

Personal Systems Reference Lenovo® ThinkStation® Workstations

February 2010 - Version 371



ThinkStation E20 (left) ThinkStation S20 (middle) ThinkStation D20 (right)

ThinkStation.



Lenovo ThinkStation E20



Lenovo ThinkStation E20



Lenovo ThinkStation Graphics Card Option NVIDIA Quadro FX 380 (45K1670)



Lenovo ThinkStation E20 with ThinkVision® L2440p (4420HB2)



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



Lenovo ThinkStation Graphics Card Option NVIDIA Quadro FX 580 (45K1671)

Type- model		r Processor	GHz	Cores	Memory DIMMs	Memory speed	ECC memory	Disk(s)			f SATA optical		Graphics adapter(s)			Global	Avail date
4222-35U	1 4x5	G6950	2.80	2	1x2GB	1333MHz	z No	1x250GB ²	3.5"	No	DVD±RW	No	FX380	Pending	Pro64	No	Feb 10
4222-36U	J 4x5	i3-530	2.93	2	2x2GB	1333MHz	z No	1x500GB	3.5"	No	DVD±RW	No	FX380	Pending	Pro64	No	Feb 10
4222-37U	J 4x5	i5-650	3.20	2	2x2GB	1333MHz	z No	1x500GB	3.5"	No	DVD±RW	No	FX580	Pending	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

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 Turbo Boost Technology (u	nnology, integrated 1066MHz ory controller, and 3MB cache or r i3-530 with dual-core, Technology, Virtualization Technology, channel DDR3 memory controller, 5-650 with dual-core, Technology, up to 3.46GHz at max turbo mode), TXT, integrated 1333MHz dual-channel and 4MB cache	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			
Memory	Non-ECC***, four 240-pin * Maximum memory is 160 8GB for Non-ECC models	GB for ECC models and ocks down for processors with 1066MHz	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, media reader Bay ④ 3.5", 1" high, internal, std disk Bay ⑤ 3.5", 1" high, internal, opt disk Slot 1: half-length, full-height, PCle 2.0 x16 (75w max)			
Graphics	Some: NVIDIA® Quadro® FX 380, PCI Express® (PCIe) x16 adapter, 256MB.			gth, full-height, PCIe 2.0 x1 gth, full-height, 32-bit PCI 2.3 gth, full-height, 32-bit PCI 2.3 SECURITY • Security chip (see information on left)		
Media reader SATA disk(s) SATA DVD±RW SATA controller	25-in-1 media reader, inte 250GB or 500GB, SATA 3 Super Multi-Burner DL DV Serial ATA, SATA 3.0Gb/s,	rnal USB 2.0		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		
Chipset	Intel 3450 Chipset, Platform Controller Hub (F SMSC® SCH5147 Super I	PCH) for PCI, ethernet, and USB,				
Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet	Six USB 2.0, serial (9-pin) three analog audio ports (None High Definition (HD) Audic Internal speaker for busine One gigabit ethernet on pl	line-in, line-out, mic-in) o, Realtek® ALC662 codec ess audio anar, Intel 82578DM		USB port disablement (front or all)		
Security chip Keyboard		NP18 Trusted Platform Module (TPM), TCG ard (USB connector), 104-key, black, Leno	•	Supports ThinkVantage® technologies		
Mouse Power supply Cooling Rack mount				GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant		
Preloaded operating system ²⁰ - Genuine Windows® 7 Professional 64 Preloaded applications⁵ (only some listed) • Rescue and Recovery™ • ThinkVantage Toolbox • Norton™ Internet Security 2009 (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2007 Trial (60-day) • Corel® Burn.Now™ (DVD±RW) • Corel DVD MovieFactory® (DVD±RW)		Accessories 1GB PC3-10600 DDR3 Non-ECC UDIMI 2GB PC3-10600 DDR3 Non-ECC UDIMI 160GB SATA 3.0Gb/s Disk (7200 rpm) 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 NVIDIA Quadro 256MB FX 380 NVIDIA Quadro 512MB FX 580 More accessories at lenovo.com/acces	M 57Y4390 09N4254 41N3015 43R1990 45J7918 45K1675 45K1669 57Y4398 45K1670 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)⁻ Post warranty maintenance services 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378		

Type- model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory ECC speed memory	/ Disk(s)		Pre-con RAID	f SATA optical		Graphics adapter(s)				
4220-34U	4x5	i3-530	2.93	2	2x2GB	1333MHz	1x500GB ²	3.5"	No	DVD±RW	No		Pending			Feb 10
4220-35U	4x5	G6950	2.80	2	1x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	No	FX380	Pending	Pro64	No	Feb 10
4220-36U	4x5	X3430	2.40	4	2x2GB	1333MHz ECC	1x500GB	3.5"	No	DVD±RW	No	FX580	Pending	Pro64	No	Feb 10
4220-37U	4x5	X3440	2.53	4	2x2GB	1333MHz ECC	1x500GB	3.5"	No	DVD±RW	No	FX1800	Pending	Pro64	No	Feb 10

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Processor	dual-channel DDR3 memorintel Core™ i3 Processor Intel 64, Hyper-Threading integrated 1333MHz dual-and 4MB cache or Intel Xeon® Processor X3 Intel 64, Virtualization Tech Turbo Boost Technology (uintegrated 1333MHz dual-and 8MB cache or Intel Xeon Processor X3 Intel 64, Hyper-Threading TXT, Turbo Boost Technologintegrated 1333MHz dual-and 8MB cache Processor in LGA1156 soci	nology, integrated 1066MHz rry controller, and 3MB cache or i3-530 with dual-core, Technology, Virtualization Technology, channel DDR3 memory controller, 3430 with quad-core, nology, TXT, rp to 2.80GHz at max turbo mode), channel DDR3 memory controller, 440 with quad-core, Technology, Virtualization Technology, roy (up to 2.93GHz at max turbo mode), 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 ada Illuminated fi Rack shelf si Recessed po Bay ① 5.25", Bay ② 3.5", Bay ④ 3.5", Bay ④ 3.5",	ront icons upport ower button 1.6" high, access, open 1.6" high, access, open 1" high, internal, std disk		
Memory	four 240-pin DIMM sockets 34U/35U: 8GB max**, No 36U/37U: 16GB max, EC 0	n-ECC*** C cks down for processors with 1066MHz or ECC models and	Bay © 3.5", Slot 1: half-len Slot 2: half-len Slot 3: half-len	ringn, Internal, std disk "high, internal, opt disk gth,full-height, PCle 2.0 x16 (75w max) gth,full-height, PCle 2.0 x1 gth,full-height, 32-bit PCl 2.3 gth,full-height, 32-bit PCl 2.3 SECURITY Security chip (see information on left)		
Graphics	Some: NVIDIA® Quadro® FX 380, PCI Express® (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 *** Only two display connectors are active at a time			 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 		
Media reader SATA disk(s) SATA DVD±RW SATA controller	Serial ATA, SATA 3.0Gb/s,			Serial port I/O control USB port disablement (front or all)		
Chipset	Intel 3450 Chipset, Platform Controller Hub (P SMSC® SCH5147 Super I/	CH) for PCI, ethernet, and USB,				
Front ports Rear ports IEEE 1394 adptr Audio	Two USB 2.0, microphone Six USB 2.0, serial (9-pin) three analog audio ports (I	(3.5mm), headphone (3.5mm) , ethernet (RJ-45), ine-in, line-out, mic-in)		Supports ThinkVantage® technologies GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant		
Speaker Ethernet Security chip	Internal speaker for busine One gigabit ethernet on plant	ess audio	G 1.2-compliant			
Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black, Mouse 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) Rack shelf support			ovo® logo	 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 		
Preloaded operating system ²⁰ - Genuine Windows® 7 Professional 64		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 Ienovo.com/accessories		Onsite service upgrade options (in eligible locations) ⁷ Post warranty maintenance services ≥ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378		

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

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 This model is part of the Global Models Plus (GMP) program with limited onsite service³ 3-year limited warranty

Processor Implementation	Intel 64, Hyper-Threading Technology, Turbo Boost Technology (up to 3.60GHz at max turbo mode), Virtualization Technology, TXT, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache Processor in LGA1156 socket, up to one processor			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		
Memory	4GB std, 16GB max*, UDI PC3-10600 1333MHz DDF * Max memory is 16GB for 8GB for Non-ECC models ** ECC and non-ECC DIM	R3, ECC**, four 240-pin DIMM sockets r ECC models and	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, std optical			
Graphics	NVIDIA® Quadro® FX 180 768MB, two DisplayPort™ ** Only two display connection	0, PCI Express® (PCIe) x16 adapter, , one dual-link DVI-I**, 59W ctors are active at a time				
Media reader SATA disk(s) SATA DVD±RW SATA controller	Serial ATA, SATA 3.0Gb/s,	00 rpm, 3.5" D±RW SATA 1.5Gb/s Drive integrated in chipset, RAID 0, 1 support, lisks, two SATA connectors for opticals	Bay ② 5.25", 1.6" high, access, open open open (media reader) Bay ④ 3.5", 1" high, internal, std disk opt disk Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)			
Chipset	Intel 3450 Chipset,	PCH) for PCI, ethernet, and USB,	Slot 2: half-ler Slot 3: half-ler	ngth,full-height, PCle 2.0 x1 ngth,full-height, 32-bit PCl 2.3 ngth,full-height, 32-bit PCl 2.3		
Audio Speaker Ethernet Security chip Keyboard Mouse Power supply Cooling Rack mount	Six USB 2.0, serial (9-pin) three analog audio ports (FireWire PCI adapter, 139 two 6-pin ports in rear High Definition (HD) Audio Internal speaker for busine One gigabit ethernet on pl STMicroelectronics ST19N Preferred Pro USB Keybox Optical Wheel Mouse (US 280 watts with variable sp 80 PLUS® Bronze qualified 4 fans (power supply, CPU Rack shelf support	line-in, line-out, mic-in) 4a-2000, 400Mbps, b, Realtek® ALC662 codec ess audio anar, Intel 82578DM NP18 Trusted Platform Module (TPM), TCC ard (USB connector), 104-key, black, Leno B connector), black, Lenovo logo eed fan, autosensing, 85% PSU, d, rear, front)	·	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)		
Preloaded operating system ²⁰ - Genuine Windows® 7 Professional 64 Preloaded applications⁵ (only some listed) ■ Rescue and Recovery™ ■ ThinkVantage Toolbox ■ Norton™ Internet Security 2009 (30 days of virus definitions) ■ Adobe® Reader® ■ Adobe Flash® Player ■ Microsoft® Office 2007 Trial (60-day) ■ Corel® Burn.Now™ (DVD±RW) ■ Corel DVD MovieFactory® (DVD±RW)		Accessories 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 160GB SATA 3.0Gb/s Disk (7200 rpm) 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 NVIDIA Quadro 512MB FX 380 NVIDIA Quadro 512MB FX 580 More accessories on O-CAD sheet Other accessories at lenovo.com/acces	43R2032 43R2033 57Y4138 09N4254 41N3015 43R1990 45J7918 45K1675 45K1669 57Y4398 45K1670 45K1671	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		

ThinkStation® E20 Accessories

Partial list of accessories supported on ThinkStation E20

M	emo	r۷

1GB PC3-10600 DDR3 Non-ECC UDIMM	57Y4389 ann 01/12/10
1GB PC3-10600 DDR3 Non-ECC (25-Pack)	57Y4419 ann 01/12/10
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
1GB PC3-10600 DDR3 ECC UDIMM	43R2032 ann 03/31/09
2GB PC3-10600 DDR3 ECC UDIMM	43R2033 ann 03/31/09
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138 ann 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

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
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918 ann	08/19/08
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

Removable storage

ricinovable storage	
USB 2.0 Essential Memory Key 8GB	45J7905 ann 07/15/08
USB 2.0 Essential Memory Key 32GB	45K1258 ann 10/28/08
USB 2.0 Ultra Secure Memory Key 4GB	45J5917 ann 08/26/08
USB 2.0 Ultra Secure Memory Key 8GB	45J5918 ann 08/26/08
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 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	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 ⁵²	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 ⁵²	45K1696 ann 11/25/08
Lenovo Wireless Laser Mouse - Red/Black ⁵²	51J0198 ann 11/25/08
52 Wireless via 2.4GHz technology using a mid	cro-size USB receiver.

