

ThinkServer™

Personal Systems Reference Lenovo® ThinkServer® Servers 2008 to 2013 - withdrawn

January 2013 - Version 449



Lenovo ThinkServer 200 Series Family

lenovo.com

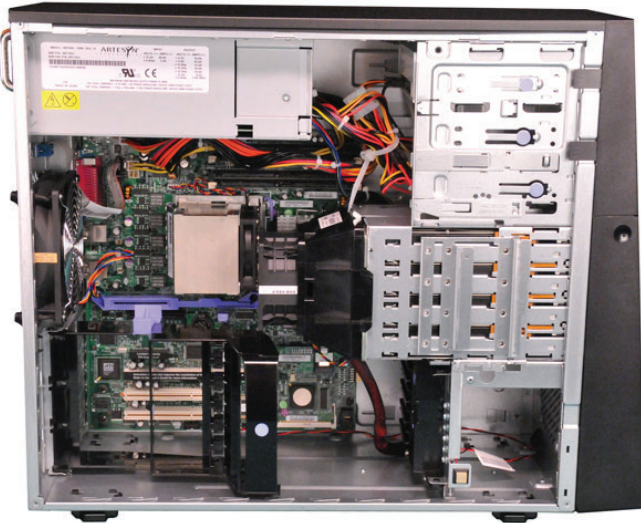
ThinkServer™



Lenovo ThinkServer TS100
with 400W non-redundant power supply



Lenovo ThinkServer TS100
with simple-swap disks



Lenovo ThinkServer TS100
with 430W redundant power supply



Lenovo ThinkServer TS100



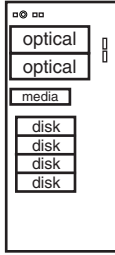
Lenovo ThinkServer TS100



Lenovo ThinkServer TS100

Name	Type-model	Slot x bay	Processor GHz	Cores	Memory	Disk(s)	Disk size	Disk connection	Disk type	RAID controller	SATA optical	Power supply	Limited warranty ¹	Workhorse Global	Avail date
TS100	6432-17U	4x7	E7400	2.80	2 1 x 1GB	None	3.5"	4 x Simple-swap	SATA	1064E	DVD	400W	1-year	No	Sep 08

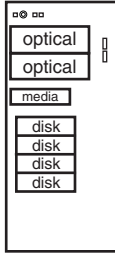
- **T = Tower, S = Single processor**
- **High performance server with rock solid technology and proven hardware design**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor	One Intel® Core™ 2 Duo Processor E7400 with dual-core, one maximum, 1066MHz system bus, and 3MB L2 cache	<p>Tower</p> <ul style="list-style-type: none"> • Business black color; metal case • 8.5"W x 21.25"D x 17.25"H • 216mm W x 540mm D x 438mm H • 56 lb (25.2kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 
Implementation	Processor uses FC-LGA8 package, one LGA775 socket	
Memory	1GB std, 8GB max, PC2-6400 800MHz DDR2, ECC , dual-channel capable, four 184-pin DIMM sockets; <i>Non-italics</i> : standard memory in one socket; three sockets available	
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.2, 16MB, external monitor port (VGA DB-15); <i>Maximum resolution</i> : 1024x768@85Hz	
Diskette	None (use USB port)	
SATA DVD	DVD-ROM, SATA 1.5Gb/s, uses ICH9R	
SATA disk(s)	None	
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH9R, not used by disks	
SATA connectors	Six SATA connectors on planar, four simple-swap connectors on 3.5" disk backplate	
SATA RAID cont	LSI™ 1064E, SATA 3.0 Gb/s, RAID [®] 0, 1 support, Mini PCI Express® adapter	
SAS disk	Not supported	
SAS connectors	Not supported	
SAS controller	Not supported	
Chipset	Intel 3210 Chipset , Intel I/O Controller Hub 9 RAID (ICH9R) for RAID 0, 1, 10 support, SMSC® SCH5027D Super I/O	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, two serial (9-pin), parallel, ethernet (RJ-45), monitor (VGA DB-15)	
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for fans, disks, memory, processor, PCI slots, power supply)	
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant	
Audio	None	
Speaker	Internal speaker	
Ethernet	Gigabit ethernet on planar, Broadcom® BCM5722, PCIe x1	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 400 watts, one maximum, non-redundant, variable speed fan, non-hot-swap, universal	
Cooling	Three fans (processor, rear, disks)	
Accessories		<ul style="list-style-type: none"> • Bay ① 5.25", 1.6" high, external, standard optical • Bay ② 5.25", 1.6" high, external, optional optical • Bay ③ 3.5", 1" high, external, open • Bay ④ 3.5", 1" high, internal, optional SATA disk • Bay ⑤ 3.5", 1" high, internal, optional SATA disk • Bay ⑥ 3.5", 1" high, internal, optional SATA disk • Bay ⑦ 3.5", 1" high, internal, optional SATA disk <p>Slot 1: full-length, full-height, PCIe x8 Slot 2: full-length, full-height, PCIe x1 (x4 mechanical) Slot 3: full-length, full-height, 64-bit PCI-X (not enabled) Slot 4: full-length, full-height, 32-bit PCI 2.2 Slot 5: half-length, full-height, 32-bit PCI 2.2</p>
1GB PC2-6400 DDR2 ECC UDIMM	45J6188	<p>Security</p> <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>Software management tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p>ThinkPlus Priority Support, 90-day Trial</p> <p>RoHS-compliant</p> <p>Limited Warranty¹</p> <ul style="list-style-type: none"> ⇒ 1-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 lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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
2GB PC2-6400 DDR2 ECC UDIMM	45J6189	
160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6195	
250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6196	
500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6197	
750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6198	
Other accessories at lenovo.com/accessories		

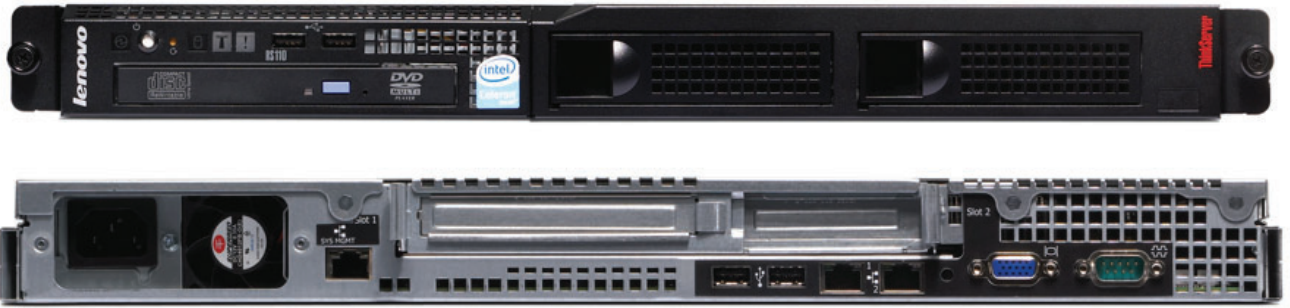
See footnotes for important warranty information
 US model announced September 30, 2008
 US model withdrawn effective April 2010

Name	Type-model	Slot x bay	Processor	GHz	Cores	Memory	Disk(s)	Disk size	Disk connection	Disk type	RAID controller	SATA optical	Power supply(s)	Limited Warranty ¹	Workhorse Global	Avail date
TS100	6434-13U	4x7	E3110	3.00	2	2 x 1GB	None	3.5"	4 x Simple-swap	SATA	1064E	DVD	400W	3-year	No	Sep 08
TS100	6434-15U	4x7	X3360	2.83	4	2 x 2GB	None	3.5"	4 x Hot-swap	SATA/SAS ⁴	MR10i	DVD	2 x 430W	3-year	No	Sep 08

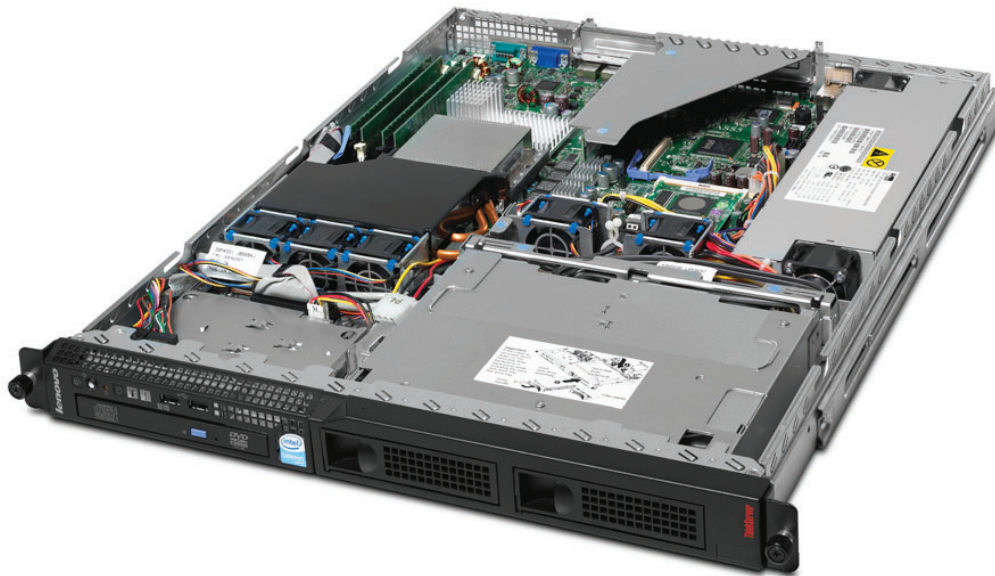
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- **High performance server with rock solid technology and proven hardware design**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor	One Intel® Xeon® Processor E3110 with dual-core, one maximum, 1333MHz system bus, and 6MB L2 cache or One Intel Xeon Processor X3360 with quad-core, one maximum, 1333MHz system bus, and 12MB L2 cache Processor uses FC-LGA8 package, one LGA775 socket		<p>Tower</p> <ul style="list-style-type: none"> • Business black color; metal case • 8.5"W x 21.25"D x 17.25"H • 216mm W x 540mm D x 438mm H • 56 lb (25.2kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 																					
Implementation	None (use USB port)																							
Memory	2GB or 4GB std, 8GB max, PC2-6400 800MHz DDR2, ECC , dual-channel capable, four 240-pin DIMM sockets; <i>Non-italics:</i> standard memory in two sockets; two sockets available																							
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.2, 16MB, external monitor port (VGA DB-15); <i>Maximum resolution:</i> 1024x768@85Hz																							
Diskette	None (use USB port)																							
SATA DVD	DVD-ROM, SATA 1.5Gb/s, uses ICH9R																							
SATA disk(s)	None																							
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH9R, not used by disks																							
SATA connectors	Six SATA connectors on planar, <i>13U SATA:</i> 4 simple-swap connectors on 3.5" disk backplane <i>15U SATA/SAS:</i> 4 hot-swap connectors on 3.5" disk backplane																							
SATA RAID cont	LSI™ 1064E, SATA 3.0 Gb/s, RAID ⁸ 0, 1 support, Mini PCI Express [®] adapter																							
SAS disk(s)	None																							
SAS connectors	<i>15U SATA/SAS:</i> 4 hot-swap connectors on 3.5" disk backplane																							
SAS RAID cont	<i>15U:</i> LSI MR10i, SATA 3.0 Gb/s, SAS 3.0 Gb/s, RAID ⁸ 0, 1, 5, 6, 10, 50, 60 support, Mini PCI Express adapter																							
Chipset	Intel 3210 Chipset , Intel I/O Controller Hub 9 RAID (ICH9R) for RAID 0, 1, 10 support, SMSC [®] SCH5027D Super I/O																							
Front ports	Two USB 2.0																							
Rear ports	Four USB 2.0, two serial (9-pin), parallel, ethernet (RJ-45), monitor (VGA DB-15)																							
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for fans, disks, memory, processor, PCI slots, power supply)																							
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant																							
Audio	None																							
Speaker	Internal speaker																							
Ethernet	Gigabit ethernet on planar, Broadcom [®] BCM5722, PCIe x1																							
Keyboard	None (use USB port)																							
Mouse	None (use USB port)																							
Power supply	<i>Some:</i> One 400 watts, one maximum, non-redundant, variable speed fan, non-hot-swap, universal <i>Some:</i> Two 430 watts, two maximum, redundant with two, variable speed fan, hot-swap, universal																							
Cooling	Three fans (processor, rear, disks)																							
Accessories	<table border="0"> <tr><td>1GB PC2-6400 DDR2 ECC UDIMM</td><td>45J6188</td></tr> <tr><td>2GB PC2-6400 DDR2 ECC UDIMM</td><td>45J6189</td></tr> <tr><td>160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6195</td></tr> <tr><td>250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6196</td></tr> <tr><td>500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6197</td></tr> <tr><td>750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6198</td></tr> <tr><td>250GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6201</td></tr> <tr><td>500GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6202</td></tr> <tr><td>750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6203</td></tr> <tr><td>1TB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6204</td></tr> <tr><td>146GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)</td><td>45J6211</td></tr> </table> <p>Other accessories at lenovo.com/accessories</p>		1GB PC2-6400 DDR2 ECC UDIMM	45J6188	2GB PC2-6400 DDR2 ECC UDIMM	45J6189	160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6195	250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6196	500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6197	750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6198	250GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6201	500GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6202	750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6203	1TB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6204	146GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	45J6211
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	<p>Security</p> <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 																							
	<p>Software management tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 																							
	ThinkPlus Priority Support, 90-day Trial																							
	RoHS-compliant																							
	<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ↪ 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 lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 																							

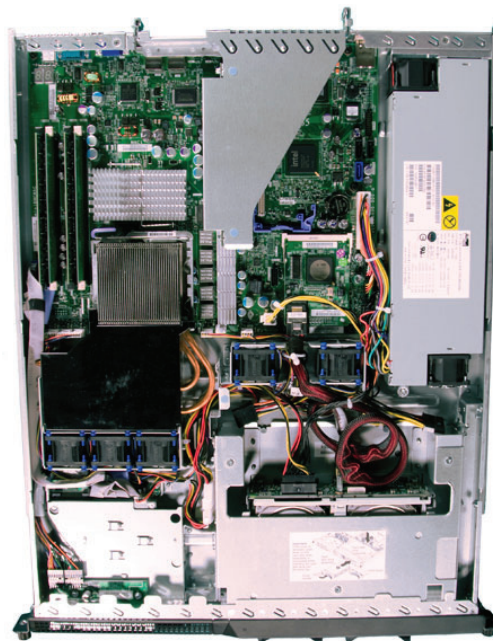
See footnotes for important warranty information
US models announced September 30, 2008
US models withdrawn effective April 2010



Lenovo ThinkServer RS110



Lenovo ThinkServer RS110



Lenovo ThinkServer RS110

Name	Type-model	Slot x bay	Processor	GHz	Cores	Memory	Disk(s) size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply	Fans	Limited warranty ¹	Workhorse Global	Avail date
RS110	6436-15U	2x3	E7400	2.80	2	1 x 1GB	None	3.5" 2 x Simple-swap	SATA	1064E	Combo	350W	5	1-year	No	Sep 08

- **R = Rack, S = Single processor**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor	One Intel® Core™ 2 Duo Processor E7400 with dual-core, one maximum, 1066MHz system bus, and 3MB L2 cache	<p>1U Rack top</p>												
Implementation	Processor uses FC-LGA8 package, one LGA775 socket													
Memory	1GB std, 8GB max, PC2-6400 800MHz DDR2, ECC , dual-channel capable, four 240-pin DIMM sockets; <i>Non-italics</i> : standard memory in one socket; three sockets available													
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (VGA DB-15 rear); <i>Maximum resolution</i> : 800x600@85Hz													
EIDE controller	Enhanced IDE controller in Enterprise South Bridge, one connector on planar, single 1-drop IDE cable (for Combo)													
EIDE Combo	DVD-ROM/CD-RW, Ultrabay Enhanced, 12.7mm high													
SATA disk(s)	None													
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH9R, not used by disks													
SATA connectors	Two SATA connectors on planar, two simple-swap connectors on 3.5" disk backplate													
SATA RAID cont	LSI™ 1064E, SATA 3.0Gb/s, RAID® 0, 1 support, Mini PCI Express® adapter													
SAS disk	Not supported													
SAS connectors	Not supported													
SAS RAID cont	Not supported													
Chipset	Intel 3210 Chipset , Intel I/O Controller Hub 9 RAID (ICH9R) for RAID 0, 1, 10 support, SMSC® SCH5027 Super I/O													
Riser card	Contains one PCI Express x4 slot and one PCI Express x8 slot													
Front ports	Two USB 2.0													
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)													
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for fans, disk controller, memory, PCI slots, power)													
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant													
Audio	None													
Speaker	Internal speaker													
Ethernet	Dual gigabit on planar, Broadcom® 5722 (PCIe x1), Broadcom 5703 (PCI 2.2), full duplex, Wake on LAN®													
Keyboard	None (use USB port)													
Mouse	None (use USB port)													
Power supply	One 350 watts, one maximum, non-redundant, two variable speed fans, non-hot-swap, universal													
Cooling	Five fans, five maximum, variable speed													
<p align="center">Software management tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		<ul style="list-style-type: none"> • Black color front; metal case • 17.3" W x 22" D x 1.75" H • 440mm W x 559mm D x 43mm H • 28 lb (12.7kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons with system error LED <p>Bay ① 5.25", 0.5" high, external, std optical Bay ② 3.5", 1" high, external, optional disk Bay ③ 3.5", 1" high, external, optional disk</p> <p><i>PCI Express riser card:</i> Slot 1: 3/4-length, full-height, PCIe x8 Slot 2: half-length, low-profile, PCIe x4 (x8 mechanical)</p>												
<p align="center">Security</p> <ul style="list-style-type: none"> • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 		<p>ThinkPlus Priority Support, 90-day Trial</p>												
<p>Accessories</p> <table border="0"> <tr> <td>1GB PC2-6400 DDR2 ECC UDIMM</td> <td>45J6188</td> </tr> <tr> <td>2GB PC2-6400 DDR2 ECC UDIMM</td> <td>45J6189</td> </tr> <tr> <td>160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td> <td>45J6195</td> </tr> <tr> <td>250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td> <td>45J6196</td> </tr> <tr> <td>500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td> <td>45J6197</td> </tr> <tr> <td>750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)</td> <td>45J6198</td> </tr> </table> <p>Other accessories at lenovo.com/accessories</p>		1GB PC2-6400 DDR2 ECC UDIMM	45J6188	2GB PC2-6400 DDR2 ECC UDIMM	45J6189	160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6195	250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6196	500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6197	750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6198	<p>RoHS-compliant</p> <p align="center">Limited Warranty¹</p> <ul style="list-style-type: none"> ↪ 1-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 lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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
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RS110	6438-13U	2x3	E3110	3.00	2	1 x 2GB	None	3.5"	2 x Simple-swap	SATA	1064E	Combo	350W	5	3-year	No	Sep 08
RS110	6438-15U	2x5	X3360	2.83	4	2 x 2GB	None	2.5"	4 x Hot-swap	SAS	MR10i	Combo	350W	5	3-year	No	Sep 08

- **R = Rack, S = Single processor**
- **High performance server with rock solid technology and proven hardware design**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor	One Intel® Xeon® Processor E3110 with dual-core, one maximum, 1333MHz system bus, and 6MB L2 cache or One Intel Xeon Processor X3360 with quad-core, one maximum, 1333MHz system bus, and 12MB L2 cache
Implementation	Processor uses FC-LGA8 package, one LGA775 socket
Memory	2GB or 4GB std, 8GB max, PC2-6400 800MHz DDR2, ECC , dual-channel capable, four 240-pin DIMM sockets; <i>Non-italics</i> : standard memory in one or two sockets; three or two sockets available
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (VGA DB-15 rear); <i>Maximum resolution: 800x600@85Hz</i>
EIDE controller	Enhanced IDE controller in Enterprise South Bridge, one connector on planar, single 1-drop IDE cable (for Combo)
EIDE Combo	DVD-ROM/CD-RW, Ultrabay Enhanced, 12.7mm high
SATA disk(s)	None
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH9R, not used by disks
SATA connectors	Two SATA connectors on planar, <i>13U</i> : two simple-swap connectors on 3.5" disk backplate
SATA RAID cont	<i>13U</i> : LSI™ 1064E, SATA 3.0Gb/s, RAID ⁰ , 1 support, Mini PCI Express [®] adapter
SAS disk	None
SAS connectors	<i>15U</i> : 4 hot-swap connectors on 2.5" disk backplane
SAS RAID cont	<i>15U</i> : LSI MR10i, SAS 3.0Gb/s, RAID ⁰ , 1, 5, 6, 10, 50, 60 support, Mini PCI Express adapter
Chipset	Intel 3210 Chipset , Intel I/O Controller Hub 9 RAID (ICH9R) for RAID 0, 1, 10 support, SMSC [®] SCH5027 Super I/O
Riser card	Contains one PCI Express [®] x4 slot and one PCI Express x8 slot
Front ports	Two USB 2.0
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for fans, disk controller, memory, PCI slots, power)
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant
Audio	None
Speaker	Internal speaker
Ethernet	Dual gigabit on planar, Broadcom [®] 5722 (PCIe x1), Broadcom 5703 (PCI 2.2), full duplex, Wake on LAN [®]
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply	One 350 watts, one maximum, non-redundant, two variable speed fans, non-hot-swap, universal
Cooling	Five fans, five maximum, variable speed

1U Rack top

Front on 2.5" disk models

Front on 3.5" disk models

Rear

- Black color front; metal case
- 17.3" W x 22" D x 1.75" H
- 440mm W x 559mm D x 43mm H
- 28 lb (12.7kg) max configuration
- Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons with system error LED

Some: 2.5" disk bays:

- Bay ① 5.25", 0.5" high, external, std optical
- Bay ② 2.5", 0.6" high, external, optional disk
- Bay ③ 2.5", 0.6" high, external, optional disk
- Bay ④ 2.5", 0.6" high, external, optional disk
- Bay ⑤ 2.5", 0.6" high, external, optional disk

Some: 3.5" disk bays:

- Bay ① 5.25", 0.5" high, external, std optical
- Bay ② 3.5", 1" high, external, optional disk
- Bay ③ 3.5", 1" high, external, optional disk

PCI Express riser card:

- Slot 1: 3/4-length, full-height, PCIe x8
- Slot 2: half-length, low-profile, PCIe x4 (x8 mechanical)

Accessories

1GB PC2-6400 DDR2 ECC UDIMM	45J6188
2GB PC2-6400 DDR2 ECC UDIMM	45J6189
160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6195
250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6196
500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6197
750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6198
73GB 2.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	45J6208
146GB 2.5" Hot-swap SAS 3.0Gb/s Disk (10000 rpm)	45J6207

Other accessories at lenovo.com/accessories

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 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**

Security

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

Software management tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

ThinkPlus Priority Support, 90-day Trial

RoHS-compliant

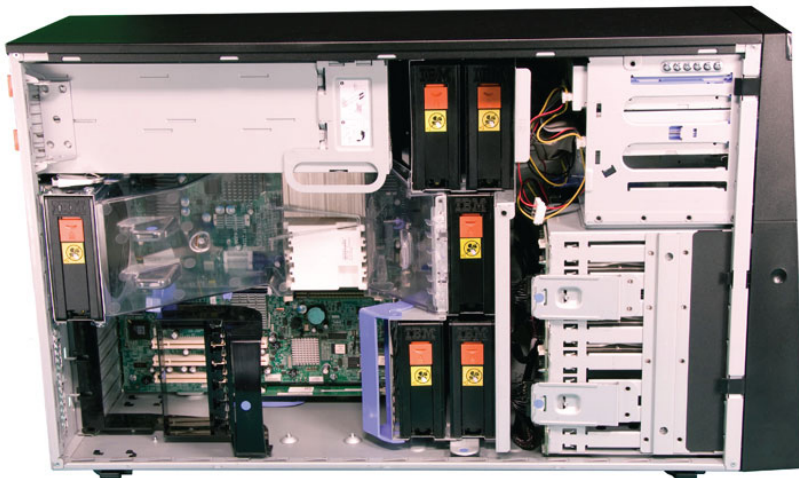
See footnotes for important warranty information
 US models announced September 30, 2008
 US models withdrawn effective April 2010



Lenovo ThinkServer TD100



Lenovo ThinkServer TD100x



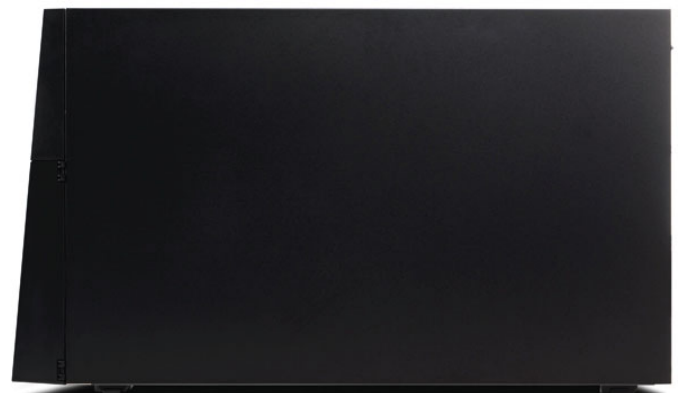
Lenovo ThinkServer TD100
or TD100x



Lenovo ThinkServer TD100
or TD100x



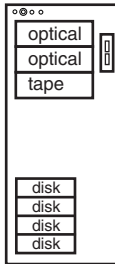
Lenovo ThinkServer TD100x
with Easy LED Diagnostic panel



Lenovo ThinkServer TD100
or TD100x

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory	Disk(s) size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply(s)	Fans	Limited warranty ¹	Workhorse Global	Avail date
TD100	6399-14U	6x7 1 x	E5405	2.00	4	2 x 1GB	None 3.5"	4 x Simple-swap	SATA	RAID-8k	DVD	670W	3	1-year	No	Sep 08
TD100	6399-15U	6x7 1 x	E5405	2.00	4	2 x 1GB	None 3.5"	4 x Simple-swap	SATA	9580W	DVD	670W	3	1-year	No	Jan 09

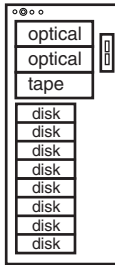
- **T = Tower, D = Dual processor support**
- **High performance server with rock solid technology and proven hardware design**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor(s)	One Intel® Xeon® Processor E5405 with quad-core , two maximum, 1333MHz system bus, and 12MB L2 cache	Tower	
Implementation	Processor uses FC-LGA6 package, two LGA771 sockets		
Memory	2GB std, 32GB max, PC2-5300 667MHz DDR2, Advanced ECC , fully buffered, eight 240-pin DIMM sockets; <i>Non-italics:</i> standard memory in two sockets; six sockets available	<ul style="list-style-type: none"> • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 75 lb (34kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support <p>Bay ① 5.25", 1.6" high, external, std optical</p> <p>Bay ② 5.25", 1.6" high, external, optional tape or optical</p> <p>Bay ③ 5.25", 1.6" high, external, optional tape or optical</p> <p>Bay ④ 3.5", 1" high, external, optional disk</p> <p>Bay ⑤ 3.5", 1" high, external, optional disk</p> <p>Bay ⑥ 3.5", 1" high, external, optional disk</p> <p>Bay ⑦ 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCIe® x4 (x8 mechanical)</p> <p>Slot 2: full-length, full-height, PCIe x8</p> <p>Slot 3: full-length, full-height, PCIe x8</p> <p>Slot 4: full-length, full-height, 64-bit PCI-X</p> <p>Slot 5: full-length, full-height, 64-bit PCI-X</p> <p>Slot 6: half-length, full-height, PCI</p>	
Graphics	ATI® RN50 (ES1000), on planar; 32-bit/33MHz PCI 2.3, 16MB, external monitor port (VGA DB-15 rear); <i>Maximum resolution:</i> 800x600@85Hz		
EIDE controller	Enhanced IDE/ATA 100 controller in Enterprise South Bridge, one connector on planar, single 2-drop IDE cable (for DVD)		
EIDE DVD	DVD-ROM, 1.6" high		
SATA disk(s)	None		
SATA connectors	Four simple-swap connectors on 3.5" disk backplane		
SAS disk(s)	None		
SATA/SAS cont	15U SATA: Adaptec® AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 10 support, 8-port, on planar		
SAS connectors	None		
SATA/SAS RAID controller	14U SATA: RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 1e, 5, 6, 10 support, in reserved connector, single cable to backplane		
Chipset	Intel 5000P chipset , Intel 6321ESB-2E I/O Controller Hub, NS PC8374L Super I/O		
Front ports	Two USB 2.0		
Rear ports	Two USB 2.0, two serial (9-pin), parallel, keyboard (PS/2), mouse (PS/2), external monitor (VGA DB-15), ethernet (RJ-45), system management (RJ-45)		
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for RAID, memory, processors, PCI slots, voltage regulator module, power supply)		
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant		
Audio	None		
Speaker	Internal speaker		
Ethernet	Gigabit ethernet on planar, Broadcom® BCM5721, PCIe x1, full duplex, Wake on LAN®		
Keyboard	None (use PS/2 or USB port)		
Mouse	None (use PS/2 or USB port)		
Power supply	One 670 watts, one maximum, non-redundant, variable speed fan, non-hot-swap, universal		
Cooling	Three or six fans, six maximum, variable speed, hardware failure protection, hot-swap, six fans required with second redundant power supply		
Software management tools		Security	
• ThinkServer EasyStartup • ThinkServer EasyManage		<ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
Accessories		ThinkPlus Priority Support, 90-day Trial	
Intel Xeon Quad-Core Processor E5405	45J6221	RoHS-compliant	
1GB PC2-5300 DDR2 ECC FB-DIMM	45J6191	Limited Warranty¹	
2GB PC2-5300 DDR2 ECC FB-DIMM	45J6192	↪ 1-year parts and labor	
4GB PC2-5300 DDR2 ECC FB-DIMM	45J6193	↪ 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)	
160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6195	↪ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty	
250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6196	• Onsite service upgrade options (in eligible locations)⁷	
500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6197	• Post warranty maintenance services	
750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6198	↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378	
Other accessories at lenovo.com/accessories			

See footnotes for important warranty information
 US models announced September 30, 2008 or January 20, 2009
 US models withdrawn effective February 2010

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory	Disk(s)	Disk size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply(s)	Fans	Limited warranty ¹	Workhorse Global	Availability
TD100	6429-17U	6x11 1 x	E5410	2.33	4	2 x 1GB	None	3.5"	8 x Hot-swap	SATA/SAS ⁴	RAID-8k DVD	2 x 835W	6	3-year	No	Sep 08	
TD100	6429-18U	6x11 1 x	E5430	2.66	4	2 x 2GB	None	3.5"	8 x Hot-swap	SATA/SAS ⁴	RAID-8k DVD	2 x 835W	6	3-year	No	Sep 08	

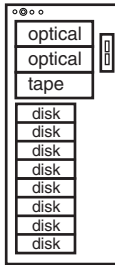
- **T = Tower, D = Dual processor support**
- **High performance server with rock solid technology and proven hardware design**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor(s)	One Intel® Xeon® Processor E5410 or E5430 with quad-core, two maximum, 1333MHz system bus, and 12MB L2 cache	Tower <ul style="list-style-type: none"> • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 75 lb (34kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 
Implementation	Processor uses FC-LGA6 package, two LGA771 sockets	
Memory	2GB or 4GB std, 32GB max, PC2-5300 667MHz DDR2, Advanced ECC , fully buffered, eight 240-pin DIMM sockets; <i>Non-italics</i> : standard memory in two sockets; six sockets available	
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (VGA DB-15 rear); <i>Maximum resolution</i> : 800x600@85Hz	
EIDE controller	Enhanced IDE/ATA 100 controller in Enterprise South Bridge, one connector on planar, single 2-drop IDE cable (for DVD)	
EIDE DVD	DVD-ROM, 1.6" high	
SATA disk(s)	None	
SATA connectors	Eight hot-swap connectors on 3.5" disk backplane	
SAS disk(s)	None	
SATA/SAS cont	Adaptec® AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 10 support, 8-port, on planar, not used	
SAS connectors	Eight hot-swap connectors on 3.5" disk backplane	
SATA/SAS RAID controller	RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 1e, 5, 6, 10 support, in reserved connector, single cable to backplane	
Chipset	Intel 5000P chipset , Intel 6321ESB-2E I/O Controller Hub, NS PC8374L Super I/O	
Front ports	Two USB 2.0	
Rear ports	Two USB 2.0, two serial (9-pin), parallel, keyboard (PS/2), mouse (PS/2), external monitor (VGA DB-15), ethernet (RJ-45), system management (RJ-45)	
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for RAID, memory, processors, PCI slots, voltage regulator module, power supply)	
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant	
Audio	None	
Speaker	Internal speaker	
Ethernet	Gigabit ethernet on planar, Broadcom® BCM5721, PCIe x1, full duplex, Wake on LAN®	
Keyboard	None (use PS/2 or USB port)	
Mouse	None (use PS/2 or USB port)	
Power supply	Two 835 watts, two maximum, redundant with two, variable speed fan, hot-swap, universal, two redundant power supplies require six fans	
Cooling	Six fans, six maximum, variable speed, hardware failure protection, hot-swap, six fans required with second redundant power supply	
Software management tools		
<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
Accessories		
Intel Xeon Quad-Core Processor E5410	45J6185	
Intel Xeon Quad-Core Processor E5430	45J6186	
1GB PC2-5300 DDR2 ECC FB-DIMM	45J6191	
2GB PC2-5300 DDR2 ECC FB-DIMM	45J6192	
4GB PC2-5300 DDR2 ECC FB-DIMM	45J6193	
250GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6201	
500GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6202	
750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6203	
1TB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6204	
146GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	45J6211	
300GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	45J6212	
450GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	67Y0119	
Other accessories at lenovo.com/accessories		
Security <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) <ul style="list-style-type: none"> - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
ThinkPlus Priority Support, 90-day Trial		
RoHS-compliant		
Limited Warranty¹		
<ul style="list-style-type: none"> ⇒ 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 lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 		

See footnotes for important warranty information
 US models announced September 30, 2008
 US models withdrawn effective February 2010

Name	Type-model	Slot x bay	Processor(s)	GHz Cores	Memory	Disk(s) size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply(s)	Fans	Limited warranty ¹	Workhorse Global	Avail date
TD100x	4206-14U	6x11 1 x	X5450	3.00 4	2 x 2GB	None 3.5"	8 x Hot-swap	SATA/SAS ⁴	RAID-8k	DVD	2 x 835W	6	3-year	No	Sep 08

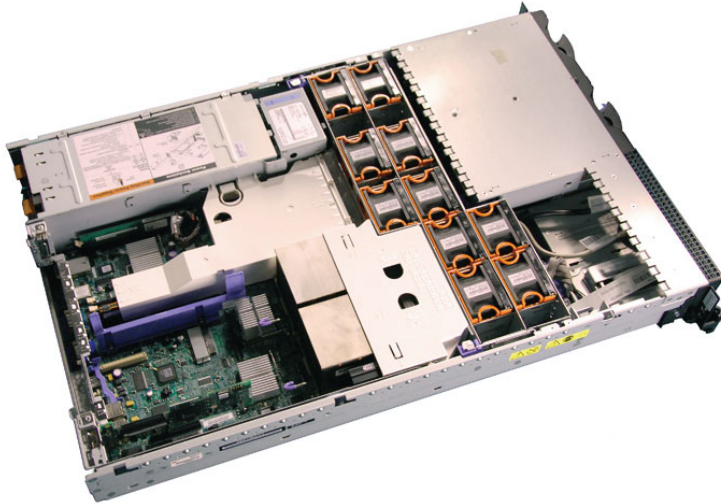
- **T = Tower, D = Dual processor support**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**
- **The TD100x differs from the TD100 because of the following standard features:**
Easy LED Diagnostic panel, support for up to eight 3.5" hot-swap SAS disks, two redundant 835 watt power supplies, six redundant fans

Processor(s)	One Intel® Xeon® Processor X5450 with quad-core, two maximum, 1333MHz system bus, and 12MB L2 cache	Tower <ul style="list-style-type: none"> • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 75 lb (34kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 
Implementation	Processor uses FC-LGA6 package, two LGA771 sockets	
Memory	4GB std, 48GB max, PC2-5300 667MHz DDR2, Advanced ECC , fully buffered, twelve 240-pin DIMM sockets; <i>Non-italics</i> : standard memory in two sockets; ten sockets available	
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (VGA DB-15 rear); <i>Maximum resolution</i> : 800x600@85Hz	
EIDE controller	Enhanced IDE/ATA 100 controller in Enterprise South Bridge, one connector on planar, single 2-drop IDE cable (DVD)	
EIDE DVD	DVD-ROM, 1.6" high	
SATA disk(s)	None	
SATA connectors	Eight hot-swap connectors on 3.5" disk backplane	
SAS disk(s)	None	
SATA/SAS cont	Adaptec® AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 10 support, 8-port, on planar, not used	
SAS connectors	Eight hot-swap connectors on 3.5" disk backplane	
SATA/SAS RAID controller	RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 1e, 5, 6, 10 support, in reserved connector, single cable to backplane	
Chipset	Intel 5000P chipset , Intel 6321ESB-2E I/O Controller Hub, NS PC8374L Super I/O	
Front ports	Two USB 2.0	Bay ① 5.25", 1.6" high, external, std optical
Rear ports	Two USB 2.0, two serial (9-pin), parallel, keyboard (PS/2), mouse (PS/2), external monitor (VGA DB-15), ethernet (RJ-45), system management (RJ-45)	Bay ② 5.25", 1.6" high, external, optional tape or optical
Diagnostics	Easy LED Diagnostics (operator information panel on left side with error LEDs for fans, disks, RAID, memory, processors, voltage regulator module, PCI slots, power supplies)	Bay ③ 5.25", 1.6" high, external, optional tape or optical
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant	Bay ④ 3.5", 1" high, external, optional disk
Audio	None	Bay ⑤ 3.5", 1" high, external, optional disk
Speaker	Internal speaker	Bay ⑥ 3.5", 1" high, external, optional disk
Ethernet	Gigabit ethernet on planar, Broadcom® BCM5721, PCIe x1, full duplex, Wake on LAN®	Bay ⑦ 3.5", 1" high, external, optional disk
Keyboard	None (use PS/2 or USB port)	Bay ⑧ 3.5", 1" high, external, optional disk
Mouse	None (use PS/2 or USB port)	Bay ⑨ 3.5", 1" high, external, optional disk
Power supply	Two 835 watts, two maximum, redundant with 2, variable speed fan, hot-swap, universal, two redundant power supplies require six fans	Bay ⑩ 3.5", 1" high, external, optional disk
Cooling	Six fans, six maximum, variable speed, hardware failure protection, hot-swap, six fans required with second redundant power supply	Slot 1: half-length, full-height, PCIe® x4 (x8 mechanical)
Software management tools		Slot 2: full-length, full-height, PCIe x8
• ThinkServer EasyStartup • ThinkServer EasyManage		Slot 3: full-length, full-height, PCIe x8
		Slot 4: full-length, full-height, 64-bit PCI-X
		Slot 5: full-length, full-height, 64-bit PCI-X
		Slot 6: half-length, full-height, PCI
		Security
		• Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks
		• Power-on password
		• Administrator password
		• Boot sequence control
		• Boot without keyboard, mouse, diskette
		• Serial port I/O control
		• USB port disablement (all)
		ThinkPlus Priority Support, 90-day Trial
		RoHS-compliant
Accessories		Limited Warranty¹
Intel® Xeon® Quad-Core Processor X5450	45K1608	⇒ 3-year parts and labor
1GB PC2-5300 DDR2 ECC FB-DIMM	45J6191	⇒ 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)
2GB PC2-5300 DDR2 ECC FB-DIMM	45J6192	⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty
4GB PC2-5300 DDR2 ECC FB-DIMM	45J6193	• Onsite service upgrade options (in eligible locations)⁷
250GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6201	• Post warranty maintenance services
500GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6202	⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378
750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6203	
1TB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6204	
146GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	45J6211	
300GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	45J6212	
450GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	67Y0119	
Other accessories at lenovo.com/accessories		

See footnotes for important warranty information
 US model announced September 30, 2008
 US model withdrawn effective February 2010



Lenovo ThinkServer RD120



Lenovo ThinkServer RD120



Lenovo ThinkServer RD120



Lenovo ThinkServer RD120



Lenovo ThinkServer RD120

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory	Disk(s)	Disk size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply(s)	Fans	Limited warranty ¹	Workhorse Global	Avail date
RD120	6445-12U	4x7	1 x E5205	1.86	2	2 x 1GB	None	3.5"	6 x Hot-swap	SATA/SAS ⁴	RAID-8k	Combo	2 x 835W	10	1-year	No	Sep 08
RD120	6445-14U	4x7	1 x E5205	1.86	2	2 x 1GB	None	3.5"	6 x Hot-swap	SATA/SAS ⁴	9580W	Combo	2 x 835W	10	1-year	No	Jan 09

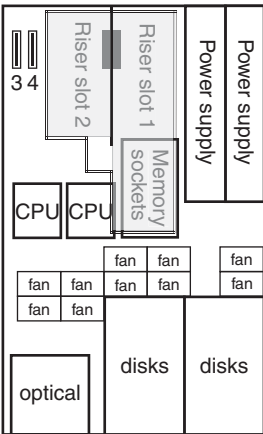
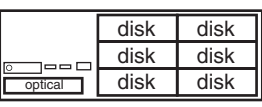
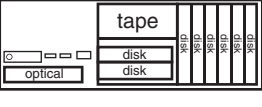
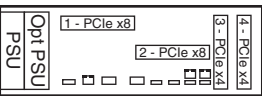
- **R = Rack, D = Dual processor support**
- **High performance server with rock solid technology and proven hardware design**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor	One Intel® Xeon® Processor E5205 with dual-core, two maximum, 1066MHz system bus, and 6MB L2 cache																		
Implementation	Processor uses FC-LGA6 package, two LGA771 sockets																		
Memory	2GB std, 48GB max, PC2-5300 667MHz DDR2, Advanced ECC, fully buffered, 4-channel capable, twelve 240-pin DIMM sockets; <i>Non-italics</i> : standard memory in two sockets; ten sockets available																		
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (two VGA DB-15 front and rear); <i>Maximum resolution</i> : 800x600@85Hz																		
EIDE controller	Enhanced IDE controller in Enterprise South Bridge, one connector on planar, single 1-drop IDE cable (for Combo)																		
EIDE Combo	DVD-ROM/CD-RW, Ultrabay Enhanced, 12.7mm high																		
SATA disk(s)	None																		
SATA connectors	Six hot-swap connectors on 3.5" disk backplane																		
SAS disk(s)	None																		
SATA/SAS ⁴ cont	14U SATA/SAS: Adaptec® AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 10 support, 8-port, on planar																		
SAS connectors	Six hot-swap connectors on 3.5" disk backplane																		
SATA/SAS RAID controller	12U SATA/SAS: RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 1e, 5, 6, 10 support, in reserved connector, single cable to backplane																		
Chipset	Intel 5000P chipset, Intel 6321ESB-2E I/O Controller Hub, NS PC8742XVUL Super I/O																		
Riser card	Contains two PCI Express® x8 slots																		
Front ports	Two USB 2.0, external monitor (VGA DB-15)																		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45), external SAS																		
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED; error LEDs for fans, disks, RAID, memory, processors, voltage regulator module, riser card, PCI slots, power supplies)																		
Systems mgmt	System management utility, baseboard management controller, IPMI 2.0-compliant																		
Audio	None																		
Speaker	Internal speaker																		
Ethernet	Dual gigabit on planar, two Broadcom® 5708, PCIe x1, full duplex, Wake on LAN®, TCP/IP Offload Engine (TOE), Alert Standard Format 2.0																		
Keyboard	None (use USB port)																		
Mouse	None (use USB port)																		
Power supply	Two 835 watts, two maximum, redundant with 2, variable speed fan, hot-swap, universal, two redundant power supplies require ten fans																		
Cooling	Ten fans, ten maximum, variable speed, hardware failure protection, hot-swap, ten fans required with second redundant power supply																		
Accessories	<table border="0"> <tr><td>Intel Xeon Quad-Core Processor E5205</td><td>45J6180</td></tr> <tr><td>1GB PC2-5300 DDR2 ECC FB-DIMM</td><td>45J6191</td></tr> <tr><td>2GB PC2-5300 DDR2 ECC FB-DIMM</td><td>45J6192</td></tr> <tr><td>4GB PC2-5300 DDR2 ECC FB-DIMM</td><td>45J6193</td></tr> <tr><td>500GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6202</td></tr> <tr><td>750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6203</td></tr> <tr><td>1TB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)</td><td>45J6204</td></tr> <tr><td>300GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)</td><td>45J6212</td></tr> <tr><td>450GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)</td><td>67Y0119</td></tr> </table> <p>Other accessories at lenovo.com/accessories</p>	Intel Xeon Quad-Core Processor E5205	45J6180	1GB PC2-5300 DDR2 ECC FB-DIMM	45J6191	2GB PC2-5300 DDR2 ECC FB-DIMM	45J6192	4GB PC2-5300 DDR2 ECC FB-DIMM	45J6193	500GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6202	750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6203	1TB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6204	300GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	45J6212	450GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	67Y0119
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450GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)	67Y0119																		
Limited Warranty ¹	<p>↪ 1-year parts and labor</p> <p>↪ 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)</p> <p>↪ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378</p>																		
Security	<ul style="list-style-type: none"> • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 																		
Software management tools	<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 																		
	ThinkPlus Priority Support, 90-day Trial																		
	RoHS-compliant																		

See footnotes for important warranty information
 US models announced September 30, 2008 or January 20, 2009
 US models withdrawn effective February 2010

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory	Disk(s)	Disk size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply(s)	Fans	Warranty	Limited Global	Workhorse	Avail date
RD120	6447-18U	4x7	1 x E5410	2.33	4	2 x 1GB	None	3.5"	6 x Hot-swap	SATA/SAS ⁴	RAID-8k	Combo 2 x	835W	10	3-year	No	Sep 08	
RD120	6447-21U	4x7	1 x E5430	2.66	4	2 x 2GB	None	3.5"	6 x Hot-swap	SATA/SAS	RAID-8k	Combo 2 x	835W	10	3-year	No	Sep 08	
RD120	6447-23U	4x10	2 x E5450	3.00	8	2 x 2GB	None	2.5"	8 x Hot-swap	SAS	RAID-8k	Combo 2 x	835W	10	3-year	No	Sep 08	
RD120	6447-24U	4x7	2 x E5450	3.00	8	2 x 2GB	None	3.5"	6 x Hot-swap	SATA/SAS	RAID-8k	Combo 2 x	835W	10	3-year	No	May 09	

- R = Rack, D = Dual processor support
- These small and medium business (SMB) models are part of the US TopSeller™ Program

Processor	One or two Intel® Xeon® Processor E5410, E5430, or E5450 with quad-core, two maximum, 1333MHz bus, and 12MB L2 cache	<p>2U Rack top</p>  <p>Front on 3.5" disk models</p>  <p>Front on 2.5" disk models</p>  <p>Rear</p> 																			
Implementation	Processor uses FC-LGA6 package, two LGA771 sockets																				
Memory	2GB or 4GB std, 48GB max, PC2-5300 667MHz DDR2, Advanced ECC, fully buffered, 4-channel capable, twelve 240-pin DIMM sockets; <i>Non-italics</i> : standard memory in two sockets; ten sockets available																				
Graphics	ATI® RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (two VGA DB-15 front and rear); <i>Maximum resolution</i> : 800x600@85Hz																				
EIDE controller	Enhanced IDE controller in Enterprise South Bridge, one connector on planar, single 1-drop IDE cable (for DVD)																				
EIDE Combo	DVD-ROM/CD-RW, Ultrabay Enhanced, 12.7mm high																				
SATA disk(s)	None																				
SATA connectors	18U/21U/24U: six hot-swap connectors on 3.5" disk backplane																				
SAS disk(s)	None																				
SATA/SAS cont	Adaptec® AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID ⁹ 0, 1, 10 support, 8-port, on planar, not used																				
SAS connectors	18U/21U/24U: six hot-swap connectors on 3.5" disk backplane																				
SATA/SAS RAID controller	23U: eight hot-swap connectors on 2.5" disk backplane RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID ⁹ 0, 1, 1e, 5, 6, 10 support, in reserved connector, single cable to backplane																				
Chipset	Intel 5000P chipset, Intel 6321ESB-2E I/O Controller Hub, NS PC8742XVUL Super I/O																				
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	ThinkPlus Priority Support, 90-day Trial																				
	RoHS-compliant																				

See footnotes for important warranty information
 US models announced September 30, 2008 or May 19, 2009
 US models withdrawn effective February 2010

Partial list of accessories supported on Lenovo® ThinkServer RS110, RD120, TS100, TD100, TD100x

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Processors⁵⁵

TD100, RD120:

Intel® Xeon® Processor E5405	45J6221	ann	09/30/08
Intel Xeon Processor E5410	45J6185	ann	09/30/08
Intel Xeon Processor E5420	45K1605	ann	09/30/08
Intel Xeon Processor E5430	45J6186	ann	09/30/08

TD100x:

Intel Xeon Processor X5450	45K1608	ann	09/30/08
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RD120:

Intel Xeon Processor E5205	45J6180	ann	09/30/08
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⁵⁵ Additional Processor must match the existing processor

Memory

TS100, RS110:

1GB PC2-6400 DDR2 ECC SDRAM	45J6188	ann	09/30/08
2GB PC2-6400 DDR2 ECC SDRAM	45J6189	ann	09/30/08

TD100, RD120:

1GB PC2-5300 DDR2 ECC FBDIMM	45J6191	ann	09/30/08
2GB PC2-5300 DDR2 ECC FBDIMM	45J6192	ann	09/30/08

Backup

All:

IBM® RDX 160GB Cartridge	67Y0169	ann	11/10/09
IBM RDX 320GB Cartridge	67Y0170	ann	11/10/09
IBM RDX 500GB Cartridge	67Y0171	ann	11/10/09
IBM DDS Generation 6 5-Pack Media	67Y1377	ann	11/10/09

TS100, TD100, RD120:

IBM LTO Generation 3 5-Pack Media	67Y1379	ann	11/10/09
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Connectivity

IBM 8Gb FC Single-port HBA by QLogic®	67Y0172	ann	11/10/09
IBM 8Gb FC Dual-port HBA by QLogic	67Y0173	ann	11/10/09
IBM 8Gb FC Single-port HBA by Emulex®	67Y0174	ann	11/10/09
IBM 8Gb FC Dual-port HBA by Emulex	67Y0175	ann	11/10/09
IBM 8Gb FC Single-port HBA by Brocade®	67Y0176	ann	11/10/09
IBM 8Gb FC Dual-port HBA by Brocade	67Y0177	ann	11/10/09

Keyboard

Preferred Pro USB Keyboard	73P5220	ann	06/21/05
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Mouse

Lenovo Optical Mouse (USB)	06P4069	ann	05/21/03
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Storage

RS100, RD120:

2.5" SAS Hot-swap (HS):			
73GB 2.5" SAS SFF HS (15000 rpm)	45J6208	ann	09/30/08
146GB ² 2.5" SAS SFF HS (10000 rpm)	45J6207	ann	09/30/08

All:

