



Product Specifications Reference Lenovo® ThinkServer® Servers

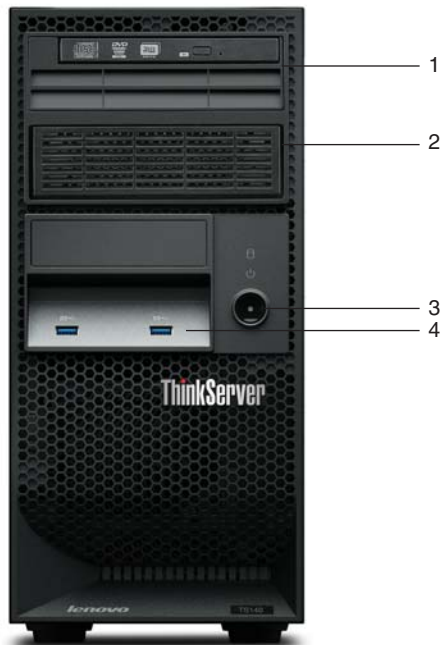
November 2013 - Version 446



ThinkServer RD640

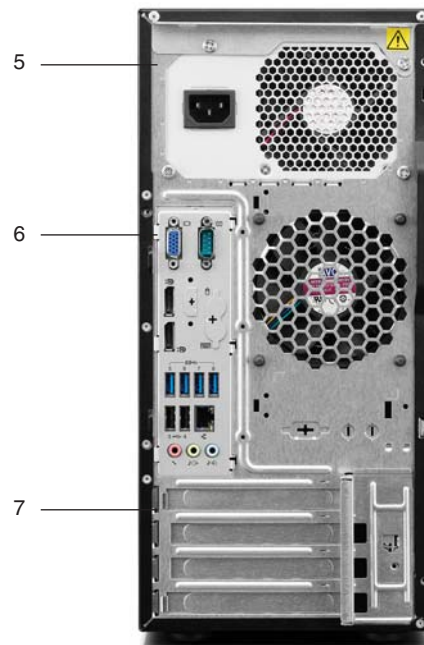
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ThinkServer® TS140 - Overview



Front view

1. Optional slim optical + 3.5" drive bay in standard 5.25" bay
2. Optional 3.5" hard drive bay
3. Power Button
4. Front I/O: 2 USB 3.0 (blue)



Rear view

5. Power Supply:
280 watts 80 PLUS Bronze/450 watts 80 PLUS Platinum
6. Rear I/O: 2 USB 2.0
4 USB 3.0 (blue)
1 serial (9-pin)
1 RJ-45 (GbE)
1 line-in
1 line-out
1 microphone-in
2 DisplayPort (for Intel HD Graphics)
1 VGA (for Intel HD Graphics)
7. 1 PCIe 3.0 x16
1 PCIe 2.0 x1
1 PCIe 2.0 x16 (x4 elec)
1 PCI

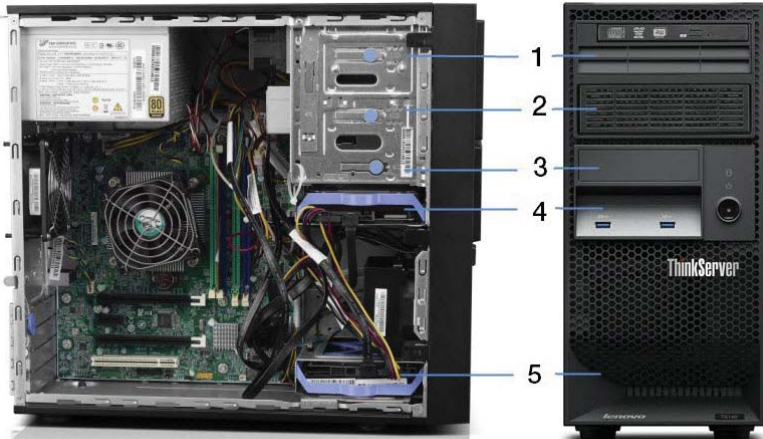
Internal

- One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3, Core-i3 4000, and Pentium families
- 4 DIMM sockets, supports up to 32GB ECC UDIMM memory
- Up to four 3.5" hard drive bays, two 3.5" hard drive bays standard

Mechanical

- Raven black color; metal case
- Rack-mountable to 5U
- 6.89"W x 16.97"D x 14.76"H
- 175mm W x 431mm D x 375mm H
- 28.66 lb (13kg) max configuration
- 25-liter

ThinkServer® TS140 Platform Specifications - I of III

Components	Specification																																																																																																																																																
Form factor	Tower, rack-mountable to 5U via ThinkServer Tower to Rack Shelf Conversion Kit (<i>Option PN: 0C19515</i>)																																																																																																																																																
Chipset	Intel C226 Chipset																																																																																																																																																
Systems management	<ul style="list-style-type: none"> Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors) EasyStartup EasyUpdate 																																																																																																																																																
Processor	<p>One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3, Core-i3 4000, and Pentium G3000 families, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors.</p> <p>The following processors are supported:</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Clock Speed</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory speed</th> <th>ECC Memory Supported</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>Xeon E3-1285 v3</td> <td>4</td> <td>8</td> <td>3.6 GHz</td> <td>4 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4700</td> </tr> <tr> <td>Xeon E3-1280 v3</td> <td>4</td> <td>8</td> <td>3.6 GHz</td> <td>4 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1275 v3</td> <td>4</td> <td>8</td> <td>3.5 GHz</td> <td>3.9 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4600</td> </tr> <tr> <td>Xeon E3-1270 v3</td> <td>4</td> <td>8</td> <td>3.5 GHz</td> <td>3.9 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1245 v3</td> <td>4</td> <td>8</td> <td>3.4 GHz</td> <td>3.8 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4600</td> </tr> <tr> <td>Xeon E3-1240 v3</td> <td>4</td> <td>8</td> <td>3.4 GHz</td> <td>3.8 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1230 v3</td> <td>4</td> <td>8</td> <td>3.3 GHz</td> <td>3.7 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1225 v3</td> <td>4</td> <td>4</td> <td>3.2 GHz</td> <td>3.6 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4600</td> </tr> <tr> <td>Xeon E3-1220 v3</td> <td>4</td> <td>4</td> <td>3.1 GHz</td> <td>3.5 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Core i3-4340</td> <td>2</td> <td>4</td> <td>3.6 GHz</td> <td></td> <td>4 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics 4600</td> </tr> <tr> <td>Core i3-4330</td> <td>2</td> <td>4</td> <td>3.5 GHz</td> <td></td> <td>4 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics 4600</td> </tr> <tr> <td>Core i3-4130</td> <td>2</td> <td>4</td> <td>3.4 GHz</td> <td></td> <td>3 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics 4400</td> </tr> <tr> <td>Pentium G3430</td> <td>2</td> <td>2</td> <td>3.3 GHz</td> <td></td> <td>3 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics</td> </tr> <tr> <td>Pentium G3420</td> <td>2</td> <td>2</td> <td>3.2 GHz</td> <td></td> <td>3 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics</td> </tr> <tr> <td>Pentium G3220</td> <td>2</td> <td>2</td> <td>3 GHz</td> <td></td> <td>3 MB</td> <td>DDR3-1333</td> <td>Yes</td> <td>Intel HD Graphics</td> </tr> </tbody> </table> <p><i>Notes:</i> All information is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is". Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</p>	Processor Number	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	Memory speed	ECC Memory Supported	Processor Graphics	Xeon E3-1285 v3	4	8	3.6 GHz	4 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4700	Xeon E3-1280 v3	4	8	3.6 GHz	4 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1275 v3	4	8	3.5 GHz	3.9 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600	Xeon E3-1270 v3	4	8	3.5 GHz	3.9 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1245 v3	4	8	3.4 GHz	3.8 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600	Xeon E3-1240 v3	4	8	3.4 GHz	3.8 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1230 v3	4	8	3.3 GHz	3.7 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1225 v3	4	4	3.2 GHz	3.6 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600	Xeon E3-1220 v3	4	4	3.1 GHz	3.5 GHz	8 MB	DDR3-1600	Yes		Core i3-4340	2	4	3.6 GHz		4 MB	DDR3-1600	Yes	Intel HD Graphics 4600	Core i3-4330	2	4	3.5 GHz		4 MB	DDR3-1600	Yes	Intel HD Graphics 4600	Core i3-4130	2	4	3.4 GHz		3 MB	DDR3-1600	Yes	Intel HD Graphics 4400	Pentium G3430	2	2	3.3 GHz		3 MB	DDR3-1600	Yes	Intel HD Graphics	Pentium G3420	2	2	3.2 GHz		3 MB	DDR3-1600	Yes	Intel HD Graphics	Pentium G3220	2	2	3 GHz		3 MB	DDR3-1333	Yes	Intel HD Graphics
Processor Number	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	Memory speed	ECC Memory Supported	Processor Graphics																																																																																																																																									
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Xeon E3-1280 v3	4	8	3.6 GHz	4 GHz	8 MB	DDR3-1600	Yes																																																																																																																																										
Xeon E3-1275 v3	4	8	3.5 GHz	3.9 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600																																																																																																																																									
Xeon E3-1270 v3	4	8	3.5 GHz	3.9 GHz	8 MB	DDR3-1600	Yes																																																																																																																																										
Xeon E3-1245 v3	4	8	3.4 GHz	3.8 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600																																																																																																																																									
Xeon E3-1240 v3	4	8	3.4 GHz	3.8 GHz	8 MB	DDR3-1600	Yes																																																																																																																																										
Xeon E3-1230 v3	4	8	3.3 GHz	3.7 GHz	8 MB	DDR3-1600	Yes																																																																																																																																										
Xeon E3-1225 v3	4	4	3.2 GHz	3.6 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600																																																																																																																																									
Xeon E3-1220 v3	4	4	3.1 GHz	3.5 GHz	8 MB	DDR3-1600	Yes																																																																																																																																										
Core i3-4340	2	4	3.6 GHz		4 MB	DDR3-1600	Yes	Intel HD Graphics 4600																																																																																																																																									
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Pentium G3220	2	2	3 GHz		3 MB	DDR3-1333	Yes	Intel HD Graphics																																																																																																																																									
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available																																																																																																																																																
Memory DIMM sockets	Four 240-pin DIMM sockets																																																																																																																																																
Memory capacity	Up to 32GB (8GBx4)																																																																																																																																																
Memory protection	ECC																																																																																																																																																
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs 																																																																																																																																																
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support																																																																																																																																																
Drive bays	<p>Supports one 5.25" optical and two 3.5" disk drive bays in standard models, direct cable, no hot-swap up to one slim optical and four 3.5"/2.5" disk drive bays (pending 2.5" disk drives availability):</p>  <p>1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay</p> <p>2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay</p> <p>3: Optional 3rd 2.5" drive bay</p> <p>4: Standard 3.5"/2.5" primary drive bay</p> <p>5: Standard 3.5"/2.5" 2nd drive bay</p> <p><i>Note:</i> 4x3.5" bays models: Bay 1, 2, 4, 5 are included in models 3x3.5" bays models: Bay 2, 4, 5 are included in models 2x3.5" bays models: Bay 4, 5 are included in models</p>																																																																																																																																																

ThinkServer® TS140 Platform Specifications - II of III

Components	Specification		
Optical	Supports DVD±RW or DVD ROM, 1.6" high or slim, SATA interface		
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB NVIDIA Quadro 600, PCIe x16 adapter, 1GB 		
Front ports	Two USB 3.0 (blue)		
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)		
Expansion Slots	Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3		
Onboard Ethernet	One onboard gigabit ethernet, Intel I217		
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45) 		
Keyboard/mouse	None (use USB port)		
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 280 watts, autosensing, 85% PSU, 80 PLUS Bronze qualified One fixed 450 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified 		
Security	<ul style="list-style-type: none"> Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant 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) 		
Mechanical	<ul style="list-style-type: none"> Raven black color; metal case 6.89"W x 16.97"D x 14.76"H 175mm W x 431mm D x 375mm H 28.66 lb (13kg) max configuration 25-liter 		
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal (standard bays) Toolless adapter retention Illuminated front icons 		
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified RoHS-compliant 		
EMC	FCC Class A		
240VA	Supports		
Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)		
Temperature - non operating (no package)	-10 °C to 60 °C		
Temperature - non operating (with package)	-40 °C to 70 °C		
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)		
Humidity - operating	10%~80%, non-condensing		
Humidity - non operating (no package)	10%~90%, non-condensing		
Humidity - non operating (with package)	10%~90%, non-condensing		
Acoustic noise (idle/working mode)	Category	Min Configuration	Best Configuration
	CPU	1 CPU	1 CPU
	Optical Drive	0 DVD	1 DVD
	Drive Bays	Up to one	Up to three
	HDD	1x 500GB SATA	3x 500GB SATA
	Memory	1x 2GB UDIMM	1x 2GB UDIMM
	PSU	280W	450W
	RAID	Embedded SATA	Embedded RAID
	Add-on card	No	1xVGA
	Sound Pressure (operating)	26 dB(A)	35 dB(A)
Sound Pressure (idle)	25 dB(A)	34 dB(A)	

ThinkServer® TS140 Platform Specifications - III of III

Components	Specification
Warranty	1 or 3-year limited warranty, parts and labor, more services information see S-TS1 and S-TS3 sheet
Preloaded operating systems	<ul style="list-style-type: none">• Windows Server® 2012 Foundation• Windows Server 2012 Essentials• Windows Server 2012 Standard
Supported operating systems and virtualization software	<ul style="list-style-type: none">• Windows 7• Windows 8• Windows Server 2008 R2 Standard• Windows Server 2008 R2 Enterprise• Windows Small Business Server 2011 Essentials• Windows Small Business Server 2011 Standard• Windows Small Business Server 2011 Premium Add-On <p><i>Notes:</i> 1. Supported only, no preloaded models 2. Windows 7 and Windows 8 are not supported by EasyStartup</p>

ThinkServer® TS140 (70A4) - TopSeller (September 2013)

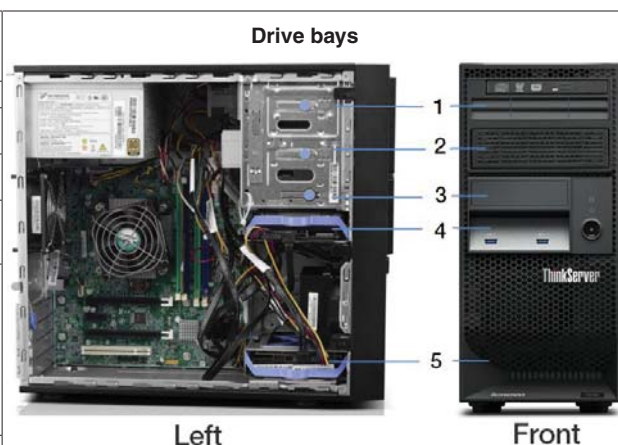
Personal Systems Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A4001LUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001MUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001NUX	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001PUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001QUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	Foundation	1
70A4001RUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	Essentials	1
70A4001SUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1

* Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.

• For detailed ThinkServer TS140 platform specifications, please see [ThinkServer TS140 Platform Specifications sheet](#)

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	Intel C226 Chipset
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB NVIDIA Quadro 600, PCIe x16 adapter, 1GB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)
Mechanical	<ul style="list-style-type: none"> 25-liter, raven black color; metal case (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm 28.66 lb (13kg) max configuration
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal (standard bays) Toolless adapter retention Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty ¹
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified/ RoHS-compliant More environmental information and requirements, please see ThinkServer TS140 Platform Specifications sheet



- Left**
- Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
 - Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
 - Optional 3rd 2.5" drive bay
 - Standard 3.5"/2.5" primary drive bay
 - Standard 3.5"/2.5" 2nd drive bay

Note:
 4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
 3x3.5" bays models: Bay 2, 4, 5 are included in models
 2x3.5" bays models: Bay 4, 5 are included in models

- Expansion Slots**
- Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
 - Slot 2: half-length, full-height, PCIe 2.0 x1
 - Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
 - Slot 4: half-length, full-height, PCI 2.3

- Security**
- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
 - 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)

See footnotes for important warranty information
 Model(s) announced September 10, 2013

ThinkServer® TS140 (70A5) - TopSeller (September 2013)

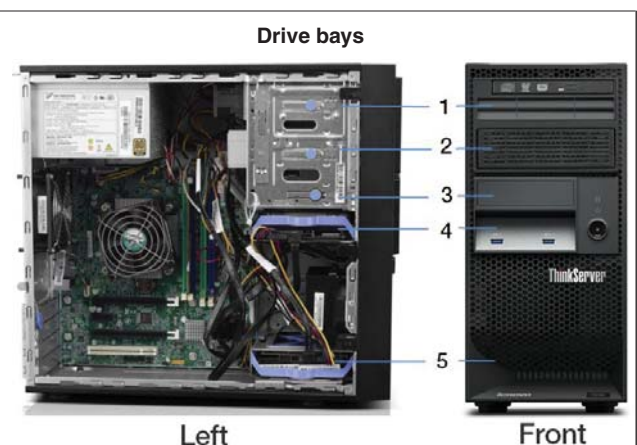
Personal Systems Reference (PSREF)

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A5000BUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	1

¹ Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.

• For detailed ThinkServer TS140 platform specifications, please see [ThinkServer TS140 Platform Specifications sheet](#)

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	Intel C226 Chipset
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB NVIDIA Quadro 600, PCIe x16 adapter, 1GB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)
Mechanical	<ul style="list-style-type: none"> 25-liter, raven black color; metal case (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm 28.66 lb (13kg) max configuration
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal (standard bays) Toolless adapter retention Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty ¹
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified/ RoHS-compliant More environmental information and requirements, please see ThinkServer TS140 Platform Specifications sheet



- 1:** Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
 4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
 3x3.5" bays models: Bay 2, 4, 5 are included in models
 2x3.5" bays models: Bay 4, 5 are included in models

- Expansion Slots**
- Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
 Slot 4: half-length, full-height, PCI 2.3

- Security**
- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
 - 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)

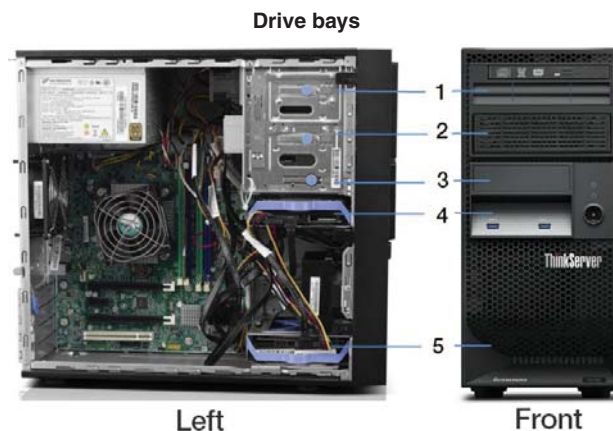
See footnotes for important warranty information
 Model(s) announced September 10, 2013

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage (Drive bays)	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A00003US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	RAID 0	4x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	1x350-T2	280W	No	Foundation	1
70A00006US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	RAID 0	4x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	2xIntel CT	280W	No	Foundation	1
70A00009UX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000AUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000BUX	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000CUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000DUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Foundation	1

¹ Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.

• For detailed ThinkServer TS140 platform specifications, please see [ThinkServer TS140 Platform Specifications sheet](#)

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	Intel C226 Chipset
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB NVIDIA Quadro 600, PCIe x16 adapter, 1GB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)
Mechanical	<ul style="list-style-type: none"> 25-liter, raven black color; metal case (WxDxH) 6.89" x 16.97" x 14.76"/175mm x 431mm x 375mm 28.66 lb (13kg) max configuration
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal (standard bays) Toolless adapter retention Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty ¹
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified/ RoHS-compliant More environmental information and requirements, please see ThinkServer TS140 Platform Specifications sheet



- 1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
 2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
 3: Optional 3rd 2.5" drive bay
 4: Standard 3.5"/2.5" primary drive bay
 5: Standard 3.5"/2.5" 2nd drive bay

Note:
 4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
 3x3.5" bays models: Bay 2, 4, 5 are included in models
 2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

- Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
 Slot 4: half-length, full-height, PCI 2.3

Security

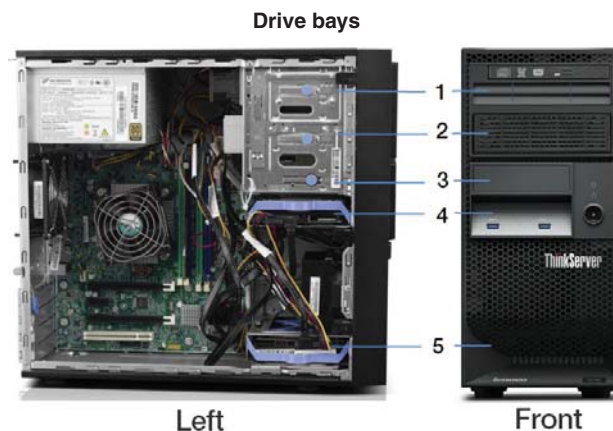
- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A0000EUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Essentials	1
70A0000FUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Standard	1
70A0000GUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000HUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000JUX	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000KUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Foundation	1
70A0000LUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Essentials	1

¹ Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.

• For detailed ThinkServer TS140 platform specifications, please see [ThinkServer TS140 Platform Specifications sheet](#)

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	Intel C226 Chipset
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB NVIDIA Quadro 600, PCIe x16 adapter, 1GB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)
Mechanical	<ul style="list-style-type: none"> 25-liter, raven black color; metal case (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm 28.66 lb (13kg) max configuration
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal (standard bays) Toolless adapter retention Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty ¹
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified/ RoHS-compliant More environmental information and requirements, please see ThinkServer TS140 Platform Specifications sheet



- 1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
- 2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
- 3: Optional 3rd 2.5" drive bay
- 4: Standard 3.5"/2.5" primary drive bay
- 5: Standard 3.5"/2.5" 2nd drive bay

Note:
 4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
 3x3.5" bays models: Bay 2, 4, 5 are included in models
 2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

- Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
- Slot 2: half-length, full-height, PCIe 2.0 x1
- Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
- Slot 4: half-length, full-height, PCI 2.3

Security

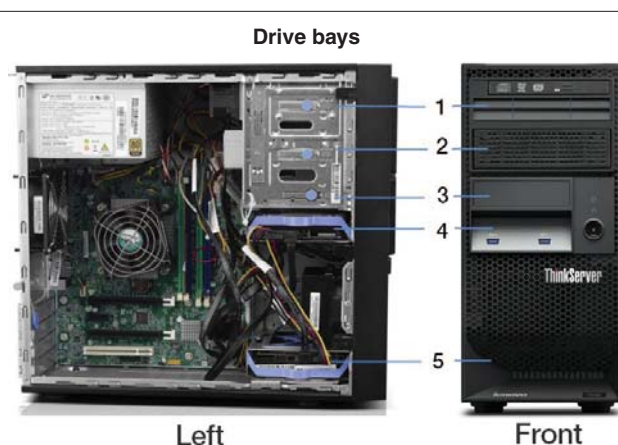
- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Type-model	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A0000MUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Standard	1
70A0000NUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	2x2TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	1x350-T2	280W	No	No	3
70A0000PUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx2	Intel HD P4600	No	2x2TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	1x350-T2	280W	No	No	3
70A0000QUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	Intel HD P4600	No	2x2TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	1x350-T2	280W	No	No	3

* Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.

• For detailed ThinkServer TS140 platform specifications, please see [ThinkServer TS140 Platform Specifications sheet](#)

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	Intel C226 Chipset
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB NVIDIA Quadro 600, PCIe x16 adapter, 1GB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: OC19515)
Mechanical	<ul style="list-style-type: none"> 25-liter, raven black color; metal case (WxDxH) 6.89" x 16.97" x 14.76"/175mm x 431mm x 375mm 28.66 lb (13kg) max configuration
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal (standard bays) Toolless adapter retention Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty ¹
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified/ RoHS-compliant More environmental information and requirements, please see ThinkServer TS140 Platform Specifications sheet



- 1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
- 2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
- 3: Optional 3rd 2.5" drive bay
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Security

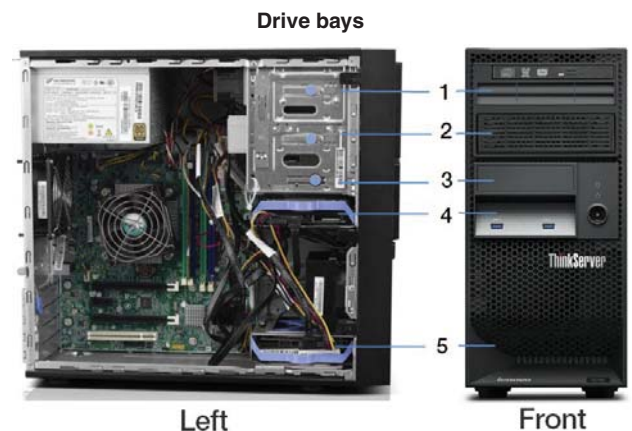
- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
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- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A10000US	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	NVS 300	RAID 10	4x4TB 3.5 SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	2xIntel CT	450W	No	Foundation	1
70A10001US	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	Quadro 600	RAID 10	4x2TB 3.5 SATA (4x3.5" Bay)	Slim DVD±RW	No	1xIntel CT	450W	No	Foundation	1

¹ Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.

• For detailed ThinkServer TS140 platform specifications, please see [ThinkServer TS140 Platform Specifications sheet](#)

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	Intel C226 Chipset
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB NVIDIA Quadro 600, PCIe x16 adapter, 1GB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)
Mechanical	<ul style="list-style-type: none"> 25-liter, raven black color; metal case (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm 28.66 lb (13kg) max configuration
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal (standard bays) Toolless adapter retention Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty ¹
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified/ RoHS-compliant More environmental information and requirements, please see ThinkServer TS140 Platform Specifications sheet



- Drive bays**
- 1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
 - 2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
 - 3: Optional 3rd 2.5" drive bay
 - 4: Standard 3.5"/2.5" primary drive bay
 - 5: Standard 3.5"/2.5" 2nd drive bay

Note:
 4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
 3x3.5" bays models: Bay 2, 4, 5 are included in models
 2x3.5" bays models: Bay 4, 5 are included in models

<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3</p>
<p>Security</p> <ul style="list-style-type: none"> Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant 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)

See footnotes for important warranty information
 Model(s) announced September 10, 2013

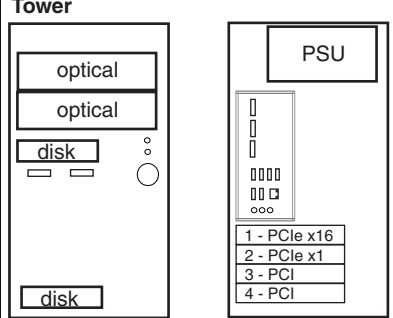
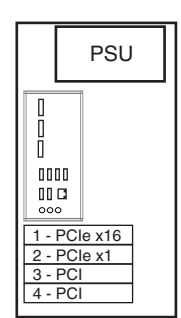
ThinkServer™



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

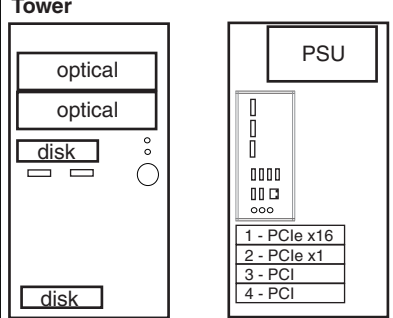
- True server-class reliability and performance at desktop price
- These small and medium business (SMB) model are part of the US TopSeller™ Program
- These model have a 3-year limited warranty¹

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	<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 2TB , SATA 6.0Gb/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)	<p style="text-align: center;">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 style="text-align: center;">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 style="text-align: center;">Intel AMT</p> <p>Intel AMT 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																	
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	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 Mouse Power supply	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																	
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 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 																		

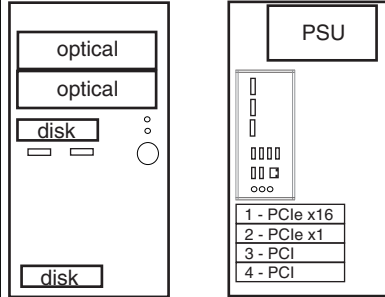
See footnotes for important warranty information
US models announced February 5, 2013

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)	
<p align="center">Preloaded Operating System</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>2008 Foundations: Genuine Windows Server® 2008 R2 Foundations</p> <p>2008 R2 Standard: Genuine Windows Server 2008 R2 Standard</p>		
<p align="center">Max internal capacity</p> <p>4.0TB with two 2TB 3.5" SATA disks</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 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 align="center">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 align="center">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 align="center">Intel AMT</p> <p>Intel AMT 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>ENERGY STAR® Server 1.1-compliant</p> <p>RoHS-compliant</p>

See footnotes for important warranty information

US models announced August 21, 2012

✕ US models withdrawn effective April 2013

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(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

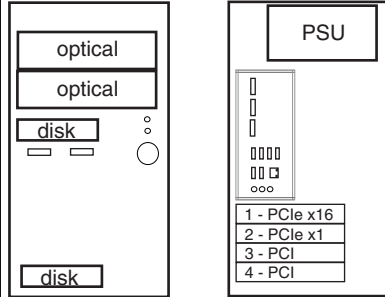
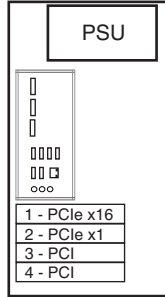
Processor	<p>Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p> <p>The diagram shows the front panel with two optical drives and two 3.5-inch disk bays. Internally, it shows a PSU, four expansion slots (1x PCIe x16, 2x PCIe x1, 3x PCI, 4x PCI), and a front panel with two LEDs and a power button.</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	
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	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
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	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
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0	Intel AMT Intel AMT is supported on Xeon-model(s)
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	Software Management Tools <ul style="list-style-type: none"> • ThinkServer EasyStartup
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	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 chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	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)
Keyboard	None (use USB port)	
Mouse	None (use USB port)	ENERGY STAR® Server 1.1-compliant RoHS-compliant
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 		

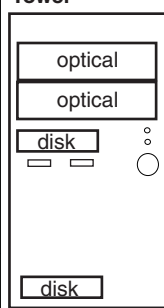
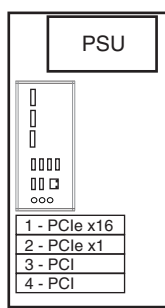
See footnotes for important warranty information
 US models announced November 13, 2012

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 <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)	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)		
<p>Preloaded Operating System</p> <p>2012 Foundations: Genuine Windows Server® 2012 Foundation 2012 Essentials: Genuine Windows Server 2012 Essentials 2012 Standard: Genuine Windows Server 2012 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 			

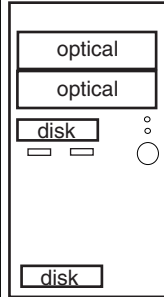
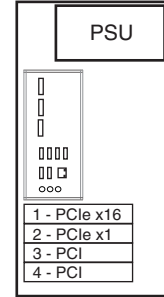
See footnotes for important warranty information
US models announced February 5, 2013

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	
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"	
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> <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>
<p>Preloaded Operating System</p> <p>2008 R2 Foundations: Genuine Windows Server® 2008 R2 Foundation 2008 R2 Standard: Genuine Windows Server 2008 R2 Standard SBS 2011 Essentials: Genuine Windows® Small Business Server 2011 Essentials 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

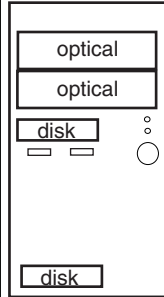
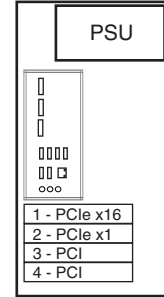
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(TAM10-3) June 2013

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 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			
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 			

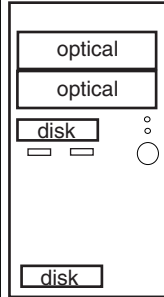
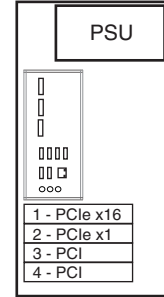
See footnotes for important warranty information

US model announced June 18, 2013

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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 								
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> <table border="0"> <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									
Disk bays	Two 3.5" SATA disk bays, no hot-swap, direct cable	<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>								
SATA disk(s)	None									
Optical	DVD-ROM DL SATA 1.5Gb/s 16X-48X Max ⁴ Drive	<p>Intel AMT</p> <p>Intel AMT 7.0 is supported on Xeon-model(s)</p>								
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)	<p>Software Management Tools</p> <ul style="list-style-type: none"> • ThinkServer EasyStartup 								
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	<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 								
Audio	High Definition (HD) Audio, Realtek ALC662 codec									
Ethernet	One gigabit ethernet on planar, Intel 82579LM	<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) 								
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)	<p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>								
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

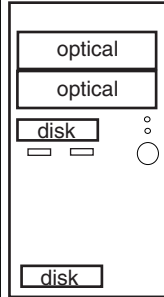
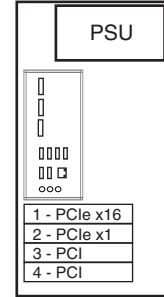
- **True server-class reliability and performance at desktop price**
- **3-year limited warranty¹**

Processor	<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>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 <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)	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)	
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 • 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 • ThinkServer EasyStartup
		Power-On Hotkey • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup
		Security • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • 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

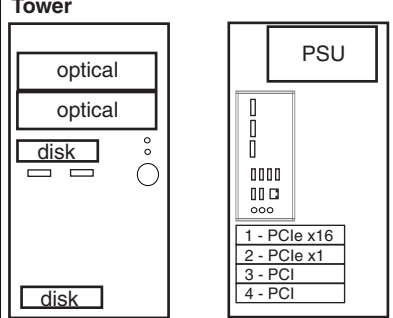
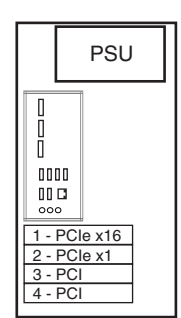
- **True server-class reliability and performance at desktop price**
- **These models have a 1-year limited warranty¹**

Processor	<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>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)	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)	
		<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</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</p> <p>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)	
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 style="text-align: center;">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 style="text-align: center;">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 style="text-align: center;">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 style="text-align: center;">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 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
Diagnostics	Two system status LEDs on front panel (disk drive activity, power/sleep)	
Keyboard	None (use USB port)	<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)
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)	
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 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

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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

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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® TS440 - Overview

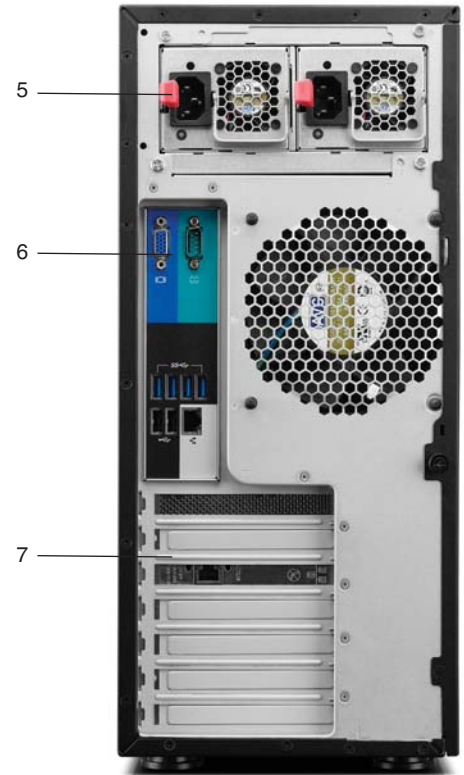


Front view

1. Front I/O: 2 USB 3.0 (blue)
2. Power Button
3. Two 5.25" optical drive bays (up to one optical on models with onboard SATA controller)
4. Eight 3.5" hot-swap drive bays (Also supports:
4 x 3.5" direct cable bays,
or 4 x 3.5" hot-swap bays,
or 8 x 2.5" hot-swap bays)

