### Personal Systems Reference Lenovo ThinkServer Servers

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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,	<ul> <li>Side</li> <li>pro</li> <li>Pow</li> <li>Adm</li> <li>Boot</li> </ul>	cover loo ohibits rer er-on pas inistrator	ck (ships noval of sword passwo e contro	Securit with two front par rd	o identical nel and di	l keys) sks	
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	TÀ 1.5Gb/ TA 3.0Gb/s aectors 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	e x8 e x1 (x4 r bit PCI-X bit PCI 2.3	mechai (not er 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	ohibits rem er-on pass inistrator p sequence without ke al port I/O	oval of word asswo contro eyboard control	s with two ic front panel rd ol d, mouse, c	and disk		
		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	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 6203 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: stat</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/SA:</li> <li>LSI™ 1064E, S</li> <li>Mini PCI Expression</li> <li>None</li> <li>15U SATA/SA:</li> <li>LSI™ 1064E, S</li> <li>Mini PCI Expression</li> <li>None</li> <li>SATA/SA:</li> <li>LSI™ 1064E, S</li> <li>Mini PCI Expression</li> <li>None (use US</li> <li>None</li> <li>15U SATA/SA:</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>Some: One 4</li> <li>Some: One 4</li> <li>Some: One 4</li> <li>Variabi</li> <li>Some: SATA 3.0</li> <li></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 Gb/s Disk rwore 0ne 400 watts, 0 variable speed fa Three fans (processor, reference) DDR2 ECC UDIMM ple-swap SATA 3.0Gb/s Disk t-swap SATA 3.0Gb/s Disk t-swa	<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, red variable speed fan, non-hot-swap, Some: Two 430 watts, two maximum, red variable speed fan, non-hot-swap, Some: Two 430 watts, two maximum, red variable speed fan, not-swap, UNV Three fans (processor, rear, disks) DDR2 ECC UDIMM pple-swap SATA 3.0Gb/s Disk (7200 rpm) t-swap SATA 3.0Gb/s Disk (7200 rpm)	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 nple-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 Contipeet Conthigh	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       8.5% W 21.25"         •       ZGB or 4068 rd, GB max, PC2-6400 800MHz DDR2, ECC, Mon-falics: standard memory in two sockets available       •       Toolless side or       •       Toolless adapte         •       Ant® RN50 (ES1000), on planar, 32-bit/33MHz PC1.2, 64MB, Maximum resolution: 1024/768@ 86Hz       •       Toolless adapte       •       Toolless adapte       •       Toolless adapte       •       Toolless adapte       Sofi 16 (25.2kg) r       •       Toolless adapte       •       Toolless adapte       108/9 % 3.5", 1"       Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.25", 1.6       Bay © 5.5", 1"       Bay © 5.5", 1"       Bay © 5.5", 1"	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 (loc (25.2kg) max to color (24.075 socket)       -       2.16m W X 450mm L       -       0.6 (loc (25.2kg) max to color (24.075 socket)       -       1001ess disk and opin       -       1001ess disk in in (14.07 socon)       -	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 0Gb/s, uses ICH9R None 12U SATA 2.5 A 5ATA 3.0 Gb/s, RAID® 0, tsupport, Maximum resolution: 1024x768@ 85Hz None Cise proses® dapter 12U SATA 2.5 A 5ATA 3.0 Gb/s, RAID® 0, tsupport, Maximum resolution: 1024x768@ 85Hz None Cise proses® adapter 12U SATA 2.5 A 5ATA 3.0 Gb/s, RAID® 0, tsupport, None 12U SATA 2.5 A 5ATA 3.0 Gb/s, SAS 3.0 Gb/s. RAID® 0, 1, 5, 0, 50, 050 comectors on 3.5' disk backplane 12U SATA 2.5 A 5ATA 3.0 Gb/s, RAID® 0, tsupport, None 12U SATA 2.5 A 5ATA 3.0 Gb/s, SAS 3.0 Gb/s. RAID® 0, 1, 50 usport, SMSC® SCH5027D Super I/O Two USB 2.0 Two US	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, uses ICH9R 15U SATA/3.30 Gb/s, uses ICH9R 15U SATA/3.30 Gb/s, SAS 3.0 Gb/s, 15U SATA 3.004b/s, sees ICH9R 15U SATA/3.30 Gb/s, SAS 3.0 Gb/s, 15U SATA 3.004b/s, sees ICH9R 15U SATA/3.30 Gb/s, SAS 3.0 Gb/s, 15U SATA 3.004b/s, sees ICH9R 15U SATA/3.30 Gb/s, SAS 3.0 Gb/s, 15U SATA 3.004b/s, SATA 3.0 Gb/s, SAS 3.0 Gb/s, 15U SATA 3.004b/s, SAS DAS 0.0 EXPROSEDER 15U SATA 3.004b/s, SAS D	J. 4x7       Z3360       2       2       2       2       2       2       2       3       4       X102       3       9