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

Monitors

Lenovo D186 Wide 18.5" Monitor	2580AB1	ann 01/12/10
Lenovo L2461x Wide 23.6" Monitor	4015HB1	ann 01/05/10
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 L2440p Wide 24" Monitor	4420HB2	ann 09/17/08
More information at www.lenovo.com/thinks	vision	

Monitor accessories⁴⁶

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
46 Compatible on selected Lenovo and Thin	nkVision mo	nitors.

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

Graphics

DisplayPort to Single-link DVI-D Cable ⁵⁰ NVIDIA Quadro 256MB NVS 295	45J7915	ann 08/05/08
NVİDIA Quadro 256MB NVS 295	45K1669	ann 04/21/09
NVIDIA Quadro 512MB NVS 450	57Y4398	ann 01/19/10
NVIDIA Quadro 256MB FX 380	45K1670	ann 03/31/09
NVIDIA Quadro 512MB FX 580	45K1671	ann 03/31/09
50 Attaches to calcuted Display Part graphic	00 00 400	

⁵⁰ Attaches to selected DisplayPort graphics cards.

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

Multimedia

JSB 2.0 Lenovo	Webcam	40Y8519	ann	08/29/06

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

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 S20



Lenovo ThinkStation S20



Lenovo ThinkStation S20



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



Lenovo ThinkStation Graphics Card Option NVIDIA® Quadro® FX 380 (45K1670)



Lenovo ThinkStation Graphics Card Option ATI™ FirePro™ V3700 (51J0509)

								Diskett	e					
Type- Name model	Slot x bay Processor GHz	Memory DIMMs	Memory speed	Disk(s)	Disk size I	RAID	SATA optical	or Med reade		Graphics adapter(s)	1394 adptr	STAR 5.0	Preload	Avail date
\$20 4105-11U \$20 4105-12U \$20 4105-13U \$20 4105-14U \$20 4105-16U \$20 4105-38U \$20 4105-38U \$20 4105-41U	5x6 E5504 2.00 5x6 E5506 2.13 5x6 E5540 2.53 5x6 E5506 2.13 5x6 W5580 3.20 5x6 E5540 2.53 5x6 W3540 2.93	2 x 1GB 2 x 2GB 2 x 2GB 2 x 1GB 2 x 2GB 4 x 1GB 2 x 1GB 3 x 1GB	1066MHz 1066MHz 1066MHz 1066MHz 1333MHz 1066MHz 1066MHz 1066MHz	1 x 500GB 1 x 500GB 2 x 500GB 1 x 150GB 2 x 300GB 1 x 250GB 1 x 250GB 1 x 250GB	3.5" 3.5" 2.5" 2.5" 3.5" 3.5" 3.5"	0	DVD±RV DVD±RV DVD±RV DVD±RV DVD±RV DVD±RV DVD±RV DVD±RV	W Media	a 1 a 1 a 1 a 1 a 1 a 1	x FX380 x FX1800 x FX1800 x FX4800 x FX4800 x FX4800 x V5700 x V3700 x FX1800 M Program	1394 1394	ES50 ES50 ES50 ES50 ES50	Bus32 Bus64 Bus64 Bus32 Bus64 Bus64 Bus32 Pro64	Mar 09 Mar 09 Mar 09 Mar 09 Mar 09 Mar 09 Mar 09 Mar 09
Implementation Memory	2GB, 3GB, or 4GI DDR3*** or PC3-1 3-channel capable *** System automatic	asfers/seconemory conemory con	and) QPI (Controller, and 4 or E5506 as memory of 0 with quantroller, and 10 with quantroller, a	QuickPath In d 8MB cach is 6 with quad- controller, at d-core, 5.84 d 8MB cach id-core, 6.4 d 8MB cach e LGA1366 gLIMM, PC3-8 3, ECC, ockets	terconi le or core, nd 4ME 6GT/s le or GT/s 0 le socket	a cad QPI, QPI,	IHz	 6.9"W : 175mm 38.5 lb 31-liter Remov Toolles Toolles Illumina Rack s 	x 19 1 W (17 able s sic s di s ac ated helf	x 483mm .5kg) max e handle or de cover re sk and opt dapter rete front icon support	8"H (w D x 478 configu n top fr emoval ical dri ntion s	ith handle) 8mm H uration ont ve removal	dis dis	edia
Graphics	Some: NVIDIA Q two Disple Some: NVIDIA Q slot width, Some: ATI™ Fire two dual-l Some: ATI FireP	x16 adapi use auxilia Quadro® F nk DVI-1, 3 uadro FX yPort, one luadro FX two Displa Pro™ V37 ink DVI-1, 3 ro V5700, avPort, one	ry power c X 380, PC 5W 1800, PCle 4800, PCle 4800, PCle ayPort, one 00, PCle x 35W PCle x16 a e dual-link I	onnector(s) le x16 adapt e x16 adapt DVI-I***, 59 e x16 adapte dual-link D 16 adapter, adapter, 512 DVI-I****, 49	from F ter, 25 er, 768 W er, 1.50 VI-I*** 256ME	SU 6MB 6MB, 6B, 1	oport, , two 1W	Bay ② 5 Bay ③ 3 Bay ④ 3 Bay ⑤ 3 Bay ⑥ 3 Slot 1: fu Slot 2: fu Slot 3: fu Slot 4: fu	.25", .5", .5", .5", ill-le ill-le ill-le	, 1.6" high 1" high, 1" high, 1" high, 1" high, ngth, full- ngth, full- ngth, full- ngth, full-	exte exte inter inter inter height, height, height	, 32-bit PC	nedia readisk or opt disk disk x16 (75W x4** x16 (75W	* max)
Media reader SATA disk(s) SATA DVD±RW Disk controller	20-in-1 media read Some: 250GB or Some: 150GB or	der, interna 500GB, S. 300GB, S. er DL DVD: 3.0Gb/s, in	al USB 2.0 ATA 3.0Gb ATA 3.0Gb ERW SATA tegrated in	/s, 7200 rpn /s, 10000 rp 1.5Gb/s Dri ICH10R,	n, 3.5" om, 2.5 ive		cals			Side (keys)Padlo padlo	cover look ck look ck prol	SECURI' p (see inforce) cock (ships of the rear force) t (in rear force)	rmation or with two id or opt pad cover rem	dentical lock;
Chipset Front ports Rear ports IEEE 1394 adp Audio Speaker Ethernet Security chip	Intel X58 Express (ICH10R) for RAIL Two USB 2.0, mic Eight USB 2.0, eS (line-in, mic-in, fro Optical SPDIF dig	s Chipset, D 0, 1, 5 surophone (3 ATA, seria nt-out, rea ital out, Op PCI adapte D) Audio, A or business net on plan	Intel I/O C Ipport, Win 8.5mm), he I (9-pin), et r-out, cente Tr, 1394a-20 Analog Dev s audio lar, Broadc	ontroller Hubond® W836 adphone (3 hernet (RJ- er/sub-out, s F digital in 000, 400Mb rices AD198 om® BCM57	b 10 R 527DH 5mm) 45), six side-ou ps, two 8A coo	AID G-P (ana t),	Super I/	io ports		Kensi prohil • Powe • Admii • Boot • Boot • Seria • USB	ington® pits sid r-on pa nistrato sequer withou I port I/ port dis	Microsave e cover rer assword or password nce control /O control sablement kVantage®	er® cable; moval) d mouse, c	II)
Keyboard Mouse Power supply Cooling Rack mount	Preferred Pro USE Optical Wheel Mo 625 watts with 120 Climate Savers® C 3 to 5 fans (power Rack shelf suppor	Reyboard use (USB of Omm botton Computing Supply, CF	d (USB con connector) m-mounted Bronze, 80	inector), 104 , black d variable sp) PLUS® Bro	1-key, beed fa	n, ur ıalific	niversal, ed		SAS	RoHS-o Some:	ENER ENER EPEAT ES5.0	RD® certified ant GY STAR® I™ Gold ra models)	5.0-comp ting (only	
- Some: Gen Profi via c Viste - Some: Gen Busi - Some: Gen Busi	erating system ²⁰ uine Windows® XP sesional 64-bit (prein owngrade rights in W ® Business 64) uine Windows Vista ness 32 uine Windows Vista ness 64 s: Vista Premium log	stalled /indows	2GB PC3 2GB PC3 4GB PC3 750GB S 1TB SAT Blu-ray™ ThinkVisi NVIDIA (NVIDIA (ATI FireF	ories 3-8500 DDF 3-8500 DDF 3-10600 DD 3-10600 DD 6ATA 3.0Gb/s E Burner SAT ion® L2440p Quadro NVS Quadro FXS Pro 1GB V77 cessories at	3 ECC R3 EC R3 EC s Disk Disk (72 A 1.50 Wide 5 290 580 750	C UI C UI (720 (720 r 3b/s 24" l	IMM DIMM DIMM 0 rpm) pm) Monitor	51J0 51J0 43R: 57Y4 43R 45J7 45K 4420 43R 45K 51J0 ssories)504 203 4138 199 7918 167 1018 176	Cusi part for s Mon next Thin http. OI (ir Pc	tomer I s only selected - Fri ca busing kPlus [†] ://lenov nsite so n eligib ost war ervices our x 7	s and labo Replaceabl (with limite d overage ex ess day res M services vo.com/thin ervice upgi le location: ranty main V day ¹⁴ toll- warranty p 5-7378	e Unit (CF ed onsite s am - 5 pm cluding h sponse tin available; kplus/warr rade optio s) ⁷ tenance free suppo	service , olidays, ne) see anty ns

Name	.,,,,,,	Slot x bay	Processor	GHz	Memory DIMMs	Memory speed	Disk(s)	Disk size	RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	ENERGY STAR 5.0	Preload	Avail date
S20	4105-54U	5x6	W3503	2.40	2 x 1GB	1066MHz	1 x 500GB ²	3.5"	None	DVD±RW	Media	1 x FX380		Bus32	May 09
S20	4105-55U	5x6	W3505	2.53	2 x 1GB	1066MHz	1 x 500GB	3.5"	None	DVD±RW	Media	1 x FX580		Bus32	May 09
S20	4105-56U	5x6	W3520	2.66	2 x 2GB	1066MHz	1 x 500GB	3.5"	None	DVD±RW	Media	1 x FX380	ES50	Bus64	May 09
≈ S20	4105-57U	5x6	W3540	2.93	2 x 2GB	1066MHz	1 x 500GB	3.5"	None	DVD±RW	Media	1 x FX580		Bus64	May 09
≍S20	4105-58U	5x6	W3570	3.20	2 x 2GB	1333MHz	1 x 500GB	3.5"	None	DVD±RW	Media	1 x FX580		Bus64	May 09

