, Platform<br>PCI, and USB)<br>icrophone (3.9   | 5mm), hea   | -<br>adphone  |   | مع مینطنم             | Secur     Kensir  | ity slot (i<br>ngton® N  |  |  |  |   |                  |
| _   | ethernet MAC, P<br>Two USB 2.0, mi<br>Six USB 2.0, one   | set, Platform<br>PCI, and USB)<br>icrophone (3.9<br>e serial (9-pin  | 5mm), hea   | -<br>adphone  |   | og audio              | • Secur<br>Kensii<br>prohib   | ngton® Ì<br>its side   | Aicrosav<br>cover re   | er® <sup>∶</sup> cab   |  |   |                  |
| Front ports   | Intel C206 Chipsethernet MAC, P<br>Two USB 2.0, mi   | set, Platform<br>PCI, and USB)<br>icrophone (3.9<br>e serial (9-pin<br>e-out, mic-in)<br>one analog (3.9   | 5mm), hea<br>), one eth   | adphone<br>ernet (R<br>5 conne  | J-45), three ana  | og audio              | • Secur<br>Kensii<br>prohib<br>• Power  | ngton® Ì<br>its side<br>r-on pas:  | Aicrosav<br>cover re<br>sword  | er®ʻcab<br>moval)  |  |   |                  |
| Front ports<br>Rear ports   | Intel C206 Chip<br>ethernet MAC, P<br>Two USB 2.0, mi<br>Six USB 2.0, one<br>ports (line-in, line<br>Intel HD models.  | set, Platform<br>PCI, and USB)<br>icrophone (3.9<br>e serial (9-pin<br>e-out, mic-in)  | 5mm), hea<br>), one eth   | adphone<br>ernet (R<br>5 conne  | J-45), three ana  | og audio              | Secur<br>Kensii<br>prohib     Power     Admir     Boot s  | ngton® Ì<br>vits side<br>r-on pas:<br>vistrator<br>sequence  | Microsav<br>cover re<br>sword<br>passwor<br>e contro   | er® <sup>:</sup> cab<br>moval)<br>d  | ole;   |   |                  |
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| Type-                     | Slot x  |  |   | Cores /   | Memory  |                     |  | Pre-co   | nf S  | SATA       | Media          | Chassis<br>Intrusio                                | s<br>n 1394  | 1 Graphics   |  | Win7             |
|---------------------------|---------|--|---|---|---|---------------------|--|----------|-------|------------|----------------|--|--|--|--|------------------|
| model                     | bay     | Processor  | GHz   |   | DIMMs   | ECC                 | Disk(s)  | RAID     |       | ptical     | reader         | switch   | adpt   | r adapter(s)   | Global   | preload          |
| 7783-93U<br>7783-94U      |         | Core i5-2400<br>Core i5-2400   |   | 4C/4T<br>4C/4T  |   | No<br>No            | 1x500GB SATA<br>1x500GB SATA                                 | No<br>No |       |            | Media<br>Media |  |  | Intel HD Quadro 400  | None<br>None   | Pro 64<br>Pro 64 |
| 7783-95U                  |         | Core i5-2400   | 3.1   | —   | 1x4GB   | No                  | 1x500GB SATA   | No       |       |            | Media          |  |  | Quadro 600   | None   |                  |
| 7783-96U                  |         | Core i7-2600   |   | 4C/8T   |   | No                  | 1x500GB SATA   | No       |       |            | Media          |  |  | Quadro 600   | None   | Pro 64           |
| 7783-97U                  | 4x5     | Core i7-2600   | 3.4   | 4C/8T   | 1x4GB   | No                  | 1x500GB SATA   | No       | DVI   | D±RW       | Media          | None   | None   | Quadro 2000  | D None   | Pro 64           |
|                           |         | <ul> <li>High Reliabi</li> </ul>   | ility wi  | ith Indepo  | endent Sc   | oftwar              | redibly low price  <br>e Vendors (ISV) ce<br>Product Key Rea | ertified |       |            | s and E        | CC men   | nory sı  | ıpport   |  |                  |
| Processor                 | ation   | integrated Intel<br>Turbo Boost 2.0<br>DDR3 memory   | HD G<br>0 (up t<br>contro<br>600 p<br>HD G<br>0 (up t | iraphics 2<br>to 3.4GH:<br>oller (up<br>rocessori<br>iraphics 2<br>to 3.8GH:<br>oller (up | 2000`,<br>z),<br>to 1333M<br>r <b>(4C/8T,</b><br>2000,<br>z), | Hz)<br><b>3.4GH</b> | GHz, 6MB Cache   | ),       |       | opt 3 disk | ical           | • 6.9<br>• 175<br>• 24.<br>• Rer<br>• Too<br>• Too | "W x 1"<br>5mm W<br>7 lb (1"<br>novabl<br>lless s<br>lless d | ck color; meta<br>7.0"D x 16.7"h<br>x 431mm D x<br>1.2kg) max co<br>e handle on to<br>ide cover rem<br>isk and optica<br>dapter retentic | I (with har<br>425mm I<br>ofiguration<br>op front<br>oval<br>I drive ren | H ´              |
| Memory                    | ation   |  |   |   | z DDR3  | FCC (               | or <b>non-ECC</b> , four                                     | 240-nin  | 1     | -          |                | <ul> <li>Illur</li> </ul>                          | minate   | d front icons  | ,,,  |                  |
|                           |         | DIMM sockets; ECC model(s):  | . 3   | 32GB ma   | X   |                     | 200,   | o p      | •     | 5          | $\neg \mid$    | • Red  | cessed   | power button   |  |                  |
| Additional                |         | <ul> <li>Non-ECC mode</li> <li>Actual memory</li> </ul>  |   |   |   | e lowe              | est installed speed  | d,       |       |            |                |  |  |  |  |                  |
| memory                    | _       | dependent of   | n proc  |   |   |                     | er speed and inst  |          |       |            |                | 1.6" hiç<br>1.6" hiç                               |  |  | tical<br>(optical)   |                  |
| disclaimers               | S       | <ul><li>memory spec</li><li>ECC and nor</li></ul>  |   | DIMMs   | cannot be   | e mixe              | d  |          |       | Bay 3      | 3: 3.5",       | 1" high  | , acc  | ess, for me  | dia reade  | er               |
| Graphics                  |         |  |   |   |   |                     | main memory, or  | ne VGA   | ,     |            |                | 1" high<br>1" high                                 |  | ernal, for dis<br>ernal, for dis   |  |                  |
|                           |         | Some: NVIDIA   | ® Qua   | dro® 400  | . <i>Rear po</i><br>, PCIe x1                                 | 6 ada               | pter, 512MB,   |          |       | Slot 1     | · half-le      | anath fu   | ll-haiat   | nt, PCIe 2.0 x1  | 6 (75w ma  | av)              |
|                           |         | one Disp<br>Some: NVIDIA   |   |   | dual-link   |                     |  |          |       | Slot 2     | 2: half-le     | ength, fu  | ll-heigh   | nt, PCIe 2.0 x1  | `  | 1,7)             |
|                           |         | one Disp   | playPo  | ort, one d  | ual-link D  | VI-I, 4             | 0W   |          |       |            |                |  |  | nt, 32-bit PCI 2<br>nt, 32-bit PCI 2   |  |                  |
|                           |         | Some: NVIDIA<br>two dual   |   | I <b>ro 20001</b><br>DVI-1, 621   |   | 16 ada              | apter, 1GB,  |          |       | -          |                |  |  | tel AMT  |  |                  |
| Media read                | der     | 25-in-1 media r  | eader   | , internal  | USB 2.0   |                     |  |          |       | Intel      | AMT su         | pported  |  | del(s) with Xe   | on proces  | sor              |
| Optical<br>Disk(s)        |         | Super Multi-Bu<br>500GB, SATA 3  |   |   |   | 1.5Gt               | o/s Drive  |          |       |            |                |  | SECU   | , ,  |  |                  |
| Disk Contr                | oller   |  |   |   |   | )Gb/s,              | integrated in chip   | set,     |       |            |                | ip (see i  | nforma   | ation on left)   |  |                  |
|                           |         | RAID 0, 1 supp   |   | nnectors  | two SAT   | A 3.00              | Gb/s connectors  |          |       |            |                |  |  | pt padlock;<br>ver removal)  |  |                  |
| Chipset                   |         |  |   |   | •   |                     | [PCH] (PCI Expre   | ess® 2.0 | ) x1, | · Sec      | curity slo     | ot (in rea   | er for o   | ptional <sup>'</sup>   |  |                  |
| Front ports               |         | ethernet MAC,  |   |   |   | adaha               | no (2 5mm)   |          |       |            |                | Microside cove                                     |  |  |  |                  |
| Front ports<br>Rear ports |         | Two USB 2.0, r<br>Six USB 2.0, or  |   |   |   |                     | (RJ-45), three an  | alog au  | dio   |            |                | assword<br>or pass                                 |  | ,  |  |                  |
| •                         |         | ports (line-in, line-in, line- | ne-out  | t, mic-in)  |   |                     |  | J        |       | • Boo      | ot seque       | nce cor  | ntrol  |  |  |                  |
|                           |         | Intel HD model   | one   | Display   | Port conn   | ector               | mector,  |          |       | • Boo      | ot withou      | ıt keybo<br>I/O cont                               | ard, m   | ouse   |  |                  |
| IEEE 1394                 | adptr   |  |   |   |   |                     |  |          |       | • US       | B port d       | isablem  | ent (fro   | ont or all)  |  |                  |
| Audio<br>Speaker          |         | High Definition<br>Internal speake   |   |   |   | _C662               | codec  |          |       | • Ch       | assis int      |  |  | available on se  | lected mo  | odel(s)          |
| Ethernet                  |         | One gigabit eth  | ernet   | on plana  | r, Intel 82   |                     |  |          |       | Diagram    | a vioit v      |  |  | rtifications   |  |                  |
| Security ch               | nip     | STMicroelectro   |   | ST19NP1   | 8 Trusted   | Platfo              | orm Module (TPM  | ),       |       |            |                |  |  | m/support/ISV  |  |                  |
| Keyboard                  |         | Preferred Pro U  | JSB K   |   |   |                     | r), 104-key, black   |          |       | RoH        | S-compl        |  |  |  |  |                  |
| Mouse                     | nh:     | Optical Wheel I  | Mouse   | e (USB co   | nnector)  | , black             | (  |          |       |            |                | ld rating  |  |  |  |                  |
| Power sup                 | hià     | 280 watts with 80 PLUS® Bron   |   |   | idii, dulo  | SUISI               | iy, 00% F5U,   |          |       | More       | compat         |  |  | es, please see   | O-VEN s  | heet             |
| ThinkVanta                |         | Supports Think   |   |   |   |                     |  |          |       |            |                |  |  | WARRANTY <sup>1</sup>  |  |                  |
| Preload OS<br>Preloaded   | _       | Genuine Windo  Rescue and I  |   |   | onal 64   |                     |  |          |       |            |                | ts and la<br>Replace                               |  | Init (CRU)   |  |                  |
| application               |         | <ul> <li>Password Ma</li> </ul>  | anagei  | r   |   |                     |  |          |       | ра         | rts only       | (with lir  | nited o  | nsite service  |  |                  |
|                           |         | <ul> <li>ThinkVantage</li> <li>Norton™ Inte</li> </ul>   | e Toolk   | OOX   | 30 dave o   | f virue             | definitions)   |          |       | ho         | lidays, r      | next bus   | iness  | - Fri coverage<br>day response   |  | 9                |
|                           |         | <ul> <li>Adobe Reade</li> </ul>  | er®   | , ,   | oo aayo o   | . viius             | Gommono,   |          |       |            |                | rvices a   |  | e; see<br>rranty/us/en/le  | anovo-wee  | ranty            |
|                           |         | <ul> <li>Adobe Flash<sup>0</sup></li> <li>Skype<sup>™</sup> for V</li> </ul>   | ° Play∘<br>Vindov                                     | er<br>vs  |   |                     |  |          |       | hti        | ml             |  |  | -  | anovo-wal  | ranty.           |
|                           |         | <ul> <li>Microsoft<sup>®</sup> Of</li> </ul>   | ffice 20  | 010 prelo   | aded; pu  | rchase              | product key to a   | ctivate  |       |            |                | vice up  |  | options  |  |                  |
|                           |         | <ul> <li>Corel<sup>®</sup> WinD\</li> <li>Corel Burn.N</li> </ul>  | ot) עע<br>low™ (                                      | r א±D±R<br>for DVD±   | vv model<br>:RW mod   | (s) onl<br>el(s) c  | y)<br>only)  |          |       | • Po       | st warra       | anty mai   | nténar   | nce services   |  |                  |
|                           |         | Ulead DVD N  |   |   |   |                     |  |          |       |            |                | 7 day¹⁴ t<br>warran                                |  | support<br>od <sup>1</sup>   |  |                  |
|                           |         |  |   |   |   |                     |  |          |       |            |                |  |  | are available  | on S-TS s  | sheet            |
| See footnot               | tes for | important warra  | nty inf   | ormation  |   |                     |  |          |       | •          |                |  |  |  | 0  | Lenovo           |

| Type-<br>model       | Slot x<br>bay | Processor                    | GHz        | Cores /<br>Threads | Memory<br>DIMMs | ECC          | Disk(s)                      | Pre-con<br>RAID | f SATA<br>optical | Chassis<br>ntrusion<br>switch | 1394<br>adptr | Graphics adapter(s)      | Global | Win7<br>preload  |
|----------------------|---------------|------------------------------|------------|--------------------|-----------------|--------------|------------------------------|-----------------|-------------------|-------------------------------|---------------|--------------------------|--------|------------------|
| 7824-94U<br>7824-95U |               | Core i3-2100<br>Xeon E3-1220 | 3.1<br>3.1 | 2C/4T<br>4C/4T     | 1x2GB<br>1x4GB  | None<br>None | 1x500GB SATA<br>1x500GB SATA |                 | DVD±RW<br>DVD±RW  |                               | None<br>None  | Quadro 400<br>Quadro 400 |        | Pro 64<br>Pro 64 |

- True workstation-level performance at incredibly low price point
   High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
   These small and medium business (SMB) models are part of the US TopSeller™ Program
   These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

| • 7   | These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)  |  |
|---|--|--|
| Implementation Memory  Additional memory disclaimers  | Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz) One LGA1155 socket  UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max  • Actual memory operating speed is the lowest installed speed, dependent on proccessor memory controller speed and installed memory speed | Raven black color; metal case  6.9"W x 17.0"D x 16.7"H (with handle)  175mm W x 431mm D x 425mm H  24.7 lb (11.2kg) max configuration  25-liter  Removable handle on top front  Toolless side cover removal  Toolless disk and optical drive removal  Toolless adapter retention  Illuminated front icons  Recessed power button   |
| Graphics  | ECC and non-ECC DIMMs cannot be mixed  NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W  | Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open (optical) Bay 3: 3.5", 1" high, access, for media reader  |
| Media reader<br>Optical<br>Disk(s)<br>Disk Controller | 25-in-1 media reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors  Intel C206 Chipset, Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)  | Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3   |
| Front ports Rear ports IEEE 1394 adptr                | Two USB 2.0, microphone (3.5mm), headphone (3.5mm), Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)  | Intel AMT Intel AMT supported on model(s) with Xeon processor  |
| Audio Speaker Ethernet Security chip                  | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One gigabit ethernet on planar, Intel 82579 STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant   | SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional kensistens Misrocure padlock)  |
| Keyboard<br>Mouse<br>Power supply                     | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,<br>80 PLUS® Bronze qualified  | Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse   |
| ThinkVantage® Preload OS Preloaded applications       | Supports ThinkVantage technologies  Genuine Windows® 7 Professional 64  • Rescue and Recovery  • Password Manager  • ThinkVantage Toolbox  • Norton™ Internet Security (30 days of virus definitions)  | Serial port I/O control     USB port disablement (front or all)     Chassis intrusion switch available on selected model(s)  ISV certifications  Please visit www.lenovo.com/support/ISV   |
|   | <ul> <li>Adobe Reader®</li> <li>Adobe Flash® Player</li> <li>Skype™ for Windows</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Corel® WinDVD (for DVD±RW model(s) only)</li> </ul>   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  |
|   | <ul> <li>Corel Burn,Now<sup>™</sup> (for DVD±RW model(s) only)</li> </ul>  | More compatible accessories, please see O-VEN sheet  LIMITED WARRANTY¹   |
|   | Ulead DVD MovieFactory® (for DVD±RW modél(s) only)   | 3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty. html  Onsite service upgrade options (in eligible locations)²  Post warranty maintenance services  24 hour x 7 day¹⁴ toll-free support during the warranty period¹  More Lenovo services are available on S-TS sheet |

| Type- Slot x  | Cores / Memory Pre-conf   | Chassis<br>SATA Media Intrusion 1394 Graphics Win7   |
|---|---|--|
| model bay   |   | optical reader switch adptr adapter(s) Global preload  |
| 7783-88U 4x5<br>7783-89U 4x5  |   | WD±RW None None None Quadro 400 Pro 64<br>WD±RW None None None Quadro 400 Pro 64   |
| 7783-91U 4x5<br>7783-92U 4x5  |   | WD±RW None None None Quadro 400 Pro 64<br>WD±RW None None None Quadro 600 Global Pro 64  |
|   | <ul> <li>True workstation-level performance at incredibly low price point</li> <li>High Reliability with Independent Software Vendors (ISV) certified ap</li> <li>These systems are Microsoft® Office 2010 Product Key Ready (O10Pendon)</li> </ul>   |  |
| Processor   | Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1230 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1333MHz) One LGA1155 socket  | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 24.7 lb (11.2kg) max configuration • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal   |
| Memory  | UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  ECC model(s): 32GB max   | Toolless adapter retention     Illuminated front icons     Recessed power button   |
| Additional<br>memory<br>disclaimers   | Non-ECC model(s): 16GB max  Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  ECC and non-ECC DIMMs cannot be mixed   | Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open (optical)   |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see Rear ports section)  Some: NVIDIA® Quadro® 400, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W  Some: NVIDIA Quadro 600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W   | Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) Slot 2: half-length, full-height, PCIe 2.0 x1  |
| Media reader<br>Optical<br>Disk(s)<br>Disk Controller                               | None<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset,   | Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3  Intel AMT   |
|   | RAID 0, 1 support,<br>two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors  | Intel AMT supported on model(s) with Xeon processor  |
| Chipset Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet Security chip | Intel C206 Chipset, Platform Controller Hub [PCH] (PCI Express® 2.0 x ethernet MAC, PCI, and USB) Two USB 2.0, microphone (3.5mm), headphone (3.5mm), Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audic ports (line-in, line-out, mic-in) None High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One gigabit ethernet on planar, Intel 82579 STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant | Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse  |
| Keyboard<br>Mouse<br>Power supply   | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,  | Serial port I/O control     USB port disablement (front or all)     Chassis intrusion switch available on selected model(s)  |
| ThinkVantage <sup>®</sup>   | 80 PLUS® Bronze qualified Supports ThinkVantage technologies  | ISV certifications  Please visit www.lenovo.com/support/ISV  |
| Preload OS Preloaded applications   | Genuine Windows® 7 Professional 64  • Rescue and Recovery  • Password Manager   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  |
| аррпсанопо  | ThinkVantage Toolbox  | More compatible accessories, please see O-VEN sheet  |
|   | <ul> <li>Norton™ Internet Security (30 days of virus definitions)</li> <li>Adobe Reader®</li> </ul>   | LIMITED WARRANTY   |
|   | <ul> <li>Adobe Flash® Player</li> <li>Skype™ for Windows</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Corel® WinDVD (for DVD±RW model(s) only)</li> <li>Corel Burn.Now™ (for DVD±RW model(s) only)</li> <li>Ulead DVD MovieFactory® (for DVD±RW model(s) only)</li> </ul>   | <ul> <li>3-year parts and labor</li> <li>Customer Replaceable Unit (CRU)     parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)</li> <li>Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty. html</li> <li>Onsite service upgrade options (in eligible locations)²</li> <li>Post warranty maintenance services</li> <li>24 hour x 7 day¹⁴ toll-free support during the warranty period¹</li> <li>More Lenovo services are available on S-TS sheet</li> </ul> |

|  |   | 2   |
|--|---|---|
| Type- Slot x<br>model bay  | Processor GHz Threads DIMMs ECC Disk(s) Pre-cor   | Chassis<br>nf SATA Media Intrusion 1394 Graphics Win7<br>optical reader switch adptr adapter(s) Global preload  |
| 7824-56U 4x5 2<br>7824-57U 4x5 2<br>7824-81U 4x5 2<br>7824-98U 4x5 2 | Xeon E3-1220       3.1       4C/4T       1x4GB       1x500GB SATA         Xeon E3-1230       3.2       4C/8T       1x4GB       ECC       1x500GB SATA         Xeon E3-1240       3.3       4C/8T       1x4GB       ECC       1x500GB SATA         Xeon E3-1280       3.5       4C/8T       2x2GB       ECC       160GB SSD+1TB SATA         Xeon E3-1240       3.3       4C/8T       2x2GB       ECC       2x150GB SATA       0         Xeon E3-1245       3.3       4C/8T       4x2GB       ECC       160GB SSD         • These small and medium business (SMB) models are part of       • These systems are Microsoft* Office 2010 Product Key Ready  |   |
| Processor  | Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1230 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1240 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1245 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1280 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1333MHz) | Raven black color; metal case     6.9"W x 17.0"D x 16.7"H (with handle)     175mm W x 431mm D x 425mm H     24.7 lb (11.2kg) max configuration     25-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons  |
| Implementation   | One LGA1155 socket  | Recessed power button   |
| Additional memory  | UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  ECC model(s): 32GB max  Non-ECC model(s): 16GB max  • Actual memory operating speed is the lowest installed speed, dependent on proccessor memory controller speed and installed   | Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open (optical) Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk   |
| disclaimers  | <ul> <li>memory speed</li> <li>ECC and non-ECC DIMMs cannot be mixed</li> </ul>   |   |
| Graphics   | Some: NVIDIA® Quadro® 600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W Some: NVIDIA Quadro 2000, PCle x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W  | Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Media reader   | 25-in-1 media reader, internal USB 2.0  |   |
| Optical<br>Disk(s)   | Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>Some: 500GB or 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"   | Intel AMT   |
| Disk(s)  | Some: 150GB, SATA 6.0Gb/s, 10000 rpm, 2.5"  | Intel AMT supported on model(s) with Xeon processor   |
| Disk Controller  | Some: 160GB Solid State Drive (SSD), SATA 3.0Gb/s, 1.8" Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset,   | SECURITY  Security chip (acc information on left)   |
| DISK CONTIONE  | RAID 0, 1 support,  | <ul> <li>Security chip (see information on left)</li> <li>Padlock loop (in rear for opt padlock;</li> </ul>   |
| Ohimant  | two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors  | padlock prohibits side cover removal) Security slot (in rear for optional   |
| Chipset  | Intel C206 Chipset, Platform Controller Hub [PCH] (PCI Express® 2.0 x1 ethernet MAC, PCI, and USB)  | '`  Kensington® Microsaver® cable;  |
| Front ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm),   | prohibits side cover removal)  Power-on password  |
| Rear ports   | Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)   | Administrator password  |
| IEEE 1394 adptr  | Some: FireWire PCI adapter, 1394a-2000, 400Mbps,  | Boot sequence control     Boot without keyboard, mouse  |
| Audio  | two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec   | Serial port I/O control   |
| Speaker  | Internal speaker for business audio   | USB port disablement (front or all) Chassis intrusion switch available on selected model(s)   |
| Ethernet   | One gigabit ethernet on planar, Intel 82579   | ISV certifications  |
| Security chip  | STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant  | Please visit www.lenovo.com/support/ISV   |
| Keyboard   | Preferred Pro USB Keyboard (USB connector), 104-key, black  | GREENGUARD® certified   |
| Mouse  | Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU,   | RoHS-compliant<br>EPEAT™ Gold rating  |
| Power supply   | 80 PLUS® Bronze qualified   | More compatible accessories, please see O-VEN sheet   |
| ThinkVantage®  | Supports ThinkVantage technologies  | LIMITED WARRANTY <sup>1</sup>   |
| Preload OS   | Genuine Windows® 7 Professional 64  | 3-year parts and labor  |
| Preloaded<br>applications  | <ul> <li>Rescue and Recovery</li> <li>Password Manager</li> <li>ThinkVantage Toolbox</li> <li>Norton™ Internet Security (30 days of virus definitions)</li> <li>Adobe Reader®</li> <li>Adobe Flash® Player</li> <li>Skype™ for Windows</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Corel® WinDVD (for DVD±RW model(s) only)</li> <li>Corel Burn.Now™ (for DVD±RW model(s) only)</li> <li>Ulead DVD MovieFactory® (for DVD±RW model(s) only)</li> </ul>   | <ul> <li>3-year parts and labor</li> <li>Customer Replaceable Unit (CRU)         parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)</li> <li>Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty. html</li> <li>Onsite service upgrade options (in eligible locations)<sup>7</sup></li> <li>Post warranty maintenance services</li> <li>24 hour x 7 day¹⁴ toll-free support during the warranty period¹</li> <li>More Lenovo services are available on S-TS sheet</li> </ul> |
| Con footpotos for  | important warranty information  | © Lenovo  |

### ThinkStation® E30 (7824) - TopSeller (IG) - withdrawn

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|----------------|---------------|---|-----------------|----------------------|-------------------------|-------------------|--|-----------------|-------------------|-----------------|--------------------------------|---------------|-----------------------------|--------|-----------------|
| Type-<br>model | Slot x<br>bay | Processor   | GHz             | Cores /<br>Threads   | Memory<br>DIMMs         | ECC               | Disk(s)                                  | Pre-con<br>RAID | f SATA<br>optical | Media<br>reader | Chassis<br>Intrusion<br>switch | 1394<br>adptr | Graphics adapter(s)         | Global | Win7<br>preload |
| 7824-49U       | 4x5           | Core i3-2100  | 3.1             | 2C/4T                | 1x2GB                   |                   | 1x500GB SATA                             |                 | DVD±RW            | Media           |                                | None          | Intel HD                    | No     | Pro 64          |
| 7824-51U       | 4x5           | Core i3-2120  | 3.3             | 2C/4T                | 1x2GB                   |                   | 1x500GB SATA                             | ١               | DVD±RW            | Media           |                                | None          | Intel HD                    | No     | Pro 64          |
| 7824-52U       | 4x5           | Xeon E3-1225  | 3.1             | 4C/4T                | 1x4GB                   |                   | 1x500GB SATA                             | ١               | DVD±RW            | Media           |                                | None          | Intel HD                    | No     | Pro 64          |
| 7824-53U       | 4x5           | Xeon E3-1235  | 3.2             | 4C/8T                | 1x4GB                   |                   | 1x500GB SATA                             | ١               | DVD±RW            | Media           |                                | None          | Intel HD                    | No     | Pro 64          |
| 7824-54U       | 4x5           | Xeon E3-1245  | 3.3             | 4C/8T                | 1x4GB                   |                   | 1x500GB SATA                             | ١               | DVD±RW            | Media           |                                | None          | Intel HD                    | No     | Pro 64          |
| 7824-97U       | 4x5           | Core i3-2100  | 3.1             | 2C/4T                | 2x2GB                   | ECC               | 2x250GB SATA                             | . 0             | DVD               |                 | Switch                         | None          | Intel HD                    | No     | Pro 64          |
|                | • F           | rue workstation-<br>ligh Reliability w<br>These small and i<br>These systems ar | ith In<br>nediu | dependel<br>ım busin | nt Softwar<br>ess (SMB) | e Vendo<br>models | ors (İSV) certified<br>s are part of the | US TopS         |                   |                 | mory supp                      | ort           |                             |        |                 |
| Processor      | •             | Intel <sup>®</sup> Core <sup>™</sup> i3<br>integrated Intel<br>DDR3 memory      | HD G            | iraphics 2           | 2000`,                  | •                 | Hz, 3MB Cache)                           | ),              | Tower             | _               |                                |               | or; metal ca<br>x 16.7"H (w |        | ıdle)           |

|  | hese systems are Microsoft® Office 2010 Product Key Ready (O10PKR)   |  |
|--|--|--|
| Processor                                      | Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)  Intel Core i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)  Intel Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache), Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)  Intel Xeon E3-1235 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)  Intel Xeon E3-1245 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz) | Raven black color; metal case  6.9"W x 17.0"D x 16.7"H (with handle)  175mm W x 431mm D x 425mm H  24.7 lb (11.2kg) max configuration  Removable handle on top front  Toolless side cover removal  Toolless disk and optical drive removal  Toolless adapter retention  Illuminated front icons  Recessed power button   |
| Implementation                                 | One LGA1155 socket   | Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open (optical)   |
| Memory   | UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max  | Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk   |
| Additional<br>memory<br>disclaimers            | <ul> <li>Actual memory operating speed is the lowest installed speed,<br/>dependent on proccessor memory controller speed and installed<br/>memory speed</li> <li>ECC and non-ECC DIMMs cannot be mixed</li> </ul>   | Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)<br>Slot 2: half-length, full-height, PCIe 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Graphics                                       | Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports</i> section)  | Intel AMT  |
| Media reader                                   | Some: 25-in-1 media reader, internal USB 2.0   | Intel AMT supported on model(s) with Xeon processor  |
| Optical  | Some: Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Some: DVD-ROM DL SATA 1.5Gb/s 16-48X Max <sup>4</sup> Drive  | SECURITY - Security chip (see information on left)   |
| Disk(s)<br>Disk Controller                     | 250GB or 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors   | <ul> <li>Padlock loop (in rear for opt padlock;<br/>padlock prohibits side cover removal)</li> <li>Security slot (in rear for optional<br/>Kensington<sup>®</sup> Microsaver<sup>®</sup> cable;</li> </ul>   |
| Chipset Front ports Rear ports IEEE 1394 adptr |  | prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all) Chassis intrusion switch available on selected model(s)  |
| Audio<br>Speaker                               | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio  | ISV certifications   |
| Ethernet<br>Security chip                      | One gigabit ethernet on planar, Intel 82579 STMicroelectronics ST19NP18 Trusted Platform Module (TPM),   | Please visit www.lenovo.com/support/ISV  |
| Keyboard<br>Mouse<br>Power supply              | TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU,  | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating More compatible accessories, please see O-VEN sheet  |
|  | 80 PLUS® Bronze qualified  | LIMITED WARRANTY   |
| ThinkVantage®                                  | Supports ThinkVantage technologies   | ⇒ 3-year parts and labor   |
| Preload OS<br>Preloaded<br>applications        | Genuine Windows® 7 Professional 64  • Rescue and Recovery  • Password Manager  • ThinkVantage Toolbox  • Norton™ Internet Security (30 days of virus definitions)  • Adobe Reader?  • Adobe Flash® Player  • Skype™ for Windows  • Microsoft® Office 2010 preloaded; purchase product key to activate  • Corel® WinDVD (for DVD±RW model(s) only)  • Corel Burn.Now™ (for DVD±RW model(s) only)  • Ulead DVD MovieFactory® (for DVD±RW model(s) only)  | S-year parts and labor     Customer Replaceable Unit (CRU)     parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)     Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty. html     Onsite service upgrade options (in eligible locations)⁻     Post warranty maintenance services     24 hour x 7 day¹⁴ toll-free support during the warranty period¹     More Lenovo services are available on S-TS sheet |

## ThinkStation® E30 (7783) - Discrete Graphics - withdrawn

| Type- Slot x<br>model bay   | Cores /<br>Processor GHz Threads  |   | Disk(s)  | Pre-cor<br>RAID   | nf SAT                   |   |   | Chassis<br>Intrusion<br>switch   | 1394<br>adptr  | Graphic<br>adapter(  |  | ilobal                                   | Win7<br>preload  |
|---|---|---|--|---|--------------------------|---|---|--|--|--|--|--|--|
|   | Keon E3-1230       3.2       4C/8T         Keon E3-1240       3.3       4C/8T         Keon E3-1240       3.3       4C/8T         Keon E3-1270       3.4       4C/8T   | 1x4GB ECC<br>1x4GB ECC<br>1x4GB ECC<br>1x4GB ECC<br>1x4GB ECC<br>1x4GB ECC  | 1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA                                       | No<br>No<br>No<br>No<br>No  | DVD± DVD± DVD± DVD± DVD± | ERW<br>ERW<br>ERW<br>ERW<br>ERW<br>ERW            | Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media   | None<br>None<br>None<br>None<br>None   | None<br>None<br>None<br>None<br>None   | Quadro NV<br>Quadro 600<br>Quadro NV<br>Quadro 600<br>Quadro 600<br>Quadro 200<br>Quadro 200<br>Quadro 200   | S 300  | No<br>No<br>No<br>No<br>No<br>No<br>No   | Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64 |
| Implementation Memory  Additional memory disclaimers                                | Intel® Xeon® E3-1220 proce Boost 2.0 (up to 3.4GHz), DE Intel Xeon E3-1230 process Boost 2.0 (up to 3.6GHz), DE Intel Xeon E3-1240 process Boost 2.0 (up to 3.7GHz), DE Intel Xeon E3-1270 process Boost 2.0 (up to 3.8GHz), DE One LGA1155 socket  UDIMM, PC3-10600 1333MF DIMM sockets; ECC model(s): 32GB m Non-ECC model(s): 16GB m  • Actual memory operating s dependent on proccessor i memory speed | DR3 memory coper (4C/8T, 3.2G) DR3 memory coper (4C/8T, 3.3G) DR3 memory coper (4C/8T, 3.4G) | ntroller (up to 133; Hz, 8MB Cache htroller (up to 133; Hz, 8MB Cache ntroller (up to 133; Hz, 8MB Cache ntroller (up to 133; en ron-ECC, four est installed spece | 33MHz)  ), Turbo 33MHz)  ), Turbo 33MHz)  ), Turbo 33MHz)  r 240-pi |                          | 3 dis   | otical ②  1: 5.25" 2: 5.25"   | • 6.9<br>• 175<br>• 24.<br>• Rei<br>• Too<br>• Too<br>• Illui<br>• Rei   | "W x 175mm W 7 lb (11 movablobless siblless dibless aminated cessed gh, acc  | ess, oper  | H (with x 425r and the continuous of the continu | n hand<br>mm H<br>ration<br>nt<br>e remo | oval   |
| Graphics  Media reader  | ECC and non-ECC DIMMs     Some: NVIDIA® Quadro® N     DMS59 to dual single     Some: NVIDIA Quadro 600     one DisplayPort, one     NVIDIA Quadro 200     two DisplayPort, one 25-in-1 media reader, internal   | VS 300, PCIe x<br>e-link DVI-I, 17.5<br>, PCIe x16 adap<br>dual-link DVI-I,<br>0 , PCIe x16 add<br>dual-link DVI-I,   | 16 adapter, 512M<br>bW<br>oter, 1GB,<br>40W<br>apter, 1GB,   | ЛB,   |                          | Bay S<br>Bay S<br>Slot S<br>Slot S                | 4: 3.5",<br>5: 3.5",<br>1: half-l<br>2: half-l<br>3: half-l   | ength, fu<br>ength, fu   | n, inte<br>n, inte<br>III-heigh<br>III-heigh<br>III-heigh  | ess, for manner, for dernal, for dernal, for description, for description, for description, for description, for manner, for manner, for description, for descr | sk<br>16 (75 <sup>,</sup><br>1<br>2.3  |  |  |
| Optical Disk(s) Disk Controller   | Super Multi-Burner DL DVD±<br>500GB, SATA 3.0Gb/s, 7200<br>Serial ATA, SATA 3.0Gb/s an<br>RAID 0, 1 support,<br>two SATA 6.0Gb/s connector.   | :RW SATA 1.5Gl<br>rpm, 3.5"<br>d SATA 6.0Gb/s   | , integrated in ch   | ipset,  | -                        |   |   | •  | on mo  |  | eon pro  | ocess                                    | or   |
| Chipset Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet Security chip | Intel C206 Chipset, Platform<br>ethernet MAC, PCI, and USE<br>Two USB 2.0, microphone (3<br>Six USB 2.0, one serial (9-pin<br>ports (line-in, line-out, mic-in)   | n Controller Hub<br>3)<br>.5mm), headpho<br>n), one ethernet<br>dealtek <sup>®</sup> ALC662<br>audio<br>ar, Intel 82579   | PCH] (PCI Expr<br>one (3.5mm),<br>(RJ-45), three at<br>2 codec   | nalog a   |                          | Par par Par Par Par Par Par Par Par Par Par P     | dlock lo<br>dlock precurity slansingtor<br>phibits sower-on a<br>lministrated sequent<br>tot sequent without<br>port of BB port of the sequent without sequen | op (in recohibits solot (in reache)  Microlide cover password tor passence core to the condition of the cond | ar for o<br>ide cov<br>ar for op<br>saver®<br>r remov<br>d<br>word<br>ntrol<br>pard, mo<br>trol<br>nent (fro                           | cable;<br>/al)   | electe   | d moo                                    | del(s)   |
| Keyboard<br>Mouse<br>Power supply<br>ThinkVantage®                                  | Preferred Pro USB Keyboard<br>Optical Wheel Mouse (USB of<br>280 watts with variable speed<br>80 PLUS® Bronze qualified<br>Supports ThinkVantage technical  | connector), black<br>d fan, autosensin<br>nologies  | (  | <b>&lt;</b>   |                          | GRE<br>RoH  | ENGUA<br>IS-comp  | ARD® cer   | rtified  | rtifications<br>m/support/IS   | V  |  |  |
| Preload OS<br>Preloaded<br>applications   | Genuine Windows® 7 Profess  Rescue and Recovery  Password Manager  ThinkVantage Toolbox  Norton™ Internet Security  Adobe Reader®  Adobe Flash® Player  Skype™ for Windows  Microsoft® Office 2010 prel  Corel® WinDVD (for DVD±F  Corel Burn.Now™ (for DVD  Ulead DVD MovieFactory®  | (30 days of virus<br>oaded; purchase<br>RW model(s) onl<br>±RW model(s) o   | e product key to a<br>y)<br>only)  | activate  | ,                        | More  3-  Cu pa pa hu Le let ht  Ou (ir  Pa 24 du | year par<br>ustomer<br>arts only<br>arts <sup>3</sup> , 8 a<br>bolidays,<br>enovo so<br>mi<br>nsite se<br>n eligible<br>ost warr<br>4 hour x<br>uring the   | LIN  rts and la  r Replace  y (with lin  am - 5 pm  next bus  ervices a  pm/servic  rvice up  e locatio  canty ma  7 day  1 day  1 day  1 te warran  | dessorie  MITED V  abor  eable U  mited o  n, Mon  siness c  availabl  ces_wa  grade c  ns) <sup>7</sup> intenan  toll-free  ty period | rranty/us/en/<br>options<br>ice services<br>support  | for see exclustime)  | elected<br>uding                         | d<br>anty.   |

## ThinkStation® E30 (7783) - Integrated Graphics - withdrawn

| Type- Slot x<br>model bay  | Cores / Memory Pre-conf SAT. Processor GHz Threads DIMMs ECC Disk(s) RAID optic   |  |  |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|--|
| 7783-31U 4x5<br>7783-32U 4x5<br>7783-33U 4x5<br>7783-34U 4x5                         | Core i3-2120  | ERW Media None None Intel HD No Pro 64 ERW Media None None Intel HD No Pro 64 ERW Media None None Intel HD No Pro 64 ERW Media None None Intel HD No Pro 64  |  |  |  |  |  |  |  |
|  | <ul> <li>True workstation-level performance at incredibly low price point</li> <li>High Reliability with Independent Software Vendors (ISV) certified appli</li> <li>These systems are Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)</li> </ul>  |  |  |  |  |  |  |  |  |
| Processor  Implementation Memory  Additional   | UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  ECC model(s): 32GB max Non-ECC model(s): 16GB max  • Actual memory operating speed is the lowest installed speed.  Bay 1: 5.25", 1.6" high, access, for op open access, for meaning speed is the lowest installed speed.  Bay 3: 3.5", 1" high, access, for meaning speed is the lowest installed speed.   |  |  |  |  |  |  |  |  |
| memory<br>disclaimers<br>Graphics  | dependent on processor memory controller speed and installed memory speed  ECC and non-ECC DIMMs cannot be mixed  Intel HD Graphics in processor, uses main memory, one VGA,  | Slot 1: half-length, full-height, PCle 2.0 x16 (75w max)  Slot 2: half-length, full-height, PCle 2.0 x1  Slot 3: half-length, full-height, 32-bit PCl 2.3  |  |  |  |  |  |  |  |
| Media reader<br>Optical<br>Disk(s)<br>Disk Controller                                | one DisplayPort™ (see Rear ports section)  25-in-1 media reader, internal USB 2.0  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"  Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support,   | Slot 4: half-length, full-height, 32-bit PCI 2.3  Intel AMT  Intel AMT supported on model(s) with Xeon processor   |  |  |  |  |  |  |  |
| Chipset Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip | two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors  Intel C206 Chipset, Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)  Two USB 2.0, microphone (3.5mm), headphone (3.5mm), Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector None High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One gigabit ethernet on planar, Intel 82579 STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant | SECURITY  Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control  |  |  |  |  |  |  |  |
| Keyboard<br>Mouse<br>Power supply  | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified Supports ThinkVantage technologies   | Chassis intrusion switch available on selected model(s)      ISV certifications  Please visit www.lenovo.com/support/ISV  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  |  |  |  |  |  |  |  |
| Preload OS<br>Preloaded<br>applications  | Genuine Windows® 7 Professional 64  Rescue and Recovery Password Manager ThinkVantage Toolbox   | More compatible accessories, please see O-VEN sheet  LIMITED WARRANTY¹   |  |  |  |  |  |  |  |
|  | <ul> <li>Norton™ Internet Security (30 days of virus definitions)</li> <li>Adobe Reader®</li> <li>Adobe Flash® Player</li> <li>Skype™ for Windows</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Corel® WinDVD (for DVD±RW model(s) only)</li> <li>Corel Burn.Now™ (for DVD±RW model(s) only)</li> <li>Ulead DVD MovieFactory® (for DVD±RW model(s) only)</li> </ul> mportant warranty information  | 3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty. html  Onsite service upgrade options (in eligible locations)²  Post warranty maintenance services  24 hour x 7 day¹⁴ toll-free support during the warranty period¹  More Lenovo services are available on S-TS sheet |  |  |  |  |  |  |  |

#### ThinkStation® E30 Accessories

#### Partial list of accessories supported on ThinkStation E30

| M | ei | m | 0 | r۱ | 63 |
|---|----|---|---|----|----|
|   |    |   |   |    |    |

| 2GB PC3-10600 DDR3 Non-ECC UDIMM          | 57Y4390 ann 01/12/10 |
|---|----------------------|
| 2GB PC3-10600 DDR3 Non-ECC (25-Pack)      | 57Y4420 ann 01/12/10 |
| 4GB PC3-10600 DDR3 Non-ECC UDIMM          | 0A36527 ann 04/18/11 |
| 2GB PC3-10600 DDR3 ECC UDIMM              | 43R2033 ann 03/31/09 |
| 4GB PC3-10600 DDR3 ECC UDIMM              | 57Y4138 ann 08/04/09 |
| 8GB PC3-10600 DDR3 ECC UDIMM              | 0A65718 ann 04/24/12 |
| 53 Mixing of ECC and non-ECC DIMMs is not | supported            |
| 33 Mixing of ECC and non-ECC DIMMs is not | supported            |

More information on memory and processor configuration, operation and limitation, please visit:

#### www.lenovo.com/support/thinkstationaccessories

#### Optical

| DVD-ROM DL SATA1.5Gb/s 16X-48X Max4   | 41N5618 ann 09/26/06 |
|---------------------------------------|----------------------|
| Lenovo® Super Multi-Burner SATA Drive | 0A65618 ann 08/23/11 |
| Blu-ray™ Burner SATA1.5Gb/s           | 45K1675 ann 03/31/09 |
|                                       |                      |

#### Storage

| 250GB SATA 3.0Gb/s Disk (7200 rpm)       | 41N3015 ann 01/24/06 |
|--|----------------------|
| 500GB SATA 3.0Gb/s Disk (7200 rpm)       | 43R1990 ann 11/06/07 |
| 1TB SATA 3.0Gb/s Disk (7200 rpm)         | 45J7918 ann 08/19/08 |
| 300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" | 43R2031 ann 03/31/09 |

#### Removable storage

| USB 2.0 Portable 320GB Hard Disk        | 45K1689 ann | 03/17/09 |
|---|-------------|----------|
| USB 2.0 Portable 500GB Hard Disk        | 45K1690 ann | 05/26/09 |
| USB 2.0 Portable Secure 320GB Hard Disk | 43R2019 ann | 11/18/08 |
| Lenovo® Slim USB Portable DVD Burner    | 0A33988 ann | 06/14/11 |

#### Keyboard

| Preferred Pro USB Keyboard                               | 73P5220 | ann | 06/21/05 |
|--|---------|-----|----------|
| Enhanced Performance USB Keyboard                        | 73P2620 | ann | 03/23/04 |
| Lenovo USB Fingerprint Keyboard                          | 73P4730 | ann | 02/22/05 |
|  | 51J0155 | ann | 03/24/09 |
| Ultraslim Plus Wireless Keyboard and Mouse <sup>52</sup> | 0A34032 | ann | 04/05/11 |

#### More information at www.lenovo.com/support/keyboards

#### Mouse

| Lenovo Optical Mouse (USB)                  | 06P4069 ann 05/21/03        |
|---|-----------------------------|
| Lenovo ScrollPoint® Mouse (USB, Optical)    | 31P7405 ann 08/27/02        |
| Lenovo Laser Mouse (USB)                    | 41U3074 ann 01/23/07        |
| Lenovo Wireless Laser Mouse <sup>52</sup>   | 0A36188 <i>ann 12/20/11</i> |
| 52 Wireless via 2.4GHz technology using a n | nicro-size USB receiver.    |

#### More information at www.lenovo.com/support/mice

#### Monitors

| ThinkVision®:                                    |                  |       |          |
|--|------------------|-------|----------|
| L1711p 17" (VGA, DVI-D)                          | 5047HB2 a        | ann 1 | 10/20/09 |
| LT1952p Wide 19" (VGA, DP, DVI-D)69              | 2448MB6 <i>a</i> | ann ( | )9/13/11 |
| L2250p Wide 22" (VGA, DVI-D)                     | 2572HB6 a        | ann 1 | 10/20/09 |
| L2251x Wide 22" (VGA, DP)                        | 2578HB6 a        | ann 1 | 10/20/09 |
| LT2252p Wide 22" (VGA, DP, DVI-D)69              | 2572MB6 a        | ann ( | 09/13/11 |
| LT2452p Wide 24" (VGA, DP, DVI-D)69              | 4420MB2 a        | ann ( | 09/13/11 |
| 69 Display Part soble is not included, use ontic | nal              |       |          |

DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537). More information at www.lenovo.com/support/monitors

#### Monitor accessories<sup>46</sup>

Kensington® MicroSaver® Cable Lock Kensington Twin Head Cable Lock 73P2582 ann 12/29/03 45K1620 ann 09/30/08 <sup>46</sup> Compatible on selected Lenovo and ThinkVision monitors.

#### More information at www.lenovo.com/support/monitoraccessories

#### Graphics

| DisplayPort™ to Single-link DVI-D Cable 50  | 45J7915 | ann 08/05/08 |
|---|---------|--------------|
| DisplayPort to DisplayPort Monitor Cable50  | 0A36537 | ann 09/13/11 |
| NVİDIA® Quadro® 256MB NVS 295               | 45K1669 | ann 04/21/09 |
| NVIDIA Quadro 512MB NVS 300 DMS5965         | 0A36528 | ann 04/26/11 |
| NVIDIA Quadro 512MB NVS 450                 | 57Y4398 | ann 01/19/10 |
| NVIDIA Quadro 512MB 400                     | 0A36535 | ann 06/28/11 |
| NVIDIA Quadro 1GB 600                       | 0A36183 | ann 10/26/10 |
| NVIDIA Quadro 1GB 2000                      | 57Y4479 | ann 10/26/10 |
| NVIDIA Quadro 1GB 2000D                     | 0A36541 | ann 11/01/11 |
| 50 Attaches to selected DisplayPort graphic | s cards |              |

65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA

#### More information at www.lenovo.com/support/graphiccards

#### Security

| Kensington MicroSaver Cable Lock    | 73P2582 | ann | 12/29/03 |
|-------------------------------------|---------|-----|----------|
| Kensington Twin Head Cable Lock     | 45K1620 | ann | 09/30/08 |
| Lenovo Security Cable Lock          | 57Y4303 | ann | 08/24/10 |
| USB Gemplus GemPC Smart Card Reader | 41N3040 | ann | 02/21/06 |

For more information on accessories: www.lenovo.com/accessories Purchase Lenovo accessories

#### www.lenovo.com/support/accessories

Product specifications on Lenovo Support

www.lenovo.com/accessoriesguide Option Compatibility Matrix (OCM) and accessory brochures

#### www.lenovoquickpick.com

An Options Compatibility Configurator for Lenovo systems

# **ThinkStation**



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 SFF



Lenovo ThinkStation E31 SFF



Lenovo ThinkStation E31 SFF

#### ThinkStation® E31 Tower (2555) - TopSeller

|          |                |                 |        |          |              |        |         |               |       |        | Chassis   |          |         | ı |
|----------|----------------|-----------------|--------|----------|--------------|--------|---------|---------------|-------|--------|-----------|----------|---------|---|
| Type-    |                | Memory          | Memory | Pre-conf |              | Media  | SATA    | Graphics      | 1394  |        | intrusion | PS/2     | Win7    |   |
| model    | Processor      | (MHz/ECC)       | DIMMs  | RAID     | Disk(s)      | reader | optical | adapter(s)    | adptr | Global | switch    | rear I/O | preload |   |
| 2555-31U | Core i3-2120   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Intel HD 2000 | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-32U | Core i3-2120   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 400    | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-33U | Core i3-2120   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 600    | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-34U | Core i3-2130   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 600    | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-35U | Core i3-2130   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 2000   | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-45U | Xeon E3-1225V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 400    | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-46U | Xeon E3-1225V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 600    | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-47U | Xeon E3-1230V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 600    | No    | No     | Switch    | No       | Pro 64  |   |
| 2555-48U | Xeon E3-1230V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 2000   | No    | No     | Switch    | No       | Pro 64  |   |
|          |                |                 |        |          |              |        |         |               |       |        |           |          |         |   |
|          |                |                 |        |          |              |        |         |               |       |        |           |          |         |   |

Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache). Processor Tower Intel® Core® 13-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Implementation Memory 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; Additional memory • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs disclaimers Mixing of ECC and non-ECC memory is not supported Graphics Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see **Rear ports** section) Some: NVIDIA® Quadro® 400, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W Some: NVIDIA Quadro 600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W Media reader Media: 29-in-1 Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Optical 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" Disk(s) 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.51 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Onboard SATA Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset Onboard SAS Chipset Intel C216 Chipset Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three Rear ports analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable IEEE 1394 adptr No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Audio Speaker Internal speaker for business audio Ethernet One onboard gigabit ethernet. Intel 82579 Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Mouse 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Power supply Limited Warranty 3-vear parts and labor, more Lenovo® services see S-TS sheet

optical 3 disk

- · Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 27.56 lb (12.5kg) max configuration
- 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open for media reader

for disk internal, for disk

Slot 1: half-length, full-height, PCIe\* x16 (75w max, near CPU)

\* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models

Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3

#### Intel AMT

Intel AMT supported on model(s) with Xeon processor

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64

#### Preloaded applications<sup>5</sup> (only some listed)

Rescue and Recovery

- Norton® Internet Security (30 days of virus definitions) Adobe® Reader®
- Microsoft® Office 2013 preloaded;
- purchase product key to activate Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

#### **SECURITY**

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

#### **ISV** certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating **ENERGY STAR 5.2-compliant** 

More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2555) - TopSeller (June 5, 2012)

|  |   |  |  |  |   |                      |  |  |   |                                   | <u>.                                    </u> |          |                  |  |  |
|--|---|--|--|--|---|----------------------|--|--|---|-----------------------------------|--|----------|------------------|--|--|
| Type-<br>model   | Processor   | Memory<br>(MHz/ECC)  | Memory<br>DIMMs  | Pre-conf<br>RAID   | Disk(s)   | Media<br>reader      | SATA optical   | Graphics adapter(s)  |   | Global                            | Chassis<br>intrusion<br>switch               | rear I/O | Win7<br>preload  |  |  |
|  | Core i5-3450<br>Core i5-3450  | 1600MHz Non-ECC<br>1600MHz Non-ECC   |  | No<br>No   | 1x500GB SATA<br>1x500GB SATA                                  |                      |  | Intel HD 2500<br>Quadro 400  | No<br>No  | No<br>No                          | Switch<br>Switch                             | No<br>No | Pro 64<br>Pro 64 |  |  |
|  | Core i5-3450  | 1600MHz Non-ECC  |  | No   | 1x500GB SATA  |                      |  | Quadro 600   | No  | No                                | Switch                                       | No       | Pro 64           |  |  |
|  | Core i5-3550  | 1600MHz Non-ECC  |  | No   | 1x500GB SATA  |                      |  | Quadro 600   | No  | No                                | Switch                                       | No       | Pro 64           |  |  |
|  | Core i5-3550<br>Core i7-3770  | 1600MHz Non-ECC<br>1600MHz Non-ECC   |  | No<br>No   | 1x500GB SATA<br>1x500GB SATA                                  |                      |  | Quadro 2000<br>Intel HD 4000   | No<br>No  | No<br>No                          | Switch<br>Switch                             | No<br>No | Pro 64<br>Pro 64 |  |  |
|  | Core i7-3770  | 1600MHz Non-ECC  |  | No   | 1x500GB SATA  |                      |  | Quadro 400   | No  | No                                | Switch                                       | No       | Pro 64           |  |  |
| 2555-44U   | Core i7-3770  | 1600MHz Non-ECC  | 1x4GB  | No   | 1x500GB SATA  | Media                | DVD±RW   | Quadro 600   | No  | No                                | Switch                                       | No       | Pro 64           |  |  |
| Processor  | integra   | Core <sup>™</sup> i5-3450 proc<br>ted Intel HD Graphic   | cs 2500,   |  |   |                      | 11.1-2   | Tower  |   |                                   | color; me                                    |          |                  |  |  |
| Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz) Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Implementation One LGA1155 socket |   |  |  |  |   |                      |  |  | • 6.9"W x 17.0"D x 16.7"H (with han • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless disk and optical drive rem • Toolless adapter retention |                                   |  |          |                  |  |  |
| Memory   | 32GB :  | max, UDIMM, PC3-   |  | 00MHz DD   | R3, ECC or non  | -ECC,                |  |  | <ul><li>Illum</li></ul>   | inated f                          | ront icons<br>ower butto                     |          |                  |  |  |
| Additional modisclaimers   | emory • Actua<br>contro   | 0-pin DIMM sockets of memory operating sp of sold memory installed me of sold pop 500  | eed depen  | ed, and quar   | ntity of memory DIN   | ИМs                  |  | 5 Boy 1, 5 OF "  |   |                                   |  |          |                  |  |  |
| Graphics   | Some:   | g of ECC and non-ECC<br>Intel HD Graphics<br>discrete graphics to<br>Xeon E3-1225V2/1.<br>Core i7-3770:  | in proces<br>support r<br>245V2/12                                 | sor, uses n<br>nulti-displa<br>175V2: Inte               | nain memory, wo<br>y;<br>el HD Graphics P<br>el HD Graphics 4 | 4000<br>000          | g with   | Bay 1: 5.25", 1.6" high, access, for optical open Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk |   |                                   |  |          |                  |  |  |
| Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics 2000 Intel HD Graphics (connector information please see Rear ports section) Some: NVIDIA® Quadro® 400, PCle x16 adapter, 512MB,   |   |  |  |  |   |                      | Slot 1: half-length, full-height, PCIe* x16<br>(75w max, near CPU)<br>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models,<br>PCIe 3.0 x16 on Xeon/Core i5/Core i7 models |  |   |                                   |  |          |                  |  |  |
|  | Some:<br>Some:  | one DisplayPort™, one DisplayPort, one DisplayPort, on NVIDIA Quadro 20 two DisplayPort, on  | one dual-l<br><b>0</b> , PCIe x<br>le dual-lin<br><b>00</b> , PCIe | ink DVI-I, 3<br>16 adapter<br>k DVI-I, 40'<br>x16 adapte | 32W<br>, 1GB,<br>W<br>er, 1GB,                                |                      |  | Slot 2: half-length, full-height, PCIe 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3  |   |                                   |  |          |                  |  |  |
| Media reade  |   | 29-in-1 Media card   |  |  |   |                      |  |  |   | ntel AM                           | IT.  |          |                  |  |  |
| Optical<br>Disk(s)   | 250GB<br>150GB  | Multi-Burner DL DVI<br>3/500GB/1TB/2TB/3<br>3/300GB/600GB SA   | TB SATA:<br>TA:  | SATA 6.0   | Gb/s, 7200 rpm,<br>Gb/s, 10000 rpm                            | , 2.5"               |  | Intel AMT supported on model(s) with Xeon processor  Preloaded operating system <sup>20</sup> Windows® 7 Professional 64   |   |                                   |  |          |                  |  |  |
| Onboard SA   | ΓA Two SA   | 8/180GB/256GB SSI<br>ATA 6.0Gb/s connec<br>), 1 support via Intel  | tors (red)   | , two SATA   | te Drive, SATA 6.<br>3.0Gb/s connect                          |                      |  |  |   |                                   |  |          |                  |  |  |
| Onboard SA   | S None  |  | 0210 011   | ipset  |   |                      |  | <ul> <li>Preloa</li> <li>Rescue and</li> </ul>   |   |                                   | s⁵ (only s                                   | ome list | ed)              |  |  |
| Chipset  |   | 216 Chipset  |  |  |   |                      |  | <ul> <li>Norton® Internet Security (30 days of virus definitions)</li> </ul>   |   |                                   |  |          |                  |  |  |
| Front ports<br>Rear ports  | Two US<br>analog<br>one Dis<br>(Onbos   | SB 2.0, microphone<br>SB 2.0, four USB 3.0<br>audio ports (line-in,<br>splayPort connector<br>ard VGA and Display  | ) (blue), o<br>, line-out,<br>,Port are                            | ne serial (9<br>mic-in), on<br>functional v              | P-pin), one etherre<br>e analog VGA DI<br>when the followin   | 3-15 cor<br>g proce: | nnector,<br>ssors  | Adobe® Reader® Microsoft® Office 2013 preloaded; purchase product key to activate Corel® WinDVD® (DVD±RW model(s)) Ulead® DVD MovieFactory® (DVD±RW model(s))  |   |                                   |  |          |                  |  |  |
|  | are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/355<br>Core i3-2120/2130, Pentium, and Celeron processors)<br>PS/2 models: additional PS/2 keyboard and mouse connectors |  |  |  |   |                      |  | <ul><li>Security chi</li><li>Padlock loo</li></ul>   | ip (see ir  | SECURI<br>nformation<br>r for opt | on on left)                                  |          |                  |  |  |
| IEEE 1394 a  |   | via PS/2 rea<br>poard 1394 ports;<br>podels: additional Fi<br>400Mbps tv   | reWire P0  | Cle adapter  |   |                      |  | padlock pro • Security slo Kensington  | t (in rear<br>Micros  | for opti<br>aver®ca               | onal ´<br>able;                              |          |                  |  |  |
| Audio<br>Speaker   |   | 400Mbps, two 6-pin ports on rear  Definition (HD) Audio, Realtek® ALC662 codec al speaker for business audio  Alcohor desired in the real prohibits side cover removal)  Power-on password  Administrator password |  |  |   |                      |  |  |   |                                   |  |          |                  |  |  |
| Ethernet<br>Security chip  | One or STMicr   | nboard gigabit ether<br>roelectronics ST33Z  | net, Intel   |  | n Module (TPM),   |                      |  | <ul><li>Boot seque</li><li>Boot withou</li><li>Serial port I</li></ul>   | nce cont<br>it keyboa   | rol<br>ırd, mou                   | se   |          |                  |  |  |
| Keyboard   | Preferr   | .2-compliant<br>ed Pro USB Keyboa  |  |  | 104-key, black  |                      |  | <ul><li>USB port di</li><li>Chassis inti</li></ul>   | sableme   | nt (front                         |  |          | model(c)         |  |  |
| Mouse<br>Power supply  | y 280 wa  | Wheel Mouse (USE<br>atts with variable spe<br>e Savers® Comput   | ed fan, a  | utosensing   | , 85% PSU,<br><b>S® Bronze qual</b>                           | ified                |  | Please visit w   | I   | SV certi                          | fications                                    |          | mouel(S)         |  |  |
| Limited Warr   | anty 3-year   | parts and labor, mo  | re Lenovo  | ® services   | see S-TS sheet  |                      |  | GREENGUAI<br>RoHS-compli<br>EPEAT™ Gol<br>ENERGY STA   | ant<br>d rating   |                                   | t  |          |                  |  |  |
|  |   |  |  |  |   | _                    |  | More compati   |   |                                   |  | ee O-DEI | M sheet          |  |  |
|  |   |  |  |  |   |                      |  |  |   |                                   |  |          |                  |  |  |

# ThinkStation® E31 Tower (2555) - TopSeller (September 2012)

|          |              |                 |        |          |             |        |         |               |       |        | Chassis   |          |         |
|----------|--------------|-----------------|--------|----------|-------------|--------|---------|---------------|-------|--------|-----------|----------|---------|
| Type-    |              | Memory          | Memory | Pre-conf |             | Media  | SATA    | Graphics      | 1394  |        | intrusion | PS/2     | Win7    |
| model    | Processor    | (MHz/ECC)       | DIMMs  | RAID     | Disk(s)     | reader | optical | adapter(s)    | adptr | Global | switch    | rear I/O | preload |
| 2555-ALU | Core i3-2130 | 1600MHz Non-ECC | 1x4GB  | No       | 1x128GB SSD | Media  | DVD±RW  | Intel HD 2000 | No    | No     | Switch    | No       | Pro 64  |
| 2555-AMU | E3-1245V2    | 1600MHz Non-ECC | 1x4GB  | No       | 1x180GB SSD | Media  | DVD±RW  | Quadro 400    | No    | No     | Switch    | No       | Pro 64  |
| 2555-ANU | E3-1275V2    | 1600MHz Non-ECC | 1x4GB  | No       | 1x256GB SSD | Media  | DVD±RW  | Quadro 600    | No    | No     | Switch    | No       | Pro 64  |

| Processor  Implementation Memory                      | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)) Intel Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) One LGA1155 socket  32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  | Prover  Raven black color; metal case  6.9"W x 17.0"D x 16.7"H (with handle)  175mm W x 431mm D x 425mm H  27.56 lb (12.5kg) max configuration  25-liter  Removable handle on top front Toolless disk and optical drive removal Toolless dapter retention Illuminated front icons  |
|---|---|--|
| Additional memory disclaimers                         | Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs     Mixing of ECC and non-ECC memory is not supported  | Recessed power button  |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W  Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W | Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Slot 1: half-length, full-height, PCle* x16 (75w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon models Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCl 2.3 |
| Media reader Optical Disk(s) Onboard SATA             | Media: 29-in-1 Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange),   | Intel AMT Intel AMT supported on model(s) with Xeon processor  |
|   | RAID 0, 1 support via Intel C216 Chipset  | Preloaded operating system <sup>20</sup>   |
| Onboard SAS<br>Chipset                                | None Intel C216 Chipset   | Windows® 7 Professional 64   |
| Front ports<br>Rear ports                             | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors   | Preloaded applications <sup>5</sup> (only some listed)  Rescue and Recovery <sup>®</sup> Norton <sup>®</sup> Internet Security (30 days of virus definitions)  Adobe <sup>®</sup> Reader <sup>®</sup> Microsoft <sup>®</sup> Office 2013 preloaded; purchase product key to activate  Corel <sup>®</sup> WinDVD <sup>®</sup> (DVD±RW model(s))  Ulead <sup>®</sup> DVD MovieFactory <sup>®</sup> (DVD±RW model(s))   |
| IEEE 1394 adptr  Audio Speaker Ethernet Security chip | via PS/2 rear I/O cable  No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio  One onboard gigabit ethernet, Intel 82579  STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),   | SECURITY  • Security chip (see information on left)  • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password   |
| Keyboard<br>Mouse<br>Power supply                     | TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)   |
| Limited Warranty                                      | 3-year parts and labor, more Lenovo® services see S-TS sheet  | ISV certifications   |
|   |   | Please visit www.lenovo.com/support/ISV  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  More compatible accessories, please see O-DEM sheet  |

## ThinkStation® E31 Tower (2555) - TopSeller (October 2012)

|          |                |                 |        |          |              |        |               |            |       |        | Chassis   |          |            |
|----------|----------------|-----------------|--------|----------|--------------|--------|---------------|------------|-------|--------|-----------|----------|------------|
| Type-    | _              | Memory          | Memory | Pre-conf |              | Media  | SATA          | Graphics   | 1394  |        | intrusion | PS/2     | Preload    |
| model    | Processor      | (MHz/ECC)       | DIMMs  | RAID     | Disk(s)      | reader | optical       | adapter(s) | adptr | Global | switch    | rear I/O | os         |
| 2555-APU | Core i3-2120   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW        | Quadro 410 | No    | No     | Switch    | No       | Win8 Pro64 |
| 2555-AQU | Core i5-3470   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW        | Quadro 410 | No    | No     | Switch    | No       | Win8 Pro64 |
| 2555-ASU | Xeon E3-1230V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | <b>DVD±RW</b> | Quadro 410 | No    | No     | Switch    | No       | Win8 Pro64 |
| 2555-ATU | Core i7-3770   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW        | Quadro 410 | No    | No     | Switch    | No       | Win8 Pro64 |
|          |                |                 |        |          |              |        |               |            |       |        |           |          |            |

| Processor  Implementation                  | Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons                             |
|--|--|---|
| Memory                                     | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,   | Recessed power button   |
| Additional memory disclaimers              | four 240-pin DIMM sockets;  • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported  | Bay 1: 5.25", 1.6" high, access, for optical bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader   |
| Graphics                                   | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W   | Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk  Slot 1: half-length, full-height, PCle* x16 (75w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models  Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 |
| Media reader                               | Media: 29-in-1 Media card reader, internal USB 2.0   | Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Optical<br>Disk(s)                         | Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"  150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"   | Intel AMT Intel AMT supported on model(s) with Xeon processor  Preloaded operating system <sup>20</sup>   |
| Onboard SATA                               | 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset   | Some: Windows® 7 Professional 64 Some: Windows 8 Pro 64-bit   |
| Onboard SAS                                | None   | Preloaded applications <sup>5</sup> (only some listed)  |
| Chipset Front ports Rear ports             | Intel C216 Chipset  Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable  | -Windows 7 models  Rescue and Recovery®  Norton™ Internet Security (30 days of virus definitions)  Adobe® Reader®  Microsoft® Office 2013 preloaded; purchase product key to activate  Corel® WinDVD® (DVD±RW model(s))  Ulead® DVD MovieFactory® (DVD±RW model(s))  -Windows 8 models  Intel AppUp®  |
| IEEE 1394 adptr Audio                      | No onboard 1394 ports;  1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  High Definition (HD) Audio, Realtek® ALC662 codec   | Evernote®     Norton Internet Security (30 days of virus definitions)     Norton Studio     Skype™  |
| Speaker<br>Ethernet<br>Security chip       | Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | Microsoft Office 2013 preloaded;<br>purchase product key to activate     Cyberlink Power2Go (DVD±RW model(s))     Cyberlink PowerProducer (DVD±RW model(s))   |
| Keyboard<br>Mouse                          | Preferred Pro USB Keyboard (USB connector), 104-key, black   | 22015   |
| Mouse<br>Power supply                      | Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,<br>Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | SECURITY  • Security chip (see information on left)  • Padlock loop (in rear for opt padlock;   |
| Limited Warranty                           | 3-year parts and labor, more Lenovo® services see S-TS sheet   | padlock prohibits side cover removal)   |
| Eco-Label and environmental certifications | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant See the latest list of ISV certifications at www.lenovo.com/support/ISV  | Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password     Administrator password   |
| TOV CERTIFICATIONS                         | See the latest list of 13 v certifications at www.feriovo.com/support/13 v   | Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)  More composible accessories, places and O DEM chast.   |

### ThinkStation® E31 Tower (2555) - TopSeller (March 2013)

| Type-<br>model <sup>1</sup> | Processor    | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical  | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|--------------|---------------------|-----------------|------------------|-------------------|-----------------|---------------|---------------------|---------------|------------------|--------------------------------|----------------------------|
| 2555-DQU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Intel HD 2500       | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2555-DRU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Intel HD 2500       | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-DSU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2555-DTU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-DUU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-DVU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-DWU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Quadro K600         | No            | No               | Switch                         | Win7 Pro64(DG)             |

- Model in italics shows that this is a Global Model Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

|                | ,   |      |
|----------------|---|------|
| Processor      | Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache),  | Tov  |
|                | integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)  Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), |      |
|                | integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)   | II—  |
| Implementation | One LGA1155 socket  |      |
| Memory         | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,  | 11L  |
| ,              | four 240-pin DIMM sockets;  |      |
| A -1-192 1     |   | 1110 |

disclaimers

- Additional memory Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
  - Mixing of ECC and non-ECC memory is not supported

Graphics Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see **Processor** section, connector information please see **Rear ports** section)
Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB,

one DisplayPort, one dual-link DVI-1, 37W Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W

Media reader 29-in-1 Media card reader in selected models, internal USB 2.0 Optical DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: 2.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" SATA 6.0Gb/s, 10000 rpm, 2.5" Solid State Drive, SATA 6.0Gb/s, 2.5" Drive(s) SSD:

Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset Onboard SATA

Onboard SAS

Chipset Intel C216 Chipset

Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three Rear ports analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector

Onboard VGA and DisplayPort<sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors

via PS/2 rear I/O cable

No onboard 1394 ports; IEEE 1394 adptr

1394 models: additional FireWire PCIe adapter, 1394a-2000,

400Mbps, two 6-pin ports on rear

High Definition (HD) Audio, Realtek® ALC662 codec Audio Speaker Internal speaker for business audio

Ethernet One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), Security chip

TCG 1.2-compliant

Preferred Pro USB Keyboard (USB connector), 104-key, black

Keyboard Optical Wheel Mouse (USB connector), black Mouse Power supply

280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Eco-Label and GREENGUARD® certified RoHS-compliant environmental certifications EPEAT™ Gold rating

**ENERGY STAR 5.2-compliant** ISV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV

**ThinkVantage** Supports ThinkVantage® technologies Limited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet

#### wer



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration
- 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- · Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open

for media reader for disk

for disk

Slot 1: half-length, full-height, PCle\* x16 (75w max, near CPU)
\* PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models

Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3

#### Intel AMT

Intel AMT supported on model(s) with Xeon processor

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Some: Windows 7 Professional 64 Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

#### Preloaded applications<sup>5</sup> (only some listed)

#### -Windows 7 models

- Rescue and Recovery®
   Norton™ Internet Security (30 days of virus definitions)

Adobe® Reader®

- Microsoft® Office 2013 preloaded; purchase product key to activate . Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

#### -Windows 8 models

- Evernote<sup>o</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded; purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- Security chip (see information on left) Padlock loop (in rear for opt padlock;
- padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)
- More compatible accessories, please see O-DEM sheet

### ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - II

| Type-<br>model <sup>1</sup> | Processor    | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|--------------|---------------------|-----------------|------------------|-------------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------------|----------------------------|
| 2555-DYU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2555-DZU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-E1U                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-E2U                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2555-E3U                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-E4U                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win8 Pro64                 |
| 2555-E5U                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win7 Pro64(DG)             |

- 1 Model in italics shows that this is a Global Model

| 2 Win7 Pro64(DG) = Wir    | ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |
|---------------------------|---|
| Processor  Implementation | Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket  |
|                           |   |
| Memory                    | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   |
| Additional memory         | Actual memory operating speed depends on processor memory   |
| disclaimers               | controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported   |
| Graphics                  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W |
| Media reader              | 29-in-1 Media card reader in selected models, internal USB 2.0  |
| Optical                   | DVD, DVD±RW, or Blu-ray, depending on model   |
| Drive(s)                  | 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"   |
| Onboard SATA              | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset   |
| Onboard SAS               | None  |
| Chipset                   | Intel C216 Chipset  |
| Front ports<br>Rear ports | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort <sup>TM</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable                         |
| IEEE 1394 adptr           | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  |
| Audio                     | High Definition (HD) Audio, Realtek® ALC662 codec   |
| Speaker                   | Internal speaker for business audio   |
| Ethernet<br>Security chip | One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  |

Preferred Pro USB Keyboard (USB connector), 104-key, black

280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

See the latest list of ISV certifications at www.lenovo.com/support/ISV

3-year parts and labor, more Lenovo® services see S-TS sheet

Optical Wheel Mouse (USB connector), black

Supports ThinkVantage® technologies

GREENGUARD® certified

RoHS-compliant

EPEAT™ Gold rating **ENERGY STAR 5.2-compliant**  Tower



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration
- 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- · Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open for media reader

for disk for disk

Slot 1: half-length, full-height, PCle\* x16 (75w max, near CPU)
\* PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models

Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3

#### Intel AMT

Intel AMT supported on model(s) with Xeon processor

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Some: Windows 7 Professional 64 Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

#### Preloaded applications<sup>5</sup> (only some listed)

#### -Windows 7 models

- Rescue and Recovery®
   Norton™ Internet Security (30 days of virus definitions)

Adobe® Reader®

- Microsoft® Office 2013 preloaded;
- purchase product key to activate . Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

#### -Windows 8 models

- Evernote<sup>o</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- Security chip (see information on left) Padlock loop (in rear for opt padlock;
- padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable;
- prohibits side cover removal) Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

Keyboard

Power supply

Eco-Label and

environmental

ISV certifications

**Limited Warranty** 

ThinkVantage

certifications

Mouse

### ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - III

| Type-<br>model <sup>1</sup> | Processor    | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis intrusion switch |                |
|-----------------------------|--------------|---------------------|-----------------|------------------|-------------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------|----------------|
| 2555-E6U                    | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-E7U                    | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                   | Win8 Pro64     |
| 2555-E8U                    | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                   | Win8 Pro64     |
| 2555-E9U                    | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-EAU                    | Core i7-3770 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 4000       | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-EBU                    | Core i7-3770 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 4000       | No            | No               | Switch                   | Win8 Pro64     |
| 2555-ECU                    | Core i7-3770 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                   | Win8 Pro64     |

- 1 Model in italics shows that this is a Global Model

| 2 Win7 Pro64(DG) = Wir                        | ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |           |
|---|---|-----------|
| Processor                                     | Intel® Core™ i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)   |           |
| Implementation                                | One LGA1155 socket  | IJ        |
| Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   |           |
| Additional memory disclaimers                 | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   |           |
| Graphics                                      | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  Some: NVIDIA Quadro K2000, PCle x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W | E E E E E |
| Media reader<br>Optical<br>Drive(s)           | 29-in-1 Media card reader in selected models, internal USB 2.0 DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"   | 0,0,0,    |
| Onboard SATA Onboard SAS                      | SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset None   | ı         |
| Chipset                                       | Intel C216 Chipset  | ا (       |
| Front ports<br>Rear ports                     | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable                                      |           |
| IEEE 1394 adptr                               | No onboard 1394 ports;<br>1394 models: additional FireWire PCle adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  | :         |
| Audio<br>Speaker<br>Ethernet<br>Security chip | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | -         |
| Keyboard<br>Mouse<br>Power supply             | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | ] •       |
| Eco-Label and environmental certifications    | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant   | •         |
| ISV certifications ThinkVantage               | See the latest list of ISV certifications at www.lenovo.com/support/ISV Supports ThinkVantage® technologies   | 1         |
| Limited Warranty                              | 3-year parts and labor, more Langua® ceruices see S-TS sheet  | ┦.        |

3-year parts and labor, more Lenovo® services see S-TS sheet





- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration
- 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- · Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open for media reader

for disk

for disk

Slot 1: half-length, full-height, PCIe\* x16 (75w max, near CPU)

PCIe 2.0 x16 on Core i3/Pentium/Celeron models. PCIe 3.0

x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3

#### Intel AMT

Intel AMT supported on model(s) with Xeon processor

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Some: Windows 7 Professional 64 Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

#### Preloaded applications<sup>5</sup> (only some listed)

#### -Windows 7 models

- Rescue and Recovery®
   Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

### -Windows 8 models

- Evernote<sup>o</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded; purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- · Security chip (see information on left) Padlock loop (in rear for opt padlock;
- padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable;
- prohibits side cover removal)
- Power-on password
- Administrator password
- · Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

Limited Warranty

## ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - IV

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical  | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis intrusion switch |                |
|-----------------------------|----------------|---------------------|-----------------|------------------|-------------------|-----------------|---------------|---------------------|---------------|------------------|--------------------------|----------------|
| 2555-EDU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW        | Quadro K600         | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-EEU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                   | Win8 Pro64     |
| 2555-EFU                    | Xeon E3-1225V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro 410          | No            | No               | Switch                   | Win8 Pro64     |
| 2555-EGU                    | Xeon E3-1225V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                   | Win8 Pro64     |
| 2555-EHU                    | Xeon E3-1225V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-EJU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Quadro K600         | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-EKU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Quadro K600         | No            | No               | Switch                   | Win8 Pro64     |

- 1 Model in italics shows that this is a Global Model

| 2 WIII7 1 1004(DG) = WII  | ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |   |
|---|---|---|
| Processor   | Intel® Core™ i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)   | Prover  Raven black color; metal case  6.9"W x 17.0"D x 16.7"H (with handle)  175mm W x 431mm D x 425mm H  27.56 lb (12.5kg) max configuration  25-liter  Removable handle on top front  Toolless side cover removal  |
| Implementation  | One LGA1155 socket  | • Toolless disk and optical drive removal   |
| Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   | Toolless adapter retention     Illuminated front icons  |
| Additional memory disclaimers   | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   | • Recessed power button  Bay 1: 5.25", 1.6" high, access, for optical   |
| Graphics  | Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  | Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk  |
| Media reader<br>Optical<br>Drive(s)   | Media: 29-in-1 Media card reader on selected models, internal USB 2.0 DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"   | Slot 1: half-length, full-height, PCIe* x16<br>(75w max, near CPU)<br>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0<br>x16 on Xeon/Core i5/Core i7 models<br>Slot 2: half-length, full-height, PCIe 2.0 x1   |
| Onboard SATA  | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset   | Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Onboard SAS   | None  | Intel AMT   |
| Chipset   | Intel C216 Chipset  | Intel AMT supported on model(s) with Xeon processor   |
| Front ports<br>Rear ports   | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors  | Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64  Some: Windows 7 Professional 64  preinstalled through downgrade rights in Windows 8 Pro 64-bit  Some: Windows 8 Pro 64-bit   |
|   | via PS/2 rear I/O cable   | Preloaded applications (only come listed)   |
| IEEE 1394 adptr   | No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000,   | Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models - Rescue and Recovery®   |
| Audio<br>Speaker<br>Ethernet<br>Security chip   | No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | -Windows 7 models  • Rescue and Recovery®  • Norton™ Internet Security (30 days of virus definitions)  • Adobe® Reader®  • Microsoft® Office 2013 preloaded; purchase product key to activate  • Corel® WinDVD® (DVD±RW model(s))  • Ulead® DVD MovieFactory® (DVD±RW model(s))   |
| Audio<br>Speaker<br>Ethernet<br>Security chip   | No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black  | -Windows 7 models  • Rescue and Recovery®  • Norton™ Internet Security (30 days of virus definitions)  • Adobe® Reader®  • Microsoft® Office 2013 preloaded; purchase product key to activate  • Corel® WinDVD® (DVD±RW model(s))  • Ulead® DVD MovieFactory® (DVD±RW model(s))  -Windows 8 models  |
| Audio<br>Speaker<br>Ethernet<br>Security chip   | No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | -Windows 7 models  Rescue and Recovery®  Norton™ Internet Security (30 days of virus definitions)  Adobe® Reader®  Microsoft® Office 2013 preloaded; purchase product key to activate  Corel® WinDVD® (DVD±RW model(s))  Ulead® DVD MovieFactory® (DVD±RW model(s))  -Windows 8 models  Evernote®  Norton Internet Security (30 days of virus definitions)  Norton Studio   |
| Audio Speaker Ethernet Security chip  Keyboard Mouse Power supply  Eco-Label and environmental certifications | No onboard 1394 ports;  1394 models: additional FireWire PCIe adapter, 1394a-2000,  400Mbps, two 6-pin ports on rear  High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio  One onboard gigabit ethernet, Intel 82579  STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant | -Windows 7 models  Rescue and Recovery®  Norton™ Internet Security (30 days of virus definitions)  Adobe® Reader®  Microsoft® Office 2013 preloaded; purchase product key to activate  Corel® WinDVD® (DVD±RW model(s))  Ulead® DVD MovieFactory® (DVD±RW model(s))  -Windows 8 models  Evernote®  Norton Internet Security (30 days of virus definitions)  |
| Audio Speaker Ethernet Security chip  Keyboard Mouse Power supply  Eco-Label and environmental                | No onboard 1394 ports;  1394 models: additional FireWire PCIe adapter, 1394a-2000,  400Mbps, two 6-pin ports on rear  High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio  One onboard gigabit ethernet, Intel 82579  STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating                           | -Windows 7 models  Rescue and Recovery®  Norton™ Internet Security (30 days of virus definitions)  Adobe® Reader®  Microsoft® Office 2013 preloaded; purchase product key to activate  Corel® WinDVD® (DVD±RW model(s))  Ulead® DVD MovieFactory® (DVD±RW model(s))  Windows 8 models  Evernote®  Norton Internet Security (30 days of virus definitions)  Norton Studio  Skype™  Microsoft Office 2013 preloaded; purchase product key to activate  Cyberlink Power2Go (DVD±RW model(s)) |

- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
   Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
  Serial port I/O control
- USB port disablement (front or all/individual)
  Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - V

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)        | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch |                |
|-----------------------------|----------------|---------------------|-----------------|------------------|-----------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------------|----------------|
| 2555-ELU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win8 Pro64     |
| 2555-EMU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2555-ENU                    | Core i3-3220   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD     | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2555-EPU                    | Core i3-3220   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD     | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win8 Pro64     |
| 2555-EQU                    | Xeon E3-1245V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD     | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64     |
| 2555-ERU                    | Xeon E3-1275V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x256GB SSD     | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2555-ESU                    | Xeon E3-1275V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x256GB SSD     | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win8 Pro64     |
| 2555-ETU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win8 Pro64     |

Model in italics shows that this is a Global Model Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), Tower Processor integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz Raven black color; metal case Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), 6.9"W x 17.0"D x 16.7"H (with handle) integrated Intel HD Graphics 4000,
Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)
Intel Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), • 175mm W x 431mm D x 425mm H optical 27.56 lb (12.5kg) max configuration (2) 25-liter Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)

Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache),

Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000,

DDR3 memory controller (up to 1600MHz) Removable handle on top front disk Toolless side cover removal ----Toolless disk and optical drive removal Toolless adapter retention Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, Illuminated front icons · Recessed power button DDR3 memory controller (up to 1600MHz) Implementation One LGA1155 socket Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Pay 2: 5.25", 1.6" high, access, Pay 2: 5.25", 1.8" high, access, Pay 2: 5.25", 1.8" high, access, Pay 2: 5.25", 1.8" high, access, Pay 2: 5.25", 1.8" high, access, Pay 2: 5.25", 1.8" high, access, Pay 2: 5.25", 1.8" high, access, Pay 2: 5.25", 1.6" high, access, Pay 2: 5.25", 1.5" high, access, for optical 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, Memory open four 240-pin DIMM sockets; Bay 3: 3.5", 1" high, Bay 4: 3.5", 1" high, Bay 5: 3.5", 1" high, for media reader Additional memory · Actual memory operating speed depends on processor memory internal, for disk disclaimers controller speed, installed memory speed, and quantity of memory DIMMs for disk internal. • Mixing of ECC and non-ECC memory is not supported Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, Slot 1: half-length, full-height, PCIe\* x16 (75w max, near CPU) Graphics \* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 connector information please see Rear ports section)

Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W

Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3 one DisplayPort, one dual-link DVI-I, 41W Intel AMT Some: NVIDIA Quadro K2000, PCle x16 adapter, 2GB, Intel AMT supported on model(s) with Xeon processor two DisplayPort, one dual-link DVI-I, 51W Media reader 29-in-1 Media card reader in selected models, internal USB 2.0 Preloaded operating system<sup>20</sup> DVD, DVD±RW, or Blu-ray, depending on model Optical Some: Windows® 7 Professional 64 3.5" SATA: 2.5" SATA: Drive(s) SATA 6.0Gb/s, 7200 rpm, 3.5' Some: Windows 7 Professional 64 SATA 6.0Gb/s, 10000 rpm, 2.5" Solid State Drive, SATA 6.0Gb/s, 2.5" preinstalled through downgrade SSD: rights in Windows 8 Pro 64-bit Onboard SATA Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), Windows 8 Pro 64-bit RAID 0, 1 support via Intel C216 Chipset Preloaded applications<sup>5</sup> (only some listed) Onboard SAS None -Windows 7 models Chipset Intel C216 Chipset Rescue and Recovery® Norton™ Internet Security (30 days of virus definitions) Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three Adobe® Reader® Rear ports analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, Microsoft® Office 2013 preloaded; one DisplayPort connector purchase product key to activate Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) Corel® WinDVD® (DVD±RW model(s)) Ulead® DVD MovieFactory® (DVD±RW model(s)) PS/2 models: additional PS/2 keyboard and mouse connectors -Windows 8 models via PS/2 rear I/O cable Evernote<sup>o</sup> No onboard 1394 ports; IEEE 1394 adptr · Norton Internet Security (30 days of virus definitions) 1394 models: additional FireWire PCle adapter, 1394a-2000, Norton Studio 400Mbps, two 6-pin ports on rear Skype™ Audio High Definition (HD) Audio, Realtek® ALC662 codec Microsoft Office 2013 preloaded; purchase product key to activate Speaker Internal speaker for business audio Cyberlink Power2Go (DVD±RW model(s)) Ethernet One onboard gigabit ethernet, Intel 82579 Cyberlink PowerProducer (DVD±RW model(s)) Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant SECURITY Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Security chip (see information on left) Mouse Optical Wheel Mouse (USB connector), black Padlock loop (in rear for opt padlock; Padlock prohibits side cover removal)
Security slot (in rear for optional
Kensington® Microsaver® cable;
prohibits side cover removal) 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Power supply Eco-Label and GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating environmental Power-on password certifications Administrator password **ENERGY STAR 5.2-compliant** Boot sequence control ISV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV Boot without keyboard, mouse Supports ThinkVantage® technologies ThinkVantage Serial port I/O control

3-year parts and labor, more Lenovo® services see S-TS sheet

Limited Warranty

USB port disablement (front or all/individual)

Chas'sis intrusion switch available on selected model(s)
 More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - VI

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)        | Media<br>reader | SATA optical  | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis intrusion switch |                |
|-----------------------------|----------------|---------------------|-----------------|------------------|-----------------|-----------------|---------------|---------------------|---------------|------------------|--------------------------|----------------|
| 2555-EUU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW        | Quadro K2000        | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-EVU                    | Xeon E3-1275V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW        | Quadro K2000        | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-EWU                    | Xeon E3-1275V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K2000        | No            | No               | Switch                   | Win8 Pro64     |
| 2555-EYU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD     | Media           | DVD±RW        | Quadro K600         | No            | No               | Switch                   | Win8 Pro64     |
| 2555-EZU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD     | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-F1U                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD     | Media           | DVD±RW        | Quadro K2000        | No            | No               | Switch                   | Win7 Pro64(DG) |
| 2555-F2U                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD     | Media           | DVD±RW        | Quadro K2000        | No            | No               | Switch                   | Win8 Pro64     |

- Model in italics shows that this is a Global Model
   Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

| 2 VVIII7 F1004(DG) = VVII                     | ndows 7 Froiessional 64 preinstalled through downgrade rights in Windows 8 Fro 64-bit  |  |
|---|--|--|
| Processor                                     | Intel® Core™ i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) One LGA1155 socket     | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal   |
| Implementation                                |  | _   • Tooliess disk and optical drive removal  |
| Memory  | <b>32GB</b> max, <b>UDIMM</b> , <b>PC3-12800 1600MHz DDR3</b> , <b>ECC</b> or <b>non-ECC</b> , four 240-pin DIMM sockets;  | Toolless adapter retention     Illuminated front icons   |
| Additional memory disclaimers                 | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>  | Recessed power button  Bay 1: 5.25", 1.6" high, access, for optical  |
| Graphics                                      | Some: NVIDIA® Quadro® K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W   | Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk   |
| Media reader                                  | 29-in-1 Media card reader in selected models, internal USB 2.0   | Slot 1: half-length full-height PCIe* x16  |
| Optical                                       | DVD, DVD±RW, or Blu-ray, depending on model  | Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)  |
| Drive(s)                                      | 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"  | * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models  |
| Onboard SATA                                  | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset  | Slot 2: half-length, full-height, PCIe 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Onboard SAS                                   | None   | Intel AMT  |
| Chipset                                       | Intel C216 Chipset   | Intel AMT supported on model(s) with Xeon processor  |
| Front ports<br>Rear ports                     | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort <sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable | Some: Windows® 7 Professional 64 Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit  |
| IEEE 1394 adptr                               | No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000,  | Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models • Rescue and Recovery®  |
| Audio<br>Speaker<br>Ethernet<br>Security chip | 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | Norton™ Internet Security (30 days of virus definitions)     Adobe® Reader®     Microsoft® Office 2013 preloaded; purchase product key to activate     Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))                         |
| Keyboard                                      | Preferred Pro USB Keyboard (USB connector), 104-key, black   | -Windows 8 models  |
| Mouse<br>Power supply                         | Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,<br>Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | Evernote®     Norton Internet Security (30 days of virus definitions)     Norton Studio     Clare TM   |
| Eco-Label and environmental certifications    | GREENGUARD® certified<br>RoHS-compliant<br>EPEAT™ Gold rating<br>ENERGY STAR 5.2-compliant   | Skype™     Microsoft Office 2013 preloaded; purchase product key to activate     Cyberlink Power2Go (DVD±RW model(s))     Cyberlink PowerProducer (DVD±RW model(s))  |
| ISV certifications                            | See the latest list of ISV certifications at www.lenovo.com/support/ISV  | SECURITY   |
| ThinkVantage Limited Warranty                 | Supports ThinkVantage® technologies  3-year parts and labor, more Lenovo® services see S-TS sheet  | Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password |

 Administrator password Boot sequence control Boot without keyboard, mouse
Serial port I/O control

USB port disablement (front or all/individual)
Chassis intrusion switch available on selected model(s) More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2555) - TopSeller (May 2013)

| T                           |                |                     |       | Due conf         |                 | Media  | CATA         | 0                   | 1004          | PS/2     | Chassis             |                 |
|-----------------------------|----------------|---------------------|-------|------------------|-----------------|--------|--------------|---------------------|---------------|----------|---------------------|-----------------|
| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | DIMMs | Pre-conf<br>RAID | Drive(s)        | reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | rear I/O | intrusion<br>switch | OS <sup>2</sup> |
| 2555-F3U                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro K600         | No            | No       | Switch              | Win7 Pro64(DG)  |
| 2555-F4U                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro K600         | No            | No       | Switch              | Win8 Pro64      |
| 2555-F5U                    | Xeon E3-1245V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro 410          | No            | No       | Switch              | Win8 Pro64      |
| 2555-F6U                    | Xeon E3-1245V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro 410          | No            | No       | Switch              | Win7 Pro64(DG)  |
| 2555-F7U                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro K2000        | No            | No       | Switch              | Win7 Pro64(DG)  |
| 2555-F8U                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro K2000        | No            | No       | Switch              | Win8 Pro64      |
| 2555-F9U                    | Xeon E3-1290V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro K2000        | No            | No       | Switch              | Win8 Pro64      |
| 2555-FAU                    | Xeon E3-1290V2 | 1600MHz ECC         | 8GBx1 | No               | 1x1TB 3.5" SATA | Media  | DVD±RW       | Quadro K2000        | No            | No       | Switch              | Win7 Pro64(DG)  |

| Truche Soor 2 (up to 4 Sch24) processor (4C271, 3.4GHz, SMB Cache), Turbo Soors 2 (up to 4 Sch24), progress of the Plat Gaphics P400, DPH3 memory controller (up to 1600MHz) processor (4C271, 3.4GHz, 3.4GH   | 1 Model in italics shows      | that this is a Global Model  Idouble 164 preinstalled through downgrade rights in Windows 8 Pro 64-bit   | Entw Quadro R2000   No   No   Switch   Will 1 1004(DQ)  |
|--|-------------------------------|--|---|
| Turbo Boost 2.0 (up to 3,63Hz), integrated Intel HD Graphics P4000, DIRB memory controller (up to 1600MHz) Intel Xeon ES-1200/2 processor (16078, 7478, 88B Cehe). Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz) Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz). Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz). Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz). Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz). Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz). Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz). Turbo Boost 2.0 (up to 4.1GHz), DIRB memory controller (up to 1600MHz). Turbo Boost 2.0 (up to 4.1GHz). DIRB memory powers and spends on processor memory blackalimers.  **Graphics**  **Some: NIVIDIA Court on Court of the State of the St |                               |  | Towar   |
| Additional memory   32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, both 240-pin IDIMM sockets   10 most possible      |                               | Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1280V2 processor (4C/8T, 3.6GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.0GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1290V2 processor (4C/8T, 3.7GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.1GHz), DDR3 memory controller (up to 1600MHz)   | <ul> <li>Raven black color; metal case</li> <li>6.9"W x 17.0"D x 16.7"H (with handle)</li> <li>175mm W x 431mm D x 425mm H</li> <li>27.56 lb (12.5kg) max configuration</li> <li>25-liter</li> <li>Removable handle on top front</li> </ul>   |
| four 240-pin DIMM sockets;  dodditional memory isclasimers  ocnorbules speed, many operating speed depends on processor memory ocnorbules speed, many operating speed depends on processor memory DIMMs  Mixing of ECC and non-ECC memory is not supported  Some: intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processors section, discrete graphics to support multi-display; (detailed graphics model name please see Processors section, one DisplayPort**, one dual-link DVH-I, 37W  Some: NVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, one dual-link DVH-I, 47W  Some: MVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, one dual-link DVH-I, 47W  Some: WVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, one dual-link DVH-I, 47W  Some: WVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, one dual-link DVH-I, 47W  Some: WVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, ore dual-link DVH-I, 47W  Some: WVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, ore dual-link DVH-I, 47W  Some: WVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, ore dual-link DVH-I, 47W  Some: WVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DisplayPort**, ore dual-link DVH-I, 47W  Some: WVIDIA Quadror K800, PCIe x16 adapter, 512MB, one DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW, or Blu-ray depending on model  DVD DVD-PWFW or BV |                               |  | 1 Tooliood didd dovor formevar  |
| Isoclaimers    Controller speed, installed memory speed, and quantity of memory DIMMs  | Wichiory                      |  | Toolless adapter retention  |
| discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NIDIA Quadro 14, 10, PCIe x1s dapter, 512MB, one DisplayPort of the dual-link DVI-I, 37W Some: NVIDIA Quadro 14, 10, PCIe x1s dapter, 612MB, work DisplayPort of edual-link DVI-I, 37W Media reader Dybical Drive(s) 29-In-1 Media card reader in selected models, internal USB 2.0 Dybical Drive(s) 2, 5' SATA': SATA 6.0Gbs, 7200 rpm, 3.5' 2, 5' SATA': SATA 6.0Gbs, 7200 rpm, 3.5' 2, 5' SATA': SATA 6.0Gbs, 7200 rpm, 3.5' SSD: Solid State Drive, SATA 6.0Gbs, 2.5' Two SATA 6.0Gbs, conoctors (red.) two SATA 3.0Gbs, 2.5' SSD: Solid State Drive, SATA 3.0Gbs, 2.5' Two SATA 6.0Gbs, conoctors (red.) two SATA 3.0Gbs, 2.5' SSD: Solid State Drive, SATA 3.0Gbs, 2.5' SSD: Solid State Drive, SATA 3.0Gbs, 2.5' SSD: Solid State Drive, SATA 3.0Gbs, 2.5' SSD: Solid State Drive, SATA 3.0Gbs, 2.5' Two SATA 6.0Gbs, 2.0 incorponor (3.5mm), headphone (3.5mm) None Diboard SAS Driboard SAS  | Additional memory disclaimers | controller speed, installed memory speed, and quantity of memory DIMMs   | Recessed power button   |
| Media reader Optical Definition   | Graphics                      | discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB,                | Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk  Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 |
| Ditical DVD, DVD_FRW, or Blu-ray, depending on model of 3.5° SATA: SATA 6.0Gb/s, 7200 rpm, 3.5° SATA: SATA 6.0Gb/s, 7200 rpm, 2.5° SATA: SATA 6.0Gb/s, 10000 rpm, 2.5° SDD. Solid State Drive, SATA 6.0Gb/s, 10000 rpm, 2.5° SDD. Two SATA 6.0Gb/s 2.0Gb/s, 10000 rpm, 2.5° SDD. Two SATA 6.0Gb/s 2.0Gb/s, 10000 rpm, 2.5° SDD. Two SATA 6.0Gb/s 2.0Gb/s  Madenarda                     | · · ·  |   |
| Safa Safa: SATA: SATA so Gb/s, 7200 pm, 3.5" 2.5" SATA: SATA so Gb/s, 10000 pm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (redn), two SATA 3.0Gb/s connectors (orange), None Chipset Intel C216 Chipset None Chipset Intel C216 Chipset Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort Mare functional when the following processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron processors are used: Xeon E3-12X5V2, Core 17, 15, 13, Pentium, and Celeron p |                               | · · · · · · · · · · · · · · · · · · ·  | Slot 3: half-length, full-height, 32-bit PCI 2.3  |
| SSC: Solid State Drive, SATA 6.0Gb/s, 2.5"  Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset  None  None  Intel C216 Chipset  Two USB 2.0, microphone (3.5mm), headphone (3.5mm)  Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort one one one DisplayPort connector (Onboard VGA and DisplayPort one one one DisplayPort one one one DisplayPort one one one one one one one one one one   | Drive(s)                      |  |   |
| Driboard SATA   RAID 0, 1 support via Intel C216 Chipset   None   | ( )                           |  |   |
| Preloaded operating system® None  Chipset  Intel C216 Chipset  Intel C216 Chipset  Intel C216 Chipset  Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable  No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, Addio Speaker Internal speaker for business audio Checurity chip Security chip Circle Conductive (Optional Web Mouse (USB connector), 104-key, black Optical Wheel Mouse (USB connector), 104-key, black Coptial Wheel Mouse (USB connector), black Power supply Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  REENGY STAR 5.2-compliant Security chip Circle Label and environmental environmen | Onboard SATA                  |  |   |
| Intel C216 Chipset   |                               | RAID 0, 1 support via Intel C216 Chipset   |   |
| Troot ports Rear ports |                               |  |   |
| Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, 15, 13, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable  EEE 1394 adptr  No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  Audio High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579  Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Mouse Optical Wheel Mouse (USB connector), black Power supply 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified certifications  SV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV  ThinkVantage Supports ThinkVantage® technologies  Imited Warranty S-year parts and labor, more Lenovo® services see S-TS sheet  Some: Windows 8 Pro 64-bit Preloaded applications 5 (only some listed)  Preloaded applications 5 (only some listed)  Notron Thinternet Security (30 days of virus definitions)  Notron Thinternet Security (30 days of virus definitions)  Notron Studio Septem Model(s))  - Ulead® DVD MovieFactory® (DVD±RW model(s))  - Ulead® DVD MovieFactory® (DVD±RW model(s))  - Windows 8 Pro 64-bit Preloaded applications 5 (only some listed)  - Notron Thinternet Security (30 days of virus definitions)  - Notron Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - Norton Studio  - No  |                               |  |   |
| ## Audio   Audio   Audio   Audio   FireWire   PCle   Adapter,   1394a-2000,   400Mbps, two 6-pin ports on rear   400Mbps, two 6-pin ports on ports   | Rear ports                    | Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort <sup>TM</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors | Some: Windows 8 Pro 64-bit Preloaded applications⁵ (only some listed) -Windows 7 models • Rescue and Recovery® • Norton™ Internet Security (30 days of virus definitions)   |
| Audio High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio  Doe onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Reyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  Eco-Label and Penvironmental Pertifications SV certifications  SV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV  ThinkVantage Supports ThinkVantage® technologies  June 10 Audio, Realtek® ALC662 codec Internal speaker for business audio  - Windows 8 models  - Evernote® - Norton Internet Security (30 days of virus definitions)  - Norton Studio - Skype™ - Microsoft Office 2013 preloaded; purchase product key to activate - Cyberlink Power2Go (DVD±RW model(s)) - Cyberlink Power2Go (DVD±RW model(s)) - Cyberlink PowerProducer (DVD±RW model(s))  - Security chip (see information on left) - Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) - Power-on password   | IEEE 1394 adptr               | 1394 models: additional FireWire PCIe adapter, 1394a-2000,   | purchase product key to activate  |
| One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Reyboard  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply  Eco-Label and Penvironmental Securified Provironmental Securifications  GREENGUARD® certified Provironmental Securifications  SV certifications  See the latest list of ISV certifications at www.lenovo.com/support/ISV  See the latest list of ISV certifications at www.lenovo.com/support/ISV  Jayaba Standard Standard Supports ThinkVantage® technologies  Jayab Standard Standard Standard Standard Supports ThinkVantage® technologies  Jayab Standard St  | Audio                         | High Definition (HD) Audio, Realtek® ALC662 codec  | Ulead® DVD MovieFactory® (DVD±RW model(s))  |
| Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Mouse Power supply Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply  Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  Cerc-Label and environmental pertifications Security Chip (See information on left) SECURITY  Security Chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security Chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security Supports ThinkVantage® technologies Limited Warranty  STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant Norton Studio Norton Studio Norton Studio Norton Studio Norton Studio Norton Internet Security (30 days of virus definitions) Norton Studio Nort | Speaker                       | •  |   |
| Microsoft Office 2013 preloaded;   Microsoft Office 2013 preloaded;   Microsoft Office 2013 preloaded;   Preferred Pro USB keyboard (USB connector), 104-key, black   Optical Wheel Mouse (USB connector), black   280 watts with variable speed fan, autosensing, 85% PSU,   Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   Cyberlink PowerProducer (DVD±RW model(s))   Cyberlink PowerProducer (DVD±RW model(s))   Cyberlink PowerProducer (DVD±RW model(s))   Cyberlink PowerProducer (DVD±RW model(s))   SECURITY   SECURITY   Security chip (see information on left)   Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)   Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)   Power-on password   Power-on pass    | Security chip                 | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),   | Norton Internet Security (30 days of virus definitions)     Norton Studio   |
| Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  Eco-Label and environmental ertifications EPEAT™ Gold rating ENERGY STAR 5.2-compliant  SV certifications Sv certificatio | Keyboard                      |  | Microsoft Office 2013 preloaded;  |
| Climate Savers® Computing Bronze, 80 PLÜS® Bronze qualified  Cyberlink PowerProducer (DVD±RW model(s))  GREENGUARD® certified  RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant SV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV  See the latest list of ISV certifications at www.lenovo.com/support/ISV  Supports ThinkVantage® technologies  Limited Warranty  Cyberlink PowerProducer (DVD±RW model(s))  Security chip (see information on left)  Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  Power-on password  | Mouse                         |  | purchase product key to activate  |
| GREENGUARD® certified  RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant SV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV Supports ThinkVantage Supports ThinkVantage® technologies  Limited Warranty  GREENGUARD® certified  RoHS-compliant Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password  | rower supply                  |  |   |
| environmental certifications   | Eco-Label and                 |  | `   |
| Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  SV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV  Supports ThinkVantage Supports ThinkVantage® technologies Limited Warranty Supports ThinkVantage® technologies  | environmental                 | RoHS-compliant   |   |
| SV certifications See the latest list of ISV certifications at <a href="https://www.lenovo.com/support/ISV">www.lenovo.com/support/ISV</a> Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  Limited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet   | certifications                |  | Padlock loop (in rear for opt_padlock;  |
| ThinkVantage Supports ThinkVantage® technologies  Limited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet  Kensington® Microsaver® cable; prohibits side cover removal)  Power-on password   | ISV certifications            | ·  | padiock prohibits side cover removal)  • Security slot (in rear for optional  |
| imited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet prohibits side cover removal)  • Power-on password  | ThinkVantage                  |  | Kensington® Microsaver® cable;  |
|  | Limited Warranty              |  |   |
| 1 / Millimotiator pagotrora  | -                             |  | Power-on password     Administrator password  |
| Boot sequence control  |                               |  | Boot sequence control   |
| <ul> <li>Boot without keyboard, mouse</li> <li>Serial port I/O control</li> </ul>  |                               |  |   |
| USB port disablement (front or all/individual)   |                               |  | USB port disablement (front or all/individual)  |
| Chassis intrusion switch available on selected model(s)  More compatible accessories, please see O-DEM sheet   |                               |  |   |