3.5" SATA Hot-swap (HS):			
160GB 3.5" SATA HS (7200 rpm)	45J6200	ann	09/30/08
250GB 3.5" SATA HS (7200 rpm)	45J6201	ann	09/30/08
500GB 3.5" SATA HS (7200 rpm)	45J6202	ann	09/30/08
750GB 3.5" SATA HS (7200 rpm)	45J6203	ann	09/30/08
1TB 3.5" SATA HS (7200 rpm)	45J6204	ann	09/30/08

3.5" SATA Simple-swap:

160GB 3.5" SATA Simple-swap (7200 rpm)	45J6195	ann	09/30/08
250GB 3.5" SATA Simple-swap (7200 rpm)	45J6196	ann	09/30/08
500GB 3.5" SATA Simple-swap (7200 rpm)	45J6197	ann	09/30/08
750GB 3.5" SATA Simple-swap (7200 rpm)	45J6198	ann	09/30/08

For more information on server accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide

Partial list of Lenovo® ThinkPlus Services for ThinkServer™

For more information see:

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

- The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

ThinkPlus service upgrade options⁷*LOR = Lenovo Onsite Repair***TS100 with 1-year warranty**

3-year LOR 9x5 Next Business Day	45K4055
3-year LOR 9x5 4 hour response	45K4056
4-year LOR 9x5 Next Business Day	51J0723
4-year LOR 9x5 4 hour response	51J0724
5-year LOR 9x5 Next Business Day	51J0725
5-year LOR 9x5 4 hour response	51J0726

TS100 with 3-year warranty

3-year LOR 9x5 4 hour response	45K4059
4-year LOR 9x5 Next Business Day	51J0727
4-year LOR 9x5 4 hour response	51J0728
5-year LOR 9x5 Next Business Day	51J0729
5-year LOR 9x5 4 hour response	51J0730

TD100 with 1-year warranty

3-year LOR 9x5 Next Business Day	45K4062
3-year LOR 9x5 4 hour response	45K4063
4-year LOR 9x5 Next Business Day	51J0731
4-year LOR 9x5 4 hour response	51J0732
5-year LOR 9x5 Next Business Day	51J0733
5-year LOR 9x5 4 hour response	51J0734

TD100 with 3-year warranty

3-year LOR 9x5 4 hour response	45K4066
4-year LOR 9x5 Next Business Day	51J0735
4-year LOR 9x5 4 hour response	51J0736
5-year LOR 9x5 Next Business Day	51J0737
5-year LOR 9x5 4 hour response	51J0738

RS110 with 1-year warranty

3-year LOR, 9x5 Next Business Day	45K4069
3-year LOR, 4 hour response	45K4070
4-year LOR 9x5 Next Business Day	51J0739
4-year LOR 9x5 4 hour response	51J0740
5-year LOR 9x5 Next Business Day	51J0741
5-year LOR 9x5 4 hour response	51J0742

RS110 with 3-year warranty

3-year LOR, 4 hour response	45K4073
4-year LOR 9x5 Next Business Day	51J0743
4-year LOR 9x5 4 hour response	51J0744
5-year LOR 9x5 Next Business Day	51J0745
5-year LOR 9x5 4 hour response	51J0746

RD120 with 1-year warranty

3-year LOR 9x5 Next Business Day	45K5305
3-year LOR 9x5 4 hour response	45K5306
4-year LOR 9x5 Next Business Day	51J0747
4-year LOR 9x5 4 hour response	51J0748
5-year LOR 9x5 Next Business Day	51J0749
5-year LOR 9x5 4 hour response	51J0750

RD120 with 3-year warranty

3-year LOR 9x5 4 hour response	45K4076
4-year LOR 9x5 Next Business Day	51J0751
4-year LOR 9x5 4 hour response	51J0752
5-year LOR 9x5 Next Business Day	51J0753
5-year LOR 9x5 4 hour response	51J0754

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 25GB Server Lenovo Online Data Backup (US)	45K2115
1-year 50GB Server Lenovo Online Data Backup (US)	45K2116
1-year 100GB Server Lenovo Online Data Backup (US)	45K2117

ThinkPlus Priority Support

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians

TS100 with 1-year warranty

3-year Priority Support	45K4057
3-year Priority 4 Support	45K4058

TS100 with 3-year warranty

3-year Priority Support	45K4060
3-year Priority 4 Support	45K4061

TD100 with 1-year warranty

3-year Priority Support	45K4064
3-year Priority 4 Support	45K4065

TD100 with 3-year warranty

3-year Priority Support	45K4067
3-year Priority 4 Support	45K4068

RS110 with 1-year warranty

3-year Priority Support	45K4071
3-year Priority 4 Support	45K4072

RS110 with 3-year warranty

3-year Priority Support	45K4074
3-year Priority 4 Support	45K4075

RD120 with 1-year warranty

3-year Priority Support	45K5307
3-year Priority 4 Support	45K5308

RD120 with 3-year warranty

3-year Priority Support	45K4077
3-year Priority 4 Support	45K4078

ThinkPlus Priority Support with Hard Disk Drive Retention

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians
- Hard Disk Drive Retention (HDDR) means customer keeps disk

*HDDR = Hard Disk Drive Retention***TS100 with 1-year warranty**

3-year Priority Support with HDDR	45K5441
3-year Priority 4 Support with HDDR	45K5442

TS100 with 3-year warranty

3-year Priority Support with HDDR	45K5443
3-year Priority 4 Support with HDDR	45K5444

TD100 with 1-year warranty

3-year Priority Support with HDDR	45K5445
3-year Priority 4 Support with HDDR	45K5446

TD100 with 3-year warranty

3-year Priority Support with HDDR	45K5447
3-year Priority 4 Support with HDDR	45K5448

RS110 with 1-year warranty

3-year Priority Support with HDDR	45K5449
3-year Priority 4 Support with HDDR	45K5450

RS110 with 3-year warranty

3-year Priority Support with HDDR	45K5451
3-year Priority 4 Support with HDDR	45K5452

RD120 with 1-year warranty

3-year Priority Support with HDDR	45K5453
3-year Priority 4 Support with HDDR	45K5454

RD120 with 3-year warranty

3-year Priority Support with HDDR	45K5455
3-year Priority 4 Support with HDDR	45K5456

ThinkPlus Productivity

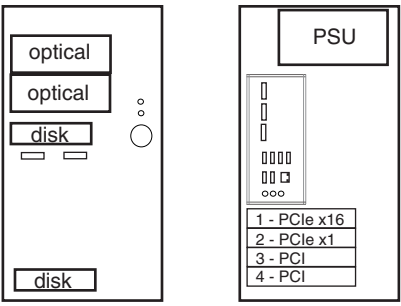
- Priority Support
- Online Training, Understanding Lenovo Servers
- One-time hardware installation

3-year ThinkPlus Productivity, TS100 (1-year)	45K4084
3-year ThinkPlus Productivity, TS100 (3-year)	45K4086
3-year ThinkPlus Productivity, TD100 (1-year)	45K4088
3-year ThinkPlus Productivity, TD100 (3-year)	45K4090
3-year ThinkPlus Productivity, RS110 (1-year)	45K4092
3-year ThinkPlus Productivity, RS110 (3-year)	45K4094
3-year ThinkPlus Productivity, RD120 (1-year)	45K5309
3-year ThinkPlus Productivity, RD120 (3-year)	45K4096



Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)	Avail date
0981-11U	4x4	G1101	2.26	2	1x1GB	1333MHz	1x250GB ²	3.5"		2xDirect Cable	DVD	Intel HD		280W	Mar 10
0981-12U	4x4	G6950	2.80	2	1x2GB	1333MHz	1x250GB	3.5"		2xDirect Cable	DVD	Intel HD		280W	Mar 10
0981-18U	4x4	i5-650	3.20	2	1x2GB	1333MHz	2x250GB	3.5"	1	2xDirect Cable	DVD	Intel HD	2008 Foundations	280W	Mar 10
0981-19U	4x4	i5-650	3.20	2	1x2GB	1333MHz	1x500GB	3.5"		2xDirect Cable	DVD±RW	Intel HD		280W	Mar 10
0981-1AU	4x4	G6950	2.80	2	1x2GB	1333MHz	2x250GB	3.5"	1	2xDirect Cable	DVD	Intel HD	2008 Foundations	280W	Mar 10
0981-1BU	4x4	i5-650	3.20	2	2x2GB	1333MHz	2x250GB	3.5"	1	2xDirect Cable	DVD±RW	Intel HD	2008 SBS Std	280W	Jul 10
0981-1CU	4x4	X3450	2.66	4	1x2GB	1333MHz	1x500GB	3.5"		2xDirect Cable	DVD±RW	FX380		280W	Nov 10
0981-1DU	4x4	G6960	2.93	2	1x2GB	1333MHz	1x250GB	3.5"		2xDirect Cable	DVD	Intel HD		280W	Mar 11

- These models have a 1-year limited warranty¹
- These small and medium business (SMB) models are part of the US TopSeller™ Program

Processor	<p>Intel® Celeron® Processor G1101* with dual-core, Intel 64, Virtualization Technology, integrated 1066MHz dual-channel DDR3 memory controller, and 2MB cache or</p> <p>Intel Pentium® Processor G6950 or G6960 with dual-core, Intel 64, Virtualization Technology, integrated 1066MHz dual-channel DDR3 memory controller, and 3MB cache or</p> <p>Intel Core™ i5 Processor i5-650 with dual-core, Intel 64, Hyper-Threading Technology, Turbo Boost Technology, Virtualization Technology, TXT, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache or</p> <p>Intel Xeon® Processor X3450 with quad-core, Intel 64, Hyper-Threading Technology, Virtualization Technology, TXT, Turbo Boost Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 8MB cache</p> <p>* Intel Celeron Processor G1101 is not recommended for applications requiring more than 5 clients or high web volume Processor in LGA1156 socket, up to one processor</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Implementation		<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, std disk Bay 4 3.5", 1" high, external, std or opt disk</p>
Memory	<p>1GB, 2GB, or 4GB std, 16GB max, UDIMM, PC3-10600 1333MHz DDR3**, ECC, four 240-pin DIMM sockets</p> <p>** System automatically clocks down for processors with 1066MHz DDR3 memory controller</p>	<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI</p>
Graphics	<p><i>Some:</i> Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector</p> <p><i>Some:</i> NVIDIA® Quadro® FX 380, PCIe x16 adapter, 256MB, two dual-link DVI-I, includes DVI to VGA converter, 35W</p>	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup
Disk bays	<p>Two 3.5" SATA disk bays, no hot-swap, direct cable</p>	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
SATA disk(s)	<p>250GB or 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p>	<p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
SATA DVD	<p><i>Some:</i> DVD-ROM DL SATA 1.5Gb/s 16X-48X Max⁴ Drive</p>	<p>Preloaded Operating System</p> <p><i>Some:</i> Genuine Windows Server® 2008 R2 Foundations <i>Some:</i> Genuine Windows Small Business Server 2008 Standard SP2</p>
SATA DVD±RW	<p><i>Some:</i> Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive</p>	<p>ENERGY STAR® Server 1.0-compliant RoHS-compliant</p>
SATA controller	<p>Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals</p>	
Chipset	<p>Intel 3450 Chipset, Platform Controller Hub (PCH) for PCI, ethernet, and USB</p>	
Front ports	Two USB 2.0	
Rear ports	<p>Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)</p> <p><i>Intel HD model(s):</i> one analog VGA DB-15, one DisplayPort</p>	
Ethernet	One gigabit ethernet on planar, Intel 82578DM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Rack mount	Rack shelf support	
<p>Accessories</p> <p>1GB PC3-10600 DDR3 ECC UDIMM 67Y1387 2GB PC3-10600 DDR3 ECC UDIMM 67Y1388 500GB 3.5" SATA Cabled (7200 rpm) 67Y1401 More accessories on O-RED sheet</p> <p>Other accessories at lenovo.com/accessories</p>		
<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ⇒ 1-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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 		

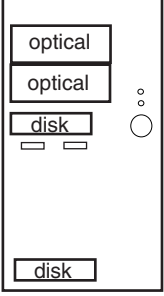
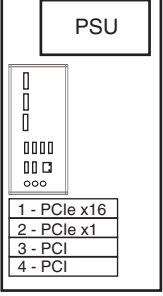
See footnotes for important warranty information
 US model announced March 8, 2011; previous models on February 23, March 9, July 6, or November 2, 2010
 US models withdrawn effective February, April 2011 or April 2012

ThinkServer™ TS200v (0992) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)	Avail date
0992-19U	4x4	X3450	2.66	4	1x4GB	1333MHz	1x500GB ²	3.5"	No	2xDirect Cable	DVD±RW	FX380	No	280W	Nov 10

- Real server class dependability at desktop price point
- Ideal entry single-socket tower server for growing enterprises, corporate branch offices and Managed Service Providers
- This model has a 3-year limited warranty¹
- This small and medium business (SMB) model is part of the US TopSeller™ Program

Processor	Intel® Xeon® Processor X3450 with quad-core, Intel 64, Hyper-Threading Technology, Virtualization Technology, TXT, Turbo Boost Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 8MB cache Processor in LGA1156 socket, up to one processor																		
Implementation	Processor in LGA1156 socket, up to one processor																		
Memory	4GB std, 16GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets		<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons 																
Graphics	NVIDIA® Quadro® FX 380 , PCIe x16 adapter, 256MB, two dual-link DVI-I, includes DVI to VGA converter, 35W																		
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable																		
SATA disk(s)	500GB , SATA 3.0Gb/s, 7200 rpm, 3.5"																		
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive																		
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals																		
Chipset	Intel 3450 Chipset , Platform Controller Hub (PCH) for PCI, ethernet, and USB																		
Front ports	Two USB 2.0																		
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) <i>Intel HD model(s)</i> : one analog VGA DB-15, one DisplayPort																		
Ethernet	One gigabit ethernet on planar, Intel 82578DM																		
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant																		
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)																		
Keyboard	None (use USB port)																		
Mouse	None (use USB port)																		
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified																		
Cooling	4 fans (power supply, CPU, rear, front)																		
Rack mount	Rack shelf support																		
Accessories			<p>Disk Bays</p> <table border="1"> <tr> <td>Bay 1</td> <td>5.25", 1.6" high,</td> <td>external,</td> <td>std optical</td> </tr> <tr> <td>Bay 2</td> <td>5.25", 1.6" high,</td> <td>external,</td> <td>optional optical</td> </tr> <tr> <td>Bay 3</td> <td>3.5", 1" high,</td> <td>external,</td> <td>std disk</td> </tr> <tr> <td>Bay 4</td> <td>3.5", 1" high,</td> <td>external,</td> <td>opt disk</td> </tr> </table> <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup <p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 	Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	3.5", 1" high,	external,	std disk	Bay 4	3.5", 1" high,	external,	opt disk
Bay 1	5.25", 1.6" high,	external,		std optical															
Bay 2	5.25", 1.6" high,	external,	optional optical																
Bay 3	3.5", 1" high,	external,	std disk																
Bay 4	3.5", 1" high,	external,	opt disk																
1GB PC3-10600 DDR3 ECC UDIMM	67Y1387																		
2GB PC3-10600 DDR3 ECC UDIMM	67Y1388																		
4GB PC3-10600 DDR3 ECC UDIMM	67Y1389																		
500GB 3.5" SATA Cabled (7200 rpm)	67Y1401																		
1TB 3.5" SATA Cabled (7200 rpm)	67Y1402																		
More accessories on O-RED sheet																			
Other accessories at lenovo.com/accessories																			
Limited Warranty¹																			
<ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 																			
<p>ENERGY STAR® Server 1.0-compliant RoHS-compliant</p>																			

See footnotes for important warranty information
 US model announced November 2, 2010
 US model withdrawn effective November 2010

Partial list of accessories supported on Lenovo® ThinkServer TS200v.

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Memory

1GB PC3-10600 DDR3 ECC UDIMM	67Y1387	<i>ann 02/23/10</i>
2GB PC3-10600 DDR3 ECC UDIMM	67Y1388	<i>ann 02/23/10</i>
4GB PC3-10600 DDR3 ECC UDIMM	67Y1389	<i>ann 02/23/10</i>

Backup

Lenovo 160GB Internal USB RDX Bundle	67Y1394	<i>ann 02/23/10</i>
Lenovo 320GB Internal USB RDX Bundle	67Y1396	<i>ann 02/23/10</i>
Lenovo 500GB Internal USB RDX Bundle	67Y1398	<i>ann 02/23/10</i>
Lenovo 160GB RDX Data Cartridge	67Y1395	<i>ann 02/23/10</i>
Lenovo 320GB RDX Data Cartridge	67Y1397	<i>ann 02/23/10</i>
Lenovo 500GB RDX Data Cartridge	67Y1399	<i>ann 02/23/10</i>

Connectivity

Intel PRO/1000 PT Dual Port Ethernet	67Y1393	<i>ann 02/23/10</i>
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Disk Drive

3.5" SATA Cabled:

250GB ² 3.5" SATA (7200 rpm)	67Y1400	<i>ann 02/23/10</i>
500GB 3.5" SATA (7200 rpm)	67Y1401	<i>ann 02/23/10</i>
1TB 3.5" SATA (7200 rpm)	67Y1402	<i>ann 02/23/10</i>

Keyboard

Preferred Pro USB Keyboard	73P5220	<i>ann 06/21/05</i>
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Mouse

Lenovo Optical Mouse (USB)	06P4069	<i>ann 05/21/03</i>
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For more information on server accessories, please visit:

- www.lenovo.com/support/accessories
- www.lenovo.com/support/thinkserveraccessories
- www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide

Partial list of Lenovo® ThinkPlus Services for ThinkServer TS200v

For more information see:

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

Training classes

- The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

ThinkPlus service upgrade options⁷

LOR = Lenovo Onsite Repair

TS200v with 1-year warranty

3-year LOR 9x5 Next Business Day	45K4055
4-year LOR 9x5 Next Business Day	51J0723
5-year LOR 9x5 Next Business Day	51J0725

TS200v with 3-year warranty

4-year LOR 9x5 Next Business Day	51J0727
5-year LOR 9x5 Next Business Day	51J0729

ThinkPlus Priority Support

- 24x7 support with priority routing and advanced level technicians

TS200v with 3-year warranty

3-year Priority Support	45K4060
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ThinkPlus Priority Support with Hard Disk Drive Retention

- 24x7 support with priority routing and advanced level technicians
- Hard Disk Drive Retention (HDDR) means customer keeps disk

TS200v with 3-year warranty

3-year Priority Support with HDDR	45K5443
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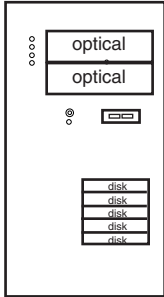
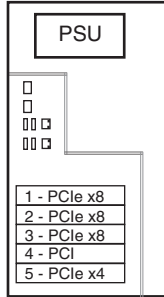
ThinkPlus Productivity

- Priority Support
- Online Training, Understanding Lenovo Servers
- One-time hardware installation

3-year ThinkPlus Productivity, TS200v (3-year)	45K4086
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Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk(s)	Disk size	Disk bays	Disk Controller	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
TD230	1027-12U	5x7	1xE5506	2.13 4	1x2GB	1x250GB ²	3.5"	5xDirect Cable	ICH10R	SATA	DVD±RW	0/1/10	IPMI	2xGb	Jul 10

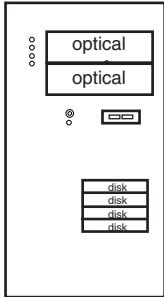
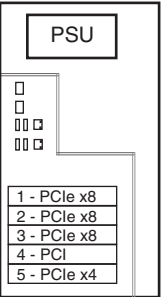
- **This model has a 1-year limited warranty¹**
- **Flexible and green tower computing at value price point**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5506 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache	Front 	Rear 							
Implementation	Two LGA1366 sockets									
Memory	2GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal 								
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>	<p>Bay 1 5.25", 1.6" high, external, std optical</p> <p>Bay 2 5.25", 1.6" high, external, optional optical</p> <p>Bay 3 3.5", 1" high, external, std disk</p> <p>Bay 4 3.5", 1" high, external, optional disk</p> <p>Bay 5 3.5", 1" high, external, optional disk</p> <p>Bay 6 3.5", 1" high, external, optional disk</p> <p>Bay 7 3.5", 1" high, external, optional disk</p>								
SATA disk(s)	250GB , SATA 3.0Gb/s, 7200 rpm	Slot 1: half-length, full-height, PCI Express 2.0 x8								
Disk bays	Five 3.5" SATA disk bays, no hot-swap, direct cable (DC)	Slot 2: half-length, full-height, PCI Express 2.0 x8								
Disk controller	Six SATA connectors for opticals and disks, Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ 0, 1, 10 support	Slot 3: half-length, full-height, PCI Express 2.0 x8***								
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	Slot 4: half-length, full-height, 32-bit PCI 2.3								
Diskette	None (use USB port)	Slot 5: half-length, full-height, PCI Express x4								
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82567	*** x4 electrical								
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567									
Extender card	None									
Front ports	Two USB 2.0									
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)									
Internal ports	One USB 2.0 connector for optional tape drive									
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear									
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller, IPMI 2.0-compliant baseboard management controller (BMC)									
Prerequisites	Monitor, SATA/SAS disk, OS									
Keyboard	None (use USB port)									
Mouse	None (use USB port)									
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS® Bronze qualified									
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor									
<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Intel Xeon E5506 Processor Option Kit</td> <td>67Y1449</td> </tr> <tr> <td>2GB PC3-10600 DDR3 1333 MHz RDIMM</td> <td>67Y1432</td> </tr> <tr> <td>ThinkServer TD230 SATA RAID 5 Upgrade</td> <td>67Y1459</td> </tr> <tr> <td>250GB 3.5" SATA (7200 rpm)</td> <td>67Y1400</td> </tr> </table> <p>More accessories on O-ARTsheet</p> <p>Other accessories at lenovo.com/accessories</p>		Intel Xeon E5506 Processor Option Kit	67Y1449	2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432	ThinkServer TD230 SATA RAID 5 Upgrade	67Y1459	250GB 3.5" SATA (7200 rpm)	67Y1400	
Intel Xeon E5506 Processor Option Kit	67Y1449									
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432									
ThinkServer TD230 SATA RAID 5 Upgrade	67Y1459									
250GB 3.5" SATA (7200 rpm)	67Y1400									
<p style="text-align: center;">Max memory capacity</p> <p>32GB with eight 4GB PC3-10600 DDR3 RDIMMs (using 67Y1433)</p>										
<p style="text-align: center;">Max internal capacity</p> <p>10.0TB with five 2TB 3.5" SATA disks (using 67Y2642)</p>										
<p style="text-align: center;">Limited Warranty¹</p> <p>⇒ 1-year parts and labor</p> <p>⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)</p> <p>⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378</p>		<p style="text-align: center;">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup 								
<p style="text-align: center;">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 										
<p style="text-align: center;">Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Front panel lock out • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 										
<p style="text-align: center;">RoHS-compliant</p>										

See footnotes for important warranty information
 US model announced July 27, 2010
 US model withdrawn effective April 2011

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Ethernet	Avail date
TD230	1040-11U	5x7	1xE5503	2.00	2	1x2GB	1333MHz	3.5"	5x Direct Cable	ICH10R	SATA	0/1/10	IPMI	2x Gb	Jul 10
TD230	1040-12U	5x6	1xE5503	2.00	2	1x2GB	1333MHz	3.5"	4x Hot-swap	ICH10R	SATA	0/1/10	IPMI	2x Gb	Jul 10
TD230	1040-13U	5x6	1xE5506	2.13	4	1x4GB	1333MHz	3.5"	4x Hot-swap	9240-8i	SATA/SAS ⁴	0/1/5/10	IPMI	2x Gb	Jul 10

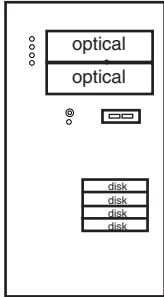
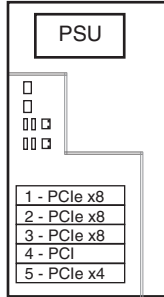
- *These models have a 3-year limited warranty¹*
- *Flexible and green tower computing at value price point*

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache Intel Xeon Processor E5506 with quad-core , 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache	Front - (Hot-swap) 	Rear 																											
Implementation	Two LGA1366 sockets																													
Memory	2GB or 4GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless optical drive removal 																												
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>	<p>Hot-swap model(s):</p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 4</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> </table>	Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	3.5", 1" high,	external,	optional disk	Bay 4	3.5", 1" high,	external,	optional disk	Bay 5	3.5", 1" high,	external,	optional disk	Bay 6	3.5", 1" high,	external,	optional disk				
Bay 1	5.25", 1.6" high,	external,	std optical																											
Bay 2	5.25", 1.6" high,	external,	optional optical																											
Bay 3	3.5", 1" high,	external,	optional disk																											
Bay 4	3.5", 1" high,	external,	optional disk																											
Bay 5	3.5", 1" high,	external,	optional disk																											
Bay 6	3.5", 1" high,	external,	optional disk																											
Disk bays	<i>Some:</i> Five 3.5" SATA disk bays, no hot-swap, direct cable (DC) <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" HS SATA/SAS disk bays	<p>Direct cable model(s):</p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 4</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 7</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> </table>	Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	3.5", 1" high,	external,	optional disk	Bay 4	3.5", 1" high,	external,	optional disk	Bay 5	3.5", 1" high,	external,	optional disk	Bay 6	3.5", 1" high,	external,	optional disk	Bay 7	3.5", 1" high,	external,	optional disk
Bay 1	5.25", 1.6" high,	external,	std optical																											
Bay 2	5.25", 1.6" high,	external,	optional optical																											
Bay 3	3.5", 1" high,	external,	optional disk																											
Bay 4	3.5", 1" high,	external,	optional disk																											
Bay 5	3.5", 1" high,	external,	optional disk																											
Bay 6	3.5", 1" high,	external,	optional disk																											
Bay 7	3.5", 1" high,	external,	optional disk																											
Disk controller	<i>Some:</i> Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, RAID ⁸ 0, 1, 10 support <i>Some:</i> ThinkServer SAS 9240-8i, PCI Express [®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 10 support <i>DC Model(s):</i> Six SATA connectors for opticals and disks	<p>Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3 Slot 5: half-length, full-height, PCI Express x4 *** x4 electrical</p>																												
Optical	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s																													
Diskette	None (use USB port)																													
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82567																													
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567																													
Extender card	None																													
Front ports	Two USB 2.0																													
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)																													
Internal ports	One USB 2.0 connector for optional tape drive																													
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear																													
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller, IPMI 2.0-compliant baseboard management controller (BMC)																													
Prerequisites	Monitor, SATA/SAS disk, OS																													
Keyboard	None (use USB port)																													
Mouse	None (use USB port)																													
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS [®] Bronze qualified																													
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor																													
<p align="center">Max memory capacity</p> <p>32GB with eight 4GB PC3-10600 DDR3 RDIMMs (using 67Y1433)</p>		<p align="center">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup • LSI 9420-8i RAID: Ctrl+H at startup 																												
<p align="center">Max internal capacity</p> <p>3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks (using 67Y2642) 3.5" SATA DC: 10.0TB with five 2TB 3.5" SATA disks (using 67Y2642) 3.5" SAS HS: 2.4TB with four 600GB 3.5" SAS disks (using 67Y2644)</p>		<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 																												
<p align="center">Limited Warranty¹</p> <p>⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378</p>		<p align="center">Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Front panel lock out • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 																												
		RoHS-compliant																												

See footnotes for important warranty information
 US models announced July 27, 2010
 US models withdrawn effective April 2011

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Ethernet	Avail date
TD230	1039-11U	5x7	1x E5503	2.00	2	1x 2GB	1333MHz	3.5"	5x Direct Cable	ICH10R	SATA	0/1/10	IPMI	2x Gb	Jul 10
TD230	1039-12U	5x6	1x E5503	2.00	2	1x 2GB	1333MHz	3.5"	4x Hot-swap	ICH10R	SATA	0/1/10	IPMI	2x Gb	Jul 10

- **This model has a 1-year limited warranty¹**
- **Flexible and green tower computing at value price point**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache	Front - (Hot-swap) 	Rear 
Implementation	Two LGA1366 sockets		
Memory	2GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless optical drive removal 	
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>	Hot-swap model(s): Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk	
Disk bays	<i>Some:</i> Five 3.5" SATA disk bays, no hot-swap, direct cable (DC) <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays	Direct cable model(s): Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk	
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, RAID ⁰ 0, 1, 10 support <i>DC Model(s):</i> Six SATA connectors for opticals and disks	Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3 Slot 5: half-length, full-height, PCI Express x4 *** x4 electrical	
Optical Diskette Ethernet	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two Gigabit Ethernet ports, Intel 82574L and 82567	Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup 	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567	Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup 	
Extender card	None	Security <ul style="list-style-type: none"> • Administrator password • User password • Front panel lock out • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
Front ports	Two USB 2.0	RoHS-compliant	
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)		
Internal ports	One USB 2.0 connector for optional tape drive		
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear		
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller, IPMI 2.0-compliant baseboard management controller (BMC)		
Prerequisites	Monitor, SATA/SAS disk, OS		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS® Bronze qualified		
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor		
Accessories			
Intel Xeon E5506 Processor Option Kit		67Y1449	
2GB PC3-10600 DDR3 1333 MHz RDIMM		67Y1432	
ThinkServer TD230 SATA RAID 5 Upgrade		67Y1459	
250GB 3.5" SATA (7200 rpm)		67Y1400	
More accessories on O-ARTsheet			
Other accessories at lenovo.com/accessories			
Max memory capacity			
32GB with eight 4GB PC3-10600 DDR3 RDIMMs (using 67Y1433)			
Max internal capacity			
3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks (using 67Y2642)			
3.5" SATA DC: 10.0TB with five 2TB 3.5" SATA disks (using 67Y2642)			
Limited Warranty¹			
⇒ 1-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)			
⇒ ThinkPlus™ services available; see 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			

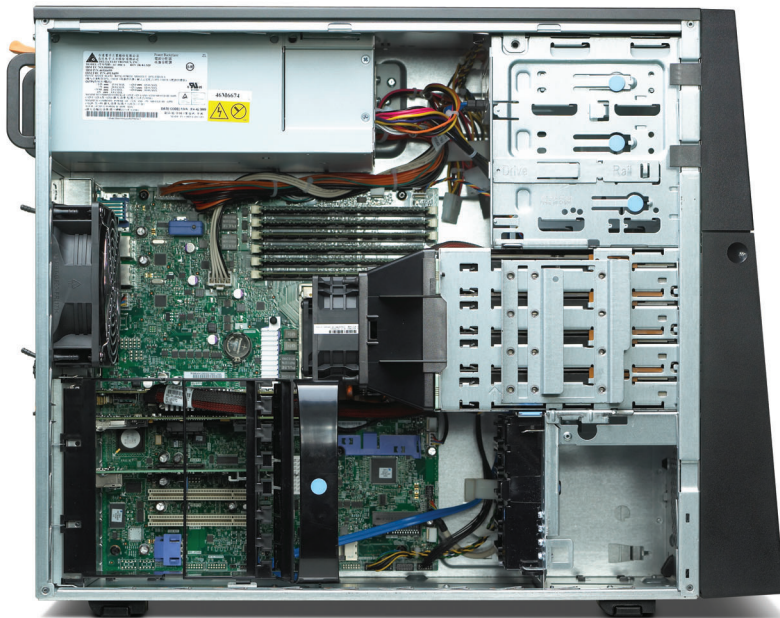
See footnotes for important warranty information
 US models announced July 27, 2010
 US models withdrawn effective April 2011



Lenovo ThinkServer TS200



Lenovo ThinkServer TS200
with Redundant Power Supply



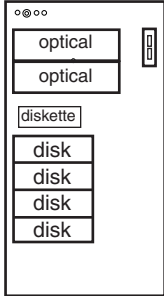
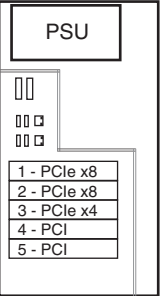
Lenovo ThinkServer TS200
with Redundant Power Supply



Lenovo ThinkServer TS200

Type-model	Slot x bay	Processor(s)	Base GHz	Max GHz	Cores	Memory DIMMs	Memory type	Memory speed	Disk size	RAID battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Avail date
6525-11U	5x7	X3430	2.40	2.80	4	1x2GB	UDIMM	1333MHz	3.5"	None	4xSimple-swap	SATA	0/1		401W	Nov 09
6525-12U	5x7	X3450	2.66	3.20	4	1x4GB	RDIMM	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	0/1	IMM	401W	Nov 09
6525-16U	5x7	X3450	2.66	3.20	4	1x4GB	RDIMM	1333MHz	3.5"	None	4xHot-swap	SATA/SAS	0/1/10	IMM	401W	Jan 10

- These models have a 3-year limited warranty¹
- These small and medium business (SMB) models are part of the US TopSeller™ Program

Processor(s)	Up to one processor, one processor standard, Intel Xeon® Processor X3430 and X3450 with quad-core , 2.5GT/s (giga-transfers/second) DMI (Direct Media Interface), Turbo Boost Technology, Hyper-Threading Technology (X3450 only), Intel 64, 1333MHz DDR3 memory controller, 8MB cache One LGA1156 socket	Front	Rear
Implementation			
Memory	2GB or 4GB std, UDIMM or RDIMM*, PC3-10600 1333MHz DDR3, Advanced ECC**, Memory Mirroring 11U: Four 240-pin DIMM sockets, 16GB max (Pending availability of 4GB UDIMM), std memory in 1 socket, 3 sockets available 12U/16U: Six 240-pin DIMM sockets, supports up to 6 single- or dual-rank RDIMMs, or up to 4 quad-rank RDIMMs * Cannot intermix RDIMM and UDIMM memory ** Advanced ECC-enable DIMMs required		
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; <i>Maximum resolution: 1024x768@85Hz</i>		
Disk bays	11U: four 3.5" simple-swap (SS) SATA disk bays 12U/16U: four 3.5" hot-swap (HS) SATA/SAS disk bays		
Disk Controller	11U/12U: ServeRAID®-BR10iL, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁸ 0, 1 support 16U: ServeRAID M1015, PCI Express bus, SATA 6Gb/s, SAS 6Gb/s, RAID 0, 1, 10 support		
Optical	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s		
Diskette	None (use USB port)		
Ethernet	Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management		
Chipset	Intel 3420 Chipset , Platform Controller Hub (PCH) for PCI, ethernet and USB		
Extender card	None		
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin)		
Internal ports	One USB 2.0 for tape drive or embedded hypervisor		
Diagnostics	Diagnostic LEDs (error LEDs for fans and memory)		
Systems mgmt	Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant 11U: IMM Standard, upgradeable to IMM Premium 12U/16U: IMM Premium		
Prerequisites	Monitor, SATA/SAS disk, OS		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply(s)	One 401 watts standard, one maximum, universal, auto switch, no hot-swap, no redundancy		
Cooling	Three fans std (power supply, system, hard drive cage), three maximum, no hot-swap, no redundancy		
Virtualization		Expansion Slots	
Virtualization ready, hypervisor connector embedded		Slot 1: full-length, full-height, PCI Express x8 Slot 2: full-length, full-height, PCI Express x8 Slot 3: full, PCI Express x4 (x1 electrical) Slot 4: full, 32-bit PCI Slot 5: full, 32-bit PCI	
Max memory capacity (RDIMM models)		Power-On Hotkey	
<i>Single-rank RDIMM:</i> 6GB with six 1GB PC3-10600 DDR3 RDIMMs (using 67Y0014) <i>Dual-rank RDIMM:</i> 12GB with six 2GB PC3-10600 DDR3 RDIMMs (using 67Y0124) <i>Quad-rank RDIMM:</i> 16GB with four 4GB PC3-8500 DDR3 RDIMMs (using 67Y0125) 32GB with four 8GB RDIMMs (Pending availability)		• Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+C at startup	
Max internal capacity		Security	
11U: 4.0TB with four 1TB SS SATA disks (using 67Y1380) 12U/16U: 3.5" SATA HS: 4.0TB with four 1TB HS SATA disks (using 45J6204) 3.5" SAS HS: 2.4TB with four 600GB HS SAS disks (using 67Y1386)		• Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)	
Limited Warranty¹		Software Management Tools	
<ul style="list-style-type: none"> ↪ 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) ↪ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 		• ThinkServer EasyStartup	
		ThinkPlus Priority Support, 90-day Trial	
		RoHS-compliant	
		Accessories	
		450GB 3.5" 6Gb/s SAS Disk HS (15000 rpm) 67Y1385 1TB 3.5" SATA Disk SS 67Y1380 600GB 3.5" 6Gb/s SAS Disk HS 67Y1386 Other accessories at lenovo.com/accessories	

See footnotes for important warranty information
US models announced November 24, 2009 or January 8, 2010
US models withdrawn effective February 2011

Type-model	Slot x bay	Proc-essor(s)	Base GHz	Max GHz	Cores	Memory DIMMs	Memory type	Memory speed	Disk size	RAID battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Avail date
6530-13U	5x7	X3450	2.66	3.20	4	1x4GB	RDIMM	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	Multi*	IMM	2x430W	Nov 09

* Multi = RAID-0/1/5/6/10 support

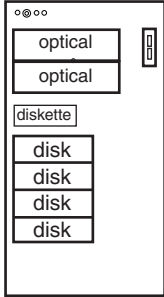
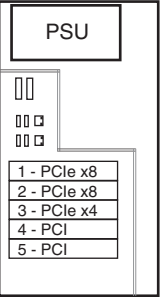
- **This model has a 3-year limited warranty¹**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor(s)	Up to one processor, one processor standard, Intel® Xeon® Processor X3450 with quad-core , 2.5GT/s DMI, Turbo Boost Technology, Hyper-Threading Technology and Intel 64, 1333MHz DDR3 memory controller, 8MB cache		<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;"> <p>Front</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Rear</p> </div> </div>																												
Implementation	One LGA1156 socket																														
Memory	4GB std, RDIMM, PC3-10600 1333MHz DDR3, Advanced ECC**, Memory Mirroring Six 240-pin DIMM sockets, supports up to 6 single- or dual-rank RDIMMs, or up to 4 quad-rank RDIMMs ** Advanced ECC-enable DIMMs required																														
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; <i>Maximum resolution: 1024x768 @85Hz</i>																														
Disk bays	Four 3.5" hot-swap (HS) SATA/SAS disk bays																														
Disk Controller	ServeRAID-MR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1, 5, 6, 10 support																														
Optical	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s																														
Diskette	None (use USB port)																														
Ethernet	Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management																														
Chipset	Intel 3420 Chipset , Platform Controller Hub (PCH) for PCI, ethernet and USB																														
Extender card	None																														
Front ports	Two USB 2.0																														
Rear ports	Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin)																														
Internal ports	One USB 2.0 for tape drive or embedded hypervisor																														
Diagnostics	Diagnostic LEDs (error LEDs for fans and memory)																														
Systems mgmt	IMM Premium, Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant																														
Prerequisites	Monitor, SATA/SAS disk, OS																														
Keyboard	None (use USB port)																														
Mouse	None (use USB port)																														
Power supply(s)	Two 430 watts standard, two maximum, rear access, hot-swap, redundant with two power supplies																														
Cooling	Four fans std (two power supply fans, system fan, hard drive cage), four maximum, no hot-swap, no redundancy																														
<p style="text-align: center;">Max memory capacity</p> <p><i>Single-rank RDIMM:</i> 6GB with six 1GB PC3-10600 DDR3 RDIMMs (using 67Y0014) <i>Dual-rank RDIMM:</i> 12GB with six 2GB PC3-10600 DDR3 RDIMMs (using 67Y0124) <i>Quad-rank RDIMM:</i> 16GB with four 4GB PC3-8500 DDR3 RDIMMs (using 67Y0125) 32GB with four 8GB RDIMMs (Pending availability)</p>			<p style="text-align: center;">Disk Bays</p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>3.5", 1" high,</td><td>external,</td><td>optional diskette</td></tr> <tr><td>Bay 4</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 7</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> </table> <p style="text-align: center;">Expansion Slots</p> <p>Slot 1: full-length, full-height, PCI Express x8 Slot 2: full-length, full-height, PCI Express x8 Slot 3: full, PCI Express x4 (x1 electrical) Slot 4: full, 32-bit PCI Slot 5: full, 32-bit PCI</p> <p style="text-align: center;">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p style="text-align: center;">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+C at startup <p style="text-align: center;">Security</p> <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) <ul style="list-style-type: none"> - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>ThinkPlus Priority Support, 90-day Trial</p> <p>RoHS-compliant</p>	Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	3.5", 1" high,	external,	optional diskette	Bay 4	3.5", 1" high,	external,	optional disk	Bay 5	3.5", 1" high,	external,	optional disk	Bay 6	3.5", 1" high,	external,	optional disk	Bay 7	3.5", 1" high,	external,	optional disk
Bay 1	5.25", 1.6" high,	external,		std optical																											
Bay 2	5.25", 1.6" high,	external,		optional optical																											
Bay 3	3.5", 1" high,	external,		optional diskette																											
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Bay 5	3.5", 1" high,	external,		optional disk																											
Bay 6	3.5", 1" high,	external,		optional disk																											
Bay 7	3.5", 1" high,	external,		optional disk																											
<p style="text-align: center;">Max internal capacity</p> <p><i>3.5" SATA HS:</i> 4.0TB with four 1TB HS SATA disks (using 45J6204) <i>3.5" SAS HS:</i> 2.4TB with four 600GB HS SAS disks (using 67Y1386)</p>																															
<p style="text-align: center;">Virtualization</p> <p>Virtualization ready, hypervisor connector embedded</p>																															
<p style="text-align: center;">Accessories</p> <table border="0"> <tr><td>4GB PC3-8500 DDR3 ECC RDIMM (4Rx8)</td><td>67Y0125</td></tr> <tr><td>146GB 3.5" SAS HS (15000 rpm)</td><td>45J6211</td></tr> <tr><td>450GB 3.5" 6Gb/s SAS Disk HS (15000 rpm)</td><td>67Y1385</td></tr> <tr><td>1TB 3.5" SATA Disk HS</td><td>45J6204</td></tr> <tr><td>600GB 3.5" 6Gb/s SAS Disk HS</td><td>67Y1386</td></tr> </table> <p>Other accessories at lenovo.com/accessories</p>			4GB PC3-8500 DDR3 ECC RDIMM (4Rx8)	67Y0125	146GB 3.5" SAS HS (15000 rpm)	45J6211	450GB 3.5" 6Gb/s SAS Disk HS (15000 rpm)	67Y1385	1TB 3.5" SATA Disk HS	45J6204	600GB 3.5" 6Gb/s SAS Disk HS	67Y1386																			
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<p style="text-align: center;">Limited Warranty¹</p> <ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 																															

See footnotes for important warranty information
 US model announced November 24, 2009
 US model withdrawn effective February 2011

Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory type	Memory speed	Disk size	RAID battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Avail date
6524-11U	5x7	Pentium G6950	2.80	2	1x1GB	UDIMM	1333MHz	3.5"	None	4xSimple-swap	SATA	0/1	None	401W	Jan 10

- **This model has a 1-year limited warranty¹**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor(s)	Up to one processor, one processor standard, Intel® Pentium® Processor G6950 with dual-core , Intel 64, 1066MHz DDR3 memory controller, 3MB cache	Front 	Rear 
Implementation	One LGA1156 socket		
Memory	1GB std, UDIMM, PC3-10600 1333MHz DDR3* , Advanced ECC** , Memory Mirroring Four 240-pin DIMM sockets, 16GB max (Pending availability of 4GB UDIMM), std memory in 1 socket, 3 sockets available * System automatically clocks down for processor with 1066MHz DDR3 memory controller ** Advanced ECC-enable DIMMs required	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.6"W x 21.3"D x 17.3"H • 218mm W x 540mm D x 440mm H • 56 lb (25.2kg) max configuration • Toolless side cover removal 	
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; <i>Maximum resolution: 1024x768@85Hz</i>	Disk Bays Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional diskette Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk	
Disk bays	Four 3.5" simple-swap (SS) SATA disk bays	Expansion Slots Slot 1: full-length, full-height, PCI Express x8 Slot 2: full-length, full-height, PCI Express x8 Slot 3: full, PCI Express x4 (x1 electrical) Slot 4: full, 32-bit PCI Slot 5: full, 32-bit PCI	
Disk Controller	ServeRAID®-BR10il, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support	Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+C at startup 	
Optical	DVD-ROM DL SATA 1.5Gb/s 16-48X Max Drive	Security <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
Diskette	None (use USB port)	ThinkPlus Priority Support, 90-day Trial	
Ethernet	Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management	RoHS-compliant	
Chipset	Intel 3420 Chipset , Platform Controller Hub (PCH) for PCI, ethernet and USB		
Extender card	None		
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin)		
Internal ports	One USB 2.0 for tape drive or embedded hypervisor		
Diagnostics	Diagnostic LEDs (error LEDs for fans and memory)		
Systems mgmt	IMM standard, Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant		
Prerequisites	Monitor, SATA disk, OS		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply(s)	One 401 watts standard, one maximum, universal, auto switch, no hot-swap, no redundancy		
Cooling	Three fans std (power supply, system, hard drive cage), three maximum, no hot-swap, no redundancy		
Accessories 1GB PC3-10600 DDR3 1333MHz UDIMM 67Y0122 160GB 3.5" SATA Simple-swap 45J6195 250GB 3.5" SATA Simple-swap 45J6196 500GB 3.5" SATA Simple-swap 45J6197 750GB 3.5" SATA Simple-swap 45J6198 1TB 3.5" SATA Simple-swap 67Y1380 Other accessories at lenovo.com/accessories			
Software Management Tools • ThinkServer EasyStartup			
Virtualization Virtualization ready, hypervisor connector embedded			
Max internal capacity 4.0TB with four 1TB SS SATA disks (using 67Y1380)			
Limited Warranty¹ ⇨ 1-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) ⇨ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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			

See footnotes for important warranty information
 US model announced January 8, 2010
 US model withdrawn effective February 2011

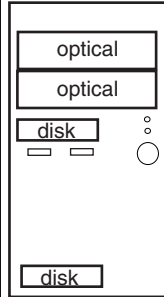
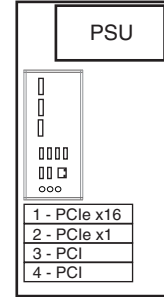
ThinkServer™



Lenovo® ThinkServer TS130

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Discrete Ethernet adapter	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1106-D3U	Xeon E3-1245V2	1333MHz	4x8GB	No	2xDirect Cable	3.5"	2x2TB	DVD	PRO/1000 PT	No	280W	11/13/12
1106-D4U	Xeon E3-1245V2	1333MHz	1x8GB	No	2xDirect Cable	3.5"	2x2TB	DVD	PRO/1000 PT	No	280W	11/13/12
1106-D5U	Xeon E3-1245V2	1333MHz	2x8GB	No	2xDirect Cable	3.5"	2x2TB	DVD	PRO/1000 PT	No	280W	11/13/12

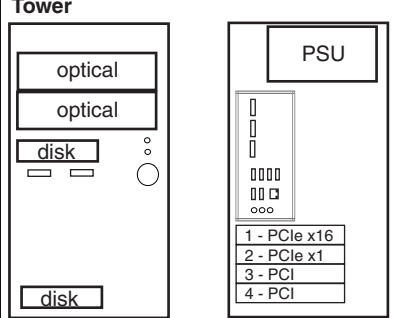
- True server-class reliability and performance at desktop price
- These small and medium business (SMB) model are part of the US TopSeller™ Program
- These model have a 3-year limited warranty¹

Processor	Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	2TB, SATA 6.0Gb/s, 7200 rpm, 3.5"	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset, Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Onboard Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Discrete Ethernet adapter	PRO/1000 PT: Intel PRO/1000 PT Dual Port Server Adapter on selected models, two gigabit ethernet	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS™ Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
		<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p> <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p> <p>Intel AMT</p> <p>Intel AMT is supported on Xeon-model(s)</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup <p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) <p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		

See footnotes for important warranty information
US models announced November 13, 2012

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Discrete Ethernet adapter	Windows Server preload	Ann date (mm/dd/yy)
1106-G5U	Xeon E3-1245V2	1333MHz	4x8GB	No	2xDirect Cable	3.5"	2x2TB	DVD	Intel Gigabit ET	No	02/05/13
1106-G6U	Xeon E3-1245V2	1333MHz	1x8GB	No	2xDirect Cable	3.5"	2x2TB	DVD	Intel Gigabit ET	No	02/05/13
1106-G7U	Xeon E3-1245V2	1333MHz	2x8GB	No	2xDirect Cable	3.5"	2x2TB	DVD	Intel Gigabit ET	No	02/05/13

- True server-class reliability and performance at desktop price
- These small and medium business (SMB) model are part of the US TopSeller™ Program
- These model have a 3-year limited warranty¹

Processor	Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	Tower 																
Implementation	Processor in LGA1155 socket, up to one processor																	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons <p>Disk Bays</p> <table border="1"> <tr> <td>Bay 1</td> <td>5.25", 1.6" high, external, for optical</td> </tr> <tr> <td>Bay 2</td> <td>5.25", 1.6" high, external, open (optical/tape)</td> </tr> <tr> <td>Bay 3</td> <td>3.5", 1" high, internal, for disk</td> </tr> <tr> <td>Bay 4</td> <td>3.5", 1" high, internal, for disk</td> </tr> </table> <p>Expansion Slots</p> <table border="1"> <tr> <td>Slot 1</td> <td>half-length, full-height, PCI Express 2.0 x16</td> </tr> <tr> <td>Slot 2</td> <td>half-length, full-height, PCI Express 2.0 x1</td> </tr> <tr> <td>Slot 3</td> <td>half-length, full-height, 32-bit PCI</td> </tr> <tr> <td>Slot 4</td> <td>half-length, full-height, 32-bit PCI</td> </tr> </table> <p>Intel AMT</p> <p>Intel AMT is supported on Xeon-model(s)</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup <p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) <p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>	Bay 1	5.25", 1.6" high, external, for optical	Bay 2	5.25", 1.6" high, external, open (optical/tape)	Bay 3	3.5", 1" high, internal, for disk	Bay 4	3.5", 1" high, internal, for disk	Slot 1	half-length, full-height, PCI Express 2.0 x16	Slot 2	half-length, full-height, PCI Express 2.0 x1	Slot 3	half-length, full-height, 32-bit PCI	Slot 4	half-length, full-height, 32-bit PCI
Bay 1	5.25", 1.6" high, external, for optical																	
Bay 2	5.25", 1.6" high, external, open (optical/tape)																	
Bay 3	3.5", 1" high, internal, for disk																	
Bay 4	3.5", 1" high, internal, for disk																	
Slot 1	half-length, full-height, PCI Express 2.0 x16																	
Slot 2	half-length, full-height, PCI Express 2.0 x1																	
Slot 3	half-length, full-height, 32-bit PCI																	
Slot 4	half-length, full-height, 32-bit PCI																	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 																	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector																	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable																	
SATA disk(s)	2TB , SATA 6.0Gb/s, 7200 rpm, 3.5"																	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive																	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors																	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)																	
Front ports	Two USB 2.0																	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort																	
Audio	High Definition (HD) Audio, Realtek ALC662 codec																	
Onboard Ethernet	One gigabit ethernet on planar, Intel 82579LM																	
Discrete Ethernet adapter	<i>Gigabit ET</i> : Intel Gigabit ET Dual Port Server Adapter, two gigabit ethernet																	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant																	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)																	
Keyboard	None (use USB port)																	
Mouse	None (use USB port)																	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified																	
Cooling	4 fans (power supply, CPU, rear, front)																	
Max internal capacity																		
4.0TB with two 2TB 3.5" SATA disks																		
Limited Warranty¹																		
<ul style="list-style-type: none"> ↪ 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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 																		