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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) GHz Co	res Memory D	Disk Disk(s)size	Disk connection	Disk type	RAID controller	EIDE optical	Power supply(s	) Fans	Limited V warranty <sup>1</sup>		
<b>TD100</b> 6399-14l	J 6x7 1 x E5405 2.00	4 2 x 1GB	None 3.5" 4	4 x Simple-swap	SATA	RAID-8k	DVD	670W	3	1-year	No	Sep 08
	<ul> <li>T = Tower, D = Dual pr</li> <li>High performance ser</li> <li>Easy to use with Thini</li> <li>These small and medi</li> </ul>	ver with rock Server Easy	solid techn Startup, Eas	syUpdate, and Ea	syMar	nage softw	are	am				
Processor(s) Implementation Memory	One Intel® Xeon® Proce two maximum, 1333MHz Processor uses FC-LGA 2GB std, 32GB max, PC fully buffered, eight 240- Non-italics: standard me	z system bus, 6 package, tv <b>2-5300 667N</b> pin DIMM soo	and 12MB wo LGA771 IHz DDR2, . ckets;	L2 cache sockets Advanced ECC,	•	<b>ower</b> Business b 3.6"W x 29 218mm W 75 lb (34kg	).4"D x x 747r g) max	17.3"H nm D x 4 configur	40mm ation		opt opt tap	ical
Graphics	ATI® RN50 (ES1000), or external monitor port (V Maximum resolution: 80	planar; 32-b GA DB-15 rea	it/33MHz P( ar);			Toolless si Toolless di Toolless ac Illuminatec	sk and Japter	optical or	drive re	emoval	dis	
SAS disk(s) SATA/SAS cont SAS connectors SATA/SAS RAID		, single 2-dro ctors on 3.5" ATA 3.0Gb/s, 3-port, on pla 3.0Gb/s, SAS support, in rese el 6321ESB-2 (9-pin), paral monitor (VGA J-45) n-error LED cors, PCI slots lity, baseboar ar, Broadcom v <sup>®</sup> port) port) port) port) imum, non-res	p IDE cable disk backpl SAS 3.0Gb nar, not use 3.0Gb/s, served conr 2E I/O Contr DB-15), eth on front cove , voltage reg d managem ® BCM5721	(for DVD) ane //s, d nector, roller Hub, d (PS/2), nernet (RJ-45), er; error LEDs for gulator module, nent controller, l, PCIe x1, ariable speed fan	B     B	Rack shelf ay ① 5.25' ay ② 5.25' ay ③ 5.25' ay ③ 5.25' ay ③ 3.5'', ay ③ 3.5'', ay ③ 3.5'', ay ⑦ 3.5'', ot 1: half-le ot 3: full-le ot 3: full-le ot 4: full-le ot 4: full-le ot 4: full-le ot 4: full-le ot 5: full-le ot 6: half-le Side cover - prohibits Power-on Administra Boot sequ Serial port of	, 1.6" , 1.6" , 1.6" , 1.6" 1" hig 1"	high, ex high, ex gh, ex gh, ex gh, ex gh, ex full-heig sword ontrol board, m introl	ternal, ternal, ternal, ternal, ternal, ternal, ternal, ternal, ternal, t, PC ht, PC ht, 64- ht, PC <b>curity</b> h two is t pane	optional optional optional optional optional optional le x8 le x8 bit PCI-X bit PCI-X l dentical k el and disk	tape o tape o disk disk disk disk mecha eys)	r optical r optical
Cooling	protection, hot-swap, six power supply				-	hinkPlus P		Support,	90-day	/ Trial		
Accessories Intel Xeon Qua 1GB PC2-5300 2GB PC2-5300 4GB PC2-5300 160GB 3.5" Sir 500GB 3.5" Sir 750GB 3.5" Sir	Software ma asyStartup • ThinkServe d-Core Processor E5405 DDR2 ECC FB-DIMM DDR2 ECC FB-DIMM DDR2 ECC FB-DIMM nple-swap SATA 3.0Gb/s nple-swap SATA 3.0Gb/s ies at lenovo.com/acces	r EasyUpdate Disk (7200 rp Disk (7200 rp Disk (7200 rp Disk (7200 rp Disk (7200 rp	e • ThinkS 45J6 45J6 45J6 45J6 45J6 m) 45J6 m) 45J6 m) 45J6	221 191 192 193 195 196 197	ge a a	8 am - 5 p next busi ThinkPlus lenovo.co • Onsite	rts and r Repla ted on: om, Mo ness d s™ ser om/thin service ible loc arranty 7 day	aceable L site serv n - Fri co lay respo vices ava kplus/wal e upgrad cations) <sup>7</sup> mainter to mainter	Unit (Cl ice for overage onse tir ailable; rranty e optic ance s e supp	RU) parts selected e excludir ne) ; see ons services ort during	parts³, ng holio	days,

See footnotes for important warranty information US models announced 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 4GB PC2-5300 160GB 3.5" Hoi 250GB 3.5" Hoi 750GB 3.5" Hoi 750GB 3.5" Hoi 300GB 3.5" Hoi 300GB 3.5" Hoi	d-Core Processor E5430 DDR2 ECC FB-DIMM DDR2 ECC FB-DIMM t-swap SATA 3.0Gb/s Disk (7200 rpm) t-swap SATA 3.0Gb/s Disk (7200 rpm)	45J6185 45J6186 45J6191 45J6192 45J6200 45J6201 45J6202 45J6203 45J6204 45J6211 45J6212	Limited Warranty¹

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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 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	ot 2: full-ler ot 3: full-ler ot 4: full-ler	ngth, fi ngth, fi ngth, fi ngth, fi	ull-height, ull-height, ull-height, ull-height,	PCIe x8 PCIe x8 64-bit PC 64-bit PC		al)
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	>,

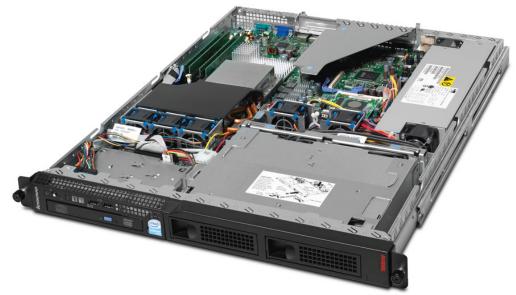
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Lenovo ThinkServer RS110