More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2552)

|                                      |   |   |   |   |   |   |                   |  |   |   | Chassis  |  |                      |
|--------------------------------------|---|---|---|---|---|---|-------------------|--|---|---|--|--|----------------------|
| Type-                                |   |   | Memory  |   | <b>5</b>  | Media   | SATA              | Graphics   | 1394  |   | intrusion  |  | Win7                 |
| model Proce 2552-15U Core i3-2       | essor   | (MHz/ECC)<br>1600MHz Non-ECC  | DIMMs   | RAID<br>No  | Disk(s)<br>1x500GB SATA   | reader<br>Media   | optical           | adapter(s) Quadro 2000   | No  | Global<br>No  | switch<br>Switch   | rear I/O   | Pro 64               |
| 2552-16U Core i3-2                   |   | 1600MHz Non-ECC   |   | No  | 1x500GB SATA  | Media   |                   | Intel HD 2000  | No  | No  | Switch   |  | Pro 64               |
| 2552-23U Xeon E3                     |   |   | 1x4GB   | No  | 1x500GB SATA  |   |                   | Intel HD P4000   | No  | No  | Switch   |  | Pro 64               |
| 2552-24U Xeon E3<br>2552-25U Xeon E3 |   |   | 1x4GB<br>1x4GB  | No<br>No  | 1x500GB SATA<br>1x500GB SATA  |   |                   | Quadro 2000<br>Quadro 400  | No<br>No  | No<br>No  | Switch<br>Switch   |  | Pro 64<br>Pro 64     |
| 2552-26U Xeon E3                     |   |   | 1x4GB   | No  | 1x500GB SATA  |   |                   | Intel HD P4000   | No  | No  | Switch   |  | Pro 64               |
| 2552-27U Xeon E3                     | -1245V2   | 1600MHz ECC   | 1x4GB   | No  | 1x500GB SATA  | Media   | DVD±RW            | Quadro 400   | No  | No  | Switch   |  | Pro 64               |
| 2552-29U Xeon E3                     |   |   | 1x4GB<br>1x4GB  | No  | 1x500GB SATA  |   |                   | Quadro 2000<br>Intel HD P4000  | No  | No  | Switch   |  | Pro 64<br>Pro 64     |
| 2552-31U Xeon E3<br>2552-32U Xeon E3 |   |   | 1x4GB   | No<br>No  | 1x500GB SATA<br>1x500GB SATA  |   |                   | Quadro 400   | No<br>No  | No<br>No  | Switch<br>Switch   |  | Pro 64               |
| 2552-33U Xeon E3                     | -1275V2   | 1600MHz ECC   | 1x4GB   | No  | 1x500GB SATA  | Media   | DVD±RW            | Quadro 600   | No  | No  | Switch   |  | Pro 64               |
| 2552-34U Xeon E3                     | -1275V2   | 1600MHz ECC   | 1x4GB   | No  | 1x500GB SATA  | Media   | DVD±RW            | Quadro 2000  | No  | No  |  | PS/2   | Pro 64               |
| Processor                            | integra: Intel Cintegra: Intel Xi Turbo E DDR3: Intel Xi Turbo E Intel Xi Turbo E DDR3: Intel Xi Turbo E DDR3: Intel Xi Turbo E | Core™ i3-2120 procested Intel HD Graphic ore i3-2130 process ted Intel HD Graphic eon® E3-1225V2 prosess 2.0 (up to 3.60 memory controller (reon E3-1230V2 prosess 2.0 (up to 3.70 memory controller (reon E3-1245V2 prosess 2.0 (up to 3.80 memory controller (reon E3-1275V2 prosess 2.0 (up to 3.80 memory controller (reon E3-1275V2 prosess 2.0 (up to 3.90 memory con | cs 2000, I<br>sor (2C/s<br>cs 2000, I<br>cocessor<br>GHz), inte<br>up to 160<br>ccessor (<br>GHz), inte<br>up to 160<br>ccessor (<br>GHz), inte | DDR3 mer<br>4T, 3.4GHz<br>DDR3 mer<br>(4C/4T, 3.2<br>egrated Into<br>0MHz)<br>4C/8T, 3.3<br>R3 memor<br>4C/8T, 3.4<br>egrated Into<br>0MHz)<br>4C/8T, 3.5<br>egrated Into | mory controller (uz, 3MB Cache), nory controller (uzGHz, 8MB Cachel HD Graphics FGHz, 8MB Cachery controller (up tGHz, 8MB Cachel HD Graphics FGHz, 8MB Cachel HZ, to 133<br>p to 133<br>ne),<br>4000,<br>e),<br>o 1600M<br>e),<br>4000, | 33MHz)            | ② ③ disk   | <ul><li>6.9"\</li><li>175r</li><li>27.5</li><li>25-li</li><li>Rem</li><li>Tooll</li><li>Tooll</li><li>Illum</li></ul> | W x 17.0 mm W x 6 lb (12.6 ter novable l less side less disk less ada ninated f | color; me "D x 16.7' 431mm D .5kg) max handle on e cover rer x and optic upter reten ront icons ower butto | "H (with look 425m; configuration front moval cal drive look 425m; configuration with the look 425m; configuration with the look 425m; configuration with the look 425m; configuration with the look 425m; configuration with the look 425m; configuration with the look 425m; configuration with the look 425m; configuration with look 425m; c | m H Éation           |
| Implementation                       |   | memory controller (ı<br>GA1155 socket   | up to 160   | UNHZ)   |   |   |                   | Bay 1: 5.25", 1  |   |   |  | ptical   |                      |
| Memory                               |   | max, UDIMM, PC3-  | 12800 16  | OOMH2 DC  | B3 FCC or non   | -FCC  |                   | Bay 2: 5.25", 1<br>Bay 3: 3.5", 1  | .6" hig<br>" high,  |   |  | n<br>nedia rea   | ndor                 |
| Memory                               |   | 0-pin DIMM sockets  |   | OUIVII IZ DE  | ino, LCC or non   | <b>-LCC</b> ,   |                   | Bay 4: 3.5", 1   |   |   |  |  | auer                 |
|                                      |   | l memory operating sp   |   |   |   |   |                   | Bay 5: 3.5", 1   |   |   |  |  |                      |
| disclaimers                          |   | ller speed, installed mo  |   |   |   | ИМѕ   |                   | Slot 1: half-leng  | th full   | haiaht [  | 2Clo* v16  |  |                      |
| Graphics                             | `   | g of ECC and non-ECC Intel HD Graphics  |   |   |   | rko olon  | na with           | (75w max, near Ci  | 111, 1411-<br>2 <i>U)</i>   | neigni, r   | -Cie xio   |  |                      |
|                                      | Some:<br>Some:  | Xeon E3-1225V2/1:<br>Core i3-2120/2130:<br>Pentium/Celeron:<br>(connector informat<br>NVIDIA® Quadro® 4<br>one DisplayPort™, (<br>NVIDIA Quadro 60<br>one DisplayPort, on<br>NVIDIA Quadro 20<br>two DisplayPort, on  | ion pleas<br>100, PCle<br>one dual-<br>0, PCle x<br>e dual-lin<br>00, PCle  | Inte<br>Inte<br>e see <b>Rea</b><br>e x16 adap<br>link DVI-I, 3<br>16 adapte<br>k DVI-I, 40<br>x16 adapt  | el HD Graphics 2<br>el HD Graphics<br><b>r ports</b> section)<br>ter, 512MB,<br>32W<br>r, 1GB,<br>W<br>er, 1GB,   |   |                   | Slot 2: half-leng<br>Slot 3: half-leng<br>Slot 4: half-leng<br>Intel AMT supp  | th, full-<br>th, full-  | height, 3<br>height, 3<br>Intel AM  | 32-bit PCI<br>32-bit PCI   | 2.3<br>2.3   | cessor               |
| Media reader                         |   | 29-in-1 Media card  |   |   |   |   |                   |  |   | •   | ating sys  | tem <sup>20</sup>  |                      |
| Optical                              |   | Multi-Burner DL DVI   |   |   |   |   |                   | Windows® 7 F   |   |   | _  |  | ·0                   |
| Disk(s)                              | 250GB   | /500GB/1TB/2TB/3  | TB SATA:  | SATA 6.0  | Gb/s, 7200 rpm,   |   |                   | <ul> <li>Preloade</li> <li>Rescue and F</li> </ul>   |   |   | ıs⁵ <i>(only s</i>   | ome list   | ted)                 |
|                                      |   | /300GB/600GB SAT<br>/180GB/256GB SSI  |   |   | )Gb/s, 10000 rpm<br>ite Drive, SATA 6   |   | 2.5"              | Norton® Intern   | net Se  | curity (3   | 0 days of v  | virus defi   | nitions)             |
| Onboard SATA                         |   | TA 6.0Gb/s connec   |   |   |   |   |                   | <ul> <li>Adobe® Read</li> </ul>  | er®   |   | -  |  | ,                    |
|                                      | RAID 0  | , 1 support via Intel   |   |   |   | (   | 5 ,,              | <ul> <li>Microsoft® Off<br/>purchase prod</li> </ul>   |   |   |  |  |                      |
| Onboard SAS                          | None  | 040 061   |   |   |   |   |                   | <ul> <li>Corel® WinDV</li> </ul>   | D® (D\  | /D±RW   | model(s))  |  |                      |
| Chipset                              |   | 216 Chipset   | /O.F.   | h   | (0.5.)  |   |                   | Ulead® DVD N   | /lovieF   | actory®   | (DVD±ŘŴ  | / model(s  | s))                  |
| Front ports<br>Rear ports            | Two US<br>analog<br>one Dis<br>(Onboa<br>are use<br>Celeror   | SB 2.0, microphone SB 2.0, four USB 3.0 audio ports (line-in, splayPort connector ard VGA and Displayed: Xeon E3-1225V2 n processors) andels: additional F via PS/2 rea   | ) (blue), c<br>line-out,<br>/Port are<br>2/1245V2<br>PS/2 keyb  | one serial (<br>mic-in), or<br>functional<br>/1275V2, C<br>oard and r   | 9-pin), one ether<br>ne analog VGA D<br>when the followir<br>Core i3-2120/213   | B-15 co<br>ng proce<br>0, Pentio  | nnector,<br>ssors | Security chip     Padlock loop     padlock prohi     Security slot (     Kensington® prohibits side     Power-on pas | (see ir<br>(in rea<br>bits sid<br>(in rea<br>Micros<br>cover  | r for opt<br>de cover<br>r for opti<br>aver® ca<br>remova                       | on on left)<br>padlock;<br>removal)<br>onal<br>able;   |  |                      |
| IEEE 1394 adptr                      |   | oard 1394 ports;<br>nodels: additional Fi   | reWire Po   | Cle adapte  |   |   |                   | <ul><li>Administrator</li><li>Boot sequence</li><li>Boot without</li></ul>   | passw<br>e cont   | vord<br>trol  | ıse  |  |                      |
| Audio                                | High D  | 400Mbps, tw<br>efinition (HD) Audio   |   |   |   |   |                   | <ul> <li>Serial port I/C</li> </ul>  | ) contr   | ol  |  |  |                      |
| Speaker                              |   | I speaker for busine  |   | , 120002  | 0000  |   |                   | <ul><li>USB port disa</li><li>Chassis intru</li></ul>  | ableme  | ent (front  | t or all/indi  | vidual)  | modal/a              |
| Ethernet                             | One or  | ıboard gigabit etherı   | net, Intel  |   |   |   |                   | • บาลรรเรากเโน   |   |   |  | serected   | mouel(S <sub>)</sub> |
| Security chip                        | TCG 1.  | oelectronics ST33Z<br>2-compliant   |   |   |   | ,   |                   | Please visit ww  |   |   | ifications<br>/support/IS  | SV   |                      |
| Keyboard                             |   | ed Pro USB Keyboa   |   |   | , 104-key, black  |   |                   | GREENGUARI   |   | ified   |  |  |                      |
| Mouse<br>Power supply                |   | Wheel Mouse (USE<br>tts with variable spe   |   |   | 1 85% PSII  |   |                   | RoHS-complian  | nt<br>rotica  |   |  |  |                      |
| . Owor Supply                        | Climat  | e Savers <sup>®</sup> Comput  | ing Bron  | ze, 80 PLU  | JS <sup>®</sup> Bronze qual   | ified   |                   | EPEAT™ Gold<br>ENERGY STAF   | ıaııng<br>₹ 5.2-∩   | omplian   | t  |  |                      |
| Limited Warranty                     |   | parts and labor, mo   |   |   |   |   |                   | More compatible  |   |   |  | ee O-DFI   | M sheet              |
|                                      | , ,   | ,   |   |   |   |   |                   | Jonnpatibl   |   |   | ,  |  |                      |

# ThinkStation® E31 Tower (2552) - June 5, 2012

|          |              |                 |        |          |              |        |         |               |       |        | Chassis   |          |         |
|----------|--------------|-----------------|--------|----------|--------------|--------|---------|---------------|-------|--------|-----------|----------|---------|
| Type-    |              | Memory          | Memory | Pre-conf |              | Media  | SATA    | Graphics      | 1394  |        | intrusion | PS/2     | Win7    |
| model    | Processor    | (MHz/ECC)       | DIMMs  | RAID     | Disk(s)      | reader | optical | adapter(s)    | adptr | Global | switch    | rear I/O | preload |
| 2552-14U | Core i7-3770 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB SATA   |        | DVD±RW  | Quadro 600    | No    | No     |           | PS/2     | Pro 64  |
| 2552-18U | Core i5-3450 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 2000   | No    | No     | Switch    |          | Pro 64  |
| 2552-19U | Core i5-3550 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Intel HD 2500 | No    | No     | Switch    |          | Pro 64  |
| 2552-21U | Core i5-3550 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 400    | No    | No     | Switch    |          | Pro 64  |
| 2552-22U | Core i7-3770 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 2000   | No    | No     | Switch    |          | Pro 64  |

| Implementation Memory Additional memory disclaimers Graphics | Intel® Core™ i5-3450 processor (4C/4T, 3.1GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz) Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket  32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  ■ Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs  ■ Mixing of ECC and non-ECC memory is not supported  Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; | Paven black color; metal case 6.9"W x 17.0"D x 16.7"H (with handle) 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration 25-liter Removable handle on top front Toolless side cover removal Toolless side cover removal Toolless adapter retention Illuminated front icons Recessed power button  Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader |
|--|---|--|
|  | Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 400, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W  Some: NVIDIA Quadro 600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W  Some: NVIDIA Quadro 2000, PCle x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W   | Baý 4: 3.5", 1" high, internal, for disk<br>Bay 5: 3.5", 1" high, internal, for disk<br>Slot 1: half-length, full-height, PCIe* x16<br>(75w max, near CPU)<br>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models,<br>PCIe 3.0 x16 on Xeon/Core i5/Core i7 models<br>Slot 2: half-length, full-height, PCIe 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3                        |
| Media reader<br>Optical                                      | Media: 29-in-1 Media card reader, internal USB 2.0<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive   | Intel AMT  |
| Disk(s) Onboard SATA   | 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"<br>Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset  | Intel AMT supported on model(s) with Xeon processor  Preloaded operating system <sup>20</sup> Windows® 7 Professional 64  Preloaded applications <sup>5</sup> (only some listed)  Rescue and Recovery®   |
| Onboard SAS  | None  | <ul> <li>Norton® Internet Security (30 days of virus definitions)</li> </ul>   |
| Front ports<br>Rear ports                                    | Intel C216 Chipset  Two USB 2.0, microphone (3.5mm), headphone (3.5mm)  Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector  (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)   | Adobe® Reader®     Microsoft® Office 2013 preloaded; purchase product key to activate     Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))      SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock;   |
| IEEE 1394 adptr  | PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable  No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  | padlock prohibits side cover removal)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  |
| Audio<br>Speaker<br>Ethernet<br>Security chip                | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all/individual)   |
| Keyboard   | Preferred Pro USB Keyboard (USB connector), 104-key, black  | Chassis intrusion switch available on selected model(s)  |
| Mouse<br>Power supply  | Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,<br>Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | ISV certifications Please visit www.lenovo.com/support/ISV   |
| Limited Warranty   | 3-year parts and labor, more Lenovo® services see S-TS sheet  | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  More compatible accessories, please see O-DEM sheet   |

# ThinkStation® E31 Tower (2552) - September 2012

| Type-<br>model | Processor    | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Disk(s)     | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | Global | Chassis intrusion switch | PS/2<br>rear I/O | Win7<br>preload |
|----------------|--------------|---------------------|-----------------|------------------|-------------|-----------------|--------------|---------------------|---------------|--------|--------------------------|------------------|-----------------|
| 2552-B6U       | Core i3-2130 | 1600MHz ECC         | 1x4GB           | No               | 1x128GB SSD | Media           | DVD±RW       | Intel HD 2000       | No            | No     | Switch                   | No               | Pro 64          |
| 2552-B7U       | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD | Media           | DVD±RW       | Quadro 400          | No            | No     | Switch                   | No               | Pro 64          |
| 2552-B8U       | Core i7-3770 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD | Media           | DVD±RW       | Quadro 600          | No            | No     | Switch                   | No               | Pro 64          |
| 2552-B9U       | E3-1230V2    | 1600MHz ECC         | 1x4GB           | No               | 1x180GB SSD | Media           | DVD±RW       | Quadro 400          | No            | No     | Switch                   | No               | Pro 64          |
| 2552-BAU       | E3-1245V2    | 1600MHz ECC         | 1x4GB           | No               | 1x180GB SSD | Media           | DVD±RW       | Quadro 400          | No            | No     | Switch                   | No               | Pro 64          |
| 2552-BBU       | E3-1275V2    | 1600MHz ECC         | 1x4GB           | No               | 1x256GB SSD | Media           | DVD±RW       | Quadro 600          | No            | No     | Switch                   | No               | Pro 64          |

| Processor   | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) | Raven black color; metal case  6.9"W x 17.0"D x 16.7"H (with handle)  175mm W x 431mm D x 425mm H  27.56 lb (12.5kg) max configuration  25-liter  Removable handle on top front  Toolless side cover removal  Toolless disk and optical drive removal  Toolless adapter retention  Illuminated front icons  Recessed power button  Bay 1: 5.25", 1.6" high, access, for optical  Bay 2: 5.25", 1.6" high, access, open |
|---|---|--|
| Implementation Memory   | One LGA1155 socket  32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,  | Bay 3: 3.5", 1" high, access, for media reader<br>Bay 4: 3.5", 1" high, internal, for disk   |
| Additional memory disclaimers                                     | four 240-pin DIMM sockets;  • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported   | Bay 5: 3.5", 1" high, internal, for disk  Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)  |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000  Core i7-3770: Intel HD Graphics 4000  Core i3-3450/3470/3550: Intel HD Graphics 2500  Core i3-3220/3240: Intel HD Graphics 2500  Core i3-2120/2130: Intel HD Graphics 2000  Pentium/Celeron: Intel HD Graphics  (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB,   | * PCIe 2.0 x16 on Core i3/Pentium/Celeron models,<br>PCIe 3.0 x16 on Xeon/Core i5/Core i7 models  Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3  |
|   | one DisplayPort™, one dual-link DVI-I, 32W  Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W   | Intel AMT Intel AMT supported on model(s) with Xeon processor  |
| Media reader<br>Optical<br>Disk(s)<br>Onboard SATA<br>Onboard SAS | Media: 29-in-1 Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset None   | Preloaded operating system <sup>20</sup> Windows® 7 Professional 64 Preloaded applications⁵ (only some listed) Rescue and Recovery® Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Microsoft® Office 2013 preloaded; purchase product key to activate   |
| Chipset   | Intel C216 Chipset  | Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))  |
| Front ports<br>Rear ports   | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable   | SECURITY  - Security chip (see information on left) - Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) - Power-on password  |
| IEEE 1394 adptr   | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  | Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control  |
| Audio<br>Speaker  | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio   | USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s.)  |
| Ethernet<br>Security chip   | One onboard gigabit ethernet, Intel 82579<br>STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),<br>TCG 1.2-compliant  | ISV certifications Please visit www.lenovo.com/support/ISV   |
| Keyboard<br>Mouse<br>Power supply                                 | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  |
| Limited Warranty  | 3-year parts and labor, more Lenovo® services see S-TS sheet  | More compatible accessories, please see O-DEM sheet  |

## ThinkStation® E31 Tower (2552) - March 2013

| Type-<br>model <sup>1</sup> | Processor    | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical  | Graphics<br>adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|--------------|---------------------|-----------------|------------------|-------------------|-----------------|---------------|------------------------|---------------|------------------|--------------------------------|----------------------------|
| 2552-CVU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Quadro K600            | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2552-CWU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Intel HD 2500          | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2552-CYU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600            | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2552-CZU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Intel HD 2500          | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2552-D1U                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro 410             | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2552-D2U                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW        | Quadro K2000           | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2552-D3U                    | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Intel HD 2500          | No            | No               | Switch                         | Win7 Pro64(DG)             |

Model in italics shows that this is a Global Model Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), Processor integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Implementation One LGA1155 socket 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, Memory four 240-pin DIMM sockets; Additional memory Actual memory operating speed depends on processor memory disclaimers controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported Some: Intel HD Graphics in processor, uses main memory, works along with Graphics discrete graphics to support multi-display; (detailed graphics model name please see **Processor** section, connector information please see Rear ports section)
Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB,
one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W Media reader 29-in-1 Media card reader in selected models, internal USB 2.0

Optical DVD, DVD±RW, or Blu-ray, depending on model

3.5" SATA: 2.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5 Drive(s) SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Onboard SATA Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset Onboard SAS Chipset Intel C216 Chipset Two USB 2.0, microphone (3.5mm), headphone (3.5mm)

Front ports Rear ports

Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector,

one DisplayPort connector

(Onboard VGA and DisplayPort<sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors

via PS/2 rear I/O cable

IEEE 1394 adptr No onboard 1394 ports;

1394 models: additional FireWire PCle adapter, 1394a-2000,

400Mbps, two 6-pin ports on rear

High Definition (HD) Audio, Realtek® ALC662 codec Audio Speaker

Internal speaker for business audio Ethernet One onboard gigabit ethernet, Intel 82579

Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),

TCG 1.2-compliant

Mouse

Power supply

Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black

Optical Wheel Mouse (USB connector), black

280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Eco-Label and GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating environmental certifications

**ENERGY STAR 5.2-compliant** 

ISV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV

Supports ThinkVantage® technologies ThinkVantage

**Limited Warranty** 3-year parts and labor, more Lenovo® services see S-TS sheet





- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 27.56 lb (12.5kg) max configuration 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal

for disk

- Toolless adapter retention
- Illuminated front icons
- · Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open for media reader for disk

Slot 1: half-length, full-height, PCle\* x16 (75w max, near CPU)
\* PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0

x16 on Xeon/Core i5/Core i7 models

Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3

### Intel AMT

Intel AMT supported on model(s) with Xeon processor

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Some: Windows 7 Professional 64 Some: preinstalled through downgrade

rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

### Preloaded applications<sup>5</sup> (only some listed)

### -Windows 7 models

- Rescue and Recovery<sup>®</sup> Norton™ Internet Security (30 days of virus definitions)

Adobe® Reader®

- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
   Ulead® DVD MovieFactory® (DVD±RW model(s))

#### -Windows 8 models

- Evernote<sup>o</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- · Security chip (see information on left) Padlock loop (in rear for opt padlock;
- padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2552) - March 2013 - II

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch |                |
|-----------------------------|----------------|---------------------|-----------------|------------------|-------------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------------|----------------|
| 2552-D4U                    | Core i5-3570   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2552-D5U                    | Core i5-3570   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2552-D6U                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2552-D7U                    | Xeon E3-1225V2 | 1600MHz ECC         | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD P4000      | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2552-D8U                    | Xeon E3-1225V2 | 1600MHz ECC         | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2552-D9U                    | Xeon E3-1245V2 | 1600MHz ECC         | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2552-DAU                    | Xeon E3-1275V2 | 1600MHz ECC         | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win7 Pro64(DG) |

|  | P12/3V2   1000Wii 12 ECC   1X4GD   140   1X300GD 3.3 SAIA   Wedia   DVD3   | ETW Quadro Rood   No   No   Switch Will Floor(Da)   |
|--|--|---|
| 1 Model in italics shows<br>2 Win7 Pro64(DG) = Wir                 | that this is a Global Model<br>ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |   |
| Processor  | Intel® Core™ i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) | Paven black color; metal case  6.9"W x 17.0"D x 16.7"H (with handle)  175mm W x 431mm D x 425mm H  27.56 lb (12.5kg) max configuration  25-liter  Removable handle on top front  Toolless side cover removal  Toolless disk and optical drive removal  Toolless adapter retention  Illuminated front icons  Recessed power button   |
| Implementation<br>Memory   | One LGA1155 socket  32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,   | Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader  |
| •  | our 240-pin DIMM sockets;  ■ Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs  ■ Mixing of ECC and non-ECC memory is not supported   | Baý 4: 3.5", 1" high, internal, for disk<br>Bay 5: 3.5", 1" high, internal, for disk<br>Slot 1: half-length, full-height, PCle* x16   |
| Graphics   | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  Some: NVIDIA Quadro K2000, PCle x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W  | * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCl 2.3  Intel AMT Intel AMT supported on model(s) with Xeon processor  Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64 |
| Media reader<br>Optical<br>Drive(s)<br>Onboard SATA<br>Onboard SAS | 29-in-1 Media card reader in selected models, internal USB 2.0 DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset None  | Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models • Rescue and Recovery®  |
| Chipset  | Intel C216 Chipset   | Norton™ Internet Security (30 days of virus definitions)     Adobe® Reader®   |
| Front ports<br>Rear ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable   | Microsoft® Office 2013 preloaded;   |
| IEEE 1394 adptr Audio Speaker                                      | No onboard 1394 ports;<br>1394 models: additional FireWire PCle adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear<br>High Definition (HD) Audio, Realtek® ALC662 codec<br>Internal speaker for business audio   | <ul> <li>Skype™</li> <li>Microsoft Office 2013 preloaded;<br/>purchase product key to activate</li> <li>Cyberlink Power2Go (DVD±RW model(s))</li> <li>Cyberlink PowerProducer (DVD±RW model(s))</li> </ul>  |
| Ethernet<br>Security chip  | One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | SECURITY  • Security chip (see information on left)  • Padlock loop (in rear for opt padlock;   |
| Keyboard<br>Mouse<br>Power supply                                  | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | padlock prohibits side cover removal)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password  |
| Eco-Label and environmental certifications                         | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  | Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control   |
| ISV certifications ThinkVantage                                    | See the latest list of ISV certifications at www.lenovo.com/support/ISV  Supports ThinkVantage® technologies   | USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)  More compatible accessories, please see Q-DEM sheet   |

3-year parts and labor, more Lenovo® services see S-TS sheet

Limited Warranty

More compatible accessories, please see O-DEM sheet

## ThinkStation® E31 Tower (2552) - March 2013 - III

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical  | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis intrusion switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|-------------------|-----------------|---------------|---------------------|---------------|------------------|--------------------------|----------------------------|
| 2552-DBU                    | Xeon E3-1275V2 | 1600MHz ECC         | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW        | Quadro K2000        | No            | No               | Switch                   | Win7 Pro64(DG)             |
| 2552-DCU                    | Core i3-2130   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD       | Media           | DVD±RW        | Intel HD 2000       | No            | No               | Switch                   | Win7 Pro64(DG)             |
| 2552-DDU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD       | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                   | Win7 Pro64(DG)             |
| 2552-DEU                    | Xeon E3-1275V2 | 1600MHz ECC         | 1x4GB           | No               | 1x256GB SSD       | Media           | DVD±RW        | Quadro K600         | No            | No               | Switch                   | Win7 Pro64(DG)             |
| 2552-DFU                    | Core i3-3220   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600         | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-DGU                    | Core i3-3220   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Intel HD 2500       | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-DHU                    | Core i3-3220   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Quadro 410          | No            | No               | Switch                   | Win8 Pro64                 |

Model in italics shows that this is a Global Model Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), Processor Tower integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Implementation One LGA1155 socket 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, Memory four 240-pin DIMM sockets; Additional memory Actual memory operating speed depends on processor memory disclaimers controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported Some: Intel HD Graphics in processor, uses main memory, works along with Graphics discrete graphics to support multi-display; (detailed graphics model name please see **Processor** section, connector information please see Rear ports section)
Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB,
one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W Media reader 29-in-1 Media card reader in selected models, internal USB 2.0 Optical DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: 2.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5 Drive(s) SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Onboard SATA Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset Onboard SAS Chipset Intel C216 Chipset Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Rear ports Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort<sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable IEEE 1394 adptr No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Audio

optical (2) 3 disk ----

- Raven black color; metal case
  - 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration
- 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal

for disk

- Toolless adapter retention
- Illuminated front icons
- · Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open for media reader for disk

Slot 1: half-length, full-height, PCle\* x16 (75w max, near CPU)
\* PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models

Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3

#### Intel AMT

Intel AMT supported on model(s) with Xeon processor

### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Some: Windows 7 Professional 64 Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

### Preloaded applications<sup>5</sup> (only some listed)

### -Windows 7 models

- Rescue and Recovery<sup>®</sup> Norton™ Internet Security (30 days of virus definitions)

Adobe® Reader®

- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

#### -Windows 8 models

- Evernote<sup>o</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- · Security chip (see information on left) Padlock loop (in rear for opt padlock;
- padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable;
- prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

Internal speaker for business audio

TCG 1.2-compliant

GREENGUARD® certified

**ENERGY STAR 5.2-compliant** 

Supports ThinkVantage® technologies

RoHS-compliant EPEAT™ Gold rating

One onboard gigabit ethernet, Intel 82579

Optical Wheel Mouse (USB connector), black

STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),

Preferred Pro USB Keyboard (USB connector), 104-key, black

280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

See the latest list of ISV certifications at www.lenovo.com/support/ISV

3-year parts and labor, more Lenovo® services see S-TS sheet

Speaker

**Ethernet** 

Keyboard

Mouse

Security chip

Power supply

Eco-Label and

environmental certifications

ThinkVantage

ISV certifications

**Limited Warranty** 

## ThinkStation® E31 Tower (2552) - March 2013 - IV

| Type-<br>model <sup>1</sup> | Processor    | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|--------------|---------------------|-----------------|------------------|-------------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------------|----------------------------|
| 2552-DJU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DKU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DLU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DMU                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DNU                    | Core i5-3470 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DPU                    | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DQU                    | Core i5-3550 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |

- Model in italics shows that this is a Global Model
  Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

| 2 Win7 Pro64(DG) = Wir        | ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |   |
|-------------------------------|---|---|
| Processor                     | Intel® Core™ i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)  |   |
| Implementation                | One LGA1155 socket  | 1 |
| Memory                        | <b>32GB</b> max, <b>UDIMM</b> , <b>PC3-12800 1600MHz DDR3</b> , <b>ECC</b> or <b>non-ECC</b> , four 240-pin DIMM sockets;   |   |
| Additional memory disclaimers | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   |   |
| Graphics                      | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W |   |
| Media reader                  | 29-in-1 Media card reader in selected models, internal USB 2.0  | 1 |
| Optical                       | DVD, DVD±RW, or Blu-ray, depending on model   | H |
| Drive(s)                      | 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"   |   |
| Onboard SATA                  | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset   |   |
| Onboard SAS                   | None  |   |
| Chipset                       | Intel C216 Chipset  | 1 |
| Front ports<br>Rear ports     | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort <sup>TM</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable                         |   |
| IEEE 1394 adptr               | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  |   |
| Audio                         | High Definition (HD) Audio, Realtek® ALC662 codec   | 1 |
| Speaker                       | Internal speaker for business audio   |   |
| Ethernet                      | One onboard gigabit ethernet, Intel 82579   |   |
| Security chip                 | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  |   |
| Keyboard                      | Preferred Pro USB Keyboard (USB connector), 104-key, black  |   |
| Mouse                         | Optical Wheel Mouse (USB connector), black  | 1 |
| Power supply                  | 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | F |
| Eco-Label and                 | GREENGUARD® certified   |   |
| environmental certifications  | RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant   |   |
| ISV certifications            | See the latest list of ISV certifications at www.lenovo.com/support/ISV   | 1 |
| ThinkVantage                  | Supports ThinkVantage® technologies   | 1 |
| Limited Marranty              | 2 year parts and labor more Langua® cornigon and C TC about   | + |

3-year parts and labor, more Lenovo® services see S-TS sheet

Tower



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration
- 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- · Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open

for media reader

for disk for disk

Slot 1: half-length, full-height, PCIe\* x16 (75w max, near CPU)

PCIe 2.0 x16 on Core i3/Pentium/Celeron models. PCIe 3.0

x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3

### Slot 4: half-length, full-height, 32-bit PCI 2.3 Intel AMT

Intel AMT supported on model(s) with Xeon processor

### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Some: Windows 7 Professional 64 Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

### Preloaded applications<sup>5</sup> (only some listed)

#### -Windows 7 models

- Rescue and Recovery®
   Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

#### -Windows 8 models

- Evernote<sup>o</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™ Microsoft Office 2013 preloaded;
- purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- Security chip (see information on left) Padlock loop (in rear for opt padlock;
- padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable;
- prohibits side cover removal)
- Power-on password
- Administrator password · Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

Limited Warranty

# ThinkStation® E31 Tower (2552) - March 2013 - V

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|-------------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------------|----------------------------|
| 2552-DRU                    | Core i5-3570   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD 2500       | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DSU                    | Core i5-3570   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DTU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DUU                    | Xeon E3-1225V2 | 1600MHz ECC         | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Intel HD P4000      | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DVU                    | Xeon E3-1225V2 | 1600MHz ECC         | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DWU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-DYU                    | Xeon E3-1245V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                         | Win8 Pro64                 |

| 1 Model in italics shows<br>2 Win7 Pro64(DG) = Wir | that this is a Global Model<br>adows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |   |
|--|--|---|
| Processor  | Intel® Core™ i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button |
| Implementation                                     | One LGA1155 socket   | Bay 1: 5.25", 1.6" high, access, for optical  |
| Memory<br>Additional memory<br>disclaimers         | <ul> <li>32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</li> <li>Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   | Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk  Slot 1: half-length, full-height, PCle* x16   |
| Graphics   | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W  | (75w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCl 2.3  Intel AMT   |
| Media reader<br>Optical<br>Drive(s)                | 29-in-1 Media card reader in selected models, internal USB 2.0 DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange),  | Intel AMT supported on model(s) with Xeon processor  Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64  Some: Windows 7 Professional 64  preinstalled through downgrade rights in Windows 8 Pro 64-bit  |
| Onboard SAS  | RAID 0, 1 support via Intel C216 Chipset   | Some: Windows 8 Pro 64-bit  |
| Chipset  | None Intel C216 Chipset  | Preloaded applications <sup>5</sup> (only some listed)  |
| Front ports<br>Rear ports                          | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable   | -Windows 7 models  Rescue and Recovery®  Norton™ Internet Security (30 days of virus definitions)  Adobe® Reader®  Microsoft® Office 2013 preloaded; purchase product key to activate  Corel® WinDVD® (DVD±RW model(s))  Ulead® DVD MovieFactory® (DVD±RW model(s))  -Windows 8 models  |
| Audio<br>Speaker<br>Ethernet<br>Security chip      | No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | Evernote®     Norton Internet Security (30 days of virus definitions)     Norton Studio     Skype™     Microsoft Office 2013 preloaded;     purchase product key to activate     Cyberlink Power2Go (DVD±RW model(s))     Cyberlink PowerProducer (DVD±RW model(s))   |
| Keyboard<br>Mouse<br>Power supply                  | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | SECURITY     Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional)  |
| Eco-Label and environmental certifications         | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  | Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password   |
| ISV certifications                                 | See the latest list of ISV certifications at www.lenovo.com/support/ISV  | Boot sequence control     Boot without keyboard, mouse  |
| ThinkVantage<br>Limited Warranty                   | Supports ThinkVantage® technologies  3-year parts and labor, more Lenovo® services see S-TS sheet  | Serial port I/O control     USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)  More compatible accessories, please see O-DEM sheet.  |

More compatible accessories, please see O-DEM sheet

## ThinkStation® E31 Tower (2552) - March 2013 - VI

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical  | Graphics<br>adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis intrusion switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|-------------------|-----------------|---------------|------------------------|---------------|------------------|--------------------------|----------------------------|
| 2552-DZU                    | Xeon E3-1245V2 | 1600MHz ECC         | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW        | Quadro K2000           | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E1U                    | Xeon E3-1275V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW        | Quadro 410             | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E2U                    | Xeon E3-1275V2 | 1600MHz ECC         | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | <b>DVD±RW</b> | Quadro K600            | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E3U                    | Xeon E3-1275V2 | 1600MHz ECC         | 1x4GB           | No               | 1x1TB 3.5" SATA   | Media           | DVD±RW        | Quadro K2000           | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E4U                    | Core i3-2130   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD       | Media           | DVD±RW        | Intel HD 2000          | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E5U                    | Core i5-3550   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD       | Media           | DVD±RW        | Quadro 410             | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E6U                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD       | Media           | DVD±RW        | Quadro K600            | No            | No               | Switch                   | Win8 Pro64                 |

Model in italics shows that this is a Global Model Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), Processor Tower integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, optical Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) 27.56 lb (12.5kg) max configuration Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, (2) 25-liter 3) disk Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, ----DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, Toolless adapter retention Illuminated front icons · Recessed power button DDR3 memory controller (up to 1600MHz) Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, Implementation One LGA1155 socket Memory 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; Additional memory Actual memory operating speed depends on processor memory for disk controller speed, installed memory speed, and quantity of memory DIMMs disclaimers • Mixing of ECC and non-ECC memory is not supported Slot 1: half-length, full-height, PCle\* x16 (75w max, near CPU) Graphics Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; x16 on Xeon/Core i5/Core i7 models (detailed graphics model name please see Processor section, Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 connector information please see Rear ports section) Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, Intel AMT one DisplayPort, one dual-link DVI-I, 41W Intel AMT supported on model(s) with Xeon processor Some: NVIDIA Quadro K2000, PCle x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W Media reader 29-in-1 Media card reader in selected models, internal USB 2.0 Windows® 7 Professional 64 Some: Optical DVD, DVD±RW, or Blu-ray, depending on model Some: SATA 6.0Gb/s, 7200 rpm, 3.5" SATA 6.0Gb/s, 10000 rpm, 2.5" Solid State Drive, SATA 6.0Gb/s, 2.5" 3.5" SATA: 2.5" SATA: Drive(s) Windows 8 Pro 64-bit SSD: Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset Onboard SATA -Windows 7 models Onboard SAS None Rescue and Recovery®
 Norton™ Internet Security (30 days of virus definitions) Intel C216 Chipset Chipset Adobe® Reader® Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, Microsoft® Office 2013 preloaded; Rear ports purchase product key to activate Corel® WinDVD® (DVD±RW model(s))
Ulead® DVD MovieFactory® (DVD±RW model(s)) one DisplayPort connector (Onboard VGA and DisplayPort<sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) -Windows 8 models PS/2 models: additional PS/2 keyboard and mouse connectors Evernote<sup>o</sup> via PS/2 rear I/O cable · Norton Internet Security (30 days of virus definitions) IEEE 1394 adptr No onboard 1394 ports; Norton Studio 1394 models: additional FireWire PCIe adapter, 1394a-2000, Skype™ 400Mbps, two 6-pin ports on rear Microsoft Office 2013 preloaded; purchase product key to activate
Cyberlink Power2Go (DVD±RW model(s)) High Definition (HD) Audio, Realtek® ALC662 codec Audio Speaker Internal speaker for business audio Ethernet One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), Security chip TCG 1.2-compliant Security chip (see information on left) Preferred Pro USB Keyboard (USB connector), 104-key, black Keyboard Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Optical Wheel Mouse (USB connector), black Mouse Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Power supply Eco-Label and GREENGUARD® certified Power-on password environmental RoHS-compliant Administrator password EPEAT™ Gold rating certifications Boot sequence control **ENERGY STAR 5.2-compliant** 

See the latest list of ISV certifications at www.lenovo.com/support/ISV

3-year parts and labor, more Lenovo® services see S-TS sheet

Supports ThinkVantage® technologies

- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal

for optical open for media reader for disk

PCIe 2.0 x16 on Core i3/Pentium/Celeron models. PCIe 3.0

Slot 4: half-length, full-height, 32-bit PCI 2.3

#### Preloaded operating system<sup>20</sup>

Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

### Preloaded applications<sup>5</sup> (only some listed)

- Cyberlink PowerProducer (DVD±RW model(s))

- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

ISV certifications

**Limited Warranty** 

ThinkVantage

# ThinkStation® E31 Tower (2552) - March 2013 - VII

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)    | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis intrusion switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|-------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------|----------------------------|
| 2552-E7U                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E8U                    | Xeon E3-1245V2 | 1600MHz ECC         | 1x4GB           | No               | 1x180GB SSD | Media           | DVD±RW       | Quadro 410          | No            | No               | Switch                   | Win8 Pro64                 |
| 2552-E9U                    | Xeon E3-1275V2 | 1600MHz ECC         | 1x4GB           | No               | 1x256GB SSD | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                   | Win8 Pro64                 |

- 1 Model in italics shows that this is a Global Model

|  | that this is a Global Model<br>ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |  |
|--|--|--|
| Processor  Implementation  | Intel® Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) One LGA1155 socket | Prover  Raven black color; metal case 6.9"W x 17.0"D x 16.7"H (with handle) 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration 25-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal   |
| Memory   | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,   | Toolless adapter retention   |
| disclaimers  | four 240-pin DIMM sockets;  • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported  | • Illuminated front icons     • Recessed power button  Bay 1: 5.25", 1.6" high, access, for optical  |
| Graphics   | Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W   | Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk   |
| Media reader<br>Optical<br>Drive(s)<br>Onboard SATA<br>Onboard SAS | 29-in-1 Media card reader in selected models, internal USB 2.0 DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset None  | Slot 1: half-length, full-height, PCle* x16 (75w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCle 2.0 x1 Slot 3: half-length, full-height, 32-bit PCl 2.3 Slot 4: half-length, full-height, 32-bit PCl 2.3   |
| Chipset  | Intel C216 Chipset   | Intel AMT  |
| Front ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm)   | Intel AMT supported on model(s) with Xeon processor  |
| Rear ports   | Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort <sup>TM</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors   | Some: Windows 7 Professional 64 Some: Windows 7 Professional 64 Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit   |
| IEEE 1394 adptr  | via PS/2 rear I/O cable  No onboard 1394 ports;  1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear   | Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models • Rescue and Recovery®  |
| Audio  | High Definition (HD) Audio, Realtek® ALC662 codec  | Norton™ Internet Security (30 days of virus definitions)     Adeba® Beada®   |
| Speaker  | Internal speaker for business audio  | Adobe® Reader®     Microsoft® Office 2013 preloaded;   |
| Ethernet<br>Security chip  | One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | purchase product key to activate  Corel® WinDVD® (DVD±RW model(s))  Ulead® DVD MovieFactory® (DVD±RW model(s))   |
| Keyboard   | Preferred Pro USB Keyboard (USB connector), 104-key, black   | -Windows 8 models  |
| Mouse<br>Power supply  | Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,<br>Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | Evernote®     Norton Internet Security (30 days of virus definitions)     Norton Studio  |
| Eco-Label and environmental certifications                         | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  | Skype <sup>™</sup> Microsoft Office 2013 preloaded;     purchase product key to activate     Cyberlink Power2Go (DVD±RW model(s))     Cyberlink PowerProducer (DVD±RW model(s))  |
| ISV certifications   | See the latest list of ISV certifications at www.lenovo.com/support/ISV  | SECURITY   |
| ThinkVantage Limited Warranty                                      | Supports ThinkVantage® technologies  3-year parts and labor, more Lenovo® services see S-TS sheet  | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s) |
|  |  | More compatible accessories, please see O-DEM sheet  |

More compatible accessories, please see O-DEM sheet

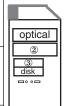
## ThinkStation® E31 Tower (2552) - May 2013

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)        | Media<br>reader | SATA optical | Graphics<br>adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|-----------------|-----------------|--------------|------------------------|---------------|------------------|--------------------------------|----------------------------|
| 2552-EAU                    | Xeon E3-1290V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW       | Quadro K2000           | No            | No               | Switch                         | Win7 Pro64(DG)             |
| 2552-EBU                    | Xeon E3-1290V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW       | Quadro K2000           | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-ECU                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW       | Quadro K2000           | No            | No               | Switch                         | Win8 Pro64                 |
| 2552-EDU                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA | Media           | DVD±RW       | Quadro K2000           | No            | No               | Switch                         | Win7 Pro64(DG)             |

- Model in italics shows that this is a Global Model
  Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

| Processor                                  | Intel® Xeon® E3-1280V2 processor (4C/8T, 3.6GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.0GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1290V2 processor (4C/8T, 3.7GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.1GHz), DDR3 memory controller (up to 1600MHz) |
|--|---|
| Implementation                             | One LGA1155 socket  |
| Memory                                     | <b>32GB</b> max, <b>UDIMM</b> , <b>PC3-12800 1600MHz DDR3</b> , <b>ECC</b> or <b>non-ECC</b> , four 240-pin DIMM sockets;   |
| Additional memory disclaimers              | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   |
| Graphics                                   | <b>NVIDIA® Quadro® K2000</b> , PCIe x16 adapter, 2GB, two DisplayPort™, one dual-link DVI-I, 51W  |
| Media reader<br>Optical<br>Drive(s)        | 29-in-1 Media card reader in selected models, internal USB 2.0 DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"                                |
| Onboard SATA                               | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset   |
| Onboard SAS                                | None  |
| Chipset                                    | Intel C216 Chipset  |
| Front ports<br>Rear ports                  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector                        |
|  | (Onboard VGA and DisplayPort <sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable                 |
| IEEE 1394 adptr                            | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  |
| Audio<br>Speaker<br>Ethernet               | High Definition (HD) Audio, Realtek® ALC662 codec<br>Internal speaker for business audio<br>One onboard gigabit ethernet, Intel 82579   |
| Security chip                              | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  |
| Keyboard<br>Mouse                          | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black  |
| Power supply                               | 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  |
| Eco-Label and environmental certifications | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant   |
| ISV certifications                         | See the latest list of ISV certifications at www.lenovo.com/support/ISV   |
| ThinkVantage                               | Supports ThinkVantage® technologies   |
| Limited Warranty                           | 3-year parts and labor, more Lenovo® services see S-TS sheet  |

#### Tower



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 27.56 lb (12.5kg) max configuration 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- · Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 5.25", 1.6" high, access, Bay 3: 3.5", 1" high, access, Bay 4: 3.5", 1" high, internal, Bay 5: 3.5", 1" high, internal, for optical open for media reader

for disk for disk

Slot 1: half-length, full-height, PCIe\* x16 (75w max, near CPU)

PCIe 2.0 x16 on Core i3/Pentium/Celeron models. PCIe 3.0 x16 on Xeon/Core i5/Core i7 models

Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3

#### Intel AMT

Intel AMT supported on model(s) with Xeon processor

#### Preloaded operating system<sup>20</sup> Windows® 7 Professional 64 Some: Windows 7 Professional 64 Some:

preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

### Preloaded applications<sup>5</sup> (only some listed)

#### -Windows 7 models

- Rescue and Recovery®
   Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

#### -Windows 8 models

- Evernote<sup>o</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- · Security chip (see information on left) Padlock loop (in rear for opt padlock;
- padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable;
- prohibits side cover removal)
- Power-on password
- Administrator password · Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2553) - GMP

|          |                |             |        |          |              |        |         |                |       |        | Chassis   |          |         |
|----------|----------------|-------------|--------|----------|--------------|--------|---------|----------------|-------|--------|-----------|----------|---------|
| Type-    |                | Memory      | Memory | Pre-conf |              | Media  | SATA    | Graphics       | 1394  |        | intrusion | PS/2     | Win7    |
| model    | Processor      | (MHz/ECC)   | DIMMs  | RAID     | Disk(s)      | reader | optical | adapter(s)     | adptr | Global | switch    | rear I/O | preload |
| 2553-11U | Xeon E3-1240V2 | 1600MHz ECC | 2x2GB  | No       | 1x1TB SATA   | Media  | DVD±RW  | Quadro 600     | No    | Global |           | PS/2     | Pro 64  |
| 2553-12U | Xeon E3-1225V2 | 1600MHz ECC | 2x2GB  | No       | 1x1TB SATA   | Media  | DVD±RW  | Quadro 600     | No    | Global | Switch    |          | Pro 64  |
| 2553-13U | Xeon E3-1270V2 | 1600MHz ECC | 2x2GB  | No       | 1x2TB SATA   | Media  | DVD±RW  | Quadro 2000    | No    | Global |           |          | Pro 64  |
| 2553-14U | Xeon E3-1275V2 | 1600MHz ECC | 2x2GB  | No       | 1x256GB SSD  | Media  | DVD±RW  | Intel HD P4000 | No    | Global | Switch    |          | Pro 64  |
| 2553-15U | Xeon E3-1290V2 | 1600MHz ECC | 2x2GB  | No       | 1x256GB SSD  | Media  | DVD±RW  | Quadro 2000    | No    | Global | Switch    |          | Pro 64  |
| 2553-18U | Core i3-2130   | 1600MHz ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 400     | No    | Global | Switch    | PS/2     | Pro 64  |
| 2553-21U | Xeon E3-1245V2 | 1600MHz ECC | 1x4GB  | No       | 1x500GB SATA | Media  | DVD±RW  | Quadro 600     | No    | Global | Switch    | PS/2     | Pro 64  |

| integrated Intel HD Griphics 2006, DDR3 memory controller (up to 1333MHz) Intel Xson* E3 (10) to 1,500 (2014), integrated intel HD Griphics P4000, Intel Xson* E3 (10) to 1,500 (2014), integrated intel HD Griphics P4000, Intel Xson* E3 (10) to 1,500 (2014), integrated intel HD Griphics P4000, Intel Xson* E3 (10) to 1,500 (2014), intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (10) to 1,500 (2014), intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Intel Xson* E3 (12) (up to 3,5014), DDR3 memory controller (up to 1600MHz) Implementation  Memory  326B msx (UpMM) PC3-12800 for 650MHz DDR3 ECC or non-ECC four 240-pin DIMM sockets;  Additional memory  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) (up to 1600MHz)  - controller specks intelligent (12) |   | Part of the Global Models Plus (GMP) program with limited onsite service 3-year lim   | ited warranty  |
|--|---|---|--|
| Memony   32GB max, UDIMM P.C3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets: Additional memory   Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs   Mixing of ECC and non-ECC memory is not supported   PCIe 20 At 60 and Core (Alternative Celeron models, PCIe 3.0 and Core 13-2120/2130: Intel HD Graphics Pd000   Intel HD Graphics page, installed memory speed, and quantity of memory, works along with discrete graphics to support multi-display: Xeon E3-1225V2/145V2/1275V2 intel HD Graphics Pd000   Intel HD Graphics Pd000   PCIe 12 and EAD Pentium/Celeron: (commector information please see Rear ports section)   Some: NVIDIA Quadro 2000, PCIe x 16 adapter, 15RB, one DisplayPort on qual-link DVI-I, 32W   Some: NVIDIA Quadro 2000, PCIe x 16 adapter, 15RB, one DisplayPort on qual-link DVI-I, 32W   Some: NVIDIA Quadro 2000, PCIe x 16 adapter, 15RB, one DisplayPort on qual-link DVI-I, 32W   Intel AMT   I   | Processor   | integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)  Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache),  Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000,  DDR3 memory controller (up to 1600MHz)  Intel Xeon E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache),  Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz)  Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache),  Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000,  DDR3 memory controller (up to 1600MHz)  Intel Xeon E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache),  Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)  Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache),  Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000,  DDR3 memory controller (up to 1600MHz)  Intel Xeon E3-1290V2 processor (4C/8T, 3.7GHz, 8MB Cache),  Turbo Boost 2.0 (up to 4.1GHz), DDR3 memory controller (up to 1600MHz) | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button  Bay 1: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for optical |
| Additional memory of actual memory operating speed depends on processor memory of the disclaimers of controller speed, installed memory speed, and quantity of memory 19MMs of ECC and non-ECC memory is not supported controller speed, installed memory speed, and quantity of memory 19MMs of ECC and non-ECC memory is not supported controller speed, installed memory speed, and quantity of memory 19MMs of ECC and non-ECC memory is not supported controller speed, installed memory 19MMs of ECC and non-ECC memory is not supported controller speed, installed memory 19MMs of ECC and non-ECC memory is not supported controller speed installed in the ECC and non-ECC memory is not supported controller speed installed in the ECC and non-ECC memory is not supported controller speed installed in the ECC and non-ECC memory is not supported controller speed installed in the ECC and non-ECC memory is not supported controller speed installed in the ECC and non-ECC memory is not supported controller speed installed in the ECC and non-ECC memory is not supported controller speed installed in the ECC and non-ECC memory is not supported controller speed in the ECC information in the ECC information of the ECC information in  | Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,  | Bay 4: 3.5", 1" high, internal, for disk<br>Bay 5: 3.5", 1" high, internal, for disk   |
| Sid 2: half-length, full-height, PCIe 2.0 xt   | Additional memory disclaimers                                     | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> </ul>  | * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0   |
| one DisplayPort, one dual-link DVI-I, 40W Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W  Media: 29-in-1 Media card reader, internal USB 2.0 Optical Disk(s) 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 2008 Onboard SATA  | Graphics  | discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000  Core i3-2120/2130: Intel HD Graphics 2000  Pentium/Celeron: Intel HD Graphics  (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 400, PCle x16 adapter, 512MB,  one DisplayPort™, one dual-link DVI-I. 32W   | Slot 2: half-length, full-height, PCIe 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Media reader Optical   |   | one DisplayPort, one dual-link DVI-I, 40W Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB,  | Intel AMT supported on model(s) with Xeon processor  |
| Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable  No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  Audio High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio Speaker Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Keyboard Mouse Optical Wheel Mouse (USB connector), black Power supply  Internal Speaker S Computting Bronze, 80 PLUS® Bronze qualified  VIead® DVD MovieFactory (DVD±RW model(s))  SECURITY  Security chip (see information on left)  Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  Pedictory (Onboard RyJa Dorts; 1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Kensington® Microsaver® cable; prohibits side cover removal)  Power-on password  Administrator password  Boot sequence control  Boot without keyboard, mouse  Serial port I/O control  USB port disablement (front or all/individual)  Chassis intrusion switch available on selected model  ISV certifications  Please visit www.lenovo.com/support/ISV  GREENGUARD® certified  ROHS® Compliant  EPEAT™ Gold rating  ENERGY STAR 5.2-compliant  | Media reader<br>Optical<br>Disk(s)<br>Onboard SATA<br>Onboard SAS | Media: 29-in-1 Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset  | Windows® 7 Professional 64     Preloaded applications⁵ (only some listed)     Rescue and Recovery®     Norton® Internet Security (30 days of virus definitions)     Adobe® Reader®     Microsoft® Office 2013 preloaded;     purchase product key to activate  |
| Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable  No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  Audio Speaker Ethernet One onboard gigabit ethernet, Intel 82579 Security chip Keyboard Mouse Optical Wheel Mouse (USB connector), black Power supply  TcG 1.2-compliant  Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors, and DisplayPort connector, one DisplayPort connector, one DisplayPort connector, one DisplayPort (products display addictory one DisplayPort (products display addictory one DisplayPort (products display addictory one Display Porticing Administrator password  Security chip (rear for optional Kensington Microsaver® cable; prohibits side cover removal)  Power-on password  Administrator password  Boot without keyboard, mouse  Serial port I/O control  USB port disablement (front or all/individual)  • Chassis intrusion switch available on selected model  Boot without keybo  | Chipset   |   |  |
| IEEE 1394 adptr  No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  Audio Audio Speaker Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 Security chip Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Keyboard Mouse Power supply Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  No onboard 1394 ports; 180 destroic Sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all/individual) Chassis intrusion switch available on selected model Chassis intrusion switch a  | Front ports<br>Rear ports   | Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors   | Security chip (see information on left)     Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password  |
| Speaker Ethernet One onboard gigabit ethernet, Intel 82579 Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  Keyboard Mouse Power supply Power supply Climate Savers Computing Bronze, 80 PLUS® Bronze qualified  Internal speaker for business audio  • Chassis intrusion switch available on selected model  ISV certifications Please visit www.lenovo.com/support/ISV  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant   | IEEE 1394 adptr   | 1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  | Boot sequence control     Boot without keyboard, mouse     Serial port I/O control   |
| Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Mouse Optical Wheel Mouse (USB connector), black Power supply 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified ENERGY STAR 5.2-compliant   | Speaker<br>Ethernet<br>Security chip                              | Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),  | Chassis intrusion switch available on selected model(s)  ISV certifications  |
| Mouse Optical Wheel Mouse (USB connector), black Power supply 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified ENERGY STAR 5.2-compliant  Light Hamman Annual Property of the Part of the Par  | Keyboard  | · · · · · · · · · · · · · · · · · · ·   |  |
| Limited Warranty 3-year parts and labor; more Lenovo® services see on S-TS sheet More compatible accessories, please see O-DEM sheet   | Mouse<br>Power supply   | Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,  | RoHS-compliant<br>EPEAT™ Gold rating   |
|  | Limited Warranty  | 3-year parts and labor; more Lenovo® services see on S-TS sheet   | More compatible accessories, please see O-DEM sheet  |

# ThinkStation® E31 Tower (2553) - GMP II

|          |                |                 |          |          |                    |        |         |                |       |        | Chassis   |          |         |
|----------|----------------|-----------------|----------|----------|--------------------|--------|---------|----------------|-------|--------|-----------|----------|---------|
| Type-    |                | Memory          | Memory I | Pre-conf |                    | Media  | SATA    | Graphics       | 1394  |        | intrusion | PS/2     | Win7    |
| model    | Processor      | (MHz/ECC)       | DIMMs    | RAID     | Disk(s)            | reader | optical | adapter(s)     | adptr | Global | switch    | rear I/O | preload |
| 2553-16U | Core i7-3770   | 1600MHz Non-ECC | 1x4GB    | No       | 180GB SSD+1TB SATA | Media  | DVD±RW  | Intel HD 4000  | No    | Global | Switch    |          | Pro 64  |
| 2553-17U | Xeon E3-1225V2 | 1600MHz ECC     | 1x4GB    | No       | 1x500GB SATA       |        | DVD±RW  | Intel HD P4000 | No    | Global | Switch    |          | Pro 64  |
| 2553-19U | Core i7-3770   | 1600MHz Non-ECC | 1x4GB    | No       | 1x500GB SATA       | Media  | DVD±RW  | Quadro 2000    | No    | Global | Switch    | PS/2     | Pro 64  |

• Part of the Global Models Plus (GMP) program with limited onsite service 3-year limited warranty

| Processor                 | Intel® Core™ i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)   | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter   |
|---------------------------|---|--|
| Implementation            | One LGA1155 socket  | Removable handle on top front  |
| Memory                    | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   | Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention   |
| disclaimers               | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   | Illuminated front icons     Recessed power button  |
| Graphics                  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 2000, PCle x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W   | Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Slot 1: half-length, full-height, PCle* x16 (75w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, |
| Media reader              | Media: 29-in-1 Media card reader, internal USB 2.0  | PCIe 3.0 x16 on Xeon/Core i5/Core i7 models  |
| Optical<br>Disk(s)        | Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"  | Slot 2: half-length, full-height, PCIe 2.0 x1<br>Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Onboard SATA              | 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset  |  |
| Onboard SAS               | None  |  |
| Chipset                   | Intel C216 Chipset  | Intel AMT Intel AMT supported on model(s) with Xeon processor  |
| Front ports<br>Rear ports | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable | Preloaded operating system <sup>20</sup> • Windows® 7 Professional 64  Preloaded applications⁵ (only some listed)  • Rescue and Recovery®  • Norton® Internet Security (30 days of virus definitions)  • Adobe® Reader®  • Microsoft® Office 2013 preloaded;   |
| IEEE 1394 adptr           | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  | purchase product key to activate  Corel® WinDVD® (DVD±RW model(s))  Ulead® DVD MovieFactory® (DVD±RW model(s))   |
| Audio                     | High Definition (HD) Audio, Realtek® ALC662 codec   | SECURITY   |
| Speaker<br>Ethernet       | Internal speaker for business audio One onboard gigabit ethernet, Intel 82579   | Security chip (see information on left)  |
| Security chip             | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional   |
| Keyboard                  | Preferred Pro USB Keyboard (USB connector), 104-key, black  | Kensington® Microsaver® cable;<br>prohibits side cover removal)  |
| Mouse<br>Power supply     | Optical Wheel Mouse (USB connector), black<br>280 watts with variable speed fan, autosensing, 85% PSU,  | Power-on password  |
| rower supply              | Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | Administrator password     Boot sequence control   |
| Limited Warranty          | 3-year parts and labor; more Lenovo® services see on S-TS sheet   | Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)  |
|                           |   | ISV certifications Please visit www.lenovo.com/support/ISV   |
|                           |   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  |
|                           |   |  |

More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 Tower (2553) - GMP (October 2012)

|          |              |             |        |          |              |        |         |            |       |        | Chassis   |          |            |
|----------|--------------|-------------|--------|----------|--------------|--------|---------|------------|-------|--------|-----------|----------|------------|
| Type-    |              | Memory      | Memory | Pre-conf |              | Media  | SATA    | Graphics   | 1394  |        | intrusion | PS/2     | Preload    |
| model    | Processor    | (MHz/ECC)   | DIMMs  | RAID     | Disk(s)      | reader | optical | adapter(s) | adptr | Global | switch    | rear I/O | os         |
| 2553-A4U | Core i3-2130 | 1600MHz ECC | 1x4GB  | No       | 1x500GB SATA | No     | DVD±RW  | Quadro 410 | No    | Global | Switch    | No       | Win8 Pro64 |

| Processor   | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)   | Raven black color; metal case   |
|---|--|---|
| Implementation Memory   | One LGA1155 socket  32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,   | 6.9"W x 17.0"D x 16.7"H (with handle)     175mm W x 431mm D x 425mm H     27.56 lb (12.5kg) max configuration   |
| Additional memory disclaimers                                     | <ul> <li>four 240-pin DIMM sockets;</li> <li>Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>  | • 25-liter     • Removable handle on top front     • Toolless side cover removal  |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W   | • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button  Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk   |
| Media reader<br>Optical<br>Disk(s)<br>Onboard SATA<br>Onboard SAS | Media: 29-in-1 Media card reader, internal USB 2.0  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"  150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"  SATA 6.0Gb/s, 10000 rpm, 2.5"  Solid State Drive, SATA 6.0Gb/s, 2.5"  Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset  None  | Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3  |
| Chipset   | Intel C216 Chipset   | Intel AMT Intel AMT supported on model(s) with Xeon processor   |
| Front ports<br>Rear ports   | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable                    | Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64 Some: Windows 8 Pro 64-bit Preloaded applications⁵ (only some listed) -Windows 7 models • Rescue and Recovery® • Norton™ Internet Security (30 days of virus definitions)   |
| Audio Speaker Ethernet Security chip  Keyboard Mouse Power supply | No onboard 1394 ports;  1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified | Adobe® Reader®     Microsoft® Office 2013 preloaded; purchase product key to activate     Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))      Windows 8 models     Intel AppUp®     Evernote®     Norton Internet Security (30 days of virus definitions)     Norton Studio     Skype™     Microsoft Office 2013 preloaded; purchase product key to activate   |
| Limited Warranty  | 3-year parts and labor, more Lenovo® services see S-TS sheet   | Cyberlink Power2Go (DVD±RW model(s))  |
| Eco-Label and environmental certifications                        | GREENGUARD® certified RoHS-compliant EPEATTM Gold rating ENERGY STAR 5.2-compliant   | • Cyberlink PowerProducer (DVD±RW model(s))  SECURITY   |
| ISV certifications  | See the latest list of ISV certifications at www.lenovo.com/support/ISV  | Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all/individual) Chassis intrusion switch available on selected model(s)  More compatible accessories, please see O-DEM sheet |

# ThinkStation® E31 Tower (2553) - GMP (March 2013)

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | Drive(s)          | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | PS/2<br>rear I/O | Chassis<br>intrusion<br>switch |                |
|-----------------------------|----------------|---------------------|-----------------|------------------|-------------------|-----------------|--------------|---------------------|---------------|------------------|--------------------------------|----------------|
| 2553-A7U                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2553-A8U                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K2000        | No            | No               | Switch                         | Win8 Pro64     |
| 2553-A9U                    | Xeon E3-1245V2 | 1600MHz ECC         | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win7 Pro64(DG) |
| 2553-AAU                    | Xeon E3-1245V2 | 1600MHz ECC         | 1x4GB           | No               | 1x500GB 3.5" SATA | Media           | DVD±RW       | Quadro K600         | No            | No               | Switch                         | Win8 Pro64     |

- 1 Model in italics shows that this is a Global Model
- 2 Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

| 2 Win7 Pro64(DG) = Wi         | ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |  |
|-------------------------------|---|--|
| Processor                     | Intel® Core™ i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) | • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter   |
| Implementation                | One LGA1155 socket  | • Removable handle on top front  |
| Memory                        | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   | Toolless side cover removal Toolless disk and optical drive removal  |
| Additional memory disclaimers | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   | Toolless adapter retention     Illuminated front icons     Recessed power button   |
| Graphics                      | Some: NVIDIA® Quadro® K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W  | Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader  |
| Media reader<br>Optical       | 29-in-1 Media card reader in selected models, internal USB 2.0 DVD, DVD±RW, or Blu-ray, depending on model  | Bay 4: 3.5", 1" high, internal, for disk<br>Bay 5: 3.5", 1" high, internal, for disk   |
| Drive(s)                      | 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"   | Slot 1: half-length, full-height, PCIe* x16<br>(75w max, near CPU)<br>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0   |
| Onboard SAS                   | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset   | x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCle 2.0 x1   |
| Onboard SAS                   | None  | Slot 3: half-length, full-height, 32-bit PCI 2.3<br>Slot 4: half-length, full-height, 32-bit PCI 2.3   |
| Chipset                       | Intel C216 Chipset  | +  |
| Front ports<br>Rear ports     | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector,  | inter Airr supported on model(s) with Aeon processor   |
| IEEE 1394 adptr               | one DisplayPort connector (Onboard VGA and DisplayPort <sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable No onboard 1394 ports;                                      | Some: Windows 7 Professional 64 Some: Windows 7 Professional 64 Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit   |
|                               | 1394 models: additional FireWire PCle adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  | Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models   |
| Audio<br>Speaker              | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio   | Rescue and Recovery®   |
| Ethernet                      | One onboard gigabit ethernet, Intel 82579   | • Norton <sup>TM</sup> Internet Security (30 days of virus definitions)  |
| Security chip                 | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | Adobe® Reader®     Microsoft® Office 2013 preloaded;     purchase product key to activate  |
| Keyboard<br>Mouse             | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black  | Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))  |
| Power supply                  | 280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | -Windows 8 models  • Evernote®  North Internet Security (20 days of virus definitions)   |
| Eco-Label and                 | GREENGUARD® certified   | Norton Internet Security (30 days of virus definitions)     Norton Studio  |
| environmental                 | RoHS-compliant  | • Skype™   |
| certifications                | EPEAT™ Gold rating ENERGY STAR 5.2-compliant  | Microsoft Office 2013 preloaded;   |
| ISV certifications            | See the latest list of ISV certifications at www.lenovo.com/support/ISV   | purchase product key to activate  • Cyberlink Power2Go (DVD±RW model(s))   |
| ThinkVantage                  | Supports ThinkVantage® technologies   | Cyberlink PowerProducer (DVD±RW model(s))  |
| Limited Warranty              | 3-vear parts and labor, more Lenovo® services see S-TS sheet  | SECURITY   |
| ·                             |   | Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password |

Administrator password
Boot sequence control
Boot without keyboard, mouse
Serial port I/O control

USB port disablement (front or all/individual)
Chassis intrusion switch available on selected model(s)
More compatible accessories, please see O-DEM sheet

# ThinkStation® E31 SFF (3695) - TopSeller

|   |   |  |  |  |  | 2nd                        |  |   | Chassis   | PS/2                             |   |  |  |
|---|---|--|--|--|--|----------------------------|--|---|---|----------------------------------|---|--|--|
| Type-<br>model Proce                                | , ,   | Memory Pre-conf<br>DIMMs RAID  | Disk(s)  | Media<br>reader  | •  | Disk<br>bay                | Graphics adapter(s)  | 1394<br>adptr Glob  | intrusion<br>al switch  | rear<br>I/O                      | stand                                     | preload  |  |
| 3695-H6U Xeon E3-                                   | 120 1600MHz Non-ECC<br>120 1600MHz Non-ECC  | 1x4GB No<br>1x4GB No<br>1x4GB No<br>1x4GB No<br>1x4GB No   | 1x250GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x1TB SATA<br>1x250GB SATA<br>1x500GB SATA<br>1x1TB SATA | Media<br>Media<br>Media<br>Media<br>Media  | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW   | No<br>No<br>No<br>No<br>No | Quadro 600<br>Intel HD P4000   | No No No No No No No No No No No No No N                                  | No<br>No<br>No<br>No<br>No<br>No  | No<br>No<br>No<br>No<br>No<br>No | Stand<br>Stand<br>Stand<br>Stand<br>Stand | Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64 |  |
| Processor   | Intel® Core™ i3-2120 procintegrated Intel HD Graphic Intel Core i3-2130 proces integrated Intel HD Graphic Intel Xeon® E3-1225V2 pr Turbo Boost 2.0 (up to 3.60 DDR3 memory controller (Intel Xeon E3-1230V2 pro Turbo Boost 2.0 (up to 3.70 Turbo Boost 2.0 Turbo Boost 2.0 (up to 3.70 Turbo Boost 2.0 Turbo Boost 2.0 (up to 3.70 Turbo Boost 2.0 Turb | es 2000, DDR3 m<br>sor (2C/4T, 3.4G<br>as 2000, DDR3 m<br>occessor (4C/4T,<br>GHz), integrated I<br>up to 1600MHz)<br>cessor (4C/8T, 3 | emory controlle Hz, 3MB Cache emory controlle 3.2GHz, 8MB ( ntel HD Graphi .3GHz, 8MB C                  | er (up to<br>e),<br>er (up to<br>Cache)<br>cs P40<br>ache),  | o 1333MH<br>,<br>00,   | z)<br>z) [                 | ③ disk   |   |   |                                  |   |  |  |
| Implementation                                      | One LGA1155 socket  |  | (  | -р   | ,  |                            | 339mm W x 38   |   |   | ł                                |   |  |  |
| Memory<br>Additional memory<br>disclaimers          | 32GB max, UDIMM, PC3-<br>four 240-pin DIMM sockets<br>• Actual memory operating sp<br>controller speed, installed me<br>• Mixing of ECC and non-ECC   | ;<br>eed depends on pro<br>emory speed, and q  |  | •  | 16.53 lb (7.5kg) max configuration     11-liter     Toolless top cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Recessed power button  |                            |  |   |   |                                  |   |  |  |
| Graphics  | Some: Intel HD Graphics discrete graphics to Xeon E3-1225V2/13 Core i3-2120/2130: Pentium/Celeron: (connector informat Some: NVIDIA® Quadro® 4 one DisplayPort™, cone DisplayPort, one DisplayPort, one DisplayPort, one DisplayPort, one   | support multi-dis<br>245V2/1275V2: II<br>ligon please see Ri<br>100, PCIe x16 ad<br>one dual-link DVI-<br>0, PCIe x16 adap             | 00   | n<br>E<br>E  | Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk  Slot 1: Low Profile, PCle* x16 (45w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon models |                            |  |   |   |                                  |   |  |  |
| Media reader<br>Optical<br>Disk(s)                  | Media: 29-in-1 Media card<br>Super Multi-Burner DL DVI<br>250GB/500GB/1TB/2TB/3<br>150GB/300GB/600GB SAI<br>128GB/180GB/256GB SSI<br>Two SATA 6.0Gb/s connect<br>RAID 0, 1 support via Intel  | .5"<br>lb/s, 2.5"<br>s (orange)  | ,  | Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3 |  |                            |  |   |   |                                  |   |  |  |
| Orah a a wal CAC                                    | disk bay)   | OZ TO OTTIPOOT (T  | THE OTHY WORK  | 311 11100  | 010 111111 21  |                            |  | Intel A   |   | .,                               |   |  |  |
| Onboard SAS   | None  |  |  |  |  | !'                         | ntel AMT suppor  | rted on mo  | del(s) with   | Xeon                             | process                                   | sor  |  |
| Chipset   | Intel C216 Chipset  | (2 Emm) baadab   | one (2 Emm)  |  |  |                            |  | loaded op   |   | stem                             | 20  |  |  |
| Front ports<br>Rear ports                           | Two USB 2.0, microphone Two USB 2.0, four USB 3.0 three analog audio ports (li connector, one DisplayPort (Onboard VGA and Display are used: Xeon E3-1225V2 Celeron processors) PS/2 models: additional F via PS/2 rea  | Columbra (blue), one serial ne-in, line-out, m connector Port are function /1245V2/1275V2  | I (9-pin), oné e<br>ic-in), one analo<br>al when the foll<br>, Core i3-2120/                             | og VGA<br>owing p<br>2130, F   | DB-15<br>processors  | nd •                       | Windows® 7 Pri<br>Preloaded<br>Rescue and Re<br>Norton® Interne<br>Adobe® Readel<br>Microsoft® Offic<br>purchase produ<br>Corel® WinDVD<br>Ulead® DVD Mo | d application  ecovery  et Security  r  ce 2013 preduct key to a  (DVD±R) | ons <sup>5</sup> (only<br>(30 days of<br>loaded;<br>ctivate<br>V model(s) | virus                            | definition                                |  |  |
| IEEE 1394 adptr                                     |   | o 6-pin ports on   | rear   | 0,   |  |                            | Security chip (s   | SECU  | RITY  |                                  | dei(s))                                   |  |  |
| Audio<br>Speaker<br>Ethernet<br>Security chip       | High Definition (HD) Audio,<br>Internal speaker for busine<br>One onboard gigabit ethers<br>STMicroelectronics ST33Z<br>TCG 1.2-compliant   | ss audio<br>net, Intel 82579   |  | PM),   |  | •                          | Security slot (ir<br>Kensington® M<br>prohibits side of<br>Power-on pass<br>Administrator p  | n rear for op<br>licrosaver®<br>cover remov<br>word<br>password           | otional<br>cable;   | ,                                |   |  |  |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply | Preferred Pro USB Keyboa<br>Optical Wheel Mouse (USE<br>Some: Vertical stand with<br>240 watts with variable spe<br>Climate Savers® Computi   | B connector), blac<br>retractable tongue<br>ed fan, autosens   | k<br>e for vertical ori<br>ing, 85% PSU,   | entatio  |  | •                          | Boot without ke  | eyboard, mecontrol plement (from switch a                                 | nt or all/ind<br>vailable or  | sele                             | al)<br>cted mo                            | del(s)   |  |
| Limited Warranty                                    | 3-year parts and labor, mo  | re Lenovo® servic  | es see S-TS sh   | neet   |  | F                          | Please visit www   |   | rtifications<br>n/support/l   |                                  |   |  |  |
|   |   |  |  |  |  | F<br>E                     | GREENGUARD®<br>RoHS-compliant<br>EPEAT™ Gold ra<br>ENERGY STAR   | ating<br>5.2-complia  |   |                                  |   |  |  |
|   |   |  |  |  |  | N                          | Nore compatible  | accessorie  | s, please s   | see O                            | -ROC sl                                   | heet   |  |

# ThinkStation® E31 SFF (3695) - TopSeller (June 5, 2012)

| T  |  |   | Ma D   |  | Madia  | CATA   | 2nd  |   | 1004                                   |   | Chassis                               |                                  | \/#:I                                     | \\/:7  |  |
|--|--|---|--|--|--|--|--|---|--|---|---------------------------------------|----------------------------------|---|--|--|
| Type-<br>model   | Processor  | Memory<br>(MHz/ECC)   | Memory Pre-co  |  | Media<br>reader  |  | Disk<br>bay  |   | 1394<br>adptr                          | Global  | intrusion<br>switch                   | I/O                              |   | preload  |  |
| 3695-G8U<br>3695-G9U<br>3695-H1U<br>3695-H2U<br>3695-H3U | Core i5-3450<br>Core i5-3450<br>Core i5-3450<br>Core i5-3550<br>Core i7-3770<br>Core i7-3770 | 1600MHz Non-ECC<br>1600MHz Non-ECC<br>1600MHz Non-ECC<br>1600MHz Non-ECC<br>1600MHz Non-ECC<br>1600MHz Non-ECC<br>1600MHz Non-ECC   | 1x4GB No<br>1x4GB No<br>2x4GB No<br>1x4GB No<br>1x4GB No   | 1x250GB SATA<br>1x500GB SATA<br>1x1TB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x1TB SATA | Media<br>Media<br>Media<br>Media<br>Media  | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW | No<br>No<br>No<br>No<br>No   | Intel HD 4000   | No<br>No<br>No<br>No<br>No<br>No<br>No | No<br>No<br>No<br>No<br>No<br>No                    | No<br>No<br>No<br>No<br>No<br>No      | No<br>No<br>No<br>No<br>No<br>No | Stand<br>Stand<br>Stand<br>Stand<br>Stand | Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64 |  |
| Processor  | Intel® (   | Core <sup>™</sup> i5-3450 proc  | essor (4C/4T   | 3 1GHz 6MB Ca  | iche)  |  | -  | Small Dockton   |  |   |                                       |                                  |   |  |  |
| FIOCESSOI  | integra<br>Turbo I<br>Intel C<br>integra<br>Turbo I<br>Intel C                               | ted Intel HD Graphic<br>Boost 2.0 (up to 3.50<br>ore i5-3550 process<br>ted Intel HD Graphic<br>Boost 2.0 (up to 3.70<br>ore i7-3770 process  | es 2500`,<br>GHz), DDR3 m<br><b>sor (4C/4T, 3.3</b><br>es 2500,<br>GHz), DDR3 m<br><b>sor (4C/8T, 3.</b> 4   | emory controller<br>GHz, 6MB Cach  | (up to 1<br><b>e)</b> ,  |  |  | @disk   |  | ©   |                                       |                                  |   |  |  |
| Implementati   | Turbo I  | ted Intel HD Graphic<br>3oost 2.0 (up to 3.90<br>3A1155 socket  | •  | emory controller   | (up to 1   | 600MHz)  | •  | <ul> <li>Raven black co</li> <li>13.35"W x 15.0</li> <li>339mm W x 38</li> </ul>  | 0"D x 3                                | 3.93"H  |                                       | I                                |   |  |  |
| Memory   | 32GB   | max, <b>UDIMM</b> , <b>PC3-1</b><br>0-pin DIMM sockets  |  | z DDR3, ECC or   | non-E0   | CC,  |  | • 16.53 lb (7.5kg<br>• 11-liter   | g) max                                 | configu   |                                       | •                                |   |  |  |
| Additional medisclaimers                                 | contro   | al memory operating spo<br>bller speed, installed me<br>g of ECC and non-ECC  | 's   |  | <ul> <li>Toolless top co</li> <li>Toolless disk a</li> <li>Toolless adapt</li> <li>Recessed pow</li> </ul> | ind opti<br>er rete                            | ical driv<br>ntion   | ve remov  | al                                     |   |                                       |                                  |   |  |  |
| Graphics   | Some:<br>Some:<br>Some:  | n<br>E<br>E   | Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk  Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models  Slot 2: Low Profile, PCIe 2.0 x1 |  |  |  |  |   | r                                      |   |                                       |                                  |   |  |  |
| Media reader<br>Optical<br>Disk(s)                       | Super<br>250GE<br>150GE<br>128GE<br>TA Two SA  | 29-in-1 Media card<br>Multi-Burner DL DVI<br>8/500GB/1TB/2TB/3<br>8/300GB/600GB SAT<br>8/180GB/256GB SSI<br>ATA 6.0Gb/s connect   | D±RW SATA 1. TB SATA: SAT. TA: SAT. D: Solidors (red), two series  | 5Gb/s Drive<br>A 6.0Gb/s, 7200  <br>A 6.0Gb/s, 10000<br>d State Drive, SA<br>SATA 3.0Gb/s cor            | rpm, 2<br>TA 6.0G<br>nnectors  | 2.5"<br>Gb/s, 2.5"<br>s (orange)               | ,  | Slot 3: Low Prof<br>Slot 4: Low Prof  | file,<br>file,                         | 32-bit  | PCI 2.3<br>PCI 2.3                    |                                  |   |  |  |
|  | disk ba  | ), 1 support via Intel  | C216 Chipset   | (RAID only work  | on mod   | lels with 2r                                   | nd   I   | Intel AMT supported on model(s) with Xeon processor   |  |   |                                       |                                  |   |  |  |
| Onboard SAS<br>Chipset                                   |  | 216 Chipset   |  |  |  |  | ⊢.   |   |  | -   | ating sy                              | stem <sup>2</sup>                | 20  |  |  |
| Front ports<br>Rear ports                                | Two US<br>Two US<br>three a<br>connec<br>(Onboa<br>are use<br>Core is                        | BB 2.0, microphone (BB 2.0, four USB 3.0) analog audio ports (lictor, one DisplayPort ard VGA and Displayed: Xeon E3-1225V2 6-3450/3550, Core i3 anodels: additional P via PS/2 rea | l (blue), one se<br>ne-in, line-out,<br>connector<br>Port are functi<br>2/1245V2/1275<br>3-2120/2130, P<br>S/2 keyboard  | rial (9-pin), one e<br>mic-in), one anal<br>onal when the fol<br>V2, Core i7-3770<br>entium, and Cele    | og VGA<br>lowing p<br>,<br>ron pro   | A DB-15  | •  | Windows® 7 Professional 64     Preloaded applications5 (only some listed)     Rescue and Recovery®     Norton® Internet Security (30 days of virus definitional Adobe® Reader®     Microsoft® Office 2013 preloaded; purchase product key to activate     Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s)) |  |   |                                       |                                  |   |  |  |
| IEEE 1394 ac   |  | ooard 1394 ports;<br>nodels: additional Fir   |  |  | 00,  |  |  | Security chip (   | see inf                                | for option  | on on left<br>onal                    | )                                |   |  |  |
| Audio<br>Speaker<br>Ethernet<br>Security chip            | Interna<br>One or<br>STMici<br>TCG 1   | efinition (HD) Audio,<br>il speaker for busines<br>aboard gigabit etherr<br>roelectronics ST33ZI<br>.2-compliant  | Realtek® ALC<br>ss audio<br>net, Intel 82579<br>P24 Trusted Pl   | 662 codec<br>)<br>atform Module (T   |  |  | Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password  • Administrator password  • Boot sequence control  • Boot without keyboard, mouse |   |  |   |                                       |                                  |   |  |  |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply      | Optical Some: 240 wa   | ed Pro USB Keyboa<br>I Wheel Mouse (USE<br>Vertical stand with I<br>atts with variable spe<br>te Savers® Computi  | B connector), bretractable tonged fan, autose  | ack<br>gue for vertical or<br>nsing, 85% PSU,  | ientatio   |  | •  | Serial port I/O USB port disal Chassis intrus Please visit www  | contro<br>blemen<br>ion swi            | l<br>nt (front<br><i>itch ava</i><br><b>V certi</b> | or all/ind<br>ailable on<br>fications | seled<br>S                       |   | del(s)   |  |
| Limited Warra  |  | parts and labor, mor  |  |  | -  |  | (<br>F<br>E  | GREENGUARD<br>RoHS-compliant<br>EPEAT™ Gold r<br>ENERGY STAR  | ® certifi<br>t<br>ating<br>5.2-co      | ied<br>mplian                                       | t                                     |                                  | DOC :                                     | host   |  |
|  |  |   |  |  |  |  |  | More compatible   | acces                                  | sories,   | piease s                              | ee O                             | -nuu s                                    | ieet   |  |

# ThinkStation® E31 SFF (3695) - TopSeller (October 2012)

|          |                |                   |          |          |              |        |                | 2nd  |            |       |        | Chassis   | PS/2 |          |            |
|----------|----------------|-------------------|----------|----------|--------------|--------|----------------|------|------------|-------|--------|-----------|------|----------|------------|
| Type-    |                | Memory            | Memory I | Pre-conf |              | Media  | SATA           | Disk | Graphics   | 1394  |        | intrusion | rear | Vertical | Preload    |
| model    | Processor      | (MHz/ECC)         | DIMMs    | RAID     | Disk(s)      | reader | optical        | bay  | adapter(s) | adptr | Global | switch    | I/O  | stand    | os         |
| 3695-P8U | Core i3-2120   | 1600MHz Non-ECC   | 1x4GB    | No       | 1x500GB SATA | Media  | DVD±RW         | No   | Quadro 410 | No    | No     | Switch    | No   | Stand    | Win8 Pro64 |
| 3695-P9U | Core i5-3470   | 1600MHz Non-ECC   | 1x4GB    | No       | 1x500GB SATA | Media  | $DVD {\pm} RW$ | No   | Quadro 410 | No    | No     | Switch    | No   | Stand    | Win8 Pro64 |
| 3695-PAU | Core i7-3770   | 1600MHz Non-ECC   | 1x4GB    | No       | 1x500GB SATA | Media  | $DVD {\pm} RW$ | No   | Quadro 410 | No    | No     | Switch    | No   | Stand    | Win8 Pro64 |
| 3695-PBU | Xeon E3-1230V2 | 2 1600MHz Non-ECC | 1x4GB    | No       | 1x500GB SATA | Media  | $DVD {\pm} RW$ | No   | Quadro 410 | No    | No     | Switch    | No   | Stand    | Win8 Pro64 |

| Processor                      | Intel <sup>®</sup> Core <sup>™</sup> i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), | Small Desktop   |
|--------------------------------|---|---|
|                                | integrated Intel HD Graphics 2500,  | 3 disk optical  |
|                                | Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache),   | 2   |
|                                | integrated Intel HD Graphics 4000,  |   |
|                                | Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache),  | Raven black color; metal case     A 25"M × 15 0"D × 2 02"H  |
|                                | Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)  | • 13.35"W x 15.0"D x 3.93"H<br>• 339mm W x 381.1mm D x 99.7mm H   |
| Implementation                 | One LGA1155 socket  | 16.53 lb (7.5kg) max configuration     11-liter   |
| Memory                         | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   | Toolless top cover removal  |
|                                | Actual memory operating speed depends on processor memory   | Toolless disk and optical drive removal     Toolless adapter retention  |
| disclaimers                    | controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported   | Recessed power button   |
| Graphics                       | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000      | Bay 1: 5.25", 1.6" high, access, for optical/2nd disk for media reader Bay 3: 3.5", 1" high, internal, for disk                                   |
|                                | Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics   | Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models |
|                                | (connector information please see <b>Rear ports</b> section)  Some: <b>NVIDIA® Quadro® 410</b> , PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W  | Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3  |
| Media reader<br>Optical        | Media: 29-in-1 Media card reader, slim, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  | Intel AMT   |
| Disk(s)                        | 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"  | Intel AMT supported on model(s) with Xeon processor   |
| , ,                            | 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"   | Preloaded operating system <sup>20</sup>  |
| Onboard SATA                   | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd  | Some: Windows® 7 Professional 64 Some: Windows 8 Pro 64-bit   |
| Onboard SAS                    | disk bay)<br>None   | Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models  |
| Chipset                        | Intel C216 Chipset  | Rescue and Recovery®  |
| Front ports<br>Rear ports      | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45),  | Norton™ Internet Security (30 days of virus definitions)     Adobe® Reader®   |
| near ports                     | three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15  | Microsoft® Office 2013 preloaded;   |
|                                | connector, one DisplayPort connector<br>(Onboard VGA and DisplayPort are functional when the following processors   | purchase product key to activate  • Corel® WinDVD® (DVD±RW model(s))  |
|                                | are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770,   | Ulead® DVD MovieFactory® (DVD±RW model(s))  |
|                                | Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors  | -Windows 8 models - Intel AppUp®  |
| IEEE 4004   1                  | via PS/2 rear I/O cable   | Evernote®   |
| IEEE 1394 adptr                | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,  | Norton Internet Security (30 days of virus definitions)     Norton Studio   |
| A 11                           | 400Mbps, two 6-pin ports on rear  | Skype™     Microsoft Office 2013 preloaded;   |
| Audio<br>Speaker               | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio   | purchase product key to activate  |
| Ethernet                       | One onboard gigabit ethernet, Intel 82579   | Cyberlink Power2Go (DVD±RW model(s))     Cyberlink PowerProducer (DVD±RW model(s))  |
| Security chip                  | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | System (System (System (System))  |
| Keyboard                       | Preferred Pro USB Keyboard (USB connector), 104-key, black  | SECURITY  |
| Mouse<br>Vertical Stand        | Optical Wheel Mouse (USB connector), black  | Security chip (see information on left)     Security slot (in rear for optional   |
| Vertical Stand<br>Power supply | Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU,  | Kensington® Microsaver® cable;  |
|                                | Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | prohibits side cover removal)  • Power-on password  |
| Limited Warranty               | 3-year parts and labor, more Lenovo® services see S-TS sheet  | Administrator password  |
| Eco-Label and environmental    | GREENGUARD® certified<br>RoHS-compliant   | Boot sequence control     Boot without keyboard, mouse  |
| certifications                 | EPEAT™ Gold rating  | Serial port I/O control   |
| ISV certifications             | ENERGY STAR 5.2-compliant See the latest list of ISV certifications at www.lenovo.com/support/ISV   | USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)  |
| 13 v Certifications            | See the latest list of 15 v certifications at www.ieflovo.com/support/15 v  | More compatible accessories, please see O-ROC sheet   |
|                                |   | I wiore compatible accessories, please see O-noc sheet  |

### ThinkStation® E31 SFF (3695) - TopSeller (March 2013)

|                    |              |                 |        |          |              | 2nd   |        |         |               |       | Chassis   |          |                 |
|--------------------|--------------|-----------------|--------|----------|--------------|-------|--------|---------|---------------|-------|-----------|----------|-----------------|
| Type-              |              | Memory          | Memory | Pre-conf | SATA         | drive | Media  | SATA    | Graphics      | 1394  | intrusion | Vertical | Preload         |
| model <sup>1</sup> | Processor    | (MHz/ECC)       | DIMMs  | RAID     | drive(s)     | bay   | reader | optical | adapter(s)    | adptr | switch    | stand    | OS <sup>2</sup> |
| 3695-RNU           | Core i3-3220 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500 | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3695-RPU           | Core i3-3220 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500 | No    | Switch    | Stand    | Win8 Pro64      |
| 3695-RQU           | Core i3-3240 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500 | No    | Switch    | Stand    | Win8 Pro64      |
| 3695-RRU           | Core i3-3240 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500 | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3695-RSU           | Core i3-3220 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3695-RTU           | Core i3-3220 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand    | Win8 Pro64      |
| 3695-RUU           | Core i3-3220 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Quadro 410    | No    | Switch    | Stand    | Win8 Pro64      |
| 3695-RVU           | Core i3-3240 | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3695-RWU           | Core i3-3240 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"   | No    | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3695-RYU           | Core i3-3220 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"   | No    | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand    | Win7 Pro64(DG)  |

| 3695-RYU                                     | Core i3-3220                   | 1600MHz Non-ECC  | 1x4GB  | No  | 1x1TB 3.5"  | No                        | Media    | DVD±F  |  |  |  |
|--|--------------------------------|--|--|---|---|---------------------------|----------|--------|--|--|--|
| 1 Model in itali<br>2 Win7 Pro64(            | , ,                            |  |  |   |   |                           |          |        |  |  |  |
| Processor                                    | integra<br>Intel (             | Core <sup>™</sup> i3-3220 proc<br>ated Intel HD Graphic<br>Core i3-3240 proces<br>ated Intel HD Graphic  | cs 2500,<br><b>sor (2C</b> ,   | DDR3<br><b>/4T, 3.4</b>   | memory control<br>GHz, 3MB Cach   | ller (up<br>he <b>)</b> , | to 1600  | ´  r   |  |  |  |
| Implementa                                   |                                | .GA1155 socket   |  |   |   |                           |          |        |  |  |  |
| Memory                                       |                                | max, <b>UDIMM</b> , <b>PC3-1</b><br>40-pin DIMM sockets  |  | 600MH   | z DDR3, ECC or  | r <b>non-</b> l           | ECC,     | L      |  |  |  |
| Additional n<br>disclaimers                  | conti                          | nal memory operating sp<br>roller speed, installed me<br>ng of ECC and non-ECC   | emory sp   | eed, and  | l quantity of memo  |                           | Ms       | •      |  |  |  |
| Graphics                                     | Some                           | c Intel HD Graphics of discrete graphics to (detailed graphics or connector informatic: NVIDIA® Quadro® 4 one DisplayPort, one DisplayPort, one DisplayPort, one DisplayPort, one DisplayPort, one | support<br>nodel na<br>on pleas<br>110, PCI<br>e dual-li<br>600, PCI | : multi-d<br>ame plea<br>e see <b>F</b><br>le x16 a<br>nk DVI-<br>e x16 a | isplay;<br>ase see <b>Proces</b><br><b>Rear ports</b> secti<br>dapter, 512MB,<br>I, 37W<br>dapter, 1GB, | <b>sor</b> se<br>on)      | ,        | g with |  |  |  |
| Media reade<br>Optical<br>SATA drive(        | DVD,<br>3.5":<br>2.5":<br>SSD: | a: 29-in-1 Media card<br>slim DVD, DVD±RW,<br>SATA 6.0Gb/s, 7200 I<br>SATA 6.0Gb/s, 10000<br>Solid State Drive, SA   | slim DV<br>rpm, 3.5<br>rpm, 2.<br>TA 6.0G                            | D±RW,<br>;"<br>.5"<br>.b/s, 2.5   | or Blu-ray, depe  | Ü                         |          | el S   |  |  |  |
| Onboard SA                                   | RAID<br>drive l                | ATA 6.0Gb/s connect<br>0, 1 support via Intel<br>bay only)   |  |   |   |                           |          | h 2nd  |  |  |  |
| Chipset                                      | Intel (                        | C216 Chipset   |  |   |   |                           |          | S      |  |  |  |
| Front ports<br>Rear ports                    | Two U<br>three<br>conne        | USB 2.0, microphone<br>USB 2.0, four USB 3.0<br>analog audio ports (li<br>ector, one DisplayPort<br>pard VGA and Display   | ) (blue),<br>ne-in, lir  | one sei<br>ne-out,<br>etor  | rial (9-pin), oné e<br>mic-in), one ana   | log VG                    | A DB-1   | 15 S   |  |  |  |
| IEEE 1394                                    | are us<br>adptr No on          | sed: Xeon E3-12X5V2<br>board 1394 ports;<br>models: additional Fir<br>400Mbps, tw  | 2 <i>, Core i</i><br>reWire F  | <i>i7, i5, i3</i><br>PCIe ad  | , <i>Pentium, and (</i><br>apter, 1394a-20  | Celero                    | n proces | ssors) |  |  |  |
| Audio<br>Speaker<br>Ethernet<br>Security chi | Intern<br>One o<br>p STMid     | 400Mbps, tw. Definition (HD) Audio, al speaker for busine: suboard gigabit ether<br>croelectronics ST33Z<br>1.2-compliant  | Realtel<br>ss audic<br>net, Inte                                     | k® ALC6<br>)<br>  82579   | 662 codec   | ГРМ),                     |          | -\     |  |  |  |
| Keyboard<br>Mouse                            |                                | rred Pro USB Keyboa<br>al Wheel Mouse (USE   |  |   |   | lack                      |          | :      |  |  |  |

Some: Vertical stand with retractable tongue for vertical orientation

Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

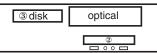
See the latest list of ISV certifications at www.lenovo.com/support/ISV

3-year parts and labor, more Lenovo® services see S-TS sheet

240 watts with variable speed fan, autosensing, 85% PSU,

Intel AMT supported on model(s) with Xeon processor

#### mall Desktop



- Raven black color; metal case
- 13.35"W x 15.0"D x 3.93"H
- 339mm W x 381.1mm D x 99.7mm H
- 16.53 lb (7.5kg) max configuration
- 11-liter
  - Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 3.5", 0.5" high, access, Bay 3: 3.5", 1" high, internal, for optical/2nd disk for media reader

Slot 1: Low Profile, PCIe\* x16 (45w max, near CPU) PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon models

Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Windows 7 Professional 64 ome: ome: preinstalled through downgrade rights in Windows 8 Pro 64-bit Windows 8 Pro 64-bit

#### Preloaded applications<sup>5</sup> (only some listed)

#### Vindows 7 models

- Rescue and Recovery® Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

#### Vindows 8 models

#### Evernote

- Norton Internet Security (30 days of virus definitions)
- Norton Studio Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
- Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

#### **SECURITY**

- Security chip (see information on left)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- · Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

GREENGUARD® certified

ENERGY STAR 5.2-compliant

RoHS-compliant EPEAT™ Gold rating

Vertical Stand

Power supply

Limited Warranty

ISV certifications

Fco-I abel and

environmental

certifications

Intel AMT

## ThinkStation® E31 SFF (3695) - TopSeller (March 2013) - II

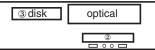
| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | SATA<br>drive(s) | 2nd<br>drive<br>bay | Media<br>reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | Chassis<br>intrusion<br>switch | Vertical<br>stand | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|------------------|---------------------|-----------------|--------------|---------------------|---------------|--------------------------------|-------------------|----------------------------|
| 3695-RZU                    | Core i5-3470   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW       | Intel HD 2500       | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3695-QAU                    | Core i5-3570   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW       | Quadro 410          | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3695-QBU                    | Core i5-3570   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW       | Quadro K600         | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3695-QCU                    | Core i5-3570   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW       | Intel HD 2500       | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3695-QDU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW       | Intel HD 4000       | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3695-QEU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5"       | No                  | Media           | DVD±RW       | Quadro K600         | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3695-QFU                    | Xeon E3-1225V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW       | Intel HD P4000      | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3695-QGU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5"       | No                  | Media           | DVD±RW       | Quadro K600         | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
|                             | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD      | No                  | Media           | DVD±RW       | Quadro K600         | No            | Switch                         | Stand             | Win7 Pro64(DG)             |

Intel<sup>®</sup> Core<sup>™</sup> i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), Processor integrated Intel HD Graphics 2500 Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) Intel Core i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)

Intel Xeon E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache),
Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket Implementation Memory 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; Additional memory · Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs disclaimers Mixing of ECC and non-ECC memory is not supported Graphics Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see **Processor** section, connector information please see Rear ports section)
Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W

Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Media reader Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model Optical SATA drive(s) 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.06b/s connectors (red), two SATA 3.06b/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd Onboard SATA drive bay only) Onboard SAS Chipset Intel C216 Chipset Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 Rear ports connector, one DisplayPort connector (Onboard VGA and DisplayPort<sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) IEEE 1394 adptr No onboard 1394 ports; 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear Audio High Definition (HD) Audio, Realtek® ALC662 codec Speaker Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 Ethernet Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black Keyboard Optical Wheel Mouse (USB connector), black Mouse Vertical Stand Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Power supply Limited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet GREENGUARD® certified Eco-Label and environmental RoHS-compliant

#### **Small Desktop**



- · Raven black color; metal case
- 13.35"W x 15.0"D x 3.93"H
- 339mm W x 381.1mm D x 99.7mm H
- 16.53 lb (7.5kg) max configuration
- 11-liter
- · Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 3.5", 0.5" high, access, Bay 3: 3.5", 1" high, internal, for optical/2nd disk for media reader for disk

Slot 1: Low Profile, PCIe\* x16 (45w max, near CPU)

\* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models

Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 32-bit PCI 2.3 Slot 4: Low Profile,

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Windows 7 Professional 64 Some: Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit Windows 8 Pro 64-bit

#### Preloaded applications<sup>5</sup> (only some listed)

#### Windows 7 models

- Rescue and Recovery®
   Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded: purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

### -Windows 8 models

#### Evernote

- Norton Internet Security (30 days of virus definitions)
- Norton Studio Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
- Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

#### SECURITY

- Security chip (see information on left)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

certifications

Intel AMT

ISV certifications

EPEAT™ Gold rating

**ENERGY STAR 5.2-compliant** 

See the latest list of ISV certifications at www.lenovo.com/support/ISV

Intel AMT supported on model(s) with Xeon processor

Model in italics shows that this is a Global Model
Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

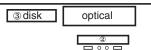
### ThinkStation® E31 SFF (3695) - TopSeller (March 2013) - III

|                    |              |                 |       |          |              | 2nd |        |         |               |       | Chassis   |       |                 |
|--------------------|--------------|-----------------|-------|----------|--------------|-----|--------|---------|---------------|-------|-----------|-------|-----------------|
| Type-              | _            | Memory          |       | Pre-conf | _            |     | Media  | SATA    | Graphics      |       | intrusion |       |                 |
| model <sup>1</sup> | Processor    | (MHz/ECC)       | DIMMs | RAID     | drive(s)     | bay | reader | optical | adapter(s)    | adptr | switch    | stand | OS <sup>2</sup> |
| 3695-QJU           | Core i3-3240 | 1600MHz Non-ECC | 1x4GB | No       | 1x500GB 3.5" | No  | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QKU           | Core i3-3220 | 1600MHz Non-ECC | 1x4GB | No       | 1x1TB 3.5"   | No  | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QLU           | Core i3-3240 | 1600MHz Non-ECC | 1x4GB | No       | 1x1TB 3.5"   | No  | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QMU           | Core i5-3470 | 1600MHz Non-ECC | 1x4GB | No       | 1x500GB 3.5" | No  | Media  | DVD±RW  | Intel HD 2500 | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QNU           | Core i5-3570 | 1600MHz Non-ECC | 1x4GB | No       | 1x500GB 3.5" | No  | Media  | DVD±RW  | Intel HD 2500 | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QPU           | Core i5-3570 | 1600MHz Non-ECC | 1x4GB | No       | 1x500GB 3.5" | No  | Media  | DVD±RW  | Quadro 410    | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QQU           | Core i5-3570 | 1600MHz Non-ECC | 1x4GB | No       | 1x500GB 3.5" | No  | Media  | DVD±RW  | Quadro K600   | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QRU           | Core i7-3770 | 1600MHz Non-ECC | 1x4GB | No       | 1x500GB 3.5" | No  | Media  | DVD±RW  | Intel HD 4000 | No    | Switch    | Stand | Win8 Pro64      |
| 3695-QSU           | Core i7-3770 | 1600MHz Non-ECC | 1x4GB | No       | 1x500GB 3.5" | No  | Media  | DVD±RW  | Quadro 410    | No    | Switch    | Stand | Win8 Pro64      |

Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), Processor integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) Intel Core i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 250 Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Implementation One LGA1155 socket 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, Memory four 240-pin DIMM sockets; Additional memory · Actual memory operating speed depends on processor memory disclaimers controller speed, installed memory speed, and quantity of memory DIMMs Mixing of ECC and non-ECC memory is not supported Graphics Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;
(detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NVIDIA Quadro 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W
Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Media reader Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model Optical SATA drive(s) 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5' Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd Onboard SATA drive bay only) Onboard SAS Chipset Intel C216 Chipset Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), Rear ports three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort<sup>™</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) No onboard 1394 ports; IEEE 1394 adptr 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Audio Speaker Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 Ethernet Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black Keyboard Optical Wheel Mouse (USB connector), black Mouse Vertical Stand Some: Vertical stand with retractable tongue for vertical orientation Power supply 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Limited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet Eco-Label and GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating environmental certifications **ENERGY STAR 5.2-compliant** ISV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV

Intel AMT supported on model(s) with Xeon processor

#### Small Desktop



- · Raven black color; metal case
- 13.35"W x 15.0"D x 3.93"H
- 339mm W x 381.1mm D x 99.7mm H
- 16.53 lb (7.5kg) max configuration
- 11-liter
- · Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 3.5", 0.5" high, access, Bay 3: 3.5", 1" high, internal, for optical/2nd disk for media reader for disk internal,

Slot 1: Low Profile, PCIe\* x16 (45w max, near CPU) \* PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models

Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 32-bit PCI 2.3 Slot 4: Low Profile,

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Windows 7 Professional 64 Some: Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit Windows 8 Pro 64-bit

#### Preloaded applications<sup>5</sup> (only some listed)

#### -Windows 7 models

- Rescue and Recovery®
   Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

### -Windows 8 models

- Evernote
- Norton Internet Security (30 days of virus definitions)
- Norton Studio Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
- Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

#### SECURITY

- Security chip (see information on left)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

Intel AMT

Model in italics shows that this is a Global Model
Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

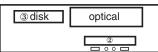
# ThinkStation® E31 SFF (3695) - TopSeller (March 2013) - IV

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | SATA<br>drive(s) | 2nd<br>drive<br>bay | Media<br>reader | SATA<br>optical |                | 1394<br>adptr | Chassis intrusion switch | Vertical<br>stand | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|------------------|---------------------|-----------------|-----------------|----------------|---------------|--------------------------|-------------------|----------------------------|
| 3695-QTU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5"       | No                  | Media           | DVD±RW          | Quadro K600    | No            | Switch                   | Stand             | Win8 Pro64                 |
| 3695-QUU                    | Xeon E3-1225V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW          | Intel HD P4000 | No            | Switch                   | Stand             | Win8 Pro64                 |
| 3695-QVU                    | Xeon E3-1225V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x500GB 3.5"     | No                  | Media           | DVD±RW          | Quadro 410     | No            | Switch                   | Stand             | Win8 Pro64                 |
| 3695-QWU                    | Xeon E3-1230V2 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x1TB 3.5"       | No                  | Media           | DVD±RW          | Quadro K600    | No            | Switch                   | Stand             | Win8 Pro64                 |
| 3695-QYU                    | Core i7-3770   | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD      | No                  | Media           | DVD±RW          | Quadro K600    | No            | Switch                   | Stand             | Win8 Pro64                 |

1 Model in italics shows that this is a Global Model

|                               | indows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit  |       |
|-------------------------------|---|-------|
| Processor                     | Intel® Core™ i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)                        | S     |
|                               | Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000,   |       |
|                               | DDR3 memory controller (up to 1600MHz)  | I     |
|                               | Intel Xeon E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache),<br>Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)  | ľ     |
| Implementation                | One LGA1155 socket  | ͺͺͺͺͺ |
| Memory                        | <b>32GB</b> max, <b>UDIMM</b> , <b>PC3-12800 1600MHz DDR3</b> , <b>ECC</b> or <b>non-ECC</b> , four 240-pin DIMM sockets;   | •     |
| Additional memory disclaimers | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> </ul>                                    |       |
|                               | Mixing of ECC and non-ECC memory is not supported   | •     |
| Graphics                      | Some: Intel HD Graphics in processor, uses main memory, works along with  | •     |
|                               | discrete graphics to support multi-display; (detailed graphics model name please see <b>Processor</b> section,  | E     |
|                               | connector information please see <b>Rear ports</b> section) Some: <b>NVIDIA® Quadro® 410</b> , PCle x16 adapter, 512MB,   | E     |
|                               | one DisplayPort, one dual-link DVI-I, 37W   | 5     |
|                               | Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  | ,     |
| Media reader                  | Media: 29-in-1 Media card reader, slim, internal USB 2.0  | ] ,   |
| Optical<br>SATA drive(s)      | DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5"   | 9     |
|                               | 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5"   | 5     |
| Onboard SATA                  | SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange),   |       |
|                               | RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd  |       |
| Onboard SAS                   | drive bay only)<br>None   | S     |
| Chipset                       | Intel C216 Chipset  | 13    |
| Front ports                   | Two USB 2.0, microphone (3.5mm), headphone (3.5mm)  | s     |
| Rear ports                    | Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector | ١.    |
|                               | (Onboard VGA and DisplayPort <sup>™</sup> are functional when the following processors  | -\    |
| IEEE 1394 adptr               | are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) No onboard 1394 ports;  | •     |
|                               | 1394 models: additional FireWire PCle adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  | :     |
| Audio                         | High Definition (HD) Audio, Realtek® ALC662 codec   |       |
| Speaker                       | Internal speaker for business audio   | :     |
| Ethernet<br>Security chip     | One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),  | -1    |
|                               | TCG 1.2-compliant   |       |
| Keyboard                      | Preferred Pro USB Keyboard (USB connector), 104-key, black  | •     |
| Mouse<br>Vertical Stand       | Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation  |       |
| Power supply                  | 240 watts with variable speed fan, autosensing, 85% PSU,  |       |
|                               | Climate Savers® Computing Bronze, 80 PLŬS® Bronze qualified   | :     |
| Limited Warranty              | 3-year parts and labor, more Lenovo® services see S-TS sheet  | H     |
| Eco-Label and environmental   | GREENGUARD® certified RoHS-compliant  |       |
| certifications                | EPEAT™ Gold rating  | •     |
| ISV certifications            | ENERGY STAR 5.2-compliant See the latest list of ISV certifications at www.lenovo.com/support/ISV   | -     |
| Intel AMT                     | Intel AMT supported on model(s) with Xeon processor   | •     |
|                               |   |       |

#### Small Desktop



- · Raven black color; metal case
- 13.35"W x 15.0"D x 3.93"H
- 339mm W x 381.1mm D x 99.7mm H
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- · Toolless top cover removal
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Bay 1: 5.25", 1.6" high, access, Bay 2: 3.5", 0.5" high, access, Bay 3: 3.5", 1" high, internal, for optical/2nd disk for media reader

internal, for disk

Slot 1: Low Profile, PCIe\* x16 (45w max, near CPU) \* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models

Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 32-bit PCI 2.3 Slot 4: Low Profile,

# Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Windows 7 Professional 64 Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit

Some: Windows 8 Pro 64-bit

# Preloaded applications<sup>5</sup> (only some listed)

#### Windows 7 models

- Rescue and Recovery®
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded;
- purchase product key to activate
  Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

### Windows 8 models

- Evernote<sup>®</sup>
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded;
- purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

### **SECURITY**

- Security chip (see information on left)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
  Power-on password
- Administrator password
- Boot sequence control
- · Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

# ThinkStation® E31 SFF (3695) - TopSeller (May 2013)

| Type-<br>model <sup>1</sup> | Processor      | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | SATA<br>drive(s) | 2nd<br>drive<br>bay | Media reader | SATA optical | Graphics adapter(s) | 1394<br>adptr | Chassis intrusion switch | Vertical<br>stand | Preload<br>OS <sup>2</sup> |
|-----------------------------|----------------|---------------------|-----------------|------------------|------------------|---------------------|--------------|--------------|---------------------|---------------|--------------------------|-------------------|----------------------------|
| 3695-T2U                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA  | No                  | No           | DVD±RW       | Quadro K600         | No            | Switch                   | Stand             | Win7 Pro64(DG)             |
| 3695-T3U                    | Xeon E3-1280V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA  | No                  | No           | DVD±RW       | Quadro K600         | No            | Switch                   | Stand             | Win8 Pro64                 |
| 3695-T4U                    | Xeon E3-1245V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA  | No                  | No           | DVD±RW       | Quadro 410          | No            | Switch                   | Stand             | Win8 Pro64                 |
| 3695-T5U                    | Xeon E3-1245V2 | 1600MHz ECC         | 8GBx1           | No               | 1x1TB 3.5" SATA  | No                  | No           | DVD±RW       | Quadro 410          | No            | Switch                   | Stand             | Win7 Pro64(DG)             |

|  | that this is a Global Model<br>indows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |   |
|--|---|---|
| Processor  | Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1280V2 processor (4C/8T, 3.6GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.0GHz), DDR3 memory controller (up to 1600MHz)   | Small Desktop  3 disk optical   |
| Implementation   | One LGA1155 socket  | 2   |
| Memory<br>Additional memory<br>disclaimers                                 | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported  | Raven black color; metal case  13.35"W x 15.0"D x 3.93"H  339mm W x 381.1mm D x 99.7mm H  16.53 lb (7.5kg) max configuration  11-liter  |
| Graphics   | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W         | <ul> <li>Toolless top cover removal</li> <li>Toolless disk and optical drive removal</li> <li>Toolless adapter retention</li> <li>Recessed power button</li> <li>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk</li> <li>Bay 2: 3.5", 0.5" high, access, for media reader</li> <li>Bay 3: 3.5", 1" high, internal, for disk</li> </ul>                                 |
| Media reader<br>Optical<br>SATA drive(s)                                   | Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"   | Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models  Slot 2: Low Profile, PCIe 2.0 x1   |
| Onboard SATA   | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)   | Slot 3: Low Profile, 32-bit PCI 2.3<br>Slot 4: Low Profile, 32-bit PCI 2.3  |
| Onboard SAS  | None  |   |
| Chipset  | Intel C216 Chipset  | Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64   |
| Front ports<br>Rear ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort <sup>TM</sup> are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) No onboard 1394 ports; | Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit Preloaded applications <sup>5</sup> (only some listed)   |
| Audio<br>Speaker<br>Ethernet<br>Security chip                              | 1394 models: additional FireWire PCle adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | -Windows 7 models  • Rescue and Recovery®  • Norton™ Internet Security (30 days of virus definitions)  • Adobe® Reader®  • Microsoft® Office 2013 preloaded; purchase product key to activate  • Corel®WinDVD® (DVD±RW model(s))  • Ulead® DVD MovieFactory® (DVD±RW model(s))  |
| Keyboard Mouse Vertical Stand Power supply  Limited Warranty Eco-Label and | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3-year parts and labor, more Lenovo® services see S-TS sheet GREENGUARD® certified Bolds-compliant                                       | -Windows 8 models  • Evernote®  • Norton Internet Security (30 days of virus definitions)  • Norton Studio  • Skype™  • Microsoft Office 2013 preloaded; purchase product key to activate  • Cyberlink Power2Go (DVD±RW model(s))  • Cyberlink PowerProducer (DVD±RW model(s))  |
| environmental certifications  ISV certifications Intel AMT                 | RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant See the latest list of ISV certifications at www.lenovo.com/support/ISV Intel AMT supported on model(s) with Xeon processor   | SECURITY  Security chip (see information on left) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all/individual) Chassis intrusion switch available on selected model(s) |

More compatible accessories, please see O-ROC sheet

# ThinkStation® E31 SFF (3690)

| Type-<br>model Proc   | essor   | Memory<br>(MHz/ECC)   | Memory I   | Pre-conf<br>RAID   | Disk(s)   | Media<br>reader  | SATA optical   | 2nd<br>Disk<br>bay         | Graphics   | 1394<br>adptr  |   | Chassis<br>intrusion<br>switch   |  |  | Win7<br>preload  |
|---|---|---|--|--|---|--|--|----------------------------|--|--|---|--|--|--|--|
| 3690-E6U Core i3-<br>3690-E9U Xeon E3<br>3690-F1U Xeon E3<br>3690-F2U Xeon E3<br>3690-F3U Xeon E3<br>3690-F4U Xeon E3<br>3690-F6U Xeon E3 | 3-1230V2<br>3-1245V2<br>3-1245V2<br>3-1245V2<br>3-1275V2  | 1600MHz ECC<br>1600MHz ECC<br>1600MHz ECC<br>1600MHz ECC<br>1600MHz ECC   | 1x4GB<br>1x4GB<br>1x4GB<br>1x4GB<br>1x4GB<br>1x4GB<br>1x4GB<br>1x4GB   | No<br>No<br>No<br>No<br>No<br>No   | 1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x1TB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x1TB SATA                                      | Media<br>Media<br>Media<br>Media<br>Media  | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW | No<br>No<br>No<br>No<br>No | Quadro 400<br>Quadro 400<br>Intel HD P4000<br>Quadro 400<br>Quadro 600<br>Intel HD P4000<br>Quadro 400<br>Quadro 600         | No<br>No   | No<br>No<br>No<br>No<br>No<br>No<br>No                        | No<br>No<br>No<br>No<br>No<br>No<br>No   | No<br>No<br>No<br>No<br>No<br>No<br>No | No<br>No<br>No<br>No<br>No<br>No<br>No | Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64 |
| Implementation Memory Additional memory   | integrat<br>Intel Xe<br>Turbo B<br>Intel Xe<br>Turbo B<br>DDR3 r<br>Intel Xe<br>Turbo B<br>DDR3 r<br>One LG | core™ i3-2130 ped Intel HD Graeon® E3-1230V2 coost 2.0 (up to be conserved to conserved the conserved to conserved the conserve | phics 200<br>2 process<br>3.7GHz),<br>processo<br>3.8GHz),<br>er (up to 1<br>processo<br>3.9GHz),<br>er (up to 1 | O, DDR3 or (4C/8) DDR3 mor (4C/8) integrate (600MH, or (4C/8) integrate (600MH, 1600MH)                    | 3 memory cont<br>BT, 3.3GHz, 8M<br>nemory controll<br>T, 3.4GHz, 8MI<br>ed Intel HD Gra<br>z)<br>T, 3.5GHz, 8MI<br>ed Intel HD Gra<br>z)                      | roller (up to B Cache er (up to B Cache uphics Pophics | o to 1333MH<br>(e),<br>o 1600MHz)<br>e),<br>4000,<br>e),<br>4000,                      |                            | Raven black cc 13.35"W x 15.0 339mm W x 38 16.53 lb (7.5kg 11-liter Toolless top co  | 0"D x 3<br>1.1mr<br>) max<br>ver re<br>nd opt  | etal ca<br>3.93"H<br>m D x 9<br>configi<br>moval<br>tical dri | 99.7mm H<br>uration  |  |  |  |
| disclaimers  Graphics   | control Mixing Some: I Some: I Some: I Some: I  | ller speed, installer of ECC and non- ntel HD Graph discrete graphic Xeon E3-1225V Core i3-2120/21 Pentium/Celeror connector infor NVIDIA® Quadr one DisplayPort NVIDIA Quadro one DisplayPort  | d memory: ECC memory: ics in process to support 2/1245V2 30: mation ple o® 400, Po ™, one du o 600, PCI          | speed, ar<br>ory is not<br>cessor, u<br>ort multi-<br>/1275V2<br>ease see<br>Cle x16<br>all-link De x16 ac | d quantity of messupported uses main mem display; 2: Intel HD Gra Intel HD Gra Intel HD Gra Intel HD Gra e Rear ports se adapter, 512M VI-I, 32W dapter, 1GB, | nory DIM<br>nory, wo<br>phics Pa<br>phics 20<br>phics<br>pection)  | rks along wit  | th                         | Bay 1: 5.25", 1.6 Bay 2: 3.5", 1.6 Bay 3: 3.5", 1" Blot 1: Low Profit * PCle 2.0 x16 on C x16 on Xeon mod Slot 2: Low Profit | er but 5" high 5" high high, ile, Core i3/ els ile,  | n, acces<br>n, acces<br>interr<br>PCIe<br>(Pentium)           | ss, for<br>nal, for<br>* x16 (45)<br>/Celeron n  | medi<br>disk<br>v max                  |  | r<br>PU)   |
| Media reader<br>Optical<br>Disk(s)  | Super N<br>250GB/<br>150GB/<br>128GB/<br>Two SA   | 29-in-1 Media of Multi-Burner DL /500GB/1TB/2T /300GB/600GB /180GB/256GB  | DVD±RW<br>B/3TB SA<br>SATA:<br>SSD:<br>nectors (re   | SATA 1 TA: SAT SAT Sol ed), two  | .5Gb/s Drive<br>TA 6.0Gb/s, 720<br>TA 6.0Gb/s, 100<br>id State Drive,<br>SATA 3.0Gb/s   | 00 rpm,<br>000 rpm<br>SATA 6.<br>connect   | , 2.5"<br>0Gb/s, 2.5"<br>ors (orange)  | , –                        | Slot 3: Low Profi<br>Slot 4: Low Profi   | ile,   |   | it PCI 2.3<br>it PCI 2.3   |  |  |  |
|   | disk bay  | , 1 support via I<br>/)   | ntel C216  | Chipset  | (RAID only wo   | ork on m   | odels with 2   | na  <br>  I                | Intel AMT suppo  |  |   |  | Xeon                                   | proces                                 | sor  |
| Onboard SAS   | None  | 16 Chinast  |  |  |   |  |  |                            | Pre  | loade  | ed opei   | rating sy  | stem                                   | 20                                     |  |
| Front ports<br>Rear ports   | Two US Two US three ar connect (Onboa are use Celeror PS/2 m  |   | 3 3.0 (bluets (line-in,<br>Port conneplayPort a<br>5V2/1245<br>al PS/2 ke<br>2 rear I/O (                        | ), one se<br>line-out<br>ector<br>are funct<br>V2/1275<br>eyboard  | erial (9-pin), on,<br>, mic-in), one a<br>ional when the<br>5V2, Core i3-21   | e etherr<br>nalog Vo<br>followin<br>20/2130  | GA DB-15 <sup>2</sup><br>g processors<br>), Pentium, a                                 | s ind                      | Preloader Rescue and Re Norton® Intern Adobe® Reade Microsoft® Offic purchase produ Corel® WinDVE Ulead® DVD M               | rofessi<br>d applecover<br>et Sec<br>r <sup>®</sup><br>ce 201<br>uct ker<br>o <sup>®</sup> (DV   | ional 64 licatior ry® curity (3 13 prelo y to act D±RW        | the state of the s | <i>som</i><br>f virus                  | <i>e listed</i><br>s definiti          | ,  |
| Audio<br>Speaker<br>Ethernet<br>Security chip   | High De<br>Internal<br>One on<br>STMicro  | oard 1394 ports<br>odels: additiona   | s;<br>al FireWire<br>s, two 6-pi<br>udio, Realt<br>siness aud<br>hernet, In                                      | PCIe a<br>n ports<br>cek® ALC<br>dio<br>tel 8257   | on rear<br>0662 codec<br>9  | ·  |  | •                          | Security chip ( Security slot (in Kensington® Marchibits side of Power-on pass Administrator pass Boot sequence)             | see in<br>n rear<br>dicrosa<br>cover i<br>sword<br>bassw   | FECURI<br>formati<br>for opti<br>aver® c<br>remova            | ITY<br>ion on left<br>ional<br>able;   |  |  |  |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply   | Preferre<br>Optical<br>Some:<br>240 wat<br>Climate  | ed Pro USB Key<br>Wheel Mouse (<br>Vertical stand w<br>tts with variable<br>Savers® Com   | USB conn<br>vith retract<br>speed far<br><b>puting Br</b>  | ector), kable ton<br>n, autose<br>onze, 8  | plack<br>ague for vertical<br>ensing, 85% PS<br>0 PLUS® Bron  | l orienta<br>SU,<br><b>ze qual</b> i   |  | •                          | Boot without ke<br>Serial port I/O<br>USB port disal<br>Chassis intrus   | eyboa<br>contro<br>oleme<br>ion sw   | rd, mou<br>ol<br>nt (fron<br><i>itch av</i><br><b>SV cert</b> | t or all/ind<br>ailable or   | sele<br>s                              |  | odel(s)  |
| Limited Warranty  | 3-year p  | parts and labor,  | more Len   | ovo <sup>®</sup> se  | rvices see S-T  | S sheet  |  |                            | Please visit www<br>GREENGUARD<br>RoHS-compliant<br>EPEAT™ Gold r<br>ENERGY STAR<br>More compatible                          | ecertification controls are controls at the controls at the controls at the controls at the controls at the controls at the controls at the controls at the controls at the controls at the control at th | fied<br>ompliar   | nt   |  | )-ROC s                                | heet   |

# ThinkStation® E31 SFF (3690) - June 5, 2012

|          |              |                 |          |          |              |        |         | 2nd  |            |       |        | Chassis   | PS/2 |          |         |
|----------|--------------|-----------------|----------|----------|--------------|--------|---------|------|------------|-------|--------|-----------|------|----------|---------|
| Type-    |              | Memory          | Memory I | Pre-conf | †            | Media  | SATA    | Disk | Graphics   | 1394  |        | intrusion | rear | Vertical | Win7    |
| model    | Processor    | (MHz/ECC)       | DIMMs    | RAID     | Disk(s)      | reader | optical | bay  | adapter(s) | adptr | Global | switch    | I/O  | stand    | preload |
|          |              | 1600MHz Non-ECC |          | No       | 1x500GB SATA | Media  | DVD±RW  | No   | Quadro 400 | No    | No     | No        | No   | No       | Pro 64  |
| 3690-E8U | Core i5-3550 | 1600MHz Non-ECC | 1x4GB    | No       | 1x1TB SATA   | Media  | DVD±RW  | No   | Quadro 600 | No    | No     | No        | No   | No       | Pro 64  |

| Processor                     | Intel <sup>®</sup> Core <sup>™</sup> i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache),   | Small Desktop   |
|-------------------------------|--|---|
|                               | integrated Intel HD Graphics 2500,   |   |
| Implementation                | Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket  | 3 disk optical  |
| Memory                        | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,   |   |
| ,                             | four 240-pin DIMM sockets;   | 2   |
| Additional memory disclaimers | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>  | Raven black color; metal case     13.35"W x 15.0"D x 3.93"H     339mm W x 381.1mm D x 99.7mm H  |
| Graphics                      | Some: NVIDIA® Quadro® 400, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W Some: NVIDIA Quadro 600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W   | <ul> <li>16.53 lb (7.5kg) max configuration</li> <li>11-liter</li> <li>Toolless top cover removal</li> <li>Toolless disk and optical drive removal</li> </ul> |
| Media reader                  | Media: 29-in-1 Media card reader, slim, internal USB 2.0   | Toolless adapter retention     Recessed power button  |
| Optical                       | Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  | • Necessed power bullon   |
| Disk(s)                       | 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"  | Bay 1: 5.25", 1.6" high, access, for optical/2nd disk   |
| Onboard SATA                  | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)   | Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk   |
| Onboard SAS                   | None   | Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)  |
| Chipset                       | Intel C216 Chipset   | * PCle 2.0 x16 on Core i3/Pentium/Celeron models,   |
| Front ports<br>Rear ports     | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector                           | Slot 2: Low Profile, PCle 2.0 x1 Slot 3: Low Profile, 32-bit PCl 2.3 Slot 4: Low Profile, 32-bit PCl 2.3  |
|                               | (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors | Slot 4: Low Profile, 32-bit PCI 2.3  Intel AMT  |
| IEEE 1394 adptr               | via PS/2 rear I/O cable<br>No onboard 1394 ports;  | Intel AMT supported on model(s) with Xeon processor   |
|                               | 1394 models: additional FireWire PCIe adapter, 1394a-2000,   | Preloaded operating system <sup>20</sup>  |
| Audio                         | 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec   | Windows® 7 Professional 64  |
| Speaker                       | Internal speaker for business audio  | Preloaded applications <sup>5</sup> (only some listed)  |
| Ethernet                      | One onboard gigabit ethernet, Intel 82579  | Rescue and Recovery®  |
| Security chip                 | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM),<br>TCG 1.2-compliant  | Norton® Internet Security (30 days of virus definitions)     Adobe® Reader®   |
| Keyboard                      | Preferred Pro USB Keyboard (USB connector), 104-key, black   | Microsoft® Office 2013 preloaded;   |
| Mouse                         | Optical Wheel Mouse (USB connector), black   | purchase product key to activate  |
| Vertical Stand                | Some: Vertical stand with retractable tongue for vertical orientation  | Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))   |
| Power supply                  | 240 watts with variable speed fan, autosensing, 85% PSU,   | SECURITY  |
|                               | Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | Security chip (see information on left)   |
| Limited Warranty              | 3-year parts and labor, more Lenovo® services see S-TS sheet   | Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  |
|                               |  | Power-on password   |
|                               |  | Administrator password     Boot sequence control  |
|                               |  | Boot sequence control     Boot without keyboard, mouse  |
|                               |  | Serial port I/O control   |
|                               |  | <ul> <li>USB port disablement (front or all/individual)</li> <li>Chassis intrusion switch available on selected model(s</li> </ul>                            |
|                               |  | ISV certifications Please visit www.lenovo.com/support/ISV  |
|                               |  | GREENGUARD® certified   |
|                               |  | RoHS-compliant  |
|                               |  | EPEAT™ Ġold rating<br>ENERGY STAR 5.2-compliant   |
|                               |  | More compatible accessories please see O-ROC sheet  |

More compatible accessories, please see O-ROC sheet

# ThinkStation® E31 SFF (3690) - August 2012

|  |   |  |   |  | 0d  |  |   | Chassis  | DC/O   |  |
|--|---|--|---|--|---|--|---|--|--|--|
| Type-<br>model Proc  | essor (MHz/ECC) DIMMs   | Pre-conf<br>RAID Disk(s)   | Media<br>reader   | SATA optical   | 2nd<br>Disk<br>bay  | ,  | 1394<br>adptr Globa   |  | rear V   | stand  |
| 3690-KUU Xeon E3<br>3690-KVU Xeon E3<br>3690-KWU Core i3-<br>3690-KYU Core i5-<br>3690-KZU Xeon E3 | 1550       1600MHz Non-ECC       1x4GB         1770       1600MHz Non-ECC       1x4GB         1-1230V2       1600MHz ECC       1x4GB         1-1245V2       1600MHz ECC       1x4GB         1-1275V2       1600MHz ECC       1x4GB         1:130       1600MHz ECC       1x4GB         1:550       1600MHz Non-ECC       1x4GB         1:1230V2       1600MHz ECC       1x4GB         1:1245V2       1600MHz ECC       1x4GB  | No 1x128GB SSD<br>No 1x180GB SSD<br>No 1x180GB SSD<br>No 1x180GB SSD<br>No 1x180GB SSD<br>No 1x256GB SSD<br>No 1x500GB SATA<br>No 1x1TB SATA<br>No 1x1TB SATA  | No Sli No Sli No Sli No Sli No Sli No No No   | m DVD±RW m DVD±RW m DVD±RW m DVD±RW m DVD±RW m DVD±RW m DVD±RW | V 2nd<br>V 2nd<br>V 2nd<br>V 2nd<br>V 2nd<br>2nd<br>2nd I<br>2nd<br>2nd   | ntel HD 2000<br>Quadro 400<br>Quadro 600<br>Quadro 400<br>Quadro 600<br>ntel HD 2000<br>Quadro 400<br>Quadro 400<br>Quadro 600 | No No No No No No No No No  | Switch<br>Switch<br>Switch<br>Switch<br>Switch<br>Switch<br>Switch<br>Switch<br>Switch | No S<br>No S<br>No S<br>No S<br>No S<br>No S<br>No S<br>No S | Stand<br>Stand<br>Stand<br>Stand<br>Stand<br>Stand<br>Stand<br>Stand<br>Stand<br>Stand |
| Processor  | Intel® Core™ i3-2130 processor (integrated Intel HD Graphics 2000, Intel Core i5-3550 processor (4C integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DI Intel Core i7-3770 processor (4C integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DI Intel Xeon® E3-1230V2 processor Turbo Boost 2.0 (up to 3.7GHz), DI Intel Xeon E3-1245V2 processor Turbo Boost 2.0 (up to 3.8GHz), int DDR3 memory controller (up to 16 Intel Xeon E3-1275V2 processor Turbo Boost 2.0 (up to 3.9GHz), int DDR3 memory controller (up to 16 Intel Xeon E3-1275V2 processor Turbo Boost 2.0 (up to 3.9GHz), int DDR3 memory controller (up to 16 Intel Xeon E3-1275V2 processor Turbo Boost 2.0 (up to 3.9GHz), int DDR3 memory controller (up to 16 | DDR3 memory controlle<br>(4T, 3.3GHz, 6MB Cache<br>DR3 memory controller (<br>78T, 3.4GHz, 8MB Cache<br>DR3 memory controller (<br>6 (4C/8T, 3.3GHz, 8MB C<br>10 (4C/8T, 3.4GHz, 8MB C<br>10 (4C/8T, 3.4GHz, 8MB C<br>10 (4C/8T, 3.5GHz, 8MB C<br>10 (4C/8T, 3.5GHz, 8MB C<br>10 (4C/8T, 3.5GHz, 8MB C<br>10 (4C/8T, 3.5GHz, 8MB C | er (up to 1<br>e),<br>up to 160<br>e),<br>up to 160<br>Cache),<br>up to 160<br>ache),<br>cs P4000 | DMHz)<br>DMHz)<br>DMHz)  | (2) 5.2   | 2nd disk 2nd disk 2nd bisk 2nd disk 2stional 5.25", 25" slim optic   | upports one 1.6" high op al (access)  | of the folic   | n optical disk disk  |  |
| Implementation   | One LGA1155 socket  | JOIVII 12)   |   |  |   | ve bay (inter<br>5" 2nd disk d   |   | ernal  |  |  |
| Memory Additional memory   | 32GB max, UDIMM, PC3-12800 16 four 240-pin DIMM sockets;  • Actual memory operating speed depe  | ·  | non-ECC   | ,  | Bay 2: 3.5", (  | 0.5" high, acc<br>e on slim opti   | cess, for opti<br>ical models)  | onal medi  | a read   | ler  |
| disclaimers  | controller speed, installed memory sp  • Mixing of ECC and non-ECC memory   | eed, and quantity of memor   | y DIMMs   |  | Slot 1: Low I   | Profile, F   | PCle* x16 (4  | 5w max, nea  | ar CPU)  | )  |
| Graphics  Media reader   | Some: Intel HD Graphics in proce<br>discrete graphics to support<br>Xeon E3-1225V2/1245V2/1<br>Core i7-3770:<br>Core i5-3450/3470/3550:<br>Core i3-2120/2130:<br>Pentium/Celeron:<br>(connector information plea<br>Some: NVIDIA® Quadro® 400, PCI<br>one DisplayPort™, one dual<br>Some: NVIDIA Quadro 600, PCIe<br>one DisplayPort, one dual-li   | multi-display; 275V2: Intel HD Graphi Intel HD Graphi Intel HD Graphi Intel HD Graphi Intel HD Graphi Intel HD Graphi Se see Rear ports secti e x16 adapter, 512MB, -link DVI-I, 32W x16 adapter, 1GB, nk DVI-I, 40W   | cs P4000<br>cs 4000<br>cs 2500<br>cs 2000<br>cs   | ong with   | PCle 3.0 x16 Slot 2: Low I Slot 3: Low I Slot 4: Low I Raven blace 13.35"W x 339mm W x 16.53 lb (7. 11-liter Toolless top Toolless ad | Profile, 3 Profile, 3 k color; meta 15.0"D x 3.93 k 381.1mm D 5kg) max color cover removels and optica apter retentic          | i5/Core i7 model PCIe 2.0 x1 s2-bit PCI 2. s2-bit PCI 2. I case 3"H x 99.7mm Infiguration val | dels<br>3<br>3<br>H  |  |  |
| Optical  | Some: DVD±RW, SATA, slim  | o,oa. 002 2.0  |   |  | Recessed p  |  |   | - 00   |  |  |
| Disk(s) Onboard SATA   | 250GB/500GB/1TB/2TB/3TB SATA<br>150GB/300GB/600GB SATA:<br>128GB/180GB/256GB SSD:<br>Two SATA 6.0Gb/s connectors (red<br>RAID 0, 1 support via Intel C216 C<br>disk bay)  | SATA 6.0Gb/s, 10000<br>Solid State Drive, SAT<br>), two SATA 3.0Gb/s cor   | rpm, 2.5"<br>TA 6.0Gb/s<br>inectors (c  | range),  | Some: Wind<br>Some: Wind<br>preir<br>right  |  | essional 64<br>ssional 64<br>igh downgra<br>s 8 Pro 64-b                                      | de   |  |  |
| Onboard SAS  | None Intel C216 Chipset   |  |   |  |   | ided applica   | tions <sup>5</sup> <i>(onl</i> )  | / some lis   | ted)   |  |
| Front ports Rear ports   | Two USB 2.0, microphone (3.5mm, Two USB 2.0, four USB 3.0 (blue), three analog audio ports (line-in, lin connector, one DisplayPort connec (Onboard VGA and DisplayPort are are used: Xeon E3-1225V2/1245V: Core i5-3450/3550, Core i3-2120/2 PS/2 models: additional PS/2 key via PS/2 rear I/O ca   | one serial (9-pin), one ene-out, mic-in), one analitor functional when the foll 2/1275V2, Core i7-3770, 130, Pentium, and Celepoard and mouse conne  | og VGA D<br>owing pro<br>ron proces   | B-15 <sup>2</sup>  | -Windows 7  Rescue and Norton <sup>TM</sup> Ir Adobe® Re Microsoft® (purchase p Corel® Vint Ulead® DVI -Windows 8 Norton Inte         | d Recovery® hternet Secur ader® Office 2013 p roduct key to DVD® (DVD± D MovieFacto models                                     | oreloaded;<br>activate<br>RW model(s<br>ory® (DVD±F   | s))<br>RW model(   | (s))   | ,  |
| IEEE 1394 adptr  | No onboard 1394 ports;<br>1394 models: additional FireWire F<br>400Mbps, two 6-pin  | ports on rear  | 0,  |  | <ul><li>Norton Stud</li><li>Microsoft C</li></ul>   | dio  | eloaded;  | THUS GOT   |  | • •  |
| Audio<br>Speaker<br>Ethernet<br>Security chip  | High Definition (HD) Audio, Realtel Internal speaker for business audic One onboard gigabit ethernet, Inte STMicroelectronics ST33ZP24 Trus TCG 1.2-compliant   | 82579  | PM),  |  | <ul><li>Cyberlink P</li><li>Cyberlink P</li><li>Security ch</li></ul>   | Power2Go (D'<br>PowerProduce<br>SEC<br>ip (see inforr  | VD±RW moder (DVD±RV URITY mation on le  | / model(s)   | )  |  |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply  | Preferred Pro USB Keyboard (USB Optical Wheel Mouse (USB connect Some: Vertical stand with retractal 240 watts with variable speed fan, Climate Savers® Computing Broad   | ctor), black<br>ble tongue for vertical ori<br>autosensing, 85% PSU,<br>nze, 80 PLUS® Bronze o   | entation<br>qualified   |  |   | Microsave<br>de cover rem<br>and administr<br>ence control<br>ut keyboard,   | r® cable;<br>loval)<br>ator passwo  | ord  |  |  |
| Limited Warranty ISV certifications Intel AMT  | 3-year parts and labor, more Lenov<br>See the latest list of ISV certification<br>Intel AMT supported on model(s) w   | ns at www.lenovo.com/s   |   | V  | <ul> <li>USB port d</li> <li>Chassis int</li> </ul> More compat   | isablement (<br>trusion switch   | n available o   | n selectéc   |  | . ,  |
| 0 ( to - to - ( '  | nortant warranty information  |  |   |  | 1   |  | .,  |  |  | anovo  |

# ThinkStation® E31 SFF (3690) - March 2013

| Type-              |                | Memory          | Momory | Pre-conf | SATA        | 2nd | Media  | SATA        | Graphics      | 120/ | Chassis intrusion | Vortical | Preload         |
|--------------------|----------------|-----------------|--------|----------|-------------|-----|--------|-------------|---------------|------|-------------------|----------|-----------------|
| model <sup>1</sup> | Processor      | (MHz/ECC)       | DIMMs  | RAID     | drive(s)    |     | reader | optical     |               |      | switch            | stand    | OS <sup>2</sup> |
| 3690-QGU           | Core i5-3570   | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |     | Media  | DVD±RW      | Quadro K600   | No   | Switch            | Stand    | Win7 Pro64(DG)  |
| 3690-QHU           | Core i5-3570   | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |     | Media  | DVD±RW      | Quadro K600   | No   | Switch            | Stand    | Win8 Pro64      |
| 3690-QJU           | Xeon E3-1245V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |     | Media  | DVD±RW      | Quadro K600   | No   | Switch            | Stand    | Win8 Pro64      |
| 3690-QKU           | Xeon E3-1245V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |     | Media  | DVD±RW      | Quadro K600   | No   | Switch            | Stand    | Win7 Pro64(DG)  |
| 3690-QLU           | Xeon E3-1275V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |     | Media  | DVD±RW      | Quadro K600   | No   | Switch            | Stand    | Win7 Pro64(DG)  |
| 3690-QMU           | Xeon E3-1275V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |     | Media  | DVD±RW      | Quadro K600   | No   | Switch            | Stand    | Win8 Pro64      |
| 3690-QNU           | Core i3-3220   | 1600MHz Non-ECC | 1x4GB  | No       | 1x128GB SSD | 2nd |        | Slim DVD±RW | Intel HD 2500 | No   | Switch            | Stand    | Win7 Pro64(DG)  |

<sup>1</sup> Model in italics shows that this is a Global Model

| 1 Model in italics shows<br>2 Win7 Pro64(DG) = Wi   | that this is a Global Model<br>ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |  |
|---|--|--|
| Processor   | Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache),  | Small Desktop (1) Optional 1.6" high optical (2) Slim optical + 2nd disk   |
| Landar and Car                                      | integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) | 3 disk optical and disk slim optical and disk optical and |
| Implementation<br>Memory                            | One LGA1155 socket  32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC.   | Bay 1: 5.25", 1.6" high, supports one of the following:  |
| Additional memory disclaimers                       | our 240-pin DIMM sockets;     Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs     Mixing of ECC and non-ECC memory is not supported   | (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal) (3) 3.5" 2nd disk drive bay, internal  Bay 2: 3.5", 0.5" high, access, for optional media reader  |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® K600, PCle x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W  | (not available on slim optical models)  Bay 3: 3.5", 1" high, internal, for disk drive  Slot 1: Low Profile, PCle* x16 (45w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models  |
| Media reader<br>Optical<br>SATA drive(s)            | Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5"   | Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3 • Raven black color; metal case   |
| Onboard SATA  | SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)   | 13.35"W x 15.0"D x 3.93"H     339mm W x 381.1mm D x 99.7mm H     16.53 lb (7.5kg) max configuration     11-liter   |
| Onboard SAS   | None   | Toolless top cover removal   |
| Chipset   | Intel C216 Chipset   | Toolless disk and optical drive removal     Toolless adapter retention   |
| Front ports<br>Rear ports                           | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)  | Recessed power button      Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64      Some: Windows 7 Professional 64  |
| IEEE 1394 adptr                                     | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear   | preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit   |
| Audio   | High Definition (HD) Audio, Realtek® ALC662 codec  | Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models   |
| Speaker<br>Ethernet<br>Security chip                | Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | <ul> <li>Rescue and Recovery®</li> <li>Norton™ Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> </ul>   |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | Microsoft® Office 2013 preloaded; purchase product key to activate     Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))     -Windows 8 models   |
| Limited Warranty                                    | 3-year parts and labor, more Lenovo® services see S-TS sheet   | Norton Internet Security (30 days of virus definitions)     Norton Studio  |
| Eco-Label and environmental certifications          | GREENGUARD® certified RoHS-compliant EPEATTM Gold rating ENERGY STAR 5.2-compliant   | Microsoft Office 2013 preloaded; purchase product key to activate     Cyberlink Power2Go (DVD±RW model(s))     Cyberlink PowerProducer (DVD±RW model(s))   |
| ISV certifications<br>Intel AMT                     | See the latest list of ISV certifications at www.lenovo.com/support/ISV Intel AMT supported on model(s) with Xeon processor  | SECURITY  • Security chip (see information on left)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on and administrator password  • Boot sequence control  • Boot without keyboard, mouse  • Serial port I/O control  • USB port disablement (front or all/individual)  • Chassis intrusion switch available on selected model(s)  |

More compatible accessories, please see O-ROC sheet

### ThinkStation® E31 SFF (3690) - March 2013 - II

| Type-<br>model <sup>1</sup> | Processor    | Memory<br>(MHz/ECC) | Memory<br>DIMMs | Pre-conf<br>RAID | SATA<br>drive(s) |     | Media<br>reader | SATA<br>optical | Graphics adapter(s) | 1394<br>adptr | Chassis<br>intrusion<br>switch | Vertical<br>stand | Preload<br>OS <sup>2</sup> |
|-----------------------------|--------------|---------------------|-----------------|------------------|------------------|-----|-----------------|-----------------|---------------------|---------------|--------------------------------|-------------------|----------------------------|
| 3690-QPU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD      | 2nd | No              | Slim DVD±RW     | Intel HD 2500       | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3690-QQU                    | Core i3-3240 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD      | 2nd | No              | Slim DVD±RW     | Intel HD 2500       | No            | Switch                         | Stand             | Win8 Pro64                 |
| 3690-QRU                    | Core i3-3220 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x128GB SSD      | 2nd | No              | Slim DVD±RW     | Intel HD 2500       | No            | Switch                         | Stand             | Win8 Pro64                 |
| 3690-QSU                    | Core i5-3570 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD      | 2nd | No              | Slim DVD±RW     | Quadro 410          | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3690-QTU                    | Core i5-3570 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD      | 2nd | No              | Slim DVD±RW     | Quadro 410          | No            | Switch                         | Stand             | Win8 Pro64                 |
| 3690-QUU                    | Core i7-3770 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD      | 2nd | No              | Slim DVD±RW     | Quadro K600         | No            | Switch                         | Stand             | Win7 Pro64(DG)             |
| 3690-QVU                    | Core i7-3770 | 1600MHz Non-ECC     | 1x4GB           | No               | 1x180GB SSD      | 2nd | No              | Slim DVD±RW     | Quadro K600         | No            | Switch                         | Stand             | Win8 Pro64                 |

Model in italics shows that this is a Global Model Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), Processor integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) 3 disk Intel Core i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 2500 Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz) Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, (3) 2nd disk Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) Implementation One LGA1155 socket 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, Memory four 240-pin DIMM sockets; Additional memory Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs disclaimers • Mixing of ECC and non-ECC memory is not supported Some: Intel HD Graphics in processor, uses main memory, works along with Graphics discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)
Some: NVIDIA® Quadro® 410, PCle x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Media reader Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model Optical 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SATA drive(s) SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Onboard SATA

Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd

drive bay only) Onboard SAS

Chipset Intel C216 Chipset Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Front ports Rear ports

Eco-Label and

Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)

IEEE 1394 adptr No onboard 1394 ports;

1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear

High Definition (HD) Audio, Realtek® ALC662 codec Audio Speaker Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 Ethernet

Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant

Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Mouse

Vertical Stand Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Power supply

Limited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet GREENGUARD® certified

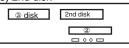
environmental RoHS-compliant EPEAT™ Gold rating certifications ENERGY STAR 5.2-compliant

ISV certifications See the latest list of ISV certifications at www.lenovo.com/support/ISV Intel AMT Intel AMT supported on model(s) with Xeon processor

Small Desktop

1) Optional 1.6" high optical

(2) Slim optical + 2nd disk 3 disk \_ 00 \_



Bay 1: 5.25", 1.6" high, supports one of the following: (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal)
(3) 3.5" 2nd disk drive bay, internal

Bay 2: 3.5", 0.5" high, access, for optional media reader (not available on slim optical models) Bay 3: 3.5", 1" high, internal, for disk drive

Slot 1: Low Profile, PCIe\* x16 (45w max, near CPU) \* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models Slot 2: Low Profile, PCIe 2.0 x1

Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile. 32-bit PCI 2.3

- · Raven black color; metal case
- 13.35"W x 15.0"D x 3.93"H
- 339mm W x 381.1mm D x 99.7mm H
- 16.53 lb (7.5kg) max configuration

• 11-liter

- · Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Recessed power button

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 Windows 7 Professional 64 Some: Some: preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit Some:

### Preloaded applications<sup>5</sup> (only some listed)

### -Windows 7 models

- Rescue and Recoverv<sup>®</sup>
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded;

- purchase product key to activate
  Corel® WinDVD® (DVD±RW model(s))
  Ulead® DVD MovieFactory® (DVD±RW model(s))

### -Windows 8 models

- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Microsoft Office 2013 preloaded;
- purchase product key to activate Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

- Security chip (see information on left)
- Security slot (in rear for optional Kensington® Microsaver® cable;
- prohibits side cover removal)
  Power-on and administrator password
- · Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

# ThinkStation® E31 SFF (3690) - March 2013 - III

|                    |                |                 |        |          |             | 2nd   |        |             |             |       | Chassis   |          |                 |
|--------------------|----------------|-----------------|--------|----------|-------------|-------|--------|-------------|-------------|-------|-----------|----------|-----------------|
| Type-              |                | Memory          | Memory | Pre-conf | SATA        | drive | Media  | SATA        | Graphics    | 1394  | intrusion | Vertical | Preload         |
| model <sup>1</sup> | Processor      | (MHz/ECC)       | DIMMs  | RAID     | drive(s)    | bay   | reader | optical     | adapter(s)  | adptr | switch    | stand    | OS <sup>2</sup> |
| 3690-QWU           | Xeon E3-1275V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x256GB SSD | 2nd   | No     | Slim DVD±RW | Quadro K600 | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3690-QYU           | Xeon E3-1275V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x256GB SSD | 2nd   | No     | Slim DVD±RW | Quadro K600 | No    | Switch    | Stand    | Win8 Pro64      |
| 3690-QZU           | Xeon E3-1245V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |       | No     |             | Quadro K600 | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3690-R1U           | Xeon E3-1245V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"  |       | No     |             | Quadro K600 | No    | Switch    | Stand    | Win8 Pro64      |

1 Model in italics shows that this is a Global Model

|   | that this is a Global Model<br>indows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit  |  |
|---|--|--|
| Processor   | Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache),<br>Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000,  | Small Desktop (1) Optional 1.6" high optical (2) Slim optical + 2nd disk   |
|   | DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)   | 3 disk optical 3 disk slim optical 2nd disk  |
| Implementation                                      | One LGA1155 socket   | (3) 2nd disk   |
| Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  | ③ disk 2nd disk  |
| disclaimers   | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>  | Bay 1: 5.25", 1.6" high, supports one of the following:  |
| Graphics  | NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W   | (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk  |
| Media reader<br>Optical<br>SATA drive(s)            | Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"  | drive bay (internal) (3) 3.5" 2nd disk drive bay, internal Bay 2: 3.5", 0.5" high, access, for optional media reader (not available on slim optical models) Bay 3: 3.5", 1" high, internal, for disk drive                     |
| Onboard SATA  | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)  | Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models,  |
| Onboard SAS   | None   | PCle 3.0 x16 on Xeon/Core i5/Core i7 models Slot 2: Low Profile, PCle 2.0 x1   |
| Chipset   | Intel C216 Chipset   | Slot 3: Low Profile, 32-bit PCI 2.3  |
| Front ports<br>Rear ports                           | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable | Slot 4: Low Profile, 32-bit PCI 2.3  Raven black color; metal case  13.35"W x 15.0"D x 3.93"H  339mm W x 381.1mm D x 99.7mm H  16.53 lb (7.5kg) max configuration  11-liter  Toolless top cover removal                        |
| IEEE 1394 adptr                                     | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear   | <ul> <li>Toolless disk and optical drive removal</li> <li>Toolless adapter retention</li> <li>Recessed power button</li> </ul>   |
| Audio<br>Speaker<br>Ethernet<br>Security chip       | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64  Some: Windows 7 Professional 64  preinstalled through downgrade rights in Windows 8 Pro 64-bit  |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | Some: Windows 8 Pro 64-bit Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models • Rescue and Recovery <sup>®</sup> • Norton™ Internet Security (30 days of virus definitions) • Adobe® Reader <sup>®</sup> |
| Limited Warranty                                    | 3-year parts and labor, more Lenovo® services see S-TS sheet   | Microsoft® Office 2013 preloaded;  |
| Eco-Label and environmental certifications          | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  | purchase product key to activate  • Corel® WinDVD® (DVD±RW model(s))  • Ulead® DVD MovieFactory® (DVD±RW model(s))  -Windows 8 models  |
| ISV certifications<br>Intel AMT                     | See the latest list of ISV certifications at www.lenovo.com/support/ISV Intel AMT supported on model(s) with Xeon processor  | Norton Internet Security (30 days of virus definitions) Norton Studio Microsoft Office 2013 preloaded; purchase product key to activate Cyberlink Power2Go (DVD±RW model(s)) Cyberlink PowerProducer (DVD±RW model(s))         |
|   |  | SECURITY   |
|   |  | Security chip (see information on left)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on and administrator password     Boot sequence control                 |

Boot sequence control

Boot without keyboard, mouse
 Serial port I/O control
 USB port disablement (front or all/individual)

• Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

# ThinkStation® E31 SFF (3690) - May 2013

| Type-              |                | Memory      | Memory | Pre-conf | SATA            | 2nd<br>drive | Media  | SATA    | Graphics    | 1394  | Chassis intrusion | Vertical | Preload         |
|--------------------|----------------|-------------|--------|----------|-----------------|--------------|--------|---------|-------------|-------|-------------------|----------|-----------------|
| model <sup>1</sup> | Processor      | (MHz/ECC)   | DIMMs  | RAID     | drive(s)        |              | reader | optical | adapter(s)  | adptr |                   | stand    | OS <sup>2</sup> |
| 3690-R2U           | Xeon E3-1245V2 | 1600MHz ECC | 8GBx1  | No       | 1x1TB 3.5" SATA | No           | No     | DVD±RW  | Quadro 410  | No    | Switch            | Stand    | Win7 Pro64(DG)  |
| 3690-R3U           | Xeon E3-1245V2 | 1600MHz ECC | 8GBx1  | No       | 1x1TB 3.5" SATA | No           | No     | DVD±RW  | Quadro 410  | No    | Switch            | Stand    | Win8 Pro64      |
| 3690-R4U           | Xeon E3-1280V2 | 1600MHz ECC | 8GBx1  | No       | 1x1TB 3.5" SATA | No           | No     | DVD±RW  | Quadro K600 | No    | Switch            | Stand    | Win8 Pro64      |
| 3690-R5U           | Xeon E3-1280V2 | 1600MHz ECC | 8GBx1  | No       | 1x1TB 3.5" SATA | No           | No     | DVD±RW  | Quadro K600 | No    | Switch            | Stand    | Win7 Pro64(DG)  |

1 Madel in italian shows that this is a Clahal Madel

|   | that this is a Global Model<br>indows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |  |
|---|---|--|
| Processor   | Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1280V2 processor (4C/8T, 3.6GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.0GHz), DDR3 memory controller (up to 1600MHz)   | Small Desktop  (1) Optional 1.6" high optical  (2) Slim optical + 2nd disk  (3) disk optical   (3) disk   (3) disk   (2) slim optical   (3) disk   (3) dis |
| Implementation                                      | One LGA1155 socket  |  |
| Memory  Additional memory disclaimers               | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported  | (3) 2nd disk  3 disk 2nd disk 2nd of sk  |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 37W  Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W                               | Bay 1: 5.25", 1.6" high, supports one of the following: (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal) (3) 3.5" 2nd disk drive bay, internal Bay 2: 3.5", 0.5" high, access, for optional media reader (not available on slim optical models) Bay 3: 3.5", 1" high, internal, for disk drive   |
| Media reader<br>Optical<br>SATA drive(s)            | Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange),  | Slot 1: Low Profile, PCle* x16 (45w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0 x16 on Xeon/Core i5/Core i7 models  Slot 2: Low Profile, PCle 2.0 x1 Slot 3: Low Profile, 32-bit PCl 2.3  |
| Onboard SAS   | RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only) None   | Slot 4: Low Profile, 32-bit PCI 2.3  Raven black color; metal case  13.35"W x 15.0"D x 3.93"H  |
| Chipset   | Intel C216 Chipset  | • 339mm W x 381.1mm D x 99.7mm H   |
| Front ports<br>Rear ports                           | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors | 16.53 lb (7.5kg) max configuration     11-liter     Toolless top cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Recessed power button      Preloaded operating system <sup>20</sup>  |
| IEEE 1394 adptr                                     | via PS/2 rear I/O cable  No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear   | Some: Windows® 7 Professional 64 Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |
| Audio<br>Speaker<br>Ethernet                        | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579   | Some: Windows 8 Pro 64-bit Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models  |
| Security chip                                       | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | Rescue and Recovery®     Norton™ Internet Security (30 days of virus definitions)  |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | Adobe® Reader®     Microsoft® Office 2013 preloaded;     purchase product key to activate     Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))  |
| Limited Warranty                                    | 3-year parts and labor, more Lenovo® services see S-TS sheet  | -Windows 8 models - Norton Internet Security (30 days of virus definitions)  |
| Eco-Label and environmental certifications          | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant See the latest list of ISV certifications at www.lenovo.com/support/ISV   | Norton Studio Microsoft Office 2013 preloaded; purchase product key to activate Cyberlink Power2Go (DVD±RW model(s)) Cyberlink PowerProducer (DVD±RW model(s))   |
| Intel AMT   | Intel AMT supported on model(s) with Xeon processor   | SECURITY   |
|   | •   | Security chip (see information on left)     Security slot (in rear for optional  |

- Security Side (Internation optional Kensington® Microsaver® cable; prohibits side cover removal)
   Power-on and administrator password
- · Boot sequence control

- Boot without keyboard, mouse
   Serial port I/O control
   USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

# ThinkStation® E31 SFF (3691) - GMP

|          |                |             |          |          |              |        |         | 2nd  |                |       |        | Chassis   | PS/2 |          |         |
|----------|----------------|-------------|----------|----------|--------------|--------|---------|------|----------------|-------|--------|-----------|------|----------|---------|
| Type-    |                | Memory      | Memory I | Pre-conf | f            | Media  | SATA    | Disk | Graphics       | 1394  |        | intrusion | rear | Vertical | Win7    |
| model    | Processor      | (MHz/ECC)   | DIMMs    | RAID     | Disk(s)      | reader | optical | bay  | adapter(s)     | adptr | Global | switch    | I/O  | stand    | preload |
| 3691-B2U | Core i3-2130   | 1600MHz ECC | 1x4GB    | No       | 1x500GB SATA | Media  | DVD±RW  | No   | Intel HD 2000  | No    | Global | No        | No   | No       | Pro 64  |
| 3691-B3U | Xeon E3-1225V2 | 1600MHz ECC | 1x4GB    | No       | 1x1TB SATA   | Media  | DVD±RW  | No   | Intel HD P4000 | No    | Global | No        | No   | No       | Pro 64  |

• Part of the Global Models Plus (GMP) program with limited onsite service 3-year limited warranty

| Processor   | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)   | Small Desktop  3 disk optical  |
|---|---|--|
| Implementation                                      | One LGA1155 socket  | 2 000  |
| Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   | Raven black color; metal case  |
| Additional memory disclaimers                       | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   | 13.35"W x 15.0"D x 3.93"H     339mm W x 381.1mm D x 99.7mm H     16.53 lb (7.5kg) max configuration     11-liter   |
| Graphics  | Intel HD Graphics in processor, uses main memory, can work along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)   | Toolless top cover removal Toolless disk and optical drive removal Toolless adapter retention Recessed power button  |
| Media reader<br>Optical<br>Disk(s)                  | Media: 29-in-1 Media card reader, slim, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5" Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), | Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk  Slot 1: Low Profile, PCle* x16 (45w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0                                      |
| Onboard SAS   | RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)<br>None   | x16 on Xeon models Slot 2: Low Profile, PCIe 2.0 x1  |
| Chipset   | Intel C216 Chipset  | Slot 3: Low Profile, 32-bit PCI 2.3<br>Slot 4: Low Profile, 32-bit PCI 2.3   |
| Front ports<br>Rear ports                           | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors  | Intel AMT  |
|   | are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors   | Intel AMT supported on model(s) with Xeon processor  Preloaded operating system <sup>20</sup>  |
| IEEE 1394 adptr                                     | via PS/2 rear I/O cable No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000,   | Windows® 7 Professional 64     Preloaded applications⁵ (only some listed)     Rescue and Recovery®   |
| Audio<br>Speaker<br>Ethernet<br>Security chip       | 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Microsoft® Office 2013 preloaded; purchase product key to activate Corel® WinDVD® (DVD±RW model(s)) Ulead® DVD MovieFactory® (DVD±RW model(s))   |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | SECURITY  • Security chip (see information on left)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  |
| Limited Warranty                                    | 3-year parts and labor, more Lenovo <sup>®</sup> services see S-TS sheet  | <ul> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Boot without keyboard, mouse</li> <li>Serial port I/O control</li> <li>USB port disablement (front or all/individual)</li> <li>Chassis intrusion switch available on selected model(s)</li> </ul> |
|   |   | ISV certifications Please visit www.lenovo.com/support/ISV   |
|   |   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  |
|   |   | More compatible accessories, please see O-ROC sheet  |

# ThinkStation® E31 SFF (3691) - GMP (October 2012)

|           |              |             |        |         |              |        |         | 2nd  |            |              | Chassis   | PS/2 |          |            |
|-----------|--------------|-------------|--------|---------|--------------|--------|---------|------|------------|--------------|-----------|------|----------|------------|
| Type-     |              | Memory      | Memory | Pre-con | f            | Media  | SATA    | Disk | Graphics   | 1394         | intrusion | rear | Vertical | Preload    |
| model     | Processor    | (MHz/ECC)   | DIMMs  | RAID    | Disk(s)      | reader | optical | bay  | adapter(s) | adptr Global | switch    | I/O  | stand    | os         |
| 3691-4411 | Core i3-2130 | 1600MHz ECC | 1v//GB | No      | 1y500GR SATA | No     | DVD+BW  | Nο   | Quadro 410 | No Global    | Switch    | No   | Stand    | Win8 Pro64 |

• Part of the Global Models Plus (GMP) program with limited onsite service 3-year limited warranty

| Processor<br>Implementation                         | Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) One LGA1155 socket   | Small Desktop  |
|---|---|--|
| Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC,  | ③ disk optical   |
| •   | four 240-pin DIMM sockets;  |  |
| Additional memory disclaimers                       | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>   | • Raven black color; metal case  |
| Graphics  | Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;  Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-3220/3240: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section) Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W | 13.35"W x 15.0"D x 3.93"H     339mm W x 381.1mm D x 99.7mm H     16.53 lb (7.5kg) max configuration     11-liter     Toolless top cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Recessed power button Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk |
| Media reader  | Media: 29-in-1 Media card reader, slim, internal USB 2.0  |  |
| Optical<br>Disk(s)                                  | Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"  150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"  128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"  Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange),  RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd   | Slot 1: Low Profile, PCle* x16 (45w max, near CPU)  * PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0  x16 on Xeon models  Slot 2: Low Profile, PCle 2.0 x1  Slot 3: Low Profile, 32-bit PCl 2.3  Slot 4: Low Profile, 32-bit PCl 2.3   |
|   | disk bay)   | Intel AMT  |
| Onboard SAS   | None 7  | Intel AMT supported on model(s) with Xeon processor  |
| Chipset<br>Front ports                              | Intel C216 Chipset Two USB 2.0, microphone (3.5mm), headphone (3.5mm)   | Preloaded operating system <sup>20</sup>   |
| Rear ports  | Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable   | Some: Windows® 7 Professional 64 Some: Windows 8 Pro 64-bit  Preloaded applications® (only some listed)  -Windows 7 models  • Rescue and Recovery®  • Norton™ Internet Security (30 days of virus definitions)  • Adobe® Reader®  • Microsoft® Office 2013 preloaded;  |
| IEEE 1394 adptr                                     | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  | <ul> <li>Microsoft Office 2013 prebaded, purchase product key to activate</li> <li>Corel® WinDVD® (DVD±RW model(s))</li> <li>Ulead® DVD MovieFactory® (DVD±RW model(s))</li> </ul>   |
| Audio<br>Speaker<br>Ethernet<br>Security chip       | High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  | -Windows 8 models  Intel AppUp® Evernote® Norton Internet Security (30 days of virus definitions) Norton Studio  |
| Keyboard<br>Mouse<br>Vertical Stand<br>Power supply | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | <ul> <li>Skype<sup>™</sup></li> <li>Microsoft Office 2013 preloaded;<br/>purchase product key to activate</li> <li>Cyberlink Power2Go (DVD±RW model(s))</li> <li>Cyberlink PowerProducer (DVD±RW model(s))</li> </ul>  |
| Limited Warranty                                    | 3-year parts and labor, more Lenovo® services see S-TS sheet  | SECURITY   |
| Eco-Label and environmental certifications          | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant   | Security chip (see information on left)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)   |
| ISV certifications                                  | See the latest list of ISV certifications at www.lenovo.com/support/ISV   | Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse     Serial port I/O control     USB port disablement (front or all/individual)     Chassis intrusion switch available on selected model(s)  More compatible accessories, please see O-ROC sheet  |

### ThinkStation® E31 SFF (3691) - GMP (February 2013)

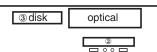
|          |                |                 |        |          |               |        |                | 2nd  |            |       |        | Chassis   | PS/2 |                 |
|----------|----------------|-----------------|--------|----------|---------------|--------|----------------|------|------------|-------|--------|-----------|------|-----------------|
| Type-    |                | Memory          | Memory | Pre-conf |               | Media  | SATA           | Disk | Graphics   | 1394  |        | intrusion | rear | Preload         |
| model    | Processor      | (MHz/ECC)       | DIMMs  | RAID     | Hard drive(s) | reader | optical        | bay  | adapter(s) | adptr | Global | switch    | I/O  | os              |
| 3691-C4U | Xeon E3-1270V2 | 1600MHz Non-ECC | 2x4GB  | No       | 1x180GB SSD   | Media  | DVD±RW         | No   | Quadro 600 | No    | Global | Switch    | No   | Win7 Pro64      |
| 3691-C5U | Xeon E3-1270V2 | 1600MHz Non-ECC | 2x4GB  | No       | 1x180GB SSD   | Media  | $DVD {\pm} RW$ | No   | Quadro 410 | No    | Global | Switch    | No   | Win7 Pro64(DG)* |

• Part of the Global Models Plus (GMP) program with limited onsite service 3-year limited warranty

<sup>\*</sup> Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

| VVIII7 P1064(DG) = VVIII        | dows / Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit  |
|---------------------------------|---|
| Processor                       | Intel® Xeon® E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache),<br>Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)  |
| Implementation                  | One LGA1155 socket  |
| Memory                          | <b>32GB</b> max, <b>UDIMM</b> , <b>PC3-12800 1600MHz DDR3</b> , <b>ECC</b> or <b>non-ECC</b> , four 240-pin DIMM sockets;   |
|                                 | Actual memory operating speed depends on processor memory   |
| disclaimers                     | controller speed, installed memory speed, and quantity of memory DIMMs  • Mixing of ECC and non-ECC memory is not supported   |
| Graphics                        | Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W  |
| Media reader                    | Media: 29-in-1 Media card reader, slim, internal USB 2.0  |
| Optical                         | Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive   |
| Disk(s)                         | 250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"<br>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"<br>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"   |
| Onboard SATA                    | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd  |
| Onboard SAS                     | disk bay)<br>None   |
| Chipset                         | Intel C216 Chipset  |
| Front ports                     | Two USB 2.0, microphone (3.5mm), headphone (3.5mm)  |
| Rear ports                      | Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector                                       |
|                                 | (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)  PS/2 models: additional PS/2 keyboard and mouse connectors |
|                                 | via PS/2 rear I/O cable   |
| IEEE 1394 adptr                 | No onboard 1394 ports;<br>1394 models: additional FireWire PCIe adapter, 1394a-2000,<br>400Mbps, two 6-pin ports on rear  |
| Audio                           | High Definition (HD) Audio, Realtek® ALC662 codec   |
| Speaker                         | Internal speaker for business audio   |
| Ethernet                        | One onboard gigabit ethernet, Intel 82579   |
| Security chip                   | STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant  |
| Keyboard                        | Preferred Pro USB Keyboard (USB connector), 104-key, black  |
| Mouse                           | Optical Wheel Mouse (USB connector), black  |
| Vertical Stand                  | Vertical stand with retractable tongue for vertical orientation   |
| Power supply                    | 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  |
| Limited Warranty                | 3-year parts and labor, more Lenovo® services see S-TS sheet  |
| Eco-Label and                   | GREENGUARD® certified   |
| environmental<br>certifications | RoHS-compliant EPEAT™ Gold rating   |
| Certifications                  | ENERGY STAR 5.2-compliant   |
| ISV certifications              | See the latest list of ISV certifications at www.lenovo.com/support/ISV   |
|                                 |   |

#### Small Desktop



- Raven black color; metal case
- 13.35"W x 15.0"D x 3.93"H 339mm W x 381.1mm D x 99.7mm H
- 16.53 lb (7.5kg) max configuration
- 11-liter
- Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Recessed power button

Bay 1: 5.25", 1.6" high, access, Bay 2: 3.5", 0.5" high, access, Bay 3: 3.5", 1" high, internal, for optical/2nd disk for media reader for disk

Slot 1: Low Profile, PCIe\* x16 (45w max, near CPU) PCle 2.0 x16 on Core i3/Pentium/Celeron models, PCle 3.0

x16 on Xeon models Slot 2: Low Profile, PCIe 2.0 x1 32-bit PCI 2.3 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile,

#### Intel AMT

ntel AMT supported on model(s) with Xeon processor

#### Preloaded operating system<sup>20</sup>

Windows® 7 Professional 64 ome: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Windows 8 Pro 64-bit

#### Preloaded applications<sup>5</sup> (only some listed)

#### Windows 7 models

- Rescue and Recovery®
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded: purchase product key to activate
  Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

### Windows 8 models

- Intel AppUp®
- Evernote®
- Norton Internet Security (30 days of virus definitions)
- Norton Studio Skype™
- Microsoft Office 2013 preloaded: purchase product key to activate
  Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

#### **SECURITY**

- Security chip (see information on left)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
  Power-on password
- Administrator password
- · Boot sequence control
- Boot without keyboard, mouse Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

More compatible accessories, please see O-ROC sheet

## ThinkStation® E31 SFF (3691) - GMP (March 2013)

|                    |                |                 |        |          |              | 2nd   |        |         |                |       | Chassis   |          |                 |
|--------------------|----------------|-----------------|--------|----------|--------------|-------|--------|---------|----------------|-------|-----------|----------|-----------------|
| Type-              |                | Memory          | Memory | Pre-conf | SATA         | drive | Media  | SATA    | Graphics       | 1394  | intrusion | Vertical | Preload         |
| model <sup>1</sup> | Processor      | (MHz/ECC)       | DIMMs  | RAID     | drive(s)     | bay   | reader | optical | adapter(s)     | adptr | switch    | stand    | OS <sup>2</sup> |
| 3691-C6U           | Core i3-3220   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500  | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3691-C7U           | Core i3-3220   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500  | No    | Switch    | Stand    | Win8 Pro64      |
| 3691-C8U           | Core i3-3240   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500  | No    | Switch    | Stand    | Win8 Pro64      |
| 3691-C9U           | Core i3-3240   | 1600MHz Non-ECC | 1x4GB  | No       | 1x500GB 3.5" | No    | Media  | DVD±RW  | Intel HD 2500  | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3691-CAU           | Xeon E3-1225V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"   | No    | Media  | DVD±RW  | Intel HD P4000 | No    | Switch    | Stand    | Win7 Pro64(DG)  |
| 3691-CBU           | Xeon E3-1225V2 | 1600MHz Non-ECC | 1x4GB  | No       | 1x1TB 3.5"   | No    | Media  | DVD±RW  | Intel HD P4000 | No    | Switch    | Stand    | Win8 Pro64      |

1 Model in italics shows that this is a Global Model

|   | that this is a Global Model<br>ndows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit   |   |
|---|--|---|
| Processor   | Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000,                      | Small Desktop  3 disk optical   |
|   | DDR3 memory controller (up to 1600MHz)   |   |
| Implementation  | One LGA1155 socket   | Raven black color; metal case   |
| Memory  | 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;  | 13.35"W x 15.0"D x 3.93"H     339mm W x 381.1mm D x 99.7mm H  |
| Additional memory disclaimers                               | <ul> <li>Actual memory operating speed depends on processor memory<br/>controller speed, installed memory speed, and quantity of memory DIMMs</li> <li>Mixing of ECC and non-ECC memory is not supported</li> </ul>  | 16.53 lb (7.5kg) max configuration     11-liter     Toolless top cover removal  |
| Graphics  | Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)  | Toolless disk and optical drive removal Toolless adapter retention Recessed power button Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader   |
| Media reader<br>Optical<br>SATA drive(s)                    | Media: 29-in-1 Media card reader, slim, internal USB 2.0 DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model 3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"  | Bay 3: 3.5", 1" high, internal, for disk  Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)  * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models   |
| Onboard SATA  | Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)  | Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3  |
| Onboard SAS   | None   | Intel AMT   |
| Chipset   | Intel C216 Chipset   | Intel AMT supported on model(s) with Xeon processor   |
| Front ports<br>Rear ports<br>IEEE 1394 adptr                | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors) No onboard 1394 ports: | Preloaded operating system <sup>20</sup> Some: Windows® 7 Professional 64 Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit  |
| Audio<br>Speaker<br>Ethernet<br>Security chip               | 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Realtek® ALC662 codec Internal speaker for business audio One onboard gigabit ethernet, Intel 82579 STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant   | Preloaded applications <sup>5</sup> (only some listed) -Windows 7 models • Rescue and Recovery <sup>®</sup> • Norton™ Internet Security (30 days of virus definitions) • Adobe <sup>®</sup> Reader <sup>®</sup> • Microsoft <sup>®</sup> Office 2013 preloaded; purchase product key to activate  |
| Keyboard<br>Mouse   | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black   | Corel® WinDVD® (DVD±RW model(s))     Ulead® DVD MovieFactory® (DVD±RW model(s))   |
| Vertical Stand<br>Power supply                              | Some: Vertical stand with retractable tongue for vertical orientation 240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | -Windows 8 models - Evernote® - Norton Internet Security (30 days of virus definitions) - Norton Studio   |
| Limited Warranty Eco-Label and environmental certifications | 3-year parts and labor, more Lenovo® services see S-TS sheet  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant  | Skype™     Microsoft Office 2013 preloaded; purchase product key to activate     Cyberlink Power2Go (DVD±RW model(s))     Cyberlink PowerProducer (DVD±RW model(s))   |
| ISV certifications  | See the latest list of ISV certifications at www.lenovo.com/support/ISV  | SECURITY  • Security chip (see information on left)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password  • Administrator password  • Boot sequence control  • Boot without keyboard, mouse  • Serial port I/O control  • USB port disablement (front or all/individual)  • Chassis intrusion switch available on selected model(s) |

## ThinkStation $^{\circ}$ E31 SFF (3688) - June 5, 2012

|       |           |               |         |         |         |        |         | 2nd  |            |       |        | Chassis   | PS/2 |          |         |
|-------|-----------|---------------|---------|---------|---------|--------|---------|------|------------|-------|--------|-----------|------|----------|---------|
| Type- |           | Memory        | Memory  | Pre-con | f       | Media  | SATA    | Disk | Graphics   | 1394  |        | intrusion | rear | Vertical | Win7    |
| model | Processor | (MHz/ECC)     | DIMMs   | RAID    | Disk(s) | reader | optical | bav  | adapter(s) | adntr | Global | switch    | I/O  | stand    | preload |
| modei | 110063301 | (IVII 12/ECC) | DIMINIS | וואוט   | Disk(s) | reader | Optical | Duy  | adapter(3) | aupti | aiobai | SWILCII   | ., 0 | Staria   | proroad |

| Processor Intel <sup>®</sup> Core <sup>™</sup> i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000,  |  |
|--|--|
| Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)   | optical  |
| Implementation One LGAT155 Socket  |  |
| Memory 32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;   | 2 000  |
| controller speed, installed memory speed, and quantity of memory DIMMs  • 13.35"W x 15.  | olor; metal case<br>0"D x 3.93"H<br>81.1mm D x 99.7mm H  |
| one DisplayPort™, one dual-link DVI-I, 40W   | g) max configuration   |
| Media reader Media: 29-in-1 Media card reader, slim, internal USB 2.0  • Toolless top co   | over removal<br>and optical drive removal  |
| Toollees adant   | ter retention  |
| DISK(S) 250GB/500GB/11B/21B/31B SAIA: SAIA 6.0Gb/s, 7200 rpm, 3.5" Recessed now  |  |
| 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" Solid State Drive, SATA 6.0Gb/s, 2.5"  |  |
| Onboard SATA Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange),  |  |
|  | 6" high, access, for optical/2nd disk  |
| disk bay)   Bay 2: 3.5", 0.  | .5" high, access, for media reader   |
| Onboard SAS None Bay 3: 3.5", 1  | high, internal, for disk   |
| Chipset Intel C216 Chipset  Front parts   Type I ICR 9.0 microshope (3.5mm)   headphone (3.5mm)   Slot 1: Low Prof.  | file, PCIe* x16 (45w max, near CPU)  |
| Rear ports Two USB 2.0, fileropriorie (3.5mini), readpriorie (3.5min | Core i3/Pentium/Celeron models,<br>Xeon/Core i5/Core i7 models   |
| connector, one DisplayPort connector  (Onboard VCA and DisplayPort are functional when the following pressure Slot 2: Low Projections (Control of the Control  file, PCIe 2.0 x1  |
| (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770,  |  |
| Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)   | file, 32-bit PCI 2.3   |
| PS/2 models: additional PS/2 keyboard and mouse connectors   |  |
| via PS/2 rear I/O cable  |  |
| IEEE 1394 adptr No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000,  | Intel AMT  |
|  | orted on model(s) with Xeon processor  |
| Audio High Definition (HD) Audio, Realtek® ALC662 codec  |  |
| opeaker internal speaker for business addio  | eloaded operating system <sup>20</sup>   |
| Ethornot One onboard gigabit ethornot, inter 02070   |  |
| Security chip STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), Preloade  TCG 1.2-compliant Rescue and R  | ed applications <sup>5</sup> (only some listed)  |
|  | net Security (30 days of virus definitions)  |
| Mouse Optical Wheel Mouse (LISR connector), black  • Adobe® Reade  | er®  |
| Vertical Stand Some: Vertical stand with retractable tengue for vertical eriontation • MICIOSOIL OII   | ice 2013 preloaded;  |
| pulchase prod  | luct key to activate<br>D® (DVD±RW model(s))   |
| OU . O RO D CODITION D   | NovieFactory® (DVD±RW model(s))  |
| Limited Warranty 1-year parts and labor, more Lenovo® services see S-TS sheet  | SECURITY   |
| . Security chin  | (see information on left)  |
|  | in rear for optional   |
| Kensington®  | Microsaver® cable;   |
|  | cover removal)   |
| profibits side   |  |
| • Power-on pas   | sword  |
| <ul><li>Power-on pas</li><li>Administrator</li></ul>   | password   |
| <ul> <li>Power-on pas</li> <li>Administrator</li> <li>Boot sequence</li> </ul>   | password<br>e control  |
| <ul> <li>Power-on pas</li> <li>Administrator</li> <li>Boot sequent</li> <li>Boot without k</li> <li>Serial port I/O</li> </ul>   | password<br>e control<br>keyboard, mouse<br>o control  |
| Power-on pas Administrator Boot sequenc Boot without k Serial port I/O USB port disa   | password le control countrol location l |
| Power-on pas Administrator Boot sequenc Boot without k Serial port I/O USB port disa   | password e control keyboard, mouse o control ublement (front or all/individual) sion switch available on selected model(s)   |
| Power-on pas Administrator Boot sequence Boot without k Serial port I/O USB port disa Chassis intrus   | password le control countrol location l |
| Power-on pas Administrator Boot sequence Boot without k Serial port I/O USB port disa Chassis intrus  Please visit www   | password te control control blement (front or all/individual) sion switch available on selected model(s)  ISV certifications w.lenovo.com/support/ISV  |
| Power-on pas Administrator Boot sequence Boot without k Serial port I/O USB port disa Chassis intrus  Please visit www GREENGUARD  | password te control telephone of control telephone  |
| Power-on pas Administrator Boot sequence Boot without k Serial port I/O USB port disa Chassis intrus  Please visit www  GREENGUARD RoHS-complian EPEAT™ Gold   | password le control secyboard, mouse control liblement (front or all/individual) liblement (front or a |
| Power-on pas Administrator Boot sequenc Boot without k Serial port I/O USB port disa Chassis intrus  Please visit www  GREENGUARE RoHS-complian EPEAT™ Gold ENERGY STAR  | password le control secyboard, mouse control liblement (front or all/individual) liblement (front or a |

## ThinkStation® E31 Tower Accessories

| Partial list of accessories supported on ThinkStation E                       | 31 Tower           |  |
|---|--------------------|--|
| Memory <sup>53</sup>  | J01101             |  |
| 2GB PC3-12800 DDR3-1600 non-ECC UDIMM <sup>54</sup>                           | 0A65728            |  |
| 4GB PC3-12800 DDR3-1600 non-ECC UDIMM   | 0A65728            |  |
| 8GB PC3-12800 DDR3-1600 non-ECC UDIMM   | 0A65730            |  |
| 2GB PC3-12800 DDR3-1600 ECC UDIMM   | 0B47376            |  |
| 4GB PC3-12800 DDR3-1600 ECC UDIMM   | 0B47377            |  |
| 8GB PC3-12800 DDR3-1600 ECC UDIMM   | 0B47378            |  |
| 2GB PC3-10600 DDR3-1333 ECC UDIMM   | 43R2033            |  |
| 4GB PC3-10600 DDR3-1333 ECC UDIMM   | 57Y4138            |  |
| 8GB PC3-10600 DDR3-1333 ECC UDIMM   | 0A65718            |  |
| More information on memory and processor configuration                        |                    |  |
| limitation, please visit:   | ,                  |  |
| www.lenovo.com/support/thinkstationaccessories                                |                    |  |
| Optical   |                    |  |
| DVD-ROM DL SATA1.5Gb/s 16X-48X Max <sup>4</sup>                               | 41N5618            |  |
| Lenovo® Super Multi-Burner SATA Drive   | 0A65618            |  |
| Blu-ray™ Burner SATA1.5Gb/s   | 45K1675            |  |
| Storage and removable storage   |                    |  |
|   | 43R1990            |  |
| 500GB SATA 3.0Gb/s Disk (7200 rpm)  |                    |  |
| 1TB SATA 3.0Gb/s Disk (7200 rpm) ThinkStation 180GB Solid State Drive         | 45J7918<br>0B47308 |  |
| USB 2.0 Portable 500GB Hard Disk  | 45K1690            |  |
|   | 701V1000           |  |
| Keyboard  | 70DE000            |  |
| Preferred Pro USB Keyboard  | 73P5220            |  |
| Enhanced Performance USB Keyboard   | 73P2620            |  |
| Lenovo USB Fingerprint Keyboard<br>Lenovo USB Smartcard Keyboard              | 73P4730<br>51J0155 |  |
| Ultraslim Plus Wireless Keyboard and Mouse <sup>52</sup>                      | 0A34032            |  |
| More information at www.lenovo.com/support/keyboard                           |                    |  |
|   | 3                  |  |
| Mouse   | 0004000            |  |
| Lenovo Optical Mouse (USB)  | 06P4069            |  |
| Lenovo ScrollPoint Mouse (USB, Optical) Lenovo Laser Mouse (USB)              | 31P7405<br>41U3074 |  |
| Lenovo Wireless Laser Mouse <sup>52</sup>                                     | 0A36188            |  |
| More information at www.lenovo.com/support/mice                               | UA30100            |  |
| **  |                    |  |
| Monitors - ThinkVision®   | 50.47LID0          |  |
| L1711p 17" (VGA, DVI-D)   | 5047HB2            |  |
| LT1952p Wide 19" (VGA, DP, DVI-D) <sup>69</sup>                               | 2448MB6            |  |
| L2250p Wide 22" (VGA, DVI-D)<br>L2251x Wide 22" (VGA, DP)                     | 2572HB6<br>2578HB6 |  |
| LT2251x Wide 22" (VGA, DP)<br>LT2252p Wide 22" (VGA, DP, DVI-D) <sup>69</sup> | 2572MB6            |  |
| LT2452p Wide 22" (VGA, DP, DVI-D) <sup>69</sup>                               | 4420MB2            |  |
| More information at www.lenovo.com/support/monitors                           | TEVINDE            |  |
| Monitor accessories <sup>46</sup>   |                    |  |
| Kensington® MicroSaver® Cable Lock  | 73P2582            |  |
| Kensington Wilcrosaver Cable Lock Kensington Twin Head Cable Lock             | 45K1620            |  |
| More information at www.lenovo.com/support/monitora                           |                    |  |
|   | 0069301169         |  |
| <b>Graphics</b> DisplayPort™ to Single-link DVI-D Cable⁵                      | 45J7915            |  |
| DisplayPort to DisplayPort Monitor Cable <sup>50</sup>                        | 0A36537            |  |
| NVIDIA® NVS™ 300 512MB DMS5965  | 0A36528            |  |
| NVIDIA NVS 310 512MB  | 0B47074            | <sup>46</sup> Compatible on selected Lenovo and ThinkVision monitors.  |
| NVIDIA NVS 510 2GB Graphics Card by Lenovo                                    | 0B47077            | 50 Attaches to selected DisplayPort graphics cards.  |
| NVIDIA RVVO 310 2GB Graphics Card by Echovo                                   | 0A36183            | 52 Wireless via 2.4GHz technology using a micro-size USB receiver.   |
| NVIDIA Quadro 1GB 2000  | 57Y4479            |  |
| More information at www.lenovo.com/support/graphicca                          |                    | <sup>54</sup> Actual memory operating speed depend on processor memory<br>controller speed, installed memory speed, and quantity of memory |
| Security  |                    | DIMMs.   |
| Kensington MicroSaver Cable Lock  | 73P2582            | <sup>65</sup> Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable.  |
| Kensington Twin Head Cable Lock   | 45K1620            | 69 DisplayPort cable is not included; use optional   |
| Lenovo Security Cable Lock  | 57Y4303            | DisplayPort to DisplayPort Monitor Cable (0A36537).  |
| USB Gemplus GemPC Smart Card Reader   | 41N3040            | For more information on accessories:   |
|   |                    | www.lenovo.com/accessories   |
|   |                    | Purchase Lenovo accessories  |
|   |                    | www.lenovo.com/support/accessories   |
|   |                    | Product specifications on Lenovo Support   |
|   |                    | www.lenovo.com/accessoriesguide Option Compatibility Matrix (OCM) and accessory brochures  |
|   |                    | www.lenovoquickpick.com An Options Compatibility Configurator for Lenovo systems   |
|   |                    |  |

## ThinkStation® E31 SFF Accessories

| al list of accessories supported on ThinkStation E31 SFF mory <sup>53</sup> B PC3-12800 DDR3-1600 non-ECC UDIMM <sup>54</sup> B PC3-12800 DDR3-1600 non-ECC UDIMM  B PC3-12800 DDR3-1600 non-ECC UDIMM  B PC3-12800 DDR3-1600 ECC UDIMM  B PC3-12800 DDR3-1333 ECC UDIMM  B PC3-10600 DDR3-1333 ECC UDIMM  B PC3-10600 DDR3-1333 ECC UDIMM  B PC3-10600 DDR3-1333 ECC UDIMM  C B PC3-10600 DDR3-1333 ECC | 729<br>730<br>376<br>377<br>378<br>033<br>138   |
|--|---|
| B PC3-12800 DDR3-1600 non-ECC UDIMM  B PC3-12800 DDR3-1600 non-ECC UDIMM  CA6572  B PC3-12800 DDR3-1600 non-ECC UDIMM  CA6573  CA657  CA6573                   | 729<br>730<br>376<br>377<br>378<br>033<br>138   |
| 3 PC3-12800 DDR3-1600 non-ECC UDIMM 3 PC3-12800 DDR3-1600 non-ECC UDIMM 4 PC3-12800 DDR3-1600 ECC UDIMM 5 PC3-12800 DDR3-1600 ECC UDIMM 6 PC3-12800 DDR3-1600 ECC UDIMM 6 PC3-12800 DDR3-1600 ECC UDIMM 6 PC3-12800 DDR3-1600 ECC UDIMM 6 PC3-12800 DDR3-1333 ECC UDIMM 7 PC3-10600 DDR3-1333 ECC UDIMM 7 PC3-10600 DDR3-1333 ECC UDIMM 7 PC3-10600 DDR3-1333 ECC UDIMM 8 PC3-10600 DDR3-1333 ECC UDIMM 8 PC3-10600 DDR3-1333 ECC UDIMM 9 PC3-10600 DDR3-1333                  | 729<br>730<br>376<br>377<br>378<br>033<br>138<br>718  |
| 3 PC3-12800 DDR3-1600 non-ECC UDIMM 0A6573 3 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 3 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 3 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 3 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 3 PC3-10600 DDR3-1333 ECC UDIMM 57Y413 3 PC3-10600 DDR3-1333 ECC UDIMM 57Y413 4 PC3-10600 DDR3-1333 ECC UDIMM 0A6571 5 PC3-10600 DDR3-1333 ECC UDIMM 0A6571 6 information on memory and processor configuration, operation ration, please visit:  w.lenovo.com/support/thinkstationaccessories ical  D-ROM DL SATA1.5Gb/s 16X-48X Max <sup>4</sup> 41N561 ovo® Super Multi-Burner SATA Drive 0A6561 rray™ Burner SATA1.5Gb/s 45K167   | 730<br>376<br>377<br>378<br>033<br>138<br>718   |
| 8 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 8 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 8 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 8 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 8 PC3-10600 DDR3-1333 ECC UDIMM 57Y413 8 PC3-10600 DDR3-1333 ECC UDIMM 0A6571 9 PC3-10600 DDR3-1333 ECC UDIMM 0A6571 9 e information on memory and processor configuration, operation attion, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max <sup>4</sup> 41N567  ovo® Super Multi-Burner SATA Drive 0A6561  ray™ Burner SATA1.5Gb/s 45K167   | 376<br>377<br>378<br>033<br>138<br>718  |
| 8 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 8 PC3-12800 DDR3-1600 ECC UDIMM 0B4737 8 PC3-10600 DDR3-1333 ECC UDIMM 43R203 8 PC3-10600 DDR3-1333 ECC UDIMM 57Y413 8 PC3-10600 DDR3-1333 ECC UDIMM 0A6571 e information on memory and processor configuration, operation attion, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max <sup>4</sup> 41N567 ovo® Super Multi-Burner SATA Drive 0A6561 ray™ Burner SATA1.5Gb/s 45K167   | 377<br>378<br>033<br>138<br>718   |
| B PC3-12800 DDR3-1600 ECC UDIMM 0B4737 B PC3-10600 DDR3-1333 ECC UDIMM 43R203 B PC3-10600 DDR3-1333 ECC UDIMM 57Y413 B PC3-10600 DDR3-1333 ECC UDIMM 0A6571 e information on memory and processor configuration, operation ation, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max <sup>4</sup> 41N563  ovo® Super Multi-Burner SATA Drive 0A6561  ray™ Burner SATA1.5Gb/s 45K167   | 378<br>033<br>138<br>718  |
| 3 PC3-10600 DDR3-1333 ECC UDIMM 43R203 3 PC3-10600 DDR3-1333 ECC UDIMM 57Y413 3 PC3-10600 DDR3-1333 ECC UDIMM 0A6571 e information on memory and processor configuration, operation ation, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max⁴ 41N563 ovo® Super Multi-Burner SATA Drive 0A6561 ray™ Burner SATA1.5Gb/s 45K167  | 033<br>138<br>718   |
| B PC3-10600 DDR3-1333 ECC UDIMM 57Y413 B PC3-10600 DDR3-1333 ECC UDIMM 0A6571 e information on memory and processor configuration, operation ation, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max⁴ 41N563 ovo® Super Multi-Burner SATA Drive 0A6561 ray™ Burner SATA1.5Gb/s 45K167   | 138<br>718  |
| B PC3-10600 DDR3-1333 ECC UDIMM 0A6571 e information on memory and processor configuration, operation ation, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max⁴ 41N56²  ovo® Super Multi-Burner SATA Drive 0A6561  ray™ Burner SATA1.5Gb/s 45K167  | 718   |
| e information on memory and processor configuration, operation ration, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max⁴  ovo® Super Multi-Burner SATA Drive  10A6561  ray™ Burner SATA1.5Gb/s  45K167  |   |
| ration, please visit:  w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max <sup>4</sup> ovo® Super Multi-Burner SATA Drive  ray™ Burner SATA1.5Gb/s  45K167   | n and   |
| w.lenovo.com/support/thinkstationaccessories  ical  D-ROM DL SATA1.5Gb/s 16X-48X Max⁴  ovo® Super Multi-Burner SATA Drive  0A6561 ray™ Burner SATA1.5Gb/s  45K167  |   |
| ical41N56³D-ROM DL SATA1.5Gb/s 16X-48X Max⁴41N56³ovo® Super Multi-Burner SATA Drive0A656¹ray™ Burner SATA1.5Gb/s45K167   |   |
| D-ROM DL SATA1.5Gb/s 16X-48X Max <sup>4</sup> 41N56¹<br>ovo® Super Multi-Burner SATA Drive 0A6561<br>ray™ Burner SATA1.5Gb/s 45K167  |   |
| ovo® Super Multi-Burner SATA Drive 0A6561<br>ray™ Burner SATA1.5Gb/s 45K167  |   |
| ray™ Burner SATA1.5Gb/s 45K167   | 618   |
| •  | 318   |
| •  | 375   |
| raye anu removable storaye   |   |
|  | 000   |
| ovo 500GB 7200 rpm Serial ATA Hard Drive 43R199  |   |
| ovo 1TB 7200 rpm Serial ATA Hard Drive 45J791  |   |
| nkStation 180GB Solid State Drive 0B4730   | 308   |
| board  |   |
| ferred Pro USB Keyboard 73P522   | 220   |
| anced Performance USB Keyboard 73P262  |   |
| ovo USB Fingerprint Keyboard 73P473  |   |
| ovo USB Smartcard Keyboard 75F478  |   |
|  |   |
| aslim Plus Wireless Keyboard and Mouse <sup>52</sup> 0A3403<br>e information at www.lenovo.com/support/keyboards   | JUE   |
|  |   |
| ise  |   |
| ovo Optical Mouse (USB) 06P406   | 069   |
| ovo ScrollPoint Mouse (USB, Optical) 31P740  | 405   |
| ovo Laser Mouse (USB) 41U307   |   |
| ovo Wireless Laser Mouse <sup>52</sup> 0A3618  |   |
| e information at www.lenovo.com/support/mice   |   |
| nitors - ThinkVision®  |   |
|  | IDO   |
| 11p 17" (VGA, DVI-D) 5047HE  |   |
| 952p Wide 19" (VGA, DP, DVI-D) <sup>69</sup> 2448MI  |   |
| 50p Wide 22" (VGA, DVI-D) 2572HE   |   |
| 51x Wide 22" (VGA, DP) 2578HB  | 1B6   |
| 252p Wide 22" (VGA, DP, DVI-D) <sup>69</sup> 2572MI  | ИВ6   |
| 452p Wide 24" (VGA, DP, DVI-D) <sup>69</sup> 4420MI  | ИB2   |
| e information at www.lenovo.com/support/monitors   |   |
| nitor accessories <sup>46</sup>  |   |
| sington® MicroSaver® Cable Lock 73P258   | 582   |
|  |   |
| 3  |   |
| e information at www.lenovo.com/support/monitoraccessories   | <del>20</del>   |
| phics  | W.F.  |
| blayPort™ to Single-link DVI-D Cable⁵0 45J791  |   |
| playPort to DisplayPort Monitor Cable <sup>50</sup> 0A3653   |   |
| DIA® NVS™ 310 512MB 0B4707   | )74   |
| DIA NVS 510 2GB Graphics Card by Lenovo 0B4707   | J77   |
| DIA Quadro 1GB 600 0A3618  | 183 <sup>46</sup> Compatible on selected Lenovo and ThinkVision monitors.   |
| e information at www.lenovo.com/support/graphiccards   | <sup>50</sup> Attaches to selected DisplayPort graphics cards.  |
| urity  | 52 Wireless via 2.4GHz technology using a micro-size USB rece   |
|  | 582 54 Actual memory operating speed depend on processor memory   |
|  | controller speed, installed memory speed, and quantity of m   |
| sington MicroSaver Cable Lock 73P258   |   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162  |   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162  | o40 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable.  |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | o40 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable.  |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:  www.lenovo.com/accessories   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:  www.lenovo.com/accessories   |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:  www.lenovo.com/accessories  Purchase Lenovo accessories  |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:  www.lenovo.com/accessories  Purchase Lenovo accessories  www.lenovo.com/support/accessories  Product specifications on Lenovo Support                                  |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:  www.lenovo.com/accessories  Purchase Lenovo accessories  www.lenovo.com/support/accessories  Product specifications on Lenovo Support  www.lenovo.com/accessoriesguide |
| sington MicroSaver Cable Lock 73P258<br>sington Twin Head Cable Lock 45K162<br>ovo Security Cable Lock 57Y430  | 65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable. 69 DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).  For more information on accessories:  www.lenovo.com/accessories  Purchase Lenovo accessories  www.lenovo.com/support/accessories  Product specifications on Lenovo Support                                  |

