### Personal Systems Reference Lenovo<sup>®</sup> ThinkServer<sup>™</sup> Servers

February 2009 - Version 352



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Lenovo ThinkServer TS100 with 400W non-redundant power supply



Lenovo ThinkServer TS100 with 430W redundant power supply



Lenovo ThinkServer TS100



Lenovo ThinkServer TS100 with simple-swap disks



Lenovo ThinkServer TS100



Lenovo ThinkServer TS100

### ThinkServer™ TS100 (6432) - TopSeller

Personal Systems Reference (PSREF)

Type- Name model	Slot x bay	Processor	GHz	Cores	Memory	Disk(s)	Disk size	Disk connection	Disk type	RAID controller	SATA optical	Power supply		Workhor Globa	
<b>FS100</b> 6432-17L	J 4x7	E7200	2.53	2	1 x 1GB	None	3.5"	4 x Simple-swap	SATA	1064E	DVD	400W	1-year	No	Sep 08
	<ul><li>High</li><li>Easy</li></ul>	to use w	nce se ith Thi	erver v nkSer	vith rock ver Easys	Startup,	Easy	ogy and proven h Update, and Easyl s are part of the U	Manage	software					
Processor Implementation	one ma	tel <sup>®</sup> Core aximum, 1 sor uses l	066MI	Iz sys	tem bus,	and 3N	1B L2	cache	Towe	r ness blac	k color:	metal ca	50	□® □□ opti	cal 🛛
•	1GB st dual-ch	d, 8GB m nannel cap	ax, <b>PC</b> bable, t	<b>2-640</b> four 18	0 800MH 34-pin DI	Iz DDR2 MM soc	2, <b>ECC</b> kets;		• 8.5"\ • 216n • 56 lb	V x 21.25 nm W x 5 (25.2kg)	"D x 17. 40mm D max co	25"H ) x 438m nfiguratio	ım H	opti media dis	
Graphics	externa	N50 (ES1) al monitor <i>um resolu</i>	port (\	/ĠĂ D	B-15);		z PCI	2.2, 64MB,	<ul><li>Tooll</li><li>Tooll</li></ul>	ess side ess disk a ess adap inated fro	and option	cal drive	removal	dis dis dis	< <
SATA DVD SATA disk(s) SATA controller SATA connectors SATA RAID cont SAS disk SAS connectors	DVD-R None Serial <i>J</i> Six SA 3.5" dis LSI™ 1 Mini P0 Not su Not su	TA connectsk backpla	A 1.5G 3.0Gl ctors of te TA 3.0	o/s, int n plan Gb/s,	egrated i ar, four s	in ICH9 imple-s	wap c	used by disks onnectors on	Bay 1 Bay 2 Bay 3 Bay 4 Bay 5 Bay 5 Bay 6 Bay 7	3.5", 1 3.5", 1 3.5", 1 3.5", 1	.6" high, .6" high, " high, " high, " high, " high, " high,	externa externa interna interna interna	al, optior al, optior al, optior al, optior		l disk disk disk
	Intel 3	<b>210 Chips</b> D 0, 1, 10							Slot 2: Slot 3: Slot 4:	full-lengt full-lengt	h, full-h h, full-h h, full-h	neight, P neight, 6 neight, 3	Cle x1 (x 4-bit PCI- 2-bit PCI	X (not er 2.2	
Rear ports Diagnostics Systems mgmt Audio Speaker Ethernet	monito Diagno fans, di System IPMI 2. None Interna	isks, mem	B-15) (syste lory, pr ment u ant	em-err ocess itility, t	or LED o or, PCI s baseboar	n front o lots, po d mana	cover; wer su geme	error LEDs for upply) nt controller,	Slot 4: full-length, full-height, 32-bit PCI 2.2 Slot 5: half-length, full-height, 32-bit PCI 2.2 Security • Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks • Power-on password • Administrator password • Boot sequence control						
Keyboard Mouse Power supply	None ( None ( One 40 non-ho	use USB   use USB   )0 watts, c it-swap, ur	port) port) one ma niversa	aximur al	n, non-re			able speed fan,	<ul> <li>Seria</li> </ul>	al port I/C port disa	) control Iblemen	t (all)	e, diskette		
Cooling Accessories 1GB PC2-6400 2GB PC2-6400	DDR2   DDR2	ECC UDIN	им им		,	4	5J618	39	Thin	kServer E kServer E kServer E	asyStar asyUpd	tup ate	ement to	015	
160GB 3.5" Sim 250GB 3.5" Sim 500GB 3.5" Sim	ple-swa	ap SATA 3	.0Gb/s	3 Disk	(7200 rp	m) 4	5J619 5J619 5J619	96	ThinkF	Plus Prior	ity Supp	ort, 90-d	lay Trial		
750GB 3.5" Sim	ple-swa	ap SATA 3	.0Gb/s	s Disk	(7200 rp		5J619	98	RoHS	-complian					
Other accessori	es at <b>ie</b>	novo.con	n/acce	SSOLIE	8				<ul> <li>✓ Cu: (wi</li> <li>8 a</li> <li>ne&gt;</li> <li>✓ Thi</li> <li>len</li> <li>• C</li> <li>(i</li> <li>• F</li> <li>✓ 24</li> </ul>	th limited m - 5 pm, tt busines nkPlus™ ovo.com/ Onsite ser in eligible Post warra	and lab eplaceal onsite s Mon - F ss day re services thinkplus vice upg location anty mai day <sup>14</sup> toll	ble Unit ( service f ri covera esponse s availab s/warranty grade op ns) <sup>7</sup> ntenanc l-free su	(CRU) par or selecte age exclud time) le; see y tions e services pport duri	ed parts³, ding holi s	

See footnotes for important warranty information US models announced September 30, 2008

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### ThinkServer™ TS100 (6434) - TopSeller

Personal Systems Reference (PSREF)