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	40mm W 8 lb (12.7 polless to	x 559mr kg) max p cover i	n D x 4 configu emova	uratic I	n		
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),	• To • III Bay Bay Bay PC Slo	colless di colless ac uminatec y ① 5.25 y ② 3.5", y ③ 3.5", il Express t 1: 3/4-le t 2: half-le	dapter re I front icc ", 0.5" hig 1" high 1" high s <i>riser ca</i> ength, fu	tention ons with gh, ext h, ext n, ext n, ext Ill-heigt	n sys ærna ærna ærna nt, P	tem error I, std op I, option I, option Cle x8	tical al disk al disk	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	~,		
Accessories 1GB PC2-6400 2GB PC2-6400 160GB 3.5" Sim 250GB 3.5" Sim 750GB 3.5" Sim Other accessori	DDR2 ple-sw ple-sw ple-sw ple-sw	ECC UDIN ap SATA 3 ap SATA 3 ap SATA 3 ap SATA 3	//M 5.0Gb/s 5.0Gb/s 5.0Gb/s 5.0Gb/s	5 Disk (720 5 Disk (720 5 Disk (720	)0 rpm) )0 rpm)	45J6 45J6 45J6 45J6 45J6 45J6	5189 5195 5196 5197	<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 Memo	ry Disk(s	Disk ) size	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 20 2 2 x 20	B None B None	3.5" <b>2.5</b> "	2 x Simple-swap 4 x Hot-swap			Combo Combo			3-year 3-year	No No	Sep 08 Sep 08
	<ul> <li>High</li> <li>Easy</li> </ul>	, to use wi	nce se th Thir	rver with ro kServer Ea	syStartup	o, Easy	logy and proven l /Update, and Easy Is are part of the l	yMana	ge softv	vare	n				
Processor Implementation Memory	one m One Ir one m Proces 2GB o dual-c	aximum, 13 Itel Xeon I aximum, 13 ssor uses F r 4GB std, hannel cap	333MH Proces 333MH C-LG 8GB r able, f	essor E311 Iz system b sor X3360 Iz system b A8 package nax, PC2-6 our 240-pin	us, and 6 with <b>qua</b> us, and 1 , one LG <b>100 800W</b> DIMM so	MB L2 d-cor 2MB L A775 Hz DI ockets	2 cache or 9, 2 cache socket DR2, ECC,	1U Metholy sockets	Rack to Riser slot 2	P Riser slot 1	fan Power supply			" disk n disk disk	nodels disk disk
Graphics	three of ATI® R extern	or two sock N50 (ES10 al monitor	ets av 000), o port (V		-bit/33MI ear);		I 2.3, 16MB,		CPU	fan fan	oply fan		ront on 3.5	<b>" disk r</b> disk	n <b>odels</b> 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 o E, SAT/ ® adap conne SAS 3	er in Enterpr r, single 1-c abay Enhar v/s, integrate n planar, connectors of A 3.0Gb/s, F oter ctors on 2.5 0.0Gb/s, RA	ise South Irop IDE Inced, 12. ed in ICH on 3.5" di RAID <sup>8</sup> 0, " disk ba	cable 7mm h 9R, nc sk bac 1 supp ckplan	(for Combo) high ht used by disks kplate hort,	• BI • 17 • 44 • 28 • To • To	7.3" W x Omm W B lb (12.7 oolless to oolless d	disk pr front; m 22" D x - / x 559mi 7kg) max op cover lisk and c dapter re	1.75" H n D x 4 configu remova ptical d	se 3mi urati I	m H	x8]2-PCle	4) 
Chipset	Intel 3 for RA	ID 0, 1, 10	et, Inte suppo	el I/O Contr ort, SMSC® :	SCH5027	7 Supe	r I/O	- • Illu Son	uminate ne: 2.5"	d front ico disk bay	ons with s:	ו sy	stem error		
Riser card Front ports Rear ports Diagnostics Systems mgmt Audio Speaker Ethernet	Two U Two U two etl Diagno fans, c Syster IPMI 2 None Interna Dual g	SB 2.0 SB 2.0, ext hernet (RJ- bstic LEDs lisk control n manager .0-complia al speaker igabit on p	ternal i -45), sy (syste ler, me nent u nt lanar,	monitor (VG ystem mana m-error LEI emory, PCI s	A DB-15 ogement o on front lots, pow bard man 5722 (PC	), seria (RJ-45 t cover ver) ageme Cle x1)	;) ;; error LEDs for ent controller, ),	Bay Bay Bay Bay Bay Bay Bay PCI	2 2.5" 3 2.5" 4 2.5" 5 2.5" ne: 3.5" 1 5.25 2 3.5" 3 3.5" <i>Expres</i>	<ul> <li>0.6" hi</li> <li>0.6" hi</li> <li>0.6" hi</li> <li>0.6" hi</li> <li>disk bay</li> </ul>	gh, ext gh, ext gh, ext gh, ext s: gh, ext h, ext n, ext	ern ern ern ern ern ern	al, std opti al, optiona al, optiona al, optiona al, optiona al, std opti al, optiona al, optiona	I disk I disk I disk I disk I disk cal I disk	
Keyboard Mouse Power supply Cooling	None None One 3 fans, r	use USB p use USB p 50 watts, o on-hot-swa	oort) oort) ne ma ap, uni	ximum, non	-redunda		o variable speed	<ul> <li>Slot</li> <li>Po</li> <li>A</li> </ul>	2: half-	passwor ator pass	ow-profi Se d sword	le, l cur	PCle x4 (x8	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 Other 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	/IM .0Gb/s .0Gb/s .0Gb/s .0Gb/s .0Gb/s s Disk o/s Dis	Disk (7200 Disk (7200 Disk (7200 Disk (7200 (15000 rpm k (10000 rp	rpm) rpm) rpm) rpm)	45J61 45J61 45J61 45J61 45J61 45J62 45J62	89 95 96 97 98 208	• Bo	oot with erial por	uence con out keybo t I/O con disablem	bard, mo trol		e, diskette or all)		