# **ThinkStation**



Lenovo ThinkStation C30



Lenovo ThinkStation C30



Lenovo ThinkStation C30



Lenovo ThinkStation C30



Lenovo ThinkStation C30



Lenovo ThinkStation C30

| Type-   | Slot x  |   | Mem-   |  |  | SATA   | Grap   | hics  | 1394   | Sound  | ENERGY   | Vista  | Workho  | rse Avail  |
|---|---|---|--|--|--|--|--|---|--|--|--|--|---|--|
| Name model  | bay Processor   |   | ory  | Disk(s)  | RA   | ID optical   | adapt  | er(s)   | adptr  | adptr  | STAR 5.0   | preload  | Globa   | l date   |
| \$10 6423-26U<br>\$10 6423-27U<br>\$10 6423-28U<br>\$10 6423-29U<br>\$10 6423-31U<br>\$10 6423-32U  | 5x6 E6850<br>5x6 E6850<br>5x6 E6850<br>5x6 Q6600<br>5x6 Q6700   | 2.66 2<br>3.00 2<br>3.00 2<br>3.00 2<br>2.40 4<br>2.66 4  | 2GB<br>2GB<br>2GB<br>2GB<br>2GB  | 1 x 250GB <sup>2</sup><br>2 x 250GB<br>1 x 146GB<br>2 x 250GB<br>2 x 250GB<br>2 x 160GB  | SATA<br>SAS<br>SATA<br>SATA<br>SATA  | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>1 DVD±RW   | 1 x F><br>1 x F><br>1 x F><br>1 x F><br>2 x N\ | (1700<br>(1700<br>(1700<br>(1700<br>/S290                                 | 1394   | X-Fi<br>X-Fi   | None<br>None<br>None<br>None<br>None   | Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64   | No<br>No<br>No  | Jan 08<br>Jan 08                                     |
|   | <ul> <li>Environm</li> </ul>  | entally frie  | endly, c   | ool, and quie  | et with ro   | raphics for spock solid enging<br>els are part of  | neering  | 1   |  |  |  |  |   |  |
| Processor Implementation  | 1333MHz sys<br>Intel Core 2<br>1066MHz sys<br>Processor us  | stem bus, a<br><b>Quad Pro</b><br>stem bus, a<br>es FC-LG   | and 4M<br>cessor<br>and 8M<br>A6 pac   | IB L2 cache of <b>Q6600</b> or <b>Q</b><br>IB L2 cache kage, one LG  | or<br><b>6700</b> wit<br>3A775 so  |  | ,  | 6.9"W<br>175mn  | x 19.0<br>n W x 4  | "D x 16.8<br>483mm [   | etal case<br>3"H (withou<br>D x 426mm  | n H  | ) op  | otical otical media                                  |
| Memory  | 2GB std, 8GI<br>dual-channel  | capable, f  | our 240  | 0-pin DIMM s   | ockets;  | : <b>C</b> ,<br>ockets availat   | . •  | 31-liter  | r  |  | onfiguratior<br>on top front   | 1  |   | disk<br>disk   |
| Graphics  | Two PCI Exp<br>* 76 to 150W<br>Some: NVID<br>two s<br>Some: NVID  | ress® x16<br>adapters<br>IA® Quad<br>ingle-link I<br>IA Quadre<br>e-link and                                    | adapte<br>use au:<br>ro® NV:<br>DVI-I vi<br>o FX 37<br>1 dual-                         | rs required fo<br>xiliary power<br><b>S 290</b> , PCIe<br>a DMS-59 do<br><b>70</b> , PCIe x16<br>link DVI, dual  | or quad r<br>connect<br>x16 ada<br>ongle, 21<br>adapter<br>DVI-I or  | monitor suppo<br>for from PSU<br>pter, 256MB,<br>W<br>5, 256MB, one<br>r dual VGA, 25  | ort,<br>•<br>•                                 | Toolles<br>Toolles<br>Illumin<br>Rack s                                   | ss disk<br>ss adar<br>ated fr<br>shelf su  | oter retei<br>ont icons  | ical drive rention   | emoval   |   | disk   |
| Media reader<br>SATA disk(s)<br>SATA controller<br>SATA connectors<br>SATA DVD±RW<br>SAS disk<br>SAS controller   | 9-in-1 media<br>Some: 160G<br>Serial ATA, S<br>S Six SATA con<br>Super Multi-E<br>Some: 146G                              | reader, int<br>iB or 2500<br>ATA 3.0Gb<br>inectors or<br>Burner DL<br>iB, Serial                                | ernal L<br>B, SA<br>b/s, intent<br>n plana<br>DVD±F<br>Attache                         | JSB 2.0<br>FA 3.0Gb/s, 7<br>grated in ICH<br>r<br>RW SATA 1.50<br>ed SCSI, 3.00  | '200 rpm<br>19R<br>Gb/s Dri<br>Gb/s, 150   | ve   | N B B B B B S S                                | ay ② 5<br>ay ③ 3<br>ay ④ 3<br>ay ⑤ 3<br>ay ⑥ 3<br>lot 1: fu               | 5.25", 1<br>3.5", 1<br>3.5", 1<br>3.5", 1<br>3.5", 1<br>ull-leng   | 1.6" high<br>1" high,<br>1" high,<br>1" high,<br>1" high,<br>1th, full-<br>ith, full-            | , external<br>external<br>internal,<br>internal,<br>internal,<br>height, PC<br>height. PC  | , open<br>, std me<br>std dis<br>std or o<br>std or o  | dia read<br>k<br>opt disk<br>opt disk<br>6 (75W)  | * max)   |
| Chipset   | RAID<br>Intel X38 Ex  | <sup>8</sup> 0, 1, 1E<br>press Chi  | pset, Ir   | ntel I/O Contr   | oller Hu   |  | s  | lot 4: fι   | ıll-leng   | th, full-l   | height, 32-<br>height, PC<br>height, 32-   | le x4 (x1  | 6 mech  | anical)  |
| Front ports Rear ports  IEEE 1394 adptr Audio  Speaker Ethernet Security chip   | Eight USB 2.<br>two ethernet<br>rear-out, cent<br>Some: FireV<br>High Definition<br>Some: Creat<br>Internal spea          | 0, serial (9<br>(RJ-45), fir<br>ter/sub-ou<br>Vire PCI acon (HD) Au<br>tive Sound<br>ker for bus<br>ethernet or | r-pin), k<br>ve anal<br>d), optic<br>dapter,<br>dio, An<br>Blaste<br>siness a<br>plana | keyboard (PS<br>log audio por<br>cal S/PDIF dio<br>1394a-2000,<br>calog Devices<br>cr® X-Fi, PCI a<br>audio<br>r, Broadcom®                                  | /2), mouts (line-igital out 400Mbp AD198 adapter,  BCM57  BCM57  | n, microphonos, two 6-pin<br>8A codec;<br>high-end sou<br>754 and BCM  | e-in, fro<br>ports or<br>nd adap               | nt-out,<br>n rear<br>oter   |  | <ul><li>Side of keys)</li><li>Padlo padlo</li><li>Secur Kensi</li></ul>                          | strity chip (secover lock (oop (in ck prohibits rity slot (in ngton® Micoits side co   | rear for one state of the state | h two id<br>opt pad<br>ver rem<br>ptional<br>cable;   | dentical<br>lock;                                    |
| Keyboard Mouse Power supply Cooling Rack mount  Preloaded ope   | Preferred Pro<br>Optical Whee<br>650 watts wit<br>3 to 5 fans (p<br>Rack shelf su   | USB Key<br>Mouse (I<br>h 120mm<br>ower supp<br>Ipport   | board (<br>JSB co<br>bottom<br>ly, CPL   | USB connec<br>nnector), bla<br>-mounted vai  | tor), 104<br>ck<br>riable sp   | · · · · · · · · · · · · · · · · · · ·  |  | front [   | SAS])  | <ul><li>Chass</li><li>Power</li><li>Admir</li><li>Boot s</li><li>Boot s</li><li>Serial</li></ul> | sis intrusion r-on passwonistrator passequence of without key port I/O cooort disable  | n switch<br>vord<br>issword<br>control<br>vboard, montrol  | ouse, c   |  |
| - Microsoft® W<br>Business Edi  | indows® Vista®<br>tion (64-bit)   |   | 1GE<br>2GE   | 3 PC3-8500 [<br>3 PC3-8500 [   | DDR3 E   |  | 1  | 41L   | J5251<br>J5252<br>R1990  |  |  |  |   |  |
| Rescue and     Client Securi  | Recovery™   |   | 750  |  | Gb/s Di  | sk (7200 rpm)  |  | 43F   | R1991<br>7918  |  | ts ThinkVa   | ntage® te  | chnolog   | gies   |
| <ul><li>ThinkVantage</li><li>ThinkVantage</li></ul>   | e Productivity (<br>System Upda   |   | USE  | 3 2.0 Lenovo   | Multime  | ND±RW SATA<br>edia Headset   | 4 1.5Gb  | 40Y   | ′8518 ·  | HOHS-C   | ompliant   |  |   |  |
| <ul> <li>System Migra</li> <li>Norton Interr<br/>(90 days of v</li> <li>PC-Doctor™</li> <li>Adobe® Reac</li> <li>Microsoft Off</li> <li>Sonic Record</li> </ul> | ation Assistant let Security <sup>TM</sup> irus definitions (diagnostics) der lice 2007 Trial (diagnostics) Access (DVD±F | )<br>60-day)<br>RW)   | USE USE Thir Thir Thir Thir Uir Las Ken NVI NVI NVI                                    | 3 2.0 Portable kVision® L194 kVision L224 kVision L224 kVision L244 eless Kbd & 0 er Tilt Wheel sington® Cadoro DIA® Quadro DIA Quadro DIA Quadro DIA Quadro | ecure Mee Secure<br>700p 17"<br>40p Wide<br>40p Wide<br>40x Wide<br>Mouse (<br>ble Lock<br>512MB I<br>512MB I<br>768MB I | emory Key 86<br>e 320GB Hard<br>Monitor<br>e 19" Monitor<br>e 22" Monitor<br>e 24" Monitor<br>eel Mouse (via<br>(USB, PS/2)<br>from Lenovo<br>3 FX 570<br>FX 1700<br>FX 3700 | d Disk   | 45J<br>43F<br>941<br>442<br>442<br>73F<br>41L<br>73F<br>45J<br>43F<br>43F | 78519<br>5918<br>32019<br>7HE2<br>4HB6<br>2HB6<br>1HB2<br>24067<br>J3074<br>22582<br>7917<br>31767<br>31768<br>31768 | Cust parts for s Mon next Thin http: On (in Po se 24 he durir                                    | LIMITED ar parts an comer Repl s only (with elected pa - Fri cover business of kPlus™ se //lenovo.co eligible lo st warrant rvices our x 7 day g the warı 00-426-737 | aceable I<br>n limited of<br>rts <sup>3</sup> , 8 am<br>day respo<br>rvices av<br>om/thinkp<br>de upgrac<br>cations) <sup>7</sup><br>y mainter   | Jnit (CF<br>onsite s<br>- 5 pm<br>uding h<br>onse tin<br>ailable;<br>us/warr<br>le optio<br>nance | service<br>,<br>olidays,<br>ne)<br>see<br>anty<br>ns |

|  | 01-4   |   | CATA   | O  | 1004   | 0  | ENERGY  | 10/  | - ul-la - un - Aa-il  |
|--|--|---|--|--|--|--|---|--|---|
| Type-<br>Name model                            | Slot x N<br>bay Processor GHzCores   | lem-<br>ory Disk(s) RA  |  | Graphics<br>dapter(s)  | 1394<br>adptr  | adptr  | STAR 5.0  |  | orkhorse Avail<br>Global date   |
| <b>S10</b> 6423-37U                            | 5x6         E6850         3.00         2         2           5x6         E6850         3.00         2         2           5x6         QX6850         3.00         4         2           5x6         E6850         3.00         2         2           5x6         QX6850         3.00         4         2           5x6         E6750         2.66         2         2           5x6         E6850         3.00         2         2           5x6         E6850         3.00         2         2           5x6         E6850         3.00         2         2           5x6         Q6600         2.40         4         2           5x6         Q6700         2.66         4         2 | 2GB 1 x 250GB <sup>2</sup> SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA | DVD±RW 1 DVD±RW 1 BVD±RW 1 BD burner 1 BD burner 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1                              | x FX1700<br>x FX4600<br>x FX1700<br>x FX4600<br>x FX370<br>x FX370<br>x FX1700<br>x FX1700<br>x FX1700<br>x FX1700<br>x NVS290   |  | X-Fi<br>X-Fi   | None<br>None<br>None<br>None<br>None<br>None<br>None<br>None  | XP Pro<br>XP Pro<br>XP Pro<br>XP Pro<br>XP Pro<br>XP Pro<br>Bus32<br>Bus32<br>Bus32<br>Bus32<br>Bus32<br>Bus32   | No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 No Apr 08 |
|  | <ul> <li>Environmentally frien</li> </ul>  | dly, cool, and quiet with ro<br>ium business (SMB) mode   | ock solid engine   | ering  |  |  |   |  |   |
| Processor                                      | 1333MHz system bus, an Intel Core 2 Quad Proce 1066MHz system bus, an Intel Core 2 Extreme Proce 1333MHz system bus, an  | essor Q6600 or Q6700 wit<br>d 8MB L2 cache or<br>ocessor QX6850 with qua  | h quad-core,   | • 6.9"W<br>• 175mn<br>• 36 lb (100 de 100 d | x 19.0"<br>n W x 4<br>16.4kg)  | D x 16.8<br>183mm I<br>max co  | etal case<br>B"H (withou<br>D x 426mm<br>onfiguration   | i H  | optical optical media media disk  |
| Memory   | <b>2GB</b> std, 8GB max, <b>PC3</b> -dual-channel capable, fou <i>Non-italics:</i> standard mer  | 8500 1066MHz DDR3, EC   | ckets available  | <ul> <li>Toolles</li> </ul>  | s side<br>s disk<br>s adap   | cover re<br>and opti<br>oter rete  | cal drive rention   | emoval   | disk<br>disk<br>disk  |
| Graphics                                       | * 76 to 150W adapters us Some: NVIDIA® Quadro two single-link DV Some: NVIDIA Quadro single-link and 1 Some: NVIDIA Quadro two dual-link DVI, Some: NVIDIA Quadro  | lapies required for quadrice auxiliary power connect  NVS 290, PCIe x16 ada  Vivia DMS-59 with dual DV  TX 370, PCIe x16 adapter dual-link DVI, dual DVI-I or fXX 1700, PCIe x16 adapte dual DVI-I or dual VGA, F  TX 4600, PCIe x16 adapte dual-link DVI, dual DVI-I or  | or from PSU<br>oter, 256MB,<br>/I-I dongle, 21W,<br>, 256MB, one<br>dual VGA, 25W<br>er, 512MB,<br>IDTV out, 42W<br>er, 768MB,                                   | Bay ① 5 Bay ② 5 Bay ③ 3 Bay ④ 3 Bay ⑤ 3  | 5.25", 1<br>5.25", 1<br>5.5", 1<br>8.5", 1                               | .6" high<br>.6" high<br>" high,<br>" high,<br>" high,  | , external  | open<br>std medi<br>std disk<br>std or op  | a reader<br>t disk  |
| SATA DVD±RW<br>SATA BD burner<br>SAS disk      | Serial ATA, SATA 3.0Gb/s<br>Six SATA connectors on p<br>Some: Super Multi-Burn<br>Some: Blu-ray <sup>TM</sup> Burner,<br>Some: <b>146GB</b> , Serial At  | s, SATA 3.0Gb/s, 7200 rpm<br>s, integrated in ICH9R<br>olanar<br>er DL DVD±RW SATA 1.50<br>f HD-DVD Player SATA 1.5<br>tached SCSI, 3.0Gb/s, 150  | Gb/s<br>Gb/s<br>000 rpm  | Slot 2: fu<br>Slot 3: fu<br>Slot 4: fu<br>Slot 5: h  | all-leng<br>all-leng<br>alf-leng<br>alf-leng                             | th, full-<br>th, full-<br>th, full-  | height, PC<br>height, 32-<br>height, PC<br>height, 32-  | le 2.0 x16<br>bit PCI 2.3<br>le x4 (x16  | mechanical)   |
| SAS controller<br>Chipset                      | Intel X38 Express Chips  | 1E-R PCIe x4 adapter, 4-<br>set, Intel I/O Controller Hul<br>support, SMSC® SCH502  | 9 RAID   | AID* 0, 1, 1   |  |  | rity chip (se<br>cover lock (   |  | ion on left)<br>two identical   |
| Audio Speaker Ethernet Security chip Keyboard  | Two USB 2.0, microphone Eight USB 2.0, serial (9-ptwo ethernet (RJ-45), five rear-out, center/sub-out), Some: FireWire PCI ada High Definition (HD) Audi Some: Creative Sound EInternal speaker for busin Dual gigabit ethernet on Integrated in ethernet cor Preferred Pro USB Keybo  | e (3.5mm), headphone (3.5mm), keyboard (PS/2), mou-<br>analog audio ports (line-i-<br>optical S/PDIF digital out<br>pter, 1394a-2000, 400Mbp<br>o, Analog Devices AD198<br>Blaster® X-Fi, PCI adapter,<br>ess audio<br>planar, Broadcom® BCM57<br>htroller BCM5755, TCG 1.2<br>pard (USB connector), 104  | 5mm), FireWire se (PS/2), n, microphone-ir ps, two 6-pin por 8A codec; high-end sound 754 and BCM5752-compliant  | i, front-out,<br>ts on rear<br>adapter   | e x1   | <ul> <li>Padlo padlo</li> <li>Secur Kensi prohik</li> <li>Chass</li> <li>Powe</li> <li>Admir</li> <li>Boots</li> <li>Serial</li> </ul> | ck loop (in ck prohibits ity slot (in look) side co sis intrusion r-on passwhistrator pasequence cwort look) port I/O co oort disable | s side coverear for optrosaver® cover removant switch ord ssword control board, moontrol   | r removal) ional able; al) use, diskette  |
| Mouse<br>Power supply<br>Cooling<br>Rack mount |  | BB connector), black<br>ottom-mounted variable sp<br>, CPU, rear, opt front PCI   |  |  |  | Support  | ts ThinkVar   | ntage® tech  | nnologies   |
| Preloaded ope                                  | erating system <sup>20</sup>   | Accessories   |  |  |  | RoHS-c   | ompliant  |  |   |
| - Microsoff® W - Microsoff® W - Business Edi   | indows® XP Professional indows® Vista® tition (32-bit) ∴ Vista Premium logo  lications⁵ (all OSes; only  Recovery™ e Productivity Center e System Update let Security™ irrus definitions)  JNow and Access (DVD±RW)  | 1GB PC3-8500 DDR3 E<br>2GB PC3-8500 DDR3 E<br>750GB SATA 3.0Gb/s Disk<br>500GB SATA 3.0Gb/s Disk<br>500GB SATA 3.0Gb/s Disk<br>500GB SATA 3.0Gb/s Disk<br>500GB SUBB SUBB SUBB SUBB SUBB SUBB SUBB SU   | CC UDIMM<br>sk (7200 rpm)<br>(7200 rpm)<br>VD±RW SATA 1<br>emory Key 8GB<br>e 320GB Hard D<br>de 22" Monitor<br>e 24" Monitor<br>B FX 1700<br>FX 3700<br>FX 4600 | 41L<br>43F<br>45J<br>5Gb/s 41N<br>45J<br>isk 43F<br>442<br>442<br>43F<br>43F   | 7918<br>7918<br>85620<br>5918<br>82019<br>2HB6<br>0HB2<br>81767<br>81768 | Cust parts for s Mon next Thin http: Or (in 24 he durin  | ar parts an<br>comer Repl<br>s only (with<br>elected par  | aceable Ur<br>I limited or<br>rts³, 8 am -<br>age exclud<br>day respon<br>rvices avai<br>om/thinkplu-<br>te upgrade<br>cations) <sup>7</sup><br>toll-free<br>canty perio | nit (CRU) site service 5 pm, ling holidays, se time) lable; see s/warranty options support  |

| S10 6423-56U 5x6 Q S10 6423-57U 5x6 Q S10 6423-58U 5x6 E S10 6423-59U 5x6 E S10 6423-61U 5x6 E S10 6423-68U 5x6 Q S10 6423-69U 5x6 Q S10 6423-H2U 5x6 E S10 6423-H2U 5x6 E S10 6423-H3   | Q9550 2.83 4 2 Q9450 2.66 4 2 E8200 2.66 2 2 E8400 3.00 2 2 E8500 3.16 2 2 Q9450 2.66 4 2 Q9450 2.66 4 2 Q9450 2.66 4 2 Q9450 2.66 4 2 Q9550 2.83 4 4 Q9550 2.83 4 4 E8400 3.00 2 2 Q9550 2.83 4 4 E8400 3.00 2 2 Q9550 2.83 4 4 E8400 3.00 2 2 Q9550 2.83 H Core 2 Quad Proce Core 2 Quad Proce Core 2 Quad Proce Core 2 Extreme Proce Core 2 Extreme Proce Core 2 Extreme Proce Core 2 Extreme Proce Core 2 Extreme Proce Core 2 Extreme Proce Core 3 Standard medical Core 3 Standard medical Core Core 3 Standard medical | 2GB 2 x 250GB² SATA Nor<br>2GB 1 x 250GB SATA Nor<br>2GB 1 x 250GB SATA Nor<br>2GB 1 x 250GB SATA Nor<br>2GB 1 x 250GB SATA Nor<br>2GB 1 x 250GB SATA Nor<br>2GB 1 x 250GB SATA Nor<br>2GB 1 x 250GB SATA Nor<br>2GB 1 x 500GB SATA Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 146GB SAS Nor<br>2GB 1 x 1 | ne DVD±RW 1 ne DVD | adapter(s) add   x FX3700   1 | c color; metal case 0"D x 16.8"H (without handle) 483mm D x 426mm H g) max configuration  handle on top front e cover removal k and optical drive removal apter retention front icons support  1.6" high, external, std optical 1.6" high, external, open  |
|--|---|--|--|--|--|
| S10 6423-57U 5x6 Q   | Q9450 2.66 4 2 2 E8200 2.66 2 2 E8400 3.00 2 2 E8500 3.16 2 4 Q9450 2.66 4 2 Q9450 2.66 4 4 Q9550 2.83 4 4 E8400 3.00 2 2 Q9550 2.83 4 4 E8400 3.00 2 2 2 E8400 3.00 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  | 2GB 1 x 250GB SATA Nor 2GB 1 x 250GB SATA Nor 2GB 1 x 250GB SATA Nor 2GB 1 x 146GB SAS Nor 2GB 1 x 250GB SATA Nor 2GB 1 x 250GB SATA Nor 2GB 1 x 250GB SATA Nor 3GB 1 x 500GB SATA Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS Nor 3GB 1 x 146GB SAS NOR 3GB 1 x 146G   | ne DVD±RW 1 ne DVD | 1 x FX570 1 x NVS290 13 1 x FX370 1 x FX370 1 x FX1700 1 x FX570 1 x FX3700 1 x FX3700 1 x FX3700 1 x FX3700 1 x FX3700 None None None None Vor TopSeller™  Tower  Raven black 6.9"W x 19.0 175mm W x 36 lb (16.4k 31-liter Removable Toolless sid Toolless dis Toolless dis Toolless dis Toolless dis Rack shelf s  Bay ① 5.25",  | None None Bus32 No Aug None None None Bus64 No Aug None None Bus64 No Aug None None None Bus64 No Aug None None None Bus64 No Aug None None None Bus64 No Aug None None None Bus64 No Aug None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None None Bus64 No Sep None None Bus64 No Sep None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None Bus64 No Sep None None None None None None Research None None None Research None None None Resear |
| Memory  Implementation  Memory  Graphics  Two P * 76W Some.  Intel X  (ICH9)  Front ports  Rear ports  Eight I  two etirear-oil  Internation  Some.   | dual-core, 1333MHz I Core 2 Quad Proce BMHz system bus, an I Core 2 Extreme Promotes BMHz system bus, an Dessor uses FC-LGA6 B or 4GB std, 8GB ma- Channel capable, fou Signature standard mer I-italics: standard mer PCI Express® x16 ac W to 150W adapters Description: NVIDIA® Quadro Single-link DN Description: NVIDIA Quadro Single-link and 1 descriptions  | z system bus, and 6MB L2 c<br>ssor Q9450 or Q9550 with<br>dd 12MB L2 cache or<br>ocessor QX9650 with quac<br>dd 12MB L2 cache<br>6 package, one LGA775 soc<br>ax, PC3-8500 1066MHz DDI<br>If 240-pin DIMM sockets;<br>mory in four sockets; two soc<br>mory in two sockets; two soc<br>lapters required for quad ma<br>use auxiliary power connec<br>VNS 290, PCle x16 adapt<br>(I-I via DMS-59 dongle, 21W<br>FX 370, PCle x16 adapter, 2<br>dual-link DVI, dual DVI-I or consections.  | ache or quad-core, l-core, ket R3, ECC, kets available chests available pritor support, tor from PSU eer, 256MB,   | Raven black  6.9"W x 19.0  175mm W x  36 lb (16.4k  31-liter  Removable  Toolless sid  Toolless dis  Toolless ada  Illuminated to  Rack shelf s  Bay ① 5.25",  | O"D x 16.8"H (without handle) 483mm D x 426mm H g) max configuration  handle on top front e cover removal k and optical drive removal apter retention front icons support  1.6" high, external, std optical 1.6" high, external, open  |
| Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C 1333M Intel C Intel S  | I Core 2 Quad Proce BMHz system bus, an Core 2 Extreme Proce BMHz system bus, an Essor uses FC-LGA6 G or 4GB std, 8GB ma -channel capable, for standard mer -italics: standard mer PCI Express® x16 ac W to 150W adapters ne: NVIDIA® Quadro two single-link DN ne: NVIDIA Quadro single-link and 1   | essor Q9450 or Q9550 with d12MB L2 cache or cocessor QX9650 with quact d12MB L2 cache as package, one LGA775 soc ax, PC3-8500 1066MHz DDF ar 240-pin DIMM sockets; mory in four sockets; no soc mory in two sockets; two soc lapters required for quad may use auxiliary power connec NVS 290, PCIe x16 adapt rI-I via DMS-59 dongle, 21V FX 370, PCIe x16 adapter, 2 dual-link DVI, dual DVI-I or coductions.   | quad-core, l-core, ket R3, ECC, kets available ckets available pnitor support, tor from PSU er, 256MB, //  | 6.9"W x 19.0     175mm W x     36 lb (16.4k     31-liter     Removable     Toolless disl     Toolless dase     Illuminated to Rack shelf s  Bay ① 5.25",   | O"D x 16.8"H (without handle) 483mm D x 426mm H g) max configuration  handle on top front e cover removal k and optical drive removal apter retention front icons support  1.6" high, external, std optical 1.6" high, external, open  |
| Some.  Some.  Some.  Some.  Some.  Some.  Some.  Some.  Some.  Some.  SATA controller Serial Serial Six SASA controller Some.  SAS disk Some.  SAS controller Some.  Chipset Intel X (ICH9)  Front ports Two U Rear ports Eight two ettrear-or IEEE 1394 adptr Audio High E Speaker Internet Dual g Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the serial Security chip Integration of the security chip Inte | two single-link DN<br>ne: NVIDIA Quadro<br>single-link and 1  | /I-I via DMS-59 dongle, 21W<br>F <b>X 370</b> , PCIe x16 adapter, 2<br>dual-link DVI, dual DVI-I or c  | /<br>256MB, one  |  | 1.6" high, external, open  |
| SATA disk(s) SATA controller SATA controller SATA connectors Six SA SATA DVD±RW SAS disk Some SAS controller  Chipset  Intel X (ICH9) Front ports Rear ports  Rear ports  IEEE 1394 adptr Audio Speaker Audio Speaker Ethernet Security chip  Keyboard Mouse Power supply  Serial Some Conte   | two dual-link DVI,<br>ne: NVIDIA Quadro<br>two dual-link DVI,<br>ne: NVIDIA Quadro<br>two dual-link DVI,  | FX 570, PCIe 2.0 x16 adapt<br>dual DVI-I or dual VGA, 38'<br>FX 1700, PCIe x16 adapter,<br>dual DVI-I or dual VGA, HD<br>FX 3700, PCIe 2.0 x16 adapt<br>dual DVI-I or dual VGA, 78'  | er, 256MB,<br>W<br>512MB,<br>TV out, 42W<br>oter, 512MB,   | Baý ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",<br>Bay ⑥ 3.5",<br>Slot 1: full-len<br>Slot 2: full-len<br>Slot 3: full-len   | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, std or opt disk 1" high, internal, std or opt disk igth, full-height, PCIe 2.0 x16 (75W* max) igth, full-height, PCIe 2.0 x16 (75W* max) igth, full-height, 32-bit PCI 2.3 igth, full-height, PCIe x4 (x16 mechanical   |
| SATA connectors Six SATA CONNECTOR SATA DVD±RW Super SAS disk Some. SAS controller Chipset Intel X (ICH9)  Front ports Two U Rear ports Eight two etters and |   | s, SATA 3.0Gb/s, 7200 rpm  |  |  | ngth, full-height, 32-bit PCI 2.3  |
| Front ports Rear ports  Rear ports  Two U Rear ports  Eight I two et rear-o IEEE 1394 adptr  Audio Speaker Ethernet Security chip  Keyboard Mouse Power supply  Incomparate  (ICH9I two U  | SATA connectors on per Multi-Burner DL D<br>ne: <b>146GB</b> , Serial At  | , integrated in ICH9R<br>olanar<br>/D±RW SATA 1.5Gb/s<br>lached SCSI, 3.0Gb/s, 1500<br>1E-R PCIe x4 adapter, 4-pc  |  | ND <sup>8</sup> 0, 1, 1E   | Security  • Security chip (see information on left)  • Side cover lock (ships with two identicately)   |
| Rear ports Eight I two et rear-or IEEE 1394 adptr Audio High I Speaker Internet Ethernet Dual g Security chip Integrative Mouse Optica Power supply 650 w.   |   | set, Intel I/O Controller Hub<br>support, SMSC® SCH5027[   |  |  | <ul> <li>Padlock loop (in rear for opt padlock;<br/>padlock prohibits side cover removal)</li> </ul>   |
| Mouse Optica<br>Power supply 650 wa  | It USB 2.0, serial (9-pethernet (RJ-45), five cout, center/sub-out), e: FireWire PCI ada Definition (HD) Audi rnal speaker for busin I gigabit ethernet on pgrated in ethernet cor  | olanar, Broadcom® BCM575<br>htroller BCM5755, TCG 1.2-   | e (PS/2),<br>microphone-in,<br>, two 6-pin port<br>A codec;<br>4 and BCM575<br>compliant   | , front-out,<br>s on rear  | Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Chassis intrusion switch Power-on password Administrator password Boot sequence control Sorial port I/O control USB port disablement (front or all)   |
|  | cal Wheel Mouse (US)<br>watts with 120mm bo<br>5 fans (power supply   | pard (USB connector), 104-k<br>SB connector), black<br>ottom-mounted variable spec<br>, CPU, rear, opt front PCI [>  | ed fan, universa   | al<br>opt front [SAS])   | Supports ThinkVantage® technologies  |
|  | k shelf support   | Accessories  |  |  | RoHS-compliant   |
| Preloaded operating s - Genuine Windows V Business 32 - Genuine Windows Vi Business 64  \$\display \text{Vista Premium logo} \text{Preloaded application} \text{some listed} \text{)}  Rescue and Recover  ThinkVantage Produe ThinkVantage Syster Norton Internet Secu Sonic RecordNow ar Drive Letter Access ( Corel® WinDVD® (DV  | CVCTOMA   | Accessories  1GB PC3-8500 DDR3 EC  2GB PC3-8500 DDR3 EC  750GB SATA 3.0Gb/s Disk  1TB SATA 3.0Gb/s Disk (7  Super Multi-Burner DL DV  USB 2.0 Ultra Secure Men   | C UDIMM<br>(7200 rpm)<br>200 rpm)<br>D±RW SATA 1.  | 45J5918  | 3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holiday next business day response time)  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  Onsite service upgrade options (in eligible locations)²  |

|  | Slot x I<br>bay Processor GHzCores  | /lem-<br>ory Disk(s) RAID  | SATA optical  |  | 394 Soui<br>dptr adp   | d ENERGY<br>r STAR 5.0  | Vista preload  | Workhorse Ava<br>Global dat   |
|--|---|--|---|--|--|---|--|---|
| \$10 6483-33U<br>\$10 6483-25U<br>\$10 6483-26U<br>\$10 6483-27U<br>\$10 6483-29U<br>\$10 6483-31U<br>\$10 6483-32U<br>\$10 6483-19U   | 5x6         E6850         3.00         2           5x6         QX6850         3.00         4           5x6         QX6850         3.00         4           5x6         Q6700         2.66         4           5x6         Q6600         2.40         4           5x6         Q6700         2.66         4           5x6         E6850         3.00         2           5x6         E6850         3.00         2           5x6         E6850         3.00         2           5x6         E6850         3.00         2           5x6         QX6800         2.93         4           • High performance work | 2GB 1 x 250GB <sup>2</sup> SATA<br>2GB 1 x 146GB SAS<br>2GB 1 x 146GB SAS<br>4GB 1 x 146GB SAS<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 1 x 146GB SAS<br>4GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 3 x 250GB SATA 1<br>2GB 3 x 250GB SATA 5<br>2GB 1 x 250GB SATA 0<br>4GB 2 x 500GB SATA 0<br>458tation with premium grapilly, cool, and quiet with rock                  | DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 DVD±RW 1 BVD±RW 1 BVD±RW 1 BVD±RW 1  | x FX4600<br>x FX4600 1:<br>x FX4600 1:<br>x FX1700<br>x FX1700<br>x FX1700<br>x FX1700<br>x FX1700<br>x FX1700<br>x FX1700<br>x FX1700<br>a FX1700<br>a FX1700 | 394 X-F<br>X-F   | None<br>None<br>None<br>None<br>None<br>None<br>None  | Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64  | No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 No Jan 00 |
| Processor  |   | cessor E6850 with dual-cor   |   | Tower  |  |   |  |   |
| Implementation<br>Memory   | 1333MHz system bus, ar Intel Core 2 Quad Proce 1066MHz system bus, ar Intel Core 2 Extreme Pr 1066MHz system bus, ar Intel Core 2 Extreme Pr 1333MHz system bus, ar Processor uses FC-LGA 2GB or 4GB std, 8GB m. dual-channel capable, fo   | nd 4MB L2 cache or<br>essor Q6600 or Q6700 with<br>nd 8MB L2 cache or<br>occessor QX6800 with quad<br>nd 8MB L2 cache or<br>occessor QX6850 with quad  | quad-core, -core, -core, ket 33, ECC,   | • Raven b<br>• 6.9"W x<br>• 175mm \<br>• 36 lb (16<br>• 31-liter<br>• Remova<br>• Toolless   | 19.0"D x 1<br>W x 483mm<br>5.4kg) max<br>ble handle<br>side cover<br>disk and d<br>adapter re<br>ted front ice | ptical drive r<br>tention<br>ons  | n H<br>n   | optical optical media disk disk disk disk   |
| Graphics   | Non-italics: standard med<br>Two PCI Express® x16 ac<br>* 76 to 150W adapters us<br>Some: NVIDIA® Quadro<br>two dual-link DVI<br>Some: NVIDIA Quadro  | mory in two sockets; two soc<br>dapters required for quad mo<br>se auxiliary power connector<br>FX 1700, PCIe x16 adapte<br>dual DVI-I or dual VGA, HD'<br>FX 4600, PCIe x16 adapter,<br>dual-link DVI, dual DVI-I or di   | kets available<br>nitor support<br>from PSU<br>r, 512MB,<br>TV out, 42W<br>768MB,   | Bay ① 5.2<br>Bay ② 5.2<br>Bay ③ 3.5<br>Bay ④ 3.5   | 25", 1.6" hi<br>25", 1.6" hi<br>5", 1" higl<br>5", 1" higl<br>5", 1" higl                                      | gh, externa<br>gh, externa<br>n, externa<br>n, internal<br>n, internal  | I, std me<br>, std dis   | edia reader<br>k<br>opt disk  |
| SATA DVD±RW<br>SATA BD burner<br>SAS disk  | Serial ATA, SATA 3.0Gb/s<br>Six SATA connectors on<br>Some: Super Multi-Burn<br>Some: Blu-ray™ Burner<br>Some: <b>146GB</b> , Serial At   | i, SATA 3.0Gb/s, 7200 rpm<br>s, integrated in ICH9R<br>olintegrated in ICH9R<br>er DL DVD±RW SATA 1.5Gb<br>r HD-DVD Player SATA 1.5Gb<br>tached SCSI, 3.0Gb/s, 1500b   | b/s<br>) rpm  | Slot 1: full<br>Slot 2: full<br>Slot 3: full<br>Slot 4: full<br>Slot 5: hal  | -length, for<br>-length, for<br>-length, for<br>-length, for   | Ill-height, PC<br>Ill-height, PC<br>Ill-height, 32<br>Ill-height, PC<br>Ill-height, 32                                | Cle 2.0 x1<br>Cle 2.0 x1<br>-bit PCl 2<br>Cle x4 (x1<br>-bit PCl 2   | 6 (75W* max)<br>6 (75W* max)<br>3.3<br>6 mechanical)  |
| SAS controller<br>Chipset  | Intel X38 Express Chips   | .1E-R PCIe x4 adapter, 4-po<br>set, Intel I/O Controller Hub 9   |   |  |  | curity chip (s  |  | ation on left)  |
| Front ports Rear ports  IEEE 1394 adptr Audio  Speaker Ethernet Security chip  | Two USB 2.0, microphon<br>Eight USB 2.0, serial (9-1<br>two ethernet (RJ-45), five<br>rear-out, center/sub-out).<br>Some: FireWire PCI ada<br>High Definition (HD) Aud<br>Some: Creative Sound E<br>Internal speaker for busin<br>Dual gigabit ethernet on  | ISC® SCH5027D Super I/O e (3.5mm), headphone (3.5rbin), keyboard (PS/2), mouse a nalog audio ports (line-in, optical S/PDIF digital out pter, 1394a-2000, 400Mbps, io, Analog Devices AD1988A Blaster® X-Fi, PCI adapter, hig ess audio planar, Broadcom® BCM575- htroller BCM5755, TCG 1.2-c  | e (PS/2),<br>microphone-i<br>two 6-pin po<br>codec;<br>gh-end sound<br>4 and BCM57  | n, front-out,<br>rts on rear<br>adapter  | sex sex sex sex sex sex sex sex sex sex  | s)  flock loop (in flock prohibit curity slot (in nsington® Mic cassis intrusic ver-on passy ninistrator pat sequence | rear for case side control rear for case for case for case for case for case for case for switch for case for c | ver removal)<br>ptional<br>cable;   |
| Keyboard   | Model 21U: Lenovo USE<br>Others: Preferred Pr   | Fingerprint Keyboard (USB o USB Keyboard (USB conn   | connector), b   |  | • Se   | ial port I/O d<br>B port disabl   | ontrol   |   |
| Mouse<br>Power supply<br>Cooling   | 3 to 5 fans (power supply   | SB connector), black<br>ottom-mounted variable spee<br>r, CPU, rear, opt front PCI [>7   |   |  | AS]) Supp  | orts ThinkVa  | ntage® te  | chnologies  |
| Preloaded ope  | Rack shelf support rating system <sup>20</sup>  | Accessories  |   |  | RoHS   | S-compliant   |  |   |
| listed)  Rescue and F  Client Securit  ThinkVantage (fingerprint ke  System Migra  Norton Interna  PC-Doctor™ (  Microsoft Offia  Sonic Record  Drive Letter A  Corel® WinDV | tion (64-bit) n logo lications⁵ (only some Recovery™ y Solution™ ₽ Fingerprint Software eyboard model) tition Assistant et Security™ diagnostics) ce 2007 Trial (60-day)  | 1GB PC3-8500 DDR3 ECC<br>2GB PC3-8500 DDR3 ECC<br>1TB SATA 3.0Gb/s Disk (7/<br>750GB SATA 3.0Gb/s Disk<br>Super Multi-Burner DL DVI<br>USB 2.0 Lenovo Webcam<br>USB 2.0 Ultra Secure Mem<br>USB 2.0 Portable Secure 3<br>ThinkVision L2440x Wide 2<br>Wireless Kbd & Opt Wheel<br>Laser Tilt Wheel Mouse (UNIDIA® Quadro® 512MB FX<br>NVIDIA Quadro 512MB FX<br>Other accessories at lenov | C UDIMM<br>200 rpm)<br>(7200 rpm)<br>D±RW SATA 1<br>lory Key 8GB<br>20GB Hard D<br>22" Monitor<br>4" Monitor<br>Mouse (via USB, PS/2)<br>FX 570<br>1700<br>3700 | 40Y8:<br>45J59<br>isk 43R2:<br>44221<br>4421k<br>ISB) 73P4<br>41U3<br>45J79<br>43R1'   | 252<br>918   | year parts ar<br>ustomer Rep<br>irts only (wit<br>r selected pa   | laceable h limited h limited arts, 8 am rage excluday respond thinkp ce upgraducations) by mainte y 14 toll-fremanty per   | Unit (CRU) onsite service 1 - 5 pm, uding holidays onse time) ailable; see lus/warranty de options nance                |

| Type-<br>Name model   | Slot x<br>bay Processor GHzCores   | nem-<br>ory Disk(s) RAID   |  | raphics 1394<br>lapter(s) adptr   |  |   |
|---|--|--|--|---|--|---|
| \$10 6483-38U<br>\$10 6483-39U<br>\$10 6483-41U<br>\$10 6483-42U<br>\$10 6483-44U<br>\$10 6483-45U<br>\$10 6483-46U | 5x6         E6850         3.00         2         2         5x6         E6850         3.00         2         2         5x6         QX6850         3.00         4         2         5x6         QX6850         3.00         2         2         5x6         QX6850         3.00         4         2         5x6         QX6850         3.00         2         2         5x6         QX6850 <td>2GB 1 x 250GB<sup>2</sup> SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 146GB SAS<br/>2GB 1 x 146GB SAS<br/>2GB 1 x 146GB SAS<br/>2GB 2 x 250GB SATA<br/>1 2GB 2 x 250GB SATA<br/>1 2GB 2 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 2 x 250GB SATA<br/>2GB 2 x 250GB SATA<br/>2GB 1 x 250GB SATA<br/>2GB 2 x 250GB SATA<br/>2GB 3 x 250GB SATA<br/>2GB 3 x 250GB SATA<br/>2GB 3 x 250GB SATA<br/>2GB 3 x 250GB SATA</td> <td>DVD±RW 1 x DVD±RW 1 x BD burner 1 x BD burner 1 x BD burner 1 x DVD±RW 1 x DV</td> <td></td> <td>None None None None None None None None</td> <td>XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           Bus32         No         Apr 08           Bus32         No         Apr 08           Bus32         No         Apr 08           Bus32         No         Apr 08</td> | 2GB 1 x 250GB <sup>2</sup> SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 146GB SAS<br>2GB 1 x 146GB SAS<br>2GB 1 x 146GB SAS<br>2GB 2 x 250GB SATA<br>1 2GB 2 x 250GB SATA<br>1 2GB 2 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 1 x 250GB SATA<br>2GB 2 x 250GB SATA<br>2GB 3 x 250GB SATA<br>2GB 3 x 250GB SATA<br>2GB 3 x 250GB SATA<br>2GB 3 x 250GB SATA | DVD±RW 1 x DVD±RW 1 x DVD±RW 1 x DVD±RW 1 x DVD±RW 1 x DVD±RW 1 x DVD±RW 1 x DVD±RW 1 x BD burner 1 x BD burner 1 x BD burner 1 x DVD±RW 1 x DV |   | None None None None None None None None  | XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           XP Pro         No         Apr 08           Bus32         No         Apr 08           Bus32         No         Apr 08           Bus32         No         Apr 08           Bus32         No         Apr 08 |
|   |  | lly, cool, and quiet with rock   |  |   |  |   |
| Implementation Memory  Graphics   | 1333MHz system bus, ar Intel Core 2 Quad Proce 1066MHz system bus, ar Intel Core 2 Extreme Pr 1333MHz system bus, ar Processor uses FC-LGA6 QGB std, 8GB max, PC3-dual-channel capable, for Non-italics: standard med Two PCI Express® x16 ac  | essor Q6700 with quad-core and 8MB L2 cache or occessor QX6850 with quad- and 8MB L2 cache package, one LGA775 soch 8500 1066MHz DDR3, ECC,  | ce, -core, ket kets available nitor support,   | 6.9"W x 19.0     175mm W x     36 lb (16.4kg     31-liter     Removable I     Toolless side | ront icons   | m H   |
|   | Some: NVIDIA® Quadro two single-link D\ Some: NVIDIA Quadro single-link and 1 Some: NVIDIA Quadro two dual-link DVI Some: NVIDIA Quadro  | <sup>®</sup> NVS 290, PCIe x16 adapte<br>/I-I via DMS-59 dongle, 21W<br>FX 370, PCIe x16 adapter, 2<br>dual-link DVI, dual DVI-I or d<br>FX 1700, PCIe x16 adapter,<br>, dual DVI-I or dual VGA, HD<br>FX 4600, PCIe x16 adapter,<br>dual-link DVI, dual DVI-I or di   | er, 256MB,<br>56MB, one<br>ual VGA, 25W<br>512MB,<br>TV out, 42W<br>768MB,   | Bay ① 5.25",<br>Bay ② 5.25",<br>Bay ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",<br>Bay ⑥ 3.5",    | 1.6" high, externa<br>1.6" high, externa<br>1" high, externa<br>1" high, interna<br>1" high, interna<br>1" high, interna   | l, std or opt disk<br>l, std or opt disk  |
| SATA DVD±RW<br>SATA BD burner<br>SAS disk   | Some: Blu-ray™ Burner A<br>Some: <b>146GB</b> , Serial At  | OGb/s, 7200 rpm<br>s, integrated in ICH9R<br>olanar<br>er DL DVD±RW SATA 1.5Gb<br>/ HD-DVD Player SATA 1.5G<br>tached SCSI, 3.0Gb/s, 1500  | b/s<br>0 rpm   | Slot 2: full-lend<br>Slot 3: full-lend<br>Slot 4: full-lend<br>Slot 5: half-lend            | gth, full-height, P(gth, full-height, 32gth, full-height, P(gth, full-height, 32gth, full-height, full-height, 52gth, full-height, 52gth, full-height, full- | Cle x4 (x16 mechanical)   |
| SAS controller<br>Chipset   | Intel X38 Express Chips  | HE-R PCIe x4 adapter, 4-po<br>set, Intel I/O Controller Hub S<br>SC® SCH5027D Super I/O  |  |   |  | ee information on left)<br>(ships with two identical  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip  | Two USB 2.0, microphon Eight USB 2.0, serial (9-p five analog audio ports (li optical S/PDIF digital out None High Definition (HD) Audi Internal speaker for busir Dual gigabit ethernet on  | e (3.5mm), headphone (3.5m<br>pin), keyboard (PS/2), mouse<br>ne-in, microphone-in, front-o<br>o, Analog Devices AD1988A   | e (PS/2), two eth<br>out, rear-out, ce<br>a codec;<br>4 and BCM5755  | nernet (RJ-45),<br>nter/sub-out),   | Padlock loop (ir padlock prohibi     Security slot (in Kensington® Mi prohibits side c     Chassis intrusic     Power-on pass's     Administrator p     Boot sequence  | on switch<br>word<br>assword  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling  | Optical Wheel Mouse (US 650 watts with 120mm bo  | pard (USB connector), 104-k<br>SB connector), black<br>ottom-mounted variable spee<br>g CPU, rear, opt front PCI [>7   | d fan, universa  |   | Serial port I/O c     USB port disab   | control<br>lement (front or all)  |
| Rack mount  | Rack shelf support   |  | grapinooj, '   | -21311.[0/10]/  |  | antage® technologies  |
| - Microsoft® W - Microsoft Wir Business Edi   | tion (32-bit)<br>: Vista Premium logo<br>• lications⁵ (all OSes; only<br>Recovery™<br>e System Update  | Accessories  1GB PC3-8500 DDR3 ECC 2GB PC3-8500 DDR3 ECC 750GB SATA 3.0Gb/s Disk 1TB SATA 3.0Gb/s Disk (72 USB 2.0 Ultra Secure Mem USB 2.0 Portable Secure 3 ThinkVision® L2440p Wide NVIDIA® Quadro® 512MB FX NVIDIA Quadro 512MB FX Other accessories at lenov  | C UDIMM<br>(7200 rpm)<br>200 rpm)<br>oory Key 8GB<br>20GB Hard Dis<br>24" Monitor<br>FX 570<br>1700<br>3700  | 4420HB2<br>45J7917<br>43R1767<br>43R1768  |  | placeable Unit (CRU) th limited onsite service arts <sup>3</sup> , 8 am - 5 pm, erage excluding holidays, day response time) ervices available; see com/thinkplus/warranty y <sup>14</sup> toll-free support  |

| 040 0400 4411   | bay Processor Gh   |   | Mem-<br>ory  | Disk(s)  | RAID   | SATA optical  | Graphics<br>adapter(s)  | 1394<br>adptr   |  | ENERGY<br>STAR 5.0  |   | orkhorse Av<br>Global d   |
|---|--|---|--|--|--|---|---|---|--|---|---|---|
|   | 5x6 Q9450 2.6<br>5x6 Q9450 2.6<br>5x6 Q9550 2.6<br>5x6 Q9550 2.6<br>5x6 Q9450 2.6<br>5x6 Q9550 2.6<br>5x6 Q9550 2.6<br>5x6 QX9650 3.6<br>5x6 E8200 2.6<br>5x6 E8200 2.6<br>5x6 E8200 3.6   | 66 4 2 4 6 6 4 8 8 3 4 4 6 6 6 4 6 6 6 2 6 6 6 6 2 6 6 6 2 6 6 6 2 6 6 6 2 6 6 6 2 6 6 6 2 6 6 6 6 2 6              | 2GB<br>2GB<br>2GB<br>2GB<br>4GB<br>4GB<br>4GB<br>2GB<br>2GB<br>2GB<br>2GB<br>2GB<br>2GB<br>2GB                       | 1 x 250GB SATA<br>1 x 250GB SATA<br>1 x 250GB SATA<br>1 x 250GB SATA<br>1 x 250GB SATA<br>1 x 146GB SAS<br>2 x 250GB SATA  | None<br>None<br>None<br>None<br>None<br>None<br>None<br>None   | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD<br>DVD<br>DVD<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW | 1 x FX3700<br>1 x FX570<br>1 x FX570<br>1 x FX570<br>1 x FX3700<br>1 x FX1700<br>1 x FX1700<br>1 x FX3700<br>1 x FX3700 | 1394  | None<br>None<br>None<br>None   | None<br>None<br>None<br>None<br>None<br>None<br>None<br>None  | Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64         | No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug No Aug |
| Implementation Memory   | with dual-core, Intel Core 2 Quations 1333MHz syster Intel Core 2 Ext 1333MHz syster Processor uses  2GB or 4GB std dual-channel capitalics: stan  | 1333MH:<br>ad Proce<br>m bus, ar<br>treme Pr<br>m bus, ar<br>FC-LGA6<br>I, 8GB ma<br>pable, foundard me   | z syste<br>essor<br>nd 12M<br>ocess<br>nd 12M<br>6 pack<br>ax, PC<br>ur 240<br>mory i                                | or QX9650 with q   | L2 cacl<br>with qu<br>uad-co<br>socket<br>DDR3,<br>s;<br>socket  | ne or ad-core, ore, ECC, s available  | Tower  Raven bl  9.9"W x  175mm v  36 lb (16  31-liter  Removal  Toolless  Toolless  Illuminate   | 19.0"D<br>V x 483<br>.4kg) m<br>ble han<br>side co<br>disk an<br>adapte   | x 16.8"I<br>Bmm D nax confi<br>dle on to<br>ver rem<br>d optica<br>r retenti   | H (without x 426mm   figuration op front oval al drive rer  | H   | optical optical media media disk disk disk  |
| Graphics  | * 76 to 150W ad<br>Some: NVIDIA®<br>two dual<br>Some: NVIDIA<br>two dual<br>Some: NVIDIA   | lapters us  Quadro I-link DVI Quadro I-link DVI Quadro Quadro   | se aux<br>se FX 5<br>, dual<br>FX 17<br>, dual<br>FX 37  | s required for quad<br>ciliary power conne<br>570, PCIe 2.0 x16<br>DVI-I or dual VGA,<br>00, PCIe x16 adap<br>DVI-I or dual VGA,<br>00, PCIe 2.0 x16 a<br>DVI-I or dual VGA,   | ector from<br>adapte<br>38W<br>oter, 51<br>HDTV<br>adapter   | om PŠŪ<br>er, 256MB,<br>2MB,<br>' out, 42W  | Bay ① 5.2 Bay ② 5.2 Bay ③ 3.5 Bay ④ 3.5 Bay ⑤ 3.5 Bay ⑥ 3.5   | 5", 1.6<br>5", 1.6<br>", 1" h<br>", 1" h  | " high,  | external,<br>external,<br>external,<br>internal,<br>internal,   | open<br>std med<br>std disk<br>std or op  | a reader  |
| Media reader<br>SATA disk(s)<br>SATA controller<br>SATA connectors<br>SATA DVD<br>SATA DVD±RW<br>SAS disk<br>SAS controller   | Serial ATA, SATA<br>Six SATA connec<br>Some: DVD-RO<br>Some: Super M<br>Some: 146GB,   | 250GB, 6<br>A 3.0Gb/s<br>ctors on p<br>DM DL SA<br>lulti-Burn<br>Serial At  | or <b>500</b><br>s, integ<br>planar<br>ATA1.5<br>er DL<br>ttached  | I <b>GB</b> , SATA 3.0Gb/s<br>grated in ICH9R  | x⁴<br>5Gb/s<br>5000 r  | pm  | Slot 1: full-<br>Slot 2: full-<br>Slot 3: full-<br>Slot 4: full-<br>Slot 5: half  | length,<br>length,<br>length,<br>length,  | full-he<br>full-he<br>full-he<br>full-he<br>, full-he  | eight, PCle<br>eight, PCle<br>eight, 32-b<br>eight, PCle<br>eight, 32-b   | e 2.0 x16<br>e 2.0 x16<br>bit PCI 2.3<br>e x4 (x16<br>bit PCI 2.3   | (75W* max<br>(75W* max)<br>mechanica  |
| Chipset  Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard  | Intel X38 Expre<br>(ICH9R) for RAII<br>Two USB 2.0, mi<br>Eight USB 2.0, s<br>two ethernet (RJ<br>rear-out, center/some: FireWire<br>High Definition (Internal speaker<br>Dual gigabit ethe<br>Integrated in eth<br>Preferred Pro US | ss Chips<br>D 0, 1, 5<br>dicrophon<br>serial (9-p<br>J-45), five<br>sub-out),<br>e PCI ada<br>HD) Audi<br>for busin<br>ernet on<br>pernet con<br>SB Keybo | set, In<br>suppo<br>e (3.5i<br>bin), ke<br>e anald<br>, optica<br>apter, 1<br>io, Ana<br>ness a<br>planar<br>ntrolle | tel I/O Controller Fort, SMSC® SCH50mm), headphone (eyboard (PS/2), mog audio ports (line al S/PDIF digital or 1394a-2000, 400M alog Devices AD19 udio r, Broadcom® BCM r BCM5755, TCG   | Hub 9 F<br>027D S<br>3.5mm<br>ouse (F<br>e-in, mi<br>ut<br>lbps, tw<br>088A co<br>5754 a<br>1.2-cor  | AAID uper I/O I), FireWire 4 PS/2), crophone-in, wo 6-pin ports odec; und BCM575  | 00 (IEEE 13 front-out,  | (1  | Side co<br>keys)<br>Padlock<br>padlock<br>Security<br>Kensing<br>prohibits<br>Chassis<br>Power-o<br>Adminis<br>Boot se<br>Boot wii | ver lock (s loop (in reprohibits y slot (in reprohibits or slot (in reprohibits or slot) s side covers intrusion on passwostrator pas quence co | ear for op<br>side cove<br>ear for op<br>osaver® c<br>er remove<br>switch<br>ord<br>sword<br>ontrol<br>ooard, mo          | able;   |
| Mouse<br>Power supply<br>Cooling<br>Rack mount  | Optical Wheel M 650 watts with 12  | louse (US<br>20mm bo<br>er supply   | SB cor<br>ottom-<br>, CPU  | nnector), black mounted variable stream, opt front PC essories   | speed 1  | fan, universa   | I<br>opt front [SA  | ·<br>(S])   | USB po   | rt disabler   | ment (fror  |   |
| - Genuine Wind Business 64  ⇒ Vista Premiur Preloaded app  • Rescue and F  • Client Securit  • ThinkVantage  • ThinkVantage  • System Migra  • Norton Intern  (90 days of vi  • PC-Doctor™ (  • Adobe® Read  • Microsoft® Off  • Sonic Record | n logo lications⁵ Recovery™ y Solution™ Productivity Cen System Update tion Assistant et Security™ rus definitions) diagnostics) er fice 2007 Trial (60 Now and ccess (DVD±RW)   | )-day)  | 1GB<br>2GB<br>7500<br>1TB<br>1460<br>3000<br>Supe<br>USB<br>Thin<br>Thin<br>NVIE<br>NVIE                             | PC3-8500 DDR3 PC3-8500 DDR3 B SATA 3.0Gb/s Dis SATA 3.0Gb/s Dis SATA 3.0Gb/s Dis SAS 3.0Gb/s Dis SAS 3.0Gb/s Dis SAS 3.0Gb/s Dis Cas SAS 3.0Gb/s D | ECC L<br>Disk (7:<br>k (7200)isk (15:<br>bisk (15:<br>DVD±<br>Memor<br>Ire 320<br>Vide 19:<br>ide 22"<br>de 24"<br>MB FX<br>3 FX 3:<br>3 FX 40 | JDIMM<br>200 rpm)<br>0 rpm)<br>6000 rpm)<br>6000 rpm)<br>RW SATA 1.5<br>y Key 8GB<br>GB Hard Dis<br>" Monitor<br>Monitor<br>Monitor<br>1700<br>700                                | 45J59<br>k 43R20<br>4424F<br>4422F<br>4421F<br>43R1<br>43R1<br>43R1   | 251 Ro<br>252 Ro<br>2991<br>118<br>1993 3994<br>520<br>118<br>1019<br>118<br>1019<br>118<br>118<br>118<br>118<br>118<br>118<br>118<br>118<br>118<br>1 | 3-year<br>Custor<br>parts of<br>for sele<br>Mon - I<br>next bi<br>ThinkF<br>http://i<br>• Onsi<br>(in se<br>24 hou<br>during       | Limited parts and mer Repla only (with Fri covera usiness dark)   | I Warrant labor ceable Ui limited oi s³, 8 am - ge exclud ay respor vices avai m/thinkplu e upgrade atoll-free inty perio | nit (CRU) nsite servic 5 pm, ding holiday se time) lable; see s/warranty options support                        |

# **ThinkStation**



Lenovo ThinkStation D10



Lenovo ThinkStation S10 (left) Lenovo ThinkStation D10 (right)



Lenovo ThinkStation D10



Lenovo ThinkStation D10



ThinkStation Rail Kit (43R1964)



Lenovo ThinkStation D10

| Type-<br>Name model   | Slot x<br>bay Processor(s) GHz Me  | mory Disk(s)  | RAID  | SATA<br>optica  |  | Graphics adapter(s)   |  |   | ENERGY<br>STAR 5.0   | Preload  | Avail date                             |
|---|--|---|---|---|--|---|--|---|--|--|--|
| D10 6427-34U<br>D10 6427-29U<br>D10 6427-31U<br>D10 6427-32U<br>D10 6427-33U<br>D10 6427-35U<br>D10 6427-35U<br>D10 6427-36U  | 7x9 1 x E5430 2.66 2 x 7x9 2 x E5430 2.66 4 x 7x9 2 x E5430 2.66 4 x 7x9 2 x E5430 2.66 4 x 7x9 2 x E5430 2.66 2 x 7x9 2 x E5430 2.66 2 x 7x9 1 x E5430 2.66 2 x 7x9 1 x E5430 2.66 2 x 7x9 1 x E5430 2.66 2 x 7x9 2 x E5430 2.66 2 x 7x9 2 x E5430 2.66 2 x 7x9 2 x E5440 2.83 2 x 7x9 2 x E5440 2.83 2 x - High performance work | 1GB 2 x 250GB 5 1GB 2 x 250GB 5 2GB 2 x 146GB 5 1GB 2 x 250GB 5 1GB 2 x 250GB 5 1GB 1 x 250GB 5 1GB 1 x 250GB 5 1GB 1 x 250GB 5 1GB 1 x 250GB 5 1GB 1 x 250GB 5   | SATA SATA SAS SATA SAS 1 SATA 1 SATA SATA SATA SATA SATA SATA SATA  | DVD±RW<br>DVD±RW, BD<br>DVD±RW, DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW            | ) burner   | 1 x FX1700<br>1 x FX1700<br>1 x FX1700<br>2 x NVS290<br>1 x FX1700<br>1 x FX1700<br>1 x FX4600<br>1 x FX4600      | None<br>None<br>None<br>None<br>None<br>None<br>None<br>None   | X-Fi  | None<br>None<br>None<br>None<br>None<br>None                                   | Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>XP Pro<br>XP Pro<br>XP Pro<br>XP Pro           | Apr 08<br>Apr 08                       |
|   | Environmentally friends     These small and medius   | ly, cool, and quiet и   | vith rock s   | olid engineeri  | ing .  |   | am   |   |  |  |  |
| Processor(s) Implementation   | One or two processors, Ir with <b>quad-core</b> , 1333MH Processor uses FC-LGA6  | z system bus, and   | 12MB L2 (   | cache   | Tower  |   |  |   |  |  | otical                                 |
| Memory  | <b>2GB</b> or <b>4GB</b> std, 64GB m <b>ECC</b> , fully buffered, 4-cha <i>Non-italics:</i> standard me  | ax, <b>PC2-5300 667</b><br>nnel capable, eight  | MHz DDR2<br>240-pin [   | 2,  | • 8.3"W<br>• 210m  | en black colo<br>V x 23.7"D x<br>nm W x 602r<br>(29.5kg) ma<br>er   | 17.1"H<br>nm D x   | (without 434mn  | n H  | e)   | otical<br>otical                       |
| Graphics  | Some: NVIDIA Quadro I<br>two dual-link DVI,<br>Some: NVIDIA Quadro I   | e auxiliary power c<br>NVS 290, PCle x<br>I-I via DMS-59 don<br>X 1700, PCle x16<br>dual DVI-I or dual  | onnector f<br>16 adapter<br>Igle, 21W<br>adapter, 5<br>VGA, HDT<br>adapter, 7   | rom PSU<br>r, 256MB,<br>512MB,<br>V out, 42W<br>768MB,  |  |   |  |   |  | disk<br>disk<br>disk<br>disk<br>disk   |  |
| SATA DVD±RW   | 9-in-1 media reader, inter<br>Some: 250GB, SATA 3.0<br>Serial ATA, SATA 3.0Gb/s<br>Five SATA connectors on<br>Some: Super Multi-Burner<br>Some: Blu-ray <sup>TM</sup> Burner /<br>Some: 146GB, Serial Att<br>LSI <sup>TM</sup> LSISAS1068E chips   | Gb/s, 7200 rpm<br>, integrated in 6321<br>planar<br>er DL DVD±RW SA<br>HD-DVD Player SA<br>ached SCSI, 3.0Gb  | TA 1.5Gb/s<br>ATA 1.5Gb<br>b/s, 15000   | /s<br>rpm   | ∃Baý ②   | 5.25", 1.6"<br>5.25", 1.6"<br>3.5", 1" hi<br>3.5", 1" hi<br>3.5", 1" hi<br>3.5", 1" hi<br>3.5", 1" hi             | high, e high, e gh, ii gh, ii gh, ii gh, ii gh, ii   | externa<br>externa<br>externa<br>nternal<br>nternal<br>nternal<br>nternal   | I, open<br>I, open<br>I, std m<br>, std di<br>, std di<br>, std or<br>, std or | edia read<br>sk<br>sk<br>opt disk<br>opt disk  |  |
| Chipset   | Intel 5400A Chipset, Inte<br>for RAID 0, 1, 5, 10 suppo  |   |   |   | Slot 2:  | half-length, full-length, f   | ull-heig   | ht, PCI   | e 2.0 x1   | 6 (75W* i  | max)                                   |
| Front ports Rear ports  | Two USB 2.0, microphone<br>FireWire 400 (IEEE 1394)<br>Four USB 2.0, serial (9-pi<br>two ethernet (RJ-45), six<br>(line-in, mic-in, front-out, s   | n), keyboard (PS/2<br>analog audio ports  | ), mouse (  | (PS/2),   | Slot 4:<br>Slot 5:<br>Slot 6:                                  | full-length, f<br>full-length, f<br>full-length, f<br>full-length, f<br>full-length, f                            | full-heig<br>full-heig<br>full-heig  | ht, PCI<br>ht, 64-l<br>ht, 64-l   | e 2.0 x1<br>bit PCI-X<br>bit PCI-X   | 6 (75W* i  |  |
| IEEE 1394 adpti<br>Audio  | High Definition (HD) Audio Some: Creative Sound B  | o, Realtek® ALC888<br>laster® X-Fi, PCI ac  | 3 codec;  |   | adapter  | • S   |  | chip (s   |  | <b>Y</b><br>nation or<br>vith two id   |  |
| Speaker<br>Ethernet<br>Security chip  | Internal speaker for busin Dual gigabit ethernet on p Winbond WPCT200 Safe   | olanar, Intel® 82563<br>Keeper™ Trusted Pl  | latform Mo  | odule, TCG 1.   | s<br>2-complia   | ant P   | adlock<br>adlock  <br>ecurity  | prohibit<br>slot (in  | ts side co<br>rear for   | opt pad<br>over rem<br>optional  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Preferred Pro USB Keybo<br>Optical Wheel Mouse (US<br>1000 watts with 120mm b<br>Five fans (power supply, f<br>Rack shelf support or opti  | B connector), blact ottom-mounted var irst processor, seco  | k<br>riable spec<br>and proces  | ed fan, univers<br>ssor, rear, fror   |  | p<br>• P<br>• A<br>• B  | rohibits<br>ower-or<br>dminist<br>loot seq   | side con<br>n passv<br>rator pa<br>juence                                   | assword<br>control   |  | liskatta                               |
| - Genuine Win (preinstalled Windows Vis Genuine Win Business 64 ♦ Vista models  Preloaded app some listed)  Rescue and Client Securi System Migra Norton Interr (90 days of vereins of the Wicrosoft® Or Sonic Record of Sonic Record of the Windows of the Securial of the Windows of the Wicrosoft® Or Sonic Record of the Windows of the Win | : Vista Premium logo  Ilications⁵ (all OSes; only  Recovery™ ty Solution™ ation Assistant tet Security™ irus definitions) (diagnostics)  Ifice 2007 Trial (60-day)   | Accessories 2GB PC2-5300 DI 4GB PC2-5300 DI 500GB SATA 3.0G 750GB SATA 3.0G 1TB SATA 3.0Gb/s 146GB SAS 3.0Gi 300GB SAS 3.0Gi 300GB SAS 3.0Gi USB 2.0 Ultra Sec USB 2.0 Portable 3 ThinkVision® L244 NVIDIA Quadro 5 NVIDIA Quadro 5 Other accessories | DR2 ECC bb/s Disk ( bb/s Disk | FB-DIMM<br>7200 rpm)<br>7200 rpm)<br>7200 rpm)<br>5000 rpm)<br>5000 rpm)<br>5000 rpm)<br>ory Key 8GB<br>0GB Hard Dis<br>4.4" Monitor<br>570 | 43<br>43<br>45<br>43<br>43<br>43<br>45<br>44<br>44<br>45<br>43 | R1772<br>R1773<br>R1990<br>R1991<br>J7918<br>R1993<br>R1994<br>R1964<br>J5918<br>R2019<br>20HB2<br>J7917<br>R1768 | erial poors poorts T HS-com  L 3-year parts or for sele Mon - F next bu ThinkPl http://lee 24x7''4 t issues of | hinkVa pliant LIMITEI parts are Repnily (with course siness us M see during | D WARR nd labor laceable h limitec arrage exc day resp ervices a om/think      | echnolog  ANTY¹  Unit (CFI I onsite s m - 5 pm Iluding h ponse tin vailable; plus/warr for warr anty | ies RU) service solidays, ne) see anty |

| Name                                   | Type-<br>model  | Slot x bay Processor(s)   | GHz  | Memory   | Disk(s   | s)   | RAID | SATA optical   | Graphics adapter(s)  | 1394<br>adptr  |  | ENERGY<br>STAR 5.0                                   | Preload   | Avail<br>date  |
|--|---|---|--|--|--|--|------|--|--|--|--|--|---|--|
| D10<br>D10<br>D10<br>D10<br>D10<br>D10 | 6427-H6U<br>6427-H7U  | 7x9 2 x E5440<br>7x9 1 x E5450<br>7x9 2 x E5440<br>7x9 1 x E5450<br>7x9 1 x E5440<br>7x9 1 x E5440<br>7x9 1 x E5440<br>7x9 1 x E5440<br>7x9 1 x E5420 | 3.00<br>2.83<br>3.00<br>2.83<br>2.50<br>2.83 | 2 x 1GB<br>2 x 2GB<br>2 x 1GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB<br>4 x 2GB<br>4 x 2GB | 1 x 250GB<br>1 x 146GB<br>1 x 250GB<br>1 x 146GB<br>1 x 500GB<br>1 x 500GB<br>1 x 146GB<br>1 x 146GB | SATA<br>SAS<br>SATA<br>SAS<br>SATA<br>SATA<br>SAS<br>SAS |      | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW | 1 x FX3700<br>1 x FX3700<br>1 x FX570<br>1 x FX570<br>None<br>None<br>None<br>None | None<br>None<br>None<br>None<br>None<br>None<br>None | None<br>None<br>None<br>None<br>None<br>None<br>None | None<br>None<br>None<br>None<br>None<br>None<br>None | Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64 | Aug 08<br>Aug 08<br>Aug 08<br>Aug 08<br>Sep 08<br>Sep 08<br>Sep 08<br>Sep 08 |
|  | <ul> <li>High performance workstation with premium graphics for specialized professionals</li> <li>Environmentally friendly, cool, and quiet with rock solid engineering</li> <li>These small and medium business (SMB) models are part of the US TopSeller™ Program</li> </ul> |   |  |  |  |  |      |  |  |  |  |  |   |  |

|   | These small and medium business (SMB) models are part of the of  | o ropoeller i   | Togram  |
|---|--|---|---|
| Processor(s) Implementation   | One or two processors, Intel® Xeon® processor E5420, E5440, or E5450 with quad-core, 1333MHz system bus, and 12MB L2 cache Processor uses FC-LGA6 package, two LGA771 sockets  |   | k color; metal case<br>7"D x 17.1"H (without handle)  |
| Memory  | 2GB, 4GB, or 8GB std, 64GB max, PC2-5300 667MHz DDR2, ECC, fully buffered, 4-channel capable, eight 240-pin DIMM sockets; Non-italics: standard memory in two or four sockets; six or four sockets available   | • 210mm W x<br>• 65 lb (29.5k<br>• 49-liter   | 602mm D x 434mm H cg) max configuration optical handle on top front   |
| Graphics  | Two PCI Express® x16 adapters required for quad monitor support, * 76W to 150W adapters use auxiliary power connector from PSU Some: NVIDIA® Quadro® FX 570, PCIe 2.0 x16 adapter, 256MB, two dual-link DVI, dual DVI-I or dual VGA, 38W Some: NVIDIA Quadro FX 3700, PCIe 2.0 x16 adapter, 512MB, two dual-link DVI, dual DVI-I or dual VGA, 78W                          | <ul><li>Toolless dis</li><li>Toolless ada</li><li>Illuminated</li></ul>   | le cover removal k and optical drive removal apter retention front icons support or optional rail kit  disk disk disk disk disk disk disk   |
| Media reader<br>SATA disk(s)<br>SATA controller<br>SATA connectors<br>SATA DVD±RW<br>SAS disk<br>SAS controller | 9-in-1 media reader, internal USB 2.0 Some: 250GB or 500GB, SATA 3.0Gb/s, 7200 rpm Serial ATA, SATA 3.0Gb/s, integrated in 6321ESB Five SATA connectors on planar Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Some: 146GB, Serial Attached SCSI, 3.0Gb/s, 15000 rpm LSI™ LSISAS1068E chipset, 5 connectors, 3.0Gb/s, RAID <sup>8</sup> 0, 1, 1E                              | Bay ② 5.25",<br>Bay ③ 5.25",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",<br>Bay ⑥ 3.5",   | 1.6" high, external, std optical 1.6" high, external, open 1.6" high, external, open 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, std disk  |
| Chipset   | Intel 5400A Chipset, Intel 6321ESB I/O Controller Hub for RAID 0, 1, 5, 10 support, Winbond® W83627EHG Super I/O   | Bay ⑦ 3.5",<br>Bay ® 3.5",<br>Bay ⑨ 3.5",   | 1" high, internal, std or opt disk 1" high, internal, std or opt disk 1" high, internal, opt disk   |
| Front ports Rear ports IEEE 1394 adptr Audio  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394) Four USB 2.0, serial (9-pin), keyboard (PS/2), mouse (PS/2), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, side-out, rear-out, center/sub-out), RCA-type coaxial digital in, RCA-type coaxial digital out None High Definition (HD) Audio, Realtek® ALC888 codec; | Slot 1: half-le<br>Slot 2: full-ler<br>Slot 3: full-ler<br>Slot 4: full-ler<br>Slot 5: full-ler<br>Slot 6: full-ler | ngth, full-height, PCle x4 (x8 mechanical) ngth, full-height, PCle 2.0 x16 (75W* max) ngth, full-height, PCle x4 (x8 mechanical) ngth, full-height, PCle 2.0 x16 (75W* max) ngth, full-height, 64-bit PCl-X ngth, full-height, 64-bit PCl-X ngth, full-height, 32-bit PCl 2.3 |
| Speaker<br>Ethernet<br>Security chip  | Internal speaker for business audio Dual gigabit ethernet on planar, Intel® 82563EB, proprietary Intel bus Winbond WPCT200 SafeKeeper™ Trusted Platform Module, TCG 1.2  |   | SECURITY  • Security chip (see information on left)  • Side cover lock (ships with two identica   |
| Keyboard<br>Mouse<br>Power supply   | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black<br>1000 watts with 120mm bottom-mounted variable speed fan, universit   |   | keys)  Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)   |

#### Preloaded operating system<sup>20</sup> Genuine Windows® Vista®

♦ Vista Premium logo

**Business 64** 

Cooling

Rack mount

## Preloaded applications<sup>5</sup> • Rescue and Recovery™

- Client Security Solution<sup>TM</sup>
  ThinkVantage Productivity Center
  ThinkVantage System Update
  System Migration Assistant
- System Migration Assistant
- Norton Internet Security™
- (90 days of virus definitions) PC-Doctor™ (diagnostics)
- Adobe® Reader
- Microsoft® Office 2007 Trial (60-day)
- Sonic RecordNow and
- Drive Letter Access (DVD±RW)

   Corel® WinDVD® (DVD±RW)

#### Rack shelf support or optional sliding rack mount rail kit support **Accessories**

Five fans (power supply, first processor, second processor, rear, front disk)

2GB PC2-5300 DDR2 ECC FB-DIMM 43R1772 4GB PC2-5300 DDR2 ECC FB-DIMM 43R1773 750GB SATA 3.0Gb/s Disk (7200 rpm) 750GB SATA 3.0Gb/s Disk (7200 rpm) 146GB SAS 3.0Gb/s Disk (15000 rpm) 300GB SAS 3.0Gb/s Disk (15000 rpm) Super Multi-Burner DL DVD±RW SATA1.5Gb/s 43R1990 43R1991 43R1993 43R1994 41N5620 ThinkStation Rail Kit 43R1964 USB 2.0 Ultra Secure Memory Key 8GB USB 2.0 Portable Secure 320GB Hard Disk 45J5918 43R2019 Lenovo USB Fingerprint Keyboard NVIDIA Quadro 512MB FX 570 NVIDIA Quadro 512MB FX 3700 73P4730 45J7917 43R1768 Other accessories at lenovo.com/accessories

- al
- padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

RoHS-compliant

#### LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty
- 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period1 via 800-426-7378

| Type-<br>Name model  | Slot x<br>bay Processor(s) GHz  | Memory Disk(s)   | SATA<br>RAID optical   | Graphics adapter(s)  | 1394 Sound ENERGY Vista Workhorse adptr adptr STAR 5.0 preload Global   |
|--|---|--|--|--|---|
| D10 6493-21U<br>D10 6493-22U<br>D10 6493-25U<br>D10 6493-25U<br>D10 6493-33U<br>D10 6493-27U<br>D10 6493-31U<br>D10 6493-32U<br>D10 6493-17U |   | 2 x 2GB 2 x 146GB SAS<br>2 x 2GB 2 x 146GB SAS<br>4 x 1GB 2 x 250GB SAT<br>4 x 2GB 2 x 146GB SAS<br>4 x 2GB 2 x 146GB SAS<br>8 x 2GB 3 x 146GB SAS<br>2 x 1GB 2 x 250GB SAT<br>2 x 2GB 2 x 146GB SAS<br>2 x 2GB 3 x 146GB SAS<br>2 x 2GB 3 x 146GB SAS<br>4 x 1GB 2 x 500GB SAT  | DVD±RW   DVD±RW   A  | 1 x FX4600<br>1 x FX4600<br>1 x FX1700<br>1 x FX1700<br>1 x FX4600<br>1 x FX4600<br>2 x NVS290<br>1 x FX4600<br>1 x FX4600<br>1 x FX4600<br>1 x FX1700<br>2 x FX4600<br>1 x FX1700<br>1 x FX1600<br>1 x FX1700<br>1 x FX1700<br>1 x FX1700<br>1 x FX1700 | None         None         Bus64         No         Ma           None         None         Bus64         No         Ma           None         None         Bus64         No         Ma           None         None         Bus64         No         Ma           None         None         Bus64         No         Ma           None         None         Bus64         No         Ma           None         None         Bus64         No         Ma           None         X-Fi         None         Bus64         No         Ma |
| Processor  |   | Intel® Xeon® processor E<br>0 with quad-core, 1333MH   |  | Tower  |   |
| Implementation<br>Memory   | and 12MB L2 cache<br>Processor uses FC-LG/<br>2GB, 4GB, 8GB or 16G<br>ECC, fully buffered, 4-cl<br><i>Italics</i> : standard n<br>Non-italics: standard n                           | A6 package, two LGA771 s BB std, 64GB max, PC2-53 hannel capable, eight 240- nemory in eight sockets; no nemory in two or four socket sockets available  | ockets 00 667MHz DDR2, bin DIMM sockets; sockets available                       | • 8.3"W x 23.7<br>• 210mm W x<br>• 65 lb (29.5k<br>• 49-liter<br>• Removable   | k color; metal case 7"D x 17.1"H (without handle) 602mm D x 434mm H kg) max configuration handle on top front de cover removal  |
| Graphics   | Two PCI Express® x16 a* 76 to 150W adapters Some: NVIDIA® Quadrative single-link I Some: NVIDIA Quadrative dual-link DV Some: NVIDIA Quadrative dual-link DV Some: NVIDIA Quadratic | adapters required for quad use auxiliary power connectors NVS 290, PCle x16 adaptivity in DMS-59 dongle, 2 to FX 1700, PCle x16 adaptivity in DWI-I or dual VGA, In TX 4600, PCle x16 adaptivity in DWI-I or dual DVI-I or from PSU<br>apter, 256MB,<br>1W<br>er, 512MB,<br>HDTV out, 42W<br>er, 768MB, | Toolless dis Toolless ada Illuminated Rack shelf s  Bay ① 5.25",   | sk and optical drive removal lapter retention front icons support or optional rail kit disk disk disk disk disk disk disk disk  |
| SATA DVD±RW  | Serial ATA, SATA 3.0Gb<br>Five SATA connectors of<br>Some: Super Multi-Bur<br>Some: Blu-ray™ Burne<br>Some: 146GB, Serial A   | <b>B</b> , SATA 3.0Gb/s, 7200 rpro/s, integrated in 6321ESB  | Gb/s<br>Player<br>5000 rpm   | Bay @ 3.5",<br>Bay ® 3.5",<br>Bay ® 3.5",<br>Bay @ 3.5",<br>Bay ® 3.5",<br>Bay ® 3.5",<br>Slot 1: half-lei   | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, std disk 1" high, internal, std or opt disk 1" high, internal, std or opt disk 1" high, internal, opt disk ength, full-height, PCle x4 (x8 mechanica   |
| Chipset  | Intel 5400A Chipset, Ir   | ntel 6321ESB I/O Controlle<br>port, Winbond® W83627EF  | r Hub  | Slot 3: full-len<br>Slot 4: full-len   | ngth, full-height, PCIe x4 (x8 mechanical)<br>ngth, full-height, PCIe 2.0 x16 (75W* max<br>ngth, full-height, 64-bit PCI-X  |
| Front ports Rear ports   | FireWire 400 (IEEE 139 Four USB 2.0, serial (9-two ethernet (RJ-45), si (line-in, mic-in, front-our RCA-type coaxial digita   | -pĺn), keyboard (PS/2), mοι  | rse (PS/2),  | Slot 6: full-len   | ngth, full-height, 64-bit PCI-X ngth, full-height, 64-bit PCI-X ngth, full-height, 32-bit PCI 2.3  SECURITY  Security chip (see information on lef Side cover lock (ships with two ident  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | High Definition (HD) Au Some: Creative Sound Internal speaker for bus Dual gigabit ethernet or  | dio, Realtek® ALC888 code<br>  Blaster® X-Fi, PCI adapter,<br>siness audio<br>n planar, Intel® 82563EB, pi<br>feKeeper™ Trusted Platforn   | high-end sound a roprietary Intel bus  | •  | keys) Padlock loop (in rear for opt padlock padlock prohibits side cover removal Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)   |
| Keyboard  Mouse Power supply Cooling Rack mount  | Preferred Pro USB Keyl<br>Optical Wheel Mouse (U<br>1000 watts with 120mm<br>Five fans (power supply  | B Fingerprint Keyboard (USB connector), 10<br>JSB connector), black<br>bottom-mounted variable<br>r, first processor, second proptional sliding rack mount r   | 4-key, black speed fan, universocessor, rear, front                              | al   | Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse, diske Serial port I/O control     USB port disablement (front or all)  |
| Preloaded ope - Genuine Wind Business 64   | rating system <sup>20</sup><br>dows® Vista®   | Accessories 2GB PC2-5300 DDR2 E 4GB PC2-5300 DDR2 E  |  | 43R1772<br>43R1773   |   |
|  | n logo<br><b>lications</b> ⁵ (only some   | 750GB SATA 3.0Gb/s Di<br>146GB SAS 3.0Gb/s Dis   | sk (7200 rpm)<br>sk (15000 rpm)  | 43R1991<br>43R1993   | LIMITED WARRANTY <sup>1</sup>   |
| ThinkVantage (fingerprint ke Norton Intern (90 days of vi PC-Doctor™ ( Microsoft® Of Sonic Record Drive Letter A Corel® WinDN                | e System Update<br>e Fingerprint Software<br>eyboard model)<br>et Security™<br>rus definitions)<br>diagnostics)<br>fice 2007 Trial (60-day)   | 300GB SAS 3.0Gb/s Dis<br>ThinkStation Rail Kit<br>USB 2.0 Ultra Secure M<br>USB 2.0 Portable Secur<br>ThinkVision® L2440p Win<br>NVIDIA Quadro 512MB<br>Other accessories at len   | emory Key 8GB<br>e 320GB Hard Disl<br>de 24" Monitor<br>FX 3700                  | 4420HB2<br>43R1768   | Customer Replaceable Unit (CRU) parts only (with limited onsite serv for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holid   |

| Name         | Type-<br>model | Slot x<br>bay | Processor(s) | GHz  | Memory  | Disk(s)                |      | RAID | SATA optical | Graphics adapter(s) | 1394<br>adptr |      | ENERGY<br>STAR 5.0 |        |    |        |
|--------------|----------------|---------------|--------------|------|---------|------------------------|------|------|--------------|---------------------|---------------|------|--------------------|--------|----|--------|
| <b>D10</b> 6 | 493-34U        | 7x9           | 1 x E5430    | 2.66 | 2 x 1GB | 1 x 250GB <sup>2</sup> | SATA |      | DVD±RW       | 1 x FX1700          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-39U        | 7x9           | 1 x E5430    | 2.66 | 2 x 1GB | 1 x 146GB              | SAS  |      | DVD±RW       | 1 x FX1700          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-35U        | 7x9           | 1 x E5450    | 3.00 | 2 x 1GB | 1 x 250GB              | SATA |      | DVD±RW       | 1 x FX1700          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-41U        | 7x9           | 1 x E5450    | 3.00 | 2 x 1GB | 1 x 146GB              | SAS  |      | DVD±RW       | 1 x FX1700          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-36U        | 7x9           | 1 x X5460    | 3.16 | 2 x 1GB | 2 x 250GB              | SATA |      | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-42U        | 7x9           | 1 x X5460    | 3.16 | 2 x 1GB | 2 x 146GB              | SAS  |      | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-45U        | 7x9           | 1 x X5460    | 3.16 | 2 x 1GB | 4 x 250GB              | SATA | 5    | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-37U        | 7x9           | 2 x E5450    | 3.00 | 2 x 1GB | 2 x 250GB              | SATA |      | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-43U        | 7x9           | 2 x E5450    | 3.00 | 2 x 1GB | 2 x 146GB              | SAS  |      | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-46U        | 7x9           | 2 x E5450    | 3.00 | 2 x 1GB | 4 x 250GB              | SATA | 5    | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-38U        | 7x9           | 2 x X5460    | 3.16 | 2 x 1GB | 2 x 250GB              | SATA |      | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-44U        | 7x9           | 2 x X5460    | 3.16 | 2 x 1GB | 2 x 146GB              | SAS  |      | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |
| <b>D10</b> 6 | 493-47U        | 7x9           | 2 x X5460    | 3.16 | 2 x 1GB | 4 x 250GB              | SATA | 5    | DVD±RW       | 1 x FX4600          | None          | None | None               | XP Pro | No | Apr 08 |

- · High performance workstation with premium graphics for specialized professionals
- . Environmentally friendly, cool, and quiet with rock solid engineering

| Processor<br>Implementation   | One or two processors, Intel® Xeon® processor E5430, E5450, or X5460 with quad-core, 1333MHz system bus, and 12MB L2 cache Processor uses FC-LGA6 package, two LGA771 sockets  | Tower   |
|---|--|---|
| Memory  | 2GB std, 64GB max, PC2-5300 667MHz DDR2, ECC, fully buffered, 4-channel capable, eight 240-pin DIMM sockets; Non-italics: standard memory in two sockets; six sockets available  | <ul><li>Raven blac</li><li>8.3"W x 23.</li><li>210mm W x</li><li>65 lb (29.5)</li></ul>   |
| Graphics  | Two PCI Express® x16 adapters required for quad monitor support, * 76 to 150W adapters use auxiliary power connector from PSU Some: NVIDIA® Quadro® FX 1700, PCIe x16 adapter, 512MB, two dual-link DVI, dual DVI-I or dual VGA, HDTV out, 42W Some: NVIDIA Quadro FX 4600, PCIe x16 adapter, 768MB, two slot width, 2 dual-link DVI, dual DVI-I or dual VGA, 134W         | <ul><li>49-liter</li><li>Removable</li><li>Toolless side</li><li>Toolless dise</li><li>Toolless ade</li><li>Illuminated</li></ul>       |
| Media reader<br>SATA disk(s)<br>SATA controller<br>SATA connectors<br>SATA DVD±RW<br>SATA Blu-ray<br>SAS disk<br>SAS controller | 9-in-1 media reader, internal USB 2.0  Some: 250GB, SATA 3.0Gb/s, 7200 rpm  Serial ATA, SATA 3.0Gb/s, integrated in 6321ESB  Five SATA connectors on planar  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  None  Some: 146GB, Serial Attached SCSI, 3.0Gb/s, 15000 rpm  LSI™ LSISAS1068E chipset, 5 connectors, 3.0Gb/s, RAID <sup>8</sup> 0, 1, 1E                     | • Rack shelf  Bay ① 5.25", Bay ② 5.25", Bay ③ 5.25", Bay ④ 3.5", Bay ⑤ 3.5", Bay ⑥ 3.5",  |
| Chipset   | Intel 5400A Chipset, Intel 6321ESB I/O Controller Hub<br>for RAID 0, 1, 5, 10 support, Winbond® W83627EHG Super I/O  | Bay ⑦ 3.5",<br>Bay ® 3.5",<br>Bay ⑨ 3.5",   |
| Front ports Rear ports IEEE 1394 adptr Audio  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394) Four USB 2.0, serial (9-pin), keyboard (PS/2), mouse (PS/2), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, side-out, rear-out, center/sub-out), RCA-type coaxial digital in, RCA-type coaxial digital out None High Definition (HD) Audio, Realtek® ALC888 codec; | Slot 1: half-le<br>Slot 2: full-ler<br>Slot 3: full-ler<br>Slot 4: full-ler<br>Slot 5: full-ler<br>Slot 6: full-ler<br>Slot 7: full-ler |
| Speaker<br>Ethernet<br>Security chip  | Internal speaker for business audio  Dual gigabit ethernet on planar, Intel® 82563EB, proprietary Intel bus  Winbond WPCT200 SafeKeeper™ Trusted Platform Module, TCG 1.2  |   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black<br>1000 watts with 120mm bottom-mounted variable speed fan, universa<br>Five fans (power supply, first processor, second processor, rear, front<br>Rack shelf support or optional sliding rack mount rail kit support   | al<br>disk)   |
| 1   |  |   |

Preloaded operating system<sup>20</sup>
- Genuine Windows® XP Professional (preinstalled via downgrade rights in Windows Vista® Business)

#### Preloaded applications<sup>5</sup>

- Rescue and Recovery™
- Client Security Solution™ ThinkVantage Productivity Center
- System Migration Assistant Norton Internet Security™
- (90 days of virus definitions)
- PC-Doctor™ (diagnostics)
- Windows Live™ Toolbar Sonic RecordNow and
- Drive Letter Access (DVD±RW)
- Corel® WinDVD® (DVD±RW)

#### Accessories

2GB PC2-5300 DDR2 ECC FB-DIMM 4GB PC2-5300 DDR2 ECC FB-DIMM 750GB SATA 3.0Gb/s Disk (7200 rpm) 146GB SAS 3.0Gb/s Disk (15000 rpm) 300GB SAS 3.0Gb/s Disk (15000 rpm) Super Multi-Burner DL DVD±RW SATA 1.5Gb/s ThinkStation Rail Kit USB 2.0 Ultra Secure Memory Key 8GB USB 2.0 Portable Secure 320GB Hard Disk Kensington Microsaver Cable Lock Lenovo USB Fingerprint Keyboard NVIDIA Quadro 512MB FX 570 NVIDIA Quadro 512MB FX 3700

Other accessories at lenovo.com/accessories

- ck color; metal case
- 3.7"D x 17.1"H (without handle)
- x 602mm D x 434mm H kg) max configuration

43R1772

43R1773

43R1991

43R1993

43R1994

41N5620

43R1964

45J5918

43R2019

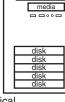
73P2582

73P4730

45J7917

43R1768

- e handle on top front
- de cover removal
- isk and optical drive removal
- dapter retention
- d front icons
- support or optional rail kit



optical

optical

optical

", 1.6" high, external, std optical ", 1.6" high, external, open ", 1.6" high, external, open 1" high, 1" high, external, std media reader std disk internal. 1" high, 1" high, internal, std disk internal, std or opt disk 1" hiğh, internal, std or opt disk 1" high, internal, opt disk

ength, full-height, PCIe x4 (x8 mechanical) ength, full-height, PCIe 2.0 x16 (75W\* max) ength, full-height, PCIe x4 (x8 mechanical) ength, full-height, PCIe 2.0 x16 (75W\* max) ength, full-height, 64-bit PCI-X ength, full-height, 64-bit PCI-X

ngth, full-height, 32-bit PCI 2.3

## **SECURITY**

- · Security chip (see information on left) Side cover lock (ships with two identical
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

RoHS-compliant

#### LIMITED WARRANTY<sup>1</sup>

- ⇒ 3-year parts and labor⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty
- 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period¹ via 800-426-7378

| Type-<br>Name model | Slot x<br>bay Processor(s) GHz               | Memory | Disk(s | s) | RAID | SATA optical | Graphics adapter(s) |  | ENERGY<br>STAR 5.0 | Preload | Avail<br>date    |
|---------------------|--|--------|--------|----|------|--------------|---------------------|--|--------------------|---------|------------------|
|                     | J 7x9 2 x E5450 3.00<br>J 7x9 2 x E5450 3.00 |        |        |    |      |              |                     |  |                    |         | Aug 08<br>Aug 08 |

- High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
   These small and medium business (SMB) models are part of the US TopSeller™ Program

| Processor(s) Implementation   | 1333MHz system bus, ar   | eon® processor E5450 with quad-core,<br>nd 12MB L2 cache<br>6 package, two LGA771 sockets   | Tower  | v colory motel coop   |  |  |  |
|---|--|---|--|---|--|--|--|
| Memory  | 4GB std, 64GB max, PC:<br>ECC, fully buffered, 4-cha<br>Non-italics: standard me   |   | • 8.3"W x 23.7<br>• 210mm W x  | c color; metal case 7"D x 17.1"H (without handle) 602mm D x 434mm H g) max configuration  |  |  |  |
| Graphics  | * 76 to 150W adapters us<br>Some: NVIDIA® Quadro<br>two dual-link DVI<br>Some: NVIDIA Quadro   | dapters required for quad monitor support, se auxiliary power connector from PSU PF T700, PCIe x16 adapter, 512MB, dual DVI-I or dual VGA, HDTV out, 42W FX 3700, PCIe 2.0 x16 adapter, 512MB, dual DVI-I or dual VGA, 78W  | <ul><li>Toolless sid</li><li>Toolless dis</li><li>Toolless ada</li><li>Illuminated</li></ul>                         | handle on top front e cover removal k and optical drive removal apter retention  disk disk  |  |  |  |
| Media reader<br>SATA disk(s)<br>SATA controller<br>SATA connectors<br>SATA DVD±RW<br>SAS disk<br>SAS controller<br>Chipset  | 250GB, SATA 3.0Gb/s, 7200 rpm  Serial ATA, SATA 3.0Gb/s, integrated in 6321ESB  stors Five SATA connectors on planar  RW Super Multi-Burner DL DVD±RW SATA 1.5Gb/s  None  LSI™ LSISAS1068E chipset, 5 connectors, 3.0Gb/s, RAID® 0, 1, 1E  Intel 5400A Chipset, Intel 6321ESB I/O Controller Hub |   |  | 1.6" high, external, open 1.6" high, external, open 1.6" high, external, open 1" high, internal, std disk 1" high, internal, std disk 1" high, internal, std or opt disk 1" high, internal, std or opt disk   |  |  |  |
| Front ports Rear ports IEEE 1394 adptr Audio  | Two USB 2.0, microphon<br>FireWire 400 (IEEE 1394<br>Four USB 2.0, serial (9-p<br>two ethernet (RJ-45), six<br>(line-in, mic-in, front-out,<br>RCA-type coaxial digital<br>None  | e (3.5mm), headphone (3.5mm),<br>.)<br>in), keyboard (PS/2), mouse (PS/2),  | Slot 1: half-ler<br>Slot 2: full-len<br>Slot 3: full-len<br>Slot 4: full-len<br>Slot 5: full-len<br>Slot 6: full-len | 1" high, internal, opt disk  ngth, full-height, PCIe x4 (x8 mechanical)  igth, full-height, PCIe 2.0 x16 (75W* max)  igth, full-height, PCIe x4 (x8 mechanical)  igth, full-height, PCIe 2.0 x16 (75W* max)  igth, full-height, 64-bit PCI-X  igth, full-height, 64-bit PCI-X  igth, full-height, 32-bit PCI 2.3  |  |  |  |
| Speaker<br>Ethernet<br>Security chip  | Internal speaker for busing Dual gigabit ethernet on   |   |  | SECURITY  Security chip (see information on left) Side cover lock (ships with two identical   |  |  |  |
| Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, bla Optical Wheel Mouse (USB connector), black Power supply Cooling Five fans (power supply, first processor, second processor, sack shelf support or optional sliding rack mount rail kit sup  |  |   |  | keys) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable;   |  |  |  |
| Preloaded operating system <sup>20</sup> - Genuine Windows® Vista® Business 64  ♦ Vista Premium logo Preloaded applications⁵ - Rescue and Recovery™ - Client Security Solution™ - ThinkVantage Productivity Center - ThinkVantage System Update - System Migration Assistant - Norton Internet Security™ (90 days of virus definitions) - PC-Doctor™ (diagnostics) - Adobe® Reader - Microsoft® Office 2007 Trial (60-day) - Sonic RecordNow and Drive Letter Access (DVD±RW) - Corel® WinDVD® (DVD±RW) |  | Accessories  2GB PC2-5300 DDR2 ECC FB-DIMM  4GB PC2-5300 DDR2 ECC FB-DIMM  500GB SATA 3.0Gb/s Disk (7200 rpm)  750GB SATA 3.0Gb/s Disk (7200 rpm)  146GB SAS 3.0Gb/s Disk (15000 rpm)  300GB SAS 3.0Gb/s Disk (15000 rpm)  Super Multi-Burner DL DVD±RW SATA1.5t ThinkStation Rail Kit  USB 2.0 Ultra Secure Memory Key 8GB  USB 2.0 Portable Secure 320GB Hard Dist ThinkVision® L2440p Wide 24" Monitor Lenovo USB Fingerprint Keyboard | 43R1964<br>45J5918   | RoHS-compliant  |  |  |  |
|   |  | NVIDIA Quadro 512MB FX 570  Other accessories at lenovo.com/accessor  | 45J7917  | <ul> <li>3-year parts and labor</li> <li>Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)</li> <li>ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty</li> <li>24x7¹⁴ toll-free support for warranty issues during the warranty period¹ via 800-426-7378</li> </ul> |  |  |  |

#### ThinkStation® D10 Accessories

#### Partial list of accessories supported on ThinkStation D10

| welliory |
|----------|
|----------|

| 1GB PC2-5300 DDR2 ECC FB-DIMM | 43R1771 <i>ann 03/11/08</i> |
|-------------------------------|-----------------------------|
| 2GB PC2-5300 DDR2 ECC FB-DIMM | 43R1772 ann 03/11/08        |
| 4GB PC2-5300 DDR2 ECC FB-DIMM | 43R1773 ann 03/11/08        |

#### Optical

DVD-ROM DL SATA1.5Gb/s 16X-48X Max<sup>4</sup> 41N5618 ann 09/26/06 Super Multi-Burner DL DVD±RW SATA1.5Gb/s 41N5620 ann 09/26/06 Blu-ray™ Burner SATA1.5Gb/s 45K1675 ann 03/31/09

#### Storage and removable storage

| D10 preconfigured with SATA disks:       |                      |
|--|----------------------|
| 160GB SATA 3.0Gb/s Disk (7200 rpm)       | 09N4254 ann 05/19/03 |
| 250GB SATA 3.0Gb/s Disk (7200 rpm)       | 41N3015 ann 01/24/06 |
| 500GB SATA 3.0Gb/s Disk (7200 rpm)       | 43R1990 ann 11/06/07 |
| 750GB SATA 3.0Gb/s Disk (7200 rpm)       | 43R1991 ann 12/18/07 |
| 150GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" | 43R2030 ann 03/31/09 |
| 300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" | 43R2031 ann 03/31/09 |
|  |                      |

D10 preconfigured with SAS disks: 146GB SAS 3.0Gb/s Disk (15000 rpm) 300GB SAS 3.0Gb/s Disk (15000 rpm) 43R1993 ann 03/11/08 43R1994 ann 03/11/08

USB 2.0 Essential Memory Key 8GB 45J7905 ann 07/15/08 USB 2.0 Essential Memory Key 32GB USB 2.0 Ultra Secure Memory Key 2GB USB 2.0 Ultra Secure Memory Key 4GB USB 2.0 Ultra Secure Memory Key 8GB 45K1258 ann 10/28/08 45J5916 ann 08/26/08 45J5917 ann 08/26/08 45J5918 ann 08/26/08

USB 2.0 Portable 320GB Hard Disk USB 2.0 Portable 500GB Hard Disk 45K1689 ann 03/17/09 45K1690 ann 05/26/09 USB 2.0 Portable Secure 160GB Hard Disk 43R2018 ann 11/18/08 USB 2.0 Portable Secure 320GB Hard Disk 43R2019 ann 11/18/08 USB 2.0 Super Multi-Burner Drive 41N5565 ann 01/23/07 Lenovo® USB Portable DVD Burner 43N3264 ann 01/05/10

#### Keyboard

Preferred Pro USB Keyboard Enhanced Performance USB Keyboard 73P5220 ann 06/21/05 73P2620 ann 03/23/04 Lenovo® USB Fingerprint Keyboard 73P4730 ann 02/22/05 51J0155 ann 03/24/09 Lenovo USB Smartcard Keyboard Ultraslim Wireless Keyboard and Mouse<sup>52</sup> 57Y4700 ann 09/15/09 <sup>52</sup> Wireless via 2.4GHz technology using a micro-size USB receiver.