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

Processor Implementation	4.8GT/s (giga-transfers/s 1066MHz DDR3 memor Intel Xeon Processor W QPI, 1066MHz DDR3 m Intel Xeon Processor W 1333MHz DDR3 memor	W3503 or W3505 with dual-core, second) QPI (QuickPath Interconnect), y controller, and 4MB cache or /3520 or W3540 with quad-core, 4.8GT/s emory controller, and 8MB cache or /3570 with quad-core, 6.4GT/s QPI, y controller, and 8MB cache 8 package, one LGA1366 socket	 6.9"W x 19.0 175mm W x 38.5 lb (17.5 31-liter Removable h 	color; metal case "D x 18.8"H (with handle) 483mm D x 478mm H kg) max configuration mandle on top front Optical Optical Optical			
Memory	2GB or 4GB std, 24GB r DDR3 or PC3-10600 133 3-channel capable, six 2						
Graphics	* Adapters >75W use au Some: NVIDIA® Quadr two dual-link DVI Some: NVIDIA Quadro two DisplayPort,	dapters required for quad monitor support, xiliary power connector(s) from PSU o FX 380, PCIe x16 adapter, 256MB, I-I, 35W FX 580, PCIe x16 adapter, 512MB, one dual-link DVI-I***, 40W nectors are active at a time	• Rack shelf so Bay ① 5.25", Bay ② 5.25", Bay ③ 3.5", Bay ④ 3.5",	upport 1.6" high, external, std optical 1.6" high, external, open 1" high, external, std media reader 1" high, internal, std disk			
Media reader SATA disk(s) SATA DVD±RW Disk controller	Serial ATA, SATA 3.0Gb/	'200 rpm, 3.5" VD±RW SATA 1.5Gb/s Drive	Bay ® 3.5", Slot 1: full-leng Slot 2: full-leng Slot 3: full-leng	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 (ICH10R) for RAID 0, 1, Winbond® W83627DHG-			gth, full-height, 32-bit PCI 2.3			
Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard Mouse Power supply	Eight USB 2.0, eSATA, s (line-in, mic-in, front-out, Optical SPDIF digital out None High Definition (HD) Aud Internal speaker for busin One gigabit ethernet on Broadcom Trusted Platfo Preferred Pro USB Keyb Optical Wheel Mouse (U 625 watts with 120mm b	planar, Broadcom® BCM5755 rm Module, TCG 1.2-compliant oard (USB connector), 104-key, black		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			
Cooling Rack mount	3 to 5 fans (power supply Rack shelf support	y, ČPU, rear, opt front PCI [>75W graphics],	opt front [SAS])	Serial port I/O control USB port disablement (front or all)			
Preloaded oper - Some: Genuin Busine - Some: Genuin Busine - Vista Premium Preloaded appl only some listed - Rescue and R - McAfee® Virus (30 days of vir - Lenovo® Syste - Adobe® Reade	ne Windows® Vista® ess 32 ne Windows Vista ess 64 n logo ications⁵ (all OSes;) lecovery™ eScan® Plus rus definitions) em Toolbox er rr® Business Edition ® (DVD±RW)	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 750GB SATA 3.0Gb/s Disk (7200 rpm) 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/accessories	51J0503 51J0504 43R2032 43R2033 57Y4138 43R1991 45J7918 45K1675 43R1964 45J5918 4420HB2 43R1765 45K1671 51J0511 ories	GREENGUARD® certified RoHS-compliant Some: ENERGY STAR® 5.0-compliant EPEAT™ Gold rating (only for ES5.0 models) 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			

Nam	Type- e model	Slot x bay	r Processoi	r GHz	Cores	Memory DIMMs		Disk(s)	Disk size	RAID	SATA optical	Diskette or Media reader	Graphics adapter(s		ENERGY STAR 5.0 Preload	Avail I date
S20	4105-79U	5x6	W3550	3.06	4	2x2GB	1066MHz	1x500GB ²	3.5"		DVD±RW	Media	1xFX580	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

Processor Implementation	Intel Xeon® Processor W3550 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache Processor uses FC-LGA8 package, one LGA1366 socket	• 6.9"W x 19.0	color; metal case
Memory	4GB std, 24GB max, UDIMM, PC3-8500 1066MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets	_	483mm D x 478n kg) max configura
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU NVIDIA® Quadro® FX 580, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I***, 40W *** Only two display connectors are active at a time	Removable hToolless sideToolless diskToolless adaIlluminated fi	ront icons
Media reader SATA disk(s) SATA DVD±RW 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 ① 5.25", Bay ② 5.25", Bay ② 3.5",	1.6" high, exterr
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 ④ 3.5", Bay ⑤ 3.5",	1" high, internation internation internation internation internation.
Front ports Rear ports IEEE 1394 adptr		Slot 2: full-leng Slot 3: full-leng Slot 4: full-leng	gth, full-height, F gth, full-height, F gth, full-height, F gth, full-height, F gth, full-height, S nical
Audio Speaker Ethernet Security chip	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 chip Side cover loc
Keyboard Mouse Power supply Cooling 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	•	keys) • Padlock loop padlock prohil • Security slot (
I	. 20		i . omoi on pac

Preloaded operating system²⁰

Genuine Windows® Vista® Business 64

Vista Premium logo

Preloaded applications⁵ (only some

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

Accessories

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 4GB PC3-10600 DDR3 ECC UDIMM 43R2032 43R2033 57Y4138 750GB SATA 3.0Gb/s Disk (7200 rpm) 43R1991 1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 Blu-ray™ Burner SATA 1.5Gb/s 45K1675 ThinkVision® L2440p Wide 24" Monitor NVIDIA Quadro NVS 290 4420HB2 43R1765 NVIDIA Quadro FX 580 45K1671 ATI™ FirePro™ 1GB V7750 51J0511 Other accessories at lenovo.com/accessories

- th handle)
- mm H ration
- nt
- re removal



rnal, std optical

rnal, open rnal, std media reader std disk

nal, nal, opt disk nal, opt disk

PCIe 2.0 x16 (75W* max)

PCIe 2.0 x4*3 PCIe 2.0 x16 (75W* max)

PCle x1

32-bit PCI 2.3

SECURITY

- (see information on left) ock (ships with two identical
- (in rear for opt padlock; hibits side cover removal) t (in rear for optional
- Microsaver® cable; e cover removal)
- assword
- · 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

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

	`) - 10	<u> </u>													
Type- Name model	Slot x bay Processor			Memory speed	Disk(s)	Disk size	Pre-confi RAID	g SAT		Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Win7 preload	Avail date	
\$20 4105-97U \$20 4105-98U \$20 4105-99U	5x6 W3505	2.53 2x	<1GB 1	333MHz	1x500GB	3.5"	No No No	DVD±I DVD±I DVD±I	RW	Media Media Media	1xFX380 1xFX580 1xFX1800	No No No	Pending Pending Pending		Oct 09 Oct 09 Oct 09	
	 Faster, me High perfe Environm Innovative These sm These mo 	ormance entally fi e therma nall and n	works riendly I desig nediun	tation wi , cool, an in with op n busines	th premiun d quiet with otimized fai ss (SMB) m	n grap h rock n plac odels	hics for s solid en ement, fo	special gineeri or a coo	ized ing oler,	professi quieter, r	onals more reliabl	e PC				
Processor Implementation	Intel Xeon® 4.8GT/s (giga 1066MHz DE Intel Xeon P 1066MHz DE Processor us	a-transfe DR3 men Processo DR3 men	rs/seconory control with the control of the control	ond) QPI ontroller, 20 with q ontroller,	(QuickPath and 4MB c uad-core, and 8MB c	n Inter ache 4.8G	connect) or Γ/s QPI,	,	• R • 6.	.9"W x 19 75mm W	ck color; me 0.0"D x 18.8 x 483mm D .5kg) max o	"H (wit) x 478	h handle) mm H	opt	ical ical	
Memory	2GB or 4GB PC3-10600 1 3-channel ca *** System a DDR3 memo	std, 240 333MHz pable, si utomatic ory contro	BB max DDR3 ix 240- ally clo	k, UDIMN 1***, ECC pin DIMN ocks down	1 , , // sockets n for proce	ssors	with 1066		• R • To • To • III	oolless si oolless di oolless ac uminatec	e handle on de cover re sk and optio dapter reter I front icons	moval cal drivi ition		d	isk isk isk	
Graphics	Some: NVID two I Some: NVID	75W use DIA® Qua dual-link DIA Quac DisplayPo DIA Quac DisplayPo DisplayPo	e auxilia adro® I DVI-I, (dro FX ort, one dro FX ort, one	ary powe FX 380, F 35W 580, PC e dual-lin (1800, Pe e dual-lin	r connector Cle x16 ada le x16 ada k DVI-I****, Cle x16 ad k DVI-I****.	r(s) fro dapte pter, 5 , 40W lapter, , 59W	om PSU r, 256MB, 512MB,		Bay Bay Bay Bay Bay	/ ② 5.25' / ③ 3.5", / ④ 3.5", / ⑤ 3.5",	, 1.6" high, , 1.6" high, 1" high, 1" high,	exter exter interr interr	nal, open' nal, std m nal, std di nal, opt di	edia read sk sk	der	
Media reader SATA disk(s) SATA DVD±RW Disk controller	20-in-1 media 500GB, SATA Super Multi-E Serial ATA, S three SATA of	, intern 's, 7200 L DVD Gb/s, ir	al USB 2 0 rpm, 3.9 ±RW SA ntegrated	2.0 5" TA 1.5Gb/s I in ICH10F	Drive		cals	Slo Slo Slo	t 2: full-le t 3: full-le t 4: full-le t 5: full-le	ngth, full-h ngth, full-h ngth, full-h ngth, full-h	th, full-height, PCIe 2.0 x16 (75W* max) 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					
Chipset	Intel X58 Ex (ICH10R) for Winbond® Wa	RAID 0,	1, 5 s	upport,		Hub	10 RAID		** X	16 mech		h, internal, std disk h, internal, opt disk h, internal, opt disk h, internal, opt disk full-height, PCle 2.0 x16 (75W* max) full-height, PCle 2.0 x4** full-height, PCle 2.0 x16 (75W* max) full-height, PCle x1 full-height, 32-bit PCl 2.3 SECURITY focurity chip (see information on left) full-height cover lock (ships with two identical ys) full-height cover removal) full-height side cover removal)				
Front ports Rear ports IEEE 1394 adpt Audio Speaker Ethernet Security chip	Two USB 2.0 Eight USB 2.0 (line-in, mic-i Optical SPDI r None High Definitio Internal spea One gigabit 6 Broadcom Tr	.0, eSATA in, front-o IF digital on (HD) A aker for b ethernet	A, seria out, rea out, O Audio, ousines on plai	al (9-pin), ar-out, ce ptical SP Analog D s audio nar, Broa	ethernet (inter/sub-ou DIF digital Devices AD dcom® BCI	RĴ-45 ut, sid in 1988 <i>l</i> M575), six ana e-out), A codec	log aud	dio p	ports	 Side c keys) Padloc padloc Securi Kensir prohib Power 	Security chip (see information on left)Side cover lock (ships with two identical				
Keyboard Mouse Power supply Cooling	Preferred Pro Optical Whee 625 watts wit Climate Save 3 to 5 fans (p	o USB Keel Mouse th 120mr ers® Com bower su	eyboar e (USB m botto nputing	d (USB connectors) connectors om-mound Bronze,	connector), or), black ted variable 80 PLUS®	104-k e spec Bronz	ey, black ed fan, ur e qualifie	iversal d		ront [SAS	Boot sBoot vSerialUSB p	equend vithout port I/C	password ce control keyboard, control ablement (f	,		
Rack mount Preloaded ope	Rack shelf su	• • • • • • • • • • • • • • • • • • • •	Δ	ccessor	ios						— Supports	Think\	Vantage® te	echnolog	ies	
- Genuine Wir Professional	ndows®7 64		10 20	GB PC3- GB PC3-	8500 DDR: 8500 DDR: 10600 DDR	3 ECC	C UDIMM		5	51J0503 51J0504 13R2032	RoHS-co	mpliar)® certified it RGY STAR	® 5.0-cor	mpliant	
Preloaded applisted) Rescue and ThinkVantag Norton Interr (30 days of v Adobe® Rea Microsoft® O Roxio® Creat (DVD±RW) Roxio MyDV Corel® WinD	Recovery™ e System Upda net Security™ virus definitions der ffice 2007 Trial tor® Business E D® (DVD±RW)	ate) (60-day) Edition	20 40 75 11 B T U T N A	GB PC3- GB PC3- 50GB SA TB SATA lu-ray™ E hinkStatid SB 2.0 U hinkVisio VIDIA Qu TI™ FireF	10600 DDf 10600 DDf 10600 DDf ITA 3.0Gb/s D 3.0Gb/s D Surner SAT. on Rail Kit Iltra Secure n® L2440p uadro NVS Pro™ 1GB \ essories at	R3 EC R3 EC S Disk isk (7: A 1.50 Wide Wide 290 V7750	C UDIMI C UDIMI (7200 rp 200 rpm) Gb/s nory Key (24" Moni	M M m) 3GB tor	4 5 4 4 4 4 4 4	3R2033 37Y4138 3R1991 15J7918 15K1675 13R1964 15J5918 1420HB2 3R1765 51J0511	Cust parts for so Mon next Think http: On (in Po set	ar parts omer R s only (v elected - Fri co busine kPlus™ //lenove site se eligible st warr rvices our x 7	and labor eplaceable with limited parts ³ , 8 a verage excess day respectives a co.com/think rvice upgrae locations anty maint day ¹⁴ toll-fit varranty pe	e Unit (CI d onsite s m - 5 pm cluding h ponse tir vailable; cplus/warr ade optio) ⁷ enance	service , , olidays, ne) ; see ranty ons	