				d Warranty	1										
<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 me) ; see le	rts only (wi i coverage enovo.com/t	th limited excluding hinkplus	g holid	ays,	• Th	ninkServ	Softw ver EasyS ver EasyU ver EasyM	Startup Jpdate		gement too	ls	
<ul> <li>Onsite service</li> </ul>					ations) <sup>7</sup>			Thir	nkPlus F	riority Sι	upport, s	90-0	day Trial		
<ul> <li>Post warra</li> </ul>	nty ma	ntenance s	Service	es									•		

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

<ul> <li>R = Rack, D = Dual processor support</li> <li>High performance server with rock solid technology and proven hardware design</li> <li>Easy to use with ThinKserver EasyStartup, EasyUpdate, and EasyManage software</li> <li>These small and medium business (SMB) models are part of the US TopSeller™ Program</li> </ul>	Type- Name model	Slot x Disk Disk Disk Disk bay Processor(s)GHzCores Memory Disk(s)size connection type	RAID EIDE Power Limited Workhorse Avail controller optical supply(s) Fans warranty' Global date
<ul> <li>High performance server with rick's solid technology and proven hardware design</li> <li>Easy to use with ThinkSever ExistStarup, EasyStarup, EasyStarup</li></ul>	RD120 6445-12L	J 4x7 1 x E5205 1.86 2 2 x 1GB None 3.5" 6 x Hot-swap SATA/SA	AS <sup>4</sup> RAID-8k Combo 2 x 835W 10 1-year No Sep 08
two maximum, 1066MHz system bus, and 6MB L2 cache Processor uses FC-LASA package, two LCX71 sockets Memory 20B std, 480B max, PC2-5300 667MHz DDR2, Advanced ECC, Mort-Mikes: standard memory in two sockets, ten sockets available Graphics ATT RM50 (ESC to channel capable bit, there 24, CP 23, 16MB, Maximum memory DDR 200/CP 24, 16MB, Maximum memory DDR 200/CP 20, 15MB, 20, 000 mm 10, 16MB, 20, 000 mm 10, 16		<ul> <li>High performance server with rock solid technology and proven h</li> <li>Easy to use with ThinkServer EasyStartup, EasyUpdate, and Easy</li> </ul>	Manage software
Implementation         Processor uses FC-LGA6 jackage, two LGA771 sockets           Memory         Case std. 4666 jackage, two LGA771 sockets           Memory         Case std. 4666 jackage, two LGA771 sockets           Construction         Case std. 4666 jackage, two LGA771 sockets           Graphics         ATF RN50 (ES1000), on planar, 32-bit33MHz PCI 2.3, 16MB, statemal monitor port (two VGA BB-15 front and reat); Maximum resolution. 800x000 j82Hz         Front           EIDE controller         Enhanced IDE controller         Enhanced IDE controller         Front might and the sockets available           SATA Gak(s)         None         Control (Links) (Links) (SATA 30,05b), SA5 30,05b), SA5 30,05b (SATA 30,05b (SA	Processor		2U Rack top
Graphics       ATP RNS0 (ES 1000), on planar, 32-bi/33MHz PCI 2.3, 16MB, Maximum resolution: 800x600/836Hz       Image: Control or planar, 2000 2000 2000 2000 2000 2000 2000 20	Implementation		
Graphics       ATP RNS0 (ES 1000), on planar, 32-bi/33MHz PCI 2.3, 16MB, Maximum resolution: 800x600/836Hz       Image: Control or planar, 2000 2000 2000 2000 2000 2000 2000 20	Memory	fully buffered, 4-channel capable, twelve 240-pin DIMM sockets;	34 slover
<ul> <li>ELDE Combo</li> <li>DVD-ROM/CD-KW, Ultrabay Enhanced, 12.7mm high None</li> <li>SATA Gatski, None</li> <li>Storberg, ALC-9500W, SATA 3.0Gb/s, SAS 3.0Gb/s, controller</li> <li>Sata Gatski, SATA Gatski, SATA 3.0Gb/s, SAS 3.0Gb/s, controller</li> <li>Contrains two compactors on 3.5° disk backplane</li> <li>SATA Gatski, None PCI Express<sup>5</sup> x8 slots</li> <li>Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45), external SAS for ports</li> <li>System sampaement utility, baseboard management controller, HPML 2-compliant</li> <li>System sampa A-tra 3.0Gb/s Disk (7000 pm)</li> <li>Stat 4-liength, lut-height, PCle x6 (on rise card)</li> <li>Stat 4-liength, lut-height, PCle x6 (on rise card)</li> <li>Stat 4-liength, lut-</li></ul>	Graphics	external monitor port (two VGA DB-15 front and rear);	