#### More information at www.lenovo.com/support/keyboards

#### Mouse

| Lenovo Optical Mouse (USB)                            | 06P4069 ann     | 05/21/03 |
|---|-----------------|----------|
| Lenovo ScrollPoint® Mouse (USB, Optical)              | 31P7405 ann     | 08/27/02 |
| Lenovo Laser Mouse (USB)                              | 41U3074 ann     | 01/23/07 |
| Lenovo Wireless Laser Mouse - Black <sup>52</sup>     | 45K1696 ann     | 11/25/08 |
| Lenovo Wireless Laser Mouse - Red/Black <sup>52</sup> | 51J0198 ann     | 11/25/08 |
| 52 Wireless via 2.4GHz technology using a mid         | cro-size USB re | ceiver.  |
|   |                 |          |

#### More information at www.lenovo.com/support/mice

#### **Monitors**

| ThinkVision® L1711p 17" Monitor     | 5047HB2 ann        | 10/20/09 |
|-------------------------------------|--------------------|----------|
| ThinkVision L1900p 19" Monitor      | 4431HE1 ann        | 11/11/08 |
| ThinkVision L1951p Wide 19" Monitor | 2448HB6 <i>ann</i> | 10/20/09 |
| ThinkVision L2250p Wide 22" Monitor | 2572HB6 <i>ann</i> | 10/20/09 |
| ThinkVision L2251p Wide 22" Monitor | 2572HD6 ann        | 10/20/09 |
| ThinkVision L2251x Wide 22" Monitor | 2578HB6 <i>ann</i> | 10/20/09 |
| ThinkVision L2440p Wide 24" Monitor | 4420HB2 ann        | 09/17/08 |

More information at www.lenovo.com/thinkvision

#### Monitor accessories<sup>46</sup>

| ThinkVision USB Soundbar  | 40Y7616 | ann | 08/23/05 |  |  |  |  |
|---|---------|-----|----------|--|--|--|--|
| ThinkVision Soundbar  | 45K1263 | ann | 09/16/08 |  |  |  |  |
| Kensington® MicroSaver® Cable Lock                                    | 73P2582 | ann | 12/29/03 |  |  |  |  |
| Kensington Twin Head Cable Lock                                       | 45K1620 | ann | 09/30/08 |  |  |  |  |
| Radial Arm  | 19K4464 | ann | 05/05/00 |  |  |  |  |
| <sup>46</sup> Compatible on selected Lenovo and ThinkVision monitors. |         |     |          |  |  |  |  |

More information at www.lenovo.com/support/monitoraccessories

#### Graphics

| DisplayPort to Single-link DVI-D Cable <sup>50</sup><br>NVIDIA® Quadro® 256MB NVS 290 | 45J7915<br>43R1765 | ann | 12/18/07 |
|---|--------------------|-----|----------|
| NVIDIA Quadro 256MB FX 380  | 45K1670            | ann | 03/31/09 |
| NVIDIA Quadro 512MB FX 580  | 45K1671            | ann | 03/31/09 |
| NVIDIA Quadro 768MB FX 1800   | 45K1672            | ann | 03/31/09 |
| NVIDIA Quadro 1GB FX 3800   | 45K1673            | ann | 04/21/09 |
| NVIDIA Quadro 1.5GB FX 4800   | 45K1674            | ann | 03/31/09 |
| 50 Attaches to selected DisplayPort graph   | nics cards.        |     |          |

#### More information at www.lenovo.com/support/graphiccards

#### Multimedia

USB 2.0 Lenovo Multimedia Headset 40Y8518 ann 06/27/06 40Y8519 ann 08/29/06 USB 2.0 Lenovo Webcam

### Security

Kensington MicroSaver Cable Lock 73P2582 ann 12/29/03 Kensington Twin Head Cable Lock 45K1620 ann 09/30/08 USB Gemplus GemPC Smart Card Reader 41N3040 ann 02/21/06

#### **Rack mount accessories**

ThinkStation Rail Kit 43R1964 ann 03/11/08

More information at www.lenovo.com/support/railkit

Medialess License Key (MLK)
Microsoft® Office 2007 Basic, English
Microsoft Office 2007 Small Business, Engl
Microsoft Office 2007 Professional, English
43R1528 ann 01/31/07
43R1534 ann 01/31/07

For more information on ThinkStation accessories, please visit: www.lenovo.com/support/accessories

www.lenovo.com/support/thinkstationaccessories www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide

## **ThinkStation**



Lenovo ThinkStation C20 (left) Lenovo ThinkStation C20x (right)



Lenovo ThinkStation C20x



Lenovo ThinkStation C20/C20x Stack



Lenovo ThinkStation Graphics Card Option NVIDIA® Quadro® NVS 450 (57Y4398)



Multi-monitor Display with Optional Lenovo ThinkVision Monitor and Dual NVIDIA Quadro NVS 450 (Both Lenovo ThinkStation C20/C20x)

| Type- Slot x<br>model bay  | Processor(s)  | GHz   | Memory<br>DIMMs   | Memory<br>type  | Disk(s)  | Disk<br>size  | Pre-con<br>RAID    | f Chassis<br>intr switch   | Graphics adapter(s)  | ENERGY<br>STAR 5.0  | Global   | Preload  | Avail<br>date                         |  |  |
|--|---|---|---|---|--|---|--------------------|--|--|---|--|--|---------------------------------------|--|--|
| 4265-13U 6x4   | 1 x E5507   | 2.26  | 3 x 1GB   | UDIMM   | 1x500GB <sup>2</sup> SATA  | 3.5"  | No                 | Switch   | None   | Pending   | Global   | XP Pro 64  | Jun 10                                |  |  |
|  | • Environ   | mental  | ly friendly,  | cool, and   | n smallest-possibl<br>quiet with rock so<br>SMB) model is pal  | olid en   | gineerin           | •  | rogram   |   |  |  |                                       |  |  |
| Processor(s)   | 4.8GT/s (g<br>Intel 64, Vi<br>800MHz D  | n® Pro<br>jiga-tra<br>irtualiza<br>DR3 m  | ncessor Es<br>Insfers/sec<br>ation Techi<br>nemory co                               | 5507 with ond) QPI nology,                                    | standard,<br>quad-core,<br>(QuickPath Intercond 4MB cache  | onnect  | ),                 | Tower  • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H  |  |   |  |  |                                       |  |  |
| Implementation<br>Memory   | 3GB std, 2<br>6-channel   | 24GB n<br>capabl<br>automa  | nax, <b>UDIM</b><br>le, six 240-<br>atically clo<br>ontroller                       | pin DIMM<br>cks down  | 0600 1333MHz DI<br>sockets***<br>for processors with   | 130mm W x 444mm D x 427mm H     40.7 lb (18.5kg) max configuration     24-liter     Toolless side cover removal     Toolless adapter retention     disk |                    |  |  |   |  |  |                                       |  |  |
| Graphics   | None  |   |   |   |  |   |                    | <ul> <li>Illuminat</li> </ul>  | ted front ic   | ons   | al rail kit  | dis  | sk                                    |  |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller | Serial ATA  | ti-Burn<br>, SATA<br>\ conne  | er DL DVD<br>3.0Gb/s, i<br>ectors for o   | )±RW, SA<br>ntegrated   | 5"<br>TA 1.5Gb/s<br>in ICH10R,<br>SATA connector f   | or opti   | cal,               | Rack shelf support or optional rail kit  Bay ① 5.25", 1.6" high, external, std optical Bay ② 3.5", 1" high, internal, std disk Bay ③ 3.5", 1" high, internal, opt disk Bay ④ 3.5", 1" high, internal, opt disk Slot 1: half-length, full-height, PCle x1 |  |   |  |  |                                       |  |  |
| Chipset  |   | Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot 4: full-height, PCIe 2.0 x16 (75W* max Slot |   |   |  |   |                    |  |  |   |  | max)   |                                       |  |  |
| Front ports<br>Rear ports<br>IEEE 1394 adp<br>Audio<br>Speaker                   | Eight USB<br>six analog<br>center/sub<br>Optical SP<br>tr None<br>High Defin<br>Internal sp                                   | 2.0, estaudion audion display | SATA, one<br>ports (line-<br>ide out),<br>gital out, C<br>HD) Audio,<br>for busines | ethernet<br>in, mic-in<br>optical SPI<br>Analog D<br>ss audio | , front-out, rear-ou<br>DIF digital in<br>evices AD1988A   | ıt,   |                    | Slot 6: hal  | Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3 Adapters >75W use auxiliary power connector(s) from PSU  SECURITY  Security chip (see information on left) Side cover lock (ships with two identic |   |  |  |                                       |  |  |
| Ethernet<br>Security chip  |   |   |   |   | dcom® BCM5755<br>ГСG 1.2-complian  | t   |                    | keys)  • Padlock loop (in rear for opt padlock)  |  |   |  |  | ock)                                  |  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount                       | Preferred I<br>Optical Wh<br>800 watts<br>Climate S<br>Five fans s  | Pro US<br>neel Mo<br>with 80<br>avers®<br>standar   | B Keyboar<br>buse (USB)<br>mm side-r<br>Compution<br>of (power s                    | rd (USB connector<br>mounted ving Gold, &<br>supply, firs     | onnector), 104-ke  | y, black<br>, unive<br>ualified<br>on fron  | rsal,<br>t, two or | Security slot (in rear for optional Kensington® Microsaver® cable)     Power-on password     Administrator password     Boot sequence control  |  |   |  |  |                                       |  |  |
| in Windows  Preloaded ap  Rescue and   | ndows® XP P<br>stalled via do<br>7 Professiona<br><b>plications</b> <sup>5</sup> (<br>Recovery™                               | rofessi<br>wngra<br>al 64-b   | de rights<br>it)  | 4GB PC<br>Blu-ray™<br>ThinkVis<br>ATI™ Fir                    | :3-10600 DDR3 E<br>:3-10600 DDR3 E<br><sup>M</sup> Burner SATA 1.5<br>sion® L2440p Wide<br>rePro™ 1GB V775 | CC UE<br>5Gb/s<br>e 24" N<br>0  | IMM<br>Ionitor     | 43R203<br>57Y413<br>45K167<br>4420HI<br>51J051   | 33<br>38<br>75<br>32<br>1  | assis intru   |  |  |                                       |  |  |
| <ul> <li>ThinkVantag</li> </ul>  | ge Toolbox  | 2   |   |   | cessories on O-M   |   |                    |  | Supp   | orts <b>Think</b>   | Vantage  | ® technolog  | ies                                   |  |  |
| <ul> <li>(30 days of v</li> <li>Adobe® Rea</li> <li>Microsoft® C</li> </ul>      | osoft® Office 2007 Trial (60-day)   |   |   |   |  |   |                    |  | RoHS   | GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-complian                   |  |  |                                       |  |  |
| (DVD±RW) • Roxio MyDV  | <ul> <li>Roxio® Creator® Business Edition (DVD±RW)</li> <li>Roxio MyDVD® (DVD±RW)</li> <li>Corel® WinDVD® (DVD±RW)</li> </ul> |   |   |   |  |   |                    |  | Cipa fo Mine The htt   | year parts ustomer R arts only (v r selected on - Fri co ext busine ninkPlus™ tp://lenove | and laborate and l | ele Unit (CRI<br>ed onsite se<br>am - 5 pm,<br>xcluding ho<br>sponse time<br>available; s<br>nkplus/warra<br>ort for warra | ervice<br>lidays,<br>e)<br>see<br>nty |  |  |

| Type- Slot x<br>model bay  | Processor(s   | ) GHz   | Max Turbo<br>GHz  | Memory<br>DIMMs  | Memory<br>type   | Disk(s)  | Disk<br>size            | Pre-con<br>RAID  | f SATA<br>optical  | Chassis<br>Intrusion<br>switch |            | Global | Win7<br>preload | Avail<br>date |  |  |  |  |
|--|---|---|---|--|--|--|-------------------------|--|--|--------------------------------|------------|--------|-----------------|---------------|--|--|--|--|
| 4262-14U 6x4   | • High p  | erform<br>nment   | ally friend   | kstation v   | with sma<br>and quie   | 2x128GB <sup>2</sup> SSD<br>Illest-possible fo<br>t with rock solid<br>roduct Key Read         | rm fac<br>engine        | ering  | DVD±RW   | None                           | 2 x NVS450 | None   | Pro 64          | Jun 10        |  |  |  |  |
| Processor(s)  Implementation Memory  Graphics  Diskette drive Media reader SATA disk(s) SATA DVD±RW  | Intel® Xe 6.4GT/s Intel 64,1 Virtualize 1333MHz Two LGA 12GB stc 6-channe ** Over th NVIDIA® four Disp None None 128GB S Super Mo | (giga-<br>Hyper-<br>tition Te<br>z DDR<br>1366 s<br>d, 24G<br>el capa<br>hree D<br>Quad<br>layPor | transfers/ -Threadin echnology 3 memory sockets B max, U able, six 2 IMMs req ro® NVS t, 35W tate Drive | X5667 wsecond) Cg Technol Cg Tech | ith quad<br>QPI (Quidogy,<br>ogy,<br>oost Tecler, and 1:<br>C3-10600<br>MM sock<br>Il process<br>ex16 ada  | -core, ckPath Interconn nnology, 2MB cache  1 1333MHz DDR ets** sors apter, 512MB,  Gb/s, 1.8" |                         | • F<br>• F<br>• 5<br>• 1<br>• 2<br>• 2<br>• 1<br>• T<br>• II<br>• F<br>Baa<br>Ba<br>Ba | Rack-mountable to 3U Raven black color; metal case 5.1"W x 17.5"D x 16.8"H 130mm W x 444mm D x 427mm H 40.7 lb (18.5kg) max configuration 24-liter Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Rack shelf support or optional rail kit  Bay ① 5.25", 1.6" high, external, std optical Bay ② 3.5", 1" high, internal, std disk Bay ③ 3.5", 1" high, internal, std disk Bay ③ 3.5", 1" high, internal, std disk Bay ③ 3.5", 1" high, internal, std disk |                                |            |        |                 |               |  |  |  |  |
| Disk controller Chipset  | three SARAID <sup>8</sup> 0,  | TA con<br>1, 5 si<br>0 <b>Chi</b> p   | nectors for   | or disks, o  | s, integrated in ICH10R, r disks, one SATA connector for optical,  Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75) |  |                         |  |  |                                |            |        | 6 (75W*<br>.3   |               |  |  |  |  |
| Front ports Rear ports  IEEE 1394 adp Audio Speaker Ethernet Security chip   | Two USB Eight US six analo center/su Optical S tr None High Def Internal s One giga   | 3 2.0, n<br>B 2.0,<br>g audi<br>lb-out,<br>PDIF<br>inition<br>speake<br>lbit eth                  | microphor<br>eSATA, o<br>o ports (li<br>side out)<br>digital out<br>(HD) Aud<br>er for busin            | ie (3.5mm<br>ne ethern<br>ne-in, mic<br>, Optical (<br>io, Analog<br>ness audi<br>planar, Br   | n), headplet (RJ-4<br>c-in, front<br>SPDIF di<br>g Device<br>o<br>coadcom  | t-out, rear-out,   | ec                      | Slo<br>Slo<br>* A  | Slot 4: full-length, full-height, PCle 2.0 x16 (75W* Slot 5: full-length, full-height, PCle x16 (x4 electric Slot 6: half-length, full-height, 32-bit PCl 2.3 * Adapters >75W use auxiliary power connector(s) PSU  SECURITY  Security chip (see information on Side cover lock (ships with two ide keys)  Padlock loop (in rear for opt padloc  |                                |            |        |                 |               |  |  |  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling   | Preferred<br>Optical W<br>800 watts<br>Climate:<br>Five fans<br>Dual prof   | Pro Uheel I<br>s with<br>Savers<br>stand<br>cessor  | JSB Keyb<br>Mouse (U<br>80mm sid<br>s <sup>®</sup> Compu<br>lard (powers model(s                        | oard (USI<br>SB conne<br>e-mounte<br>uting Gol<br>er supply,<br>s): One ac   | B connector), black dyariab d, 80 PL first proof   | tor), 104-key, bl  | versal<br>ed<br>ont, tw | o on rea   | Security slot (in rear for optional Kensington® Microsaver® cable)     Power-on password     Administrator password     Boot sequence control     Boot without key change makes  |                                |            |        |                 |               |  |  |  |  |
| Preloaded operating system <sup>20</sup> - Genuine Windows® 7 Professional 64  Preloaded applications <sup>5</sup> (only some listed) • Rescue and Recovery™ • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe® Reader® • Microsoft Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW) • Corel® WinDVD® (DVD±RW) • Corel® WinDVD® (DVD±RW) |   |   |   |  |  |  | 57\<br>45k<br>442       | R2033<br>/4138<br>(1675<br>P0HB2   | Supports ThinkVantage® technolog GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  LIMITED WARRANTY¹  1-year parts and labor  Customer Replaceable Unit (CRU parts only (with limited onsite se for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding ho next business day response time  ThinkPlus™ services available; shttp://lenovo.com/thinkplus/warrar  24x7¹⁴ toll-free support for warra issues during the warranty  |                                |            |        |                 |               |  |  |  |  |

## ThinkStation® C20x (4272) - TopSeller (Windows 7) - July 2011

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz  | Core | Memory<br>DIMMs | Disk(s)     | Pre-conf<br>RAID | 1394<br>adptr | SATA optical | Chassis<br>intrusion<br>switch | Graphics adapter(s) | Global | Win7<br>preload | Announce date (mm/dd/yy) |
|----------------|---------------|--------------|------|------|-----------------|-------------|------------------|---------------|--------------|--------------------------------|---------------------|--------|-----------------|--------------------------|
| 4272-52U       | 6x4           | 1xE5620      | 2.40 | 4    | 2x2GB           | 1x450GB SAS | S No             | None          | DVD±RW       | Switch                         | None                | No     | Pro 64          | 07/19/11                 |

- High performance workstation with smallest-possible form factor
   Environmentally friendly, cool, and quiet with rock solid engineering
   Part of the US TopSeller™ Program
   Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor(s)  Implementation Memory  Additional memory disclaimers  Graphics  Media reader Optical Hard drive(s) Disk Controller  Chipset Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard Mouse | Intel® Xeon® Processor E5620 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets, supports up to two processors 96GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 6-channel capable, twelve 240-pin DIMM sockets • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over six DIMMs requires dual processors  None  None  None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 450GB, SAS 3.0Gb/s, 15000 rpm, 3.5" 3 SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS⁴ connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, integrated in Marvell® 88SE6480  Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a) Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in None High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754 Broadcom Trusted Platform Module, TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black | Rack-mountable to 3U Raven black color; metal case 5.1"W x 17.5"D x 16.8"H 130mm W x 444mm D x 427mm H 40.7 lb (18.5kg) max configuration 24-liter Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Rack shelf support or optional rail kit  Bay 2: 3.5", 1" high, internal, std disk Bay 3: 3.5", 1" high, internal, opt disk Bay 4: 3.5", 1" high, internal, opt disk Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCl 2.3  * Adapters >75W use auxiliary power connector(s) |
|---|---|---|
| Power supply  | 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified   | -   |
| ThinkVantage®   | Supports ThinkVantage technologies  |   |
| Limited Warranty  | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)  |   |
| Preload OS<br>Preloaded<br>applications   | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Adobe Flash® Player  |   |
|   | <ul> <li>Adduct itash Friagel</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD or DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul>  | SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse USB port disablement (front or all) Chassis intrusion switch on selected model(s)  ISV certifications Please visit www.lenovo.com/support/ISV   |

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

| ThinkS               | Statio   | on® C20x           | (426         | 69) -   | UDIM            | M (Windo  | ws 7)           | - Jul           | y 2011           |                                | Person                                      | al Syste               | ms Refe           | rence(PEREF <sub>)</sub>   |
|----------------------|--|--------------------|--------------|---------|-----------------|---|-----------------|-----------------|------------------|--------------------------------|---|------------------------|-------------------|----------------------------|
| Type-<br>model       | Slot x<br>bay  | Processor(s)       | GHz          | Core    | Memory<br>DIMMs | Disk(s)   | Pre-con<br>RAID | f 1394<br>adptr | SATA<br>optical  | Chassis<br>intrusion<br>switch |   | Global                 | Win7<br>preload   | Announce date<br>(mm/dd/yy |
| 4269-87U<br>4269-88U | 6x4<br>6x4   | 1xE5620<br>1xX5660 | 2.40<br>2.80 |         | 2x2GB<br>2x2GB  | 1x450GB SAS<br>1x450GB SAS                            |                 | No<br>No        | DVD±RW<br>DVD±RW |                                | 1xQuadro 400                                | Global                 | Pro 64<br>Pro 64  | 07/19/11<br>07/19/11       |
| 4269-89U             | 6x4  | 1xX5660            | 2.80         |         | 2x2GB           | 1x450GB SAS   |                 | No              | DVD±RW           |                                | 1xQuadro 4000                               |                        | Pro 64            |                            |
|                      |  | • En               | vironn       | nentall | y friendly,     | tation with smal<br>cool, and quiet<br>oduct Key Read | with roc        | k solid         |                  | g                              |   |                        |                   |                            |
| Processor(           | Microsoft Office 2010 Product Key Ready (O10PKR)  Ocessor(s)  Intel® Xeon® Processor E5620 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5660 with sizecore. |                    |              |         |                 |   |                 |                 |                  |                                | • Rack-moul<br>• Raven blac<br>• 5.1"W x 17 | ck color;<br>7.5"D x 1 | metal ca<br>6.8"H |                            |

#### Intel Xeon Processor X5660 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Implementation Two LGA1366 sockets, supports up to two processors 96GB max. UDIMM. PC3-10600 1333MHz DDR3. ECC. 6-channel Memory capable, twelve 240-pin DIMM sockets Additional Actual memory operating speed is the lowest installed speed, memory dependent on processor memory controller speed and installed disclaimers memory speed Over six DIMMs requires dual processors Graphics Some: NVIDIA® Quadro® 400, PCle x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W Some: NVIDIA Quadro 4000, PCle x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, one stereo, 142W Media reader None Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Hard drive(s) 450GB, SAS 3.0Gb/s, 15000 rpm, 3.5" Disk Controller 3 SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS<sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, integrated in Marvell® 88SE6480 Chipset Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a) Front ports Rear ports Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, Optical SPDIF digital out, Optical SPDIF digital in IEEE 1394 adptr None Audio High Definition (HD) Audio, Analog Devices AD1988A codec Speaker Internal speaker for business audio Ethernet Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754 Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Mouse 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified Power supply Supports ThinkVantage technologies ThinkVantage<sup>®</sup> 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More **Limited Warranty** Lenovo® services are available on S-TS sheet) Preload OS Genuine Windows® 7 Professional 64 Preloaded Rescue and Recovery® applications ThinkVantage System Update

Norton® Internet Security (30 days of virus definitions) Adobe® Reader®

Roxio MyDVD® (DVD±RW model(s) only)
Corel® WinDVD® (DVD or DVD±RW model(s) only)

Ulead® DVD MovieFactory® (Blu-ray model(s) only)

Microsoft® Office 2010 preloaded; purchase product key to activate Roxio® Creator® Business Edition (DVD±RW model(s) only)



disk

- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit

Bay 1: 5.25", 1.6" high, Bay 2: 3.5", 1" high, Bay 3: 3.5", 1" high, Bay 4: 3.5", 1" high, std optical external, internal, std disk internal. opt disk 1" hiğh, internal. opt disk

Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W\* max) Slot 3: full-length, full-height, 32-bit PCI 2.3

Slot 4: full-length, full-height, PCIe 2.0 x16 (75W\* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3

\* Adapters >75W use auxiliary power connector(s) from PSU

#### **SECURITY**

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
  Security slot (in rear for optional
  Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
- Chassis intrusion switch on selected model(s)

#### ISV certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

More compatible accessories, please see O-MAD sheet

ThinkVantage Toolbox

Adobe Flash® Player

## ThinkStation® C20 (4265) - TopSeller (Windows 7) - July 2011

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz  | Core | Memory<br>DIMMs | Disk(s)      | Pre-conf<br>RAID | SATA<br>optical | Chassis intrusion switch | Graphics adapter(s) | Global | Win7<br>preload | Announce date (mm/dd/yy) |
|----------------|---------------|--------------|------|------|-----------------|--------------|------------------|-----------------|--------------------------|---------------------|--------|-----------------|--------------------------|
| 4265-2EU       | 6x4           | 1xX5650      | 2.66 | 6    | 2x2GB           | 1x500GB SATA | No               | DVD±RW          | Switch                   | 1xQuadro 2000       | No     | Pro 64          | 07/19/11                 |

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Part of the US TopSeller™ Program
   Microsoft Office 2010 Product Key Ready (O10PKR)

| Implementation Memory Additional memory disclaimers   | Intel® Xeon® Processor X5650 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets, supports up to two processors  48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 6-channel capable, six 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  • Over three DIMMs requires dual processors | Rack-mountable to Raven black color; 5.1"W x 17.5"D x 1 130mm W x 444mm 40.7 lb (18.5kg) ma 24-liter Toolless side cover Toolless disk and o Toolless adapter re Illuminated front icc Rack shelf support                                       |
|---|--|---|
| Graphics  | <b>NVIDIA</b> ® <b>Quadro</b> ® <b>2000</b> , PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W  | disk<br>disk  |
| Media reader<br>Optical<br>Hard drive(s)<br>Disk Controller   | None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support   | Bay 1: 5.25", 1.6" high, external, s<br>Bay 2: 3.5", 1" high, internal, s<br>Bay 3: 3.5", 1" high, internal, c<br>Bay 4: 3.5", 1" high, internal, c<br>Slot 1: half-length, full-height, PCle   |
| Chipset<br>Front ports<br>Rear ports  | Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in   | Slot 2: full-length, full-height, PCle 2<br>Slot 3: full-length, full-height, 32-bit<br>Slot 4: full-length, full-height, PCle 2<br>Slot 5: full-length, full-height, PCle 3<br>Slot 6: half-length, full-height, 32-bit                        |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip<br>Keyboard<br>Mouse<br>Power supply |  | * Adapters >75W use auxiliary powe from PSU   |
| ThinkVantage®   | Supports ThinkVantage technologies   |   |
| Limited Warranty  | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)   |   |
| Preload OS<br>Preloaded<br>applications   | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Adobe® Reader®   |   |
|   | <ul> <li>Adobe Flash® Player</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD or DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul>  | SECURITY  • Security chip (see information on le Side cover lock (ships with two ider  • Padlock loop (in rear for opt padloc Security slot (in rear for optional Kensington® Microsaver® cable)  • Power-on password  • Administrator password |

- to 3U r; metal case 16.8"H
- nm D x 427mm H
- nax configuration
- er removal optical drive removal
- etention
- cons
- rt or optional rail kit

std optical std disk opt disk opt disk

e x1 e 2.0 x16 (75W\* max) it PCI 2.3 e 2.0 x16 (75W\* max) e x16 (x4 electrical) oit PCI 2.3

er connector(s)

- left) entical keys)
- ock)
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
  Chassis intrusion switch on selected model(s)

#### ISV certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

## ThinkStation® C20 (4263) - UDIMM (Windows 7) - July 2011

| Type-<br>model       | Slot x<br>bay | Processor(s)       | GHz          | Core   | Memory<br>DIMMs | Disk(s)                      | Pre-conf<br>RAID | SATA optical     | Chassis intrusion switch | Graphics adapter(s) | Global           | Win7<br>preload | Announce date (mm/dd/yy) |
|----------------------|---------------|--------------------|--------------|--------|-----------------|------------------------------|------------------|------------------|--------------------------|---------------------|------------------|-----------------|--------------------------|
| 4263-B7U<br>4263-B8U | 6x4<br>6x4    | 1xX5650<br>1xX5660 | 2.66<br>2.80 | 6<br>6 | 2x2GB<br>2x2GB  | 1x500GB SATA<br>1x500GB SATA |                  | DVD±RW<br>DVD±RW |                          |                     | Global<br>Global |                 | 07/19/11<br>07/19/11     |

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
  Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor(s)  | Intel® Xeon® Processor X5650 with six-core.  | Tower   |
|---|--|---|
| Implementation  | 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5660 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets, supports up to two processors | Rack-mountable to 3U Raven black color; metal case 5.1 "W x 17.5"D x 16.8"H 130mm W x 444mm D x 427mm H 40.7 lb (18.5kg) max configuration 24-liter Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons  |
| Memory  | 48GB max, <b>UDIMM</b> , <b>PC3-10600 1333MHz DDR3</b> , <b>ECC</b> , 6-channel  | disk     Rack shelf support or optional rail kit  |
| Additional<br>memory<br>disclaimers                         | capable, six 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  • Over three DIMMs requires dual processors   | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, std disk   |
| Graphics  | Some: NVIDIA® Quadro® 600, PCle x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W   | Bay 3: 3.5", 1" high, internal, opt disk<br>Bay 4: 3.5", 1" high, internal, opt disk  |
| Media reader<br>Optical<br>Hard drive(s)<br>Disk Controller | None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support   | Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCl 2.3 Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCl 2.3                  |
| Chipset<br>Front ports<br>Rear ports                        | Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in   | * Adapters >75W use auxiliary power connector(s) from PSU   |
| IEEE 1394 adptr   | 7. 1   |   |
| Audio<br>Speaker<br>Ethernet<br>Security chip               | High Definition (HD) Audio, Analog Devices AD1988A codec<br>Internal speaker for business audio<br>One gigabit ethernet on planar, Broadcom® BCM5755<br>Broadcom Trusted Platform Module, TCG 1.2-compliant  |   |
| Keyboard<br>Mouse<br>Power supply                           | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black<br>800 watts with 80mm side-mounted variable speed fan, universal,<br>Climate Savers® Computing Gold, 80 PLUS® Gold qualified   |   |
| ThinkVantage®   | Supports ThinkVantage technologies   |   |
|   | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)   |   |
| Preload OS<br>Preloaded<br>applications                     | Genuine Windows® 7 Professional 64  Rescue and Recovery®  ThinkVantage System Update  ThinkVantage Toolbox  Norton® Internet Security (30 days of virus definitions)  Adobe® Reader®  Adobe Flash® Player  Microsoft® Office 2010 preloaded; purchase product key to activate  Roxio® Creator® Business Edition (DVD±RW model(s) only)  Roxio MyDVD® (DVD±RW model(s) only)  Corel® WinDVD® (DVD or DVD±RW model(s) only)  Ulead® DVD MovieFactory® (Blu-ray model(s) only)                              | SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse USB port disablement (front or all) |

- Boot sequence control
   Boot without keyboard, mouse
   USB port disablement (front or all)
   Chassis intrusion switch on selected model(s)

#### **ISV** certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

### ThinkStation® C20 (4265) - TopSeller (Windows 7) - April 2011

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz | Core | Memory<br>DIMMs | Disk(s)      | Pre-conf<br>RAID | SATA<br>optical | Chassis<br>intrusion<br>switch | Graphics<br>adapter(s) | Global | Win7<br>preload | Announce date (mm/dd/yy) |
|----------------|---------------|--------------|-----|------|-----------------|--------------|------------------|-----------------|--------------------------------|------------------------|--------|-----------------|--------------------------|
| 4265-1MU       | 6x4           | 1xE5603      | 1.6 | 4    | 2x2GB           | 1x500GB SATA | No               | DVD±RW          | None                           | 1xQuadro 400           | No     | Pro 64          | 04/26/11                 |

- · High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- This small and medium business (SMB) model is part of the US TopSeller™ Program This system is Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor(s)   | Intel® Xeon® Processor E5603 with quad-core,<br>4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect),<br>Intel 64, Virtualization Technology,<br>1066MHz DDR3 memory controller, and 4MB cache  |
|--|---|
| Implementation   | Two LGA1366 sockets, supports up to two processors  |
| Memory   | 48GB max, <b>UDIMM</b> , <b>PC3-10600 1333MHz DDR3</b> , <b>ECC</b> , 6-channel capable, six 240-pin DIMM sockets   |
| Additional<br>memory<br>disclaimers                              | <ul> <li>Actual memory operating speed is the lowest installed speed,<br/>dependent on processor memory controller speed and installed<br/>memory speed</li> <li>Over three DIMMs requires dual processors</li> </ul>   |
| Graphics   | NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W  |
| Media reader<br>Optical<br>Hard drive(s)<br>Disk Controller      | None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support  |
| Chipset<br>Front ports<br>Rear ports                             | Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip | ,, , , , , , , , , , , , , , , , , , ,  |
| Keyboard<br>Mouse<br>Power supply                                | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified   |
| ThinkVantage®  | Supports ThinkVantage technologies  |
| Limited Warranty   | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo $^{\circ}$ services are available on S-TS sheet)  |
| Preload OS<br>Preloaded<br>applications                          | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Adobe Flash® Player Microsoft® Office 2010 preloaded; purchase product key to activate Roxio® Creator® Business Edition (DVD±RW model(s) only) Roxio MyDVD® (DVD±RW model(s) only) Corel® WinDVD® (DVD or DVD±RW model(s) only) Ulead® DVD MovieFactory® (Blu-ray model(s) only) |

## Tower



disk

- Rack-mountable to 3U
- Raven black color; metal case 5.1"W x 17.5"D x 16.8"H
- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- · Illuminated front icons
- · Rack shelf support or optional rail kit

Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, std disk Bay 3: 3.5", 1" high, Bay 4: 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W\* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W\* max)
Slot 5: full-length, full-height, PCIe x16 (x4 electrical)

Slot 6: half-length, full-height, 32-bit PCI 2.3

\* Adapters >75W use auxiliary power connector(s) from PSU

#### **SECURITY**

- Security chip (see information on left)
  Side cover lock (ships with two identical keys)
  Padlock loop (in rear for opt padlock)
  Security slot (in rear for optional
  Kensington® Microsaver® cable)
  Power-on password
- Administrator password

- Boot sequence control Boot without keyboard, mouse USB port disablement (front or all)
- Chassis intrusion switch on selected model(s)

#### **ISV** certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

## ThinkStation® C20 (4263) - UDIMM (Windows 7) - April 2011

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz  | Core | Memory<br>DIMMs | Disk(s)      | Pre-conf<br>RAID | SATA optical | Chassis<br>intrusion<br>switch | Graphics adapter(s) | Global | Win7<br>preload | Announce date (mm/dd/yy) |
|----------------|---------------|--------------|------|------|-----------------|--------------|------------------|--------------|--------------------------------|---------------------|--------|-----------------|--------------------------|
| 4263-B3U       | 6x4           | 1xX5650      | 2.66 | 6    | 2x2GB           | 1x500GB SATA | No               | DVD±RW       |                                | 1xQuadro 400        | No     | Pro 64          | 04/26/11                 |
| 4263-B4U       | 6x4           | 1xE5607      | 2.26 | 4    | 2x2GB           | 1x500GB SATA | No               | DVD±RW       |                                | 1xQuadro 400        | No     | Pro 64          | 04/26/11                 |

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
   These systems are Microsoft Office 2010 Product Key Ready (O10PKR)

|   |   | ,  |
|---|---|--|
| Processor(s)  | Intel® Xeon® Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor X5650 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache   | Rack-mountable to 3U  Raven black color; metal case  5.1"W x 17.5"D x 16.8"H  130mm W x 444mm D x 427mm H  40.7 lb (18.5kg) max configuration  24-liter  Toolless side cover removal   |
| Implementation  | Two LGA1366 sockets, supports up to two processors  | Toolless disk and optical drive removal  |
| Memory<br>Additional<br>memory<br>disclaimers   | 48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 6-channel capable, six 240-pin DIMM sockets  Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  Over three DIMMs requires dual processors  | disk disk disk      disk      disk      disk      disk      disk      disk      disk      disk      disk      disk      disk      disk   |
| Graphics  | <b>NVIDIA® Quadro® 400</b> , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W  | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, std disk  |
| Media reader Optical Hard drive(s) Disk Controller  Chipset Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip  Keyboard Mouse Power supply  ThinkVantage® Limited Warranty | None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support  Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in None High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified  Supports ThinkVantage technologies  3-year parts and labor, Customer Replaceable Unit (CRU) parts only | Bay 3: 3.5", 1" high, internal, opt disk Bay 4: 3.5", 1" high, internal, opt disk  Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3  * Adapters >75W use auxiliary power connector(s) from PSU |
| Preload OS<br>Preloaded<br>applications   | (More Lenovo® services are available on S-TS sheet)  Genuine Windows® 7 Professional 64  Rescue and Recovery®  ThinkVantage System Update   |  |
|   | <ul> <li>ThinkVantage Toolbox</li> <li>Norton® Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Adobe Flash® Player</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD or DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul>   | SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse USB port disablement (front or all) Chassis intrusion switch on selected model(s)  |
|   |   | ISV certifications Please visit www.lenovo.com/support/ISV   |
|   |   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  |
|   |   |  |

## ThinkStation® C20x (4272) TanSallar (Windows 7) Fabruary 2011

| Type- Slot<br>model bay  |   | GHz  | Core                                 | Memory<br>DIMMs                                  | Disk(s)   | Pre-conf<br>RAID                  | 1394<br>adptr        | SATA optical   | Chassis intrusion swite  | Graphics<br>h adapter(s)  | Global                                    | Win7<br>preload                            | Announce date (mm/dd/yy)  |
|--|---|--|--------------------------------------|--|---|-----------------------------------|----------------------|--|--|---|---|--|---------------------------|
| 4272-43U 6x4   | 1xE5645   | 2.40   | 6                                    | 2x2GB  | 1x300GB SA  | S No                              | 1394                 | DVD±R  | W Switch   | 1x2000  | No  | Pro 64                                     | 02/15/1                   |
|  | •   | Enviro<br>This s                                     | onmen<br>small a                     | tally frien<br>nd mediu                          | rkstation with<br>dly, cool, and o<br>m business (S<br>oft Office 201 | quiet with<br>SMB) mod            | rock so<br>lel is pa | lid engine<br>rt of the L  | eering<br>JS TopSeller™ F  | Program   |   |  |                           |
| Processor(s)  mplementation  Memory                              | Intel® Xeon® (giga-transfers Virtualization and 12MB cac Two LGA1366  | s/secon<br>Techno<br>che<br>S socke<br><b>DIMM</b> , | nd) QF<br>ology,<br>ets, sup<br>PC3- | PI (QuickF<br>1333MHz<br>oports up<br>10600 13   | to two proces 33MHz DDR3  | ect), Intel<br>ry control<br>sors | ler,                 |  | optical  | Rack-mour<br>Raven blac<br>5.1"W x 17<br>130mm W<br>40.7 lb (18   | k color;<br>'.5"D x 1<br>x 444m           | metal ca<br>6.8"H<br>m D x 42              | 27mm H                    |
| Additional<br>memory<br>disclaimers                              | <ul><li>memory spe</li><li>Over six DIN</li></ul>   | ory op<br>on prod<br>eed<br>MMs re                   | erating<br>cessor<br>equires         | g speed is<br>memory<br>dual pro                 | the lowest in<br>controller spe-<br>cessors                           | ed and in                         | eed,<br>stalled      |  | disk   | Toolless side Toolless die Toolless action Illuminated Rack shelf | sk and o<br>dapter re<br>front ic         | optical di<br>etention<br>ons              | rive removal              |
| Graphics   | NVIDIA® Qua<br>two DisplayPo  | adro® 2<br>ort™, c                                   | <b>2000</b> , Fone dua               | PCIe x16<br>al-link DV                           | adapter, 1GB,<br>I-I, 62W   |                                   |                      |  | disk<br>disk   |   |   |  |                           |
| Media reader<br>Optical<br>Hard drive(s)<br>Disk Controller      | None<br>Super Multi-B<br>300GB, SAS 3<br>3 SATA conne<br>5 SATA/SAS <sup>4</sup><br>RAID 0, 1, 5,   | 3.0Gb/<br>ectors f<br>conne                          | s, 150<br>or opti<br>ctors fo        | 00 rpm, 3<br>cal, SATA<br>or disks, \$           | .5"<br>3.0Gb/s, inte<br>SATA 3.0Gb/s,                                 | grated in                         |                      |  | Bay 3: 3.5", 1"<br>Bay 4: 3.5", 1"   | high, into<br>high, into<br>high, into                            | ernal,<br>ernal,<br>ernal,                | std disk<br>opt disk<br>opt disk           | al                        |
| Chipset<br>Front ports<br>Rear ports                             | Intel 5520 Ch<br>Two USB 2.0,<br>FireWire 400<br>Eight USB 2.0<br>six analog aud<br>side out),  | micro<br>(IEEE<br>), eSA                             | phone<br>1394a<br>ГА, ser            | (3.5mm),<br>)<br>ial (9-pin)                     | headphone (3  | 3.5mm),<br>(RJ-45),               | ·                    | o out  | Slot 1: half-leng<br>Slot 2: full-lengtl<br>Slot 3: full-lengtl<br>Slot 4: full-lengtl<br>Slot 5: full-lengtl<br>Slot 6: half-leng | n, full-heigh<br>n, full-heigh<br>n, full-heigh<br>n, full-heigh  | t, PCle<br>t, 32-bi<br>t, PCle<br>t, PCle | 2.0 x16<br>t PCI 2.3<br>2.0 x16<br>x16 (x4 | (75W* max)<br>electrical) |
| IEEE 1394 adpti<br>Audio<br>Speaker<br>Ethernet<br>Security chip | Optical SPDIF   | adapten (HD)<br>ker for<br>hernet                    | er, 139<br>Audio<br>busine<br>on pla | 4a-2000,<br>, Analog l<br>ss audio<br>anar, Broa | 400Mbps, two<br>Devices AD19<br>Idcom® BCM5                           | 88À code<br>755 and l             | C                    | ar   | * Adapters >75V<br>from PSU  | V use auxilia   | ary powe                                  | er conne                                   | ctor(s)                   |
| Keyboard<br>Mouse<br>Power supply                                | Preferred Pro<br>Optical Wheel<br>800 watts with<br>Climate Save  | l Mous   | e (USI<br>n side-                    | 3 connect  | or), black<br>variable spee   | d fan. uni                        | versal.              |  |  |   |   |  |                           |
| ThinkVantage®  | Supports Thin   |  |                                      |  |   |                                   |                      |  |  |   |   |  |                           |
| _imited Warranty   | <ul> <li>3-year parts a<br/>(More Lenovo</li> </ul>   | ınd lab<br>® servi                                   | or, Cu<br>ices ar                    | stomer Ro<br>e availab                           | epiaceable Un<br>e on S-TS she  | ly                                |                      |  |  |   |   |  |                           |
| Preload OS<br>Preloaded<br>applications                          | Genuine Wind  Rescue and ThinkVanta ThinkVanta  | dows <sup>®</sup> d Reco<br>age Sys<br>age Too       | 7 Profe<br>overy®<br>stem U<br>olbox | essional 6<br>Jpdate                             | 4   |                                   |                      |  |  |   |   |  |                           |
|  | <ul> <li>Norton® Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Adobe Flash® Player</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD or DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul> |  |                                      |  |   |                                   |                      | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control |  |   |   |  |                           |

- Boot sequence control
   Boot without keyboard, mouse
   USB port disablement (front or all)
   Chassis intrusion switch on selected model(s)

#### ISV certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

## ThinkStation® C20x (4269) - UDIMM (Windows 7) - February 2011

| Type- Slot x<br>model bay  | Memory Pre-conf 1394 SATA<br>Processor(s) GHz Core DIMMs Disk(s) RAID adptr optice   |   |  |  |  |  |  |  |  |
|--|--|---|--|--|--|--|--|--|--|
| 4269-72U 6x4<br>4269-73U 6x4<br>4269-74U 6x4<br>4269-75U 6x4     | 1xX5687       3.6       4       2x2GB       1x300GB SAS       No       No       DVD±F         1xX5647       2.93       4       2x2GB       1x300GB SAS       No       No       DVD±F         1xX5647       2.93       4       2x2GB       1x300GB SAS       No       No       DVD±F         1xE5607       2.26       4       2x2GB       1x300GB SAS       No       No       DVD±F   | RW Switch 1x600 No Pro 64 02/15/11<br>RW Switch 1x2000 No Pro 64 02/15/11   |  |  |  |  |  |  |  |
|  | <ul> <li>High performance workstation with smallest-possible form facto</li> <li>Environmentally friendly, cool, and quiet with rock solid enginee</li> <li>These systems are Microsoft Office 2010 Product Key Ready (Company)</li> </ul>   | ring  |  |  |  |  |  |  |  |
| Processor(s)   | Intel® Xeon® Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor X5647 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5687 with quad-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache | Rack-mountable to 3U     Raven black color; metal case     5.1"W x 17.5"D x 16.8"H     130mm W x 4444mm D x 427mm H     40.7 lb (18.5kg) max configuration     24-liter     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit  |  |  |  |  |  |  |  |
| Implementation<br>Memory   | Two LGA1366 sockets, supports up to two processors  96GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 6-channel capable, twelve 240-pin DIMM sockets   | disk  |  |  |  |  |  |  |  |
| Additional<br>memory<br>disclaimers                              | <ul> <li>Actual memory operating speed is the lowest installed speed,<br/>dependent on processor memory controller speed and installed<br/>memory speed</li> <li>Over six DIMMs requires dual processors</li> </ul>  | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, std disk Bay 3: 3.5", 1" high, internal, opt disk Bay 4: 3.5", 1" high, internal, opt disk   |  |  |  |  |  |  |  |
| Graphics   | Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W  | Slot 1: half-length, full-height, PCle x1<br>Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max)<br>Slot 3: full-length, full-height, 32-bit PCl 2.3  |  |  |  |  |  |  |  |
| Media reader<br>Optical<br>Hard drive(s)<br>Disk Controller      | None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 300GB, SAS 3.0Gb/s, 15000 rpm, 3.5" 3 SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS⁴ connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, integrated in Marvell® 88SE6480  | Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3  * Adapters >75W use auxiliary power connector(s) from PSU  |  |  |  |  |  |  |  |
| Chipset<br>Front ports<br>Rear ports                             | Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)  Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out),  Optical SPDIF digital out, Optical SPDIF digital in   |   |  |  |  |  |  |  |  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip | None High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754 Broadcom Trusted Platform Module, TCG 1.2-compliant  |   |  |  |  |  |  |  |  |
| Keyboard<br>Mouse<br>Power supply                                | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified  | SECURITY  |  |  |  |  |  |  |  |
| ThinkVantage®  | Supports ThinkVantage technologies   | Security chip (see information on left)   |  |  |  |  |  |  |  |
| Limited Warranty   | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo $^{\oplus}$ services are available on S-TS sheet)  | Padlock loop (in rear for opt padlock)  |  |  |  |  |  |  |  |
| Preload OS<br>Preloaded<br>applications                          | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Adobe Flash® Player Microsoft® Office 2010 preloaded; purchase product key to activate Roxio® Creator® Business Edition (DVD±RW model(s) only) Roxio MyDVD® (DVD±RW model(s) only) Corel® WinDVD® (DVD or DVD±RW model(s) only) Ulead® DVD MovieFactory® (Blu-ray model(s) only)  | Security slot (in rear for optional Kensington® Microsaver® cable)     Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse     USB port disablement (front or all)     Chassis intrusion switch on selected model(s)      ISV certifications Please visit www.lenovo.com/support/ISV  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating |  |  |  |  |  |  |  |

## ThinkStation® C20 (4265) - TopSeller (Windows 7) - February 2011

| Type- Slot<br>model bay   |   | GHz  | Core  | Memory<br>DIMMs   | Disk(s)   | Pre-conf<br>RAID          | SATA optical               | Chassis<br>intrusion<br>switch  | Graphics adapter(s)  | Global  | Win7 A   | nnounce date<br>(mm/dd/yy)       |
|---|---|--|---|---|---|---------------------------|----------------------------|---|--|---|--|----------------------------------|
| 4265-97U 6x4<br>4265-98U 6x4<br>4265-99U 6x4                          | 1xE5607   | 1.6<br>2.26<br>2.40  | 4<br>4<br>6   | 2x2GB<br>2x2GB<br>2x2GB   | 1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA  | No                        | DVD±RW<br>DVD±RW<br>DVD±RW | Switch  | 1xQuadro FX380<br>1xQuadro 600<br>1xNVS 450  | No<br>No<br>No  | Pro 64<br>Pro 64<br>Pro 64   | 02/15/11<br>02/15/11<br>02/15/11 |
|   | •   | Environn<br>These sr   | nentally<br>nall and  | rfriendly, od medium  | ation with smalles<br>cool, and quiet w<br>business (SMB)<br>soft Office 2010 I   | ith rock s<br>models a    | olid engine<br>are part of | eering<br>the US Top  | Seller™ Program  |   |  |                                  |
| Processor(s)  | Intel 64, Virtu<br>1066MHz DD<br>Intel Xeon PI<br>4.8GT/s (giga<br>Intel 64, Virtu<br>1066MHz DD<br>Intel Xeon PI<br>5.86GT/s (gig<br>Intel 64, Virtu<br>1333MHz DD | I-transfer<br>alization<br>R3 mem<br>rocessor<br>I-transfer<br>alization<br>R3 mem<br>rocessor<br>Ia-transfer<br>alization<br>R3 mem | rs/secon<br>Technology cor<br>r E5607<br>rs/secon<br>Technology cor<br>r E5645<br>ers/secon<br>Technology cor | nd) QPI (0<br>blogy,<br>ntroller, an<br>7 with <b>qua</b><br>nd) QPI (0<br>blogy,<br>ntroller, an<br>5 with <b>six-</b><br>pnd) QPI (<br>blogy,<br>ntroller, an | QuickPath Intercond 4MB cache d-core, QuickPath Intercond 8MB cache   | nnect),                   |                            | Tower Obtical   |  | k color;<br>.5"D x 1<br>x 444mr<br>.5kg) made<br>de cover<br>sk and c<br>lapter re<br>front icc | metal cas<br>6.8"H<br>m D x 427<br>ax configu<br>removal<br>ptical driv<br>tention | mm H<br>ration<br>e removal      |
| Memory  Additional  | 48GB max, <b>U</b> capable, six 2   | <b>DIMM</b> , <b>P</b><br>240-pin D  | PC3-100<br>DIMM so  | 600 1333 <b>/</b><br>ockets   | MHz DDR3, ECC   | ,                         | nel                        | dis   | sk   |   |  |                                  |
| memory<br>disclaimers   |   | on proce<br>eed  | ssorm   | emory cor   | ntroller speed and  |                           | d                          | Bay 2: 3<br>Bay 3: 3  | .5", 1" high, inte   | ernal, s<br>ernal, d  | std optical<br>std disk<br>opt disk<br>opt disk                                    |                                  |
| Graphics  | Some: NVIE<br>two of<br>Some: NVIE  | DisplayP<br>DIA Quad<br>dual-link<br>DIA Quad  | ort™, 3<br>d <b>ro FX</b><br>DVI-I, 3<br>d <b>ro 60</b> 0   | 5W<br><b>380</b> , PCle<br>55W<br>), PCle x1  | PCIe x16 adapter<br>x16 adapter, 25<br>6 adapter, 1GB,<br>DVI-I, 40W  |                           | ,                          | Slot 1: h<br>Slot 2: fu<br>Slot 3: fu<br>Slot 4: fu   | alf-length, full-heigh<br>ill-length, full-heigh<br>ill-length, full-heigh<br>ill-length, full-heigh<br>ill-length, full-heigh   | nt, PCle<br>t, PCle 2<br>t, 32-bit<br>t, PCle 2   | x1<br>2.0 x16 (7:<br>PCI 2.3<br>2.0 x16 (7:  | 5W* max)                         |
| Media reader<br>Optical<br>Hard drive(s)<br>Disk Controller           | None<br>Super Multi-B<br>500GB, SATA<br>Serial ATA, SA  | Surner DL<br>3.0Gb/s<br>ATA 3.0G<br>onnectors  | _ DVD±<br>s, 7200<br>ab/s, int  | RW SATA   | 1.5Gb/s Drive   | r optical,                |                            | Slot 6: h   | alf-length, full-heigl<br>s >75W use auxilia   | nt, 32-bit  | PCI 2.3  |                                  |
| Chipset Front ports Rear ports  IEEE 1394 adpt Audio Speaker Ethernet | Two USB 2.0,<br>Eight USB 2.0<br>six analog au<br>side out), Opt<br>None<br>High Definitio<br>Internal speal  | microph<br>D, eSATA<br>dio ports<br>ical SPD<br>n (HD) A<br>ker for bu   | none (3., one e<br>s (line-ir<br>DIF digit<br>audio, A<br>usiness   | .5mm), he thernet (Fin, mic-in, final out, Opinalog Devaudio  | bond <sup>®</sup> W83627Dl<br>adphone (3.5mm<br>lJ-45),<br>ront-out, rear-out<br>tical SPDIF digita<br>rices AD1988A co<br>com <sup>®</sup> BCM5755 | n)<br>, center/s<br>al in |                            |   |  |   |  |                                  |
| Security chip Keyboard Mouse Power supply                             | Broadcom Tru<br>Preferred Pro<br>Optical Whee<br>800 watts witl   | usted Pla<br>USB Ke<br>I Mouse<br>n 80mm   | tform N<br>yboard<br>(USB o<br>side-mo  | Module, TO<br>(USB coreonnector)<br>ounted va   | CG 1.2-compliant<br>nnector), 104-key   | , black<br>universa       | l,                         |   |  |   |  |                                  |
| ThinkVantage®   | Supports Thir   |  |   |   |   |                           |                            | • Security  | SECUR<br>chip (see informat  |   | eft)   |                                  |
| Limited Warranty  | <ul> <li>3-year parts a<br/>Lenovo<sup>®</sup> serv</li> </ul>  | nd labor,<br>ices are  | , Custo<br>availab  | mer Repla<br>le on S-T  | iceable Unit (CRL<br>S sheet)   | J) parts c                | only (More                 | <ul> <li>Side cov</li> </ul>  | er lock (ships with  | two ider  | ntical keys  | s)                               |
| Preload OS<br>Preloaded<br>applications                               | Genuine Wind Rescue an ThinkVanta ThinkVanta Norton® In Adobe® Re Adobe Fla Microsoft®  | dows® 7 Id Recoverage Systemage Toolk ternet Secader® sh® Playe Office 20  | Profess<br>ery®<br>em Upo<br>box<br>ecurity (<br>er<br>010 pre  | sional 64<br>date<br>(30 days c<br>loaded; pi   | of virus definitions  | key to ac                 | tivate                     | <ul><li>Security<br/>Kensing</li><li>Power-o</li><li>Adminis</li><li>Boot see</li><li>Boot wit</li><li>USB po</li></ul> | loop (in rear for op<br>slot (in rear for op<br>ton® Microsaver® ca<br>n password<br>trator password<br>quence control<br>hout keyboard, mo<br>rt disablement (fror<br>intrusion switch or | tional<br>able)<br>use<br>nt or all)  | ,  | 5)                               |
|   | <ul> <li>Roxio® Cre</li> <li>Roxio MyD</li> <li>Corel® Win</li> </ul>   | eator® Bu<br>VD® (DV<br>DVD® (D  | siness<br>'D±RW<br>VD or [  | Edition (D<br>model(s)<br>DVD±RW  | VD±RW model(s   | only)                     |                            |   | ISV cert it www.lenovo.com   |   |  |                                  |
|   |   |  | ,   |   | •   |                           |                            | RoHS-cor<br>EPEAT™  | mpliant<br>Gold rating   |   |  |                                  |
|   |   |  |   |   |   |                           |                            | More com  | patible accessorie   | s, pleas  | e see O-N  | IAD sheet                        |

## ThinkStation® C20 (4263) - UDIMM (Windows 7) - February 2011

| Type-<br>model  | Slot x<br>bay                         | Processor(s)   | GHz  | Core  | Memory<br>DIMMs  | Disk(s)   | Pre-conf<br>RAID     | SATA optical               | Chassis<br>intrusion swite   | Graphics<br>h adapter(s)   | Global   | Win7<br>preload   | Announce date (mm/dd/yy)         |  |  |
|---|---------------------------------------|--|--|---|--|---|----------------------|----------------------------|--|--|--|---|----------------------------------|--|--|
| 4263-A2U<br>4263-A3U<br>4263-A4U                      | 6x4<br>6x4<br>6x4                     | 1xE5607<br>1xE5645<br>1xE5645  | 2.26<br>2.40<br>2.40   | 4<br>6<br>6   | 2x2GB<br>2x2GB<br>2x2GB  | 1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA  | No                   | DVD±RW<br>DVD±RW<br>DVD±RW | V Switch   | 1xFX380<br>1x2000<br>1xNVS 45  | No<br>No<br>No   | Pro 64<br>Pro 64<br>Pro 64                              | 02/15/11<br>02/15/11<br>02/15/11 |  |  |
|   |                                       | • En   | vironme  | ntally fr   | iendly, coo  | on with smallest-<br>l, and quiet with<br>t Office 2010 Pro                                     | rock soli            | d enginee                  | ring   |  |  |   |                                  |  |  |
| Processor(s   | , , , , , , , , , , , , , , , , , , , | Intel 64, Virtua<br>1066MHz DDF<br>Intel Xeon Pro<br>5.86GT/s (giga<br>Intel 64, Virtua<br>1333MHz DDF | -transfer<br>alization<br>R3 mem<br>ocesson<br>a-transfe<br>alization<br>R3 mem  | s/secor<br>Techno<br>ory con<br>r <b>E5645</b><br>ers/seco<br>Techno<br>ory con | nd) QPI (Q<br>logy,<br>troller, and<br>with <b>six-c</b><br>and) QPI ((<br>logy,<br>troller, and | uickPath Interco<br>d 8MB cache<br>core,<br>QuickPath Interc<br>d 12MB cache                    | ,                    |                            | Tower Obtical Oction   | <ul> <li>Rack-mou</li> <li>Raven bla</li> <li>5.1"W x 1</li> <li>130mm W</li> <li>40.7 lb (18</li> <li>24-liter</li> <li>Toolless si</li> </ul>                  | ck color:<br>7.5"D x<br>x 444m<br>s.5kg) m<br>de cove  | metal ca<br>16.8"H<br>m D x 42<br>ax config<br>r remova | 27mm H<br>guration               |  |  |
| Implementa<br>Memory                                  |                                       |  |  |   |  | wo processors  Hz DDR3, ECC   | . 6-chann            | nel                        |  | <ul><li>Toolless d</li><li>Toolless a</li></ul>  | dapter re  | etention  | ive removai                      |  |  |
| Additional<br>memory<br>disclaimers                   | (                                     | <ul> <li>capable, six 24</li> <li>Actual memory dependent of memory spe</li> </ul>                     | 40-pin D<br>ory oper<br>on proce<br>eed  | IMM so<br>rating sp<br>ssor me  | ockets<br>beed is the<br>emory con   | e lowest installed<br>troller speed and   | speed,               |                            | disk<br>disk<br>disk   | Illuminated     Rack shelf   |  |   | nal rail kit                     |  |  |
| Graphics  | •                                     | Some: NVID   | DIA® Qua<br>DisplayF<br>DIA Qua<br>dual-link<br>DIA Qua  | adro® N<br>Port™, 3<br>dro FX<br>DVI-I, 3<br>dro 200                            | IVS 450, F<br>5W<br>380, PCle<br>35W<br>00, PCle x   | PCIe x16 adapter<br>x16 adapter, 25<br>16 adapter, 1GB  | 66MB,                | ,                          | Bay 1: 5.25", 1<br>Bay 2: 3.5", 1<br>Bay 3: 3.5", 1<br>Bay 4: 3.5", 1  | " high, into<br>" high, into<br>" high, into   | ernal,<br>ernal,<br>ernal,   | std optica<br>std disk<br>opt disk<br>opt disk          | al                               |  |  |
| Media reado<br>Optical<br>Hard drive(s<br>Disk Contro | s) (                                  | None<br>Super Multi-Bu<br>500GB, SATA<br>Serial ATA, SA  | urner DL<br>3.0Gb/s<br>ATA 3.0G  | _ DVD±<br>i, 7200 i<br>ab/s, inte   | RW SATA rpm, 3.5" egrated in   |   | r optical,           |                            | Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCl 2.3 Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCl 2.3  * Adapters >75W use auxiliary power connector(s) |  |  |   |                                  |  |  |
| Chipset<br>Front ports<br>Rear ports                  | <br> -<br>                            | Intel 5520 Chi<br>Two USB 2.0,<br>Eight USB 2.0<br>six analog auc                                      | ipset, In<br>microph<br>, eSATA<br>dio ports   | one (3.<br>, one et<br>(line-in   | 5mm), hea<br>hernet (R.<br>, mic-in, fr  | ond <sup>®</sup> W83627Dh<br>adphone (3.5mm<br>J-45),<br>ont-out, rear-out<br>ical SPDIF digita | n)<br>, center/s     |                            | from PSU   |  |  |   |                                  |  |  |
| Audio<br>Speaker<br>Ethernet<br>Security chi          | adptr I                               | None<br>High Definitior<br>Internal speak<br>One gigabit et  | n (HD) A<br>er for bu<br>hernet c  | udio, A<br>usiness<br>on plana  | nalog Devi<br>audio<br>ar, Broadco   | ices AD1988A co<br>om® BCM5755<br>G 1.2-compliant   | odec                 |                            |  |  |  |   |                                  |  |  |
| Keyboard<br>Mouse<br>Power supp                       | ily i                                 | Preferred Pro<br>Optical Wheel<br>800 watts with<br>Climate Save                                       | USB Ke<br>Mouse<br>80mm :<br>rs® Com   | yboard<br>(USB coside-month)  | (USB controlled connector), bunted variable Gold, 80   | nector), 104-key,   | , black<br>universal | ١,                         |  |  |  |   |                                  |  |  |
| ThinkVantag   |                                       | Supports Thin  |  |   |  | ceable Unit (CR   | U) parts (           | only                       |  |  |  |   |                                  |  |  |
|   |                                       | (More Lenovo <sup>©</sup>  | ® service  | es are a  | vailable or  |   | -, parts (           |                            |  | SECUI  | RITY   |   |                                  |  |  |
| Preload OS<br>Preloaded<br>applications               |                                       | <ul> <li>Adobe® Rea</li> <li>Adobe Flash</li> <li>Microsoft® C</li> </ul>                              | I Recove<br>ge Syste<br>ge Toolb<br>ernet Se<br>ader <sup>®</sup><br>h <sup>®</sup> Playe<br>Office 20<br>ator <sup>®</sup> Bus<br>/D <sup>®</sup> (DVI<br>DVD <sup>®</sup> (DVI | ery® em Upda ox curity (3 er 10 prele siness E D±RW r                           | ate 30 days of caded; pur Edition (DV model(s) o   | nodel(s) only)  | ev to acti           | ivate                      | Security chip Side cover loc Padlock loop Security slot Kensington Power-on pas Administrator Boot sequenc Boot without USB port disc Chassis intru  | (see informack (ships with (in rear for or (in rear for or (in rear for or (in rear for or (in rear for or or (in rear for or or or or or or or or or or or or o | tion on two ide of padicotional cable)  ouse of selection of the cable | entical ke<br>ick)<br>ed mode                           |                                  |  |  |
|   |                                       |  |  |   |  |   |                      |                            | Please visit ww  |  | <b>tificatio</b><br>n/suppo  |   |                                  |  |  |
|   |                                       |  |  |   |  |   |                      |                            | GREENGUARI<br>RoHS-complian<br>EPEAT™ Gold   | D® certified   |  |   |                                  |  |  |
|   |                                       |  |  |   |  |   |                      |                            |  |  |  |   |                                  |  |  |

| Type- Slot x<br>model bay P   | rocessor(s) GHz   | Max Turbo<br>GHz   | Memory<br>DIMMs   | Memory<br>type   | Disk(s)  | Disk<br>size                | Pre-co            | onf 1394<br>) adptr   | Chassis<br>intr switch   | Graphics adapter(s)   | Win7<br>preload  | Global  | Avail<br>date                        |
|---|---|--|---|--|--|-----------------------------|-------------------|---|--|---|--|---|--------------------------------------|
| 4272-35U 6x4 1<br>4272-41U 6x4 1<br>4272-42U 6x4 1  | x E5630 2.53  | 2.80<br>2.80<br>3.06   | 2 x 2GB   | UDIMM  | 1x300GB² SAS<br>1x300GB SAS<br>1x300GB SAS   | 3.5"                        | No<br>No<br>No    | 1394  | None<br>None<br>None   | 1 x FX1800<br>1 x 2000<br>1 x 2000  | Pro 64<br>Pro 64<br>Pro 64   | Global  | Jun 10<br>Nov 10<br>Nov 10           |
|   | <ul><li>High perform</li><li>Environment</li><li>These small a</li><li>These system</li></ul>   | ally friend<br>and mediu   | lly, cool, a<br>ım busine   | and quiet<br>ess (SMB  | with rock solid<br>) models are p  | l engil<br>art of           | neering<br>the US | TopSelle  | er™ Progra   | nm  |  |   |                                      |
| Processor(s)  Implementation Memory   | Up to two proce Intel® Xeon® PI 5.86GT/s (giga Intel 64, Hyper-Virtualization To 1066MHz DDR Intel Xeon Pro 6.4GT/s QPI, Ir Virtualization To 1333MHz DDR Two LGA1366 step 4GB or 6GB step ECC, 6-channe ** System auto | rocessor<br>-transfers/<br>-Threading<br>echnology,<br>13 memory<br>focessor XI<br>ntel 64, Hy<br>echnology,<br>13 memory<br>sockets<br>d, 96GB n<br>el capable, | E5630 w<br>second)<br>g Technol<br>g Technol<br>g Technol<br>g Technol<br>f controlle<br>5650 with<br>yper-Thre<br>g Turbo B<br>y controlle<br>max, <b>UDII</b><br>twelve 2                                       | ith quad-<br>QPI (Qui-<br>ogy,<br>oost Tech<br>er, and 12<br>n six-core<br>ading Tech<br>oost Tech<br>er, and 12<br>MM, PC3<br>40-pin DI | core,<br>ckPath Intercor<br>anology,<br>2MB cache or<br>e,<br>chnology,<br>anology,<br>2MB cache<br>-10600 1333MI<br>MM sockets*** | Hz DD                       | R3**,             | <ul> <li>Raven</li> <li>5.1"W</li> <li>130mm</li> <li>40.7 lb</li> <li>24-liter</li> <li>Toolles</li> <li>Toolles</li> <li>Illumina</li> </ul>  | x 17.5"D x<br>n W x 444r<br>(18.5kg) r<br>ss side cov<br>ss disk and<br>ss adapter<br>ated front i | r; metal case 16.8"H mm D x 427n max configura er removal I optical drive retention | nm H<br>ation<br>removal   | d   | iisk<br>iisk<br>iisk                 |
| Graphics  | DDR3 memory *** Over six DIN Some: NVIDIA   | controller<br>MMs requi<br>• Quadro<br>playPort, c   | res dual<br>• <b>FX 180</b><br>one dual-  | processo<br><b>0</b> , PCIe x<br>link DVI-I  | rs<br>16 adapter, 76<br>****, 59W  |                             |                   | Bay ① 5.25", 1.6" high, external, std optical Bay ② 3.5", 1" high, internal, std disk Bay ③ 3.5", 1" high, internal, opt disk Bay ④ 3.5", 1" high, internal, opt disk  Slot 1: half-length, full-height, PCle x1  |  |   |  |   |                                      |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller  | None None 300GB, SAS 3 Super Multi-Bu 3 SATA connec 5 SATA/SAS4 c RAID <sup>8</sup> 0, 1, 5, ii   | .0Gb/s, 15<br>rner DL D'<br>tors for op<br>onnectors   | 6000 rpm<br>VD±RW,<br>otical, SA<br>for disks   | , 3.5"<br>SATA 1.5<br>FA 3.0Gb<br>, SATA 3.  | Gb/s<br>/s, integrated ir<br>0Gb/s, SAS 3.0  | n ICH1<br>0Gb/s             | 0:                | Slot 2: full-length, full-height, PCle 2.0 x16 (75V Slot 3: full-length, full-height, 32-bit PCl 2.3 Slot 4: full-length, full-height, PCle 2.0 x16 (75V Slot 5: full-length, full-height, PCle x16 (x4 elect Slot 6: half-length, full-height, 32-bit PCl 2.3 * Adapters >75W use auxiliary power connector PSU SECURITY |  |   |  |   |                                      |
| Chipset   | Intel 5520 Chip<br>Winbond® W83   | pset, Intel  | ICH10,  |  |  |                             |                   | Security chip (see information     Side cover lock (ships with two lock)  |  |   |  |   |                                      |
| Front ports  Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip   | Two USB 2.0, r<br>FireWire 400 (I<br>Eight USB 2.0,<br>six analog audi<br>Optical SPDIF   | microphon<br>EEE 1394<br>eSATA, se<br>o ports (lir<br>digital out,<br>re PCI ada<br>(HD) Audi<br>er for busir<br>ernet on p                                      | e (3.5mm<br>a)<br>erial (9-pi<br>ne-in, mic<br>, Optical<br>pter, 139<br>io, Analog<br>ness audi<br>planar, Br  | n), headp<br>n), two e<br>c-in, front<br>SPDIF di<br>14a-2000,<br>g Devices<br>o<br>oadcom®  | thernet (RJ-45)<br>-out, rear-out, ogital in<br>400Mbps, two<br>s AD1988A coo<br>BCM5755 and                                       | ,<br>center<br>6-pin<br>lec | ports (           | Serial port I/O control      ISP port discalament (front  |  |   |  |   |                                      |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Preferred Pro U<br>Optical Wheel I<br>800 watts with<br>Climate Saver<br>Five fans stand<br>Rack shelf sup  | Mouse (US<br>80mm side<br><b>s® Compu</b><br>lard (powe  | SB conne<br>e-mounte<br>Iting Gol<br>er supply,   | ector), bla<br>ed variabl<br>d, <b>80 PL</b><br>first proc   | ck<br>e speed fan, ui<br><b>US® Gold</b> quali<br>essor, one on f  | niversa<br>fied<br>front, t | wo on             | rear)   | Sup  | ISV ase visit www ports Think\ EENGUARD®  | /antage®   | om/supp   |                                      |
| Preloaded ope - Genuine Wind Preloaded app listed) • Rescue and F • ThinkVantage • Norton™ Inter (30 days of vi • Adobe® Read • Adobe Flash® • Microsoft Offi | rating system <sup>20</sup> dows® 7 Professi lications <sup>5</sup> (only secovery <sup>TM</sup> to Toolbox riet Security rus definitions) er® l' Player ce 2010 preload duct key to activa (DVD±RW)                    | ional 64 some  | Accessories  2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM Blu-ray™ Burner SATA 1.5Gb/s ThinkVision® L2440p Wide 24" Monitor More accessories on O-MAD sheet  Other accessories at lenovo.com/accesso |  |  |                             | or 4              | 43R2033<br>57Y4138<br>45K1675<br>4420HB2<br>es  | Role EPE   | IS-compliant<br>AT™ Gold ra   | eating  ED WARF and labor placeable ith limited parts³, 8 a erage exc s day res ces availa ervices_\ nty.html ay¹⁴ toll-fi | e Unit (CF<br>d onsite s<br>m - 5 pm<br>cluding ho<br>conse tim<br>able; see<br>warranty/ | service<br>olidays,<br>ne)<br>us/en/ |

| Type- Slot x<br>model bay Pi   | rocessor(s) GHz Max Turbo  | Memory Memory<br>DIMMs type D  | Disk<br>isk(s) size   | Pre-co   | Chassis<br>onf intrusion<br>Switch   | Graphics<br>adapter(s)   | Global   | Win7<br>preload                                | Avail<br>date                      |  |
|--|--|--|---|--|--|--|--|--|------------------------------------|--|
|  | x E5620 2.40 2.66 2 x E5503 2.00 2.66 2 x E5507 2.40 2.66 2 x E5640 2.66 2.93  | 2 x 2GB UDIMM 1x500<br>2 x 2GB UDIMM 1x300<br>2 x 2GB UDIMM 1x500<br>2 x 2GB UDIMM 1x500                                     | GBSATA 2.5"<br>GBSATA 3.5"<br>GBSATA 3.5"<br>GBSATA 2.5"<br>GBSATA 2.5"<br>GBSATA 3.5"<br>GBSATA 3.5" | No<br>No<br>No<br>No<br>No<br>No                 |  | 1 x Quadro FX580<br>1 x Quadro FX1800<br>1 x Quadro FX380<br>1 x Quadro FX580<br>1 x Quadro 600<br>1 x Quadro 2000<br>1 x Quadro 600<br>1 x Quadro NVS450  | Global   | Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64 | Jun 10<br>Jun 10<br>Nov10<br>Nov10 |  |
|  | <ul><li> High performance work</li><li> These small and medium</li><li> These systems are Micro</li></ul>  | n business (SMB) mode  | els are part of t   | he US  |  | Program  |  |  |                                    |  |
| Processor(s)   | Up to two processors, one Intel® Xeon® Processor I 4.8GT/s (giga-transfers/se Intel 64, Virtualization Tec 800MHz DDR3 memory contel Xeon Processor E5 4.8GT/s QPI, Intel 64, Virt 800MHz DDR3 memory contel Xeon Processor E5 5.86GT/s QPI, Intel 64, Hy Virtualization Technology, 1066MHz DDR3 memory | £5503 with dual-core, cond) QPI (QuickPath I nnology, ontroller, and 4MB cach 507 with quad-core, ualization Technology, ontroller, and 4MB cach 620 or E5640 with quad pper-Threading Technology Turbo Boost Technology | ne or<br>d <b>-core</b> ,<br>oogy,  |  | 5.1"W x 17<br>130mm W x<br>40.7 lb (18.<br>24-liter<br>Toolless sig  | k color; metal case<br>5"D x 16.8"H<br>k 444mm D x 427mm<br>5kg) max configuratio<br>le cover removal<br>sk and optical drive rel<br>apter retention   | n  |  | sk<br>sk                           |  |
| Implementation Memory  | Two LGA1366 sockets  4GB std, 48GB max, UDII 6-channel capable, six 24  ** System automatically or 1066MHz DDR3 memo  *** Over three DIMMs req   | D-pin DIMM sockets***<br>ocks down for processo<br>ry controller   | ,   | C, E   | Rack shelf Bay ① 5.25".  | support or optional rai<br>1.6" high, external,<br>1" high, internal,<br>1" high, internal,  | std opt  | ical<br>k<br>k                                 | sk                                 |  |
| Graphics   | Some: NVIDIA Quadro F<br>two DisplayPort, or<br>Some: NVIDIA Quadro 6  | 35W<br><b>X 380</b> , PCle x16 adapte<br>nk DVI-I, 35W<br><b>X 580</b> , PCle x16 adapte<br>ne dual-link DVI-I****, 40<br><b>X 1800</b> , PCle x16 adap<br>ne dual-link DVI-I****, 58                                    | er,<br>er, 512MB,<br>DW<br>ter, 768MB,  |  | Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max Slot 3: full-length, full-height, 32-bit PCl 2.3 Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max Slot 5: full-length, full-height, PCle x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCl 2.3 * Adapters >75W use auxiliary power connector(s) from PSU  SECURITY |  |  |  |                                    |  |
|  | Some: NVIDIA Quadro 2  | 000, PCIe x16 adapter,<br>ne dual-link DVI-I****, 62   | 2W  |  |  | Security chip (see     Side cover lock (see)   | e inform   | ation on                                       |                                    |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller                       | None<br>None<br>Some: 500GB, SATA 3.0G<br>Some: 300GB, SATA 3.0G<br>Super Multi-Burner DL DV<br>Serial ATA, SATA 3.0Gb/s,<br>three SATA connectors for<br>RAID <sup>8</sup> 0, 1, 5 support  | b/s, 10000 rpm, 2.5"<br>D±RW, SATA 1.5Gb/s<br>integrated in ICH10R,  | ector for optical   | ,  |  | Padlock loop (in respectively) Security slot (in respectively) Power-on passwore Administrator pass Boot sequence of Boot without keyb USB port disable  | ear for o<br>osaver®<br>ord<br>sword<br>ontrol<br>ooard, m                           | ptional<br>cable)                              | ·                                  |  |
| Chipset  | Intel 5520 Chipset, Intel  | CH10R, Winbond® W83  | 3627DHG-P Su  | iper I/C   | )  | Some: Chassis in   |  |  | ,                                  |  |
| Front ports<br>Rear ports<br>IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet                           | Two USB 2.0, microphone Eight USB 2.0, eSATA, on six analog audio ports (lin Optical SPDIF digital out, None High Definition (HD) Audic Internal speaker for busin One gigabit ethernet on p   | e ethernet (RJ-45),<br>e-in, mic-in, front-out, re<br>Optical SPDIF digital in<br>o, Analog Devices AD19<br>ess audio  | ear-out, center/  | sub-ou   | nt, side out),   |  | rtificatio   |  |                                    |  |
| Security chip  | Broadcom Trusted Platfori  | n Module, TCG 1.2-con  | npliant   |  |  | Please visit www.le  |  | - "  |                                    |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Preferred Pro USB Keybo<br>Optical Wheel Mouse (US<br>800 watts with 80mm side<br>Climate Savers® Comput<br>Five fans standard (power<br>Rack shelf support or opti  | B connector), black<br>-mounted variable spee<br>ing Gold, 80 PLUS® Go<br>supply, first processor,   | ed fan, universa<br>old qualified<br>one on front, to   | wo on I  | rear)  | Supports ThinkVan  GREENGUARD® ce RoHS-compliant EPEAT™ Gold ratin   | ertified<br>g  |  | jies                               |  |
| Preloaded oper - Genuine Wind Preloaded applisted) - Rescue and F - Microsoft Office purchase products | rating system <sup>20</sup> dows® 7 Professional 64 lications⁵ (only some Recovery™ ce 2010 preloaded; duct key to activate or® Business Edition   | Accessories 2GB PC3-10600 DDF 4GB PC3-10600 DDF Blu-ray™ Burner SAT, ThinkVision® L2440p More accessories on Other accessories at  | И<br>И<br>tor   | 43R2033<br>57Y4138<br>45K1675<br>4420HB2<br>ries | □ 3-year parts and     □ Customer Repla     parts only (with     for selected part     Mon - Fri covera     next business de     □ Lenovo services     lenovo.com/serv     lenovo-warranty     □ 24 hour x 7 day¹     during the warra   | labor ceable limited (s³, 8 am ge exclus ay response availabrices_wallabrices_ | Unit (CRI<br>onsite so<br>i - 5 pm,<br>uding ho<br>onse tim<br>ole; see<br>arranty/u | ervice<br>blidays,<br>e)<br>us/en/             |                                    |  |

| Type- Slot x<br>model bay Pi   | rocessor(s) GHz  | Max Turbo  | Memory<br>DIMMs   | Disk(s)  | Disk l  | Pre-con  | 1394<br>adptr | SATA optical  | Chassis<br>intr switch   | Graphics<br>h adapter(s)  | Global  | Avail<br>date  |
|--|--|--|---|--|---|--|---------------|---|--|---|---|--|
| 4269-11U 6x4 1<br>4269-12U 6x4 1<br>4269-13U 6x4 1<br>4269-17U 6x4 2<br>4269-19U 6x4 2<br>4269-21U 6x4 2<br>4269-22U 6x4 2<br>4269-68U 6x4 1<br>4269-69U 6x4 1<br>4269-71U 6x4 1 | x E5507 2.26<br>x X5650 2.66<br>2 x X5667 3.06<br>2 x X5677 3.46<br>2 x X5650 2.66<br>2 x E5640 2.66<br>x E5640 2.66<br>x E5507 2.26<br>x X5650 2.66   | 3.06<br>3.46<br>3.73<br>3.06<br>6.2.93<br>6.2.93<br>6.3.06   | 2 x 2GB<br>2 x 2GB<br>6 x 2GB<br>6 x 2GB<br>6 x 2GB<br>6 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB   | 1x300GB <sup>2</sup> SAS<br>1x300GB SAS<br>1x300GB SAS<br>1x450GB SAS<br>1x300GB SAS<br>1x300GB SAS<br>1x300GB SAS<br>1x300GB SAS<br>1x300GB SAS<br>1x300GB SAS<br>1x300GB SAS   | 3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"                                      | No<br>No<br>No<br>No<br>No<br>No<br>No<br>No<br>No   | 1394<br>1394  | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW  | Switch<br>Switch<br>Switch<br>Switch   | 1 x Quadro FX180<br>1 x Quadro FX180<br>1 x Quadro FX580<br>1 x Quadro 2000<br>1 x Quadro 2000<br>1 x Quadro 600  | Global<br>Global<br>Global  | Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Nov10<br>Nov10 |
|  |  |  |   |  |   |  |               | <u> </u>  |  |   |   |  |
| Processor(s)   | Intel® Xeon® I 4.8GT/s (giga- Intel 64, Virtua 800MHz DDR Intel Xeon Pr 5.86GT/s QPI Virtualization 1066MHz DDR Intel Xeon Pr 6.4GT/s QPI, Virtualization 1333MHz DDI Intel Xeon Pr 6.4GT/s QPI, Virtualization 1333MHz DDI Virtualization 1333MHz DDI 1333MHz DDI   | Processor transfers/s transfers/s al memory ocessor E , Intel 64, H Technology ocessor X Intel 64, H Technology R3 memory ocessor X Intel 64, H Technology R3 memory ocessor X Intel 64, H Technology R3 memory ocessor X Intel 64, H Technology R3 memory | E5507 w<br>econd) Q<br>echnology,<br>controller<br>5640 with<br>hyper-Thre,<br>controlle<br>5667 or X<br>yper-Thre,<br>trubo Bo<br>y controlle<br>5650 with<br>yper-Thre,<br>trubo Bo | PI (QuickPath<br>, and 4MB cacl<br>quad-core,<br>eading Technolog<br>or, and 12MB cacl<br>5677 with qua<br>ading Technolog<br>or, and 12MB cacl<br>grading Technolog   | Interconne or logy, y, ache of logy, y, ache of logy, y, ache of logy, y, y, y, y, y, y, y, y, y, | onnect),<br>or<br>e,   |               | • 5.1"W x<br>• 130mm<br>• 40.7 lb ·<br>• 24-liter<br>• Toolless<br>• Toolless<br>• Toolless<br>• Illumina<br>• Rack sh<br>Bay ① 5.1<br>Bay ② 3.1<br>Bay ③ 3.1 | plack colo<br>: 17.5"D x<br>W x 444r<br>(18.5kg) r<br>s side cov<br>s disk and<br>s adapter<br>ted front i<br>nelf suppo<br>25", 1.6"<br>5", 1" hi | r; metal case 16.8"H D x 427mm H nax configuration er removal optical drive removaretention cons rt or optional rail kit high, external, std gh, internal, opt  | optical<br>disk<br>disk   | sk<br>sk<br>sk   |
| Memory   | Two LGA1366<br>4GB or 12GB   |  | may   |  |   |  |               | Bay 4 3.  | 5", 1" hi  | gh, internal, opt   | disk  |  |
|  | UDIMM, PC3-<br>6-channel cap<br>** System auto<br>1066MHz DDI<br>*** Over six DI   | 10600 133<br>hable, twelve<br>omatically of<br>R3 memory<br>IMMs requ  | 3MHz DD<br>e 240-pin<br>clocks dow<br>controlle<br>ires dual p  | DIMM sockets<br>wn for processor<br>er<br>processors   | Slot 2: ful<br>Slot 3: ful<br>Slot 4: ful<br>Slot 5: ful  | If-length, full-height, PCIe x1 I-length, full-height, PCIe 2.0 x16 (75W* max) I-length, full-height, 32-bit PCI 2.3 I-length, full-height, PCIe 2.0 x16 (75W* max) I-length, full-height, PCIe x16 (x4 electrical) If-length, full-height, 32-bit PCI 2.3 's >75W use auxiliary power connector(s) from |               |   |  |   |   |  |
| Graphics   | some: NVIDIA one Dis Some: NVIDIA one Dis Some: NVIDIA two Dis   | splayPort™<br>A Quadro I<br>splayPort, o<br>A Quadro I<br>splayPort,<br>A Quadro 2<br>splayPort, o   | , one dua<br>FX 1800,<br>one dual-l<br>600, PCle<br>one dual-<br>2000, PCl<br>one dual-l  | PCIe x16 ada<br>I-link DVI-I****,<br>PCIe x16 adap<br>ink DVI-I****, 5<br>×x16 adapter, 1<br>link DVI-I, 40W<br>e x16 adapter,<br>ink DVI-I****, 6<br>re active at a ti  | 40W<br>oter, 76<br>9W<br>GB,<br>1GB,<br>2W  |  |               |   | • S<br>• S<br>• S<br>• R   | SECURI ecurity chip (see info ide cover lock (ships sys) adlock loop (in rear f   | TY rmation on with two id   | ı left)<br>lentical  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller   | None<br>None<br>300GB or 450<br>Super Multi-Bi<br>3 SATA conne<br>5 SATA/SAS <sup>4</sup><br>RAID <sup>8</sup> 0, 1, 5,  | GB, SAS 3<br>urner DL D<br>ctors for op<br>connectors<br>integrated  | 3.0Gb/s, 1<br>VD±RW, 5<br>otical, SAT<br>for disks,<br>in Marvel  | 5000 rpm, 3.5'<br>SATA 1.5Gb/s<br>TA 3.0Gb/s, inte<br>SATA 3.0Gb/s   | egrated<br>, SAS  | 3.0Gb/s  | 5,            | <b>.</b>  | • A<br>• B<br>• B<br>• S   | ecurity slot (in rear for<br>ensington Microsav<br>ower-on password<br>dministrator password<br>oot sequence contro<br>oot without keyboarc<br>erial port I/O control<br>SB port disablement<br>ome: Chassis intrus | er <sup>®</sup> cable)  d I , mouse (front or al                                    |  |
| Front ports  |  | • •  |   | ), headphone (   |   |  | por 1/C       |   |  | 1014  |   |  |
| Rear ports   | FireWire 400 (<br>Eight USB 2.0  | (IEEE 1394<br>), eSATA, s  | la)`<br>erial (9-pi   | n), two etherner<br>in, front-out, re  | t (RJ-4   | 45),   | r/sub-a       | out. side o   |  | ISV certific<br>ase visit www.lenovo<br>ports ThinkVantage  | .com/supp   |  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | Optical SPDIF<br>Some: FireWin<br>High Definition<br>Internal speak<br>Two gigabit etl   | digital out<br>re PCI ada<br>n (HD) Aud<br>er for busin<br>hernet on p   | , Optical S<br>pter, 1394<br>io, Analog<br>ness audio<br>planar, Bro  | SPDIF digital ir<br>la-2000, 400M<br>g Devices AD19  | n<br>bps, tw<br>988A c  | vo 6-pin<br>codec<br>and BCN   | ports         | on rear   | GRI<br>Rol-  | EENGUARD® certifie<br>dS-compliant<br>EAT™ Gold rating  | d   | 9100   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | optical Wheel Mouse (USB connector), black wer supply 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified Five fans standard (power supply, first processor, one on front, two on rear) Dual processors model(s): One additional processor fan for second processor Rack shelf support or optional sliding rack mount rail kit support |  |   |  |   |  |               |   |  | 3-year parts and labo<br>Customer Replaceab<br>parts only (with limit<br>for selected parts <sup>3</sup> , 8<br>Mon - Fri coverage en<br>next business day re<br>Lenovo services ava<br>enovo.com/services          | le Unit (CR<br>ed onsite s<br>am - 5 pm,<br>ccluding ho<br>sponse tim<br>lable; see | ervice<br>olidays,<br>ne)  |
| Preloaded operation - Genuine Wind   | • •  | sional 64  | <ul><li>Micr</li></ul>  | aded applicationsoft Office 20 thase product keep the contract of the contract | 10 pre  | loaded   |               | ed)   | <b>⇒</b> 2   | enovo-warranty.htm<br>24 hour x 7 day <sup>14</sup> toll-<br>during the warranty p  | free suppo  |  |

| Type- Slot x<br>model bay P  | Max Turbo<br>rocessor(s) GHz GHz   | Memory<br>DIMMs Disk(s)  | Disk Pre-co   |  | Chassis intr switch  | Graphics adapter(s)  | Win7<br>Global preload   | Avail<br>date                       |  |
|--|--|--|---|--|--|--|--|-------------------------------------|--|
|  | 1 x X5650 2.66 3.06  | 2 x 2GB 1x150GB <sup>2</sup> SAT.<br>1 x 4GB 1x150GB SATA<br>6 x 2GB 1x250GB SATA  | A 2.5" No   |  | W Switch<br>W Switch<br>Switch   | 2xQuadro NVS295  | Global Pro 64<br>Global Pro 64<br>Global Pro 64  | Jun 10                              |  |
|  | <ul> <li>High performance work</li> <li>Environmentally friendl</li> <li>These systems are Micro</li> </ul>  | y, cool, and quiet with r  | ock solid en  | gineering  | KR)  |  |  |                                     |  |
| Processor(s)   | Up to two processors, one Intel® Xeon® Processor Intel® Xeon® Processor Intel 64, Hyper-Threading Virtualization Technology, 1066MHz DDR3 memory Intel Xeon Processor X5 6.4GT/s QPI, Intel 64, Hyl Virtualization Technology, 1333MHz DDR3 memory Two LGA1366 sockets | E5620 with quad-core, second) QPI (QuickPath Technology, Turbo Boost Technology controller, and 12MB ca650 with six-core, per-Threading Technology Technology Boost Technology | y,<br>ache or<br>gy,  | t),  | Raven blad<br>5.1"W x 17<br>130mm W<br>40.7 lb (18<br>24-liter<br>Toolless si<br>Toolless di | ntable to 3U<br>k color; metal case<br>'.5"D x 16.8"H<br>x 444mm D x 427mr<br>.5kg) max configurat<br>de cover removal<br>sk and optical drive r | emoval   |                                     |  |
| Memory   | 4GB or 12GB std, 96GB r<br>RDIMM, PC3-10600 1333<br>6-channel capable, six 24<br>** System automatically c<br>DDR3 memory controller<br>*** Over three DIMMs req   | MHz DDR3**, ECC,<br>0-pin DIMM sockets***<br>ocks down for processo  | -   | MHz E  | Illuminated<br>Rack shelf<br>Bay ① 5.25'<br>Bay ② 3.5",<br>Bay ③ 3.5",                       | I front icons support or optional r 1, 1.6" high, external 1" high, internal 1" high, internal   | , std optical<br>std disk<br>opt disk  | sk                                  |  |
| Graphics   | Some: NVIDIA® Quadro® two DisplayPort, 2   |  | dapter, 256M  | В,   | Bay @ 3.5",  | 1" high, internal,   | , opt disk   |                                     |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SATA DVD<br>SATA DVD±RW<br>Disk controller                   | None None Some: 250GB, SATA 3.0 Some: 150GB, SATA 3.0 Some: Super Multi-Burne Serial ATA, SATA 3.0Gb/s three SATA connectors for   | Gb/s, 10000 rpm, 2.5"<br>TA 1.5Gb/s 16-48X Max<br>or DL DVD±RW, SATA 1<br>integrated in ICH10R,  | 33333*  | Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3 * Adapters >75W use auxiliary power connector(s) from PSU  SECURITY |  |  |  |                                     |  |
| Chineat  | RAID <sup>8</sup> 0, 1, 5 support  | CH10R Winhand® W83   | 2627DHG-P   | Super I/O  | <u> </u>   | Security chip (seconds)  |  | left)                               |  |
| Chipset Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet Security chip                            | High Definition (HD) Audio<br>Internal speaker for busing<br>One gigabit ethernet on p<br>Broadcom Trusted Platfor   | e (3.5mm), headphone (e ethernet (RJ-45), e-in, mic-in, front-out, re Optical SPDIF digital in o, Analog Devices AD19 ess audio anar, Broadcom® BCM! m Module, TCG 1.2-com     | 3.5mm),<br>ear-out, cente<br>988A codec<br>5755<br>npliant        | er/sub-ou  | Side cover lock (ships with two ic keys)     Padlock loop (in rear for opt padlock loop)     |  |  |                                     |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling   | Preferred Pro USB Keybo<br>Optical Wheel Mouse (US<br>800 watts with 80mm side<br>Climate Savers® Comput<br>Five fans standard (power<br>Dual processors model(s)  | B connector), black -mounted variable spec<br>ing Gold, 80 PLUS® Go<br>supply, first processor, One additional proces  | ed fan, univer<br>old qualified<br>one on front<br>ssor fan for s | sal,<br>, two on r<br>econd pro  | ocessor  | Chassis intrusion     ISV c     Please visit www.  | ertifications  | ort/ISV                             |  |
|  | 4GB RDIMM model(s):  | One additional memo model(s),  | •   |  |  | Supports ThinkVa   | intage® technolog  | gies                                |  |
| Rack mount   | Rack shelf support or opti   | Two additional memo<br>model(s)<br>onal sliding rack mount   | ,   |  | ssors  | GREENGUARD® of RoHS-compliant EPEAT™ Gold rat  |  |                                     |  |
| - Genuine Win Preloaded app listed) • Rescue and I • Norton™ Inte (30 days of v) • Microsoft Offi purchase pro | rnet Security irus definitions) ce 2010 preloaded; duct key to activate or® Business Edition   | Accessories 2GB PC3-10600 DE 4GB PC3-10600 DE Blu-ray™ Burner SA ThinkVision® L2440; More accessories or Other accessories a   | DR3 ECC RD<br>TA 1.5Gb/s<br>o Wide 24" M<br>n O-MAD she           | IMM<br>onitor<br>eet   | 57Y4425<br>57Y4426<br>45K1675<br>4420HB2   | Customer Repparts only (wit for selected pa Mon - Fri covenext business   Lenovo service   | D WARRANTY¹ nd labor laceable Unit (CR h limited onsite s urts³, 8 am - 5 pm, rage excluding he day response time es available; see rvices_warranty/ ty.html y¹⁴ toll-free suppo | ervice<br>olidays,<br>ne)<br>us/en/ |  |

| Type- Slot x<br>model bay Pr  | rocessor(s) GHz   | Max Turbo I<br>GHz   | Memory<br>DIMMs   | Disk(s)  | Disk F<br>size                                 |  | f SATA<br>optica  | Chassis<br>I intr switch   | Graphi<br>adapter  |   | Global                     | Win7<br>preload  | Avail<br>date  |
|---|---|--|---|--|--|--|---|--|--|---|----------------------------|--|--|
| 4263-12U 6x4 1<br>4263-22U 6x4 2<br>4263-67U 6x4 1<br>4263-72U 6x4 1<br>4263-79U 6x4 1<br>4263-81U 6x4 1<br>4263-81U 6x4 1<br>4263-97U 6x4 1<br>4263-99U 6x4 1<br>4263-99U 6x4 1<br>4263-91U 6x4 1  | x E5620       2.40         x X5650       2.66         x X5650       2.66         x E5507       2.26         x E5620       2.40         x E5630       2.53         x E5630       2.53         x E5630       2.53         x E5630       2.53         x E5630       2.26   | 2.93 6<br>3.06 2<br>3.06 2<br>2.66 2<br>2.80 2<br>2.66 2<br>2.80 2<br>2.93 2 | 5 x 1GB<br>5 x 1GB<br>2 x 2GB<br>5 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB<br>2 x 2GB | 1x500GB <sup>2</sup> SATA<br>1x300GB SATA<br>1x150GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA  | 2.5" 2.5" 3.5" 3.5" 3.5" 3.5" 3.5" 3.5" 3.5" 3 | No<br>No<br>No<br>No<br>No<br>No<br>No<br>No<br>No<br>No | DVD±R<br>DVD<br>DVD±R<br>DVD±R<br>DVD±R<br>DVD±R<br>DVD±R<br>DVD±R<br>DVD±R<br>DVD±R<br>DVD±R | Switch Switch Switch SW SW SW SW SW SW SW SW SW SW SW SW   | 1 x Quad<br>1 x Quad<br>2 x Quad<br>1 x Quad<br>1 x Quad<br>1 x Quad<br>1 x Quad<br>1 x Quad<br>1 x Quad<br>1 x Quad   | dro NVS450<br>dro NVS295<br>dro FX380<br>dro FX380<br>dro FX580<br>dro FX580<br>dro FX1800<br>dro 600<br>dro 2000<br>dro NVS450<br>dro NVS295 | Global<br>Global<br>Global | Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64 | Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Jun 10<br>Nov 10 |
| <ul> <li>High performance workstation with smallest-possible form factor</li> <li>Environmentally friendly, cool, and quiet with rock solid engineering</li> <li>These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)</li> </ul> |   |  |   |  |  |  |   |  |  |   |                            |  |  |
| Processor(s)  | Up to two processors, one or two processors standard, Intel® Xeon® Processor E5507 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5620, E5630, or E5640 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor X5650 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache |  |   |  |  |  |   | Tower  Rack-mountable to 3U Raven black color; metal case 5.1"W x 17.5"D x 16.8"H 130mm W x 444mm D x 427mm H 40.7 lb (18.5kg) max configuration 24-liter Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Rack shelf support or optional rail kit |  |   |                            |  |  |
| Implementation Memory   | PC3-10600 1333MHz DDR3**, ECC, 6-channel capable, six 240-pin DIMM sockets*** ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Over three DIMMs requires dual processors  |  |   |  |  |  |   |  | / ① 5.25", 1.6" high, external, std optical / ② 3.5", 1" high, internal, std disk / ③ 3.5", 1" high, internal, opt disk / ④ 3.5", 1" high, internal, opt disk t 1: half-length, full-height, PCle x1   |   |                            |  |  |
| Graphics  | Some: NVIDIA two Dis Some: NVIDIA 556MB. Some: NVIDIA two Dis Some: NVIDIA two Dis Some: NVIDIA two Dis Some: NVIDIA two Dis Some: NVIDIA two Dis Some: NVIDIA two Dis some: NVIDIA two Dis **** Only two dis some two Dis ****   |  | Slot 3: full-le<br>Slot 4: full-le<br>Slot 5: full-le<br>Slot 6: half-  | length, full-height, PCIe 2.0 x16 (75W* max) length, full-height, 32-bit PCI 2.3 length, full-height, PCIe 2.0 x16 (75W* max) length, full-height, PCIe x16 (x4 electrical) -length, full-height, 32-bit PCI 2.3 >75W use auxiliary power connector(s) from  SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password |  |  |   |  |  |   |                            |  |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SATA DVD<br>SATA DVD±RW<br>Disk controller  | None None Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Some: 150GB or 300GB, SATA 3.0Gb/s, 10000 rpm, 2.5" Some: 160GB Solid State Drive (SSD), SATA 3.0Gb/s, 1.8" Some: DVD-ROM DL SATA 1.5Gb/s 16-48X Max <sup>4</sup> Drive Some: Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID <sup>8</sup> 0, 1, 5 support   |  |   |  |  |  |   |  | Administrator password     Boot sequence control     Boot without keyboard, mouse     USB port disablement (front or all)     Some: Chassis intrusion switch  ISV certifications Please visit www.lenovo.com/support/ISV   |   |                            |  |  |
| Chipset   | Intel 5520 Chi  | uper I/C   | )   | Suppo  | Supports ThinkVantage® technologies            |  |   |  |  |   |                            |  |  |
| Front ports<br>Rear ports  IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | High Definition<br>Internal speake<br>One gigabit eth   | ut, side out)  | LIMITED WARRANTY¹  3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service                          |  |  |  |   |  |  |   |                            |  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Broadcom Trusted Platform Module, TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified Five fans standard (power supply, first processor, one on front, two on rear) Dual processors model(s): One additional processor fan for second processor Rack shelf support or optional sliding rack mount rail kit support   |  |   |  |  |  |   |  | for selected parts <sup>3</sup> , 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  Lenovo services available; see lenovo.com/services_warranty/us/en/ lenovo-warranty.html  24 hour x 7 day <sup>14</sup> toll-free support during the warranty period <sup>1</sup> |   |                            |  |  |

| Type- Slot x model bay F  | Processor(s)  |   | /lax Turbo<br>GHz  | Memory<br>DIMMs   | Memory<br>type   | Disk(s)  | Disk<br>size  | Pre-con  | f SATA optical   | 1394<br>adptr  | Graphics adapter(s)   | Win7<br>preload   | Avail<br>date                   |
|---|---|---|--|---|--|--|---|--|--|--|---|---|---------------------------------|
| 266-11U 6x4   | 2 x X5680   | 3.33  | 3.60   | 12 x 2GB  | RDIMM 2  | x128GB <sup>2</sup> SSD  | 1.8"  | 0  | Blu-ray  | 1394   | 1 x NVS450 + Tesla  | Pro 64  | Jun 1                           |
|   | • E   | nviror  | nmentally  | friendly,   | cool, and  | smallest-poss<br>quiet with rock<br>10 Product Key   | solia   | l engine   | ering  |  |   |   |                                 |
| Processor(s)  mplementation Memory  | Intel® Xec<br>6.4GT/s (g<br>Intel 64, H<br>Virtualizat<br>1333MHz<br>Two LGA1<br>24GB std,<br>RDIMM, P  | piga-tra<br>lyper-1<br>ion Tea<br>DDR3<br>366 so<br>192G<br>CC3-10<br>capab | ocessor<br>ansfers/s<br>Threading<br>chnology<br>B memory<br>ockets<br>B max (F<br>1600 133; | X5680 w<br>econd) Q<br>g Technolo<br>, Turbo Bo<br>v controlle<br>Pending a<br>BMHz DD<br>e 240-pin | ogy,<br>bost Technor, and 12N<br>vailability o<br>R3, ECC,<br>DIMM soo                 | e,<br>ath Interconne<br>ology,<br>IB cache<br>of 16GB RDIM   | ,.  | • F<br>• F<br>• 5<br>• 1<br>• 4<br>• 2<br>• T<br>• T | 5.1"W x 17<br>30mm W<br>0.7 lb (18<br>4-liter<br>oolless s   | ck color<br>7.5"D x<br>x 444m<br>3.5kg) m<br>ide cove<br>isk and | ; metal case<br>16.8"H<br>nm D x 427mm H<br>nax configuration<br>er removal<br>optical drive removal  | _   | sk                              |
| Graphics  |   |   |  | <u> </u>  |  | er, 512MB,   |   | <u> </u>   | luminated  | d front id   |   |   | sk<br>sk                        |
| GPU Computing   | IEEE 754  | sla™  | C1060, F   |   |  | GB,<br>ion floating poi  | int, 18   | 8W Ba  | y ① 5.25<br>y ② 3.5",  | ", 1.6" h<br>1" hig  | nigh, external, std or<br>hjh, internal, std di   | sk  |                                 |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller  | Blu-ray™<br>3 SATA co<br>5 SATA/SA  | Burne<br>onnecto<br>AS⁴ co  | r, SATA 1<br>ors for op<br>nnectors  | .5Gb/s<br>tical, SAT<br>for disks,  |  | , integrated in<br>Gb/s, SAS 3.00  |   | Slo<br>Slo<br>Slo<br>Slo                             | ot 2: full-le<br>ot 3: full-le<br>ot 4: full-le  | 1" hig<br>ength, f<br>ength, f<br>ength, f                       | h, internal, opt di<br>rull-height, PCle x1<br>rull-height, PCle 2.0 x<br>rull-height, 32-bit PCl<br>rull-height, PCle 2.0 x  | sk<br>16 (75W <sup>*</sup><br>2.3<br>16 (75W <sup>*</sup>               | max)                            |
| Chipset   | Intel 5520<br>Winbond®  | <b>Chip</b> : W836  | set, Intel<br>27DHG-   | ICH10,<br>P Super I   | /O   |  |   | Slo  | Slot 5: full-length, full-height, PCIe x16 (x4 electrical Slot 6: half-length, full-height, 32-bit PCI 2.3  * Adapters >75W use auxiliary power connector(s) from the sum of the |  |   | ,   |                                 |
| Front ports  Rear ports  EEE 1394 adpt Audio Speaker Ethernet Security chip   | Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)  Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side of Optical SPDIF digital out, Optical SPDIF digital in  FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754 |   |  |   |  | SECURITY  Security chip (see information on left) Side cover lock (ships with two identica keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password |   |  |  |  |   |   |                                 |
| Keyboard<br>Mouse<br>Power supply<br>Cooling  | Preferred<br>Optical WI<br>800 watts<br>Climate S<br>Five fans s<br>Dual proce  | Pro Us<br>heel M<br>with 8<br>savers<br>standa<br>essors                    | SB Keybo<br>louse (US<br>Omm sid<br>** Compu<br>ard (powe<br>s model(s                       | oard (USE<br>SB conne<br>e-mounte<br>eting Gole<br>er supply,<br>e): One ad                         | 3 connecto<br>ctor), black<br>d variable<br>d, 80 PLUS<br>first proces<br>ditional pro | r), 104-key, bla   | versal<br>ed<br>ont, two                                | vo on rea  |  | • Ac<br>• Bc<br>• Bc   | Iministrator password<br>oot sequence control<br>oot without keyboard, r<br>rrial port I/O control<br>SB port disablement (f  |   | 1)                              |
| Preloaded ope   | 0,  |   |  | Acce  | ssories  |  |   |  |  |  |   |   |                                 |
| Preloaded applications <sup>5</sup> (only some listed)  • Rescue and Recovery <sup>™</sup> • ThinkVantage Toolbox • Norton <sup>™</sup> Internet Security  4GB PC3-1060 Blu-ray <sup>™</sup> Burne ThinkVision <sup>®</sup> L2 More accessori |   |   | PC3-10600  | C3-10600 DDR3 ECC RDIMM<br>C3-10600 DDR3 ECC RDIMM  |  |  | 57Y4425<br>57Y4426                                      | Supp   | oorts <b>ThinkVantage</b> ® t  | technolog  | gies  |   |                                 |
|   |   |   | ner SATA 1.5Gb/s 45K1675<br>L2440p Wide 24" Monitor 420HB2<br>ories on O-MAD sheet           |   |  | 120HB2   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating |  |  | ,  |   |   |                                 |
| (30 days of v<br>• Adobe® Rea<br>• Adobe Flash<br>• Microsoft Off<br>purchase pro<br>• Roxio MyDV<br>• Corel® WinD<br>• Ulead® DVD  | der®<br>® Player<br>fice 2010 pre<br>oduct key to<br>D® (Blu-ray)<br>VD® (Blu-ray   | eloade<br>activat   | te   | Other   | accessorie   | es at <b>lenovo.c</b>  | om/a  | cessori  | <del>e</del> S   | C  p  fc  N  n  C  T   | LIMITED WARR -year parts and labor customer Replaceable arts only (with limited or selected parts³, 8 ar lon - Fri coverage exc exc business day resp hinkPlus™ services ar ttp://lenovo.com/thinky | Unit (CR<br>onsite s<br>n - 5 pm,<br>luding ho<br>onse tim<br>vailable; | ervice<br>olidays<br>ie)<br>see |

## ThinkStation® C20, C20x Accessories

## Partial list of accessories supported on ThinkStation C20 and C20x

## Heatsink<sup>62</sup>

Second Processor Heatsink for C20/C20x 0A65720 ann 01/10/12 62 • The heatsink is used for second processor (to be provided by customer from business partner, not for Lenovo processor options)

The heatsink supports Intel Xeon processor (LGA1366)

 Please follow heatsink installation instruction on http://www.lenovo.com/support/thinkstationd20/heat-sink-instructions

Memory<sup>53</sup>

| 2GB PC3-10600 DDR3 ECC UDIMM <sup>54</sup> | 43R2033 ann 03/31/09 |
|--|----------------------|
| 4GB PC3-10600 DDR3 ECC UDIMM <sup>54</sup> | 57Y4138 ann 08/04/09 |
| 8GB PC3-10600 DDR3 ECC UDIMM <sup>54</sup> | 0A65718 ann 04/24/12 |
| 2GB PC3-10600 DDR3 ECC RDIMM <sup>54</sup> | 57Y4425 ann 04/13/10 |
| 4GB PC3-10600 DDR3 ECC RDIMM <sup>54</sup> | 57Y4426 ann 04/13/10 |
| 8GB PC3-10600 DDR3 ECC RDIMM <sup>54</sup> | 57Y4427 ann 04/13/10 |
|  |                      |

53 Mixing of UDIMM and RDIMM is not supported

More information on memory and processor configuration, operation and limitation, please visit:

## www.lenovo.com/support/thinkstationaccessories

Optical

| DVD-ROM DL SATA1.5Gb/s 16X-48X Max4   | 41N5618 ann 09/26/06 |
|---------------------------------------|----------------------|
| Lenovo® Super Multi-Burner SATA Drive | 0A65618 ann 08/23/11 |
| Blu-ray™ Burner SATA1.5Gb/s           | 45K1675 ann 03/31/09 |

Storage and removable storage

| C20, C20x preconfigured with SAIA disks: |                      |
|--|----------------------|
| 250GB SATA 3.0Gb/s Disk (7200 rpm)       | 41N3015 ann 01/24/06 |
| 500GB SATA 3.0Gb/s Disk (7200 rpm)       | 43R1990 ann 11/06/07 |
| 1TB SATA 3.0Gb/s Disk (7200 rpm)         | 45J7918 ann 08/19/08 |
| 300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" | 43R2031 ann 03/31/09 |

C20x preconfigured with SAS disks:

450GB SAS 3.0Gb/s Disk (15000 rpm) 43N3424 ann 02/02/10

All:

| USB 2.0 Portable 320GB Hard Disk        | 45K1689 ann 03/17/09 |
|---|----------------------|
| USB 2.0 Portable 500GB Hard Disk        | 45K1690 ann 05/26/09 |
| USB 2.0 Portable Secure 320GB Hard Disk | 43R2019 ann 11/18/08 |

Keyboard

| Preferred Pro USB Keyboard                               | 73P5220 ann 06/21/05 |  |
|--|----------------------|--|
| Enhanced Performance USB Keyboard                        | 73P2620 ann 03/23/04 |  |
| Lenovo USB Fingerprint Keyboard                          | 73P4730 ann 02/22/05 |  |
| Lenovo USB Smartcard Keyboard                            | 51J0155 ann 03/24/09 |  |
| Ultraslim Plus Wireless Keyboard and Mouse <sup>52</sup> | 0A34032 ann 04/05/11 |  |

## More information at www.lenovo.com/support/keyboards

## Mouse

| Lenovo Optical Mouse (USB)                  | 06P4069 <i>ann 05/21/03</i> |
|---|-----------------------------|
| Lenovo ScrollPoint® Mouse (USB, Optical)    | 31P7405 ann 08/27/02        |
| Lenovo Laser Mouse (USB)                    | 41U3074 ann 01/23/07        |
| Lenovo Wireless Laser Moúse <sup>52</sup>   | 0A36188 ann 12/20/11        |
| 52 Wireless via 2.4GHz technology using a m | nicro-size USB receiver.    |

More information at www.lenovo.com/support/mice

## **Monitors**

ThinkVision®:
L1711p 17" (VGA, DVI-D)
LT1952p Wide 19" (VGA, DP, DVI-D)
L2250p Wide 22" (VGA, DVI-D)
L2251x Wide 22" (VGA, DP)
LT2252p Wide 22" (VGA, DP, DVI-D)
LT2452p Wide 24" (VGA, DP, DVI-D)
SP DisplayPort cable is not included: us 5047HB2 ann 10/20/09 2448MB6 ann 09/13/11 2572HB6 ann 10/20/09 2578HB6 ann 10/20/09 2572MB6 ann 09/13/11 4420MB2 ann 09/13/11 DisplayPort cable is not included; use optional

DisplayPort to DisplayPort Monitor Cable (0A36537).

More information at www.lenovo.com/support/monitors

## Monitor accessories<sup>46</sup>

Kensington® MicroSaver® Cable Lock 73P2582 ann 12/29/03 Kensington Twin Head Cable Lock 45K1620 ann C

46 Compatible on selected Lenovo and ThinkVision monitors. 45K1620 ann 09/30/08

More information at www.lenovo.com/support/monitoraccessories

Graphics

| DisplayPort™ to Single-link DVI-D Cable50              | 45J7915 | ann 08/05/08 |
|--|---------|--------------|
| DisplayPort to DisplayPort Monitor Cable <sup>50</sup> | 0A36537 | ann 09/13/11 |
| NVIDIA® Quadro® 256MB NVS 295                          | 45K1669 | ann 04/21/09 |
| NVIDIA Quadro 512MB NVS 300 DMS5965                    | 0A36528 | ann 04/26/11 |
| NVIDIA Quadro 512MB NVS 450                            | 57Y4398 | ann 01/19/10 |
| NVIDIA Quadro 512MB 400                                | 0A36535 | ann 06/28/11 |
| NVIDIA Quadro 1GB 600                                  | 0A36183 | ann 10/26/10 |
| NVIDIA Quadro 1GB 2000                                 |         | ann 10/26/10 |
| NVIDIA Quadro 1GB 2000D                                | 0A36541 | ann 11/01/11 |
| NVIDIA Quadro 2GB 4000                                 | 57Y4480 | ann 10/26/10 |
| NVIDIA Quadro 2.5GB 5000                               | 57Y4481 | ann 10/26/10 |
| NVIDIA SLI Connector <sup>60</sup>                     | 55Y8963 | ann 03/31/09 |

Attaches to selected DisplayPort graphics cards.
 Compatible to Quadro 5000.

## More information at www.lenovo.com/support/graphiccards

## Security

| Kensington MicroSaver Cable Lock    | 73P2582 | ann | 12/29/03 |
|-------------------------------------|---------|-----|----------|
| Kensington Twin Head Cable Lock     | 45K1620 | ann | 09/30/08 |
| Lenovo Security Cable Lock          | 57Y4303 | ann | 08/24/10 |
| USB Gemplus GemPC Smart Card Reader | 41N3040 | ann | 02/21/06 |

## Rack mount accessories

57Y4482 ann 09/14/10 ThinkStation C-Series, D-Series Rail Kit

For more information on accessories: www.lenovo.com/accessories Purchase Lenovo accessories

www.lenovo.com/support/accessories

Product specifications on Lenovo Support

www.lenovo.com/accessoriesguide Option Compatibility Matrix (OCM) and accessory brochures

www.lenovoquickpick.com

An Options Compatibility Configurator for Lenovo systems

<sup>&</sup>lt;sup>54</sup> Actual memory operating speed is the lowest installed speed. dependent on proccessor memory bus speed and PC3-8500/ PC3-10600 installed configuration

<sup>65</sup> Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA

# Memory Configuration for ThinkStation® C20x - Page 2/2

| Memory Speed Table f                         | or ThinkSta                        | tion C20x |                              |          |             |                                   |         |                |
|--|------------------------------------|-----------|------------------------------|----------|-------------|-----------------------------------|---------|----------------|
| DIMM Type and<br>Speed                       | PC3-10600 UDIMM<br>(1GB, 2GB, 4GB) |           | PC3-8500 UDIMM<br>(1GB, 2GB) |          |             | PC3-8500 RDIMM<br>(1GB, 2GB, 4GB) |         | 0 RDIMM<br>GB) |
| Amount of DIMMs<br>installed per CPU<br>bank | 1 to 3                             | 4 to 6    | 1 to 6                       | 1 to 3   | 4 to 6      | 1 to 6                            | 1 to 3  | 4 to 6         |
| CPU Model                                    |                                    |           |                              | Actual M | emory Speed |                                   |         |                |
| Intel® Xeon® E5603                           | 1066MHz                            | 1066MHz   | 1066MHz                      | 1066MHz  | 1066MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5606                             | 1066MHz                            | 1066MHz   | 1066MHz                      | 1066MHz  | 1066MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5607                             | 1066MHz                            | 1066MHz   | 1066MHz                      | 1066MHz  | 1066MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5645                             | 1333MHz                            | 1333MHz   | 1066MHz                      | 1333MHz  | 1333MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5649                             | 1333MHz                            | 1333MHz   | 1066MHz                      | 1333MHz  | 1333MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5647                             | 1066MHz                            | 1066MHz   | 1066MHz                      | 1066MHz  | 1066MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5672                             | 1333MHz                            | 1333MHz   | 1066MHz                      | 1333MHz  | 1333MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5675                             | 1333MHz                            | 1333MHz   | 1066MHz                      | 1333MHz  | 1333MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5687                             | 1333MHz                            | 1333MHz   | 1066MHz                      | 1333MHz  | 1333MHz     | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5690                             | 1333MHz                            | 1333MHz   | 1066MHz                      | 1333MHz  | 1333MHz     | 1066MHz                           | 1066MHz | 800MHz         |

For more information on ThinkStation D20 processor and memory accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkstationaccessories

## Memory Configuration for ThinkStation® C20x - Page 1/2

## Memory Loading Notes on ThinkStation C20x

System memory speed on ThinkStation C20x will be determined by a number of factors, including the microprocessor model and the type, speed, size (capacity), and number of DIMMs installed. Refer to the following table for information on the supported system memory speed for your ThinkStation model.