	lot x bay Processor GHz	Memory Memory DIMMs speed		Disk size RAID	SATA optica		Graphics adapter(s)	1394 ENERGY adptr STAR 5.0	Preload	Avail date
\$20 4157-11U \$ \$20 4157-12U \$ \$20 4157-13U \$ \$20 4157-14U \$ \$20 4157-15U \$ \$20 4157-16U \$ \$20 4157-48U \$ \$20 4157-49U \$ \$20 4157-51U \$ \$20 4157-52U \$	5x6 W3520 2.66 5x6 E5502 1.86 5x6 E5506 2.13 5x6 E5506 2.13 5x6 E5506 2.13 5x6 E5506 2.13 5x6 E5506 2.13 5x6 E5506 2.3 5x6 E5506 2.3 5x6 E5500 2.53	2 x 1GB 1066M 2 x 1GB 1066M 2 x 2GB 1066M 2 x 1GB 1066M 2 x 1GB 1066M 2 x 1GB 1066M 2 x 1GB 1066M 4 x 1GB 1066M 4 x 1GB 1066M 3 x 1GB 1066M	Hz 1 x 500GB Hz 2 x 150GB Hz 2 x 250GB Hz 1 x 250GB Hz 2 x 500GB Hz 1 x 250GB Hz 1 x 250GB Hz 2 x 300GB	3.5" 2.5" 1 3.5" 3.5" 0 3.5" 0 3.5" 2.5" 0	DVD±R DVD±R DVD±R DVD±R DVD±R DVD DVD DVD		x FX580 x FX1800 x FX380 x NVS290 x FX4800 x V3700 x V5700 x V7750	1394 ES50 1394 ES50	Bus32 Bus64 Bus32 Bus32 Bus64 Bus32 Bus64 Bus64 Pro64	Mar 09 Mar 09 Mar 09 Mar 09 Mar 09 Mar 09 Mar 09 Mar 09 Mar 09
Implementation Memory	Intel® Xeon® Proce 4.8GT/s (giga-tran 1066MHz DDR3 m Intel Xeon Proces 800MHz DDR3 me Intel Xeon Proces 800MHz DDR3 me Intel Xeon Proces 1066MHz DDR3 me Intel Xeon Proces 26B, 36B, or 46E DDR3***, ECC, 3-channel capable *** System automa DDR3 memory col DDR3 memory col	sfers/second) QPI emory controller, ssor E5502 with demory controller, a ssor E5506 with q emory controller, a ssor E5540 with q emory controller, C-LGA8 package, B std, 24GB max, , six 240-pin DIMI atically clocks dow	(QuickPath Intand 8MB cach ual-core, 4.8G nd 4MB cache uad-core, 5.86 and 8MB cach one LGA1366 sUDIMM, PC3-8	terconnect e or iT/s QPI, or GT/s QPI, or GGT/s QPI, e socket	/IHz MHz	175mm W 38.5 lb (17 31-liter Removabl Toolless s Toolless d Toolless a Illuminatee Rack sheli	9.0"D x 18.6 x 483mm I 7.5kg) max e handle or ide cover re isk and opti dapter retei d front icons f support	B"H (with handle D x 478mm H configuration In top front emoval ical drive removantion	me disk disk	dia on the control of
Graphics	Some: NVIDIA Q two dual-lii Some: NVIDIA Q two Displa Some: NVIDIA Q two Displa Some: NVIDIA Q 2 slot widt Some: ATI™ Fire	x16 adapters requise auxiliary power auxiliary power auxiliary power auxiliary power auxiliary systems in NVS 290 link DVI-I, 35W auxiliary systems auxiliar	r connector(s) PCIe x16 ada 59 with dual D' Cle x16 adapter k DVI-I****, 40' Cle x16 adapter k DVI-I***, 59' Cle x16 adapter , one dual-link	from PSU pter, 256M VI-I dongle r, 256MB, W er, 768MB, W er, 1.5GB, DVI-I****,	oport, B, , 21W	Bay ② 5.25 Bay ③ 3.5", Bay ④ 3.5", Bay ⑤ 3.5", Bay ⑥ 3.5", Slot 1: full-le Slot 2: full-le Slot 3: full-le Slot 4: full-le	", 1.6" high, 1" high, 1" high, 1" high, 1" high, ength, full- ength, full- ength, full- ength, full- ength, full-	, external, std , external, ope external, std internal, std internal, opt height, PCle 2.0 height, PCle 2.0 height, PCle x1 height, 32-bit PO	media read disk or opt disk disk 2 x16 (75W* 2 x4** 2 x16 (75W*	* max)
Media reader SATA disk(s)	Some: ATI FirePrivo Displa Some: ATI FirePrivo Displa **** Only two displa *** Only two displa **** Only two displa **** Only two displa *** Only two displa ** O	ro V5700, PCIe x1 yPort, one dual-lir o V7750, PCIe x1 yPort, one dual-lir ay connectors are ler, internal USB 2 500GB, SATA 3.0	nk DVI-I****, 49 6 adapter, 1GE k DVI-I****, 76 active at a time 2.0 Gb/s, 7200 rpm	W 8, W e 1, 3.5"			• Side keys) • Padlo padlo • Secu Kensi	rity chip (see info cover lock (ships ock loop (in rear ock prohibits side rity slot (in rear f ington [®] Microsav bits side cover re	s with two id for opt pad cover rem or optional ver® cable;	dentical lock;
SATA DVD SATA DVD±RW Disk controller Chipset	Some: 150GB or Some: DVD-ROM Some: Super Mul Serial ATA, SATA 3 three SATA connec Intel X58 Express	DL SATA 1.5Gb/s ti-Burner DL DVD: 8.0Gb/s, integrated ctors for disks, two a Chipset , Intel I/O	16X-48X Max ERW SATA 1.50 I in ICH10R, SATA connect Controller Hu	⁴ Drive Gb/s Drive ors for opt b 10 RAID			PoweAdmiBootBootSeria	er-on password nistrator passwo sequence contro without keyboar I port I/O contro port disablemen	rd bl d, mouse, c	
Front ports	(ICH10R) for RAID Two USB 2.0, micr	ophone (3.5mm),	headphone (3.	5mm)			Suppor	ts ThinkVantage	® technolog	gies
Rear ports IEEE 1394 adptr Audio Speaker Ethernet	Eight USB 2.0, eS. (line-in, mic-in, froi Optical SPDIF digi Some: FireWire P High Definition (HI Internal speaker fo One gigabit ethern	nt-out, rear-out, ce tal out, Optical SF CI adapter, 1394a D) Audio, Analog I r business audio	enter/sub-out, s PDIF digital in I-2000, 400Mbp Devices AD198	ide-out), os, two 6-p 8A codec		·	RoHS-c Some:	GUARD® certifie ompliant ENERGY STAR® EPEAT™ Gold ra ES5.0 models)	5.0-compl	
Security chip	Broadcom Trusted	Platform Module,	TCG 1.2-comp	liant				LIMITED WAR		
Keyboard Mouse Power supply Cooling Rack mount	Preferred Pro USE Optical Wheel Mot 625 watts with 120 Climate Savers® C 3 to 5 fans (power Rack shelf support	use (USB connect omm bottom-moun omputing Bronze, supply, CPU, rear	or), black ted variable sp 80 PLUS® Bro , opt front PCI	eed fan, u nze qualifi [>75W gra	niversal, ed ohics], o	opt front [SAS	Cust parts for s S]) Mon	ar parts and labe tomer Replaceal s only (with limit elected parts³, 8 - Fri coverage e business day re kPlus™ services	ole Unit (CF ed onsite s am - 5 pm, xcluding he esponse tim	ervice olidays, ne)
- Some: Genui 64-bit rights - Some: Genui - Some: Genui	rating system ²⁰ ine Windows® XP Pr (preinstalled via dov in Windows Vista® E ine Windows Vista B ine Windows Vista B : Vista Premium log	wngrade Business 64-bit) Jusiness 32 Jusiness 64	Preloaded a only some li Rescue a McAfee (30 days o Lenovo Corel Wi	sted) nd Recove VirusScan of virus de System Too	ry™ Plus initions) olbox		http: • Or (in • Po se ≈ 24 he	.//lenovo.com/thinsite service upon eligible location is warranty main rvices our x 7 day ¹⁴ tolling the warranty 300-426-7378	nkplus/warra grade optio ns) ⁷ ntenance -free suppo	anty ns
See feetnetee for	important warranty in	formation							() Lenovo

Name	Type- model	Slot x bay	Processo	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Preload	Avail date
S20 4	157-79L	5x6	W3550	3.06	4	1x2GB	1066MHz	1x500GB ²	3.5"		DVD±RW	Media	1xFX1800	None	Pending	Bus64	Aug 09
S20 4	157-81L	5x6	W3550	3.06	4	2x2GB	1066MHz	1x500GB	3.5"		DVD ±RW	Media	1xFX3800	None	Pending	Bus64	Aug 09
S20 4	157-82L	J 5x6	W3580	3.33	4	2x2GB	1333MHz	1x500GB	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
- These models have a 3-year limited warranty

Processor Implementation	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	Tower Raven black 6.9"W x 19.0 175mm W x 38.5 lb (17.5	"D x 18.8 483mm E
Memory	2GB or 4GB std, 24GB max, UDIMM, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets	31-literRemovable hToolless sideToolless disk	cover re
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU * 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	 Toolless ada Illuminated fr Rack shelf st Bay ① 5.25", Bay ② 5.25",	pter reter ront icons upport 1.6" high, 1.6" high,
Media reader SATA disk(s) SATA DVD±RW 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 ④ 3.5", Bay ⑤ 3.5", Bay ⑥ 3.5", Slot 1: full-leng	
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-leng Slot 3: full-leng Slot 4: full-leng Slot 5: full-leng	gth, full-l gth, full-l
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-coptical 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 mechar	Secur Side (keys) Padlo padlo(Security) Security
Keyboard Mouse Power supply Cooling 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], of Rack shelf support		Kensii prohib • Powei • Admir

Preloaded operating system²⁰

- Genuine Windows® Vista® Business 64
- ♦ Vista Premium logo

Preloaded applications⁵ (only some listed)

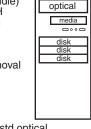
- Rescue and Recovery™
- McAfee® VirusScan® Plus (30 days of virus definitions)

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

Accessories

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 4GB PC3-10600 DDR3 ECC UDIMM 43R2032 43R2033 57Y4138 750GB SATA 3.0Gb/s Disk (7200 rpm) 43R1991 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

- etal case
- 8"H (with handle) D x 478mm H
- configuration
- n top front
- emoval
- ical drive removal
- ntion



optical

external, std optical external, open

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

height, PCIe 2.0 x16 (75W* max)

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

height, 32-bit PCI 2.3

SECURITY

- rity chip (see information on left) cover lock (ships with two identical

- ock loop (in rear for opt padlock; ock prohibits side cover removal) urity slot (in rear for optional ington® Microsaver® cable; bits side cover removal)
- r-on password
- nistrator password
- sequence control
- 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

- 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)⁷

 - Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period via 800-426-7378

Type- Name model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk P	re-confi RAID	g SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Win7 preload	Avail date
S20 4157-A1U S20 4157-A2U							1x500GB ² 1x500GB					1xFX380 1xFX1800				