SATA disk(s)       None         SATA disk(s)       None         SATA disk(s)       None         SATA connectors       Six hot-swap connectors on 3.5' disk backplane         None       None         SATA Soft Connectors       Six hot-swap connectors         Single cable to backplane       Image and the second connector, single cable to backplane         None       None       Bit Soft Action (Soft)         Chipset       Image and the second connector, single cable to backplane         None Controller       None Controller (MJ-45), site to backplane         None Controller       None Controller       Bit Soft Action (MJ-45), soft and (Soft)         Rear ports       Image and the second connector, single cable to backplane       Bit Soft Action (MJ-45), soft and (Soft)         Rear ports       Two USB 2.0, external monitor (VGA DB-15), serial (S-16), serial (G-16), external, soft H       Hist Soft Action (MJ-45), soft and (G-16), external, soft H         Systems angrt       Systems angret       Soft Action (MJ-45), soft and (G-16), external, soft (MJ-45), soft (G-16), external, soft and (MJ-45), external, soft (MJ-45), soft (MJ-		one connector on planar, single 1-drop IDE cable (for Combo)	
SATA/SAS <sup>2</sup> cont       Adaptee <sup>®</sup> AIC-9580W, SATA 3.0Gb/s, SAS 3.0Gb/	SATA disk(s) SATA connectors	None Six hot-swap connectors on 3.5" disk backplane	fan fan fan fan fan
Chipset       Intel 5000P chipset. Intel 6321ESB-2E I/O Controller Hub, NS PC3742XVUL Super I/O       • 17.5W x 27 8D x 3.6H         Riser card       Contains two PCI Express® x8 slots       • 17.5W x 27 8D x 3.6H         Front ports       Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45), external SAS       • 65 b (29.5K0) max configuration         Diagnostics       Easy LED Diagnostics, outage regulator module, riser card, System maragement lullit), baseboard management controller, Hull all gipabri on planar, two Broadcom® 5708, PCIe x1, Hull dulped, Wake on LAP TCP/IP Officiad Engine (TOE), Alert Standard Format 2.0       • 85.7 1 high, external, optional disk Bay @ 3.5*, 11 high, external, storan Second Bay @ 3.5*,	SATA/SAS <sup>4</sup> cont SAS connectors SATA/SAS RAID	RAID <sup>8</sup> 0, 1, 10 support, 8-port, on planar, not used Six hot-swap connectors on 3.5" disk backplane RAID-8k Adapter, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID <sup>8</sup> 0, 1, 5, 10, 50, 60 support, in reserved connector,	disks disks
Riser card       Contains two PCI Express® x8 slots         Front ports       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 scales, teo Diagnostics (Suli-out operator information panel with information LED and system-error LED; error LEDs for fans, disks, PCI slots, power supplies)       1-00less adapter retention         Systems mmt       System management utility, baseboard management controller, tehernet       0-00less adapter retention         Audio       None       0-00less adapter retention         System signitor       Dual gigabit on planar, two Broadcom® 5708, PCle x1, tuil duplex, Wake on LAN®, TCP/IP Offload Engine (TOE), Alert Standard Format 2.0       0-5.25°, 1-1 high, external, optional disk         Source use USB port)       None (use USB port)       Source use USB port)         Power supply       Two 835 watts, two reaximum, variable speed, hardware failure protection, hot-swap, ten fans required with second redundant power supplies       Sout 1: hilt-length, lull-height, PCle x4 (k8 mechanical)         Youse       None (use USB port)       Sout 3: half-length, lull-height, PCle x4 (k8 mechanical)         Power-suppl       Two 835 watts, two reaximum, variable speed, hardware failure protection, hot-swap, SAT 3: 0Gb/s Disk (7200 rpm)       45.6193         Youse       None (use USB port)       Sout 3: hint-length, lull-height, PCle x4 (k8 mechanical)         Youse Soo DDR2 ECC FB-DIMM       <	Chipset	Intel 5000P chipset, Intel 6321ESB-2E I/O Controller Hub,	
PCI slots, powier supplies)     Bay ① 5.25°, 0.5° high, external, optional disk       Systems mgmt     PVII 2.0-compliant       None     None       Speaker     Internal speaker       Dual gigabit on planar, two Broadcom® 5708, PCIe x1, full duplex, Wake on LAN®, TCP/IP Offload Engine (TOE), Alert Standard Format 2.0     Bay ② 3.5°, 1° high, external, optional disk       Keyboard     None (use USB port)     Bay ③ 3.5°, 1° high, external, optional disk       Power supply     Two 835 watts, two maximum, redundant with 2, variable speed, hardware failure protection, hot-swap, universal, two redundant power supplies require ten fans, ten fans, ten maximum, variable speed, hardware failure protection, hot-swap, universal, two redundant power supplies require ten fans, ten fans, ten fans required with second redundant power supply     Slot 4: half-length, full-height, PCIe x4 (x8 mechanical) Slot 4: half-length, low-profile, PCIe x4 (x8 me	Front ports Rear ports	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,	<ul> <li>65 lb (29.5kg) max configuration</li> <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</li> </ul>