- ThinkStation C20x has twelve memory slots; divided into two sets of 6-DIMM memory slots

- Memory controller is integrated in processor
  ThinkStation C20x has 2 processor slots, each processor control six DIMMs
  Over six DIMMs requires dual processor
  ThinkStation C20x supports UDIMM and RDIMM, mixing of UDIMM and RDIMM is not supported

## Memory Speed Table for ThinkStation C20x

| DIMM Type and<br>Speed                 |         |                     | PC3-8500 UDIMM<br>(1GB, 2GB) | PC3-10600 RDIMM<br>(2GB, 4GB, 8GB) |         | PC3-8500 RDIMM<br>(1GB, 2GB, 4GB) | PC3-850<br>(80 |        |  |  |  |
|--|---------|---------------------|------------------------------|------------------------------------|---------|-----------------------------------|----------------|--------|--|--|--|
| Amount of DIMMs installed per CPU bank | 1 to 3  | 4 to 6              | 1 to 6                       | 1 to 3                             | 4 to 6  | 1 to 6                            | 1 to 3         | 4 to 6 |  |  |  |
| CPU Model                              |         | Actual Memory Speed |                              |                                    |         |                                   |                |        |  |  |  |
| Intel® Xeon® E5502                     | 800MHz  | 800MHz              | 800MHz                       | 800MHz                             | 800MHz  | 800MHz                            | 800MHz         | 800MHz |  |  |  |
| Intel Xeon E5503                       | 800MHz  | 800MHz              | 800MHz                       | 800MHz                             | 800MHz  | 800MHz                            | 800MHz         | 800MHz |  |  |  |
| Intel Xeon E5504                       | 800MHz  | 800MHz              | 800MHz                       | 800MHz                             | 800MHz  | 800MHz                            | 800MHz         | 800MHz |  |  |  |
| Intel Xeon E5506                       | 800MHz  | 800MHz              | 800MHz                       | 800MHz                             | 800MHz  | 800MHz                            | 800MHz         | 800MHz |  |  |  |
| Intel Xeon E5507                       | 800MHz  | 800MHz              | 800MHz                       | 800MHz                             | 800MHz  | 800MHz                            | 800MHz         | 800MHz |  |  |  |
| Intel Xeon E5520                       | 1066MHz | 1066MHz             | 1066MHz                      | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon E5530                       | 1066MHz | 1066MHz             | 1066MHz                      | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon E5540                       | 1066MHz | 1066MHz             | 1066MHz                      | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon E5620                       | 1066MHz | 1066MHz             | 1066MHz                      | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon E5630                       | 1066MHz | 1066MHz             | 1066MHz                      | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon E5640                       | 1066MHz | 1066MHz             | 1066MHz                      | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5550                       | 1333MHz | 1066MHz             | 1066MHz                      | 1333MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5560                       | 1333MHz | 1066MHz             | 1066MHz                      | 1333MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5570                       | 1333MHz | 1066MHz             | 1066MHz                      | 1333MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5650                       | 1333MHz | 1333MHz             | 1066MHz                      | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5660                       | 1333MHz | 1333MHz             | 1066MHz                      | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5667                       | 1333MHz | 1333MHz             | 1066MHz                      | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5670                       | 1333MHz | 1333MHz             | 1066MHz                      | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5677                       | 1333MHz | 1333MHz             | 1066MHz                      | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon X5680                       | 1333MHz | 1333MHz             | 1066MHz                      | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon W5580                       | 1333MHz | 1066MHz             | 1066MHz                      | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |
| Intel Xeon W5590                       | 1333MHz | 1066MHz             | 1066MHz                      | 1333MHz                            | 1066MHz | 1066MHz                           | 1066MHz        | 800MHz |  |  |  |

For more information on ThinkStation C20x processor and memory accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkstationaccessories

# Memory Configuration for ThinkStation® C20 - Page 2/2

| Memory Speed Table                     | for ThinkStation C20               |                                   |   |                                   |                               |
|--|------------------------------------|-----------------------------------|---|-----------------------------------|-------------------------------|
| DIMM Type and<br>Speed                 | PC3-10600 UDIMM<br>(1GB, 2GB, 4GB) | PC3-8500 UDIMM<br>(1GB, 2GB, 4GB) | PC3-10600 RDIMM<br>(1GB, 2GB, 4GB, 8GB) | PC3-8500 RDIMM<br>(1GB, 2GB, 4GB) | PC3-8500 RDIMM<br>(8GB, 16GB) |
| Amount of DIMMs installed per CPU bank | 1 to 3                             | 1 to 3                            | 1 to 3                                  | 1 to 3                            | 1 to 3                        |
| CPU Model                              |                                    |                                   | Actual Memory Speed                     | d                                 |                               |
| Intel® Xeon® E5603                     | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5606                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5607                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5645                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5649                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5672                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5675                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |

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# Memory Configuration for ThinkStation® C20 - Page 1/2

## Memory Loading Notes on ThinkStation C20

System memory speed on ThinkStation C20 will be determined by a number of factors, including the microprocessor model and the type, speed, size (capacity), and number of DIMMs installed. Refer to the following table for information on the supported system memory speed for your ThinkStation model.

- ThinkStation C20 has six memory slots; divided into two sets of 3-DIMM memory slots

- Memory controller is integrated in processor
  ThinkStation C20 has 2 processor slots, each processor control three DIMMs
  Over three DIMMs requires dual processor
  ThinkStation C20 supports UDIMM and RDIMM, mixing of UDIMM and RDIMM is not supported

## Memory Speed Table for ThinkStation C20

| DIMM Type and<br>Speed                 | PC3-10600 UDIMM<br>(1GB, 2GB, 4GB) | PC3-8500 UDIMM<br>(1GB, 2GB, 4GB) | PC3-10600 RDIMM<br>(1GB, 2GB, 4GB, 8GB) | PC3-8500 RDIMM<br>(1GB, 2GB, 4GB) | PC3-8500 RDIMM<br>(8GB, 16GB) |
|--|------------------------------------|-----------------------------------|---|-----------------------------------|-------------------------------|
| Amount of DIMMs installed per CPU bank | 1 to 3                             | 1 to 3                            | 1 to 3                                  | 1 to 3                            | 1 to 3                        |
| CPU Model                              |                                    |                                   | Actual Memory Speed                     | ı                                 |                               |
| Intel® Xeon® E5502                     | 800MHz                             | 800MHz                            | 800MHz                                  | 800MHz                            | 800MHz                        |
| Intel Xeon E5503                       | 800MHz                             | 800MHz                            | 800MHz                                  | 800MHz                            | 800MHz                        |
| Intel Xeon E5504                       | 800MHz                             | 800MHz                            | 800MHz                                  | 800MHz                            | 800MHz                        |
| Intel Xeon E5506                       | 800MHz                             | 800MHz                            | 800MHz                                  | 800MHz                            | 800MHz                        |
| Intel Xeon E5507                       | 800MHz                             | 800MHz                            | 800MHz                                  | 800MHz                            | 800MHz                        |
| Intel Xeon E5520                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5530                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5540                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5620                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5630                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon E5640                       | 1066MHz                            | 1066MHz                           | 1066MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5550                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5560                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5570                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5650                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5660                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5667                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5670                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5677                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon X5680                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon W5580                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |
| Intel Xeon W5590                       | 1333MHz                            | 1066MHz                           | 1333MHz                                 | 1066MHz                           | 1066MHz                       |

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# **ThinkStation**



Lenovo ThinkStation S20



Lenovo ThinkStation S20



Lenovo ThinkStation S20



Lenovo ThinkStation S20 (left) Lenovo ThinkStation D20 (right)



Lenovo ThinkStation Graphics Card Option NVIDIA® Quadro® 2GB 4000 (57Y4480)\*



Lenovo ThinkStation Graphics Card Option NVIDIA Quadro 2.5GB 5000 (57Y4481)

# **ThinkStation**



Lenovo ThinkStation D20



Lenovo ThinkStation S20 (left) Lenovo ThinkStation D20 (right)



Lenovo ThinkStation D20



Lenovo ThinkStation D20 with Lenovo ThinkVision L2440 Monitor



Lenovo ThinkStation Graphics Card Option NVIDIA® Quadro® 2GB 4000 (57Y4480)\*



Lenovo ThinkStation Graphics Card Option NVIDIA Quadro 2.5GB 5000 (57Y4481)

<sup>\*</sup> NVIDIA Quadro 2GB 4000 (57Y4480) option packaging contains one 3D stereo bracket

|  |  |   |   |  |   |  |   | Distratio   |   |   |   |  |  |  |
|--|--|---|---|--|---|--|---|---|---|---|---|--|--|--|
|  | lot x<br>bay Processor GHz   |   | mory<br>eed Disk(s  | Disk<br>) size   |   | SATA<br>O optica   | ۱. د  | Diskette<br>or Media<br>reader  | Graph<br>adapte   |   | 1394<br>adptr   | ENERGY<br>STAR 5.0   | Preload  | Avail<br>date  |
| \$20 4105-11U<br>\$20 4105-12U<br>\$20 4105-13U<br>\$20 4105-14U<br>\$20 4105-15U<br>\$20 4105-38U<br>\$20 4105-39U<br>\$20 4105-41U | 5x6 E5504 2.00<br>5x6 E5506 2.13<br>5x6 E5540 2.53<br>5x6 E5506 2.13<br>5x6 W5580 3.20<br>5x6 W5580 2.53<br>5x6 W3540 2.93   | 2 x 1GB 106<br>2 x 2GB 106<br>2 x 2GB 106<br>2 x 1GB 106<br>2 x 1GB 106<br>2 x 2GB 133<br>4 x 1GB 106<br>2 x 1GB 106<br>3 x 1GB 106   | 6MHz 1 x 2500<br>6MHz 1 x 5000<br>6MHz 2 x 5000<br>6MHz 2 x 5000<br>6MHz 1 x 1500<br>6MHz 2 x 3000<br>6MHz 1 x 2500<br>6MHz 1 x 2500  | \$B 3.5'<br>\$B 3.5'<br>\$B 3.5'<br>\$B 2.5'<br>\$B 2.5'<br>\$B 3.5'<br>\$B 3.5'                               | 0 0   | DVD±F<br>DVD±F<br>DVD±F<br>DVD±F<br>DVD±F<br>DVD±F<br>DVD±F<br>DVD±F | RW<br>RW<br>RW<br>RW<br>RW<br>RW<br>RW        | Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media | 1 x FX1<br>1 x FX4<br>1 x FX4<br>1 x FX1<br>1 x FX4<br>1 x V57<br>1 x V37<br>1 x FX1      | 800<br>800<br>800<br>800<br>800<br>800<br>00<br>00              | 1394  | ES50<br>ES50<br>ES50<br>ES50<br>ES50   | Bus32<br>Bus32<br>Bus64<br>Bus64<br>Bus32<br>Bus64<br>Bus32<br>Pro64               | Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09 |
| Processor  | Intel® Xeon® Proce 4.8GT/s (giga-trans) Intel 64, Hyper-Thre Turbo Boost Techno 1066MHz DDR3 me Intel Xeon Process 4.8GT/s QPI, Intel 6800MHz DDR3 mer Intel Xeon Process Intel 64, Hyper-Thre 1066MHz DDR3 me Intel Xeon Process Intel 64, Hyper-Thre 1333MHz DDR3 me | fers/second) eading Technology (up to 2 emory control sor E5504 or 34, Virtualizat mory controlle sor E5540 wi eading Technolomory control sor W5580 w eading Technologor W5580 w eading Technologor W5580 w  | QPI (QuickPath blogy, Virtualizate).93GHz at max ler, and 8MB caces and 4MB caces and 4MB caces and 4MB caces and 4MB caces and 4MB caces and 4MB caces and 4MB caces and 4MB caces and 8MB caces and | Intercolion Tecliurbo m<br>che or<br>ad-core<br>he or<br>.86GT/s<br>ion Tecliche or<br>6.4GT/s<br>ion Tecliche | nnect<br>hnolo<br>ode),<br>,<br>s QPI<br>hnolo<br>QPI,<br>hnolo | gy,<br>,<br>ogy,   | • F<br>• 6<br>• 1<br>• 3<br>• F<br>• T<br>• T | 75mm V<br>88.5 lb (1<br>81-liter<br>Removab<br>oolless s                      | 9.0"D x<br>V x 483<br>7.5kg) I<br>ble hand<br>side cov<br>disk and<br>adapter<br>ed front | 18.8<br>nm E<br>nax d<br>le on<br>er re<br>option<br>reter      | B"H (wi<br>0 x 478<br>configu<br>top fr<br>moval<br>cal dri<br>ntion                          | ith handle)<br>3mm H<br>uration  | dis<br>dis<br>dis  | edia   |
| Implementation  Memory   | Processor uses FC-<br>2GB, 3GB, or 4GB<br>DDR3*** or PC3-10<br>3-channel capable,<br>*** System automat<br>DDR3 memory conf  | std, 24GB m<br>600 1333MHz<br>six 240-pin D<br>ically clocks  | ax, UDIMM, PC:<br>z DDR3, ECC,<br>IMM sockets   | 3-8500   | 10661   |  | Ba<br>Ba<br>Ba<br>Ba                          | y ① 5.25<br>y ② 5.25<br>y ③ 3.5'<br>y ④ 3.5'<br>y ⑤ 3.5'<br>y ⑥ 3.5'          | ō", 1.6"<br>', 1" hi<br>', 1" hi<br>', 1" hi  | high,<br>gh,<br>gh,<br>gh,                                      | exte<br>exte<br>inter<br>inter  | rnal, std c<br>rnal, oper<br>rnal, std r<br>rnal, std c<br>rnal, std c<br>rnal, opt c  | n<br>nedia read<br>lisk<br>or opt disk   |  |
| Graphics   | Two PCI Express® x Adapters >75W us Some: NVIDIA® Qu two Display! Some: NVIDIA Qu two Display! Some: NVIDIA Qu slot width, t Some: ATI™ FirePro  | 116 adapters se auxiliary puadro® FX 38 k DVI-I, 35W adro FX 180 Port, one duadro FX 480 wo DisplayPorto™ V3700, I k DVI-I, 35W Port, one duadro Port, one duadro Port, one duadro Port, one duadro FX 480 wo DisplayPort, one duadro FX 480 wo DisplayPort, one duadro FX 480 wo F | ower connector(<br>30, PCIe x16 ada<br>11-link DVI-I****, 10, PCIe x16 ada<br>17, one dual-link<br>18 PCIe x16 adapter<br>19 ex16 adapter, 5<br>11-link DVI-I****   | s) from<br>apter, 2<br>pter, 76<br>59W<br>pter, 1.:<br>DVI-I**<br>er, 256W<br>12MB,<br>49W                     | PSU<br>56ME<br>88MB<br>5GB,                                     | s,<br>two  | Slo<br>Slo<br>Slo<br>Slo                      | ot 1: full-<br>ot 2: full-<br>ot 3: full-<br>ot 4: full-                      | length,<br>length,<br>length,<br>length,<br>length,<br>length,<br>hanical                 | full-h<br>full-h<br>full-h<br>full-h<br>full-h<br>ecur<br>ide o | neight,<br>neight,<br>neight,<br>neight,<br>ity chip<br>cover lo                              | PCIe 2.0 PCIe 2.0 PCIe 2.0 PCIe 2.0 PCIe x1 32-bit PC  SECURIT O (see infor oock (ships oo) (in rear foo   | x16 (75W<br>x4**<br>x16 (75W<br>I 2.3<br>TY<br>mation or<br>with two ic            | * max)  n left) dentical lock;   |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller   | 20-in-1 media reade<br>Some: 250GB or 5<br>Some: 150GB or 3<br>Super Multi-Burner<br>Serial ATA, SATA 3<br>three SATA connect  | er, internal US<br>00GB, SATA<br>00GB, SATA<br>DL DVD±RW<br>0Gb/s, integr   | SB 2.0<br>3.0Gb/s, 7200 r<br>3.0Gb/s, 10000<br>' SATA 1.5Gb/s l<br>ated in ICH10R,  | pm, 3.5<br>rpm, 2.<br>Drive  | 5"  | ticals   |   |   | • S<br>• p<br>• F<br>• A  | ecur<br>ensir<br>rohib<br>ower<br>dmin<br>oot s                 | ity slot<br>ngton®<br>its sid<br>r-on pa<br>nistrato<br>sequer                                | nibits side of the control of the co | r optional<br>er® cable;<br>noval)   | ,  |
| Chipset Front ports  | Intel X58 Express (ICH10R) for RAID Two USB 2.0, micro   | 0, 1, 5 suppo   | rt, Winbond® W8   | 3627DI   | HG-P  |  | I/O   |   | • 8   | erial   | port I/   | t keyboard,<br>O control<br>sablement  | •  |  |
| Rear ports   | Eight USB 2.0, eSA<br>(line-in, mic-in, front<br>Optical SPDIF digita  | TA, serial (9- <sub>l</sub><br>t-out, rear-ou   | oin), ethernet (R<br>t, center/sub-out  | Ú-45), s<br>i, side-o  | ix an   | alog au  | ıdio  | ports   | Su  | port  | s Thin  | kVantage®  | technolog  | gies   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | Some: FireWire PC<br>High Definition (HD)<br>Internal speaker for<br>One gigabit etherne<br>Broadcom Trusted F   | Ol adapter, 13<br>) Audio, Analo<br>business aud<br>et on planar, E   | 94a-2000, 400N<br>og Devices AD1<br>dio<br>Broadcom® BCN  | /lbps, tv<br>988A co<br>15755  | odec <sup>*</sup>   | oin port   | s on  | rear  | Ro  | HS-c<br>ne: I   | omplia<br>ENER<br>EPEAT   | BD® certified<br>ant<br>GY STAR®<br>™ Gold ra<br>models)   | 5.0-comp   |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Preferred Pro USB<br>Optical Wheel Mous<br>625 watts with 120n<br>Climate Savers® Co<br>3 to 5 fans (power s<br>Rack shelf support   | se (USB conr<br>nm bottom-m<br>Imputing Broi  | nector), black<br>ounted variable<br>nze, 80 PLUS®E   | speed f  | fan, u<br>gualifi   | niversa<br>ed  | •   | front [SA   | (S])  | Custoparts for so Mon   | ar part<br>omer l<br>only (<br>elected<br>- Fri c   | TED WAR<br>s and laboo<br>Replaceabl<br>(with limite<br>d parts <sup>3</sup> , 8 a<br>overage ex   | r<br>e Unit (CF<br>d onsite s<br>am - 5 pm<br>cluding h                            | service<br>,<br>olidays,   |
| Windo<br>- Some: Genui<br>- Some: Genui  | rating system <sup>20</sup> ne Windows® XP Pro ows Vista® Business ( ne Windows Vista Bu ne Windows Vista Bu v Vista Premium logo  | 64)<br>Isiness 32<br>Isiness 64   | bit (preinstalled   | via dow  | /ngra   | de right   | ts in   |   | a<br>a  | next<br>Thinl<br>http:/<br>On<br>(in<br>Poser<br>ser<br>24 ho   | busine<br>kPlus <sup>TI</sup><br>//lenov<br>site se<br>eligibl<br>st war<br>rvices<br>our x 7 | ess day res<br>services<br>co.com/thin<br>ervice upgrale locations<br>ranty main<br>day <sup>14</sup> toll-1<br>warranty p   | sponse tin<br>available;<br>kplus/warr<br>rade optio<br>s) <sup>7</sup><br>tenance | ne)<br>see<br>anty<br>ons  |

| Name | Type-<br>model       | Slot x | Processor | GHz  | Memory<br>DIMMs | Memory<br>speed | Disk(s)                | Disk<br>size | RAID | SATA optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | ENERGY<br>STAR 5.0 | Preload | Avail<br>date    |
|------|----------------------|--------|-----------|------|-----------------|-----------------|------------------------|--------------|------|--------------|--------------------------------|---------------------|--------------------|---------|------------------|
|      | 4105-54L             |        |           |      |                 |                 | 1 x 500GB <sup>2</sup> |              |      |              |                                |                     |                    |         | May 09           |
|      | 4105-55L<br>4105-56L |        |           |      |                 |                 | 1 x 500GB<br>1 x 500GB |              |      |              |                                |                     | ES50               |         | May 09<br>May 09 |
|      | 4105-57L<br>4105-58L |        | W3540     | 2.93 | 2 x 2GB         | 1066MHz         | 1 x 500GB<br>1 x 500GB | 3.5"         | None | DVD±RW       | Media                          | 1 x FX580           |                    | Bus64   | May 09<br>May 09 |

These small and medium business (SMB) models are part of the US TopSeller™ Program

|  | These small and med  | lium business (SMB) models are part of the   | US TopSeller™ .   | Program  |
|--|--|--|---|--|
| Processor  Implementation  | 4.8GT/s (giga-transfers/<br>1066MHz DDR3 memor<br>Intel Xeon Processor V<br>QPI, 1066MHz DDR3 m<br>Intel Xeon Processor V<br>1333MHz DDR3 memor                                | r W3503 or W3505 with dual-core, second) QPI (QuickPath Interconnect), ry controller, and 4MB cache or W3520 or W3540 with quad-core, 4.8GT/s emory controller, and 8MB cache or W3570 with quad-core, 6.4GT/s QPI, ry controller, and 8MB cache as package, one LGA1366 socket  | • 6.9"W x 19.0<br>• 175mm W x<br>• 38.5 lb (17.5<br>• 31-liter<br>• Removable h                                     | color; metal case p"D x 18.8"H (with handle) 483mm D x 478mm H kg) max configuration  nandle on top front  optical optical optical optical disk disk   |
| Memory   | <b>2GB</b> or <b>4GB</b> std, 24GB <b>DDR3</b> or <b>PC3-10600 13</b> : 3-channel capable, six 2   |  |   | c cover removal c and optical drive removal pter retention   |
| Graphics   | * Adapters >75W use at<br>Some: NVIDIA® Quadr<br>two dual-link DV<br>Some: NVIDIA Quadro<br>two DisplayPort,   | adapters required for quad monitor support, uxiliary power connector(s) from PSU  oo FX 380, PCle x16 adapter, 256MB, II-I, 35W  o FX 580, PCle x16 adapter, 512MB, one dual-link DVI-I***, 40W  nectors are active at a time  | Bay @ 3.5",   | 1.6" high, external, std optical 1.6" high, external, open 1" high, external, std media reader 1" high, internal, std disk   |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller   | Serial ATA, SATA 3.0Gb   |  | Bay ® 3.5",<br>Slot 1: full-lend<br>Slot 2: full-lend<br>Slot 3: full-lend  | 1" high, internal, opt disk 1" high, internal, opt disk gth, full-height, PCle 2.0 x16 (75W* max) gth, full-height, PCle 2.0 x4** gth, full-height, PCle 2.0 x16 (75W* max) gth, full-height, PCle x1  |
| Chipset  | Intel X58 Express Chip<br>(ICH10R) for RAID 0, 1,<br>Winbond® W83627DHG  |  |   | gth, full-height, 32-bit PCI 2.3   |
| Front ports<br>Rear ports<br>IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip  | Eight USB 2.0, eSATA, s<br>(line-in, mic-in, front-out<br>Optical SPDIF digital ou<br>None<br>High Definition (HD) Aud<br>Internal speaker for busi<br>One gigabit ethernet on | ne (3.5mm), headphone (3.5mm) serial (9-pin), ethernet (RJ-45), six analog au , rear-out, center/sub-out, side-out), t, Optical SPDIF digital in dio, Analog Devices AD1988A codec iness audio planar, Broadcom® BCM5755 orm Module, TCG 1.2-compliant   | udio ports  | SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Optical Wheel Mouse (L<br>625 watts with 120mm b<br>Climate Savers® Compu  | poard (USB connector), 104-key, black USB connector), black contom-mounted variable speed fan, universating Bronze, 80 PLUS® Bronze qualified y, CPU, rear, opt front PCI [>75W graphics],   |   | Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (front or all)  |
| Supports ThinkV  | antage® technologies   |  |   |  |
| Preloaded operation - Some: Genui Busing - Some: Genui   | rating system <sup>20</sup><br>ne Windows® Vista®<br>ess 32<br>ne Windows Vista  | Accessories  1GB PC3-8500 DDR3 ECC UDIMM  2GB PC3-8500 DDR3 ECC UDIMM  1GB PC3-10600 DDR3 ECC UDIMM  | 51J0503<br>51J0504<br>43R2032   | GREENGUARD® certified RoHS-compliant Some: ENERGY STAR® 5.0-compliant EPEAT™ Gold rating (only for ES5.0 models)   |
| <ul> <li>♦ Vista Premiur</li> <li>Preloaded app</li> <li>only some listed</li> <li>Rescue and F</li> <li>McAfee® Virus</li> <li>(30 days of vi</li> <li>Lenovo® Syst</li> <li>Adobe® Read</li> </ul> | lications <sup>5</sup> (all OSes;<br>i)<br>Recovery™<br>sScan® Plus<br>rus definitions)<br>em Toolbox<br>er<br>or® Business Edition  | 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s ThinkStation Rail Kit USB 2.0 Ultra Secure Memory Key 8GB ThinkVision™ L2440p Wide 24™ Monitor NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/access | 43R2033<br>57Y4138<br>45J7918<br>45K1675<br>43R1964<br>45J5918<br>4420HB2<br>43R1765<br>45K1671<br>51J0511<br>ories | LIMITED WARRANTY¹  3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  Onsite service upgrade options (in eligible locations)²  Post warranty maintenance services  24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378 |

|  |  |  |  |   |                            |  | Distants   |  |  |  |   |  |  |  |
|--|--|--|--|---|----------------------------|--|--|--|--|--|---|--|--|--|
|  | lot x Me<br>bay Processor GHz Cores DI   | emory Memory<br>MMs speed  | Disk(s)  | Disk Pr<br>size                             | e-con                      | fig SATA<br>optical  | Diskette<br>or Media<br>reader   | Graphics adapter(s)  | ENERGY<br>STAR 5.0   | Preload  | Avail<br>date                                   |  |  |  |
| <b>S20</b> 4105-J4U  | 5x6 W3530 2.80 4 2x<br>5x6 E5507 2.26 4 2x<br>5x6 W3503 2.40 2 2x  | 2GB 1333MHz 1<br>2GB 1333MHz 1<br>2GB 1333MHz 1<br>1GB 1333MHz 1<br>2GB 1333MHz 1  | 1x500GB<br>1x500GB<br>1x500GB  | 3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"        | No<br>No<br>No             | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW   | Media<br>Media<br>Media<br>Media   | 1xFX380<br>1xFX380<br>1xFX1800<br>1xFX380  | Pending<br>Pending<br>Pending<br>Pending<br>Pending  | XP Pro<br>XP Pro<br>XP Pro<br>XP Pro<br>XP Pro   | Mar 10<br>Mar 10<br>Mar 10                      |  |  |  |
|  | <ul> <li>Faster, more efficient are</li> <li>High performance works</li> <li>Environmentally friendly</li> <li>Innovative thermal desig</li> <li>These small and mediun</li> <li>These models have a 3-y</li> </ul>  | station with premi<br>s, cool, and quiet w<br>n with optimized<br>n business (SMB)   | um graphi<br>vith rock s<br>fan placen<br>models ar                                      | cs for s<br>olid en<br>nent, fo             | specia<br>ginee<br>or a co | alized profe<br>ring<br>poler, quiete  | essionals<br>er, more r  |  |  |  |   |  |  |  |
| Processor  | Intel Xeon® Processor W3: 4.8GT/s (giga-transfers/secilntel 64, Virtualization Techn 1066MHz DDR3 memory or Intel Xeon Processor W35 Intel 64, Hyper-Threading Turbo Boost Technology (up 1066MHz DDR3 memory or Intel Xeon Processor E556 Intel 64, Virtualization Techn 800MHz DDR3 memory cor | ond) QPI (QuickPolology, pontroller, and 4ME 30 with quad-corechnology, Virtual to 3.06GHz at montroller, and 8ME 307 with quad-corectology, | ath Interco<br>B cache or<br>e, 4.8GT/s<br>ization Tec<br>ax turbo m<br>B cache or<br>e, | s QPI,<br>chnolog                           |                            | <ul> <li>6.9"W &gt;</li> <li>175mm</li> <li>38.5 lb</li> <li>31-liter</li> <li>Remova</li> <li>Toolless</li> <li>Toolless</li> </ul> | ( 19.0"D :<br>1 W x 483<br>(17.5kg)<br>able hand<br>s side cor<br>s disk and   | or; metal cas<br>x 18.8"H (wit<br>mm D x 478<br>max configuration<br>dle on top fro<br>ver removal<br>d optical driver<br>retention                                    | h handle)<br>mm H<br>ration<br>nt  |  | cal ledia                                       |  |  |  |
| Implementation   | Processor uses FC-LGA8 p   |  |  | et  |                            | • Illumina   | ated front   | icons  |  |  |   |  |  |  |
| Memory   | 2GB or 4GB std, 24GB max<br>PC3-10600 1333MHz DDR3<br>3-channel capable, six 240-<br>*** System automatically clo<br>or 1066MHz DDR3 memory  | pin DIMM sockets<br>pin Down for process   |  | th 800ľ                                     | ЛНz                        | • Rack sh<br>Bay ① 5.<br>Bay ② 5.<br>Bay ③ 3.  | .25", 1.6"<br>.25", 1.6"   | high, exter  | nal, std op<br>nal, open<br>nal, std m   |  | ler   |  |  |  |
| Graphics   | Two PCI Express® x16 adapt * Adapters >75W use auxilia * Some: NVIDIA® Quadro® I two dual-link DVI-I, * Some: NVIDIA Quadro FX two DisplayPort, one **** Only two display connections ****   | ary power connec<br>FX 380, PCIe x16<br>35W<br>( 1800, PCIe x16 a<br>e dual-link DVI-I**   | tor(s) from<br>adapter, 2<br>adapter, 7<br>**, 59W                                       | PSU<br>256MB,                               |                            | Slot 2: fu<br>Slot 3: fu<br>Slot 4: fu   | .5", 1" h<br>.5", 1" h<br>II-length,<br>II-length,<br>II-length,<br>II-length, | igh, interr<br>igh, interr<br>full-height,<br>full-height,<br>full-height,<br>full-height,   | nal, opt di<br>PCIe 2.0 x<br>PCIe 2.0 x<br>PCIe 2.0 x<br>PCIe x1   | disk<br>disk<br>x16 (75W* max)<br>x4**<br>x16 (75W* max)   |   |  |  |  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller               | Some: 20-in-1 media reade<br>500GB, SATA 3.0Gb/s, 720<br>Super Multi-Burner DL DVD<br>Serial ATA, SATA 3.0Gb/s, in<br>three SATA connectors for of   | 0 rpm, 3.5"<br>±RW SATA 1.5Gb<br>ntegrated in ICH1   | o/s Drive<br>0R,   | for optic                                   | cals                       | Slot 5: ha   | echanical  |  | SECURIT  |  |   |  |  |  |
| Chipset  | Intel X58 Express Chipset<br>(ICH10R) for RAID 0, 1, 5 s<br>Winbond® W83627DHG-P S   | upport,  | ler Hub 10   | RAID  |                            |  | • S  | Side cover lo<br>(eys)<br>Padlock loop   | ck (ships w<br>(in rear for  | ith two id<br>opt padl   | entical<br>ock;                                 |  |  |  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip | High Definition (HD) Audio,<br>Internal speaker for busines<br>One gigabit ethernet on plan<br>Broadcom Trusted Platform   | al (9-pin), etherne<br>ar-out, center/sub-<br>ptical SPDIF digit<br>Analog Devices A<br>s audio<br>nar, Broadcom® B<br>Module, TCG 1.2       | t (RJ-45), :<br>-out, side-c<br>al in<br>D1988A c<br>CM5755<br>-compliant                | six ana<br>out),<br>codec                   | log au                     | udio ports   | • S  | padlock prohi<br>Security slot<br>Kensington® I<br>prohibits side<br>Power-on pas<br>Administrator<br>Boot sequenc<br>Boot without<br>Serial port I/C<br>JSB port disa | (in rear for Microsaver cover rem ssword password ce control keyboard, I control   | optional © cable; oval) mouse, d   | iskette   |  |  |  |
| Keyboard<br>Mouse<br>Power supply  | Preferred Pro USB Keyboar<br>Optical Wheel Mouse (USB<br>625 watts with 120mm botto<br>Climate Savers® Computing<br>3 to 5 fans (power supply, Č   | connector), black<br>om-mounted varia<br>Bronze, 80 PLUS   | ble speed<br>8® Bronze   | fan, un<br>gualifie                         | d                          | -  | GF   | oports Think\<br>EENGUARD<br>HS-compliar   | )® certified   | echnologi  | es  |  |  |  |
| Cooling<br>Rack mount  | Rack shelf support   | FO, rear, opt from   | t POI [>/5   | vv grap                                     | riicsj,                    | opt from [3  | Pe   | nding: ENEF  | RGY STAR   | <sup>®</sup> 5.0-con   | npliant   |  |  |  |
| 32-bit *****<br>(preinstalled virights in Windo                              | ows® XP Professional   | Accessories 2GB PC3-1060 4GB PC3-1060 1TB SATA 3.00 Blu-ray™ Burne ThinkVision® L2 ATI™ FirePro™ Other accessor                              | 00 DDR3 E<br>Gb/s Disk (<br>er SATA 1.:<br>2440p Wid<br>1GB V775                         | ECC UE<br>7200 rj<br>5Gb/s<br>e 24" N<br>50 | OIMM<br>om)<br>Ionito      | 51J0   | 4138 ~ 7918<br>1675<br>0HB2<br>0511 ~  | 3-year parts<br>Customer R<br>parts only (if or selected<br>Mon - Fri co<br>next busine<br>ThinkPlus™<br>http://lenove   | eplaceable with limited parts3, 8 a verage exc ss day resp services a o.com/think rvice upgra e locations anty maint day14 toll-fr varranty pe | e Unit (CR<br>d onsite s<br>m - 5 pm,<br>cluding he<br>conse tim<br>vailable;<br>plus/warra<br>ade optio<br>) <sup>7</sup><br>enance | ervice<br>polidays,<br>ne)<br>see<br>anty<br>ns |  |  |  |

| Name |          | Slot x | rocessor | GHz  |   | Memory<br>DIMMs | Memory<br>speed | Disk(s) |      | re-con | fig SATA<br>optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | ENERGY<br>STAR 5.0 | Win7<br>preload | Avail<br>date |
|------|----------|--------|----------|------|---|-----------------|-----------------|---------|------|--------|---------------------|--------------------------------|---------------------|--------------------|-----------------|---------------|
| S20  | 4105-K2L | J 5x6  | W3530    | 2.80 | 4 | 3x2GB           | 1066MHz         | 1x500GB | 3.5" | No     | DVD±RW              | Media                          | None                | Pending            | Pro 64          | May 10        |

- · Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- This small and medium business (SMB) model is part of the US TopSeller™ Program
- This model has a 3-year limited warranty

| Processor Implementation                                       | Intel Xeon® Processor W3530 with quad-core,<br>4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect),<br>Intel 64, Hyper-Threading Technology, Virtualization Technology,<br>1066MHz DDR3 memory controller, and 8MB cache or<br>Processor uses FC-LGA8 package, one LGA1366 socket | • 6.9"W x 19.0<br>• 175mm W x  | color; metal case D"D x 18.8"H (with handle) 483mm D x 478mm H  |
|--|--|--|---|
| Memory   | 6GB std, 24GB max, UDIMM, PC3-8500 1066MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets  | • 31-liter   | handle on top front   |
| Graphics   | Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU None  | <ul><li>Toolless side</li><li>Toolless disl</li><li>Toolless ada</li></ul> | e cover removal disk disk disk  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller | 20-in-1 media reader, internal USB 2.0<br><b>500GB</b> , SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,<br>three SATA connectors for disks, two SATA connectors for opticals                           | • Illuminated f • Rack shelf s  Bay ① 5.25", Bay ② 5.25".                  | support   |
| Chipset  | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  | Bay ③ 3.5",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",                                  | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, opt disk   |
| Front ports<br>Rear ports<br>IEEE 1394 adptr<br>Audio          |  | Slot 2: full-len<br>Slot 3: full-len<br>Slot 4: full-len                   | gth, full-height, PCle 2.0 x16 (75W* max) gth, full-height, PCle 2.0 x4** gth, full-height, PCle 2.0 x16 (75W* max) gth, full-height, PCle x1 ngth, full-height, 32-bit PCl 2.3 |
| Speaker  | High Definition (HD) Audio, Analog Devices AD1988A codec<br>Internal speaker for business audio  | x 16 mechai  | nicai   |
| Ethernet<br>Security chip                                      | One gigabit ethernet on planar, Broadcom® BCM5755<br>Broadcom Trusted Platform Module, TCG 1.2-compliant   |  | SECURITY  • Security chip (see information on left)   |
| Keyboard   | Preferred Pro USB Keyboard (USB connector), 104-key, black   |  | Side cover lock (ships with two identical kove)   |

## Preloaded operating system<sup>20</sup>

Genuine Windows® 7 Professional 64

Mouse

Power supply

Cooling Rack mount

## Preloaded applications<sup>5</sup> (only some listed)

- Rescue and Recovery™
- ThinkVantage System Update Norton Internet Security™ (30 days of virus definitions)
- Adobe® Reader Microsoft® Office 2007 Trial (60-day)
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

## Accessories

Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal,

| 1GB PC3-8500 DDR3 ECC UDIMM              | 51J0503 |
|--|---------|
| 2GB PC3-8500 DDR3 ECC UDIMM              | 51J0504 |
| 1GB PC3-10600 DDR3 ECC UDIMM             | 43R2032 |
| 2GB PC3-10600 DDR3 ECC UDIMM             | 43R2033 |
| 4GB PC3-10600 DDR3 ECC UDIMM             | 57Y4138 |
| 1TB SATA 3.0Gb/s Disk (7200 rpm)         | 45J7918 |
| Blu-ray™ Burner SATA 1.5Gb/s '           | 45K1675 |
| NVIDIA Quadro NVS 290                    | 43R1765 |
| NVIDIA Quadro FX 580                     | 45K1671 |
| ATI™ FirePro™ 1GB V7750                  | 51J0511 |
| Other accessories at lenovo.com/accessor | ories   |

- Side cover lock (ships with two identical
- keys) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS]) Rack shelf support
  - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
  - Power-on password
  - Administrator password
  - Boot sequence control
  - Boot without keyboard, mouse, diskette
  - Serial port I/O control
  - USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant

Pending: ENERGY STAR® 5.0-compliant

## LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
  ThinkPlus™ services available; see
- http://lenovo.com/thinkplus/warranty
  - Onsite service upgrade options (in eligible locations)<sup>7</sup>
  - Post warranty maintenance services
- 24 hour x 7 day<sup>14</sup> toll-free support during the warranty period via 800-426-7378

| N   | lame   |  | Slot x<br>bay  | Processo   | r GHz   | Cores   | Memory<br>DIMMs  | Memory<br>speed  | Disk(s)   | Disk P<br>size                                 | re-con<br>RAID                          |  | Diskette<br>or Media<br>reader  | Graphics adapter(s)  | ENERGY<br>STAR 5.0   | Preload                           | Avail<br>date              |
|---|--|--|--|--|---|---|--|--|---|--|---|--|---|--|--|-----------------------------------|----------------------------|
| S   | 20<br>20<br>20   | 4105-F6U<br>4105-F7U<br>4105-J3U<br>4105-J4U<br>4105-L1U | 5x6<br>5x6<br>5x6  | W3530<br>E5507<br>W3503  | 2.26<br>2.40  | 4<br>4<br>4<br>2<br>4   | 2x2GB<br>2x2GB<br>2x1GB  | 1333MHz<br>1333MHz<br>1333MHz  | 1x500GB <sup>2</sup><br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB                | 3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"           | No<br>No                                | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW   | Media<br>Media<br>Media<br>Media  | 1xFX380<br>1xFX380<br>1xFX1800<br>1xFX380  | Pending<br>Pending<br>Pending<br>Pending<br>Pending                            | XP Pro<br>XP Pro<br>XP Pro        | Mar 10<br>Mar 10<br>Mar 10 |
|   |  |  | •  | High peri<br>Environn<br>Innovativ<br>These sn   | formar<br>nentall<br>re ther<br>nall an                       | nce wo<br>y frien<br>mal de<br>d med                                | rkstation<br>dly, cool,<br>sign with<br>lium busi  | with prem<br>and quiet<br>optimized  | nium graph<br>with rock s<br>d fan place<br>d) models a                         | ics for<br>solid ei<br>ment, f                 | specia<br>nginee<br>or a co             | ion technolo<br>alized profes<br>ring<br>poler, quiete<br>US TopSell                           | ssionals<br>r, more r   |  |  |                                   |                            |
|   |  | essor  | 4.8<br>Inte<br>100<br>Inte<br>Inte<br>100<br>Inte<br>800 | GT/s (gigel 64, Virt<br>66MHz Diel Xeon Fel 64, Hypbo Boost<br>66MHz Diel Xeon Fel 64, Hypbo Boost<br>66MHz Diel Xeon Fel 64, Virt | pa-tranualizate DR3 meroces DR3 meroces ualizate DR3 meeroces | sfers/sion Tenemore ssor Wareadin lology nemore ssor Edion Tenemory | second) C<br>chnology<br>y controll<br>/3530 wit<br>g Techno<br>(up to 3.0<br>y controll<br>5507 with<br>chnology<br>controlle | er, and 4M<br>h <b>quad-co</b><br>logy, Virtua<br>OGGHz at r<br>er, and 8M<br>n <b>quad-co</b><br>r, and 4MB | Path Interconders B cache or ore, 4.8GT/ Balization Temax turbo rescache or re, | s QPI,<br>chnolo<br>node),                     |   | 6.9"W x     175mm     38.5 lb (     31-liter     Remova     Toolless     Toolless     Illumina | 19.0"D x<br>W x 483<br>17.5kg)<br>ble hand<br>side cov<br>disk and<br>adapter<br>ted front  | icons  | h handle)<br>mm H<br>ration<br>nt  | di                                | nedia                      |
| Dai a Cell Alleich Consonal an  |  |  |  |  |   |   |  |  |   |  | nal, open                               | open<br>std media reader   |   |  |  |                                   |                            |
| G   | Graphics  Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU  Some: NVIDIA® Quadro® FX 380, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W  Some: NVIDIA Quadro FX 1800, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W  **** Only two display connectors are active at a time  Two PCI Express® x16 adapters required for quad monitor support, Bay ③ 3.5", 1" high, internal, opt disl Bay ⑤ 3.5", 1" high, internal, opt disl Bay ⑥ 3.5" |  |  |  |   |   |  |  |   |  | sk<br>sk<br>16 (75W*<br>4**<br>16 (75W* | (75W* max)<br>(75W* max)   |   |  |  |                                   |                            |
| S   | ATA<br>ATA   | a reader<br>disk(s)<br>DVD±RW<br>controller              | <b>50</b> (<br>Su<br>Se                                  | <b>DGB</b> , SAT<br>per Multi-<br>rial ATA, S  | A 3.00<br>Burne<br>SATA 3                                     | Gb/s, 7<br>r DL D<br>3.0Gb/   | 7200 rpm<br>VD±RW<br>s, integra  | SATA 1.5G<br>ted in ICH  | ab/s Drive  | for opt  | icals                                   | Slot 5: ha<br>** x16 me  | chanical  | full-height, Security chip   | SECURIT  | Y                                 | ı left)                    |
| C   | Chips  | set  | (IC  | el X58 Ex<br>H10R) for<br>nbond® W   | r RAID  | 0, 1,   | 5 suppor   | t,   | oller Hub 10  | ) RAID   |   |  | • S<br>k<br>• F   | Side cover loc<br>(eys)<br>Padlock loop  | ck (ships w<br>(in rear for  | vith two ic                       | lentical<br>lock;          |
| III A   | Rear<br>EEE<br>Audio<br>Spea   | ker  | Eig<br>(lin<br>Op<br>r No<br>Hig<br>Inte<br>On           | pht USB 2<br>e-in, mic-<br>tical SPD<br>ne<br>ph Definiti<br>ernal spea<br>e gigabit   | in, eS<br>in, froi<br>IF digi<br>on (HI<br>aker fo<br>ethern  | ATA, s nt-out, tal out  D) Auc or busi et on                        | erial (9-p<br>rear-out,<br>, Optical<br>lio, Analo<br>ness aud<br>planar, B  | in), ethernous center/sul SPDIF dig g Devices io roadcom®  | AD1988A   | six and<br>out),<br>codec                      | alog au                                 | udio ports   | • S P • F • A • E • S   | padlock prohi<br>Security slot (<br>Kensington® I<br>Prohibits side<br>Power-on pas<br>Administrator<br>Boot sequenc<br>Boot without I<br>Gerial port I/C<br>JSB port disa | (in rear for Microsaver cover rem ssword password ce control keyboard, control | optional © cable; loval) mouse, d | iskette                    |
| Keyboard Mouse Optical Wheel Mouse (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS Rack mount] |  |  |  |  |   |   |  |  | Sur<br>GR<br>ASI)   | pports Think\ EENGUARD HS-complian nding: ENEF | Vantage® te<br>O® certified<br>It       | echnolog   | ies   |  |  |                                   |                            |
| - Genuine Windows® XP Professional 32-bit ***** (preinstalled via downgrade rights in Windows 7 Professional 64-bit) Blu-ray™ ThinkVis ***** Only 3GB of memory can be 2GB PC 4GB PC 1TB SA 1TB SA 1TIM Fin   |  |  |  |  |   | B PC3-106<br>3 SATA 3.0<br>-ray™ Burr<br>nkVision® l<br>™ FirePro™  | 600 DDR3 I<br>600 DDR3 I<br>Gb/s Disk<br>her SATA 1<br>_2440p Wid<br>™ 1GB V77   | Wide 24" Monitor 4420HB2 Mon - Fri coverage exclu  |   |  |   |  | e Unit (CF<br>d onsite s<br>m - 5 pm<br>cluding h<br>ponse tin<br>available;<br>kplus/warr<br>ade optio<br>) <sup>7</sup><br>enance | service<br>,<br>olidays,<br>ne)<br>see<br>anty<br>ns   |  |                                   |                            |

|  | ot x Memory Memory DiskPre-confi<br>ay Processor GHz Cores DIMMs speed Disk(s) size RAID   | Disket<br>g SATA or Med<br>optical reade  | lia Graphics 1394 ENERGY Win/ Avail   |
|--|--|---|---|
| \$20 4157-A2U 5<br>\$20 4157-F1U 5<br>\$20 4157-D7U 5<br>\$20 4157-D8U 5<br>\$20 4157-E1U 5<br>\$20 4157-K6U 5<br>\$20 4157-K9U 5<br>\$20 4157-K4U 5 | ix6       W3530       2.80       4       2x2GB       1333MHz       1x500GB       3.5"       No         ix6       E5507       2.26       4       1x2GB       1333MHz       1x500GB       3.5"       No         ix6       E5507       2.26       4       2x2GB       1333MHz       1x500GB       3.5"       No         ix6       W3530       2.80       4       1x2GB       1333MHz       1x500GB       3.5"       No         ix6       W3530       2.80       4       1x2GB       1333MHz       1x500GB       3.5"       No         ix6       E5507       2.26       4       2x2GB       1333MHz       1x500GB       3.5"       No         ix6       W3680       3.33       6       2x2GB       1333MHz       1x500GB       3.5"       No   | DVD±RW Media<br>DVD±RW Media<br>DVD±RW Media<br>DVD±RW Media<br>DVD±RW Media<br>DVD±RW Media  | a 1xFX1800  |
| Processor  | Intel® Xeon® Processor W3503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor W3520 or W3530 with quad-core, 4.8GT/s QPI, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor W3680 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor E5503 with dual-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5507 with quad-core, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache | <ul> <li>6.9"W x 19.</li> <li>175mm W x</li> <li>38.5 lb (17.5)</li> <li>31-liter</li> <li>Removable</li> <li>Toolless sid</li> <li>Toolless dis</li> </ul> | support  1.6" high, external, std optical   |
| Implementation   | One LGA1366 socket   | Bay 3 3.5",   | 1" high, external, std media reader   |
| Memory   | 2GB or 4GB std, 24GB max, UDIMM, PC3-10600 1333MHz DDR3***, ECC, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller   | Bay ® 3.5",<br>Bay ® 3.5",<br>Slot 1: full-len<br>Slot 2: full-len<br>Slot 3: full-len  | 1" high, internal, std disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk agth, full-height, PCIe 2.0 x16 (75W* max) agth, full-height, PCIe 2.0 x4** agth, full-height, PCIe 2.0 x16 (75W* max)  |
| Graphics   | Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU  Some: NVIDIA® Quadro® FX 380, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W  Some: NVIDIA Quadro FX 580, PCIe x16 adapter, 512MB, two DisplayPort™, one dual-link DVI-I****, 40W  Some: NVIDIA Quadro FX 1800, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W  Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 62W  Some: NVIDIA Quadro 4000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I****, one stereo, 142W  Some: ATI™ FirePro™ V3700, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W  **** Only two display connectors are active at a time                        | Olot II Iali Ioli   | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller   | 20-in-1 media reader, internal USB 2.0<br><b>500GB</b> , SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,<br>three SATA connectors for disks, two SATA connectors for opticals   |   | Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (front or all)   |
| Chipset  | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  |   | Supports ThinkVantage® technologies  GREENGUARD® certified  |
| Front ports<br>Rear ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm)<br>Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45),<br>six analog audio ports (line-in, mic-in, front-out, rear-out, center/sul<br>Optical SPDIF digital out, Optical SPDIF digital in   | o-out, side-out),   | RoHS-compliant Pending: ENERGY STAR® 5.0-compliant EPEAT™ Gold rating   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | Some: FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin por High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant  | ts on rear  | LIMITED WARRANTY¹   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, univers Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics] Rack shelf support   | , opt front [SAS]   | mext business day response time)  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  Onsite service upgrade options (in eligible locations) <sup>7</sup> Post warranty maintenance  |
| - Genuine Wind<br>Professional 6   | lows® 7 • Microsoft Office 2010 preloaded;   | sted)   | services  24 hour x 7 day <sup>14</sup> toll-free support during the warranty period <sup>1</sup> via 800-426-7378  |

| Name         | Type-<br>model | Slot x<br>bay | Processo | r GHz | Cores | Memory<br>DIMMs | Memory speed | Disk(s)              | Disk<br>size | RAID | SATA optical   | Diskette<br>or Media<br>reader | Graphics adapter(s) | 1394<br>adptr | ENERGY<br>STAR 5.0 | Preload | Avail<br>date |
|--------------|----------------|---------------|----------|-------|-------|-----------------|--------------|----------------------|--------------|------|----------------|--------------------------------|---------------------|---------------|--------------------|---------|---------------|
| <b>S20</b> 4 | 157-79L        | 5x6           | W3550    | 3.06  | 4     | 1x2GB           | 1066MHz      | 1x500GB <sup>2</sup> | 3.5"         |      | DVD±RW         | Media                          | 1xFX1800            | None          | Pending            | Bus64   | Aug 09        |
| <b>S20</b> 4 | 157-81L        | 5x6           | W3550    | 3.06  | 4     | 2x2GB           | 1066MHz      | 1x500GB              | 3.5"         |      | <b>DVD</b> ±RW | Media                          | 1xFX3800            | None          | Pending            | Bus64   | Aug 09        |
| <b>S20</b> 4 | 157-82L        | 5x6           | W3580    | 3.33  | 4     | 2x2GB           | 1333MHz      | 1x500GB              | 3.5"         |      | <b>DVD</b> ±RW | Media                          | 1xFX3800            | None          | Pending            | Bus64   | Aug 09        |

- · Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- These models have a 3-year limited warranty

| Processor  Implementation  Memory  | Intel Xeon® Processor W3550 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor W3580 with quad-core, 6.4GT/s QPI, 1333MHz DDR3 memory controller, and 8MB cache Processor uses FC-LGA8 package, one LGA1366 socket  2GB or 4GB std, 24GB max, UDIMM, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3, ECC,                                      | Tower  Raven black co 6.9"W x 19.0"I 175mm W x 44 38.5 lb (17.5kc 31-liter Removable ha Toolless side co                                      |
|--|--|---|
| Graphics   | 3-channel capable, six 240-pin DIMM sockets  Two PCI Express® x16 adapters required for quad monitor support,  * Adapters >75W use auxiliary power connector(s) from PSU  Some: NVIDIA® Quadro® FX 1800, PCle x16 adapter, 768MB, two DisplayPort, one dual-link DVI-l***, 59W  Some: NVIDIA Quadro FX 3800, PCle x16 adapter, 1GB, two DisplayPort, one dual-link DVI-l***, 108W  *** Only two display connectors are active at a time          | Toolless disk a     Toolless adapt     Illuminated from     Rack shelf sup  Bay ① 5.25", 1. Bay ② 5.25", 1.  Bay ② 5.25", 1.  Bay ② 5.25", 1. |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller               | 20-in-1 media reader, internal USB 2.0<br><b>500GB</b> , SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,<br>three SATA connectors for disks, two SATA connectors for opticals   | Bay ③ 3.5", 1"<br>Bay ④ 3.5", 1"<br>Bay ⑤ 3.5", 1"<br>Bay ⑥ 3.5", 1"<br>Slot 1: full-length   |
| Chipset  | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  | Slot 2: full-length<br>Slot 3: full-length<br>Slot 4: full-length<br>Slot 5: full-length  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub- Optical SPDIF digital out, Optical SPDIF digital in None High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant | ** x16 mechanic   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount                   | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universa Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], Rack shelf support   | ·  •  |

### Preloaded operating system<sup>20</sup> Accessories

Genuine Windows® Vista® Business 64

♦ Vista Premium logo

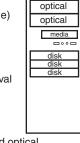
## Preloaded applications<sup>5</sup> (only some listed)

- Rescue and Recovery™
- McAfee® VirusScan® Plus (30 days of virus definitions)

- Lenovo® System Toolbox
   Adobe® Reader
   Corel® WinDVD® (DVD±RW)

1GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-8500 DDR3 ECC UDIMM 51J0503 51J0504 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 43R2032 43R2033 4GB PC3-10600 DDR3 ECC UDIMM 57Y4138 1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 Blu-ray™ Burner SATA 1.5Gb/s 45K1675 ThinkVision® L2440p Wide 24" Monitor 4420HB2 NVIDIA Quadro NVS 290 43R1765 NVIDIA Quadro FX 580 45K1671 ATI™ FirePro™ 1GB V7750 51J0511 Other accessories at lenovo.com/accessories

- color; metal case
- 'D x 18.8"H (with handle) 183mm D x 478mm H
- g) max configuration
- andle on top front
- cover removal
- and optical drive removal
- ter retention
- ont icons
- pport



.6" high, .6" high, external, std optical external, open

external, std media reader high, high, internal, std disk " high, internal, opt disk

" hiğh, internal, opt disk th, full-height, PCIe 2.0 x16 (75W\* max)

full-height, PCIe 2.0 x4\*3 full-height, PCIe 2.0 x16 (75W\* max) full-height, PCIe x1

th, full-height, 32-bit PCI 2.3

cal

## **SECURITY**

- Security chip (see information on left) Side cover lock (ships with two identical
- keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)

  Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)

  Power-on password

  Administrate propugat
- · Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant

Pending: ENERGY STAR® 5.0-compliant

## LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty
  - Onsite service upgrade options (in eligible locations)<sup>7</sup>
- Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period1 via 800-426-7378

|   | lot x<br>bay Processor   |   | Memory<br>speed  | Disk(s)  |  | SATA<br>D optic  |  | Grap  | hics<br>ter(s)  |  | ENERGY<br>STAR 5.0  | Preload  | Avail<br>date  |
|---|--|---|--|--|--|--|--|---|---|--|---|--|--|
| \$20 4157-11U 5 \$20 4157-12U 5 \$20 4157-13U 5 \$20 4157-14U 5 \$20 4157-16U 5 \$20 4157-48U 5 \$20 4157-49U 5 \$20 4157-51U 5 \$20 4157-51U 5 \$20 4157-52U 5 | 5x6 W3520 2<br>5x6 E5502 5<br>5x6 E5506 2<br>5x6 E5506 2<br>5x6 E5506 2<br>5x6 E5506 2<br>5x6 E5506 2<br>5x6 E5506 2<br>5x6 E5506 2          | 2.66 2 x 1GB<br>2.66 2 x 1GB<br>1.86 2 x 2GB<br>2.13 2 x 1GB<br>2.13 2 x 1GB<br>2.13 2 x 2GB<br>2.13 2 x 2GB<br>2.13 4 x 1GB<br>2.53 4 x 1GB<br>2.13 3 x 1GB  | 1066MHz<br>1066MHz<br>1066MHz<br>1066MHz<br>1066MHz<br>1066MHz<br>1066MHz<br>1066MHz                         | 1 x 500GB<br>2 x 150GB<br>2 x 250GB<br>1 x 250GB<br>2 x 500GB<br>1 x 250GB<br>1 x 250GB<br>2 x 300GB   | 3.5"<br>2.5" 1<br>3.5"<br>3.5" 0<br>3.5" 0<br>3.5"<br>2.5" 0 | DVD±I<br>DVD±I<br>DVD±I<br>DVD±I<br>DVD<br>DVD<br>DVD<br>DVD | RW Media RW Media RW Media RW Media RW Media RW Media Media Media RW Media RW Media Media RW Media | 1 x F)<br>1 x F)<br>1 x F)<br>1 x N'<br>1 x F)<br>1 x V3<br>1 x V3    | K580<br>K1800<br>K380<br>WS290<br>K4800<br>B700<br>F700<br>F750     | 1394<br>1394   | ES50<br>ES50<br>ES50  | Bus32<br>Bus32<br>Bus64<br>Bus32<br>Bus32<br>Bus64<br>Bus32<br>Bus64<br>Bus64<br>Pro64 | Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09<br>Mar 09 |
| Implementation Memory   | 4.8GT/s (giga-<br>1066MHz DDI<br>Intel Xeon Pr<br>800MHz DDR<br>Intel Xeon Pr<br>800MHz DDR<br>Intel Xeon Pr<br>1066MHz DDI<br>Processor use | Processor W3 -transfers/seco R3 memory con rocessor E550 R3 memory con rocessor E550 R3 memory con rocessor E554 R3 memory con rocessor E554 R4 memory con rocessor E554 R5 memory con roces FC-LGA8 pa | nd) QPI (Controller, and 2 with dua troller, and 6 with qua troller, and 0 with quantroller, and ackage, one | QuickPath Int<br>d 8MB cache<br>I-core, 4.8G<br>4MB cache<br>d-core, 4.8G<br>4MB cache<br>d-core, 5.86<br>d 8MB cache<br>e LGA1366 s   | erconnects or T/s QPI, or GT/s QPI or GT/s QPI esocket       | rl,  | Tower  Raven bl 6.9"W x 175mm V 38.5 lb ( 31-liter Removal Toolless Toolless                       | 19.0"D<br>W x 48<br>17.5kg<br>ble har<br>side co<br>disk ar<br>adapte | x 18.3<br>3mm l<br>) max<br>ndle or<br>over re<br>nd opt<br>er rete | 8"H (w<br>D x 47a<br>configa<br>n top fr<br>emoval<br>ical dri<br>ntion                | ith handle<br>8mm H<br>uration<br>ont   | dis dis dis  | edia   |
| memery  | DDR3***, ECC<br>3-channel cap  | C,<br>pable, six 240-p<br>utomatically clo  | oin DIMM s   | ockets   |  |  | Rack she     Bay ① 5.2   | elf sup <sub>l</sub>  | port  |  | ernal, std  | optical  |  |
| Graphics  | * Adapters > 7<br>Some: NVIDI<br>two sii<br>Some: NVIDI<br>two du  | ess® x16 adapt<br>5W use auxilia<br>IA® Quadro® N<br>ngle-link DVI vi<br>IA Quadro FX<br>ual-link DVI-1, 3  | ry power c<br>VS 290, Po<br>a DMS-59<br>380, PCIe<br>5W  | onnector(s) for the contract of the contract o | from PSI<br>oter, 256<br>/I-I dongl<br>, 256MB,              | л<br>МВ,<br>e, 21W   | Bay @ 5.2<br>Bay @ 3.5<br>Bay @ 3.5<br>Bay @ 3.5<br>Bay @ 3.5                                      | 5", 1.6<br>", 1"<br>", 1"<br>", 1"<br>", 1"<br>-length                | S" high<br>high,<br>high,<br>high,<br>high,<br>, full-              | exte<br>exte<br>inte<br>inte<br>inte<br>height   | ernal, ope<br>ernal, std<br>rnal, std<br>rnal, std<br>rnal, opt<br>, PCIe 2.0   | en'<br>media rea<br>disk<br>or opt disk<br>disk<br>) x16 (75W                          | (  |
|   | some: NVIDI<br>two Di<br>Some: NVIDI<br>2 slot   | IA Quadro FX isplayPort, one IA Quadro FX isplayPort, one IA Quadro FX width, two DisplayPortMAZZ   | dual-link [<br>1800, PCle<br>dual-link [<br>4800, PCle<br>playPort, o  | OVI-I****, 40V<br>e x16 adapte<br>OVI-I****, 59V<br>e x16 adapte<br>ne dual-link   | V<br>er, 768ME<br>V<br>er, 1.5GB<br>DVI-I****,               | 3,   | Slot 2: full-<br>Slot 3: full-<br>Slot 4: full-<br>Slot 5: hal                                     | -length<br>-length<br>f-lengtl  | , full-<br>, full-<br>n, full-                                      | height<br>height   | PCle 2.0<br>PCle x1   | x16 (75W   | * max)   |
|   | Some: ATI Fi<br>two D<br>Some: ATI Fi<br>two Di  | FirePro™ V370 ual-link DVI-I, 3 irePro V5700, isplayPort, one irePro V7750, I isplayPort, one display connec  | 85W<br>PCle x16 a<br>dual-link I<br>PCle x16 a<br>dual-link I  | adapter, 512l<br>DVI-I****, 49\<br>dapter, 1GB<br>DVI-I****. 76\   | MB,<br>N   |  |  | •   | Side<br>keys)<br>Padlo<br>padlo                                     | cover I<br>ock loo<br>ock pro  | ock (ships<br>p (in rear<br>hibits side   | ormation of with two if or opt page cover ren  | dentical<br>dlock;<br>noval)   |
| Media reader<br>SATA disk(s)<br>SATA DVD<br>SATA DVD±RW<br>Disk controller  | Some: 250Gl<br>Some: 150Gl<br>Some: DVD-F<br>Some: Super<br>Serial ATA, SA<br>three SATA co  | reader, interna<br>B or 500GB, S.B or 300GB, S.ROM DL SATA<br>Multi-Burner E<br>ATA 3.0Gb/s, in<br>prinectors for di  | ATA 3.0Gb,<br>ATA 3.0Gb,<br>1.5Gb/s 16<br>DL DVD±R\<br>tegrated in<br>sks, two S                             | /s, 10000 rpi<br>SX-48X Max<br>W SATA 1.50<br>ICH10R,<br>ATA connect   | m, 2.5" Drive Ab/s Driv ors for or                           | oticals  |  |   | Kens<br>prohi<br>Powe<br>Admi<br>Boot<br>Boot<br>Seria              | ington <sup>©</sup><br>bits sic<br>er-on pa<br>nistrate<br>seque<br>withou<br>I port I | Microsavale cover reassword password control telephone control telephone control (O) co | ord<br>ol<br>d, mouse,   | diskette   |
| Chipset   | (ICH10R) for F   | RAID 0, 1, 5 su   | pport, Win   | bond® W836   | 27DHG-   |  | I/O  |   |   | ·  |   | t (front or a  |  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip  | Eight USB 2.0<br>(line-in, mic-in<br>Optical SPDIF<br>Some: FireW<br>High Definition<br>Internal speak<br>One gigabit et                     | microphone (3), eSATA, serial, , front-out, real digital out, Op fire PCI adapte (HD) Audio, A (er for business thernet on plan isted Platform I)   | I (9-pin), et<br>r-out, cente<br>otical SPDI<br>r, 1394a-20<br>Analog Dev<br>s audio<br>ar, Broadc           | hernet (RJ-4<br>er/sub-out, si<br>F digital in<br>000, 400Mbp<br>ices AD1988<br>om® BCM57  | 5), six and de-out), os, two 6-<br>3A coded                  | pin port   |  | G   | REEN<br>oHS-c<br>ome:   | GUAR<br>omplia<br>ENER<br>EPEAT<br>ES5.0   | D® certifie<br>Int<br>GY STAR   | 5.0-compating (only  | oliant   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Preferred Pro<br>Optical Wheel<br>625 watts with<br>Climate Saver  | USB Keyboard<br>I Mouse (USB of<br>a 120mm botton<br>rs® Computing<br>ower supply, CF   | d (USB conconnector)<br>m-mounted<br>Bronze, 80  | nector), 104<br>, black<br>I variable spo<br>) PLUS® Bror  | -key, bladeed fan, nze quali                                 | universa<br>fied   |  | AS])  | Cust<br>parts<br>for s<br>Mon<br>next                               | ar part<br>tomer l<br>s only<br>elected<br>- Fri c<br>busin                            | s and labe<br>Replaceal<br>(with limit<br>d parts <sup>3</sup> , 8<br>overage e<br>ess day re   | or<br>ble Unit (Cl<br>ed onsite s<br>am - 5 pm<br>xcluding h<br>esponse tir            | service<br>I,<br>Iolidays,<br>ne)  |
| rights - Some: Genui  | ine Windows® X<br>(preinstalled via<br>in Windows Vis<br>ine Windows Vis<br>ine Windows Vis  | (P Professional<br>a downgrade<br>sta® Business 6<br>sta Business 3<br>sta Business 6   | 4-bit)<br>2<br>4   | Preloaded a only some lise. Rescue are McAfee V (30 days control Lenovo Second Corel Wir   | sted)<br>nd Recov<br>/irusScar<br>of virus de<br>System To   | rery™<br>n® Plus<br>efinitions<br>oolbox                     | 3)   |   | • Or<br>(in<br>• Po<br>se<br>• 24 h                                 | ://lenovasite so<br>eligibost war<br>ervices<br>our x 7                                | o.com/thi<br>ervice upo<br>le location<br>ranty mai   | nténance<br>-free supp   | ranty<br>ons   |
|   | important warran   |   |  |  |  |  |  |   |   | 800-426  |   |  | © Lenovo   |

|  | ot x Memory Memory Disk Pre-config<br>ay Processor GHz Cores DIMMs speed Disk(s) size RAID   | SATA Diskette or Medicoptical reader   | Graphics 1394 ENERGY Avail<br>adapter(s) adptr STAR 5.0 Preload date  |
|--|--|--|---|
| \$20 4157-E3U 5<br>\$20 4157-E4U 5<br>\$20 4157-E5U 5<br>\$20 4157-E7U 5<br>\$20 4157-E8U 5<br>\$20 4157-E9U 5 | x6 W3550 3.06 4 2x2GB 1333MHz 1x500GB 3.5" No E<br>x6 W3680 3.33 6 2x2GB 1333MHz 1x500GB 3.5" No E<br>x6 E5503 2.00 2 2x2GB 1333MHz 1x150GB 2.5" No E<br>x6 E5507 2.26 4 2x2GB 1333MHz 1x500GB 3.5" No E   | VD±RW Media  | 1xFX1800       1394       Pending       XP Pro May 10         1xFX3800       1394       Pending       XP Pro May 10         1xFX1800       1394       Pending       XP Pro May 10         1xFX380       Pending       XP Pro May 10 |
|  | <ul> <li>Faster, more efficient architecture with the latest Intel® worksta</li> <li>High performance workstation with premium graphics for specimential price of the Environmentally friendly, cool, and quiet with rock solid engine</li> <li>Innovative thermal design with optimized fan placement, for a c</li> <li>These models have a 3-year limited warranty</li> </ul>  | alized professio<br>ering  | nals  |
| Processor  | Intel Xeon® Processor W3550 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor W3680 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor E5503 with dual-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5507 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5640 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, 1066MHz DDR3 memory controller, and 12MB cache | 6.9"W x 19.0"     175mm W x 4     38.5 lb (17.5k     31-liter     Removable ha     Toolless side     Toolless disk     Toolless adap     Illuminated frc     Rack shelf su | and optical drive removal ter retention ont icons   |
| Implementation   | Processor uses FC-LGA8 package, one LGA1366 socket   | Bay ② 5.25", 1<br>Bay ③ 3.5", 1  | .6" high, external, open<br>" high, external, std media reader  |
| Memory   | 4GB std, 24GB max, UDIMM, PC3-10600 1333MHz DDR3***, ECC, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller  | Bay ⑤ 3.5", 1<br>Bay ⑥ 3.5", 1   |   |
| Graphics   | Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU  Some: NVIDIA® Quadro® FX 380, PCle x16 adapter, 256MB, two dual-link DVI-I, 35W  Some: NVIDIA Quadro FX 1800, PCle x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W  Some: NVIDIA Quadro FX 3800, PCle x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 108W  Some: ATI™ FirePro™ V5700, PCle x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 49W  Some: ATI FirePro V7750, PCle x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 76W  ***** Only two display connectors are active at a time   | Slot 2: full-length<br>Slot 3: full-length<br>Slot 4: full-length  | th, full-height, PCIe 2.0 x4** th, full-height, PCIe 2.0 x16 (75W* max) th, full-height, PCIe x1 th, full-height, 32-bit PCI 2.3  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>SATA controller   | 20-in-1 media reader, internal USB 2.0  Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"  Some: 150GB or 300GB, SATA 3.0Gb/s, 10000 rpm, 2.5"  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals   |  | Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette              |
| Chipset  | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  |  | Serial port I/O control     USB port disablement (front or all)   |
| Front ports<br>Rear ports<br>IEEE 1394 adptr   | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-roptical SPDIF digital out, Optical SPDIF digital in Some: FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports  |  | Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant   |
| Audio<br>Speaker<br>Ethernet<br>Security chip  | High Definition (HD) Audio, Analog Devices AD1988A codec<br>Internal speaker for business audio<br>One gigabit ethernet on planar, Broadcom® BCM5755<br>Broadcom Trusted Platform Module, TCG 1.2-compliant  |  | LIMITED WARRANTY¹   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], Rack shelf support  |  | for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  Onsite service upgrade options                  |
| - Genuine Wind<br>Professional 6   | lows® XP Professional 32-bit***** (preinstalled via downgrade rights in  |  | <ul> <li>(in eligible locations)<sup>7</sup></li> <li>Post warranty maintenance<br/>services</li> <li>24 hour x 7 day<sup>14</sup> toll-free support</li> </ul>   |
| ***** Only 3GI   | 3 of memory can be addressable by a 32-bit operating system limitation   | on   | during the warranty period <sup>1</sup><br>via 800-426-7378   |

| Type-<br>Name model | Slot x | r<br>Processor | GHz  | Cores | Memory<br>DIMMs |         | Disk(s)              | Disk<br>size | Pre-conf<br>RAID | SATA optical |      | Graphics adapter(s) |         |       | Global | Avail<br>date |
|---------------------|--------|----------------|------|-------|-----------------|---------|----------------------|--------------|------------------|--------------|------|---------------------|---------|-------|--------|---------------|
| S20 4157-B1L        | J 5x6  | W3520          | 2.66 | 4     | 2x2GB           | 1066MHz | 1x500GB <sup>2</sup> | 3.5"         | No               | DVD+RV       | V No | 1xFX1800            | Pendina | Pro64 | Global | Jan 10        |

- Faster, more efficient architecture with the latest Intel® workstation technology
  High performance workstation with premium graphics for specialized professionals
  Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- This model has a 3-year limited warranty
   This system is Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | 1066MHz DDR3 memory  | /3520 with quad-core,<br>econd) QPI (QuickPath Interconnect),<br>controller, and 8MB cache<br>package, one LGA1366 socket   | • 6.9"W x 19.0  | color; metal case  "D x 18.8" H (with handle)  optical optical   |
|---|--|---|---|--|
| Memory  | 4GB std, 24GB max, UDI<br>PC3-8500 1066MHz DDR<br>3-channel capable, six 24                                | 3, ECC,   | • 38.5 lb (17.5<br>• 31-liter   | 483mm D x 478mm H kg) max configuration  mandle on top front   |
| Graphics  | * Adapters >75W use aux NVIDIA® Quadro® FX 180   | apters required for quad monitor support, illiary power connector(s) from PSU 00, PCI Express® (PCIe) x16 adapter, one dual-link DVI-I***, 59W ectors are active at a time  | <ul> <li>Toolless side</li> </ul>   | e cover removal a and optical drive removal pter retention ront icons  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller                            | Serial ATA, SATA 3.0Gb/s   | /D±RW SATA 1.5Gb/s Drive  |   | 1.6" high, external, std optical 1.6" high, external, open 1" high, external, std media reader 1" high, internal, std disk   |
| Chipset   | Intel X58 Express Chips<br>(ICH10R) for RAID 0, 1, 5<br>Winbond® W83627DHG-F                               |   | Bay © 3.5",<br>Slot 1: full-leng  | gth, full-height, PCIe 2.0 x16 (75W* max)  |
| Front ports<br>Rear ports   | Eight USB 2.0, eSATA, se   | e (3.5mm), headphone (3.5mm) rial (9-pin), ethernet (RJ-45), e-in, mic-in, front-out, rear-out, Optical SPDIF digital in  | Slot 2: full-lend<br>Slot 3: full-lend<br>Slot 4: full-lend                                     | oth, full-height, PCIe 2.0 x4** oth, full-height, PCIe 2.0 x16 (75W* max) oth, full-height, PCIe x1 ogth, full-height, 32-bit PCI 2.3  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip                          | High Definition (HD) Audio<br>Internal speaker for busine<br>One gigabit ethernet on p                     | o, Analog Devices AD1988A codec<br>ess audio<br>lanar, Broadcom® BCM5755<br>m Module, TCG 1.2-compliant   |   | SECURITY  • Security chip (see information on left)  • Side cover lock (ships with two identica keys)  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount                                | Optical Wheel Mouse (US 625 watts with 120mm bo Climate Savers® Computing                                  | ard (USB connector), 104-key, black<br>SB connector), black<br>ttom-mounted variable speed fan, universa<br>ng Bronze, 80 PLUS® Bronze qualified<br>CPU, rear, opt front PCI [>75W graphics],   |   | Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password  |
| <ul><li>listed)</li><li>Rescue and F</li><li>ThinkVantage</li><li>Norton Intern</li></ul> | dows® 7<br>64<br>lications⁵ (only some<br>Recovery™<br>· System Update<br>et Security™<br>rus definitions) | Accessories  1GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-8500 DDR3 ECC UDIMM 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray <sup>TM</sup> Burner SATA 1.5Gb/s ThinkVision® L2440p Wide 24" Monitor NVIDIA Quadro NVS 290 | 51J0503<br>51J0504<br>43R2032<br>43R2033<br>57Y4138<br>45J7918<br>45K1675<br>4420HB2<br>43R1765 | Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (front or all)  Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant |
| purchase pro  | ce 2010 preloaded;<br>duct key to activate<br>or® Business Edition<br>© (DVD±RW)<br>'D® (DVD±RW)           | NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at <b>lenovo.com</b> /acces  | 45K1671<br>51J0511<br>ssories   | LIMITED WARRANTY¹  |

services

24 hour x 7 day<sup>14</sup> toll-free support during the warranty period<sup>1</sup> via 800-426-7378

|         | Type-<br>model | Slot x | Processor | r GHz | Cores | Memory<br>DIMMs | Memory speed | Disk(s)  | Disk<br>size | Pre-cont<br>RAID | F SATA optical | Diskette<br>or Media Graphics<br>reader adapter(s) | ENERGY<br>STAR 5.0 | Preload | Global | Avail<br>date |
|---------|----------------|--------|-----------|-------|-------|-----------------|--------------|----------|--------------|------------------|----------------|--|--------------------|---------|--------|---------------|
| S20 /11 | 57 E6I         | 1 5v6  | W3E30     | 2 90  | 1     | 2v2CB           | 1222MH-      | 1v500CB2 | 2 5"         | No               | DV/D+DV/       | Modia 1vEV1900                                     | Donding            | VD Dro  | Clobal | May 10        |

- Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- This model has a 3-year limited warranty

| Processor    Intel Xeon* Processor W3530 with quad-core,   4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect),   Intel 64, Hyper-Threading Technology, Virtualization Technology,   1066MHz DDR3 memory controller, and 8MB cache   Processor uses FC-LGAB package, one LGA1366 socket   Memory   4GB std, 24GB max, UDIMM, PC3-10600 1333MHz DDR3***, ECC,   3-channel capable, six 240-pin DIMM sockets   **** System automatically clocks down for processors with   1066MHz DDR3 memory controller   1066MHz DDR3 memory controll  |                              |   |   |
|--|------------------------------|---|---|
| AGB std, 24GB max, JDIMM, PC3-10801 1333MHz DDR3***, ECC, 3-channel capable, six 240-pin DIMM sockets  **** System automatically clocks down for processors with 1066MHz DDR3 memory controller  Two PCI Express** x16 adapters required for quad monitor support, *Adapters >75W use auxiliary power connector(s) from PSU NVIDIA** Quadro** FX 1800, PCI Express** (PCIe) x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W  ***** Only two display connectors are active at a time  Media reader SATA disk(s)  SATA DVD±RW SATA Controller  Media reader SATA 3.0Gb/s, 7200 rpm, 3.5** SUper Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals  Chipset  Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond* W83627DHG-P Super I/O  Front ports  Front ports  Two USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mio-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital in  IEEE 1394 adptr  Audio  IEEE 1394 adptr  Audio  PierWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio  One gigabit ethernet on planar, Broadcom* BCM5755  Broadcom Trusted Platform Module, TCG 1.2-compliant  Keyboard  Mouse  Optical Wheel Mouse (USB connector), 104-key, black Optical Wheel Mouse (USB connector), 104-key, black Optical Wheel Mouse (USB connector), 104-key, black Optical Wheel Mouse (USB connector), 104-key, black Optical Wheel Mouse (USB connector), 108-key, black Optical Whee |                              | 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect),<br>Intel 64, Hyper-Threading Technology, Virtualization Technology,<br>1066MHz DDR3 memory controller, and 8MB cache  | <ul><li>Raven black of 6.9"W x 19.0"</li><li>175mm W x 4</li></ul>    |
| Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU NVIDIA® Quadro® FX 1800, PCI Express® (PCIe) x16 adapter, 768MB, two DisplayPort, one dual-link DVI-1****, 59W ***** Only two display connectors are active at a time  Media reader SATA disk(s) SATA DVD±RW SATA DVD±RW SATA 3.0Gb/s, 7200 rpm, 3.5" Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals  Chipset Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  Front ports Rear ports Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital out, Optical SPDIF digital out, Optical SPDIF digital in FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Coptical Wheel Mouse (USB connector), black G25 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  Cooling Rack mount 7 the PCI (140 port) and power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS]) Rack mount  | Memory                       | 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with  | <ul><li>31-liter</li><li>Removable ha</li><li>Toolless side</li></ul> |
| SATA disk(s)  SATA DVD±RW SATA controller  Serial ATA, SATA 3.0Gb/s, 7200 rpm, 3.5"  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals  Chipset  Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Front ports Rear ports  Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital in  IEEE 1394 adptr Audio Speaker High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant  Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Cooling Rack mount  May 3.5", 1 Bay | Graphics                     | * Adapters >75W use auxiliary power connector(s) from PSU NVIDIA® Quadro® FX 1800, PCI Express® (PCIe) x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W  | Toolless adap     Illuminated fro     Rack shelf su                   |
| Chipset  Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  Front ports Rear ports  Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in  IEEE 1394 adptr Audio Slot 1: full-lengt Slot 3: full-lengt Slot 4: full-lengt Slot 4: full-lengt Slot 5: half-leng ** x16 mechanic  ** x16 mechanic  TireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant  Keyboard Mouse Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply Cooling 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS]) Rack mount   | SATA disk(s)<br>SATA DVD±RW  | <b>500GB</b> , SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,   | Bay ② 5.25", 1<br>Bay ③ 3.5", 1<br>Bay ④ 3.5", 1<br>Bay ⑤ 3.5", 1     |
| Rear ports  Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in  IEEE 1394 adptr Audio High Definition (HD) Audio, Analog Devices AD1988A codec Speaker Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Security chip Keyboard Wheel Mouse (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply Cooling Slot 5: half-leng ** x16 mechanic ** x16 mec | Chipset                      | (ICH10R) for RAID 0, 1, 5 support,  | Slot 2: full-lengt  |
| Optical SPDIF digital out, Optical SPDIF digital in  IEEE 1394 adptr Audio FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Speaker Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant  Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black Power supply 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Cooling 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS]) Rack mount  |                              | Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out,   | Slot 5: half-leng   |
| Mouse Optical Wheel Mouse (USB connector), black  Power supply  Cooling Rack mount  Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS]) Rack shelf support   | Audio<br>Speaker<br>Ethernet | Optical SPDIF digital out, Optical SPDIF digital in FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on real High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 | r   |
| Rack mount Rack shelf support  | Mouse<br>Power supply        | Optical Wheel Mouse (USB connector), black<br>625 watts with 120mm bottom-mounted variable speed fan, universa<br>Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   |   |
|  |                              |   | opt front [SAS])  |

## Preloaded operating system<sup>20</sup>

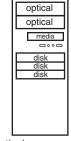
Genuine Windows® XP Professional 32-bit\*\*\*\*\* (preinstalled via downgrade rights in Windows 7 Professional 64-bit)

\*\*\*\*\* Only 3GB of memory can be addressable by a 32-bit operating system limitation

## Preloaded applications<sup>5</sup> (all OSes; only some listed)

- Rescue and Recoverv™
- McAfee® VirusScan® Plus (30 days of virus definitions) Lenovo System Toolbox
- Adobe® Reader
- Microsoft Office 2007 Trial (60-day) Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
  Corel® WinDVD® (DVD±RW)

- color; metal case
- "D x 18.8"H (with handle) 483mm D x 478mm H
- kg) max configuration
- andle on top front
- cover removal
- and optical drive removal
- oter retention
- ont icons
- pport



.6" high, .6" high, external, std optical external, open external, std media reader high,

high, internal, std disk " hiğh, internal, opt disk " hiğh, internal, opt disk

th, full-height, PCIe 2.0 x16 (75W\* max) th, full-height, PCIe 2.0 x4\*

full-height, PCIe 2.0 x16 (75W\* max) full-height, PCIe x1

gth, full-height, 32-bit PCI 2.3

ical

## **SECURITY**

- Security chip (see information on left) Side cover lock (ships with two identical
- keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)

  Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)

  Power-on password
- · Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- · USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant

Pending: ENERGY STAR® 5.0-compliant

## LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty
  - Onsite service upgrade options (in eligible locations)<sup>7</sup>
  - Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period1 via 800-426-7378

2GB PC3-10600 DDR3 ECC UDIMM 43R2033 4GB PC3-10600 DDR3 ECC UDIMM 57Y4138 500GB SATA 3.0Gb/s Disk (7200 rpm) 43R1990 Blu-ray™ Burner SATA 1.5Gb/s 45K1675 ThinkVision® L2440p Wide 24" Monitor 4420HB2 NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 43R1765 45K1671 ATI™ FirePro™ 1GB V7750 51J0511 Other accessories at lenovo.com/accessories

| Type- Slo<br>Name model ba  | ot x Proc- Memory<br>ay essor(s) GHz DIMMs  | Memory<br>speed   | Disk(s)   | Disk<br>size                             |  | SATA<br>AID optical   |   | Graphics<br>adapter(s)   |  |   | Avail<br>date                         |
|---|---|---|---|--|--|---|---|--|--|---|---------------------------------------|
| <b>D20</b> 4155-29U 69<br><b>D20</b> 4155-31U 69<br><b>D20</b> 4155-32U 69<br><b>D20</b> 4155-33U 69            | x9 2 x E5540 2.53 4 x 1GE<br>x9 2 x E5502 1.86 4 x 1GE<br>x9 2 x X5560 2.80 4 x 1GE<br>x9 1 x E5506 2.13 4 x 1GE<br>x9 1 x E5540 2.53 4 x 1GE<br>x9 1 x E5540 2.53 4 x 1GE  | 3 1066MHz<br>3 1333MHz<br>3 1066MHz<br>3 1066MHz  | 1 x 250GB<br>2 x 300GB<br>1 x 250GB, 1 x 500Gl<br>2 x 300GB   | 3 3.5"                                   | SATA<br>SATA<br>SATA<br>SAS                  | DVD±RW<br>1 DVD±RW<br>DVD±RW<br>0 DVD±RW  | / Media 1   | x FX580<br>x FX1800<br>x FX1800<br>x FX4800  | )  | Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64<br>Bus64  | Apr 09<br>Apr 09<br>Apr 09<br>Apr 09  |
|   | <ul><li>High performance work</li><li>These small and mediu</li></ul>   |   |   |  |  |   |   |  |  |   |                                       |
| Processor(s)  | Up to two processors, one Intel® Xeon® Processor 4.8GT/s (giga-transfers/se 800MHz DDR3 memory contel Xeon Processor E5 800MHz DDR3 memory contel Xeon Processor E5 1066MHz DDR3 memory intel Xeon Processor X5 1333MHz DDR3 memory | E5502 with operation of the cond of the controller, and the controller of the | dual-core,<br>QuickPath Interconne<br>d 4MB cache or<br>ad-core, 4.8GT/s QPI<br>d 4MB cache or<br>ad-core, 5.86GT/s QFI<br>nd 8MB cache or<br>ad-core, 6.4GT/s QPI  | ,<br>PI,                                 | • F<br>• 8<br>• 2<br>• 6<br>• 5<br>• F       | Raven black<br>3.3"W x 23.7<br>110mm W x<br>10 lb (27.1kg<br>5-liter<br>Removable l                                   | 7"D x 19.1<br>602mm Eg) max co<br>handle on<br>e cover re   | "H (with h<br>) x 485mm<br>nfiguration<br>top front<br>moval   | n H É  | op'   | tical<br>tical<br>tical<br>media      |
| Implementation<br>Memory  | Processor uses FC-LGA8  4GB std, 48GB max, UDI PC3-10600 1333MHz DDI 6-channel capable, twelve ** Over six DIMMs require  | package, tv<br>MM, PC3-85<br>R3, ECC,<br>240-pin DII  | vo LGA1366 sockets<br>600 1066MHz DDR3 or<br>MM sockets**   | •  | • T  | oolless disk<br>oolless ada<br>luminated f<br>Rack shelf s  | pter reter<br>ront icons<br>upport or   | optional ra  | ail kit  | di<br>di<br>di  | sk<br>sk<br>sk<br>sk<br>sk            |
| Graphics  | Two PCI Express® x16 ad * Adapters >75W use aux Some: NVIDIA® Quadro two DisplayPort, of Some: NVIDIA Quadro I two DisplayPort, of Some: NVIDIA Quadro I Some: NVIDIA Quadro I  | apters requi<br>iliary power<br>FX 580, Po<br>one dual-link<br>FX 1800, PC<br>one dual-link<br>FX 4800, PC<br>DisplayPort,<br>5700, PCIe<br>one dual-link   | red for quad monitor s<br>connector(s) from PS<br>Cle x16 adapter, 512M<br>DVI-I***, 40W<br>!le x16 adapter, 768Ml<br>DVI-I***, 59W<br>!le x16 adapter, 1.5GE<br>1 dual-link DVI-I***, 12<br>x16 adapter, 512MB,<br>DVI-I***, 49W | J' '<br>B,<br>3,                         | Ba<br>Ba<br>Ba<br>Ba<br>Ba<br>Ba<br>Ba<br>Ba | y \$ 3.5",<br>y \$ 3.5",<br>y \$ 3.5",<br>y \$ 3.5",<br>y \$ 3.5",<br>ot 1: half-ler<br>ot 2: full-len                | 1.6" high,<br>1.6" high,<br>1" high,<br>1" high,<br>1" high,<br>1" high,<br>1" high,<br>1" high,<br>ngth, full-hegth, full-he | external,<br>external,<br>external,<br>internal,<br>internal,<br>internal,<br>internal,<br>ieight, PCIeight, PCIeight, PCIe                    | open<br>open<br>std med<br>std disk<br>std or copt disk<br>opt disk<br>opt disk<br>e x1<br>e 2.0 x16                         | dia read<br>copt disk<br>c<br>c<br>c<br>c<br>(75W* m  |                                       |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)   | None<br>20-in-1 media reader<br><i>Some:</i> <b>250GB</b> or <b>500GB</b><br><i>Some:</i> <b>300GB</b> , SATA 3.0<br><i>Some:</i> <b>300GB</b> , SAS 3.00   | , SATA 3.0G<br>Gb/s, 10000<br>Gb/s, 15000   | b/s, 7200 rpm, 3.5"<br>rpm, 2.5"<br>rpm   |  | Slo  | ot 3: full-leng<br>ot 4: full-leng<br>ot 5: full-leng<br>ot 6: full-leng  | gth, full-he<br>gth, full-he  | eight, PCle<br>eight, PCle<br>eight, 32-b  | 2.0 x16<br>x4 (x16   | (75W* m<br>mechan   |                                       |
| SATA DVD±RW<br>Disk controller  | Super Multi-Burner DL DN<br>Three SATA connectors for<br>five SATA/SAS <sup>4</sup> connector<br>RAID <sup>8</sup> 0, 1, 5, 10, integrat  | or opticals, S<br>s for disks,  | SATA 3.0Gb/s, integrate<br>SATA 3.0Gb/s, SAS 3.   |  | CH10;  |   | <ul> <li>Side c<br/>keys)</li> </ul>  | ity chip (se<br>over lock (<br>ck loop (in   | ships wit  | h two ide   | entical                               |
| Chipset   | Intel 5520 Chipset, Intel   | ICH10, Wink   | ond® W83627DHG-P  | Super                                    | I/O  |   | padloc  | ck prohibits   | s side cov   | er remo   | val)                                  |
| Front ports Rear ports IEEE 1394 adptr  | Two USB 2.0, microphone<br>FireWire 400 (IEEE 1394:<br>Eight USB 2.0, eSATA, se<br>FireWire 400 (IEEE 1394:<br>rear-out, center/sub-out, so<br>Optical SPDIF digital in   | e (3.5mm), h<br>a)<br>rial (9-pin), i<br>a), six analo  | eadphone (3.5mm),<br>two ethernet (RJ-45),<br>g audio ports (line-in,   | nic-in,                                  |  | out,  | <ul><li>Securi<br/>Kensir<br/>prohib</li><li>Power</li><li>Admin</li><li>Boot s</li><li>Boot v</li></ul>                      | ity slot (in<br>ngton® Mic<br>its side co<br>-on passw<br>istrator pa<br>equence d<br>vithout key  | rear for o<br>rosaver®<br>ver removerd<br>ssword<br>control<br>rboard, m   | ptional<br>cable;<br>val)   | ŕ                                     |
| Audio<br>Speaker<br>Ethernet<br>Security chip   | High Definition (HD) Audi<br>Internal speaker for busin<br>Dual gigabit ethernet on p<br>Broadcom Trusted Platfor   | ess audio<br>lanar, Broad<br>m Module, T  | dcom® BCM5755 and<br>CG 1.2-compliant   | BCM57                                    | '54  |   | • USB p   | port I/O co<br>port disable  | ement (fro   |   |                                       |
| Keyboard<br>Mouse<br>Power supply<br>Cooling  | Preferred Pro USB Keybo<br>Optical Wheel Mouse (US<br>1060 watts with 120mm b<br>Climate Savers® Computin<br>Five fans (power supply, f   | B connecto ottom-mouning Bronze, 8  | r), black<br>ted variable speed far<br>0 PLUS® Bronze quali   | , unive                                  |  | k)  | GREEN(  | SThinkVar<br>GUARD®c<br>ompliant<br>ENERGY S   | ertified   |   |                                       |
| Rack mount  | Rack shelf support or opti  | onal sliding  | rack mount rail kit sup   |  | AIL UIS                                      | N)  | E   | PEAT™ G<br>S5.0 mod  | iold rating  |   |                                       |
| - Genuine Wind<br>Business 64<br>Vista Premiur<br>Preloaded app<br>listed)<br>• Rescue and F<br>• McAfee® Virus | n logo<br>lications⁵ (only some<br>Recovery™<br>sScan® Plus<br>rus definitions)<br>em Toolbox   | 2GB PC3-1<br>4GB PC3-1<br>Blu-ray™ B<br>1TB SATA:<br>150GB SAI<br>300GB SAI<br>450GB SAI<br>ThinkStatio<br>ATI FirePro<br>NVIDIA Qu   | 1500 DDR3 ECC UDIN<br>0600 DDR3 ECC UDIN<br>0600 DDR3 ECC UDI<br>urner SATA 1.5Gb/s<br>3.0Gb/s Disk (7200 rpi<br>7A 3.0Gb/s Disk (1000<br>6 3.0Gb/s Disk (15000<br>6 3.0Gb/s Disk (15000  | MM<br>MM<br>n)<br>0 rpm)<br>rpm)<br>rpm) |  | 51J0504<br>43R2033<br>57Y4138<br>45K1675<br>45J7918<br>43R2030<br>43R1994<br>43N3424<br>43R1964<br>51J0511<br>45K1674 | Custo parts for se Mon next Think http:// 24x7 issue  | LIMITED IT parts an only (with elected parts - Fri cover business of (Plus <sup>TM</sup> see ["/lenovo.cc" 4 toll-free es during t d¹ via 800- | aceable L<br>n limited of<br>rts <sup>3</sup> , 8 am<br>age excluday respondices ava<br>om/thinkpl<br>support f<br>he warrar | Jnit (CRI<br>ponsite se<br>- 5 pm,<br>iding ho<br>ponse time<br>ailable; se<br>us/warra<br>or warra | ervice<br>lidays,<br>e)<br>see<br>nty |

| Name  | Type-<br>model | Slot x | Processor(s) | GHz  | Memory  | Disk(s)   | Disk<br>size | Disk<br>type | RAII | SATA<br>O optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | ENERGY<br>STAR 5.0 | Preload | Avail<br>date |
|-------|----------------|--------|--------------|------|---------|-----------|--------------|--------------|------|-------------------|--------------------------------|---------------------|--------------------|---------|---------------|
| D20 4 | 1155-27U       | 6x9    | 2 x E5540    | 2.53 | 4 x 1GB | 2 x 300GB | 2.5"         | SATA         | 1    | DVD±RW            | Media                          | 1 x FX4800          | None               | Pro64   | Apr 09        |

- · High performance workstation with premium graphics for specialized professionals
- . Environmentally friendly, cool, and quiet with rock solid engineering
- This small and medium business (SMB) model is part of the US TopSeller™ Program

| cessors, two processors standard, Processor E5540 with quad-core, a-transfers/second) QPI (QuickPath Interconnect), R3 memory controller, and 8MB cache es FC-LGA8 package, two LGA1366 sockets GB max (pending 16GB RDIMM availability), -8500 1066MHz DDR3, ECC, 6-channel capable, | Tower  Raven black color; metal case 8.3"W x 23.7"D x 19.1"H (with handle) 210mm W x 602mm D x 485mm H 60 lb (27.1kg) max configuration  |
|---|--|
| -8500 1066MHz DDR3, ECC, 6-channel capable,   | 1 • OU ID (27.1KG) HIAX COHIIGUIAHOH I   |
|   | 55-liter     Removable handle on top front     Toolless side cover removal   |
| '5W use auxiliary power connector(s) from PSU dro® FX 4800, PCIe x16 adapter, 1.5GB, , two DisplayPort, one dual-link DVI***, 121W  | Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit      disk disk disk disk disk   |
| reader<br>3.0Gb/s, 10000 rpm, 2.5"<br>surner DL DVD±RW, SATA 1.5Gb/s<br>ectors for opticals, SATA 3.0Gb/s, integrated in ICH10;<br>connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s,   | Bay ① 5.25", 1.6" high, external, std optical Bay ② 5.25", 1.6" high, external, open Bay ③ 5.25", 1.6" high, external, open Bay ④ 3.5", 1" high, external, std media reader Bay ⑤ 3.5", 1" high, internal, std disk Bay ② 3.5", 1" high, internal, opt disk Bay ③ 3.5", 1" high, internal, opt disk Bay ③ 3.5", 1" high, internal, opt disk  |
|   | Bay 9 3.5", 1" high, internal, opt disk  Slot 1: half-length, full-height, PCle x1   |
| (IEEE 1394a)<br>D, eSATA, serial (9-pin), two ethernet (RJ-45),<br>(IEEE 1394a), six analog audio ports (line-in, mic-in,   | Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x4 (x16 mechanical) Slot 6: full-length, full-height, 32-bit PCI 2.3   |
| F digital out, Optical SPDIF digital in<br>n (HD) Audio, Analog Devices ADI 1988A codec<br>ker for business audio<br>ethernet on planar, Broadcom® BCM5755 and BCM575<br>usted Platform Module, TCG 1.2-compliant   | SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional   |
|   | n DIMM sockets**  MMs requires dual processors  ress® x16 adapters required for quad monitor support, fow use auxiliary power connector(s) from PSU didro® FX 4800, PCIe x16 adapter, 1.5GB, two DisplayPort, one dual-link DVI***, 121W display connectors are active at a time display connectors are active at a time display connectors are active at a time display connectors are active at a time display connectors for active at a time display connectors for opticals, SATA 1.5Gb/s dectors for opticals, SATA 3.0Gb/s, integrated in ICH10; connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, 10, integrated in Marvell® 88SE6480  dispset, Intel ICH10, dispert, Intel ICH10, dispert, Intel ICH10, dispert, Intel ICH10, dispert, Intel ICH10, dispart, active in Marvell® 88SE6480  dispset, Intel ICH10, dispart, intel ichin, incrophone (3.5mm), headphone (3.5mm), (IEEE 1394a), dispart, six analog audio ports (line-in, mic-in, cout, center/sub-out, side out), figital out, Optical SPDIF digital in in (HD) Audio, Analog Devices ADI 1988A codec ker for business audio |

## Preloaded operating system<sup>20</sup>

Genuine Windows® XP Professional 64-bit (preinstalled via downgrade rights in Windows Vista® Business 64-bit)

## Preloaded applications<sup>5</sup> (only some listed)

- Rescue and Recovery™ McAfee® VirusScan® Plus
- (30 days of virus definitions) Lenovo® System Toolbox
- Adobe® Reader

Mouse

Cooling

Power supply

Rack mount

- Microsoft® Office 2007 Trial (60-day)
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
  Corel® WinDVD® (DVD±RW)

1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Five fans (power supply, first processor, second processor, rear, front disk) Rack shelf support or optional sliding rack mount rail kit support

Optical Wheel Mouse (USB connector), black

2GB PC3-8500 DDR3 ECC RDIMM 43R2035 4GB PC3-8500 DDR3 ECC RDIMM 8GB PC3-8500 DDR3 ECC RDIMM 43R2036 43R2037 Blu-ray™ Burner SATA 1.5Gb/s 750GB SATA 3.0Gb/s Disk (7200 rpm) 45K1675 43R1991 1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 150GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" 300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" 146GB SAS 3.0Gb/s Disk (15000 rpm) 43R2030 43R2031 43R1993 300GB SAS 3.0Gb/s Disk (15000 rpm) 43R1994 ThinkStation Rail Kit 43R1964 USB 2.0 Ultra Secure Memory Key 8GB 45J5918 ThinkVision® L2440p Wide 24" Monitor 4420HB2 ATI™ FirePro™ 512MB V5700 51J0509 ATI FirePro 1GB V7750 51J0511 Other accessories at lenovo.com/accessories

- al
- Kensington® Microsaver® cable; prohibits side cover removal)
  Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant

## LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ThinkPlus™ services available; see
- http://lenovo.com/thinkplus/warranty
- 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period1 via 800-426-7378

See footnotes for important warranty information US model announced March 31, 2009 US model withdrawn effective February 2010

| Name         | Type-<br>model | Slot x |           | GHz  | Memory<br>DIMMs | Memory<br>speed | Disk(s)                | Disk<br>size | Disk<br>type | RAID |        |         | Graphics adapter(s) | ENERGY<br>STAR 5.0 |       | Avail<br>date |
|--------------|----------------|--------|-----------|------|-----------------|-----------------|------------------------|--------------|--------------|------|--------|---------|---------------------|--------------------|-------|---------------|
|              |                |        |           |      |                 |                 | 1 x 500GB <sup>2</sup> |              |              |      |        |         |                     |                    |       | May 09        |
| <b>D20</b> 4 | 155-41U        | 6x9    | 2 x E5520 | 2.26 | 2 x 2GB         | 1066MHz         | 1 x 300GB              | 2.5"         | SATA         | None | DVD±RW | Media 1 | 1 x FX1800          | None               | Bus64 | May 09        |

- High performance workstation with premium graphics for specialized professionals
- These small and medium business (SMB) models are part of the US TopSeller™ Program

| Processor(s) Implementation   | 5.86GT/s (giga-transfers<br>1066MHz DDR3 memor  | vo processors standard,<br>r E5520 with quad-core,<br>s/second) QPI (QuickPathInterconnect),<br>ry controller, and 8MB cache<br>\8 package, two LGA1366 sockets   | • 8.3"W x 23.  | c color; metal case 7"D x 19.1"H (with handle) 602mm D x 485mm H  |
|---|---|---|--|---|
| Memory  | 4GB std, 48GB max, UI<br>6-channel capable (3-ch<br>twelve 240-pin DIMM so<br>** Over six DIMMs requi   | ockets**  | <ul><li>60 lb (27.1k</li><li>55-liter</li><li>Removable</li><li>Toolless sid</li></ul>     | ng) max configuration  handle on top front e cover removal  |
| Graphics  | * Adapters >75W use at<br>Some: NVIDIA® Quadr<br>two DisplayPort.<br>Some: NVIDIA Quadro<br>two DisplayPort.  | adapters required for quad monitor support, uxiliary power connector(s) from PSU oo FX 580, PCle x16 adapter, 512MB, one dual-link DVI-I ***, 40W o FX 1800, PCle x16 adapter, 768MB, one dual-link DVI-I ***, 59W nectors are active at a time   | Toolless ada Illuminated Rack shelf s  Bay ① 5.25", Bay ② 5.25",                           | support or optional rail kit  1.6" high, external, std optical 1.6" high, external, open  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk controller | 3 SATA connectors for of SATA/SAS <sup>4</sup> connectors   |   | Bay ® 3.5",<br>Bay ® 3.5",<br>Bay ® 3.5",<br>Bay ® 3.5",<br>Bay ® 3.5",<br>Slot 1: half-le | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk   |
| Chipset   | Intel 5520 Chipset, Inte<br>Winbond® W83627DHG  | el ICH10,<br>-P Super I/O   | Slot 4: full-len<br>Slot 5: full-len   | igth, full-height, PCIe 2.0 x16 (75W* max)<br>igth, full-height, PCIe x4 (x16 mechanical)   |
| Front ports  Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip                   | FireWire 400 (IEEE 139 Eight USB 2.0, eSATA, s FireWire 400 (IEEE 139 rear-out, center/sub-out Optical SPDIF digital in None High Definition (HD) Aud Internal speaker for bus Dual gigabit ethernet on | serial (9-pin), two ethernet (RJ-45),<br>4a), six analog audio ports (line-in, mic-in, fr<br>, side out), Optical SPDIF digital out,<br>dio, Analog Devices ADI 1988A codec   | ont-out,   | SECURITY  SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount                                      | Optical Wheel Mouse (U<br>1060 watts with 120mm<br>Climate Savers® Compu<br>Five fans (power supply,  | poard (USB connector), 104-key, black<br>USB connector), black<br>bottom-mounted variable speed fan, univers<br>ting Bronze, 80 PLUS® Bronze qualified<br>first processor, second processor, rear, fron<br>bitional sliding rack mount rail kit support   | •  | Power-on password Administrator password Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all)   |
| - Genuine Wind Business 64  | m logo lications⁵ (only some Recovery™ sScan® Plus rus definitions) em Toolbox ter or® Business Edition  © (DVD±RW)   | Accessories  1GB PC3-8500 DDR3 ECC UDIMM  2GB PC3-8500 DDR3 ECC UDIMM  1GB PC3-10600 DDR3 ECC UDIMM  4GB PC3-10600 DDR3 ECC UDIMM  Super Multi-Burner DL DVD±RW SATA 1.5  Blu-ray™ Burner SATA 1.5Gb/s  500GB SATA 3.0Gb/s Disk (7200 rpm)  1TB SATA 3.0Gb/s Disk (7200 rpm)  300GB SATA 3.0Gb/s Disk (10000 rpm) 2.  ThinkStation Rail Kit  USB 2.0 Ultra Secure Memory Key 8GB  ThinkVision® L2440p Wide 24" Monitor  ATI™ FirePro™ 1GB V7750  NVIDIA Quadro 1GB FX 3800  NVIDIA Quadro 1.5GB FX 4800 | 45K1675<br>43R1990<br>45J7918  | Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant  LIMITED WARRANTY¹  3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays,                    |

next business day response time)

ThinkPlus™ services available; see
http://lenovo.com/thinkplus/warranty

24x7¹⁴ toll-free support for warranty

issues during the warranty period¹ via 800-426-7378

# ThinkStation® D20 (4155) - TopSeller (UDIMM) - August 2009 - withdrawn

Personal Systems Reference (PSREF)

or Media Graphics 1394 ENERGY reader adapter(s) adptr STAR 5.0 Preload Disk Avail Type-Name model Slot x Memory bay Processor(s) GHz Cores DIMMs speed Disk(s) size RAID optical D20 4155-47U 6x9 2xE5540 2.53 8 2x2GB 1066MHz 1x500GB2 SATA 3.5" DVD±RW Media 1xFX3800 None Pending Bus64 Aug 09