Rear view

5. Power Supply:
Up to two redundant 450 watts 80 PLUS Gold or fixed one 450 watts 80 PLUS Platinum
6. Rear I/O: 2 USB 2.0
4 USB 3.0 (blue)
1 serial (9-pin)
1 RJ-45 (GbE)
1 VGA (for Intel HD Graphics)
7. 1 PCIe 3.0 x16 (with optional RAID adapter)
1 PCIe 2.0 x1
1 PCIe 2.0 x16 (x4 elec, with optional ethernet adapter)
1 PCI






Internal

- One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3 family
- 4 DIMM sockets, supports up to 32GB ECC UDIMM memory
- Up to eight hard drive bays

Mechanical

- Tower, business black color, metal case
- Rack-mountable to 5U
- W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration

ThinkServer® TS440 Platform Specifications - I of III

Components	Specification																																																																																										
Form factor	Tower, rack-mountable to 5U via ThinkServer Tower to Rack Shelf Conversion Kit (<i>Option PN: 0C19515</i>)																																																																																										
Chipset	Intel C226 Chipset																																																																																										
Systems management	<ul style="list-style-type: none"> • Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12x5 v3 processors) • EasyStartup • EasyUpdate 																																																																																										
Processor	<p>One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3 family, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on Xeon E5-12X5 v3 processors.</p> <p>The following processors are supported:</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Clock Speed</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory speed</th> <th>ECC Memory Supported</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>Xeon E3-1285 v3</td> <td>4</td> <td>8</td> <td>3.6 GHz</td> <td>4 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4700</td> </tr> <tr> <td>Xeon E3-1280 v3</td> <td>4</td> <td>8</td> <td>3.6 GHz</td> <td>4 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1275 v3</td> <td>4</td> <td>8</td> <td>3.5 GHz</td> <td>3.9 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4600</td> </tr> <tr> <td>Xeon E3-1270 v3</td> <td>4</td> <td>8</td> <td>3.5 GHz</td> <td>3.9 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1245 v3</td> <td>4</td> <td>8</td> <td>3.4 GHz</td> <td>3.8 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4600</td> </tr> <tr> <td>Xeon E3-1240 v3</td> <td>4</td> <td>8</td> <td>3.4 GHz</td> <td>3.8 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1230 v3</td> <td>4</td> <td>8</td> <td>3.3 GHz</td> <td>3.7 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> <tr> <td>Xeon E3-1225 v3</td> <td>4</td> <td>4</td> <td>3.2 GHz</td> <td>3.6 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td>Intel HD Graphics P4600</td> </tr> <tr> <td>Xeon E3-1220 v3</td> <td>4</td> <td>4</td> <td>3.1 GHz</td> <td>3.5 GHz</td> <td>8 MB</td> <td>DDR3-1600</td> <td>Yes</td> <td></td> </tr> </tbody> </table> <p><i>Notes:</i> All information is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is". Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</p>	Processor Number	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	Memory speed	ECC Memory Supported	Processor Graphics	Xeon E3-1285 v3	4	8	3.6 GHz	4 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4700	Xeon E3-1280 v3	4	8	3.6 GHz	4 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1275 v3	4	8	3.5 GHz	3.9 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600	Xeon E3-1270 v3	4	8	3.5 GHz	3.9 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1245 v3	4	8	3.4 GHz	3.8 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600	Xeon E3-1240 v3	4	8	3.4 GHz	3.8 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1230 v3	4	8	3.3 GHz	3.7 GHz	8 MB	DDR3-1600	Yes		Xeon E3-1225 v3	4	4	3.2 GHz	3.6 GHz	8 MB	DDR3-1600	Yes	Intel HD Graphics P4600	Xeon E3-1220 v3	4	4	3.1 GHz	3.5 GHz	8 MB	DDR3-1600	Yes	
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Xeon E3-1220 v3	4	4	3.1 GHz	3.5 GHz	8 MB	DDR3-1600	Yes																																																																																				
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available																																																																																										
Memory DIMM sockets	Four 240-pin DIMM sockets																																																																																										
Memory capacity	Up to 32GB (8GBx4)																																																																																										
Memory protection	ECC																																																																																										
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs 																																																																																										
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support																																																																																										
Discreted SATA/SAS controller (optional)	<p>Supports the following:</p> <ul style="list-style-type: none"> • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support (RAID 50 is available on eight disk bays model only) • 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; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter <p><i>Notes:</i> RAID 50 and 60 are supported on 8 hard drive bays models</p>																																																																																										
Drive bays	<p>Supports two 5.25" optical bay, up to two optical drives (up to one optical on models with onboard SATA controller); supports up to eight hard drive bays, one of the following are supported:</p> <ul style="list-style-type: none"> • 4 x 3.5" DC: Four 3.5" hard drive bays, no hot-swap, direct cable (onboard RAID 100 controller, SATA only) • 4 x 3.5" HS: Four 3.5" hot-swap hard drive bays (onboard RAID 100 controller for SATA, discrete RAID adapter for SATA/SAS) • 8 x 3.5" HS: Eight 3.5" hot-swap hard drive bays (needs discreted RAID adapter, supports SATA/SAS) • 8 x 2.5" HS: Eight 2.5" hot-swap hard drive bays (needs discreted RAID adapter, supports SATA/SAS) <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>8 x 2.5" hot-swap</p> </div> <div style="text-align: center;">  <p>4 x 3.5" hot-swap</p> </div> <div style="text-align: center;">  <p>8 x 3.5" hot-swap</p> </div> </div> <p><i>Notes:</i> Hard drive bays are behind front cover</p>																																																																																										

ThinkServer® TS440 Platform Specifications - II of III

Components	Specification																																				
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface																																				
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see Rear ports section) Also supports the following optional discrete graphics adapters: <ul style="list-style-type: none"> NVIDIA Quadro NVS 300, PCIe x1 adapter, 512MB 																																				
Front ports	Two USB 3.0 (blue)																																				
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)																																				
Expansion Slots	Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3																																				
Onboard Ethernet	One onboard gigabit ethernet, Intel I217																																				
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45) 																																				
Keyboard/mouse	None (use USB port)																																				
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 450 watts, universal, 80 PLUS® Platinum qualified Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies 																																				
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 (front or all) 																																				
Mechanical	<ul style="list-style-type: none"> Tower, business black color, metal case W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm 61.7 lb (28kg) max configuration Rack-mountable to 5U 																																				
Serviceability	<ul style="list-style-type: none"> Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons 																																				
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified RoHS-compliant 																																				
EMC	FCC Class A																																				
240VA	Supports																																				
Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)																																				
Temperature - non operating (no package)	-10 °C to 60 °C																																				
Temperature - non operating (with package)	-40 °C to 70 °C																																				
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)																																				
Humidity - operating	10%~80%, non-condensing																																				
Humidity - non operating (no package)	10%~90%, non-condensing																																				
Humidity - non operating (with package)	10%~90%, non-condensing																																				
Acoustic noise (idle/working mode)	<table border="1"> <thead> <tr> <th>Category</th> <th>Mainstream Configuration</th> <th>Full Configuration</th> </tr> </thead> <tbody> <tr> <td>CPU</td> <td>Xeon</td> <td>Xeon</td> </tr> <tr> <td>Optical Drive</td> <td>DVD-ROM</td> <td>DVD-ROM</td> </tr> <tr> <td>HDD Controller</td> <td>onboard SATA</td> <td>SAS Controller</td> </tr> <tr> <td>HDD Bays</td> <td>4 x 3.5" SATA (direct cable)</td> <td>8 x 3.5" SAS (hot-swap)</td> </tr> <tr> <td>HDD</td> <td>4x 1TB SATA</td> <td>8x 600GB SAS</td> </tr> <tr> <td>Memory</td> <td>1 x 2GB UDIMM ECC</td> <td>4 x 4GB UDIMM ECC</td> </tr> <tr> <td>PSU</td> <td>Fixed</td> <td>Redundant</td> </tr> <tr> <td>Management</td> <td>Basic IPMI mgmt, reporting</td> <td>Basic IPMI mgmt, reporting</td> </tr> <tr> <td>RAID</td> <td>SATA RAID 0/1</td> <td>SAS RAID 5</td> </tr> <tr> <td>Sound Pressure (operating)</td> <td>40.5 dB(A)</td> <td>42.0 dB(A)</td> </tr> <tr> <td>Sound Pressure (idle)</td> <td>32.0 dB(A)</td> <td>38.0 dB(A)</td> </tr> </tbody> </table>	Category	Mainstream Configuration	Full Configuration	CPU	Xeon	Xeon	Optical Drive	DVD-ROM	DVD-ROM	HDD Controller	onboard SATA	SAS Controller	HDD Bays	4 x 3.5" SATA (direct cable)	8 x 3.5" SAS (hot-swap)	HDD	4x 1TB SATA	8x 600GB SAS	Memory	1 x 2GB UDIMM ECC	4 x 4GB UDIMM ECC	PSU	Fixed	Redundant	Management	Basic IPMI mgmt, reporting	Basic IPMI mgmt, reporting	RAID	SATA RAID 0/1	SAS RAID 5	Sound Pressure (operating)	40.5 dB(A)	42.0 dB(A)	Sound Pressure (idle)	32.0 dB(A)	38.0 dB(A)
Category	Mainstream Configuration	Full Configuration																																			
CPU	Xeon	Xeon																																			
Optical Drive	DVD-ROM	DVD-ROM																																			
HDD Controller	onboard SATA	SAS Controller																																			
HDD Bays	4 x 3.5" SATA (direct cable)	8 x 3.5" SAS (hot-swap)																																			
HDD	4x 1TB SATA	8x 600GB SAS																																			
Memory	1 x 2GB UDIMM ECC	4 x 4GB UDIMM ECC																																			
PSU	Fixed	Redundant																																			
Management	Basic IPMI mgmt, reporting	Basic IPMI mgmt, reporting																																			
RAID	SATA RAID 0/1	SAS RAID 5																																			
Sound Pressure (operating)	40.5 dB(A)	42.0 dB(A)																																			
Sound Pressure (idle)	32.0 dB(A)	38.0 dB(A)																																			

ThinkServer® TS440 Platform Specifications - III of III

Components	Specification
Warranty	1 or 3-year limited warranty, parts and labor, more services information see S-TS1 and S-TS3 sheet
Preloaded operating systems	<ul style="list-style-type: none">• Windows Server® 2012 Foundation• Windows Server 2012 Essentials• Windows Server 2012 Standard
Supported operating systems and virtualization software	<ul style="list-style-type: none">• Windows Server 2008 R2 Standard• Windows Server 2008 R2 Enterprise• Windows Server 2012 Datacenter• Windows Small Business Server 2011 Essentials• Windows Small Business Server 2011 Standard• Windows Small Business Server 2011 Premium Add-On• Red Hat Enterprise Linux 6.4• VMware ESXi 5.1 U1 (Discrete RAID controller, add-on ethernet controller, and Intel Xeon E3-12x5 v3 processors are needed) <p><i>Notes:</i></p> <ol style="list-style-type: none">1. Supported only, no preloaded models2. For latest VMware compatibility list for ThinkServer, please see http://www.vmware.com/resources/compatibility/search.php3. For latest Red Hat compatibility list for ThinkServer, please see https://hardware.redhat.com/4. These supported operating systems are also supported by EasyStartup


ThinkServer® TS440 (70AQ) - TopSeller (September 2013)

Personal Systems Reference (PSREF)

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays ²	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AQ0005US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD±RW	No	No	Foundation	1x450W (hot-swap, redundant with 2)	3
70AQ0006US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD±RW	No	No	Essentials	1x450W (hot-swap, redundant with 2)	3
70AQ0007US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD±RW	No	No	Standard	1x450W (hot-swap, redundant with 2)	3
70AQ0009UX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	1
70AQ000AUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000BUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000CUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

• For detailed ThinkServer TS440 platform specifications, please see [ThinkServer TS440 Platform Specifications sheet](#)

Systems management	<ul style="list-style-type: none"> Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) EasyStartup EasyUpdate 	<p>Optical Bays</p> <ul style="list-style-type: none"> Two 5.25" optical bays for all models (Up to one optical on onboard SATA controller models) <p>Hard Drive Bays</p> <ul style="list-style-type: none"> Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC) Four 3.5" hot-swap hard drive bays (4x3.5" HS) Eight 3.5" hot-swap hard drive bays (8x3.5" HS) Eight 2.5" hot-swap hard drive bays (8x2.5" HS)  <p>8 x 2.5" HS 4 x 3.5" HS 8 x 3.5" HS</p>
Chipset	Intel C226 Chipset	
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors	
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable	
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)	
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see Rear ports section) Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB 	
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support	
Discreted SATA/SAS controller (optional)	Supports the following: <ul style="list-style-type: none"> ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support 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; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter <p><i>Notes:</i> RAID 50 and 60 are supported on 8 hard drive bays models only</p>	
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface	
Front ports	Two USB 3.0 (blue)	
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)	
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe) 	
Onboard Ethernet	One onboard gigabit ethernet, Intel I217	
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45) 	
Keyboard/Mouse	None (use USB port)	
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 450 watts, universal, 80 PLUS® Platinum qualified Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies 	
Base warranty	1 or 3-year parts and labor limited warranty ¹	
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified RoHS-compliant More environmental information and requirements, please see ThinkServer TS440 Platform Specifications sheet	
	<p>Mechanical</p> <ul style="list-style-type: none"> Tower, business black color, metal case W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm 61.7 lb (28kg) max configuration Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model) Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3</p> <p>Security</p> <ul style="list-style-type: none"> Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all) 	

See footnotes for important warranty information
Model(s) announced September 24, 2013

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ThinkServer® TS440 (70AQ) - TopSeller (September 2013) - II

Personal Systems Reference (PSREF)

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays ²	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AQ000DUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000EUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x2.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000FUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x2.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000GUX	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000HUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x3.5" HS	RAID 700 (discrete, 0/1/5/6/10/50/60)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000NUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD	No	No	No	1x450W (hot-swap, redundant with 2)	1
70AQ000PUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD	No	No	No	1x450W (hot-swap, redundant with 2)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

• For detailed ThinkServer TS440 platform specifications, please see [ThinkServer TS440 Platform Specifications sheet](#)

Systems management	<ul style="list-style-type: none"> Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) EasyStartup EasyUpdate 	<p>Optical Bays</p> <ul style="list-style-type: none"> Two 5.25" optical bays for all models (Up to one optical on onboard SATA controller models) <p>Hard Drive Bays</p> <ul style="list-style-type: none"> Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC) Four 3.5" hot-swap hard drive bays (4x3.5" HS) Eight 3.5" hot-swap hard drive bays (8x3.5" HS) Eight 2.5" hot-swap hard drive bays (8x2.5" HS)  <p>8 x 2.5" HS 4 x 3.5" HS 8 x 3.5" HS</p>
Chipset	Intel C226 Chipset	
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors	
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable	
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)	
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see Rear ports section) Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB 	
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support	
Discreted SATA/SAS controller (optional)	Supports the following: <ul style="list-style-type: none"> ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support 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; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter <p><i>Notes:</i> RAID 50 and 60 are supported on 8 hard drive bays models only</p>	
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface	
Front ports	Two USB 3.0 (blue)	
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)	
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe) 	
Onboard Ethernet	One onboard gigabit ethernet, Intel I217	
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45) 	
Keyboard/Mouse	None (use USB port)	
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 450 watts, universal, 80 PLUS® Platinum qualified Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies 	
Base warranty	1 or 3-year parts and labor limited warranty ¹	
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified RoHS-compliant More environmental information and requirements, please see ThinkServer TS440 Platform Specifications sheet	
	<p>Mechanical</p> <ul style="list-style-type: none"> Tower, business black color, metal case W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm 61.7 lb (28kg) max configuration Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model) Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3</p> <p>Security</p> <ul style="list-style-type: none"> Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all) 	

See footnotes for important warranty information
Model(s) announced September 24, 2013

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ThinkServer® TS440 (70AN) - TopSeller (September 2013)

Personal Systems Reference (PSREF)

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays ²	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
<i>70AN0001UX</i>	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	1
70AN0002UX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

• For detailed ThinkServer TS440 platform specifications, please see [ThinkServer TS440 Platform Specifications sheet](#)

Systems management	<ul style="list-style-type: none"> Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) EasyStartup EasyUpdate 	<p>Optical Bays</p> <ul style="list-style-type: none"> Two 5.25" optical bays for all models <i>(Up to one optical on onboard SATA controller models)</i> <p>Hard Drive Bays</p> <ul style="list-style-type: none"> Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC) Four 3.5" hot-swap hard drive bays (4x3.5" HS) Eight 3.5" hot-swap hard drive bays (8x3.5" HS) Eight 2.5" hot-swap hard drive bays (8x2.5" HS)  <p>8 x 2.5" HS 4 x 3.5" HS 8 x 3.5" HS</p>
Chipset	Intel C226 Chipset	
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors	
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable	
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM <i>(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)</i>	
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see Rear ports section) Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB 	
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support	
Discreted SATA/SAS controller (optional)	Supports the following: <ul style="list-style-type: none"> ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support 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; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter <p><i>Notes:</i> RAID 50 and 60 are supported on 8 hard drive bays models only</p>	
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface	
Front ports	Two USB 3.0 (blue)	
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)	
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe) 	
Onboard Ethernet	One onboard gigabit ethernet, Intel I217	
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45) 	
Keyboard/Mouse	None (use USB port)	
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 450 watts, universal, 80 PLUS® Platinum qualified Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies 	
Base warranty	1 or 3-year parts and labor limited warranty ¹	
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified RoHS-compliant More environmental information and requirements, please see ThinkServer TS440 Platform Specifications sheet	
	<p>Mechanical</p> <ul style="list-style-type: none"> Tower, business black color, metal case W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm 61.7 lb (28kg) max configuration Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model) Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3</p> <p>Security</p> <ul style="list-style-type: none"> Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all) 	


See footnotes for important warranty information
Model(s) announced September 24, 2013

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Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays ²	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AM0000US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx2	Intel HD P4600	4x3.5" DC	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD	No	1xIntel CT	Foundation	1x450W (hot-swap, redundant with 2)	1
70AM0001US	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	8x3.5" HS	RAID 500+key (discrete, 0/1/5/10/50)	RAID 50	8x2TB 3.5" SATA	2xDVD±RW	No	1xIntel CT	Foundation	2x450W (hot-swap, redundant with 2)	1
70AM0002UX	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	4GBx3	NVS 300	8x2.5 HS	RAID 700 (discrete, 0/1/5/6/10/50/60)	RAID 6	3x600GB 2.5" SAS	1xDVD	No	1x350-T4	No	1x450W (hot-swap, redundant with 2)	1
70AM0003US	Xeon E3-1285 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	Intel HD P4700	8x2.5 HS	RAID 700 (discrete, 0/1/5/6/10/50/60)	RAID 60	8x900GB 2.5" SAS	1xDVD±RW	No	1x350-T2	Foundation	2x450W (hot-swap, redundant with 2)	1
70AM0004UX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	1x450W (hot-swap, redundant with 2)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

• For detailed ThinkServer TS440 platform specifications, please see [ThinkServer TS440 Platform Specifications sheet](#)


Systems management	<ul style="list-style-type: none"> Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) EasyStartup EasyUpdate 	<p>Optical Bays</p> <ul style="list-style-type: none"> Two 5.25" optical bays for all models (Up to one optical on onboard SATA controller models) <p>Hard Drive Bays</p> <ul style="list-style-type: none"> Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC) Four 3.5" hot-swap hard drive bays (4x3.5" HS) Eight 3.5" hot-swap hard drive bays (8x3.5" HS) Eight 2.5" hot-swap hard drive bays (8x2.5" HS)  <p>8 x 2.5" HS 4 x 3.5" HS 8 x 3.5" HS</p>
Chipset	Intel C226 Chipset	
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors	
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable	
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)	
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see Rear ports section) Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB 	
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support	
Discreted SATA/SAS controller (optional)	Supports the following: <ul style="list-style-type: none"> ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support 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; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter Notes: RAID 50 and 60 are supported on 8 hard drive bays models only	
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface	
Front ports	Two USB 3.0 (blue)	
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)	
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe) 	
Onboard Ethernet	One onboard gigabit ethernet, Intel I217	
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45) 	
Keyboard/Mouse	None (use USB port)	
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 450 watts, universal, 80 PLUS® Platinum qualified Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies 	
Base warranty	1 or 3-year parts and labor limited warranty ¹	
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified RoHS-compliant More environmental information and requirements, please see ThinkServer TS440 Platform Specifications sheet	
		<p>Mechanical</p> <ul style="list-style-type: none"> Tower, business black color, metal case W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm 61.7 lb (28kg) max configuration Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model) Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3</p> <p>Security</p> <ul style="list-style-type: none"> Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all)

See footnotes for important warranty information
 Model(s) announced September 24, 2013

Type-model ¹	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays ²	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AL0000US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx3	NVS 300	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 5	3x3TB 3.5" SATA	1xDVD±RW	No	1x350-T2	Foundation	Fixed 450W (non-hot swap, no redundant)	1
70AL0002UX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	1x500GB 3.5" SATA	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	3
70AL0003UX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

• For detailed ThinkServer TS440 platform specifications, please see [ThinkServer TS440 Platform Specifications sheet](#)

Systems management	<ul style="list-style-type: none"> Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) EasyStartup EasyUpdate 	<p>Optical Bays</p> <ul style="list-style-type: none"> Two 5.25" optical bays for all models (Up to one optical on onboard SATA controller models) <p>Hard Drive Bays</p> <ul style="list-style-type: none"> Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC) Four 3.5" hot-swap hard drive bays (4x3.5" HS) Eight 3.5" hot-swap hard drive bays (8x3.5" HS) Eight 2.5" hot-swap hard drive bays (8x2.5" HS)  <p>8 x 2.5" HS 4 x 3.5" HS 8 x 3.5" HS</p>
Chipset	Intel C226 Chipset	
Processor	One LGA1150 socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors	
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable	
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM (Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)	
Graphics	<ul style="list-style-type: none"> Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see Rear ports section) Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB 	
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support	
Discreted SATA/SAS controller (optional)	Supports the following: <ul style="list-style-type: none"> ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support 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; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter Notes: RAID 50 and 60 are supported on 8 hard drive bays models only	
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface	
Front ports	Two USB 3.0 (blue)	
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)	
Add-on ports (optional)	Supports the following: <ul style="list-style-type: none"> Single Parallel Port PCI Adapter (1xParallel) Single Serial Port PCI Adapter (1xSerial) Dual Serial Ports PCI Adapter (2xSerial PCI) Dual Serial Ports PCIe Adapter (2xSerial PCIe) 	
Onboard Ethernet	One onboard gigabit ethernet, Intel I217	
Discrete Ethernet (optional)	Supports the following: <ul style="list-style-type: none"> Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45) 	
Keyboard/Mouse	None (use USB port)	
Power supply	Supports one of the following, depending on models: <ul style="list-style-type: none"> One fixed 450 watts, universal, 80 PLUS® Platinum qualified Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies 	
Base warranty	1 or 3-year parts and labor limited warranty ¹	
Environmental certifications	<ul style="list-style-type: none"> GREENGUARD® certified Energy Star Server 1.1 qualified RoHS-compliant More environmental information and requirements, please see ThinkServer TS440 Platform Specifications sheet	
		<p>Mechanical</p> <ul style="list-style-type: none"> Tower, business black color, metal case W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm 61.7 lb (28kg) max configuration Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model) Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons <p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3</p> <p>Security</p> <ul style="list-style-type: none"> Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant Administrator password User password Front panel key lock Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all)

See footnotes for important warranty information
 Model(s) announced September 24, 2013

ThinkServer™

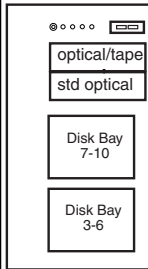
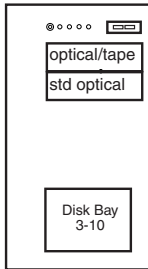
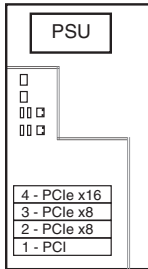


Lenovo ThinkServer TS430
(Four 3.5" Hot-swap and Fixed PSU)

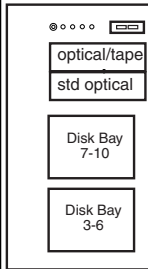
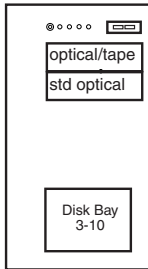
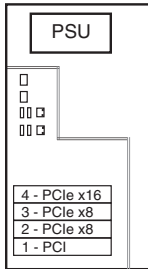
Lenovo ThinkServer TS430
(Redundant PSU)



Lenovo ThinkServer TS430

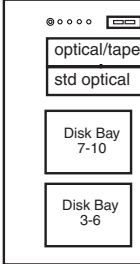
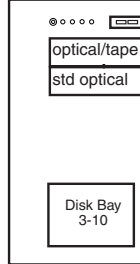
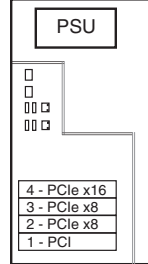
Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM mgmt	Preload OS	
0390-16U	Xeon E3-1240V2	1333MHz	UDIMM 1x4GB	No	Intel PCH	SATA	3.5"	4xHot-swap		DVD±RW	No	TPM IPMI		
0390-17U	Xeon E3-1220V2	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)								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													
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)	<p>IDM model(s): add-on Intelligent Diagnostics Module for advanced diagnostics, IDM LED lights indicate failing component category</p>													
Systems mgmt	<p>Onboard Aspeed AST2150 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);</p> <p>KVM model(s): add-on KVM card for KVM functions</p>													
Security chip	<p>No onboard TPM chip;</p> <p>TPM model(s): additional Nuvoton WPCT210 add-on card for TPM function, TCG 1.2-compliant</p>													
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													
Preloaded Operating System														
2008 R2 STD:										Genuine Windows Server 2008 R2 Standard				
SBS 2011:										Genuine Windows Small Business Server 2011 Standard				
										RoHS-compliant				
										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) 				

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

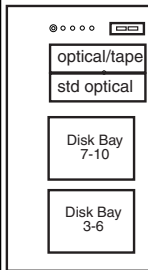
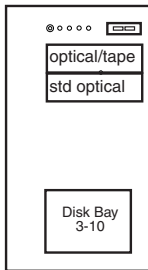
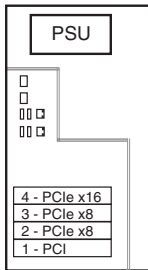
Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System mgmt	Preload OS	PSU
0390-1BU	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD±RW	No	TPM IPMI	No	1 x Fixed
Processor	Up to one processor, one processor 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 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				
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												
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

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

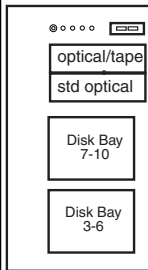
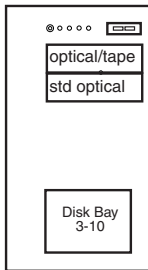
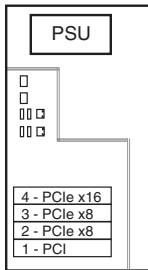
Processor	Up to one processor, one processor standard, Intel® Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)	Front - 3.5" disk bay	Front - 2.5" disk bay	Rear
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-10600 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	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)	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)	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-TS			
Preloaded Operating System		Software Management Tools		
2008 R2 Standard: Genuine Windows Server® 2008 R2 Standard		<ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage 		
SBS 2011 Standard: Genuine Windows® Small Business Server 2011 Standard		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		
		For more accessories, see O-TOR sheet		

See footnotes for important warranty information
US model(s) announced February 19, 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 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 <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					
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	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													
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					
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								RoHS-compliant					
Limited warranty	1-year parts and labor; more Lenovo Services information see S-TOR													
Accessories	For more accessories, see O-TOR sheet													

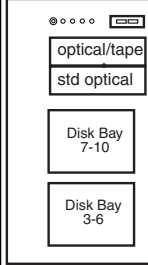
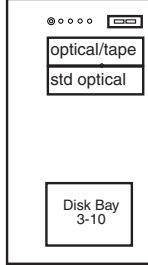
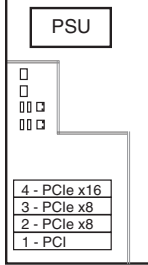
See footnotes for important warranty information
US model(s) announced June 12, 2012

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> <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	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	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						
		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					

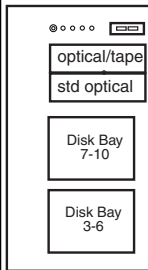
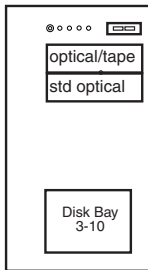
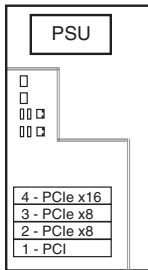
See footnotes for important warranty information US model(s) announced June 12, 2012

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

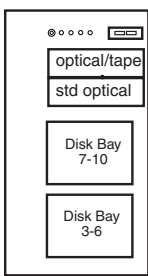
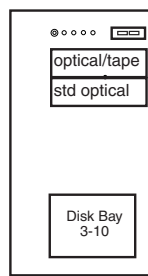
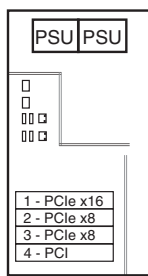
Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)	  
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)	
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	
		<p>3.5" disk bay models:</p> <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 <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</p> <p>2.5" disk bay models:</p> <p>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> <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 June 12, 2012

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

Personal Systems Reference (PSREF)

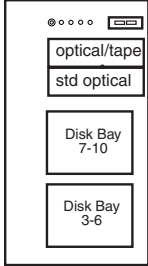
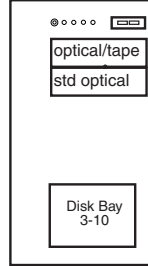
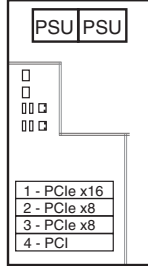
Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	mgmt IPMI	Preload OS	PSU
0441-1DU	Xeon E3-1240V2	1x4GB	No	500	SATA/SAS	2.5"	8xHot-swap		DVD±RW	IDM	TPM	IPMI		1x450W
0441-1EU	Xeon E3-1240V2	1x4GB	No	Intel 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	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 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	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	Software Management Tools • ThinkServer EasyStartup • ThinkServer EasyManage		
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	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)		
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	RoHS-compliant 3-year parts and labor; more Lenovo Services information see S-TOR For more accessories, see O-TOR sheet		
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			
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			

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)

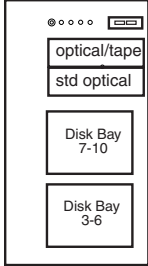
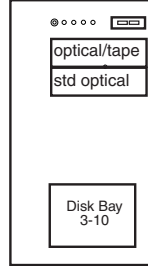
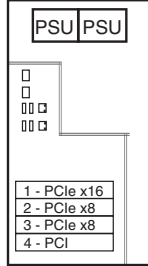
Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System mgmt TPM	Preload OS	PSU	
0441-1PU	Core i3-3220	1x4GB	No	Intel PCH	SATA	3.5	4xHot-swap	No	DVD±RW	No	TPM IPMI	No	1x450W	
Processor	Up to one processor, one processor 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					
Disk controller	<i>Intel PCH:</i> Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID ⁰ 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													
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													
									RoHS-compliant					
									3-year parts and labor; more Lenovo Services information see S-TS					
									For more accessories, see O-TOR sheet					

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

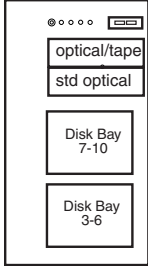
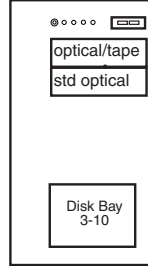
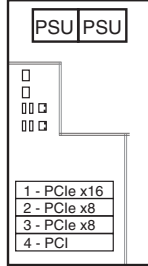
Processor	Up to one processor, one processor standard. Intel® Core™ i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (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>2.5" 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	<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)

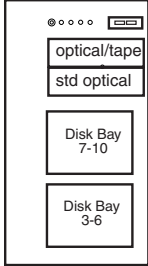
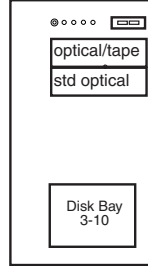
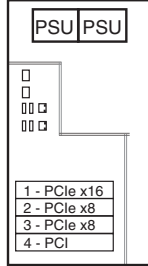
Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System TPM	System mgmt	Preload OS	PSU qty
0441-1VU	Xeon E3-1220V2	1x4GB	1	Intel PCH	SATA	3.5"	4xHot-swap	2x500GB SATA	DVD±RW	IDM	TPM	IPMI	SBS 2011 Standard	1
0441-1WU	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	
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
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 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	
		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)
		3-year parts and labor, more Lenovo Services information see S-TS
		RoHS-compliant
		For more accessories, see O-TOR sheet
Preloaded Operating System 2008 R2 Standard: Genuine Windows Server [®] 2008 R2 Standard SBS 2011 Standard: Genuine Windows [®] Small Business Server 2011 Standard		

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

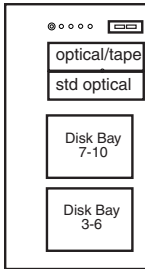
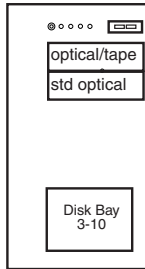
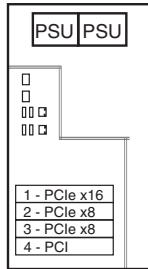
ThinkServer® TS430 Redundant PSU (0441) - TopSeller (June 2013)

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 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

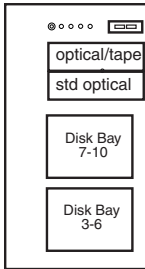
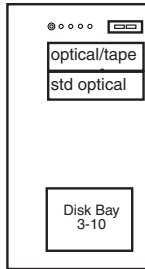
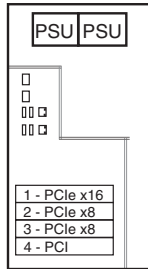
Processor	Up to one processor, one processor standard, Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller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

ThinkServer® TS430 Redundant PSU (0393) - TopSeller (September 2012)

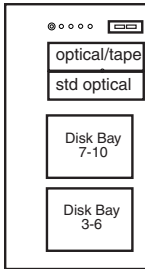
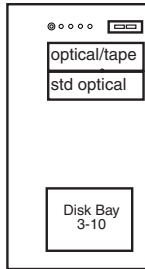
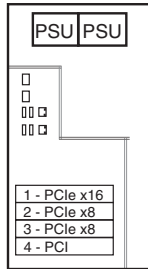
Personal Systems Reference (PSREF)

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System mgmt TPM	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							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					
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 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							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-TS												
Accessories	For more accessories, see O-TOR sheet												