Slot x bay Processo	or GHz Core	s Memory	Disk(s)	Disk size	Disk connection	Disk type	RAID controller	SATA optica		Limited V Narranty <sup>1</sup>				
						SATA SATA/SAS	1064E <sup>4</sup> MR10i			3-year 3-year		Sep 08 Sep 08		
<ul> <li>High perform</li> <li>Easy to use</li> </ul>	nance serv	ver with roo Server Eas	syStart	up, Ea	asyUpdate, and Ea	asyManage	software	gram						
one maximum One Intel Xeo one maximum	, 1333MHz <b>n Process</b> , 1333MHz	system bu or X3360 system bu	us, and with <b>qu</b> us, and	6MB ad-co 12M	L2 cache or <b>ore</b> , 3 L2 cache	• Busir • 8.5"V	ness black V x 21.25"	D x 17	.25"H		optio	cal		
dual-channel c	apable, for	ur 240-pin	DIMM :	socke	ts;	• Toolle • Toolle	ess side co ess disk ar	over re nd opti	moval cal drive re	moval	disl disl disl			
external monit	or port (VG	iA DB-15);		ЛНz F	PCI 2.2, 64MB,	<ul> <li>Illum</li> </ul>	inated fron	it icons			disł			
DVD-ROM, SA None Serial ATA, SA Six SATA conn 13U SATA: 4 s 15U SATA/SAS	ATÀ 1.5Gb/ TA 3.0Gb/s nectors on imple-swaj S: 4 hot-sw	s, integrate planar, p connecto ap connec	d in IC ors on 3 tors on	.5" di 3.5"	sk backplate disk backplane	Bay 2 Bay 3 Bay 4 Bay 5 Bay 6	5.25", 1.6 3.5", 1" 3.5", 1" 3.5", 1" 3.5", 1"	ö" high, high, high, high, high,	external, external, internal, internal, internal,	optional open optional optional optional	l optica I disk I disk I disk			
Mini PCI Expre None 15U SATA/SAS 15U: LSI MR10 RAID <sup>8</sup> 0, 1, 5,	ess® adapt S: 4 hot-sw 0i, SATA 3. 6, 10, 50, €	er ap connec 0 Gb/s, SA 60 support	tors on AS 3.0 ( , Mini F	3.5" Gb/s, PCI Ex	disk backplane kpress adapter	Slot 1: Slot 2: Slot 3: Slot 4:	full-length full-length full-length full-length	, full-l , full-l , full-l , full-l	neight, PCI neight, 64-b neight, 32-b	PCIe x1 (x4 mechanical) 64-bit PCI-X (not enabled 82-bit PCI 2.2				
							0		-					
monitor (VGA Diagnostic LEI fans, disks, me System manag IPMI 2.0-comp None Internal speak	DB-15) Ds (system emory, proc gement util pliant er	i-error LED cessor, PC ity, basebo	) on fro I slots, bard ma	nt cov powe inage	ver; error LEDs for r supply) ment controller,	- pro • Powe • Adm • Boot • Boot • Seria	<ul> <li>Security</li> <li>Side cover lock (ships with two identical keys) <ul> <li>prohibits removal of front panel and disks</li> </ul> </li> <li>Power-on password <ul> <li>Administrator password</li> <li>Boot sequence control</li> <li>Boot without keyboard, mouse, diskette</li> <li>Serial port I/O control</li> <li>USB port disablement (all)</li> </ul> </li> </ul>							
		ar, Broadco	om® BC	M572	22, PCIe x1		So	ftware	managen	nent tool	s			
None (use US Some: One 40 variabl Some: Two 43	B port) 00 watts, o le speed fa 30 watts, tv	n, non-hot vo maximu	-swap, m, redu	unive Jndar	rsal	<ul> <li>Thinl</li> </ul>	kServer Ea	asýUpc	late					
			p, unive	ersal		ThinkF	Plus Priority	y Supp	ort, 90-day	Trial				
						RoHS-	compliant							
DDR2 ECC UE pple-swap SATA pple-swap SATA pple-swap SATA pple-swap SATA 3.0 t-swap SATA 3.0 t-swap SATA 3.0 t-swap SATA 3.0 t-swap SATA 3.00 t-swap SATA 3.00 t-swap SATA 3.00	DIMM \$ 3.0Gb/s [ \$ 3.0Gb/s [ \$ 3.0Gb/s [ \$ 3.0Gb/s [ 0Gb/s Disk 0Gb/s Disk 0Gb/s Disk 0Gb/s Disk (7 Gb/s Disk (7 Gb/s Disk	Disk (7200 Disk (7200 Disk (7200 (7200 rpm (7200 rpm (7200 rpm) 200 rpm) (15000 rpm)	rpm) rpm) rpm) າ) າ) າ) າ)	45J 45J 45J 45J 45J 45J 45J 45J 45J 45J	6189 6195 6196 6197 6200 6201 6202 6203 6204 6204 6211	<ul> <li>Cus (with 8 an nex 2 mex 2 m</li></ul>	stomer Rep th limited o m - 5 pm, M tt business nkPlus™ s ovo.com/th nsite serv n eligible l ost warrar	nd lab placeal onsite s fon - F day re ervices inkplus ice up ocatio nty mai	or ble Unit (CF service for ri coverage esponse tin s available; s/warranty grade optio ns) <sup>7</sup> ntenance s	RU) parts selected excludir ne) see ns ervices	parts³, ng holio	lays,		
	<ul> <li>J 4x7 E3110</li> <li>J 4x7 E3110</li> <li>J 4x7 X3360</li> <li>T = Tower, S</li> <li>High perform</li> <li>Easy to use</li> <li>These small</li> <li>One Intel® Xee</li> <li>These small</li> <li>One Intel® Xee</li> <li>one maximum</li> <li>One Intel Xeo</li> <li>one maximum</li> <li>One Intel Xeo</li> <li>one maximum</li> <li>Processor use</li> <li>2GB or 4GB s</li> <li>dual-channel c</li> <li>Non-italics: statistics: statistics</li> <li>ATI® RN50 (ES</li> <li>external monit</li> <li>Maximum resc</li> <li>None (use US</li> <li>DVD-ROM, SA</li> <li>Six SATA conr</li> <li>13U SATA: 4 s</li> <li>15U SATA/SA3</li> <li>LSI™ 1064E, S</li> <li>Mini PCI Expression</li> <li>None</li> <li>15U SATA/SA3</li> <li>LSI™ 1064E, S</li> <li>Mini PCI Expression</li> <li>None</li> <li>15U SATA/SA3</li> <li>LSI™ 1064E, S</li> <li>Mini PCI Expression</li> <li>None (use US</li> <li>None</li> <li>15U SATA/SA3</li> <li>LSI™ 1064E, S</li> <li>Mini PCI Expression</li> <li>None (USE 2.0)</li> <li>monitor (VGA</li> <li>Diagnostic LEI</li> <li>fans, disks, mession</li> <li>Some: One 4</li> <li>Diagnostic LEI</li> <li>fans, disks, mession</li> <li>Some: One 4</li> <li>Some: One 4</li> <li>Variabi</li> <li>Three fans (pr</li> <li>DDR2 ECC UE</li> <li>pple-swap SATA 3.0</li> <li>Vap SATA 3.06</li> <li>t-swap SATA 3.0</li> <li>variabi</li> <li>Three fans (pr</li> </ul>	<ul> <li>J 4x7 E3110 3.00 2</li> <li>J 4x7 X3360 2.83 4</li> <li>T = Tower, S = Single p</li> <li>High performance servery</li> <li>Easy to use with Think</li> <li>These small and media</li> </ul> One Intel® Xeon® Process one maximum, 1333MHz One Intel Xeon Process one maximum, 1333MHz Processor uses FC-LGA8 2GB or 4GB std, 8GB madual-channel capable, for Non-italics: standard merital ATI® RN50 (ES1000), on external monitor port (VG Maximum resolution: 102 None (use USB port) DVD-ROM, SATA 1.5Gb/s None Serial ATA, SATA 3.0 Gb/s Six SATA connectors on p 13U SATA: 4 simple-swag 15U SATA/SAS: 4 hot-sw LSI™ 1064E, SATA 3.0 G Mini PCI Express® adapter None 15U SATA/SAS: 4 hot-sw 15U SATA 2.0 Gh pel-swap Kata 3.0 Gb/s Disk Two USB 2.0 Four USB 2.0, two serial monitor (VGA DB-15) Diagnostic LEDs (system fans, disks, memory, proc System management util IPMI 2.0-compliant None (use USB port) None (use USB	<ul> <li>J 4x7 E3110 3.00 2 2 x 1GB J 4x7 X3360 2.83 4 2 x 2GB</li> <li>T = Tower, S = Single processor</li> <li>High performance server with row</li> <li>Easy to use with ThinkServer Eas</li> <li>These small and medium busines</li> <li>One Intel® Xeon® Processor E311</li> <li>one maximum, 1333MHz system bu</li> <li>One Intel Xeon Processor E311</li> <li>one maximum, 1333MHz system bu</li> <li>Processor uses FC-LGA8 package,</li> <li>2GB or 4GB std, 8GB max, PC2-64</li> <li>dual-channel capable, four 240-pin</li> <li>Non-italics: standard memory in two</li> <li>ATI® RN50 (ES1000), on planar, 32</li> <li>external monitor port (VGA DB-15);</li> <li>Maximum resolution: 1024x768@88</li> <li>None (use USB port)</li> <li>DVD-ROM, SATA 1.5Gb/s, uses ICH</li> <li>None</li> <li>Serial ATA, SATA 3.0Gb/s, integrate</li> <li>Six SATA connectors on planar, 13U SATA: 4 simple-swap connector</li> <li>15U SATA/SAS: 4 hot-swap connector</li> <li>15U SATA/SAS: 4 hot-swap</li> <li>15U SATA/SAS</li></ul>	J 4x7 E3110 3.00 2 2 x 1GB None J 4x7 X3360 2.83 4 2 x 2GB None • <i>T</i> = Tower, S = <i>Single processor</i> • <i>High performance server with rock solid</i> • <i>Easy to use with ThinkServer EasyStart</i> • <i>These small and medium business (SME</i> One Intel® Xeon® Processor E3110 with of one maximum, 1333MHz system bus, and One Intel Xeon Processor X3360 with qu one maximum, 1333MHz system bus, and Processor Uses FC-LGA8 package, one LG <b>2GB or 4GB</b> std, 8GB max, PC2-6400 800 dual-channel capable, four 240-pin DIMM <i>Non-italics:</i> standard memory in two socke ATI® RN50 (ES1000), on planar, 32-bit/33N external monitor port (VGA DB-15); <i>Maximum resolution:</i> 1024x768@85Hz None (use USB port) DVD-ROM, SATA 1.5Gb/s, uses ICH9R None Serial ATA, SATA 3.0Gb/s, integrated in ICI Six SATA connectors on planar, <i>13U SATA</i> : 4 simple-swap connectors on a <i>15U SATA/SAS:</i> 4 hot-swap connectors on <i>15U:</i> LSI MR10i, SATA 3.0 Gb/s, RAID® 0, 1 st Mini PCI Express® adapter None <i>15U SATA/SAS:</i> 4 hot-swap connectors on <i>15U:</i> LSI MR10i, SATA 3.0 Gb/s, SAS 3.0 (C RAID® 0, 1, 5, 6, 10, 50, 60 support, Mini F Intel 3210 Chipset, Intel I/O Controller Hu for RAID 0, 1, 10 support, SMSC® SCH502 Two USB 2.0, two serial (9-pin), parallel, e monitor (VGA DB-15) Diagnostic LEDs (system-error LED on fro fans, disks, memory, processor, PCI slosz System management utility, baseboard ma IPMI 2.0-compliant None Internal speaker Gigabit ethernet on planar, Broadcom® BC None (use USB port) Some: One 400 watts, one maximum, nor variable speed fan, non-hot-swap, <i>Some:</i> Two 430 watts, two maximum, redu- variable speed fan, non-hot-swap, Some: Two 430 watts, two maximum, nor variable speed fan, non-hot-swap, Some: Two 430 watts, two maximum, redu- variable speed fan, non-hot-swap, Some: Two 430 watts, two maximum, redu- variable speed fan, non-hot-swap, Some: Two 430 watts, two maximum, redu- variable speed fan, non-hot-swap, Some: Two 430 watts, two maximum, redu- variable speed fan, not-swap, SATA 3.0Gb/s Disk (7200 rpm) t-swap SATA 3.0Gb/s Disk (7200 rpm) t-swap SA	J 4x7 X3360 2.83 4 2 x 2GB None 3.5" • T = Tower, S = Single processor • High performance server with rock solid tech • Easy to use with ThinkServer EasyStartup, Ea • These small and medium business (SMB) mo One Intel Xeon® Processor E3110 with dual- one maximum, 1333MHz system bus, and 6MB One Intel Xeon Processor X3360 with quad- cd one maximum, 1333MHz system bus, and 12MI Processor uses FC-LGA8 package, one LGA77 2GB or 4GB std, 8GB max, PC2-6400 800MHz dual-channel capable, four 240-pin DIMM socke Non-italics: standard memory in two sockets; tw ATI® RN50 (ES1000) on planar, 32-bit/33MHz F external monitor port (VGA DB-15); Maximum resolution: 1024x768@85Hz None (use USB port) DVD-ROM, SATA 1.5Gb/s, uses ICH9R None Serial ATA, SATA 3.0Gb/s, integrated in ICH9R, Six SATA connectors on planar, 13U SATA: 4 simple-swap connectors on 3.5" di 15U SATA/SAS: 4 hot-swap connectors on 3.5" di 15U SATA/SAS: 4 hot-swap connectors on 3.5" di 15U SATA/SAS: 4 hot-swap connectors on 3.5" di 25U SATA/SAS: 4 hot-swap connectors on 3.5" di 25U SATA/SAS: 4 hot-swap connectors on 