- Faster, more efficient architecture with the latest Intel® workstation technology High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
   This small and medium business (SMB) model is part of the US TopSeller™ Program
- This model has a 3-year limited warranty<sup>1</sup>

| Processor  Implementation  | 1066MHz ĎĎR3 memor  |  | • 8.3"W x 23.7<br>• 210mm W x  | color; metal case "D x 19.1"H (with handle) 602mm D x 485mm H optical optical optical   |
|--|---|--|--|---|
| Memory   |   | DIMM, PC3-8500 1066MHz DDR3, ECC,<br>annel per processor),<br>ckets**  | <ul><li>55-liter</li><li>Removable I</li><li>Toolless side</li><li>Toolless disk</li></ul>                                     | max configuration  handle on top front e cover removal c and optical drive removal  |
| Graphics   | * Adapters >75W use au NVIDIA® Quadro® FX 38 two DisplayPort, one dua   | dapters required for quad monitor support, ixiliary power connector(s) from PSU 800, PCIe x16 adapter, 1GB, al-link DVI-I***, 108W nectors are active at a time  |  | ront icons upport or optional rail kit  disk disk disk disk disk  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller                  | 5 SATA/SAS4 connectors  | •  | Bay ② 5.25",<br>Bay ③ 5.25",<br>Bay ④ 3.5",<br>Bay ⑤ 3.5",<br>Bay ⑥ 3.5",<br>Bay ⑦ 3.5",<br>Bay ⑧ 3.5",                        | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk   |
| Chipset  | Intel 5520 Chipset,   | /83627DHG-P Super I/O  | Slot 1: half-len   | 1" high, internal, opt disk<br>ngth, full-height, PCle x1<br>gth, full-height, PCle 2.0 x16 (75W* max)  |
| Front ports Rear ports   | Two USB 2.0, microphor FireWire 400 (IEEE 1394  | ne (3.5mm), headphone (3.5mm),<br>4a)<br>erial (9-pin), two ethernet (RJ-45),<br>4a),  | Slot 3: full-lend<br>Slot 4: full-lend<br>Slot 5: full-lend  | gth, full-height, 32-bit PCI 2.3<br>gth, full-height, PCIe 2.0 x16 (75W* max)<br>gth, full-height, PCIe x4 (x16 mechanical)<br>gth, full-height, 32-bit PCI 2.3   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip<br>Keyboard<br>Mouse<br>Power supply<br>Cooling | Optical SPDIF digital in<br>None<br>High Definition (HD) Auc<br>Internal speaker for busi<br>Dual gigabit ethernet on<br>Broadcom Trusted Platfo<br>Preferred Pro USB Keyb<br>Optical Wheel Mouse (U<br>1060 watts with 120mm<br>Climate Savers® Comput | planar, Broadcom® BCM5755 and BCM575<br>orm Module, TCG 1.2-compliant<br>oard (USB connector), 104-key, black  | sal,   | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys)  • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control   |
| Rack mount   | Rack shelf support or op  | ntional sliding rack mount rail kit support  | it disk)   | Boot without keyboard, mouse, diskette     Serial port I/O control  |
|  | /antage® technologies   |  |  | USB port disablement (front or all)   |
| - Genuine Win-<br>Business 64  | m logo  lications⁵ (only some  Recovery™ sScan® Plus irus definitions) irus Toolbox ler   | Accessories  1GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-8500 DDR3 ECC UDIMM 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s ThinkVision® L2440p Wide 24" Monitor NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/access | 51J0503<br>51J0504<br>43R2032<br>43R2033<br>57Y4138<br>45J7918<br>45K1675<br>4420HB2<br>43R1765<br>45K1671<br>51J0511<br>ories | GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant  LIMITED WARRANTY¹  3-year parts and labor Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty Onsite service upgrade options (in eligible locations)² Post warranty maintenance |

24 hour x 7 day14 toll-free support during the warranty period1 via 800-426-7378

Disk Pre-config SATA size RAID optical or Media Graphics 1394 ENERGY Win7 Avail reader adapter(s)adptr STAR 5.0 preload date Type-Name model Slot x Memory Memory bay Processor(s) GHz Cores DIMMs speed Disk(s)

D20 4155-68U 6x9 1xE5520 2.26 4 2x2GB 1333MHz 1x500GB<sup>2</sup> SATA 3.5" No DVD±RW Media 1xFX580 No Pending Pro64 Oct 09

- Faster, more efficient architecture with the latest Intel® workstation technology
   High performance workstation with premium graphics for specialized professionals
   Environmentally friendly, cool, and quiet with rock solid engineering
   Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
   This small and medium business (SMB) model is part of the US TopSeller™ Program

- This model has a 3-year limited warranty<sup>†</sup>
  This system is Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | 1066MHz DDR3 memor   |  | • 8.3"W x 23.7<br>• 210mm W x   | color; metal case ""D x 19.1"H (with handle) 602mm D x 485mm H g) max configuration optical   |  |  |  |
|---|--|--|---|---|--|--|--|
| Memory  | 6-channel capable (3-ch<br>twelve 240-pin DIMM so  | ckets*** clocks down for processors with 1066MHz r   | <ul> <li>55-liter</li> <li>Removable I</li> <li>Toolless side</li> <li>Toolless disk</li> <li>Toolless ada</li> <li>Illuminated fi</li> </ul> | optical optical optical media a cover removal a cand optical drive removal pter retention ront icons optical optical disk disk  |  |  |  |
| Graphics  | * Adapters >75W use at NVIDIA® Quadro® FX 58 two DisplayPort, one dua  | dapters required for quad monitor support, ixiliary power connector(s) from PSU 80, PCIe x16 adapter, 512MB, al-link DVI-I****, 40W nnectors are active at a time  | Bay ① 5.25",<br>Bay ② 5.25",  | support or optional rail kit  disk disk disk disk disk li, 1.6" high, external, std optical li, 1.6" high, external, open   |  |  |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller   | 5 SATA/SAS4 connectors   |  | Bay ® 3.5",<br>Bay Ø 3.5",<br>Bay ® 3.5",<br>Bay ® 3.5",<br>Slot 1: half-len  | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk   |  |  |  |
| Chipset   | Intel 5520 Chipset,<br>Intel ICH10, Winbond® V   | V83627DHG-P Super I/O  | Slot 3: full-lend   | gth, full-height, PCIe 2.0 x16 (75W* max)<br>gth, full-height, 32-bit PCI 2.3<br>gth, full-height, PCIe 2.0 x16 (75W* max)  |  |  |  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker   | Two USB 2.0, microphor<br>FireWire 400 (IEEE 139-<br>Eight USB 2.0, eSATA, s<br>FireWire 400 (IEEE 139-<br>six analog audio ports (I<br>rear-out, center/sub-out,<br>Optical SPDIF digital in<br>None<br>High Definition (HD) Aud<br>Internal speaker for busi | ne (3.5mm), headphone (3.5mm), 4a) erial (9-pin), two ethernet (RJ-45), 4a), ine-in, mic-in, front-out, side out), Optical SPDIF digital out, dio, Analog Devices AD1988A codec ness audio   | Slot 5: full-leng   | sth, full-height, PCIe x4 (x16 mechanical) gth, full-height, 32-bit PCI 2.3  SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional   |  |  |  |
| Ethernet<br>Security chip<br>Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Broadcom Trusted Platfor Preferred Pro USB Keyb Optical Wheel Mouse (U 1060 watts with 120mm Climate Savers® Compur Five fans (power supply,   | planar, Broadcom® BCM5755 and BCM57<br>rm Module, TCG 1.2-compliant<br>loard (USB connector), 104-key, black<br>SB connector), black<br>bottom-mounted variable speed fan, univer<br>ting Bronze, 80 PLUS® Bronze qualified<br>first processor, second processor, rear, froational sliding rack mount rail kit support | rsal,   | Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password  • Administrator password  • Boot sequence control  • Boot without keyboard, mouse, diskette  • Serial port I/O control  • USB port disablement (front or all)  |  |  |  |
| - Genuine Wind<br>Professional (Preloaded app<br>listed) - Rescue and For ThinkVantage - Norton Intern<br>(30 days of violation Adobe® Reacont Microsoft Offi<br>purchase pro | lications <sup>5</sup> (only some Recovery™ System Update et Security™ rus definitions) er ce 2010 preloaded; duct key to activate or® Business Edition  (DVD±RW)  | Accessories  2GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s ThinkVision® L2440p Wide 24" Monitor NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/access        | 51J0504<br>43R2033<br>57Y4138<br>45J7918<br>45K1675<br>4420HB2<br>43R1765<br>45K1671<br>51J0511<br>sories                                     | Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant  LIMITED WARRANTY¹   3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty  Onsite service upgrade options (in eligible locations)²  Post warranty maintenance services  24 hour x 7 day¹⁴ toll-free support |  |  |  |

during the warranty period1

via 800-426-7378

Type- Slot x Proc- Memory Memory Disk(s) Disk Pre-conf SATA or Media reader adapter(s) STAR 5.0 preload Global date

D20 4158-87U 6x9 1xE5540 2.53 4 2x2GB 1066MHz 1x500GB2 SATA 3.5" No DVD±RW No 1xFX1800 Pending Pro64 Global Jan 10

- Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- This model has a 3-year limited warranty
- This system is Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  | 1066MHz ĎĎR3 memor  |   | • 8.3"W x 23.7<br>• 210mm W x   | color; metal case 7"D x 19.1"H (with handle) 602mm D x 485mm H q) max configuration optical  |  |  |  |  |
|--|---|---|---|--|--|--|--|--|
| Memory   | 4GB std, 48GB max, UE<br>6-channel capable (3-ch<br>twelve 240-pin DIMM so<br>** Over six DIMMs requi   | ckets**   | S5-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal                          |  |  |  |  |  |
| Graphics   | * Adapters >75W use au NVIDIA® Quadro® FX 18 768MB, two DisplayPort   | dapters required for quad monitor support, uxiliary power connector(s) from PSU 800, PCI Express® (PCIe) x16 adapter, , one dual-link DVI-I***, 59W nectors are active at a time  | Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit     disk     disk     disk     disk     disk |  |  |  |  |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller  | 5 SATA/SAS4 connectors  | •   | Bay 2 5.25",<br>Bay 3 5.25",<br>Bay 4 3.5",<br>Bay 5 3.5",<br>Bay 6 3.5",<br>Bay 7 3.5",  | 1.6" high, external, open 1.6" high, external, open 1" high, external, std media reader 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk  |  |  |  |  |
| Chipset  | Intel 5520 Chipset,<br>Intel ICH10, Winbond® V  | V83627DHG-P Super I/O   | Slot 1: half-ler  | ngth, full-height, PCIe x1<br>gth, full-height, PCIe 2.0 x16 (75W* max)  |  |  |  |  |
| Front ports Rear ports   | FireWire 400 (IEEE 1394   | serial (9-pin), two ethernet (RJ-45),<br>4a),   | Slot 3: full-lend<br>Slot 4: full-lend<br>Slot 5: full-lend   | gth, full-height, 32-bit PCI 2.3<br>gth, full-height, PCIe 2.0 x16 (75W* max)<br>gth, full-height, PCIe x4 (x16 mechanical)<br>ngth, full-height, 32-bit PCI 2.3   |  |  |  |  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip<br>Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Optical SPDIF digital in None High Definition (HD) Auc Internal speaker for busi Dual gigabit ethernet on Broadcom Trusted Platfo Preferred Pro USB Keyb Optical Wheel Mouse (U 1060 watts with 120mm Climate Savers® Comput Five fans (power supply, | planar, Broadcom® BCM5755 and BCM575<br>orm Module, TCG 1.2-compliant<br>loard (USB connector), 104-key, black  | sal,  | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys)  • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password  • Administrator password  • Boot sequence control  • Boot without keyboard, mouse, diskette  |  |  |  |  |
|  | /antage® technologies   | Morial Glaing Taok Hourit Tail Kit Gupport  |   | Serial port I/O control     USB port disablement (front or all)  |  |  |  |  |
| - Genuine Winn<br>Professional Preloaded app<br>listed) - Rescue and F<br>- ThinkVantage - Norton Intern<br>(30 days of<br>- Adobe® Reac<br>- Microsoft Offi<br>purchase pro | lications <sup>5</sup> (only some Recovery™ System Update et Security™ virus definitions) ler ce 2010 preloaded; duct key to activate or® Business Edition  | Accessories  1GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-8500 DDR3 ECC UDIMM 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/access | 51J0503<br>51J0504<br>43R2032<br>43R2033<br>57Y4138<br>45J7918<br>45K1675<br>43R1765<br>45K1671<br>51J0511<br>ories                             | GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant  LIMITED WARRANTY¹  3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty Onsite service upgrade options (in eligible locations)² Post warranty maintenance services |  |  |  |  |

24 hour x 7 day<sup>14</sup> toll-free support during the warranty period<sup>1</sup> via 800-426-7378

| Type-<br>model | Slot x<br>bay | Processor(s) | Base<br>GHz ( | Cores | Memory<br>DIMMs | Memory<br>speed | Disk(s)                                  | Disk P<br>size | re-confi<br>RAID | g SATA<br>optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | 1394<br>adptr | Global | Avail<br>date    |
|----------------|---------------|--------------|---------------|-------|-----------------|-----------------|--|----------------|------------------|-------------------|--------------------------------|---------------------|---------------|--------|------------------|
|                |               |              |               |       |                 |                 | 1x500GB <sup>2</sup> SATA<br>1x300GB SAS | 3.5"<br>3.5"   |                  | DVD±RW<br>DVD±RW  |                                | 1x2000<br>1x5000    |               |        | Nov 10<br>Nov 10 |

- Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
   Environmentally friendly, cool, and quiet with rock solid engineering
   Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
   These models have a 3-year limited warranty
   These systems are Microsoft Office 2010 Product Key Ready (O10PKR)

|   | 1 mode dystems are  | microsoft office 2010 Floudet Key Heady   | (0707741)   |  |  |  |  |
|---|---|---|---|--|--|--|--|
| Processor  Implementation Memory  | Intel 64, Hyper-Threading<br>Turbo Boost Technology,<br>and 12MB cache or<br>Intel Xeon Processor X<br>6.4GT/s QPI, Intel 64, Hy<br>Virtualization Technology<br>1333MHz DDR3 memory<br>Two LGA1366 sockets<br>4GB, 48GB max, UDIMM<br>PC3-10600 1333MHz DD   | E5640 with quad-core,  /second) QPI (QuickPath Interconnect), g Technology, Virtualization Technology,  1066MHz DDR3 memory controller,  5680 with six-core,  //per-Threading Technology,  /, Turbo Boost Technology,  // controller, and 12MB cache  | 8.3"W x 23.7     210mm W x     60 lb (27.1kg     55-liter     Removable h     Toolless side     Toolless disk     Toolless ada     Illuminated fi |  |  |  |  |
|   | 6-channel capable (3-chatwelve 240-pin DIMM social ** System automatically of DDR3 memory controller *** Over six DIMMs required  | ckets*** clocks down for processors with 1066MHz  | Bay ② 5.25",  | 1.6" high, external, std optical 1.6" high, external, open 1.6" high, external, open   |  |  |  |
| Graphics  | * Adapters >75W use au<br>Some: NVIDIA® Quadro<br>two DisplayPort*<br>Some: NVIDIA Quadro<br>two DisplayPort.   | dapters required for quad monitor support, xiliary power connector(s) from PSU or 2000, PCIe x16 adapter, 1GB, M, one dual-link DVI-I****, 62W 5000, PCIe x16 adapter, 2.5GB, one dual-link DVI-I****, one stereo, 152W nectors are active at a time  | Bay ® 3.5",<br>Bay ® 3.5",<br>Bay © 3.5",<br>Bay ® 3.5",<br>Bay ® 3.5",<br>Slot 1: half-len   | 1" high, internal, std disk<br>1" high, internal, opt disk<br>1" high, internal, opt disk<br>1" high, internal, opt disk   |  |  |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller   | 5 SATA/SAS4 connectors  | OGb/s, 7200 rpm, 3.5"<br>Gb/s, 15000 rpm, 3.5"  | Slot 4: full-lend   | gth, full-height, 32-bit PCI 2.3 gth, full-height, PCIe 2.0 x16 (75W* max) gth, full-height, PCIe x4 (x16 mechanical) ngth, full-height, 32-bit PCI 2.3  SECURITY  Security chip (see information on left) Side cover lock (ships with two identical)  |  |  |  |
| Chipset   | Intel 5520 Chipset,<br>Intel ICH10, Winbond® W  |   |   | keys)  • Padlock loop (in rear for opt padlock;  |  |  |  |
| Front ports  Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip   | Two USB 2.0, microphon FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, s FireWire 400 (IEEE 1394 six analog audio ports (lirear-out, center/sub-out, Optical SPDIF digital in FireWire PCI adapter, 13 High Definition (HD) Aud Internal speaker for busir Dual gigabit ethernet on Broadcom Trusted Platfo | e (3.5mm), headphone (3.5mm), ha) erial (9-pin), two ethernet (RJ-45), ha), ne-in, mic-in, front-out, side out), Optical SPDIF digital out, ha/2000, 400Mbps, two 6-pin ports on real io, Analog Devices AD1988A codec hess audio planar, Broadcom® BCM5755 and BCM575 rm Module, TCG 1.2-compliant |   | padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all)   |  |  |  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount  | Optical Wheel Mouse (US<br>1060 watts with 120mm I<br>Climate Savers® Computi<br>Five fans max (power su  | oard (USB connector), 104-key, black<br>SB connector), black<br>bottom-mounted variable speed fan, univers<br>ing Bronze, 80 PLUS® Bronze qualified<br>pply, first processor, second processor, real<br>tional sliding rack mount rail kit support  |   | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  LIMITED WARRANTY¹   |  |  |  |
| Preloaded operation of the professional (and preloaded applicated)  Microsoft Official of the purchase professional formation of the professional formation | rating system <sup>20</sup>   | Accessories  2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 500GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s Other accessories at lenovo.com/access  | 43R2033<br>57Y4138<br>43R1990<br>45J7918<br>45K1675<br>ories  | 3-year parts and labor     Customer Replaceable Unit (CRU)     parts only (with limited onsite service     for selected parts³, 8 am - 5 pm,     Mon - Fri coverage excluding holidays,     next business day response time)     ThinkPlus™ services available; see     http://lenovo.com/thinkplus/warranty     Onsite service upgrade options     (in eligible locations)⁻     Post warranty maintenance     services     24 hour x 7 day¹⁴ toll-free support     during the warranty period¹     via 800-426-7378 |  |  |  |

| Name model  | Slot x<br>bay Processor(s) GHz Mem   |  |  |   | SATA<br>ID optical  | Diskette<br>or Media<br>reader  | Graphics adapter(s)   |  | ENERGY<br>STAR 5.0           | Preload                          | Avail<br>date                        |
|---|--|--|--|---|---|---|---|--|------------------------------|----------------------------------|--------------------------------------|
| <b>D20</b> 4158-22U <b>D20</b> 4158-52U   | 6x9 2 x E5506 2.13 4 x 6x9 1 x X5560 2.80 2 x 6x9 2 x E5540 2.53 4 x 6x9 2 x E5540 2.53 4 x  | IGB 1 x 250GB<br>IGB 2 x 147GB   | 3.5" S   | ATA<br>AS 0   | DVD±RW  | Media<br>Media  | 1 x FX180<br>1 x FX480  | 0<br>0   | None<br>None<br>None<br>None | Bus64<br>Bus32<br>Pro64<br>Pro64 | Apr 09<br>Apr 09<br>Apr 09<br>Apr 09 |
|   | <ul><li>High performance work</li><li>Environmentally friend</li></ul>   |  |  |   |   |   | ssionals  |  |                              |                                  |                                      |
| Processor(s)  | Up to two processors, on Intel® Xeon® Processor 4.8GT/s (giga-transfers/s 800MHz DDR3 memory Intel Xeon Processor E! 5.86GT/s (giga-transfers/1066MHz DDR3 memory Intel Xeon Processor X! QPI, 1333MHz DDR3 me Processor uses FC-LGA8  | E5506 with quad-<br>econd) QPI (Quic<br>controller, and 4N<br>5540 with quad-c<br>second) QPI (Qu<br>controller, and 8<br>5560 with quad-c<br>mory controller, a   | I-core,<br>kPath Ini<br>IB cache<br>ore,<br>ickPath I<br>MB cach<br>ore, 6.40<br>and 8MB   | nnect),   | Tower  Raven black color; metal case  8.3"W x 23.7"D x 19.1"H (with handle)  210mm W x 602mm D x 485mm H  60 lb (27.1kg) max configuration  55-liter  Removable handle on top front Toolless side cover removal   |   |   |  |                              |                                  |                                      |
| Memory  | 2GB or 4GB std, 192GB<br>RDIMM, PC3-8500 1066I<br>registered, 6-channel cap<br>** Over six DIMMs requir  | <b>MHz DDR3</b> , <b>ECC</b> ,<br>able, twelve 240   | Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit      disk disk disk disk disk |   |   |   |   |  |                              |                                  |                                      |
| Graphics  | Two PCI Express® x16 ac * Adapters >75W use aux Some: NVIDIA® Quadro two DisplayPort, NVIDIA Quadro two slot width, 2 *** Only two display conn  | kiliary power conr<br>FX 1800, PCle<br>one dual-link DVI<br>FX 4800, PCle x<br>DisplayPort, 1 du   | 5.25", 1.6"<br>5.25", 1.6"<br>8.5", 1" hi<br>8.5", 1" hi<br>8.5", 1" hi  | 1.6" high, external, std optical 1.6" high, external, open 1.6" high, external, open 1" high, external, std media reader 1" high, internal, std or opt disk 1" high, internal, opt disk |   |   |   |  |                              |                                  |                                      |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk controller     | None<br>20-in-1 media reader<br>Some: 250GB or 500GE<br>Some: 300GB, SATA 3.0<br>Some: 146GB, SAS 3.00<br>Super Multi-Burner DL D'<br>3 SATA connectors for op<br>5 SATA/SAS <sup>4</sup> connectors<br>RAID <sup>8</sup> 0, 1, 5, 10, integra   | Gb/s, 10000 rpm<br>Gb/s, 15000 rpm<br>VD±RW, SATA 1.9<br>ticals, SATA 3.00<br>for disks, SATA 3  | i, 2.5"<br>5Gb/s<br>ib/s, integ<br>.0Gb/s, \$  |   | Bay ® 3.5", 1" high, internal, opt disk  Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCl 2.3 Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle x4 (x16 mechanical) Slot 6: full-length, full-height, 32-bit PCl 2.3  SECURITY |   |   |  |                              |                                  |                                      |
| Chipset   | Intel 5520 Chipset, Intel Winbond® W83627DHG-  |  |  |   |   | Security chip (see information on left)     Side cover lock (ships with two identic   |   |  |                              |                                  |                                      |
| Front ports Rear ports  IEEE 1394 adpt Audio Speaker Ethernet Security chip Keyboard                | Two USB 2.0, microphon-<br>FireWire 400 (IEEE 1394<br>Eight USB 2.0, eSATA, se<br>FireWire 400 (IEEE 1394<br>rear-out, center/sub-out,<br>Optical SPDIF digital in<br>Some: FireWire PCI ada<br>High Definition (HD) Audi<br>Internal speaker for busin<br>Dual gigabit ethernet on<br>Broadcom Trusted Platfor  | a) a) arial (9-pin), two e a), six analog au side out), Optical apter, 1394a-2000 o, Analog Device ess audio blanar, Broadcom m Module, TCG  | ethernet (dio ports<br>SPDIF d<br>), 400Mb<br>s ADI 19<br>BCM57  | (RJ-45)<br>(line-in<br>ligital o<br>ps, two<br>88A co<br>755 and  | n, mic-in, fro<br>ut,<br>o 6-pin ports<br>dec<br>d BCM5754  | keys)  Padlock loop (in rear for opt padlock prohibits side cover remove)  Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)  Power-on password  Administrator password  Boot seguence control |   |  |                              | adlock;<br>moval)<br>al<br>e;    |                                      |
| Mouse<br>Power supply   | Optical Wheel Mouse (US 1060 watts with 120mm to Climate Savers® Computing Five fans (power supply, 15 to 10 | SB connector), blacetom-mounted values of the second of th |  | <u> </u>  | <u> </u>  |   | ge® technol   | ogies  |                              |                                  |                                      |
| Rack mount  | Rack shelf support or opt  |  | uisk)  |   | ENGU<br>IS-com  | ARD® cert<br>pliant   | ified   |  |                              |                                  |                                      |
| - Some: Genu<br>Profe<br>(prei<br>right:<br>Busii<br>- Some: Genu<br>Busir<br>- Some: Genu<br>Busir | erating system <sup>20</sup> uine Windows® XP sessional 64-bit nestalled via downgrade is in Windows Vista® ness 64-bit) uine Windows Vista ness 32 uine Windows Vista ness 64 :: Vista Premium logo   | IMM<br>IMM<br>IMM<br>(pm)<br>(000 rpm) 2.9<br>(000 rpm)<br>(000 rpm)<br>(000 rpm)  | 5" 43R2<br>43R1<br>43N3<br>43R1  | 2036<br>2037<br>675<br>918<br>2030<br>2031<br>994<br>4224<br>964  | 3-year p<br>Custom<br>parts or<br>for select<br>Mon - F<br>next bus<br>ThinkPl<br>http://le<br>24x7 <sup>14</sup> to<br>ssues o   | earts and I<br>er Replac<br>aly (with li<br>cted parts<br>ri coverag<br>siness day<br>us™ servi<br>novo.com   | eable Unit ( mited onsite 3, 8 am - 5 p e excluding response ces availabl /thinkplus/wa pport for wa warranty | CRU) e service m, holidays, time) e; see arranty |                              |                                  |                                      |

Diskette or Media Graphics 1394 ENERGY Win7 Avail reader adapter(s) adptr STAR 5.0 preload date Memory Memory Disk Pre-config SATA size RAID optical Type-Name model Slot x bay Processor(s) GHz Cores DIMMs speed Disk(s)

D20 4158-79U 6x9 2xE5520 2.26 8 2x4GB 1066MHz 2x500GB2 SATA 3.5" No DVD±RW Media 1xFX1800 1394 Pending Pro64 Oct 09

- Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- · Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- This model has a 3-year limited warranty
- This system is Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | Up to two processors, two processors standard, Intel Xeon® Processor E5520 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache Processor uses FC-LGA8 package, two LGA1366 sockets  | Tower  Raven black color; metal case  8.3"W x 23.7"D x 19.1"H (with handle)  210mm W x 602mm D x 485mm H  60 lb (27.1kg) max configuration   |
|---|--|--|
| Memory  | 8GB std, 192GB max (Pending availability of 16GB RDIMM),<br>RDIMM, PC3-8500 1066MHz DDR3, ECC,<br>twelve 240-pin DIMM sockets**<br>** Over six DIMMs requires dual processors  | S5-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal   |
| Graphics  | Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU  NVIDIA® Quadro® FX 1800, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-1***, 59W  *** Only two display connectors are active at a time   | Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit     disk disk disk disk disk disk disk d  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller | None 20-in-1 media reader 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" None Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID <sup>8</sup> 0, 1, 5, 10, integrated in Marvell® 88SE6480   | Bay ① 5.25", 1.6" high, external, open Bay ② 5.25", 1.6" high, external, open Bay ③ 5.25", 1.6" high, external, open Bay ④ 3.5", 1" high, external, std media reader Bay ⑤ 3.5", 1" high, internal, std disk Bay ⑥ 3.5", 1" high, internal, opt disk Bay ⑨ 3.5", 1" high, internal, opt disk Bay ⑨ 3.5", 1" high, internal, opt disk Bay ⑨ 3.5", 1" high, internal, opt disk |
| Chipset   | Intel 5520 Chipset,<br>Intel ICH10, Winbond® W83627DHG-P Super I/O   | Slot 1: half-length, full-height, PCIe x1<br>Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)   |
| Front ports Rear ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a) Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a),   | Slot 3: full-length, full-height, 32-bit PCI 2.3<br>Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)<br>Slot 5: full-length, full-height, PCIe x4 (x16 mechanical)<br>Slot 6: half-length, full-height, 32-bit PCI 2.3  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip                                | six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on real High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM575 Broadcom Trusted Platform Module, TCG 1.2-compliant | keys)  • Padlock loop (in rear for opt padlock:  |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount                                      | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 1060 watts with 120mm bottom-mounted variable speed fan, univers Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Five fans (power supply, first processor, second processor, rear, fror Rack shelf support or optional sliding rack mount rail kit support   | Kensington® Microsaver® cable; prohibits side cover removal)  Power-on password Administrator password Boot sequence control Boot without keyboard, mouse, diskette  |
| Preloaded ope - Genuine Wind  |  | Serial port I/O control     USB port disablement (front or all)  45J7918  45K1675  |

Professional 64

## Preloaded applications<sup>5</sup> (only some listed)

- Rescue and Recovery™
- ThinkVantage System Update Norton Internet Security™
- (30 days of virus definitions) Adobe® Reader

- Microsoft Office 2010 preloaded; purchase product key to activate
   Roxio® Creator® Business Edition (DVD±RW)
   Port MrDVD® (DVD±RW)
- Roxio MyDVD® (DVD±RW)
   Corel® WinDVD® (DVD±RW)

Blu-ray™ Burner SATA 1.5Gb/s 45K1675 ThinkVision® L2440p Wide 24" Monitor 4420HB2 NVIDIA Quadro NVS 290 43R1765 NVIDIA Quadro FX 580 45K1671 ATI™ FirePro™ 1GB V7750 51J0511 Other accessories at lenovo.com/accessories

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant

## LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays,
- next business day response time) ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty
  - Onsite service upgrade options (in eligible locations)
- Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period1 via 800-426-7378

| Type- Slot x<br>model bay Pi   | rocessor(s)   | Base I<br>GHz (  |   | Memory<br>S DIMMs   | Memory speed  | Disk(s)  | Disk<br>size  | Pre-conf<br>RAID  | ig SATA<br>optical  | Diskette<br>or Media<br>reader                                     | Graphics<br>adapter(s)  | 1394<br>adptr  | Global  | Avail<br>date  |
|--|---|--|---|---|---|--|---|---|---|--|---|--|---|--|
| 4158-B2U 6x9<br>4158-B3U 6x9<br>4158-B4U 6x9<br>4158-B5U 6x9<br>4158-B6U 6x9<br>4158-B8U 6x9<br>4158-B9U 6x9   | 1xE5630<br>1xE5640<br>1xX5650<br>1xX5660<br>1xE5640<br>1xX5670  | 2.80 3<br>2.66 2<br>2.93 3   | 2.80 4<br>2.93 4<br>3.06 6<br>3.20 6<br>2.93 4<br>3.33 6  | 2x2GB<br>2x2GB<br>2x2GB<br>2x2GB<br>2x2GB<br>3x2GB  | 1333MHz<br>1333MHz<br>1333MHz<br>1333MHz<br>1333MHz<br>1333MHz  | 2 1x500GB <sup>2</sup> S.<br>2 1x500GB SA<br>2 1x300GB SA<br>2 1x500GB SA<br>2 1x300GB SA<br>2 1x500GB SA<br>2 1x300GB SA<br>4 the latest Inte | ATA 3.5"<br>AS 3.5"<br>ATA 3.5"<br>AS 3.5"<br>ATA 3.5"<br>AS 3.5" | No<br>No<br>No<br>No<br>No<br>No  | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW  | Media Media Media Media Media Media Media Media                    | 1xFX580<br>1xFX1800<br>1xFX1800<br>1xFX380<br>1xFX4800<br>1xFX4800<br>1xFX4800  | 1394<br>1394<br>1394                                   | Global  | Mar 10<br>Mar 10<br>Mar 10<br>Mar 10<br>Mar 10<br>May 10<br>Jun 10 |
|  |   |  |   |   | limited wa<br><sup>®</sup> Office 20  | rranty¹<br>010 Product K   | ey Ready  | (O10PK  | R)  |  |   |  |   |  |
| Processor  Implementation  | 5.86GT/s<br>Intel 64, H<br>Turbo Boo<br>and 12MB<br>Intel Xeor<br>6.4GT/s C<br>Virtualizat<br>1333MHz | n® Proc<br>(giga-tallyper-Tost Tech<br>B cache<br>n Proc<br>NPI, Inte<br>ion Tec<br>DDR3   | cessor E<br>ransfers/<br>Threading<br>hnology,<br>e or<br>essor X!<br>el 64, Hy<br>chnology<br>memory | 5620, E5<br>second) (<br>Technolo<br>1066MHz<br>6650, X56<br>per-Threa<br>Turbo Bo<br>controlle | 630, or E5<br>QPI (Quick<br>ogy, Virtua<br>DDR3 me<br>60 or X56<br>dding Tech<br>ost Technor, and 12M | 5640 with quare Path Intercondization Technolomory controller 70 with six-conology, ology,   | nect), ology, er,   | <ul> <li>8.3"V</li> <li>210n</li> <li>60 lb</li> <li>55-lit</li> <li>Rem</li> <li>Tooll</li> <li>Tooll</li> <li>Tooll</li> </ul>  | en black c<br>W x 23.7"I<br>nm W x 60<br>(27.1kg)<br>er<br>ovable ha<br>ess side c<br>ess disk a<br>ess adapt   | D x 19.1" D2mm D max con andle on t cover rem and opticater retent | H (with har x 485mm F figuration op front noval al drive rem  | ł  | opi   | tical tical tical media  |
| Memory   | 4GB or 60<br>PC3-1060<br>6-channel<br>twelve 240<br>** System<br>DDR3 me                              | GB std,<br>0 1333<br>capab<br>0-pin D<br>autom<br>mory c   | , 48GB m<br>BMHz DD<br>ble (3-cha<br>DIMM soc<br>natically controller                                 | nax, UDIN<br>R3**, ECC<br>Innel per I<br>kets***<br>Flocks dov                                  | IM,<br>),<br>processor)<br>yn for proc  | ),<br>eessors with 10  |   | Bay ① Bay ② Bay ③   | 5.25", 1.<br>5.25", 1.<br>5.25", 1.   | oport or o<br>6" high,<br>6" high,<br>6" high,                     | external,<br>external,<br>external,<br>external   | std opt<br>open<br>open                                | di<br>di<br>di<br>di                                    | sk<br>sk<br>sk<br>sk   |
| Graphics   | Two PCI E * Adapters Some: N' tw Some: N' tw Some: N' tw Some: N' tw or                               | Barrian automatically clocks down for processors with Toomina Barrian memory controller  * Over six DIMMs requires dual processors  *Vo PCI Express® x16 adapters required for quad monitor support, Adapters >75W use auxiliary power connector(s) from PSU ome: NVIDIA® Quadro® FX 380, PCle x16 adapter, 256MB, two dual-link DVI-I, 35W ome: NVIDIA Quadro FX 580, PCle x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W ome: NVIDIA Quadro FX 1800, PCle x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W ome: NVIDIA Quadro FX 4800, PCle x16 adapter, 1.5GB, two slot width, two DisplayPort, one dual-link DVI-I****, 121W  ** Only two display connectors are active at a time one (use USB port) |   |   |   |  |   |   | Bay @ 3.5", 1" high, external, std media reader Bay ® 3.5", 1" high, internal, opt disk Bay ® 3.5", 1" high, internal, opt disk Bay ® 3.5", 1" high, internal, opt disk Bay ® 3.5", 1" high, internal, opt disk Bay ® 3.5", 1" high, internal, opt disk Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle x4 (x16 mechanical) Slot 6: half-length, full-height, 32-bit PCl 2.3 |  |   |  |   |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller  | None (use<br>20-in-1 me<br>Some: 50<br>Some: 30<br>Super Mul<br>3 SATA co                             | e USB pedia re 00GB, soliti-Burronnecto  | port) ader, into SATA 3.0 SAS 3.00 ner DL D ors for op nnectors                                       | ernal USB<br>Gb/s, 720<br>Gb/s, 150<br>VD±RW, S<br>ticals, SA<br>for disks,                     | 2.0<br>00 rpm, 3.5<br>00 rpm<br>SATA 1.5G<br>TA 3.0Gb/s<br>SATA 3.00                                  | 5"<br>b/s<br>s, integrated in<br>Gb/s, SAS 3.0   |   | SECURITY  Security chip (see information Side cover lock (ships with two keys)  Padlock loop (in rear for opt ppadlock prohibits side cover re Security slot (in rear for option Kensington® Microsaver® cable) |   |  |   |  | ation or<br>th two ic<br>opt pad<br>ver rem<br>optional | dentical<br>lock;  |
| Chipset Front ports Rear ports   | FireWire 4  | 0, Win<br>2.0, mi<br>100 (IE<br>3 2.0, e<br>100 (IE  | bond® W<br>icrophon<br>EE 1394<br>SATA, se<br>EE 1394   | e (3.5mm)<br>a)<br>erial (9-pir<br>a),  | , headpho   | one (3.5mm),<br>ernet (RJ-45),   | ,   |   | •   | prohibit Power- Adminis Boot se Boot wi Serial p                   | is side cover<br>on password<br>strator pass<br>equence co<br>ithout keyboort I/O con<br>ort disablen                           | er remo<br>rd<br>sword<br>ntrol<br>pard, m             | oval)<br>nouse, c                                       |  |
|  | rear-out, o   | enter/s  | sub-out, :<br>igital in   | side out),  | Optical SF  | PDIF digital ou  | -   |   |   | Supports   | ThinkVanta  | age® te  | chnolog   | ies  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet  | Some: Fi<br>High Defir<br>Internal sp<br>Dual gigal   | reWire<br>nition (I<br>beaker<br>bit ethe  | PCI ada<br>HD) Audi<br>for busin  | o, Analog<br>ess audic<br>olanar, Br  | Devices <i>F</i><br>oadcom® E   | 00Mbps, two<br>AD1988A code<br>3CM5755 and   | ec  |   |   | RoHS-co  | ËNERGY  | STAR®  |   | mpliant  |
| Security chip Keyboard Mouse Power supply Cooling Rack mount   | Preferred<br>Optical WI<br>1060 watt<br>Climate S<br>Five fans  | Pro US<br>heel M<br>s with<br>avers®<br>(power   | SB Keybo<br>louse (US<br>120mm b<br>Computi   | oard (USE<br>SB connector<br>oottom-mong<br>Bronze<br>irst proce                                | connecto<br>ctor), black<br>bunted var<br>e, 80 PLUS<br>ssor, seco                                    | 2-compliant<br>or), 104-key, blact<br>iable speed fa<br>S® Bronze qua<br>and processor,<br>ount rail kit su                                    | ın, univers<br>ılified<br>, rear, fror                            |   |   | Custo parts for sel Mon - next b                                   | parts and<br>mer Replace<br>only (with I<br>lected parts<br>Fri coverace<br>usiness are   | labor<br>ceable l<br>imited<br>s³, 8 am<br>ge exclu    | Unit (CF<br>onsite s<br>n - 5 pm<br>uding h<br>onse tin | service<br>,<br>olidays,<br>ne)                                    |
| Preloaded ope - Genuine Wind Professional ( Preloaded app listed) • Microsoft Offit purchase professional (  - Microsoft Offit purchase professional (   - Microsoft Offit purchase professional (   - Microsoft Offit purchase professional (   - Microsoft Offit purchase professional (   - Microsoft Offit purchase professional (   - Microsoft Offit purchase professional (   - Microsoft Offit purchase professional (   - Microsoft Offit purchase professional (   - Microsoft Offit purchase profession | dows <sup>®</sup> 7<br>64<br><b>lications</b> <sup>5</sup> (<br>ce 2010 pre                           | only so  | d;  | 4GB PC3<br>500GB S<br>Blu-ray™<br>NVIDIA (  | 3-10600 D<br>3-10600 D<br>3ATA 3.0G<br>Burner S<br>Quadro FX  | DR3 ECC UD<br>DR3 ECC UD<br>b/s Disk (7200<br>ATA 1.5Gb/s<br>( 4800<br>at <b>lenovo.cor</b>  | OIMM<br>O rpm)  | 43R20<br>57Y41<br>43R19<br>45K16<br>45K16<br>ories  | 033<br>138<br>990<br>675  | http:// • Ons (in € • Pos serv  ≥ 24 hou during                    | Plus™ serv<br>lenovo.com<br>ite service<br>eligible loca<br>t warranty i<br>vices<br>ur x 7 day¹⁴<br>g the warrai<br>0-426-7378 | n/thinkp<br>upgrace<br>itions) <sup>7</sup><br>mainted | lus/warr<br>de optio<br>nance<br>e suppo                | anty<br><b>ns</b>  |

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz C | ore | Memory<br>DIMMs | Disk(s)      | Pre-conf<br>RAID | SATA<br>optical | 1394<br>adptr | Media<br>reader | Chassis<br>intrusion<br>switch | Graphics adapter(s) | Global | Win7 Ann date<br>preload (mm/dd/yy) |
|----------------|---------------|--------------|-------|-----|-----------------|--------------|------------------|-----------------|---------------|-----------------|--------------------------------|---------------------|--------|-------------------------------------|
| 4158-N5U       | 6x9           | 1xX5650      | 2.66  | 6   | 2x2GB           | 1x500GB SATA | A No             | DVD±RW          | 1394          | Media           | Switch                         | None                | No     | Pro 64 08/16/11                     |

• Microsoft® Office 2010 Product Key Ready (O10PKR)

| Intel® Xeon® Processor X5650 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets, supports up to two processors  96GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  • Over six DIMMs requires dual processors | - Raven black color; metal case - 8.3"W x 23.7"D x 19.1"H (with handle) - 210mm W x 602mm D x 485mm H - 60 lb (27.1kg) max configuration - 55-liter - Removable handle on top front - Toolless side cover removal - Toolless disk and optical drive removal - Toolless adapter retention - Illuminated front icons - Rack shelf support or optional rail kit   |
|---|--|
| None  | disk disk  |
| Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 10, integrated in Marvell® 88SE6480 Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O   | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 5.25", 1.6" high, external, open Bay 4: 3.5", 1" high, external, std media reader Bay 5: 3.5", 1" high, internal, std disk Bay 6: 3.5", 1" high, internal, opt disk  |
| Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a) Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400  | Bay 7: 3.5", 1" high, internal, opt disk<br>Bay 8: 3.5", 1" high, internal, opt disk<br>Bay 9: 3.5", 1" high, internal, opt disk   |
| six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754 Broadcom Trusted Platform Module, TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black   | Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCl 2.3 Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCle x4 (x16 mechanical) Slot 6: half-length, full-height, 32-bit PCl 2.3  * Adapters >75W use auxiliary power connector(s) from PSU  |
| 1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   |  |
| Supports ThinkVantage technologies  |  |
| / 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)  Genuine Windows® 7 Professional 64  |  |
| <ul> <li>Rescue and Recovery®</li> <li>ThinkVantage System Update</li> <li>ThinkVantage Toolbox</li> <li>Norton® Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Adobe Flash® Player</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD and DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul>  | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)  ISV certifications  Please visit www.lenovo.com/support/ISV  |
|   | 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets, supports up to two processors 96GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over six DIMMs requires dual processors  None  Media card reader, internal USB 2.0  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"  3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS* connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 10, integrated in Marvell* 88SE6480  Intel 5520 Chipset, Intel ICH10, Winbond* W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio Dual gigabit ethernet on planar, Broadcom* BCM5755 and BCM5754 Broadcom Trusted Platform Module, TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black (1600 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers* Computing Bronze, 80 PLUS* Bronze qualified Supports ThinkVantage technologies  3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo* services are available on S-TS sheet)  Genuine Windows* 7 Professional 64  • Rescue and Recovery*  **ThinkVantage** ThinkVantage technologies**  3-year parts and labor (Customer Replaceable Unit (CRU) parts only (More Lenovo* services are available on S-TS sheet)  Genuine Windows** (100 Dubate)  Genuine Wi |

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

| Type-<br>model       | Slot x<br>bay | Processor(s)   | GHz (        | Core   | Memory<br>DIMMs | Disk(s)                     | Pre-cont<br>RAID | SATA optical     | 1394<br>adptr | Media<br>reader | Chassis<br>intrusion<br>switch | Graphics<br>adapter(s)        | Global       | Win7<br>preload ( | Ann date<br>mm/dd/yy) |
|----------------------|---------------|----------------|--------------|--------|-----------------|-----------------------------|------------------|------------------|---------------|-----------------|--------------------------------|-------------------------------|--------------|-------------------|-----------------------|
| 4105-5CU<br>4105-6CU |               | W3565<br>W3565 | 3.20<br>3.20 | 4<br>4 | 1x4GB<br>1x4GB  | 1x500GB SATA<br>1x450GB SAS |                  | DVD±RW<br>DVD±RW |               |                 |                                | 1xQuadro 600<br>1xQuadro 2000 | None<br>None |                   | 12/13/11<br>12/13/11  |

- These small and medium business (SMB) models are part of the US TopSeller™ Program
- Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  Memory  Additional memory disclaimers  Graphics    | Intel® Xeon® Processor W3565 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache One LGA1366 socket  48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, | Paven black color; metal case 6.9"W x 19.0"D x 18.8"H (with handle) 175mm W x 483mm D x 478mm H 38.5 lb (17.5kg) max configuration 31-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Rack shelf support  |
|---|--|--|
| Media reader<br>Optical<br>Hard drive(s)<br>SATA controller<br>SAS controller | two DisplayPort, one dual-link DVI-I, 62W  Media card reader, internal USB 2.0  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"  Some: 450GB, SAS 3.0Gb/s, 15000 rpm, 3.5"  Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,  three SATA connectors for disks, two SATA connectors for opticals  SAS model(s): Marvell® 88SE6440, PCle x4 adapter, 4 SATA/SAS⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s  Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID  (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O   | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, std media reader Bay 4: 3.5", 1" high, internal, std disk Bay 5: 3.5", 1" high, internal, opt disk Bay 6: 3.5", 1" high, internal, opt disk Slot 1: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, PCle x1 Slot 5: half-length, full-height, PCle x1 Slot 5: half-length, full-height, PCle x3 |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm)  Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out),  Optical SPDIF digital out, Optical SPDIF digital in  | * Adapters >75W use auxiliary power connector(s) from PSU  ** x16 mechanical   |
| Keyboard<br>Mouse<br>Power supply<br>ThinkVantage®                            | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Supports ThinkVantage technologies 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)   |  |
| Preload OS<br>Preloaded<br>applications                                       | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Microsoft® Office 2010 preloaded; purchase product key to activate Roxio® Creator® Business Edition (DVD±RW model(s) only) Roxio MyDVD® (DVD±RW model(s) only) Corel® WinDVD® (DVD or DVD±RW model(s) only) Ulead® DVD MovieFactory® (Blu-ray model(s) only)   | SECURITY  Security chip (see information on left) Gide cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse USB port disablement (front or all) Chassis intrusion switch on selected model(s)  ISV certifications Please visit www.lenovo.com/support/ISV  |

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

| Type-<br>model  | Slot x<br>bay                      | Processor(s)   | GHz Core  | Memory<br>DIMMs  | Disk(s)  | Pre-conf<br>RAID   | SATA optical  | 1394<br>adptr                 | Media intrusio<br>reader switch   | n Graphics   | Globa  | Win7<br>preload  | Ann date<br>(mm/dd/yy  |
|---|------------------------------------|--|---|--|--|--|---|-------------------------------|---|--|--|--|--|
| 4155-K4U  | 6x9                                | 1xX5650  | 2.66 6  | 2x2GB  | 1x500GB SA   | ATA No   | DVD±RW  | 1394                          | Media Switch  | n 1xQuadro 60  | 0 No   | Pro 64   | 1 07/19/1 <sup>-</sup>   |
|   |                                    |  |   | ,  | ller™ Progra<br>Product Kej  |  | D10PKR)   |                               |   |  |  |  |  |
| Audio<br>Speaker<br>Ethernet<br>Security ch<br>Keyboard<br>Mouse<br>Power sup | der (s) roller oller hip pply age® | Intel® Xeon 6.4GT/s (gig Hyper-Threa Turbo Boost 1333MHz Two LGA138 96GB max, 6-channel ca twelve 240-p • Actual me dependent speed • Over six D NVIDIA® Qu one Displayl Media card I Super Multi- 500GB, SAT 3 SATA Cont 5 SATA/SAS RAID 0, 1, 5 Intel 5520 C Two USB 2.6 (IEEE 1394a Eight USB 2.6 (IEEE 1394a six analog a rear-out, cer Optical SPD FireWire PC High Definiti Internal spea Dual gigabit Broadcom T Preferred Pr Optical Whe 1060 watts Climate Sav Supports Th 3-year parts (More Lenov | ga-transfers, ading Technology, DR3 memo 66 sockets, UDIMM, PC apable (3-cloin DIMM sc mory opera to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no process: DIMMs required to no no process: DIMMs required to no no process: DIMMs required to no no process: DIMMs required to no no process: DIMMs required to no no no process: DIMMs required to no no no no no no no no no no no no no | /second) Cology, Virt // Cology, Virt // Controll supports in the supports in the supports in the supports in the supports in the supports in the support in | QPI (QuickPaualization Teur, and 12Mi up to two processors), dis the lower ry controller rocessors adapter, 1GDVI-1, 40W 2.0 SATA 1.5Gb 3.5" ATA 3.0Gb/s 3.5" A | ath Intercol chnology, B cache ocessors  DR3, ECC, st installed speed and B, shall be speed and speed and speed and speed and speed and speed and speed and speed and speed and spee | d in ICH10;<br>3.0Gb/s,<br>G-P Super I,<br>), FireWire<br>out,<br>ports on readed | 70<br>400<br>400<br>400<br>ar | Slot 2: full-ler<br>Slot 3: full-ler<br>Slot 4: full-ler<br>Slot 5: full-ler<br>Slot 6: half-le   | 1.6" high, exte<br>1.6" high, exte<br>1" high, exte<br>1" high, inte<br>1" high, full-height,<br>1" high, full-height,<br>1" high, full-height,<br>1" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>2" high, full-height,<br>3" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full-height,<br>4" high, full- | ridal, o rnal, | .1"H (wit D x 485) configura on top fro removal tical drivention as or optional or optional disk pt di | h handle) mm H tion  Int e removal al rail kit  reader  5W* max) chanical) |
| Preload O:<br>Preloaded<br>application  |                                    | Genuine Wir  Rescue au  ThinkVant  ThinkVant  Norton® Ir  Adobe® R  Adobe Fla  Microsoft®  Roxio® Cr  Roxio MyI  Corel® Wir  Ulead® DV   | ndows® 7 P<br>nd Recover<br>tage Systen<br>tage Toolbox<br>nternet Secre<br>eader®<br>ash® Player<br>Office 201<br>eator® Busi<br>DVD® (DVD<br>nDVD® (DVD   | rofessiona y® n Update x urity (30 da 0 preloade ness Editi ±RW mod D and DVI  | ays of virus of the condition of the condition (DVD±RV) el(s) only)  | definitions) product k V model(s)  | ey to activa  | е                             | Side cover I Padlock loo padlock pro Security slo Kensington prohibits sic Power-on prohibits at Boot seque Boot withou Serial port I USB port of | or password<br>nce control<br>it keyboard, mou   | on on le<br>wo iden<br>padlock<br>remova<br>onal<br>ble;<br>)  | tical keys   | ,  |

## **ISV** certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

# ThinkStation® D20 (4158) - Windows 7 (July 2011) - withdrawn

| Type- Slot x<br>model bay                                    | Processor(s)                             | GHz Core                             | Memory<br>DIMMs                  | Disk(s)  | Pre-conf<br>RAID | SATA<br>optical  | 1394<br>adptr | Chassis<br>Media intrusion<br>reader switch                  |   | Global | Win7<br>preload ( | Ann date<br>mm/dd/yy)                        |
|--|--|--------------------------------------|----------------------------------|--|------------------|------------------|---------------|--|---|--------|-------------------|--|
| 4158-N1U 6x9<br>4158-N2U 6x9<br>4158-N3U 6x9<br>4158-N4U 6x9 | 2xX5687<br>1xX5660<br>1xX5650<br>1xX5660 | 3.60 8<br>2.80 6<br>2.66 6<br>2.80 6 | 3x2GB<br>2x2GB<br>2x2GB<br>2x2GB | 1x450GB SAS<br>1x500GB SATA<br>1x500GB SATA<br>1x450GB SAS | No<br>No         | DVD±RW<br>DVD±RW | 1394<br>1394  | Media Switch<br>Media Switch<br>Media Switch<br>Media Switch | 1xQuadro 4000<br>1xQuadro 2000 0<br>1xQuadro 4000 | Global | Pro 64<br>Pro 64  | 07/19/11<br>07/19/11<br>07/19/11<br>07/19/11 |

• Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor                                    | Intel® Xeon® Processor X5650 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5660 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5687 with quad-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache | Paven black color; metal case  8.3"W x 23.7"D x 19.1"H (with handle) 210mm W x 602mm D x 485mm H 60 lb (27.1kg) max configuration 55-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Rack shelf support or optional rail kit |  |  |  |  |
|--|--|---|--|--|--|--|
| Implementation                               | Two LGA1366 sockets, supports up to two processors   |   |  |  |  |  |
| Memory Additional memory disclaimers         | <ul> <li>96GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC,</li> <li>6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets</li> <li>Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed</li> <li>Over six DIMMs requires dual processors</li> </ul>   | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 5.25", 1.6" high, external, open Bay 4: 3.5", 1" high, external, std media reader Bay 5: 3.5", 1" high, internal, std disk Bay 6: 3.5", 1" high, internal, opt disk Bay 7: 3.5", 1" high, internal, opt disk                              |  |  |  |  |
| Graphics                                     | Some: NVIDIA® Quadro® 2000, PCle x16 adapter, 1GB,<br>two DisplayPort™, one dual-link DVI-I, 62W<br>Some: NVIDIA Quadro 4000, PCle x16 adapter, 2GB,<br>two DisplayPort, one dual-link DVI-I, one stereo, 142W   | Bay 7: 3.5", 1" high, internal, opt disk<br>Bay 8: 3.5", 1" high, internal, opt disk<br>Bay 9: 3.5", 1" high, internal, opt disk<br>Slot 1: half-length, full-height, PCIe x1   |  |  |  |  |
| Media reader<br>Optical<br>Hard drive(s)     | Media card reader, internal USB 2.0<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Some: 450GB, SAS 3.0Gb/s, 15000 rpm, 3.5"   | Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max)<br>Slot 3: full-length, full-height, 32-bit PCl 2.3<br>Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max)<br>Slot 5: full-length, full-height, PCle x4 (x16 mechanical)  |  |  |  |  |
| SATA controller<br>SAS controller            | 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 10, integrated in Marvell® 88SE6480  | Slot 6: half-length, full-height, 32-bit PCI 2.3  * Adapters >75W use auxiliary power connector(s) from PSU   |  |  |  |  |
| Chipset<br>Front ports                       | Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)  | HOIII F30   |  |  |  |  |
| Rear ports                                   | Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in  |   |  |  |  |  |
| Audio  | FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear<br>High Definition (HD) Audio, Analog Devices AD1988A codec   |   |  |  |  |  |
| Speaker Ethernet Security chip               | Internal speaker for business audio Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754 Broadcom Trusted Platform Module, TCG 1.2-compliant   | SECURITY  • Security chip (see information on left)  • Side cover lock (ships with two identical keys)  |  |  |  |  |
| Keyboard<br>Mouse<br>Power supply            | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable;   |  |  |  |  |
| ThinkVantage®                                | Supports ThinkVantage technologies   | prohibits side cover removal)  Power-on password  |  |  |  |  |
| Limited Warranty                             | (More Lenovo® services are available on S-TS sheet)  | Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette   |  |  |  |  |
| Preload OS Preloaded applications (only some | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox   | Serial port I/O control     USB port disablement (front or all)     Chassis intrusion switch on selected model(s)   |  |  |  |  |
| listed)                                      | <ul> <li>Norton® Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Adobe Flash® Player</li> </ul>  | ISV certifications Please visit www.lenovo.com/support/ISV  |  |  |  |  |
|  | <ul> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD and DVD±RW model(s) only)</li> </ul>  | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating   |  |  |  |  |
|  | Ulead® DVD MovieFactory® (Blu-ray model(s) only)   | More compatible accessories, please see O-SEV sheet   |  |  |  |  |

# ThinkStation® S20 (4105) - TopSeller (Windows 7) - July 2011

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz C | ore | Memory<br>DIMMs | Disk(s)      | Pre-conf<br>RAID | SATA<br>optical | 1394<br>adptr | Media<br>reader | Chassis<br>intrusion<br>switch | Graphics<br>adapter(s) Global | Win7<br>preload | Ann date (mm/dd/yy) |
|----------------|---------------|--------------|-------|-----|-----------------|--------------|------------------|-----------------|---------------|-----------------|--------------------------------|-------------------------------|-----------------|---------------------|
| 4105-3AU       | 5x6           | W3503        | 2.40  | 2   | 1x2GB           | 1x500GB SATA | No               | DVD±RW          | No            | Media           | Switch                         | 1xQuadro 600 No               | Pro 64          | 07/19/11            |

- Part of the US TopSeller™ Program
- Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation Memory  Additional memory disclaimers Graphics  Media reader Optical | Intel® Xeon® Processor W3503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache One LGA1366 socket  48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W  Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive | Raven black color; metal case     6.9"W x 19.0"D x 18.8"H (with handle)     175mm W x 483mm D x 478mm H     38.5 lb (17.5kg) max configuration     31-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| Hard drive(s)<br>SATA controller   | 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,<br>three SATA connectors for disks, two SATA connectors for opticals  | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open   |  |  |  |  |  |
| Chipset Front ports Rear ports   | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in  | Bay 3: 3.5", 1" high, external, std media reader Bay 4: 3.5", 1" high, internal, std disk Bay 5: 3.5", 1" high, internal, opt disk Bay 6: 3.5", 1" high, internal, opt disk Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCIe 2.0 x4** Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)  |  |  |  |  |  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip                               | None High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant  | Slot 4: full-length, full-height, PCIe x1<br>Slot 5: half-length, full-height, 32-bit PCI 2.3  * Adapters >75W use auxiliary power connector(s) from PSU   |  |  |  |  |  |
| Keyboard<br>Mouse<br>Power supply  | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black<br>625 watts with 120mm bottom-mounted variable speed fan, universal,<br>Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | ** x16 mechanical  |  |  |  |  |  |
| ThinkVantage®  | Supports ThinkVantage technologies   |  |  |  |  |  |  |
| Limited Warranty   | (More Lenovo® services are available on S-TS sheet)  |  |  |  |  |  |  |
| Preload OS<br>Preloaded<br>applications  | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Adobe Flash® Player Microsoft® Office 2010 preloaded; purchase product key to activate  | CECUIDITY  |  |  |  |  |  |
|  | Roxio® Creator® Business Edition (DVD±RW model(s) only) Roxio MyDVD® (DVD±RW model(s) only) Corel® WinDVD® (DVD and DVD±RW model(s) only) Ulead® DVD MovieFactory® (Blu-ray model(s) only)   | SECURITY  • Security chip (see information on left)  • Side cover lock (ships with two identical keys)  • Padlock loop (in rear for opt padlock)  • Security slot (in rear for optional Kensington® Microsaver® cable)  • Power-on password  • Administrator password  • Boot sequence control  • Boot without keyboard, mouse  • USB port disablement (front or all)  • Chassis intrusion switch on selected model(s) |  |  |  |  |  |

## **ISV** certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

# ThinkStation® S20 (4157) - Windows 7 (July 2011) -withdrawn

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz ( | Core | Memory<br>DIMMs | Disk(s)     | Pre-con<br>RAID | f SATA<br>optical | 1394<br>adptr | Media<br>reader | Chassis<br>intrusion<br>switch | Graphics<br>adapter(s) | Global | Win7<br>preload ( | Ann date<br>mm/dd/yy) |
|----------------|---------------|--------------|-------|------|-----------------|-------------|-----------------|-------------------|---------------|-----------------|--------------------------------|------------------------|--------|-------------------|-----------------------|
| 4157-8BU       | 5x6           | W3565        | 3.20  | 4    | 2x2GB           | 1x500GB SAT | A No            | DVD±RW            | None          | Media           | Switch                         | 1xQuadro 400           |        | Pro 64            | 07/19/11              |
| 4157-9BU       | 5x6           | W3565        | 3.20  | 4    | 2x2GB           | 1x500GB SAT | A No            | DVD±RW            | None          | Media           | Switch                         | 1xQuadro 600           |        | Pro 64            | 07/19/11              |
| 4157-1CU       | 5x6           | W3565        | 3.20  | 4    | 2x2GB           | 1x500GB SAT | A No            | DVD±RW            | None          | Media           | Switch                         | 1xQuadro 2000          |        | Pro 64            | 07/19/11              |
| 4157-2CU       | 5x6           | W3565        | 3.20  | 4    | 3x2GB           | 1x450GB SAS | No              | $DVD \pm RW$      | None          | Media           | Switch                         | 1xQuadro 4000          | Global | Pro 64            | 07/19/11              |

• Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  Memory  Additional memory disclaimers  Graphics | Intel® Xeon® Processor W3565 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache One LGA1366 socket  48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets  Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  Some: NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-1, 32W  Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-1, 40W  Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-1, 62W  Some: NVIDIA Quadro 4000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-1, one stereo, 142W | - Raven black color; metal case - 6.9"W x 19.0"D x 18.8"H (with handle) - 175mm W x 483mm D x 478mm H - 38.5 lb (17.5kg) max configuration - 31-liter - Removable handle on top front - Toolless side cover removal - Toolless disk and optical drive removal - Toolless adapter retention - Illuminated front icons - Rack shelf support  Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, std media reader Bay 4: 3.5", 1" high, internal, std disk |
|--|---|---|
| Media reader<br>Optical<br>Hard drive(s)                                   | Media card reader, internal USB 2.0<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  | Bay 5: 3.5", 1" high, internal, opt disk<br>Bay 6: 3.5", 1" high, internal, opt disk  |
| SATA controller  | Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Some: 450GB, SAS 3.0Gb/s, 15000 rpm, 3.5"<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,<br>three SATA connectors for disks. two SATA connectors for opticals  | Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)<br>Slot 2: full-length, full-height, PCIe 2.0 x4**<br>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)   |
| SAS controller   | SAS model(s): Marvell® 88SE6440, PCIe x4 adapter,<br>4 SATA/SAS <sup>4</sup> connectors, SATA 3.0Gb/s, SAS 3.0Gb/s  | Slot 4: full-length, full-height, PCle x1<br>Slot 5: half-length, full-height, 32-bit PCl 2.3   |
| Chipset  | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O   | * Adapters >75W use auxiliary power connector(s) from PSU     ** x16 mechanical   |
| Front ports<br>Rear ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm)<br>Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio<br>ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out),<br>Optical SPDIF digital out, Optical SPDIF digital in  |   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip           |   |   |
| Keyboard<br>Mouse<br>Power supply  | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  |   |
| ThinkVantage®  | Supports ThinkVantage technologies  | SECURITY  |
| Limited Warranty   | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)  | Security chip (see information on left)     Side cover lock (ships with two identical   |
| Preload OS<br>Preloaded<br>applications                                    | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Microsoft® Office 2010 preloaded; purchase product key to activate Roxio® Creator® Business Edition (DVD±RW model(s) only) Roxio MyDVD® (DVD±RW model(s) only) Corel® WinDVD® (DVD or DVD±RW model(s) only) Ulead® DVD MovieFactory® (Blu-ray model(s) only)  | keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse USB port disablement (front or all) Chassis intrusion switch on selected model(s)   |
|  |   | ISV certifications Please visit www.lenovo.com/support/ISV  |
|  |   | GREENGUARD® certified<br>RoHS-compliant<br>EPEAT™ Gold rating   |
|  |   | More compatible accessories, please see O-SEV sheet   |

| Type-<br>model | Slot x<br>bay | Processor(s) | GHz Core | Memory<br>DIMMs Di | Pre-con<br>isk(s) RAID | f SATA<br>optical | 1394<br>adptr | Media<br>reader | Chassis<br>intrusion<br>switch | Graphics adapter(s) | Global | Win7 preload (m | Ann date<br>m/dd/yy) |
|----------------|---------------|--------------|----------|--------------------|------------------------|-------------------|---------------|-----------------|--------------------------------|---------------------|--------|-----------------|----------------------|
| 4155-H9U       | 6x9           | 1xE5603      | 1.6 4    | 1x2GB 1x500        | GB SATA No             | DVD±RW            | 1394          | Media           | None                           | 1xQuadro 400        | No     | Pro 64 0        | 04/26/11             |

- This small and medium business (SMB) model is part of the US TopSeller™ Program
- This system is Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor<br>Implementation   | Intel® Xeon® Processor E5603 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache Two LGA1366 sockets, supports up to two processors   | • Raven black color; metal case • 8.3"W x 23.7"D x 19.1"H (with handle) • 210mm W x 602mm D x 485mm H   |
|---|--|---|
| Memory  | 96GB max, <b>UDIMM</b> , <b>PC3-10600 1333MHz DDR3</b> , <b>ECC</b> , 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets   | optical optical optical optical optical optical optical optical optical optical optical optical optical optical optical optical   |
| Additional<br>memory<br>disclaimers   | <ul> <li>Actual memory operating speed is the lowest installed speed,<br/>dependent on processor memory controller speed and installed memory<br/>speed</li> <li>Over six DIMMs requires dual processors</li> </ul>  | Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit  |
| Graphics  | NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W   | disk disk disk disk   |
| Media reader<br>Optical<br>Hard drive(s)<br>SATA controller<br>SAS controller | Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 10, integrated in Marvell® 88SE6480  | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 5.25", 1.6" high, external, open Bay 4: 3.5", 1" high, external, std media reader   |
| Chipset<br>Front ports  | Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)  | Bay 5: 3.5", 1" high, internal, std disk Bay 6: 3.5", 1" high, internal, opt disk Bay 7: 3.5", 1" high, internal, opt disk Bay 8: 3.5", 1" high, internal, opt disk   |
| Rear ports  | Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in  | Bay 9: 3.5", 1" high, internal, opt disk  Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCl 2.3  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet                               | FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear<br>High Definition (HD) Audio, Analog Devices AD1988A codec<br>Internal speaker for business audio<br>Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754  | Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)<br>Slot 5: full-length, full-height, PCIe x4 (x16 mechanical)<br>Slot 6: half-length, full-height, 32-bit PCI 2.3   |
| Security chip<br>Keyboard<br>Mouse  | Broadcom Trusted Platform Module, TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black  | * Adapters >75W use auxiliary power connector(s) from PSU   |
| Power supply  | 1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  |   |
| ThinkVantage®   | Supports ThinkVantage technologies   |   |
| Limited Warranty  | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)   |   |
| Preload OS<br>Preloaded   | Genuine Windows® 7 Professional 64  • Rescue and Recovery®   |   |
| applications  | <ul> <li>ThinkVantage System Update</li> <li>ThinkVantage Toolbox</li> <li>Norton® Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Adobe Flash® Player</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD and DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul> | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) |
|   |  | ISV certifications Please visit www.lenovo.com/support/ISV  |
|   |  | GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating   |

# ThinkStation® D20 (4158) - Windows 7 (April 2011) -withdrawn

| Type- Slot x model bay  | Processor(s)  | GHz Core   | Memory<br>DIMMs  | Disk(s)  | Pre-conf<br>RAID                                      | SATA optical                              |                               | Media<br>reader            | Chassis<br>intrusion<br>switch   | Graphics adapter(s)  | Globa  | Win7<br>al preload   | Ann date<br>(mm/dd/yy)   |
|---|---|--|--|--|---|---|-------------------------------|----------------------------|--|--|--|--|--------------------------|
| 4158-M3U 6x9<br>4158-M4U 6x9  | 1xX5650<br>1xE5603  | 2.66 6<br>1.60 4   |  | 1x500GB SATA<br>1x500GB SATA   |   | DVD±RW<br>DVD±RW                          |                               |                            |  | 1xQuadro 400<br>1xQuadro NVS   |  |  | 04/26/11<br>04/26/11     |
|   | <ul><li>High</li><li>Env</li><li>Inno</li><li>The</li></ul>   | h performa<br>vironmental<br>ovative the<br>ese models   | nce work<br>lly friendly<br>rmal design<br>have a 3  | chitecture with a<br>station with prei<br>y, cool, and quie<br>gn with optimize<br>year limited wa<br>rosoft® Office 20            | mium gra<br>t with roo<br>d fan pla<br>rranty¹        | phics for s<br>ck solid end<br>cement, fo | peciali<br>gineeri<br>r a cod | zed pro<br>ng<br>oler, qui | fessionals<br>eter, more   |  |  |  |                          |
| Processor  Implementation   | second) QPI<br>1066MHz DI<br>Intel Xeon F<br>second) QPI<br>1333MHz DI  | I (QuickPat<br>DR3 memo<br>Processor<br>I (QuickPat<br>DR3 memo  | h Intercor<br>ory control<br><b>X5650</b> wi<br>h Intercor<br>ory control                            | with <b>quad-core</b> nnect), Intel 64, ller, and 4MB cath <b>six-core</b> , 6.4 nnect), Intel 64, ller, and 12MB cup to two proce | Virtualiza<br>ache<br>GT/s (gig<br>Virtualiza<br>ache | ation Techr<br>ga-transfer                | ology,<br>s/                  | То                         | optical optical optical  | <ul> <li>Raven black</li> <li>8.3"W x 23.7</li> <li>210mm W x</li> <li>60 lb (27.1k)</li> <li>55-liter</li> <li>Removable l</li> <li>Toolless side</li> </ul>  | 7"D x 19.<br>602mm<br>g) max c<br>nandle o                           | 1"H (with D x 485r onfigurat n top from                                  | n handle)<br>mm H<br>ion |
| Memory Additional memory disclaimers Graphics                                 | <ul><li>Actual mer<br/>dependent<br/>speed</li><li>Over six D</li></ul>   | apable (3-c)<br>mory opera<br>t on proces<br>DIMMs requ  | hannel pe<br>ating spee<br>sor memo<br>iires dual  | ar processor), two<br>d is the lowest in<br>ory controller sp<br>processors<br>d00, PCIe x16 ar                                    | velve 240<br>installed<br>eed and                     | speed,<br>installed m                     |                               |                            | disk disk disk disk disk disk  | Toolless disk  | and op<br>pter rete<br>ront icon                                     | tical drive<br>ention<br>s   |                          |
| ·<br>   | Some: NVID<br>one I   | 559 to dual<br>DIA Quadro<br>DisplayPort   | single-linl<br>• <b>400</b> , PC<br>t™, one d  | k DVI-I, 17.5W<br>le x16 adapter,<br>ual-link DVI-I, 32  | 512MB,  | ,   |                               | Ва                         | y 1: 5.25",<br>y 2: 5.25"  | ; 1.6" high, exte<br>, 1.6" high, exte   | rnal, o  |  |                          |
| Media reader<br>Optical<br>Hard drive(s)<br>SATA controller<br>SAS controller | 500GB, SATA<br>3 SATA conr<br>5 SATA/SAS<br>RAID 0, 1, 5  | Burner DL<br>A 3.0Gb/s,<br>nectors for<br>connectors, 10, integral   | DVD±RW<br>7200 rpm<br>opticals, S<br>rs for disk<br>ated in M  | / SATA 1.5Gb/s<br>n, 3.5"<br>SATA 3.0Gb/s, ir<br>ss, SATA 3.0Gb/<br>arvell <sup>®</sup> 88SE648                                    | ntegrated<br>s, SAS 3<br>30                           | .0Gb/s,                                   |                               | Ba<br>Ba<br>Ba<br>Ba       | y 3: 5.25",<br>y 4: 3.5",<br>y 5: 3.5",<br>y 6: 3.5",<br>y 7: 3.5",<br>y 8: 3.5",<br>y 9: 3.5",  | 1" high, externil high, internil hig | rnal, strnal, strnal, strnal, op<br>rnal, op<br>rnal, op<br>rnal, op | d media<br>d disk<br>ot disk<br>ot disk<br>ot disk<br>ot disk<br>ot disk | reader                   |
| Chipset<br>Front ports<br>Rear ports  | Two USB 2.0<br>(IEEE 1394a<br>Eight USB 2<br>(IEEE 1394a<br>six analog ar<br>rear-out, cer                                    | D, micropho<br>a)<br>0, eSATA,<br>a),<br>udio ports (<br>nter/sub-ou   | one (3.5m<br>serial (9-<br>(line-in, m<br>t, side out  | Winbond® W83<br>m), headphone<br>pin), two ethern-<br>iic-in, front-out,<br>t), Optical SPDI                                       | (3.5mm)<br>et (RJ-45                                  | , FireWire<br>5), FireWire                | 400                           | Slo<br>Slo<br>Slo<br>Slo   | ot 1: half-le<br>ot 2: full-le<br>ot 3: full-le<br>ot 4: full-le<br>ot 5: full-le  | ength, full-height,<br>ngth, full-height,<br>ngth, full-height,<br>ngth, full-height,<br>ngth, full-height,<br>ength, full-height,   | PCIe x1<br>PCIe 2.0<br>32-bit P0<br>PCIe 2.0<br>PCIe x4              | ) x16 (75<br>Cl 2.3<br>) x16 (75<br>(x16 me                              | W* max)                  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip              | High Definition<br>Internal spea<br>Dual gigabit<br>Broadcom Tr   | I adapter, 1<br>on (HD) Au<br>aker for bus<br>ethernet or<br>rusted Platt  | 1394a-200<br>udio, Analo<br>siness aud<br>n planar, l<br>form Mod                                    | og Devices AD1<br>dio<br>Broadcom <sup>®</sup> BCN<br>ule, TCG 1.2-co  | 988Å co<br>M5755 ai<br>mpliant                        | dec<br>nd BCM57                           |                               | *                          | Adapters<br>from PSU   | >75W use auxili<br>J   | ary powe   | er connec  | ctor(s)                  |
| Keyboard<br>Mouse<br>Power supply<br>ThinkVantage®                            | Optical When 1060 watts v   | el Mouse (l<br>vith 120mm<br>vers® Com   | USB conr<br>n bottom-r<br><b>puting B</b> i  | SB connector), nector), black mounted variable ronze, 80 PLUS  | e speed   | fan, univer                               | sal,                          |                            |  |  |  |  |                          |
| Limited Warranty  | 3-year parts  | and labor,   | Custome  | r Replaceable U  |   | J) parts on                               | у                             | $\neg$                     |  | SECURI   | rv   |  |                          |
| Preload OS<br>Preloaded<br>applications<br>(only some<br>listed)              | Genuine Wir  Rescue ar  ThinkVant  ThinkVant  Norton® In  Adobe® Re  Adobe Fla  Microsoft®  Roxio® Cor  Roxio MyE  Corel® Wir | ndows® 7 P<br>nd Recover<br>age Syster<br>age Toolbo<br>nternet Sec<br>eader®<br>ssh® Player<br>Office 201<br>eator® Busi<br>DVD® (DVD | Profession Ty® In Update IX Urity (30 of In Opreload Iness Edit #################################### | days of virus de<br>ded; purchase p<br>ion (DVD±RW r   | finitions) roduct kenodel(s)                          | ey to activa<br>only)                     | te                            | • F ps k                   | Side cover Padlock look adlock property slower specific security slower specific security slower specific security slower specific security slower specific security slower specific security specific specific security specific sp | securi- nip (see informati- lock (ships with isolock) (ships with isolocy) pop (in rear for opti- oblibits side cover to (in rear for opti- in Microsaver® ca- de cover removal bassword ence control ut keyboard, mou- l/O control disablement (fron trusion switch on  | on on let<br>wo iden<br>padlock<br>remova<br>onal<br>ble;<br>l)      | tical keys<br>;<br>l)<br>ette  | ,                        |
|   |   |  |  |  |   |   |                               |                            |  | ISV certific   |  | ISV  |                          |
|   |   |  |  |  |   |   |                               | Ro                         | REENGUA<br>OHS-comp<br>PEAT™ G   |  |  |  |                          |

# ThinkStation® S20 (4105) - TopSeller (Windows 7) - April 2011 - withdrawn Personal Systems Reference (PSREF)

| Type-<br>model       | Slot x<br>bay | Processor(s)   | GHz C        | ore | Memory<br>DIMMs | Disk(s)                      | Pre-conf<br>RAID | SATA optical     | 1394<br>adptr | Media<br>reader | Chassis<br>intrusion<br>switch | Graphics<br>adapter(s)       | Global   | Win7<br>preload  | Ann date<br>(mm/dd/yy) |
|----------------------|---------------|----------------|--------------|-----|-----------------|------------------------------|------------------|------------------|---------------|-----------------|--------------------------------|------------------------------|----------|------------------|------------------------|
| 4105-2EU<br>4105-2FU | 5x6<br>5x6    | E5607<br>W3503 | 2.26<br>2.40 | 4 2 |                 | 1x500GB SATA<br>1x500GB SATA |                  | DVD±RW<br>DVD±RW | No<br>No      | Media<br>Media  | None<br>None                   | 1xQuadro 400<br>1xQuadro 400 | No<br>No | Pro 64<br>Pro 64 | 04/26/11<br>04/26/11   |

- These small and medium business (SMB) models are part of the US TopSeller™ Program
- These systems are Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  | Intel® Xeon® Processor W3503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache Intel® XeonProcessor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache One LGA1366 socket   | Paven black color; metal case  • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front   |
|--|--|--|
| Memory  Additional memory disclaimers  | 48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  **NURSE*** Conduct*** 400. PCI. vid. contract*** F40MB***   | Toolless side cover removal     Toolless disk and optical drive removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support  |
| Graphics   | NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W   |  |
| Media reader<br>Optical<br>Hard drive(s)<br>SATA controller  | Media card reader, internal USB 2.0<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,<br>three SATA connectors for disks, two SATA connectors for opticals  | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, std media reader Bay 4: 3.5", 1" high, internal, std disk Bay 5: 3.5", 1" high, internal, opt disk  |
| Chipset  Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard Mouse Power supply  ThinkVantage® Limited Warranty  Preload OS Preloaded applications | High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant  Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  Supports ThinkVantage technologies  3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)  Genuine Windows® 7 Professional 64  • Rescue and Recovery®  • ThinkVantage System Update | Bay 6: 3.5", 1" high, internal, opt disk  Slot 1: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCle 2.0 x4** Slot 3: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCle x1 Slot 5: half-length, full-height, 32-bit PCl 2.3  * Adapters >75W use auxiliary power connector(s) from PSU  ** x16 mechanical |
|  | <ul> <li>ThinkVantage Toolbox</li> <li>Norton® Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Adobe Flash® Player</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD and DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul>   | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse  |

- Boot without keyboard, mouse
  USB port disablement (front or all)
  Chassis intrusion switch on selected model(s)

#### **ISV** certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

# ThinkStation® S20 (4157) - Windows 7 (April 2011) - withdrawn

| 71       | Slot x<br>bay     | Processor(s)            | GHz (                | Core        | Memory<br>DIMMs         | Disk(s)                                      | Pre-con<br>RAID | f SATA<br>optical          | 1394<br>adptr | Media<br>reader         | Chassis<br>intrusion<br>switch | Graphics adapter(s)                          | Global | Win7<br>preload            | Ann date<br>(mm/dd/yy) |
|----------|-------------------|-------------------------|----------------------|-------------|-------------------------|--|-----------------|----------------------------|---------------|-------------------------|--------------------------------|--|--------|----------------------------|------------------------|
| 4157-8AU | 5x6<br>5x6<br>5x6 | E5607<br>W3550<br>W3503 | 2.26<br>3.06<br>2.40 | 4<br>4<br>2 | 2x2GB<br>1x2GB<br>1x2GB | 1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA | No.             | DVD±RW<br>DVD±RW<br>DVD±RW | None          | Media<br>Media<br>Media | None<br>None<br>None           | 1xQuadro 400<br>1xQuadro 400<br>1xQuadro 400 | No     | Pro 64<br>Pro 64<br>Pro 64 | 04/26/11               |

• These systems are Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation Memory                            | Intel® Xeon® Processor W3503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache Intel Xeon Processor W3550 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache One LGA1366 socket | Raven black color; metal case     6.9"W x 19.0"D x 18.8"H (with handle)     175mm W x 483mm D x 478mm H     38.5 lb (17.5kg) max configuration     31-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support   |
|---|--|---|
| Additional<br>memory<br>disclaimers                         | six 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed   |   |
| Graphics  | NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W   | Bay 1: 5.25", 1.6" high, external, std optical<br>Bay 2: 5.25", 1.6" high, external, open   |
| Media reader<br>Optical<br>Hard drive(s)<br>SATA controller | Media card reader, internal USB 2.0<br>Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive<br>500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"<br>Serial ATA, SATA 3.0Gb/s, integrated in ICH10R,<br>three SATA connectors for disks, two SATA connectors for opticals  | Bay 3: 3.5", 1" high, external, std media reader Bay 4: 3.5", 1" high, internal, std disk Bay 5: 3.5", 1" high, internal, opt disk Bay 6: 3.5", 1" high, internal, opt disk  Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)  |
| Chipset   | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  | Slot 2: full-length, full-height, PCIe 2.0 x4** Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCIe x1   |
| Front ports<br>Rear ports                                   | Two USB 2.0, microphone (3.5mm), headphone (3.5mm)  Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out),  Optical SPDIF digital out, Optical SPDIF digital in  | Slot 5: half-length, full-height, 32-bit PCI 2.3  * Adapters >75W use auxiliary power connector(s) from PSU   |
| IEEE 1394 adptr   |  | ** x16 mechanical   |
| Audio   | High Definition (HD) Audio, Analog Devices AD1988A codec   |   |
| Speaker   | Internal speaker for business audio  |   |
| Ethernet  | One gigabit ethernet on planar, Broadcom® BCM5755  |   |
| Security chip   | Broadcom Trusted Platform Module, TCG 1.2-compliant  |   |
| Keyboard<br>Mouse   | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black   |   |
| Power supply  | 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   |   |
| ThinkVantage®   | Supports ThinkVantage technologies   |   |
| Limited Warranty  | 7 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)   |   |
| Preload OS<br>Preloaded<br>applications                     | Genuine Windows® 7 Professional 64  Rescue and Recovery®  ThinkVantage System Update  ThinkVantage Toolbox  Norton® Internet Security (30 days of virus definitions)  Microsoft® Office 2010 preloaded; purchase product key to activate  Roxio® Creator® Business Edition (DVD±RW model(s) only)  Roxio MyDVD® (DVD±RW model(s) only)  Corel® WinDVD® (DVD or DVD±RW model(s) only)  Ulead® DVD MovieFactory® (Blu-ray model(s) only)   | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) |

# ISV certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

# ThinkStation® D20 (4155) - TopSeller (Windows 7) - February 2011

| Type- Slot x<br>model bay   | Processor(s) GHz Core DIMMs Disk(s) Pre-conf SATA 1394 RAID optical adptr   | Media Chassis Graphics Win7 Ann date reader intrusion switch adapter(s) Global preload (mm/dd/yy)   |
|---|---|---|
| 4155-G6U 6x9<br>4155-G7U 6x9<br>4155-G8U 6x9                                  | 1xE5603       1.6       4       1x2GB       1x500GB       SATA       No       DVD±RW         1xE5607       2.26       4       2x2GB       1x500GB       SATA       No       DVD±RW       1394         1xE5645       2.4       6       2x2GB       1x500GB       SATA       No       DVD±RW       1394   |   |
|   | <ul> <li>These small and medium business (SMB) models are part of</li> <li>These systems are Microsoft Office 2010 Product Key Ready</li> </ul>   |   |
| Implementation Memory  Additional memory disclaimers                          | Intel® Xeon® Processor E5603 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache Intel Xeon Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor E5645 with six-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets, supports up to two processors  96GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed |   |
| Graphics  | Over six DIMMs requires dual processors      Some: NVIDIA® Quadro® FX 380, PCle x16 adapter, 256MB, two dual-link DVI-I, 35W      Some: NVIDIA Quadro 600, PCle x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W      Some: NVIDIA Quadro 2000, PCle x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W  | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 5.25", 1.6" high, external, open Bay 4: 3.5", 1" high, external, std media reader Bay 5: 3.5", 1" high, internal, std disk Bay 6: 3.5", 1" high, internal, opt disk Bay 7: 3.5", 1" high, internal, opt disk Bay 8: 3.5", 1" high, internal, opt disk   |
| Media reader<br>Optical<br>Hard drive(s)<br>SATA controller<br>SAS controller | Media card reader, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 10, integrated in Marvell® 88SE6480   | Bay 8: 3.5", 1" high, internal, opt disk Bay 9: 3.5", 1" high, internal, opt disk  Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCl 2.3 Slot 4: full-length, full-height, PCle 2.0 x16 (75W* max)   |
| Chipset<br>Front ports  | Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400  | Slot 5: full-length, full-height, PCIe x4 (x16 mechanical) Slot 6: half-length, full-height, 32-bit PCI 2.3   |
| Rear ports  | (IEEE 1394a) Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in  | * Adapters >75W use auxiliary power connector(s) from PSU   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip<br>Keyboard  | Some: FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on re High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754 Broadcom Trusted Platform Module, TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black   | ar  |
| Mouse<br>Power supply   | Optical Wheel Mouse (USB connector), black<br>1060 watts with 120mm bottom-mounted variable speed fan, universal,<br>Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | SECURITY  • Security chip (see information on left)  • Side cover lock (ships with two identical keys)  |
| ThinkVantage®   | Supports ThinkVantage technologies  | Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  |
| Limited Warranty  | 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)  | Security slot (in rear for optional   |
| Preload OS<br>Preloaded<br>applications                                       | Genuine Windows® 7 Professional 64  Rescue and Recovery® ThinkVantage System Update ThinkVantage Toolbox Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Adobe Flash® Player Microsoft® Office 2010 preloaded; purchase product key to activate Roxio® Creator® Business Edition (DVD±RW model(s) only) Roxio MyDVD® (DVD±RW model(s) only) Corel® WinDVD® (DVD and DVD±RW model(s) only) Ulead® DVD MovieFactory® (Blu-ray model(s) only)  | Kensington® Microsaver® cable; prohibits side cover removal)  • Power-on password  • Administrator password  • Boot sequence control  • Boot without keyboard, mouse, diskette  • Serial port I/O control  • USB port disablement (front or all)  • Chassis intrusion switch on selected model(s)  ISV certifications  Please visit www.lenovo.com/support/ISV  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating |

# ThinkStation® D20 (4158) - Windows 7 (February 2011)

| Type- Slot >                 | Memory Pre-conf SATA 1394 Me   | edia Chassis Graphics Win7 Ann date  |
|------------------------------|--|--|
| model bay                    |  | ader intrusion switch adapter(s) Global preload (mm/dd/yy)   |
| 4158-J2U 6x9<br>4158-J3U 6x9 | 1xX5647 2.93 4 2x2GB 1x300GB SATA No DVD±RW Me   | edia Switch 1xNVS 295 No Pro 64 02/15/11<br>edia Switch No Pro 64 02/15/11<br>edia Switch No Pro 64 02/15/11   |
| 4158-J4U 6x9<br>4158-J5U 6x9 |  | edia Switch No Pro 64 02/15/11<br>edia Switch 1x5000 No Pro 64 02/15/11  |
| 4158-J6U 6x9                 |  | edia Switch 1x2000 No Pro 64 02/15/11  |
| 4158-J7U 6x9                 |  | edia Switch 1x2000 No Pro 64 02/15/11  |
| 4158-J8U 6x9                 |  | edia Switch 1x4000 No Pro 64 02/15/11  |
| 4158-J9U 6x9<br>4158-K1U 6x9 |  | edia Switch 1x2000 No Pro 64 02/15/11<br>edia Switch 1x5000 No Pro 64 02/15/11   |
|                              | 12/2000 0.40 0 0/20D 1/2000D 0/40 140 DVD±11W 1004 WK  |  |
| Processor                    | Intel® Xeon® Processor E5603 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache Intel Xeon Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor E5645 with six-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5647 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5687 with quad-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5690 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect) | Raven black color; metal case     8.3"W x 23.7"D x 19.1"H (with handle)     210mm W x 602mm D x 485mm H     60 lb (27.1kg) max configuration     55-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit |
| Implementation               | second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache  | Bay 1: 5.25", 1.6" high, external, std optical<br>Bay 2: 5.25", 1.6" high, external, open  |
| Implementation Memory        | Two LGA1366 sockets, supports up to two processors  96GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC,  | Bay 3: 5.25", 1.6" high, external, open Bay 4: 3.5", 1" high, external, std media reader   |
| Memory                       | 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets   | Bay 5: 3.5", 1" high, internal, std disk   |
| Additional                   | <ul> <li>Actual memory operating speed is the lowest installed speed,</li> </ul>   | Bay 6: 3.5", 1" high, internal, opt disk   |
| memory<br>disclaimers        | dependent on processor memory controller speed and installed memory speed  | Bay 7: 3.5", 1" high, internal, opt disk<br>Bay 8: 3.5", 1" high, internal, opt disk   |
| discialificis                | Over six DIMMs requires dual processors  | Bay 9: 3.5", 1" high, internal, opt disk   |
| Graphics                     | Some: NVIDIA® Quadro® NVS 295, PCIe x16 adapter, 256MB, two DisplayPort™, 23W  | Slot 1: half-length, full-height, PCIe x1  |
|                              | Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W Some: NVIDIA Quadro 4000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, one stereo, 142W Some: NVIDIA Quadro 5000, PCIe x16 adapter, 2.5GB, two DisplayPort, one dual-link DVI-I, one stereo, 152W   | Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x4 (x16 mechanical) Slot 6: half-length, full-height, 32-bit PCI 2.3   |
| Media reader                 | Media card reader, internal USB 2.0  | * Adapters >75W use auxiliary power connector(s) from PSU  |
| Optical                      | Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  | HOILT GO   |
| Hard drive(s)                | Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"  |  |
| SATA controller              | Some: 300GB, SATA 3.0Gb/s, 10000 rpm, 2.5"<br>Some: 300GB, SAS 3.0Gb/s, 15000 rpm, 3.5"<br>3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10;  |  |
| SAS controller               | 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 10, integrated in Marvell® 88SE6480   |  |
| Chipset<br>Front ports       | Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)  |  |
| Rear ports                   | Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400   | SECURITY   |
|                              | (IEEE 1394a),<br>six analog audio ports (line-in, mic-in, front-out,<br>rear-out, center/sub-out, side out), Optical SPDIF digital out,  | Security chip (see information on left)     Side cover lock (ships with two identical keys)     Padlock loop (in rear for opt padlock;   |
| IFFF 1394 adot               | Optical SPDIF digital in Some: FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear  | padlock prohibits side cover removal)  |
| Audio                        | High Definition (HD) Audio, Analog Devices AD1988A codec   | Kensington® Microsaver® cable;   |
| Speaker                      | Internal speaker for business audio  | prohibits side cover removal)  |
| Ethernet                     | Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754   | Power-on password     Administrator password   |
| Security chip                | Broadcom Trusted Platform Module, TCG 1.2-compliant  | Boot sequence control  |
| Keyboard<br>Mouse            | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black   | Boot without keyboard, mouse, diskette     Serial port I/O control   |
| Power supply                 | 1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified  | USB port disablement (front or all) Chassis intrusion switch on selected model(s)  |
| ThinkVantage®                | Supports ThinkVantage technologies   | ISV certifications   |
| Limited Warranty             | 7 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)   | Please visit www.lenovo.com/support/ISV  |
| Preload OS                   | Genuine Windows® 7 Professional 64   | GREENGUARD® certified  |
| Preloaded                    | Rescue and Recovery®     Misrosoft® Office 2010 prelocated purebase product key to activate.   | RoHS-compliant<br>EPEAT™ Gold rating   |
| applications<br>(only some   | <ul> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> </ul>  |  |
| listed)                      | Roxio MyDVD® (DVD±RW model(s) only)  | More compatible accessories, please see O-SEV sheet  |
| See footnotes for            | important warranty information   | © Lenovo   |

# ThinkStation® S20 (4105) - TopSeller (Windows 7) - February 2011

| Type-<br>model       | Slot x<br>bay | Processor(s)   | GHz C        | ore | Memory<br>DIMMs | Disk(s)                      | Pre-conf<br>RAID | SATA<br>optical  | 1394<br>adptr | Media<br>reader | Chassis intrusion switch | Graphics<br>adapter(s) | Global   | Win7<br>preload  | Ann date (mm/dd/yy)  |
|----------------------|---------------|----------------|--------------|-----|-----------------|------------------------------|------------------|------------------|---------------|-----------------|--------------------------|------------------------|----------|------------------|----------------------|
| 4105-1JU<br>4105-1KU |               | E5607<br>E5607 | 2.26<br>2.26 | 4   | _               | 1x500GB SATA<br>1x500GB SATA |                  | DVD±RW<br>DVD±RW | No<br>No      | Media<br>Media  | Switch<br>Switch         | 1xFX380<br>1x2000      | No<br>No | Pro 64<br>Pro 64 | 02/15/11<br>02/15/11 |

- These small and medium business (SMB) models are part of the US TopSeller™ Program
- These systems are Microsoft Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  Memory  Additional memory disclaimers  Graphics   | Intel® Xeon® Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache One LGA1366 socket  48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets  ◆ Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  Some: NVIDIA® Quadro FX® 380, PCle x16 adapter, 256MB, two dual-link DVI-I, 35W  Some: NVIDIA Quadro 2000, PCle x16 adapter, 1GB,  | - Raven black color; metal case - 6.9"W x 19.0"D x 18.8"H (with handle) - 175mm W x 483mm D x 478mm H - 38.5 lb (17.5kg) max configuration - 31-liter - Removable handle on top front - Toolless side cover removal - Toolless disk and optical drive removal - Toolless adapter retention - Illuminated front icons - Rack shelf support   |
|--|---|---|
| Media reader Optical Hard drive(s) SATA controller SAS controller Chipset  Front ports Rear ports  IEEE 1394 adptr | two DisplayPort™, one dual-link DVI-I, 62W  Media card reader, internal USB 2.0  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive  500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"  Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals None  Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  Two USB 2.0, microphone (3.5mm), headphone (3.5mm)  Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in None | Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, std media reader Bay 4: 3.5", 1" high, internal, std disk Bay 5: 3.5", 1" high, internal, opt disk Bay 6: 3.5", 1" high, internal, opt disk Slot 1: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 5: half-length, full-height, 32-bit PCl 2.3 |
| Audio Speaker Ethernet Security chip Keyboard Mouse Power supply  ThinkVantage® Limited Warranty  Preload OS       | High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified Supports ThinkVantage technologies 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet) Genuine Windows® 7 Professional 64  | * Adapters >75W use auxiliary power connector(s) from PSU     ** x16 mechanical   |
| Preloaded applications   | <ul> <li>Rescue and Recovery®</li> <li>ThinkVantage System Update</li> <li>ThinkVantage Toolbox</li> <li>Norton® Internet Security (30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Adobe Flash® Player</li> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD and DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul>  | SECURITY  Security chip (see information on left) Side cover lock (ships with two identical keys) Padlock loop (in rear for opt padlock) Security slot (in rear for optional Kensington® Microsaver® cable) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse USB port disablement (front or all) Chassis intrusion switch on selected model(s)  ISV certifications Please visit www.lenovo.com/support/ISV   |

GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating

# ThinkStation® S20 (4157) - Windows 7 (February 2011) - withdrawn

| Type- Slot<br>model bay   |  | Media Chassis Graphics Win7 Ann date reader intrusion switch adapter(s) Global preload (mm/dd/yy)   |
|---|--|---|
| 4157-N1U 5x<br>4157-N2U 5x<br>4157-N3U 5x<br>4157-N4U 5x<br>4157-N5U 5x<br>4157-N6U 5x  | E5607 2.26 4 2x2GB 1x500GB SATA No DVD±RW W3690 3.46 6 2x2GB 1x500GB SATA No DVD±RW 1394 W3550 3.06 4 2x2GB 1x300GB SAS No DVD±RW W3550 3.06 4 2x2GB 1x300GB SAS No DVD±RW   | Media         Switch         1x2000         No         Pro 64         02/15/11           Media         Switch         1x600         No         Pro 64         02/15/11           Media         Switch         1x4000         No         Pro 64         02/15/11           Media         Switch         No         Pro 64         02/15/11           Media         Switch         1x2000         No         Pro 64         02/15/11           Media         Switch         1x4000         No         Pro 64         02/15/11   |
|   | These systems are Microsoft Office 2010 Product Key Ready (O1)   | IOPKR)  |
| Implementation Memory Additional memory disclaimers Graphics  Media reader Optical Hard drive(s) SATA controller SAS controller | Intel® Xeon® Processor W3550 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor W3690 with six-core, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor E5603 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache Intel Xeon Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache One LGA1366 socket  48GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets  • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed  Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W  Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W  Some: NVIDIA Quadro 4000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, one stereo, 142W  Media card reader, internal USB 2.0  Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"  Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals Some: Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s (SAS model(s) only)  Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID | Raven black color; metal case 6.9"W x 19.0"D x 18.8"H (with handle) 175mm W x 483mm D x 478mm H 38.5 lb (17.5kg) max configuration 31-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal Toolless disk and optical drive removal Toolless disk and optical drive removal Rack shelf support  Bay 2: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, std media reader Bay 4: 3.5", 1" high, internal, std disk Bay 5: 3.5", 1" high, internal, opt disk Bay 6: 3.5", 1" high, internal, opt disk Slot 1: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 3: full-length, full-height, PCle 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCle 2.1 Slot 5: half-length, full-height, PCle 2.1  * Adapters > 75W use auxiliary power connector(s) from PSU  ** x16 mechanical |
| Front ports<br>Rear ports   | (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in r Some: FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755  |   |
| Security chip   | Broadcom Trusted Platform Module, TCG 1.2-compliant  | OFOURITY  |
| Keyboard<br>Mouse<br>Power supply   | Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified   | SECURITY  • Security chip (see information on left)  • Side cover lock (ships with two identical keys)  • Padlock loop (in rear for opt padlock)  |
| ThinkVantage®   | Supports ThinkVantage technologies   | Security slot (in rear for optional   |
| Preload OS<br>Preloaded<br>applications   | y 3-year parts and labor, Customer Replaceable Unit (CRU) parts only (More Lenovo® services are available on S-TS sheet)  Genuine Windows® 7 Professional 64  Rescue and Recovery®  ThinkVantage System Update  ThinkVantage Toolbox  Norton® Internet Security (30 days of virus definitions)   | Kensington® Microsaver® cable) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse USB port disablement (front or all) Chassis intrusion switch on selected model(s)  |
|   | <ul> <li>Microsoft® Office 2010 preloaded; purchase product key to activate</li> </ul>   | ISV certifications  |
|   | <ul> <li>Roxio® Creator® Business Edition (DVD±RW model(s) only)</li> <li>Roxio MyDVD® (DVD±RW model(s) only)</li> <li>Corel® WinDVD® (DVD or DVD±RW model(s) only)</li> <li>Ulead® DVD MovieFactory® (Blu-ray model(s) only)</li> </ul>   | Please visit www.lenovo.com/support/ISV  GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating  |
|   |  | More compatible accessories, please see O-SEV sheet   |

| Name         | Type-<br>model | Slot x<br>bay | Processor | GHz  |   | Memory<br>DIMMs | Disk(s)                  | Disk I<br>size | Pre-confiç<br>RAID | SATA<br>optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | 1394<br>adptr | Win7<br>preload | Global | Avail<br>date |
|--------------|----------------|---------------|-----------|------|---|-----------------|--------------------------|----------------|--------------------|-----------------|--------------------------------|---------------------|---------------|-----------------|--------|---------------|
| <b>S20</b> 4 | 157-M1U        | 5x6           | W3550     | 3.06 | 4 | 2x2GB           | 1x146GB <sup>2</sup> SAS | 3.5"           | No                 | <b>DVD</b> ±RW  | Media Media                    |                     | None          | Pro64           | Global | Nov 10        |
| <b>S20</b> 4 | 157-M2U        | 5x6           | W3550     | 3.06 | 4 | 2x2GB           | 1x146GB SAS              | 3.5"           | No                 | <b>DVD±RW</b>   | Media (                        | 1x2000              | None          | Pro64           | Global | Nov 10        |
| <b>S20</b> 4 | 157-M3U        | 5x6           | W3550     | 3.06 | 4 | 2x2GB           | 1x150GB SATA             | 2.5"           | No                 | <b>DVD±RW</b>   | Media /                        | 1x2000              | None          | Pro64           | Global | Nov 10        |
| <b>S20</b> 4 | 157-M4U        | 5x6           | W3550     | 3.06 | 4 | 3x2GB           | 1x500GB SATA             | 3.5"           | No                 | <b>DVD±RW</b>   | Media Media                    | 1x600               | None          | Pro64           | Global | Nov 10        |
| <b>S20</b> 4 | 157-M5U        | 5x6           | W3680     | 3.33 | 6 | 3x2GB           | 1x300GB SAS              | 3.5"           | No                 | DVD±RW          | Media                          | 1x4000              | None          | Pro64           | Global | Nov 10        |

• These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  | Intel 64, Hyper-Threading<br>Turbo Boost Technology, 1<br>and 8MB cache or<br>Intel Xeon Processor W3<br>6.4GT/s QPI, Intel 64, Hyp<br>Virtualization Technology,                | cond) QPI (QuickPath Interconnect), Technology, Virtualization Technology, 066MHz DDR3 memory controller, 680 with six-core, er-Threading Technology,   | 6.9"W x 19.0     175mm W x     38.5 lb (17.5     31-liter     Removable I     Toolless side     Toolless disk | color; metal case  "D x 18.8"H (with handle) 483mm D x 478mm H kg) max configuration  mandle on top front e cover removal a and optical drive removal   |
|--|--|---|---|---|
| Memory   | 4GB or 6GB std, 48GB ma<br>PC3-10600 1333MHz DDR<br>3-channel capable, six 240<br>*** System automatically of<br>DDR3 memory controller  | 3***, ECC,  | pter retention ront icons upport 1.6" high, external, std optical   |   |
| Graphics   | * Adapters >75W use auxi<br>**Some: NVIDIA® Quadro®<br>one DisplayPort™,<br>**Some: NVIDIA Quadro 2<br>two DisplayPort, o<br>**Some: NVIDIA Quadro 4                             | apters required for quad monitor support, liary power connector(s) from PSU 600, PCIe x16 adapter, 1GB, one dual-link DVI-I, 40W 000, PCIe x16 adapter, 1GB, ne dual-link DVI-I***, 62W 000, PCIe x16 adapter, 2GB, ne dual-link DVI-I***, one stereo, 142W ectors are active at a time | Bay @ 3.5",<br>Bay \$ 3.5",<br>Bay \$ 3.5",<br>Slot 1: full-lend<br>Slot 2: full-lend<br>Slot 3: full-lend    | 1.6" high, external, open 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk gth, full-height, PCle 2.0 x16 (75W* max) gth, full-height, PCle 2.0 x16 (75W* max) gth, full-height, PCle x1   |
| Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk controller  | Super Multi-Burner DL DV<br>Serial ATA, SATA 3.0Gb/s,<br>three SATA connectors for<br>SAS model(s): Marvell®   | Gb/s, 7200 rpm, 3.5"<br>Gb/s, 10000 rpm, 2.5"<br>SAS 3.0Gb/s, 15000 rpm, 3.5"<br>D±RW SATA 1.5Gb/s Drive  | ** x16 mechar   | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock;  |
| Chipset  | Intel X58 Express Chipse   | et, Intel I/O Controller Hub 10 RAID<br>support, Winbond® W83627DHG-P Super   | I/O   | <ul> <li>padlock prohibits side cover removal)</li> <li>Security slot (in rear for optional<br/>Kensington® Microsaver® cable;</li> </ul>   |
| Front ports<br>Rear ports<br>IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet   | Eight USB 2.0, eSATA, ser six analog audio ports (line Optical SPDIF digital out, or None High Definition (HD) Audio Internal speaker for busine One gigabit ethernet on plants. | , Analog Devices AD1988A codec<br>ess audio<br>anar, Broadcom® BCM5755  | out, side-out),   | prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all)   |
| Security chip<br>Keyboard  | Preferred Pro USB Keyboa   | n Module, TCG 1.2-compliant<br>ard (USB connector), 104-key, black  |   | ISV certifications Please visit www.lenovo.com/support/ISV  |
| Mouse<br>Power supply  |  | 3 connector), black<br>tom-mounted variable speed fan, universal<br>g Bronze, 80 PLUS®Bronze qualified  | ,   | Supports ThinkVantage® technologies   |
| Cooling<br>Rack mount  |  | ČPU, rear, opt front PCI [>75W graphics],   | opt front [SAS])  | GREENGUARD® certified<br>RoHS-compliant<br>EPEAT™ Gold rating   |
| - Genuine Win-<br>Professional  Preloaded app listed)  Rescue and I  Microsoft Offi purchase pro  Roxio® Create (DVD±RW) | 64<br>lications <sup>5</sup> (only some  | Accessories  2GB PC3-10600 DDR3 ECC UDIMM  4GB PC3-10600 DDR3 ECC UDIMM  500GB SATA 3.0Gb/s Disk (7200 rpm)  1TB SATA 3.0Gb/s Disk (7200 rpm)  Blu-ray™ Burner SATA 1.5Gb/s  ThinkVision® L2440p Wide 24" Monitor  Other accessories at lenovo.com/acces                                | 43R2033<br>57Y4138<br>43R1990<br>45J7918<br>45K1675<br>4420HB2<br>sories                                      | LIMITED WARRANTY¹  3-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)  Lenovo services available; see lenovo.com/services_warranty/us/en/ lenovo-warranty.html  Onsite service upgrade options (in eligible locations)²  Post warranty maintenance services  24 hour x 7 day¹⁴ toll-free support during the warranty period¹ |

| Type-<br>Name model                        | Slot x<br>bay | Processor | GHz | Memory<br>DIMMs | Memory<br>speed |                                 | re-confi<br>RAID | g SATA<br>optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | 1394<br>adptr | ENERGY<br>STAR 5.0 | Win7<br>preload | Avail<br>date |
|--|---------------|-----------|-----|-----------------|-----------------|---------------------------------|------------------|-------------------|--------------------------------|---------------------|---------------|--------------------|-----------------|---------------|
| <b>S20</b> 4157-L8U<br><b>S20</b> 4157-L9U |               |           |     |                 |                 | 1x500GB <sup>2</sup><br>1x500GB |                  | DVD±RW<br>DVD±RW  |                                |                     |               | Pending<br>Pending |                 |               |