Keyboard Mouse       None (use USB port)         None (use USB port)         Power supply       Two 835 watts, two maximum, redundant ower supplies require ten fans.         Cooling       Ten fans, ten maximum, variable speed, hardware failure protection, hot-swap, ten fans required with second redundant power supply         Accessories         Intel Xeon Quad-Core Processor E5205       45.J6180         1GB PC2-5300 DDR2 ECC FB-DIMM       45.J6191         2GB PC2-5300 DDR2 ECC FB-DIMM       45.J6191         2GB PC2-5300 DDR2 ECC FB-DIMM       45.J6202         750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)       45.J6202         760GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)       45.J6211         300GB 3.5" Hot-swap SATA 3.0Gb/s Disk (15000 rpm)       45.J6211         300GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)       45.J6212         Other accessories at lenovo.com/accessories       Software management tools         * Limited Warranty1       * Software management tools         * ThinkPlus™ services available; see lenovo.com/thinkplus/warranty       * ThinkPlus Priority Support, 90-day Trial         * ThinkPlus™ services       * ThinkPlus Priority Support, 90-day Trial	Audio Speaker	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),	Bay ② 3.5", 1" high, Bay ③ 3.5", 1" high, Bay ④ 3.5", 1" high, Bay ④ 3.5", 1" high, Bay ⑤ 3.5", 1" high, Bay ⑥ 3.5", 1" high, Bay ⑥ 3.5", 1" high, Bay ⑦ 3.5", 1" high, Bay ⑦ 3.5", 1" high,external, optional disk external, optional disk external, optional disk
Intel Xeon Quad-Core Processor E5205       45.J6180         1GB PC2-5300 DDR2 ECC FB-DIMM       45.J6191         2GB PC2-5300 DDR2 ECC FB-DIMM       45.J6192         4GB PC2-5300 DDR2 ECC FB-DIMM       45.J6192         500GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)       45.J6202         750GB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)       45.J6203         1TB 3.5" Hot-swap SATA 3.0Gb/s Disk (7200 rpm)       45.J6204         146GB 3.5" Hot-swap SATA 3.0Gb/s Disk (15000 rpm)       45.J6211         300GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)       45.J6212         Other accessories at lenovo.com/accessories       500GB 3.5" Hot-swap SAS 3.0Gb/s Disk (15000 rpm)         45.J6212       USB port disablement (front or all)         • Use port disablement (front or all)       USB port disablement (front or all)         • Use port bit bit service available; see lenovo.com/thinkplus/warranty       • ThinkServer EasyStartup         • ThinkPlus™ services available; see lenovo.com/thinkplus/warranty       • ThinkPlus Priority Support, 90-day Trial         • Post warranty maintenance services       ThinkPlus Priority Support, 90-day Trial	Mouse Power supply	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,	Slot 2: half-length, full-height, PCIe x8 <i>(on riser card)</i> Slot 3: half-length, low-profile, PCIe x4 (x8 mechanical)
<ul> <li>→ 1-year parts and labor</li> <li>→ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)</li> <li>→ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty</li> <li>• Onsite service upgrade options (in eligible locations)<sup>7</sup></li> <li>• Post warranty maintenance services</li> </ul>	Intel Xeon Qua: 1GB PC2-5300 2GB PC2-5300 4GB PC2-5300 500GB 3.5" Hoi 750GB 3.5" Hoi 1TB 3.5" Hoi-sv 146GB 3.5" Hoi 300GB 3.5" Hoi	DDR2 ECC FB-DIMM         45J6191           DDR2 ECC FB-DIMM         45J6192           DDR2 ECC FB-DIMM         45J6193           t-swap SATA 3.0Gb/s Disk (7200 rpm)         45J6202           t-swap SATA 3.0Gb/s Disk (7200 rpm)         45J6203           vap SATA 3.0Gb/s Disk (7200 rpm)         45J6203           t-swap SATA 3.0Gb/s Disk (7200 rpm)         45J6204           t-swap SAS 3.0Gb/s Disk (15000 rpm)         45J6211           t-swap SAS 3.0Gb/s Disk (15000 rpm)         45J6212	<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> </ul>
<ul> <li>→ 1-year parts and labor</li> <li>Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts<sup>3</sup>, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)</li> <li>ThinkPlus™ services available; see lenovo.com/thinkplus/warranty</li> <li>Onsite service upgrade options (in eligible locations)<sup>7</sup></li> <li>Post warranty maintenance services</li> <li>ThinkPlus ThinkPlus Priority Support, 90-day Trial</li> </ul>		Limited Warranty <sup>1</sup>	Deffunction of the later