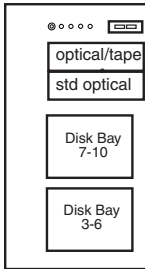
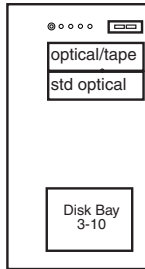
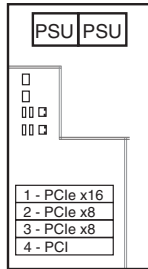
See footnotes for important warranty information
US model(s) announced September 25, 2012

Type-model	Processor	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	Disk(s)	SATA optical	Intelligent Diagnostics	System mgmt TPM	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	• 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	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)	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	<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	Software Management Tools
Keyboard	None (use USB port)	• ThinkServer EasyStartup • ThinkServer EasyManage
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	Security
Mechanical	Tower, business black color, metal case	• Security chip (selected models, see information on left)
Dimension	W x H x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm	• Administrator password
System weight	61.7 lb (28kg) max configuration	• User password
Tool-less	Side cover removal, disk and optical drive removal, system fan removal	• Front panel key lock
Rack mount	Rack-mountable to 5U	• Boot sequence control
Limited warranty	3-year parts and labor; more Lenovo Services information see S-TOR	• Boot without keyboard, mouse, diskette
Accessories	For more accessories, see O-TOR sheet	• Serial port I/O control
		• USB port disablement (all)
		RoHS-compliant

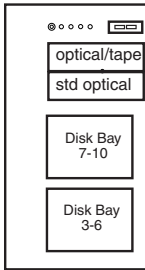
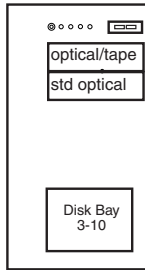
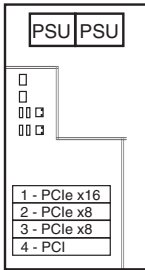
See footnotes for important warranty information US model(s) announced June 12, 2012

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	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		
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	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		
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	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 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 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		

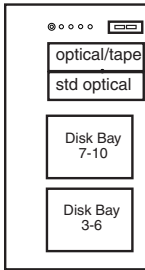
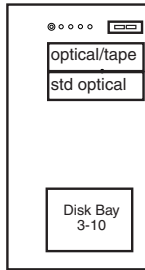
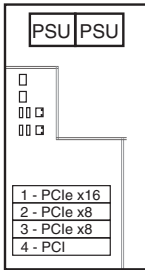
See footnotes for important warranty information
 US model(s) announced September 25, 2012

Type-model	Processor	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk type	Disk size	Disk bays	SATA Disk(s)	Intelligent optical	Diagnosics TPM	System 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	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		
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed	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		
Graphics	Onboard Aspeed AST2150 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1600x1200@60Hz	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 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	Software Management Tools • ThinkServer EasyStartup • ThinkServer EasyManage		
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)	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)		
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	RoHS-compliant		
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	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 0, 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>	
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	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	1-year parts and labor; more Lenovo Services information see S-TS	
Accessories	For more accessories, see O-TOR sheet	

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

Lenovo® ThinkServer® RD330 with 3.5" disk bays

ThinkServer™



Lenovo® ThinkServer® RD330 with 2.5" disk bays

ThinkServer™



ThinkServer® RD330 with 3.5" Disk Bay (4304) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
4304-E1U	1xE5-2407	1333MHz RDIMM	1x4GB	No	300		4xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	No	1
4304-E2U	1xE5-2403	1333MHz RDIMM	1x4GB	No	300		4xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	No	1
4304-E3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500		4xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	No	1
4304-E4U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500	4x1TB 3.5" SATA	4xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	No	2
4304-E5U	1xE5-2450	1333MHz RDIMM	1x8GB	No	500+Upgrade		4xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	No	2
4304-E6U	2xE5-2420	1333MHz RDIMM	2x8GB	No	500+Upgrade		4xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	No	1
4304-E7U	1xE5-2420	1333MHz RDIMM	1x16GB	No	500		4xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	No	2
4304-E8U	1xE5-2403	1333MHz RDIMM	1x4GB	No	500+Upgrade		4xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	No	1

Limited warranty **3-year** parts and labor; more services information see S-RAL sheet

Processor
Up to two Intel® Xeon® E5-2400 series processors,
Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.4GHz),
3-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.9GHz),
3-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA1356 sockets

Memory
UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor,
240-pin, 12 DIMM sockets (6 sockets per processor);
192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM,
12x4GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over six DIMMs requires dual processors
- Mixing of UDIMM, RDIMM, or LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor,
one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz

Disk bays
Four 3.5" hot-swap SATA/SAS disk bays (see right)

Disk controller
RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller,
SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support
Upgrade for 300: Additional upgrade key for RAID 300,
add RAID 5 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 support
RAID 700: 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 support
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10 via ThinkServer RAID 700 adapter

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

Tape drive
None

Optical
DVD±RW or DVD ROM, slim

Diskette
None (use USB port)

Chipset
Intel C606 Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management
(See Right) Riser card 1 for slot 1, riser card 2 for slot 2

Riser card
Two USB 2.0

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM on selected models;
Basic: IDM LED lights indicate failing component category

Systems mgmt
Onboard Aspeed AST2300 graphics/management processor,
IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM
functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

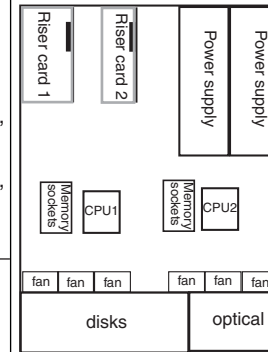
Power supply
One or two 550 watts standard, two maximum, rear access, hot-swap,
80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

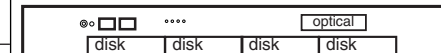
Cable management
Optional cable management arm on selected models

Cooling
Six fans, non-hot swap

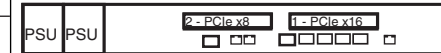
1U Rack top



Front



Rear



Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
Bay 2-5 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec)

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

ThinkServer® RD330 with 3.5" Disk Bay (4304) - TopSeller (June 2013)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory Pre-conf DIMMs	RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty																																																																																																																																																																																																																																																																																																																																																																																																																					
4304-F5U	1xE5-2407	1600MHz RDIMM	1x8GB	No	300	2x1TB 3.5"	SATA 4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	1																																																																																																																																																																																																																																																																																																																																																																																																																				
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Maximum resolution: 1920x1200@60Hz</td> </tr> <tr> <td>Disk bays</td> <td colspan="14">Four 3.5" hot-swap SATA/SAS disk bays (see right)</td> </tr> <tr> <td>Disk controller</td> <td colspan="14"> RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 support RAID 700: 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 support Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700 </td> </tr> <tr> <td>RAID Support</td> <td colspan="14">Up to RAID 0, 1, 5, 6, 10 via ThinkServer RAID 700 adapter</td> </tr> <tr> <td>Disk(s)</td> <td colspan="14"> 3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm </td> </tr> <tr> <td>Tape drive</td> <td colspan="14">None</td> </tr> <tr> <td>Optical</td> <td colspan="14">DVD±RW or DVD ROM, slim</td> </tr> <tr> <td>Diskette</td> <td colspan="14">None (use USB port)</td> </tr> <tr> <td>Chipset</td> <td colspan="14">Intel C606 Chipset</td> </tr> <tr> <td>Ethernet</td> <td colspan="14">Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2</td> </tr> <tr> <td>Riser card</td> <td colspan="14">Two USB 2.0</td> </tr> <tr> <td>Front ports</td> <td colspan="14">Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td> </tr> <tr> <td>Rear ports</td> <td colspan="14">Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td> </tr> <tr> <td>Intelligent Diagnostics Module (IDM)</td> <td colspan="14">Supports IDM on selected models; 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| **1U Rack top** **Front** **Rear** **Mechanical** - 1U rack - 19"W x 28.9"D x 1.72"H (with rack handles) - 482.4mm W x 734mm D x 43.6mm H (with rack handles) - 17kg (37.5 lb) when fully configured **Disk Bays** | | | | |---------|-----------------------------|-------------| | Bay 1 | 5.25", 0.5" high, external, | for optical | | Bay 2-5 | 3.5", 1" high, external, | for disk | **Expansion Slots** Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec) **Security** - Security chip (selected models, see information on left) - Administrator password - User password - Boot sequence control - Boot without keyboard, mouse, diskette - Serial port I/O control - USB port disablement (all) **Software Management Tools** - ThinkServer EasyStartup - ThinkServer EasyManage **Energy Management Technology** - Lenovo® SmartGrid Manager **ENERGY STAR® Server 1.1-compliant** RoHS-compliant For more accessories, see O-RAL sheet | | | | | | | | | | | | | | |

ThinkServer® RD330 with 3.5" Disk Bay (4305)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty	
4305-B1U	1xE5-2407	1333MHz RDIMM	1x4GB	No	300	No	4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	1
4305-B2U	1xE5-2403	1333MHz RDIMM	1x8GB	No	300	No	4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	1
4305-B3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	300	No	4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	1
4305-B4U	1xE5-2450	1333MHz RDIMM	1x8GB	No	500+Upgrade	No	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	1
4305-B5U	1xE5-2450	1333MHz RDIMM	1x16GB	No	500+Upgrade	No	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RD sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Four 3.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 support RAID 700: 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 support Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700
RAID Support	Up to RAID 0, 1, 5, 6, 10 via ThinkServer RAID 700 adapter
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2
Riser card	Two USB 2.0
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Intelligent Diagnostics Module (IDM)	Supports IDM on selected models; Basic: IDM LED lights indicate failing component category
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Six fans, non-hot swap

1U Rack top

Front

Rear

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1	5.25", 0.5" high, external,	for optical
Bay 2-5	3.5", 1" high, external,	for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec)

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
 RoHS-compliant

For more accessories, see O-RAL sheet

See footnotes for important warranty information
 US model(s) announced August 14, 2012

ThinkServer® RD330 with 3.5" Disk Bay (4305) - September 2012

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
4305-F2U	1xE5-2407	1600MHz RDIMM	1x4GB	No	300		4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	1
4305-F3U	1xE5-2407	1600MHz RDIMM	4x8GB	No	700+Battery	3x500GB 3.5" SATA	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	2
4305-F4U	1xE5-2420	1600MHz RDIMM	6x8GB	No	700+Battery	3x300GB 3.5" SAS	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RAL sheet	
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz)	
Implementation	Two LGA1356 sockets	
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)	
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported 	
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz	
Disk bays	Four 3.5" hot-swap SATA/SAS disk bays (see right)	
Disk controller	RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 support RAID 700: 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 support Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700	
RAID Support	Up to RAID 0, 1, 5, 6, 10 via ThinkServer RAID 700 adapter	
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm	
Tape drive	None	
Optical	DVD±RW or DVD ROM, slim	
Diskette	None (use USB port)	
Chipset	Intel C606 Chipset	
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management	
Riser card	(See Right) Riser card 1 for slot 1, riser card 2 for slot 2	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector	
Intelligent Diagnostics Module (IDM)	Supports IDM on selected models; Basic: IDM LED lights indicate failing component category	
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions	
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	SATA/SAS disk, OS	
Keyboard/mouse	None (use USB port)	
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Rack kit	Includes rack kit	
Cable management	Optional cable management arm on selected models	
Cooling	Six fans, non-hot swap	

1U Rack top

Front

Rear

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1	5.25", 0.5" high, external,	for optical
Bay 2-5	3.5", 1" high, external,	for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec)

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

ThinkServer® RD330 with 2.5" Disk Bay (3073) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty
3073-C1U	1xE5-2403	1333MHz	RDIMM 1x4GB	No	300		6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	1
3073-C2U	1xE5-2407	1333MHz	RDIMM 1x4GB	No	300		6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	1
3073-C3U	1xE5-2420	1333MHz	RDIMM 1x8GB	No	500		6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	1
3073-C4U	1xE5-2450	1333MHz	RDIMM 1x8GB	No	500+Upgrade		6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	2
3073-C5U	2xE5-2420	1333MHz	RDIMM 2x8GB	No	500+Upgrade		6xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	1
3073-C6U	2xE5-2420	1333MHz	RDIMM 2x8GB	No	500+Upgrade	2x200G SSD	6xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	2
3073-C7U	1xE5-2420	1333MHz	RDIMM 1x16GB	No	500		6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	2
3073-C8U	1xE5-2450	1333MHz	RDIMM 1x8GB	No	300		6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	1

Limited warranty **3-year** parts and labor; more services information see S-RAL sheet

Processor
Up to two Intel® Xeon® E5-2400 series processors,
Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.4GHz),
3-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.9GHz),
3-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA1356 sockets

Memory
UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor,
240-pin, 12 DIMM sockets (6 sockets per processor);
192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM,
12x4GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over six DIMMs requires dual processors
- Mixing of UDIMM, RDIMM, or LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor,
one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz

Disk bays
Six 2.5" hot-swap SATA/SAS disk bays (see right)

Disk controller
RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller,
SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support
Upgrade for 300: Additional upgrade key for RAID 300,
add RAID 5 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 700: 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 support
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50 via ThinkServer RAID 700 adapter

Disk(s)
2.5" SAS: SAS 6.0Gb/s, 10000 rpm
SSD: Solid State Drive, 2.5"

Tape drive
None

Optical
DVD±RW or DVD ROM, slim

Diskette
None (use USB port)

Chipset
Intel C606 Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management
(See Right) Riser card 1 for slot 1, riser card 2 for slot 2

Riser card
One analog VGA DB-15 connector, two USB 2.0

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM on selected models;
Basic: IDM LED lights indicate failing component category

Systems mgmt
Onboard Aspeed AST2300 graphics/management processor,
IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM
functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

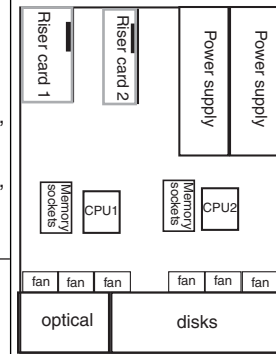
Power supply
One or two 550 watts standard, two maximum, rear access, hot-swap,
80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

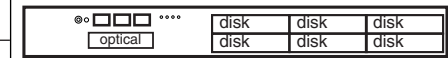
Cable management
Optional cable management arm on selected models

Cooling
Six fans, non-hot swap

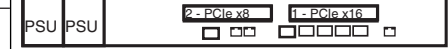
1U Rack top



Front



Rear



Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
Bay 2-7 2.5", 0.6" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec)

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

See footnotes for important warranty information
US model(s) announced August 14, 2012

ThinkServer® RD330 with 2.5" Disk Bay (3074)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty
3074-D1U	1xE5-2407	1333MHz RDIMM	1x4GB	No	300	None	6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	1
3074-D2U	1xE5-2403	1333MHz RDIMM	1x8GB	No	300	None	6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	1
3074-D3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	300	None	6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	2
3074-D4U	1xE5-2450	1333MHz RDIMM	1x8GB	No	500+Upgrade	None	6xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	1
3074-D5U	1xE5-2450	1333MHz RDIMM	1x16GB	No	500+Upgrade	None	6xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RAL sheet	
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz)	
Implementation	Two LGA1356 sockets	
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)	
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported 	
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz	
Disk bays	Six 2.5" hot-swap SATA/SAS disk bays (see right)	
Disk controller	RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 700: 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 support Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700	
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50 via ThinkServer RAID 700 adapter	
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"	
Tape drive	None	
Optical	DVD±RW or DVD ROM, slim	
Diskette	None (use USB port)	
Chipset	Intel C606 Chipset	
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2	
Riser card	One analog VGA DB-15 connector, two USB 2.0	
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector	
Rear ports		
Intelligent Diagnostics Module (IDM)	Supports IDM on selected models; Basic: IDM LED lights indicate failing component category	
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions	
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	SATA/SAS disk, OS	
Keyboard/mouse	None (use USB port)	
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Rack kit	Includes rack kit	
Cable management	Optional cable management arm on selected models	
Cooling	Six fans, non-hot swap	

1U Rack top

Front

Rear

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1	5.25", 0.5" high, external,	for optical
Bay 2-7	2.5", 0.6" high, external,	for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec)

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

See footnotes for important warranty information
US model(s) announced August 14, 2012

ThinkServer® RD330 with 2.5" Disk Bay (3074) - September 2012

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
3074-D6U	1xE5-2407	1600MHz RDIMM	1x4GB	No	300		6xHS	SATA/SAS DVD±RW	No	TPM	IPMI	No	No	No	1
3074-D7U	1xE5-2407	1600MHz RDIMM	4x8GB	No	700+Battery	3x300GB 2.5" SAS	6xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	No	2
3074-D8U	1xE5-2420	1600MHz RDIMM	6x8GB	No	700+Battery	3x300GB 2.5" SAS	6xHS	SATA/SAS DVD±RW	No	TPM	iKVM	No	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RAL sheet	
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz)	
Implementation	Two LGA1356 sockets	
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)	
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported 	
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz	
Disk bays	Six 2.5" hot-swap SATA/SAS disk bays (see right)	
Disk controller	RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 700: 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 support Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700	
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50 via ThinkServer RAID 700 adapter	
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"	
Tape drive	None	
Optical	DVD±RW or DVD ROM, slim	
Diskette	None (use USB port)	
Chipset	Intel C606 Chipset	
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management	
Riser card	(See Right) Riser card 1 for slot 1, riser card 2 for slot 2	
Front ports	One analog VGA DB-15 connector, two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector	
Intelligent Diagnostics Module (IDM)	Supports IDM on selected models; Basic: IDM LED lights indicate failing component category	
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions	
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	SATA/SAS disk, OS	
Keyboard/mouse	None (use USB port)	
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Rack kit	Includes rack kit	
Cable management	Optional cable management arm on selected models	
Cooling	Six fans, non-hot swap	

1U Rack top

Front

Rear

Mechanical			
<ul style="list-style-type: none"> 1U rack 19"W x 28.9"D x 1.72"H (with rack handles) 482.4mm W x 734mm D x 43.6mm H (with rack handles) 17kg (37.5 lb) when fully configured 			
Disk Bays			
Bay 1	5.25", 0.5" high, external,		for optical
Bay 2-7	2.5", 0.6" high, external,		for disk
Expansion Slots			
Slot 1:	half-length, full-height,	PCI Express 3.0 x16	
Slot 2:	Low Profile,	PCI Express 3.0 x8 (x4 elec)	
Security			
<ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User 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 			
Energy Management Technology			
<ul style="list-style-type: none"> Lenovo® SmartGrid Manager 			
ENERGY STAR® Server 1.1-compliant RoHS-compliant			
For more accessories, see O-RAL sheet			

See footnotes for important warranty information
US model(s) announced September 11, 2012

Lenovo® ThinkServer® RD430 with eight 3.5" disk bays

ThinkServer™



Lenovo® ThinkServer® RD430 with twelve 3.5" disk bays

ThinkServer



Lenovo® ThinkServer® RD430 with 2.5" disk bays*

ThinkServer™



* Some models in pictures below contain optional add-in ethernet adapter or RAID adapter; some RD430 with 2.5" disk bay models may come with 8 disk bays

ThinkServer® RD430 with eight 3.5" Disk Bays (3064) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System mgmt	Cable mgmt	Preload OS	PSU qty	
3064-G2U	1xE5-2407	1333MHz RDIMM	1x4GB	No	300	No	8xHS	SATA/SAS	DVD±RW	Basic	TPM	IPMI	No	No	1
3064-G3U	1xE5-2403	1333MHz RDIMM	1x4GB	No	300	No	8xHS	SATA/SAS	DVD±RW	Basic	TPM	IPMI	No	No	1
3064-G4U	1xE5-2420	1333MHz RDIMM	1x8GB	No	300	No	8xHS	SATA/SAS	DVD±RW	Premium	TPM	IPMI	No	No	1
3064-G5U	1xE5-2450	1333MHz RDIMM	1x8GB	No	500+Upgrade	No	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
3064-G6U	2xE5-2420	1333MHz RDIMM	2x16GB	No	700+Battery	No	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more services information see S-RAL sheet

Processor
Up to two Intel® Xeon® E5-2400 series processors,
Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1), 3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1), 3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1), Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1), Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA1356 sockets

Memory
UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over six DIMMs requires dual processors
- Mixing of UDIMM, RDIMM, or LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz

Disk bays
Eight 3.5" hot-swap SATA/SAS disk bays (see right)

Disk controller
RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support
Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

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

Tape drive
None
Optical
DVD±RW or DVD ROM, slim
Diskette
None (use USB port)

Chipset
Intel C606 Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5

Riser card
One analog VGA DB-15 connector, two USB 2.0
Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM or IDM Premium on selected models;
Basic: IDM LED lights indicate failing component category
Premium: IDM Premium LED lights indicate individual failing part

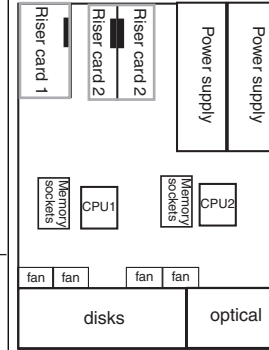
Systems mgmt
Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); **iKVM:** add-on ThinkServer Management Module Premium for iKVM functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

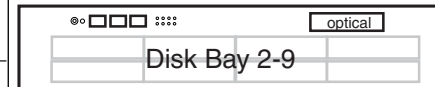
Prerequisites
SATA/SAS disk, OS
Keyboard/mouse
None (use USB port)
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit
Cable management
Optional cable management arm on selected models
Cooling
Four fans, hot-swap

2U Rack top



Front



Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
Bay 2-9 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
Slot 4-5 are available on dual processors models:
Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

ThinkServer® RD430 with eight 3.5" Disk Bays (3065)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
3065-B1U	1xE5-2403	1333MHz RDIMM	1x4GB	No	300	No	8xHS	SATA/SAS	DVD±RW	Basic	TPM	IPMI	No	No	1
3065-B2U	1xE5-2407	1333MHz RDIMM	1x4GB	No	300	No	8xHS	SATA/SAS	DVD±RW	Basic	TPM	IPMI	No	No	1
3065-B3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500+Upgrade	No	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
3065-B4U	1xE5-2450	1333MHz RDIMM	1x16GB	No	700+Battery	No	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
3065-B5U	1xE5-2420	1333MHz RDIMM	1x8GB	No	700+Battery	No	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more services information see S-RAL sheet

Processor
Up to two Intel® Xeon® E5-2400 series processors,
Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.4GHz),
3-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.9GHz),
3-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA1356 sockets

Memory
UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor,
240-pin, 12 DIMM sockets (6 sockets per processor);
192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM,
12x4GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over six DIMMs requires dual processors
- Mixing of UDIMM, RDIMM, or LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor,
one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz

Disk bays
Eight 3.5" hot-swap SATA/SAS disk bays (see right)

Disk controller
RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller,
SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support
Upgrade for 300: Additional upgrade key for RAID 300,
add RAID 5 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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

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

Tape drive
None
Optical
DVD±RW or DVD ROM, slim
Diskette
None (use USB port)

Chipset
Intel C606 Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management

Riser card
(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5

Front ports
One analog VGA DB-15 connector, two USB 2.0

Rear ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM or IDM Premium on selected models;
Basic: IDM LED lights indicate failing component category
Premium: IDM Premium LED lights indicate individual failing part

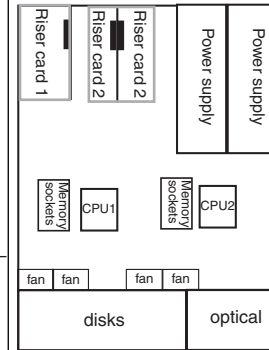
Systems mgmt
Onboard Aspeed AST2300 graphics/management processor,
IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM
functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

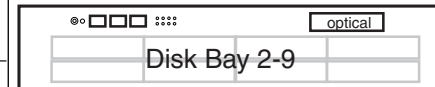
Prerequisites
SATA/SAS disk, OS
Keyboard/mouse
None (use USB port)
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap,
80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit
Cable management
Optional cable management arm on selected models
Cooling
Four fans, hot-swap

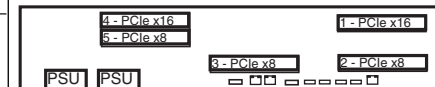
2U Rack top



Front



Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
Bay 2-9 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
Slot 4-5 are available on dual processors models:
Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

ThinkServer® RD430 with eight 3.5" Disk Bays (3065) - September 2012

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty	
3065-A3U	1xE5-2420	1600MHz RDIMM	1x8GB	No	300		SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	1
3065-A4U	1xE5-2407	1600MHz RDIMM	4x8GB	No	700+Battery	3x500GB 3.5" SATA	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
3065-A5U	1xE5-2420	1600MHz RDIMM	6x8GB	No	700+Battery	3x300GB 3.5" SAS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RAL sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight 3.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Riser card	One analog VGA DB-15 connector, two USB 2.0
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Rear ports	
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models; Basic: IDM LED lights indicate failing component category Premium: IDM Premium LED lights indicate individual failing part
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Four fans, hot-swap

2U Rack top

Front

Rear

Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
 Bay 2-9 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
 Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
Slot 4-5 are available on dual processors models:
 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
 Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
 RoHS-compliant

For more accessories, see O-RAL sheet

See footnotes for important warranty information
 US model(s) announced September 11, 2012

ThinkServer® RD430 with eight 3.5" Disk Bays (3065) - October 2012

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory Pre-conf DIMMs	RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty	
3065-K1U	1xE5-2450	1600MHz RDIMM	1x8GB	No	300	No	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	1

Limited warranty	3-year parts and labor; more services information see S-RD sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight 3.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	<p>RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support</p> <p>Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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</p> <p>RAID 700: 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</p> <p>Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700</p>
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	<p>3.5" SATA: SATA 6.0Gb/s, 7200 rpm</p> <p>3.5" SAS: SAS 6.0Gb/s, 15000 rpm</p>
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Riser card	(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Front ports	One analog VGA DB-15 connector, two USB 2.0
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models; Basic: IDM LED lights indicate failing component category Premium: IDM Premium LED lights indicate individual failing part
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Four fans, hot-swap

2U Rack top

The diagram shows the internal layout of the 2U rack top. It includes two riser cards (Riser card 1 and Riser card 2), two power supplies, two memory sockets, two CPUs (CPU1 and CPU2), four fans, two disk bays, and one optical drive.

Front

The front panel features an optical drive and a row of disk bays labeled Disk Bay 2-9.

Rear

The rear panel includes four PCIe slots (Slot 1-4), two PSU units, and various other connectors.

Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1: 5.25", 0.5" high, external, for optical
Bay 2-9: 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
Slot 4-5 are available on dual processors models:
Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

ThinkServer® RD430 with twelve 3.5" Disk Bays (3057) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty	
3057-E1U	1xE5-2403	1333MHz RDIMM	1x4GB	No	500+Upgrade		12xHS	SATA/SAS	No	No	TPM	IPMI	No	No	1
3057-E2U	1xE5-2407	1333MHz RDIMM	1x4GB	No	500+Upgrade		12xHS	SATA/SAS	No	No	TPM	IPMI	No	No	1
3057-E3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500+Upgrade		12xHS	SATA/SAS	No	No	TPM	IPMI	No	No	1
3057-E4U	1xE5-2450	1333MHz RDIMM	1x8GB	No	500+Upgrade		12xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2
3057-E5U	2xE5-2420	1333MHz RDIMM	2x16GB	No	700+Battery		12xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2
3057-E6U	2xE5-2420	1333MHz RDIMM	2x16GB	No	700+Battery	6x1TB 3.5" SATA	12xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more services information see S-RAL sheet

Processor
Up to two Intel® Xeon® E5-2400 series processors,
Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1),
3-channel DDR3 memory controller (up to 1066MHz)
Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.4GHz),
3-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1),
Turbo Boost 2.0 (up to 2.9GHz),
3-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA1356 sockets

Memory
UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor,
240-pin, 12 DIMM sockets (6 sockets per processor);
192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM,
12x4GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over six DIMMs requires dual processors
- Mixing of UDIMM, RDIMM, or LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor,
one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz

Disk bays
Twelve 3.5" hot-swap SATA/SAS disk bays (see right)

Disk controller
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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

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

Tape drive
None

Optical
None (use USB port)

Diskette
None (use USB port)

Chipset
Intel C606 Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management
(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5

Riser card
Two USB 2.0
Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
Rear ports
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
None

Systems mgmt
Onboard Aspeed AST2300 graphics/management processor,
IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM
functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

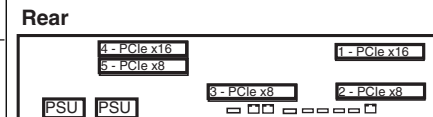
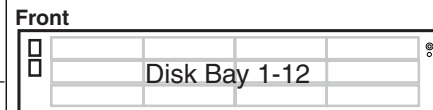
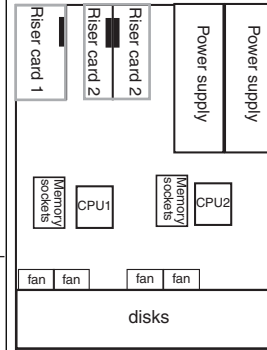
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap,
80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

Cable management
Optional cable management arm on selected models

Cooling
Four fans, hot-swap

2U Rack top



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1-12 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
Slot 4-5 are available on dual processors models:
Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

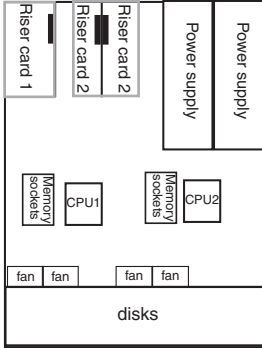
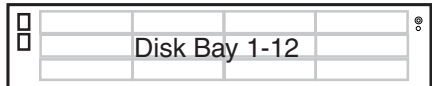
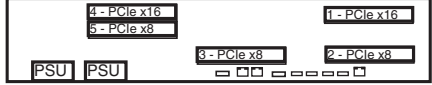
ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

ThinkServer® RD430 with twelve 3.5" Disk Bays (3059)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty	
3059-F1U	1xE5-2420	1333MHz RDIMM	1x8GB	No	700+Battery	None	12xHS	SATA/SAS	No	No	TPM	IPMI	No	No	1
3059-F2U	1xE5-2403	1333MHz RDIMM	1x4GB	No	500+Upgrade	None	12xHS	SATA/SAS	No	No	TPM	IPMI	No	No	1
3059-F3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500+Upgrade	None	12xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2
3059-F4U	2xE5-2450	1333MHz RDIMM	2x8GB	No	700+Battery	None	12xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2

Limited warranty	3-year parts and labor; more warranty information see S-RAL sheet		 <p>2U Rack top</p>
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz)		
Implementation	Two LGA1356 sockets		
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)		
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported 		
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz		
Disk bays	Twelve 3.5" hot-swap SATA/SAS disk bays (see right)		
Disk controller	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 <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support RAID 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700		
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter		
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm		
Tape drive	None		
Optical	None (use USB port)		
Diskette	None (use USB port)		
Chipset	Intel C606 Chipset		
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management		
Riser card	(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5		
Front ports	Two USB 2.0		
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector		
Intelligent Diagnostics Module (IDM)	None		
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>iKVM:</i> add-on ThinkServer Management Module Premium for iKVM functions		
Security chip	No onboard TPM chip; <i>TPM:</i> additional add-on card for TPM function, TCG 1.2-compliant		
Prerequisites	SATA/SAS disk, OS		
Keyboard/mouse	None (use USB port)		
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies		
Rack kit	Includes rack kit		
Cable management	<i>Optional</i> cable management arm on selected models		
Cooling	Four fans, hot-swap		
			 <p>Front</p>
			 <p>Rear</p> <p><i>Slot 4, 5 are available on dual processors models only</i></p>
			<p>Mechanical</p> <ul style="list-style-type: none"> 2U rack 19"W x 28.9"D x 3.45"H (with rack handles) 482.4mm W x 734mm D x 87.6mm H (with rack handles) 26.5 kg (58.42 lb) when fully configured
			<p>Disk Bays</p> <p>Bay 1-12 3.5", 1" high, external, for disk</p>
			<p>Expansion Slots</p> <p>Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec) Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec) <i>Slot 4-5 are available on dual processors models:</i> Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec) Slot 5: half-length, full-height, PCI Express 3.0 x8</p>
			<p>Security</p> <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User 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>Energy Management Technology</p> <ul style="list-style-type: none"> Lenovo® SmartGrid Manager
			<p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>
			For more accessories, see O-RAL sheet

See footnotes for important warranty information
US model(s) announced August 14, 2012

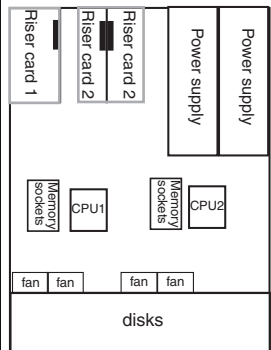
ThinkServer® RD430 with twelve 3.5" Disk Bays (3059) - Sep 2012

Personal Systems Reference (PSREF)

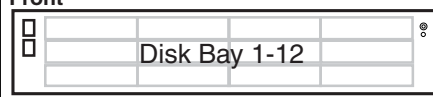
Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty
3059-F6U	1xE5-2420	1600MHz RDIMM	1x8GB	No	700		SATA/SAS	No	No	TPM	iKVM	No	1
3059-F8U	1xE5-2407	1600MHz RDIMM	4x8GB	No	700+Battery	3x500GB 3.5" SATA	SATA/SAS	No	No	TPM	iKVM	No	2
3059-F9U	1xE5-2420	1600MHz RDIMM	6x8GB	No	700+Battery	3x300GB 3.5" SAS	SATA/SAS	No	No	TPM	iKVM	No	2

Limited warranty	3-year parts and labor; more warranty information see S-RAL sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Twelve 3.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	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 <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support RAID 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm
Tape drive	None
Optical	None (use USB port)
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Riser card	Two USB 2.0
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Rear ports	
Intelligent Diagnostics Module (IDM)	None
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>iKVM:</i> add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; <i>TPM:</i> additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Four fans, hot-swap

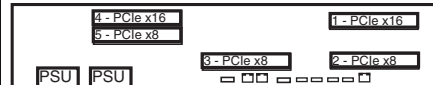
2U Rack top



Front



Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1-12 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
 Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
Slot 4-5 are available on dual processors models:
 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
 Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

See footnotes for important warranty information
US model(s) announced September 11, 2012

ThinkServer® RD430 with twelve 3.5" Disk Bays (3059) - October 2012

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty	
3059-K5U	1xE5-2450	1600MHz RDIMM	1x8GB	No	700	No	12xHS	SATA/SAS	No	No	TPM	iKVM	No	No	1

Limited warranty	3-year parts and labor; more warranty information see S-RD sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Twelve 3.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	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 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm
Tape drive	None
Optical	None (use USB port)
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Riser card	Two USB 2.0
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Rear ports	
Intelligent Diagnostics Module (IDM)	None
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Four fans, hot-swap

2U Rack top

Front

Rear

Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1-12 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
 Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
Slot 4-5 are available on dual processors models:
 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
 Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
 RoHS-compliant