- 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	1066MHz DDR3 memory Intel Xeon Processor W 1066MHz DDR3 memory	/3503 with dual-core, econd) QPI (QuickPath Interconnect), controller, and 4MB cache or 3520 with quad-core, 4.8GT/s QPI, controller, and 8MB cache B package, 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 31-liter				
Memory	2GB or 4GB std, 24GB m PC3-10600 1333MHz DD 3-channel capable, six 24	nax, UDIMM, R3***, ECC,	 Toolless side 	nandle on top front e cover removal k and optical drive removal pter retention			
Graphics	* Adapters >75W use aux Some: NVIDIA® Quadro two dual-link DVI- Some: NVIDIA Quadro two DisplayPort, of	lapters required for quad monitor support, idiary power connector(s) from PSU FX 380, PCIe x16 adapter, 256MB, I, 35W FX 1800, PCIe x16 adapter, 768MB, one dual-link DVI-I****, 59W nectors are active at a time	• Rack shelf s Bay ① 5.25", Bay ② 5.25", Bay ③ 3.5", Bay ④ 3.5",	upport 1.6" high, external, std optical 1.6" high, external, open 1" high, external, std media reader 1" high, internal, std disk			
Media reader SATA disk(s) SATA DVD±RW Disk controller	Serial ATA, SATA 3.0Gb/s	200 rpm, 3.5" /D±RW SATA 1.5Gb/s Drive	Bay ® 3.5", Slot 1: full-lend Slot 2: full-lend Slot 3: full-lend	1" high, internal, opt disk 1" high, internal, opt disk gth, full-height, PCIe 2.0 x16 (75W* max) gth, full-height, PCIe 2.0 x4** gth, full-height, PCIe 2.0 x16 (75W* max) gth, full-height, PCIe x1			
Chipset	Intel X58 Express Chips (ICH10R) for RAID 0, 1, 5 Winbond® W83627DHG-I			gth, full-height, 32-bit PCI 2.3			
Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet Security chip	Eight USB 2.0, eSATA, se six analog audio ports (lir Optical SPDIF digital out, None High Definition (HD) Audi Internal speaker for busin One gigabit ethernet on p	o, Analog Devices AD1988A codec	-out, side-out),	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 Mouse Power supply Cooling Rack mount	Optical Wheel Mouse (US 625 watts with 120mm bo Climate Savers® Computing Co	oard (USB connector), 104-key, black SB connector), black ottom-mounted variable speed fan, universa ng Bronze, 80 PLUS® Bronze qualified of CPU, rear, opt front PCI [>75W graphics],		Power-on password Administrator password Boot sequence control Boot without keyboard, mouse, diskette			
Preloaded ope	rating system ²⁰	Accessories		Supports ThinkVantage® technologies			
listed) Rescue and F ThinkVantage Norton Intern (30 days of vi Adobe® Reace Microsoft® Of	lications ⁵ (only some Recovery™ e System Update et Security™ rus definitions) ler fice 2007 Trial (60-day) or® Business Edition © (DVD±RW)	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 750GB 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 NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/acces	51J0503 51J0504 43R2032 43R2033 57Y4138 43R1991 45J7918 45K1675 4420HB2 43R1765 45K1671 51J0511	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- Name model	Slot x bay	Processor	GHz	Cores	Memory DIMMs		Disk(s)	Disk size	Pre-conf RAID	SATA optical	Diskette or Media reader	Graphics	ENERGY STAR 5.0	Win7 preload	Global	Avail date
S20 4157-B1I	U 5x6	W3520	2 66	4	2x2GB	1066MHz	1x500GB ²	3.5"	Nο	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

Processor Implementation	Intel Xeon® Processor W3520 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache Processor uses FC-LGA8 package, one LGA1366 socket		D x 18.8"H (with handle)	optical optical
Memory	4GB std, 24GB max, UDIMM, PC3-8500 1066MHz DDR3, ECC, 3-channel capable, six 240-pin DIMM sockets	• 38.5 lb (17.5kg	83mm D x 478mm H g) max configuration	media
Graphics	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	Toolless side of	cover removal and optical drive removal ter retention int icons	disk disk
Media reader SATA disk(s) SATA DVD±RW Disk controller	None 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 ① 5.25", 1. Bay ② 5.25", 1. Bay ③ 3.5", 1" Bay ④ 3.5", 1"	.6" high, external, open 'high, external, std me	dia reader
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 4 3.5", 1" Bay 5 3.5", 1" Bay 6 3.5", 1" Slot 1: full-length	' high, internal, opt dis ' high, internal, opt dis h, full-height, PCle 2.0 x1	k
Front ports Rear ports 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-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in None	Slot 2: full-lengtl Slot 3: full-lengtl Slot 4: full-lengtl	h, full-height, PCle 2.0 x4 h, full-height, PCle 2.0 x1 h, full-height, PCle x1 h, full-height, 32-bit PCl 2	** ` 6 (75W* max)
Audio Speaker Ethernet Security chip	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 - Security chip (see inform - Side cover lock (ships wikeys)	ation on left)
Keyboard Mouse Power supply Cooling	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 (property supply, CPU, rear, opt front PCI [>75W graphics],	ıl,	 Padlock loop (in rear for opadlock prohibits side co Security slot (in rear for of Kensington[®] Microsaver[®] prohibits side cover remo 	ver removal) optional cable;

Preloaded operating system²⁰

Genuine Windows® 7 Professional 64

Cooling Rack mount

Preloaded applications⁵ (only some listed)

Rack shelf support

- 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

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 750GB SATA 3.0Gb/s Disk (7200 rpm) 43R1991 1TB SATA 3.0Gb/s Disk (7200 rpm) 45J7918 Blu-ray™ Burner SATA 1.5Gb/s ThinkVision® L2440p Wide 24" Monitor NVIDIA Quadro NVS 290 45K1675 4420HB2 43R1765 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 45K1671 51J0511

Other accessories at lenovo.com/accessories

- eft) ntical
- k; al)
- 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

- 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)⁷

 - Post warranty maintenance services
- 24 hour x 7 day14 toll-free support during the warranty period via 800-426-7378

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® 1.5GB FX 4800 (45K1674)



Lenovo ThinkStation Graphics Card Option ATI™ FirePro™ 1GB V7750 (51J0511)

Type- Slo Name model ba	ot x Proc- Memory ny essor(s) GHz DIMMs	Memory speed	Disk(s)	Disk size		SATA AID optica		Graphics adapter(s)			Avail date		
D20 4155-29U 69 D20 4155-31U 69 D20 4155-32U 69 D20 4155-33U 69	x9 2 x E5540 2.53 4 x 1GE x9 2 x E5502 1.86 4 x 1GE x9 2 x X5560 2.80 4 x 1GE x9 1 x E5506 2.13 4 x 1GE x9 1 x E5540 2.53 4 x 1GE x9 1 x E5540 2.53 4 x 1GE	3 1066MHz 3 1333MHz 3 1066MHz 3 1066MHz	1 x 250GB 2 x 300GB 1 x 250GB, 1 x 500GB 2 x 300GB	3.5" 2.5" 3 3.5"	SATA SAS	DVD±R 1 DVD±R DVD±R 0 DVD±R	W Media W Media W Media	1 x V5700 1 x FX580 1 x FX1800 1 x FX1800 1 x FX4800 1 x FX580)	Bus64 Bus64 Bus64 Bus64 Bus64 Bus64	Apr 09 Apr 09 Apr 09 Apr 09		
	High performance workThese small and mediu												
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 1ntel Xeon Processor X5 1333MHz DDR3 memory	E5502 with operation of the cond) QPI (controller, and 506 with queen troller, and 540 with queen troller, and 560 with queen troller, and queen	dual-core, QuickPath Interconne d 4MB cache or ad-core, 4.8GT/s QPI d 4MB cache or ad-core, 5.86GT/s QFI nd 8MB cache or ad-core, 6.4GT/s QPI	PI,	• F	3.3"W x 23 210mm W 60 lb (27.1 55-liter Removable Toolless si	x 602mm kg) max co handle od de cover re	1"H (with h D x 485mm onfiguration n top front emoval	n H É	op'	cical cical cical media		
Implementation Memory	Processor uses FC-LGA8 4GB std, 48GB max, UDI PC3-10600 1333MHz DDI 6-channel capable, twelve ** Over six DIMMs require	package, tv MM, PC3-85 R3, ECC, 240-pin DII	vo LGA1366 sockets i00 1066MHz DDR3 or MM sockets**		Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Rack shelf support or optional rail kit								
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	apters requi iliary power FX 580, PC one dual-link FX 1800, PC one dual-link FX 4800, PC DisplayPort, 5700, PCIe	red for quad monitor s connector(s) from PSI Cle x16 adapter, 512M DVI-I***, 40W le x16 adapter, 768MI DVI-I***, 59W le x16 adapter, 1.5GE 1 dual-link DVI-I***, 12 x16 adapter, 512MB, DVI-I***, 49W	J' ' B, 3,	, Ba Ba Ba Ba Ba Ba Ba Ba Slo	y 2 5.25" y 3 5.25" y 4 3.5", y 5 3.5", y 6 3.5", y 7 3.5", y 9 3.5", ot 1: half-le t 2: full-le	, 1.6" high, 1.6" high, 1.6" high, 1" high, 1" high, 1" high, 1" high, 1" high, ength, full-ngth, full-r	external internal, internal, internal, internal, internal, height, PCleight, PCle	open, open, std mer std disk std or copt disk opt disk opt disk opt disk ex1 e 2.0 x16	dia read copt disk c c c c (75W* m			
Diskette drive Media reader SATA disk(s) SAS disk(s)	None 20-in-1 media reader Some: 250GB or 500GB Some: 300GB, SATA 3.0 Some: 300GB, SAS 3.00	, SATA 3.0G Gb/s, 10000	b/s, 7200 rpm, 3.5" rpm, 2.5"		Slo	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 SECURITY							
SATA DVD±RW Disk controller	Super Multi-Burner DL DN Three SATA connectors for five SATA/SAS ⁴ connector RAID ⁸ 0, 1, 5, 10, integrat	or opticals, S s for disks,	ATA 3.0Gb/s, integrate SATA 3.0Gb/s, SAS 3.				Side keys)	Security chip (see information on left) Side cover lock (ships with two identic keys) Padlock loop (in rear for opt padlock;					
Chipset	Intel 5520 Chipset, Intel			Super	I/O		padlo	ck prohibits	s side cov	er remo	val)		
Front ports Rear ports IEEE 1394 adptr	Two USB 2.0, microphone FireWire 400 (IEEE 1394: Eight USB 2.0, eSATA, se FireWire 400 (IEEE 1394: rear-out, center/sub-out, so Optical SPDIF digital in	e (3.5mm), h a) rial (9-pin), t a), six analo	eadphone (3.5mm), two ethernet (RJ-45), g audio ports (line-in,	nic-in,		out,	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, dis						
Audio Speaker Ethernet Security chip	High Definition (HD) Audi Internal speaker for busin Dual gigabit ethernet on p Broadcom Trusted Platfor	ess audio lanar, Broad m Module, T	dcom® BCM5755 and l CG 1.2-compliant	BCM57	754		• USB	l port I/O c	ement (fro				
Keyboard Mouse Power supply Cooling	Preferred Pro USB Keybo Optical Wheel Mouse (US 1060 watts with 120mm b Climate Savers® Computin Five fans (power supply, f	B connector ottom-moun ng Bronze, 8	r), black ted variable speed fan 0 PLUS® Bronze quali	, unive	,	k)	GREEN RoHS-c	s ThinkVar IGUARD® c compliant ENERGY S	ertified				
Rack mount	Rack shelf support or opti	onal sliding	rack mount rail kit sup		ont uis	'' <i>y</i>		EPEAT™ G ES5.0 mod	old rating				
- Genuine Wind Business 64	n logo lications⁵ (only some Recovery™ sScan® Plus rus definitions) em Toolbox	2GB PC3-1 4GB PC3-1 Blu-ray™ B 1TB SATA : 150GB SAT 300GB SAS 450GB SAS ThinkStatio ATI FirePro NVIDIA Qu	500 DDR3 ECC UDIN 0600 DDR3 ECC UDI 0600 DDR3 ECC UDI urner SATA 1.5Gb/s 3.0Gb/s Disk (7200 rpi A 3.0Gb/s Disk (1000 3.0Gb/s Disk (15000 3.0Gb/s Disk (15000	MM MM n) rpm) rpm) rpm)		51J0504 43R203: 57Y4138 45K1675 45J7918 43R203(43R1994 43N3424 43R196 51J0511 45K1674	3 -ye Cus part for s Mon next Thin http 24x7 issu	LIMITED ar parts an tomer Repl s only (with elected pa - Fri cover business of kPlus TM se i/i/lenovo.cc	aceable L n limited of rts³, 8 am rage excluday respo rvices ava om/thinkpl support f the warra	Jnit (CRI ponsite se - 5 pm, iding ho ponse time ailable; se us/warra or warra	ervice lidays, e) see nty		