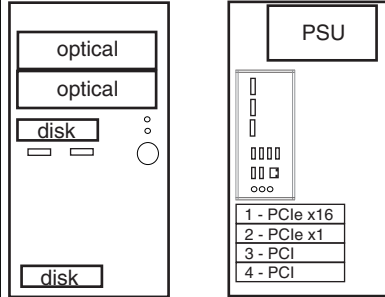
See footnotes for important warranty information
US models announced February 5, 2013

ThinkServer® TS130 (1105) - TopSeller (August 2012)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1105-67U	Core i3-2120	1333MHz	1x2GB	No	2xDirect Cable	3.5"		DVD	Intel HD		280W	08/21/12
1105-68U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"		DVD	Intel HD		280W	08/21/12
1105-69U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"	1x500GB	DVD	Intel HD		280W	08/21/12
✕ 1105-70U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2008 Foundations	280W	08/21/12
1105-71U	Xeon E3-1245V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"		DVD	Intel HD		280W	08/21/12
✕ 1105-72U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	SBS 2011 Essentials	280W	08/21/12
✕ 1105-73U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	SBS 2011 Standard	280W	08/21/12
✕ 1105-74U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2008 R2 Standard	280W	08/21/12
1105-75U	Xeon E3-1275V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"		DVD	Intel HD		280W	08/21/12

- True server-class reliability and performance at desktop price
- Part of the US TopSeller™ Program
- 1-year limited warranty¹

Processor	<p>Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p> 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	Some: 500GB , SATA 6.0Gb/s, 7200 rpm, 3.5"	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Preloaded Operating System		
<p>SBS 2011 Essentials: Genuine Windows® Small Business Server 2011 Essentials</p> <p>SBS 2011 Standard: Genuine Windows Small Business Server 2011 Standard</p> <p>2008 Foundations: Genuine Windows Server® 2008 R2 Foundations</p> <p>2008 R2 Standard: Genuine Windows Server 2008 R2 Standard</p>		
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 1-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts², 8 am - 5 pm, Mon - Fri coverage excluding holidays) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		
<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p>		
<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p>		
Intel AMT		
Intel AMT is supported on Xeon-model(s)		
Software Management Tools		
<ul style="list-style-type: none"> • ThinkServer EasyStartup 		
Power-On Hotkey		
<ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup 		
Security		
<ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 		
ENERGY STAR® Server 1.1-compliant		
RoHS-compliant		

See footnotes for important warranty information

US models announced August 21, 2012

↪ US models withdrawn effective April 2013

© Lenovo (TAM7-3) August 2012

ThinkServer® TS130 (1105) - TopSeller (September 2012)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1105-B2U	Core i3-3220	1333MHz	1x4GB	No	2xDirect Cable	3.5"	No	DVD	Intel HD	No	280W	09/25/12
1105-B3U	Core i3-3240	1333MHz	1x4GB	No	2xDirect Cable	3.5"	No	DVD	Intel HD	No	280W	09/25/12

- True server-class reliability and performance at desktop price
- Part of the US TopSeller™ Program
- 1-year limited warranty¹

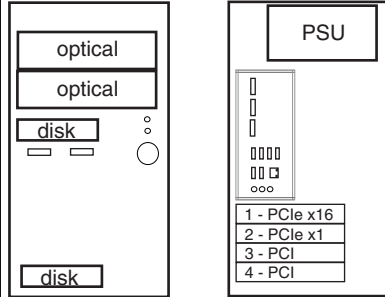
Processor	<p>Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p> <p>Front panel: optical, optical, disk, disk</p> <p>Internal: PSU, 1 - PCIe x16, 2 - PCIe x1, 3 - PCI, 4 - PCI</p>
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	None	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
		<p>• Raven black color; metal case</p> <p>• 6.9"W x 16.0"D x 14.9"H</p> <p>• 175mm W x 407mm D x 377mm H</p> <p>• 24.7 lb (11.2kg) max configuration</p> <p>• 25-liter</p> <p>• Toolless side cover removal</p> <p>• Toolless disk and optical drive removal</p> <p>• Toolless adapter retention</p> <p>• Illuminated front icons</p>
		<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p>
		<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p>
		<p>Intel AMT</p> <p>Intel AMT is supported on Xeon-model(s)</p>
		<p>Software Management Tools</p> <p>• ThinkServer EasyStartup</p>
		<p>Power-On Hotkey</p> <p>• Setup Utility: F1 at startup</p> <p>• Diagnostic: F2 at startup</p> <p>• Network Boot: F12 at startup</p> <p>• RAID Configuration Utility: Ctrl+I at startup</p>
		<p>Security</p> <p>• Security chip (see information on left)</p> <p>• Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)</p> <p>• Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)</p> <p>• Power-on password</p> <p>• Boot sequence control</p> <p>• Boot without keyboard, mouse, diskette</p> <p>• Serial port I/O control</p> <p>• USB port disablement (front or all)</p>
		<p>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>
<p>Max internal capacity</p> <p>4.0TB with two 2TB 3.5" SATA disks</p>		
<p>Limited Warranty¹</p> <p>↪ 1-year parts and labor</p> <p>↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts², 8 am - 5 pm, Mon - Fri coverage excluding holidays)</p> <p>↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹</p>		

See footnotes for important warranty information
US models announced September 25, 2012

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(TAM8-3) October 2012

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Discrete Ethernet adapter	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1105-D1U	Xeon E3-1245V2	1333MHz	1x8GB	No	2xDirect Cable	3.5"	No	DVD	No	No	280W	11/13/12
1105-D2U	Xeon E3-1275V2	1333MHz	1x8GB	No	2xDirect Cable	3.5"	No	DVD	No	No	280W	11/13/12

- True server-class reliability and performance at desktop price
- Part of the US TopSeller™ Program
- 1-year limited warranty¹

Processor	Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	Tower 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	None	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Onboard Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Discrete Ethernet adapter	PRO/1000 PT: Intel PRO/1000 PT Dual Port Server Adapter on selected models, two gigabit ethernet	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Max internal capacity		Disk Bays Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk Expansion Slots Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI Intel AMT Intel AMT is supported on Xeon-model(s) Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 1-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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		
ENERGY STAR® Server 1.1-compliant		
RoHS-compliant		

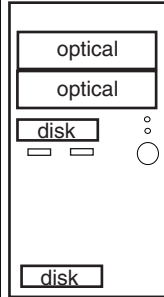
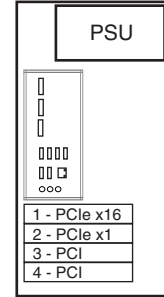
See footnotes for important warranty information
 US models announced November 13, 2012

ThinkServer® TS130 (1105) - TopSeller (February 2013)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Ann date (mm/dd/yy)
1105-E6U	Xeon E3-1225V2	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2012 Foundation	02/05/13
1105-E7U	Xeon E3-1225V2	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2012 Essentials	02/05/13
1105-E8U	Xeon E3-1225V2	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2012 Standard	02/05/13

- True server-class reliability and performance at desktop price
- Part of the US TopSeller™ Program
- 1-year limited warranty¹

Processor	Intel® Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p>
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	500GB , SATA 6.0Gb/s, 7200 rpm, 3.5"	<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p>
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	<p>Intel AMT</p> <p>Intel AMT is supported on Xeon-model(s)</p>
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	<p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	<p>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	<p>Preloaded Operating System</p> <p>2012 Foundations: Genuine Windows Server® 2012 Foundation</p> <p>2012 Essentials: Genuine Windows Server 2012 Essentials</p> <p>2012 Standard: Genuine Windows Server 2012 Standard</p>
Cooling	4 fans (power supply, CPU, rear, front)	
<p>Max internal capacity</p> <p>4.0TB with two 2TB 3.5" SATA disks</p>		<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ➤ 1-year parts and labor ➤ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, during normal country office hours e.g. 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ➤ Onsite service upgrade options available (in eligible locations)⁷ ➤ Lenovo Priority Support Package available ➤ A-La-Carte Lenovo Services available <ul style="list-style-type: none"> • Online Data Backup • Onsite Hardware Installation • Online Training

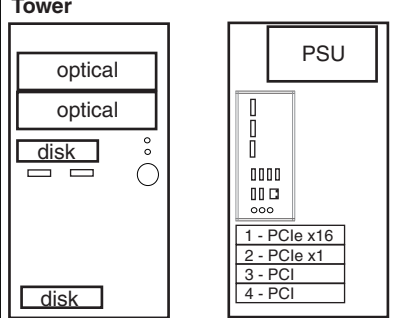
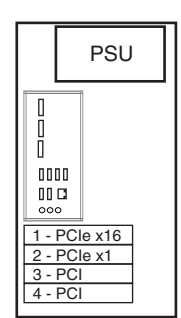
See footnotes for important warranty information
US models announced February 5, 2013

ThinkServer® TS130 (1105) - TopSeller (May 2013)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Ann date (mm/dd/yy)
1105-H1U	Xeon E3-1225V2	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2008 R2 Foundation	05/14/13
1105-H2U	Xeon E3-1225V2	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	SBS 2011 Essentials	05/14/13
1105-H3U	Xeon E3-1225V2	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	SBS 2011 Standard	05/14/13
1105-H4U	Xeon E3-1225V2	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2008 R2 Standard	05/14/13

- True server-class reliability and performance at desktop price
- Part of the US TopSeller™ Program
- 1-year limited warranty¹

Processor	Intel® Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	500GB , SATA 6.0Gb/s, 7200 rpm, 3.5"	<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p>
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p>
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	<p>Intel AMT</p> <p>Intel AMT is supported on Xeon-model(s)</p>
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	<p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	<p>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>
Cooling	4 fans (power supply, CPU, rear, front)	
<p>Preloaded Operating System</p> <p>2008 R2 Foundations: Genuine Windows Server® 2008 R2 Foundation</p> <p>2008 R2 Standard: Genuine Windows Server 2008 R2 Standard</p> <p>SBS 2011 Essentials: Genuine Windows® Small Business Server 2011 Essentials</p> <p>SBS 2011 Standard: Genuine Windows Small Business Server 2011 Standard</p>		
<p>Max internal capacity</p> <p>4.0TB with two 2TB 3.5" SATA disks</p>		
<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ↪ 1-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, during normal country office hours e.g. 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Onsite service upgrade options available (in eligible locations)⁷ ↪ Lenovo Priority Support Package available ↪ A-La-Carte Lenovo Services available <ul style="list-style-type: none"> • Online Data Backup • Onsite Hardware Installation • Online Training 		

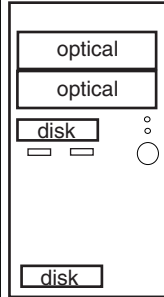
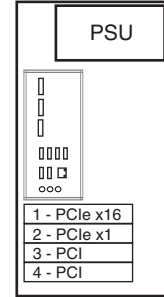
See footnotes for important warranty information
US models announced May 14, 2013

ThinkServer® TS130 (1105) - TopSeller (June 2013)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Ann date (mm/dd/yy)
1105-J2U	Xeon E3-1225V2	1333MHz	1x8GB	1	2xDirect Cable	3.5"	2x1TB	DVD±RW	Intel HD	2012 Foundation	06/18/13

- **True server-class reliability and performance at desktop price**
- **Part of the US TopSeller™ Program**
- **1-year limited warranty¹**

Processor	Intel® Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)		
Implementation	Processor in LGA1155 socket, up to one processor		
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons <p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk</p> <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI</p> <p>Intel AMT</p> <p>Intel AMT is supported on Xeon-model(s)</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup <p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) <p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 		
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector		
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable		
SATA disk(s)	1TB , SATA 6.0Gb/s, 7200 rpm, 3.5"		
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive		
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors		
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)		
Front ports	Two USB 2.0		
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort		
Audio	High Definition (HD) Audio, Realtek ALC662 codec		
Ethernet	One gigabit ethernet on planar, Intel 82579LM		
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant		
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified		
Cooling	4 fans (power supply, CPU, rear, front)		
Preloaded Operating System			
2012 Foundations: Genuine Windows Server® 2012 Foundation			
Max internal capacity			
4.0TB with two 2TB 3.5" SATA disks			
Limited Warranty¹			
<ul style="list-style-type: none"> ↪ 1-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, during normal country office hours e.g. 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Onsite service upgrade options available (in eligible locations)⁷ ↪ Lenovo Priority Support Package available ↪ A-La-Carte Lenovo Services available <ul style="list-style-type: none"> • Online Data Backup • Onsite Hardware Installation • Online Training 			

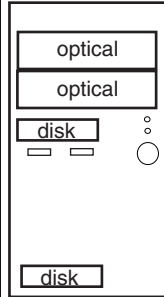
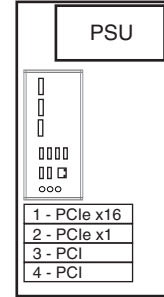
See footnotes for important warranty information

US model announced June 18, 2013

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(TAM11-3) June 2013

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1100-91U	Xeon E3-1225	1333MHz	1x4GB	No	2xDirect Cable	3.5"	None	DVD	Intel HD	None	280W	05/29/12

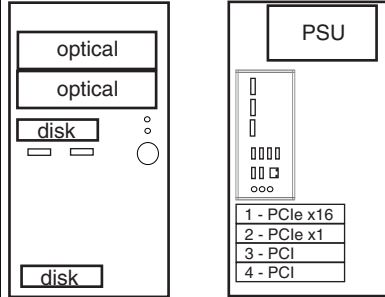
- True server-class reliability and performance at desktop price
- 3-year limited warranty¹

Processor	Intel® Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)																														
Implementation	Processor in LGA1155 socket, up to one processor																														
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons <p style="text-align: center;">Disk Bays</p> <table border="0"> <tr> <td>Bay 1</td> <td>5.25", 1.6" high,</td> <td>external,</td> <td>for optical</td> </tr> <tr> <td>Bay 2</td> <td>5.25", 1.6" high,</td> <td>external,</td> <td>open (optical/tape)</td> </tr> <tr> <td>Bay 3</td> <td>3.5", 1" high,</td> <td>internal,</td> <td>for disk</td> </tr> <tr> <td>Bay 4</td> <td>3.5", 1" high,</td> <td>internal,</td> <td>for disk</td> </tr> </table> <p style="text-align: center;">Expansion Slots</p> <table border="0"> <tr> <td>Slot 1:</td> <td>half-length, full-height,</td> <td>PCI Express 2.0 x16</td> </tr> <tr> <td>Slot 2:</td> <td>half-length, full-height,</td> <td>PCI Express 2.0 x1</td> </tr> <tr> <td>Slot 3:</td> <td>half-length, full-height,</td> <td>32-bit PCI</td> </tr> <tr> <td>Slot 4:</td> <td>half-length, full-height,</td> <td>32-bit PCI</td> </tr> </table> <p style="text-align: center;">Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p> <p style="text-align: center;">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p style="text-align: center;">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup <p style="text-align: center;">Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) <p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>		Bay 1	5.25", 1.6" high,	external,	for optical	Bay 2	5.25", 1.6" high,	external,	open (optical/tape)	Bay 3	3.5", 1" high,	internal,	for disk	Bay 4	3.5", 1" high,	internal,	for disk	Slot 1:	half-length, full-height,	PCI Express 2.0 x16	Slot 2:	half-length, full-height,	PCI Express 2.0 x1	Slot 3:	half-length, full-height,	32-bit PCI	Slot 4:	half-length, full-height,	32-bit PCI
Bay 1	5.25", 1.6" high,			external,	for optical																										
Bay 2	5.25", 1.6" high,			external,	open (optical/tape)																										
Bay 3	3.5", 1" high,			internal,	for disk																										
Bay 4	3.5", 1" high,			internal,	for disk																										
Slot 1:	half-length, full-height,			PCI Express 2.0 x16																											
Slot 2:	half-length, full-height,			PCI Express 2.0 x1																											
Slot 3:	half-length, full-height,			32-bit PCI																											
Slot 4:	half-length, full-height,			32-bit PCI																											
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 																														
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector																														
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable																														
SATA disk(s)	None																														
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive																														
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors																														
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)																														
Front ports	Two USB 2.0																														
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort																														
Audio	High Definition (HD) Audio, Realtek ALC662 codec																														
Ethernet	One gigabit ethernet on planar, Intel 82579LM																														
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant																														
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)																														
Keyboard	None (use USB port)																														
Mouse	None (use USB port)																														
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified																														
Cooling	4 fans (power supply, CPU, rear, front)																														
Max internal capacity																															
4.0TB with two 2TB 3.5" SATA disks																															
Limited Warranty¹																															
<ul style="list-style-type: none"> ↪ 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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 																															

See footnotes for important warranty information
US model announced May 29, 2012

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1100-54U	Core i3-2120	1333MHz	1x4GB	No	2xDirect Cable	3.5"		DVD	Intel HD	No	280W	08/21/12
1100-55U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"		DVD	Intel HD	No	280W	08/21/12
1100-56U	Xeon E3-1225V2	1333MHz	2x4GB	No	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	No	280W	08/21/12

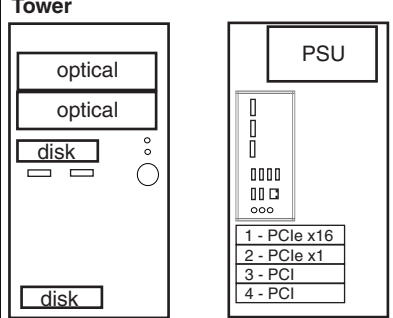
- **True server-class reliability and performance at desktop price**
- **3-year limited warranty¹**

Processor	Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	Tower 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	Disk Bays Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable <i>Some: 500GB, SATA 6.0Gb/s, 7200 rpm, 3.5"</i>	
SATA disk(s)	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	Expansion Slots Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI
Optical	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
SATA controller		Intel AMT Intel AMT is supported on Xeon-model(s)
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	Security <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	ENERGY STAR® Server 1.1-compliant RoHS-compliant
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts², 8 am - 5 pm, Mon - Fri coverage excluding holidays) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		

See footnotes for important warranty information
US models announced August 21, 2012

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1100-94U	Core i3-3220	1333MHz	1x4GB	No	2xDirect Cable	3.5"	No	DVD	Intel HD	No	280W	09/25/12

- True server-class reliability and performance at desktop price
- 3-year limited warranty¹

Processor	Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)	Tower 	
Implementation	Processor in LGA1155 socket, up to one processor		
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons 	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 		
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector		
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable		
SATA disk(s)	None		
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive		
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors		
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)		
Front ports	Two USB 2.0		
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort		
Audio	High Definition (HD) Audio, Realtek ALC662 codec		
Ethernet	One gigabit ethernet on planar, Intel 82579LM		
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant		
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified		
Cooling	4 fans (power supply, CPU, rear, front)		
Max internal capacity		Disk Bays Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk	
4.0TB with two 2TB 3.5" SATA disks			
Limited Warranty¹		Expansion Slots Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI	
↳ 3-year parts and labor ↳ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays) ↳ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↳ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹			
			Intel AMT Intel AMT is supported on Xeon-model(s)
			Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup
		Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup 	
		Security <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 	
		ENERGY STAR® Server 1.1-compliant RoHS-compliant	

See footnotes for important warranty information
 US model announced September 25, 2012

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1098-51U	Core i3-2120	1333MHz	1x4GB	No	2xDirect Cable	3.5"	No	DVD	Intel HD	No	280W	08/21/12
1098-52U	Xeon E3-1225V2	1333MHz	1x4GB	No	2xDirect Cable	3.5"	No	DVD	Intel HD	No	280W	08/21/12

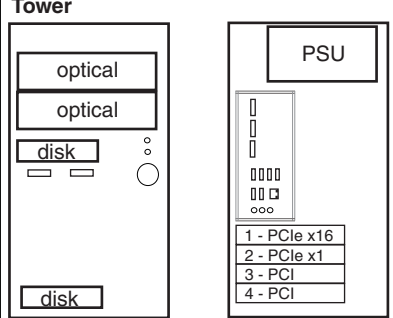
- True server-class reliability and performance at desktop price
- These models have a 1-year limited warranty¹

Processor	Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)									
Implementation	Processor in LGA1155 socket, up to one processor									
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets									
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 									
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector									
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable									
SATA disk(s)	None									
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive									
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors									
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)									
Front ports	Two USB 2.0									
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort									
Audio	High Definition (HD) Audio, Realtek ALC662 codec									
Ethernet	One gigabit ethernet on planar, Intel 82579LM									
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant									
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)									
Keyboard	None (use USB port)									
Mouse	None (use USB port)									
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified									
Cooling	4 fans (power supply, CPU, rear, front)									
		<p>Tower</p> <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons 								
		<p>Disk Bays</p> <table border="1"> <tr> <td>Bay 1</td> <td>5.25", 1.6" high, external, for optical</td> </tr> <tr> <td>Bay 2</td> <td>5.25", 1.6" high, external, open (optical/tape)</td> </tr> <tr> <td>Bay 3</td> <td>3.5", 1" high, internal, for disk</td> </tr> <tr> <td>Bay 4</td> <td>3.5", 1" high, internal, for disk</td> </tr> </table>	Bay 1	5.25", 1.6" high, external, for optical	Bay 2	5.25", 1.6" high, external, open (optical/tape)	Bay 3	3.5", 1" high, internal, for disk	Bay 4	3.5", 1" high, internal, for disk
Bay 1	5.25", 1.6" high, external, for optical									
Bay 2	5.25", 1.6" high, external, open (optical/tape)									
Bay 3	3.5", 1" high, internal, for disk									
Bay 4	3.5", 1" high, internal, for disk									
		<p>Expansion Slots</p> <table border="1"> <tr> <td>Slot 1</td> <td>half-length, full-height, PCI Express 2.0 x16</td> </tr> <tr> <td>Slot 2</td> <td>half-length, full-height, PCI Express 2.0 x1</td> </tr> <tr> <td>Slot 3</td> <td>half-length, full-height, 32-bit PCI</td> </tr> <tr> <td>Slot 4</td> <td>half-length, full-height, 32-bit PCI</td> </tr> </table>	Slot 1	half-length, full-height, PCI Express 2.0 x16	Slot 2	half-length, full-height, PCI Express 2.0 x1	Slot 3	half-length, full-height, 32-bit PCI	Slot 4	half-length, full-height, 32-bit PCI
Slot 1	half-length, full-height, PCI Express 2.0 x16									
Slot 2	half-length, full-height, PCI Express 2.0 x1									
Slot 3	half-length, full-height, 32-bit PCI									
Slot 4	half-length, full-height, 32-bit PCI									
		<p>Intel AMT</p> <p>Intel AMT is supported on Xeon-model(s)</p>								
		<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 								
		<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup 								
		<p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 								
		<p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>								
Max internal capacity										
4.0TB with two 2TB 3.5" SATA disks										
Limited Warranty¹										
<ul style="list-style-type: none"> ↪ 1-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts², 8 am - 5 pm, Mon - Fri coverage excluding holidays) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 										

See footnotes for important warranty information
US models announced August 21, 2012

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1098-92U	Core i3-3220	1333MHz	1x4GB	No	2xDirect Cable	3.5"	No	DVD	Intel HD	No	280W	09/25/12

- True server-class reliability and performance at desktop price
- 1-year limited warranty¹

Processor	Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)	Tower 	
Implementation	Processor in LGA1155 socket, up to one processor		
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons 	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 		
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector		
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable		
SATA disk(s)	None		
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive		
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors		
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)		
Front ports	Two USB 2.0		
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort		
Audio	High Definition (HD) Audio, Realtek ALC662 codec		
Ethernet	One gigabit ethernet on planar, Intel 82579LM		
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant		
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified		
Cooling	4 fans (power supply, CPU, rear, front)		
Max internal capacity		Disk Bays Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk Expansion Slots Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI Intel AMT Intel AMT is supported on Xeon-model(s) Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup 	
4.0TB with two 2TB 3.5" SATA disks			
Limited Warranty¹		Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup 	
<ul style="list-style-type: none"> ↪ 1-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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 			
			Security <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
		ENERGY STAR® Server 1.1-compliant RoHS-compliant	

See footnotes for important warranty information
 US model announced September 25, 2012

Partial list of accessories supported on Lenovo® ThinkServer TS130.

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Memory

2GB PC3-10600 DDR3 ECC UDIMM (1Rx8)	67Y2606
4GB PC3-10600 DDR3 ECC UDIMM (2Rx8)	67Y2607
8GB PC3-10600 DDR3 ECC UDIMM (2Rx8)	0A89461

Connectivity

Lenovo Gigabit ET Dual Port Server Adapter	0A89423
Intel Ethernet I340 Quad Port Server Adapter	0A89424

Disk Drive⁶

3.5" SATA Cabled:

500GB 7.2K Enterprise 6Gbps SATA	0A89470
1TB 7.2K Enterprise 6Gbps SATA	0A89471
2TB 7.2K Enterprise 6Gbps SATA	0A89472
3TB 7.2K Enterprise 6Gbps SATA	0A89478

Keyboard

Preferred Pro USB Keyboard	73P5220
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Mouse

Lenovo Optical Mouse (USB)	06P4069
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For more information on server accessories, please visit:

- www.lenovo.com/support/accessories
- www.lenovo.com/support/thinkserveraccessories
- www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

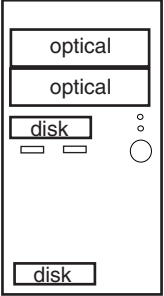
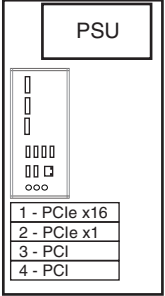
Accessories Guide pdf at www.lenovo.com/accessoriesguide

ThinkServer™ TS130 (1106) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)
1106-1EU	4x4	Core i3-2120	3.3 2C/4T	1x2GB	1333MHz	1x500GB	3.5"	No	2xDirect Cable	DVD±RW	Intel HD	None	280W

- **True server-class reliability and performance at desktop price**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**
- **This model has a 3-year limited warranty¹**

Processor	Intel® Core™ i3-2120 Processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	Tower  
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	500GB , SATA 3.0Gb/s, 7200 rpm, 3.5"	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
		<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p>
		<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p>
		<p>Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p>
		<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup
		<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
		<p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
		<p>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>
<p>Max internal capacity</p> <p>4.0TB with two 2TB 3.5" SATA disks</p>		
<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ↪ 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) ↪ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 		

See footnotes for important warranty information
US model withdrawn effective March 2012

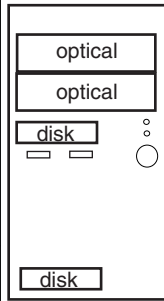
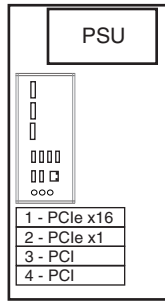
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(TAM1-4) March 2012

ThinkServer® TS130 (1106) - TopSeller (May 2012) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1106-A4U	Core i3-2100	1333MHz	1x2GB	1	2xDirect Cable	3.5"	2x500GB	No	Intel HD	None	280W	05/29/12

- **True server-class reliability and performance at desktop price**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**
- **This model has a 3-year limited warranty¹**

Processor	Intel® Core™ i3-2100 Processor (2C/4T, 3.1GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)		
Implementation	Processor in LGA1155 socket, up to one processor		
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons 	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 		
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector		
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable		
SATA disk(s)	500GB , SATA 3.0Gb/s, 7200 rpm, 3.5"		
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive		
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors		
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)		
Front ports	Two USB 2.0		
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort		
Audio	High Definition (HD) Audio, Realtek ALC662 codec		
Ethernet	One gigabit ethernet on planar, Intel 82579LM		
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant		
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified		
Cooling	4 fans (power supply, CPU, rear, front)		
Max internal capacity		Disk Bays	
4.0TB with two 2TB 3.5" SATA disks		Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk	
Limited Warranty¹		Expansion Slots	
<ul style="list-style-type: none"> ↪ 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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI	
		Intel AMT	
		Intel AMT 7.0 is supported on Xeon-model(s)	
		Software Management Tools	
		<ul style="list-style-type: none"> • ThinkServer EasyStartup 	
		Power-On Hotkey	
		<ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup 	
		Security	
		<ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 	
		ENERGY STAR® Server 1.1-compliant	
		RoHS-compliant	

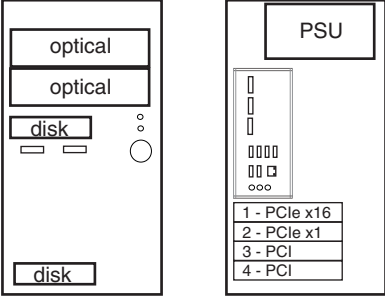
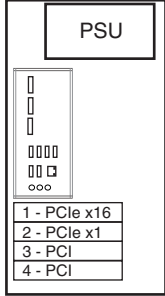
See footnotes for important warranty information
 US model announced May 29, 2012
 US model withdrawn effective October 2012

ThinkServer™ TS130 (1100) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor	GHz	Cores / Threads	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)
1100-12U	4x4	Xeon E3-1225	3.1	4C/4T	1x2GB	1333MHz	1x250GB	3.5"	No	2xDirect Cable	DVD	Intel HD	None	280W

- **True server-class reliability and performance at desktop price**
- **This model has a 3-year limited warranty¹**

Processor	Intel® Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache), Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	Tower 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Disk bays SATA disk(s) Optical SATA controller	Two 3.5" SATA disk bays, no hot-swap, direct cable 250GB , SATA 3.0Gb/s, 7200 rpm, 3.5" DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	Disk Bays Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk
Front ports Rear ports	Two USB 2.0 Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio Ethernet Security chip	High Definition (HD) Audio, Realtek ALC662 codec One gigabit ethernet on planar, Intel 82579LM STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	Expansion Slots Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI
Diagnosics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard Mouse Power supply Cooling	None (use USB port) None (use USB port) One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified 4 fans (power supply, CPU, rear, front)	Intel AMT Intel AMT 7.0 is supported on Xeon-model(s)
		Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup
		Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
		Security <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
		ENERGY STAR® Server 1.1-compliant RoHS-compliant
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 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) ↪ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 		

See footnotes for important warranty information

US model announced May 31, 2011

US model withdrawn effective March 2012

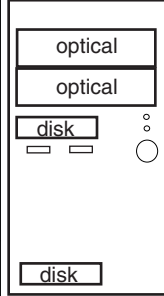
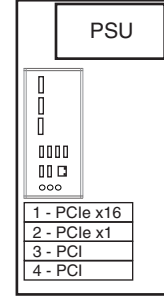
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(TAM1-2) March 2012

ThinkServer™ TS130 (1098) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor	Cores / GHz	Threads	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)
1098-12U	4x4	Core i3-2100	3.1	2C/4T	1x2GB	1333MHz	1x250GB	3.5"	No	2xDirect Cable	DVD	Intel HD	None	280W

- **True server-class reliability and performance at desktop price**
- **This model has a 1-year limited warranty¹**

Processor	Intel® Core™ i3-2100 Processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	Tower  
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons <p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk</p> <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI</p> <p>Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup <p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) <p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	250GB , SATA 3.0Gb/s, 7200 rpm, 3.5"	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 1-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) ↪ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 		

See footnotes for important warranty information

US model announced May 31, 2011

US model withdrawn effective May 2012

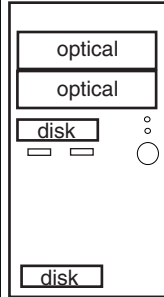
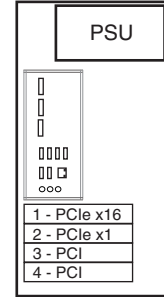
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(TAM1-1) June 2012

ThinkServer™ TS130 (1105) - TopSeller (February 2012) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory speed	Memory DIMMs	Pre-conf RAID	Disk bays	Disk size	Disk(s)	SATA optical	Graphics adapter(s)	Windows Server preload	Power Supply	Ann date (mm/dd/yy)
1105-3BU	E3-1225	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x1TB	DVD	Intel HD	2008 Foundations	280W	02/21/12
1105-42U	E3-1225	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	2008 R2 STD	280W	02/14/12
1105-43U	E3-1225	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	SBS 2011 Essentials	280W	02/28/12
1105-44U	E3-1225	1333MHz	1x4GB	1	2xDirect Cable	3.5"	2x500GB	DVD	Intel HD	SBS 2011	280W	02/28/12

- **True server-class reliability and performance at desktop price**
- **Part of the US TopSeller™ Program**
- **1-year limited warranty¹**

Processor	Intel® Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache), Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)		
Implementation	Processor in LGA1155 socket, up to one processor		
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons 	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 		
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector		
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable		
SATA disk(s)	500GB or 1TB , SATA 6.0Gb/s, 7200 rpm, 3.5"		
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive		
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors		
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)		
Front ports	Two USB 2.0		
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort		
Audio	High Definition (HD) Audio, Realtek ALC662 codec		
Ethernet	One gigabit ethernet on planar, Intel 82579LM		
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant		
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified		
Cooling	4 fans (power supply, CPU, rear, front)		
<p align="center">Preloaded Operating System</p> <p>2008 Foundations: Genuine Windows Server® 2008 R2 Foundations 2008 R2 STD: Genuine Windows Server 2008 R2 Standard SBS 2011 Essentials: Genuine Windows® Small Business Server 2011 Essentials SBS 2011: Genuine Windows Small Business Server 2011 Standard</p>		<p align="center">Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical Bay 2 5.25", 1.6" high, external, open (optical/tape) Bay 3 3.5", 1" high, internal, for disk Bay 4 3.5", 1" high, internal, for disk</p>	
<p align="center">Max internal capacity</p> <p>4.0TB with two 2TB 3.5" SATA disks</p>		<p align="center">Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI</p>	
<p align="center">Limited Warranty¹</p> <p>↪ 1-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts², 8 am - 5 pm, Mon - Fri coverage excluding holidays) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹</p>		<p align="center">Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p>	
<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 		<p align="center">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup 	
<p align="center">Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 		<p align="center">ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>	

See footnotes for important warranty information
 US models announced February 14, 21, or 28, 2012
 US models withdrawn effective October 2012

ThinkServer™ TS130 (1105) - TopSeller (November 2011) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor	GHz	Cores / Threads	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)
1105-36U	4x4	Xeon E3-1225	3.1	4C/4T	1x4GB	1333MHz	2x500GB	3.5"	1	2xDirect Cable	DVD	Intel HD	2008 Foundations	280W
1105-37U	4x4	Core i3-2120	3.3	2C/4T	1x2GB	1333MHz	1x500GB	3.5"		2xDirect Cable	DVD	Intel HD		280W
1105-38U	4x4	Xeon E3-1275	3.4	4C/8T	1x4GB	1333MHz		3.5"		2xDirect Cable	DVD	Intel HD		280W

- True server-class reliability and performance at desktop price
- These small and medium business (SMB) models are part of the US TopSeller™ Program
- These models have a 1-year limited warranty¹

Processor	<p>Intel® Core™ i3-2120 Processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache), Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1275 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p>
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>• Raven black color; metal case</p> <p>• 6.9"W x 16.0"D x 14.9"H</p> <p>• 175mm W x 407mm D x 377mm H</p> <p>• 24.7 lb (11.2kg) max configuration</p> <p>• 25-liter</p> <p>• Toolless side cover removal</p> <p>• Toolless disk and optical drive removal</p> <p>• Toolless adapter retention</p> <p>• Illuminated front icons</p> <p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p> <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p> <p>Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p> <p>Software Management Tools</p> <p>• ThinkServer EasyStartup</p> <p>Power-On Hotkey</p> <p>• Setup Utility: F1 at startup</p> <p>• Diagnostic: F2 at startup</p> <p>• Network Boot: F12 at startup</p> <p>• RAID Configuration Utility: Ctrl+I at startup</p> <p>Security</p> <p>• Security chip (see information on left)</p> <p>• Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)</p> <p>• Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)</p> <p>• Power-on password</p> <p>• Boot sequence control</p> <p>• Boot without keyboard, mouse, diskette</p> <p>• Serial port I/O control</p> <p>• USB port disablement (front or all)</p> <p>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	<i>Some:</i> 500GB , SATA 3.0Gb/s, 7200 rpm, 3.5"	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Preloaded Operating System		
Some: Genuine Windows Server® 2008 R2 Foundations		
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 1-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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		

See footnotes for important warranty information

US models announced November 29, 2011

US models withdrawn effective March or October 2012

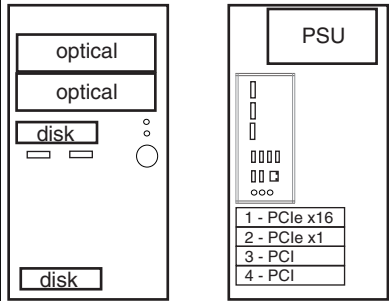
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ThinkServer™ TS130 (1105) - TopSeller (July 2011) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)
1105-17U	4x4	Core i3-2100	3.1 2C/4T	1x2GB	1333MHz	None	3.5"	No	2xDirect Cable	DVD	Intel HD	None	280W
1105-20U	4x4	Xeon E3-1235	3.2 4C/8T	1x4GB	1333MHz	None	3.5"	No	2xDirect Cable	DVD	Intel HD	None	280W

- True server-class reliability and performance at desktop price
- These small and medium business (SMB) models are part of the US TopSeller™ Program
- These models have a 1-year limited warranty¹

Processor	<p>Intel® Core™ i3-2100 Processor (2C/4T, 3.1GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1235 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p> 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p>
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	None	<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p>
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	<p>Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p>
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	<p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	<p>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 1-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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		

See footnotes for important warranty information
 US models announced July 12, 2011
 US models withdrawn effective October 2012

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)
1098-30U	4x4	Xeon E3-1225	3.1 4C/4T	1x2GB	1333MHz	No	3.5"	No	2xDirect Cable	DVD	Intel HD	None	280W
1098-31U	4x4	Core i3-2120	3.3 2C/4T	1x2GB	1333MHz	No	3.5"	No	2xDirect Cable	DVD	Intel HD	None	280W

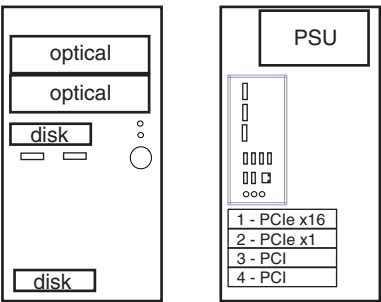
- True server-class reliability and performance at desktop price
- These models have a 1-year limited warranty¹

Processor	<p>Intel® Core™ i3-2120 Processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache), Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p>
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 16.0"D x 14.9"H • 175mm W x 407mm D x 377mm H • 24.7 lb (11.2kg) max configuration • 25-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	None	<p>Disk Bays</p> <p>Bay 1 5.25", 1.6" high, external, for optical</p> <p>Bay 2 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 3 3.5", 1" high, internal, for disk</p> <p>Bay 4 3.5", 1" high, internal, for disk</p>
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p> <p>Slot 2: half-length, full-height, PCI Express 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI</p> <p>Slot 4: half-length, full-height, 32-bit PCI</p>
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	<p>Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p>
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	<p>Security</p> <ul style="list-style-type: none"> • 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 • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	<p>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>
Cooling	4 fans (power supply, CPU, rear, front)	
<p>Max internal capacity</p> <p>4.0TB with two 2TB 3.5" SATA disks</p>		
<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ↪ 1-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) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		

See footnotes for important warranty information
 US models announced November 29, 2011
 US models withdrawn effective March or October 2012

Type-model	Slot x bay	Processor	GHz	Cores / Threads	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	Disk bays	SATA optical	Graphics adapter(s)	Windows Server preload	Power supply(s)
1105-15U	4x4	Core i3-2100	3.1	2C/4T	1x2GB	1333MHz	1x250GB	3.5"		2xDirect Cable	DVD	Intel HD		280W
1105-18U	4x4	Xeon E3-1225	3.1	4C/4T	1x2GB	1333MHz	1x250GB	3.5"		2xDirect Cable	DVD	Intel HD		280W
1105-19U	4x4	Xeon E3-1225	3.1	4C/4T	1x2GB	1333MHz	2x250GB	3.5"	1	2xDirect Cable	DVD	Intel HD	2008 Foundations	280W
1105-1AU	4x4	Xeon E3-1235	3.2	4C/8T	1x4GB	1333MHz	1x500GB	3.5"		2xDirect Cable	DVD	Intel HD		280W
1105-1BU	4x4	Xeon E3-1275	3.4	4C/8T	1x4GB	1333MHz	2x250GB	3.5"	1	2xDirect Cable	DVD	Intel HD		280W
1105-1CU	4x4	Xeon E3-1225	3.1	4C/4T	1x4GB	1333MHz	1x500GB	3.5"		2xDirect Cable	DVD	Intel HD		280W
1105-1DU	4x4	Xeon E3-1235	3.2	4C/8T	1x4GB	1333MHz	2x250GB	3.5"	1	2xDirect Cable	DVD	Intel HD	2008 Foundations	280W
1105-1EU	4x4	Xeon E3-1245	3.3	4C/8T	1x4GB	1333MHz	1x500GB	3.5"		2xDirect Cable	DVD	Intel HD		280W

- True server-class reliability and performance at desktop price
- These small and medium business (SMB) models are part of the US TopSeller™ Program
- These models have a 1-year limited warranty¹

Processor	<p>Intel® Core™ i3-2100 Processor (2C/4T, 3.1GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache), Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1235 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1245 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1275 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p> 
Implementation	Processor in LGA1155 socket, up to one processor	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Intel HD Graphics in processor, one analog VGA DB-15 connector, one DisplayPort™ connector	
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	
SATA disk(s)	250GB or 500GB , SATA 3.0Gb/s, 7200 rpm, 3.5"	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
SATA controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) one analog VGA DB-15, one DisplayPort	
Audio	High Definition (HD) Audio, Realtek ALC662 codec	
Ethernet	One gigabit ethernet on planar, Intel 82579LM	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	
Cooling	4 fans (power supply, CPU, rear, front)	
Preloaded Operating System		
Some: Genuine Windows Server® 2008 R2 Foundations		
Max internal capacity		
4.0TB with two 2TB 3.5" SATA disks		
Limited Warranty¹		
<ul style="list-style-type: none"> ↪ 1-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts², 8 am - 5 pm, Mon - Fri coverage excluding holidays) ↪ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 		
<p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>		

See footnotes for important warranty information
 US models announced May 31, 2011
 US models withdrawn effective March or October 2012



Lenovo ThinkServer TS430
(Four 3.5" Hot-swap and Fixed PSU)

Lenovo ThinkServer TS430
(Redundant PSU)



Lenovo ThinkServer TS430

Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	mgmt OS	Preload OS
0390-16U	Xeon E3-1240V2	1333MHz	UDIMM 1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD±RW	No	TPM	IPMI	
0390-17U	Xeon E3-1220V2	1333MHz	UDIMM 1x4GB	No	500	SATA/SAS	3.5"	4xHot-swap		DVD±RW	No	TPM	IPMI	
0390-18U	Core i3-2120	1333MHz	UDIMM 1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD±RW	No	TPM	IPMI	
⚡ 0390-19U	Xeon E3-1220V2	1333MHz	UDIMM 1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	No	TPM	KVM	SBS 2011
⚡ 0390-1AU	Xeon E3-1220V2	1333MHz	UDIMM 1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	No	TPM	KVM	2008 R2 STD

Processor Up to one processor, one processor standard, **Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache)**, integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)
Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)
Intel® Xeon E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz)

Implementation One LGA1155 socket

Memory 32GB max, **UDIMM, PC3-10600 1333MHz DDR3, ECC**, four 240-pin DIMM sockets

Additional memory disclaimers • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed

Graphics Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear;
 Maximum resolution: 1600x1200@60Hz

Disk bays *Some:* Four 3.5" SATA disk bays, no hot-swap, direct cable
Some: Four 3.5" hot-swap (HS) SATA disk bays
Some: Four 3.5" hot-swap (HS) SATA/SAS disk bays
Some: Eight 3.5" hot-swap (HS) SATA/SAS disk bays
Some: Eight 2.5" hot-swap (HS) SATA/SAS disk bays

Disk controller *Intel PCH:* Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID® 0, 1, 10 support;
RAID 500: ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support
Upgrade for 500: Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)

Disk(s) *3.5" SATA:* SATA 6.0Gb/s, 7200 rpm
3.5" SAS: SAS 6.0Gb/s, 15000 rpm
2.5" SAS: SAS 6.0Gb/s, 10000 rpm

Tape drive Supports optional tape drive via internal USB 2.0 connector

Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive

Diskette None (use USB port)

Chipset **Intel C202 Chipset**, Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)

Ethernet Two Gigabit Ethernet ports, Intel 82574L and 82579LM

Extender card None

Front ports Two USB 2.0

Rear ports Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM) *IDM model(s):* add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category

Systems mgmt Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);
KVM model(s): add-on KVM card for KVM functions

Security chip No onboard TPM chip;
TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant

Prerequisites Monitor, SATA/SAS disk, OS

Keyboard None (use USB port)

Mouse None (use USB port)

Power supply One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified

Mechanical Tower, business black color, metal case

Dimension W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm

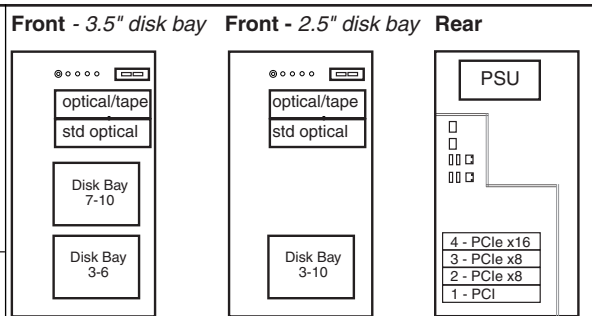
System weight 61.7 lb (28kg) max configuration

Tool-less Side cover removal, disk and optical drive removal, system fan removal

Rack mount Rack-mountable to 5U

Limited warranty 3-year parts and labor; more Lenovo Services information see S-TOR

Accessories For more accessories, see O-TOR sheet



3.5" disk bay models:
 Bay 1 5.25", 1.6" high, external, open (optical/tape)
 Bay 2 5.25", 1.6" high, external, std optical
 Bay 3 3.5", 1" high, external, for disk
 Bay 4 3.5", 1" high, external, for disk
 Bay 5 3.5", 1" high, external, for disk
 Bay 6 3.5", 1" high, external, for disk
Bay 7-10 are available on Eight 3.5" disk bay models:
 Bay 7 3.5", 1" high, external, for disk
 Bay 8 3.5", 1" high, external, for disk
 Bay 9 3.5", 1" high, external, for disk
 Bay 10 3.5", 1" high, external, for disk

2.5" disk bay models:
 Bay 1 5.25", 1.6" high, external, open (optical/tape)
 Bay 2 5.25", 1.6" high, external, std optical
 Bay 3 2.5", 0.6" high, external, for disk
 Bay 4 2.5", 0.6" high, external, for disk
 Bay 5 2.5", 0.6" high, external, for disk
 Bay 6 2.5", 0.6" high, external, for disk
 Bay 7 2.5", 0.6" high, external, for disk
 Bay 8 2.5", 0.6" high, external, for disk
 Bay 9 2.5", 0.6" high, external, for disk
 Bay 10 2.5", 0.6" high, external, for disk

Slot 1 half-length, full-height, 32-bit PCI 2.3
 Slot 2 half-length, full-height, PCI Express 2.0 x8*
 Slot 3 half-length, full-height, PCI Express 2.0 x8
 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)
 * x4 electrical
 ** x8 electrical

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Security

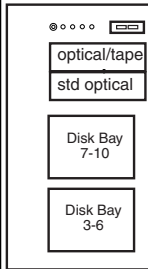
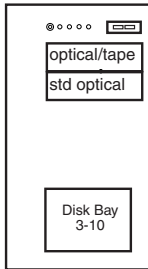
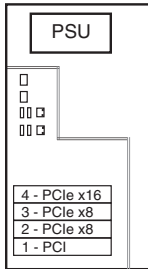
- Security chip (selected models, see information on left)
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (all)

RoHS-compliant

Preloaded Operating System

2008 R2 STD: Genuine Windows Server 2008 R2 Standard
SBS 2011: Genuine Windows Small Business Server 2011 Standard

See footnotes for important warranty information
 US model(s) announced June 12, 2012
 ⚡ US models withdrawn effective April 2013

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System mgmt	Preload OS	PSU	
0390-1BU	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD±RW	No	TPM IPMI	No	1 x Fixed	
Processor		Up to one processor, one processor standard, Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)							Front - 3.5" disk bay 					
Implementation		One LGA1155 socket							Front - 2.5" disk bay 					
Memory		32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets							Rear 					
Additional memory disclaimers		<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 												
Graphics		Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz												
Disk bays		<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays							3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk					
Disk controller		<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID® 0, 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)							2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk					
Disk(s)		3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm												
Tape drive		Supports optional tape drive via internal USB 2.0 connector												
Optical		Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive												
Diskette		None (use USB port)												
Chipset		Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)												
Ethernet Extender card		Two Gigabit Ethernet ports, Intel 82574L and 82579LM												
Front ports		Two USB 2.0												
Rear ports		Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector							Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical					
Intelligent Diagnostics Module (IDM)		<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category												
Systems mgmt		Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions												
Security chip		No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant												
Prerequisites		Monitor, SATA/SAS disk, OS												
Keyboard		None (use USB port)												
Mouse		None (use USB port)												
Power supply		One Fixed 400 watts standard, universal, 80 PLUS® Bronze qualified												
Mechanical		Tower, business black color, metal case												
Dimension		W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm												
System weight		61.7 lb (28kg) max configuration												
Tool-less		Side cover removal, disk and optical drive removal, system fan removal												
Rack mount		Rack-mountable to 5U							Software Management Tools <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage 					
Limited warranty		3-year parts and labor; more Lenovo Services information see S-TS							Security <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) 					
Accessories		For more accessories, see O-TOR sheet							RoHS-compliant					

See footnotes for important warranty information
US model(s) announced September 25, 2012

ThinkServer® TS430 Fixed PSU (0390) - TopSeller (February 2013)

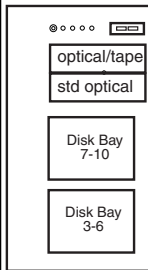
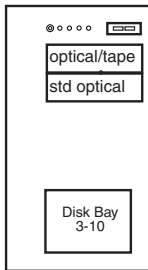
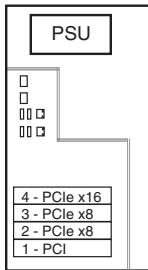
Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	System mgmt	Preload OS	
0390-1EU	Xeon E3-1220V2	1333MHz	UDIMM	1x4GB	1	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	No	TPM	KVM	SBS 2011 Standard
0390-1FU	Xeon E3-1220V2	1333MHz	UDIMM	1x4GB	1	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	No	TPM	KVM	2008 R2 Standard

Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)									Front - 3.5" disk bay			Front - 2.5" disk bay			Rear		
Implementation	One LGA1155 socket																	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets																	
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 																	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz																	
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays									3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk								
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID® 0, 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)									2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk								
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm																	
Tape drive	Supports optional tape drive via internal USB 2.0 connector																	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive																	
Diskette	None (use USB port)																	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)																	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM																	
Extender card	None																	
Front ports	Two USB 2.0																	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector									Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical								
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category																	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions																	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant																	
Prerequisites	Monitor, SATA/SAS disk, OS																	
Keyboard	None (use USB port)																	
Mouse	None (use USB port)																	
Power supply	One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified																	
Mechanical	Tower, business black color, metal case																	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm																	
System weight	61.7 lb (28kg) max configuration																	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal									Software Management Tools								
Rack mount	Rack-mountable to 5U									<ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage 								
Limited warranty	3-year parts and labor, more Lenovo Services information see S-TS									Security								
										<ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) 								
	Preloaded Operating System									RoHS-compliant								
<i>2008 R2 Standard:</i>	Genuine Windows Server® 2008 R2 Standard									For more accessories, see O-TOR sheet								
<i>SBS 2011 Standard:</i>	Genuine Windows® Small Business Server 2011 Standard																	

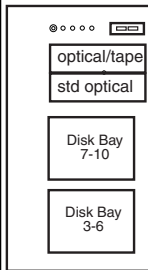
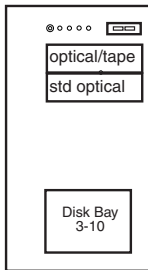
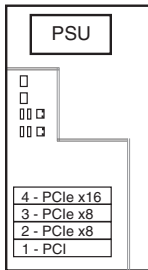
See footnotes for important warranty information
US model(s) announced February 19, 2013

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Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	SATA Disk(s)	Intelligent Diagnostics	System mgmt	Preload OS	PSU	
0389-12U	Core i3-2120	1333MHz UDIMM	1x2GB	No	Intel PCH	SATA	3.5"	4xDirect Cable	No	DVD	TPM	IPMI	No	1xFixed
Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)								Front - 3.5" disk bay 		Front - 2.5" disk bay 		Rear 	
Implementation	One LGA1155 socket													
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets													
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 													
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz													
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays								3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk Bay 7-10 are available on		2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk		Eight 3.5" disk bay models: Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical	
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)													
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm													
Tape drive	Supports optional tape drive via internal USB 2.0 connector													
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive													
Diskette	None (use USB port)													
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)													
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM													
Extender card	None													
Front ports	Two USB 2.0													
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector													
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category													
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);													
Security chip	<i>KVM model(s):</i> add-on KVM card for KVM functions No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant													
Prerequisites	Monitor, SATA/SAS disk, OS													
Keyboard	None (use USB port)													
Mouse	None (use USB port)													
Power supply	One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified													
Mechanical	Tower, business black color, metal case								Software Management Tools <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage Security <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) RoHS-compliant					
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm													
System weight	61.7 lb (28kg) max configuration													
Tool-less	Side cover removal, disk and optical drive removal, system fan removal													
Rack mount	Rack-mountable to 5U													
Limited warranty	1-year parts and labor; more Lenovo Services information see S-TOR													
Accessories	For more accessories, see O-TOR sheet													

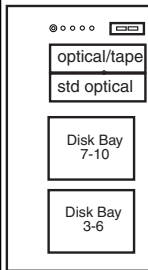
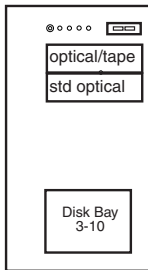
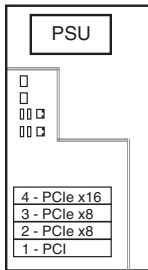
See footnotes for important warranty information
US model(s) announced June 12, 2012

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	Preload OS mgmt	Preload OS	PSU
0389-13U	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xDirect Cable	No	DVD	No	TPM	IPMI	No	1 x Fixed
0389-14U	Core i3-3240	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD	No	TPM	IPMI	No	1 x Fixed

Processor	Up to one processor, one processor standard, Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)	  
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)	
Disk(s)	<i>3.5" SATA:</i> SATA 6.0Gb/s, 7200 rpm <i>3.5" SAS:</i> SAS 6.0Gb/s, 15000 rpm <i>2.5" SAS:</i> SAS 6.0Gb/s, 10000 rpm	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector	
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One Fixed 400 watts standard, universal, 80 PLUS® Bronze qualified	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Limited warranty	1-year parts and labor; more Lenovo Services information see S-TS	
Accessories	For more accessories, see O-TOR sheet	
		<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p align="center">Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>

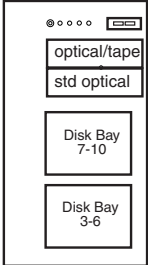
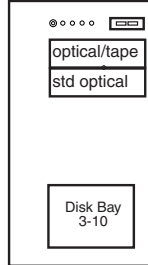
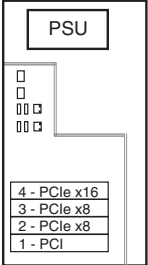
See footnotes for important warranty information
US model(s) announced September 25, 2012

Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	Preload OS
0388-18U	Core i3-2120	1333MHz UDIMM	1x4GB	No	Intel PCH	SATA	3.5"	4xDirect Cable		DVD	IDM	TPM	IPMI No
0388-19U	Xeon E3-1220V2	1333MHz UDIMM	1x4GB	No	500	SATA/SAS	3.5"	4xHot-swap	3x500GB SATA	DVD	IDM	TPM	KVM No
0388-1AU	Xeon E3-1220V2	1333MHz UDIMM	1x4GB	No	500	SATA/SAS	3.5"	8xHot-swap		DVD	IDM	TPM	IPMI No
0388-1BU	Xeon E3-1220V2	1333MHz UDIMM	1x4GB	No	500	SATA/SAS	2.5"	8xHot-swap		DVD	IDM	TPM	IPMI No
0388-1CU	Xeon E3-1220V2	1333MHz UDIMM	1x4GB	No	500	SATA/SAS	3.5"	4xHot-swap		DVD	IDM	TPM	KVM No

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay	Front - 2.5" disk bay	Rear
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p>		
Additional memory disclaimers	Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	<p>Eight 3.5" disk bay models:</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>		
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
Disk bays	Some: Four 3.5" SATA disk bays, no hot-swap, direct cable Some: Four 3.5" hot-swap (HS) SATA disk bays Some: Four 3.5" hot-swap (HS) SATA/SAS disk bays Some: Eight 3.5" hot-swap (HS) SATA/SAS disk bays Some: Eight 2.5" hot-swap (HS) SATA/SAS disk bays	<p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
Disk controller	Intel PCH: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; RAID 500: ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support Upgrade for 500: Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)	<p>RoHS-compliant</p>		
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm			
Tape drive	Supports optional tape drive via internal USB 2.0 connector			
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive			
Diskette	None (use USB port)			
Chipset	Intel C202 Chipset, Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)			
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM			
Extender card	None			
Front ports	Two USB 2.0			
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector			
Intelligent Diagnostics Module (IDM)	IDM model(s): add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category			
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); KVM model(s): add-on KVM card for KVM functions			
Security chip	No onboard TPM chip; TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant			
Prerequisites	Monitor, SATA/SAS disk, OS			
Keyboard	None (use USB port)			
Mouse	None (use USB port)			
Power supply	One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified			
Mechanical	Tower, business black color, metal case			
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm			
System weight	61.7 lb (28kg) max configuration			
Tool-less	Side cover removal, disk and optical drive removal, system fan removal			
Rack mount	Rack-mountable to 5U			
Limited warranty	3-year parts and labor; more Lenovo Services information see S-TOR			
Accessories	For more accessories, see O-TOR sheet			

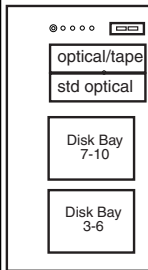
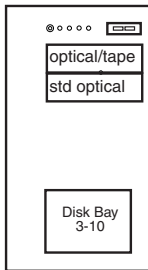
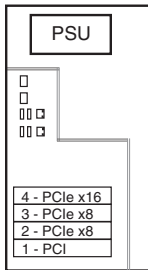
See footnotes for important warranty information US model(s) announced June 12, 2012

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM mgmt	Preload OS	PSU
0388-1KU	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD	No	TPM	IPMI	No 1 x Fixed
0388-1LU	Core i3-3220	1x4GB	No	500	SATA/SAS	3.5	8xHot-swap	No	DVD	No	TPM	IPMI	No 1 x Fixed
0388-1MU	Core i3-3220	1x4GB	No	500	SATA/SAS	2.5	8xHot-swap	No	DVD	No	TPM	IPMI	No 1 x Fixed
0388-1NU	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xDirect Cable	No	DVD	No	TPM	IPMI	No 1 x Fixed

Processor	Up to one processor, one processor standard, Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay	Front - 2.5" disk bay	Rear
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets			
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed			
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz			
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays	3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk 2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk		
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)			
Disk(s)	<i>3.5" SATA:</i> SATA 6.0Gb/s, 7200 rpm <i>3.5" SAS:</i> SAS 6.0Gb/s, 15000 rpm <i>2.5" SAS:</i> SAS 6.0Gb/s, 10000 rpm			
Tape drive	Supports optional tape drive via internal USB 2.0 connector			
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive			
Diskette	None (use USB port)			
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)			
Ethernet Extender card	Two Gigabit Ethernet ports, Intel 82574L and 82579LM			
Front ports	Two USB 2.0			
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector			
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category	Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical		
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions			
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant			
Prerequisites	Monitor, SATA/SAS disk, OS			
Keyboard	None (use USB port)			
Mouse	None (use USB port)			
Power supply	One Fixed 400 watts standard, universal, 80 PLUS® Bronze qualified			
Mechanical	Tower, business black color, metal case	Software Management Tools		
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
System weight	61.7 lb (28kg) max configuration	Security		
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	<ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
Rack mount	Rack-mountable to 5U			
Limited warranty	3-year parts and labor; more Lenovo Services information see S-TS			
Accessories	For more accessories, see O-TOR sheet			
		RoHS-compliant		

See footnotes for important warranty information
US model(s) announced September 25, 2012

Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	SATA Disk(s)	Intelligent Diagnostics	System mgmt	Preload OS	PSU
0387-13U	Core i3-2120	1333MHz UDIMM	1x2GB	No	Intel PCH	SATA	3.5"	4xHot-swap	No	DVD	TPM	IPMI	No 1xFixed
0387-14U	Xeon E3-1220V2	1333MHz UDIMM	1x4GB	No	Intel PCH	SATA	3.5"	4xDirect Cable	No	DVD	TPM	IPMI	No 1xFixed
0387-15U	Xeon E3-1220V2	1333MHz UDIMM	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap	No	DVD	TPM	IPMI	No 1xFixed

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay	Front - 2.5" disk bay	Rear
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets			
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed			
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz			
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays			
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)	<i>3.5" disk bay models:</i> Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk <i>2.5" disk bay models:</i> Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk		
Disk(s)	<i>3.5" SATA:</i> SATA 6.0Gb/s, 7200 rpm <i>3.5" SAS:</i> SAS 6.0Gb/s, 15000 rpm <i>2.5" SAS:</i> SAS 6.0Gb/s, 10000 rpm			
Tape drive	Supports optional tape drive via internal USB 2.0 connector			
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive			
Diskette	None (use USB port)			
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)			
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM			
Extender card	None			
Front ports	Two USB 2.0			
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector			
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category			
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions			
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant			
Prerequisites	Monitor, SATA/SAS disk, OS			
Keyboard	None (use USB port)			
Mouse	None (use USB port)			
Power supply	One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified			
Mechanical	Tower, business black color, metal case			
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm			
System weight	61.7 lb (28kg) max configuration			
Tool-less	Side cover removal, disk and optical drive removal, system fan removal			
Rack mount	Rack-mountable to 5U			
Limited warranty	1-year parts and labor; more Lenovo Services information see S-TOR			
Accessories	For more accessories, see O-TOR sheet			
		Software Management Tools		
		<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
		Security		
		<ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
		RoHS-compliant		

See footnotes for important warranty information
US model(s) announced June 12, 2012

ThinkServer® TS430 Redundant PSU (0441) - TopSeller (June 12, 2012)

Personal Systems Reference (PSREF)

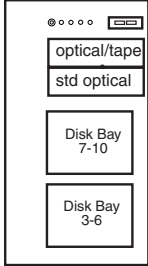
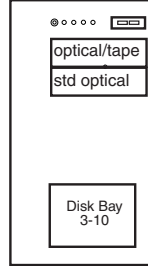
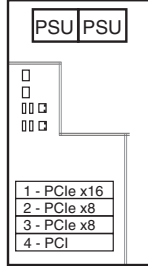
Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	mgmt IPMI	Preload OS	PSU
0441-1DU	Xeon E3-1240V2	1x4GB	No	500	SATA/SAS	2.5"	8xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
0441-1EU	Xeon E3-1240V2	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
0441-1FU	Xeon E3-1220V2	1x4GB	No	500	SATA/SAS	2.5"	8xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
0441-1GU	Xeon E3-1240V2	1x4GB	No	500	SATA/SAS	3.5"	8xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
0441-1HU	Xeon E3-1270V2	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
0441-1JU	Xeon E3-1220V2	1x4GB	No	500	SATA/SAS	3.5"	8xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
<0441-1KU	Xeon E3-1220V2	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	IDM	TPM	IPMI	SBS 2011	1x450W
<0441-1LU	Xeon E3-1220V2	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	IDM	TPM	IPMI	2008 R2 STD	1x450W
0441-1MU	Xeon E3-1220V2	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)								Front - 3.5" disk bay		Front - 2.5" disk bay		Rear	
Implementation	One LGA1155 socket													
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets													
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed													
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz													
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays								<i>3.5" disk bay models:</i>					
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)								Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk					
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm								<i>2.5" disk bay models:</i>					
Tape drive	Supports optional tape drive via internal USB 2.0 connector								Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk					
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive													
Diskette	None (use USB port)													
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)												Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM													
Extender card	None													
Front ports	Two USB 2.0													
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector													
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category													
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions													
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuoton WPCT210 add-on card for TPM function, TCG 1.2-compliant													
Prerequisites	Monitor, SATA/SAS disk, OS													
Keyboard	None (use USB port)													
Mouse	None (use USB port)													
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies													
Mechanical	Tower, business black color, metal case													
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm													
System weight	61.7 lb (28kg) max configuration													
Tool-less	Side cover removal, disk and optical drive removal, system fan removal													
Rack mount	Rack-mountable to 5U													
Preloaded Operating System														
<i>2008 R2 STD:</i>		Genuine Windows Server 2008 R2 Standard												
<i>SBS 2011:</i>		Genuine Windows Small Business Server 2011 Standard												
3-year parts and labor; more Lenovo Services information see S-TOR														
For more accessories, see O-TOR sheet														

See footnotes for important warranty information
US model(s) announced June 12, 2012
< US models withdrawn effective April 2013

ThinkServer® TS430 Redundant PSU (0441) - TopSeller (September 2012)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM mgmt	Preload OS	PSU
0441-1PU	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD±RW	No	TPM IPMI	No	1x450W

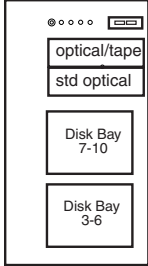
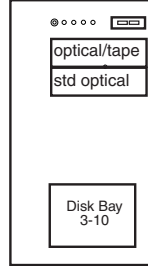
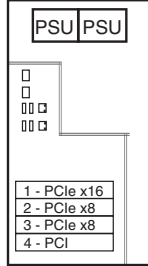
Processor	Up to one processor, one processor standard, Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay		Front - 2.5" disk bay		Rear	
Implementation	One LGA1155 socket						
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets						
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 						
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz						
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays	3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk 2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical					
Disk controller	Intel PCH: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; RAID 500: ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support Upgrade for 500: Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)						
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm						
Tape drive	Supports optional tape drive via internal USB 2.0 connector						
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive						
Diskette	None (use USB port)						
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)						
Ethernet Extender card	Two Gigabit Ethernet ports, Intel 82574L and 82579LM						
Front ports	Two USB 2.0						
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector						
Intelligent Diagnostics Module (IDM)	IDM model(s): add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category						
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); KVM model(s): add-on KVM card for KVM functions						
Security chip	No onboard TPM chip; TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant						
Prerequisites	Monitor, SATA/SAS disk, OS						
Keyboard	None (use USB port)						
Mouse	None (use USB port)						
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	Software Management Tools <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage 					
Mechanical	Tower, business black color, metal case	Security <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) 					
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	RoHS-compliant					
System weight	61.7 lb (28kg) max configuration	3-year parts and labor; more Lenovo Services information see S-TS					
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	For more accessories, see O-TOR sheet					
Rack mount	Rack-mountable to 5U						

See footnotes for important warranty information
US model(s) announced September 25, 2012

ThinkServer® TS430 Redundant PSU (0441) - TopSeller (November 2012)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	Preload mgmt OS	PSU	
0441-1RU	Xeon E3-1240V2	1x4GB	No	700	SATA/SAS	3.5	8xHot-swap	No	DVD±RW	No	TPM	IPMI	No	1x450W
0441-1SU	Core i3-3240	1x4GB	No	500	SATA/SAS	2.5	8xHot-swap	No	DVD±RW	No	TPM	IPMI	No	1x450W

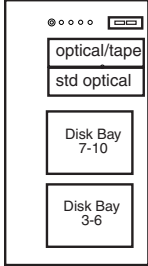
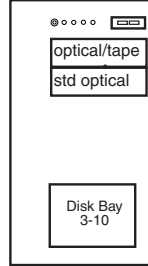
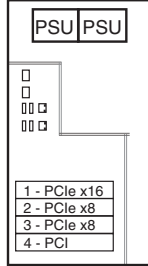
Processor	Up to one processor, one processor standard. Intel® Core™ i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay	Front - 2.5" disk bay	Rear
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p>Bay 7-10 are available on Eight 3.5" disk bay models:</p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p>		
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	<p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>		
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays	<p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI [®] SAS 9240-8i), PCI Express [®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only) <i>RAID 700:</i> ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support <i>Battery for 700:</i> Intelligent Battery Backup Unit (iBBU08) for RAID 700	<p>RoHS-compliant</p> <p>3-year parts and labor; more Lenovo Services information see S-TS</p>		
Disk(s)	<i>3.5" SATA:</i> SATA 6.0Gb/s, 7200 rpm <i>3.5" SAS:</i> SAS 6.0Gb/s, 15000 rpm <i>2.5" SAS:</i> SAS 6.0Gb/s, 10000 rpm	<p>For more accessories, see O-TOR sheet</p>		
Tape drive	Supports optional tape drive via internal USB 2.0 connector			
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive			
Diskette	None (use USB port)			
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)			
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM			
Extender card	None			
Front ports	Two USB 2.0			
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector			
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category			
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions			
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant			
Prerequisites	Monitor, SATA/SAS disk, OS			
Keyboard	None (use USB port)			
Mouse	None (use USB port)			
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies			
Mechanical	Tower, business black color, metal case			
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm			
System weight	61.7 lb (28kg) max configuration			
Tool-less	Side cover removal, disk and optical drive removal, system fan removal			
Rack mount	Rack-mountable to 5U			

See footnotes for important warranty information
US model(s) announced November 27, 2012

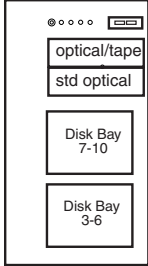
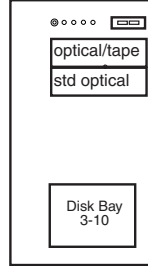
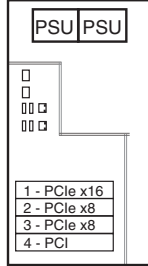
ThinkServer® TS430 Redundant PSU (0441) - TopSeller (February 2013)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	System mgmt	Preload OS	PSU qty
0441-1VU	Xeon E3-1220V2	1x4GB	1	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	IDM	TPM	IPMI	SBS 2011 Standard	1
0441-1WU	Xeon E3-1220V2	1x4GB	1	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	IDM	TPM	IPMI	Server 2008 R2 Standard	1

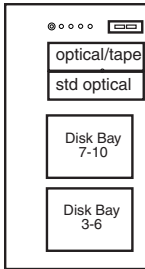
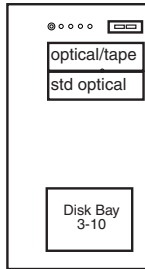
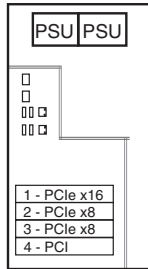
Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)	  
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p>Bay 7-10 are available on Eight 3.5" disk bay models:</p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI [®] SAS 9240-8i), PCI Express [®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)	
Disk(s)	<i>3.5" SATA:</i> SATA 6.0Gb/s, 7200 rpm <i>3.5" SAS:</i> SAS 6.0Gb/s, 15000 rpm <i>2.5" SAS:</i> SAS 6.0Gb/s, 10000 rpm	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
		<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage
		<p align="center">Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
		3-year parts and labor, more Lenovo Services information see S-TS
		RoHS-compliant
		For more accessories, see O-TOR sheet
Preloaded Operating System		
<i>2008 R2 Standard:</i> Genuine Windows Server [®] 2008 R2 Standard		
<i>SBS 2011 Standard:</i> Genuine Windows [®] Small Business Server 2011 Standard		

See footnotes for important warranty information
US model(s) announced February 19, 2013

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System mgmt	Preload OS	PSU qty	
0441-ABU	Xeon E3-1220V2	1x8GB	5	500+Upgrade	SATA/SAS	3.5"	8xHot-swap	3x1TB SATA	DVD±RW	No	TPM IPMI	2012 Standard	1	
Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)								Front - 3.5" disk bay 		Front - 2.5" disk bay 		Rear 	
Implementation	One LGA1155 socket													
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets													
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 													
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz													
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays								3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk					
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)								2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk					
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm								Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical					
Tape drive	Supports optional tape drive via internal USB 2.0 connector													
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive													
Diskette	None (use USB port)													
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)													
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM													
Extender card	None													
Front ports	Two USB 2.0													
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector													
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category													
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions													
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant													
Prerequisites	Monitor, SATA/SAS disk, OS													
Keyboard	None (use USB port)													
Mouse	None (use USB port)													
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies								Software Management Tools <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage 					
Mechanical	Tower, business black color, metal case								Security <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) 					
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm								3-year parts and labor, more Lenovo Services information see S-TS					
System weight	61.7 lb (28kg) max configuration								RoHS-compliant					
Tool-less	Side cover removal, disk and optical drive removal, system fan removal								For more accessories, see O-TOR sheet					
Rack mount	Rack-mountable to 5U													
Preloaded Operating System		Genuine Windows Server® 2012 Standard												
<i>2012 Standard:</i>														

See footnotes for important warranty information
US model(s) announced June 18, 2013

Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	SATA Disk(s)	Intelligent Diagnostics	System TPM	Preload OS	PSU
0393-14U	Core i3-2120	1333MHz	UDIMM	1x2GB	No	Intel PCH	SATA	3.5" 4xHot-swap	No	DVD±RW	No	TPM IPMI	No 1x450W
0393-15U	Xeon E3-1220V2	1333MHz	UDIMM	1x4GB	No	Intel PCH	SATA	3.5" 4xHot-swap	No	DVD±RW	No	TPM IPMI	No 1x450W

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)	  
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p>Bay 7-10 are available on Eight 3.5" disk bay models:</p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	<p>RoHS-compliant</p>
Disk bays	<p><i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable</p> <p><i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays</p> <p><i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p><i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p><i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays</p>	
Disk controller	<p>Intel PCH: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID[®] 0, 1, 10 support;</p> <p>RAID 500: ThinkServer RAID 500 adapter (LSI[®] SAS 9240-8i), PCI Express[®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support</p> <p>Upgrade for 500: Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)</p>	
Disk(s)	<p>3.5" SATA: SATA 6.0Gb/s, 7200 rpm</p> <p>3.5" SAS: SAS 6.0Gb/s, 15000 rpm</p> <p>2.5" SAS: SAS 6.0Gb/s, 10000 rpm</p>	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Intelligent Diagnostics Module (IDM)	IDM model(s): add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); KVM model(s): add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Limited warranty	1-year parts and labor; more Lenovo Services information see S-TOR	
Accessories	For more accessories, see O-TOR sheet	

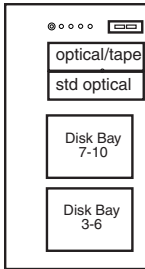
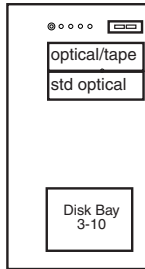
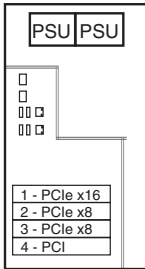
See footnotes for important warranty information
US model(s) announced June 12, 2012

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System mgmt	Preload OS	PSU
0393-16U	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD±RW	No	TPM IPMI	No	1x450W

Processor	Up to one processor, one processor standard, Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)							Front - 3.5" disk bay		Front - 2.5" disk bay		Rear	
Implementation	One LGA1155 socket												
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets												
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 												
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz												
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays												
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)												
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm												
Tape drive	Supports optional tape drive via internal USB 2.0 connector												
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive												
Diskette	None (use USB port)												
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)												
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM												
Extender card	None												
Front ports	Two USB 2.0												
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector												
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category												
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions												
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant												
Prerequisites	Monitor, SATA/SAS disk, OS												
Keyboard	None (use USB port)												
Mouse	None (use USB port)												
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies												
Mechanical	Tower, business black color, metal case												
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm												
System weight	61.7 lb (28kg) max configuration												
Tool-less	Side cover removal, disk and optical drive removal, system fan removal												
Rack mount	Rack-mountable to 5U												
Limited warranty	1-year parts and labor; more Lenovo Services information see S-TS												
Accessories	For more accessories, see O-TOR sheet												
												<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage <p align="center">Security</p> <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) 	
												RoHS-compliant	

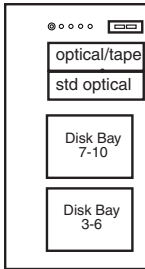
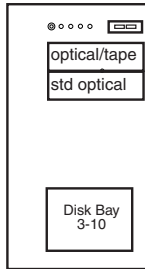
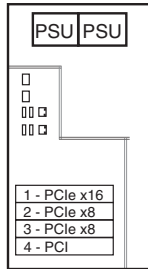
See footnotes for important warranty information
US model(s) announced September 25, 2012

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM mgmt	Preload OS	PSU
0392-19U	Core i3-2120	1x2GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD	IDM	TPM	IPMI	No 1x450W
0392-1AU	Xeon E3-1240V2	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD	IDM	TPM	IPMI	No 1x450W
0392-1BU	Xeon E3-1220V2	1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD	IDM	TPM	IPMI	No 1x450W
0392-1CU	Xeon E3-1220V2	1x4GB	No	500	SATA/SAS	3.5"	8xHot-swap		DVD	IDM	TPM	IPMI	No 1x450W
0392-1DU	Xeon E3-1220V2	1x4GB	No	500	SATA/SAS	2.5"	8xHot-swap		DVD	IDM	TPM	IPMI	No 1x450W
0392-1EU	Xeon E3-1220V2	1x4GB	No	500	SATA/SAS	3.5"	4xHot-swap	4x500GB SATA	DVD±RW	IDM	TPM	KVM	No 2x450W
0392-1FU	Xeon E3-1220V2	1x4GB	No	500	SATA/SAS	2.5"	8xHot-swap	4x300GB SAS	DVD±RW	IDM	TPM	KVM	No 2x450W

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays	3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk Bay 7-10 are available on <i>Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk 2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical
Disk controller	Intel PCH: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; RAID 500: ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support Upgrade for 500: Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)	
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	<i>Some:</i> DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive <i>Some:</i> Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Intelligent Diagnostics Module (IDM)	IDM model(s): add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); KVM model(s): add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Limited warranty	3-year parts and labor; more Lenovo Services information see S-TOR	
Accessories	For more accessories, see O-TOR sheet	
		Software Management Tools <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage
		Security <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all)
		RoHS-compliant

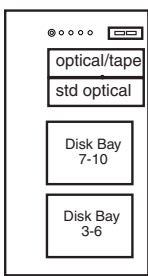
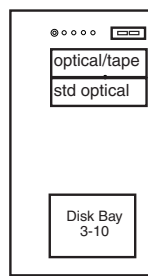
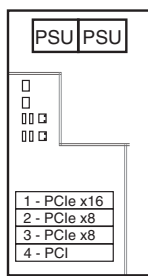
See footnotes for important warranty information US model(s) announced June 12, 2012

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	Preload mgmt OS	PSU	
0392-1RU	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xDirect Cable	No	DVD	No	TPM	IPMI	No	1x450W
0392-1SU	Core i3-3240	1x4GB	No	500	SATA/SAS	3.5	4xHot-swap	No	DVD	No	TPM	IPMI	No	1x450W
0392-1TU	Core i3-3240	1x4GB	No	500	SATA/SAS	2.5	8xHot-swap	No	DVD	No	TPM	IPMI	No	1x450W

Processor	Up to one processor, one processor standard, Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay 	Front - 2.5" disk bay 	Rear 
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets			
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed			
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz			
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays			
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; <i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express [®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)	<i>3.5" disk bay models:</i> Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk <i>2.5" disk bay models:</i> Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk		
Disk(s)	<i>3.5" SATA:</i> SATA 6.0Gb/s, 7200 rpm <i>3.5" SAS:</i> SAS 6.0Gb/s, 15000 rpm <i>2.5" SAS:</i> SAS 6.0Gb/s, 10000 rpm			
Tape drive	Supports optional tape drive via internal USB 2.0 connector			
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive			
Diskette	None (use USB port)			
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)			
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM			
Extender card	None			
Front ports	Two USB 2.0			
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector			
Intelligent Diagnostics Module (IDM)	<i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category			
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions			
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant			
Prerequisites	Monitor, SATA/SAS disk, OS			
Keyboard	None (use USB port)			
Mouse	None (use USB port)			
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies			
Mechanical	Tower, business black color, metal case			
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm			
System weight	61.7 lb (28kg) max configuration			
Tool-less	Side cover removal, disk and optical drive removal, system fan removal			
Rack mount	Rack-mountable to 5U			
Limited warranty	3-year parts and labor; more Lenovo Services information see S-TS			
Accessories	For more accessories, see O-TOR sheet			
		Software Management Tools		
		<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
		Security		
		<ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
		RoHS-compliant		

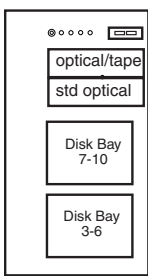
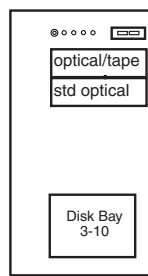
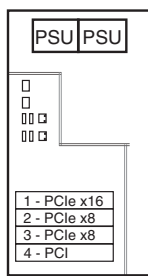
See footnotes for important warranty information
US model(s) announced September 25, 2012

Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	SATA Disk(s)	optical	Intelligent Diagnostics	System TPM	mgmt	Preload OS	PSU
0391-12U	Core i3-2120	1333MHz	UDIMM	1x4GB	No	Intel PCH	SATA	3.5" 4xHot-swap	No	DVD	No	TPM	IPMI	No	1x450W
0391-13U	Xeon E3-1220V2	1333MHz	UDIMM	1x4GB	No	Intel PCH	SATA	3.5" 4xHot-swap	No	DVD	No	TPM	IPMI	No	1x450W

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay	Front - 2.5" disk bay	Rear
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p>		
Additional memory disclaimers	Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	<p>Eight 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p>Some: Four 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p>Some: Four 3.5" SATA disk bays, no hot-swap, direct cable</p> <p>Some: Four 3.5" hot-swap (HS) SATA disk bays</p>		
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	<p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>		
Disk controller	Intel PCH: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; RAID 500: ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support Upgrade for 500: Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm 2.5" SAS: SAS 6.0Gb/s, 10000 rpm	<p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
Tape drive	Supports optional tape drive via internal USB 2.0 connector	<p>RoHS-compliant</p>		
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive			
Diskette	None (use USB port)			
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)			
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM			
Extender card	None			
Front ports	Two USB 2.0			
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector			
Intelligent Diagnostics Module (IDM)	IDM model(s): add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category			
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); KVM model(s): add-on KVM card for KVM functions			
Security chip	No onboard TPM chip; TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant			
Prerequisites	Monitor, SATA/SAS disk, OS			
Keyboard	None (use USB port)			
Mouse	None (use USB port)			
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies			
Mechanical	Tower, business black color, metal case			
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm			
System weight	61.7 lb (28kg) max configuration			
Tool-less	Side cover removal, disk and optical drive removal, system fan removal			
Rack mount	Rack-mountable to 5U			
Limited warranty	1-year parts and labor; more Lenovo Services information see S-TOR			
Accessories	For more accessories, see O-TOR sheet			

See footnotes for important warranty information US model(s) announced June 12, 2012

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	Preload OS	PSU	
0391-15U	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD	No	TPM	IPMI	No	1x450W
0391-16U	Core i3-3240	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD	No	TPM	IPMI	No	1x450W

Processor	Up to one processor, one processor standard, Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)	  
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	<p>Security</p> <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all)
Disk bays	<p><i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable</p> <p><i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays</p> <p><i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p><i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p><i>Some:</i> Eight 2.5" hot-swap (HS) SATA/SAS disk bays</p>	
Disk controller	<p><i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID⁰, 1, 10 support;</p> <p><i>RAID 500:</i> ThinkServer RAID 500 adapter (LSI® SAS 9240-8i), PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support</p> <p><i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only)</p>	<p>Prerequisites</p> <p>Monitor, SATA/SAS disk, OS</p>
Disk(s)	<p>3.5" SATA: SATA 6.0Gb/s, 7200 rpm</p> <p>3.5" SAS: SAS 6.0Gb/s, 15000 rpm</p> <p>2.5" SAS: SAS 6.0Gb/s, 10000 rpm</p>	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	<p>Mouse</p> <p>None (use USB port)</p>
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
Diskette	None (use USB port)	<p>Mechanical</p> <p>Tower, business black color, metal case</p> <p>Dimension</p> <p>W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm</p> <p>System weight</p> <p>61.7 lb (28kg) max configuration</p> <p>Tool-less</p> <p>Side cover removal, disk and optical drive removal, system fan removal</p> <p>Rack mount</p> <p>Rack-mountable to 5U</p>
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet Extender card	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	<p>See footnotes for important warranty information</p> <p>US model(s) announced September 25, 2012</p>
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	<p>RoHS-compliant</p>
Intelligent Diagnostics Module (IDM)	<p><i>IDM model(s):</i> add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category</p>	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);	
Security chip	<p><i>KVM model(s):</i> add-on KVM card for KVM functions</p> <p>No onboard TPM chip;</p> <p><i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant</p>	

See footnotes for important warranty information
US model(s) announced September 25, 2012

Partial list of accessories supported on Lenovo® ThinkServer TS430.

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Memory

2GB PC3-10600 DDR3 ECC UDIMM (1Rx8)	67Y2606
4GB PC3-10600 DDR3 ECC UDIMM (2Rx8)	67Y2607
8GB PC3-10600 DDR3 ECC UDIMM (2Rx8)	0A89461

Connectivity

Lenovo Gigabit ET Dual Port Server Adapter	0A89423
Intel Ethernet I340 Quad Port Server Adapter	0A89424

Disk Drive⁶

3.5" SATA Cabled:

500GB 7.2K Enterprise 6Gbps SATA	0A89470
1TB 7.2K Enterprise 6Gbps SATA	0A89471
2TB 7.2K Enterprise 6Gbps SATA	0A89472
3TB 7.2K Enterprise 6Gbps SATA	0A89478

3.5" SATA HS:

500GB Enterprise 6Gbps SATA HS (7200 rpm)	0A89473
1TB Enterprise 6Gbps SATA HS (7200 rpm)	0A89474
2TB Enterprise 6Gbps SATA HS (7200 rpm)	0A89475
3TB Enterprise 6Gbps SATA HS (7200 rpm)	0A89477

3.5" SAS HS:

TS430 preconfigured with SAS controller:

300GB 3.5" SAS 6Gbps HS (15000 rpm)	67Y2616
450GB 3.5" SAS 6Gbps HS (15000 rpm)	67Y2617
600GB 3.5" SAS 6Gbps HS (15000 rpm)	67Y2618

2.5" SAS HS:

TS430 preconfigured with SAS controller:

300GB 2.5" SAS 6Gbps HS (10000 rpm)	67Y2619
450GB 2.5" SAS 6Gbps HS (10000 rpm)	67Y2620
600GB 2.5" SAS 6Gbps HS (10000 rpm)	67Y2621
900GB 2.5" SAS 6Gbps HS (10000 rpm)	0A89409

ThinkServer RAID controller and RAID upgrade

RAID 100 Upgrade key for onboard RAID	67Y2626
RAID 500 Adapter II	0A89464
RAID 500 Upgrade key for Advanced RAID	0A89407

System Management

Management Controller Premium	67Y2624
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Tower to Rack Shelf Conversion Kit

TS430 Tower to Rack Shelf Conversion Kit	67Y2641
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Redundant Power Supply

TS430 with Redundant PSU:

450W hot-swap Redundant PSU	67Y2625
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Keyboard

Preferred Pro USB Keyboard	73P5220
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Mouse

Lenovo Optical Mouse (USB)	06P4069
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For more information on server accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

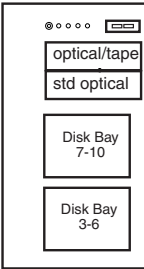
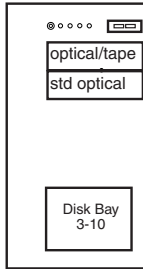
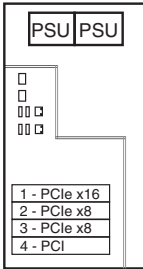
Accessories Guide pdf at www.lenovo.com/accessoriesguide

ThinkServer® TS430 Redundant PSU (0392) - November 2011

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0392-16U	4x6	Xeon E3-1220	3.1 4C/4T	1x4GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x 450W
0392-17U	4x10	Xeon E3-1220	3.1 4C/4T	1x4GB	3.5"	8xHot-swap	9240-8i v2	SATA/SAS	0/1/10	DVD	IPMI	None	TPM	1x 450W
0392-18U	4x10	Xeon E3-1220	3.1 4C/4T	1x4GB	2.5"	8xHot-swap	9240-8i v2	SAS	0/1/10	DVD	IPMI	None	TPM	1x 450W

- **Highly Reliable:** redundant PSU, ECC memory, and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **3-year limited warranty¹**

Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SAS disk bays	
Disk controller	Supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key; <i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support <i>9240-8i v2:</i> ThinkServer RAID 9240-8i v2 RAID adapter, PCIe bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	4 x 3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8 x 3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4 x 3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8 x 3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8 x 2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	
		3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk <i>Bay 7-10 are available on Eight 3.5" disk bay models:</i> Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk 2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical
		Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage
		Security <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
		RoHS-compliant

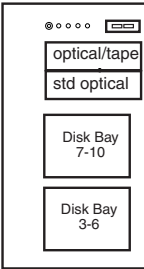
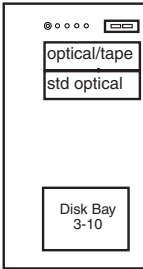
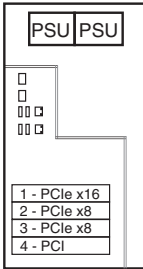
See footnotes for important warranty information
 US model(s) announced November 29, 2011
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Redundant PSU (0441) - TopSeller (Jan 2012)

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	Pre-conf RAID	Disk(s)	System mgmt	Diagnostics (DIT)	TPM	Windows Server preload	Power Supply
0441-1AU	4x6	Xeon E3-1220	1x4GB	3.5"	4 x HS	Intel PCH	SATA	No	2x500GB SATA	IPMI	None	TPM	SBS 2011	1x 450W
0441-1BU	4x6	Xeon E3-1220	1x4GB	3.5"	4 x HS	Intel PCH	SATA	No	2x500GB SATA	IPMI	None	TPM	2008 R2 STD	1x 450W
0441-1CU	4x6	Xeon E3-1220	1x4GB	3.5"	4 x HS	Intel PCH	SATA	No		IPMI	None	TPM		1x 450W

- **Highly Reliable:** redundant PSU, ECC memory, and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **3-year limited warranty***
- **Part of the US TopSeller™ Program**

Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p>Bay 7-10 are available on Eight 3.5" disk bay models:</p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	Four 3.5" hot-swap (HS) SATA disk bays	
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ 0, 1, 10 support; supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key;	
Disk (s)	Some: 500GB, SATA 6.0Gb/s, 7200 rpm, 3.5"	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; DIT model(s): add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); KVM model(s): add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	4x3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8x3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4x3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8x3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8x2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	
Preload OS	SBS 2011: Genuine Windows® Small Business Server 2011 Standard 2008 R2 STD: Genuine Windows Server® 2008 R2 Standard	

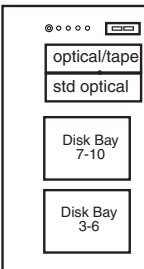
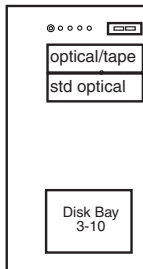
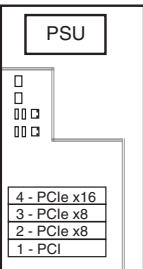
See footnotes for important warranty information
 US model(s) announced January 17, 2012
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Fixed PSU (0390) - TopSeller (Jan 2012)

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	Pre-conf RAID	Disk(s)	System mgmt	Diagnostics (DIT)	TPM	Windows Server preload	Power Supply
0390-14U	4x6	Xeon E3-1220	1x4GB	3.5"	4xHS	Intel PCH	SATA	No	2x500GB SATA	IPMI	None	TPM	SBS 2011	1x Fixed
0390-15U	4x6	Xeon E3-1220	1x4GB	3.5"	4xHS	Intel PCH	SATA	No	2x500GB SATA	IPMI	None	TPM	2008 R2 STD	1x Fixed

- **Highly Reliable:** ECC memory and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **3-year limited warranty¹**
- **Part of the US TopSeller™ Program**

Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p>Bay 7-10 are available on Eight 3.5" disk bay models:</p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	<p>RoHS-compliant</p>
Disk bays	Four 3.5" hot-swap (HS) SATA disk bays	
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key;	
Disk (s)	500GB, SATA 6.0Gb/s, 7200 rpm, 3.5"	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; DIT model(s): add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); KVM model(s): add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	4x3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8x3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4x3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8x3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8x2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	
Preload OS	SBS 2011: Genuine Windows® Small Business Server 2011 Standard 2008 R2 STD: Genuine Windows Server® 2008 R2 Standard	

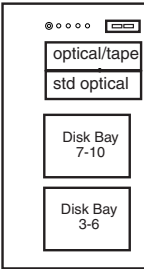
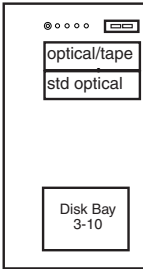
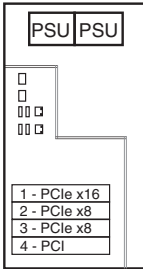
See footnotes for important warranty information
 US model(s) announced January 17, 2012
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Redundant PSU (0391) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0391-11U	4x6	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x 450W

- **Highly Reliable:** redundant PSU, ECC memory, and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **1-year limited warranty¹**

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	Four 3.5" hot-swap (HS) SATA disk bays	
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support; supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key;	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ² Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	4x3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8x3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4x3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8x3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8x2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	1-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	

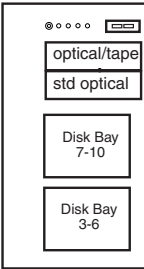
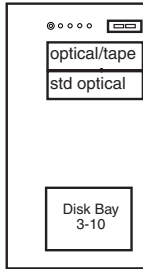
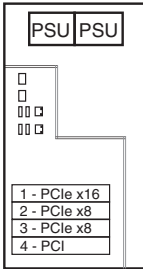
See footnotes for important warranty information
 US model(s) announced August 23, 2011
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Redundant PSU (0392) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0392-11U	4x6	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4x Direct Cable	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x 450W
0392-12U	4x10	Core i3-2100	3.1 2C/4T	1x2GB	2.5"	8x Hot-swap	9240-8i v2	SAS	0/1/10	DVD	IPMI	None	TPM	1x 450W
0392-14U	4x10	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	8x Hot-swap	9240-8i v2	SATA/SAS	0/1/10	DVD	IPMI	None	TPM	1x 450W
0392-15U	4x6	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4x Hot-swap	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x 450W

- **Highly Reliable:** redundant PSU, ECC memory, and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **3-year limited warranty¹**

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	<p>Front - 3.5" disk bay</p>  <p>Front - 2.5" disk bay</p>  <p>Rear</p> 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SAS disk bays	
Disk controller	Supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key; <i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support <i>9240-8i v2:</i> ThinkServer RAID 9240-8i v2 RAID adapter, PCIe bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	<i>4 x 3.5" SATA (DC/HS):</i> 8.0TB with four 2TB 3.5" SATA disks <i>8 x 3.5" SATA (HS):</i> 16.0TB with eight 2TB 3.5" SATA disks <i>4 x 3.5" SAS (HS):</i> 2.4TB with four 600GB 3.5" SAS disks <i>8 x 3.5" SAS (HS):</i> 4.8TB with eight 600GB 3.5" SAS disks <i>8 x 2.5" SAS (HS):</i> 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	
		<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>

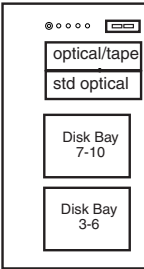
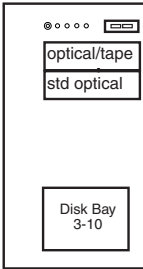
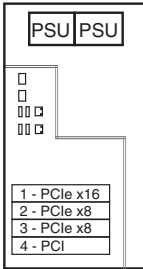
See footnotes for important warranty information
 US model(s) announced August 23, 2011
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Redundant PSU (0393) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0393-11U	4x6	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD±RW	IPMI	None	TPM	1x 450W
0393-12U	4x6	Xeon E3-1220	3.1 4C/4T	1x4GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD±RW	IPMI	None	TPM	1x 450W

- **Highly Reliable:** redundant PSU, ECC memory, and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **1-year limited warranty**
- **Part of the US TopSeller™ Program**

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	Four 3.5" hot-swap (HS) SATA disk bays	
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 0, 1, 10 support; supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key;	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	4 x 3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8 x 3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4 x 3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8 x 3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8 x 2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	1-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	
		<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage
		<p align="center">Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
		RoHS-compliant

See footnotes for important warranty information
 US model(s) announced August 23, 2011
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Redundant PSU (0441) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / GHz	Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0441-11U	4x10	Xeon E3-1220	3.1	4C/4T	1x4GB	3.5"	8xHot-swap	9240-8i v2	SATA/SAS	0/1/10	DVD±RW	IPMI	None	TPM	1x 450W
0441-12U	4x10	Xeon E3-1240	3.3	4C/8T	1x4GB	2.5"	8xHot-swap	9240-8i v2	SAS	0/1/10	DVD±RW	KVM	None	TPM	1x 450W
0441-13U	4x6	Core i3-2100	3.1	2C/4T	1x2GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD±RW	IPMI	None	TPM	1x 450W
0441-14U	4x6	Xeon E3-1230	3.2	4C/8T	1x4GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD±RW	IPMI	None	TPM	1x 450W
0441-15U	4x10	Xeon E3-1270	3.4	4C/8T	1x4GB	2.5"	8xHot-swap	9240-8i v2	SAS	0/1/10	DVD±RW	KVM	None	TPM	1x 450W
0441-16U	4x10	Xeon E3-1240	3.3	4C/8T	1x4GB	3.5"	8xHot-swap	9240-8i v2	SATA/SAS	0/1/10	DVD±RW	KVM	None	TPM	1x 450W

- **3-year limited warranty***
- **Part of the US TopSeller™ Program**

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1230 processor (4C/8T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1240 processor (4C/8T, 3.3GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1270 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1333MHz)	<p>Front - 3.5" disk bay Front - 2.5" disk bay Rear</p> <p>3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk Bay 7-10 are available on Eight 3.5" disk bay models: Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical</p>
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SAS disk bays	
Disk controller	Supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key; <i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support <i>9240-8i v2:</i> ThinkServer RAID 9240-8i v2 RAID adapter, PCIe bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One or two 450 watts standard, two maximum, rear access, hot-swap, 80 PLUS [®] Gold qualified, redundant with two power supplies	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	<i>4 x 3.5" SATA (DC/HS):</i> 8.0TB with four 2TB 3.5" SATA disks <i>8 x 3.5" SATA (HS):</i> 16.0TB with eight 2TB 3.5" SATA disks <i>4 x 3.5" SAS (HS):</i> 2.4TB with four 600GB 3.5" SAS disks <i>8 x 3.5" SAS (HS):</i> 4.8TB with eight 600GB 3.5" SAS disks <i>8 x 2.5" SAS (HS):</i> 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	
		Software Management Tools
		• ThinkServer EasyStartup • ThinkServer EasyManage
		Security
		• Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
		RoHS-compliant

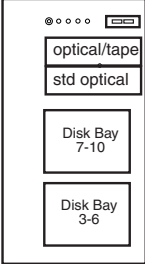
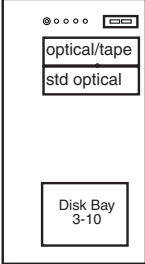
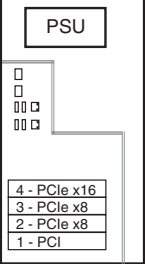
See footnotes for important warranty information
 US model(s) announced August 23, 2011
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Fixed PSU (0387) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0387-11U	4x6	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4xDirect Cable	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x Fixed
0387-12U	4x6	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x Fixed

- **Highly Reliable:** ECC memory and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **1-year limited warranty¹**

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	3.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 3.5", 1" high, external, for disk Bay 4 3.5", 1" high, external, for disk Bay 5 3.5", 1" high, external, for disk Bay 6 3.5", 1" high, external, for disk Bay 7-10 are available on Eight 3.5" disk bay models: Bay 7 3.5", 1" high, external, for disk Bay 8 3.5", 1" high, external, for disk Bay 9 3.5", 1" high, external, for disk Bay 10 3.5", 1" high, external, for disk 2.5" disk bay models: Bay 1 5.25", 1.6" high, external, open (optical/tape) Bay 2 5.25", 1.6" high, external, std optical Bay 3 2.5", 0.6" high, external, for disk Bay 4 2.5", 0.6" high, external, for disk Bay 5 2.5", 0.6" high, external, for disk Bay 6 2.5", 0.6" high, external, for disk Bay 7 2.5", 0.6" high, external, for disk Bay 8 2.5", 0.6" high, external, for disk Bay 9 2.5", 0.6" high, external, for disk Bay 10 2.5", 0.6" high, external, for disk Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays	
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key;	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet Extender card	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Front ports	None	
Rear ports	Two USB 2.0	
Diagnosics	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector	
Systems mgmt	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Security chip	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Prerequisites	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Keyboard	Monitor, SATA/SAS disk, OS	
Mouse	None (use USB port)	
Power supply	None (use USB port)	
Mechanical	One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified	
Dimension	Tower, business black color, metal case	
System weight	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
Tool-less	61.7 lb (28kg) max configuration	
Rack mount	Side cover removal, disk and optical drive removal, system fan removal	
Max internal capacity	Rack-mountable to 5U	
Limited warranty	4x3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8x3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4x3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8x3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8x2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Accessories	1-year parts and labor; more Lenovo Services see S-TOR sheet For more accessories, see O-TOR sheet	
		Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage
		Security <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
		RoHS-compliant