3.5" Diagnostic LEDs (system-error LED on front co fans, disks, memory, processor, PCI slots, powe System management utility, baseboard manage IPMI 2.0-compliant None Internal speaker Gigabit ethernet on planar, Broadcom® BCM572 None (use USB port) Some: One 400 watts, one maximum, non-redu- variable speed fan, non-hot-swap, universal Three fans (processor, rear, disks) DDR2 ECC UDIMM 45J hple-swap SATA 3.0Gb/s Disk (7200 rpm) 45J t-swap SATA 3.0Gb/s Disk (7200 rpm) 45J t-swap SATA 3.0Gb/s Disk (7200 rpm) 45J t-swap SATA 3.0Gb/s D	J 4x7 E3110 3.00 2 2 x 1GB None 3.5" 4 x Simple-swap J 4x7 X3360 2.83 4 2 x 2GB None 3.5" 4 x Hot-swap • T = Tower, S = Single processor • High performance server with rock solid technology and prove • Easy to use with ThinkServer EasyStartup, EasyUpdate, and Ea • These small and medium business (SMB) models are part of th One Intel® Xeon® Processor E3110 with dual-core, one maximum, 1333MHz system bus, and 12MB L2 cache Processor uses FC-LGA8 package, one LGA775 socket 2GB or 4GB std, 8GB max, PC2-6400 800MHz DDR2, ECC, dual-channel capable, four 240-pin DIMM sockets; Non-italics: standard memory in two sockets; two sockets availabl ATI® RNS0 (ES1000), on planar, 32-bit/33MHz PC1 2.2, 64MB, external monitor port (VGA DB-15); Maximum resolution: 1024x768@85Hz None (use USB port) DVD-RON, SATA 1.5Gb/s, uses ICH9R None Serial ATA, SATA 3.0Gb/s, integrated in ICH9R, not used by disks Six SATA connectors on planar, 15U SATA/SAS: 4 hot-swap connectors on 3.5" disk backplate 15U SATA/SAS: 4 hot-sw	J       4X7       E3110       3.00       2       2 x 1GB       None       3.5"       4 x Hot-swap       SATA/SAS         J       4X7       X3360       2.83       4       2 x 2GB       None       3.5"       4 x Hot-swap       SATA/SAS         T = Tower, S = Single processor       - High performance server with rock solid technology and proven hardware       Easy to use with ThinkServer EasyStartup, EasyUpdate, and EasyManage       These small and medium business (SMB) models are part of the US TopSe         One Intel® Xeon® Processor E3110 with dual-core, one maximum, 1333MHz system bus, and 6MB L2 cache or One Intel Acon Processor X360 with quad-core, one uses FC-LGAB package, one LGA775 socket       Busi         ZGB or 4GB std, 8GB max, PC2-6400 800MHz DDR2, ECC, dual-channel capable, four 240-pin DIMM sockets;       .011       .057         Von-ritalics: standard memory in two sockets; two sockets available       ATI® RN50 (E51000), on planar, 32-bit/3MH2 PCI 2.2, 64MB, external monitor port (VGA DB-15);       Bay ①         None (use USB port)       DVD-ROM, SATA 1.3Gb/s, uses ICH9R None       Bay ①         None (use USB port)       DVD-ROM, SATA 1.3Gb/s, uses ICH9R None       Bay ①         Six SATA connectors on planar, 13J SATA: 4 simple-swap connectors on 3.5" disk backplane       Bay ②         Six ATA concelse there in the I/O Controller Hub 9 RAID (HOR9)       Fort SIS SATA 50. Gb/s, RAID® 0, 1.5 (5, 10, 50, 60 support, Mini PCI Express'adapter       No	J       4X7       E3110       3.00       2       2 x 1GB       None       3.5"       4 x Simple-swap       SATA       1064E         J       4X7       X3360       2.83       4       2 x 2GB       None       3.5"       4 x Hot-swap       SATA/SAS <sup>2</sup> MR10i         •       T = Tower, S = Single processor       •       High performance server with rock solid technology and proven hardware design         •       Easy to use with ThinkServer Eas/Statup, EasyUpdate, and EasyManage software       •       Tower         •       Done Intel® Xeon® Processor X3360 with quad-core, one maximum, 1333MHz system bus, and 12MB L2 cache       •       Business black         Processor uses FC-LGA8 package, one LGA775 socket       •       216m W x 45       •       56 lb (C2 skg) r         Class tandard memory in two sockets available       •       Toolless side or       •       Toolless adapte         None (use USB port)       DVD-ROM, SATA 1.5Gb/s, uses ICH9R       •       •       •       108 y © 5.25", 1.6         Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6         Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6         Stat 1.5 (DS/s, AL7 0.0 (D/s), SAS 3.0 (D/s), SAS 3.0 (D/s), SAS 3.0 (D	J       447       E3110       3.00       2       2 x 1GB       None       3.5"       4 x Hot-swap       SATA       1064E       DVD         J       447       X3360       2.83       4       2 x 2GB       None       3.5"       4 x Hot-swap       SATA/SAS <sup>+</sup> MR10i       DVD         +       High performance server with rock solid technology and proven hardware design       Easy to use with ThinkServer EasyStartup, EasyUpdate, and EasyManage software       Easy to use with ThinkServer EasyStartup, EasyUpdate, and EasyManage software         -       These small and medium business (SMB) models are part of the US TopSeller <sup>™</sup> Program         One Intel* Xeon* Processor X3360 with quad-core, one maximum, 1333MHz system bus, and 12MB L2 cache or One Intel Xeon Processor X3360 with quad-core.       -       Business black color;       -       8.5% 4 X 00mE       -       2.16m W X 450mm L       -       0.6 (b (25.2kg) max to color (24.075 socket)       -       2.16m W X 450mm L       -       0.6 (b (25.2kg) max to color (24.075 socket)       -       1001ess disk and opin       1001ess disk and opin </td <td>J 4x7 E3110 3.00 2 2 x 1GB None 3.5' 4 x Simple-swap SATA 1064E DVD 400% J 4x7 X3300 2.83 4 2 x 2GB None 3.5' 4 x Hot-swap SATA 1064E DVD 400% J 4x7 X3300 2.83 4 2 x 2GB None 3.5' 4 x Hot-swap SATA 1064E DVD 400% T = Tower, S = Single processor + High performance server with rock solid technology and proven hardware design Easy to use with ThinkServer EasyManage software These small and medium business (SMB) models are part of the US TopSeller<sup>110</sup> Program One Intel® Xeon® Processor X 3360 with quad-core, one maximum, 1333MHz system bus, and 12MB L2 cache Processor uses FC-LGA padage, one LGA75 socket None Intel Xeon® Processor X-400 s00MHz DDR2, ECC, dual-channel capable, four 240-pin DIM Sockets Non-diacs: standard memory in two sockets, two sockets available None Cise USB port) DVD-ROM, SATA 1.5Gb/s, uses ICH9R None 12U SATA 2.5 TA 1.3 CBb/s, uses ICH9R None 12U SATA 2.5 A 5ATA 3.0 Gb/s, Integrated in ICH9R, not used by disks Six SATA connectors on planar, 12U SATA 2.5 A th 3.0 Gb/s, RAID® 0, t support, None Cise press® adapter 12U SATA 2.5 A 1.5 Gb/s, uses ICH9R None 12U SATA 2.5 A 1.5 Gb/s, RAID 0, t support, None 12U SATA 2.5 A 1.5 Gb/s, RAID 0, t support, 12U SATA 2.5 A 1.5 Gb/s, RAID 0, t support, 150 ST 1.5 Iull-length, full-height, F2C 150 ST 1.5 Iull-length,</td> <td>J 4x7 E3110 3.00 2 2 2 11GE None 3.5" 4 x Hot-swap SATA 1004E DVD 400W 3-year 4x7 X3360 2.83 4 2 x 2GB None 3.5" 4 x Hot-swap SATA/SAS' MR101 DVD 2 x 430W 3-year T = Tower, S = Single processor + High performance server with thock solid technology and proven hardware design Easy to use with ThinkServer EasyStartup, EasyUpdate, and EasyManage software T Teses small and medium busines (SMB) models are part of the US TopSeller'' Program Tower Tome intel Xeon<sup>®</sup> Processor E3110 with dual-core, one maximum, 133MHz system bus, and 12MB L2 cache Processor uses FC-L3A6 package, one LGA775 socket! 2GB or 4GB tG 6GB max, PC2-6400 800MHz DDR2, ECC, dual-channel capable, four 240-pin DIMM sockets; Morritalics: stimple-swap connectors on 3.5" disk backplate 15U SATA 3.004b S, integrated in ICH9R, not used by disks Six SATA connectors on planar, 15U SATA 3.004b S, integrated in ICH9R, not used by disks Six SATA 3.004b/s, uses ICH9R Siz SATA 3.004b/s, uses ICH9R Siz SATA 3.004b/s, uses ICH9R 15U SATA 3.004b/s, use ICH9R 15U</td> <td>J. 4x7       Z3360       2       2       2       2       2       2       2       3       4       X102       3       9</td>	J 4x7 E3110 3.00 2 2 x 1GB None 3.5' 4 x Simple-swap SATA 1064E DVD 400% J 4x7 X3300 2.83 4 2 x 2GB None 3.5' 4 x Hot-swap SATA 1064E DVD 400% J 4x7 X3300 2.83 4 2 x 2GB None 3.5' 4 x Hot-swap SATA 1064E DVD 400% T = Tower, S = Single processor + High performance server with rock solid technology and proven hardware design Easy to use with ThinkServer EasyManage software These small and medium business (SMB) models are part of the US TopSeller <sup>110</sup> Program One Intel® Xeon® Processor X 3360 with quad-core, one maximum, 1333MHz system bus, and 12MB L2 cache Processor uses FC-LGA padage, one LGA75 socket None Intel Xeon® Processor X-400 s00MHz DDR2, ECC, dual-channel capable, four 240-pin DIM Sockets Non-diacs: standard memory in two sockets, two sockets available None Cise USB port) DVD-ROM, SATA 1.5Gb/s, uses ICH9R None 12U SATA 2.5 TA 1.3 CBb/s, uses ICH9R None 12U SATA 2.5 A 5ATA 3.0 Gb/s, Integrated in ICH9R, not used by disks Six SATA connectors on planar, 12U SATA 2.5 A th 3.0 Gb/s, RAID® 0, t support, None Cise press® adapter 12U SATA 2.5 A 1.5 Gb/s, uses ICH9R None 12U SATA 2.5 A 1.5 Gb/s, RAID 0, t support, None 12U SATA 2.5 A 1.5 Gb/s, RAID 0, t support, 12U SATA 2.5 A 1.5 Gb/s, RAID 0, t support, 150 ST 1.5 Iull-length, full-height, F2C 150 ST 1.5 Iull-length,	J 4x7 E3110 3.00 2 2 2 11GE None 3.5" 4 x Hot-swap SATA 1004E DVD 400W 3-year 4x7 X3360 2.83 4 2 x 2GB None 3.5" 4 x Hot-swap SATA/SAS' MR101 DVD 2 x 430W 3-year T = Tower, S = Single processor + High performance server with thock solid technology and proven hardware design Easy to use with ThinkServer EasyStartup, EasyUpdate, and EasyManage software T Teses small and medium busines (SMB) models are part of the US TopSeller'' Program Tower Tome intel Xeon <sup>®</sup> Processor E3110 with dual-core, one maximum, 133MHz system bus, and 12MB L2 cache Processor uses FC-L3A6 package, one LGA775 socket! 2GB or 4GB tG 6GB max, PC2-6400 800MHz DDR2, ECC, dual-channel capable, four 240-pin DIMM sockets; Morritalics: stimple-swap connectors on 3.5" disk backplate 15U SATA 3.004b S, integrated in ICH9R, not used by disks Six SATA connectors on planar, 15U SATA 3.004b S, integrated in ICH9R, not used by disks Six SATA 3.004b/s, uses ICH9R Siz SATA 3.004b/s, uses ICH9R Siz SATA 3.004b/s, uses ICH9R 15U SATA 3.004b/s, use ICH9R 15U	J. 4x7       Z3360       2       2       2       2       2       2       2       3       4       X102       3       9		