For more accessories, see O-RAL sheet

ThinkServer® RD430 with 2.5" Disk Bay (3070) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	Sys mgmt	Cable mgmt	Preload OS	PSU qty
3070-C1U	1xE5-2403	1333MHz RDIMM	1x4GB	No	300	300	8xHS	SATA/SAS DVD±RW	Basic	TPM	IPMI	No	No	No	1
3070-C2U	1xE5-2407	1333MHz RDIMM	1x4GB	No	300	300	8xHS	SATA/SAS DVD±RW	Basic	TPM	IPMI	No	No	No	1
3070-C3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500+Upgrade	500+Upgrade	8xHS	SATA/SAS DVD±RW	Premium	TPM	IPMI	No	No	No	1
3070-C4U	1xE5-2450	1333MHz RDIMM	1x16GB	No	700+Battery	700+Battery	8xHS	SATA/SAS DVD±RW	Premium	TPM	iKVM	No	No	No	2
3070-C5U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500+Upgrade	500+Upgrade	16xHS	SATA/SAS DVD±RW	Premium	TPM	iKVM	No	No	No	1
3070-C6U	1xE5-2450	1333MHz RDIMM	1x16GB	No	700+Battery	700+Battery	16xHS	SATA/SAS DVD±RW	Premium	TPM	iKVM	No	No	No	2
3070-C7U	1xE5-2450	1333MHz RDIMM	1x16GB	No	700+Battery	6x300GB 2.5" SAS	16xHS	SATA/SAS DVD±RW	Premium	TPM	iKVM	No	No	No	2
3070-C8U	1xE5-2450	1333MHz RDIMM	1x8GB	No	300	300	8xHS	SATA/SAS DVD±RW	Premium	TPM	IPMI	No	No	No	1
3070-C9U	1xE5-2450	1333MHz RDIMM	1x8GB	No	700+Battery	700+Battery	8xHS	SATA/SAS DVD±RW	Premium	TPM	iKVM	No	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RAL sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Riser card	(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Front ports	One analog VGA DB-15 connector, two USB 2.0
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models; Basic: IDM LED lights indicate failing component category Premium: IDM Premium LED lights indicate individual failing part
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Four fans, hot-swap

2U Rack top

Front

Bay 10-17 are available on sixteen disk bays models only

Rear

Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
 Bay 2-9 2.5", 0.6" high, external, for disk
 Bay 10-17 are available on sixteen 2.5" disk bays model:
 Bay 10-17 2.5", 0.6" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
 Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
 Slot 4-5 are available on dual processors models:
 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
 Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
 RoHS-compliant

For more accessories, see O-RAL sheet

See footnotes for important warranty information
 US model(s) announced August 14, 2012

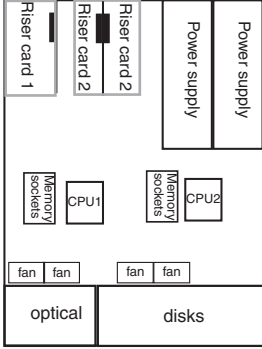
ThinkServer® RD430 with 2.5" Disk Bay (3071)

Personal Systems Reference (PSREF)

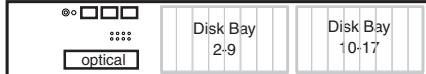
Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	Sys mgmt	Cable mgmt	Preload OS	PSU qty
3071-D1U	1xE5-2420	1333MHz RDIMM	1x8GB	No	700+Battery	None	8xHS	SATA/SAS DVD±RW	Premium	TPM	IPMI	No	No	1
3071-D2U	1xE5-2403	1333MHz RDIMM	1x4GB	No	300	None	8xHS	SATA/SAS DVD±RW	Basic	TPM	IPMI	No	No	1
3071-D3U	1xE5-2420	1333MHz RDIMM	1x8GB	No	500+Upgrade	None	16xHS	SATA/SAS DVD±RW	Premium	TPM	iKVM	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RAL sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2403 processor (4C/4T, 1.8GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	<p>RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support</p> <p>Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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</p> <p>RAID 700: 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</p> <p>Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700</p>
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Riser card	One analog VGA DB-15 connector, two USB 2.0
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Rear ports	one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models; Basic: IDM LED lights indicate failing component category Premium: IDM Premium LED lights indicate individual failing part
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Four fans, hot-swap

2U Rack top




Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
 Bay 2-9 2.5", 0.6" high, external, for disk
 Bay 10-17 are available on sixteen 2.5" disk bays model:
 Bay 10-17 2.5", 0.6" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
 Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
 Slot 4-5 are available on dual processors models:
 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
 Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

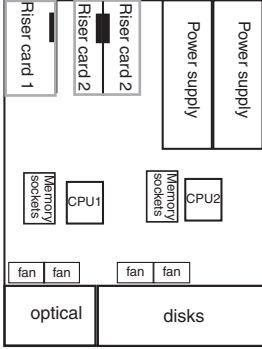
ThinkServer® RD430 with 2.5" Disk Bay (3071) - September 2012

Personal Systems Reference (PSREF)

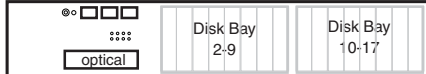
Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics TPM	Sys mgmt	Cable mgmt	Preload OS	PSU qty
3071-D4U	1xE5-2420	1600MHz RDIMM	1x8GB	No	300		8xHS	SATA/SAS DVD±RW	Premium	TPM iKVM	No	No	No	1
3071-D6U	1xE5-2407	1600MHz RDIMM	4x8GB	No	700+Battery	3x300GB 2.5" SAS	8xHS	SATA/SAS DVD±RW	Premium	TPM iKVM	No	No	No	2
3071-D7U	1xE5-2420	1600MHz RDIMM	6x8GB	No	700+Battery	3x300GB 2.5" SAS	8xHS	SATA/SAS DVD±RW	Premium	TPM iKVM	No	No	No	2

Limited warranty	3-year parts and labor; more services information see S-RAL sheet
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2407 processor (4C/4T, 2.2GHz, 10MB, 6.4 GT/s QPI x1) , 3-channel DDR3 memory controller (up to 1066MHz) Intel Xeon E5-2420 processor (6C/12T, 1.9GHz, 15MB, 7.2 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.4GHz), 3-channel DDR3 memory controller (up to 1333MHz)
Implementation	Two LGA1356 sockets
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays (see right)
Disk controller	<p>RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support</p> <p>Upgrade for 300: Additional upgrade key for RAID 300, add RAID 5 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</p> <p>RAID 700: 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</p> <p>Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700</p>
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C606 Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Riser card	(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Front ports	One analog VGA DB-15 connector, two USB 2.0
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models; Basic: IDM LED lights indicate failing component category Premium: IDM Premium LED lights indicate individual failing part
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Four fans, hot-swap

2U Rack top




Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
 Bay 2-9 2.5", 0.6" high, external, for disk
 Bay 10-17 are available on sixteen 2.5" disk bays model:
 Bay 10-17 2.5", 0.6" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: half-length, full-height, PCI Express 2.0 x8 (x4 elec)
 Slot 3: Low Profile, PCI Express 3.0 x8 (x4 elec)
 Slot 4-5 are available on dual processors models:
 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
 Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RAL sheet

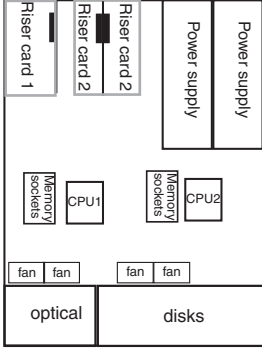
ThinkServer® RD430 with 2.5" Disk Bay (3071) - October 2012

Personal Systems Reference (PSREF)

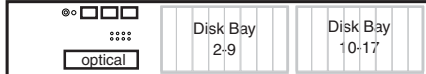
Type-model	Processor(s)	Memory (MHz/type)	Memory Pre-conf DIMMs	RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics TPM	Sys mgmt	Cable mgmt	Preload OS	PSU qty
3071-K4U	1xE5-2450	1600MHz RDIMM	1x8GB	No	300	No	8xHS	SATA/SAS	DVD±RW	Premium TPM	iKVM	No	No	1

Limited warranty	3-year parts and labor; more services information see S-RD sheet	
Processor	Up to two Intel® Xeon® E5-2400 series processors, Intel Xeon E5-2450 processor (8C/16T, 2.1GHz, 20MB, 8.0 GT/s QPI x1) , Turbo Boost 2.0 (up to 2.9GHz), 3-channel DDR3 memory controller (up to 1600MHz) Two LGA1356 sockets	
Memory	UDIMM, RDIMM or LV RDIMM, DDR3, ECC, 3-channel per processor, 240-pin, 12 DIMM sockets (6 sockets per processor); 192GB max (RDIMM/LV RDIMM, 12x16GB) or 48GB max (UDIMM, 12x4GB)	
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over six DIMMs requires dual processors Mixing of UDIMM, RDIMM, or LV RDIMM is not supported 	
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz	
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays (see right)	
Disk controller	RAID 300: Onboard ThinkServer RAID 300 SATA/SAS controller, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 10 support <i>Upgrade for 300:</i> Additional upgrade key for RAID 300, add RAID 5 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 <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support RAID 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700	
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter	
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"	
Tape drive	None	
Optical	DVD±RW or DVD ROM, slim	
Diskette	None (use USB port)	
Chipset	Intel C606 Chipset	
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5	
Riser card	One analog VGA DB-15 connector, two USB 2.0	
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector	
Rear ports		
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models; <i>Basic:</i> IDM LED lights indicate failing component category <i>Premium:</i> IDM Premium LED lights indicate individual failing part	
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>iKVM:</i> add-on ThinkServer Management Module Premium for iKVM functions	
Security chip	No onboard TPM chip; <i>TPM:</i> additional add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	SATA/SAS disk, OS	
Keyboard/mouse	None (use USB port)	
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Rack kit	Includes rack kit	
Cable management	Optional cable management arm on selected models	
Cooling	Four fans, hot-swap	

2U Rack top




Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
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 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
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Security

- Security chip (selected models, see information on left)
- Administrator password
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- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
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ENERGY STAR® Server 1.1-compliant
 RoHS-compliant

For more accessories, see O-RAL sheet

Partial list of accessories supported on ThinkServer RD430, RD330	Keyboards & Mice (All RD430 and RD330)
<p>Processor⁵⁰</p> <p>Intel Xeon E5-2470 Processor Option (RD430/RD330) 0A89443</p> <p>Intel Xeon E5-2450 Processor Option (RD430/RD330) 0A89444</p> <p>Intel Xeon E5-2440 Processor Option (RD430/RD330) 0A89445</p> <p>Intel Xeon E5-2430 Processor Option (RD430/RD330) 0A89446</p> <p>Intel Xeon E5-2420 Processor Option (RD430/RD330) 0A89447</p> <p>Intel Xeon E5-2407 Processor Option (RD430/RD330) 0A89448</p> <p>Intel Xeon E5-2403 Processor Option (RD430/RD330) 0A89449</p> <p>Intel Xeon E5-2450L Processor Option (RD430/RD330) 0A89450</p> <p>Intel Xeon E5-2430L Processor Option (RD430/RD330) 0A89451</p>	<p>ThinkPad USB Keyboard with TrackPoint - US English 55Y9003</p> <p>Lenovo Preferred Pro Keyboard USB - US English 103P 73P5220</p> <p>Lenovo Optical Mouse 06P4069</p>
<p>Memory (All RD430 and RD330)</p> <p>ThinkServer 4GB DDR3-1333MHz (1Rx4) RDIMM 0A89411</p> <p>ThinkServer 8GB DDR3-1333MHz (2Rx4) RDIMM 0A89412</p> <p>ThinkServer 16GB DDR3-1333MHz (2Rx4) RDIMM 0A89413</p> <p>ThinkServer 4GB DDR3L 1333MHz (1Rx4) RDIMM 0A89415</p> <p>ThinkServer 8GB DDR3L 1333MHz (2Rx4) RDIMM 0A89416</p> <p>ThinkServer 16GB DDR3L 1333MHz (2Rx4) RDIMM 0A89417</p> <p>ThinkServer 4GB DDR3-1600MHz (1Rx4) RDIMM 0A89481</p> <p>ThinkServer 8GB DDR3-1600MHz (2Rx4) RDIMM 0A89482</p> <p>ThinkServer 16GB DDR3-1600MHz (2Rx4) RDIMM 0A89483</p> <p>ThinkServer 2GB DDR3-1333MHz (1Rx8) ECC UDIMM 67Y2606</p> <p>ThinkServer 4GB DDR3-1333MHz (2Rx8) ECC UDIMM 67Y2607</p>	
<p>Storage (HS = Hot-Swap)</p> <p>SATA Drive 3.5" (RD430 and RD330 with 3.5" disk bay)</p> <p>ThinkServer 500GB 7.2K 3.5" Enterprise 6Gbps SATA HS Hard Drive 0A89473</p> <p>ThinkServer 1TB 7.2K 3.5" Enterprise 6Gbps SATA HS Hard Drive 0A89474</p> <p>ThinkServer 2TB 7.2K 3.5" Enterprise 6Gbps SATA HS Hard Drive 0A89475</p> <p>ThinkServer 3TB 7.2K 3.5" Enterprise 6Gbps SATA HS Hard Drive 0A89477</p> <p>SATA Drive 2.5" (RD430 and RD330 with 2.5" disk bay)</p> <p>500GB 7.2K 2.5" Enterprise 6Gbps SATA Hot Swap Hard Drive 0C19495</p> <p>1TB 7.2K 2.5" Enterprise 6Gbps SATA Hot Swap Hard Drive 0C19496</p> <p>SAS Drive 3.5" (RD430 and RD330 with 3.5" disk bay)</p> <p>ThinkServer 3.5" 300GB 15K SAS 6Gbps HS Hard Drive 67Y2616</p> <p>ThinkServer 3.5" 450GB 15K SAS 6Gbps HS Hard Drive 67Y2617</p> <p>ThinkServer 3.5" 600GB 15K SAS 6Gbps HS Hard Drive 67Y2618</p> <p>SAS Drive 2.5" (RD430 and RD330 with 2.5" disk bay)</p> <p>ThinkServer 2.5" 300GB 10K SAS 6Gbps HS Hard Drive 67Y2619</p> <p>ThinkServer 2.5" 450GB 10K SAS 6Gbps HS Hard Drive 67Y2620</p> <p>ThinkServer 2.5" 600GB 10K SAS 6Gbps HS Hard Drive 67Y2621</p> <p>ThinkServer 2.5" 900GB 10K SAS 6Gbps HS Hard Drive 0A89409</p> <p>ThinkServer 2.5" 146GB 15K SAS 6Gbps Hot Swap Hard Drive 0C19493</p> <p>ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive 0C19494</p> <p>SATA SSD Drive 2.5" (RD430 and RD330 with 2.5" disk bay)</p> <p>ThinkServer 2.5" 200GB MLC SATA Solid State Drive (HS) 0A89418</p> <p>ThinkServer 2.5" 400GB MLC SATA Solid State Drive (HS) 0A89419</p> <p>ThinkServer 2.5" 100GB MLC SATA Solid State Drive (HS) 0A89420</p>	
<p>RAID controller and RAID upgrade (All RD430 and RD330)</p> <p>ThinkServer RAID 300 Upgrade Key for Advanced RAID 0A89422</p> <p>ThinkServer RAID 500 Adapter II 0A89464</p> <p>ThinkServer RAID 700 Adapter II 0A89463</p> <p>ThinkServer RAID 500 Upgrade Key for Advanced RAID 0A89407</p> <p>ThinkServer RAID 700 Battery 67Y2647</p>	
<p>ThinkServer host bus adapters</p> <p>ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex 0C19476</p> <p>ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex 0C19478</p>	
<p>System options</p> <p>ThinkServer 800W Hot Swap Redundant Power Supply (RD430) 0A89426</p> <p>ThinkServer 550W Hot Swap Redundant Power Supply (RD330) 0A89427</p> <p>ThinkServer Trusted Platform Module (All RD430 and RD330) 0A89428</p> <p>ThinkServer Management Module Premium (All RD430 and RD330) 67Y2624</p> <p>ThinkServer Cable Management Arm Kit (All RD430 and RD330) 0A89476</p>	
<p>Connectivity (All RD430 and RD330)</p> <p>Lenovo Gigabit ET Dual Port Server Adapter by Intel 0A89423</p> <p>Lenovo Ethernet I340 Quad Port Server Adapter by Intel 0A89424</p> <p>Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel 0C19487</p> <p>Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel 0C19486</p> <p>Lenovo 10Gbps Ethernet Fiber Module for X520 series adapter by Intel 0C19488</p> <p>Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel 0C19497</p>	<p>⁵⁰ Additional processor must match the existing processor</p> <p>For more information on server accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkserveraccessories www.lenovo.com/support/security</p> <p>Other accessories at www.lenovo.com/accessories</p> <p>Accessories Guide pdf at www.lenovo.com/accessoriesguide</p>

Lenovo® ThinkServer® RD530 with 3.5" disk bay*

* Some models in pictures below contain optional add-in ethernet adapter, please see O-RDS for more RD530 accessories



- Up to two Intel® Xeon® E5-2600 series processors, up to 8 cores/16 threads per processor
- Up to 320GB ECC RDIMM memory (20x16GB) or 256GB ECC LV RDIMM memory (16x16GB)
- Up to four 3.5" hot-swap disk bays
- Up to RAID 0, 1, 5, 6, 10 via ThinkServer® RAID 700 adapter
- Up to two power supplies with redundant, hot-swap, 80 PLUS® Gold qualified
- Up to eight fans (7+1 redundant), non hot-swap

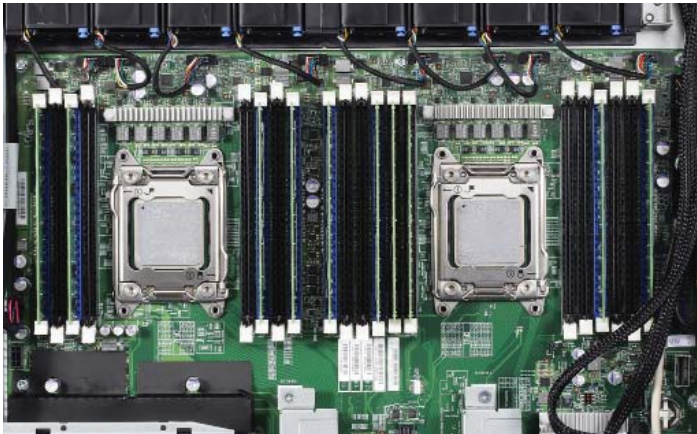
Lenovo® ThinkServer® RD530 with 2.5" disk bay*

*Some models in pictures below contain optional add-in ethernet adapter, please see O-RDS for more RD530 accessories



- Up to two Intel® Xeon® E5-2600 series processors, up to 8 cores/16 threads per processor
- Up to 320GB ECC RDIMM memory (20x16GB) or 256GB ECC LV RDIMM memory (16x16GB)
- Up to eight 2.5" hot-swap disk bays
- Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer® RAID 700 adapter
- Up to two power supplies with redundant, hot-swap, 80 PLUS® Gold qualified
- Up to eight fans (7+1 redundant), non hot-swap

Lenovo® ThinkServer® RD530 - Detail



Dual processors



Single processor



ThinkServer 800W Hot-Swap power supply for ThinkServer RD530/RD630 (80 PLUS® Gold qualified, redundant with two power supplies)



2.5" Hot-swap disk bay



ThinkServer RD530 rear I/O ports

ThinkServer® RD530 with 3.5" Disk Bay (2570) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2570-A2U	1xE5-2620	1333MHz RDIMM	1x8GB	No	700	None	4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	1
2570-A3U	1xE5-2640	1333MHz RDIMM	1x8GB	No	700	None	4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	1
2570-A4U	2xE5-2640	1333MHz RDIMM	2x8GB	No	700+Battery	None	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	2
2570-A5U	1xE5-2650	1333MHz RDIMM	1x8GB	No	700	None	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	2
2570-A6U	1xE5-2670	1333MHz RDIMM	2x8GB	No	700	None	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	2
2570-A7U	1xE5-2640	1333MHz RDIMM	1x16GB	No	700	None	4xHS	SATA/SAS	DVD±RW	No	TPM	IPMI	No	No	2

Limited warranty	3-year parts and labor; more Lenovo Services see S-RDS sheet
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz) Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Implementation	Two LGA2011 sockets
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; <i>RDIMM:</i> twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) <i>LV RDIMM:</i> sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over twelve RDIMMs requires dual processors Over eight LV RDIMMs requires dual processors Mixing of RDIMM and LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Four 3.5" hot-swap SATA/SAS disk bays
Disk controller	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 support RAID 700: 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 support Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700
RAID Support	Up to RAID 0, 1, 5, 6, 10 via ThinkServer RAID 700 adapter
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C602J Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2
Riser card	Two USB 2.0
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Rear ports	Supports IDM on selected models Basic: IDM LED lights indicate failing component category Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Intelligent Diagnostics Module (IDM)	
Systems mgmt	
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Up to eight fans (7+1 redundant), non-hot swap

1U Rack top

Front

Rear

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
Bay 2-5 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

See footnotes for important warranty information
US model(s) announced June 5, 2012

ThinkServer® RD530 with 3.5" Disk Bay (2569) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System mgmt	Cable mgmt	Preload OS	PSU qty			
2569-A1U	2xE5-2640	1333MHz	RDIMM	2x8GB	5	700+Battery	3x500GB	3.5" SATA	4xHS	SATA/SAS	DVD±RW	No	TPM	iKVM	No	No	2

Limited warranty	1-year parts and labor; more Lenovo Services see S-RDS sheet		1U Rack top	
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz)			
Implementation	Two LGA2011 sockets			
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)			
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over twelve RDIMMs requires dual processors Over eight LV RDIMMs requires dual processors Mixing of RDIMM and LV RDIMM is not supported 			
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz		Front 	
Disk bays	Four 3.5" hot-swap SATA/SAS disk bays		Rear 	
Disk controller	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 support RAID 700: 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 support Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700			
RAID Support	Up to RAID 0, 1, 5, 6, 10 via ThinkServer RAID 700 adapter			
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm			
Tape drive	None			
Optical	DVD±RW or DVD ROM, slim			
Diskette	None (use USB port)			
Chipset	Intel C602J Chipset			
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2			
Riser card				
Front ports	Two USB 2.0			
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector			
Intelligent Diagnostics Module (IDM)	Supports IDM on selected models			
Systems mgmt	Basic: IDM LED lights indicate failing component category Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions			
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant		Mechanical <ul style="list-style-type: none"> 1U rack 19"W x 28.9"D x 1.72"H (with rack handles) 482.4mm W x 734mm D x 43.6mm H (with rack handles) 17kg (37.5 lb) when fully configured 	
Prerequisites	SATA/SAS disk, OS			
Keyboard/mouse	None (use USB port)			
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies		Disk Bays Bay 1 5.25", 0.5" high, external, for optical Bay 2-5 3.5", 1" high, external, for disk	
Rack kit	Includes rack kit		Expansion Slots Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8	
Cable management	Optional cable management arm on selected models		Security <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) 	
Cooling	Up to eight fans (7+1 redundant), non-hot swap		Software Management Tools <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage 	
			Energy Management Technology <ul style="list-style-type: none"> Intel Power Node Manager Lenovo® SmartGrid Manager 	
			ENERGY STAR® Server 1.1-compliant RoHS-compliant	
			For more accessories, see O-RDS sheet	

See footnotes for important warranty information
US model(s) announced June 5, 2012

ThinkServer® RD530 with 3.5" Disk Bay (2573)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2573-A1U	1xE5-2620	1333MHz	RDIMM 1x8GB	No	700		4xHS	SATA/SAS DVD±RW	No	No	TPM	iKVM	No	No	1
2573-A2U	1xE5-2670	1333MHz	RDIMM 2x8GB	No	700+Battery		4xHS	SATA/SAS DVD±RW	No	No	TPM	iKVM	No	No	2
2573-A3U	1xE5-2640	1333MHz	RDIMM 1x16GB	No	700		4xHS	SATA/SAS DVD±RW	No	No	TPM	iKVM	No	No	1
2573-A4U	1xE5-2650	1333MHz	RDIMM 2x8GB	No	700+Battery		4xHS	SATA/SAS DVD±RW	No	No	TPM	iKVM	No	No	2
2573-A5U	1xE5-2620	1333MHz	RDIMM 2x8GB	No	700+Battery	4x500GB 3.5" SATA	4xHS	SATA/SAS DVD±RW	No	No	TPM	iKVM	No	No	2
2573-A6U	1xE5-2650	1333MHz	RDIMM 4x8GB	No	700+Battery	4x300GB 3.5" SAS	4xHS	SATA/SAS DVD±RW	No	No	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more Lenovo Services see S-RDS sheet

Processor
Up to two processors, one or two processors standard,
Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2), Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2), Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA2011 sockets

Memory
RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin;
RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB)
LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over twelve RDIMMs requires dual processors
- Over eight LV RDIMMs requires dual processors
- Mixing of RDIMM and LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz

Disk bays
Four 3.5" hot-swap SATA/SAS disk bays

Disk controller
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 support
RAID 700: 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 support
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10 via ThinkServer RAID 700 adapter

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

Tape drive
None

Optical
DVD±RW or DVD ROM, slim

Diskette
None (use USB port)

Chipset
Intel C602J Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2

Riser card
Two USB 2.0

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Rear ports
Supports IDM on selected models
Basic: IDM LED lights indicate failing component category
Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM functions

Intelligent Diagnostics Module (IDM)
Systems mgmt

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

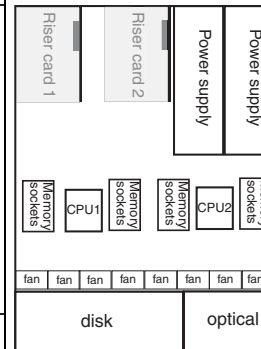
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

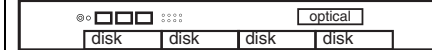
Cable management
Optional cable management arm on selected models

Cooling
Up to eight fans (7+1 redundant), non-hot swap

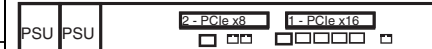
1U Rack top



Front



Rear



Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
Bay 2-5 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

See footnotes for important warranty information
US model(s) announced June 5, 2012

ThinkServer® RD530 with 2.5" Disk Bay (2575) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2575-A1U	1xE5-2620	1333MHz RDIMM	1x4GB	No	500	None	8xHS	SATA/SAS	No	No	TPM	iPMI	No	No	1
2575-A2U	1xE5-2640	1333MHz RDIMM	2x4GB	No	700+Battery	None	8xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2
2575-A4U	1xE5-2620	1333MHz RDIMM	1x8GB	No	700	None	8xHS	SATA/SAS	No	No	TPM	iPMI	No	No	1
2575-A6U	1xE5-2640	1333MHz RDIMM	2x8GB	No	700	None	8xHS	SATA/SAS	No	No	TPM	iPMI	No	No	1
2575-A7U	1xE5-2650	1333MHz RDIMM	3x8GB	No	700+Battery	None	8xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2
2575-A8U	1xE5-2670	1333MHz RDIMM	3x8GB	No	700+Battery	None	8xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2
2575-A9U	2xE5-2650	1333MHz RDIMM	4x8GB	No	700+Battery	None	8xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more Lenovo Services see S-RDS sheet

Processor
Up to two processors, one or two processors standard, **Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2)**, Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2), Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA2011 sockets

Memory
RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin;
RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB)
LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over twelve RDIMMs requires dual processors
- Over eight LV RDIMMs requires dual processors
- Mixing of RDIMM and LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz

Disk bays
Eight 2.5" hot-swap SATA/SAS disk bays

Disk controller
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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

Disk(s)
2.5" SAS: SAS 6.0Gb/s, 10000 rpm
SSD: Solid State Drive, 2.5"

Tape drive
None

Optical
None (use USB port)

Diskette
None (use USB port)

Chipset
Intel C602J Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2

Riser card
Two USB 2.0, one analog VGA DB-15 connector

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share sys mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM on selected models
Basic: IDM LED lights indicate failing component category

Systems mgmt
Onboard Aspeed AST2300 graphics/management processor, iPMI 2.0-compliant baseboard management controller (BMC); *iKVM:* add-on ThinkServer Management Module Premium for iKVM functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

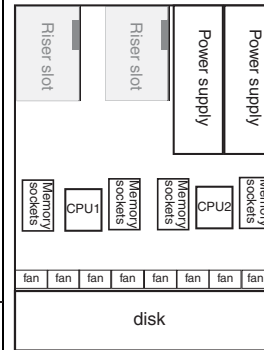
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

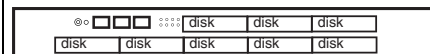
Cable management
Optional cable management arm on selected models

Cooling
Up to eight fans (7+1 redundant), non-hot swap

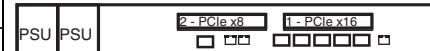
1U Rack top



Front



Rear



Mechanical

- 1U rack
- 19"W x 28.4"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1-8 2.5", 0.6" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

ThinkServer® RD530 with 2.5" Disk Bay (2574) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2574-A1U	2xE5-2640	1333MHz RDIMM	2x8GB		700+Battery	2x300GB 2.5" SAS	8xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2
2574-A2U	2xE5-2640	1333MHz RDIMM	2x8GB	5	700+Battery	3x300GB 2.5" SAS	8xHS	SATA/SAS	No	No	TPM	iKVM	No	No	2

Limited warranty	1-year parts and labor; more Lenovo Services see S-RDS sheet		
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz)		
Implementation	Two LGA2011 sockets		
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; <i>RDIMM</i> : twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) <i>LV RDIMM</i> : sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)		
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over twelve RDIMMs requires dual processors Over eight LV RDIMMs requires dual processors Mixing of RDIMM and LV RDIMM is not supported 		
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz		
Disk bays	Eight 2.5" hot-swap SATA/SAS disk bays		
Disk controller	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 <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support RAID 700: 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		
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter		
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"		
Tape drive	None		
Optical	None (use USB port)		
Diskette	None (use USB port)		
Chipset	Intel C602J Chipset		
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2		
Riser card	Two USB 2.0, one analog VGA DB-15 connector		
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share sys mgmt), one analog VGA DB-15 connector		
Rear ports	Supports IDM on selected models		
Intelligent Diagnostics Module (IDM)	<i>Basic:</i> IDM LED lights indicate failing component category		
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>iKVM:</i> add-on ThinkServer Management Module Premium for iKVM functions		
Security chip	No onboard TPM chip; <i>TPM:</i> additional add-on card for TPM function, TCG 1.2-compliant		
Prerequisites	SATA/SAS disk, OS		
Keyboard/mouse	None (use USB port)		
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies		
Rack kit	Includes rack kit		
Cable management	Optional cable management arm on selected models		
Cooling	Up to eight fans (7+1 redundant), non-hot swap		
			1U Rack top
			Front
			Rear
			Mechanical <ul style="list-style-type: none"> 1U rack 19"W x 28.4"D x 1.72"H (with rack handles) 482.4mm W x 734mm D x 43.6mm H (with rack handles) 17kg (37.5 lb) when fully configured
			Disk Bays Bay 1-8 2.5", 0.6" high, external, for disk
			Expansion Slots Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8
			Security <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User 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
			Energy Management Technology <ul style="list-style-type: none"> Intel Power Node Manager Lenovo® SmartGrid Manager
			ENERGY STAR® Server 1.1-compliant RoHS-compliant
			For more accessories, see O-RDS sheet

See footnotes for important warranty information
US model(s) announced June 5, 2012

ThinkServer® RD530 with 2.5" Disk Bay (2576)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System TPM	Cable mgmt	Preload OS	PSU qty
2576-A1U	1xE5-2620	1333MHz RDIMM	1x8GB	No	700		8xHS	SATA/SAS	No	No	TPM iKVM	No	No	1
2576-A2U	1xE5-2640	1333MHz RDIMM	1x8GB	No	700+Battery		8xHS	SATA/SAS	No	No	TPM iKVM	No	No	2
2576-A3U	1xE5-2650	1333MHz RDIMM	2x8GB	No	700+Battery		8xHS	SATA/SAS	No	No	TPM iKVM	No	No	2
2576-A4U	1xE5-2650	1333MHz RDIMM	6x8GB	No	700+Battery	4x300GB 2.5" SAS	8xHS	SATA/SAS	No	No	TPM iKVM	No	No	2
2576-A5U	1xE5-2620	1333MHz RDIMM	3x8GB	No	700+Battery	4x300GB 2.5" SAS	8xHS	SATA/SAS	No	No	TPM iKVM	No	No	2
2576-A6U	2xE5-2670	1333MHz RDIMM	6x16GB	No	700+Battery	4x300GB 2.5" SAS	8xHS	SATA/SAS	No	No	TPM iKVM	No	No	2

Limited warranty **3-year** parts and labor; more Lenovo Services see S-RDS sheet

Processor
Up to two processors, one or two processors standard, **Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2)**, Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2), Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA2011 sockets

Memory
RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin;
RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB)
LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over twelve RDIMMs requires dual processors
- Over eight LV RDIMMs requires dual processors
- Mixing of RDIMM and LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz

Disk bays
Eight 2.5" hot-swap SATA/SAS disk bays

Disk controller
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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

Disk(s)
2.5" SAS: SAS 6.0Gb/s, 10000 rpm
SSD: Solid State Drive, 2.5"

Tape drive
None

Optical
None (use USB port)

Diskette
None (use USB port)

Chipset
Intel C602J Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1, riser card 2 for slot 2

Riser card
Two USB 2.0, one analog VGA DB-15 connector

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share sys mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM on selected models
Basic: IDM LED lights indicate failing component category

Systems mgmt
Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); *iKVM:* add-on ThinkServer Management Module Premium for iKVM functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

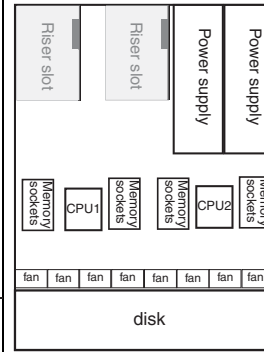
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

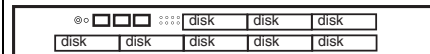
Cable management
Optional cable management arm on selected models

Cooling
Up to eight fans (7+1 redundant), non-hot swap

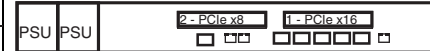
1U Rack top



Front



Rear



Mechanical

- 1U rack
- 19"W x 28.4"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

Disk Bays

Bay 1-8 2.5", 0.6" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

Lenovo® ThinkServer® RD630 with 3.5" disk bay*

*Some models in pictures below contain optional add-in ethernet adapter, please see O-RDS for more RD630 accessories

ThinkServer



- Up to two Intel® Xeon® E5-2600 series processors, up to 8 cores/16 threads per processor
- Up to 320GB ECC RDIMM memory (20x16GB) or 256GB ECC LV RDIMM memory (16x16GB)
- Up to eight 3.5" hot-swap disk bays
- Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer® RAID 700 adapter
- Up to two power supplies with redundant, hot-swap, 80 PLUS® Gold qualified
- Up to six fans (5+1 redundant), hot-swap

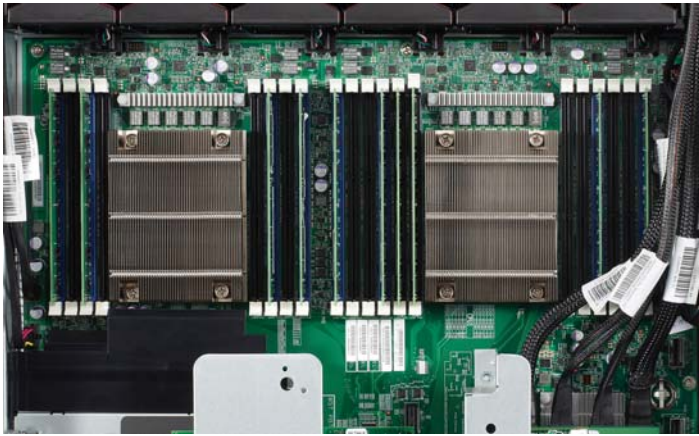
Lenovo® ThinkServer® RD630 with 2.5" disk bay*