Type- Name model	Slot x bay	GHz	Memory DIMMs	Memory speed	Disk(s)	Disk size	Disk type	RAID		Graphics adapter(s)		Avail date
D20 4155-39U D20 4155-41U												May 09 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 1066MHz DDR3 memor	vo processors standard, r E5520 with quad-core, s/second) QPI (QuickPathInterconnect), ry controller, and 8MB cache \8 package, two LGA1366 sockets	• 8.3"W x 23.	k color; metal case 7"D x 19.1"H (with handle) 602mm D x 485mm H
Memory	4GB std, 48GB max, UI 6-channel capable (3-ch twelve 240-pin DIMM so ** Over six DIMMs requi	ockets**	60 lb (27.1k55-literRemovableToolless sid	handle on top front le cover removal
Graphics	* Adapters >75W use at Some: NVIDIA® Quadr two DisplayPort, Some: NVIDIA Quadro 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 or PK 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 disk disk 1.6" high, external, std optical 1.6" high, external, open
Diskette drive Media reader SATA disk(s) SAS disk(s) SATA DVD±RW Disk controller	3 SATA connectors for of SATA/SAS4 connectors		Bay ® 3.5", Bay ® 3.5", Bay © 3.5", Bay ® 3.5", Bay ® 3.5", Slot 1: half-le Slot 2: full-ler	1" high, external, std media reader 1" high, internal, std disk 1" high, internal, opt disk ngth, full-height, PCIe x1 ngth, full-height, PCIe 2.0 x16 (75W* max)
Chipset	Intel 5520 Chipset, Intel Winbond® W83627DHG	el ICH10, -P Super I/O	Slot 4: full-ler Slot 5: full-ler	igth, full-height, 32-bit PCI 2.3 ngth, full-height, PCIe 2.0 x16 (75W* max) ngth, 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), 4a), six analog audio ports (line-in, mic-in, fr, side out), Optical SPDIF digital out, dio, Analog Devices ADI 1988A codec	ront-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 Mouse Power supply Cooling Rack mount	Optical Wheel Mouse (U 1060 watts with 120mm Climate Savers® Compu Five fans (power supply,	poard (USB connector), 104-key, black JSB connector), black bottom-mounted variable speed fan, univers ting Bronze, 80 PLUS® Bronze qualified first processor, second processor, rear, fror btional 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 Win Business 64	m logo Ilications⁵ (only some Recovery™ sScan® Plus irus definitions) tem Toolbox ler or® Business Edition D® (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) 750GB 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 1.5GB FX 4800 Other accessories at Lenovo com/accessor	45K1675 43R1990 43R1991 45J7918 43R2031 43R1964 45J5918 4420HB2 51J0511 45K1673 45K1674	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)

Other accessories at lenovo.com/accessories

mon - Fri coverage excluding notice 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

Diskette or Media Graphics 1394 ENERGY reader adapter(s) adptr STAR 5.0 Preload Disk SATA 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 warranty¹

Up to two processors, two	nrocessors standard	T				
5.86GT/s (giga-transfers/ 1066MHz DDR3 memory	E5540 with quad-core, second) QPI (QuickPath Interconnect), controller, and 8MB cache	• 8.3"W x 23.7 • 210mm W x	color; metal case ""D x 19.1"H (with handle) 602mm D x 485mm H 0ptical optical optical			
6-channel capable (3-chatwelve 240-pin DIMM soc	nnel per processor), kets**	55-literRemovable rToolless side	nandle on top front e cover removal and optical media			
* Adapters >75W use aux NVIDIA® Quadro® FX 38 two DisplayPort, one dua	kiliary power connector(s) from PSU 00, PCIe x16 adapter, 1GB, I-link DVI-I***, 108W		ront icons upport or optional rail kit disk disk disk disk disk			
None Super Multi-Burner DL D' 3 SATA connectors for op 5 SATA/SAS ⁴ connectors	/D±RW, SATA 1.5Gb/s ticals, SATA 3.0Gb/s, integrated in ICH10; for disks, SATA 3.0Gb/s, SAS 3.0Gb/s,	Bay ② 5.25", Bay ③ 5.25", Bay ④ 3.5", Bay ⑤ 3.5", Bay ⑥ 3.5", Bay ⑦ 3.5", Bay ⑧ 3.5",	1.6" high, external, open 1.6" high, external, open 1" high, external, std media reader 1" high, internal, opt disk			
Intel 5520 Chipset, Intel ICH10, Winbond® W	83627DHG-P Super I/O	Slot 1: half-len	igth, full-height, PCIe x1 gth, full-height, PCIe 2.0 x16 (75W* max)			
FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, se FireWire 400 (IEEE 1394	a) erial (9-pin), two ethernet (RJ-45), a),	Slot 3: full-lend Slot 4: full-lend Slot 5: 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) gth, full-height, 32-bit PCI 2.3			
rear-out, center/sub-out, Optical SPDIF digital in None High Definition (HD) Audi Internal speaker for busin Dual gigabit ethernet on Broadcom Trusted Platfor Preferred Pro USB Keybor Optical Wheel Mouse (US 1060 watts with 120mm to Climate Savers® Computifive fans (power supply, 1975).	o, Analog Devices AD1988A codec less audio planar, Broadcom® BCM5755 and BCM5755 m Module, TCG 1.2-compliant poard (USB connector), 104-key, black BB connector), black contom-mounted variable speed fan, universing Bronze, 80 PLUS® Bronze qualified first processor, second processor, rear, fror	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	ional onding rack mount rain in capport		Serial port I/O control USB port disablement (front or all)			
ating system ²⁰ lows® Vista® n logo ications ⁵ (only some lecovery™ Scan® Plus us definitions) er D® (DVD±RW)	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 4GB PC3-10600 DDR3 ECC UDIMM 4GB PC3-10600 DDR3 ECC UDIMM 1750GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm) 1Bu-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 51J0504 43R2032 43R2033 57Y4138 43R1991 45J7918 45K1675 4420HB2 43R1765 45K1671 51J0511 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 servic for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidar next business day response time) ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty			
	4GB std, 48GB max, UDI 6-channel capable (3-cha twelve 240-pin DIMM soc ** Over six DIMMs requin Two PCI Express® x16 ac * Adapters >75W use aux NVIDIA® Quadro® FX 38 two DisplayPort, one dua *** Only two display conn None 20-in-1 media reader 500GB, SATA 3.0Gb/s, 75 None Super Multi-Burner DL DV 3 SATA connectors for op 5 SATA/SAS⁴ connectors RAID® 0, 1, 5, 10, integrat Intel ICH10, Winbond® W Two USB 2.0, microphone FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, se FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, se FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, se FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, se FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, se FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA se FireWire 400 (IEEE 1394 Eight USB	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/SAS⁴ connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID³ 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) 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 None 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 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, fron Rack shelf support or optional sliding rack mount rail kit support antage® technologies ating system²0 Accessories ows® Vista® 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM 750GB SATA 3.0Gb/s Disk (7200 rpm) 1TB SATA 3.0Gb/s Disk (7200 rpm)	## GB std, 48GB max, UDIMM, PC3-8500 1066MHz DDR3, ECC, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets** **Over six DIMMs requires dual processors Two PCI Express** x16 adapters required for quad monitor support, **Adapters > 75W use auxiliary power connector(s) from PSU NVIDIA* Quadro** FX 3800, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I***, 108W **** **Nonly Use auxiliary power connector(s) from PSU NVIDIA* Quadro** FX 3800, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I***, 108W *** **None 20-in-1 media reader 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" **Souper Multi-Burner DL DVD±RW, SATA 1.5Gb/s 3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS** connectors for disks, 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) Eight USB 2.0, soft, 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 None Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Whoel Mouse (USB connector), black 1060 watts with 120mm bottorm-mounted variable speed fan, universal, Climate Savers** Computing Bronze, 80 PLUS** Bronze qualified Five fans (power supply, first processor, second processor, rear, front disk) and 10g0 10g 10g abs 10g			

services

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

Diskette 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 Memory Memory Slot x bay Processor(s) GHz Cores DIMMs speed Disk(s)

D20 4155-68U 6x9 1xE5520 2.26 4 2x2GB 1333MHz 1x500GB² 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

Processor Implementation	1066MHz ĎĎR3 memor	ne processor standard, E5520 with quad-core, s/second) QPI (QuickPath Interconnect), y controller, and 8MB cache 8 package, two LGA1366 sockets	• 8.3"W x 23.7 • 210mm W x	color; metal case 7"D x 19.1"H (with handle) 602mm D x 485mm H g) max configuration optical optical		
Memory	6-channel capable (3-ch twelve 240-pin DIMM so	ckets*** clocks down for processors with 1066MHz r	 55-liter Removable I Toolless side Toolless disk Toolless ada Illuminated f 	handle on top front e cover removal c c and optical drive removal apter retention ront icons		
Graphics	* Adapters >75W use au NVIDIA® Quadro® FX 5 two DisplayPort, one dual	dapters required for quad monitor support, uxiliary 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", Bay ② 5.25",	upport or optional fall kit disk disk disk disk disk disk disk disk		
Diskette drive Media reader SATA disk(s) SAS disk(s) SATA DVD±RW Disk Controller	5 SATA/SAS4 connectors		Bay @ 3.5", Bay ® 3.5", Bay ® 3.5", Bay Ø 3.5", Bay ® 3.5", Bay ® 3.5", Slot 1: half-ler	1" high, internal, std disk 1" high, internal, opt disk ngth, full-height, PCle x1		
Chipset	Intel 5520 Chipset, Intel ICH10, Winbond® V	V83627DHG-P Super I/O	Slot 3: full-len	gth, full-height, PCIe 2.0 x16 (75W* max) gth, full-height, 32-bit PCI 2.3 gth, full-height, PCIe 2.0 x16 (75W* max)		
Front ports Rear ports	FireWire 400 (IEEE 139 Eight USB 2.0, eSATA, s FireWire 400 (IEEE 139 six analog audio ports (I	serial (9-pin), two ethernet (RJ-45), 4a), ine-in, mic-in, front-out,	Slot 5: full-len	gth, full-height, PCIe x4 (x16 mechanical) gth, full-height, 32-bit PCI 2.3 SECURITY • Security chip (see information on left)		
IEEE 1394 adptr Audio Speaker Ethernet Security chip	Optical SPDIF digital in None High Definition (HD) Aud Internal speaker for busi Dual gigabit ethernet on	side out), Optical SPDIF digital out, dio, Analog Devices AD1988A codec ness audio planar, Broadcom® BCM5755 and BCM575 orm Module, TCG 1.2-compliant	54	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 Mouse Power supply Cooling Rack mount	Optical Wheel Mouse (L 1060 watts with 120mm Climate Savers® Compu Five fans (power supply,	oard (USB connector), 104-key, black ISB connector), black bottom-mounted variable speed fan, univer ting Bronze, 80 PLUS® Bronze qualified first processor, second processor, rear, fron tional 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)		
Preloaded ope	rating system ²⁰	Accessories		Supports ThinkVantage® technologies		
- Genuine Win Professional	dows® 7	1GB PC3-8500 DDR3 ECC UDIMM 2GB PC3-8500 DDR3 ECC UDIMM 1GB PC3-10600 DDR3 ECC UDIMM 2GB PC3-10600 DDR3 ECC UDIMM	51J0503 51J0504 43R2032 43R2033	GREENGUARD® certified RoHS-compliant Pending: ENERGY STAR® 5.0-compliant		
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)		4GB PC3-10600 DDR3 ECC UDIMM 750GB 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 NVIDIA Quadro NVS 290 NVIDIA Quadro FX 580 ATI™ FirePro™ 1GB V7750 Other accessories at lenovo.com/access	57Y4138 43R1991 45J7918 45K1675 4420HB2 43R1765 45K1671 51J0511 sories	Pending: ÉNERGY STAR® 5.0-complia 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 holidan 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