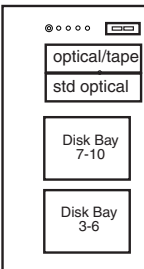
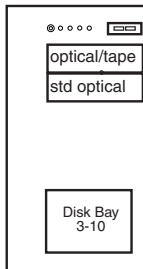
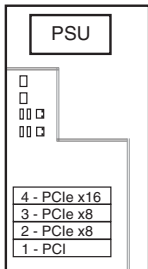
See footnotes for important warranty information
 US model(s) announced June 21, 2011
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Fixed PSU (0388) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0388-11U 4x6		Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4xHot-swap	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x Fixed
0388-12U 4x10		Core i3-2100	3.1 2C/4T	1x2GB	3.5"	8xHot-swap	9240-8i v2	SATA/SAS	0/1/10	DVD	IPMI	None	TPM	1x Fixed
0388-13U 4x10		Core i3-2100	3.1 2C/4T	1x2GB	2.5"	8xHot-swap	9240-8i v2	SAS	0/1/10	DVD	IPMI	None	TPM	1x Fixed
0388-14U 4x6		Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4xDirect Cable	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x Fixed

- **Highly Reliable:** ECC memory and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **3-year limited warranty**

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<p><i>Some:</i> Four 3.5" SATA disk bays, no hot-swap, direct cable</p> <p><i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays</p> <p><i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p><i>Some:</i> Eight 2.5" hot-swap (HS) SAS disk bays</p>	
Disk controller	Supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key; <i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support <i>9240-8i v2:</i> ThinkServer RAID 9240-8i v2 RAID adapter, PCIe bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One fixed 400 watts standard, universal, 80 PLUS [®] Bronze qualified	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	<p><i>4x3.5" SATA (DC/HS):</i> 8.0TB with four 2TB 3.5" SATA disks</p> <p><i>8x3.5" SATA (HS):</i> 16.0TB with eight 2TB 3.5" SATA disks</p> <p><i>4x3.5" SAS (HS):</i> 2.4TB with four 600GB 3.5" SAS disks</p> <p><i>8x3.5" SAS (HS):</i> 4.8TB with eight 600GB 3.5" SAS disks</p> <p><i>8x2.5" SAS (HS):</i> 4.8TB with eight 600GB 2.5" SAS disks</p>	
Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	

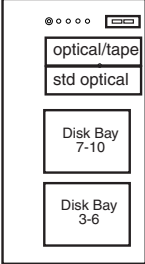
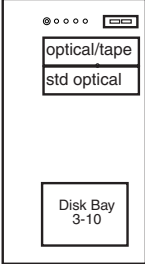
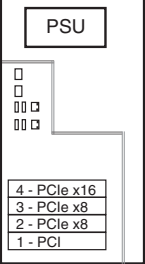
See footnotes for important warranty information
 US model(s) announced June 21, 2011
 US model(s) withdrawn effective October 2012

ThinkServer® TS430 Fixed PSU (0390) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / GHz	Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0390-11U	4x6	Xeon E3-1220	3.1	4C/4T	1x2GB	3.5"	4 x Hot-swap	Intel PCH	SATA	0/1/10	DVD±RW	IPMI	None	TPM	1x Fixed
0390-12U	4x6	Xeon E3-1220	3.1	4C/4T	1x2GB	3.5"	4 x Hot-swap	9240-8i v2	SATA/SAS	0/1/10	DVD±RW	IPMI	None	TPM	1x Fixed
0390-13U	4x6	Core i3-2100	3.1	2C/4T	1x2GB	3.5"	4 x Hot-swap	Intel PCH	SATA	0/1/10	DVD±RW	IPMI	None	TPM	1x Fixed

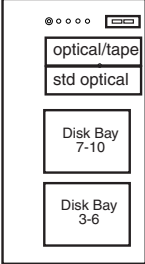
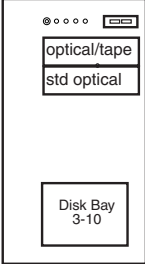
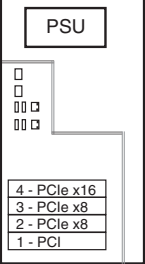
- **Highly Reliable:** ECC memory and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- 3-year limited warranty¹
- Part of the US TopSeller™ Program

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p> <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p>Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	<i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	Supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key; <i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support <i>9240-8i v2:</i> ThinkServer RAID 9240-8i v2 RAID adapter, PCIe bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support	
Tape drive	Supports optional tape drive via internal USB 2.0 connector	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One fixed 400 watts standard, universal, 80 PLUS® Bronze qualified	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	4 x 3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8 x 3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4 x 3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8 x 3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8 x 2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	

See footnotes for important warranty information
 US model(s) announced June 21, 2011
 US model(s) withdrawn effective October 2012

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0388-15U 4x6	Xeon E3-1220	3.1	4C/4T	1x4GB	3.5"	4 x Hot-swap	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x Fixed
0388-16U 4x10	Xeon E3-1220	3.1	4C/4T	1x4GB	3.5"	8 x Hot-swap	9240-8i v2	SATA/SAS	0/1/10	DVD	IPMI	None	TPM	1x Fixed
0388-17U 4x10	Xeon E3-1220	3.1	4C/4T	1x4GB	2.5"	8 x Hot-swap	9240-8i v2	SAS	0/1/10	DVD	IPMI	None	TPM	1x Fixed

- **Highly Reliable:** ECC memory and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **3-year limited warranty**

Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 																																																																																																				
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Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <table border="0"> <tr><td>Bay 1</td><td>5.25"</td><td>1.6" high</td><td>external</td><td>open (optical/tape)</td></tr> <tr><td>Bay 2</td><td>5.25"</td><td>1.6" high</td><td>external</td><td>std optical</td></tr> <tr><td>Bay 3</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 4</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 5</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 6</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> </table> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <table border="0"> <tr><td>Bay 7</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 8</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 9</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 10</td><td>3.5"</td><td>1" high</td><td>external</td><td>for disk</td></tr> </table> <p>2.5" disk bay models:</p> <table border="0"> <tr><td>Bay 1</td><td>5.25"</td><td>1.6" high</td><td>external</td><td>open (optical/tape)</td></tr> <tr><td>Bay 2</td><td>5.25"</td><td>1.6" high</td><td>external</td><td>std optical</td></tr> <tr><td>Bay 3</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 4</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 5</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 6</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 7</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 8</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 9</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> <tr><td>Bay 10</td><td>2.5"</td><td>0.6" high</td><td>external</td><td>for disk</td></tr> </table> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3 Slot 2 half-length, full-height, PCI Express 2.0 x8* Slot 3 half-length, full-height, PCI Express 2.0 x8 Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU) * x4 electrical ** x8 electrical</p>	Bay 1	5.25"	1.6" high	external	open (optical/tape)	Bay 2	5.25"	1.6" high	external	std optical	Bay 3	3.5"	1" high	external	for disk	Bay 4	3.5"	1" high	external	for disk	Bay 5	3.5"	1" high	external	for disk	Bay 6	3.5"	1" high	external	for disk	Bay 7	3.5"	1" high	external	for disk	Bay 8	3.5"	1" high	external	for disk	Bay 9	3.5"	1" high	external	for disk	Bay 10	3.5"	1" high	external	for disk	Bay 1	5.25"	1.6" high	external	open (optical/tape)	Bay 2	5.25"	1.6" high	external	std optical	Bay 3	2.5"	0.6" high	external	for disk	Bay 4	2.5"	0.6" high	external	for disk	Bay 5	2.5"	0.6" high	external	for disk	Bay 6	2.5"	0.6" high	external	for disk	Bay 7	2.5"	0.6" high	external	for disk	Bay 8	2.5"	0.6" high	external	for disk	Bay 9	2.5"	0.6" high	external	for disk	Bay 10	2.5"	0.6" high	external	for disk
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Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 																																																																																																					
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz																																																																																																					
Disk bays	<i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Eight 3.5" hot-swap (HS) SATA/SAS disk bays <i>Some:</i> Eight 2.5" hot-swap (HS) SAS disk bays																																																																																																					
Disk controller	Supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key; <i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support <i>9240-8i v2:</i> ThinkServer RAID 9240-8i v2 RAID adapter, PCIe bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support																																																																																																					
Tape drive	Supports optional tape drive via internal USB 2.0 connector																																																																																																					
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive																																																																																																					
Diskette	None (use USB port)																																																																																																					
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)																																																																																																					
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM																																																																																																					
Extender card	None																																																																																																					
Front ports	Two USB 2.0																																																																																																					
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector																																																																																																					
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics																																																																																																					
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions																																																																																																					
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant																																																																																																					
Prerequisites	Monitor, SATA/SAS disk, OS																																																																																																					
Keyboard	None (use USB port)																																																																																																					
Mouse	None (use USB port)																																																																																																					
Power supply	One fixed 400 watts standard, universal, 80 PLUS [®] Bronze qualified																																																																																																					
Mechanical	Tower, business black color, metal case																																																																																																					
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm																																																																																																					
System weight	61.7 lb (28kg) max configuration																																																																																																					
Tool-less	Side cover removal, disk and optical drive removal, system fan removal																																																																																																					
Rack mount	Rack-mountable to 5U																																																																																																					
Max internal capacity	<table border="0"> <tr><td><i>4x3.5" SATA (DC/HS):</i></td><td>8.0TB with four 2TB 3.5" SATA disks</td></tr> <tr><td><i>8x3.5" SATA (HS):</i></td><td>16.0TB with eight 2TB 3.5" SATA disks</td></tr> <tr><td><i>4x3.5" SAS (HS):</i></td><td>2.4TB with four 600GB 3.5" SAS disks</td></tr> <tr><td><i>8x3.5" SAS (HS):</i></td><td>4.8TB with eight 600GB 3.5" SAS disks</td></tr> <tr><td><i>8x2.5" SAS (HS):</i></td><td>4.8TB with eight 600GB 2.5" SAS disks</td></tr> </table>	<i>4x3.5" SATA (DC/HS):</i>	8.0TB with four 2TB 3.5" SATA disks	<i>8x3.5" SATA (HS):</i>	16.0TB with eight 2TB 3.5" SATA disks	<i>4x3.5" SAS (HS):</i>	2.4TB with four 600GB 3.5" SAS disks	<i>8x3.5" SAS (HS):</i>	4.8TB with eight 600GB 3.5" SAS disks	<i>8x2.5" SAS (HS):</i>	4.8TB with eight 600GB 2.5" SAS disks																																																																																											
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Limited warranty	3-year parts and labor; more Lenovo Services see S-TOR sheet																																																																																																					
Accessories	For more accessories, see O-TOR sheet																																																																																																					
		<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage <p align="center">Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 																																																																																																				
		RoHS-compliant																																																																																																				

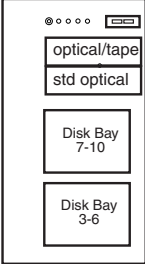
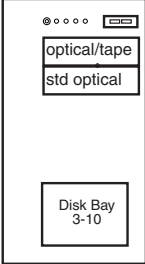
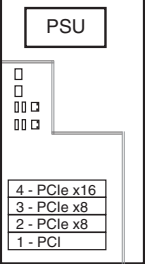
See footnotes for important warranty information
 US model(s) announced November 29, 2011
 US model(s) withdrawn effective October 2012

ThinkServer™ TS430 Fixed PSU (0389) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor(s)	Cores / Threads	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	SATA optical	System mgmt	Diagnostics (DIT)	TPM	Power Supply
0389-11U	4x6	Core i3-2100	3.1 2C/4T	1x2GB	3.5"	4xDirect Cable	Intel PCH	SATA	0/1/10	DVD	IPMI	None	TPM	1x Fixed

- **Highly Reliable:** ECC memory and enterprise-class SAS & SATA choices
- **Highly Manageable:** enhanced remote manageability with IPMI 2.0 BMC & optional KVM
- **Room to Grow:** highly modular hot-swap SATA/SAS design – supports up to 8 hard drives (selected models)
- **1-year limited warranty¹**
- **Part of the US TopSeller™ Program**

Processor	Up to one processor, one processor standard, Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)	Front - 3.5" disk bay  Front - 2.5" disk bay  Rear 
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC , four 240-pin DIMM sockets	<p>3.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 3.5", 1" high, external, for disk</p> <p>Bay 4 3.5", 1" high, external, for disk</p> <p>Bay 5 3.5", 1" high, external, for disk</p> <p>Bay 6 3.5", 1" high, external, for disk</p> <p><i>Bay 7-10 are available on Eight 3.5" disk bay models:</i></p> <p>Bay 7 3.5", 1" high, external, for disk</p> <p>Bay 8 3.5", 1" high, external, for disk</p> <p>Bay 9 3.5", 1" high, external, for disk</p> <p>Bay 10 3.5", 1" high, external, for disk</p> <p>2.5" disk bay models:</p> <p>Bay 1 5.25", 1.6" high, external, open (optical/tape)</p> <p>Bay 2 5.25", 1.6" high, external, std optical</p> <p>Bay 3 2.5", 0.6" high, external, for disk</p> <p>Bay 4 2.5", 0.6" high, external, for disk</p> <p>Bay 5 2.5", 0.6" high, external, for disk</p> <p>Bay 6 2.5", 0.6" high, external, for disk</p> <p>Bay 7 2.5", 0.6" high, external, for disk</p> <p>Bay 8 2.5", 0.6" high, external, for disk</p> <p>Bay 9 2.5", 0.6" high, external, for disk</p> <p>Bay 10 2.5", 0.6" high, external, for disk</p> <p>Slot 1 half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 2 half-length, full-height, PCI Express 2.0 x8*</p> <p>Slot 3 half-length, full-height, PCI Express 2.0 x8</p> <p>Slot 4 half-length, full-height, PCI Express 2.0 x16** (near CPU)</p> <p>* x4 electrical</p> <p>** x8 electrical</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	
Disk bays	Four 3.5" SATA disk bays, no hot-swap, direct cable Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 10 support; supports up to RAID 0, 1, 5, 10 via optional 9240-8i v2 RAID adapter and RAID 5 upgrade key;	
Disk controller	Supports optional tape drive via internal USB 2.0 connector	
Tape drive	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	
Optical	None (use USB port)	
Diskette	None (use USB port)	
Chipset	Intel C202 Chipset , Platform Controller Hub [PCH] (Slot 1-2, ethernet MAC, and USB)	
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82579LM	
Extender card	None	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one port is shared with system management), one analog VGA DB-15 connector	
Diagnostics	System status LEDs on front; <i>DIT model(s):</i> add-on Doctor Inside Technology (DIT) module for advanced diagnostics	
Systems mgmt	Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>KVM model(s):</i> add-on KVM card for KVM functions	
Security chip	No onboard TPM chip; <i>TPM model(s):</i> additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply	One fixed 400 watts standard, universal, 80 PLUS [®] Bronze qualified	
Mechanical	Tower, business black color, metal case	
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	
System weight	61.7 lb (28kg) max configuration	
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	
Rack mount	Rack-mountable to 5U	
Max internal capacity	4 x 3.5" SATA (DC/HS): 8.0TB with four 2TB 3.5" SATA disks 8 x 3.5" SATA (HS): 16.0TB with eight 2TB 3.5" SATA disks 4 x 3.5" SAS (HS): 2.4TB with four 600GB 3.5" SAS disks 8 x 3.5" SAS (HS): 4.8TB with eight 600GB 3.5" SAS disks 8 x 2.5" SAS (HS): 4.8TB with eight 600GB 2.5" SAS disks	
Limited warranty	1-year parts and labor; more Lenovo Services see S-TOR sheet	
Accessories	For more accessories, see O-TOR sheet	
		<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage
		<p align="center">Security</p> <ul style="list-style-type: none"> • Security chip (selected models, see information on left) • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
		RoHS-compliant

See footnotes for important warranty information
 US model(s) announced June 21, 2011
 US model(s) withdrawn effective October 2012



Lenovo ThinkServer RS210
(Four 2.5" Disk Bays)



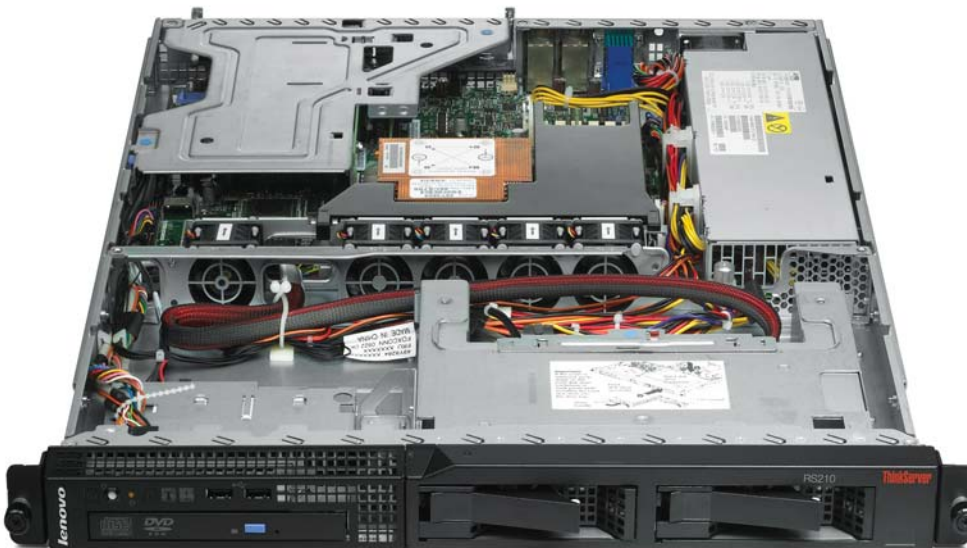
Lenovo ThinkServer RS210
(Two 3.5" Disk Bays)



Lenovo ThinkServer RS210



Lenovo ThinkServer RS210



Lenovo ThinkServer RS210
(Two 3.5" Disk Bays)

Type-model	Slot x bay	Proc-essor(s)	Base GHz	Max GHz	Cores	Memory DIMMs	Memory type	Memory speed	Disk size	RAID battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Avail date
6534-11U	2x3	X3430	2.40	2.80	4	1x2GB	UDIMM	1333MHz	3.5"	None	2xHot-swap	SATA/SAS ⁴	0/1		1x351W	Nov 09
6534-14U	2x5	X3450	2.66	3.20	4	1x4GB	RDIMM	1333MHz	2.5"	None	4xHot-swap	SATA/SAS	Multi*	IMM	1x351W	Nov 09
6534-16U	2x3	i3-530	2.93		2	1x1GB	UDIMM	1333MHz	3.5"	None	2xSimple-swap	SATA	0/1		1x351W	Jan 10
6534-17U	2x3	X3450	2.66	3.20	4	1x4GB	RDIMM	1333MHz	3.5"	None	2xHot-swap	SATA/SAS	0/1/5/10	IMM	1x351W	Jan 10

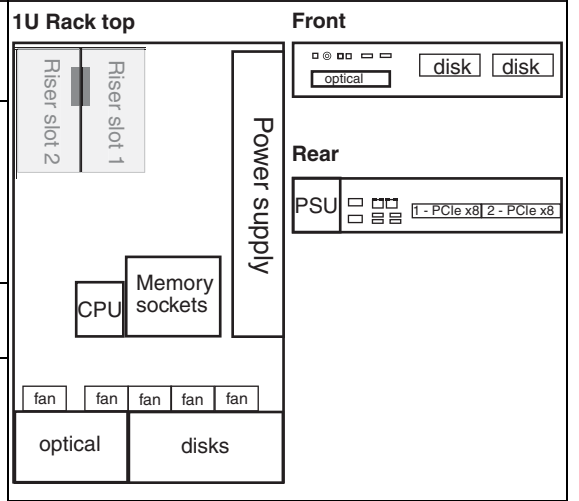
* Multi = RAID-0/1/5/6/10 support

Processor(s)	Up to one processor, one processor standard, Intel® Core™ i3 Processor i3-530 with dual-core, Hyper-Threading Technology and 64, 1333MHz DDR3 memory controller, 4MB cache or Intel Xeon® Processor X3430 and X3450 with quad-core, 2.5GT/s (giga-transfers/second) DMI (Direct Media Interface), Turbo Boost Technology, Hyper-Threading Technology (X3450 only), Intel 64, 1333MHz DDR3 memory controller, 8MB cache	
Implementation	One LGA1156 socket	
Memory	1GB, 2GB, or 4GB std, UDIMM or RDIMM*, PC3-10600 1333MHz DDR3, Advanced ECC**, Memory Mirroring 11U/16U: Four 240-pin DIMM sockets, 16GB max (Pending availability of 4GB UDIMM), std memory in 1 socket, 3 sockets available 14U/17U: Six 240-pin DIMM sockets, supports up to 6 single- or dual-rank RDIMMs, or up to 4 quad-rank RDIMMs * Cannot intermix RDIMM and UDIMM memory ** Advanced ECC-enable DIMMs required	
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; Maximum resolution: 1024x768@85Hz	
Disk bays	11U/17U: two 3.5" hot-swap (HS) SATA/SAS disk bays 16U: two 3.5" simple-swap (SS) SATA disk bays 14U: four HS SATA/SAS disk bays on 2.5" Slim-Form-Factor (SFF)	Mechanical Specifications <ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.3"W x 22"D x 1.75"H • 440mm W x 560mm D x 43mm H • 28 lb (12.7kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention Disk Bays 11U/16U/17U: Bay 1 5.25", 0.5" high, external, std optical Bay 2 3.5", 1" high, external, optional disk Bay 3 3.5", 1" high, external, optional disk 14U: Bay 1 5.25", 0.5" high, external, std optical Bay 2 2.5", 0.6" high, external, optional disk Bay 3 2.5", 0.6" high, external, optional disk Bay 4 2.5", 0.6" high, external, optional disk Bay 5 2.5", 0.6" high, external, optional disk Expansion Slots Slot 1: low-profile, PCI Express x8 Slot 2: half-length, full-height, PCI Express x8 Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+C at startup Security <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage ThinkPlus Priority Support, 90-day Trial RoHS-compliant
Disk Controller	11U/16U: ServeRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁵ 0, 1 support 14U: ServeRAID-MR10i, PCI Express bus, SATA 3Gb/s, SAS 3Gb/s, RAID 0, 1, 5, 6, 10 support 17U: ServeRAID M1015, PCI Express bus, SATA 6Gb/s, SAS 6Gb/s, RAID 0, 1, 5***, 10 support *** RAID 5 is supported by add-in Advanced Feature Key	
Optical	UltraSlim Enhanced DVD±RW	
Diskette	None (use USB port)	
Ethernet	Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management	
Chipset	Intel 3420 Chipset, Platform Controller Hub (PCH) for PCI, ethernet and USB	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin)	
Internal ports	One USB 2.0 for embedded hypervisor	
Diagnostics	Diagnostic LEDs (error LEDs for fans and memory)	
Systems mgmt	Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant 11U/16U: IMM Standard, upgradeable to IMM Premium 14U/17U: IMM Premium	
Prerequisites	Monitor, SATA/SAS disk, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply(s)	11U/16U/17U: One 351 watts, universal, auto switch, no hot-swap, no redundancy 14U: One 351 watts, high efficiency, universal, auto switch, no hot-swap, no redundancy	
Cooling	Six fans std (five system, one power supply), six maximum, variable speed, no hot-swap, no redundancy	
Max memory capacity (RDIMM models) Single-rank RDIMM: 6GB with six 1GB PC3-10600 DDR3 RDIMMs (using 67Y0014) Dual-rank RDIMM: 12GB with six 2GB PC3-10600 DDR3 RDIMMs (using 67Y0124) Quad-rank RDIMM: 16GB with four 4GB PC3-8500 DDR3 RDIMMs (using 67Y0125) 32GB with four 8GB RDIMMs (Pending availability)		
Limited Warranty¹ ⇨ 3-year parts and labor ⇨ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays) ⇨ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ⇨ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹ via 800-426-7378		

See footnotes for important warranty information
 US models announced November 24, 2009 or January 8, 2010
 US models withdrawn effective September 2010

Type-model	Slot x bay	Processor	Base GHz	Cores	Memory DIMMs	Memory type	Memory speed	Disk size	RAID battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Avail date
6533-12U	2x3	Pentium G6950	2.80	2	1x1GB	UDIMM	1333MHz	3.5"	None	2xSimple-swap	SATA	0/1	None	1x351W	Jan 10
<ul style="list-style-type: none"> • This model has a 1-year limited warranty¹ • This small and medium business (SMB) model is part of the US TopSeller™ Program 															

Processor(s)	Up to one processor, one processor standard, Intel® Pentium® Processor G6950 with dual-core , Intel 64, 1066MHz DDR3 memory controller, 3MB cache
Implementation	One LGA1156 socket
Memory	1GB std, UDIMM, PC3-10600 1333MHz DDR3* , Advanced ECC** , Memory Mirroring Four 240-pin DIMM sockets, 16GB max (Pending availability of 4GB UDIMM), std memory in 1 socket, 3 sockets available * System automatically clocks down for processor with 1066MHz DDR3 memory controller ** Advanced ECC-enable DIMMs required
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; <i>Maximum resolution: 1024x768@85Hz</i>
Disk bays	Two 3.5" simple-swap (SS) SATA disk bays
Disk Controller	ServeRAID®-BR10iil, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management
Chipset	Intel 3420 Chipset , Platform Controller Hub (PCH) for PCI, ethernet and USB
Extender card	None
Front ports	Two USB 2.0
Rear ports	Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin)
Internal ports	One USB 2.0 for embedded hypervisor
Diagnostics	Diagnostic LEDs (error LEDs for fans and memory)
Systems mgmt	IMM standard, Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant
Prerequisites	Monitor, SATA disk, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 351 watts, universal, auto switch, no hot-swap, no redundancy
Cooling	Six fans std (five system, one power supply), six maximum, variable speed, no hot-swap, no redundancy



Mechanical Specifications	
• 1U Mechanical; rack-mount only	• Black color front; metal case
• 17.3"W x 22"D x 1.75"H	• 440mm W x 560mm D x 43mm H
• 28 lb (12.7kg) max configuration	• Toolless top cover removal
• Toolless disk and optical drive removal	• Toolless adapter retention

Accessories	
1GB PC3-10600 DDR3 1333MHz UDIMM	67Y0122
160GB ² 3.5" SATA Simple-swap	45J6195
250GB 3.5" SATA Simple-swap	45J6196
500GB 3.5" SATA Simple-swap	45J6197
750GB 3.5" SATA Simple-swap	45J6198
1TB 3.5" SATA Simple-swap	67Y1380
Other accessories at lenovo.com/accessories	

Disk Bays	
Bay 1	5.25", 0.5" high, external, std optical
Bay 2	3.5", 1" high, external, optional disk
Bay 3	3.5", 1" high, external, optional disk

Expansion Slots	
Slot 1:	low-profile, PCI Express x8
Slot 2:	half-length, full-height, PCI Express x8

Power-On Hotkey	
• Setup Utility:	F1 at startup
• Diagnostic:	F2 at startup
• Network Boot:	F12 at startup
• RAID Configuration Utility:	Ctrl+C at startup

Software Management Tools	
• ThinkServer EasyStartup	• ThinkServer EasyManage

Security	
• Side cover lock (ships with two identical keys)	- prohibits removal of front panel and disks
• Power-on password	
• Administrator password	
• Boot sequence control	
• Boot without keyboard, mouse, diskette	
• Serial port I/O control	
• USB port disablement (all)	

Max internal capacity	
2.0TB with two 1TB SS SATA disks (using 67Y1380)	

Limited Warranty ¹	
⇒ 1-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)	
⇒ ThinkPlus™ services available; see 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	

ThinkPlus Priority Support, 90-day Trial
RoHS-compliant

See footnotes for important warranty information
 US model announced January 8, 2010
 US model withdrawn effective September 2010

Partial list of accessories supported on Lenovo® ThinkServer TS200, RS210.

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Memory⁵³

1GB PC3-10600 DDR3 1333MHz UDIMM	67Y0122	ann 11/24/09
2GB PC3-10600 DDR3 1333MHz UDIMM	67Y0123	ann 11/24/09
1GB PC3-10600 DDR3 RDIMM (1R x 8)	67Y0014	ann 05/05/09
2GB PC3-10600 DDR3 RDIMM (2R x 8)	67Y0124	ann 11/24/09
4GB PC3-8500 DDR3 RDIMM (4R x 8)	67Y0125	ann 11/24/09

⁵³Mixing of UDIMM and RDIMM is not support

Backup

IBM® RDX 160GB Cartridge	67Y0169	ann 11/10/09
IBM RDX 320GB Cartridge	67Y0170	ann 11/10/09
IBM RDX 500GB Cartridge	67Y0171	ann 11/10/09
IBM DDS Generation 6 5-Pack Media	67Y1377	ann 11/10/09
IBM LTO Generation 3 5-Pack Media	67Y1379	ann 11/10/09

Connectivity

IBM 8Gb FC Single-port HBA by QLogic®	67Y0172	ann 11/10/09
IBM 8Gb FC Dual-port HBA by QLogic	67Y0173	ann 11/10/09
IBM 8Gb FC Single-port HBA by Emulex®	67Y0174	ann 11/10/09
IBM 8Gb FC Dual-port HBA by Emulex	67Y0175	ann 11/10/09
IBM 8Gb FC Single-port HBA by Brocade®	67Y0176	ann 11/10/09
IBM 8Gb FC Dual-port HBA by Brocade	67Y0177	ann 11/10/09

ThinkServer IBM RAID controller

SAS 3Gb HBA Controller V2	67Y0183	ann 11/10/09
ServeRAID® M1015	67Y1368	ann 12/08/09
ServeRAID M5015	67Y0184	ann 11/10/09
ServeRAID M5014	67Y0185	ann 11/10/09
ServeRAID M1000 Series Adv Feature Key	67Y1369	ann 12/08/09
ServeRAID M5000 Series Battery Kit	67Y0186	ann 11/10/09
ServeRAID M5000 Series Adv Feature Key	67Y0188	ann 12/08/09

Keyboard

Preferred Pro USB Keyboard	73P5220	ann 06/21/05
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Mouse

Lenovo Optical Mouse (USB)	06P4069	ann 05/21/03
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Disk Drive

<i>2.5" SAS Hot-swap (HS):</i>		
73GB ² 2.5" SAS SFF HS (15000 rpm)	67Y0115	ann 05/05/09
146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116	ann 05/05/09
146GB 2.5" SAS SFF HS (15000 rpm)	67Y0117	ann 05/05/09
300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118	ann 05/05/09

<i>2.5" SATA Hot-swap (HS):</i>		
300GB 2.5" SATA SFF HS (10000 rpm)	67Y0002	ann 05/05/09
160GB 2.5" SATA SFF HS (7200 rpm)	67Y0120	ann 09/08/09
500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121	ann 09/08/09

<i>3.5" SAS Hot-swap (HS):</i>		
146GB 3.5" SAS HS (15000 rpm)	45J6211	ann 09/30/08

<i>3.5" 6Gb/s SAS HS:</i>		
300GB 3.5" SAS HS (15000 rpm)	67Y1384	ann 01/26/10
450GB 3.5" SAS HS (15000 rpm)	67Y1385	ann 01/26/10
600GB 3.5" SAS HS (15000 rpm)	67Y1386	ann 01/26/10

<i>3.5" SATA Hot-swap (HS):</i>		
160GB 3.5" SATA HS (7200 rpm)	45J6200	ann 09/30/08
250GB 3.5" SATA HS (7200 rpm)	45J6201	ann 09/30/08
500GB 3.5" SATA HS (7200 rpm)	45J6202	ann 09/30/08
750GB 3.5" SATA HS (7200 rpm)	45J6203	ann 09/30/08
1TB 3.5" SATA HS (7200 rpm)	45J6204	ann 09/30/08

<i>3.5" SATA Simple-swap:</i>		
160GB 3.5" SATA Simple-swap (7200 rpm)	45J6195	ann 09/30/08
250GB 3.5" SATA Simple-swap (7200 rpm)	45J6196	ann 09/30/08
500GB 3.5" SATA Simple-swap (7200 rpm)	45J6197	ann 09/30/08
750GB 3.5" SATA Simple-swap (7200 rpm)	45J6198	ann 09/30/08
1TB 3.5" SATA Simple-swap (7200 rpm)	67Y1380	ann 11/24/09

For more information on server accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide

Partial list of Lenovo® ThinkPlus Services for ThinkServer

For more information see:
http://www.lenovo.com/services_warranty/us/en/index.html

Training classes

- The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

ThinkPlus service upgrade options⁷

LOR = *Lenovo Onsite Repair*

TS200 with 1-year warranty

3-year LOR 9x5 Next Business Day	45K4055
3-year LOR 9x5 4 hour response	45K4056
4-year LOR 9x5 Next Business Day	51J0723
4-year LOR 9x5 4 hour response	51J0724
5-year LOR 9x5 Next Business Day	51J0725
5-year LOR 9x5 4 hour response	51J0726

TS200 with 3-year warranty

3-year LOR 9x5 4 hour response	45K4059
4-year LOR 9x5 Next Business Day	51J0727
4-year LOR 9x5 4 hour response	51J0728
5-year LOR 9x5 Next Business Day	51J0729
5-year LOR 9x5 4 hour response	51J0730

RS210 with 1-year warranty

3-year LOR, 9x5 Next Business Day	45K4069
3-year LOR, 4 hour response	45K4070
4-year LOR 9x5 Next Business Day	51J0739
4-year LOR 9x5 4 hour response	51J0740
5-year LOR 9x5 Next Business Day	51J0741
5-year LOR 9x5 4 hour response	51J0742

RS210 with 3-year warranty

3-year LOR, 4 hour response	45K4073
4-year LOR 9x5 Next Business Day	51J0743
4-year LOR 9x5 4 hour response	51J0744
5-year LOR 9x5 Next Business Day	51J0745
5-year LOR 9x5 4 hour response	51J0746

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 25GB Server Lenovo Online Data Backup (US)	45K2115
1-year 50GB Server Lenovo Online Data Backup (US)	45K2116
1-year 100GB Server Lenovo Online Data Backup (US)	45K2117

ThinkPlus Priority Support

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians

TS200 with 1-year warranty

3-year Priority Support	45K4057
3-year Priority 4 Support	45K4058

TS200 with 3-year warranty

3-year Priority Support	45K4060
3-year Priority 4 Support	45K4061

RS210 with 1-year warranty

3-year Priority Support	45K4071
3-year Priority 4 Support	45K4072

RS210 with 3-year warranty

3-year Priority Support	45K4074
3-year Priority 4 Support	45K4075

ThinkPlus Priority Support with Hard Disk Drive Retention

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians
- Hard Disk Drive Retention (HDDR) means customer keeps disk

HDDR = *Hard Disk Drive Retention*

TS200 with 1-year warranty

3-year Priority Support with HDDR	45K5441
3-year Priority 4 Support with HDDR	45K5442

TS200 with 3-year warranty

3-year Priority Support with HDDR	45K5443
3-year Priority 4 Support with HDDR	45K5444

RS210 with 1-year warranty

3-year Priority Support with HDDR	45K5449
3-year Priority 4 Support with HDDR	45K5450

RS210 with 3-year warranty

3-year Priority Support with HDDR	45K5451
3-year Priority 4 Support with HDDR	45K5452

ThinkPlus Productivity

- Priority Support
- Online Training, Understanding Lenovo Servers
- One-time hardware installation

3-year ThinkPlus Productivity, TS200 (1-year)	45K4084
3-year ThinkPlus Productivity, TS200 (3-year)	45K4086
3-year ThinkPlus Productivity, RS210 (1-year)	45K4092
3-year ThinkPlus Productivity, RS210 (3-year)	45K4094



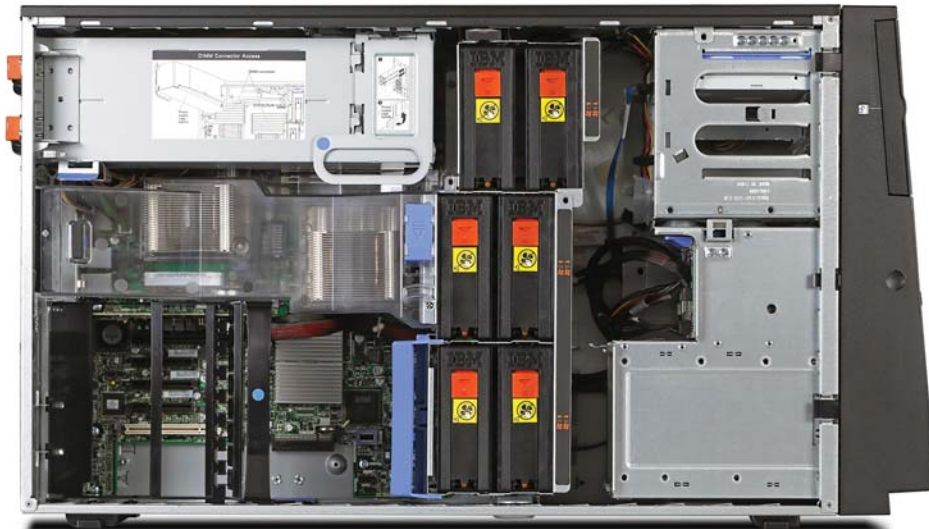
Lenovo ThinkServer TD200



Lenovo ThinkServer TD200x



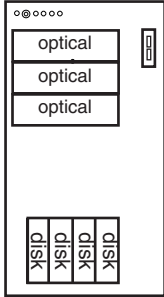
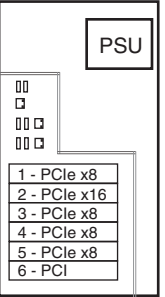
Lenovo ThinkServer TD200



Lenovo ThinkServer TD200x

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date
TD200	3809-3AU	6x7	1xE5502	1.86 2	1x2GB	1333MHz	3.5"	None	4xSimple-swap	SATA	0/1	None	670W	2xGb	Sep 09
TD200	3809-3BU	6x7	1xE5504	2.00 4	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	0/1	None	670W	2xGb	Sep 09

- Easy to use with ThinkServer EasyStartup and EasyManage software
- These models have a 3-year limited warranty¹
- These small and medium business (SMB) models are part of the US TopSeller™ Program

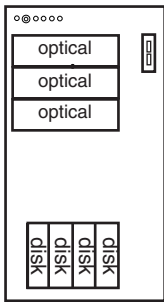
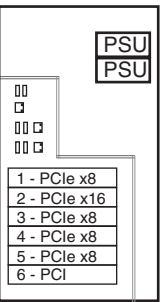
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5502 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5504 with quad-core, 4.8GT/s QPI, 800MHz DDR3 memory controller, and 4MB cache	Front 	Rear 
Implementation	Processor uses FC-LGA package, two LGA1366 sockets		
Memory	2GB std, 96GB max (48GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, Advanced ECC**, Memory Mirroring, twelve 240-pin DIMM sockets*** * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Advanced ECC-enable DIMMs required *** Over six DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical, rack-mountable to 5U • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 77 lb (35kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support <p>Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 5.25", 1.6" high, external, optional optical Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCI Express x8 Slot 2: full, PCI Express x16 (x8 electrical) Slot 3: full, PCI Express x8 (x4 electrical) Slot 4: full, PCI Express x8 (x4 electrical) Slot 5: full, PCI Express x8 Slot 6: half-length, 32-bit PCI 2.3</p>	
Graphics	Matrox® G200e integrated, one VGA DB-15 in rear, 16MB; Maximum resolution: 1600x1200@85Hz		
Disk bays	3AU: four 3.5" simple-swap (SS) SATA disk bays 3BU: four 3.5" hot-swap (HS) SATA/SAS disk bays		
Disk Controller	ServeRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support		
Optical Diskette Ethernet	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing		
Chipset	Intel 5520 Chipset, Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, a PCI slot, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O		
Extender card	None		
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)		
Internal ports	Two USB 2.0, one connector for tape drive, one connector for embedded hypervisor		
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for RAID, memory, processors, voltage regulator module, power supply)		
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium		
Prerequisites	Monitor, SATA/SAS disk, OS		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply(s)	One 670 watts standard, one maximum, rear access, universal		
Cooling	Three fans std, three maximum, variable speed, hot-swap		
Accessories	Intel Xeon Dual-Core Processor E5502 67Y0008 Intel Xeon Quad-Core Processor E5504 67Y0009 2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0015 4GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0016 750GB 3.5" SATA Disk SS (7200 rpm) 45J6198 1TB 3.5" SATA Disk HS (7200 rpm) 45J6204 Other accessories at lenovo.com/accessories		
Max internal capacity	3AU: 3.0TB with four 750GB SS SATA disks 3BU: 4.0TB with four 1TB HS SATA disks		
Virtualization	Virtualization ready, hypervisor connector embedded		
Limited Warranty¹	<ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 		
Software Management Tools	<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
Power-On Hotkey	<ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID configuration utility: Ctrl+A at startup 		
Security	<ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) <ul style="list-style-type: none"> - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
	ThinkPlus Priority Support, 90-day Trial		
	RoHS-compliant		

See footnotes for important warranty information
 US models announced September 8, 2009
 US models withdrawn effective September 2010

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date	
TD200	3817-3GU	6x7	1xE5506	2.13	4	2x2GB	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	Multi*	None	2x920W	2xGb	Oct 09

* Multi = RAID-0/1/5/6/10 support

- Easy to use with ThinkServer EasyStartup and EasyManage software
- These models have a 3-year limited warranty¹
- This small and medium business (SMB) model is part of the EMEA TopSeller™ Program

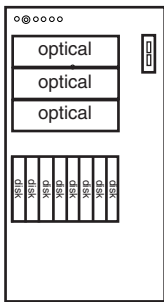
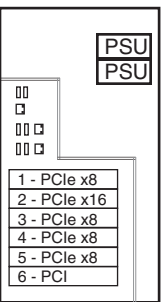
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5506 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache																				
Implementation	Processor uses FC-LGA package, two LGA1366 sockets																				
Memory	4GB std, 96GB max (48GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, Advanced ECC**, Memory Mirroring, twelve 240-pin DIMM sockets***, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Advanced ECC-enable DIMMs required *** Over six DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical, rack-mountable to 5U • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 77 lb (35kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 																			
Graphics	Matrox® G200e integrated, one VGA DB-15 in rear, 16MB; Maximum resolution: 1600x1200@85Hz	<ul style="list-style-type: none"> Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 5.25", 1.6" high, external, optional optical Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk 																			
Disk bays	Four 3.5" hot-swap (HS) SATA/SAS disk bays	<ul style="list-style-type: none"> Slot 1: half-length, full-height, PCI Express x8 Slot 2: full, PCI Express x16 (x8 electrical) Slot 3: full, PCI Express x8 (x4 electrical) Slot 4: full, PCI Express x8 (x4 electrical) Slot 5: full, PCI Express x8 Slot 6: half-length, 32-bit PCI 2.3 																			
Disk Controller	ServerRAID-MR10i, PCIe bus, SATA 3Gb/s, SAS 3Gb/s, RAID 0, 1, 5, 6, 10, 50 support	<p>Virtualization</p> <p>Virtualization ready, hypervisor connector embedded</p>																			
Optical	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 																			
Diskette	None (use USB port)	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID configuration utility: Ctrl+A at startup 																			
Ethernet	Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing	<p>Security</p> <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) <ul style="list-style-type: none"> - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 																			
Chipset	Intel 5520 Chipset, Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, a PCI slot, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O	<p>ThinkPlus Priority Support, 90-day Trial</p>																			
Extender card	None	<p>RoHS-compliant</p>																			
Front ports	Two USB 2.0																				
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)																				
Internal ports	Two USB 2.0, one connector for tape drive, one connector for embedded hypervisor																				
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for RAID, memory, processors, voltage regulator module, power supply)																				
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium																				
Prerequisites	Monitor, SATA/SAS disk, OS																				
Keyboard	None (use USB port)																				
Mouse	None (use USB port)																				
Power supply(s)	Two 920 watts standard, two maximum, rear access, hot-swap, redundant with two power supplies																				
Cooling	Three fans std, three maximum, variable speed, hot-swap																				
<p>Accessories</p> <table border="0"> <tr> <td>Intel Xeon Dual-Core Processor E5506</td> <td>67Y0010</td> </tr> <tr> <td>2GB PC3-10600 DDR3 ECC RDIMM</td> <td>67Y0015</td> </tr> <tr> <td>4GB PC3-10600 DDR3 ECC RDIMM</td> <td>67Y0016</td> </tr> <tr> <td>146GB² 3.5" SAS HS (15000 rpm)</td> <td>45J6211</td> </tr> <tr> <td>160GB 3.5" SATA HS (7200 rpm)</td> <td>45J6200</td> </tr> <tr> <td>250GB 3.5" SATA HS (7200 rpm)</td> <td>45J6201</td> </tr> <tr> <td>500GB 3.5" SATA HS (7200 rpm)</td> <td>45J6202</td> </tr> <tr> <td>750GB 3.5" SATA HS (7200 rpm)</td> <td>45J6203</td> </tr> <tr> <td>1TB 3.5" SATA HS (7200 rpm)</td> <td>45J6204</td> </tr> </table> <p>Other accessories at lenovo.com/accessories</p>		Intel Xeon Dual-Core Processor E5506	67Y0010	2GB PC3-10600 DDR3 ECC RDIMM	67Y0015	4GB PC3-10600 DDR3 ECC RDIMM	67Y0016	146GB ² 3.5" SAS HS (15000 rpm)	45J6211	160GB 3.5" SATA HS (7200 rpm)	45J6200	250GB 3.5" SATA HS (7200 rpm)	45J6201	500GB 3.5" SATA HS (7200 rpm)	45J6202	750GB 3.5" SATA HS (7200 rpm)	45J6203	1TB 3.5" SATA HS (7200 rpm)	45J6204		
Intel Xeon Dual-Core Processor E5506	67Y0010																				
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750GB 3.5" SATA HS (7200 rpm)	45J6203																				
1TB 3.5" SATA HS (7200 rpm)	45J6204																				
<p>Max internal capacity</p> <p>4.0TB with four 1TB HS SATA disks</p>																					
<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 																					

See footnotes for important warranty information
 US model announced September 29, 2009
 US model withdrawn effective September 2010

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date	
TD200x	3822-41U	6x11	1xE5520	2.26	4	2x2GB	1333MHz	2.5"	8xHot-swap	SATA/SAS ⁴	Multi*	Premium	2x920W	2xGb	Jul 09	
TD200x	3822-42U	6x11	1xE5530	2.40	4	3x2GB	1333MHz	2.5"	8xHot-swap	SATA/SAS	Multi	Premium	2x920W	2xGb	Jul 09	
TD200x	3822-43U	6x11	2xE5530	2.40	8	6x2GB	1333MHz	2.5"	Battery	8xHot-swap	SATA/SAS	Multi	Premium	2x920W	2xGb	Jul 09

* Multi = RAID-0/1/5/6/10/50/60 support

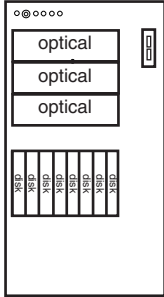
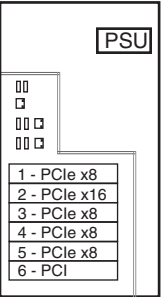
- **These models have a 3-year limited warranty¹**
- **Fully loaded, high performance tower computing and virtualization ready**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one or two processors standard, Intel® Xeon® Processor E5520 or E5530 with quad-core , 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache																								
Implementation	Processor uses FC-LGA package, two LGA1366 sockets																								
Memory	4GB, 6GB, or 12GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, Advanced ECC**, Memory Mirroring , sixteen 240-pin DIMM sockets, std memory in 2, 3, or 6 sockets, 14, 13, or 10 sockets available***, eight sockets distributed into 3-channel per processor (3-3-2) * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Advanced ECC-enable DIMMs required *** Over eight DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical, rack-mountable to 5U • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 84 lb (38kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 																							
Graphics	Matrox® G200e, integrated, one VGA DB-15 in rear, 16MB; <i>Maximum resolution: 1600x1200@85Hz</i>	<table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high, external, std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high, external, optional optical</td></tr> <tr><td>Bay 3</td><td>5.25", 1.6" high, external, optional optical</td></tr> <tr><td>Bay 4</td><td>2.5", 0.6" high, external, optional disk</td></tr> <tr><td>Bay 5</td><td>2.5", 0.6" high, external, optional disk</td></tr> <tr><td>Bay 6</td><td>2.5", 0.6" high, external, optional disk</td></tr> <tr><td>Bay 7</td><td>2.5", 0.6" high, external, optional disk</td></tr> <tr><td>Bay 8</td><td>2.5", 0.6" high, external, optional disk</td></tr> <tr><td>Bay 9</td><td>2.5", 0.6" high, external, optional disk</td></tr> <tr><td>Bay 10</td><td>2.5", 0.6" high, external, optional disk</td></tr> <tr><td>Bay 11</td><td>2.5", 0.6" high, external, optional disk</td></tr> </table>		Bay 1	5.25", 1.6" high, external, std optical	Bay 2	5.25", 1.6" high, external, optional optical	Bay 3	5.25", 1.6" high, external, optional optical	Bay 4	2.5", 0.6" high, external, optional disk	Bay 5	2.5", 0.6" high, external, optional disk	Bay 6	2.5", 0.6" high, external, optional disk	Bay 7	2.5", 0.6" high, external, optional disk	Bay 8	2.5", 0.6" high, external, optional disk	Bay 9	2.5", 0.6" high, external, optional disk	Bay 10	2.5", 0.6" high, external, optional disk	Bay 11	2.5", 0.6" high, external, optional disk
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Disk bays	8 hot-swap (HS) SATA/SAS disk bays, 2.5" Slim-Form-Factor (SFF) std	<ul style="list-style-type: none"> Slot 1: half-length, full-height, PCI Express x8 Slot 2: full, PCI Express x16 (x8 electrical) Slot 3: full, PCI Express x8 (x4 electrical) Slot 4: full, PCI Express x8 (x4 electrical) Slot 5: full, PCI Express x8 Slot 6: half-length, full-height, 32-bit PCI 2.3 																							
Disk Controller	ServeRAID®-MR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1, 5, 6, 10, 50, 60 support <i>43U: Battery backed cache integrated</i>	<p>Virtualization</p> <p>Virtualization ready, hypervisor connector embedded</p>																							
Optical Diskette Ethernet	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID configuration utility: Ctrl+A at startup 																							
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-5 (see right) and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, a PCI slot, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 																							
Extender card Front ports Rear ports	None Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)	<p>Security</p> <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 																							
Internal ports	Two USB 2.0, one connector for tape drive, one connector for embedded hypervisor	<p>ThinkPlus Priority Support, 90-day Trial</p>																							
Diagnostics	Easy LED Diagnostics (operator information panel on front cover with error LEDs for fans, disks, RAID, memory, processors, voltage regulator module, PCI slots, power supplies)	<p>RoHS-compliant</p>																							
Systems mgmt	Integrated Management Module (IMM) Premium, Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant,																								
Prerequisites	Monitor, SATA/SAS disk, OS																								
Keyboard Mouse Power supply(s) Cooling	None (use USB port) None (use USB port) Two 920 watts standard, two maximum, rear access, hot-swap, auto-sensing, redundant with two power supplies Six fans std, six maximum, variable speed, hot-swap																								
Accessories	Intel Xeon Quad-Core Processor E5520 Intel Xeon Quad-Core Processor E5530 2GB PC3-10600 DDR3 1333 MHz RDIMM 300GB ² 2.5" SAS SFF HS (10000 rpm) 500GB 2.5" SATA SFF HS (7200 rpm) Other accessories at lenovo.com/accessories																								
Max internal capacity	4.0TB with eight 500GB SATA SFF disks																								
Limited Warranty¹																									
<ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 																									