Onsite service upgrade options (in eligible locations) <sup>7</sup> ThinkPlus Priority Support, 90-day Trial     Post warranty maintenance services	<ul> <li>Customer Reselected part next busines</li> </ul>	and labor placeable Unit (CRU) parts only (with limited onsite service for s³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, s day response time)	ThinkServer EasyStartup     ThinkServer EasyUpdate
Post warranty maintenance services			ThinkPlus Priority Support, 90-day Trial
	<ul> <li>Post warra</li> </ul>	nty maintenance services	RoHS-compliant

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

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#### 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	CPUCPUS
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 <i>18U/21U:</i> six hot-swap connectors on 3.5" disk backplane	CPU CPU     Image: CPU CPU
	23U: 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, 5, 10, 50, 60 support, in reserved connector, single cable to backplane	● Black color front; metal case • 17.5"W x 27.8"D x 3.36"H
Chipset	Intel 5000P chipset, Intel 6321ESB-2E I/O Controller Hub, NS PC8742XVUL Super I/O	443.6mm W x 705mm D x 85.4mm H     65 lb (29.5kg) max configuration
Riser card Front ports Rear ports Diagnostics Systems mgmt	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,	<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 <sup>(2)</sup> 5.25", 0.5" high, external, std optical</li> <li>Bay <sup>(2)</sup> 3.5", 1.6" high, external, optional tape</li> <li>Bay <sup>(3)</sup> 2.5", 0.6" high, external, optional disk</li> </ul>
Audio Speaker Ethernet	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), Alert Standard Format 2.0	Bay ④ 2.5", 0.6" high, external, optional disk Bay ⑤ 2.5", 0.6" high, external, optional disk Bay ⑥ 2.5", 0.6" high, external, optional disk Bay ⑧ 2.5", 0.6" high, external, optional disk Bay ⑨ 2.5", 0.6" high, external, optional disk Bay ⑨ 2.5", 0.6" high, external, optional disk
Keyboard Mouse Power supply Cooling	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	Bay 10 2.5", 0.6" high, external, optional disk Some: 3.5" disk bays: Bay 10 5.25", 0.5" high, external, std optical Bay 20 3.5", 1" high, external, optional disk Bay 30 3.5", 1" high, external, opt disk (opt 1.6" tape) Bay 40 3.5", 1" high, external, opt disk (used by tape) Bay 50 3.5", 1" high, external, optional disk
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 (a) 3.5", 1" high, external, optional disk Bay (c) 3.5", 1" high, external, optional disk Slot 1: full-length, full-height, PCIe x8 (on riser card) 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)
ThinkServer E	Software management tools asyStartup • ThinkServer EasyUpdate • ThinkServer EasyManage	Security
<ul> <li>⇒ 3-year parts</li> <li>⇒ Customer Reselected partinext busines</li> <li>⇒ ThinkPlus™</li> </ul>	Limited Warranty <sup>1</sup> and labor eplaceable Unit (CRU) parts only (with limited onsite service for ts <sup>3</sup> , 8 am - 5 pm, Mon - Fri coverage excluding holidays, is 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>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
_///04/ //0		Tono-compliant

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

Partial list of accessories supported on L ThinkServer Ready accessories are availab			
Business Partners. Locate a Business Partn http://bplocator.lenovo.com			
Storage	05//0070	Operating Systems	
USB Portable Diskette Drive	05K9276 ann 06/05/0	<sup>ℓ</sup> Microsoft <sup>®</sup> Windows <sup>®</sup>	
Keyboard		English language	
Preferred Pro USB Keyboard USB Travel Keyboard with UltraNav	73P5220 ann 06/21/0 31P9490 ann 04/27/0	4 Server 2008 Enterprise ROK Server 2008 Datacenter (64-bit) ROK	54Y6100 54Y6110 84979HE
Mouse Optical Wheel Mouse (USB)	06P4069 ann 05/21/0	Small Business Server 2003 R2, Standard Edition ROK Small Business Server 2003 R2, Premium Edition ROK	54Y6119 54Y6128 55Y7017
Monitors		Server 2003 R2, 32-bit Enterprise Edition ROK Server 2003 R2, Enterprise x64 Edition ROK	55Y7027
ThinkVision <sup>®</sup> L151 15" LCD Monitor	9165AC6 ann 10/23/0	Server 2003 R2, Standard Edition ROK	55Y7000 55Y7010
ThinkVision L171p 17" LCD Monitor	9227AD1 ann 10/31/0 4431HB2 ann 10/23/0		5517010
ThinkVision L193p 19" LCD Monitor	4431ND2 ann 10/23/0	Trenerrianguage	E 4\/C102