See footnotes for important warranty information US models announced September 30, 2008

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Lenovo ThinkServer TD100



Lenovo ThinkServer TD100x



Lenovo ThinkServer TD100 or TD100x



Lenovo ThinkServer TD100 or TD100x



Lenovo ThinkServer TD100x with Easy LED Diagnostic panel



Lenovo ThinkServer TD100 or TD100x

### ThinkServer™ TD100 (6399) - TopSeller

Personal Systems Reference (PSREF)

Type- Name model	Slot x bay Processor(s) G	Hz Cores Memory	Disk Disk(s)size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply(s		Limited V warranty <sup>1</sup>			
	6x7 1 x E5405 2 6x7 1 x E5405 2			4 x Simple-swap 4 x Simple-swap			DVD DVD	670W 670W	3 3	1-year 1-year		Sep 08 Jan 09	
	<ul> <li>T = Tower, D = Di</li> <li>High performance</li> <li>Easy to use with</li> <li>These small and</li> </ul>	ce server with roc ThinkServer Eas	k solid tech yStartup, Ea	syUpdate, and Ea	syMar	nage softw	are	m					
Processor(s) Implementation	One Intel® Xeon® I two maximum, 133 Processor uses FC	33MHz system bu C-LGA6 package,	s, and 12ME two LGA771	L2 cache sockets		ower Business k 8.6"W x 29			tal case	e	optio	cal	
Memory	2GB std, 32GB ma fully buffered, eight <i>Non-italics:</i> standa	t 240-pin DIMM s	ockets;	,	•	218mm W 75 lb (34kg Toolless si	x 747m g) max	nm D x 4 configui	ration	ηΗ	tape	<u> </u>	
Graphics	ATI® RN50 (ES100 external monitor po Maximum resolution	ort (VGA DB-15 re on: 800x600@85F	ear); Iz		•	Toolless di Toolless a Illuminateo	isk and dapter r d front id	optical etentior cons	drive re	emoval	disk disk		
EIDE DVD	Enhanced IDE/ATA one connector on p DVD-ROM, 1.6" hig	planar, single 2-dr				Rack shelf ay ① 5.25'			rternal	std ontic	disk disk		
SAS disk(s) SATA/SAS cont			ATA 3.0Gb/s	s, SAS 3.0Gb/s,	Ba Ba Ba Ba	ay @ 5.25 ay @ 5.25 ay @ 3.5", ay © 3.5",	", 1.6" h ", 1.6" h 1" hig 1" hig	nigh, ex nigh, ex nh, ex nh, ex	ternal, ternal, ternal, ternal,	optional	tape or tape or disk disk		
SAS connectors SATA/SAS RAID controller	14U SATA: RAID-8 RAID <sup>8</sup>		support, in r	S 3.0Gb/s, eserved connecto	, Ba	ay ⑥ 3.5", ay ⑦ 3.5", ot 1: half-l ot 2: full-le	1" hig ength, i	jh, ex full-heig	ternal, ht, PC	optional le® x4 (x8	disk	nical)	
Chipset	NS PC8374L Supe	Intel 5000P chipset, Intel 6321ESB-2E I/O Controller Hub, NS PC8374L Super I/O					Slot 3: full-length, full-height, PCIe x8 Slot 4: full-length, full-height, 64-bit PCI-X Slot 5: full-length, full-height, 64-bit PCI-X						
Front ports Rear ports	Two USB 2.0 Two USB 2.0, two mouse (PS/2), exte	ernal monitor (VG				ot 6: half-l		full-heig					
Diagnostics	system manageme Diagnostic LEDs (s RAID, memory, pro power supply)	system-error LED				Side cove - prohibits Power-on	remova	hips wit al of froi	th two i	identical k			
Systems mgmt Audio	System manageme IPMI 2.0-compliant None		ard manage	ment controller,	•	Administra Boot sequ Boot witho	ator pas ence co	sword ontrol	nouse	diskette			
Speaker Ethernet	Internal speaker Gigabit ethernet or full duplex, Wake o		m® BCM572	1, PCle x1,	•	Serial port	t I/O coi	ntrol					
Mouse Power supply	None (use PS/2 or None (use PS/2 or One 670 watts, one non-hot-swap, univ	<sup>·</sup> USB port) e maximum, non- /ersal		•									
Cooling	Three or six fans, s protection, hot-swa power supply					ninkPlus P oHS-comp		support,	90-da	y Trial			
ThiskOssus		re management						Limited	d Warra	anty			
Accessories Intel Xeon Quad 1GB PC2-5300 2GB PC2-5300 4GB PC2-5300 160GB 3.5" Sim 250GB 3.5" Sim 750GB 3.5" Sim	asyStartup • Think DDR2 ECC FB-DIN DDR2 ECC FB-DIN DDR2 ECC FB-DIN DDR2 ECC FB-DIN ple-swap SATA 3.0 ple-swap SATA 3.0 ple-swap SATA 3.0 es at <b>lenovo.com</b> /a	5405 //M /M Gb/s Disk (7200 r Gb/s Disk (7200 r Gb/s Disk (7200 r Gb/s Disk (7200 r	45J 45J 45J 5pm) 45J 5pm) 45J 5pm) 45J 5pm) 45J	6221 6191 6192 6193 6195 6196 6196 6197 6198		8 am - 5 p next busi ThinkPlu lenovo.co • Onsite	r Repla ited ons om, Mor iness da s™ service ible loc arranty	ceable l ite serv n - Fri co ay respo vices av plus/wa plus/wa ations) <sup>7</sup> mainter	vice for overag onse til vailable rranty de optionnance	selected e excludir me) ; see ons services	parts³, ng holid	ays,	

See footnotes for important warranty information IS US model announced January 20, 2009; previous model on September 30, 2008

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### ThinkServer™ TD100 (6429) - TopSeller

Personal Systems Reference (PSREF)

Type- Name model	Slot x bay Processor(s) GHzCores Memory Disk	Disk Disk (s) size connection	Disk RAID EIDE Power Limited Workhorse Avai type controller optical supply(s) Fans warranty' Global date
	J 6x11 1 x E5410 2.33 4 2 x 1GB Non J 6x11 1 x E5430 2.66 4 2 x 2GB Non		
	<ul> <li>T = Tower, D = Dual processor support</li> <li>High performance server with rock sol</li> <li>Easy to use with ThinkServer EasyStai</li> <li>These small and medium business (SM)</li> </ul>	lid technology and pro rtup, EasyUpdate, and	d EasyManage software
Processor(s) Implementation Memory Graphics	One Intel® Xeon® Processor E5410 or E two maximum, 1333MHz system bus, an Processor uses FC-LGA6 package, two I 2GB or 4GB std, 32GB max, PC2-5300 ( Advanced ECC, fully buffered, eight 240 Non-italics: standard memory in two soci ATI® RN50 (ES1000), on planar, 32-bit/33 external monitor port (VGA DB-15 rear); Maximum resolution: 800x600@85Hz	d 12MB L2 cache LGA771 sockets 667MHz DDR2, I-pin DIMM sockets; kets; six sockets availa 3MHz PCI 2.3, 16MB,	Business black color; metal case     8.6"W x 29.4"D x 17.3"H     218mm W x 747mm D x 440mm H     75 bl (34kg) max configuration     Toolless side cover removal     Toolless disk and     optical drive removal     Toolless adapter retention     Toolless adapter retention     Uluminated front icons
SAS disk(s) SATA/SAS cont SAS connectors SATA/SAS RAID	Enhanced IDE/ATA 100 controller in Enter one connector on planar, single 2-drop ID DVD-ROM, 1.6" high None Eight hot-swap connectors on 3.5" disk b None Adaptec <sup>®</sup> AIC-9580W, SATA 3.0Gb/s, SA RAID <sup>8</sup> 0, 1, 10 support, 8-port, on planar, Eight hot-swap connectors on 3.5" disk b RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.1 RAID <sup>8</sup> 0, 1, 1e, 5, 6, 10 support, in reserving single cable to backplane Intel 5000P chipset, Intel 6321ESB-2E I	DÉ cable (for DVD) ackplane S 3.0Gb/s, , not used ackplane 0Gb/s, ved connector,	<ul> <li>Rack shelf support</li> <li>Bay ① 5.25", 1.6" high, external, std optical Bay ② 5.25", 1.6" high, external, optional tape or optica Bay ③ 5.25", 1.6" high, external, optional tape or optica Bay ④ 3.5", 1" high, external, optional disk Bay ⑤ 3.5", 1" high, external, optional disk Bay ⑥ 3.5", 1" high, external, optional disk Bay ⑦ 3.5", 1" high, external, optional disk Bay ⑦ 3.5", 1" high, external, optional disk Bay ⑧ 3.5", 1" high, external, optional disk Bay ⑨ 3.5", 1" high, external, optional disk Bay ⑨ 3.5", 1" high, external, optional disk Bay ⑨ 3.5", 1" high, external, optional disk</li> </ul>
Front ports Rear ports Diagnostics	Two USB 2.0 Two USB 2.0 Two USB 2.0, two serial (9-pin), parallel, mouse (PS/2), external monitor (VGA DE system management (RJ-45) Diagnostic LEDs (system-error LED on fir RAID, memory, processors, PCI slots, vo	keyboard (PS/2), 8-15), ethernet (RJ-45) ront cover: error LEDs	Slot 4: full-length, full-height, 64-bit PCI-X s for Slot 5: full-length, full-height, 64-bit PCI-X
Systems mgmt Audio Speaker Ethernet Keyboard Mouse Power supply Cooling	power supply) System management utility, baseboard m IPMI 2.0-compliant None Internal speaker Gigabit ethernet on planar, Broadcom® B full duplex, Wake on LAN® None (use PS/2 or USB port) None (use PS/2 or USB port) Two 835 watts, two maximum, redundant variable speed fan, hot-swap, universal, two redundant power supplies require six Six fans, six maximum, variable speed, h hot-swap, six fans required with second r	CM5721, PCIe x1, with two,	er, Security Side cover lock (ships with two identical keys) - prohibits removal of front panel and disks Power-on password Administrator password Boot sequence control Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all)
	Software management tools	5	ThiskBlue Drisrity Support 00 day Trial
	asyStartup • ThinkServer EasyUpdate •	<ul> <li>ThinkServer EasyMa</li> </ul>	lanage ThinkPlus Priority Support, 90-day Trial RoHS-compliant
Intel Xeon Quad 1GB PC2-5300 2GB PC2-5300 160GB 3.5" Hot 250GB 3.5" Hot 500GB 3.5" Hot 750GB 3.5" Hot 300GB 3.5" Hot 300GB 3.5" Hot	d-Core Processor E5410 d-Core Processor E5430 DDR2 ECC FB-DIMM DDR2 ECC FB-DIMM DDR2 ECC FB-DIMM t-swap SATA 3.0Gb/s Disk (7200 rpm) t-swap SAS 3.0Gb/s Disk (15000 rpm)	Limited Warranty¹	

See footnotes for important warranty information US models announced September 30, 2008

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#### ThinkServer™ TD100x (4206) - TopSeller