See footnotes for important warranty information
US models announced June 30, 2009
US models withdrawn effective September 2010

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date	
TD200x	3822-47U	6x7	1xE5504	2.00	4	1x2GB	1333MHz	3.5"	No	4xHot-swap	SATA/SAS ⁴	0/1/10	Premium	1x920W	2xGb	Jan 10
TD200x	3822-48U	6x11	1xE5520	2.26	4	1x4GB	1333MHz	2.5"	No	8xHot-swap	SATA/SAS	0/1/10	Premium	1x920W	2xGb	Jan 10

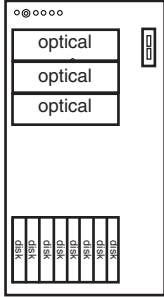
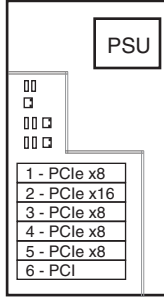
- **These models have a 3-year limited warranty¹**
- **Fully loaded, high performance tower computing, and virtualization ready**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5504 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5520 with quad-core , 5.86GT/s QPI, 1066MHz DDR3 memory controller, and 8MB cache	Front (48U only) 	Rear 																																																																								
Implementation	Processor uses FC-LGA package, two LGA1366 sockets																																																																										
Memory	2GB or 4GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, Advanced ECC** , Memory Mirroring , sixteen 240-pin DIMM sockets, std memory in 1 socket, 15 sockets available***, eight sockets distributed into 3-channel per processor (3-3-2) * System automatically clocks down for processors with 800MHz or 1066 MHz DDR3 memory controller ** Advanced ECC-enable DIMMs required *** Over eight DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical, rack-mountable to 5U • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 84 lb (38kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 																																																																									
Graphics	Matrox® G200e, integrated, one VGA DB-15 in rear, 16MB; <i>Maximum resolution: 1600x1200@85Hz</i>	<p>47U:</p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 4</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 7</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> </table> <p>48U:</p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 4</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 7</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 8</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 9</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 10</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 11</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> </table>		Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	5.25", 1.6" high,	external,	optional optical	Bay 4	3.5", 1" high,	external,	optional disk	Bay 5	3.5", 1" high,	external,	optional disk	Bay 6	3.5", 1" high,	external,	optional disk	Bay 7	3.5", 1" high,	external,	optional disk	Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	5.25", 1.6" high,	external,	optional optical	Bay 4	2.5", 0.6" high,	external,	optional disk	Bay 5	2.5", 0.6" high,	external,	optional disk	Bay 6	2.5", 0.6" high,	external,	optional disk	Bay 7	2.5", 0.6" high,	external,	optional disk	Bay 8	2.5", 0.6" high,	external,	optional disk	Bay 9	2.5", 0.6" high,	external,	optional disk	Bay 10	2.5", 0.6" high,	external,	optional disk	Bay 11	2.5", 0.6" high,	external,	optional disk
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Disk bays	47U: four 3.5" hot-swap (HS) SATA/SAS disk bays 48U: eight HS SATA/SAS disk bays, 2.5" Slim-Form-Factor (SFF) std	<p>Slot 1: half-length, full-height, PCI Express x8 Slot 2: full, PCI Express x16 (x8 electrical) Slot 3: full, PCI Express x8 (x4 electrical) Slot 4: full, PCI Express x8 (x4 electrical) Slot 5: full, PCI Express x8 Slot 6: half-length, full-height, 32-bit PCI 2.3</p>																																																																									
Disk Controller	ServeRAID® M1015, PCI Express bus, SATA 6Gb/s, SAS 6Gb/s, RAID 0, 1, 10 support	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID configuration utility: Ctrl+A at startup 																																																																									
Optical Diskette Ethernet	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing	<p>Security</p> <ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 																																																																									
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-5 (see right) and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, a PCI slot, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O	<p>ThinkPlus Priority Support, 90-day Trial</p>																																																																									
Extender card	None	<p>RoHS-compliant</p>																																																																									
Front ports	Two USB 2.0																																																																										
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)																																																																										
Internal ports	Two USB 2.0, one connector for tape drive, one connector for embedded hypervisor																																																																										
Diagnostics	Easy LED Diagnostics (operator information panel on front cover with error LEDs for fans, disks, RAID, memory, processors, voltage regulator module, PCI slots, power supplies)																																																																										
Systems mgmt	Integrated Management Module (IMM) Premium, Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant,																																																																										
Prerequisites	Monitor, SATA/SAS disk, OS																																																																										
Keyboard	None (use USB port)																																																																										
Mouse	None (use USB port)																																																																										
Power supply(s)	One 920 watts standard, two maximum, rear access, hot-swap, auto-sensing, redundant with two power supplies																																																																										
Cooling	Six fans std, six maximum, variable speed, hot-swap																																																																										
<p align="center">Accessories</p> <p>2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0015 4GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0016 Other accessories at lenovo.com/accessories</p>																																																																											
<p align="center">Virtualization</p> <p>Virtualization ready, hypervisor connector embedded</p>																																																																											
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<p align="center">Limited Warranty¹</p> <p>⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378</p>																																																																											

See footnotes for important warranty information
US models announced January 26, 2010
US models withdrawn effective September 2010

Name	Type-model	Slot x bay	Processor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	Disk(s)	Disk bays	Disk type	RAID Int	Optical	Power supply(s)	Ethernet	Avail date
TD200	3724-38U	6x7	1xE5502	1.86 2	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	0/1	DVDRW	670W	2xGb	Jul 09
TD200	3724-39U	6x11	1xE5502	1.86 2	1x2GB	1333MHz	2.5"	None	8xHot-swap	SATA/SAS	0/1	DVDRW	670W	2xGb	Jul 09

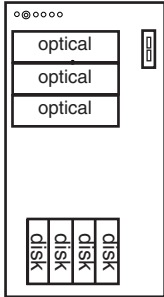
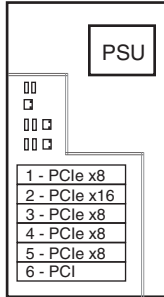
• **These models have a 3-year limited warranty¹**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5502 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache	Front* 	Rear 																																												
Implementation	Processor uses FC-LGA package, two LGA1366 sockets																																														
Memory	2GB std, 96GB max (48GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , twelve 240-pin DIMM sockets, std memory in 1 socket, 11 sockets available****, ** System automatically clocks down for processors with 800MHz DDR3 memory controller *** Advanced ECC-enable DIMMs required **** Over six DIMMs requires dual processors	<p>* Only 2.5" SFF SATA/SAS model shown</p> <ul style="list-style-type: none"> • Tower mechanical, rack-mountable to 5U • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 77 lb (35kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 																																													
Graphics	Matrox® G200e integrated, one VGA DB-15 rear <i>Maximum resolution: 1024x768@85Hz</i>	<p>Model with 3.5" disk bays:</p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 4</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 7</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> </table>		Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	5.25", 1.6" high,	external,	optional optical	Bay 4	3.5", 1" high,	external,	optional disk	Bay 5	3.5", 1" high,	external,	optional disk	Bay 6	3.5", 1" high,	external,	optional disk	Bay 7	3.5", 1" high,	external,	optional disk																
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Bay 6	3.5", 1" high,	external,	optional disk																																												
Bay 7	3.5", 1" high,	external,	optional disk																																												
Disk bays	38U: four 3.5" hot-swap (HS) SATA/SAS disk bays 39U: eight hot-swap (HS) SATA/SAS disk bays, 2.5" Slim-Form-Factor (SFF)	<p>Model with 2.5" disk bays:</p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 4</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 7</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 8</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 9</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 10</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 11</td><td>2.5", 0.6" high,</td><td>external,</td><td>optional disk</td></tr> </table>		Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	5.25", 1.6" high,	external,	optional optical	Bay 4	2.5", 0.6" high,	external,	optional disk	Bay 5	2.5", 0.6" high,	external,	optional disk	Bay 6	2.5", 0.6" high,	external,	optional disk	Bay 7	2.5", 0.6" high,	external,	optional disk	Bay 8	2.5", 0.6" high,	external,	optional disk	Bay 9	2.5", 0.6" high,	external,	optional disk	Bay 10	2.5", 0.6" high,	external,	optional disk	Bay 11	2.5", 0.6" high,	external,	optional disk
Bay 1	5.25", 1.6" high,	external,	std optical																																												
Bay 2	5.25", 1.6" high,	external,	optional optical																																												
Bay 3	5.25", 1.6" high,	external,	optional optical																																												
Bay 4	2.5", 0.6" high,	external,	optional disk																																												
Bay 5	2.5", 0.6" high,	external,	optional disk																																												
Bay 6	2.5", 0.6" high,	external,	optional disk																																												
Bay 7	2.5", 0.6" high,	external,	optional disk																																												
Bay 8	2.5", 0.6" high,	external,	optional disk																																												
Bay 9	2.5", 0.6" high,	external,	optional disk																																												
Bay 10	2.5", 0.6" high,	external,	optional disk																																												
Bay 11	2.5", 0.6" high,	external,	optional disk																																												
Disk Controller	ServerRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support	<p>Slot 1: half-length, full-height, PCI Express x8 Slot 2: full, PCI Express x16 (x8 electrical) Slot 3: full, PCI Express x8 (x4 electrical) Slot 4: full, PCI Express x8 (x4 electrical) Slot 5: full, PCI Express x8 Slot 6: half-length, 32-bit PCI 2.3</p>																																													
Optical Diskette	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s																																														
Ethernet	None (use optional USB diskette) Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing																																														
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, a PCI slot, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O																																														
Extender card	None																																														
Front ports	Two USB 2.0																																														
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)																																														
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for RAID, memory, processors, voltage regulator module, power supply)																																														
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, upgradeable to IMM Premium																																														
Prerequisites	Monitor, SATA/SAS disk, OS																																														
Keyboard	None (use USB port)																																														
Mouse	None (use USB port)																																														
Power supply(s)	one 670 watts standard, one maximum, rear access, universal																																														
Cooling	Three fans std, three maximum, variable speed, hot-swap																																														
Accessories 1GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0014 2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0015 4GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0016 300GB ² 2.5" SAS SFF HS (10000 rpm) 67Y0118 450GB 3.5" SAS Disk HS (15000 rpm) 67Y0119 1TB 3.5" Hot-swap SATA Disk (7200 rpm) 45J6204 USB Portable Diskette Drive 05K9276 Other accessories at lenovo.com/accessories																																															
Software Management Tools • ThinkServer EasyStartup • ThinkServer EasyManage		Power-On Hotkey • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID configuration utility: Ctrl+A at startup																																													
Max internal capacity 38U: 4.0TB with four 1TB SATA disks 39U: 2.4TB with eight 300GB SATA/SAS SFF disks		Security • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)																																													
Virtualization Virtualization ready, hypervisor connector embedded, one internal USB port for virtualization hypervisor		ThinkPlus Priority Support, 90-day Trial																																													
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) ⇨ ThinkPlus™ services available; see 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		RoHS-compliant																																													

See footnotes for important warranty information
 US models withdrawn effective July 2009

Name	Type-model	Slot x bay	Processor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	Disk(s)	Disk bays	Disk type	RAID Int	Optical	Power supply(s)	Ethernet	Avail date
TD200	3824-37U	6x7	1xE5502	1.86 2	1x2GB	1333MHz	3.5"	None	4xSimple-swap	SATA		DVDRW	670W	2xGb	Jul 09

- High performance server with rock solid technology and proven hardware design
- Easy to use with ThinkServer EasyStartup and EasyManage software
- This model has a 1-year limited warranty¹

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5502 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache	Front		Rear	
Implementation	Processor uses FC-LGA package, two LGA1366 sockets				
Memory	2GB std, 96GB max (48GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, Advanced ECC**, Memory Mirroring, twelve 240-pin DIMM sockets, std memory in 1 socket, 11 sockets available****, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Advanced ECC-enable DIMMs required *** Over six DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical, rack-mountable to 5U • Business black color; metal case • 8.6"W x 29.4"D x 17.3"H • 218mm W x 747mm D x 440mm H • 77 lb (35kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support 			
Graphics	Matrox® G200e integrated, one VGA DB-15 rear Maximum resolution: 1024x768@85Hz	<ul style="list-style-type: none"> Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 5.25", 1.6" high, external, optional optical Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk 			
Disk bays	Four 3.5" simple-swap SATA disk bays	Slot 1: half-length, full-height, PCI Express x8			
Disk Controller	Serial ATA, SATA 3Gb/s, integrated in ICH10	Slot 2: full, PCI Express x16 (x8 electrical)			
Optical	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s	Slot 3: full, PCI Express x8 (x4 electrical)			
Diskette	None (use optional USB diskette)	Slot 4: full, PCI Express x8 (x4 electrical)			
Ethernet	Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), Load balancing	Slot 5: full, PCI Express x8			
Chipset	Intel 5520 Chipset, Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, a PCI slot, LPC bus to VSC452 for limited Super I/O	Slot 6: half-length, 32-bit PCI 2.3			
Extender card	None				
Front ports	Two USB 2.0				
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)				
Diagnostics	Diagnostic LEDs (system-error LED on front cover; error LEDs for RAID, memory, processors, voltage regulator module, power supply)				
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, upgradeable to IMM Premium				
Prerequisites	Monitor, SATA disk, OS				
Keyboard	None (use USB port)				
Mouse	None (use USB port)				
Power supply(s)	One 670 watts standard, one maximum, rear access, universal				
Cooling	Three fans std, three maximum, variable speed, hot-swap				
Accessories					
1GB PC3-10600 DDR3 1333 MHz RDIMM		67Y0014			
2GB PC3-10600 DDR3 1333 MHz RDIMM		67Y0015			
4GB PC3-10600 DDR3 1333 MHz RDIMM		67Y0016			
160GB² 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)		45J6195			
250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)		45J6196			
500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)		45J6197			
750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)		45J6198			
USB Portable Diskette Drive		05K9276			
Lenovo® TV L151 15-inch Analog TFT Monitor		9165AC6			
Other accessories at lenovo.com/accessories					
Software Management Tools		Power-On Hotkey			
• ThinkServer EasyStartup • ThinkServer EasyManage		<ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID configuration utility: Ctrl+A at startup 			
Max internal capacity		Security			
3.0TB with four 750GB SATA disks		<ul style="list-style-type: none"> • Side cover lock (ships with two identical keys) <ul style="list-style-type: none"> - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 			
Virtualization		ThinkPlus Priority Support, 90-day Trial			
Virtualization ready, hypervisor connector embedded, one internal USB port for virtualization hypervisor		RoHS-compliant			
Limited Warranty¹					
⇒ 1-year parts and labor					
⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays)					
⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty					
• Onsite service upgrade options (in eligible locations) ⁷					
• Post warranty maintenance services					
⇒ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹ via 800-426-7378					

See footnotes for important warranty information
US models withdrawn effective July 2009

ThinkServer™



Lenovo ThinkServer TD230



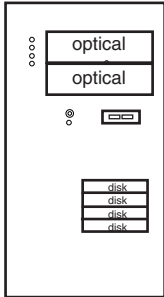
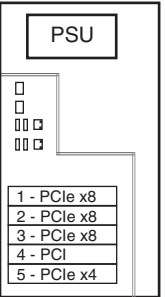
Lenovo ThinkServer TD230



Lenovo ThinkServer TD230 (Direct Cable)

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Disk(s)	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Ethernet	Avail date
TD230	1040-14U	5x7	1x E5603	1.60	4	1x 2GB	None	3.5"	5x Direct Cable	ICH10R	SATA	0/1/10	IPMI	2x Gb	Mar 11
TD230	1040-15U	5x6	1x E5603	1.60	4	1x 2GB	None	3.5"	4x Hot-swap	ICH10R	SATA	0/1/10	IPMI	2x Gb	Mar 11
TD230	1040-16U	5x6	1x E5603	1.60	4	1x 2GB	None	3.5"	4x Hot-swap	9240-8i(v2)	SATA/SAS	0/1/10	IPMI	2x Gb	Mar 11

- These models have a 3-year limited warranty¹
- Flexible and green tower computing at value price point

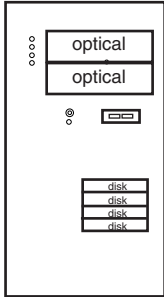
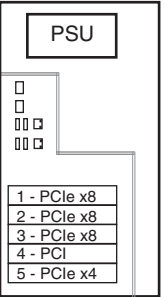
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache	Front - (Hot-swap) 	Rear 
Implementation	Two LGA1366 sockets		
Memory	2GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless optical drive removal 	
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>	Hot-swap model(s): Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk	
Disk bays	<i>Some:</i> Five 3.5" SATA disk bays, no hot-swap, direct cable (DC) <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays	Direct cable model(s): Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk	
Disk controller	<i>Some:</i> Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, RAID ⁸ 0, 1, 10 support <i>Some:</i> ThinkServer SAS 9240-8i v2, PCI Express [®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>DC Model(s):</i> Six SATA connectors for opticals and disks	Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup • LSI 9420-8i RAID: Ctrl+H at startup 	
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup 	
Diskette	None (use USB port)		
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82567	Security <ul style="list-style-type: none"> • Administrator password • User password • Front panel lock out • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567		
Extender card	None	Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3 Slot 5: half-length, full-height, PCI Express x4 *** x4 electrical	
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	RoHS-compliant	
Internal ports	One USB 2.0 connector for optional tape drive		
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear	Max memory capacity 32GB with eight 4GB PC3-10600 DDR3 RDIMMs	
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller, IPMI 2.0-compliant baseboard management controller (BMC)		
Prerequisites	Monitor, disk, OS	Max internal capacity 3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks 3.5" SATA DC: 10.0TB with five 2TB 3.5" SATA disks	
Keyboard	None (use USB port)	Limited Warranty¹ ⇒ 3-year parts and labor ⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations) ⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹	
Mouse	None (use USB port)		
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS [®] Bronze qualified	See footnotes for important warranty information ⓘ US model announced March 15, 2011; previous models on March 1, 2011 US models withdrawn effective June 2013	
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor		

See footnotes for important warranty information

ⓘ US model announced March 15, 2011; previous models on March 1, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Disk(s)	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Ethernet	Avail date
TD230	1039-13U	5x7	1x E5603	1.60	4	1x 2GB	None	3.5"	5x Direct Cable	ICH10R	SATA	0/1/10	IPMI	2x Gb	Mar 11
TD230	1039-14U	5x6	1x E5603	1.60	4	1x 2GB	None	3.5"	4x Hot-swap	ICH10R	SATA	0/1/10	IPMI	2x Gb	Mar 11

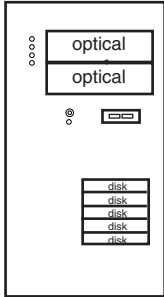
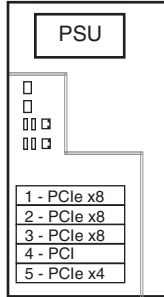
- *These models have a 1-year limited warranty¹*
- *Flexible and green tower computing at value price point*

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache	Front - (Hot-swap) 	Rear 
Implementation	Two LGA1366 sockets		
Memory	2GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless optical drive removal 	
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>	Hot-swap model(s): Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk	
Disk bays	<i>Some:</i> Five 3.5" SATA disk bays, no hot-swap, direct cable (DC) <i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays	Direct cable model(s): Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk	
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, RAID [®] 0, 1, 10 support <i>DC Model(s):</i> Six SATA connectors for opticals and disks	Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3 Slot 5: half-length, full-height, PCI Express x4 *** x4 electrical	
Optical Diskette	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive		
Ethernet	None (use USB port)		
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567		
Extender card	None		
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)		
Internal ports	One USB 2.0 connector for optional tape drive		
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear		
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller, IPMI 2.0-compliant baseboard management controller (BMC)		
Prerequisites	Monitor, disk, OS		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS® Bronze qualified		
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor		
Max memory capacity			
32GB with eight 4GB PC3-10600 DDR3 RDIMMs			
Max internal capacity			
3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks 3.5" SATA DC: 10.0TB with five 2TB 3.5" SATA disks			
Limited Warranty¹			
⇒ 1-year parts and labor ⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations) ⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹			
		Power-On Hotkey	
		<ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup 	
		Software Management Tools	
		• ThinkServer EasyStartup	
		Security	
		<ul style="list-style-type: none"> • Administrator password • User password • Front panel lock out • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
		RoHS-compliant	

See footnotes for important warranty information
 US models announced March 1, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Disk(s)	Disk size	Disk bays	Disk Controller	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
TD230	1027-13U	5x7	1xE5603	1.60	4	1x2GB	None	3.5"	5xDirect Cable	ICH10R	SATA	DVD	0/1/10	IPMI	2xGb	Mar 11

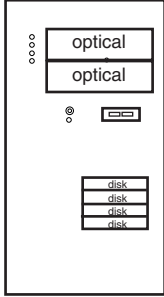
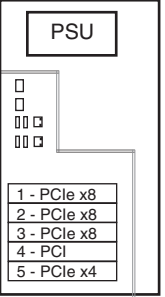
- This model has a 1-year limited warranty¹
- Flexible and green tower computing at value price point
- This small and medium business (SMB) model is part of the US TopSeller™ Program

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache	Front 	Rear 
Implementation	Two LGA1366 sockets		
Memory	2GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal <p>Bay 1 5.25", 1.6" high, external, std optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3 Slot 5: half-length, full-height, PCI Express x4 *** x4 electrical</p>	
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>		
Disk bays	Five 3.5" SATA disk bays, no hot-swap, direct cable (DC)		
Disk controller	Six SATA connectors for opticals and disks, Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ^o 0, 1, 10 support		
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive		
Diskette	None (use USB port)		
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82567		
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567		
Extender card	None		
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)		
Internal ports	One USB 2.0 connector for optional tape drive		
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear		
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller, IPMI 2.0-compliant baseboard management controller (BMC)		
Prerequisites	Monitor, SATA/SAS disk, OS		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS® Bronze qualified		
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor		
		<p align="center">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup 	
<p align="center">Max memory capacity</p> 32GB with eight 4GB PC3-10600 DDR3 RDIMMs		<p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 	
<p align="center">Max internal capacity</p> 10.0TB with five 2TB 3.5" SATA disks		<p align="center">Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Front panel lock out • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
<p align="center">Limited Warranty¹</p> ⇒ 1-year parts and labor ⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations) ⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹		RoHS-compliant	

See footnotes for important warranty information
 US model announced March 1, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Disk(s)	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Avail date
TD230	1029-15U	5x7	1xE5603	1.60	4	1x2GB	None	3.5"	5xDirect Cable	ICH10R	SATA	0/1/10	IPMI	Mar 11
TD230	1029-16U	5x7	1xE5606	2.13	4	1x2GB	None	3.5"	5xDirect Cable	ICH10R	SATA	0/1/10	IPMI	Mar 11
TD230	1029-17U	5x6	1xE5606	2.13	4	1x2GB	None	3.5"	4 x Hot-swap	ICH10R	SATA	0/1/10	IPMI	Mar 11
TD230	1029-18U	5x6	1xE5607	2.26	4	1x4GB	None	3.5"	4 x Hot-swap	ICH10R	SATA	0/1/10	IPMI	Mar 11
TD230	1029-1AU	5x6	1xE5645	2.40	6	1x4GB	None	3.5"	4 x Hot-swap	ICH10R	SATA	0/1/10	IPMI	Mar 11
TD230	1029-19U	5x6	1xE5620	2.40	4	1x4GB	None	3.5"	4 x Hot-swap	9240-8i(v2)+Upgrade	SATA/SAS	0/1/5/10	KVM	Mar 11
TD230	1029-1BU	5x6	1xE5645	2.40	6	1x4GB	None	3.5"	4 x Hot-swap	9240-8i(v2)+Upgrade	SATA/SAS	0/1/5/10	KVM	Mar 11

• These models have a 3-year limited warranty¹

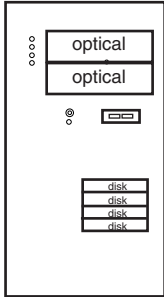
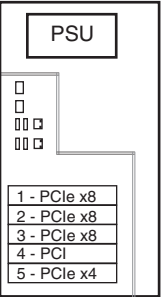
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5606 with quad-core , 4.8GT/s QPI, Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor E5607 with quad-core , 4.8GT/s QPI, Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor E5620 with quad-core , 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor E5645 with six-core , 5.86GT/s QPI, Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache	Front - (Hot-swap)	Rear																												
Implementation	Two LGA1366 sockets																														
Memory	2GB or 4GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3[†], ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless optical drive removal 																													
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>	<p><i>Hot-swap model(s):</i></p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 4</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> </table>	Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	3.5", 1" high,	external,	optional disk	Bay 4	3.5", 1" high,	external,	optional disk	Bay 5	3.5", 1" high,	external,	optional disk	Bay 6	3.5", 1" high,	external,	optional disk					
Bay 1	5.25", 1.6" high,	external,	std optical																												
Bay 2	5.25", 1.6" high,	external,	optional optical																												
Bay 3	3.5", 1" high,	external,	optional disk																												
Bay 4	3.5", 1" high,	external,	optional disk																												
Bay 5	3.5", 1" high,	external,	optional disk																												
Bay 6	3.5", 1" high,	external,	optional disk																												
Disk bays	<i>Some:</i> Five 3.5" SATA disk bays, no hot-swap, direct cable (DC)	<p><i>Direct cable model(s):</i></p> <table border="1"> <tr><td>Bay 1</td><td>5.25", 1.6" high,</td><td>external,</td><td>std optical</td></tr> <tr><td>Bay 2</td><td>5.25", 1.6" high,</td><td>external,</td><td>optional optical</td></tr> <tr><td>Bay 3</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 4</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 5</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 6</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> <tr><td>Bay 7</td><td>3.5", 1" high,</td><td>external,</td><td>optional disk</td></tr> </table>	Bay 1	5.25", 1.6" high,	external,	std optical	Bay 2	5.25", 1.6" high,	external,	optional optical	Bay 3	3.5", 1" high,	external,	optional disk	Bay 4	3.5", 1" high,	external,	optional disk	Bay 5	3.5", 1" high,	external,	optional disk	Bay 6	3.5", 1" high,	external,	optional disk	Bay 7	3.5", 1" high,	external,	optional disk	
Bay 1	5.25", 1.6" high,	external,	std optical																												
Bay 2	5.25", 1.6" high,	external,	optional optical																												
Bay 3	3.5", 1" high,	external,	optional disk																												
Bay 4	3.5", 1" high,	external,	optional disk																												
Bay 5	3.5", 1" high,	external,	optional disk																												
Bay 6	3.5", 1" high,	external,	optional disk																												
Bay 7	3.5", 1" high,	external,	optional disk																												
Disk controller	<i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, RAID [®] 0, 1, 10 support <i>Some:</i> ThinkServer SAS 9240-8i v2, PCI Express [®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Some:</i> Additional upgrade key for 9240-8i v2, add RAID 5 support <i>DC Model(s):</i> Six SATA connectors for opticals and disks	<p>Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3 Slot 5: half-length, full-height, PCI Express x4 *** x4 electrical</p>																													
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive																														
Diskette	None (use USB port)																														
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82567																														
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567																														
Extender card	None																														
Front ports	Two USB 2.0																														
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)																														
Internal ports	One USB 2.0 connector for optional tape drive																														
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear																														
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC) <i>KVM model(s):</i> IPMI functions PLUS KVM, ThinkServer Remote Management Module 3, supports one additional ethernet port	Power-On Hotkey																													
Prerequisites	Monitor, disk, OS	<ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup 																													
Keyboard	None (use USB port)	Software Management Tools																													
Mouse	None (use USB port)	• ThinkServer EasyStartup																													
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS [®] Bronze qualified	Security																													
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor	<ul style="list-style-type: none"> • Administrator password • User password • Front panel lock out • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 																													
		RoHS-compliant																													

See footnotes for important warranty information

[†] US models announced March 15, 2011; previous models on March 1, 2011
US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Avail date
TD230	1029-12U	5x6	1x E5507	2.26	4	1x 4GB	1333MHz	3.5" 4x	Hot-swap	ICH10R	SATA	0/1/10	IPMI	Jul 10
TD230	1029-13U	5x6	1x E5620	2.40	4	1x 4GB	1333MHz	3.5" 4x	Hot-swap	9240-8i(v2)+Upgrade	SATA/SAS ⁴	0/1/5/10	KVM	Jul 10

- These models have a 3-year limited warranty¹
- Flexible and green tower computing at value price point
- These small and medium business (SMB) models are part of the US TopSeller™ Program

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5507 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5620 with quad-core , 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache	Front		Rear	
Implementation	Two LGA1366 sockets				
Memory	4GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	<ul style="list-style-type: none"> • Tower mechanical • Business black color; metal case • 8.3"W x 20.1"D x 18.5"H • 210mm W x 510mm D x 470mm H • 57.6 lb (26.2kg) max configuration • Toolless side cover removal • Toolless disk and optical drive removal 			
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB; <i>Maximum resolution: 1600x1200@52Hz</i>	Bay 1	5.25", 1.6" high,	external,	std optical
Disk bays	<i>Some:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>Some:</i> Four 3.5" HS SATA/SAS disk bays	Bay 2	5.25", 1.6" high,	external,	optional optical
Disk controller	<i>Some:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 10 support <i>Some:</i> ThinkServer SAS 9240-8i v2, PCI Express [®] bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support <i>Some:</i> Additional upgrade key for 9240-8i v2, add RAID 5 support	Bay 3	3.5", 1" high,	external,	optional disk
Optical	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s	Bay 4	3.5", 1" high,	external,	optional disk
Diskette	None (use USB port)	Bay 5	3.5", 1" high,	external,	optional disk
Ethernet	Two Gigabit Ethernet ports, Intel 82574L and 82567	Bay 6	3.5", 1" high,	external,	optional disk
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L; enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567	Slot 1:	half-length, full-height,	PCI Express 2.0	x8
Extender card	None	Slot 2:	half-length, full-height,	PCI Express 2.0	x8
Front ports	Two USB 2.0	Slot 3:	half-length, full-height,	PCI Express 2.0	x8***
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	Slot 4:	half-length, full-height,	32-bit PCI 2.3	
Internal ports	One USB 2.0 connector for optional tape drive	Slot 5:	half-length, full-height,	PCI Express x4	
Diagnostics	System status LEDs on front, Diagnostic LEDs on rear and board				*** x4 electrical
Systems mgmt	Onboard ServerEngines Pilot II graphics/management controller <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC) <i>KVM model(s):</i> IPMI functions PLUS KVM, ThinkServer Remote Management Module 3, supports one additional ethernet port	Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F2 at startup • Network Boot: F12 at startup • ICH10R RAID: Ctrl+E at startup • 9420-8i RAID: Ctrl+H at startup 			
Prerequisites	Monitor, SATA/SAS disk, OS	Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup 			
Keyboard	None (use USB port)	Security <ul style="list-style-type: none"> • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 			
Mouse	None (use USB port)	RoHS-compliant			
Power supply(s)	One fixed 625 watts standard, universal, 80 PLUS [®] Bronze qualified				
Cooling	Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor				
Max memory capacity					
32GB with eight 4GB PC3-10600 DDR3 RDIMMs					
Max internal capacity					
3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks					
3.5" SAS HS: 2.4TB with four 600GB 3.5" SAS disks					
Limited Warranty¹					
⇒ 3-year parts and labor ⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹					

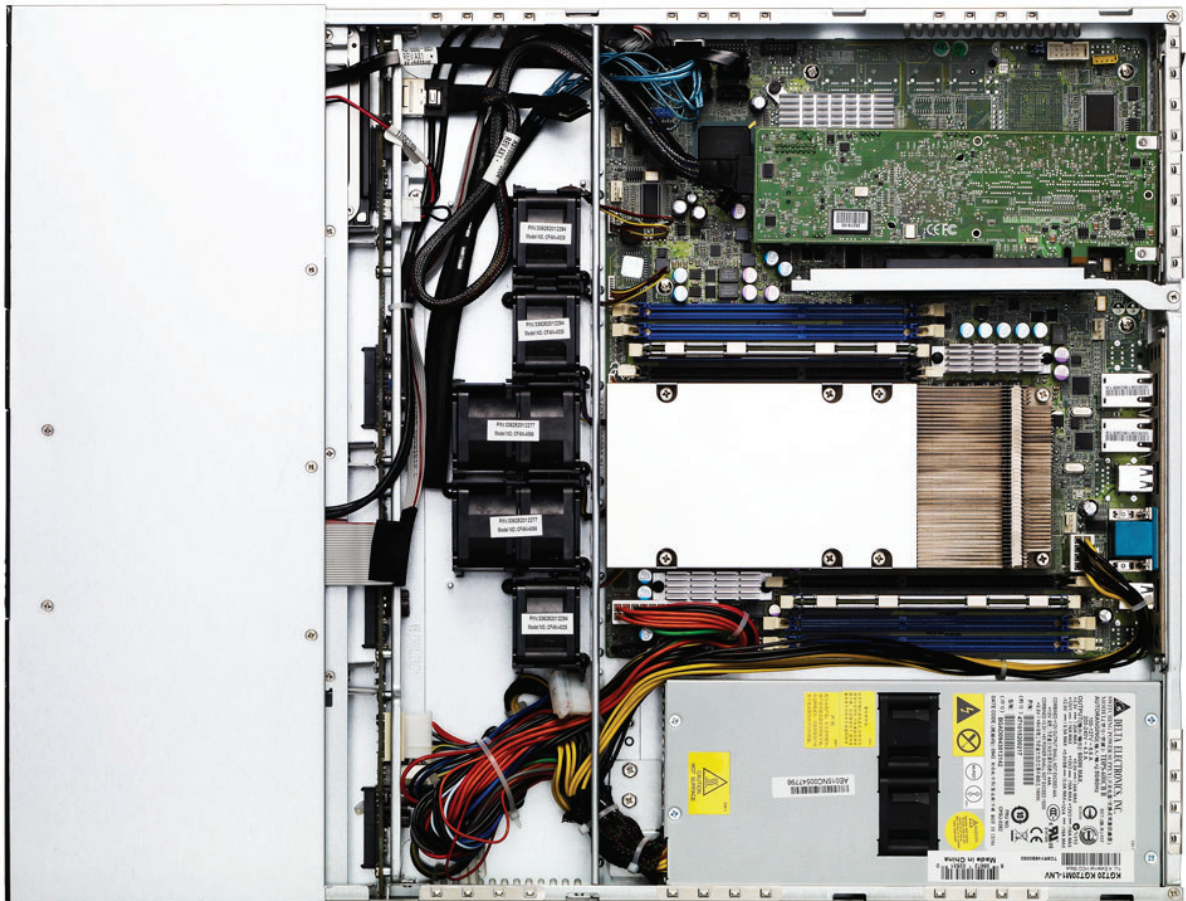
See footnotes for important warranty information
 US models announced July 27, 2010
 US model withdrawn effective April 2011 or June 2013



Lenovo ThinkServer RD230



Lenovo ThinkServer RD230



Lenovo ThinkServer RD230

Name	Type-model	Slot x bay	Processor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	1044-20U	1x5 1x	E5606	2.13 4	1x4GB	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	DVD±RW	0/1/5/6/10	KVM	2xGb	Jul 11

- **3-year limited warranty¹**
- **High performance, advanced RAID, and remote management supported at value price point**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5606 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache	<p>1U Rack top</p> <p>Front</p> <p>Rear</p>
Implementation	Two LGA1366 sockets	
Memory	4GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>	
Disk bays	Four 3.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	ThinkServer 8708EM2 SAS RAID Controller, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10 support	
Optical	UltraSlim Enhanced DVD±RW	
Diskette	None (use USB port)	
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller	
Riser card	(See Right) One PCI Express 2.0 x16 slot standard	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	
Internal port	One USB 2.0 connector	
Diagnostics	Diagnostic and system status LEDs on front panel	
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression	
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy	
Cooling	Five fans standard, five maximum, variable speed	
<p>Accessories</p> 2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y1432 More accessories on O-ARTsheet Other accessories at lenovo.com/accessories		<ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.2"W x 22.4"D x 1.72"H • 436mm W x 568mm D x 43.6mm H • 37.7 lb (17kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention <p>Bay 1 5.25", 0.5" high, external, std optical Bay 2 3.5", 1" high, external, optional disk Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p>
<p>Max memory capacity</p> 64GB with eight 8GB RDIMMs		
<p>Max internal capacity</p> 3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks 3.5" SAS HS: 2.4TB with four 600GB 3.5" SAS disks		
<p>Limited Warranty¹</p> ⇒ 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) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹		
<p>Virtualization</p> Virtualization ready, VMWare Ready™ certified		
<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • 1068E RAID: Ctrl+E at startup • Add-on SATA/SAS RAID: Ctrl+H at startup 		
<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 		
<p>Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
<p>RoHS-compliant</p>		

See footnotes for important warranty information
 US model(s) announced July 12, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	1044-18U	1 x 5	1 x E5603	1.60	4	1 x 2GB	1333MHz	3.5"	None	4x Hot-swap	SATA/SAS ⁴	DVD±RW	0/1/1E	IPMI	2 x Gb	May 11
RD230	1044-19U	1 x 5	1 x E5603	1.60	4	1 x 2GB	1333MHz	3.5"	None	4x Hot-swap	SATA/SAS	DVD±RW	0/1/1E	KVM	2 x Gb	May 11

- **These models have a 3-year limited warranty¹**
- **High performance, advanced RAID, and remote management supported at value price point**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache	<p>1U Rack top</p> <p>Front</p> <p>Rear</p>
Implementation	Two LGA1366 sockets	
Memory	2GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>	
Disk bays	Four 3.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	LSI™ LSISAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID ⁹ 0, 1, 1E support	
Optical	UltraSlim Enhanced DVD±RW	
Diskette	None (use USB port)	
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller	
Riser card	(See Right) One PCI Express 2.0 x16 slot standard	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	
Internal port	One USB 2.0 connector	
Diagnostics	Diagnostic and system status LEDs on front panel	
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression	
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy	
Cooling	Five fans standard, five maximum, variable speed	
<p>Accessories</p> 2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y1432 More accessories on O-ARTsheet Other accessories at lenovo.com/accessories		<ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.2"W x 22.4"D x 1.72"H • 436mm W x 568mm D x 43.6mm H • 37.7 lb (17kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention <p>Bay 1 5.25", 0.5" high, external, std optical Bay 2 3.5", 1" high, external, optional disk Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p>
<p>Max memory capacity</p> 64GB with eight 8GB RDIMMs		
<p>Max internal capacity</p> 3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks 3.5" SAS HS: 2.4TB with four 600GB 3.5" SAS disks		
<p>Limited Warranty¹</p> ⇒ 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) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹		
<p>Virtualization</p> Virtualization ready, VMWare Ready™ certified		
<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • 1068E RAID: Ctrl+E at startup • Add-on SATA/SAS RAID: Ctrl+H at startup 		
<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 		
<p>Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 		
<p>RoHS-compliant</p>		

See footnotes for important warranty information
 US models announced May 31, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	1043-13U	1x5	1xE5603	1.60	4	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	DVD±RW	0/1/1E	IPMI	2xGb	May 11
RD230	1043-14U	1x5	1xE5603	1.60	4	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA/SAS	DVD±RW	0/1/1E	KVM	2xGb	May 11

- **These models have a 1-year limited warranty¹**
- **High performance, advanced RAID, and remote management supported at value price point**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>1U Rack top</p> </div> <div style="width: 45%;"> <p>Front</p> <p>Rear</p> </div> </div>								
Implementation	Two LGA1366 sockets									
Memory	2GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors									
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>									
Disk bays	Four 3.5" hot-swap (HS) SATA/SAS disk bays									
Disk controller	LSI™ LSI SAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID ⁸ 0, 1, 1E support									
Optical	UltraSlim Enhanced DVD±RW									
Diskette	None (use USB port)									
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers									
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller									
Riser card	(See Right) One PCI Express 2.0 x16 slot standard									
Front ports	Two USB 2.0									
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)									
Internal port	One USB 2.0 connector									
Diagnostics	Diagnostic and system status LEDs on front panel									
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression									
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS									
Keyboard	None (use USB port)									
Mouse	None (use USB port)									
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy									
Cooling	Five fans standard, five maximum, variable speed									
<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>2GB PC3-10600 DDR3 1333 MHz RDIMM</td> <td>67Y1432</td> </tr> <tr> <td>8GB PC3-10600 DDR3 1333 MHz RDIMM</td> <td>67Y1464</td> </tr> <tr> <td>500GB² 3.5" SATA HS (7200 rpm)</td> <td>67Y1401</td> </tr> <tr> <td>1TB 3.5" SATA HS (7200 rpm)</td> <td>67Y1402</td> </tr> </table> <p>More accessories on O-ARTsheet</p> <p>Other accessories at lenovo.com/accessories</p>		2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432	8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464	500GB ² 3.5" SATA HS (7200 rpm)	67Y1401	1TB 3.5" SATA HS (7200 rpm)	67Y1402	<ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.2"W x 22.4"D x 1.72"H • 436mm W x 568mm D x 43.6mm H • 37.7 lb (17kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention <p>Bay 1 5.25", 0.5" high, external, std optical Bay 2 3.5", 1" high, external, optional disk Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p>
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432									
8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464									
500GB ² 3.5" SATA HS (7200 rpm)	67Y1401									
1TB 3.5" SATA HS (7200 rpm)	67Y1402									
<p style="text-align: center;">Max memory capacity</p> <p>64GB with eight 8GB RDIMMs</p>		<p style="text-align: center;">Virtualization</p> <p>Virtualization ready, VMWare Ready™ certified</p>								
<p style="text-align: center;">Max internal capacity</p> <p>3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks 3.5" SAS HS: 2.4TB with four 600GB 3.5" SAS disks</p>		<p style="text-align: center;">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • 1068E RAID: Ctrl+E at startup 								
<p style="text-align: center;">Limited Warranty¹</p> <p>⇒ 1-year parts and labor</p> <p>⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)</p> <p>⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹</p>		<p style="text-align: center;">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p style="text-align: center;">Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>								

See footnotes for important warranty information
 US models announced May 31, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	1044-16U	1 x 5	1 x E5603	1.60	4	1 x 2GB	1333MHz	3.5"	None	4 x Hot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2 x Gb	Mar 11
RD230	1044-17U	1 x 5	1 x E5606	2.13	4	1 x 4GB	1333MHz	3.5"	None	4 x Hot-swap	SATA/SAS ⁴	DVD±RW	0/1/5/6/10	KVM	2 x Gb	Mar 11

- **These models have a 3-year limited warranty¹**
- **High performance, advanced RAID, and remote management supported at value price point**

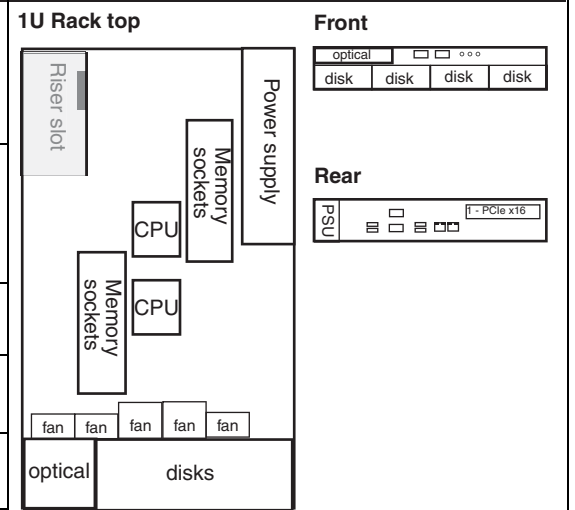
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5606 with quad-core , 4.8GT/s QPI, Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache	<p>1U Rack top</p> <p>Front</p> <p>optical disk disk disk disk</p> <p>Rear</p> <p>PSU PCIe x16</p> <p>fan fan fan fan fan</p> <p>optical disks</p> <ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.2"W x 22.4"D x 1.72"H • 436mm W x 568mm D x 43.6mm H • 37.7 lb (17kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention <p>Bay 1 5.25", 0.5" high, external, std optical</p> <p>Bay 2 3.5", 1" high, external, optional disk</p> <p>Bay 3 3.5", 1" high, external, optional disk</p> <p>Bay 4 3.5", 1" high, external, optional disk</p> <p>Bay 5 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p>
Implementation	Two LGA1366 sockets	
Memory	2GB or 4GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3³, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>	
Disk bays	16U: Four 3.5" hot-swap (HS) SATA disk bays 17U: Four 3.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	16U: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁸ 0, 1, 5, 10 support 17U: ThinkServer 8708ELP SAS RAID Controller, PCI Express [®] bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10 support	
Optical Diskette Ethernet	UltraSlim Enhanced DVD±RW None (use USB port) Two Gigabit Ethernet ports, dual Intel 82574L controllers	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller	
Riser card Front ports Rear ports Internal port Diagnostics Systems mgmt	(See Right) One PCI Express 2.0 x16 slot standard Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45) One USB 2.0 connector Diagnostic and system status LEDs on front panel Onboard Aspeed AST2050 graphics/management processor IPMI model(s): IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub KVM model(s): IPMI functions PLUS KVM supported, 24bit high quality video compression	
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	
Keyboard Mouse Power supply(s) Cooling	None (use USB port) None (use USB port) One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy Five fans standard, five maximum, variable speed	
<p align="center">Accessories</p> <p>2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y1432 More accessories on O-ARTsheet</p> <p>Other accessories at lenovo.com/accessories</p> <p align="center">Max memory capacity</p> <p>64GB with eight 8GB RDIMMs</p> <p align="center">Max internal capacity</p> <p>3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks 3.5" SAS HS: 2.4TB with four 600GB 3.5" SAS disks</p> <p align="center">Limited Warranty¹</p> <p>⇒ 3-year parts and labor</p> <p>⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)</p> <p>⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹</p>		
<p align="center">Virtualization</p> <p>Virtualization ready, VMWare Ready™ certified</p> <p align="center">Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • Onboard SATA RAID: Ctrl+I at startup • Add-on SATA/SAS RAID: Ctrl+H at startup <p align="center">Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p align="center">Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>		

See footnotes for important warranty information
US models announced March 1, 2011
US model withdrawn effective August 2011 or June 2013

Name	Type-model	Slot x bay	Processor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	1043-12U	1x5	1xE5603	1.60 4	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Mar 11

- **This model has a 1-year limited warranty¹**
- **High performance, advanced RAID, and remote management supported at value price point**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache
Implementation	Two LGA1366 sockets
Memory	2GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>
Disk bays	Four 3.5" hot-swap (HS) SATA disk bays
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 5, 10 support
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller
Riser card	(See Right) One PCI Express 2.0 x16 slot standard
Front ports	Two USB 2.0
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)
Internal port	One USB 2.0 connector
Diagnostics	Diagnostic and system status LEDs on front panel
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy
Cooling	Five fans standard, five maximum, variable speed



- 1U Mechanical; rack-mount only
- Black color front; metal case
- 17.2"W x 22.4"D x 1.72"H
- 436mm W x 568mm D x 43.6mm H
- 37.7 lb (17kg) max configuration
- Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention

Bay 1	5.25"	0.5" high	external	std optical
Bay 2	3.5"	1" high	external	optional disk
Bay 3	3.5"	1" high	external	optional disk
Bay 4	3.5"	1" high	external	optional disk
Bay 5	3.5"	1" high	external	optional disk

Slot 1: half-length, full-height, PCI Express 2.0 x16

Accessories	
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432
8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464
500GB ² 3.5" SATA HS (7200 rpm)	67Y1401
1TB 3.5" SATA HS (7200 rpm)	67Y1402

More accessories on O-ARTsheet

Other accessories at lenovo.com/accessories

Virtualization	
Virtualization ready, VMWare Ready™ certified	

Power-On Hotkey	
• Setup Utility:	DEL at startup
• Network Boot:	F12 at startup
• Onboard SATA RAID:	Ctrl+I at startup

Software Management Tools	
• ThinkServer EasyStartup	

Security	
<ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	

Max memory capacity	
64GB with eight 8GB RDIMMs	

Max internal capacity	
8.0TB with four 2TB 3.5" SATA disks	

Limited Warranty ¹	
⇒ 1-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)	
⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html	
<ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services 	
⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹	

Security	
<ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
RoHS-compliant	

See footnotes for important warranty information
 US model announced March 1, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	4011-16U	1x5	1xE5603	1.60	4	1x4GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Mar 11
RD230	4011-17U	1x5	1xE5606	2.13	4	1x4GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Mar 11
RD230	4011-18U	1x5	1xE5607	2.26	4	1x4GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	KVM	2xGb	Mar 11
RD230	4011-19U	1x5	1xE5620	2.40	4	1x4GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	KVM	2xGb	Mar 11
RD230	4011-1AU	1x5	1xE5645	2.40	6	1x4GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Mar 11
RD230	4011-1BU	1x5	1xE5645	2.40	6	1x8GB	1333MHz	3.5"	Battery	4xHot-swap	SATA/SAS ⁴	DVD±RW	0/1/5/6/10	KVM	2xGb	Mar 11
RD230	4011-1CU	1x5	2xX5650	2.66	12	2x8GB	1333MHz	3.5"	Battery	4xHot-swap	SATA/SAS	DVD±RW	0/1/5/6/10	KVM	2xGb	Mar 11
RD230	4011-1DU	1x5	1xE5645	2.40	6	1x4GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	KVM	2xGb	Mar 11

- These models have a 3-year limited warranty¹
- These small and medium business (SMB) models are part of the US TopSeller™ Program

Processor(s)	Up to two processors, one or two processors standard, Intel® Xeon® Processor E5603 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5606 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor E5607 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor E5620 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor E5645 with six-core, 5.86GT/s QPI, Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor X5650 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache	Two LGA1366 sockets
Implementation		
Memory	4GB, 8GB, or 16GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring, eight 240-pin DIMM sockets**	* System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB;	Maximum resolution: 1600x1200@60Hz
Disk bays	16U/17U/18U/19U/1AU/1DU: Four 3.5" hot-swap (HS) SATA disk bays	1BU/1CU: Four 3.5" hot-swap (HS) SATA/SAS disk bays
Disk controller	16U/17U/18U/19U/1AU/1DU: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 5, 10 support	1BU/1CU: ThinkServer 8708EM2 SAS RAID Controller, PCI Express [®] bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10 support, Battery backed cache integrated
Optical Diskette Ethernet	UltraSlim Enhanced DVD±RW None (use USB port) Two Gigabit Ethernet ports, dual Intel 82574L controllers	
Chipset	Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller	
Riser card Front ports Rear ports	(See Right) One PCI Express 2.0 x16 slot standard Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	
Internal port	One USB 2.0 connector	
Diagnostics	Diagnostic and system status LEDs on front panel	
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor IPMI model(s): IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub	KVM model(s): IPMI functions PLUS KVM supported, 24bit high quality video compression
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy	
Cooling	Five fans standard, five maximum, variable speed	