* Some models in pictures below contain optional add-in ethernet adapter, please see O-RDS for more RD630 accessories



- Up to two Intel® Xeon® E5-2600 series processors, up to 8 cores/16 threads per processor
- Up to 320GB ECC RDIMM memory (20x16GB) or 256GB ECC LV RDIMM memory (16x16GB)
- Up to sixteen 2.5" hot-swap disk bays
- Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer® RAID 700 adapter
- Up to two power supplies with redundant, hot-swap, 80 PLUS® Gold qualified
- Up to six fans (5+1 redundant), hot-swap

Lenovo® ThinkServer® RD630 - Detail (I)



Dual processors



Single processor



2.5" Hot-swap disk bay



2.5" Hot-swap disk bay



2.5" Hot-swap SAS 6.0Gb/s hard drive



3.5" Hot-swap SAS 6.0Gb/s hard drive

Lenovo® ThinkServer® RD630 - Detail (II)



ThinkServer RAID 700 Adapter with battery (LSI® SAS 9260-8i with iBBU08)



ThinkServer RAID 700 Adapter with battery (LSI SAS 9260-8i with iBBU08)



ThinkServer 800W Hot-Swap power supply for ThinkServer RD530/RD630 (80 PLUS® Gold qualified, redundant with two power supplies)



Intelligent Diagnostics Module Premium



ThinkServer RD630 rear I/O ports

ThinkServer® RD630 with 3.5" Disk Bay (2579) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2579-A2U	1xE5-2640	1333MHz RDIMM	1x4GB	No	700	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iPMI	No	No	1
2579-A3U	1xE5-2640	1333MHz RDIMM	1x4GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	1
2579-A4U	1xE5-2650	1333MHz RDIMM	1x8GB	No	700	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iPMI	No	No	1
2579-A5U	1xE5-2650	1333MHz RDIMM	2x8GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2579-A6U	1xE5-2620	1333MHz RDIMM	1x4GB	No	700	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iPMI	No	No	1
2579-A7U	1xE5-2670	1333MHz RDIMM	1x16GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2579-A8U	1xE5-2670	1333MHz RDIMM	1x8GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more Lenovo Services see S-RDS sheet

Processor
Up to two processors, one or two processors standard, **Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2)**, Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2), Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA2011 sockets

Memory
RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin;
RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB)
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Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over twelve RDIMMs requires dual processors
- Over eight LV RDIMMs requires dual processors
- Mixing of RDIMM and LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz

Disk bays
Eight 3.5" hot-swap SATA/SAS disk bays

Disk controller
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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

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

Tape drive
None

Optical
DVD±RW or DVD ROM, slim

Diskette
None (use USB port)

Chipset
Intel C602J Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5

Riser card
Two USB 2.0, one analog VGA DB-15 connector

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Rear ports
Supports IDM or IDM Premium on selected models

Intelligent Diagnostics Module (IDM)
Basic: IDM LED lights indicate failing component category
Premium: IDM Premium LED lights indicate individual failing part

Systems mgmt
Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

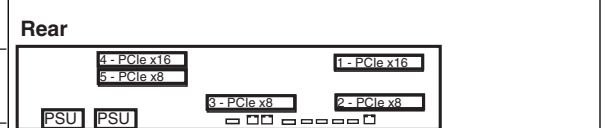
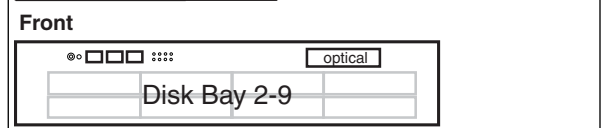
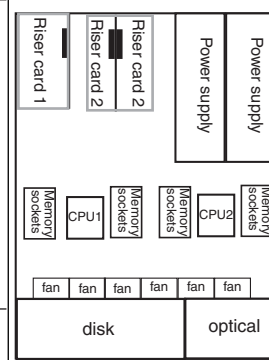
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

Cable management
Optional cable management arm on selected models

Cooling
Up to six fans (5+1 redundant), hot-swap

2U Rack top



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1	5.25", 0.5" high, external,	for optical
Bay 2-9	3.5", 1" high, external,	for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: half-length, full-height, PCI Express 3.0 x8
Slot 3: Low Profile, PCI Express 3.0 x8
Slot 4-5 are available on dual processors models:
Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

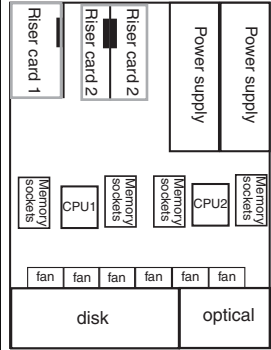
ThinkServer® RD630 with 3.5" Disk Bay (2577) - TopSeller

Personal Systems Reference (PSREF)

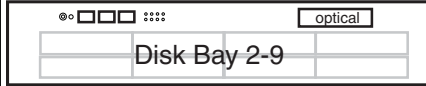
Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2577-A1U	2xE5-2620	1333MHz RDIMM	2x8GB	5	700+Battery	6x500GB 3.5" SATA	8xHS	SATA/SAS	DVD	Premium	TPM	iKVM	No	No	2

Limited warranty	1-year parts and labor; more Lenovo Services see S-RDS sheet
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Implementation	Two LGA2011 sockets
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over twelve RDIMMs requires dual processors Over eight LV RDIMMs requires dual processors Mixing of RDIMM and LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight 3.5" hot-swap SATA/SAS disk bays
Disk controller	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 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	3.5" SATA: SATA 6.0Gb/s, 7200 rpm 3.5" SAS: SAS 6.0Gb/s, 15000 rpm
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C602J Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Riser card	(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Front ports	Two USB 2.0, one analog VGA DB-15 connector
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models Basic: IDM LED lights indicate failing component category Premium: IDM Premium LED lights indicate individual failing part
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Up to six fans (5+1 redundant), hot-swap

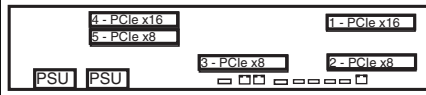
2U Rack top



Front



Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1	5.25", 0.5" high, external,	for optical
Bay 2-9	3.5", 1" high, external,	for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
 Slot 2: half-length, full-height, PCI Express 3.0 x8
 Slot 3: Low Profile, PCI Express 3.0 x8
Slot 4-5 are available on dual processors models:
 Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
 Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

ThinkServer® RD630 with 3.5" Disk Bay (2592)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2592-A1U	1xE5-2650	1333MHz	RDIMM 1x8GB	No	700+Battery		8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2592-A2U	1xE5-2620	1333MHz	RDIMM 1x4GB	No	700		8xHS	SATA/SAS	DVD±RW	Premium	TPM	IPMI	No	No	1
2592-A3U	1xE5-2670	1333MHz	RDIMM 1x16GB	No	700+Battery		8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2592-A4U	1xE5-2650	1333MHz	RDIMM 6x8GB	No	700+Battery	4x300GB 3.5" SAS	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2592-A5U	1xE5-2620	1333MHz	RDIMM 3x8GB	No	700+Battery	3x500GB 3.5" SATA	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2592-A6U	2xE5-2670	1333MHz	RDIMM 6x16GB	No	700+Battery	4x300GB 3.5" SAS	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more Lenovo Services see S-RDS sheet

Processor
Up to two processors, one or two processors standard, **Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2)**, Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz)

Implementation
Two LGA2011 sockets

Memory
RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin;
RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB)
LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over twelve RDIMMs requires dual processors
- Over eight LV RDIMMs requires dual processors
- Mixing of RDIMM and LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz

Disk bays
Eight 3.5" hot-swap SATA/SAS disk bays

Disk controller
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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

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

Tape drive
None

Optical
DVD±RW or DVD ROM, slim

Diskette
None (use USB port)

Chipset
Intel C602J Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5

Riser card
Two USB 2.0, one analog VGA DB-15 connector

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM or IDM Premium on selected models
Basic: IDM LED lights indicate failing component category
Premium: IDM Premium LED lights indicate individual failing part

Systems mgmt
Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

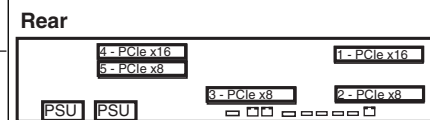
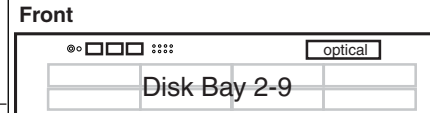
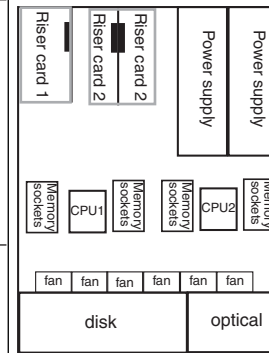
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

Cable management
Optional cable management arm on selected models

Cooling
Up to six fans (5+1 redundant), hot-swap

2U Rack top



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

Bay 1 5.25", 0.5" high, external, for optical
Bay 2-9 3.5", 1" high, external, for disk

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: half-length, full-height, PCI Express 3.0 x8
Slot 3: Low Profile, PCI Express 3.0 x8
Slot 4-5 are available on dual processors models:
Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

ThinkServer® RD630 with 2.5" Disk Bay (2594) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System Cable mgmt	Preload OS	PSU qty		
2594-A1U	1xE5-2620	1333MHz RDIMM	2x4GB	No	500	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	IPMI	No	No	1
2594-A2U	1xE5-2640	1333MHz RDIMM	2x4GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2594-A3U	1xE5-2660	1333MHz RDIMM	2x8GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2594-A4U	1xE5-2620	1333MHz RDIMM	1x4GB	No	500	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	1
2594-A5U	1xE5-2640	1333MHz RDIMM	1x4GB	No	700	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2594-A6U	1xE5-2640	1333MHz RDIMM	1x8GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2594-A7U	1xE5-2670	1333MHz RDIMM	1x16GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2594-A9U	1xE5-2620	1333MHz RDIMM	1x4GB	No	700	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	IPMI	No	No	1
2594-ADU	1xE5-2670	1333MHz RDIMM	1x8GB	No	700	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	IPMI	No	No	1
2594-AEU	1xE5-2690	1333MHz RDIMM	1x16GB	No	700+Battery	None	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
Limited warranty	3-year parts and labor; more Lenovo Services see S-RDS sheet														
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2660 processor (8C/16T, 2.2GHz, 20MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1600MHz) Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz) Intel Xeon E5-2690 processor (8C/16T, 2.9GHz, 20MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.8GHz), 4-channel DDR3 memory controller (up to 1600MHz) Two LGA2011 sockets														
Implementation	Two LGA2011 sockets														
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; <i>RDIMM</i> : twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) <i>LV RDIMM</i> : sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)														
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over twelve RDIMMs requires dual processors Over eight LV RDIMMs requires dual processors Mixing of RDIMM and LV RDIMM is not supported 							<p>Bay 10-17 are available on sixteen disk bays models only</p> <p>Slot 4, 5 are available on dual processors models only</p>							
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz														
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays (Sixteen 2.5" disk bays availability on August 2012)														
Disk controller	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 <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support RAID 700: 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 Battery for 700: Intelligent Battery Backup Unit (IBBU08) for RAID 700														
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter														
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"														
Tape drive	None														
Optical	DVD±RW or DVD ROM, slim														
Diskette	None (use USB port)														
Chipset	Intel C602J Chipset														
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5														
Riser card	(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5														
Front ports	Two USB 2.0, one analog VGA DB-15 connector														
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector														
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models <i>Basic:</i> IDM LED lights indicate failing component category <i>Premium:</i> IDM Premium LED lights indicate individual failing part														
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>iKVM:</i> add-on ThinkServer Management Module Premium for iKVM functions														
Security chip	No onboard TPM chip; <i>TPM:</i> additional add-on card for TPM function, TCG 1.2-compliant							<p>Security</p> <ul style="list-style-type: none"> Security chip (selected models, see information on left) Administrator password User password Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all) 							
Prerequisites	SATA/SAS disk, OS							<p>Software Management Tools</p> <ul style="list-style-type: none"> ThinkServer EasyStartup ThinkServer EasyManage 							
Keyboard/mouse	None (use USB port)							<p>Energy Management Technology</p> <ul style="list-style-type: none"> Intel Power Node Manager Lenovo® SmartGrid Manager 							
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies							<p>ENERGY STAR® Server 1.1-compliant RoHS-compliant</p>							
Rack kit	Includes rack kit							For more accessories, see O-RDS sheet							
Cable management	Optional cable management arm on selected models														
Cooling	Up to six fans (5+1 redundant), hot-swap														

See footnotes for important warranty information
US model(s) announced June 5, 2012

ThinkServer® RD630 with 2.5" Disk Bay (2594) - TopSeller (August 2012)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	System Cable mgmt	Preload OS	PSU qty	
2594-A8U	1xE5-2620	1333MHz RDIMM	1x8GB	No	700+Battery	No	16xHS	SATA/SAS	DVD±RW	Premium	TPM IPMI	No	No	1
2594-AAU	1xE5-2640	1333MHz RDIMM	1x8GB	No	700+Battery	No	16xHS	SATA/SAS	DVD±RW	Premium	TPM iKVM	No	No	1
2594-ABU	2xE5-2650	1333MHz RDIMM	2x8GB	No	700+Battery	No	16xHS	SATA/SAS	DVD±RW	Premium	TPM iKVM	No	No	2
2594-ACU	1xE5-2650	1333MHz RDIMM	1x8GB	No	700+Battery	No	16xHS	SATA/SAS	DVD±RW	Premium	TPM iKVM	No	No	2

Limited warranty **3-year** parts and labor; more Lenovo Services see S-RDS sheet

Processor
Up to two processors, one or two processors standard, **Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2)**, Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2640 processor (6C/12T, 2.5GHz, 15MB, 7.2 GT/s QPI x2), Turbo Boost 2.0 (up to 3.0GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Two LGA2011 sockets

Implementation
Two LGA2011 sockets

Memory
RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin;
RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB)
LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over twelve RDIMMs requires dual processors
- Over eight LV RDIMMs requires dual processors
- Mixing of RDIMM and LV RDIMM is not supported

Graphics
Onboard Asped AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz

Disk bays
Eight or sixteen 2.5" hot-swap SATA/SAS disk bays

Disk controller
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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

Disk(s)
2.5" SAS: SAS 6.0Gb/s, 10000 rpm
SSD: Solid State Drive, 2.5"

Tape drive
None

Optical
DVD±RW or DVD ROM, slim

Diskette
None (use USB port)

Chipset
Intel C602J Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5

Riser card
Two USB 2.0, one analog VGA DB-15 connector

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Rear ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Intelligent Diagnostics Module (IDM)
Supports IDM or IDM Premium on selected models
Basic: IDM LED lights indicate failing component category
Premium: IDM Premium LED lights indicate individual failing part

Systems mgmt
Onboard Asped AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC);
iKVM: add-on ThinkServer Management Module Premium for iKVM functions

Security chip
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Prerequisites
SATA/SAS disk, OS

Keyboard/mouse
None (use USB port)

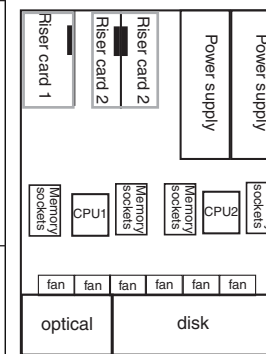
Power supply
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

Rack kit
Includes rack kit

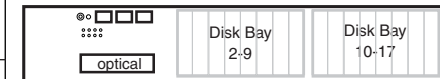
Cable management
Optional cable management arm on selected models

Cooling
Up to six fans (5+1 redundant), hot-swap

2U Rack top

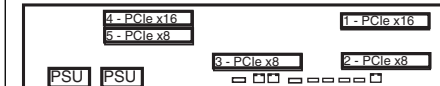


Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

- Bay 1 5.25", 0.5" high, external, for optical
- Bay 2-9 2.5", 0.6" high, external, for disk
- Bay 10-17 are available on sixteen 2.5" disk bays models:
- Bay 10-17 2.5", 0.6" high, external, for disk

Expansion Slots

- Slot 1: half-length, full-height, PCI Express 3.0 x16
- Slot 2: half-length, full-height, PCI Express 3.0 x8
- Slot 3: Low Profile, PCI Express 3.0 x8
- Slot 4-5 are available on dual processors models:
- Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
- Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

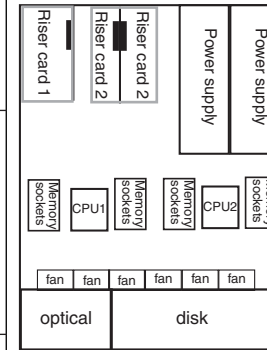
ThinkServer® RD630 with 2.5" Disk Bay (2593) - TopSeller

Personal Systems Reference (PSREF)

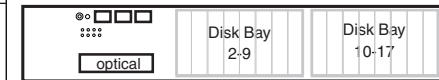
Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2593-A1U	2xE5-2620	1333MHz	RDIMM 2x8GB		700+Battery	5x600GB 2.5" SAS	8xHS	SATA/SAS	DVD	Premium	TPM	iKVM	No	No	2
2593-A2U	2xE5-2620	1333MHz	RDIMM 2x8GB	5	700+Battery	6x600GB 2.5" SAS	8xHS	SATA/SAS	DVD	Premium	TPM	iKVM	No	No	2

Limited warranty	1-year parts and labor; more Lenovo Services see S-RDS sheet
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Implementation	Two LGA2011 sockets
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; <i>RDIMM:</i> twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) <i>LV RDIMM:</i> sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over twelve RDIMMs requires dual processors Over eight LV RDIMMs requires dual processors Mixing of RDIMM and LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays (Sixteen 2.5" disk bays availability on August 2012)
Disk controller	<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 <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
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C602J Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Riser card	(See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Front ports	Two USB 2.0, one analog VGA DB-15 connector
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models <i>Basic:</i> IDM LED lights indicate failing component category <i>Premium:</i> IDM Premium LED lights indicate individual failing part
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>iKVM:</i> add-on ThinkServer Management Module Premium for iKVM functions
Security chip	No onboard TPM chip; <i>TPM:</i> additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Up to six fans (5+1 redundant), hot-swap

2U Rack top



Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

- Bay 1 5.25", 0.5" high, external, for optical
- Bay 2-9 2.5", 0.6" high, external, for disk
- Bay 10-17 are available on sixteen 2.5" disk bays models:
- Bay 10-17 2.5", 0.6" high, external, for disk

Expansion Slots

- Slot 1: half-length, full-height, PCI Express 3.0 x16
- Slot 2: half-length, full-height, PCI Express 3.0 x8
- Slot 3: Low Profile, PCI Express 3.0 x8
- Slot 4-5 are available on dual processors models:
- Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
- Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

ThinkServer® RD630 with 2.5" Disk Bay (2595)

Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2595-A1U	1xE5-2620	1333MHz RDIMM	1x8GB	No	700		8xHS	SATA/SAS	DVD±RW	Basic	TPM	IPMI	No	No	1
2595-A2U	1xE5-2650	1333MHz RDIMM	1x16GB	No	700+Battery		8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2595-A5U	1xE5-2650	1333MHz RDIMM	6x8GB	No	700+Battery	4x300GB 2.5" SAS	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2595-A6U	1xE5-2620	1333MHz RDIMM	3x8GB	No	700+Battery	4x300GB 2.5" SAS	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2
2595-A7U	2xE5-2670	1333MHz RDIMM	6x16GB	No	700+Battery	4x300GB 2.5" SAS	8xHS	SATA/SAS	DVD±RW	Premium	TPM	iKVM	No	No	2

Limited warranty **3-year** parts and labor; more Lenovo Services see S-RDS sheet

Processor
Up to two processors, one or two processors standard, **Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2)**, Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz)
Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Intel Xeon E5-2670 processor (8C/16T, 2.6GHz, 20MB, 8.0 GT/s QPI x2), Turbo Boost 2.0 (up to 3.3GHz), 4-channel DDR3 memory controller (up to 1600MHz)
Two LGA2011 sockets

Implementation
Two LGA2011 sockets

Memory
RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; *RDIMM*: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB)
LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)

Additional memory disclaimers

- Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
- Over twelve RDIMMs requires dual processors
- Over eight LV RDIMMs requires dual processors
- Mixing of RDIMM and LV RDIMM is not supported

Graphics
Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz

Disk bays
Eight or sixteen 2.5" hot-swap SATA/SAS disk bays (Sixteen 2.5" disk bays availability on August 2012)

Disk controller
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 700: 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
Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700

RAID Support
Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter

Disk(s)
2.5" SAS: SAS 6.0Gb/s, 10000 rpm
SSD: Solid State Drive, 2.5"

Tape drive
None

Optical
DVD±RW or DVD ROM, slim

Diskette
None (use USB port)

Chipset
Intel C602J Chipset

Ethernet
Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5

Riser card
Two USB 2.0, one analog VGA DB-15 connector

Front ports
Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector

Rear ports
Supports IDM or IDM Premium on selected models
Basic: IDM LED lights indicate failing component category
Premium: IDM Premium LED lights indicate individual failing part

Intelligent Diagnostics Module (IDM)
Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); *iKVM:* add-on ThinkServer Management Module Premium for iKVM functions

Systems mgmt
No onboard TPM chip;
TPM: additional add-on card for TPM function, TCG 1.2-compliant

Security chip
SATA/SAS disk, OS
None (use USB port)

Prerequisites
None (use USB port)

Keyboard/mouse
One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies

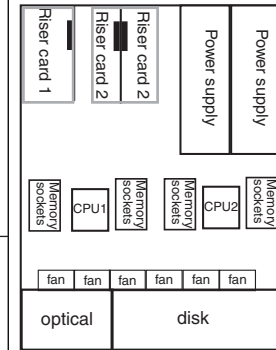
Power supply
Includes rack kit

Rack kit
Optional cable management arm on selected models

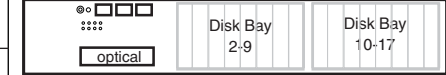
Cable management
Up to six fans (5+1 redundant), hot-swap

Cooling

2U Rack top



Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

- Bay 1 5.25", 0.5" high, external, for optical
- Bay 2-9 2.5", 0.6" high, external, for disk
- Bay 10-17 are available on sixteen 2.5" disk bays models:
- Bay 10-17 2.5", 0.6" high, external, for disk

Expansion Slots

- Slot 1: half-length, full-height, PCI Express 3.0 x16
- Slot 2: half-length, full-height, PCI Express 3.0 x8
- Slot 3: Low Profile, PCI Express 3.0 x8
- Slot 4-5 are available on dual processors models:
- Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
- Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

See footnotes for important warranty information
US model(s) announced June 5, 2012

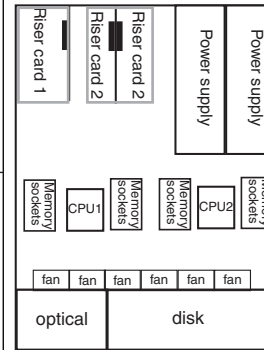
ThinkServer® RD630 with 2.5" Disk Bay (2595) - August 2012

Personal Systems Reference (PSREF)

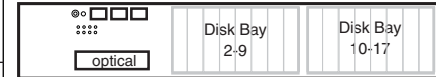
Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	Disk type	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2595-A3U	1xE5-2650	1333MHz	RDIMM 1x8GB	No	700+Battery	No	16xHS	SATA/SAS DVD±RW		Premium	TPM	iKVM	No	No	2
2595-A4U	1xE5-2620	1333MHz	RDIMM 1x8GB	No	700+Battery	No	16xHS	SATA/SAS DVD±RW		Premium	TPM	IPMI	No	No	2

Limited warranty	3-year parts and labor; more Lenovo Services see S-RDS sheet
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2620 processor (6C/12T, 2.0GHz, 15MB, 7.2 GT/s QPI x2) , Turbo Boost 2.0 (up to 2.5GHz), 4-channel DDR3 memory controller (up to 1333MHz) Intel Xeon E5-2650 processor (8C/16T, 2.0GHz, 20MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 2.8GHz), 4-channel DDR3 memory controller (up to 1600MHz) Two LGA2011 sockets
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; <i>RDIMM:</i> twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) <i>LV RDIMM:</i> sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Over twelve RDIMMs requires dual processors Over eight LV RDIMMs requires dual processors Mixing of RDIMM and LV RDIMM is not supported
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays
Disk controller	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 <i>Upgrade for 500:</i> Additional upgrade key for RAID 500 adapter, add RAID 5, 50 support RAID 700: 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
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"
Tape drive	None
Optical	DVD±RW or DVD ROM, slim
Diskette	None (use USB port)
Chipset	Intel C602J Chipset
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5
Riser card	Two USB 2.0, one analog VGA DB-15 connector
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector
Rear ports	Supports IDM or IDM Premium on selected models <i>Basic:</i> IDM LED lights indicate failing component category <i>Premium:</i> IDM Premium LED lights indicate individual failing part
Intelligent Diagnostics Module (IDM)	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); <i>iKVM:</i> add-on ThinkServer Management Module Premium for iKVM functions
Systems mgmt	
Security chip	No onboard TPM chip; <i>TPM:</i> additional add-on card for TPM function, TCG 1.2-compliant
Prerequisites	SATA/SAS disk, OS
Keyboard/mouse	None (use USB port)
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Rack kit	Includes rack kit
Cable management	Optional cable management arm on selected models
Cooling	Up to six fans (5+1 redundant), hot-swap

2U Rack top



Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

- Bay 1: 5.25", 0.5" high, external, for optical
- Bay 2-9: 2.5", 0.6" high, external, for disk
- Bay 10-17 are available on sixteen 2.5" disk bays models:
- Bay 10-17: 2.5", 0.6" high, external, for disk

Expansion Slots

- Slot 1: half-length, full-height, PCI Express 3.0 x16
- Slot 2: half-length, full-height, PCI Express 3.0 x8
- Slot 3: Low Profile, PCI Express 3.0 x8
- Slot 4-5 are available on dual processors models:
- Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
- Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

For more accessories, see O-RDS sheet

ThinkServer® RD630 with 2.5" Disk Bay (2595) - Vectorwise Appliance

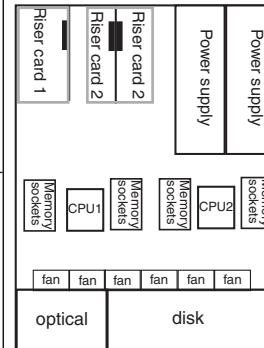
Personal Systems Reference (PSREF)

Type-model	Processor(s)	Memory (MHz/type)	Memory DIMMs	Pre-conf RAID	Disk controller	Disk(s)	Disk bays	SATA optical	Intelligent Diagnostics	TPM	System mgmt	Cable mgmt	Preload OS	PSU qty
2595-A8U	1xE5-2643	1333MHz	RDIMM 8x8GB	10	700+Battery	4x300GB 2.5" SAS	8xHS	DVD±RW	Premium	TPM	iKVM	No	Win2008E R2	2
2595-A9U	2xE5-2667	1333MHz	RDIMM 16x8GB	6	700+Battery	8x300GB 2.5" SAS	8xHS	DVD±RW	Premium	TPM	iKVM	No	Win2008E R2	2
2595-AAU	2xE5-2667	1333MHz	RDIMM 16x8GB	6	700+Battery	8x300GB 2.5" SAS	8xHS	DVD±RW	Premium	TPM	iKVM	No	RHEL 6.0	2

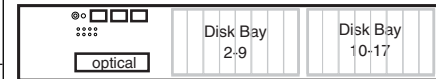
- **These models are ThinkServer solutions for Vectorwise Data Mart Appliance**
for more information please see www.actian.com/products/vectorwise/vectorwise-datamart-appliance

Limited warranty	3-year parts and labor; more Lenovo Services see S-RDS sheet	
Processor	Up to two processors, one or two processors standard, Intel® Xeon® E5-2643 processor (4C/8T, 3.3GHz, 10MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.5GHz), 4-channel DDR3 memory controller (up to 1600MHz) Intel Xeon E5-2667 processor (6C/12T, 2.9GHz, 15MB, 8.0 GT/s QPI x2) , Turbo Boost 2.0 (up to 3.5GHz), 4-channel DDR3 memory controller (up to 1600MHz)	
Implementation	Two LGA2011 sockets	
Memory	RDIMM or LV RDIMM, DDR3, ECC, 4-channel per processor, 240-pin; RDIMM: twenty sockets (12 sockets for CPU1, 8 sockets for CPU2), 320GB max (20x16GB) LV RDIMM: sixteen sockets (8 of 12 sockets available for CPU1, 8 sockets for CPU2), 256GB max (16x16GB)	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Over twelve RDIMMs requires dual processors • Over eight LV RDIMMs requires dual processors • Mixing of RDIMM and LV RDIMM is not supported 	
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz	
Disk bays	Eight or sixteen 2.5" hot-swap SATA/SAS disk bays	
Disk controller	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 700: 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 Battery for 700: Intelligent Battery Backup Unit (iBBU08) for RAID 700	
RAID Support	Up to RAID 0, 1, 5, 6, 10, 50, 60 via ThinkServer RAID 700 adapter	
Disk(s)	2.5" SAS: SAS 6.0Gb/s, 10000 rpm SSD: Solid State Drive, 2.5"	
Tape drive	None	
Optical	DVD±RW or DVD ROM, slim	
Diskette	None (use USB port)	
Chipset	Intel C602J Chipset	
Ethernet	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management (See Right) Riser card 1 for slot 1-2, riser card 2 for slot 3-5	
Riser card	Two USB 2.0, one analog VGA DB-15 connector	
Front ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector	
Intelligent Diagnostics Module (IDM)	Supports IDM or IDM Premium on selected models Basic: IDM LED lights indicate failing component category Premium: IDM Premium LED lights indicate individual failing part	
Systems mgmt	Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); iKVM: add-on ThinkServer Management Module Premium for iKVM functions	
Security chip	No onboard TPM chip; TPM: additional add-on card for TPM function, TCG 1.2-compliant	
Prerequisites	SATA/SAS disk, OS	
Keyboard/mouse	None (use USB port)	
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies	
Rack kit	Includes rack kit	
Cable management	Optional cable management arm on selected models	
Cooling	Up to six fans (5+1 redundant), hot-swap	
Preloaded Operating System		
A8U:	Genuine Windows Server® 2008 R2 Enterprise, Vectorwise 100GB limitation per unit	
A9U:	Genuine Windows Server 2008 R2 Enterprise, Vectorwise 1TB limitation per unit	
AAU:	Red Hat® Enterprise Linux® 6.0, Vectorwise 1TB limitation per unit	

2U Rack top



Front



Bay 10-17 are available on sixteen disk bays models only

Rear



Slot 4, 5 are available on dual processors models only

Mechanical

- 2U rack
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

Disk Bays

- Bay 1: 5.25", 0.5" high, external, for optical
- Bay 2-9: 2.5", 0.6" high, external, for disk
- Bay 10-17: 2.5", 0.6" high, external, for disk

Expansion Slots

- Slot 1: half-length, full-height, PCI Express 3.0 x16
- Slot 2: half-length, full-height, PCI Express 3.0 x8
- Slot 3: Low Profile, PCI Express 3.0 x8
- Slot 4-5: available on dual processors models: Slot 4: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
- Slot 5: half-length, full-height, PCI Express 3.0 x8

Security

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

Software Management Tools

- ThinkServer EasyStartup
- ThinkServer EasyManage

Energy Management Technology

- Intel Power Node Manager
- Lenovo® SmartGrid Manager

ENERGY STAR® Server 1.1-compliant
RoHS-compliant

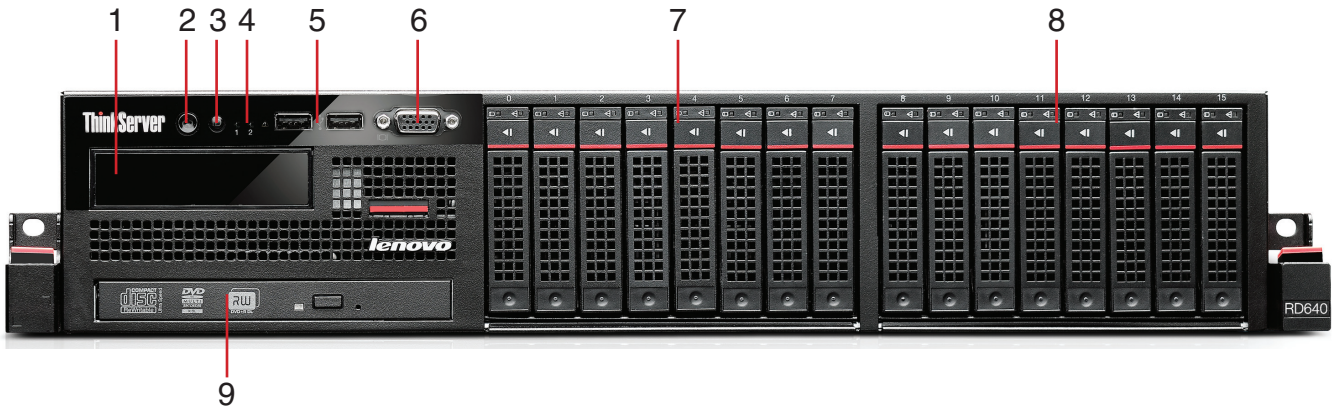
For more accessories, see O-RDS sheet

See footnotes for important warranty information
US model(s) announced August 28, 2012

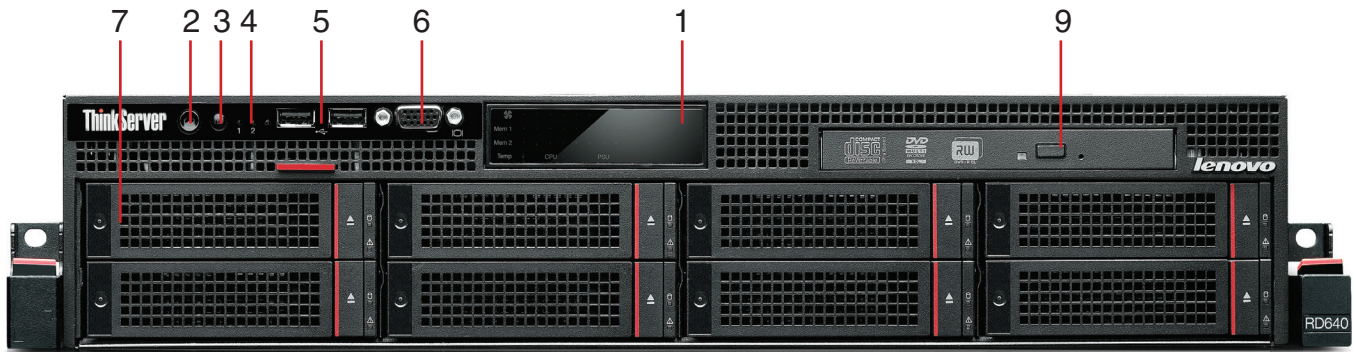
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(RDSB3-3) August 2012