Type- Name model	Slot x bay Processor(s) GHz Cores Memory I	Disk Disk(s) size	Disk connection	Disk type	RAID controller	EIDE optical :	Power supply(s)F	Limite ans warran	d Workhorse A	Avail date
	U 6x11 1 x X5450 3.00 4 2 x 2GB	.,				•				
	<ul> <li>T = Tower, D = Dual processor supp</li> <li>These small and medium business</li> <li>The TD100x differs from the TD100 k Easy LED Diagnostic panel, suppor two redundant 835 watt power supp</li> </ul>	(SMB) mod because of t for up to e	the following eight 3.5" hot-	standard f	eatures:	Prograi	m			
Processor(s)	One Intel <sup>®</sup> Xeon <sup>®</sup> Processor X5450 v two maximum, 1333MHz system bus,			Тс	ower					$\overline{\Box}$
Implementation	Processor uses FC-LGA6 package, tw				Business bl 3.6"W x 29.			case	optical optical	
Memory	4GB std, 48GB max, PC2-5300 667M Advanced ECC, fully buffered, twelve Non-italics: standard memory in two s	240-pin DI		• 2	218mm W > 75 lb (34kg) foolless sid	k 747mi ) max c	m D x 440 onfigurati		tape disk disk	
Graphics	ATI <sup>®</sup> RN50 (ES1000), on planar, 32-bi external monitor port (VGA DB-15 rea <i>Maximum resolution:</i> 800x600@85Hz		CI 2.3, 16MB,	0 • T	Foolless dis optical drive Foolless ad	e remov apter re	etention		disk disk disk disk	
SAS disk(s) SATA/SAS cont SAS connectors SATA/SAS RAID	Enhanced IDE/ATA 100 controller in E one connector on planar, single 2-drop DVD-ROM, 1.6" high None Eight hot-swap connectors on 3.5" dis None Adaptec <sup>®</sup> AIC-9580W, SATA 3.0Gb/s, RAID <sup>®</sup> 0, 1, 10 support, 8-port, on plar Eight hot-swap connectors on 3.5" dis RAID <sup>®</sup> 0, 1, 1e, 5, 6, 10 support, in res	o IDĖ cable k backplano SAS 3.0Gb nar, not use k backplano 3.0Gb/s,	e (DVD) e ø/s, e	• F Ba Ba Ba Ba Ba Ba Ba Ba Ba	ý ② 5.25",	support 1.6" hi 1.6" hi	t igh, exter igh, exter h, exter h, exter h, exter h, exter h, exter		disk disk hal tape or opt hal tape or opt hal disk hal disk hal disk hal disk hal disk	
Chipset	single cable to backplane Intel 5000P chipset, Intel 6321ESB-2 NS PC8374L Super I/O	E I/O Cont	roller Hub,	—— Ba	iy 10 3.5", iy 10 3.5",	1" higi 1" higi	h, exter	nal, option nal, option	nal disk	
Front ports Rear ports Diagnostics	Two USB 2.0 Two USB 2.0, two serial (9-pin), parall mouse (PS/2), external monitor (VGA system management (RJ-45) Easy LED Diagnostics (operator inforr error LEDs for fans, disks, RAID, mem	DB-15), eth nation pane ory, proces	hernet (RJ-45 el on left side	), Slo Slo Slo With Slo	Slot 1: half-length, full-height, PCIe® x4 (x8 mechanica Slot 2: full-length, full-height, PCIe x8 Slot 3: full-length, full-height, PCIe x8 Slot 4: full-length, full-height, 64-bit PCI-X Slot 5: full-length, full-height, 64-bit PCI-X Slot 6: half-length, full-height, PCI					
Systems mgmt	regulator module, PCI slots, power su System management utility, baseboard IPMI 2.0-compliant	oplies) d managen	nent controlle				Secu	•		
Audio Speaker Ethernet	None Internal speaker Gigabit ethernet on planar, Broadcom full duplex, Wake on LAN®	<sup>®</sup> BCM5721	I, PCIe x1,	• [		remova asswor or pass	l of front p d sword	wo identica banel and c		
Keyboard Mouse Power supply Cooling	None (use PS/2 or USB port) None (use PS/2 or USB port) Two 835 watts, two maximum, redund hot-swap, universal, two redundant po Six fans, six maximum, variable speed hot-swap, six fans required with secon	wer supplie I, hardware	es require six failure protect	d fan, fans tion,		ut keybo I/O con	oard, mou trol	ise, diskette	9	
	Software management to	ols		Th	inkPlus Pri	iority Su	upport, 90	)-day Trial		
ThinkServer E	asyStartup • ThinkServer EasyUpdate	• ThinkS	erver EasyMa	anage Ro	HS-compli	iant				
Accessories						I	_imited W	arrantv <sup>1</sup>		
1GB PC2-5300 2GB PC2-5300 4GB PC2-5300 160GB 3.5" Hoi 250GB 3.5" Hoi 750GB 3.5" Hoi 750GB 3.5" Hoi 1TB 3.5" Hot-st 146GB 3.5" Hoi 300GB 3.5" Hoi	ad-Core Processor X5450 DDR2 ECC FB-DIMM DDR2 ECC FB-DIMM -swap SATA 3.0Gb/s Disk (7200 rpm) -swap SATA 3.0Gb/s Disk (15000 rpm) -swap SAS 3.0Gb/s Disk (15000 rpm) -swap SAS 3.0Gb/s Disk (15000 rpm)	45K1608 45J6191 45J6192 45J6193 45J6200 45J6201 45J6202 45J6203 45J6204 45J6212		*	(with limit 8 am - 5 p next busin ThinkPlus lenovo.co • Onsite s (in eligit • Post wa	ts and Replace ed onsi m, Mon bess da ™ servi m/thinkp service ble loca rranty n 7 day <sup>14</sup>	labor eable Uni te service - Fri cove y respons ices availa olus/warra upgrade o ttions) <sup>7</sup> maintenar toll-free s	it (CRU) pa e for selecto erage exclu se time) able; see nty options nce service support dur	ed parts³, ding holidays s	>,

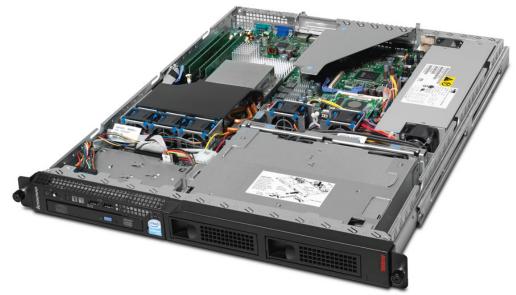
See footnotes for important warranty information US models announced September 30, 2008

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Lenovo ThinkServer RS110



Lenovo ThinkServer RS110



Lenovo ThinkServer RS110

### ThinkServer™ RS110 (6436) - TopSeller

Personal Systems Reference (PSREF)

Type- Name model	Slot x bay		GHz	Cores Mem	nory Disl	Disk k(s) size		Disk type	RAID controlle		Power supply			Workho <sup>1</sup> Globa	
<b>RS110</b> 6436-15เ	J 2x3	E7200	2.53	2 1 x 1	GB No	ne 3.5'	' 2 x Simple-swap	SATA	1064E	Combo	350W	5	1-year	No	Sep 08
	<ul> <li>Higl</li> <li>Eas</li> </ul>	y to use w	nce se ith Thi	erver with I hkServer E	rock soli EasyStar	tup, Eas	ology and proven syUpdate, and Eas els are part of the	yMana	age softw	are	1				
Processor Implementation	one m	ntel <sup>®</sup> Core aximum, 1 ssor uses	066MI	Iz system	bus, and	3MB L		10	Rack top		fan	1			
Memory	1GB s dual-c	td, 8GB m hannel cap	ax, <b>PC</b> bable,	2-6400 80	OMHz D in DIMM	DR2, E socket	CC.	soc	Riser slot 2	Riser slot	Power supply	Fro	-		
Graphics	extern	N50 (ES1) al monitor num resolu	port (\	/GA DB-1	5 rear);	MHz P	CI 2.3, 16MB,	sockets		t 1	supply		optical	disk	disk
EIDE controller EIDE Combo SATA disk(s) SATA controller SATA connectors	one co DVD-F None Serial Two S	ROM/CD-R ATA, SATA	n plana W, Ult 3.0Gl ectors o	ar, single 1 rabay Enh o/s, integra on planar,	-drop ID anced, 1 ated in IC	E cable 2.7mm CH9R, r	e (for Combo) high not used by disks		ptical	fan fan disk	disk	Rea		le x8 2 - PCle	×4]
SATA RAID cont	LSI™ Mini P Not su	1064E, SA CI Express Ipported	TA 3.0	Gb/s, RAII					lack color 7.3" W x 2			se			
SAS connectors SAS RAID cont Chipset	Not su Intel 3	ipported					ND (ICH9R)	• 4 • 2 • Te	<ul> <li>440mm W x 559mm D x 43mm H</li> <li>28 lb (12.7kg) max configuration</li> <li>Toolless top cover removal</li> <li>Toolless disk and optical drive removal</li> </ul>						
Riser card Front ports Rear ports Diagnostics Systems mgmt Audio	Contai Two U Two U two eti Diagno fans, c Syster IPMI 2 None	ins one PC SB 2.0 SB 2.0, ex hernet (RJ ostic LEDs disk contro m manage 2.0-complia	ternal -45), s (syste ller, me ment u ant	ess x4 slo monitor (V ystem ma em-error Ll emory, PC	t and on GA DB- nagemer ED on fro I slots, p	e PCI E 15), ser nt (RJ-4 ont cove ower)	xpress x8 slot ial (9-pin),	<ul> <li>Toolless adapter retention</li> <li>Illuminated front icons with system error LED</li> <li>Bay ① 5.25", 0.5" high, external, std optical</li> <li>Bay ② 3.5", 1" high, external, optional disk</li> <li>Bay ③ 3.5", 1" high, external, optional disk</li> <li><i>PCI Express riser card:</i></li> <li>Slot 1: 3/4-length, full-height, PCIe x8</li> <li>Slot 2: half-length, low-profile, PCIe x4 (x8 mechanical)</li> </ul>							nical)
Speaker Ethernet Keyboard Mouse Power supply Cooling	Dual g Broad None One 3 fans, r	al speaker gigabit on p com 5703 (use USB (use USB 50 watts, c non-hot-sw ans, five ma	olanar, (PCI 2 port) port) one ma ap, un	.2), full du aximum, no iversal	plex, Wa	ke on L	1), AN® vo variable speed	• A • B • B • S	Power-on Idministra Soot sequ Soot witho Serial port ISB port	itor pass ence cor out keybo : I/O cont	d word htrol ard, mo rol		, diskette		
	-			anageme				Thi	nkPlus P	riority Su	nnort	90-d:	av Trial		
IhinkServer E	asySta	rtup • Thi	nkSer	/er	odate •	IhinkS	erver EasyManage	-	HS-comp			50 U	~,		
Accessories1GB PC2-6400 DDR2 ECC UDIMM45J61882GB PC2-6400 DDR2 ECC UDIMM45J6189160GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)45J6195250GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)45J6196500GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)45J6197750GB 3.5" Simple-swap SATA 3.0Gb/s Disk (7200 rpm)45J6198Other accessories at lenovo.com/accessories45J6198						<b>A A A</b>	1-year pa Custome (with limi 8 am - 5 J next busi ThinkPlu lenovo.cc • Onsite (in elig • Post w 24 hour 2 warranty	rts and I r Replac ited onsi om, Mon iness day s™ servi om/thinkp service ible loca arranty r < 7 day <sup>14</sup>	eable L te serv - Fri co y respo ces ava olus/war upgrad tions) <sup>7</sup> nainter toll-free	Unit ( ice fo overa inse f ailabl ranty e opt nance e sup	CRU) par or selecte ge exclud time) le; see tions e services oport duri	ed parts³, ding holi s			