									Diskette								
Name model	Slot x bay Processor(s) GHz	DIMMs	Memory speed	Disk(s)	size			SATA optical	reader	a Graphics adapter(s) adptr	STAR 5.0	Preload				
D20 4158-24U D20 4158-25U D20 4158-26U D20 4158-27U D20 4158-28U D20 4158-31U D20 4158-49U	6x9 2 x X5560 2.80 6x9 2 x E5540 2.53 6x9 1 x X5550 2.66 6x9 2 x X5550 2.66 6x9 1 x X5550 2.66 6x9 1 x X5560 2.80 6x9 2 x E5540 2.53 6x9 1 x X5550 2.66 6x9 2 x E5540 2.53 6x9 2 x E5506 2.13 6x9 2 x E5540 2.53	2 x 2GB 4 x 1GB 4 x 1GB 4 x 1GB 4 x 1GB 2 x 2GB 2 x 2GB 4 x 1GB	1066MHz 1066MHz 1066MHz 1333MHz 1333MHz 1066MHz 1333MHz 1066MHz	2 x 147GB 1 x 147GB 1 x 250GB 3 x 300GB 1 x 500GB 1 x 500GB 2 x 147GB 2 x 300GB	3.5" 3.5" 2.5" 3.5" 3.5" 3.5" 2.5"	SAS SATA SATA SATA SATA SAS SATA	5 1 0	DVD±RW DVD±RW DVD±RW DVD±RW DVD±RW DVD±RW DVD±RW DVD±RW DVD±RW	W Media	1 x FX480 1 x FX180 1 x FX180 1 x FX380 1 x FX180 1 x FX580 1 x FX580 1 x FX580 1 x FX580 1 x V5700 1 x V3700	00 00 1394 00 00 00 00 1394	ES50	Bus64 Bus64 Bus64 Bus64 Bus64 Bus64 Bus64	Apr 09 Apr 09			
Processor(s) Implementation Memory	Up to two processor Intel® Xeon® Proces 4.8GT/s (giga-transf 800MHz DDR3 men Intel Xeon Process 1066MHz DDR3 me Intel Xeon Process QPI, 1333MHz DDR Processor uses FC-4GB or 8GB std, 48	ers/secon ers/secon nory contr or E5540 mory con or X5550 3 memory LGA8 pac	of with quadriller, and with quadriller, and with quadriller, and or X5560 y controller, the chage, two	lad-core, buickPath Interpretate Interpretat	tercor or GT/s e or core , cache	GQPI, 6.4G1 e ts		• 8.3"\ • 210r • 60 lb • 55-lii • Rem • Tooll • Tooll	en black (N x 23.7) nm W x 6 0 (27.1kg) ter ovable h ess side ess disk	color; meta D x 19.1"l 602mm D x) max conf andle on to cover rem and optica oter retenti	H (with I 485mr iguratio op front oval I drive r	n H É	op	otical otical otical			
	PC3-10600 1333MH 6-channel capable (twelve 240-pin DIMM ** Over six DIMMs re	3-channel // sockets	per proce	,,				• Illum	inated fr	ont icons opport or o		ail kit	d	lisk lisk lisk lisk lisk			
Graphics	two slot wid	e auxiliary Iadro® FX I DVI-I, 35 Idro FX 5 I Ort, one I	y power co (380, PCI 5W 680, PCIe dual-link [800, PCIe dual-link [1800, PCIe layPort, 1	onnector(s) le x16 adapte x16 adapte VVI-I***, 40V e x16 adapte VVI-I***, 59V e x16 adapte dual-link DV	from ter, 25 r, 512 V er, 76 V er, 1.5 /I-I***	PSU 56MB, MB, 8MB, 5GB,		Bay @ By @ B	5.25", 1 5.25", 1 3.5", 1 3.5", 1 3.5", 1 3.5", 1 3.5", 1 3.5", 1	.6" high, " high,	externa externa externa internal internal internal internal	I, open I, open I, std me , std dis , std or , std or , opt dis , opt dis	edia reac k opt disk opt disk k				
Distratta driva	two dual-link Some: ATI FirePro two Displayk *** Only two display	two slot width, 2 DisplayPort, 1 dual-link DVI-I***, 121W Some: ATI™ FirePro™ V3700, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W Some: ATI FirePro V5700, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I***, 49W *** Only two display connectors are active at a time										ength, full-height, PCIe 2.0 x16 (75W* max) ength, full-height, 32-bit PCI 2.3 ength, full-height, PCIe 2.0 x16 (75W* max) ength, full-height, PCIe x4 (x16 mechanical) ength, full-height, 32-bit PCI 2.3					
Diskette drive Media reader SATA disk(s) SAS disk(s) SATA DVD±RW Disk controller	Three SATA connective SATA/SAS4 conn	DOGB, SA A 3.0Gb/s B 3.0Gb/s, DL DVD±F tors for op nectors for	s, 10000 r , 15000 rp RW, SATA oticals, SA r disks, SA	pm, 2.5" om 1.5Gb/s TA 3.0Gb/s, ATA 3.0Gb/s	integ	ırated i		H10;		 Security 	chip (s ver lock loop (ir prohibit	(ships wing rear for one of the content of the cont	ation on th two id opt padl ver remo optional	entical ock;			
Chipset	RAID ⁸ 0, 1, 5, 10, intel 5520 Chipset ,				7DHG	a-P Su	per I	/O				crosaver® over remo					
Front ports Rear ports	Two USB 2.0, microp FireWire 400 (IEEE Eight USB 2.0, eSAT FireWire 400 (IEEE rear-out, center/sub- Optical SPDIF digital	ohone (3.9 1394a) [A, serial (1394a), si out, side	5mm), hea (9-pin), tw ix analog	adphone (3. o ethernet (audio ports	5mm RJ-4 (line-), 5), in, mic				 Power-c Adminis Boot se Boot wit Serial po USB po 	trator pa quence hout ke ort I/O d	assword control yboard, n control	•				
IEEE 1394 adpt Audio Speaker Ethernet	r <i>Some:</i> FireWire PC High Definition (HD) Internal speaker for Dual gigabit etherne	I adapter, Audio, Ar business t on plana	nalog Dev audio ar, Broadc	ices ADI 19 om® BCM5	88A d 755 a	codec	·		-	Supports ⁻	⊺hinkVa	ntage® te	chnologi	es			
Security chip Keyboard Mouse Power supply Cooling	Broadcom Trusted P Preferred Pro USB I Optical Wheel Mous 1060 watts with 120 Climate Savers® Cor Five fans (power sup	Keyboard e (USB comm botton mputing B	(USB con onnector), m-mounte ronze, 80	nector), 104 black ed variable s PLUS® Bro	l-key, peed nze q	fan, u ualified	b	•	F	ES	pliant ERGY S EAT™ G 5.0 mod	STAR® 5.0 Gold rating lels)	g (only fo				
Rack mount	Rack shelf support of							- 5.0.0				D WARR	AN TY				
- Genuine Wir Business 64 Vista Premiu Preloaded applisted)	um logo plications ⁵ (only some Recovery™ usScan® Plus virus definitions)	2GI 1GI 4GI 1TE 300 450 Thii ATI	B PC3-10 B PC3-10 3 SATA 3.0 GB SAS 3 OGB SAS 3 nkStation FirePro 1	00 DDR3 E 600 DDR3 I 600 DDR3 I 0Gb/s Disk 3.0Gb/s Dis 3.0Gb/s Dis	ECC (ECC ((7200 k (15) k (15)	UDIMN UDIMN 1 rpm) 000 rp 000 rp	n) m)	43F 57` 45. 43F 43F 43F 51.	J0504 R2032 Y4138 J7918 R1994 N3424 R1964 J0511	for sele Mon - I next bu ThinkP http://lo 24x714 issues	ner Rep nly (wit ected pa Fri cove isiness lus™ se enovo.c toll-free during	laceable harts, 8 am rage excluday respectives awon/thinkp support the warra	onsite s n - 5 pm, uding ho onse tim railable; lus/warra for warra	ervice olidays ie) see anty			
Lenovo® Sys	stem Toolbox rimportant warranty info							200		period	via 000	-426-7378		Lenov			

	Slot x bay Processor(s) GHz Men		Disk type		RAID o	SATA ptical	Diskette or Media reader		phics oter(s)		ENERGY STAR 5.0	Preload	Avail date
D20 4158-22U D20 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	1GB 1 x 250GB 1GB 2 x 147GB 1GB 2 x 300GB	3.5" 3.5" 2.5"		0 D\ 1 D\	/D±RW /D±RW	Media Media Media	1 x F 1 x F 1 x F	X1800 X4800 X4800	1394	None None None	Bus64 Bus32 Pro64 Pro64	Apr 09 Apr 09 Apr 09 Apr 09
	 High performance work Environmentally friend 		_	-		-	-	ession	ais				
Processor(s) Implementation	Up to two processors, on Intel® Xeon® Processor 5.86GT/s (giga-transfers/1066MHz DDR3 memory Intel Xeon Processor X QPI, 1333MHz DDR3 me Processor uses FC-LGA	E5540 with quad (second) QPI (Qui of controller, and 81 5550 or X5560 with emory controller, a	core, ckPath MB cac h qua nd 8M	n Intercent che or d-core IB cac	e, 6.40 he		• 210mi	x 23. m W x (27.1k	7"D x 1 602mı	9.1"H m D x	(with hand 485mm H	dle)	optical optical optical media
Memory	2GB or 4GB std, 192GB RDIMM, PC3-8500 1066l registered, 6-channel cap ** Over six DIMMs requir	max (pending 160 MHz DDR3, ECC, pable, twelve 240-	3B RD pin DII	IMM a	availab	3,.	 Toolle 	vable ss sid ss dis ss ada	e cover k and c apter re	r remo ptical etentio	ival drive remo	oval F	disk disk
Graphics	Some: NVIDIA Quadro	xiliary power conn	ector(s x16 ac I***, 59 6 ada al-link l	s) from dapter 9W pter, 1 DVI-I*	n PSU , 768M .5GB,	В,	Bay ① ! Bay ② ! Bay ③ !	olless adapter retention iminated front icons ick shelf support or optional rail kit ① 5.25", 1.6" high, external, std optical ② 5.25", 1.6" high, external, open ③ 5.25", 1.6" high, external, open ④ 3.5", 1" high, external, std media rea			disk disk disk		
Diskette drive Media reader SATA disk(s) SAS disk(s)	None 20-in-1 media reader Some: 250GB or 500GE Some: 300GB, SATA 3.0 Some: 146GB, SAS 3.0	3, SATA 3.0Gb/s, 7 0Gb/s, 10000 rpm	'200 rp		5"		Bay 5 3 Bay 6 3 Bay 7 3 Bay 8 3	3.5", 3.5", 3.5", 3.5",	1" high, internal, std disk 1" high, internal, std or opt disk				
SATA DVD±RW Disk controller	Super Multi-Burner DL D 3 SATA connectors for op 5 SATA/SAS ⁴ connectors RAID ⁸ 0, 1, 5, 10, integra	VD±RW, SATA 1.5 ticals, SATA 3.0G for disks, SATA 3.	b/s, int 0Gb/s	, ŠAS			Slot 2: f Slot 3: f Slot 4: f	ull-len ull-len ull-len	gth, ful gth, ful gth, ful	I-heig I-heig I-heig	ht, 32-bit P ht, PCle 2.	0 x16 (75W CI 2.3 0 x16 (75W	/* max)
Chipset	Intel 5520 Chipset, Intel Winbond® W83627DHG-										nt, PCIe x4 ht, 32-bit P	k (x16 mecl CI 2.3	nanical)
Front ports Rear ports IEEE 1394 adpt Audio Speaker Ethernet Security chip	Two USB 2.0, microphon FireWire 400 (IEEE 1394 Eight USB 2.0, eSATA, st FireWire 400 (IEEE 1394 rear-out, center/sub-out, Optical SPDIF digital in Some: FireWire PCI ada High Definition (HD) Aud Internal speaker for busir Dual gigabit ethernet on Broadcom Trusted Platfo	a) arial (9-pin), two e a), six analog auc side out), Optical apter, 1394a-2000 io, Analog Devices ness audio planar, Broadcom	therne lio pori SPDIF , 400M s ADI 1	et (RJ-det (RJ	45), e-in, m il out, two 6-p coded	oin ports	on rear		SECURITY • Security chip (see information on le Side cover lock (ships with two ider keys) • Padlock loop (in rear for opt padloc padlock prohibits side cover remov 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, dis Serial port I/O control • USB port disablement (front or all)		o identica adlock; emoval) al		
Keyboard Mouse Power supply Cooling	Preferred Pro USB Keybo Optical Wheel Mouse (US 1060 watts with 120mm I Climate Savers® Computi Five fans (power supply,	SB connector), bla pottom-mounted v ing Bronze, 80 PL first processor, se	ick ariable US® Br cond p	e spee ronze proces	d fan, qualifie sor, re	universa ed ar, front					,		
Preloaded ope	Rack shelf support or opter erating system ²⁰	Accessories	mount	rali Ki	t supp	ort						je® technol	ogies
	uine Windows® XP essional 64-bit	2GB PC3-8500 I 4GB PC3-8500 I						2035 2036		S-com	ARD® certi pliant	пеа	
right Busi - Some: Genu Busir - Some: Genu Busir	nstalled via downgrade is in Windows Vista® ness 64-bit) nine Windows Vista ness 32 nine Windows Vista ness 64 ness 64	8GB PC3-8500 I Blu-ray™ Burner 750GB SATA 3.0 1TB SATA 3.0Gt 150GB SATA 3.0 300GB SAS 3.0 450GB SAS 3.0 ThinkStation Rai ATI™ FirePro™ 2 ATI FirePro 12B Other accessorie	SATA OGb/s I O/s Dis OGb/s I OGb/s I OGb/s D OGb/s D I Kit V56MB WB V5 V7750	1.5Gk Disk (720 Disk (720 Disk (10) Disk (10) Disk (10) Disk (10) Disk (10) Disk (10) Disk (10) Disk (10) Disk (10) Disk (10)	o/s 7200 rp 7200 rpm 10000 10000 5000 r 5000 r	om)) rpm) 2.5 rpm) 2.5 pm) pm)	45K° 43R° 45J7 5" 43R° 5" 43R° 43R° 43R° 51J0 51J0	7918 2030 2031 1994 3424 1964 0509	Cu pa fo Me ne Th ht 24 is:	year pustom arts or r select on - Frext bus ninkPli tp://le kx7 ¹⁴ to sues c	earts and la er Replace aly (with lin cted parts³ ri coverage siness day us™ service novo.com/	eable Unit (nited onsite, 8 am - 5 pe excluding response es available thinkplus/wa poort for wa warranty	CRU) e service om, i holidays time) le; see arranty