Partial list of accessories supported on ThinkServer RD630, RD530	Rack and Cable Management Arm (All RD630 and RD530) ThinkServer Cable Management Arm
Processor⁵⁰ Intel Xeon E5-2603 Processor Option for RD630/RD530 0A89442 Intel Xeon E5-2609 Processor Option for RD630/RD530 0A89441 Intel Xeon E5-2643 Processor Option for RD630/RD530 0A89440 Intel Xeon E5-2630L Processor Option for RD630/RD530 0A89439 Intel Xeon E5-2620 Processor Option for RD630/RD530 0A89438 Intel Xeon E5-2630 Processor Option for RD630/RD530 0A89437 Intel Xeon E5-2640 Processor Option for RD630/RD530 0A89436 Intel Xeon E5-2667 Processor Option for RD630/RD530 0A89435 Intel Xeon E5-2650L Processor Option for RD630/RD530 0A89434 Intel Xeon E5-2650 Processor Option for RD630/RD530 0A89433 Intel Xeon E5-2660 Processor Option for RD630/RD530 0A89462 Intel Xeon E5-2665 Processor Option for RD630/RD530 0A89432 Intel Xeon E5-2670 Processor Option for RD630/RD530 0A89431 Intel Xeon E5-2680 Processor Option for RD630/RD530 0A89430 Intel Xeon E5-2690 Processor Option for RD630 0A89429	0A89476
Memory⁵¹ (All RD630 and RD530) ThinkServer 4GB DDR3-1333MHz (1Rx4) RDIMM (RD630/RD530) 0A89411 ThinkServer 8GB DDR3-1333MHz (2Rx4) RDIMM (RD630/RD530) 0A89412 ThinkServer 16GB DDR3-1333MHz (2Rx4) RDIMM (RD630/RD530) 0A89413 ThinkServer 4GB DDR3L 1333MHz (1Rx4) RDIMM (RD630/RD530) 0A89415 ThinkServer 8GB DDR3L 1333MHz (2Rx4) RDIMM (RD630/RD530) 0A89416 ThinkServer 16GB DDR3L 1333MHz (2Rx4) RDIMM (RD630/RD530) 0A89417 ThinkServer 4GB DDR3-1600MHz (1Rx4) RDIMM (RD630/RD530) 0A89481 ThinkServer 8GB DDR3-1600MHz (2Rx4) RDIMM (RD630/RD530) 0A89482 ThinkServer 16GB DDR3-1600MHz (2Rx4) RDIMM (RD630/RD530) 0A89483	
Hot-swap Disk Drive - 3.5" SATA (for 3.5" disk bay RD630 and RD530) 500GB 7.2K 3.5" 6Gbps SATA Hot Swap Hard Drive 0A89473 1TB 7.2K 3.5" 6Gbps SATA Hot Swap Hard Drive 0A89474 2TB 7.2K 3.5" 6Gbps SATA Hot Swap Hard Drive 0A89475 3TB 7.2K 3.5" 6Gbps SATA Hot Swap Hard Drive 0A89477	
Hot-swap Disk Drive - 2.5" SATA (for 2.5" disk bay RD630 and RD530) 500GB 7.2K 2.5" Enterprise 6Gbps SATA Hot Swap Hard Drive 0C19495 1TB 7.2K 2.5" Enterprise 6Gbps SATA Hot Swap Hard Drive 0C19496	
Hot-swap Disk Drive - 3.5" SAS (for 3.5" disk bay RD630 and RD530) 300GB 15K SAS 6Gbps Hot Swap Hard Drive 67Y2616 450GB 15K SAS 6Gbps Hot Swap Hard Drive 67Y2617 600GB 15K SAS 6Gbps Hot Swap Hard Drive 67Y2618	
Hot-swap Disk Drive - 2.5" SAS (for 2.5" disk bay RD630 and RD530) 300GB 10K SAS 6Gbps Hot Swap Hard Drive 67Y2619 450GB 10K SAS 6Gbps Hot Swap Hard Drive 67Y2620 600GB 10K SAS 6Gbps Hot Swap Hard Drive 67Y2621 900GB 10K SAS 6Gbps Hot Swap Hard Drive 0A89409 146GB 15K SAS 6Gbps Hot Swap Hard Drive 0C19493 300GB 15K SAS 6Gbps Hot Swap Hard Drive 0C19494	
Hot-swap Disk Drive - 2.5" SSD (for 2.5" disk bay RD630 and RD530) 2.5" 100GB MLC SATA Solid State Drive (SATA 3.0 Gb/s) 0A89420 2.5" 200GB MLC SATA Solid State Drive (SATA 3.0 Gb/s) 0A89418 2.5" 400GB MLC SATA Solid State Drive (SATA 3.0 Gb/s) 0A89419	
Connectivity (All RD630 and RD530) Lenovo Gigabit ET Dual Port Server Adapter by Intel 0A89423 Lenovo Ethernet I340 Quad Port Server Adapter by Intel 0A89424 Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel 0C19487 Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel 0C19486 Lenovo 10Gbps Ethernet Fiber Module for X520 series adapter by Intel 0C19488 Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel 0C19497	
RAID controller and RAID upgrade (All RD630 and RD530) ThinkServer RAID 500 Upgrade Key for Advanced RAID 0A89407 ThinkServer RAID 700 Battery 67Y2647	
ThinkServer host bus adapters ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex 0C19476 ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex 0C19478	⁵⁰ Additional processor must match the existing processor ⁵¹ Mixing of RDIMM and LV RDIMM is not supported
ThinkServer System Management (All RD630 and RD530) Management Controller Premium 67Y2624	For more information on server accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkserveraccessories www.lenovo.com/support/security
ThinkServer TPM (All RD630 and RD530) ThinkServer Trusted Platform Module 0A89428	
Redundant Power Supply (All RD630 and RD530) ThinkServer 800W Hot Swap Redundant Power Supply 0A89426	Other accessories at www.lenovo.com/accessories Accessories Guide pdf at www.lenovo.com/accessoriesguide

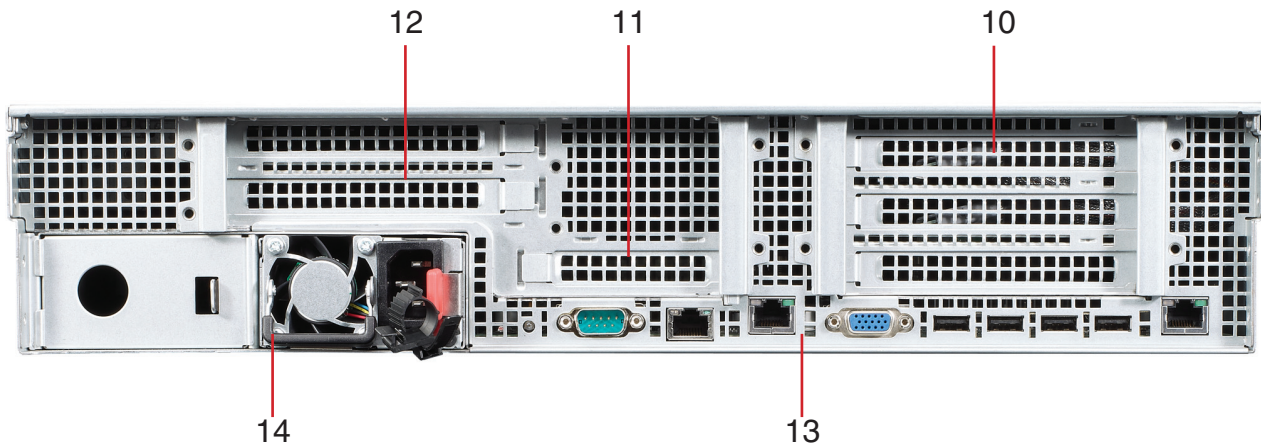
ThinkServer® RD640 Overview - Front and Rear



ThinkServer RD640 with 8x2.5"/16x2.5" Disk Drive Bays



ThinkServer RD640 with 8x3.5" Disk Drive Bays



Front View

Rear View

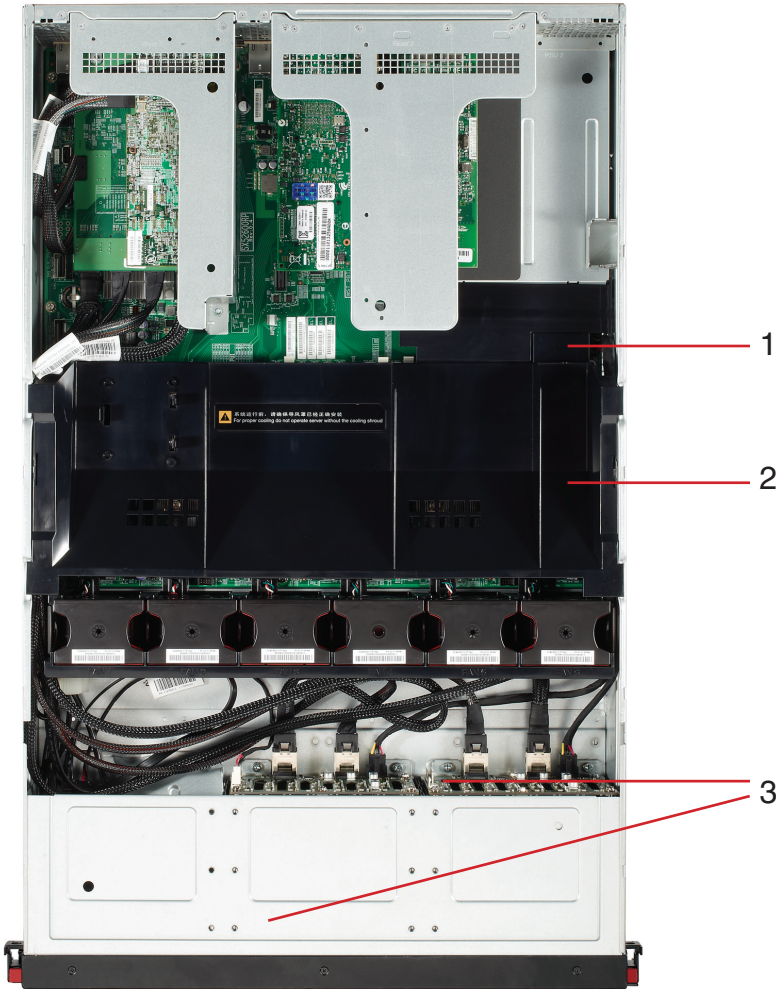
1. Intelligent Diagnostics Premium Module (optional)
2. Power Button with LED
3. ID button with LED
4. 2 Network interface status LEDs
5. 2 USB 2.0
6. 1 VGA
7. Hot-swap disk drive bays
8. Hot-swap disk drive bays for 16x2.5" hard drive bays model
9. Optical (optional)

10. PCI Express slots 1-3
11. PCI Express slots 4
12. PCI Express slots 5-6 (for dual processors model)
13. Rear ports:
 - 4 USB 2.0
 - 1 serial
 - 2 ethernet
 - 1 RJ-45 (dedicate/share mgmt)
 - 1 VGA
14. Hot-swap power supplies

ThinkServer® RD640 Overview - Internal

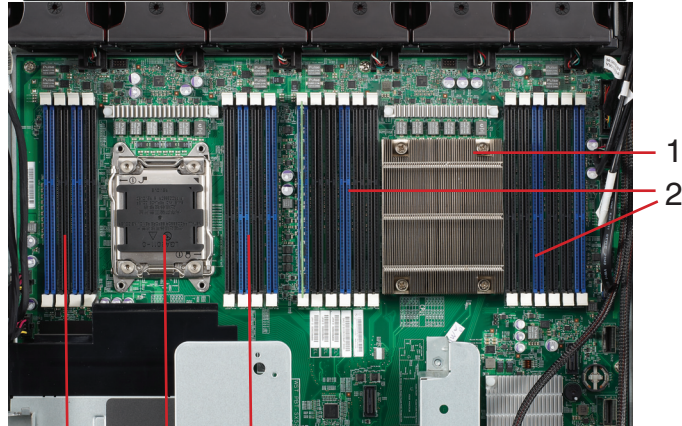
Internal View

1. Hot-swap cooling fans
2. Processors and memory DIMM sockets (under cooling shroud, see below)
3. PCI Express slots



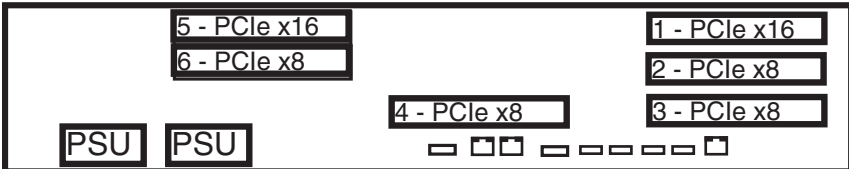
Processors and Memory DIMM Sockets (under cooling shroud)

1. CPU 1
2. 12 Memory DIMM sockets for CPU 1
3. CPU 2 (optional)
4. 8 Memory DIMM sockets for CPU 2 (for dual processors model)



4 3 4

ThinkServer® RD640 Platform Specifications

Components	Specifications		
Chipset	Intel C602J Chipset		
Mechanical	<ul style="list-style-type: none"> • 2U rack with rail kit • 19"W x 28.9"D x 3.45"H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured 		
Front ports	Two USB 2.0, one analog VGA DB-15 connector		
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector		
Expansion Slots	 <p>Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6 Slot 1: half-length, full-height, PCI Express 3.0 x16 (x8 elec) Slot 2: half-length, full-height, PCI Express 3.0 x8 Slot 3: half-length, full-height, PCI Express 3.0 x8 Slot 4: Low Profile, PCI Express 3.0 x8 <i>Slot 5-6 are available on dual processors models:</i> Slot 5: half-length, full-height, PCI Express 3.0 x16 (x8 elec) Slot 6: half-length, full-height, PCI Express 3.0 x8</p>		
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear; <i>Maximum resolution: 1920x1200@60Hz</i>		
Hot-swap parts	Disk drives, power supplies, and cooling fans		
Safety, environment, and certifications	Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 1.1 qualified • RoHS-compliant 	
	EMC	FCC Class A, CSA CE	
	240VA	Supports	
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)	
	Temperature - non operating (no package)	-10 °C to 60 °C	
	Temperature - non operating (with package)	-40 °C to 70 °C	
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)	
	Humidity - operating	8%~80%, non-condensing	
	Humidity - non operating (no package)	8%~80%, non-condensing	
	Humidity - non operating (with package)	8%~90%, non-condensing	
Acoustic noise (idle/working mode)	Category	Normal Configuration	Best Configuration
	CPU	1	2
	HDD	2x 900GB 2.5" SAS 6Gb/s	16x 900GB 2.5" SAS 6Gb/s
	Memory	1x 8GB 1600MHz LVRDIMM	20x 8GB 1600MHz LVRDIMM
	PCIe adapters	I350 X520-DA2 Emulex LPe16002	I350 X520-DA2 Emulex LPe16002
	PSU	1x 800W	2x 800W
	RAID	RAID 700 adapter	RAID 700 adapter
	Sound Pressure (operating)	44.1 dB(A)	42.91 dB(A)
Sound Pressure (idle)	44.4 dB(A)	43.8 dB(A)	

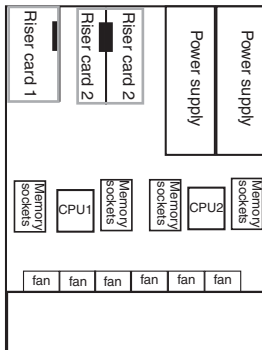
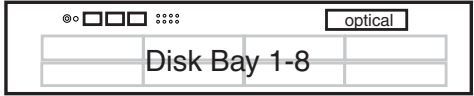
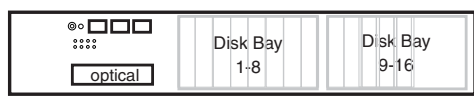

ThinkServer® RD640 (70AY) - TopSeller

Personal Systems Reference (PSREF)

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AY0001US	2xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx20	8x3.5"	RAID710 +CacheVault +CacheCade	2x400GB SSD(cache,RAID1) +6x1TB 3.5" SAS(RAID50)	DVD±RW	IDM Premium	iKVM	X520SR2 +350T2 +350T2	Cable	800Wx2	Standard	1
70AY0002UX	2xE5-2670 v2 10C/2.5GHz/ 25MB/1866MHz	16GBx4	8x3.5"	RAID500 +Upgrade	6x3TB 3.5" SATA(RAID50) +2x3TB 3.5" SAS(RAID1)	DVD±RW	IDM	IPMI	350T4	No	800Wx2	No	1
70AY0003UX	1xE5-2630L v2 6C/2.4GHz/ 15MB/1600MHz	8GBx2	8x3.5"	RAID700	2x500GB 3.5" SATA(RAID1)	No	IDM	IPMI	350T2	No	800Wx2	No	1
70AY0005UX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	8x3.5"	RAID500	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AY0006UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AY0007UX	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AY0008UX	1xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global model

- For detailed platform specifications, please see [ThinkServer RD640 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD640, please see [ThinkServer RD640 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors					2U Rack top 
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)					
Memory protection	ECC, memory mirroring, memory sparing					
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays					
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	* All RAID adapters supports SAS and SATA drives					
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 					
Cable mgmt (opt)	Optional cable management arm on selected models					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications - Specifications of Standard Models sheet					
	Front - 3.5" bay 					
	Front - 2.5" bay (Bay 9-16 comes with 16x2.5" models) 					
	Rear 					
	Front and Rear Ports Front: 2 USB 2.0, 1 VGA Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA					
	Expansion Slots Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 2: half-length, full-height, PCIe 3.0 x8 Slot 3: half-length, full-height, PCIe 3.0 x8 Slot 4: Low Profile, PCIe 3.0 x8 Slot 5-6 are available on dual processors models: Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 6: half-length, full-height, PCIe 3.0 x8					
	Mechanical <ul style="list-style-type: none"> • 2U rack with rail kit • 19"W x 28.9"D x 3.45"H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured 					

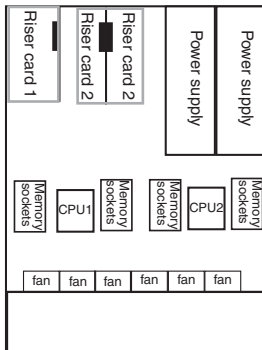

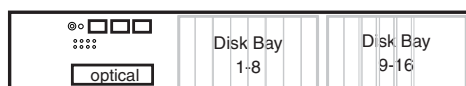
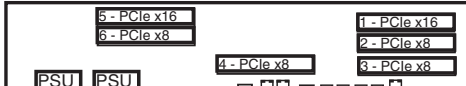
ThinkServer® RD640 (70B1) - TopSeller

Personal Systems Reference (PSREF)

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B10000US	2xE5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	16GBx4	8x2.5"	RAID700 +Battery	3x300GB 2.5" SAS(RAID5)	DVD±RW	IDM	iKVM	350T2	Cable	800Wx2	Standard	1
70B10004UX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	8x2.5"	RAID500	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10005UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10006UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID710	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10007UX	1xE5-2640 v2 8C/2GHz/ 20MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10008UX	1xE5-2670 v2 10C/2.5GHz/ 25MB/1866MHz	8GBx1	8x2.5"	RAID710	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10009UX	1xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx1	8x2.5"	RAID710	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. Model in italics is Global model

- For detailed platform specifications, please see [ThinkServer RD640 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD640, please see [ThinkServer RD640 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors					2U Rack top 
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)					
Memory protection	ECC, memory mirroring, memory sparing					
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays					
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	* All RAID adapters supports SAS and SATA drives					
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 					
Cable mgmt (opt)	Optional cable management arm on selected models					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications					
	Front - 3.5" bay 					
	Front - 2.5" bay (Bay 9-16 comes with 16x2.5" models) 					
	Rear 					
	Front and Rear Ports Front: 2 USB 2.0, 1 VGA Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA					
	Expansion Slots Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 2: half-length, full-height, PCIe 3.0 x8 Slot 3: half-length, full-height, PCIe 3.0 x8 Slot 4: Low Profile, PCIe 3.0 x8 Slot 5-6 are available on dual processors models: Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 6: half-length, full-height, PCIe 3.0 x8					
	Mechanical <ul style="list-style-type: none"> • 2U rack with rail kit • 19"W x 28.9"D x 3.45"H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured 					

See footnotes for important warranty information
Model(s) announced October 29, 2013

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(70B1-1) October 2013

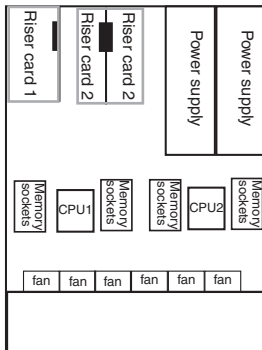

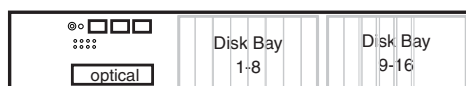
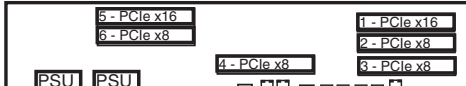
ThinkServer® RD640 (70B0) - TopSeller

Personal Systems Reference (PSREF)

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B00003US	2xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx19+ 4GBx1	16x2.5"	RAID710 +CacheCade	2x100GB SSD(cache,RAID1) +14x1TB 2.5" SATA(RAID50)	DVD	IDM Premium	iKVM	X520SR2 +350T4+350T4	Cable	800Wx2	Standard	1
70B00004US	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	4GBx2	16x2.5"	RAID500	2x900GB 2.5" SAS(RAID1)	No	IDM	IPMI	350T4	No	800Wx2	Standard	1
70B0000FUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID700 +Battery	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3
70B0000GUX	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx1	16x2.5"	RAID710	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. Model in italics is Global model

- For detailed platform specifications, please see [ThinkServer RD640 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD640, please see [ThinkServer RD640 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors					2U Rack top 
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)					
Memory protection	ECC, memory mirroring, memory sparing					
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays					
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	* All RAID adapters supports SAS and SATA drives					
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 					
Cable mgmt (opt)	Optional cable management arm on selected models					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications					
	Front - 3.5" bay 					
	Front - 2.5" bay (Bay 9-16 comes with 16x2.5" models) 					
	Rear 					
	Front and Rear Ports Front: 2 USB 2.0, 1 VGA Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA					
	Expansion Slots Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 2: half-length, full-height, PCIe 3.0 x8 Slot 3: half-length, full-height, PCIe 3.0 x8 Slot 4: Low Profile, PCIe 3.0 x8 Slot 5-6 are available on dual processors models: Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 6: half-length, full-height, PCIe 3.0 x8					
	Mechanical <ul style="list-style-type: none"> • 2U rack with rail kit • 19"W x 28.9"D x 3.45"H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured 					

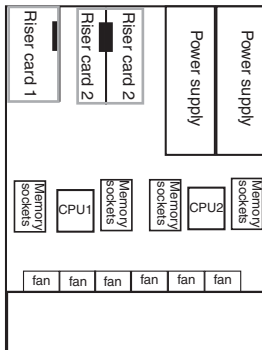
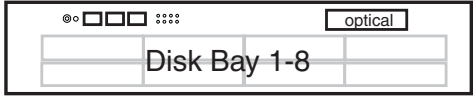
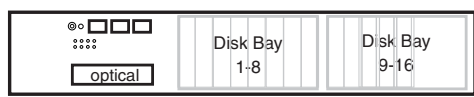

ThinkServer® RD640 (70AV)

Personal Systems Reference (PSREF)

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AV0000UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x3.5"	RAID500	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AV0001UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. Model in italics is Global model

- For detailed platform specifications, please see [ThinkServer RD640 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD640, please see [ThinkServer RD640 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors					2U Rack top 
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)					
Memory protection	ECC, memory mirroring, memory sparing					
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays					
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	* All RAID adapters supports SAS and SATA drives					
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 					
Cable mgmt (opt)	Optional cable management arm on selected models					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications					
	Front - 3.5" bay 					
	Front - 2.5" bay (Bay 9-16 comes with 16x2.5" models) 					
	Rear 					
	Front and Rear Ports Front: 2 USB 2.0, 1 VGA Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA					
	Expansion Slots Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 2: half-length, full-height, PCIe 3.0 x8 Slot 3: half-length, full-height, PCIe 3.0 x8 Slot 4: Low Profile, PCIe 3.0 x8 Slot 5-6 are available on dual processors models: Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 6: half-length, full-height, PCIe 3.0 x8					
	Mechanical <ul style="list-style-type: none"> • 2U rack with rail kit • 19"W x 28.9"D x 3.45"H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured 					

ThinkServer® RD640 (70AX)

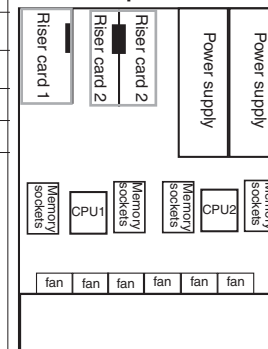
Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AX0000UX	1xE5-2620 6C/2GHz/ 15MB/1333MHz	8GBx1	8x2.5"	RAID700	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. Model in italics is Global model

- For detailed platform specifications, please see [ThinkServer RD640 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD640, please see [ThinkServer RD640 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors				
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin				
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)				
Memory protection	ECC, memory mirroring, memory sparing				
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays				
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key
* All RAID adapters supports SAS and SATA drives					
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface				
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management				
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 				
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part				
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)				
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 				
Cable mgmt (opt)	Optional cable management arm on selected models				
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies				
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications				

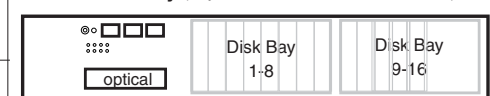
2U Rack top



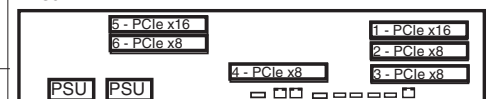
Front - 3.5" bay



Front - 2.5" bay (Bay 9-16 comes with 16x2.5" models)



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

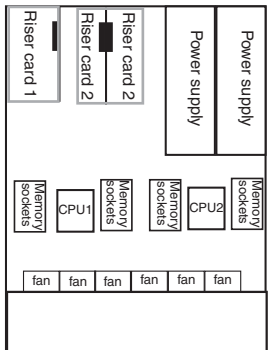
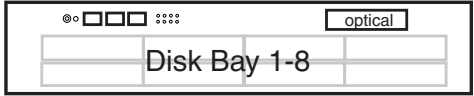
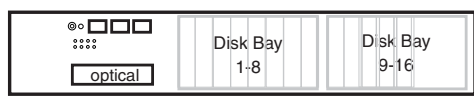

ThinkServer® RD640 (70AW)

Personal Systems Reference (PSREF)

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AW0005UX	1xE5-2620 v2 6C/2.1GHz/15MB/1600MHz	8GBx1	16x2.5"	RAID700	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. Model in italics is Global model

- For detailed platform specifications, please see [ThinkServer RD640 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD640, please see [ThinkServer RD640 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors					2U Rack top 
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)					
Memory protection	ECC, memory mirroring, memory sparing					
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays					
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	* All RAID adapters supports SAS and SATA drives					
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 					
Cable mgmt (opt)	Optional cable management arm on selected models					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications					
	Front - 3.5" bay 					
	Front - 2.5" bay (Bay 9-16 comes with 16x2.5" models) 					
	Rear 					
	Front and Rear Ports Front: 2 USB 2.0, 1 VGA Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA					
	Expansion Slots Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 2: half-length, full-height, PCIe 3.0 x8 Slot 3: half-length, full-height, PCIe 3.0 x8 Slot 4: Low Profile, PCIe 3.0 x8 Slot 5-6 are available on dual processors models: Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec) Slot 6: half-length, full-height, PCIe 3.0 x8					
	Mechanical <ul style="list-style-type: none"> • 2U rack with rail kit • 19"W x 28.9"D x 3.45"H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured 					

ThinkServer® RD640 Optional Configurations - Processor and Memory

Rack kit	Included in models																																																																																																																																																																																																																																																																																																																																																		
Processor	<p>Two LGA2011 sockets, supports up to two processors from Intel Xeon E5-2600 or Xeon E5-2600 v2 families, up to 8 cores (E5-2600 series)/12 cores (E5-2600 v2 series), two QPI links up to 8.0GT/s each, up to 20MB (E5-2600 series)/30MB (E5-2600 v2 series) cache, integrated 4-channel DDR3 memory controller up to 1600MHz (E5-2600 series)/1866MHz (E5-2600 v2 series).</p> <p>The following processor options are available:</p> <table border="1"> <thead> <tr> <th rowspan="2">Processor Number</th> <th colspan="8">Processors Specifications*</th> <th rowspan="2">Part Number</th> </tr> <tr> <th># of Cores</th> <th># of Threads</th> <th>Clock Speed</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>QPI Speed</th> <th>Max TDP</th> <th>Memory Speed</th> </tr> </thead> <tbody> <tr> <td colspan="10">Intel Xeon E5-2600 Series</td> </tr> <tr> <td>Xeon E5-2690</td> <td>8</td> <td>16</td> <td>2.9 GHz</td> <td>3.8 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>135 W</td> <td>DDR3-1600</td> <td>0A89429</td> </tr> <tr> <td>Xeon E5-2680</td> <td>8</td> <td>16</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1600</td> <td>0A89430</td> </tr> <tr> <td>Xeon E5-2670</td> <td>8</td> <td>16</td> <td>2.6 GHz</td> <td>3.3 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1600</td> <td>0A89431</td> </tr> <tr> <td>Xeon E5-2667</td> <td>6</td> <td>12</td> <td>2.9 GHz</td> <td>3.5 GHz</td> <td>15MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1600</td> <td>0A89435</td> </tr> <tr> <td>Xeon E5-2665</td> <td>8</td> <td>16</td> <td>2.4 GHz</td> <td>3.1 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1600</td> <td>0A89432</td> </tr> <tr> <td>Xeon E5-2660</td> <td>8</td> <td>16</td> <td>2.2 GHz</td> <td>3 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1600</td> <td>0A89462</td> </tr> <tr> <td>Xeon E5-2650L</td> <td>8</td> <td>16</td> <td>1.8 GHz</td> <td>2.3 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>70 W</td> <td>DDR3-1600</td> <td>0A89434</td> </tr> <tr> <td>Xeon E5-2650</td> <td>8</td> <td>16</td> <td>2 GHz</td> <td>2.8 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1600</td> <td>0A89433</td> </tr> <tr> <td>Xeon E5-2643</td> <td>4</td> <td>8</td> <td>3.3 GHz</td> <td>3.5 GHz</td> <td>10MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1600</td> <td>0A89440</td> </tr> <tr> <td>Xeon E5-2640</td> <td>6</td> <td>12</td> <td>2.5 GHz</td> <td>3 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1333</td> <td>0A89436</td> </tr> <tr> <td>Xeon E5-2630L</td> <td>6</td> <td>12</td> <td>2 GHz</td> <td>2.5 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>60 W</td> <td>DDR3-1333</td> <td>0A89439</td> </tr> <tr> <td>Xeon E5-2630</td> <td>6</td> <td>12</td> <td>2.3 GHz</td> <td>2.8 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1333</td> <td>0A89437</td> </tr> <tr> <td>Xeon E5-2620</td> <td>6</td> <td>12</td> <td>2 GHz</td> <td>2.5 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1333</td> <td>0A89438</td> </tr> <tr> <td>Xeon E5-2609</td> <td>4</td> <td>4</td> <td>2.4 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1066</td> <td>0A89441</td> </tr> <tr> <td>Xeon E5-2603</td> <td>4</td> <td>4</td> <td>1.8 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1066</td> <td>0A89442</td> </tr> <tr> <td colspan="10">Intel Xeon E5-2600 v2 Series</td> </tr> <tr> <td>Xeon E5-2697 v2</td> <td>12</td> <td>24</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>30MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1866</td> <td>0C19546</td> </tr> <tr> <td>Xeon E5-2695 v2</td> <td>12</td> <td>24</td> <td>2.4 GHz</td> <td>3.2 GHz</td> <td>30MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1866</td> <td>0C19547</td> </tr> <tr> <td>Xeon E5-2690 v2</td> <td>10</td> <td>20</td> <td>3 GHz</td> <td>3.6 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1866</td> <td>0C19548</td> </tr> <tr> <td>Xeon E5-2680 v2</td> <td>10</td> <td>20</td> <td>2.8 GHz</td> <td>3.6 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1866</td> <td>0C19549</td> </tr> <tr> <td>Xeon E5-2670 v2</td> <td>10</td> <td>20</td> <td>2.5 GHz</td> <td>3.3 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1866</td> <td>0C19550</td> </tr> <tr> <td>Xeon E5-2667 v2</td> <td>8</td> <td>16</td> <td>3.3 GHz</td> <td>4 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1866</td> <td>0C19553</td> </tr> <tr> <td>Xeon E5-2660 v2</td> <td>10</td> <td>20</td> <td>2.2 GHz</td> <td>3 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1866</td> <td>0C19551</td> </tr> <tr> <td>Xeon E5-2650 v2</td> <td>8</td> <td>16</td> <td>2.6 GHz</td> <td>3.4 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1866</td> <td>0C19552</td> </tr> <tr> <td>Xeon E5-2650L v2</td> <td>10</td> <td>20</td> <td>1.7 GHz</td> <td>2.1 GHz</td> <td>25MB</td> <td>7.2 GT/s</td> <td>70 W</td> <td>DDR3-1600</td> <td>0C19554</td> </tr> <tr> <td>Xeon E5-2640 v2</td> <td>8</td> <td>16</td> <td>2 GHz</td> <td>2.5 GHz</td> <td>20MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1600</td> <td>0C19555</td> </tr> <tr> <td>Xeon E5-2630 v2</td> <td>6</td> <td>12</td> <td>2.6 GHz</td> <td>3.1 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>80 W</td> <td>DDR3-1600</td> <td>0C19558</td> </tr> <tr> <td>Xeon E5-2630L v2</td> <td>6</td> <td>12</td> <td>2.4 GHz</td> <td>2.8 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>60 W</td> <td>DDR3-1600</td> <td>0C19556</td> </tr> <tr> <td>Xeon E5-2620 v2</td> <td>6</td> <td>12</td> <td>2.1 GHz</td> <td>2.6 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>80 W</td> <td>DDR3-1600</td> <td>0C19557</td> </tr> <tr> <td>Xeon E5-2609 v2</td> <td>4</td> <td>4</td> <td>2.5 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1333</td> <td>0C19559</td> </tr> <tr> <td>Xeon E5-2603 v2</td> <td>4</td> <td>4</td> <td>1.8 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1333</td> <td>0C19560</td> </tr> </tbody> </table> <p><i>Notes:</i> All processors specifications is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is". Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</p>	Processor Number	Processors Specifications*								Part Number	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	Intel Xeon E5-2600 Series										Xeon E5-2690	8	16	2.9 GHz	3.8 GHz	20MB	8 GT/s	135 W	DDR3-1600	0A89429	Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430	Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431	Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435	Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432	Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462	Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434	Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433	Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440	Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436	Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439	Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437	Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438	Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441	Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442	Intel Xeon E5-2600 v2 Series										Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546	Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547	Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548	Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549	Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550	Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553	Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551	Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552	Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554	Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555	Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558	Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556	Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557	Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559	Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560
Processor Number	Processors Specifications*								Part Number																																																																																																																																																																																																																																																																																																																																										
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Intel Xeon E5-2600 Series																																																																																																																																																																																																																																																																																																																																																			
Xeon E5-2690	8	16	2.9 GHz	3.8 GHz	20MB	8 GT/s	135 W	DDR3-1600	0A89429																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442																																																																																																																																																																																																																																																																																																																																										
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Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559																																																																																																																																																																																																																																																																																																																																										
Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560																																																																																																																																																																																																																																																																																																																																										
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin																																																																																																																																																																																																																																																																																																																																																		
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Memory capacity	Up to 320GB (16GBx20)																																																																																																																																																																																																																																																																																																																																																		
Memory protection	ECC, memory mirroring, memory sparing																																																																																																																																																																																																																																																																																																																																																		
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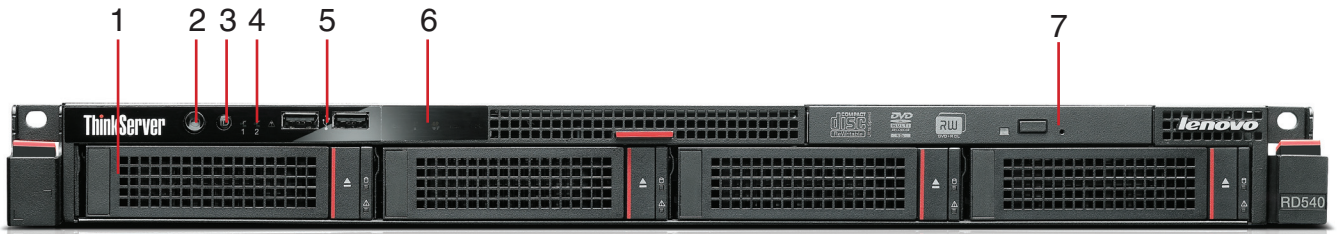
ThinkServer® RD640 Optional Configurations - Storage and RAID