See footnotes for important warranty information US model announced September 30, 2008

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### ThinkServer™ RS110 (6438) - TopSeller

Personal Systems Reference (PSREF)

Type- Name model	Slot x bay	Processor	GHz	Cores Mer	mory Di		isk ize	Disk connection	Disk type	RAID controlle		Power supply		Limited ns warranty <sup>1</sup>		
<b>RS110</b> 6438-13l <b>RS110</b> 6438-15l		E3110 X3360	3.00 2.83	2 1 x 2 4 2 x 2	2GB N 2GB N	lone 3 lone <b>2</b>	8.5" 2 <b>.5</b> "	2 x Simple-swap 4 x Hot-swap			Combo Combo				No No	Sep 08 Sep 08
	<ul> <li>High</li> <li>Easy</li> </ul>	, to use wi	nce se th Thin	rver with kServer	rock so EasySta	artup, E	Easy	ogy and proven I Update, and Easy s are part of the I	/Mana	ge softv	vare	n				
Processor Implementation Memory	one m One Ir one m Proces 2GB o dual-c Non-ita	ntel <sup>®</sup> Xeon <sup>6</sup> aximum, 13 Itel Xeon I aximum, 13 ssor uses F r 4GB std, hannel cap alics: stanc	333MF Proces 333MF C-LG/ 8GB r able, fi lard m	Iz system sor X330 Iz system A8 packa nax, PC2 our 240-p emory in	n bus, ai 60 with n bus, ai ge, one 2-6400 8 bin DIMI	nd 6MI quad- nd 12M LGA7 00MHz M sock	B L2 core //B L 75 s z DD cets;	cache or 2 cache ocket <b>R2, ECC</b> ,	1U Memory sockets		Riser slot 1	E Power supply		optical	disk disk	disk disk
Graphics	ATI® R extern	or two sock N50 (ES10 al monitor oum resolut	)00), o port (V	n planar, 'GA DB-1	5 rear);		PCI	2.3, 16MB,			fan fan	[fan		ront on 3.5	" <b>disk r</b> disk	nodels disk
EIDE controller EIDE Combo SATA disk(s) SATA controller SATA connectors SATA RAID cont SAS disk SAS connectors SAS RAID cont	Enhan one cc DVD-F None Serial Two S. 13U: tr 13U: tr 13U: L Mini P None 15U: 4 15U: L	ced IDE cc nnector or COM/CD-R ATA, SATA ATA conne- wo simple- SI™ 1064E CI Express hot-swap SI MR10i,	ontrolle n plana W, Ultr 3.0Gb ctors o swap c 5, SAT/ @ adap connee SAS 3	r in Enter r, single abay Ent /s, integr n planar, connector A 3.0Gb/s oter ctors on 2 0.0Gb/s, F	rprise S 1-drop I nanced, rated in rs on 3.5 s, RAID <sup>8</sup> 2.5" disk	DE cal 12.7m ICH9R 5" disk <sup>3</sup> 0, 1 s < backp	ble (i im hi , not back uppo plane	or Combo) gh used by disks xplate ort,	• Bl: • 17 • 44 • 28 • To • To	.3" W x Omm W Ib (12.7 olless to olless d	disk r front; m 22" D x x 559mi 'kg) max op cover isk and c dapter re	1.75" H m D x 4 configu remova optical d	se 3m urat I	m H	2 x8 2 - PCIe	
Chipset	Intel 3	CI Express 210 Chips ID 0, 1, 10	et, Inte	el I/O Cor	ntroller I ©® SCH5	Hub 9 5027 S	RAI	D (ICH9R) I/O	• Illu Son	uminate ne: 2.5"	d front ice disk bay	ons witł 's:	n sy	stem error		
Riser card Front ports Rear ports Diagnostics Systems mgmt Audio Speaker Ethernet	Contai Two U Two U two ett Diagno fans, c Syster IPMI 2 None Interna Dual g	ns one PC SB 2.0 SB 2.0, ext hernet (RJ- ostic LEDs lisk control n manager .0-complia al speaker igabit on p	I Expre ernal r -45), sy (syste ler, me nent u nt lanar, l	ess® x4 s monitor (\ ystem ma m-error L mory, PC tility, base Broadcor	lot and VGA DE anagem ED on 1 CI slots, eboard 1	one PC 3-15), s ent (R front co power) manag	CIEX seria J-45) over; ) eme eme	press x8 slot (9-pin), error LEDs for nt controller,	Bay ① 5.25", 0.5" high, external, std optical Bay ② 2.5", 0.6" high, external, optional disk Bay ③ 2.5", 0.6" high, external, optional disk Bay ④ 2.5", 0.6" high, external, optional disk Bay ⑤ 2.5", 0.6" high, external, optional disk Some: 3.5" disk bays: Bay ① 5.25", 0.5" high, external, std optical Bay ② 3.5", 1" high, external, optional disk Bay ③ 3.5", 1" high, external, optional disk PCI Express riser card:							
Keyboard Mouse Power supply Cooling	None None One 3 fans, r	com 5703 ( use USB p use USB p 50 watts, o on-hot-swa ns, five ma	bort) bort) ne ma ap, uni	ximum, n versal	ion-redu	ındant,		variable speed	Slot     Po	2: half-	ength, fu ength, lo passwor ator pass	ow-profi Se	it, le, cur	PCIe x4 (x8	3 mecha	nical)
Accessories 1GB PC2-6400 2GB PC2-6400 160GB 3.5" Sim 250GB 3.5" Sim 750GB 3.5" Sim 73GB 2.5" Hot- 146GB 2.5" Hot- 146GB 2.5" Hot- 00ther accessori	DDR2 DDR2 ple-sw ple-sw ple-sw ple-sw swap S t-swap	ECC UDIN ECC UDIN ap SATA 3 ap SATA 3 ap SATA 3 ap SATA 3 AS 3.0Gb/ SAS 3.0Gb	1M .0Gb/s .0Gb/s .0Gb/s .0Gb/s s Disk s Disk	Disk (72 Disk (72 Disk (72 Disk (72 Disk (72 (15000 r k (10000	00 rpm) 00 rpm) 00 rpm) 00 rpm)	45 45 45 45 45 45 45	5J61 5J61 5J61 5J61 5J61 5J61 5J62 5J62	39 95 96 97 98 98	• Bo	oot with erial por	ience col but keybo t I/O con disablem	bard, me trol		e, diskette or all)		
				d Warran	ntv <sup>1</sup>											
<ul> <li>3-year parts a</li> <li>Customer Reselected part next busines</li> <li>ThinkPlus™s</li> </ul>	placea s <sup>3</sup> , 8 an s day re service	or ble Unit (C n - 5 pm, M esponse til s available	RU) pa on - Fr ne) ; see le	rts only ( i coverag enovo.coi	(with lim ge exclu m/think	ding h plus/wa	olida	iys,	• Th	inkServ	Softw er Easys er Easyl er Easyl	Startup Jpdate		gement too	ols	
<ul> <li>Onsite service</li> </ul>	vice up	grade optio	ons (in	eligible I	location	S)7			Thir	kPlus P	riority Su	upport.	90-	dav Trial		
<ul> <li>Post warra</li> </ul>		ntenance	service											aay ma		

See footnotes for important warranty information US models announced September 30, 2008

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Lenovo ThinkServer RD120



Lenovo ThinkServer RD120





Lenovo ThinkServer RD120



Lenovo ThinkServer RD120

### ThinkServer™ RD120 (6445) - TopSeller

Personal Systems Reference (PSREF)