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

D20 4158-79U 6x9 2xE5520 2.26 8 2x4GB 1066MHz 2x500GB2 SATA 3.5" 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

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	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), RDIMM, PC3-8500 1066MHz DDR3, ECC, twelve 240-pin DIMM sockets** ** 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 Media reader SATA disk(s) SAS disk(s) SATA DVD±RW 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 ⁴ connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID ⁸ 0, 1, 5, 10, integrated in Marvell® 88SE6480	Bay ① 5.25", 1.6" high, external, std optl 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 internal, 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, Intel ICH10, Winbond® W83627DHG-P Super I/O	Slot 1: half-length, full-height, PCle x1 Slot 2: full-length, full-height, PCle 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` 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
IEEE 1394 adptr Audio Speaker Ethernet 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 rea 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:

Preloaded operating system²⁰

Genuine Windows® 7 Professional 64

Keyboard

Power supply

Rack mount

Mouse

Cooling

Preloaded applications⁵ (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)

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

1060 watts with 120mm bottom-mounted variable speed fan, universal,

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

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

Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Optical Wheel Mouse (USB connector), black

2GB PC3-8500 DDR3 ECC RDIMM 43R2035 4GB PC3-8500 DDR3 ECC RDIMM 43R2036 8GB PC3-8500 DDR3 ECC RDIMM 43R2037 750GB SATA 3.0Gb/s Disk (7200 rpm) 43R1991 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 51,10511 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 Pending: ENERGY STAR® 5.0-compliant

- 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

Diskette 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 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

Processor Implementation	1066MHz ĎĎR3 memor		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 • 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, open Bay ② 5.25", 1.6" high, external, open Bay ③ 3.5", 1" high, external, std media readel Bay ③ 3.5", 1" high, internal, opt disk			
Memory	4GB std, 48GB max, UE 6-channel capable (3-ch twelve 240-pin DIMM so ** Over six DIMMs requi	ckets**				
Graphics	* Adapters >75W use au NVIDIA® Quadro® FX 18 768MB, two DisplayPort	dapters required for quad monitor support, ixiliary power connector(s) from PSU 800, PCI Express® (PCIe) x16 adapter, one dual-link DVI-l***, 59W nectors are active at a time				
Diskette drive Media reader SATA disk(s) SAS disk(s) SATA DVD±RW Disk Controller	5 SATA/SAS4 connectors	•				
Chipset	Intel 5520 Chipset, Intel ICH10, Winbond® V	/83627DHG-P Super I/O		ngth, full-height, PCIe x1 gth, full-height, PCIe 2.0 x16 (75W* max)		
Front ports Rear ports	FireWire 400 (IEEE 1394	erial (9-pin), two ethernet (RJ-45), 4a),	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 mechanics Slot 6: full-length, full-height, 32-bit PCl 2.3			
IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard Mouse Power supply	rear-out, center/sub-out, Optical SPDIF digital in None High Definition (HD) Aud 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	side out), Optical SPDIF digital out, dio, Analog Devices AD1988A codec ness audio planar, Broadcom® BCM5755 and BCM575 rm Module, TCG 1.2-compliant oard (USB connector), 104-key, black SB connector), black bottom-mounted variable speed fan, univers ting Bronze, 80 PLUS® Bronze qualified	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		
Cooling Rack mount		first processor, second processor, rear, frontional sliding rack mount rail kit support	nt disk)	Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control		
Supports Think\	/antage® technologies			USB port disablement (front or all)		
Preloaded operating system ²⁰ - 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 2007 Trial (60-day) • Roxio® Creator® Business Edition (DVD±RW) • Roxio MyDVD® (DVD±RW) • Corel® WinDVD® (DVD±RW)		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 750GB SATA 3.0Gb/s Disk (7200 rpm) 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 51J0504 43R2032 43R2033 57Y4138 43R1991 45J7918 45K1675 43R1765 45K1671 51J0511 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 holiday: 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

Partial list of accessories supported on ThinkStation S20 and D20

Processors⁵⁵

D20	٠
$\nu = 0$	

D20.	
Intel® Xeon® Quad-Core Processor E5506	57Y4399 ann 10/27/09
Intel Xeon Quad-Core Processor E5520	43R2038 ann 04/21/09
Intel Xeon Quad-Core Processor E5530	43R2039 ann 04/21/09
Intel Xeon Quad-Core Processor E5540	43R2040 ann 04/21/09
Intel Xeon Quad-Core Processor X5550	43R2042 ann 04/21/09
Intel Xeon Quad-Core Processor X5560	43R2043 ann 04/21/09
55 Additional Processor must match the existing	g processor

Memory⁵³

All:			
1GB PC3-8500 DDR3 ECC UDIMM	51J0503	ann	03/31/09
2GB PC3-8500 DDR3 ECC UDIMM	51J0504	ann	03/31/09
1GB PC3-10600 DDR3 ECC UDIMM ⁵⁴	43R2032	ann	03/31/09
2GB PC3-10600 DDR3 ECC UDIMM ⁵⁴	43R2033	ann	03/31/09
4GB PC3-10600 DDR3 ECC UDIMM ⁵⁴	57Y4138	ann	08/04/09

D20:

1GB PC3-8500 DDR3 ECC RDIMM	43R2034 <i>ann 04/21/09</i>
2GB PC3-8500 DDR3 ECC RDIMM	43R2035 ann 04/21/09
4GB PC3-8500 DDR3 ECC RDIMM	43R2036 ann 04/21/09
8GB PC3-8500 DDR3 ECC RDIMM	43R2037 ann 04/21/09

⁵³ Mixing of UDIMM and RDIMM is not support

⁵⁴ 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

Optical

DVD-ROM DL SATA1.5Gb/s 16X-48X Max⁴ 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

S20, D20 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
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918 ann 08/19/08
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

S20 preconfigured with SAS disks and the SAS controller, D20 preconfigured with SAS disks:

DZU precuringureu with OAO disks.	
146GB SAS 3.0Gb/s Disk (15000 rpm)	43R1993 ann 03/11/08
300GB SAS 3.0Gb/s Disk (15000 rpm)	43R1994 ann 03/11/08
450GB SAS 3.0Gb/s Disk (15000 rpm)	43N3424 ann 02/02/10
All:	

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JSB	2.0	Essential	Memory	Key	8GB
JSB	2.0	Essential	Memory	Key	32GE

USB 2.0 Essential Memory Key 32GB	45K1258	ann	10/28/08
USB 2.0 Ultra Secure Memory Key 4GB	45J5917	ann	08/26/08
USB 2.0 Ultra Secure Memory Key 8GB	45J5918	ann	08/26/08
All:	.=		/

USB 2.0 Portable 320GB Hard Disk	45K1689 <i>ann</i>	03/17/09
USB 2.0 Portable 500GB Hard Disk	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

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 ⁵²	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 ⁵²	45K1696 ann 11/25/08	
Lenovo Wireless Laser Mouse - Red/Black ⁵²	51J0198 <i>ann 11/25/08</i>	
⁵² Wireless via 2.4GHz technology using a micro-size USB receiver.		

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 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 L2440p Wide 24" Monitor	4420HB2 ann 09/17/08	
More information at www.lenovo.com/thinkvision		

MOIIIO accessories		
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 <i>ann 05/05/00</i>	
⁴⁶ Compatible on selected Lenovo and ThinkVision monitors.		

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

Graphics

DisplayPort to Single-link DVI-D Cable50	45J7915	ann	08/05/08
ATI [†] M FirePro™ 256MB V3700	51J0509	ann	03/31/09
ATI FirePro 512MB V5700	51J0510	ann	03/31/09
ATI FirePro 1GB V7750	51J0511	ann	03/31/09
NVIDIA® Quadro® 256MB NVS 290	43R1765	ann	12/18/07
NVIDIA Quadro 256MB NVS 295	45K1669	ann	04/21/09
NVIDIA Quadro 512MB NVS 450	57Y4398	ann	01/19/10
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 Attack and a selected Display Dept.	a a a saal a		

⁵⁰ Attaches to selected DisplayPort graphics cards.

D20:

NVIDIA SLI Connector with FX 4800 55Y8963 ann 03/31/09 More information at www.lenovo.com/support/graphiccards

Multimedia

USB 2.0 Lenovo Webcam 40Y8519 ann 08/29/06

Security

occurity			
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

D20:

45J7905 ann 07/15/08

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	43R1528	ann	01/31/07
Microsoft Office 2007 Small Business, Engl	43R1534	ann	01/31/07
Microsoft Office 2007 Professional, English	43R1531	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® - ThinkPlus™ Services

Partial list of Lenovo® ThinkPlus Services7 for ThinkStation workstations

For more information see:

http://www.lenovo.com/services_warranty/us/en/index.html

ThinkPlus service upgrade options

ThinkStation workstation with 3-year Onsite warranty

LOR = Lenovo Onsite Repair

4-year LOR 9x5 Next Business Day 5-year LOR 9x5 Next Business Day 43R8983 43R8987

ThinkPlus Secure Business

Lenovo Online Data Backup

- Secure offsite data storage
- 256-bit Advanced Encryption System
 Data recovery or access in case of an unforeseen event
- Automatic, remote management
- Choose which business critical data to back up

1-year Lenovo Online Data Backup - 50GB 1-year Lenovo Online Data Backup - Unlimited 45K5849 45K5870

ThinkPlus Priority Support for enterprise customers

- 9x5 next-business-day response Lenovo Onsite Repair
- 24x7 support with priority routing and advanced level technicians

ThinkStation workstation with 1-year Onsite warranty

3-year Priority Support

ThinkStation workstation with 3-year Onsite warranty

45J9081
45J9082
45J9083
45J9084
45J9085
45J9086

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.
- ² **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.
- SATA/SAS: The system configuration supports the installation of either SATA or SAS disks. A configuration including both SATA and SAS disks is not supported.
- 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.

- 7 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.
- ³ **RAID:** Supported RAID levels for a system will vary from the stated capabilities of the RAID controller due to dependencies on the number and capacity of physical disks in the system and on customer requirements for performance, fault tolerance, or data redundancy.

RAID levels and requirements:

- RAID 0 (striping) provides increased performance by writing data across multiple drives.
- RAID 1 (mirroring) provides fault tolerance by writing the data on two drives.
- RAID 5 (striping with parity) uses distributed parity data to provide fault tolerance more efficiently than RAID 1. Requires three or more drives.
- RAID 10 (or RAID 1+0) combines
 RAID 1 and RAID 0 to create a stripe of mirrors that is fault tolerant while offering increased performance.

 Requires four drives.
- ⁹ 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.
- ¹⁴ Response times may vary. May exclude some holidays. Telephone support may be subject to additional charges.
- Operating System: Level of support varies by operating system. Operating systems not preloaded on the system may not provide full feature functionality. Refer to lenovo.com/pc/support and enter your machine type and model number for more information.



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