Disk drive bays	Supports one of the following configurations: <ul style="list-style-type: none"> • 8 x 3.5" SAS/SATA disk drive bays • 8 x 2.5" SAS/SATA disk drive bays • 16 x 2.5" SAS/SATA disk drive bays 						
Disk drive options	Disk drive options						Part Number
	Hot-swap Disk drive for 3.5" bay						
	3.5" SATA Hard Drive						
	ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89473
	ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89474
	ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89475
	ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89477
	ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0C19520
	3.5" SAS Hard Drive						
	ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive						0C19530
	ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive						0C19531
	ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive						0C19532
	ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive						67Y2616
	ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive						67Y2618
	2.5" SSD for 3.5" disk bay						
	ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit						0C19571
	ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit						0C19572
	ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit						0C19573
	Hot-swap Disk drive for 2.5" bay						
	2.5" SATA Hard Drive						
	ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0C19495
	ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0C19496
	2.5" SAS Hard Drive						
	ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive						67Y2619
	ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive						67Y2621
	ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive						0A89409
	ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive						0C19494
	2.5" SSD						
ThinkServer 2.5" 100GB MLC SATA Solid State Drive						0A89420	
ThinkServer 2.5" 200GB MLC SATA Solid State Drive						0A89418	
ThinkServer 2.5" 400GB MLC SATA Solid State Drive						0A89419	
RAID support	RAID adapter	RAID support	Device Support	Cache	Host bus type	Data transfer rates (per port)	Optional upgrades
	ThinkServer RAID 500 (LSI® SAS 9240-8i)	0, 1, 10	SAS/SATA		PCI Express	6Gb/s	optional upgrade key, add RAID 5, 50 support
	ThinkServer RAID 700 (LSI SAS 9260-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	512MB	PCI Express	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
	ThinkServer RAID 710 (LSI SAS 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	1GB	PCI Express	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath
RAID options	RAID controller and RAID upgrade options						Part Number
	ThinkServer RAID 500 Adapter II						0A89464
	ThinkServer RAID 500 Upgrade Key for Advanced RAID						0A89407
	ThinkServer RAID 700 Adapter II						0A89463
	ThinkServer RAID 700 Battery						67Y2647
	ThinkServer RAID 710 Adapter						0C19489
	ThinkServer RAID 710 Super Capacitor Module (CacheVault)						0C19490
	ThinkServer RAID 710 FastPath Software Key						0C19491
ThinkServer RAID 710 CacheCade Pro 2.0 Software Key						0C19492	

ThinkServer® RD640 Optional Configurations - Network, System Management, Power Supply

Network options	Network and HBA options		Part Number
	ThinkServer 1 Gbps Ethernet I350-T2 Server Adapter by Intel		0C19506
	ThinkServer 1 Gbps Ethernet I350-T4 Server Adapter by Intel		0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel		0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel		0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel		0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel		0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic		0C19483
	HBA		
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex		0C19476
ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex		0C19478	
Security options	Trusted Platform Module options		Part Number
	ThinkServer Trusted Platform Module		0A89428
Systems management options	System Management options		Part Number
	ThinkServer Management Module Premium		67Y2624
Power supply options	Power supply options		Part Number
	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack		4X20E54690

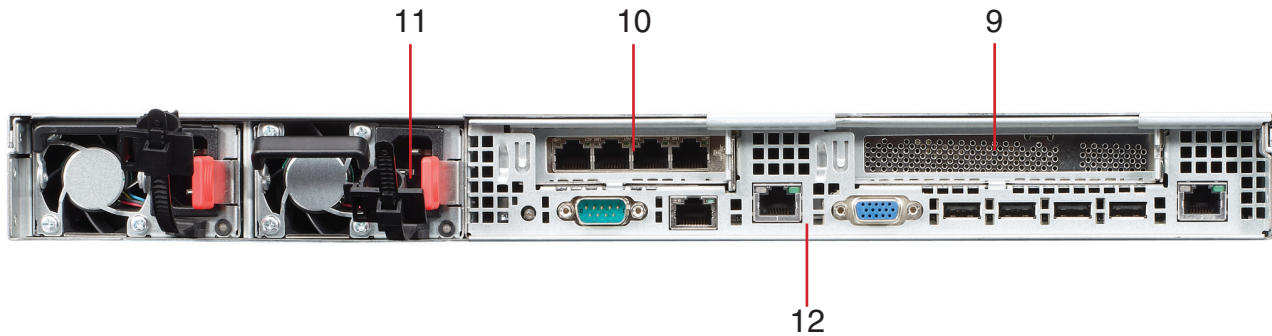
ThinkServer® RD540 Overview - Front and Rear



ThinkServer RD540 with 4x3.5" Disk Drive Bays



ThinkServer RD540 with 8x2.5" Disk Drive Bays



Front View

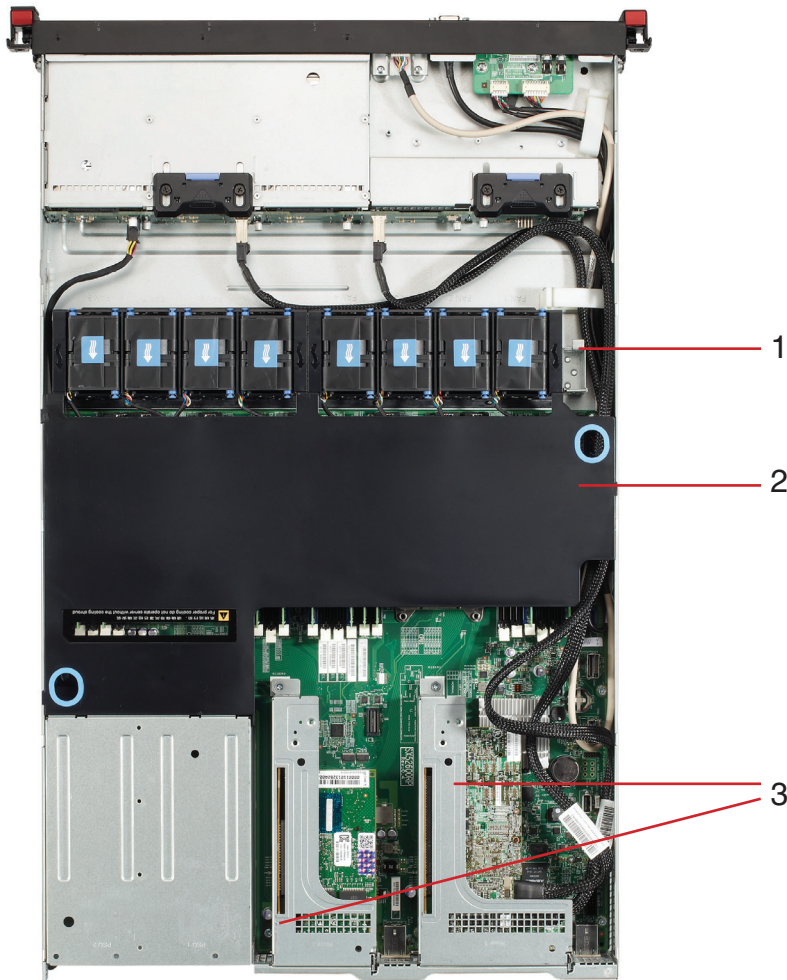
1. Hot-swap disk drive bays
2. Power Button with LED
3. ID button with LED
4. 2 Network interface status LEDs
5. 2 USB 2.0
6. Intelligent Diagnostics Module (optional)
7. Optical (optional, for 3.5" disk drive bay model)
8. VGA (for 2.5" disk drive bay model)

Rear View

9. PCI Express slots 1*
10. PCI Express slots 2*
11. Hot-swap power supplies
12. Rear ports:
 - 4 USB 2.0
 - 1 serial
 - 2 ethernet
 - 1 RJ-45 (dedicate/share mgmt)
 - 1 VGA

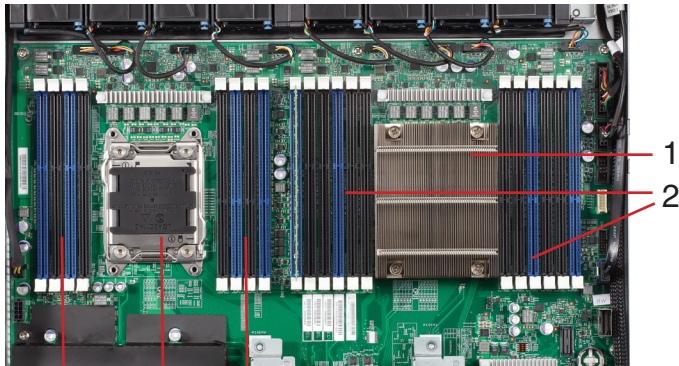
*Adapters are optional

ThinkServer® RD540 Overview - Internal



Internal View

1. Non-hot swap cooling fans
2. Processors and memory DIMM sockets (under cooling shroud, see below)
3. PCI Express slots (*Adapters are optional)

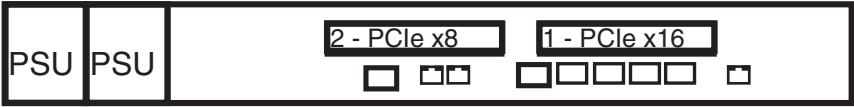


Processors and Memory DIMM Sockets (under cooling shroud)

1. CPU 1
2. 12 Memory DIMM sockets for CPU 1
3. CPU 2 (optional)
4. 8 Memory DIMM sockets for CPU 2 (for dual processors model)

4 3 4

ThinkServer® RD540 Platform Specifications

Components	Specifications																											
Chipset	Intel C602J Chipset																											
Mechanical	<ul style="list-style-type: none"> 1U rack 19"W x 28.9"D x 1.72"H (with rack handles) 482.4mm W x 734mm D x 43.6mm H (with rack handles) 17kg (37.5 lb) when fully configured 																											
Front ports	Two USB 2.0, one analog VGA DB-15 connector (for 8x2.5" disk bays models)																											
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector																											
Expansion Slots	 <p>Two PCI-Express slots via two riser cards, riser card 1 for slot 1, riser card 2 for slot 2 Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8</p>																											
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front (for 8x2.5" disk bays models), one VGA DB-15 on rear; <i>Maximum resolution: 1920x1200@60Hz</i>																											
Hot-swap parts	Disk drives, power supplies																											
Safety, environment, and certifications	Environmental certifications	<ul style="list-style-type: none"> Energy Star Server 2.0 qualified RoHS-compliant 																										
	EMC	FCC Class A, CSA CE																										
	240VA	Supports																										
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)																										
	Temperature - non operating (no package)	-10 °C to 60 °C																										
	Temperature - non operating (with package)	-40 °C to 70 °C																										
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)																										
	Humidity - operating	8%~80%, non-condensing																										
	Humidity - non operating (no package)	8%~80%, non-condensing																										
	Humidity - non operating (with package)	8%~90%, non-condensing																										
Acoustic noise (idle/working mode)	<table border="1"> <thead> <tr> <th>Category</th> <th>Normal Configuration</th> <th>High Performance Configuration</th> </tr> </thead> <tbody> <tr> <td>CPU</td> <td>1</td> <td>2</td> </tr> <tr> <td>HDD</td> <td>2x 900GB 2.5" SAS 6Gb/s</td> <td>8x 900GB 2.5" SAS 6Gb/s</td> </tr> <tr> <td>Memory</td> <td>1x 8GB 1600MHz LVRDIMM</td> <td>20x 8GB 1600MHz LVRDIMM</td> </tr> <tr> <td>PCIe adapters</td> <td>I350</td> <td>I350</td> </tr> <tr> <td>PSU</td> <td>1x 800W</td> <td>2x 800W</td> </tr> <tr> <td>RAID</td> <td>RAID 700 adapter</td> <td>RAID 700 adapter</td> </tr> <tr> <td>Sound Pressure (operating)</td> <td>38.6 dB(A)</td> <td>38.7 dB(A)</td> </tr> <tr> <td>Sound Pressure (idle)</td> <td>39.0 dB(A)</td> <td>40.0 dB(A)</td> </tr> </tbody> </table>	Category	Normal Configuration	High Performance Configuration	CPU	1	2	HDD	2x 900GB 2.5" SAS 6Gb/s	8x 900GB 2.5" SAS 6Gb/s	Memory	1x 8GB 1600MHz LVRDIMM	20x 8GB 1600MHz LVRDIMM	PCIe adapters	I350	I350	PSU	1x 800W	2x 800W	RAID	RAID 700 adapter	RAID 700 adapter	Sound Pressure (operating)	38.6 dB(A)	38.7 dB(A)	Sound Pressure (idle)	39.0 dB(A)	40.0 dB(A)
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Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AT0004UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID710	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT0008UX	1xE5-2603 v2 4C/1.8GHz/ 10MB/1333MHz	4GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT0009UX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT000BUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID700	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT000CUX	1xE5-2650L v2 10C/1.7GHz/ 25MB/1600MHz	8GBx1	4x3.5"	RAID700	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT000AUX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	4x3.5"	RAID700	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT0006UX	2xE5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	16Gx4	4x3.5"	RAID700 +Battery	3x500GB 3.5" SATA(RAID5)	DVD	No	iKVM	350T4	Cable	800Wx2	No	1
70AT0005US	2xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	4GBx20	4x3.5"	RAID710 +CacheVault +CacheCade	2x400GB SSD(cache,RAID1) +2x3TB 3.5" SAS (RAID1)	DVD±RW	No	iKVM	X520SR2	Cable	800Wx2	Standard	1

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

- For detailed platform specifications, please see [ThinkServer RD540 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD540, please see [ThinkServer RD540 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors																					
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin																					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)																					
Memory protection	ECC, memory mirroring, memory sparing																					
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays																					
RAID support	<table border="1"> <thead> <tr> <th>RAID adapter*</th> <th>RAID support</th> <th>Cache</th> <th>Transfer rates</th> <th>Optional upgrades</th> </tr> </thead> <tbody> <tr> <td>RAID 500 (LSI® 9240-8i)</td> <td>0, 1, 10</td> <td></td> <td>6Gb/s</td> <td>optional upgrade key, add RAID 5, 50 support</td> </tr> <tr> <td>RAID 700 (LSI 9260-8i)</td> <td>0, 1, 10, 5, 50, 6, 60</td> <td>512MB</td> <td>6Gb/s</td> <td>optional Intelligent Battery Backup Unit (iBBU08)</td> </tr> <tr> <td>RAID 710 (LSI 9270CV-8i)</td> <td>0, 1, 10, 5, 50, 6, 60</td> <td>1GB</td> <td>6Gb/s</td> <td> <ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key </td> </tr> </tbody> </table>		RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional Intelligent Battery Backup Unit (iBBU08)	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key
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RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60		1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 																	
	* All RAID adapters supports SAS and SATA drives ** RAID 50 and 60 are supported on 8x2.5" disk bays models																					
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical																					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management																					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 																					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,																					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)																					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 																					
Cable mgmt (opt)	Optional cable management arm on selected models																					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies																					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications																					
		2U Rack top Front - 2.5 inch bay Rear Front and Rear Ports Front: 2 USB 2.0 1 VGA (for 8x2.5" disk bays models) Rear: 4 USB 2.0 1 serial (9-pin) 2 ethernet (RJ-45) 1 RJ-45 (dedicate/share mgmt) 1 VGA Expansion Slots Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8 Mechanical <ul style="list-style-type: none"> • 1U rack • 19"W x 28.9"D x 1.72"H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured 																				

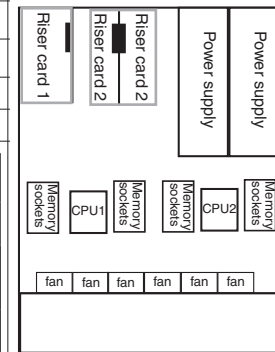
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70AU000SUX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000TUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000UUX	1xE5-2640 v2 8C/2GHz/ 20MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000VUX	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000WUX	1xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

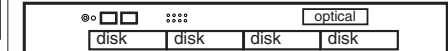
- For detailed platform specifications, please see [ThinkServer RD540 Platform Specifications sheets](#)
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Memory protection	ECC, memory mirroring, memory sparing																					
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays																					
RAID support	<table border="1"> <thead> <tr> <th>RAID adapter*</th> <th>RAID support</th> <th>Cache</th> <th>Transfer rates</th> <th>Optional upgrades</th> </tr> </thead> <tbody> <tr> <td>RAID 500 (LSI® 9240-8i)</td> <td>0, 1, 10</td> <td></td> <td>6Gb/s</td> <td>optional upgrade key, add RAID 5, 50 support</td> </tr> <tr> <td>RAID 700 (LSI 9260-8i)</td> <td>0, 1, 10, 5, 50, 6, 60</td> <td>512MB</td> <td>6Gb/s</td> <td>optional intelligent Battery Backup Unit (iBBU08)</td> </tr> <tr> <td>RAID 710 (LSI 9270CV-8i)</td> <td>0, 1, 10, 5, 50, 6, 60</td> <td>1GB</td> <td>6Gb/s</td> <td> <ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key </td> </tr> </tbody> </table>		RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key
	RAID adapter*		RAID support	Cache	Transfer rates	Optional upgrades																
	RAID 500 (LSI® 9240-8i)		0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support																
	RAID 700 (LSI 9260-8i)		0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)																
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	* All RAID adapters supports SAS and SATA drives																					
	** RAID 50 and 60 are supported on 8x2.5" disk bays models																					
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical																					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management																					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 																					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,																					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)																					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 																					
Cable mgmt (opt)	Optional cable management arm on selected models																					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies																					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications																					

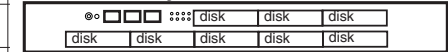
2U Rack top



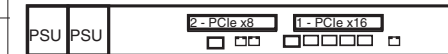
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

- Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
- Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

- Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

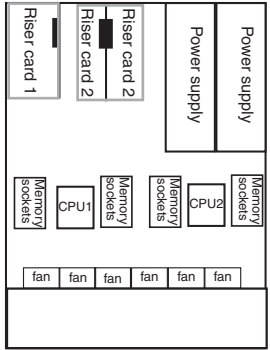
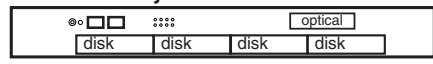
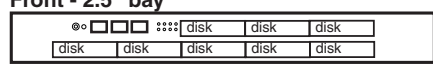
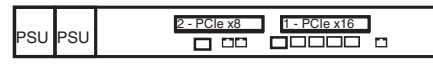
ThinkServer® RD540 (70AU) - TopSeller - II

Personal Systems Reference (PSREF)

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU000XUX	1xE5-2620 v2 6C/2.1GHz/15MB/1600MHz	8GBx1	8x2.5"	RAID710 +CacheVault	Open	No	No	iKVM	No	No	800Wx2	No	3
70AU000YUX	1xE5-2670 v2 10C/2.5GHz/25MB/1866MHz	8GBx1	8x2.5"	RAID710 +FastPath	Open	No	No	iKVM	No	No	800Wx2	No	3
70AU000FUX	2xE5-2690 v2 10C/3GHz/25MB/1866MHz	4GBx2	8x2.5"	RAID700	2x500GB 2.5" SATA(RAID1)	No	No	IPMI	350T2	No	800Wx2	No	1
70AU000DUS	2xE5-2660 v2 10C/2.2GHz/25MB/1866MHz	8GBx20	8x2.5"	RAID500 +upgrade	2x300GB 2.5" SAS(RAID1) +6x300GB 2.5" SAS(RAID50)	No	No	iKVM	X520SR2	Cable	800Wx2	Standard	1
70AU000EUX	1xE5-2620 v2 6C/2.1GHz/15MB/1600MHz	16Gx4	8x2.5"	RAID710 +FastPath	6x100GB SSD(RAID50)	No	No	IPMI	350T4	No	800Wx2	No	1

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

- For detailed platform specifications, please see [ThinkServer RD540 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD540, please see [ThinkServer RD540 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors	2U Rack top 																					
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin																						
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)																						
Memory protection	ECC, memory mirroring, memory sparing																						
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays																						
RAID support	<table border="1"> <thead> <tr> <th>RAID adapter*</th> <th>RAID support</th> <th>Cache</th> <th>Transfer rates</th> <th>Optional upgrades</th> </tr> </thead> <tbody> <tr> <td>RAID 500 (LSI® 9240-8i)</td> <td>0, 1, 10</td> <td></td> <td>6Gb/s</td> <td>optional upgrade key, add RAID 5, 50 support</td> </tr> <tr> <td>RAID 700 (LSI 9260-8i)</td> <td>0, 1, 10, 5, 50, 6, 60</td> <td>512MB</td> <td>6Gb/s</td> <td>optional intelligent Battery Backup Unit (iBBU08)</td> </tr> <tr> <td>RAID 710 (LSI 9270CV-8i)</td> <td>0, 1, 10, 5, 50, 6, 60</td> <td>1GB</td> <td>6Gb/s</td> <td> <ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key </td> </tr> </tbody> </table>		RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	RAID adapter*		RAID support	Cache	Transfer rates	Optional upgrades																	
	RAID 500 (LSI® 9240-8i)		0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support																	
	RAID 700 (LSI 9260-8i)		0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)																	
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60		1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 																		
	* All RAID adapters supports SAS and SATA drives																						
	** RAID 50 and 60 are supported on 8x2.5" disk bays models																						
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical	Front - 3.5" bay 																					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management	Front - 2.5" bay 																					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter i350-T2 • Intel Ethernet Server Adapter i350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 	Rear 																					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,	Front and Rear Ports Front: 2 USB 2.0 1 VGA (for 8x2.5" disk bays models) Rear: 4 USB 2.0 1 serial (9-pin) 2 ethernet (RJ-45) 1 RJ-45 (dedicate/share mgmt) 1 VGA																					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) <i>70AU000FUX does not include TPM, additional TPM option is needed</i>																						
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 	Expansion Slots Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8																					
Cable mgmt (opt)	Optional cable management arm on selected models	Mechanical <ul style="list-style-type: none"> • 1U rack • 19"W x 28.9"D x 1.72"H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured 																					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies																						
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications																						

See footnotes for important warranty information
Model(s) announced October 29, 2013

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(70AU-2) October 2013

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AR0000UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AR0001UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

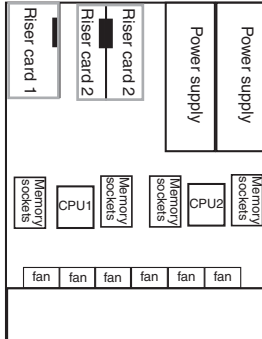
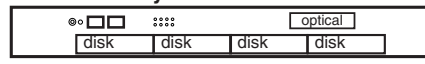
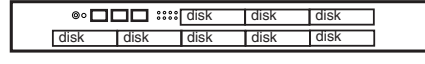
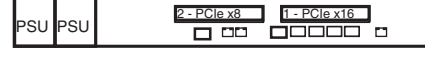
- For detailed platform specifications, please see [ThinkServer RD540 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD540, please see [ThinkServer RD540 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors					<h3>2U Rack top</h3> <h3>Front - 3.5" bay</h3> <h3>Front - 2.5" bay</h3> <h3>Rear</h3>
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)					
Memory protection	ECC, memory mirroring, memory sparing					
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays					
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	* All RAID adapters supports SAS and SATA drives ** RAID 50 and 60 are supported on 8x2.5" disk bays models					
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 					
Cable mgmt (opt)	Optional cable management arm on selected models					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications					
<h3>Front and Rear Ports</h3> Front: 2 USB 2.0 1 VGA (for 8x2.5" disk bays models) Rear: 4 USB 2.0 1 serial (9-pin) 2 ethernet (RJ-45) 1 RJ-45 (dedicate/share mgmt) 1 VGA						
<h3>Expansion Slots</h3> Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8						
<h3>Mechanical</h3> <ul style="list-style-type: none"> • 1U rack • 19"W x 28.9"D x 1.72"H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured 						

Type-model ¹	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AS0008UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AS000GUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	No	No	iKVM	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

- For detailed platform specifications, please see [ThinkServer RD540 Platform Specifications sheets](#)
- For optional configurations of ThinkServer RD540, please see [ThinkServer RD540 Optional Configurations sheets](#)

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors					2U Rack top 
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin					
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)					
Memory protection	ECC, memory mirroring, memory sparing					
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays					
RAID support	RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades	
	RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support	
	RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)	
	RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key 	
	* All RAID adapters supports SAS and SATA drives ** RAID 50 and 60 are supported on 8x2.5" disk bays models					
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical					
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management					
Discrete network (optional)	<ul style="list-style-type: none"> • Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter 					
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,					
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)					
Systems management (Optional iKVM)	<ul style="list-style-type: none"> • Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate 					
Cable mgmt (opt)	Optional cable management arm on selected models					
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies					
Environmental certifications	<ul style="list-style-type: none"> • Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications					
	Front - 3.5" bay 					
	Front - 2.5" bay 					
	Rear 					
	Front and Rear Ports Front: 2 USB 2.0 1 VGA (for 8x2.5" disk bays models) Rear: 4 USB 2.0 1 serial (9-pin) 2 ethernet (RJ-45) 1 RJ-45 (dedicate/share mgmt) 1 VGA					
	Expansion Slots Slot 1: half-length, full-height, PCI Express 3.0 x16 Slot 2: Low Profile, PCI Express 3.0 x8					
	Mechanical <ul style="list-style-type: none"> • 1U rack • 19"W x 28.9"D x 1.72"H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured 					

ThinkServer® RD540 Optional Configurations - Processor and Memory

Rack kit	Included in models																																																																																																																																																																																																																																																																																																																																								
Processor	<p>Two LGA2011 sockets, supports up to two processors from Intel Xeon E5-2600 or Xeon E5-2600 v2 families, up to 8 cores (E5-2600 series)/12 cores (E5-2600 v2 series), two QPI links up to 8.0GT/s each, up to 20MB (E5-2600 series)/30MB (E5-2600 v2 series) cache, integrated 4-channel DDR3 memory controller up to 1600MHz (E5-2600 series)/1866MHz (E5-2600 v2 series).</p> <p>The following processor options are available:</p> <table border="1"> <thead> <tr> <th rowspan="2">Processor Number</th> <th colspan="8">Processors Specifications*</th> <th rowspan="2">Part Number</th> </tr> <tr> <th># of Cores</th> <th># of Threads</th> <th>Clock Speed</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>QPI Speed</th> <th>Max TDP</th> <th>Memory Speed</th> </tr> </thead> <tbody> <tr> <td colspan="10">Intel Xeon E5-2600 Series</td> </tr> <tr> <td>Xeon E5-2680</td> <td>8</td> <td>16</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1600</td> <td>0A89430</td> </tr> <tr> <td>Xeon E5-2670</td> <td>8</td> <td>16</td> <td>2.6 GHz</td> <td>3.3 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1600</td> <td>0A89431</td> </tr> <tr> <td>Xeon E5-2667</td> <td>6</td> <td>12</td> <td>2.9 GHz</td> <td>3.5 GHz</td> <td>15MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1600</td> <td>0A89435</td> </tr> <tr> <td>Xeon E5-2665</td> <td>8</td> <td>16</td> <td>2.4 GHz</td> <td>3.1 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1600</td> <td>0A89432</td> </tr> <tr> <td>Xeon E5-2660</td> <td>8</td> <td>16</td> <td>2.2 GHz</td> <td>3 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1600</td> <td>0A89462</td> </tr> <tr> <td>Xeon E5-2650L</td> <td>8</td> <td>16</td> <td>1.8 GHz</td> <td>2.3 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>70 W</td> <td>DDR3-1600</td> <td>0A89434</td> </tr> <tr> <td>Xeon E5-2650</td> <td>8</td> <td>16</td> <td>2 GHz</td> <td>2.8 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1600</td> <td>0A89433</td> </tr> <tr> <td>Xeon E5-2643</td> <td>4</td> <td>8</td> <td>3.3 GHz</td> <td>3.5 GHz</td> <td>10MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1600</td> <td>0A89440</td> </tr> <tr> <td>Xeon E5-2640</td> <td>6</td> <td>12</td> <td>2.5 GHz</td> <td>3 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1333</td> <td>0A89436</td> </tr> <tr> <td>Xeon E5-2630L</td> <td>6</td> <td>12</td> <td>2 GHz</td> <td>2.5 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>60 W</td> <td>DDR3-1333</td> <td>0A89439</td> </tr> <tr> <td>Xeon E5-2630</td> <td>6</td> <td>12</td> <td>2.3 GHz</td> <td>2.8 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1333</td> <td>0A89437</td> </tr> <tr> <td>Xeon E5-2620</td> <td>6</td> <td>12</td> <td>2 GHz</td> <td>2.5 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1333</td> <td>0A89438</td> </tr> <tr> <td>Xeon E5-2609</td> <td>4</td> <td>4</td> <td>2.4 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1066</td> <td>0A89441</td> </tr> <tr> <td>Xeon E5-2603</td> <td>4</td> <td>4</td> <td>1.8 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1066</td> <td>0A89442</td> </tr> <tr> <td colspan="10">Intel Xeon E5-2600 v2 Series</td> </tr> <tr> <td>Xeon E5-2697 v2</td> <td>12</td> <td>24</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>30MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1866</td> <td>0C19546</td> </tr> <tr> <td>Xeon E5-2695 v2</td> <td>12</td> <td>24</td> <td>2.4 GHz</td> <td>3.2 GHz</td> <td>30MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1866</td> <td>0C19547</td> </tr> <tr> <td>Xeon E5-2690 v2</td> <td>10</td> <td>20</td> <td>3 GHz</td> <td>3.6 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1866</td> <td>0C19548</td> </tr> <tr> <td>Xeon E5-2680 v2</td> <td>10</td> <td>20</td> <td>2.8 GHz</td> <td>3.6 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1866</td> <td>0C19549</td> </tr> <tr> <td>Xeon E5-2670 v2</td> <td>10</td> <td>20</td> <td>2.5 GHz</td> <td>3.3 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>115 W</td> <td>DDR3-1866</td> <td>0C19550</td> </tr> <tr> <td>Xeon E5-2667 v2</td> <td>8</td> <td>16</td> <td>3.3 GHz</td> <td>4 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>130 W</td> <td>DDR3-1866</td> <td>0C19553</td> </tr> <tr> <td>Xeon E5-2660 v2</td> <td>10</td> <td>20</td> <td>2.2 GHz</td> <td>3 GHz</td> <td>25MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1866</td> <td>0C19551</td> </tr> <tr> <td>Xeon E5-2650 v2</td> <td>8</td> <td>16</td> <td>2.6 GHz</td> <td>3.4 GHz</td> <td>20MB</td> <td>8 GT/s</td> <td>95 W</td> <td>DDR3-1866</td> <td>0C19552</td> </tr> <tr> <td>Xeon E5-2650L v2</td> <td>10</td> <td>20</td> <td>1.7 GHz</td> <td>2.1 GHz</td> <td>25MB</td> <td>7.2 GT/s</td> <td>70 W</td> <td>DDR3-1600</td> <td>0C19554</td> </tr> <tr> <td>Xeon E5-2640 v2</td> <td>8</td> <td>16</td> <td>2 GHz</td> <td>2.5 GHz</td> <td>20MB</td> <td>7.2 GT/s</td> <td>95 W</td> <td>DDR3-1600</td> <td>0C19555</td> </tr> <tr> <td>Xeon E5-2630 v2</td> <td>6</td> <td>12</td> <td>2.6 GHz</td> <td>3.1 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>80 W</td> <td>DDR3-1600</td> <td>0C19558</td> </tr> <tr> <td>Xeon E5-2630L v2</td> <td>6</td> <td>12</td> <td>2.4 GHz</td> <td>2.8 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>60 W</td> <td>DDR3-1600</td> <td>0C19556</td> </tr> <tr> <td>Xeon E5-2620 v2</td> <td>6</td> <td>12</td> <td>2.1 GHz</td> <td>2.6 GHz</td> <td>15MB</td> <td>7.2 GT/s</td> <td>80 W</td> <td>DDR3-1600</td> <td>0C19557</td> </tr> <tr> <td>Xeon E5-2609 v2</td> <td>4</td> <td>4</td> <td>2.5 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1333</td> <td>0C19559</td> </tr> <tr> <td>Xeon E5-2603 v2</td> <td>4</td> <td>4</td> <td>1.8 GHz</td> <td></td> <td>10MB</td> <td>6.4 GT/s</td> <td>80 W</td> <td>DDR3-1333</td> <td>0C19560</td> </tr> </tbody> </table> <p><i>Notes:</i> All processors specifications is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is". Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</p>	Processor Number	Processors Specifications*								Part Number	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	Intel Xeon E5-2600 Series										Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430	Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431	Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435	Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432	Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462	Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434	Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433	Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440	Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436	Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439	Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437	Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438	Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441	Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442	Intel Xeon E5-2600 v2 Series										Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546	Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547	Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548	Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549	Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550	Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553	Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551	Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552	Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554	Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555	Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558	Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556	Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557	Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559	Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560
Processor Number	Processors Specifications*								Part Number																																																																																																																																																																																																																																																																																																																																
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Intel Xeon E5-2600 Series																																																																																																																																																																																																																																																																																																																																									
Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430																																																																																																																																																																																																																																																																																																																																
Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431																																																																																																																																																																																																																																																																																																																																
Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435																																																																																																																																																																																																																																																																																																																																
Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432																																																																																																																																																																																																																																																																																																																																
Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462																																																																																																																																																																																																																																																																																																																																
Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434																																																																																																																																																																																																																																																																																																																																
Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433																																																																																																																																																																																																																																																																																																																																
Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440																																																																																																																																																																																																																																																																																																																																
Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436																																																																																																																																																																																																																																																																																																																																
Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439																																																																																																																																																																																																																																																																																																																																
Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437																																																																																																																																																																																																																																																																																																																																
Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438																																																																																																																																																																																																																																																																																																																																
Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441																																																																																																																																																																																																																																																																																																																																
Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442																																																																																																																																																																																																																																																																																																																																
Intel Xeon E5-2600 v2 Series																																																																																																																																																																																																																																																																																																																																									
Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546																																																																																																																																																																																																																																																																																																																																
Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547																																																																																																																																																																																																																																																																																																																																
Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548																																																																																																																																																																																																																																																																																																																																
Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549																																																																																																																																																																																																																																																																																																																																
Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550																																																																																																																																																																																																																																																																																																																																
Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553																																																																																																																																																																																																																																																																																																																																
Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551																																																																																																																																																																																																																																																																																																																																
Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552																																																																																																																																																																																																																																																																																																																																
Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554																																																																																																																																																																																																																																																																																																																																
Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555																																																																																																																																																																																																																																																																																																																																
Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558																																																																																																																																																																																																																																																																																																																																
Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556																																																																																																																																																																																																																																																																																																																																
Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557																																																																																																																																																																																																																																																																																																																																
Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559																																																																																																																																																																																																																																																																																																																																
Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560																																																																																																																																																																																																																																																																																																																																
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin																																																																																																																																																																																																																																																																																																																																								
Memory DIMM sockets	twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)																																																																																																																																																																																																																																																																																																																																								
Memory capacity	Up to 320GB (16GBx20)																																																																																																																																																																																																																																																																																																																																								
Memory protection	ECC, memory mirroring, memory sparing																																																																																																																																																																																																																																																																																																																																								
Memory options	<table border="1"> <thead> <tr> <th>Memory options</th> <th>Part Number</th> </tr> </thead> <tbody> <tr> <td>ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM</td> <td>0C19533</td> </tr> <tr> <td>ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM</td> <td>0C19534</td> </tr> <tr> <td>ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM</td> <td>0C19535</td> </tr> </tbody> </table> <p><i>Notes:</i> ● Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs ● By default, the voltage of LV RDIMM is 1.5V and can be changed to 1.35V in BIOS setting ● When using Intel Xeon E5-2600 series processors, LV RIMM is needed to run at 1.5V to support all 20 memory DIMM sockets. If LV RIMM runs at 1.35V, only 16 memory DIMM sockets are functional (8 of 12 for CPU 1, 8 for CPU 2)</p>	Memory options	Part Number	ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533	ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534	ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535																																																																																																																																																																																																																																																																																																																																
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ThinkServer® RD540 Optional Configurations - Storage and RAID