- · These models have a 3-year limited warranty
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  | Intel® Xeon® W3550 with quad-core,<br>4.8GT/s(giga-transfers/second) QPI (QuickPath Interconnect),<br>Intel 64, Hyper-Threading Technology, Virtualization Technology,<br>Turbo Boost Technology, 1066MHz DDR3 memory controller,<br>and 8MB cache<br>One LGA1366 socket   | Tower  Raven black color; metal case  6.9"W x 19.0"D x 18.8"H (with handle)  175mm W x 483mm D x 478mm H  38.5 lb (17.5kg) max configuration  |
|--|--|---|
| Memory   | 2GB or 4GB std, 48GB max, UDIMM, PC3-10600 1333MHz DDR3***, ECC, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 1066MHz DDR3 memory controller   | 31-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons   |
| Graphics   | Two PCI Express® x16 adapters required for quad monitor support,  * Adapters >75W use auxiliary power connector(s) from PSU Some: NVIDIA® Quadro® FX 380, PCle x16 adapter, 256MB, two dual-link DVI-I, 35W Some: NVIDIA Quadro 600, PCle x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W   | Bay ① 5.25", 1.6" high, external, std optical Bay ② 5.25", 1.6" high, external, open Bay ③ 3.5", 1" high, external, std media reader  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller               | 20-in-1 media reader, internal USB 2.0 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals   | Bay @ 3.5", 1" high, internal, std disk Bay ® 3.5", 1" high, internal, opt disk Bay ® 3.5", 1" high, internal, opt disk Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCIe 2.0 x4** |
| Chipset  | Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O  | Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCIe x1 Slot 5: half-length, full-height, 32-bit PCI 2.3  |
| Front ports Rear ports  IEEE 1394 adptr Audio Speaker Ethernet Security chip | Two USB 2.0, microphone (3.5mm), headphone (3.5mm) Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub- Optical SPDIF digital out, Optical SPDIF digital in None High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant | SECURITY  |
| Keyboard<br>Mouse  | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black   | prohibits side cover removal)  • Power-on password  |

#### Preloaded operating system<sup>20</sup>

Genuine Windows® 7 Professional 64

Cooling

Power supply

Rack mount

#### Preloaded applications<sup>5</sup> (only some listed)

Rack shelf support

- Rescue and Recovery™
- ThinkVantage System Update
- ThinkVantage System opdated ThinkVantage Toolbox
  Norton™ Internet Security
  (30 days of virus definitions)
  Adobe® Reader®
  Adobe Flash® Player

- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
  Corel® WinDVD® (DVD±RW)

#### Accessories

625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])

2GB PC3-10600 DDR3 ECC UDIMM 43R2033 4GB PC3-10600 DDR3 ECC UDIMM 57Y4138 1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 Blu-ray™ Burner SATA 1.5Gb/s 45K1675 ThinkVision® L2440p Wide 24" Monitor 4420HB2 Other accessories at lenovo.com/accessories

- on left) o identical
- adlock; emoval)
- ıal e:
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

#### **ISV** certifications

Please visit www.lenovo.com/support/ISV

GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant EPEAT™ Gold rating

#### LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- Lenovo services available; see lenovo.com/services\_warranty/us/en/ lenovo-warranty.html
- Onsite service upgrade options (in eligible locations)
- Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period1

|  |  |  |   |  |  |  |  |   |  | Diskette  |   |   |   |                                      |
|--|--|--|---|--|--|--|--|---|--|---|---|---|---|--------------------------------------|
| Type- Slot x<br>model bay Pr   | rocessor(s)  | Base<br>GHz Cor  | Memory<br>es DIMMs  | Memory<br>speed  | Dis  | sk(s)  | Disk P<br>size   | re-conf<br>RAID   | ig SATA<br>optical   | or Media<br>reader  |   | 1394<br>adptr   | Global  | Avail<br>date                        |
| 4158-D6U 6x9 2<br>4158-D7U 6x9 2<br>4158-D8U 6x9 2<br>4158-B1U 6x9 2<br>4158-E1U 6x9 2<br>4158-E2U 6x9 2<br>4158-E3U 6x9 2<br>4158-E4U 6x9 3<br>4158-E5U 6x9 | 2xE5620<br>2xE5620<br>2xE5640<br>2xX5650<br>2xX5650<br>2xX5660<br>1xX5680  | 2.66 12  | 4x2GB<br>4x2GB<br>4x2GB<br>2 4x2GB<br>2 4x2GB<br>2 4x2GB<br>3x2GB   | 1333MHz<br>1333MHz<br>1333MHz<br>1333MHz<br>1333MHz<br>1333MHz<br>1333MHz  | 1x300GB <sup>2</sup> 2x146GB 5 146GB+30 1x300GB 5 1x300GB 5 1x300GB 5 1x300GB 5 1x300GB 5 1x300GB 5  | SAS<br>OGB SAS<br>SATA<br>SATA<br>SAS<br>SAS<br>SATA                               | 2.5"<br>3.5"<br>2.5"<br>2.5"<br>2.5"<br>2.5"<br>2.5"<br>2.5" | 1   | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW   | Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media   | 1xFX3800<br>1xFX4800<br>1xFX1800<br>1xFX4800<br>1xFX4800  | None<br>None<br>None<br>None<br>None<br>None                              | Global<br>Global<br>Global<br>Global<br>Global                      | Aug 10<br>Aug 10<br>Aug 10<br>Aug 10 |
|  | • The  | se syste   | ms are Mi   | crosoft® Of  | fice 2010 Pi   | roduct Key   | Ready  | / (O10F   | PKR)   |   |   |   |   |                                      |
| Processor  | Intel® Xe<br>5.86GT/s<br>Intel 64, I<br>Turbo Boa<br>and 12MI<br>Intel Xeo<br>6.4GT/s (<br>Virtualiza<br>1333MHz<br>Intel Xeo<br>6.4GT/s (<br>Virtualiza | on® Procest (giga-transport Technost Technost Technost Technost (gigar) and Procest (g | cessor E5 ansfers/se ansfers/se ansfers/se ansfers/se ancology, 10 or ssor X567 I 64, Hype anology, Ta memory co ssor X568 I 64, Hype anology, Ta memory co ssor X567 | 620 or E56<br>cond) QPI (<br>echnology,<br>66MHz DD<br>77 with qua<br>r-Threadin,<br>irbo Boost<br>ontroller, an<br>500, X5660,<br>r-Threadin,<br>irbo Boost   | essors stand<br>40 with qua-<br>QuickPath<br>Virtualization<br>R3 memory<br>d-core,<br>g Technology<br>d 12MB card<br>or X5680 w<br>g Technology,<br>d 12MB card | ad-core,<br>Interconne<br>in Technolo<br>controller<br>y,<br>che or<br>ith six-cor | ogy,   | • 8.3<br>• 210<br>• 60<br>• 55-<br>• Re<br>• Too<br>• Too<br>• Illu | ven black of the b | D x 19.1<br>602mm D<br>max cor<br>andle on<br>cover rer<br>and optic<br>oter reten<br>ont icons       | "H (with har x 485mm har figuration top front moval call drive rem  | loval   | opt opt opt opt opt opt opt opt opt opt                             | sk<br>sk<br>sk                       |
| Memory   | 6GB or 8<br>PC3-1060<br>6-channe<br>twelve 24<br>** System<br>DDR3 me  | GB std, 00 1333Nel capable 10-pin DII n automa   | 96GB max<br>MHz DDR3<br>e (3-chann<br>MM socke<br>atically cloontroller   | t**, <b>ECC</b> ,<br>lel per proc<br>ts***   | r processoi  | rs with 106  | 6MHz   | Bay<br>Bay<br>Bay<br>Bay<br>Bay<br>Bay                              | ⑤ 3.5", 1<br>⑥ 3.5", 1<br>⑦ 3.5", 1  | .6" high,   | external,<br>external,<br>external,<br>internal,<br>internal,<br>internal,  | std disl  | dia read<br>k<br>opt disk<br>k                                      | ler                                  |
| Graphics   | * Adapter<br>Some: N<br>tv<br>Some: N<br>tv<br>Some: N   | rs >75W NVIDIA® wo Displa NVIDIA G wo Displa NVIDIA G wo slot wo one dual-   | use auxilia<br>Quadro® I<br>ayPort, one<br>Quadro FX<br>ayPort, one<br>Quadro FX<br>vidth, two I<br>link DVI-I*   | ary power of TX 1800, Power of the dual-link of the dual- |  | ofrom PSU<br>apter, 768M<br>W<br>ter, 1GB,<br>98W<br>ter, 1.5GB                    | иВ,  | Slot<br>Slot<br>Slot<br>Slot<br>Slot                                | <ul><li>3.5", 1</li><li>1: half-leng</li><li>2: full-leng</li><li>3: full-leng</li><li>4: full-leng</li><li>5: full-leng</li></ul>   | " high,<br>gth, full-h<br>th, full-he<br>th, full-he<br>th, full-he<br>th, full-he                    | internal,<br>eight, PCIe<br>ight, PCIe 2<br>ight, 32-bit<br>ight, PCIe 2<br>ight, PCIe x<br>eight, 32-bi                            | opt dis<br>x1<br>!.0 x16<br>PCI 2.3<br>!.0 x16<br>!4 (x16                 | k<br>(75W* r<br>}<br>(75W* r<br>mechar<br>.3                        | nax)                                 |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller  | None (us<br>20-in-1 m<br>Some: 1<br>Some: 1<br>Super Mu<br>3 SATA co<br>5 SATA/S   | e USB p<br>nedia rea<br><b>50GB</b> or<br><b>46GB</b> or<br>ulti-Burne<br>onnector<br>SAS <sup>4</sup> con   | ort) der, intern 300GB, S 300GB, S er DL DVD es for optic nectors for   | al USB 2.0<br>SATA 3.0Gb<br>SAS 3.0Gb/<br>±RW, SATA<br>als, SATA 3<br>r disks, SAT   | /s, 10000 rp<br>s, 15000 rp  | om, 2.5"<br>m, 3.5"<br>egrated in I<br>SAS 3.0G                                    |  |   |  | <ul> <li>Side c<br/>keys)</li> <li>Padloc<br/>padloc</li> <li>Securi<br/>Kensir<br/>prohib</li> </ul> | ty chip (see<br>over lock (sl<br>ck loop (in re<br>kk prohibits s<br>ty slot (in re<br>igton® Micro<br>its side cove<br>-on passwoi | inform<br>hips with<br>ear for conside con<br>ar for consaver®<br>er remo | ation on<br>th two ic<br>opt padi<br>ver remo<br>optional<br>cable; | lentical<br>lock;                    |
| Chipset  | Intel 552  |  |   | 627DHG-P   | Super I/O  |  |  |   |  | <ul><li>Admin</li><li>Boot s</li></ul>  | istrator pass<br>equence co   | sword<br>ntrol  |   |                                      |
| Front ports  |  |  | rophone (EE 1394a)  | 3.5mm), he   | adphone (3   | 3.5mm),  |  |   |  | <ul> <li>Serial</li> </ul>  | /ithout keyb/<br>port I/O cor<br>ort disablen   | trol  | •   |                                      |
| Rear ports   | Eight USI<br>FireWire<br>six analog<br>rear-out,   | B 2.0, eS<br>400 (IEE<br>g audio p<br>center/si  | SATA, seria<br>EE 1394a),<br>oorts (line-<br>ub-out, sid  | in, mic-in, f  | vo ethernet<br>ront-out,<br>ical SPDIF   | , ,,   |  |   |  | ·   |   | ertifica  | itions  | <u></u>                              |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | High Defi<br>Internal s<br>Dual giga   | inition (H<br>speaker fabit ether  | D) Audio,<br>or busines<br>net on pla   | s audio<br>nar, Broado   | vices AD198<br>com® BCM5<br>CG 1.2-com   | 755 and E  |  | 54  |  | RoHS-c<br>EPEAT <sup>†</sup>  | GUARD® ce<br>ompliant<br>M Gold ratin<br>LIMITED \<br>r parts and   | g<br>Varr <i>i</i>  | ANTY <sup>1</sup>   |                                      |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Preferred<br>Optical W<br>1060 wat<br>Climate S<br>Five fans   | I Pro USI<br>/heel Mo<br>ts with 1:<br>Savers® C<br>max (po  | B Keyboar<br>use (USB<br>20mm bot<br>computing<br>wer supply  | d (USB cor<br>connector)<br>tom-mount<br>Bronze, 80<br>y, first proce  | nector), 10  | 4-key, blac<br>speed fan,<br>onze qualif<br>nd process                             | univer<br>ed<br>or, rea                                      | •   | disk)  | Custo parts for se Mon-next   | omer Replace<br>only (with I<br>elected parte<br>Fri coverace<br>business da<br>vo services   | eable imited<br>s³, 8 am<br>ge exclo<br>y respo<br>availab                | onsite s<br>n - 5 pm,<br>uding ho<br>onse tim<br>ole; see           | ervice<br>olidays,<br>ne)            |
| Preloaded oper<br>- Genuine Wind<br>Professional 6   | dows® 7  | tem <sup>20</sup>  | lis   | sted)<br>Microsoft (   | pplications<br>Office 2010<br>product key  | preloaded  | ;  |   |  | lenov<br>• Onsit<br>(in eli<br>• Post<br>servi<br>⇒ 24 ho   | co.com/service-warranty. e service upigible location warranty maces our x 7 day <sup>14</sup> g the warra                           | html<br>ograde<br>ons) <sup>7</sup><br>aintena<br>toll-fre                | options<br>nce<br>e suppo   | ;                                    |

| Type-<br>Name model  | Slot x I Bay Processor GHz Cores  | Memory<br>DIMMs Disk(s)   | Disk Pre-config<br>size RAID  | SATA optical   | Diskette<br>or Media<br>reader  |  | 1394<br>adptr   | Win7<br>preload   | Global  | Avail<br>date  |  |
|--|---|---|---|--|---|--|---|---|---|--|--|
| \$20 4157-G9U<br>\$20 4157-H1U<br>\$20 4157-H2U<br>\$20 4157-H3U<br>\$20 4157-H5U<br>\$20 4157-H6U<br>\$20 4157-H6U<br>\$20 4157-H8U<br>\$20 4157-H9U<br>\$20 4157-J6U<br>\$20 4157-J6U<br>\$20 4157-J7U | 5x6         W3530         2.80         4           5x6         W3550         3.06         4           5x6         W3550         3.06         4           5x6         W3550         3.06         4           5x6         W3565         3.20         4           5x6         W3530         2.80         4           5x6         W3530         2.80         4           5x6         W3530         2.80         4           5x6         W3550         3.06         4           5x6         W3530         2.80         4           5x6         W3550         3.06         4           5x6         W3550         3.06         4 | 2x2GB 1x146GB² SAS<br>2x2GB 1x146GB SAS<br>3x2GB 1x146GB SAS<br>3x2GB 1x146GB SAS<br>3x2GB 1x146GB SAS<br>3x2GB 1x146GB SAS<br>3x2GB 1x150GB SATA<br>3x2GB 1x500GB SATA<br>3x2GB 1x500GB SATA<br>3x2GB 1x500GB SATA<br>2x2GB 1x500GB SATA<br>3x2GB 1x500GB SATA<br>3x2GB 1x500GB SATA<br>3x2GB 1x500GB SATA | 3.5" No 3.5" No 3.5" No 3.5" No 2.5" No 3.5" No 3.5" No 3.5" No 3.5" No 3.5" No 3.5" No | DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW<br>DVD±RW   | V Media<br>V Media<br>V Media<br>V Media<br>V Media<br>V Media<br>V Media<br>V Media<br>V Media<br>V Media<br>V Media<br>V Media            |  | None<br>None<br>None<br>None<br>None<br>None<br>None<br>None  | Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64                                     | Global<br>Global<br>Global<br>Global<br>Global<br>Global<br>Global<br>Global<br>Global                        | Aug 10<br>Aug 10<br>Aug 10<br>Aug 10<br>Aug 10<br>Aug 10<br>Aug 10<br>Aug 10<br>Oct 10<br>Oct 10 |  |
|  | • These systems a   | are microson Office 2010  | Product Key F   | ieauy (O   | IUPKH)  |  |   |   |   |  |  |
| Processor  | Intel® Xeon® Processor W 4.8GT/s (giga-transfers/sec Intel 64, Hyper-Threading 7 Turbo Boost Technology, 10 and 8MB cache or Intel Xeon Processor W36 6.4GT/s QPI, Intel 64, Hype Virtualization Technology, 7 1333MHz DDR3 memory of One LGA1366 socket  | cond) QPI (QuickPath Int<br>Technology, Virtualization<br>066MHz DDR3 memory of<br>680 with six-core,<br>er-Threading Technology,<br>Turbo Boost Technology,  | erconnect),<br>Technology,<br>controller,   | • Rav<br>• 6.9"<br>• 175<br>• 38.5<br>• 31-l<br>• Ren<br>• Tool  | ren black<br>W x 19.0<br>mm W x<br>5 lb (17.5<br>iter<br>novable h<br>lless side  | color; metal<br>"D x 18.8"H<br>483mm D x<br>kg) max cor<br>nandle on to  | (with h<br>478mm<br>figurati<br>p front<br>val  | n H Ó   | optic optic  me dis dis dis   | edia   |  |
| Implementation Memory  | 4GB or 6GB std, 48GB ma PC3-10600 1333MHz DDR 3-channel capable, six 240 *** System automatically cl DDR3 memory controller   | 3***, ECC,<br>-pin DIMM sockets   | s with 1066MHz  |  |   |  |   |   |   |  |  |
| Graphics   | Two PCI Express® x16 ada * Adapters >75W use auxil Some: NVIDIA® Quadro® two DisplayPort™, Some: NVIDIA Quadro F; two DisplayPort, or Some: NVIDIA Quadro F; two DisplayPort, or Some: NVIDIA Quadro Quadro P;  | iary power connector(s) if FX 580, PCIe x16 adaptone dual-link DVI-I***, 4 X 1800, PCIe x16 adaptene dual-link DVI-I***, 59\X 3800, PCIe x16 adaptene dual-link DVI-I***, 108000, PCIe x16 adapter, 10801, PCIe x16 adapter, 10900, PCIe x16 adapter, 21 ne dual-link DVI-I***, 62                          | Bay @ Bay @ Bay @ Bay @ Slot 1 Slot 2 Slot 3 Slot 5                                     | <ul> <li>5.25",</li> <li>3.5",</li> <li>3.5",</li> <li>3.5",</li> <li>(a) 3.5",</li> <li>(b) 4.1 lenge</li> <li>(c) 5 lenge</li> <li>(c) 6 lenge</li> <li>(d) 7 lenge</li> <li>(d) 8 lenge</li> <li>(e) 6 lenge</li> <li>(e) 7 lenge</li> <li>(e) 7 lenge</li> <li>(e) 8 lenge</li> <li>(e) 9 lenge</li> <li>(e) 1 lenge</li> <li>(e) 1 lenge</li> <li>(e) 2 lenge</li> <li>(e) 2 lenge</li> <li>(e) 3 lenge</li> <li>(e) 4 lenge</li> <li>(e) 5 lenge</li> <li>(e) 6 lenge</li> <li>(e) 7 lenge</li> <li>(e) 8 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e) 9 lenge</li> <li>(e</li></ul> | 1.6" high, e<br>1" high, e<br>1" high, ii<br>1" high, ii<br>1" high, ii<br>gth, full-hei<br>gth, full-hei<br>gth, full-hei<br>gth, full-hei | external<br>external,<br>nternal,<br>nternal,<br>ght, PC<br>ght, PC<br>ght, PC<br>ght, PC                            | opt dis<br>opt dis<br>Sle 2.0 x<br>Sle 2.0 x<br>Sle 2.0 x   | edia read<br>sk<br>sk<br>sk<br>16 (75W <sup>1</sup><br>1**  | * max)  |  |  |
| Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk controller  | 20-in-1 media reader, intern<br>Some: 500GB, SATA 3.0G<br>Some: 150GB, SATA 3.0G<br>Some: 146GB, SAS 3.0Gl<br>Super Multi-Burner DL DVI<br>Serial ATA, SATA 3.0Gb/s,<br>three SATA connectors for<br>SAS model(s): Marvell® 8<br>SATA 3.0G  | Bb/s, 7200 rpm, 3.5"<br>bb/s, 10000 rpm, 2.5"<br>bb/s, 15000 rpm, 3.5"<br>bb±RW SATA 1.5Gb/s Driv<br>integrated in ICH10R,<br>disks, two SATA connect   | ors for opticals  |  |   | Security     Side cov<br>keys)     Padlock<br>padlock     Security<br>Kensingt                                       | chip (ser lock<br>loop (in<br>prohibit<br>slot (in  | (ships w<br>rear for<br>s side co<br>rear for   | nation or<br>ith two id<br>opt pad<br>over rem<br>optional  | dentical<br>llock;   |  |
| Chipset  | Intel X58 Express Chipse (ICH10R) for RAID 0, 1, 5 s  |   |   | er I/O   |   | prohibits • Power-or • Administ  | side co<br>n passv  | over rem<br>vord  |   |  |  |
| Front ports Rear ports IEEE 1394 adpt  |   | ial (9-pin), ethernet (RJ-4<br>-in, mic-in, front-out, rea<br>Optical SPDIF digital in  | l5),<br>r-out, center/sub   | o-out, sid   | e-out),   | Boot sec.     Boot with     Serial po     USB por  | luence<br>hout key<br>ort I/O c   | control<br>yboard, i<br>ontrol  | ŕ   |  |  |
| Audio<br>Speaker<br>Ethernet<br>Security chip  | High Definition (HD) Audio,<br>Internal speaker for busine<br>One gigabit ethernet on pla<br>Broadcom Trusted Platform  | ss audio<br>anar, Broadcom® BCM57   | 55  |  |   | Please visit   | www.le  |   |   | ort/ISV  |  |
| Keyboard<br>Mouse<br>Power supply  | Preferred Pro USB Keyboa<br>Optical Wheel Mouse (USE<br>625 watts with 120mm bott   | ard (USB connector), 104<br>3 connector), black   | -key, black   | val  |   | GREENGU<br>RoHS-com<br>EPEAT™ (  | pliant  |   |   |  |  |
| Cooling<br>Rack mount  | Climate Savers® Computing 3 to 5 fans (power supply, CRack shelf support  | g Bronze, 80 PLUS® Bror   | nze qualified   | -  | nt [SAS])   | L  | arts an   |   |   | RU)  |  |
| - Genuine Win<br>Professional<br>Preloaded applisted)<br>• Rescue and<br>• Microsoft Off<br>purchase pre<br>• Roxio® Creat<br>(DVD±RW)<br>• Corel® WinD  | 64 olications <sup>5</sup> (only some   | Accessories 2GB PC3-10600 DDR3 4GB PC3-10600 DDR3 500GB SATA 3.0Gb/s Disk Blu-ray™ Burner SATA ThinkVision® L2440p W Other accessories at le  | ECC UDIMM<br>Disk (7200 rpm)<br>( (7200 rpm)<br>1.5Gb/s<br>ide 24" Monitor              | 57Y<br>43R<br>45J<br>45K<br>442  | 82033<br>(4138<br>81990<br>7918<br>(1675<br>0HB2  | parts or for sele Mon - F next but Lenovo-lenovo-lenovo-lenovo-lenovo-vorsite s (in eligili Post wa services 24 hour | nly (with cted particular particular | n limited<br>rts³, 8 ar<br>rage excl<br>day resp<br>es availa<br>rvices_w<br>ty.html<br>upgrade<br>ations) <sup>7</sup><br>maintena | onsite s<br>m - 5 pm<br>luding h-<br>conse tin<br>ble; see<br>varranty/<br>e options<br>ance<br>ee supportiod | service<br>,<br>olidays,<br>ne)<br>/us/en/   |  |

Diekotto

| Type- Slo<br>Name model ba   | ot x<br>ay Processor(   | s)GHz Core   | Memory<br>s DIMMs   | Memory<br>type   | Disk(s)   | Disk<br>size                 | Pre-co                |   | g SATA<br>optical   | Diskette<br>or Media<br>reader   | Graphics adapter(s)   | 1394<br>adptr  | Win7<br>preload                                   | Avail<br>date  |
|--|---|--|---|--|---|------------------------------|-----------------------|---|---|--|---|--|---|--|
| D20 4155-B6U 63<br>D20 4155-B7U 63<br>D20 4155-E1U 63<br>D20 4155-F1U 63<br>D20 4155-E9U 63<br>D20 4155-G1U 63   | x9 1xE5620<br>x9 1xE5620<br>x9 1xX5650<br>x9 1xE5620  | 2.40 4<br>2.66 6<br>2.40 4   | 2x2GB<br>2x2GB<br>2x2GB   | UDIMM<br>RDIMM<br>UDIMM<br>UDIMM   | 1x500GB <sup>2</sup> SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA<br>1x500GB SATA             | 3.5"<br>3.5"<br>3.5"<br>3.5" | No<br>No              |   | OVD±RW<br>OVD±RW<br>OVD±RW<br>OVD±RW<br>OVD±RW<br>OVD±RW  | Media<br>Media<br>Media<br>Media   | 1xFX580<br>1xFX1800<br>1x4000<br>1x2000<br>1x600  | 1394<br>1394<br>1394<br>1394<br>1394   | Pro64<br>Pro64<br>Pro64<br>Pro64                  | Mar 10<br>Mar 10<br>Sep 10<br>Oct 10<br>Oct 10<br>Nov 10 |
|  | <ul> <li>These</li> </ul>   | models hav   | ve a 3-yea  | ar limited   | (SMB) models ar<br>warranty¹<br>e 2010 Product K  | •                            |                       |   | •   | r™ Prog  | ram   |  |   |  |
| Processor  | Intel 64, Virtu<br>800MHz DD<br>Intel Xeon F<br>5.86GT/s QF<br>Virtualization   | Processon a-transfers, ualization T R3 memory Processor PI, Intel 64, n Technologo DR3 memo Processor I, Intel 64, n Technologo DR3 memo DR3 memo  | or E5507<br>/second)<br>/sechnology<br>/y controll<br>E5620 wi<br>Hyper-Theory<br>/y contro<br>X5650 wi<br>Hyper-Theory<br>/y Turbo | with quad<br>QPI (Quidy,<br>er, and 4N<br>ith quad-of<br>hreading Boost Teo<br>Iller, and 1<br>ith six-co<br>reading Te<br>Boost Teo | d-core,<br>ckPath Interconn<br>MB cache or<br>core,<br>Technology,<br>chnology,<br>12MB cache or<br>re,<br>echnology, | ect)                         | •                     | 8.3<br>21<br>60<br>55<br>Re<br>Too<br>Too<br>Illu | aven black<br>3"W x 23.<br>0mm W x<br>lb (27.1k<br>-liter<br>emovable<br>olless sid<br>olless dis<br>olless ada<br>uminated | 7"D x 19 c 602mm g) max c handle c e cover r k and op apter rete front icor                                      | tical drive re<br>ention  | H ´  |   | ical ical nedia  sk sk sk sk                             |
| Memory   | UDIMM Mod<br>RDIMM Mod<br>192GB max<br>PC3-10600 Go-channel c<br>twelve 240-p<br>** System au<br>or 1066MHz<br>*** Over six     | del (s): 4GB<br>(pending 1<br>1333MHz D<br>apable (3-cl<br>bin DIMM so<br>utomatically<br>DDR3 mer   | std,<br>6GB RDI<br>DR3**, E<br>hannel pe<br>ockets***<br>r clocks c<br>mory con   | MM availact. CC, er process lown for p troller   | ability);<br>sor),<br>processors with 8   | 00MH                         | E<br>E<br>E<br>E<br>E | Bay<br>Bay<br>Bay<br>Bay<br>Bay<br>Bay<br>Bay     | ② 5.25",<br>③ 5.25",<br>④ 3.5",<br>⑤ 3.5",<br>⑥ 3.5",<br>⑦ 3.5",  | 1.6" hig<br>1.6" hig   | external,<br>internal,<br>internal,   | std op<br>open<br>open<br>std me<br>std dis<br>opt dis<br>opt dis<br>opt dis   | edia read<br>k<br>sk<br>sk<br>sk                  | er   |
| Graphics   | * Adapters > Some: NVII two   Some: NVIII two   Some: NVIII one Some: NVIII wwo   Some: NVIII wo   Some: NVIII wo   Some: NVIII | 75W use a DIA® Quadro Quadro DisplayPort DIA Quadro DisplayPort DIA Quadro DisplayPort DIA Quadro DisplayPort DIA Quadro DisplayPort DIA Quadro DisplayPort DISplayPort DISplayPort DISplayPort DisplayPort DisplayPort DisplayPort DisplayPort DisplayPort DISplayPort Displa | uxiliary p ro® FX 58 ™, one du b FX 180 t, one du c 600, PC t, one du c 2000, F c one du c 4000, F c. one du                        | ower con<br>80, PCle x<br>ual-link DV<br>0, PCle x<br>al-link DV<br>Cle x16 a<br>al-link DV<br>PCle x16 a<br>al-link DV              | adapter, 1GB,<br>I-I****, 62W<br>adapter, 2GB,<br>I-I****, one stered   | SU''<br>MB,<br>MB,           |                       | Slot<br>Slot<br>Slot<br>Slot                      | 2: full-len<br>3: full-len<br>4: full-len<br>5: full-len  | egth, full-<br>ligth, full-<br>ligth, full-<br>ligth, full-<br>ngth, full-<br>• Seci<br>• Side<br>keys<br>• Padl | urity chip (se<br>cover lock (s<br>s)<br>ock loop (in l   | 2.0 x16<br>PCI 2.3<br>2.0 x16<br>x4 (x16<br>bit PCI 2<br>CURITY<br>e informations with   | 3 (75W* n to mechar 2.3 )  nation on the two ides | nax) nical)  left) entical ock;                          |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller  |   | ia reader, ir<br>A 3.0Gb/s,<br>Burner DL<br>nectors for d<br>connector   | 7200 rpn<br>DVD±RW<br>opticals, S<br>rs for disk  | n, 3.5"<br>/, SATA 1.<br>SATA 3.00<br>ks, SATA 3   | Gb/s, integrated in<br>3.0Gb/s, SAS 3.0   |                              |                       |   |   | Seci Kens proh     Pow     Adm     Bool     Bool     Seri  | ock prohibits urity slot (in r sington® Micr ibits side cov er-on passwe iinistrator pas t sequence c t without keyl al port I/O co | ear for or cosaver or removed or removed or removed on the cost of | optional<br>cable;<br>oval)                       | iskette  |
| Chipset  | Intel 5520 C<br>Intel ICH10,  |  | W83627[   | DHG-P St   | uper I/O  |                              |                       |   |   | • USB  | port disable  | ment (fi   |   | 1)   |
| Front ports  Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)  Rear ports  Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, |   |  |   |  |   |                              |                       |   |   | GREE<br>RoHS   | e visit www.le<br>NGUARD®c<br>-compliant<br>T™ Gold rati  | novo.co<br>ertified<br>ng  | m/suppo   | ort/ISV  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip   | Optical SPD<br>Some: Fire\<br>High Definiti<br>Internal spea<br>Dual gigabit<br>Broadcom Ti                                     | IF digital in Wire PCI acon (HD) Auaker for bus ethernet or usted Platf  | dapter, 13<br>dio, Anal<br>siness au<br>n planar,<br>form Mod   | 394a-2000<br>og Device<br>dio<br>Broadcon<br>ule, TCG  | 0, 400Mbps, two<br>es AD1988A code<br>n <sup>®</sup> BCM5755 and<br>1.2-compliant                                     | 6-pin<br>ec<br>I BCM         |                       | on r  | rear  | Cus     par     for     Mo   | LIMITED ear parts and stomer Repla ts only (with selected par n - Fri covera  | l labor<br>iceable<br>limited<br>ts³, 8 an   | Unit (CR<br>onsite s<br>n - 5 pm,<br>uding ho     | ervice<br>olidays,                                       |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | Optical Whe<br>1060 watts w<br>Climate Save<br>Five fans (po  | el Mouse (l<br>vith 120mm<br>ers® Compu<br>ower supply   | JSB coning bottom-<br>uting Brown, first pro  | nector), bl<br>mounted<br>nze, 80 Pl<br>cessor, s  | ector), 104-key, bl<br>lack<br>variable speed fa<br>LUS® Bronze qua<br>econd processor,<br>c mount rail kit su        | ın, uni<br>lified<br>rear,   | front c               |   | )   | <ul><li>✓ Ler len len len (in</li></ul>  | ort business de<br>novo services<br>ovo.com/service<br>ovo-warranty<br>site service u<br>eligible locate<br>st warranty m           | s availal<br>vices_w<br>v.html<br>upgrade<br>ions) <sup>7</sup>  | ble; see<br>varranty/<br>options                  | us/en/   |
| Preloaded oper - Genuine Wind  | • •   |  |   |  |   |                              |                       |   |   | ser  | vices<br>hour x 7 day<br>ing the warra  | 4 toll-fre   | ee suppo  | ort  |

| Type- Slo  |  | , Memory  | Disk   | Pre-coi               | nfig SATA   | Diskette<br>or Media  | Graphics   | 1394   | Win7  | Avail  |
|--|--|---|--|-----------------------|---|---|--|--|---|--|
| <b>D20</b> 4158-A9U 62   | x9     1xE5507     2.26     4     2x2GB       x9     1xE5640     2.66     4     2x2GB       x9     1xE5620     2.40     4     2x2GB       x9     1xE5507     2.26     4     2x2GB       x9     1xE5620     2.40     4     2x2GB       x9     1xE5630     2.53     4     2x2GB       x9     1xE5640     2.66     4     2x2GB       x9     1xX5660     2.80     6     2x2GB  | 1333MHz 1x500GB <sup>2</sup> SATA<br>1333MHz 1x300GB SAS<br>1333MHz 1x300GB SAS<br>1333MHz 1x500GB SATA<br>1333MHz 1x500GB SATA<br>1333MHz 1x500GB SATA<br>1333MHz 1x500GB SATA<br>1333MHz 1x500GB SATA<br>1333MHz 1x300GB SAS<br>1333MHz 1x300GB SAS                               | 3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5" | No<br>No<br>No<br>No  | DVD±R¹ DVD±R¹ DVD±R¹ DVD±R¹ DVD±R¹ DVD±R¹ DVD±R¹ DVD±R¹ DVD±R¹ DVD±R¹   | W Media<br>W Media<br>W Media<br>W Media<br>W Media<br>W Media<br>W Media   | 1xNVS295<br>1xFX1800<br>1x5000<br>1x2000<br>1x2000<br>1x2000<br>1x2000<br>1x2000<br>1x2000<br>1x5000   | 1394<br>1394<br>1394<br>1394<br>1394<br>1394<br>1394<br>1394                                     | Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64   | Mar 10<br>Mar 10<br>Oct 10<br>Oct 10<br>Nov 10<br>Nov 10<br>Nov 10<br>Nov 10 |
|  | These systems are Micros   | soπ <sup>®</sup> Office 2010 Product K  | еу не  | ady (U                | 10PKR)  |   |  |  |   |  |
| Processor  | Up to two processors, one processor E5503 4.8GT/s (giga-transfers/second) Intel 64, Virtualization Technolog 800MHz DDR3 memory control Intel Xeon Processor E5507 w 4.8GT/s QPI, Intel 64, Virtualization Intel Xeon Processor E5620, E 5.86GT/s QPI, Intel 64, Hyper-T Virtualization Technology, Turbo 1066MHz DDR3 memory control Intel Xeon Processor X5660 w 6.4GT/s QPI, Intel 64, Hyper-Tr Virtualization Technology, Turbo 1333MHz DDR3 memory control Two LGA1366 sockets  | with dual-core, QPI (QuickPath Interconn gy, ler, and 4MB cache or ith quad-core, tion Technology, ler, and 4MB cache or 56630, or E5640 with quad hreading Technology, Boost Technology, ller, and 12MB cache or ith six-core, rreading Technology, Boost Technology,              |  |                       | 8.3"W x 2<br>210mm W<br>60 lb (27.<br>55-liter<br>Removab<br>Toolless s<br>Toolless s<br>Toolless a<br>Illuminate<br>Rack she | x 602mm<br>1kg) max c<br>e handle c<br>ide cover i<br>isk and op<br>dapter ret<br>d front ico<br>f support c              | 1.1"H (with hat D x 485mm configuration on top front removal stical drive reention as or optional rath, external,  | H ´  | optid optid optid optid idisidisidisidisidisidisidisidisidisi   | cal cal cal cal cal cal cal cal cal cal                                      |
| Implementation Memory  | 2GB or 4GB std, 96GB max, UPC3-10600 1333MHz DDR3**, I6-channel capable (3-channel below 240-pin DIMM sockets***  ** System automatically clocks or 1066MHz DDR3 memory cor  *** Over six DIMMs requires duals.  | ECC,<br>er processor),<br>down for processors with 8<br>troller   | 00MH   | B B B B B B B B B B   | ay 3 5.25<br>ay 4 3.5"<br>ay 5 3.5"<br>ay 6 3.5"<br>ay 7 3.5"<br>ay 8 3.5"<br>ay 9 3.5"                                       | ", 1.6" hig<br>, 1" high,<br>, 1" high,<br>, 1" high,<br>, 1" high,<br>, 1" high,   | h, external,<br>external,<br>internal,<br>internal,<br>internal,<br>internal,  | open<br>std me<br>std dis<br>opt dis<br>opt dis<br>opt dis                                       | sk<br>sk<br>sk<br>sk  | ler  |
| Graphics   | Two PCI Express® x16 adapters * Adapters >75W use auxiliary p Some: NVIDIA® Quadro® NVS two DisplayPort™, 23W Some: NVIDIA Quadro FX 18t two DisplayPort, one du Some: NVIDIA Quadro 600, P one DisplayPort, one du Some: NVIDIA Quadro 2000, two DisplayPort, one du NVIDIA Quadro 5000, two DisplayPort, one du ***** Only two display connectors  | power connector(s) from PS<br>295, PCIe x16 adapter, 25<br>200, PCIe x16 adapter, 768N<br>Ial-link DVI-I***, 59W<br>CIe x16 adapter, 1GB,<br>Ial-link DVI-I, 40W<br>PCIe x16 adapter, 1GB,<br>Ial-link DVI-I****, 62W<br>PCIe x16 adapter, 2.5GB,<br>Ial-link DVI-I****, one sterec | SU''<br>66MB,<br>MB,   | ort, S<br>S<br>S<br>S | lot 2: full-l<br>lot 3: full-l<br>lot 4: full-l<br>lot 5: full-l  | ength, full-<br>ength, full-<br>ength, full-<br>length, full-<br>length, full<br>• Sec<br>• Side<br>keys<br>• Pad<br>padl | height, PCle height, 32-bi height, PCle height, PCle -height, 32-b  SE  urity chip (se e cover lock (s) lock loop (in ock prohibits  | 2.0 x16<br>t PCI 2.0<br>2.0 x16<br>x4 (x16<br>bit PCI 2<br>CURITY<br>e inform<br>ships wi        | 3 6 (75W* r 6 mechar 2.3  | nax) nical)  left) lentical lock;  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller                                | None (use USB port) 20-in-1 media reader, internal U Some: 500GB, SATA 3.0Gb/s, Some: 300GB, SAS 3.0Gb/s, 1 Super Multi-Burner DL DVD±RV 3 SATA connectors for opticals, 5 SATA/SAS <sup>4</sup> connectors for dis RAID <sup>8</sup> 0, 1, 5, 10, integrated in I   | ISB 2.0<br>7200 rpm, 3.5"<br>5000 rpm<br>5000 rpm<br>5000 rpm<br>5000/s, SATA 1.5Gb/s<br>SATA 3.0Gb/s, integrated in<br>ks, SATA 3.0Gb/s, SAS 3.0   |  |                       |   | Ken:<br>proh<br>• Pow<br>• Adm<br>• Boo<br>• Boo<br>• Seri  | urity slot (in r<br>sington® Micro<br>ibits side cover-on passwa<br>inistrator past<br>t sequence cot<br>t without key<br>al port I/O co<br>B port disable   | rosaver <sup>®</sup> ver remonder ssword ontrol board, rentrol                                   | © cable;<br>oval)<br>mouse, d   |  |
| Chipset  | Intel 5520 Chipset,<br>Intel ICH10, Winbond® W83627  | DHG-P Super I/O   |  |                       |   | Diagon  |  | certific   |   | owt/IC)/   |
| Front ports Rear ports   | Two USB 2.0, microphone (3.5n<br>FireWire 400 (IEEE 1394a)<br>Eight USB 2.0, eSATA, serial (9<br>FireWire 400 (IEEE 1394a),<br>six analog audio ports (line-in, r  | -pin), two ethernet (RJ-45), nic-in, front-out,   |  |                       |   | GREE<br>RoHS  | e visit www.le<br>ENGUARD® c<br>-compliant<br>T™ Gold rati   | ertified<br>ng   |   | UTVISV   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip<br>Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount | rear-out, center/sub-out, side or Optical SPDIF digital in FireWire PCI adapter, 1394a-20 High Definition (HD) Audio, Ana Internal speaker for business at Dual gigabit ethernet on planar, Broadcom Trusted Platform Mor Preferred Pro USB Keyboard (LOptical Wheel Mouse (USB con 1060 watts with 120mm bottom Climate Savers® Computing Bro Five fans (power supply, first pro Rack shelf support or optional second control of the con | 000, 400Mbps, two 6-pin polog Devices AD1988A code idio Broadcom® BCM5755 and dule, TCG 1.2-compliant ISB connector), 104-key, blactor), black mounted variable speed fance, 80 PLUS® Bronze quapoessor, second processor,  | ack<br>an, unidified<br>rear,                                | versal,               |   | Cu pai for Moo ne)  Let len len (in Poi ser 24  | ear parts and stomer Replacts only (with selected par n - Fri coverat business do novo service: ovo-com/ser ovo-warranty site service i eligible locats the warranty novices hour x 7 day ring the warr. | d labor aceable limited ts³, 8 arage exclay resps availal vices_w, html upgrade tions)7 naintena | Unit (CF<br>onsite s<br>m - 5 pm,<br>luding he<br>conse tim<br>ble; see<br>varranty/<br>e options<br>ance | polidays,<br>ne)<br>us/en/   |

| Type-   | Slot x<br>bay Processor  | GHz Co   |   | Memory<br>speed  | Disk(s)  | Disk<br>size   | Pre-con   |                                      | SATA ptical  | Diskette<br>or Media<br>reader                                      | Graphics adapter(s)  |   |  |   | Avail<br>date                     |  |
|---|--|--|---|--|--|--|---|--------------------------------------|--|---|--|---|--|---|-----------------------------------|--|
| \$20 4157-D7U<br>\$20 4157-D8U<br>\$20 4157-D9U<br>\$20 4157-E1U  | 5x6 E5507<br>5x6 E5507<br>5x6 W3530  | 2.26 4<br>2.26 4<br>2.80 4   | 1 1x2GB<br>1 2x2GB<br>1 1x2GB   | 1333MHz<br>1333MHz<br>1333MHz  | 1x500GB <sup>2</sup><br>1x500GB<br>1x500GB<br>1x500GB                          | 3.5"<br>3.5"<br>3.5"                                 | No<br>No<br>No  | DVI<br>DVI<br>DVI                    | D±RW<br>D±RW<br>D±RW   | Media<br>Media<br>Media   | 1xV3700<br>1xFX1800<br>1xFX380<br>1xFX580  | 1394<br>1394  | Pending  | Pro64<br>Pro64<br>Pro64   | Mar 10<br>Mar 10<br>Mar 10        |  |
|   | <ul><li>High p</li><li>Enviro</li><li>Innova</li><li>These</li></ul>   | erformai<br>nmentall<br>tive ther<br>models i                                      | ficient arch<br>nce worksta<br>ly friendly, c<br>mal design<br>have a 3-yea<br>are Micros | tion with p<br>ool, and q<br>with optin<br>ar limited v  | oremium gi<br>uiet with ro<br>nized fan p<br>varranty                          | raphic<br>ock so<br>lacem                            | s for sp<br>lid engi<br>ent, for  | ecial<br>neeri<br>a cod              | lized pi<br>ing<br>oler, qu  | rofessio<br>uieter, m   |  | PC  |  |   |                                   |  |
| Processor   | Intel Xeon® 4.8GT/s (gig Intel 64, Hy) Turbo Boos 1066MHz D Intel Xeon Intel 64, Viri 800MHz DE Processor u        | ga-transf<br>per-Thre<br>Technol<br>DR3 me<br>Process<br>tualization<br>DR3 men    | ers/second) ading Techr logy (up to 3 mory contro or E5507 w on Technology ory control    | QPI (Quid<br>sology, Virt<br>3.06GHz a<br>bller, and 8<br>ith <b>quad-c</b><br>gy,<br>er, and 4N | ckPath Inte<br>ualization<br>t max turbo<br>MB cache<br>core,<br>MB cache      | Techno<br>o mode<br>or                               | ology,  | •                                    | 6.9"W<br>175m<br>38.5 ll<br>31-lite<br>Remo  | / x 19.0"<br>m W x 4<br>b (17.5ker<br>er<br>evable ha<br>ess side ( | olor; metal<br>D x 18.8"H<br>83mm D x<br>g) max con<br>andle on top<br>cover remo                        | (with h<br>478mn<br>ifigurati<br>p front<br>val   | n H<br>ion   | optic | al                                |  |
| Memory  | 2GB or 4GE<br>PC3-10600<br>3-channel c<br>*** System a<br>or 1066MHz   | 1333MH<br>apable, s<br>automati  | <b>z DDR3</b> ***,<br>six 240-pin l<br>cally clocks                                       | ECC,<br>DIMM sock<br>down for p  | 300MHz   |  | Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons     Rack shelf support |                                      |  |   |  |   |  |   |                                   |  |
| Graphics  | Two PCI Ex * Adapters : Some: NVI two Some: NVI two Some: ATI two **** Only tw                                     | SU <sup>TT</sup><br>MB,<br>3,<br>MB,   |   | Bay ② Bay ③ Bay ④ Bay ⑤ Bay ⑤ Bay ⑥ Blot 1: 1 Blot 2: 1 Blot 3: 1                                | 5.25", 1, 3.5", 1' 3.5", 1' 3.5", 1' 3.5", 1' full-lengt full-lengt full-lengt | .6" high, e<br>" high, e<br>" high, ir<br>" high, ir | externa<br>external<br>nternal<br>nternal<br>ght, PC<br>ght, PC<br>ght, PC<br>ght, PC                                     | Cle 2.0 x4°<br>Cle 2.0 x16<br>Cle x1 | dia read<br><  | max)  |  |   |  |   |                                   |  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller  | 20-in-1 med<br><b>500GB</b> , SA'<br>Super Multi-<br>Serial ATA,<br>three SATA                                     | TA 3.0Gb<br>Burner I<br>SATA 3.0   | o/s, 7200 rp<br>DL DVD±RV<br>)Gb/s, integ   | m, 3.5"<br>V SATA 1.5<br>rated in IC   | H10R,  |  | opticals  |                                      | ** x16 mechanical  SECURITY  • Security chip (see information on le side cover lock (ships with two ider keys) |   |  |   |  |   |                                   |  |
| Chipset   | Intel X58 E:<br>(ICH10R) fo<br>Winbond® V  | r RAID (   | ), 1, 5 supp  | ort,   | troller Hub  | 10 RA  | AID   |                                      |  |   |  | prohibit  | ts side cov  | ver remo  |                                   |  |
| Front ports Rear ports  IEEE 1394 adp Audio Speaker Ethernet Security chip  | Two USB 2. Eight USB 2 six analog a Optical SPirel tr Some: Firel High Definit Internal spe One gigabit Broadcom T | 2.0, eSA<br>ludio por<br>DIF digita<br>Vire PCI<br>ion (HD)<br>aker for<br>etherne | TA, serial (9 ts (line-in, r l out, Optica adapter, 13 Audio, Ana business aut on planar, | pin), ethe<br>nic-in, fron<br>al SPDIF d<br>94a-2000<br>log Device<br>idio<br>Broadcom           | rnet (RJ-45<br>t-out, rear-<br>igital in<br>400Mbps<br>s AD1988                | 5),<br>out, co<br>, two 6<br>A code                  | -pin po   |                                      | •  | ,,  | Kensingt<br>prohibits Power-or Administ Boot seq Boot with Serial po USB por                             | on® Mic<br>side con<br>passy<br>rator pa<br>puence<br>nout ke<br>ort I/O cont<br>t disable  | assword<br>control<br>yboard, m<br>control<br>lement (fro  | cable;<br>val)<br>nouse, d  | l)                                |  |
| Keyboard Mouse Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 625 watts with 120mm bottom-mounted variable speed fan, univ Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified 3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphi Rack mount   |  |  |   |  |  |  |   |                                      | ot front   |   | Supports T<br>GREENGL<br>RoHS-com<br><i>Pending:</i> E   | JARD®<br>pliant   | certified  |   |                                   |  |
| Preloaded operating system <sup>20</sup> - Genuine Windows® 7 Professional 64  Preloaded applications⁵ (only some listed) • Rescue and Recovery™ • ThinkVantage System Update • Norton Internet Security™ (30 days of virus definitions) • Adobe® Reader® • Microsoft Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW) • Corel® WinDVD® (DVD±RW) |  |  |   |  |  |  |   |                                      | 43R2l<br>57Y4<br>43R1l<br>45J79<br>45K1l<br>4420h<br>43R1l<br>51J05<br>ries                                    | 033<br>138<br>990<br>918<br>675<br>HB2<br>765                       | 3-year p Custom parts or for selet Mon - Fi Lenovo lenovo-w Onsite s (in eligil Post wa services 24 hour | earts ar<br>er Rep<br>hly (with<br>cted particover<br>siness<br>service<br>com/se<br>varranty<br>service<br>ble loca<br>rranty<br>s | laceable L h limited of urts³, 8 am rage exclu day responses availab exvices_wa html upgrade of ations)² maintenan | Jnit (CR<br>onsite so<br>- 5 pm,<br>uding ho<br>onse tim<br>le; see<br>urranty/us<br>options<br>nce   | ervice<br>blidays,<br>e)<br>s/en/ |  |

Disk Pre-conf SATA or Media Graphics ENERGY Win7 size RAID optical reader adapter(s) STAR 5.0 preload Global Slot x Proc- Memory Memory bay essor(s) GHz Cores DIMMs speed Avail Type-Name model Slot x Proc-Disk(s)

**D20** 4158-87U 6x9 1xE5540 2.53 4 2x2GB 1066MHz 1x500GB<sup>2</sup> SATA 3.5" No DVD±RW No 1xFX1800 Pending Pro64 Global Jan 10

- Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
- · Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
   This model has a 3-year limited warranty<sup>1</sup>
- This system is Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation  | 1066MHz ĎĎR3 memor  | ne processor standard,<br><b>E5540</b> with <b>quad-core</b> ,<br>s/second) QPI (QuickPath Interconnect),<br>y controller, and 8MB cache<br>8 package, two LGA1366 sockets  | • 8.3"W x 23.7<br>• 210mm W x   | color; metal case ""D x 19.1"H (with handle) 602mm D x 488mm H  optical optical optical optical optical optical   |
|--|---|---|---|---|
| Memory   | 4GB std, 48GB max, UI<br>6-channel capable (3-ch<br>twelve 240-pin DIMM so<br>** Over six DIMMs requi   | ockets**  | <ul><li>55-liter</li><li>Removable I</li><li>Toolless side</li><li>Toolless disk</li></ul>                          | nandle on top front e cover removal and optical optical   |
| Graphics   | * Adapters >75W use at NVIDIA® Quadro® FX 1768MB, two DisplayPort   | adapters required for quad monitor support, uxiliary power connector(s) from PSU 800, PCI Express® (PCIe) x16 adapter, one dual-link DVI-l***, 59W nectors are active at a time   |   | ront icons upport or optional rail kit disk disk disk disk disk   |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller  | 3 SATA connectors for o 5 SATA/SAS <sup>4</sup> connectors  | 7200 rpm, 3.5"  DVD±RW, SATA 1.5Gb/s pticals, SATA 3.0Gb/s, integrated in ICH10; s for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, ated in Marvell® 88SE6480  | Bay 2 5.25",<br>Bay 3 5.25",<br>Bay 4 3.5",<br>Bay 5 3.5",<br>Bay 6 3.5",<br>Bay 7 3.5",                            | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, opt disk 1" high, internal, opt disk 1" high, internal, opt disk   |
| Chipset  | Intel 5520 Chipset,<br>Intel ICH10, Winbond® V  | V83627DHG-P Super I/O   | Slot 1: half-len  | ngth, full-height, PCIe x1 gth, full-height, PCIe 2.0 x16 (75W* max)  |
| Front ports Rear ports   | Two USB 2.0, microphor<br>FireWire 400 (IEEE 139  | ne (3.5mm), headphone (3.5mm),<br>4a)<br>serial (9-pin), two ethernet (RJ-45),<br>4a),  | Slot 3: full-lend<br>Slot 4: full-lend<br>Slot 5: full-lend   | gth, full-height, 32-bit PCI 2.3<br>gth, full-height, 32-bit PCI 2.3<br>gth, full-height, PCIe 2.0 x16 (75W* max)<br>gth, full-height, PCIe x4 (x16 mechanical)<br>gth, full-height, 32-bit PCI 2.3   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip<br>Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount   | rear-out, center/sub-out. Optical SPDIF digital in None High Definition (HD) Aud Internal speaker for busi Dual gigabit ethernet on Broadcom Trusted Platfor Preferred Pro USB Keyt Optical Wheel Mouse (U 1060 watts with 120mm Climate Savers® Compu Five fans (power supply, | , side out), Optical SPDIF digital out, dio, Analog Devices AD1988A codec iness audio planar, Broadcom® BCM5755 and BCM575 orm Module, TCG 1.2-compliant board (USB connector), 104-key, black  | sal,  | SECURITY  • Security chip (see information on left) • Side cover lock (ships with two identical keys)  • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette  |
|  | /antage® technologies   | onanig rack mount rail kit capport  |   | Serial port I/O control     USB port disablement (front or all)   |
| - Genuine Wine<br>Professional (Preloaded app<br>listed) - Rescue and Foundation of the Professional (Professional Applications) - Adobe® Reacont of the Professional (Professional Applications) - Adobe® Reacont of the Professional (Professional Applications) | lications <sup>5</sup> (only some Recovery™ System Update et Security™ virus definitions) er ce 2010 preloaded; duct key to activate or® Business Edition   | Accessories  1GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-8500 DDR3 ECC UDIMM 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/access | 51J0503<br>51J0504<br>43R2032<br>43R2033<br>57Y4138<br>45J7918<br>45K1675<br>43R1765<br>45K1671<br>51J0511<br>ories | GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant  LIMITED WARRANTY¹  3-year parts and labor Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) Lenovo services available; see lenovo.com/services_warranty/us/en/ lenovo-warranty.html Onsite service upgrade options (in eligible locations)² Post warranty maintenance |

24 hour x 7 day<sup>14</sup> toll-free support during the warranty period1

| Type<br>Name mod  |        | x<br>Processo | r GHz | Cores | Memory<br>DIMMs |         |                      | Disk<br>size |    | f SATA optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | ENERGY<br>STAR 5.0 | Win7<br>preload | Global | Avail<br>date |
|-------------------|--------|---------------|-------|-------|-----------------|---------|----------------------|--------------|----|----------------|--------------------------------|---------------------|--------------------|-----------------|--------|---------------|
| <b>S20</b> 4157-l | 31U 5x | W3520         | 2.66  | 4     | 2x2GB           | 1066MHz | 1x500GB <sup>2</sup> | 3.5"         | No | DVD±RV         | V No                           | 1xFX1800            | Pending            | Pro64           | Global | Jan 10        |

- Faster, more efficient architecture with the latest Intel® workstation technology
   High performance workstation with premium graphics for specialized professionals
   Environmentally friendly, cool, and quiet with rock solid engineering
   Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- This model has a 3-year limited warranty
   This system is Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | 1066MHz DDR3 memory  | 3520 with quad-core,<br>econd) QPI (QuickPath Interconnect),<br>controller, and 8MB cache<br>package, one LGA1366 socket   | • 6.9"W x 19.0   | color; metal case "D x 18.8"H (with handle) optical optical  |
|---|--|--|--|--|
| Memory  | 4GB std, 24GB max, UDII<br>PC3-8500 1066MHz DDR:<br>3-channel capable, six 24  | MM,<br>3, ECC,   | • 38.5 lb (17.5<br>• 31-liter  | 483mm D x 478mm H kg) max configuration  mandle on top front   |
| Graphics  | * Adapters >75W use aux<br>NVIDIA® Quadro® FX 180<br>768MB, two DisplayPort, of  | apters required for quad monitor support, iliary power connector(s) from PSU 00, PCI Express® (PCIe) x16 adapter, one dual-link DVI-I***, 59W ectors are active at a time  | <ul> <li>Toolless side</li> </ul>  | e cover removal a and optical drive removal pter retention ront icons  |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller                                | Serial ATA, SATA 3.0Gb/s,  | D±RW SATA 1.5Gb/s Drive  | Bay @ 3.5".  | 1.6" high, external, open<br>1" high, external, std media reader<br>1" high, internal, std disk  |
| Chipset   | Intel X58 Express Chips<br>(ICH10R) for RAID 0, 1, 5<br>Winbond® W83627DHG-F   |  | Bay ⑤ 3.5",<br>Bay ⑥ 3.5",   | 1" high, internal, opt disk  |
| Front ports<br>Rear ports   | Eight USB 2.0, eSATA, se   | e (3.5mm), headphone (3.5mm) rial (9-pin), ethernet (RJ-45), e-in, mic-in, front-out, rear-out, Optical SPDIF digital in   | Slot 3: full-lend  | oth, full-height, PCle 2.0 x4** jth, full-height, PCle 2.0 x16 (75W* max) jth, full-height, PCle x1 jth, full-height, 32-bit PCl 2.3   |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip                              | None High Definition (HD) Audio Internal speaker for busine One gigabit ethernet on pl   | o, Analog Devices AD1988A codec  | X10 moona  | SECURITY  • Security chip (see information on left)  • Side cover lock (ships with two identical keys)   |
| Keyboard<br>Mouse<br>Power supply<br>Cooling<br>Rack mount                                    | Optical Wheel Mouse (US 625 watts with 120mm bo Climate Savers® Computing  | ard (USB connector), 104-key, black<br>B connector), black<br>ttom-mounted variable speed fan, universa<br>ng Bronze, 80 PLUS® Bronze qualified<br>CPU, rear, opt front PCI [>75W graphics],   |  | Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)     Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)     Power-on password  |
| listed)  Rescue and F ThinkVantage Norton Interne (30 days of vii Adobe® Read Microsoft Offic | dows® 7 64 lications⁵ (only some Recovery™ System Update et Security™ rus definitions) er ce 2010 preloaded; duct key to activate or® Business Edition | Accessories  1GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-8500 DDR3 ECC UDIMM 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s ThinkVision® L2440p Wide 24" Monitor NVIDIA Quadro NVS 290 NVIDIA Quadro NVS 290 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/acces | 51J0503<br>51J0504<br>43R2032<br>43R2033<br>57Y4138<br>45J7918<br>45K1675<br>4420HB2<br>43R1765<br>45K1671<br>51J0511<br>ssories | Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (front or all)  Supports ThinkVantage® technologies  GREENGUARD® certified RoHS-compliant  Pending: ENERGY STAR® 5.0-compliant  LIMITED WARRANTY¹      3-year parts and labor     Customer Replaceable Unit (CRU)     parts only (with limited onsite service for selected parts³, 8 am - 5 pm,     Mon - Fri coverage excluding holidays,     next business day response time)     Lenovo services available; see     lenovo.com/services_warranty/us/en/     lenovo-warranty.html     Onsite service upgrade options     (in eligible locations)²     Post warranty maintenance |

24 hour x 7 day<sup>14</sup> toll-free support during the warranty period<sup>1</sup>

services

Diskette or Media Graphics 1394 ENERGY Win7 Avail reader adapter(s) adptr STAR 5.0 preload date Memory Memory Disk Pre-config SATA size RAID optical Type-Name model Slot x bay Processor(s) GHz Cores DIMMs speed Disk(s)

D20 4158-79U 6x9 2xE5520 2.26 8 2x4GB 1066MHz 2x500GB2 SATA 3.5" DVD±RW Media 1xFX1800 1394 Pending Pro64 Oct 09 No

- Faster, more efficient architecture with the latest Intel® workstation technology
- High performance workstation with premium graphics for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC
- This model has a 3-year limited warranty
- This system is Microsoft® Office 2010 Product Key Ready (O10PKR)

| Processor  Implementation   | Up to two processors, two processors standard, Intel Xeon® Processor E5520 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache Processor uses FC-LGA8 package, two LGA1366 sockets  | Tower  Raven black color; metal case  8.3"W x 23.7"D x 19.1"H (with handle)  210mm W x 602mm D x 485mm H  60 lb (27.1kg) max configuration  optical  |
|---|--|--|
| Memory  | 8GB std, 192GB max (Pending availability of 16GB RDIMM),<br>RDIMM, PC3-8500 1066MHz DDR3, ECC,<br>twelve 240-pin DIMM sockets**<br>** Over six DIMMs requires dual processors  | S5-liter     Removable handle on top front     Toolless side cover removal     Toolless disk and optical drive removal   |
| Graphics  | Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU  NVIDIA® Quadro® FX 1800, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-1***, 59W  *** Only two display connectors are active at a time   | Toolless adapter retention     Illuminated front icons     Rack shelf support or optional rail kit     disk disk disk disk disk disk disk d  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk Controller | None 20-in-1 media reader 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" None Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID <sup>8</sup> 0, 1, 5, 10, integrated in Marvell® 88SE6480 | Bay ① 5.25", 1.6" high, external, std opt Bay ② 5.25", 1.6" high, external, open Bay ③ 5.25", 1.6" high, external, open Bay ④ 3.5", 1" high, external, std media reader std disk Bay ⑥ 3.5", 1" high, internal, std disk Bay ⑦ 3.5", 1" high, internal, opt disk Bay ⑧ 3.5", 1" high, internal, opt disk Bay ⑨ 3.5", 1" high, internal, opt disk Bay ⑨ 3.5", 1" high, internal, opt disk |
| Chipset   | Intel 5520 Chipset,<br>Intel ICH10, Winbond® W83627DHG-P Super I/O   | Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)  |
| Front ports Rear ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a) Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), and the second control of the pin prior in front out.   | Slot 3: full-length, full-height, 32-bit PCI 2.3<br>Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)<br>Slot 5: full-length, full-height, PCIe x4 (x16 mechanical)<br>Slot 6: half-length, full-height, 32-bit PCI 2.3  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip                                | High Definition (HD) Audio, Analog Devices AD1988A codec<br>Internal speaker for business audio<br>Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM575<br>Broadcom Trusted Platform Module, TCG 1.2-compliant  | keys)  Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)  Security slot (in rear for optional   |
| Keyboard<br>Mouse   | Preferred Pro USB Keyboard (USB connector), 104-key, black<br>Optical Wheel Mouse (USB connector), black   | Kensington® Microsaver® cable;<br>prohibits side cover removal)  |

### Preloaded operating system<sup>20</sup>

Genuine Windows® 7 Professional 64

Cooling

Power supply

Rack mount

#### Preloaded applications<sup>5</sup> (only some listed)

- Rescue and Recovery<sup>™</sup>
- ThinkVantage System Update
  Norton Internet Security™ (30 days of virus definitions) Adobe® Reader
- Microsoft Office 2010 preloaded; purchase product key to activate Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
  Corel® WinDVD® (DVD±RW)

#### Rack shelf support or optional sliding rack mount rail kit support **Accessories**

Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

1060 watts with 120mm bottom-mounted variable speed fan, universal,

Five fans (power supply, first processor, second processor, rear, front disk)

1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 Blu-ray™ Burner SATA 1.5Gb/s 45K1675 ThinkVision® L2440p Wide 24" Monitor 4420HB2 NVIDIA Quadro NVS 290 43R1765 NVIDIA Quadro FX 580 45K1671 ATI™ FirePro™ 1GB V7750 51J0511 Other accessories at lenovo.com/accessories

- prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- · USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant

Pending: ENERGY STAR® 5.0-compliant

#### LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- Lenovo services available; see lenovo.com/services\_warranty/us/en/ lenovo-warranty.html
- Onsite service upgrade options (in eligible locations)
- Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period1

|  | lot x<br>bay Processor 0  |  | y Memory<br>speed  | Disk(s)   | Disk F<br>size   | Pre-confi<br>RAID  | g SAT<br>opti                           |  | Diskette<br>or Media<br>reader  | Graphics<br>adapter(s  |  |   | Win7<br>preload   | Avail<br>date                   |
|--|---|--|--|---|--|--|---|--|---|--|--|---|---|---------------------------------|
| \$20 4105-97U<br>\$20 4105-98U<br>\$20 4105-P9U<br>\$20 4105-P6U<br>\$20 4105-P7U<br>\$20 4105-P3U<br>\$20 4105-P3U<br>\$20 4105-P3U<br>\$20 4105-R9U<br>\$20 4105-O1U<br>\$20 4105-O2U<br>\$20 4105-O3U | 5x6 W3505 2<br>5x6 W3520 2<br>5x6 E5507 2<br>5x6 W3550 3<br>5x6 W3530 2<br>5x6 E5507 2<br>5x6 W3530 2<br>5x6 W3550 3<br>5x6 W3550 3<br>5x6 W3550 3  | 2.53 2x1GE<br>2.66 2x2GE<br>2x2GE<br>2x2GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE<br>2x3GE | 3 1333MHz<br>3 1333MHz<br>3 1333MHz<br>3 1333MHz<br>3 1333MHz<br>3 1333MHz<br>3 1333MHz<br>3 1333MHz<br>3 1333MHz                  | 1x500GB<br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB<br>1x500GB | 3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"<br>3.5"                           | No<br>No<br>No<br>No<br>No<br>No<br>No<br>No<br>No<br>No<br>No | DVD± DVD± DVD± DVD± DVD± DVD± DVD± DVD± | RW<br>RW<br>RW<br>RW<br>RW<br>RW<br>RW<br>RW<br>RW | Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media<br>Media | 1xFX38(<br>1xFX58(<br>1xFX18(<br>1xFX38(<br>1xFX58(<br>1x2000<br>1x2000<br>1x2000<br>1x600<br>1x600  | ) No<br>)0 No<br>) No  | Pending<br>Pending<br>Pending<br>Pending<br>Pending<br>Pending<br>Pending<br>Pending<br>Pending<br>Pending<br>Pending   | Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64<br>Pro64                               |                                 |
| Processor  |   |  |  |   |  |  | uy (O                                   |  |   |  |  |   | _   |                                 |
| Implementation   | Intel® Xeon® P 4.8GT/s (giga-Intel 64, Virtual 1066MHz DDF Intel Xeon Pro 4.8GT/s QPI, In Virtualization T 1066MHz DDF Intel Xeon Pro 4.8GT/s QPI, In 800MHz DDR3 One LGA1366   | transfers/se<br>lization Tec<br>33 memory<br>ocessor W:<br>ntel 64, Hy<br>Fechnology,<br>33 memory<br>ocessor E5<br>ntel 64, Viri<br>3 memory o  | econd) QPI<br>hnology,<br>controller, a<br>8520, W353<br>per-Threadi<br>Turbo Boos<br>controller, a<br>507 with qu<br>ualization T | (QuickPath<br>and 4MB c<br>0, or W355<br>ng Technol<br>t Technolo<br>and 8MB c<br>ad-core,<br>echnology               | h Interc<br>cache or<br>cache or<br>logy,<br>ogy,<br>cache or                          | onnect)<br>r<br><b>quad-c</b> e                                |   | • R<br>• 6.<br>• 1<br>• 33<br>• R<br>• To<br>• To  | oolless ad<br>luminated   | 0"D x 18<br>(483mm<br>5kg) ma<br>handle<br>e cover<br>k and op<br>apter ret<br>front ico   | B.8"H (with D x 478 x configuration top from the configuration to the configuration between the configuration to t | h handle)<br>mm H<br>ration   | di  |                                 |
| Memory   | 2GB or 4GB st   |  |  | ,   |  |  |   | • R  | lack shelf  | support  |  |   |   |                                 |
|  | 3-channel capa<br>*** System aut<br>or 1066MHz D  | able, six 24<br>comatically  | 0-pin DIMM<br>clocks dowr  | for proce   | ssors w  | vith 800N  | ЛНz                                     | Bay  | y ① 5.25",<br>y ② 5.25",<br>y ③ 3.5",<br>y ④ 3.5",  |  | h, exter exter   | rnal, std op<br>rnal, open<br>rnal, std m<br>nal, std di  | edia read   | der                             |
|  | Some: NVIDIA two Dis Some: NVIDIA two Dis Some: NVIDIA one Dis Some: NVIDIA   | A® Quadro al-link DVI- A Quadro I splayPort, o A Quadro I splayPort A Quadro ( SplayPort, o A Quadro ( SplayPort, o SplayPort, o   | FX 380, PI, 35W FX 580, PCI one dual-link FX 1800, PCI one dual-link 600, PCIe x one dual-link 2000, PCIe one dual-link            | Cle x16 ada<br>c DVI-I****,<br>Cle x16 ad<br>c DVI-I****,<br>16 adapte<br>c DVI-I, 40<br>x16 adapt<br>c DVI-I****     | dapter,<br>pter, 51<br>, 40W<br>lapter, 7<br>, 59W<br>r, 1GB,<br>W<br>er, 1GE<br>, 62W | 256MB,<br>2MB,<br>768MB,                                       |   | Slo<br>Slo<br>Slo<br>Slo<br>Slo                    | ot 2: full-ler<br>ot 3: full-ler<br>ot 4: full-ler  | ngth, ful<br>ngth, ful<br>ngth, ful<br>ngth, ful<br>nical  | interi<br>I-height,<br>I-height,<br>I-height,<br>I-height,<br>I-height,<br>urity chip  | nal, opt di<br>PCIe 2.0 x<br>PCIe 2.0 x<br>PCIe 2.0 x   | sk<br>16 (75W <sup>2</sup><br>4**<br>16 (75W <sup>2</sup><br>2.3<br><b>Y</b><br>nation or | * max)                          |
| Media reader<br>SATA disk(s)<br>SATA DVD±RW<br>Disk controller   | 20-in-1 media i<br>500GB, SATA S<br>Super Multi-Bu<br>Serial ATA, SA<br>three SATA cor  | 3.0Gb/s, 72<br>urner DL D\<br>TA 3.0Gb/s   | 200 rpm, 3.5<br>D±RW SAT<br>, integrated   | 5"<br>A 1.5Gb/s<br>in ICH10F  | ₹,   | for option   | als                                     |  |   | keys)  • Padlock loop (in rear for opt padlock padlock prohibits side cover removal Security slot (in rear for optional Kensington® Microsaver® cable; |  |   |   |                                 |
| Chipset  | Intel X58 Expr<br>(ICH10R) for R<br>Winbond® W83  | RAID 0, 1, 5   | support,   | Controller  | Hub 10   | 0 RAID   |   |  |   | Pow     Adm  | er-on pa<br>inistrato  | e cover rem<br>ssword<br>r password<br>ce control   | oval)   |                                 |
| Front ports<br>Rear ports  | Two USB 2.0, r<br>Eight USB 2.0,<br>(line-in, mic-in,<br>Optical SPDIF  | , eSATA, se<br>, front-out, ։  | riàl (9-piń),<br>ear-out, cer  | ethernet (<br>nter/sub-o  | RÙ-45),<br>ut, side  | six ana  | log au                                  | dio p  | oorts   | Boo     Seri   | t without<br>al port I/0<br>port dis   | keyboard, i<br>O control<br>ablement (f   | ront or a   |                                 |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet  | High Definition<br>Internal speake<br>One gigabit eth   |  |  |   | GREE   | visit ww   | / certificati<br>w.lenovo.co            |  | ort/ISV   |  |  |   |   |                                 |
| Security chip Keyboard   | Broadcom Trus<br>Preferred Pro U  |  |  |   |  |  |   |  |   | - Pendii   |  | RGY STAR  | ® 5.0-cor   | npliant                         |
| Mouse<br>Power supply<br>Cooling<br>Rack mount   | Optical Wheel<br>625 watts with<br>Climate Savers<br>3 to 5 fans (por<br>Rack shelf sup   | Mouse (US<br>120mm bo<br>s® Computi<br>wer supply,   | B connecto<br>ttom-mount<br>ng Bronze,   | r), black<br>ed variablo<br>80 PLUS®  | e speed<br>Bronze  | d fan, un<br>qualifie  | d                                       |  | ront [SAS]  | <ul> <li>⇒ 3-y</li> <li>⇒ Cu</li> <li>pa</li> </ul>  | LIMI<br>rear parts<br>stomer F<br>rts only (   | TED WARF<br>s and labor<br>Replaceable<br>with limited<br>I parts <sup>3</sup> , 8 a  | Unit (CF  | service                         |
| - Genuine Wind<br>Professional 6<br>Preloaded appl<br>listed)<br>• Rescue and F<br>• Norton Interne<br>(30 days of vir<br>• Microsoft Office   | Preloaded operating system <sup>20</sup> Genuine Windows® 7 Professional 64  Preloaded applications <sup>5</sup> (only some listed) Rescue and Recovery™ Norton Internet Security™ (30 days of virus definitions) Microsoft Office 2010 preloaded; purchase product key to activate  Accessories  2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1TB SATA 3.0Gb/s Disk (7200 rpm) Blu-ray™ Burner SATA 1.5Gb/s ThinkVision® L2440p Wide 24" Monitor Other accessories at lenovo.com/acce |  |  |   |  |  |   |  | 43R2033<br>57Y4138<br>45J7918<br>45K1675<br>4420HB2   | Mone Per Le ler ler On (in Po se P24   | on - Fri co<br>ext busine<br>novo servicovo.com<br>novo-wari<br>site services<br>eligible l<br>st warrar<br>rvices<br>hour x 7   | parts, of a<br>voverage exc<br>ss day res<br>vices availa<br>/services_v<br>ranty.html<br>ice upgrad<br>ocations) <sup>7</sup><br>hty mainten<br>day <sup>14</sup> toll-fr<br>warranty pe | cluding hoonse ting the consection warranty/ e options ance                               | olidays,<br>ne)<br>/us/en/<br>s |

| Type-<br>Name model | Slot x<br>bay Processor(s) G | Hz Memory   | Disk(s) siz  |        | k<br>e RAII | SATA<br>O optical | Diskette<br>or Media<br>reader | Graphics adapter(s) | ENERGY<br>STAR 5.0 | Preload | Avail<br>date |
|---------------------|------------------------------|-------------|--------------|--------|-------------|-------------------|--------------------------------|---------------------|--------------------|---------|---------------|
| D20 4155-27L        | J 6x9 2 x E5540 2            | .53 4 x 1GB | 2 x 300GB 2. | .5" SA | ΓA 1        | DVD±RW            | Media                          | 1 x FX4800          | None               | Pro64   | Apr 09        |

- · High performance workstation with premium graphics for specialized professionals
- . Environmentally friendly, cool, and quiet with rock solid engineering
- This small and medium business (SMB) model is part of the US TopSeller™ Program

| Processor(s) Implementation   | Up to two processors, two processors standard, Intel® Xeon® Processor E5540 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache Processor uses FC-LGA8 package, two LGA1366 sockets  | • 8.3"W x 23.   | c color; metal case 7"D x 19.1"H (with handle) c 602mm D x 485mm H  |           |  |
|---|---|---|---|-----------|--|
| Memory  | 4GB std, 192GB max (pending 16GB RDIMM availability), RDIMM, PC3-8500 1066MHz DDR3, ECC, 6-channel capable, twelve 240-pin DIMM sockets**  ** Over six DIMMs requires dual processors   | <ul><li>60 lb (27.1k</li><li>55-liter</li><li>Removable</li><li>Toolless sid</li></ul>                  | handle on top front e cover removal   | а         |  |
| Graphics  | Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU NVIDIA® Quadro® FX 4800, PCIe x16 adapter, 1.5GB, two slot width, two DisplayPort, one dual-link DVI***, 121W *** Only two display connectors are active at a time   | Toolless ada     Illuminated     Rack shelf s   | support or optional rail kit disk disk  |           |  |
| Diskette drive<br>Media reader<br>SATA disk(s)<br>SAS disk(s)<br>SATA DVD±RW<br>Disk controller | None (use optional USB diskette) 20-in-1 media reader 300GB, SATA 3.0Gb/s, 10000 rpm, 2.5" None Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS <sup>4</sup> connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID <sup>8</sup> 0, 1, 5, 10, integrated in Marvell® 88SE6480 | Bay @ 5.25",<br>Bay @ 5.25",<br>Bay @ 3.5",<br>Bay @ 3.5",<br>Bay @ 3.5",<br>Bay @ 3.5",<br>Bay @ 3.5", | 1" high, external, std media reader 1" high, internal, std disk 1" high, internal, std disk 1" high, internal, opt disk 1" high, internal, opt disk   |           |  |
| Chipset   | Intel 5520 Chipset, Intel ICH10,<br>Winbond® W83627DHG-P Super I/O  |   | ngth, full-height, PCIe x1  |           |  |
| Front ports Rear ports  | Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a) Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out),   | Slot 3: full-ler<br>Slot 4: full-ler<br>Slot 5: full-ler  | ngth, full-height, PCIe 2.0 x16 (75W* max) ngth, full-height, 32-bit PCI 2.3 ngth, full-height, PCIe 2.0 x16 (75W* max) ngth, full-height, PCIe x4 (x16 mechanica) ngth, full-height, 32-bit PCI 2.3                  | )         |  |
| IEEE 1394 adptr<br>Audio<br>Speaker<br>Ethernet<br>Security chip<br>Keyboard                    | Optical SPDIF digital out, Optical SPDIF digital in   | 4   | SECURITY  • Security chip (see information on left • Side cover lock (ships with two identikeys)  • Padlock loop (in rear for opt padlock padlock prohibits side cover removal) • Security slot (in rear for optional | ical<br>; |  |

#### Preloaded operating system<sup>20</sup>

Genuine Windows® XP Professional 64-bit (preinstalled via downgrade rights in Windows Vista® Business 64-bit)

#### Preloaded applications<sup>5</sup> (only some listed)

- Rescue and Recovery™ McAfee® VirusScan® Plus
- (30 days of virus definitions) Lenovo® System Toolbox
- Adobe® Reader

Mouse

Cooling

Power supply

Rack mount

- Microsoft® Office 2007 Trial (60-day) Roxio® Creator® Business Edition
- (DVD±RW) Roxio MyDVD® (DVD±RW)
  Corel® WinDVD® (DVD±RW)

1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Five fans (power supply, first processor, second processor, rear, front disk) Rack shelf support or optional sliding rack mount rail kit support

Optical Wheel Mouse (USB connector), black

2GB PC3-8500 DDR3 ECC RDIMM 43R2035 4GB PC3-8500 DDR3 ECC RDIMM 8GB PC3-8500 DDR3 ECC RDIMM 43R2036 43R2037 Blu-ray™ Burner SATA 1.5Gb/s 750GB SATA 3.0Gb/s Disk (7200 rpm) 45K1675 43R1991 1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 150GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" 300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5" 146GB SAS 3.0Gb/s Disk (15000 rpm) 43R2030 43R2031 43R1993 300GB SAS 3.0Gb/s Disk (15000 rpm) 43R1994 ThinkStation Rail Kit 43R1964 USB 2.0 Ultra Secure Memory Key 8GB 45J5918 ThinkVision® L2440p Wide 24" Monitor 4420HB2 ATI™ FirePro™ 512MB V5700 51J0509 ATI FirePro 1GB V7750 51J0511 Other accessories at lenovo.com/accessories

- Kensington® Microsaver® cable; prohibits side cover removal) Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- · USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified RoHS-compliant

#### LIMITED WARRANTY<sup>1</sup>

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- Lenovo services available; see lenovo.com/services\_warranty/us/en/
- lenovo-warranty.html
  24 hour x 7 day<sup>14</sup> toll-free support during the warranty period1

#### ThinkStation® S20, D20 Accessories

#### Partial list of accessories supported on ThinkStation S20 and D20

#### Heatsink<sup>62</sup>

D20:

Second Processor Heatsink for D20 0A65719 ann 01/10/12

- 62 The heatsink is used for second processor (to be provided by customer from business partner, not for Lenovo processor options)
- The heatsink supports Intel Xeon processor (LGA1366)
- Please follow heatsink installation instruction on http://www.lenovo.com/support/thinkstationd20/heat-sink-instructions

#### Memory<sup>53</sup>

| 2GB PC3-8500 DDR3 ECC UDIMM                | 51J0504 | ann 03/31/09 |
|--|---------|--------------|
| 2GB PC3-10600 DDR3 ECC UDIMM <sup>54</sup> | 43R2033 | ann 03/31/09 |
| 4GB PC3-10600 DDR3 ECC UDIMM <sup>54</sup> | 57Y4138 | ann 08/04/09 |
| 8GB PC3-10600 DDR3 ECC UDIMM <sup>54</sup> | 0A65718 | ann 04/24/12 |
|  |         |              |

D20:

2GB PC3-10600 DDR3 ECC RDIMM54 ann 04/13/10 57Y4425 4GB PC3-10600 DDR3 ECC RDIMM<sup>54</sup> 57\
8GB PC3-10600 DDR3 ECC RDIMM<sup>54</sup> 57\
<sup>53</sup> Mixing of UDIMM and RDIMM is not supported 57Y4426 ann 04/13/10 57Y4427 ann 04/13/10

<sup>54</sup> Actual memory operating speed is the lowest installed speed, dependent on proccessor memory bus speed and PC3-8500 / PC3-10600 installed configuration

More information on memory and processor configuration, operation and limitation, please visit:

#### www.lenovo.com/support/thinkstationaccessories

Ontical

| DVD-ROM DL SATA1.5Gb/s 16X-48X Max4   | 41N5618 | ann 09/26/06 |
|---------------------------------------|---------|--------------|
| Lenovo® Super Multi-Burner SATA Drive | 0A65618 | ann 08/23/11 |
| Blu-ray™ Burner SATA1.5Gb/s           | 45K1675 | ann 03/31/09 |

Storage and removable storage

| 41N3015 | ann 01/24/06       |
|---------|--------------------|
| 43R1990 | ann 11/06/07       |
| 45J7918 | ann 08/19/08       |
| 43R2031 | ann 03/31/09       |
|         | 43R1990<br>45J7918 |

S20 preconfigured with SAS disks and the SAS controller,

D20 preconfigured with SAS disks: 450GB SAS 3.0Gb/s Disk (15000 rpm)

43N3424 ann 02/02/10 USB 2.0 Portable 320GB Hard Disk 45K1689 ann 03/17/09

USB 2.0 Portable 500GB Hard Disk ann 05/26/09 45K1690 USB 2.0 Portable Secure 320GB Hard Disk ann 11/18/08 43R2019

| rtoyboara  |         |              |
|--|---------|--------------|
| Preferred Pro USB Keyboard                               | 73P5220 | ann 06/21/05 |
| Enhanced Performance USB Keyboard                        | 73P2620 | ann 03/23/04 |
| Lenovo USB Fingerprint Keyboard                          | 73P4730 | ann 02/22/05 |
| Lenovo USB Smartcard Keyboard                            | 51J0155 | ann 03/24/09 |
| Ultraslim Plus Wireless Keyboard and Mouse <sup>52</sup> | 0A34032 | ann 04/05/11 |

#### More information at www.lenovo.com/support/keyboards

#### Mouse

| Lenovo Optical Mouse (USB)                | 06P4069        | ann 05/21/03 |
|---|----------------|--------------|
| Lenovo ScrollPoint® Mouse (USB, Optical)  | 31P7405        | ann 08/27/02 |
| Lenovo Laser Mouse (USB)                  | 41U3074        | ann 01/23/07 |
| Lenovo Wireless Laser Moúse <sup>52</sup> | 0A36188        | ann 12/20/11 |
| 52 Wireless via 2.4GHz technology using a | micro-size USB | receiver.    |
|   |                |              |

More information at www.lenovo.com/support/mice

#### **Monitors**

ThinkVision®. L1711p 17" (VGA, DVI-D) L17952p Wide 19" (VGA, DP, DVI-D)<sup>69</sup> L2250p Wide 22" (VGA, DVI-D) L2251x Wide 22" (VGA, DP) LT2252p Wide 22" (VGA, DP, DVI-D)<sup>69</sup> LT2452p Wide 24" (VGA, DP, DVI-D)<sup>69</sup> 5047HB2 ann 10/20/09 2448MB6 ann 09/13/11 2572HB6 ann 10/20/09 2578HB6 ann 10/20/09 2572MB6 ann 09/13/11 4420MB2 ann 09/13/11 DisplayPort cable is not included; use optional

DisplayPort to DisplayPort Monitor Cable (0A36537). More information at www.lenovo.com/support/monitors

#### Monitor accessories46

Kensington® MicroSaver® Cable Lock 73P2582 ann 12/29/03 Kensington Twin Head Cable Lock 45K1620 ann 09/30/08 <sup>46</sup> Compatible on selected Lenovo and ThinkVision monitors.

#### More information at www.lenovo.com/support/monitoraccessories

#### Graphics

| DisplayPort™ to Single-link DVI-D Cable 50             | 45J7915  | ann | 08/05/08 |
|--|----------|-----|----------|
| DisplayPort to DisplayPort Monitor Cable <sup>50</sup> | 0A36537  | ann | 09/13/11 |
| NVIDIÁ® Quadro® 256MB NVS 295                          | 45K1669  | ann | 04/21/09 |
| NVIDIA Quadro 512MB NVS 300 DMS5965                    | 0A36528  | ann | 04/26/11 |
| NVIDIA Quadro 512MB NVS 450                            | 57Y4398  | ann | 01/19/10 |
| NVIDIA Quadro 512MB 400                                | 0A36535  | ann | 06/28/11 |
| NVIDIA Quadro 1GB 600                                  | 0A36183  | ann | 10/26/10 |
| NVIDIA Quadro 1GB 2000                                 | 57Y4479  | ann | 10/26/10 |
| NVIDIA Quadro 1GB 2000D                                | 0A36541  | ann | 11/01/11 |
| NVIDIA Quadro 2GB 4000                                 | 57Y4480  | ann | 10/26/10 |
| NVIDIA Quadro 2.5GB 5000                               | 57Y4481  | ann | 10/26/10 |
| 50 Attaches to selected DisplayPort graphic            | s cards. |     |          |

65 Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA

cable.

NVIDIA SLI Connector60 55Y8963 ann 03/31/09 60 Compatible to Quadro 5000

#### More information at www.lenovo.com/support/graphiccards

#### Security

| occurry                          |         |     |          |
|----------------------------------|---------|-----|----------|
| Kensington MicroSaver Cable Lock | 73P2582 | ann | 12/29/03 |
| Kensington Twin Head Cable Lock  | 45K1620 | ann | 09/30/08 |
| Lenovo Security Cable Lock       | 57Y4303 | ann | 08/24/10 |

USB Gemplus GemPC Smart Card Reader 41N3040 ann 02/21/06

#### **Rack mount accessories**

ThinkStation C-Series, D-Series Rail Kit 57Y4482 ann 09/14/10

For more information on accessories: www.lenovo.com/accessories Purchase Lenovo accessories

### www.lenovo.com/support/accessories

Product specifications on Lenovo Support

#### www.lenovo.com/accessoriesguide

Option Compatibility Matrix (OCM) and accessory brochures

#### www.lenovoquickpick.com

An Options Compatibility Configurator for Lenovo systems

# Memory Configuration for ThinkStation® D20 - Page 2/2

| Memory Speed Table for ThinkStation D20 |                     |   |         |                                    |         |                                   |         |                |
|---|---------------------|---|---------|------------------------------------|---------|-----------------------------------|---------|----------------|
| DIMM Type and<br>Speed                  |                     | PC3-10600 UDIMM (1GB, 2GB, 4GB) PC3-8500 UDIMM (1GB, 2GB) |         | MM PC3-10600 RDIMM (2GB, 4GB, 8GB) |         | PC3-8500 RDIMM<br>(1GB, 2GB, 4GB) |         | 0 RDIMM<br>GB) |
| Amount of DIMMs installed per CPU bank  | 1 to 3              | 4 to 6  | 1 to 6  | 1 to 3                             | 4 to 6  | 1 to 6                            | 1 to 3  | 4 to 6         |
| CPU Model                               | Actual Memory Speed |   |         |                                    |         |                                   |         |                |
| Intel® Xeon® E5603                      | 1066MHz             | 1066MHz   | 1066MHz | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5606                        | 1066MHz             | 1066MHz   | 1066MHz | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5607                        | 1066MHz             | 1066MHz   | 1066MHz | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5645                        | 1333MHz             | 1333MHz   | 1066MHz | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon E5649                        | 1333MHz             | 1333MHz   | 1066MHz | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5647                        | 1066MHz             | 1066MHz   | 1066MHz | 1066MHz                            | 1066MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5672                        | 1333MHz             | 1333MHz   | 1066MHz | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5675                        | 1333MHz             | 1333MHz   | 1066MHz | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5687                        | 1333MHz             | 1333MHz   | 1066MHz | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz | 800MHz         |
| Intel Xeon X5690                        | 1333MHz             | 1333MHz   | 1066MHz | 1333MHz                            | 1333MHz | 1066MHz                           | 1066MHz | 800MHz         |

For more information on ThinkStation D20 processor and memory accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkstationaccessories

# Memory Configuration for ThinkStation® D20 - Page 1/2

#### Memory Loading Notes on ThinkStation D20

System memory speed on ThinkStation D20 will be determined by a number of factors, including the microprocessor model and the type, speed, size (capacity), and number of DIMMs installed. Refer to the following table for information on the supported system memory speed for your ThinkStation model.

- ThinkStation D20 has twelve memory slots; divided into two sets of 6-DIMM memory slots

- Memory controller is integrated in processor
  ThinkStation D20 has 2 processor slots, each processor control six DIMMs
  Over six DIMMs requires dual processor
  ThinkStation D20 supports UDIMM and RDIMM, mixing of UDIMM and RDIMM is not supported

#### Memory Speed Table for ThinkStation D20

| DIMM Type and<br>Speed                 |                     | PC3-10600 UDIMM   PC3-8500 UDIMM   PC3-10600 RDIMM   (1GB, 2GB, 4GB)   (2GB, 4GB, 8GB) |         | PC3-8500 RDIMM<br>(1GB, 2GB, 4GB) | PC3-850<br>(80 |         |         |        |
|--|---------------------|--|---------|-----------------------------------|----------------|---------|---------|--------|
| Amount of DIMMs installed per CPU bank | 1 to 3              | 4 to 6   | 1 to 6  | 1 to 3                            | 4 to 6         | 1 to 6  | 1 to 3  | 4 to 6 |
| CPU Model                              | Actual Memory Speed |  |         |                                   |                |         |         |        |
| Intel® Xeon® E5502                     | 800MHz              | 800MHz   | 800MHz  | 800MHz                            | 800MHz         | 800MHz  | 800MHz  | 800MHz |
| Intel Xeon E5503                       | 800MHz              | 800MHz   | 800MHz  | 800MHz                            | 800MHz         | 800MHz  | 800MHz  | 800MHz |
| Intel Xeon E5504                       | 800MHz              | 800MHz   | 800MHz  | 800MHz                            | 800MHz         | 800MHz  | 800MHz  | 800MHz |
| Intel Xeon E5506                       | 800MHz              | 800MHz   | 800MHz  | 800MHz                            | 800MHz         | 800MHz  | 800MHz  | 800MHz |
| Intel Xeon E5507                       | 800MHz              | 800MHz   | 800MHz  | 800MHz                            | 800MHz         | 800MHz  | 800MHz  | 800MHz |
| Intel Xeon E5520                       | 1066MHz             | 1066MHz  | 1066MHz | 1066MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon E5530                       | 1066MHz             | 1066MHz  | 1066MHz | 1066MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon E5540                       | 1066MHz             | 1066MHz  | 1066MHz | 1066MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon E5620                       | 1066MHz             | 1066MHz  | 1066MHz | 1066MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon E5630                       | 1066MHz             | 1066MHz  | 1066MHz | 1066MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon E5640                       | 1066MHz             | 1066MHz  | 1066MHz | 1066MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5550                       | 1333MHz             | 1066MHz  | 1066MHz | 1333MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5560                       | 1333MHz             | 1066MHz  | 1066MHz | 1333MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5570                       | 1333MHz             | 1066MHz  | 1066MHz | 1333MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5650                       | 1333MHz             | 1333MHz  | 1066MHz | 1333MHz                           | 1333MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5660                       | 1333MHz             | 1333MHz  | 1066MHz | 1333MHz                           | 1333MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5667                       | 1333MHz             | 1333MHz  | 1066MHz | 1333MHz                           | 1333MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5670                       | 1333MHz             | 1333MHz  | 1066MHz | 1333MHz                           | 1333MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5677                       | 1333MHz             | 1333MHz  | 1066MHz | 1333MHz                           | 1333MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon X5680                       | 1333MHz             | 1333MHz  | 1066MHz | 1333MHz                           | 1333MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon W5580                       | 1333MHz             | 1066MHz  | 1066MHz | 1333MHz                           | 1333MHz        | 1066MHz | 1066MHz | 800MHz |
| Intel Xeon W5590                       | 1333MHz             | 1066MHz  | 1066MHz | 1333MHz                           | 1066MHz        | 1066MHz | 1066MHz | 800MHz |

For more information on ThinkStation D20 processor and memory accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkstationaccessories

# Memory Configuration for ThinkStation® S20 - Page 2/2

### Memory Speed Table for ThinkStation S20

| DIMM Type and<br>Speed    |         | 600 UDIMM<br>2GB, 4GB) | PC3-8500 UDIMM<br>(1GB, 2GB) |
|---------------------------|---------|------------------------|------------------------------|
| Amount of DIMMs installed | 1 to 3  | 4 to 6                 | 1 to 6                       |
| CPU Model                 |         | Actual Memory Speed    |                              |
| Intel® Xeon® E5603        | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5606          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5607          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5645          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon E5647          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5649          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5672          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5675          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5687          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5690          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon W3670          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3690          | 1333MHz | 1333MHz                | 1066MHz                      |

For more information on ThinkStation S20 processor and memory accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkstationaccessories

# Memory Configuration for ThinkStation® S20 - Page 1/2

#### Memory Loading Notes on ThinkStation S20

System memory speed on ThinkStation D20 will be determined by a number of factors, including the microprocessor model and the type, speed, size (capacity), and number of DIMMs installed. Refer to the following table for information on the supported system memory speed for your ThinkStation model.

- ThinkStation S20 has six memory slots
- Memory controller is integrated in processor ThinkStation S20 has one processor slot ThinkStation S20 supports UDIMM only

#### Memory Speed Table for ThinkStation S20

| DIMM Type and<br>Speed    |         | 600 UDIMM<br>2GB, 4GB) | PC3-8500 UDIMM<br>(1GB, 2GB) |
|---------------------------|---------|------------------------|------------------------------|
| Amount of DIMMs installed | 1 to 3  | 4 to 6                 | 1 to 6                       |
| CPU Model                 |         | Actual Memory Speed    |                              |
| Intel® Xeon® E5502        | 800MHz  | 800MHz                 | 800MHz                       |
| Intel Xeon E5503          | 800MHz  | 800MHz                 | 800MHz                       |
| Intel Xeon E5504          | 800MHz  | 800MHz                 | 800MHz                       |
| Intel Xeon E5506          | 800MHz  | 800MHz                 | 800MHz                       |
| Intel Xeon E5507          | 800MHz  | 800MHz                 | 800MHz                       |
| Intel Xeon E5520          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5530          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5540          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5620          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5630          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon E5640          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon X5550          | 1333MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon X5560          | 1333MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon X5570          | 1333MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon X5650          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5660          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5667          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5670          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5677          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon X5680          | 1333MHz | 1333MHz                | 1066MHz                      |
| Intel Xeon W3503          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3505          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3520          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3530          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3540          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3550          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3565          | 1066MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3570          | 1333MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3580          | 1333MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W3680          | 1333MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W5580          | 1333MHz | 1066MHz                | 1066MHz                      |
| Intel Xeon W5590          | 1333MHz | 1066MHz                | 1066MHz                      |

For more information on ThinkStation S20 processor and memory accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkstationaccessories

# **RAID Configuration Table for ThinkStation®**

| RAID* configuration table for ThinkStation |                      |        |        |        |         |
|--|----------------------|--------|--------|--------|---------|
| ThinkStation E20 (2 Disk Bays Maximum)     |                      |        |        |        |         |
| Hard Drive Interface                       | Required Hard Drives | RAID 0 | RAID 1 | RAID 5 | RAID 10 |
| SATA                                       | 2                    | •      | •      |        |         |
|  |                      |        |        |        |         |

| ThinkStation C20 (3 Disk Bays Maximum) |                      |        |        |        |         |
|--|----------------------|--------|--------|--------|---------|
| Hard Drive Interface                   | Required Hard Drives | RAID 0 | RAID 1 | RAID 5 | RAID 10 |
| SATA                                   | 2                    | •      | •      |        |         |
| J                                      | 3                    | •      |        | •      |         |

| ThinkStation C20x (3 Disk Bays Maximum) |                      |        |        |        |         |
|---|----------------------|--------|--------|--------|---------|
| Hard Drive Interface                    | Required Hard Drives | RAID 0 | RAID 1 | RAID 5 | RAID 10 |
| SATA                                    | 2                    | •      | •      |        |         |
|   | 3                    | •      |        | •      |         |
| SAS                                     | 2                    | •      | •      |        |         |
|   | 3                    | •      |        | •      |         |

| ThinkStation S20 (3 Disk Bays Maximum) |                      |        |        |        |         |
|--|----------------------|--------|--------|--------|---------|
| Hard Drive Interface                   | Required Hard Drives | RAID 0 | RAID 1 | RAID 5 | RAID 10 |
| SATA                                   | 2                    | •      | •      |        |         |
|  | 3                    |        |        | •      |         |
| SAS**                                  | 2                    | •      | •      |        |         |
|  | 3                    |        |        | •      |         |

| ThinkStation D20 (5 Disk Bays Maximum) |                      |        |        |        |         |
|--|----------------------|--------|--------|--------|---------|
| Hard Drive Interface                   | Required Hard Drives | RAID 0 | RAID 1 | RAID 5 | RAID 10 |
|  | 2                    | •      | •      |        |         |
|  | 3                    | •      |        | •      |         |
|  | 4                    | •      |        | •      | •       |
| SATA - Primary***                      | 4 (with spare)****   |        |        | •      |         |
|  | 5                    | •      |        | •      |         |
|  | 5 (with spare)       |        |        |        | •       |
| SATA - Secondary                       | 2                    | •      | •      |        |         |
|  | 2                    | •      | •      |        |         |
|  | 3                    | •      |        | •      |         |
| SAS - Primary                          | 4                    | •      |        | •      | •       |
| OAC TIMILARY                           | 4 (with spare)       |        |        | •      |         |
|  | 5                    | •      |        | •      |         |
|  | 5 (with spare)       |        |        |        | •       |
| SAS - Secondary                        | 2                    | •      | •      |        |         |

For all present ThinkStation, the total capacity in any RAID schemes can't exceed 2.2 TB (due to BIOS limitation). ThinkStation S20 does not contain onboard SAS controller, some models contain an additional SAS card (See SEV6-1 or SEV7-2). ThinkStation D20 supports two RAID schemes simultaneously from 5 disk bays. The spare disk is used to recover faulty hard disk from the RAID and cannot be used as a normal hard disk.

**Availability:** All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

**Warranty:** For a copy of applicable product warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC, 27709, Attn: Dept ZPYA/B600. Lenovo makes no representation or warranty regarding third party products or services.

- Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.
- <sup>2</sup> Hard drive: GB = billion bytes, TB = trillion bytes. Accessible capacity is less.
- 3 Systems with limited onsite service are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. In the United States call 1-800-426-7378. Support unrelated to a warranty issue may be subject to additional charges.
- Included software may differ from its retail version (if available), and may not include user manuals or all program functionality. License agreements may apply.
- Multi-Burner Plus (part number 73P3305 or 73P3370) is a DVD±RW device that reads and writes to DVD-RAM, DVD-R, DVD-RW, DVD+R, and DVD+RW. It also reads and writes to CD-R and CD-RW media. 73P3370 also writes to DVD+R double layer media.

- <sup>6</sup> Multi-Burner Plus (part number 73P3305 or 73P3370) is a DVD±RW device that reads and writes to DVD-RAM, DVD-R, DVD-RW, DVD+R, and DVD+RW. It also reads and writes to CD-R and CD-RW media. 73P3370 also writes to DVD+R double layer media.
- ThinkPlus Services: These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. P&L means parts and labor. P/U means pick-up. See ThinkPlus terms and conditions for complete details and restrictions.
- 8 Memory: For PCs without a separate graphics card, memory supports both system and video. Accessible system memory may be up to 384MB less than the amount stated, depending on video mode.
- <sup>9</sup> International Warranty Service is available in any country in which this product is sold and serviced. Service delivery methods and parts availability vary by country, may be different from that in the country of purchase, and are subject to change without notice. Fees and restrictions may apply in some countries.

- Modem speeds: Public network download speeds are limited to 53Kbps. Upload speeds are limited to 48Kbps for V.92 modems. Actual speeds depend on many factors and are often less than the maximum possible. V.92 functions and speeds require compatible phone line and server equipment. Check with your telephone and ISP service providers for availability.
- 11 For combination drives, maximum speeds only are given in the following order: CD read, CD write, CD re-write, DVD read.
- <sup>14</sup> Response times may vary. May exclude some holidays. Telephone support may be subject to additional charges.
- 15 Update Connector is available at no charge to registered customers during the limited warranty period. Line charges may apply.
- <sup>16</sup> Embedded Security Subsystem works with optional VPN software.