Type- Name model	Slot x Disk Disk Disk Disk Disk Disk Disk Disk	RAID EIDE Power Limited Workhorse Avai controller optical supply(s) Fans warranty' Global date
	U 4x7 1 x E5205 1.86 2 2 x 1GB None 3.5" 6 x Hot-swap SATA/SA U 4x7 1 x E5205 1.86 2 2 x 1GB None 3.5" 6 x Hot-swap SATA/SA	
	<ul> <li>R = Rack, D = Dual processor support</li> <li>High performance server with rock solid technology and proven h</li> <li>Easy to use with ThinkServer EasyStartup, EasyUpdate, and Easy</li> <li>These small and medium business (SMB) models are part of the U</li> </ul>	Manage software
Processor	One Intel <sup>®</sup> Xeon <sup>®</sup> Processor E5205 with dual-core, two maximum, 1066MHz system bus, and 6MB L2 cache	2U Rack top
Implementation	Processor uses FC-LGA6 package, two LGA771 sockets	
Memory	<b>2GB</b> std, 48GB max, <b>PC2-5300 667MHz DDR2</b> , <b>Advanced ECC</b> , fully buffered, 4-channel capable, twelve 240-pin DIMM sockets; <i>Non-italics:</i> standard memory in two sockets; ten sockets available	Riser slot 1 Solution Riser slot 2 Riser
Graphics	ATI <sup>®</sup> RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (two VGA DB-15 front and rear); <i>Maximum resolution:</i> 800x600@85Hz	
EIDE controller EIDE Combo	Enhanced IDE controller in Enterprise South Bridge, one connector on planar, single 1-drop IDE cable (for Combo) DVD-ROM/CD-RW, Ultrabay Enhanced, 12.7mm high	
SATA disk(s)	None s Six hot-swap connectors on 3.5" disk backplane None	fan     fan     fan       fan     fan     fan       fan     fan       fan     fan
SATA/SAŠ <sup>4</sup> cont	: 14U SATA/SAS: Adaptec <sup>®</sup> AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID <sup>8</sup> 0, 1, 10 support, 8-port, on planar	
	<ul> <li>Six hot-swap connectors on 3.5" disk backplane</li> <li>12U SATA/SAS: RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID<sup>8</sup> 0, 1, 1e, 5, 6, 10 support, in reserved connector, single cable to backplane</li> </ul>	optical disks disks
Chipset	Intel 5000P chipset, Intel 6321ESB-2E I/O Controller Hub, NS PC8742XVUL Super I/O	<ul> <li>Black color front; metal case</li> <li>17.5"W x 27.8"D x 3.36"H</li> <li>443.6mm W x 705mm D x 85.4mm H</li> </ul>
Riser card Front ports Rear ports	Contains two PCI Express <sup>®</sup> x8 slots Two USB 2.0, external monitor (VGA DB-15) Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45), external SAS	<ul> <li>65 lb (29.5kg) max configuration</li> <li>Toolless top cover removal</li> <li>Toolless disk and optical drive removal</li> </ul>
Diagnostics	Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED; error LEDs for fans, disks, RAID, memory, processors, voltage regulator module, riser card,	Toolless adapter retention     Illuminated front icons with pull-out     Easy LED Diagnostics panel
Systems mgmt	PCI slots, power supplies) System management utility, baseboard management controller, IPMI 2.0-compliant	Bay ① 5.25", 0.5" high, external, std optical Bay ② 3.5", 1" high, external, optional disk Bay ③ 3.5", 1" high, external, opt disk (opt 1.6" tape
Audio Speaker	None Internal speaker	Bay ④ 3.5", 1" high, external, opt disk (used by tape Bay ⑤ 3.5", 1" high, external, optional disk
Ethernet	Dual gigabit on planar, two Broadcom <sup>®</sup> 5708, PCIe x1, full duplex, Wake on LAN <sup>®</sup> , TCP/IP Offload Engine (TOE), Alert Standard Format 2.0	Baý ⑤ 3.5", 1" high, external, optional disk Bay ⑥ 3.5", 1" high, external, optional disk Bay ⑦ 3.5", 1" high, external, optional disk Slot 1: full-length, full-height, PCIe x8 <i>(on riser card)</i>
Keyboard Mouse Power supply	None (use USB port) None (use USB port) Two 835 watts, two maximum, redundant with 2, variable speed fan, hot-swap, universal, two redundant power supplies require ten fans	Slot 2: half-length, full-height, PCIe x8 (on riser card) Slot 3: half-length, low-profile, PCIe x4 (x8 mechanical) Slot 4: half-length, low-profile, PCIe x4 (x8 mechanical)
Cooling	Ten fans, ten maximum, variable speed, hardware failure protection, hot-swap, ten fans required with second redundant power supply	
Accessories Intel Xeon Qua	ad-Core Processor E5205 45J6180	
1GB PC2-530	0 DDR2 ECC FB-DIMM 45J6191	Security
4GB PC2-530	0 DDR2 ECC FB-DIMM 45J6193	Security <ul> <li>Power-on password</li> </ul>
500GB 3.5" H	ot-swap SATA 3.0Gb/s Disk (7200 rpm) 45J6202 ot-swap SATA 3.0Gb/s Disk (7200 rpm) 45J6203	Administrator password
1TB 3.5" Hot-s	swap SATA 3.0Gb/s Disk (7200 rpm) 45J6204	<ul> <li>Boot sequence control</li> <li>Boot without keyboard, mouse, diskette</li> </ul>
300GB 3.5" He	ot-swap SAS 3.0Gb/s Disk (15000 rpm) 45J6211 ot-swap SAS 3.0Gb/s Disk (15000 rpm) 45J6212 ries at <b>lenovo.com</b> /accessories	Serial port I/O control     USB port disablement (front or all)
	Limited Warranty <sup>1</sup>	Software management tools
selected pa next busine	eplaceable Unit (CRU) parts only (with limited onsite service for rts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, ss day response time)	ThinkServer EasyStartup     ThinkServer EasyUpdate     ThinkServer EasyManage
<ul> <li>Onsite se</li> </ul>	services available; see lenovo.com/thinkplus/warranty rvice upgrade options (in eligible locations) <sup>7</sup> anty maintenance services	ThinkPlus Priority Support, 90-day Trial
	day <sup>14</sup> toll-free support during the warranty period <sup>1</sup> via 800-426-7378	RoHS-compliant

See footnotes for important warranty information IS US model announced January 20, 2009; previous model on September 30, 2008

#### Personal Systems Reference (PSREF)

#### ThinkServer™ RD120 (6447) - TopSeller

Type- Name model	Slot x Proc- Disk Disk Disk bay essor(s) GHz Cores Memory Disk(s) size connection type							
RD120 6447-21l	J 4x7 1 x E5410 2.33 4 2 x 1GB None 3.5" 6 x Hot-swap SATA/5 J 4x7 1 x E5430 2.66 4 2 x 2GB None 3.5" 6 x Hot-swap SATA/5 J 4x10 2 x E5450 3.00 4 2 x 2GB None 2.5" 8 x Hot-swap SAS • R = Rack, D = Dual processor support • High performance server with rock solid technology and proven h • Easy to use with ThinkServer EasyStartup, EasyUpdate, and Easy • These small and medium business (SMB) models are part of the U	SAS <sup>4</sup> RAID-8k Combo 2 x 835W 10 3-ýear No Sep 08 RAID-8k Combo 2 x 835W 10 3-year No Sep 08 ardware design Manage software						
Processor Implementation	One or two Intel® Xeon® Processor E5410, E5430, or E5450 with quad-core, two maximum, 1333MHz bus, and 12MB L2 cache Processor uses FC-LGA6 package, two LGA771 sockets	2U Rack top Front on 3.5" disk models						
Memory	2GB or 4GB std, 48GB max, PC2-5300 667MHz DDR2, Advanced ECC, fully buffered, 4-channel capable, twelve 240-pin DIMM sockets; Non-italics: standard memory in two sockets; ten sockets available	Riser slot 1 34 Riser slot 2 Riser slot 2 Ri						
Graphics	ATI <sup>®</sup> RN50 (ES1000), on planar, 32-bit/33MHz PCI 2.3, 16MB, external monitor port (two VGA DB-15 front and rear); <i>Maximum resolution</i> : 800x600@85Hz	CPUCPU Structure for the set of t						
SAS disk(s) SATA/SAS <sup>4</sup> cont	Enhanced IDE controller in Enterprise South Bridge, one connector on planar, single 1-drop IDE cable (for DVD) DVD-ROM/CD-RW, Ultrabay Enhanced, 12.7mm high None <i>18U/21U:</i> six hot-swap connectors on 3.5" disk backplane None Adaptec <sup>®</sup> AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID <sup>8</sup> 0, 1, 10 support, 8-port, on planar, not used	fan     fan						
SATA/SAS RAID	<i>18U/21U:</i> six hot-swap connectors on 3.5" disk backplane <i>23U:</i> eight hot-swap connectors on 2.5" disk backplane RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID <sup>8</sup> 0, 1, 1e, 5, 6, 10 support, in reserved connector,	optical     disks     disks     Image: Constraint of the second						
Chipset	single cable to backplane Intel 5000P chipset, Intel 6321ESB-2E I/O Controller Hub, NS PC8742XVUL Super I/O	<ul> <li>17.5"W x 27.8"D x 3.36"H</li> <li>443.6mm W x 705mm D x 85.4mm H</li> <li>65 lb (29.5kg) max configuration</li> </ul>						
Riser card Front ports Rear ports Diagnostics Systems mgmt Audio Speaker Ethernet	Contains two PCI Express® x8 slots Two USB 2.0, external monitor (VGA DB-15) Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45), external SAS Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED; error LEDs for fans, disks, RAID, memory, processors, voltage regulator module, riser card, PCI slots, power supplies) System management utility, baseboard management controller, IPMI 2.0-compliant None Internal speaker Dual gigabit on planar, two Broadcom® 5708, PCIe x1, full duplex, Wake on LAN®, TCP/IP Offload Engine (TOE),	<ul> <li>Toolless top cover removal</li> <li>Toolless disk and optical drive removal</li> <li>Toolless adapter retention</li> <li>Illuminated front icons with pull-out Easy LED Diagnostics panel</li> <li>Some: 2.5" disk bays:</li> <li>Bay ① 5.25", 0.5" high, external, std optical</li> <li>Bay ② 3.5", 0.6" high, external, optional tape</li> <li>Bay ④ 2.5", 0.6" high, external, optional disk</li> <li>Bay ⑤ 2.5", 0.6" high, external, optional disk</li> <li>Bay ⑥ 2.5", 0.6" high, external, optional disk</li> <li>Bay ⑥ 2.5", 0.6" high, external, optional disk</li> <li>Bay ⑧ 2.5", 0.6" high, external, optional disk</li> </ul>						
Keyboard Mouse Power supply Cooling	Alert Standard Format 2.0 None (use USB port) None (use USB port) Two 835 watts, two maximum, redundant with 2, variable speed fan, hot-swap, universal, two redundant power supplies require ten fans Ten fans, ten maximum, variable speed, hardware failure protection, hot-swap, ten fans required with second redundant power supply	<ul> <li>Bay (9) 2.5", 0.6" high, external, optional disk</li> <li>Bay (9) 2.5", 0.6" high, external, optional disk</li> <li>Some: 3.5" disk bays:</li> <li>Bay (1) 5.25", 0.5" high, external, std optical</li> <li>Bay (2) 3.5", 1" high, external, optional disk</li> <li>Bay (3) 3.5", 1" high, external, opt disk (opt 1.6" tape)</li> <li>Bay (2) 3.5", 1" high, external, opt disk (used by tape)</li> </ul>						
Intel Xeon Qua 1GB PC2-5300 2GB PC2-5300 4GB PC2-5300 750GB 3.5" Hoi 1TB 3.5" Hot-sv 146GB <b>2.5</b> " Hoi 300GB 3.5" Hoi	d-Core Processor E5410       45J6185         d-Core Processor E5430       45J6186         DDR2 ECC FB-DIMM       45J6191         DDR2 ECC FB-DIMM       45J6192         DDR2 ECC FB-DIMM       45J6193         t-swap SATA 3.0Gb/s Disk (7200 rpm)       45J6203         wap SATA 3.0Gb/s Disk (7200 rpm)       45J6204         t-swap SAS 3.0Gb/s Disk (10000 rpm)       45J6207         t-swap SAS 3.0Gb/s Disk (15000 rpm)       45J6211         t-swap SAS 3.0Gb/s Disk (15000 rpm)       45J6212         ies at lenovo.com/accessories       45J6212	Bay (5) 3.5", 1" high, external, optional disk Bay (6) 3.5", 1" high, external, optional disk Bay (7) 3.5", 1" high, external, optional disk Slot 1: full-length, full-height, PCIe x8 ( <i>on riser card</i> ) Slot 2: half-length, full-height, PCIe x8 ( <i>on riser card</i> ) Slot 3: half-length, low-profile, PCIe x4 (x8 mechanical) Slot 4: half-length, low-profile, PCIe x4 (x8 mechanical)						
ThinkServer E	Software management tools asyStartup • ThinkServer EasyUpdate • ThinkServer EasyManage	Security						
selected part next busines ☞ ThinkPlus™	eplaceable Unit (CRU) parts only (with limited onsite service for ts <sup>3</sup> , 8 am - 5 pm, Mon - Fri coverage excluding holidays, ts day response time) services available; see lenovo.com/thinkplus/warranty	<ul> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Boot without keyboard, mouse, diskette</li> <li>Serial port I/O control</li> <li>USB port disablement (front or all)</li> </ul>						
<ul> <li>Onsite ser</li> <li>Post warra</li> </ul>	vice upgrade options (in eligible locations) <sup>7</sup> inty maintenance services lay <sup>14</sup> toll-free support during the warranty period <sup>1</sup> via 800-426-7378	ThinkPlus Priority Support, 90-day Trial RoHS-compliant						