Disk drive bays	Supports one of the following configurations: <ul style="list-style-type: none"> • 8 x 3.5" SAS/SATA disk drive bays • 8 x 2.5" SAS/SATA disk drive bays • 16 x 2.5" SAS/SATA disk drive bays 						
Disk drive options	Disk drive options						Part Number
	Hot-swap Disk drive for 3.5" bay						
	3.5" SATA Hard Drive						
	ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89473
	ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89474
	ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89475
	ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0A89477
	ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0C19520
	3.5" SAS Hard Drive						
	ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive						0C19530
	ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive						0C19531
	ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive						0C19532
	ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive						67Y2616
	ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive						67Y2618
	2.5" SSD for 3.5" disk bay						
	ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit						0C19571
	ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit						0C19572
	ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit						0C19573
	Hot-swap Disk drive for 2.5" bay						
	2.5" SATA Hard Drive						
	ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0C19495
	ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive						0C19496
	2.5" SAS Hard Drive						
	ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive						67Y2619
	ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive						67Y2621
	ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive						0A89409
	ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive						0C19494
	2.5" SSD						
ThinkServer 2.5" 100GB MLC SATA Solid State Drive						0A89420	
ThinkServer 2.5" 200GB MLC SATA Solid State Drive						0A89418	
ThinkServer 2.5" 400GB MLC SATA Solid State Drive						0A89419	
RAID support	RAID adapter	RAID support	Device Support	Cache	Host bus type	Data transfer rates (per port)	Optional upgrades
	ThinkServer RAID 500 (LSI® SAS 9240-8i)	0, 1, 10	SAS/SATA		PCI Express	6Gb/s	optional upgrade key, add RAID 5, 50 support
	ThinkServer RAID 700 (LSI SAS 9260-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	512MB	PCI Express	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
	ThinkServer RAID 710 (LSI SAS 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	1GB	PCI Express	6Gb/s	<ul style="list-style-type: none"> • optional CacheVault flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath
RAID options	RAID controller and RAID upgrade options						Part Number
	ThinkServer RAID 500 Adapter II						0A89464
	ThinkServer RAID 500 Upgrade Key for Advanced RAID						0A89407
	ThinkServer RAID 700 Adapter II						0A89463
	ThinkServer RAID 700 Battery						67Y2647
	ThinkServer RAID 710 Adapter						0C19489
	ThinkServer RAID 710 Super Capacitor Module (CacheVault)						0C19490
	ThinkServer RAID 710 FastPath Software Key						0C19491
ThinkServer RAID 710 CacheCade Pro 2.0 Software Key						0C19492	

ThinkServer® RD540 Optional Configurations - Network, System Management, Power Supply

Network options	Network and HBA options		Part Number
	ThinkServer 1 Gbps Ethernet I350-T2 Server Adapter by Intel		0C19506
	ThinkServer 1 Gbps Ethernet I350-T4 Server Adapter by Intel		0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel		0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel		0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel		0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel		0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic		0C19483
	HBA		
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex		0C19476
ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex		0C19478	
Security options	Trusted Platform Module options		Part Number
	ThinkServer Trusted Platform Module		0A89428
Systems management options	System Management options		Part Number
	ThinkServer Management Module Premium		67Y2624
Power supply options	Power supply options		Part Number
	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack		4X20E54690

Partial list of Lenovo Services for ThinkServer TS Series

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

Upgrade options for 1-year base warranty models	
Next Business Day (NBD) 9x5	
3-year Onsite Next Business Day 9x5	45K4055
4-year Onsite Next Business Day 9x5	51J0723
5-year Onsite Next Business Day 9x5	51J0725
Next Business Day 9x5 + KYD (KYD: Keep Your Drive)	
3-year Onsite NBD + 3-year KYD	0C08043
4-year Onsite NBD + 4-year KYD	0C08055
5-year Onsite NBD + 5-year KYD	0C08061
9x5x4 (x4: 4-hour Onsite Response Time)	
1-year Onsite 9x5x4	0C08028
3-year Onsite 9x5x4	0C08039
4-year Onsite 9x5x4	0C08051
5-year Onsite 9x5x4	0C08059
9x5x4 + KYD	
1-year Onsite 9x5x4 + 1-year KYD	0C08029
3-year Onsite 9x5x4 + 3-year KYD	0C08040
4-year Onsite 9x5x4 + 4-year KYD	0C08052
5-year Onsite 9x5x4 + 5-year KYD	0C08060
24x7x8 (x8: 8-hour Onsite Response Time)	
1-year Onsite 24x7x8	0C08024
3-year Onsite 24x7x8	0C08035
4-year Onsite 24x7x8	0C08047
5-year Onsite 24x7x8	0C08057
24x7x8 + KYD	
1-year Onsite 24x7x8 + 1-year KYD	0C08025
3-year Onsite 24x7x8 + 3-year KYD	0C08036
4-year Onsite 24x7x8 + 4-year KYD	0C08048
5-year Onsite 24x7x8 + 5-year KYD	0C08058
24x7x4	
3-year Onsite 24x7x4	5WS0E37825
4-year Onsite 24x7x4	5WS0E37824
5-year Onsite 24x7x4	5WS0E37826
Next Business Day 9x5 + Priority Technical Support	
1-year Onsite NBD + 1-year Priority	0C08032
Next Business Day 9x5 + Priority Technical Support + KYD	
4-year Onsite NBD + 4-year Priority + 4-year KYD	0C08056
9x5x4 + Priority Technical Support	
1-year Onsite 9x5x4 + 1-year Priority	0C08030
3-year Onsite 9x5x4 + 3-year Priority	0C08041
4-year Onsite 9x5x4 + 4-year Priority	0C08053
9x5x4 + Priority Technical Support + KYD	
1-year Onsite 9x5x4 + 1-year Priority + 1-year KYD	0C08031
3-year Onsite 9x5x4 + 3-year Priority + 3-year KYD	0C08042
4-year Onsite 9x5x4 + 4-year Priority + 4-year KYD	0C08054
24x7x8 + Priority Technical Support	
1-year Onsite 24x7x8 + 1-year Priority	0C08026
3-year Onsite 24x7x8 + 3-year Priority	0C08037
4-year Onsite 24x7x8 + 4-year Priority	0C08049
24x7x8 + Priority Technical Support + KYD	
1-year Onsite 24x7x8 + 1-year Priority + 1-year KYD	0C08027
3-year Onsite 24x7x8 + 3-year Priority + 3-year KYD	0C08038
4-year Onsite 24x7x8 + 4-year Priority + 4-year KYD	0C08050
24x7x4 + Priority Technical Support	
1-year Onsite 24x7x4 + 1-year Priority	0C08022
3-year Onsite 24x7x4 + 3-year Priority	0C08033
4-year Onsite 24x7x4 + 4-year Priority	0C08045
24x7x4 + Priority Technical Support + KYD	
1-year Onsite 24x7x4 + 1-year Priority + 1-year KYD	0C08023
3-year Onsite 24x7x4 + 3-year Priority + 3-year KYD	0C08034
4-year Onsite 24x7x4 + 4-year Priority + 4-year KYD	0C08046

24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window
(requires Location Activation)

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
- Best coverage for business critical work loads

9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window
(requires Location Activation)

- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.

24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window
(requires Location Activation)

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.

Priority Technical Support

Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.

Keep Your Drive (KYD) Service

Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.

To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool:

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

Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page:

<http://www.lenovo.com/activation>

Partial list of Lenovo Services for ThinkServer TS Series		
For more information see: http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html		
Upgrade options for 3-year base warranty models		
Next Business Day (NBD) 9x5		
4-year Onsite Next Business Day 9x5	51J0727	24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window <i>(requires Location Activation)</i> <ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours. • Best coverage for business critical work loads
5-year Onsite Next Business Day 9x5	51J0729	
9x5x4 (x4: 4-hour Onsite Response Time)		
3-year Onsite 9x5x4	0C08068	9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window <i>(requires Location Activation)</i> <ul style="list-style-type: none"> • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
4-year Onsite 9x5x4	0C08078	
5-year Onsite 9x5x4	0C08089	
9x5x4 + KYD (KYD: Keep Your Drive)		24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window <i>(requires Location Activation)</i> <ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.
3-year Onsite 9x5x4 + 3-year KYD	0C08069	
4-year Onsite 9x5x4 + 4-year KYD	0C08079	
5-year Onsite 9x5x4 + 5-year KYD	0C08090	
24x7x8 (x8: 8-hour Onsite Response Time)		Priority Technical Support Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.
3-year Onsite 24x7x8	0C08064	
4-year Onsite 24x7x8	0C08074	
5-year Onsite 24x7x8	0C08085	Keep Your Drive (KYD) Service Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.
24x7x8 + KYD		
3-year Onsite 24x7x8 + 3-year KYD	0C08065	
4-year Onsite 24x7x8 + 4-year KYD	0C08075	To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool: http://www.lenovo.com/services_warranty/us/en/locator.html Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation
5-year Onsite 24x7x8 + 5-year KYD	0C08086	
24x7x4		
3-year Onsite 24x7x4	5WS0E37827	
4-year Onsite 24x7x4	5WS0E37828	
5-year Onsite 24x7x4	5WS0E37823	
Next Business Day 9x5 + Priority Technical Support + KYD		
4-year Onsite NBD + 4-year Priority + 4-year KYD	0C08082	
5-year Onsite NBD + 5-year Priority + 5-year KYD	0C08093	
9x5x4 + Priority Technical Support		
3-year Onsite 9x5x4 + 3-year Priority	0C08070	
4-year Onsite 9x5x4 + 4-year Priority	0C08080	
5-year Onsite 9x5x4 + 5-year Priority	0C08091	
9x5x4 + Priority Technical Support + KYD		
3-year Onsite 9x5x4 + 3-year Priority + 3-year KYD	0C08071	
4-year Onsite 9x5x4 + 4-year Priority + 4-year KYD	0C08081	
5-year Onsite 9x5x4 + 5-year Priority + 5-year KYD	0C08092	
24x7x8 + Priority Technical Support		
3-year Onsite 24x7x8 + 3-year Priority	0C08066	
4-year Onsite 24x7x8 + 4-year Priority	0C08076	
5-year Onsite 24x7x8 + 5-year Priority	0C08087	
24x7x8 + Priority Technical Support + KYD		
3-year Onsite 24x7x8 + 3-year Priority + 3-year KYD	0C08067	
4-year Onsite 24x7x8 + 4-year Priority + 4-year KYD	0C08077	
5-year Onsite 24x7x8 + 5-year Priority + 5-year KYD	0C08088	
24x7x4 + Priority Technical Support		
3-year Onsite 24x7x4 + 3-year Priority	0C08062	
4-year Onsite 24x7x4 + 4-year Priority	0C08072	
5-year Onsite 24x7x4 + 5-year Priority	0C08083	
24x7x4 + Priority Technical Support + KYD		
3-year Onsite 24x7x4 + 3-year Priority + 3-year KYD	0C08063	
4-year Onsite 24x7x4 + 4-year Priority + 4-year KYD	0C08073	
5-year Onsite 24x7x4 + 5-year Priority + 5-year KYD	0C08084	

Partial list of Lenovo Services for ThinkServer TD Series

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

Upgrade options for 1-year base warranty models	Upgrade options for 3-year base warranty models
Next Business Day (NBD) 9x5 3-year Next Business Day 9x5 45K4062 4-year Next Business Day 9x5 51J0731 5-year Next Business Day 9x5 51J0733	Next Business Day (NBD) 9x5 4-year Onsite Next Business Day 9x5 51J0735 5-year Onsite Next Business Day 9x5 51J0737
Next Business Day 9x5 + KYD (KYD: Keep Your Drive) 3-year Onsite NBD + 3-year KYD 0C08115 4-year Onsite NBD + 4-year KYD 0C08127 5-year Onsite NBD + 5-year KYD 0C08133	9x5x4 (x4: 4-hour Onsite Response Time) 3-year Onsite 9x5x4 0C08140 4-year Onsite 9x5x4 0C08150 5-year Onsite 9x5x4 0C08161
9x5x4 (x4: 4-hour Onsite Response Time) 1-year Onsite 9x5x4 0C08100 3-year Onsite 9x5x4 0C08111 4-year Onsite 9x5x4 0C08123 5-year Onsite 9x5x4 0C08131	9x5x4 + KYD (KYD: Keep Your Drive) 3-year Onsite 9x5x4 + 3-year KYD 0C08141 4-year Onsite 9x5x4 + 4-year KYD 0C08151 5-year Onsite 9x5x4 + 5-year KYD 0C08162
9x5x4 + KYD 1-year Onsite 9x5x4 + 1-year KYD 0C08101 3-year Onsite 9x5x4 + 3-year KYD 0C08112 4-year Onsite 9x5x4 + 4-year KYD 0C08124 5-year Onsite 9x5x4 + 5-year KYD 0C08132	24x7x8 (x8: 8-hour Onsite Response Time) 3-year Onsite 24x7x8 0C08136 4-year Onsite 24x7x8 0C08146 5-year Onsite 24x7x8 0C08157
24x7x8 (x8: 8-hour Onsite Response Time) 1-year Onsite 24x7x8 0C08096 3-year Onsite 24x7x8 0C08107 4-year Onsite 24x7x8 0C08119 5-year Onsite 24x7x8 0C08129	24x7x8 + KYD 3-year Onsite 24x7x8 + 3-year KYD 0C08137 4-year Onsite 24x7x8 + 4-year KYD 0C08147 5-year Onsite 24x7x8 + 5-year KYD 0C08158
24x7x8 + KYD 1-year Onsite 24x7x8 + 1-year KYD 0C08097 3-year Onsite 24x7x8 + 3-year KYD 0C08108 4-year Onsite 24x7x8 + 4-year KYD 0C08120 5-year Onsite 24x7x8 + 5-year KYD 0C08130	Next Business Day 9x5 + Priority Technical Support + KYD 4-year Onsite NBD + 4-year Priority + 4-year KYD 0C08154 5-year Onsite NBD + 5-year Priority + 5-year KYD 0C08165
Next Business Day 9x5 + Priority Technical Support 1-year Onsite NBD + 1-year Priority 0C08104	9x5x4 + Priority Technical Support 3-year Onsite 9x5x4 + 3-year Priority 0C08142 4-year Onsite 9x5x4 + 4-year Priority 0C08152 5-year Onsite 9x5x4 + 5-year Priority 0C08163
Next Business Day 9x5 + Priority Technical Support + KYD 3-year Onsite NBD + 3-year Priority + 3-year KYD 0C08116 4-year Onsite NBD + 4-year Priority + 4-year KYD 0C08128	9x5x4 + Priority Technical Support + KYD 3-year Onsite 9x5x4 + 3-year Priority + 3-year KYD 0C08143 4-year Onsite 9x5x4 + 4-year Priority + 4-year KYD 0C08153 5-year Onsite 9x5x4 + 5-year Priority + 5-year KYD 0C08164
9x5x4 + Priority Technical Support 1-year Onsite 9x5x4 + 1-year Priority 0C08102 3-year Onsite 9x5x4 + 3-year Priority 0C08113 4-year Onsite 9x5x4 + 4-year Priority 0C08125	24x7x8 + Priority Technical Support 3-year Onsite 24x7x8 + 3-year Priority 0C08138 4-year Onsite 24x7x8 + 4-year Priority 0C08148 5-year Onsite 24x7x8 + 5-year Priority 0C08159
9x5x4 + Priority Technical Support + KYD 1-year Onsite 9x5x4 + 1-year Priority + 1-year KYD 0C08103 3-year Onsite 9x5x4 + 3-year Priority + 3-year KYD 0C08114 4-year Onsite 9x5x4 + 4-year Priority + 4-year KYD 0C08126	24x7x8 + Priority Technical Support + KYD 3-year Onsite 24x7x8 + 3-year Priority + 3-year KYD 0C08139 4-year Onsite 24x7x8 + 4-year Priority + 4-year KYD 0C08149 5-year Onsite 24x7x8 + 5-year Priority + 5-year KYD 0C08160
24x7x8 + Priority Technical Support 1-year Onsite 24x7x8 + 1-year Priority 0C08098 3-year Onsite 24x7x8 + 3-year Priority 0C08109 4-year Onsite 24x7x8 + 4-year Priority 0C08121	24x7x4 + Priority Technical Support 3-year Onsite 24x7x4 + 3-year Priority 0C08134 4-year Onsite 24x7x4 + 4-year Priority 0C08144 5-year Onsite 24x7x4 + 5-year Priority 0C08155
24x7x8 + Priority Technical Support + KYD 1-year Onsite 24x7x8 + 1-year Priority + 1-year KYD 0C08099 3-year Onsite 24x7x8 + 3-year Priority + 3-year KYD 0C08110 4-year Onsite 24x7x8 + 4-year Priority + 4-year KYD 0C08122	24x7x4 + Priority Technical Support + KYD 3-year Onsite 24x7x4 + 3-year Priority + 3-year KYD 0C08135 4-year Onsite 24x7x4 + 4-year Priority + 4-year KYD 0C08145 5-year Onsite 24x7x4 + 5-year Priority + 5-year KYD 0C08156
24x7x4 + Priority Technical Support 1-year Onsite 24x7x4 + 1-year Priority 0C08094 3-year Onsite 24x7x4 + 3-year Priority 0C08105 4-year Onsite 24x7x4 + 4-year Priority 0C08117	24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window <i>(requires Location Activation)</i> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours. • Best coverage for business critical work loads
24x7x4 + Priority Technical Support + KYD 1-year Onsite 24x7x4 + 1-year Priority + 1-year KYD 0C08095 3-year Onsite 24x7x4 + 3-year Priority + 3-year KYD 0C08106 4-year Onsite 24x7x4 + 4-year Priority + 4-year KYD 0C08118	9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window <i>(requires Location Activation)</i> • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
	24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window <i>(requires Location Activation)</i> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.
	Priority Technical Support Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.
	Keep Your Drive (KYD) Service Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.
	To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool: http://www.lenovo.com/services_warranty/us/en/locator.html Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation

Partial list of Lenovo Services for ThinkServer RD Series	
For more information see: http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html	
Upgrade options for 1-year base warranty models	Upgrade options for 3-year base warranty models
Next Business Day (NBD) 9x5	Next Business Day (NBD) 9x5
3-year Onsite Next Business Day 9x5 45K5305	4-year Onsite Next Business Day 9x5 51J0751
4-year Onsite Next Business Day 9x5 51J0747	5-year Onsite Next Business Day 9x5 51J0753
5-year Onsite Next Business Day 9x5 51J0749	
9x5x4 (x4: 4-hour Onsite Response Time)	9x5x4 (x4: 4-hour Onsite Response Time)
1-year Onsite 9x5x4 0C08331	3-year Onsite 9x5x4 0C08355
3-year Onsite 9x5x4 0C08337	4-year Onsite 9x5x4 0C08361
4-year Onsite 9x5x4 0C08343	5-year Onsite 9x5x4 0C08367
5-year Onsite 9x5x4 0C08349	
9x5x4 + KYD (KYD: Keep Your Drive)	9x5x4 + KYD (KYD: Keep Your Drive)
1-year Onsite 9x5x4 + 1-year KYD 0C08332	3-year Onsite 9x5x4 + 3-year KYD 0C08356
3-year Onsite 9x5x4 + 3-year KYD 0C08338	4-year Onsite 9x5x4 + 4-year KYD 0C08362
4-year Onsite 9x5x4 + 4-year KYD 0C08344	5-year Onsite 9x5x4 + 5-year KYD 0C08368
5-year Onsite 9x5x4 + 5-year KYD 0C08350	
24x7x8 (x8: 8-hour Onsite Response Time)	24x7x8 (x8: 8-hour Onsite Response Time)
1-year Onsite 24x7x8 0C08329	3-year Onsite 24x7x8 0C08353
3-year Onsite 24x7x8 0C08335	4-year Onsite 24x7x8 0C08359
4-year Onsite 24x7x8 0C08341	5-year Onsite 24x7x8 0C08365
5-year Onsite 24x7x8 0C08347	
24x7x8 + KYD	24x7x8 + KYD
1-year Onsite 24x7x8 + 1-year KYD 0C08330	3-year Onsite 24x7x8 + 3-year KYD 0C08354
3-year Onsite 24x7x8 + 3-year KYD 0C08336	4-year Onsite 24x7x8 + 4-year KYD 0C08360
4-year Onsite 24x7x8 + 4-year KYD 0C08342	5-year Onsite 24x7x8 + 5-year KYD 0C08366
5-year Onsite 24x7x8 + 5-year KYD 0C08348	
24x7x4	24x7x4
1-year Onsite 24x7x4 0C08333	3-year Onsite 24x7x4 0C08357
3-year Onsite 24x7x4 0C08339	4-year Onsite 24x7x4 0C08363
4-year Onsite 24x7x4 0C08345	5-year Onsite 24x7x4 0C08369
5-year Onsite 24x7x4 0C08351	
24x7x4 + KYD	24x7x4 + KYD
1-year Onsite 24x7x4 + 1-year KYD 0C08334	3-year Onsite 24x7x4 + 3-year KYD 0C08358
3-year Onsite 24x7x4 + 3-year KYD 0C08340	4-year Onsite 24x7x4 + 4-year KYD 0C08364
4-year Onsite 24x7x4 + 4-year KYD 0C08346	5-year Onsite 24x7x4 + 5-year KYD 0C08370
5-year Onsite 24x7x4 + 5-year KYD 0C08352	
9x5x4 + Priority Technical Support	9x5x4 + Priority Technical Support
1-year Onsite 9x5x4 + 1-year Priority 04W9730	3-year Onsite 9x5x4 + 3-year Priority 04W9754
3-year Onsite 9x5x4 + 3-year Priority 04W9736	4-year Onsite 9x5x4 + 4-year Priority 04W9760
4-year Onsite 9x5x4 + 4-year Priority 04W9742	5-year Onsite 9x5x4 + 5-year Priority 04W9766
5-year Onsite 9x5x4 + 5-year Priority 04W9748	
9x5x4 + Priority Technical Support + KYD	9x5x4 + Priority Technical Support + KYD
1-year Onsite 9x5x4 + 1-year Priority + 1-year KYD 04W9731	3-year Onsite 9x5x4 + 3-year Priority + 3-year KYD 04W9755
3-year Onsite 9x5x4 + 3-year Priority + 3-year KYD 04W9737	4-year Onsite 9x5x4 + 4-year Priority + 4-year KYD 04W9761
4-year Onsite 9x5x4 + 4-year Priority + 4-year KYD 04W9743	5-year Onsite 9x5x4 + 5-year Priority + 5-year KYD 04W9767
5-year Onsite 9x5x4 + 5-year Priority + 5-year KYD 04W9749	
24x7x8 + Priority Technical Support	24x7x8 + Priority Technical Support
1-year Onsite 24x7x8 + 1-year Priority 04W9728	3-year Onsite 24x7x8 + 3-year Priority 04W9752
3-year Onsite 24x7x8 + 3-year Priority 04W9734	4-year Onsite 24x7x8 + 4-year Priority 04W9758
4-year Onsite 24x7x8 + 4-year Priority 04W9740	5-year Onsite 24x7x8 + 5-year Priority 04W9764
5-year Onsite 24x7x8 + 5-year Priority 04W9746	
24x7x8 + Priority Technical Support + KYD	24x7x8 + Priority Technical Support + KYD
1-year Onsite 24x7x8 + 1-year Priority + 1-year KYD 04W9729	3-year Onsite 24x7x8 + 3-year Priority + 3-year KYD 04W9753
3-year Onsite 24x7x8 + 3-year Priority + 3-year KYD 04W9735	4-year Onsite 24x7x8 + 4-year Priority + 4-year KYD 04W9759
4-year Onsite 24x7x8 + 4-year Priority + 4-year KYD 04W9741	5-year Onsite 24x7x8 + 5-year Priority + 5-year KYD 04W9765
5-year Onsite 24x7x8 + 5-year Priority + 5-year KYD 04W9747	
24x7x4 + Priority Technical Support	24x7x4 + Priority Technical Support
1-year Onsite 24x7x4 + 1-year Priority 04W9726	3-year Onsite 24x7x4 + 3-year Priority 04W9750
3-year Onsite 24x7x4 + 3-year Priority 04W9732	4-year Onsite 24x7x4 + 4-year Priority 04W9756
4-year Onsite 24x7x4 + 4-year Priority 04W9738	5-year Onsite 24x7x4 + 5-year Priority 04W9762
5-year Onsite 24x7x4 + 5-year Priority 04W9744	
24x7x4 + Priority Technical Support + KYD	24x7x4 + Priority Technical Support + KYD
1-year Onsite 24x7x4 + 1-year Priority + 1-year KYD 04W9727	3-year Onsite 24x7x4 + 3-year Priority + 3-year KYD 04W9751
3-year Onsite 24x7x4 + 3-year Priority + 3-year KYD 04W9733	4-year Onsite 24x7x4 + 4-year Priority + 4-year KYD 04W9757
4-year Onsite 24x7x4 + 4-year Priority + 4-year KYD 04W9739	5-year Onsite 24x7x4 + 5-year Priority + 5-year KYD 04W9763
5-year Onsite 24x7x4 + 5-year Priority + 5-year KYD 04W9745	
	24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window (requires Location Activation)
	<ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours. • Best coverage for business critical work loads
	9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window (requires Location Activation)
	<ul style="list-style-type: none"> • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
	24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window (requires Location Activation)
	<ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.
	Priority Technical Support
	Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.
	Keep Your Drive (KYD) Service
	Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.
	To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool: http://www.lenovo.com/services_warranty/us/en/locator.html
	Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation

Partial list of Lenovo TopSeller Services for ThinkServer RD640 and RD540 with 3 year base warranty models

The TopSeller™ services are designed to make selling the popular services with TopSeller systems faster and easier. Channel partners should always use TopSeller services with TopSeller systems. TopSeller services part numbers typically provide enhanced discounts and incentives for channel partners. The TopSeller service delivered to the customer is identical to the service delivered using a standard service part number. In situations where a desired service is not offered under a TopSeller service part number or the sale requires a special bid process, use available standard service part numbers.

TopSeller services should always be offered by channel business partners with TopSeller hardware, unless the sale requires special bid pricing or the desired service is not offered as a TopSeller service part.

For more information see:

<http://www2.partnerinfo.lenovo.com/partners/us/resources/salestoolkit.shtml>

Upgrade options for 3-year base warranty models	
Next Business Day (NBD) 9x5	
4-year Onsite Next Business Day	5WS0F15470
9x5x4 (x4: 4-hour Onsite Response Time)	
3-year Onsite 9x5x4 Hour Response	5WS0D73787
4-year Onsite 9x5x4 Hour Response	5WS0D73791
24x7x4	
3-year Onsite 24x7x4 Hour Response	5WS0D73789
4-year Onsite 24x7x4 Hour Response	5WS0D73792
9x5x4 + Priority Technical Support	
3-year Onsite 9x5x4 Hour Response + Priority Technical Support	5WS0F15423
24x7x4 + Priority Technical Support	
3-year Onsite 24x7x4 Hour Response + Priority Technical Support	5WS0F15414
Priority Technical Support	
3-year Priority Technical Support	5WS0E76457
4-year Priority Technical Support	5WS0E76482
<i>Note:</i>	
24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window (requires Location Activation)	
<ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours. • Best coverage for business critical work loads 	
9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window (requires Location Activation)	
<ul style="list-style-type: none"> • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours. 	
24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window (requires Location Activation)	
<ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours. 	
Priority Technical Support	
Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.	
Keep Your Drive (KYD) Service	
Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.	
To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool: http://www.lenovo.com/services_warranty/us/en/locator.html	
Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation	

Partial list of Lenovo Services for ThinkServer RD640 and RD540 with 3 year base warranty models

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

Onsite warranty upgrade options	
3YR Onsite 24x7x4 Hour Response	5WS0F15458
3YR Onsite 24x7x8 Hour Response	5WS0F15392
3YR Onsite 9x5x4 Hour Response	5WS0F15355
4YR Onsite 24x7x4 Hour Response	5WS0F15443
4YR Onsite 24x7x8 Hour Response	5WS0F15395
4YR Onsite 9x5x4 Hour Response	5WS0F15394
4YR Onsite NBD	5WS0F15415
5YR Onsite 24x7x4 Hour Response	5WS0F15377
5YR Onsite 24x7x8 Hour Response	5WS0F15440
5YR Onsite 9x5x4 Hour Response	5WS0F15430
5YR Onsite NBD	5WS0F15419
Onsite warranty with Keep Your Drive (KYD) Service	
3YR Keep Your Drive	5PS0F15436
3YR Onsite 24x7x4 Hour Response + Keep Your Drive	5PS0F15376
3YR Onsite 24x7x8 Hour Response + Keep Your Drive	5PS0F15349
3YR Onsite 9x5x4 Hour Response + Keep Your Drive	5PS0F15448
4YR Onsite 24x7x4 Hour Response + Keep Your Drive	5PS0F15389
4YR Onsite 24x7x8 Hour Response + Keep Your Drive	5PS0F15359
4YR Onsite 9x5x4 Hour Response + Keep Your Drive	5PS0F15456
4YR Onsite NBD + Keep Your Drive	5PS0F15459
5YR Onsite 24x7x4 Hour Response + Keep Your Drive	5PS0F15402
5YR Onsite 24x7x8 Hour Response + Keep Your Drive	5PS0F15381
5YR Onsite 9x5x4 Hour Response + Keep Your Drive	5PS0F15366
5YR Onsite NBD + Keep Your Drive	5PS0F15391
Priority Technical Support	
3YR Keep Your Drive + Priority Support	5PS0F15417
3YR Onsite 24x7x4 Hour Response + Keep Your Drive + Priority Support	5PS0F15352
3YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15399
3YR Onsite 24x7x8 Hour Response + Keep Your Drive + Priority Support	5PS0F15444
3YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15418
3YR Onsite 9x5x4 Hour Response + Keep Your Drive + Priority Support	5PS0F15398
3YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15468
3YR Priority Support	5WS0E76471
4YR Onsite 24x7x4 Hour Response + Keep Your Drive + Priority Support	5PS0F15462
4YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15410
4YR Onsite 24x7x8 Hour Response + Keep Your Drive + Priority Support	5PS0F15433
4YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15425
4YR Onsite 9x5x4 Hour Response + Keep Your Drive + Priority Support	5PS0F15400
4YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15351
4YR Onsite NBD + Keep Your Drive + Priority Support	5PS0F15373
4YR Onsite NBD + Priority Support	5WS0F15401
4YR Priority Support	5WS0E77170
5YR Onsite 24x7x4 Hour Response + Keep Your Drive + Priority Support	5PS0F15350
5YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15412
5YR Onsite 24x7x8 Hour Response + Keep Your Drive + Priority Support	5PS0F15471
5YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15447
5YR Onsite 9x5x4 Hour Response + Keep Your Drive + Priority Support	5PS0F15437
5YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15382
5YR Onsite NBD + Keep Your Drive + Priority Support	5PS0F15388
5YR Onsite NBD + Priority Support	5WS0F15463
5YR Priority Support	5WS0E77173
<i>Note:</i>	
24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window (requires Location Activation)	
<ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours. • Best coverage for business critical work loads 	
9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window (requires Location Activation)	
<ul style="list-style-type: none"> • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours. 	
24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window (requires Location Activation)	
<ul style="list-style-type: none"> • 24 hours a day, 7 days a week, including nights and weekends • Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours. 	
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Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation	

Microsoft® Windows Server® for Lenovo ThinkServer

Note:

1. Must run on Lenovo® ThinkServer platform only
2. Minimum hardware requirements are determined by Microsoft

(ROK = Reseller Option Kits)

All Lenovo ThinkServer:

English language

Small Business Server 2011 Essentials ROK (64) ⁶¹	84971EE
Small Business Server 2011 Standard ROK (64)	84971SE
Small Business Server 2011 Premium Add-On ROK (64)	84971PE

French language

Small Business Server 2011 Essentials ROK (64)	84971EF
Small Business Server 2011 Standard ROK (64)	84971SF
Small Business Server 2011 Premium Add-On ROK (64)	84971PE

German language

Server 2008 Standard ROK (32, 64) ⁶⁰	84978BG
Server 2008 Enterprise ROK (32, 64)	84978DG
Server 2008 R2 Standard ROK (64)	84978KG
Server 2008 R2 Enterprise ROK (64)	84978LG

Multi-Language (English/Japanese)

Server 2008 R2 Standard ROK (64)	84978OA
Server 2008 R2 SP1 Standard ROK (64)	84978OJ
Server 2008 R2 SP1 Enterprise ROK (64)	84978PJ

Multi-Language (English/French/Italian/German/Spanish)

Server 2008 R2 Standard ROK (64)	84978OE
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TS130, TS430:

Multi-Language (English/Japanese)

Server 2008 R2 SP1 Foundations ROK (64)	84978HD
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⁶⁰ 32, 64 = available in both 32-bit and 64-bit

⁶¹ 64 = available in 64-bit only

Microsoft Windows Client Access License(s)

Multi-Language

Server 2008 1 user	849781A
Server 2008 5 user	849785A
Small Business Server 2011 Standard 5 user	849711G
Small Business Server 2011 Premium Add-On 5 user	849711K

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, go to http://support.lenovo.com/en_US/product-service/warranty-status/WarrantyPolicies.page. 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. 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 **Lenovo 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 Lenovo Warranty Services 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.

¹⁴ **Response times may vary.** May exclude some holidays. Telephone support may be subject to additional charges.

ThinkServer™

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November 2013
svbook.pdf