1U Rack top

Front

Rear

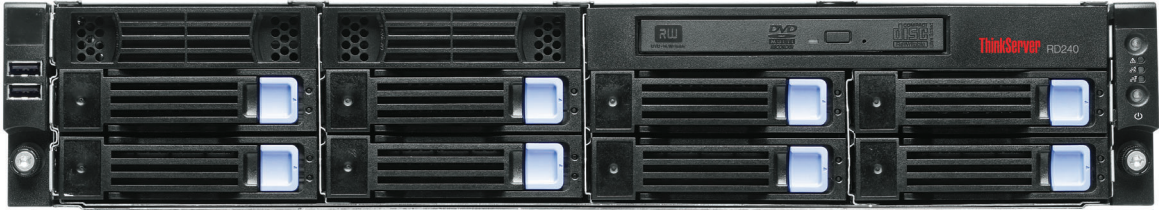
- 1U Mechanical; rack-mount only
- Black color front; metal case
- 17.2"W x 22.4"D x 1.72"H
- 436mm W x 568mm D x 43.6mm H
- 37.7 lb (17kg) max configuration
- Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention

Bay 1	5.25", 0.5" high, external, std optical
Bay 2	3.5", 1" high, external, optional disk
Bay 3	3.5", 1" high, external, optional disk
Bay 4	3.5", 1" high, external, optional disk
Bay 5	3.5", 1" high, external, optional disk

Slot 1: half-length, full-height, PCI Express 2.0 x16

Virtualization
Virtualization ready, VMWare Ready™ certified
Power-On Hotkey
<ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • Onboard SATA RAID: Ctrl+I at startup • Add-on SATA/SAS RAID: Ctrl+H at startup
Software Management Tools
• ThinkServer EasyStartup
Security
<ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
RoHS-compliant

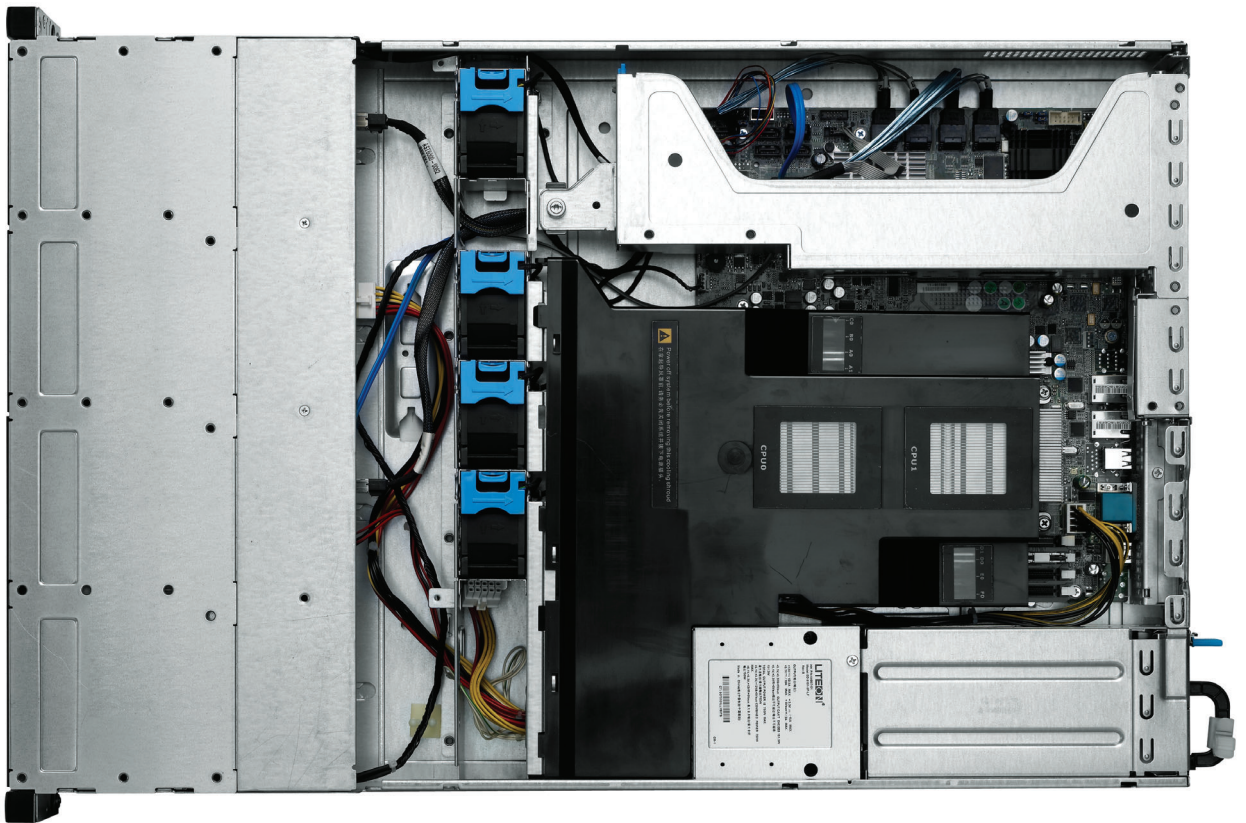
See footnotes for important warranty information
 US model announced March 8, 2011; previous models on March 1, 2011
 US model withdrawn effective March 2011 or June 2013



Lenovo ThinkServer RD240



Lenovo ThinkServer RD240



Lenovo ThinkServer RD240

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s)	Ethernet	Avail date
RD240	1048-16U	3x9	2xX5650	2.66 12	2x4GB	3.5"	Battery	8xHot-swap	8708EM2	SATA/SAS ⁴	Multi*	KVM	2x750W	2xGb	Jul 11
RD240	1048-17U	3x9	1xE5649	2.53 6	1x4GB	3.5"	Battery	8xHot-swap	8708EM2	SATA/SAS	Multi	KVM	1x750W	2xGb	Jul 11

*Multi = RAID 0/1/5/6/10/50/60

Processor(s)	Up to two processors, one or two processors standard, Intel® Xeon® Processor E5649 with six-core , 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5650 with six-core , 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	4GB or 8GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>
Disk bays	Eight 3.5" hot-swap (HS) SATA/SAS disk bays
Disk controller	ThinkServer 8708EM2 SAS RAID Controller, PCI Express bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; Battery backed cache integrated
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSI SAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB
Riser card	(See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard
Front ports	Two USB 2.0
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)
Internal port	One USB 2.0 connector
Diagnostics	Diagnostic and system status LEDs on front panel
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One or two 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies
Cooling	Four fans standard, four maximum, variable speed

2U Rack top

Front

Rear

- 2U Mechanical
- Designed for EIA-310 standard 19-inch rack only
- Black color front; metal case
- 19"W x 27.6"D x 3.44"H
- 483mm W x 700mm D x 87.5mm H
- 66.6 lb (30kg) max configuration
- Toolless top cover removal
- Toolless disk removal
- Toolless adapter retention

Bay 1	5.25", 0.5" high, external, std optical
Bay 2	3.5", 1" high, external, optional disk
Bay 3	3.5", 1" high, external, optional disk
Bay 4	3.5", 1" high, external, optional disk
Bay 5	3.5", 1" high, external, optional disk
Bay 6	3.5", 1" high, external, optional disk
Bay 7	3.5", 1" high, external, optional disk
Bay 8	3.5", 1" high, external, optional disk
Bay 9	3.5", 1" high, external, optional disk

Slot 1: full-length, full-height, PCI Express 2.0 x8
 Slot 2: full-length, full-height, PCI Express 2.0 x8***
 Slot 3: half-length, full-height, PCI Express 2.0 x8***
 *** x4 electrical

Max memory capacity	Virtualization
64GB with eight 8GB PC3-10600 DDR3 RDIMMs	Virtualization ready, VMWare Ready™ certified
Max internal capacity	Power-On Hotkey
3.5" SATA HS: 16.0TB with eight 2TB HS SATA disks 3.5" SAS HS: 4.8TB with eight 600GB HS SAS disks	<ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • 1068E RAID: Ctrl+C at startup • 8708EM2 RAID: Ctrl+H at startup
Limited Warranty¹	Software Management Tools
<ul style="list-style-type: none"> ⇒ 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) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 	<ul style="list-style-type: none"> • ThinkServer EasyStartup
	Security
	<ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
	RoHS-compliant

See footnotes for important warranty information
 US model(s) announced July 12, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s)	Ethernet	Avail date
RD240	1047-12U	3x9	1xE5603	1.60 4	1x2GB	3.5"	None	8xHot-swap	1068E	SATA/SAS ⁴	0/1/1E	IPMI	1x750W	2xGb	Mar 11

- **This model has a 1-year limited warranty¹**
- **High performance, scalability, and remote management supported at value price point**

<p>Processor(s) Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache</p> <p>Implementation Two LGA1366 sockets</p> <p>Memory 2GB, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring, eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors</p> <p>Graphics Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i></p> <p>Disk bays Eight 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p>Disk controller LSI™ LSI SAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID⁸ 0, 1, 1E support</p> <p>Optical UltraSlim Enhanced DVD±RW</p> <p>Diskette None (use USB port)</p> <p>Ethernet Two Gigabit Ethernet ports, dual Intel 82574L controllers</p> <p>Chipset Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSI SAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB</p> <p>Riser card (See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard</p> <p>Front ports Two USB 2.0</p> <p>Rear ports Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)</p> <p>Internal port One USB 2.0 connector</p> <p>Diagnostics Diagnostic and system status LEDs on front panel</p> <p>Systems mgmt Onboard Aspeed AST2050 graphics/management processor IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub</p> <p>Prerequisites Monitor, keyboard, mouse, SATA/SAS disk, rack, OS</p> <p>Keyboard None (use USB port)</p> <p>Mouse None (use USB port)</p> <p>Power supply(s) One 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies</p> <p>Cooling Four fans standard, four maximum, variable speed</p>	<p>2U Rack top</p> <p>Front</p> <p>Rear</p> <p>• 2U Mechanical</p> <p>• Designed for EIA-310 standard 19-inch rack only</p> <p>• Black color front; metal case</p> <p>• 19"W x 27.6"D x 3.44"H</p> <p>• 483mm W x 700mm D x 87.5mm H</p> <p>• 66.6 lb (30kg) max configuration</p> <p>• Toolless top cover removal</p> <p>• Toolless disk removal</p> <p>• Toolless adapter retention</p> <p>Bay 1 5.25", 0.5" high, external, std optical</p> <p>Bay 2 3.5", 1" high, external, optional disk</p> <p>Bay 3 3.5", 1" high, external, optional disk</p> <p>Bay 4 3.5", 1" high, external, optional disk</p> <p>Bay 5 3.5", 1" high, external, optional disk</p> <p>Bay 6 3.5", 1" high, external, optional disk</p> <p>Bay 7 3.5", 1" high, external, optional disk</p> <p>Bay 8 3.5", 1" high, external, optional disk</p> <p>Bay 9 3.5", 1" high, external, optional disk</p> <p>Slot 1: full-length, full-height, PCI Express 2.0 x8</p> <p>Slot 2: full-length, full-height, PCI Express 2.0 x8***</p> <p>Slot 3: half-length, full-height, PCI Express 2.0 x8***</p> <p>*** x4 electrical</p> <p>Virtualization</p> <p>Virtualization ready, VMWare Ready™ certified</p> <p>Power-On Hotkey</p> <p>• Setup Utility: DEL at startup</p> <p>• Network Boot: F12 at startup</p> <p>• LSI 1068E RAID: Ctrl+C at startup</p> <p>Software Management Tools</p> <p>• ThinkServer EasyStartup</p> <p>Security</p> <p>• Administrator password</p> <p>• User password</p> <p>• Boot sequence control</p> <p>• Boot without keyboard, mouse, diskette</p> <p>• Serial port I/O control</p> <p>• USB port disablement (all)</p> <p>RoHS-compliant</p>								
<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>2GB PC3-10600 DDR3 1333 MHz RDIMM</td> <td>67Y1432</td> </tr> <tr> <td>8GB PC3-10600 DDR3 1333 MHz RDIMM</td> <td>67Y1464</td> </tr> <tr> <td>1TB 3.5" SATA HS (7200 rpm)</td> <td>67Y1480</td> </tr> <tr> <td>450GB² 3.5" SAS HS (15000 rpm)</td> <td>67Y1482</td> </tr> </table> <p>More accessories on O-ARTsheet</p> <p>Other accessories at lenovo.com/accessories</p> <p style="text-align: center;">Max memory capacity</p> <p>64GB with eight 8GB PC3-10600 DDR3 RDIMMs</p> <p style="text-align: center;">Max internal capacity</p> <p>3.5" SATA HS: 16.0TB with eight 2TB HS SATA disks</p> <p>3.5" SAS HS: 4.8TB with eight 600GB HS SAS disks</p> <p style="text-align: center;">Limited Warranty¹</p> <p>⇒ 1-year parts and labor</p> <p>⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)</p> <p>⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html</p> <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services <p>⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹</p>	2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432	8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464	1TB 3.5" SATA HS (7200 rpm)	67Y1480	450GB ² 3.5" SAS HS (15000 rpm)	67Y1482	
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432								
8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464								
1TB 3.5" SATA HS (7200 rpm)	67Y1480								
450GB ² 3.5" SAS HS (15000 rpm)	67Y1482								

See footnotes for important warranty information
 US model announced March 1, 2011
 US models withdrawn effective June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s)	Ethernet	Avail date
RD240	1048-14U	3x9	1xE5603	1.60 4	1x2GB	3.5"		8xHot-swap	1068E	SATA/SAS ⁴	0/1/1E	IPMI	1x750W	2xGb	Mar 11
RD240	1048-15U	3x9	1xE5649	2.53 6	1x4GB	3.5"	Battery	8xHot-swap	8708E	SATA/SAS	Multi*	KVM	1x750W	2xGb	Mar 11

*Multi = RAID 0/1/5/6/10/50/60

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5603 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5649 with six-core , 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	2GB or 4GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>
Disk bays	Eight 3.5" hot-swap (HS) SATA/SAS disk bays
Disk controller	<i>Some:</i> LSI™ LSI SAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 1E support <i>Some:</i> ThinkServer 8708ELP SAS RAID Controller, PCI Express bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support <i>Some:</i> Battery backed cache integrated
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSI SAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB
Riser card	(See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard
Front ports	Two USB 2.0
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)
Internal port	One USB 2.0 connector
Diagnostics	Diagnostic and system status LEDs on front panel
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies
Cooling	Four fans standard, four maximum, variable speed

2U Rack top

Front

Rear

- 2U Mechanical
- Designed for EIA-310 standard 19-inch rack only
- Black color front; metal case
- 19"W x 27.6"D x 3.44"H
- 483mm W x 700mm D x 87.5mm H
- 66.6 lb (30kg) max configuration
- Toolless top cover removal
- Toolless disk removal
- Toolless adapter retention

Bay 1	5.25", 0.5" high, external,	std optical
Bay 2	3.5", 1" high, external,	optional disk
Bay 3	3.5", 1" high, external,	optional disk
Bay 4	3.5", 1" high, external,	optional disk
Bay 5	3.5", 1" high, external,	optional disk
Bay 6	3.5", 1" high, external,	optional disk
Bay 7	3.5", 1" high, external,	optional disk
Bay 8	3.5", 1" high, external,	optional disk
Bay 9	3.5", 1" high, external,	optional disk

Slot 1: full-length, full-height, PCI Express 2.0 x8
 Slot 2: full-length, full-height, PCI Express 2.0 x8***
 Slot 3: half-length, full-height, PCI Express 2.0 x8***
 *** x4 electrical

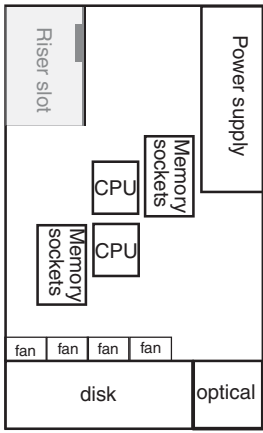
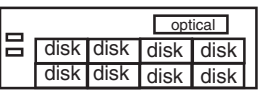
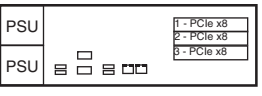
Max memory capacity	Virtualization
64GB with eight 8GB PC3-10600 DDR3 RDIMMs	Virtualization ready, VMWare Ready™ certified
Max internal capacity	Power-On Hotkey
3.5" SATA HS: 16.0TB with eight 2TB HS SATA disks 3.5" SAS HS: 4.8TB with eight 600GB HS SAS disks	<ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • 1068E RAID: Ctrl+C at startup • 8708ELP RAID: Ctrl+H at startup
Limited Warranty¹	Software Management Tools
<ul style="list-style-type: none"> ⇒ 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) ⇒ Lenovo Services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ⇒ 24 hour x 7 day¹⁴ toll-free support during the warranty period¹ 	<ul style="list-style-type: none"> • ThinkServer EasyStartup
	Security
	<ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
	RoHS-compliant

See footnotes for important warranty information
 US models announced March 1, 2011
 US model withdrawn effective August 2011 or June 2013

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s)	Ethernet	Avail date
RD240	1046-17U	3x9	1x E5603	1.60	4	1x 4GB	3.5"	8x Hot-swap	1068E	SATA/SAS ⁴	0/1/1E	IPMI	1x 750W	2x Gb	Mar 11
RD240	1046-18U	3x9	1x E5606	2.13	4	1x 4GB	3.5"	8x Hot-swap	1068E	SATA/SAS	0/1/1E	IPMI	1x 750W	2x Gb	Mar 11
RD240	1046-19U	3x9	1x E5607	2.26	4	1x 4GB	3.5"	8x Hot-swap	8708EM2	SATA/SAS	Multi*	KVM	1x 750W	2x Gb	Mar 11
RD240	1046-1AU	3x9	1x E5620	2.40	4	1x 4GB	3.5"	8x Hot-swap	8708EM2	SATA/SAS	Multi	KVM	1x 750W	2x Gb	Mar 11
RD240	1046-1BU	3x9	1x E5645	2.40	6	1x 4GB	3.5"	8x Hot-swap	1068E	SATA/SAS	0/1/1E	KVM	1x 750W	2x Gb	Mar 11
RD240	1046-1CU	3x9	1x E5645	2.40	6	1x 8GB	3.5" Battery	8x Hot-swap	8708EM2	SATA/SAS	Multi	KVM	2x 750W	2x Gb	Mar 11
RD240	1046-1DU	3x9	2x X5650	2.66	12	2x 8GB	3.5" Battery	8x Hot-swap	8708EM2	SATA/SAS	Multi	KVM	2x 750W	2x Gb	Mar 11

- These models have a 3-year limited warranty¹
- These small and medium business (SMB) models are part of the US TopSeller™ Program

*Multi = RAID 0/1/5/6/10/50/60

<p>Processor(s) Up to two processors, one or two processors standard, Intel® Xeon® Processor E5603 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5606 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor E5607 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or Intel Xeon Processor E5620 with quad-core, 5.86GT/s QPI, Intel 64, Virtualization Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor E5645 with six-core, 5.86GT/s QPI, Intel 64, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor X5650 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p> <p>Implementation Two LGA1366 sockets</p> <p>Memory 4GB, 8GB, or 16GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3**, ECC, Memory Mirroring, eight 240-pin DIMM sockets***, ** System automatically clocks down for processors with 1066MHz DDR3 memory controller *** Over four DIMMs requires dual processors</p> <p>Graphics Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i></p> <p>Disk bays Eight 3.5" hot-swap (HS) SATA/SAS disk bays</p> <p>Disk controller <i>Some:</i> LSI™ LSISAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID⁰, 1, 1E support <i>Some:</i> ThinkServer 8708EM2 SAS RAID Controller, PCI Express bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support <i>Some:</i> Battery backed cache integrated</p> <p>Optical UltraSlim Enhanced DVD±RW</p> <p>Diskette None (use USB port)</p> <p>Ethernet Two Gigabit Ethernet ports, dual Intel 82574L controllers</p> <p>Chipset Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSISAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB</p> <p>Riser card (See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard</p> <p>Front ports Two USB 2.0</p> <p>Rear ports Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)</p> <p>Internal port One USB 2.0 connector</p> <p>Diagnostics Diagnostic and system status LEDs on front panel</p> <p>Systems mgmt Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression</p> <p>Prerequisites Monitor, keyboard, mouse, SATA/SAS disk, rack, OS</p> <p>Keyboard None (use USB port)</p> <p>Mouse None (use USB port)</p> <p>Power supply(s) One or two 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies</p> <p>Cooling Four fans standard, four maximum, variable speed</p>	<p>2U Rack top</p>  <p>Front</p>  <p>Rear</p>  <ul style="list-style-type: none"> • 2U Mechanical • Designed for EIA-310 standard 19-inch rack only • Black color front; metal case • 19"W x 27.6"D x 3.44"H • 483mm W x 700mm D x 87.5mm H • 66.6 lb (30kg) max configuration • Toolless top cover removal • Toolless disk and removal • Toolless adapter retention <p>Bay 1 5.25", 0.5" high, external, std optical Bay 2 3.5", 1" high, external, optional disk Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk Bay 8 3.5", 1" high, external, optional disk Bay 9 3.5", 1" high, external, optional disk</p> <p>Slot 1: full-length, full-height, PCI Express 2.0 x8 Slot 2: full-length, full-height, PCI Express 2.0 x8**** Slot 3: half-length, full-height, PCI Express 2.0 x8**** **** x4 electrical</p> <p>Virtualization Virtualization ready, VMWare Ready™ certified</p> <p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • 1068E RAID: Ctrl+C at startup • 8708EM2 RAID: Ctrl+H at startup <p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup <p>Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) <p>RoHS-compliant</p>
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See footnotes for important warranty information
 US models announced March 1, 2011
 US models withdrawn effective June 2013

Partial list of accessories supported on Lenovo® ThinkServer TD230, RD230, RD240.

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Processor⁵⁰

TD230:

Intel® Xeon® E5503 Processor Option Kit	67Y1448	ann 07/27/10
Intel Xeon E5506 Processor Option Kit	67Y1449	ann 07/27/10
Intel Xeon E5507 Processor Option Kit	67Y1458	ann 07/27/10
Intel Xeon E5620 Processor Option Kit	67Y1457	ann 07/27/10
Intel Xeon L5609 Processor Option Kit	67Y1450	ann 01/25/11
Intel Xeon E5630 Processor Option Kit	67Y1456	ann 01/25/11
Intel Xeon E5640 Processor Option Kit	67Y1453	ann 01/25/11
Intel Xeon X5650 Processor Option Kit	67Y1455	ann 01/25/11
Intel Xeon X5660 Processor Option Kit	67Y1454	ann 01/25/11
Intel Xeon X5667 Processor Option Kit	67Y1452	ann 01/25/11
Intel Xeon X5670 Processor Option Kit	67Y1451	ann 01/25/11
Intel Xeon E5603 Processor Option Kit	0A89385	ann 03/01/11
Intel Xeon E5606 Processor Option Kit	0A89386	ann 03/01/11
Intel Xeon E5607 Processor Option Kit	0A89387	ann 03/01/11
Intel Xeon E5645 Processor Option Kit	0A89388	ann 03/01/11
Intel Xeon E5649 Processor Option Kit	0A89389	ann 03/01/11
Intel Xeon X5672 Processor Option Kit	0A89390	ann 03/01/11
Intel Xeon X5675 Processor Option Kit	0A89391	ann 03/01/11

RD230:

Intel Xeon E5503 Processor Option Kit	67Y1483	ann 07/27/10
Intel Xeon E5506 Processor Option Kit	67Y1444	ann 07/27/10
Intel Xeon E5507 Processor Option Kit	67Y1493	ann 07/27/10
Intel Xeon E5620 Processor Option Kit	67Y1492	ann 07/27/10
Intel Xeon E5640 Processor Option Kit	67Y1488	ann 07/27/10
Intel Xeon L5609 Processor Option Kit	67Y1485	ann 01/25/11
Intel Xeon E5630 Processor Option Kit	67Y1491	ann 01/25/11
Intel Xeon X5650 Processor Option Kit	67Y1490	ann 01/25/11
Intel Xeon X5660 Processor Option Kit	67Y1489	ann 01/25/11
Intel Xeon X5667 Processor Option Kit	67Y1487	ann 01/25/11
Intel Xeon X5670 Processor Option Kit	67Y1486	ann 01/25/11
Intel Xeon E5603 Processor Option Kit	0A89392	ann 03/01/11
Intel Xeon E5606 Processor Option Kit	0A89393	ann 03/01/11
Intel Xeon E5607 Processor Option Kit	0A89394	ann 03/01/11
Intel Xeon E5645 Processor Option Kit	0A89395	ann 03/01/11
Intel Xeon E5649 Processor Option Kit	0A89396	ann 03/01/11
Intel Xeon X5672 Processor Option Kit	0A89397	ann 03/01/11
Intel Xeon X5675 Processor Option Kit	0A89398	ann 03/01/11

RD240:

Intel Xeon E5503 Processor Option Kit	67Y1466	ann 07/27/10
Intel Xeon E5506 Processor Option Kit	67Y1467	ann 07/27/10
Intel Xeon E5507 Processor Option Kit	67Y1476	ann 07/27/10
Intel Xeon E5620 Processor Option Kit	67Y1475	ann 07/27/10
Intel Xeon E5640 Processor Option Kit	67Y1471	ann 07/27/10
Intel Xeon L5609 Processor Option Kit	67Y1468	ann 01/25/11
Intel Xeon E5630 Processor Option Kit	67Y1474	ann 01/25/11
Intel Xeon X5650 Processor Option Kit	67Y1473	ann 01/25/11
Intel Xeon X5660 Processor Option Kit	67Y1472	ann 01/25/11
Intel Xeon X5667 Processor Option Kit	67Y1470	ann 01/25/11
Intel Xeon X5670 Processor Option Kit	67Y1469	ann 01/25/11
Intel Xeon E5603 Processor Option Kit	0A89399	ann 03/01/11
Intel Xeon E5606 Processor Option Kit	0A89400	ann 03/01/11
Intel Xeon E5607 Processor Option Kit	0A89401	ann 03/01/11
Intel Xeon E5645 Processor Option Kit	0A89402	ann 03/01/11
Intel Xeon E5649 Processor Option Kit	0A89403	ann 03/01/11
Intel Xeon X5672 Processor Option Kit	0A89404	ann 03/01/11
Intel Xeon X5675 Processor Option Kit	0A89405	ann 03/01/11

⁵⁰ Additional processor must match the existing processor

Memory

All:

2GB PC3-10600 DDR3 RDIMM (2R x 8)	67Y1432	ann 07/27/10
4GB PC3-10600 DDR3 RDIMM (2R x 4)	67Y1433	ann 07/27/10

RD230, RD240:

8GB PC3-8500 DDR3 RDIMM (2R x 4)	67Y1464	ann 07/27/10
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ThinkServer RAID controller and RAID upgrade

TD230:

SATA RAID 5 Upgrade for onboard RAID	67Y1459	ann 07/27/10
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RD230, RD240:

ThinkServer RAID 700 Adapter (512MB)	67Y2646	ann 11/01/11
ThinkServer RAID 700 Battery	67Y2647	ann 11/01/11

System Management

TD230:

Remote Management Module 3	67Y1461	ann 07/27/10
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Redundant Power Supply

RD240:

ThinkServer RD240 Redundant PSU	67Y1497	ann 07/27/10
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Disk Drive

3.5" SATA Direct Cable (DC) and Hot-swap (HS):

TD230, RD230:

500GB 3.5" SATA DC/HS (7200 rpm)	67Y1401	ann 07/27/10
1TB 3.5" SATA DC/HS (7200 rpm)	67Y1402	ann 07/27/10
2TB 3.5" SATA DC/HS (7200 rpm)	67Y2642	ann 03/01/11

3.5" SATA HS:

RD240:

500GB 3.5" SATA HS (7200 rpm)	67Y1479	ann 07/27/10
1TB 3.5" SATA HS (7200 rpm)	67Y1480	ann 07/27/10
2TB 3.5" SATA HS (7200 rpm)	67Y2643	ann 03/01/11

3.5" SAS HS:

TD230 preconfigured with SAS controller, RD230:

300GB 3.5" SAS HS (15000 rpm)	67Y1437	ann 07/27/10
450GB 3.5" SAS HS (15000 rpm)	67Y1462	ann 07/27/10
600GB 3.5" SAS HS (15000 rpm)	67Y2644	ann 03/01/11

RD240:

300GB 3.5" SAS HS (15000 rpm)	67Y1481	ann 07/27/10
450GB 3.5" SAS HS (15000 rpm)	67Y1482	ann 07/27/10
600GB 3.5" SAS HS (15000 rpm)	67Y2645	ann 03/01/11

Keyboard

Preferred Pro USB Keyboard	73P5220	ann 06/21/05
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Mouse

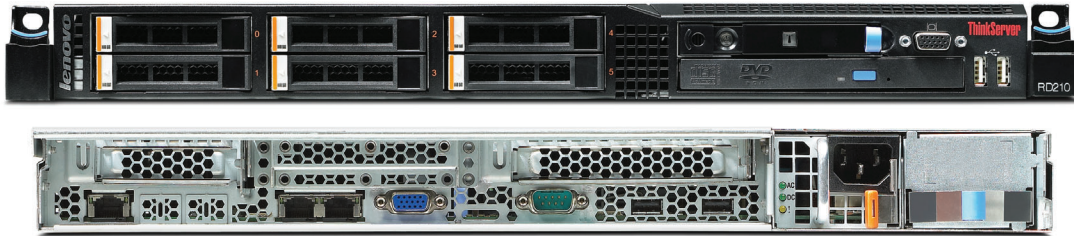
Lenovo Optical Mouse (USB)	06P4069	ann 05/21/03
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For more information on server accessories, please visit:

- www.lenovo.com/support/accessories
- www.lenovo.com/support/thinkserveraccessories
- www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide



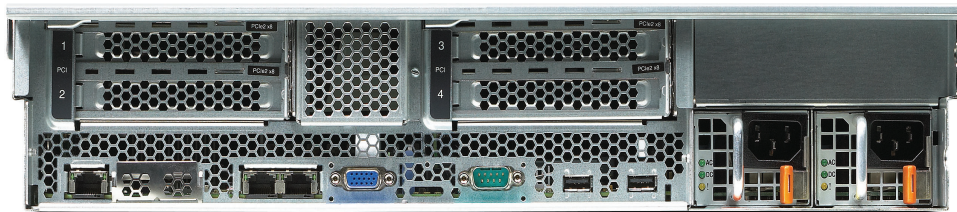
Lenovo® ThinkServer RD210



Lenovo ThinkServer RD220
(8 Disk Bays plus Tape Drive)



Lenovo ThinkServer RD220
(12 Disk Bays)

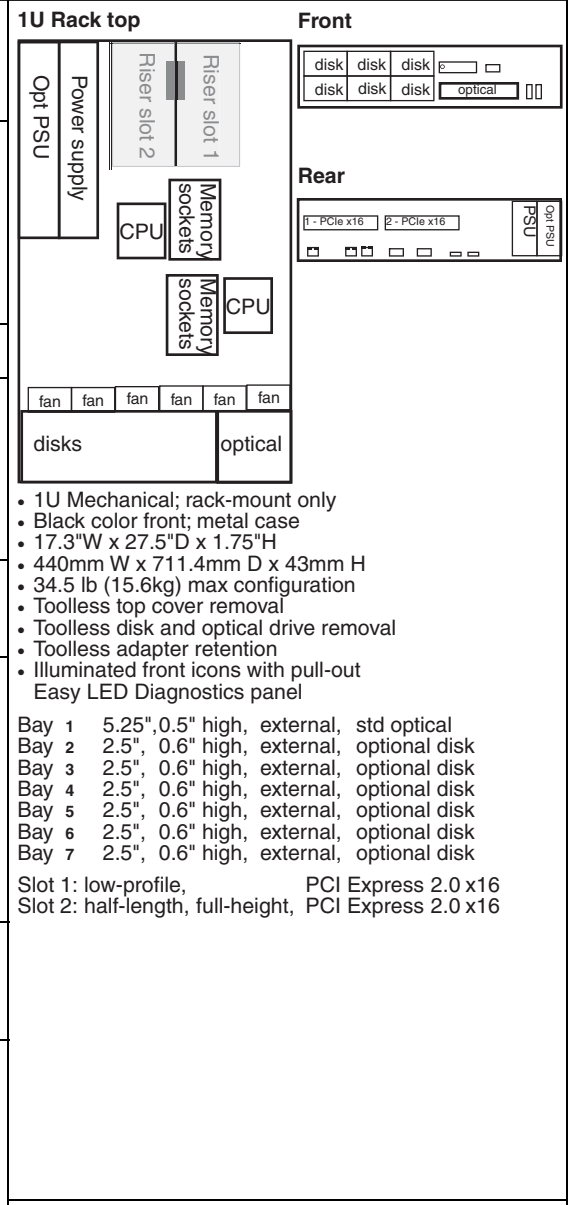


Lenovo ThinkServer RD220

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date
RD210	3795-21U	2x7	1xE5502	1.86	2	1x1GB	1333MHz	2.5"	None	6xHot-swap	SATA/SAS ⁴	0/1	None	1x675W	2xGb	May 09

- **This model has a 1-year limited warranty¹**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5502 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache
Implementation	Processor uses FC-LGA package, two LGA1366 sockets
Memory	1GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , sixteen 240-pin DIMM sockets, standard memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processor with 800MHz DDR3 memory controller *** Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 8MB; <i>Maximum resolution: 1280x1024@60Hz</i>
Disk bays	6 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std
Disk Controller	ServeRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁵ 0, 1 support
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two Gigabit Ethernet ports, TCP/IP Offload Engine(TOE), Broadcom® 5709C operated over PCIe bus, load balancing, upgradeable to 4 int ethernet ports via optional daughter card
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O
Riser card	(See Right) Two PCI Express 2.0 x16 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X
Front ports	Two USB 2.0, external monitor (VGA DB-15)
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)
Internal port	One USB connector for embedded hypervisor
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 675 watts standard, two maximum, hot-swap, auto-sensing, redundant with two power supplies
Cooling	Six fans std, six maximum, variable speed, hot-swap



- 1U Mechanical; rack-mount only
- Black color front; metal case
- 17.3"W x 27.5"D x 1.75"H
- 440mm W x 711.4mm D x 43mm H
- 34.5 lb (15.6kg) max configuration
- Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons with pull-out Easy LED Diagnostics panel

Accessories	
Intel Xeon Dual-Core Processor E5502	67Y0004
1GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0014
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0015
4GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0016
73GB ² 2.5" SAS SFF HS (15000 rpm)	67Y0115
146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116
300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118
500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121
Other accessories at lenovo.com/accessories	

Max internal capacity	3.0TB with six 500GB SATA SFF disks
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Virtualization	Virtualization ready, hypervisor connector embedded
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Limited Warranty¹	
⇒ 1-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)	
⇒ ThinkPlus™ services available; see 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	

Power-On Hotkey	
• Setup Utility: F1 at startup	
• Diagnostic: F2 at startup	
• Network Boot: F12 at startup	

Software Management Tools	
• ThinkServer EasyStartup	
• ThinkServer EasyManage	

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

ThinkPlus Priority Support, 90-day Trial	
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RoHS-compliant	
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See footnotes for important warranty information
 US model announced May 5, 2009
 US model withdrawn effective February 2011

ThinkServer™ RD210 (3796) - TopSeller (2GB RDIMM) - withdrawn

Personal Systems Reference (PSREF)

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date
RD210	3796-27U	2x7	1xE5504	2.00	4	1x2GB	1333MHz	2.5"	None	6xHot-swap	SATA/SAS ⁴	0/1	None	2x675W	2xGb	May 09
RD210	3796-23U	2x7	1xE5506	2.13	4	1x2GB	1333MHz	2.5"	None	6xHot-swap	SATA/SAS	Multi*	None	2x675W	2xGb	May 09

* Multi = RAID-0/1/5/6/10/50/60 support

- **These models have a 3-year limited warranty¹**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5504 or E5506 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache																					
Implementation	Processor uses FC-LGA package, two LGA1366 sockets																					
Memory	2GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3**, Advanced ECC***, Memory Mirroring , sixteen 240-pin DIMM sockets, standard memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors																					
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 8MB; <i>Maximum resolution: 1280x1024@60Hz</i>																					
Disk bays	6 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std																					
Disk Controller	27U: ServeRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁰ , 1 support 23U: ServeRAID-MR10i, PCIe bus, SATA 3Gb/s, SAS 3Gb/s, RAID 0, 1, 5, 6, 10, 50 support																					
Optical	UltraSlim Enhanced DVD±RW																					
Diskette	None (use USB port)																					
Ethernet	Two Gigabit Ethernet ports, TCP/IP Offload Engine(TOE), Broadcom® 5709C operated over PCIe bus, load balancing, upgradeable to 4 int ethernet ports via optional daughter card																					
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O																					
Riser card	(See Right) Two PCI Express 2.0 x16 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X																					
Front ports	Two USB 2.0, external monitor (VGA DB-15)																					
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)																					
Internal port	One USB connector for embedded hypervisor																					
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)																					
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium																					
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS																					
Keyboard	None (use USB port)																					
Mouse	None (use USB port)																					
Power supply(s)	Two 675 watts standard, two maximum, hot-swap, auto-sensing, redundant with two power supplies																					
Cooling	Six fans std, six maximum, variable speed, hot-swap																					
Accessories	<table border="0"> <tr> <td>Intel Xeon Dual-Core Processor E5504</td> <td>67Y0007</td> </tr> <tr> <td>2GB PC3-10600 DDR3 1333 MHz RDIMM</td> <td>67Y0015</td> </tr> <tr> <td>300GB² 2.5" SAS SFF HS (10000 rpm)</td> <td>67Y0118</td> </tr> <tr> <td>500GB 2.5" SATA SFF HS (7200 rpm)</td> <td>67Y0121</td> </tr> </table> <p>Other accessories at lenovo.com/accessories</p>	Intel Xeon Dual-Core Processor E5504	67Y0007	2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0015	300GB ² 2.5" SAS SFF HS (10000 rpm)	67Y0118	500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121													
Intel Xeon Dual-Core Processor E5504	67Y0007																					
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500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121																					
Max internal capacity	3.0TB with six 500GB SATA SFF disks																					
Limited Warranty¹	<ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 																					
1U Rack top																						
Front																						
Rear																						
<ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.3"W x 27.5"D x 1.75"H • 440mm W x 711.4mm D x 43mm H • 34.5 lb (15.6kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons with pull-out Easy LED Diagnostics panel 																						
<table border="0"> <tr> <td>Bay 1</td> <td>5.25", 0.5" high, external,</td> <td>std optical</td> </tr> <tr> <td>Bay 2</td> <td>2.5", 0.6" high, external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 3</td> <td>2.5", 0.6" high, external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 4</td> <td>2.5", 0.6" high, external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 5</td> <td>2.5", 0.6" high, external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 6</td> <td>2.5", 0.6" high, external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 7</td> <td>2.5", 0.6" high, external,</td> <td>optional disk</td> </tr> </table>		Bay 1	5.25", 0.5" high, external,	std optical	Bay 2	2.5", 0.6" high, external,	optional disk	Bay 3	2.5", 0.6" high, external,	optional disk	Bay 4	2.5", 0.6" high, external,	optional disk	Bay 5	2.5", 0.6" high, external,	optional disk	Bay 6	2.5", 0.6" high, external,	optional disk	Bay 7	2.5", 0.6" high, external,	optional disk
Bay 1	5.25", 0.5" high, external,	std optical																				
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Bay 4	2.5", 0.6" high, external,	optional disk																				
Bay 5	2.5", 0.6" high, external,	optional disk																				
Bay 6	2.5", 0.6" high, external,	optional disk																				
Bay 7	2.5", 0.6" high, external,	optional disk																				
<table border="0"> <tr> <td>Slot 1:</td> <td>low-profile,</td> <td>PCI Express 2.0 x16</td> </tr> <tr> <td>Slot 2:</td> <td>half-length, full-height,</td> <td>PCI Express 2.0 x16</td> </tr> </table>		Slot 1:	low-profile,	PCI Express 2.0 x16	Slot 2:	half-length, full-height,	PCI Express 2.0 x16															
Slot 1:	low-profile,	PCI Express 2.0 x16																				
Slot 2:	half-length, full-height,	PCI Express 2.0 x16																				
Virtualization Virtualization ready, hypervisor connector embedded																						
Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup 																						
Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 																						
Security <ul style="list-style-type: none"> • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 																						
ThinkPlus Priority Support, 90-day Trial																						
RoHS-compliant																						

See footnotes for important warranty information
 US models announced May 5, 2009
 US models withdrawn effective February 2011

ThinkServer™ RD210 (3796) - TopSeller (4GB RDIMM) - withdrawn

Personal Systems Reference (PSREF)

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date
RD210	3796-2CU	2x7	1xE5540	2.53	4	2x2GB	1333MHz	2.5"	Battery	6xHot-swap	SATA/SAS ⁴	Multi*	Premium	2x675W	2xGb	May 09

* Multi = RAID-0/1/5/6/10/50/60 support

- **This model has a 3-year limited warranty¹**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one processors standard, Intel® Xeon® Processor E5540 with quad-core , 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache																												
Implementation	Processor uses FC-LGA package, two LGA1366 sockets																												
Memory	4GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , sixteen 240-pin DIMM sockets, std memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller ***Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors																												
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 8MB; <i>Maximum resolution: 1280x1024@60Hz</i>																												
Disk bays	6 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std																												
Disk Controller	ServeRAID®-MR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁵ 0, 1, 5, 6, 10, 50 support, Battery backed cache integrated																												
Optical	UltraSlim Enhanced DVD±RW																												
Diskette	None (use USB port)																												
Ethernet	Two Gigabit Ethernet ports, TCP/IP Offload Engine(TOE), Broadcom® 5709C operated over PCIe bus, load balancing, upgradeable to 4 int ethernet ports via optional daughter card																												
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O																												
Riser card	(See Right) Two PCI Express 2.0 x16 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X																												
Front ports	Two USB 2.0, external monitor (VGA DB-15)																												
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)																												
Internal port	One USB connector for embedded hypervisor																												
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)																												
Systems mgmt	Integrated Management Module (IMM) Premium, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support																												
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS																												
Keyboard	None (use USB port)																												
Mouse	None (use USB port)																												
Power supply(s)	Two 675 watts standard, two maximum, variable speed fan, hot-swap, auto-sensing, redundant with two power supplies																												
Cooling	Six fans std, six maximum, variable speed, hot-swap																												
Accessories	<table border="0"> <tr> <td>Intel Xeon Quad-Core Processor E5540</td> <td>67Y0096</td> </tr> <tr> <td>73GB² 2.5" SAS SFF HS (15000 rpm)</td> <td>67Y0115</td> </tr> <tr> <td>146GB 2.5" SAS SFF HS (10000 rpm)</td> <td>67Y0116</td> </tr> <tr> <td>300GB 2.5" SAS SFF HS (10000 rpm)</td> <td>67Y0118</td> </tr> <tr> <td>500GB 2.5" SATA SFF HS (7200 rpm)</td> <td>67Y0121</td> </tr> </table> Other accessories at lenovo.com/accessories	Intel Xeon Quad-Core Processor E5540	67Y0096	73GB ² 2.5" SAS SFF HS (15000 rpm)	67Y0115	146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116	300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118	500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121																		
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300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118																												
500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121																												
Max internal capacity	3.0TB with six 500GB SATA SFF disks																												
Virtualization	Virtualization ready, hypervisor connector embedded																												
Limited Warranty¹	<ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 																												
1U Rack top Power supply, Riser slot 2, Riser slot 1, CPU, Memory sockets, CPU, fan, fans, disks, optical																													
Front disk, disk, disk, disk, optical																													
Rear 1 - PCIe x16, 2 - PCIe x16, PSU, fan, fans, disks, optical																													
<ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.3"W x 27.5"D x 1.75"H • 440mm W x 711.4mm D x 43mm H • 34.5 lb (15.6kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons with pull-out Easy LED Diagnostics panel <table border="0"> <tr> <td>Bay 1</td> <td>5.25", 0.5" high,</td> <td>external,</td> <td>std optical</td> </tr> <tr> <td>Bay 2</td> <td>2.5", 0.6" high,</td> <td>external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 3</td> <td>2.5", 0.6" high,</td> <td>external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 4</td> <td>2.5", 0.6" high,</td> <td>external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 5</td> <td>2.5", 0.6" high,</td> <td>external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 6</td> <td>2.5", 0.6" high,</td> <td>external,</td> <td>optional disk</td> </tr> <tr> <td>Bay 7</td> <td>2.5", 0.6" high,</td> <td>external,</td> <td>optional disk</td> </tr> </table> <p>Slot 1: low-profile, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x16</p>		Bay 1	5.25", 0.5" high,	external,	std optical	Bay 2	2.5", 0.6" high,	external,	optional disk	Bay 3	2.5", 0.6" high,	external,	optional disk	Bay 4	2.5", 0.6" high,	external,	optional disk	Bay 5	2.5", 0.6" high,	external,	optional disk	Bay 6	2.5", 0.6" high,	external,	optional disk	Bay 7	2.5", 0.6" high,	external,	optional disk
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Bay 2	2.5", 0.6" high,	external,	optional disk																										
Bay 3	2.5", 0.6" high,	external,	optional disk																										
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Bay 6	2.5", 0.6" high,	external,	optional disk																										
Bay 7	2.5", 0.6" high,	external,	optional disk																										
Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup 																													
Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 																													
Security <ul style="list-style-type: none"> • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 																													
ThinkPlus Priority Support, 90-day Trial																													
RoHS-compliant																													

See footnotes for important warranty information
 US model announced May 5, 2009
 US model withdrawn effective February 2011

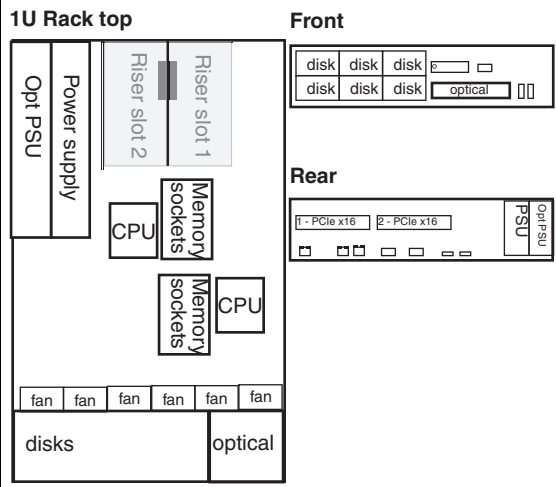
ThinkServer™ RD210 (3818) - Special Bid - withdrawn

Personal Systems Reference (PSREF)

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date	
RD210	3818-25U	2x7	1xE5502	1.86	2	1x1GB	1333MHz	2.5"	None	6xHot-swap	SATA/SAS ⁴	0/1	None	1x675W	2xGb	May 09

• **This model has a 1-year limited warranty¹**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5502 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache
Implementation	Processor uses FC-LGA package, two LGA1366 sockets
Memory	1GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , sixteen 240-pin DIMM sockets, standard memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processor with 800MHz DDR3 memory controller *** Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 8MB; <i>Maximum resolution: 1280x1024@60Hz</i>
Disk bays	6 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std
Disk Controller	ServerRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁵ 0, 1 support
Optical	None
Diskette	None (use optional USB diskette)
Ethernet	Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing, upgradeable to 4 int ethernet ports via optional daughter card
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O
Riser card	(See Right) Two PCI Express 2.0 x16 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X
Front ports	Two USB 2.0, external monitor (VGA DB-15)
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)
Internal port	One USB connector for embedded hypervisor
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 675 watts standard, two maximum, hot-swap, auto-sensing, redundant with two power supplies
Cooling	Six fans std, six maximum, variable speed, hot-swap



- 1U Mechanical; rack-mount only
 - Black color front; metal case
 - 17.3"W x 27.5"D x 1.75"H
 - 440mm W x 711.4mm D x 43mm H
 - 34.5 lb (15.6kg) max configuration
 - Toolless top cover removal
 - Toolless disk and optical drive removal
 - Toolless adapter retention
 - Illuminated front icons with pull-out Easy LED Diagnostics panel
- | | | |
|-------|-----------------------------|------------------|
| Bay 1 | 5.25", 0.5" high, external, | optional optical |
| Bay 2 | 2.5", 0.6" high, external, | optional disk |
| Bay 3 | 2.5", 0.6" high, external, | optional disk |
| Bay 4 | 2.5", 0.6" high, external, | optional disk |
| Bay 5 | 2.5", 0.6" high, external, | optional disk |
| Bay 6 | 2.5", 0.6" high, external, | optional disk |
| Bay 7 | 2.5", 0.6" high, external, | optional disk |
- Slot 1: low-profile, PCI Express 2.0 x16
Slot 2: half-length, full-height, PCI Express 2.0 x16

Accessories	
Intel Xeon Dual-Core Processor E5502	67Y0004
1GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0014
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0015
4GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0016
73GB ² 2.5" SAS SFF HS (15000 rpm)	67Y0115
146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116
300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118
USB Portable Diskette Drive	05K9276
Lenovo® TV L151 15-inch Analog TFT Monitor	9165AC6
Other accessories at lenovo.com/accessories	

Max internal capacity	1.8TB with six 300GB SATA/SAS SFF disks
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Virtualization	Virtualization ready, hypervisor connector embedded
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Limited Warranty¹	
⇒	1-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)
⇒	ThinkPlus™ services available; see 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

Power-On Hotkey		
•	Setup Utility: F1 at startup	
•	Diagnostic: F2 at startup	
•	Network Boot: F12 at startup	
Software Management Tools		
•	ThinkServer EasyStartup	
•	ThinkServer EasyManage	
Security		
•	Power-on password	
•	Administrator password	
•	Boot sequence control	
•	Boot without keyboard, mouse, diskette	
•	Serial port I/O control	
•	USB port disablement (front or all)	

ThinkPlus Priority Support, 90-day Trial

RoHS-compliant

See footnotes for important warranty information
US model listed are special bid models for technical reference only
US models withdrawn effective December 2009

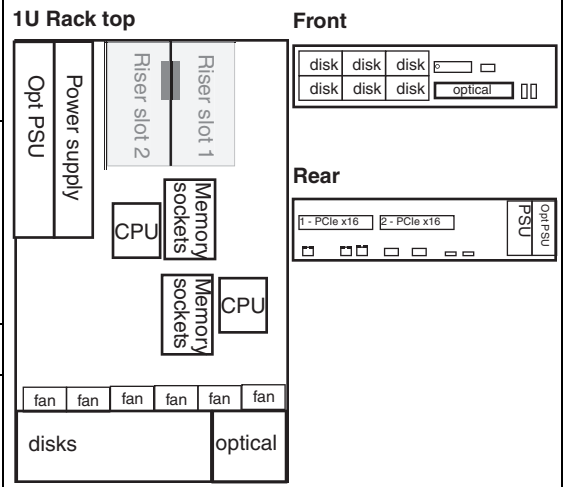
ThinkServer™ RD210 (3819) - Special Bid - withdrawn

Personal Systems Reference (PSREF)