#### ThinkServer<sup>™</sup> Accessories

ThinkServer Ready accessories are available			
Business Partners. Locate a Business Partr bplocator.lenovo.com	ner near you at:		
Storage		Operating Systems	
USB Portable Diskette Drive	05K9276 ann 06/05/00	Microsoft® Windows®	
Keyboard		English language	
Preferred Pro USB Keyboard USB Travel Keyboard with UltraNav	73P5220 ann 06/21/05 31P9490 ann 04/27/04		54Y6100 54Y6110 84979HE
Mouse		Essential Business Server 2008 Standard ROK Essential Business Server 2008 Premium ROK	84978IE 84978JE
Optical Wheel Mouse (USB)	06P4069 ann 05/21/03	Small Business Server 2008 Standard ROK	84978EE
Monitors		Small Business Server 2008 Premium ROK Small Business Server 2003 R2, Standard Edition ROK	84978FE 54Y6119
ThinkVision® L151 15" LCD Monitor ThinkVision L171p 17" LCD Monitor ThinkVision L193p 19" LCD Monitor	9165AC6 ann 10/23/07 9227AD1 ann 10/31/06 4431HB2 ann 10/23/07	Small Business Server 2003 R2, Premium Edition ROK Server 2003 R2, 32-bit Enterprise Edition ROK	54Y6128 55Y7017 55Y7027 55Y7000 55Y7010
Other accessories at www.lenovo.com/thir	ikserver/options	Franch language	
		French language Server 2008 Standard ROK Server 2008 Enterprise ROK Server 2008 Datacenter (64-bit) ROK Small Business Server 2008 Standard ROK Small Business Server 2003 R2, Standard Edition ROK Small Business Server 2003 R2, Premium Edition ROK Server 2003 R2, 32-bit Enterprise Edition ROK Server 2003 R2, Enterprise x64 Edition ROK Server 2003 R2, Standard Edition ROK Server 2003 R2, Standard Edition ROK Server 2003 R2, Standard Edition ROK	54Y6103 54Y6112 84979HF 84978EF 54Y6121 54Y6120 55Y7021 55Y7033 55Y7006 55Y7016
		Spanish language Server 2008 Standard ROK Server 2008 Enterprise ROK Server 2008 Datacenter (64-bit) ROK Small Business Server 2008 Standard ROK Small Business Server 2003 R2, Standard Edition ROK Small Business Server 2003 R2, Premium Edition ROK Server 2003 R2, 32-bit Enterprise Edition ROK Server 2003 R2, Enterprise x64 Edition ROK Server 2003 R2, Standard Edition ROK Server 2003 R2, Standard Edition ROK Server 2003 R2, Standard Edition ROK	54Y6108 54Y6117 84979HS 84978ES 54Y6126 54Y6126 55Y7025 55Y7025 55Y7030 55Y7005 55Y7013
		Microsoft Windows Client Access License(s)	
		Multi-Language Server 2008 1 user Server 2008 5 user Server 2008 5 creater Server 2008 Terminal Services 5 user Small Business Server 2008 Standard 1 user Small Business Server 2008 Standard 5 user Small Business Server 2008 Premium 5 user Essential Business Server 2008 Standard 5 user Essential Business Server 2008 Standard 5 user Essential Business Server 2008 Standard 20 user Essential Business Server 2008 Premium 5 user Essential Business Server 2008 Premium 5 user Essential Business Server 2008 Premium 20 user Novell® Server Software - SLES for Lenovo SLES = SUSE® Linux™ Enterprise Server	849781A 849785A 849785C 849781C 849785C 849785D 849785E 849785E 849782E 849782F 849782F
		1-year SLES plus 1-year Standard support 1-year SLES plus 1-year Priority support 3-year SLES plus 3-year Standard support 3-year SLES plus 3-year Priority support	55Y7037 55Y7038 55Y7039 55Y7040

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or more information see:			
http://www.lenovo.com/services_warranty/us/en/index.h	tml		
Training classes		ThinkPlus Priority Support	
<ul> <li>The basics on components, diagnostics, troubleshooting, managing Lenovo servers, delivered in interactive online f</li> </ul>		<ul> <li>9x5 Next Business Day response Lenovo Onsite Repai</li> <li>24 x 7 support with priority routing and advanced level</li> </ul>	
Online Training, Understanding Lenovo Servers Online Training, Understanding Systems Management Installation, ThinkServer Hardware Only	45K4080 45K4081 45K4082	<b>TS100 with 1-year warranty</b> 3-year Priority Support 3-year Priority Support 4 hour response	45K405 45K405
<u>ThinkPlus service upgrade options</u> <sup>7</sup> LOR = Lenovo Onsite Repair		<b>TS100 with 3-year warranty</b> 3-year Priority Support 3-year Priority Support 4 hour response	45K406 45K406
<b>TS100 with 1-year warranty</b> 3-year LOR 9x5 Next Business Day 3-year LOR 9x5 4 hour response	45K4055 45K4056	<b>TD100 with 1-year warranty</b> 3-year Priority Support 3-year Priority Support 4 hour response	45K406 45K406
4-year LOR 9x5 Next Business Day 4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0723 51J0724 51J0725 51J0726	<b>TD100 with 3-year warranty</b> 3-year Priority Support 3-year Priority Support 4 hour response	45K406 45K406
<b>TS100 with 3-year warranty</b> 3-year LOR 9x5 4 hour response 4-year LOR 9x5 Next Business Day	45K4059 51J0727	<b>RS110 with 1-year warranty</b> 3-year Priority Support 3-year Priority Support 4 hour response	45K407 45K407
4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0728 51J0729 51J0730	<b>RS110 with 3-year warranty</b> 3-year Priority Support 3-year Priority Support 4 hour response	45K407 45K407
<b>TD100 with 1-year warranty</b> 3-year LOR 9x5 Next Business Day 3-year LOR 9x5 4 hour response	45K4062 45K4063	RD120 with 1-year warranty 3-year Priority Support 3-year Priority Support 4 hour response	45K530 45K530
4-year LOR 9x5 Next Business Day 4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0731 51J0732 51J0733 51J0734	<b>RD120 with 3-year warranty</b> 3-year Priority Support 3-year Priority Support 4 hour response	45K407 45K407
<b>TD100 with 3-year warranty</b> 3-year LOR 9x5 4 hour response 4-year LOR 9x5 Next Business Day 4-year LOR 9x5 4 hour response	45K4066 51J0735 51J0736	ThinkPlus Priority Support with Hard Disk Drive Reter • 9x5 Next Business Day response Lenovo Onsite Repair • 24x7 support with priority routing and advanced level te black Disk Drive Determine (UDD) are particular to the second s	r echnicians
5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0737 51J0738	<ul> <li>Hard Disk Drive Retention (HDDR) means customer key HDDR = Hard Disk Drive Retention</li> <li>TS100 with 1-year warranty</li> </ul>	eps uisk
<b>RS110 with 1-year warranty</b> 3-year LOR, 9x5 Next Business Day 3-year LOR, 4 hour response	45K4069 45K4070	3-year Priority Support with HDDR 3-year Priority Support 4 hour reponse with HDDR	45K544 45K544
4-year LOR 9x5 Next Business Day 4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0739 51J0740 51J0741 51J0742	<b>TS100 with 3-year warranty</b> 3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR	45K544 45K544
RS110 with 3-year warranty 3-year LOR, 4 hour response 4-year LOR 9x5 Next Business Day	45K4073 51J0743	<i>TD100 with 1-year warranty</i> 3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR <i>TD100 with 3-year warranty</i>	45K544 45K544
4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0744 51J0745 51J0746	3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR <b>RS110 with 1-year warranty</b>	45K544 45K544
<i>RD120 with 1-year warranty</i> 3-year LOR 9x5 Next Business Day 3-year LOR 9x5 4 hour response	45K5305 45K5306	3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR <b>RS110 with 3-year warranty</b>	45K544 45K545
4-year LOR 9x5 Next Business Day 4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0747 51J0748 51J0749 51J0750	3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR RD120 with 1-year warranty	45K545 45K545
<i>RD120 with 3-year warranty</i> 3-year LOR 9x5 4 hour response 4-year LOR 9x5 Next Business Day	45K4076 51J0751	3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR RD120 with 3-year warranty	45K545 45K545
4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 5-year LOR 9x5 4 hour response	51J0752 51J0753 51J0753 51J0754	3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR	45K545 45K545
Lenovo Online Data Backup • Secure offsite data storage		ThinkPlus Productivity <ul> <li>Priority Support</li> <li>Online Training, Understanding Lenovo Servers</li> </ul>	
<ul> <li>256-bit Advanced Encryption System</li> <li>Data recovery or access in case of an unforeseen event</li> <li>Automatic, remote management</li> <li>Choose which business critical data to back up</li> </ul>		One-time hardware installation     3-year ThinkPlus Productivity, TS100 (1-year)     3-year ThinkPlus Productivity, TS100 (3-year)     3-year ThinkPlus Productivity, TS100 (3-year)	45K408 45K408
1-year 25GB Server Lenovo Online Data Backup (US) 1-year 50GB Server Lenovo Online Data Backup (US) 1-year 100GB Server Lenovo Online Data Backup (US)	45K2115 45K2116 45K2117	3-year ThinkPlus Productivity, TD100 (1-year) 3-year ThinkPlus Productivity, TD100 (3-year) 3-year ThinkPlus Productivity, RS110 (1-year) 3-year ThinkPlus Productivity, RS110 (3-year) 3-year ThinkPlus Productivity, RD120 (1-year)	45K408 45K409 45K409 45K409 45K53

**Availability:** All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

Warranty: For a copy of applicable product warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC, 27709, Attn: Dept ZPYA/B600. Lenovo makes no representation or warranty regarding third party products or services.

- <sup>1</sup> Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.
- <sup>2</sup> Hard drive: GB = billion bytes, TB = trillion bytes. Accessible capacity is less.
- <sup>3</sup> Systems with limited onsite service are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. In the United States call 1-800-426-7378. Support unrelated to a warranty issue may be subject to additional charges.
- <sup>4</sup> 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.
- <sup>7</sup> ThinkPlus Services: These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. P&L means parts and labor. P/U means pick-up. See ThinkPlus terms and conditions for complete details and restrictions.

- <sup>8</sup> 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 blocklevel 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 blocklevel striping with distributed double parity improving performance over RAID 6. Requires eight drives.
- <sup>14</sup> Response times may vary. May exclude some holidays. Telephone support may be subject to additional charges.

# **ThinkServer**

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