Other accessories at http://www.lenovo.cc	m/accessories	Server 2008 Standard ROK Server 2008 Enterprise ROK Server 2008 Datacenter (64-bit) 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 x64 Edition, ROK	54Y6103 54Y6112 84979HF 54Y6121 54Y6121 55Y7021 55Y7033 55Y7006 55Y7016
		Spanish language Server 2008 Standard ROK Server 2008 Enterprise ROK Server 2008 Datacenter (64-bit) 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 x64 Edition, ROK	54Y6108 54Y6117 84979HS 54Y6126 54Y6135 55Y7025 55Y7025 55Y7030 55Y7005 55Y7013
		Novell <sup>®</sup> Server Software - SLES for Lenovo	
		SLES = SUSE <sup>®</sup> Linux <sup>™</sup> Enterprise Server	
		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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	ThinkPlus Priority Support with Hard Disk Drive Reten	<u>ition</u>
, and	<ul> <li>9x5 Next Business Day response Lenovo Onsite Repair</li> <li>24x7 support with priority routing and advanced level tect</li> </ul>	
ormat		ps disk
45K4080 45K4081 45K4082	HDDR = Hard Disk Drive Retention <b>TS100 with 1-year warranty</b> 3-year Priority Support with HDDR	45K544
	3-year Priority Support 4 hour reponse with HDDR	45K544
	3-year Priority Support with HDDR	45K544
45K4055		45K544
45K4056	<i>TD100 with 1-year warranty</i> 3-year Priority Support with HDDR	45K544
4514050	3-year Priority Support 4 hour response with HDDR	45K544
45K4059	TD100 with 3-year warranty	45K544
45K4062	3-year Priority Support 4 hour response with HDDR	45K544
45K4063	RS110 with 1-year warranty	
45K4066	3-year Priority Support with HDDR 3-year Priority Support 4 hour response with HDDR	45K544 45K545
	RS110 with 3-year warranty	
45K4069	3-year Priority Support with HDDR	45K545 45K545
4584070		408040
45K4073	3-year Priority Support with HDDR	45K545
4545205		45K545
45K5305 45K5306		45K545
	3-year Priority Support 4 hour response with HDDR	45K545
45K4076	ThinkPlus Productivity	
	Priority Support     Online Training, Understanding Lenovo Servers	
chnicians	<ul> <li>One-time hardware installation</li> </ul>	
151/1057	3-year ThinkPlus Productivity, TS100 (1-year) 3-year ThinkPlus Productivity, TS100 (3-year)	45K408 45K408
45K4057 45K4058	3-year ThinkPlus Productivity, TD100 (1-year)	45K408
	3-year ThinkPlus Productivity, TD100 (3-year) 3-year ThinkPlus Productivity, RS110 (1-year)	45K409 45K409
	3-year ThinkPlus Productivity, RS110 (3-year)	45K409 45K531
	3-year ThinkPlus Productivity, RD120 (1-year)	45K531 45K409
45K4064	Lenovo Online Data Backup	
401/4000	· · · · ·	
45K4067	<ul> <li>256-bit Advanced Encryption System</li> </ul>	
45K4068	<ul> <li>Data recovery or access in case of an unforeseen event</li> <li>Automatic, remote management</li> </ul>	
45K4071	<ul> <li>Choose which business critical data to back up</li> </ul>	
45K4072		45K211 45K211
45K4074	1-year 100GB Server Lenovo Online Data Backup (US)	45K211
45K4075		
451/5007		
45K5307 45K5308		
45K4077 45K4078		
	, and prmat 45K4080 45K4082 45K4082 45K4055 45K4059 45K4062 45K4063 45K4066 45K4066 45K4070 45K4070 45K4076 45K4076 45K4061 45K4061 45K4065 45K4065 45K4065 45K4065 45K4067 45K4068 45K4067 45K4072 45K4072 45K4074 45K4075 45K5307 45K4077 45K5307 45K55307 45K55307 45K55307 45K55307 45K55307 45K5557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K557 45K57	and andThinkPlus Priority Support with Hard Disk Drive Retent 9 yes Next Business Day response Lenovo Onsite Repair 24x7 Support with priority routing and advanced level tec 9 Hard Disk Drive Retention45K4080 45K4081 <i>HDDR = Hard Disk Drive Retention</i> 3 year Priority Support 4 hour response with HDDR 3 year Priority Support with HDDR 3 year Priority Support with HDDR 3 year Priority Support 4 hour response with HDDR 3 year Priority Support 4 hour response with HDDR 3 year Priority Support with HDDR 45K406645K4067 45K4068 <i>RS110 with 1-year warranty</i> 3 year Priority Support with HDDR 3 year Priority Support with HDDR 45K406645K4069 5 ayear Priority Support with HDDR 3 year Priority Support with HDDR 3 year Priority Support 4 hour response with HDDR 8 Support 3 year Priority Support 4 hour response with HDDR 3 year ThinkPlus Productivity, TS100 (1-year) 3 year ThinkPlus Productivity, TS110 (3 year) 3 year ThinkPlus Productivity, RS110 (1 year) 3 year ThinkPlus Productivity, RS110 (1 year) 3 year ThinkPlus Productivity, RS110 (1 year) 3 year ThinkP

© Lenovo (S-SV) December 2008 **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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