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date	
RD210	3819-26U	2x7	1xE5502	1.86	2	1x1GB	1333MHz	2.5"	None	6xHot-swap	SATA/SAS ⁴	0/1	None	1x675W	2xGb	May 09

• **This model has a 3-year limited warranty¹**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5502 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache
Implementation	Processor uses FC-LGA package, two LGA1366 sockets
Memory	1GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , sixteen 240-pin DIMM sockets, standard memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processor with 800MHz DDR3 memory controller *** Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 8MB; <i>Maximum resolution: 1280x1024@60Hz</i>
Disk bays	6 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std
Disk Controller	ServerRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁵ 0, 1 support
Optical	None
Diskette	None (use optional USB diskette)
Ethernet	Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing, upgradeable to 4 int ethernet ports via optional daughter card
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O
Riser card	(See Right) Two PCI Express 2.0 x16 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X
Front ports	Two USB 2.0, external monitor (VGA DB-15)
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)
Internal port	One USB connector for embedded hypervisor
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 675 watts standard, two maximum, hot-swap, auto-sensing, redundant with two power supplies
Cooling	Six fans std, six maximum, variable speed, hot-swap



- 1U Mechanical; rack-mount only
 - Black color front; metal case
 - 17.3"W x 27.5"D x 1.75"H
 - 440mm W x 711.4mm D x 43mm H
 - 34.5 lb (15.6kg) max configuration
 - Toolless top cover removal
 - Toolless disk and optical drive removal
 - Toolless adapter retention
 - Illuminated front icons with pull-out Easy LED Diagnostics panel
- | | | |
|-------|-----------------------------|-----------------------|
| Bay 1 | 5.25", 0.5" high, external, | optional optical disk |
| Bay 2 | 2.5", 0.6" high, external, | optional disk |
| Bay 3 | 2.5", 0.6" high, external, | optional disk |
| Bay 4 | 2.5", 0.6" high, external, | optional disk |
| Bay 5 | 2.5", 0.6" high, external, | optional disk |
| Bay 6 | 2.5", 0.6" high, external, | optional disk |
| Bay 7 | 2.5", 0.6" high, external, | optional disk |
- Slot 1: low-profile, PCI Express 2.0 x16
Slot 2: half-length, full-height, PCI Express 2.0 x16

Accessories	
Intel Xeon Dual-Core Processor E5502	67Y0004
1GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0014
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0015
4GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0016
73GB ² 2.5" SAS SFF HS (15000 rpm)	67Y0115
146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116
300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118
500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121
USB Portable Diskette Drive	05K9276
Lenovo® TV L151 15-inch Analog TFT Monitor	9165AC6
Other accessories at lenovo.com/accessories	

Max internal capacity	3.0TB with six 500GB SATA SFF disks
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Virtualization	Virtualization ready, hypervisor connector embedded
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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)**

⇒ **ThinkPlus™ services available; see 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**

- Power-On Hotkey**
- Setup Utility: F1 at startup
 - Diagnostic: F2 at startup
 - Network Boot: F12 at startup

- Software Management Tools**
- ThinkServer EasyStartup
 - ThinkServer EasyManage

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

ThinkPlus Priority Support, 90-day Trial

RoHS-compliant

See footnotes for important warranty information
US model listed are special bid models for technical reference only
US models withdrawn effective December 2009

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date
RD220	3798-16U	4x9	1xE5502	1.86	2	1x2GB	1333MHz	2.5"	None	8xHot-swap	SATA/SAS ⁴	0/1		2x675W	2xGb	May 09
RD220	3798-1FU	4x9	1xE5520	2.26	4	1x2GB	1333MHz	2.5"	None	8xHot-swap	SATA/SAS	Multi*	Premium	2x675W	2xGb	May 09
RD220	3798-1LU	4x9	2xE5540	2.53	8	2x2GB	1333MHz	2.5"	None	8xHot-swap	SATA/SAS	Multi	Premium	2x675W	2xGb	May 09

* Multi = RAID-0/1/5/6/10/50/60 support

- **These models have a 3-year limited warranty¹**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **These small and medium business (SMB) models are part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one or two processors standard, Intel® Xeon® Processor E5502 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5520 or E5540 with quad-core , 5.86GT/s QPI, 1066MHz DDR3 memory controller, and 8MB cache Processor uses FC-LGA package, two LGA1366 sockets	
Implementation		
Memory	2GB or 4GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , sixteen 240-pin DIMM sockets, std memory in 1 or 2 sockets, 15 or 14 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller ***Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors	
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 16MB; <i>Maximum resolution: 1280x1024@60Hz</i>	
Disk bays	8 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std	
Disk Controller	<i>16U:</i> ServeRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support <i>1FU/1LU:</i> ServeRAID-MR10i, PCIe bus, SATA 3Gb/s, SAS 3Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support	
Optical	UltraSlim Enhanced DVD±RW	
Diskette	None (use USB port)	
Ethernet	Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine (TOE), load balancing, upgradeable to 4 int ethernet ports via optional daughter card	
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O	
Riser card	(See Right) Four PCI Express 2.0 x8 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X	
Front ports	Two USB 2.0, external monitor (VGA DB-15)	
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)	
Internal port	One USB connector for embedded hypervisor	
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)	
Systems mgmt	Trusted Platform Module (TPM) 1.2 support <i>16U:</i> Integrated Management Module (IMM) std, IPMI 2.0-compliant, upgradeable to IMM Premium <i>1FU/1LU:</i> IMM Premium, IPMI 2.0-compliant	
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply(s)	Two 675 watts standard, two maximum, variable speed fan, hot-swap, auto-sensing, redundant with two power supplies	
Cooling	Three fans std, three maximum, variable speed, hot-swap	
Max internal capacity	4.0TB ² with eight 500GB SATA SFF disks	
Virtualization	Virtualization ready, hypervisor connector embedded	
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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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		
2U Rack top Power supply, Riser slot 2, Riser slot 1, CPU, Memory sockets, CPU, fan, fan, fan, disks, optical		
Front optical		
Rear 1 - PCIe x8, 3 - PCIe x8, 2 - PCIe x8, 4 - PCIe x8, PSU		
<ul style="list-style-type: none"> • 2U Mechanical; rack-mount only • Black color front; metal case • 17.5"W x 27.5"D x 3.36"H • 443.6mm W x 698mm D x 85.4mm H • 65 lb (29.5kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons with pull-out Easy LED Diagnostics panel Bay 1 5.25", 0.5" high, external, std optical Bay 2 2.5", 0.6" high, external, optional disk Bay 3 2.5", 0.6" high, external, optional disk Bay 4 2.5", 0.6" high, external, optional disk Bay 5 2.5", 0.6" high, external, optional disk Bay 6 2.5", 0.6" high, external, optional disk Bay 7 2.5", 0.6" high, external, optional disk Bay 8 2.5", 0.6" high, external, optional disk Bay 9 2.5", 0.6" high, external, optional disk Slot 1: full-length, full-height, PCI Express 2.0 x8 Slot 2: low-profile, PCI Express 2.0 x8 Slot 3: full-length, full-height, PCI Express 2.0 x8 Slot 4: half-length, full-height, PCI Express 2.0 x8		
Power-On Hotkey		
<ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup 		
Software Management Tools		
<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 		
Security		
<ul style="list-style-type: none"> • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 		
ThinkPlus Priority Support, 90-day Trial		
RoHS-compliant		

See footnotes for important warranty information
 US models announced May 5, 2009
 US models withdrawn effective February 2011

ThinkServer™ RD220 (3798) - TopSeller (Tape Drive) - withdrawn

Personal Systems Reference (PSREF)

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date
RD220	3798-13U	4x10	1xE5506	2.13	4	1x2GB	1333MHz	2.5"	None	8xHot-swap	SATA/SAS ⁴	Multi*	None	2x675W	2xGb	May 09

* Multi = RAID-0/1/5/6/10/50/60 support

- **This model has a 3-year limited warranty¹**
- **Easy to use with ThinkServer EasyStartup and EasyManage software**
- **This small and medium business (SMB) model is part of the US TopSeller™ Program**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5506 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache																					
Implementation	Processor uses FC-LGA package, two LGA1366 sockets																					
Memory	2GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , sixteen 240-pin DIMM sockets, std memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller ***Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors																					
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 16MB; <i>Maximum resolution: 1280x1024@60Hz</i>																					
Disk bays	8 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std																					
Disk Controller	ServeRAID®--MR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁵ 0, 1, 5, 6, 10, 50, 60 support																					
Tape backup	Optional, internal/external, 3.5", USB or SATA via disk controller																					
Optical Diskette	UltraSlim Enhanced DVD±RW																					
Ethernet	Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing, upgradeable to 4 int ethernet ports via optional daughter card																					
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O																					
Riser card	(See Right) Four PCI Express 2.0 x8 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X	<ul style="list-style-type: none"> • 2U Mechanical; rack-mount only • Black color front; metal case • 17.5"W x 27.5"D x 3.36"H • 443.6mm W x 698mm D x 85.4mm H • 65 lb (29.5kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons with pull-out Easy LED Diagnostics panel <table border="1"> <tr> <td>Bay 1</td> <td>5.25", 0.5" high, external, std optical</td> </tr> <tr> <td>Bay 2</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 3</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 4</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 5</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 6</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 7</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 8</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 9</td> <td>2.5", 0.6" high, external, optional disk</td> </tr> <tr> <td>Bay 10</td> <td>3.5", 1.6" high, external, optional tape</td> </tr> </table> <p>Slot 1: full-length, full-height, PCI Express 2.0 x8 Slot 2: low-profile, PCI Express 2.0 x8 Slot 3: full-length, full-height, PCI Express 2.0 x8 Slot 4: half-length, full-height, PCI Express 2.0 x8</p>	Bay 1	5.25", 0.5" high, external, std optical	Bay 2	2.5", 0.6" high, external, optional disk	Bay 3	2.5", 0.6" high, external, optional disk	Bay 4	2.5", 0.6" high, external, optional disk	Bay 5	2.5", 0.6" high, external, optional disk	Bay 6	2.5", 0.6" high, external, optional disk	Bay 7	2.5", 0.6" high, external, optional disk	Bay 8	2.5", 0.6" high, external, optional disk	Bay 9	2.5", 0.6" high, external, optional disk	Bay 10	3.5", 1.6" high, external, optional tape
Bay 1	5.25", 0.5" high, external, std optical																					
Bay 2	2.5", 0.6" high, external, optional disk																					
Bay 3	2.5", 0.6" high, external, optional disk																					
Bay 4	2.5", 0.6" high, external, optional disk																					
Bay 5	2.5", 0.6" high, external, optional disk																					
Bay 6	2.5", 0.6" high, external, optional disk																					
Bay 7	2.5", 0.6" high, external, optional disk																					
Bay 8	2.5", 0.6" high, external, optional disk																					
Bay 9	2.5", 0.6" high, external, optional disk																					
Bay 10	3.5", 1.6" high, external, optional tape																					
Front ports	Two USB 2.0, external monitor (VGA DB-15)																					
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45), One USB connector for embedded hypervisor																					
Internal port	One USB connector for embedded hypervisor																					
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)																					
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium																					
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS																					
Keyboard	None (use USB port)																					
Mouse	None (use USB port)																					
Power supply(s)	Two 675 watts standard, two maximum, variable speed fan, hot-swap, auto-sensing, redundant with two power supplies																					
Cooling	Three fans std, three maximum, variable speed, hot-swap																					
Accessories Intel Xeon Quad-Core Processor E5506 67Y0005 2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y0015 300GB ² 2.5" SAS SFF HS (10000 rpm) 67Y0118 500GB 2.5" SATA SFF HS (7200 rpm) 67Y0121 Other accessories at lenovo.com/accessories		Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup 																				
Max internal capacity 4.0TB with eight 500GB SATA SFF disks		Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage 																				
Virtualization Virtualization ready, hypervisor connector embedded		Security <ul style="list-style-type: none"> • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all) 																				
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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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		ThinkPlus Priority Support, 90-day Trial RoHS-compliant																				

See footnotes for important warranty information
 US model announced May 5, 2009
 US model withdrawn effective February 2011

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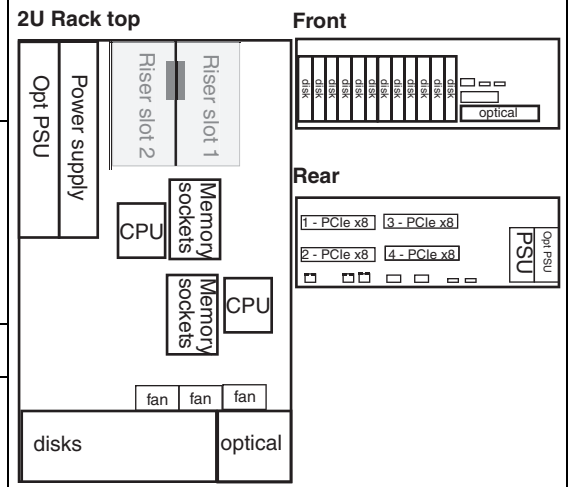
ThinkServer™ RD220 (3779) - Special Bid - withdrawn

Personal Systems Reference (PSREF)

Name	Type-model	Slot x bay	Proc-essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Ethernet	Avail date
RD220	3779-1AU	4x13	1xE5502	1.86	2	1x1GB	1333MHz	2.5"	None	12xHot-swap	SATA/SAS ⁴	0/1	None	1x675W	2xGb	May 09

• **This model has a 3-year limited warranty¹**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5502 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache
Implementation	Processor uses FC-LGA package, two LGA1366 sockets
Memory	1GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3** , Advanced ECC*** , Memory Mirroring , sixteen 240-pin DIMM sockets, standard memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) ** System automatically clocks down for processors with 800MHz DDR3 memory controller *** Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 16MB; <i>Maximum resolution: 1280x1024@60Hz</i>
Disk bays	12 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std
Disk Controller	ServerRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID ⁵ 0, 1 support
Optical	None
Diskette	None (use optional USB diskette)
Ethernet	Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing, upgradeable to 4 int ethernet ports via optional daughter card
Chipset	Intel 5520 Chipset , Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O
Riser card	(See Right) Four PCI Express 2.0 x8 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X
Front ports	Two USB 2.0, external monitor (VGA DB-15)
Rear ports	Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45)
Internal port	One USB connector for embedded hypervisor
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED)
Systems mgmt	Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 675 watts standard, two maximum, variable speed fan, hot-swap, auto-sensing, redundant with two power supplies
Cooling	Three fans std, three maximum, variable speed, hot-swap



- 2U Mechanical; rack-mount only
 - Black color front; metal case
 - 17.5"W x 27.5"D x 3.36"H
 - 443.6mm W x 698mm D x 85.4mm H
 - 65 lb (29.5kg) max configuration
 - Toolless top cover removal
 - Toolless disk and optical drive removal
 - Toolless adapter retention
 - Illuminated front icons with pull-out Easy LED Diagnostics panel
- | | | |
|--------|-----------------------------|------------------|
| Bay 1 | 5.25", 0.5" high, external, | optional optical |
| Bay 2 | 2.5", 0.6" high, external, | optional disk |
| Bay 3 | 2.5", 0.6" high, external, | optional disk |
| Bay 4 | 2.5", 0.6" high, external, | optional disk |
| Bay 5 | 2.5", 0.6" high, external, | optional disk |
| Bay 6 | 2.5", 0.6" high, external, | optional disk |
| Bay 7 | 2.5", 0.6" high, external, | optional disk |
| Bay 8 | 2.5", 0.6" high, external, | optional disk |
| Bay 9 | 2.5", 0.6" high, external, | optional disk |
| Bay 10 | 2.5", 0.6" high, external, | optional disk |
| Bay 11 | 2.5", 0.6" high, external, | optional disk |
| Bay 12 | 2.5", 0.6" high, external, | optional disk |
| Bay 13 | 2.5", 0.6" high, external, | optional disk |

- Slot 1: full-length, full-height, PCI Express 2.0 x8
- Slot 2: low-profile, PCI Express 2.0 x8
- Slot 3: full-length, full-height, PCI Express 2.0 x8
- Slot 4: half-length, full-height, PCI Express 2.0 x8

Accessories	
Intel Xeon Dual-Core Processor E5502	67Y0004
1GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0014
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0015
4GB PC3-10600 DDR3 1333 MHz RDIMM	67Y0016
73GB ² 2.5" SAS SFF HS (15000 rpm)	67Y0115
146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116
300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118
500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121
USB Portable Diskette Drive	05K9276
Lenovo® TV L151 15-inch Analog TFT Monitor	9165AC6
Other accessories at lenovo.com/accessories	

Max internal capacity
6.0TB with twelve 500GB SATA SFF disks

Virtualization
Virtualization ready, hypervisor connector embedded

Limited Warranty ¹
<ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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

Power-On Hotkey
<ul style="list-style-type: none"> • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup

Software Management Tools
<ul style="list-style-type: none"> • ThinkServer EasyStartup • ThinkServer EasyManage

Security
<ul style="list-style-type: none"> • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)

ThinkPlus Priority Support, 90-day Trial
RoHS-compliant

See footnotes for important warranty information
 US models listed are special bid models for technical reference only
 US models withdrawn effective December 2009

Partial list of accessories supported on Lenovo® ThinkServer TD200, TD200x, RD210, RD220

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Processors⁵⁵**TD200:**

Intel® Xeon® Dual-Core Processor E5502	67Y0008	ann	10/06/09
Intel Xeon Quad-Core Processor E5504	67Y0009	ann	10/06/09
Intel Xeon Quad-Core Processor E5506	67Y0010	ann	10/06/09

TD200x:

Intel Xeon Quad-Core Processor E5520	67Y0011	ann	06/30/09
Intel Xeon Quad-Core Processor E5530	67Y0102	ann	06/30/09
Intel Xeon Quad-Core Processor E5540	67Y0103	ann	03/02/10

RD210, RD220:

Intel Xeon Dual-Core Processor E5502	67Y0004	ann	05/05/09
Intel Xeon Quad-Core Processor E5504	67Y0007	ann	05/05/09
Intel Xeon Quad-Core Processor E5506	67Y0005	ann	05/05/09
Intel Xeon Quad-Core Processor E5520	67Y0006	ann	05/05/09
Intel Xeon Quad-Core Processor E5540	67Y0096	ann	05/05/09

⁵⁵ Additional Processor must match the existing processor

Memory

1GB PC3-10600 DDR3 ECC RDIMM	67Y0014	ann	05/05/09
2GB PC3-10600 DDR3 ECC RDIMM	67Y0015	ann	05/05/09
4GB PC3-10600 DDR3 ECC RDIMM	67Y0016	ann	05/05/09

Backup**All:**

IBM® RDX 160GB Cartridge	67Y0169	ann	11/10/09
IBM RDX 320GB Cartridge	67Y0170	ann	11/10/09
IBM RDX 500GB Cartridge	67Y0171	ann	11/10/09

RD210, RD220:

IBM LTO Generation 3 5-Pack Media	67Y1379	ann	11/10/09
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ThinkServer IBM RAID controller

SAS 3Gb HBA Controller V2	67Y0183	ann	11/10/09
ServeRAID® M1015	67Y1368	ann	12/08/09
ServeRAID M5015	67Y0184	ann	11/10/09
ServeRAID M5014	67Y0185	ann	11/10/09
ServeRAID M1000 Series Adv Feature Key	67Y1369	ann	12/08/09
ServeRAID M5000 Series Battery Kit	67Y0186	ann	11/10/09
ServeRAID M5000 Series Adv Feature Key	67Y0188	ann	12/08/09

Connectivity

IBM 8Gb FC Single-port HBA by QLogic®	67Y0172	ann	11/10/09
IBM 8Gb FC Dual-port HBA by QLogic	67Y0173	ann	11/10/09
IBM 8Gb FC Single-port HBA by Emulex®	67Y0174	ann	11/10/09
IBM 8Gb FC Dual-port HBA by Emulex	67Y0175	ann	11/10/09
IBM 8Gb FC Single-port HBA by Brocade®	67Y0176	ann	11/10/09
IBM 8Gb FC Dual-port HBA by Brocade	67Y0177	ann	11/10/09

Keyboard

Preferred Pro USB Keyboard	73P5220	ann	06/21/05
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Mouse

Lenovo Optical Mouse (USB)	06P4069	ann	05/21/03
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Disk Drive**All:****2.5" SAS Hot-swap (HS):**

73GB ² 2.5" SAS SFF HS (15000 rpm)	67Y0115	ann	05/05/09
146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116	ann	05/05/09
146GB 2.5" SAS SFF HS (15000 rpm)	67Y0117	ann	05/05/09
300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118	ann	05/05/09

2.5" SATA HS:

300GB 2.5" SATA SFF HS (10000 rpm)	67Y0002	ann	05/05/09
160GB 2.5" SATA SFF HS (7200 rpm)	67Y0120	ann	09/08/09
500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121	ann	09/08/09

3.5" SAS HS:

146GB 3.5" SAS HS (15000 rpm)	45J6211	ann	09/30/08
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3.5" SATA HS:

160GB 3.5" SATA HS (7200 rpm)	45J6200	ann	09/30/08
250GB 3.5" SATA HS (7200 rpm)	45J6201	ann	09/30/08
500GB 3.5" SATA HS (7200 rpm)	45J6202	ann	09/30/08
750GB 3.5" SATA HS (7200 rpm)	45J6203	ann	09/30/08
1TB 3.5" SATA HS (7200 rpm)	45J6204	ann	09/30/08

3.5" SATA Simple-swap:

160GB 3.5" SATA Simple-swap (7200 rpm)	45J6195	ann	09/30/08
250GB 3.5" SATA Simple-swap (7200 rpm)	45J6196	ann	09/30/08
500GB 3.5" SATA Simple-swap (7200 rpm)	45J6197	ann	09/30/08
750GB 3.5" SATA Simple-swap (7200 rpm)	45J6198	ann	09/30/08

TD200:**3.5" 6Gb/s SAS HS:**

300GB 3.5" SAS HS (15000 rpm)	67Y1384	ann	01/26/10
450GB 3.5" SAS HS (15000 rpm)	67Y1385	ann	01/26/10
600GB 3.5" SAS HS (15000 rpm)	67Y1386	ann	01/26/10

For more information on server accessories, please visit:

www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide

Partial list of Lenovo® ThinkPlus Services for ThinkServer™ TD200x, RD210, RD220

For more information see:

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

Training classes

- The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

ThinkPlus service upgrade options⁷

LOR = *Lenovo Onsite Repair*

TD200x with 1-year warranty

3-year LOR 9x5 Next Business Day	45K4062
3-year LOR 9x5 4 hour response	45K4063
4-year LOR 9x5 Next Business Day	51J0731
4-year LOR 9x5 4 hour response	51J0732
5-year LOR 9x5 Next Business Day	51J0733
5-year LOR 9x5 4 hour response	51J0734

TD200x with 3-year warranty

3-year LOR 9x5 4 hour response	45K4066
4-year LOR 9x5 Next Business Day	51J0735
4-year LOR 9x5 4 hour response	51J0736
5-year LOR 9x5 Next Business Day	51J0737
5-year LOR 9x5 4 hour response	51J0738

RD210, RD220 with 1-year warranty

3-year LOR 9x5 Next Business Day	45K5305
3-year LOR 9x5 4 hour response	45K5306
4-year LOR 9x5 Next Business Day	51J0747
4-year LOR 9x5 4 hour response	51J0748
5-year LOR 9x5 Next Business Day	51J0749
5-year LOR 9x5 4 hour response	51J0750

RD210, RD220 with 3-year warranty

3-year LOR 9x5 4 hour response	45K4076
4-year LOR 9x5 Next Business Day	51J0751
4-year LOR 9x5 4 hour response	51J0752
5-year LOR 9x5 Next Business Day	51J0753
5-year LOR 9x5 4 hour response	51J0754

ThinkPlus Priority Support

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians

TD200x with 1-year warranty

3-year Priority Support	45K4064
3-year Priority 4 Support	45K4065

TD200x with 3-year warranty

3-year Priority Support	45K4067
3-year Priority 4 Support	45K4068

RD210, RD220 with 1-year warranty

3-year Priority Support	45K5307
3-year Priority 4 Support	45K5308

RD210, RD220 with 3-year warranty

3-year Priority Support	45K4077
3-year Priority 4 Support	45K4078

ThinkPlus Priority Support with Hard Disk Drive Retention

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians
- Hard Disk Drive Retention (HDDR) means customer keeps disk

HDDR = *Hard Disk Drive Retention*

TD200x with 1-year warranty

3-year Priority Support with HDDR	45K5445
3-year Priority 4 Support with HDDR	45K5446

TD200x with 3-year warranty

3-year Priority Support with HDDR	45K5447
3-year Priority 4 Support with HDDR	45K5448

RD210, RD220 with 1-year warranty

3-year Priority Support with HDDR	45K5453
3-year Priority 4 Support with HDDR	45K5454

RD210, RD220 with 3-year warranty

3-year Priority Support with HDDR	45K5455
3-year Priority 4 Support with HDDR	45K5456

ThinkPlus Productivity

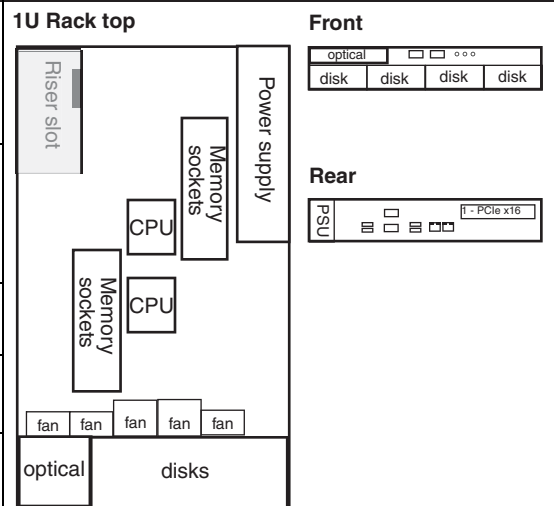
- Priority Support
- Online Training, Understanding Lenovo Servers
- One-time hardware installation

3-year ThinkPlus Productivity, TD200x (1-year)	45K4088
3-year ThinkPlus Productivity, TD200x (3-year)	45K4090
3-year ThinkPlus Productivity, RD210, RD220 (1-year)	45K5309
3-year ThinkPlus Productivity, RD210, RD220 (3-year)	45K4096

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	4010-11U	1x5	1xE5503	2.00	2	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Dec 10

- This model has a 1-year limited warranty¹
- High performance, advanced RAID, and remote management supported at value price point
- This small and medium business (SMB) model is part of the US TopSeller™ Program

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache
Implementation	Two LGA1366 sockets
Memory	2GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>
Disk bays	Four 3.5" hot-swap (HS) SATA disk bays
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 5, 10 support
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller
Riser card	(See Right) One PCI Express 2.0 x16 slot standard
Front ports	Two USB 2.0
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)
Internal port	One USB 2.0 connector
Diagnostics	Diagnostic and system status LEDs on front panel
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy
Cooling	Five fans standard, five maximum, variable speed



- 1U Mechanical; rack-mount only
 - Black color front; metal case
 - 17.2"W x 22.4"D x 1.72"H
 - 436mm W x 568mm D x 43.6mm H
 - 37.7 lb (17kg) max configuration
 - Toolless top cover removal
 - Toolless disk and optical drive removal
 - Toolless adapter retention
- | | | | | |
|-------|-------|------------|-----------|---------------|
| Bay 1 | 5.25" | 0.5" high, | external, | std optical |
| Bay 2 | 3.5" | 1" high, | external, | optional disk |
| Bay 3 | 3.5" | 1" high, | external, | optional disk |
| Bay 4 | 3.5" | 1" high, | external, | optional disk |
| Bay 5 | 3.5" | 1" high, | external, | optional disk |

Slot 1: half-length, full-height, PCI Express 2.0 x16

Accessories	
Intel Xeon E5503 Processor Option Kit	67Y1483
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432
8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464
500GB ² 3.5" SATA HS (7200 rpm)	67Y1401
1TB 3.5" SATA HS (7200 rpm)	67Y1402

More accessories on O-ARTsheet

Other accessories at lenovo.com/accessories

Max memory capacity
64GB with eight 8GB RDIMMs

Max internal capacity
8.0TB with four 2TB 3.5" SATA disks

Limited Warranty ¹
⇒ 1-year parts and labor
⇒ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts ³ , 8 am - 5 pm, Mon - Fri coverage excluding holidays)
⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty
• Onsite service upgrade options (in eligible locations) ⁷
• Post warranty maintenance services
⇒ 24 hour x 7 day ¹⁴ toll-free support during the warranty period ¹ via 800-426-7378

Virtualization
Virtualization ready, VMWare Ready™ certified

Power-On Hotkey
• Setup Utility: DEL at startup
• Network Boot: F12 at startup
• Onboard SATA RAID: Ctrl+I at startup

Software Management Tools
• ThinkServer EasyStartup

Security
• Administrator password
• User password
• Boot sequence control
• Boot without keyboard, mouse, diskette
• Serial port I/O control
• USB port disablement (all)

RoHS-compliant

See footnotes for important warranty information
 US model announced December 14, 2010
 US model withdrawn effective August 2011

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	4011-12U	1x5	1xE5506	2.13	4	1x2GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Dec 10
RD230	4011-13U	1x5	1xE5507	2.26	4	1x4GB	1333MHz	3.5"		4xHot-swap	SATA	DVD±RW	0/1/5/10	KVM	2xGb	Dec 10
RD230	4011-14U	1x5	1xE5620	2.40	4	1x4GB	1333MHz	3.5"	Battery	4xHot-swap	SATA/SAS ⁴	DVD±RW	0/1/5/6/10	KVM	2xGb	Dec 10

- These models have a 3-year limited warranty¹
- These small and medium business (SMB) models are part of the US TopSeller™ Program

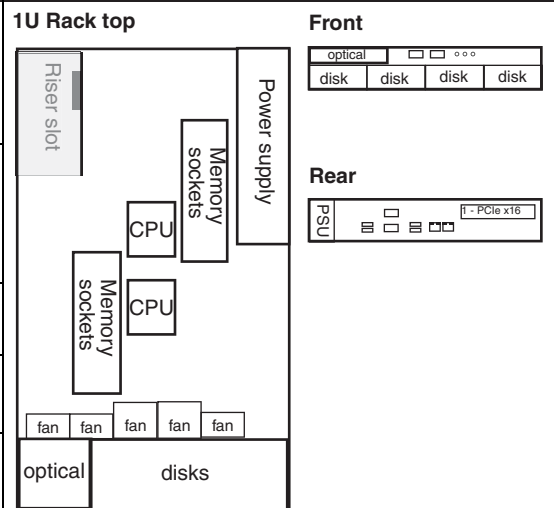
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5506 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5507 with quad-core , 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5620 with quad-core , 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache	<p>1U Rack top</p> <p>Front</p> <p>Rear</p>
Implementation	Two LGA1366 sockets	
Memory	2GB or 4GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors	
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>	
Disk bays	<i>12U/13U:</i> Four 3.5" hot-swap (HS) SATA disk bays <i>14U:</i> Four 3.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	<i>12U/13U:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ 0, 1, 5, 10 support <i>14U:</i> ThinkServer 8708ELP SAS RAID Controller, PCI Express [®] bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10 support <i>14U:</i> Battery backed cache integrated	
Optical	UltraSlim Enhanced DVD±RW	
Diskette	None (use USB port)	
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller	
Riser card	(See Right) One PCI Express 2.0 x16 slot standard	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	
Internal port	One USB 2.0 connector	
Diagnostics	Diagnostic and system status LEDs on front panel	
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression	
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy	
Cooling	Five fans standard, five maximum, variable speed	
Max memory capacity		<ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.2"W x 22.4"D x 1.72"H • 436mm W x 568mm D x 43.6mm H • 37.7 lb (17kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention <p>Bay 1 5.25", 0.5" high, external, std optical Bay 2 3.5", 1" high, external, optional disk Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk</p> <p>Slot 1: half-length, full-height, PCI Express 2.0 x16</p>
64GB with eight 8GB RDIMMs		
Max internal capacity		
<i>3.5" SATA HS:</i> 8.0TB with four 2TB 3.5" SATA disks <i>3.5" SAS HS:</i> 2.4TB with four 600GB 3.5" SAS disks		
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)		
⇒ ThinkPlus™ services available; see 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		
Virtualization		
Virtualization ready, VMWare Ready™ certified		
Power-On Hotkey		
• Setup Utility: DEL at startup • Network Boot: F12 at startup • Onboard SATA RAID: Ctrl+I at startup • Add-on SATA/SAS RAID: Ctrl+H at startup		
Software Management Tools		
• ThinkServer EasyStartup		
Security		
• Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)		
RoHS-compliant		

See footnotes for important warranty information
US models announced December 14, 2010
US models withdrawn effective August 2011

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date
RD230	1043-11U	1x5	1xE5503	2.00 2	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Dec 10

- **This model has a 1-year limited warranty¹**
- **High performance, advanced RAID, and remote management supported at value price point**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache
Implementation	Two LGA1366 sockets
Memory	2GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>
Disk bays	Four 3.5" hot-swap (HS) SATA disk bays
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID [®] 0, 1, 5, 10 support
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller
Riser card	(See Right) One PCI Express 2.0 x16 slot standard
Front ports	Two USB 2.0
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)
Internal port	One USB 2.0 connector
Diagnostics	Diagnostic and system status LEDs on front panel
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy
Cooling	Five fans standard, five maximum, variable speed



- 1U Mechanical; rack-mount only
- Black color front; metal case
- 17.2"W x 22.4"D x 1.72"H
- 436mm W x 568mm D x 43.6mm H
- 37.7 lb (17kg) max configuration
- Toolless top cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention

Bay 1	5.25", 0.5" high, external, std optical
Bay 2	3.5", 1" high, external, optional disk
Bay 3	3.5", 1" high, external, optional disk
Bay 4	3.5", 1" high, external, optional disk
Bay 5	3.5", 1" high, external, optional disk

Slot 1: half-length, full-height, PCI Express 2.0 x16

Accessories	
Intel Xeon E5503 Processor Option Kit	67Y1483
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432
8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464
500GB ² 3.5" SATA HS (7200 rpm)	67Y1401
1TB 3.5" SATA HS (7200 rpm)	67Y1402
More accessories on O-ARTsheet	

Other accessories at lenovo.com/accessories

Max memory capacity	64GB with eight 8GB RDIMMs
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Max internal capacity	8.0TB with four 2TB 3.5" SATA disks
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Limited Warranty¹	<ul style="list-style-type: none"> ⇒ 1-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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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
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Virtualization	Virtualization ready, VMWare Ready™ certified
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Power-On Hotkey	<ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • Onboard SATA RAID: Ctrl+I at startup
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Software Management Tools	• ThinkServer EasyStartup
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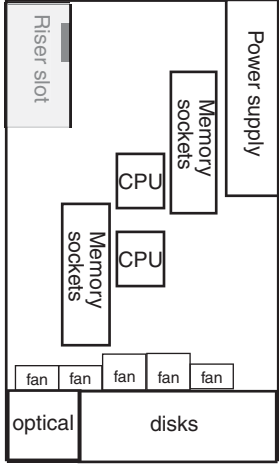


Security	<ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all)
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RoHS-compliant

See footnotes for important warranty information
 US model announced December 14, 2010
 US model withdrawn effective August 2011

Name	Type-model	Slot x bay	Processor(s)	GHz Cores	Memory DIMMs	Memory speed	Disk size	RAID Battery	Disk bays	Disk type	SATA optical	RAID Int	System mgmt	Ethernet	Avail date	
RD230	1044-11U	1x5	1xE5503	2.00	2	1x2GB	1333MHz	3.5"	None	4xHot-swap	SATA	DVD±RW	0/1/5/10	IPMI	2xGb	Dec 10
RD230	1044-15U	1x5	1xE5506	2.13	4	1x4GB	1333MHz	3.5"	None	4xHot-swap	SATA/SAS ⁴	DVD±RW	0/1/5/6/10	KVM	2xGb	Dec 10

- **These models have a 3-year limited warranty¹**
- **High performance, advanced RAID, and remote management supported at value price point**

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache	1U Rack top 	Front  Rear 
Implementation	Intel Xeon Processor E5506 with quad-core , 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache Two LGA1366 sockets		
Memory	2GB or 4GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets** * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors		
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>		
Disk bays	11U: Four 3.5" hot-swap (HS) SATA disk bays 15U: Four 3.5" hot-swap (HS) SATA/SAS disk bays		
Disk controller	11U: Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ , 1, 5, 10 support 15U: ThinkServer 8708ELP SAS RAID Controller, PCI Express [®] bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10 support		
Optical	UltraSlim Enhanced DVD±RW		
Diskette	None (use USB port)		
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers		
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slot (see right), enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, onboard SATA controller		
Riser card	(See Right) One PCI Express 2.0 x16 slot standard		
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)		
Internal port	One USB 2.0 connector		
Diagnostics	Diagnostic and system status LEDs on front panel		
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor IPMI model(s): IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub KVM model(s): IPMI functions PLUS KVM supported, 24bit high quality video compression	<ul style="list-style-type: none"> • 1U Mechanical; rack-mount only • Black color front; metal case • 17.2"W x 22.4"D x 1.72"H • 436mm W x 568mm D x 43.6mm H • 37.7 lb (17kg) max configuration • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention 	
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS		
Keyboard	None (use USB port)		
Mouse	None (use USB port)		
Power supply(s)	One 600 watts standard, one maximum, variable speed fan, auto-sensing, no redundancy		
Cooling	Five fans standard, five maximum, variable speed		
Accessories Intel Xeon E5503 Processor Option Kit 67Y1483 2GB PC3-10600 DDR3 1333 MHz RDIMM 67Y1432 More accessories on O-ARTsheet			
Other accessories at lenovo.com/accessories			
Max memory capacity 64GB with eight 8GB RDIMMs			
Max internal capacity 3.5" SATA HS: 8.0TB with four 2TB 3.5" SATA disks 3.5" SAS HS: 2.4TB with four 600GB 3.5" SAS disks			
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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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		Virtualization Virtualization ready, VMWare Ready™ certified	
		Power-On Hotkey <ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • Onboard SATA RAID: Ctrl+I at startup • Add-on SATA/SAS RAID: Ctrl+H at startup 	
		Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup 	
		Security <ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
		RoHS-compliant	

See footnotes for important warranty information
 US models announced December 14, 2010
 US models withdrawn effective August 2011

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s)	Ethernet	Avail date
RD240	1047-11U	3x9	1xE5503	2.00 2	1x2GB	3.5"	None	8xHot-swap	1068E	SATA/SAS ⁴	0/1/1E	IPMI	1x750W	2xGb	Jul 10

- This model has a 1-year limited warranty¹
- High performance, scalability, and remote management supported at value price point

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>2U Rack top</p> </div> <div style="width: 45%;"> <p>Front</p> </div> </div> <p>Rear</p>
Implementation	Two LGA1366 sockets	
Memory	2GB , 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors	
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>	
Disk bays	Eight 3.5" hot-swap (HS) SATA/SAS disk bays	
Disk controller	LSI™ LSI SAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID ⁸ 0, 1, 1E support	
Optical	UltraSlim Enhanced DVD±RW	
Diskette	None (use USB port)	
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSI SAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB	
Riser card	(See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	
Internal port	One USB 2.0 connector	
Diagnostics	Diagnostic and system status LEDs on front panel	
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub	
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	
Keyboard	None (use USB port)	
Mouse	None (use USB port)	
Power supply(s)	One 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies	
Cooling	Four fans standard, four maximum, variable speed	
Accessories		
Intel Xeon E5503 Processor Option Kit	67Y1466	
2GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1432	
8GB PC3-10600 DDR3 1333 MHz RDIMM	67Y1464	
1TB 3.5" SATA HS (7200 rpm)	67Y1480	
450GB ² 3.5" SAS HS (15000 rpm)	67Y1482	
More accessories on O-ARTsheet		
Other accessories at lenovo.com/accessories		
Max memory capacity		
64GB with eight 8GB PC3-10600 DDR3 RDIMMs		
Max internal capacity		
3.5" SATA HS: 16.0TB with eight 2TB HS SATA disks		
3.5" SAS HS: 4.8TB with eight 600GB HS SAS disks		
Limited Warranty¹		
⇒ 1-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)		
⇒ ThinkPlus™ services available; see 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		
<p>Bay 1 5.25", 0.5" high, external, std optical</p> <p>Bay 2 3.5", 1" high, external, optional disk</p> <p>Bay 3 3.5", 1" high, external, optional disk</p> <p>Bay 4 3.5", 1" high, external, optional disk</p> <p>Bay 5 3.5", 1" high, external, optional disk</p> <p>Bay 6 3.5", 1" high, external, optional disk</p> <p>Bay 7 3.5", 1" high, external, optional disk</p> <p>Bay 8 3.5", 1" high, external, optional disk</p> <p>Bay 9 3.5", 1" high, external, optional disk</p> <p>Slot 1: full-length, full-height, PCI Express 2.0 x8</p> <p>Slot 2: full-length, full-height, PCI Express 2.0 x8***</p> <p>Slot 3: half-length, full-height, PCI Express 2.0 x8***</p> <p>*** x4 electrical</p>		
Virtualization		
Virtualization ready, VMWare Ready™ certified		
Power-On Hotkey		
• Setup Utility: DEL at startup		
• Network Boot: F12 at startup		
• LSI 1068E RAID: Ctrl+C at startup		
Software Management Tools		
• ThinkServer EasyStartup		
Security		
• Administrator password		
• User password		
• Boot sequence control		
• Boot without keyboard, mouse, diskette		
• Serial port I/O control		
• USB port disablement (all)		
RoHS-compliant		

See footnotes for important warranty information
 US model announced July 27, 2010
 US model withdrawn effective August 2011

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s)	Ethernet	Avail date
RD240	1048-11U	3x9	1xE5503	2.00 2	1x2GB	3.5"		8xHot-swap	1068E	SATA/SAS ⁴	0/1/1E	IPMI	1x750W	2xGb	Jul 10
RD240	1048-12U	3x9	1xE5640	2.66 4	1x4GB	3.5"	Battery	8xHot-swap	8708E	SATA/SAS	Multi*	KVM	1x750W	2xGb	Jul 10
RD240	1048-13U	3x9	2XE5650	2.66 12	2x4GB	3.5"	Battery	8xHot-swap	8708E	SATA/SAS	Multi	KVM	2x750W	2xGb	Jul 10

*Multi = RAID 0/1/5/6/10/50/60

Processor(s)	Up to two processors, one or two processors standard, Intel® Xeon® Processor E5503 with dual-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5640 with quad-core , 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor X5650 with six-core , 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	2GB, 4GB, or 8GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring , eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller ** Over four DIMMs requires dual processors
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>
Disk bays	Eight 3.5" hot-swap (HS) SATA/SAS disk bays
Disk controller	<i>Some:</i> LSI™ LSISAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 1E support <i>Some:</i> ThinkServer 8708ELP SAS RAID Controller, PCI Express bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support <i>Some:</i> Battery backed cache integrated
Optical	UltraSlim Enhanced DVD±RW
Diskette	None (use USB port)
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSISAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB
Riser card	(See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard
Front ports	Two USB 2.0
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)
Internal port	One USB 2.0 connector
Diagnostics	Diagnostic and system status LEDs on front panel
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS
Keyboard	None (use USB port)
Mouse	None (use USB port)
Power supply(s)	One or two 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies
Cooling	Four fans standard, four maximum, variable speed

2U Rack top

Front

Rear

- 2U Mechanical
- Designed for EIA-310 standard 19-inch rack only
- Black color front; metal case
- 19"W x 27.6"D x 3.44"H
- 483mm W x 700mm D x 87.5mm H
- 66.6 lb (30kg) max configuration
- Toolless top cover removal
- Toolless disk removal
- Toolless adapter retention

Bay 1	5.25", 0.5" high, external,	std optical
Bay 2	3.5", 1" high, external,	optional disk
Bay 3	3.5", 1" high, external,	optional disk
Bay 4	3.5", 1" high, external,	optional disk
Bay 5	3.5", 1" high, external,	optional disk
Bay 6	3.5", 1" high, external,	optional disk
Bay 7	3.5", 1" high, external,	optional disk
Bay 8	3.5", 1" high, external,	optional disk
Bay 9	3.5", 1" high, external,	optional disk

Slot 1: full-length, full-height, PCI Express 2.0 x8
 Slot 2: full-length, full-height, PCI Express 2.0 x8***
 Slot 3: half-length, full-height, PCI Express 2.0 x8***
 *** x4 electrical

Max memory capacity
64GB with eight 8GB PC3-10600 DDR3 RDIMMs
Max internal capacity
3.5" SATA HS: 16.0TB with eight 2TB HS SATA disks 3.5" SAS HS: 4.8TB with eight 600GB HS SAS disks
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) ⇒ ThinkPlus™ services available; see 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

Virtualization

Virtualization ready, VMWare Ready™ certified

Power-On Hotkey

- Setup Utility: DEL at startup
- Network Boot: F12 at startup
- 1068E RAID: Ctrl+C at startup
- 8708ELP RAID: Ctrl+H at startup

Software Management Tools

- ThinkServer EasyStartup

Security

- Administrator password
- User password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (all)

RoHS-compliant

See footnotes for important warranty information
 US models announced July 27, 2010
 US models withdrawn effective August 2011

Name	Type-model	Slot x bay	Proc-essor(s)	GHz Cores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s)	Ethernet	Avail date
RD240	1046-11U	3x9	1xE5506	2.13 4	1x2GB	3.5"		8x Hot-swap	1068E	SATA/SAS ⁴	0/1/1E	IPMI	1x750W	2xGb	Jul 10
RD240	1046-12U	3x9	1xE5507	2.26 4	1x4GB	3.5"		8x Hot-swap	8708E	SATA/SAS	Multi*	KVM	1x750W	2xGb	Jul 10
RD240	1046-13U	3x9	1xE5620	2.40 4	1x4GB	3.5"	Battery	8x Hot-swap	8708E	SATA/SAS	Multi	KVM	2x750W	2xGb	Jul 10
RD240	1046-14U	3x9	2xE5640	2.66 8	2x4GB	3.5"	Battery	8x Hot-swap	8708E	SATA/SAS	Multi	KVM	2x750W	2xGb	Jul 10

*Multi = RAID 0/1/5/6/10/50/60

Processor(s)	Up to two processors, one or two processors standard, Intel® Xeon® Processor E5506 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5507 with quad-core , 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5620 or E5640 with quad-core , 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets	<p>2U Rack top</p>	<p>Front</p>
Implementation	Two LGA1366 sockets		
Memory	2GB, 4GB, or 8GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3**, ECC, Memory Mirroring , eight 240-pin DIMM sockets***, ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Over four DIMMs requires dual processors	<p>Rear</p>	
Graphics	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB; <i>Maximum resolution: 1600x1200@60Hz</i>		
Disk bays	Eight 3.5" hot-swap (HS) SATA/SAS disk bays	<ul style="list-style-type: none"> • 2U Mechanical • Designed for EIA-310 standard 19-inch rack only • Black color front; metal case • 19"W x 27.6"D x 3.44"H • 483mm W x 700mm D x 87.5mm H • 66.6 lb (30kg) max configuration • Toolless top cover removal • Toolless disk and removal • Toolless adapter retention 	
Disk controller	<i>Some:</i> LSI™ LSISAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID [®] 0, 1, 1E support <i>Some:</i> ThinkServer 8708ELP SAS RAID Controller, PCI Express bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support <i>Some:</i> Battery backed cache integrated		
Optical	UltraSlim Enhanced DVD±RW	<p>Bay 1 5.25", 0.5" high, external, std optical</p> <p>Bay 2 3.5", 1" high, external, optional disk</p> <p>Bay 3 3.5", 1" high, external, optional disk</p> <p>Bay 4 3.5", 1" high, external, optional disk</p> <p>Bay 5 3.5", 1" high, external, optional disk</p> <p>Bay 6 3.5", 1" high, external, optional disk</p> <p>Bay 7 3.5", 1" high, external, optional disk</p> <p>Bay 8 3.5", 1" high, external, optional disk</p> <p>Bay 9 3.5", 1" high, external, optional disk</p>	
Diskette	None (use USB port)		
Ethernet	Two Gigabit Ethernet ports, dual Intel 82574L controllers	<p>Slot 1: full-length, full-height, PCI Express 2.0 x8</p> <p>Slot 2: full-length, full-height, PCI Express 2.0 x8****</p> <p>Slot 3: half-length, full-height, PCI Express 2.0 x8****</p> <p>**** x4 electrical</p>	
Chipset	Intel 5500 Chipset , Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSISAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB		
Riser card	(See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard	<p>Virtualization</p> <p>Virtualization ready, VMWare Ready™ certified</p>	
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)	<p>Power-On Hotkey</p> <ul style="list-style-type: none"> • Setup Utility: DEL at startup • Network Boot: F12 at startup • 1068E RAID: Ctrl+C at startup • 8708ELP RAID: Ctrl+H at startup 	
Internal port	One USB 2.0 connector		
Diagnostics	Diagnostic and system status LEDs on front panel	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 	
Systems mgmt	Onboard Aspeed AST2050 graphics/management processor <i>IPMI model(s):</i> IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub <i>KVM model(s):</i> IPMI functions PLUS KVM supported, 24bit high quality video compression		
Prerequisites	Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	<p>Security</p> <ul style="list-style-type: none"> • Administrator password • User password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (all) 	
Keyboard	None (use USB port)		
Mouse	None (use USB port)	<p>RoHS-compliant</p>	
Power supply(s)	One or two 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies		
Cooling	Four fans standard, four maximum, variable speed		
<p>Max memory capacity</p> <p>64GB with eight 8GB PC3-10600 DDR3 RDIMMs</p>			
<p>Max internal capacity</p> <p>3.5" SATA HS: 16.0TB with eight 2TB HS SATA disks 3.5" SAS HS: 4.8TB with eight 600GB HS SAS disks</p>			
<p>Limited Warranty¹</p> <ul style="list-style-type: none"> ⇒ 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) ⇒ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty <ul style="list-style-type: none"> • 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 			

See footnotes for important warranty information
US models announced July 27, 2010
US models withdrawn effective August 2011

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.

- ¹ **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.
- ⁴ **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.
- 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.

⁸ **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 6 (striped set with dual distributed parity)** provides fault tolerance from two drive failures; array continues to operate with up to two failed drives. Requires four 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.
- **RAID 50 (or RAID 5+0)** combines RAID 5 and RAID 0 to create block-level striping with distributed parity improving performance over RAID 5. Requires six drives.
- **RAID 60 (or RAID 6+0)** combines RAID 6 and RAID 0 to create block-level striping with distributed double parity improving performance over RAID 6. Requires eight drives.

¹⁰ **Modem speeds:** Public network download speeds are limited to 53Kbps. Upload speeds are limited to 48Kbps for V.92 modems. Actual speeds depend on many factors and are often less than the maximum possible. V.92 functions and speeds require compatible phone line and server equipment. Check with your telephone and ISP service providers for availability.

- ¹¹ **For combination drives,** maximum speeds only are given in the following order: CD read, CD write, CD re-write, DVD read.
- ¹⁴ **Response times may vary.** May exclude some holidays. Telephone support may be subject to additional charges.
- ¹⁵ **Update Connector** is available at no charge to registered customers during the limited warranty period. Line charges may apply.
- ¹⁶ **Embedded Security Subsystem** works with optional VPN software.