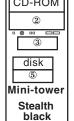


This document is available at:

http://www.ibm.com/servers/eserver/education/cust/xseries/xref.html

•									The second second	-
IBM®Machine Type Model Procces 8486 - E1x Celeron®		L2 FSB MHz 256KB 533	Memory 256MB	Disk 80GB	Disk controller SATA	Maximum Capacity 500GB	Slots x bays 4 x 5	Hard disk bays 2 fixed	Gigabit	Available date Sep 2005
8486 - E2x Celeron 8486 - E3x Pentium® 8486 - E4x Pentium 4 8486 - E5x Pentium 4 8486 - E6x Pentium 1	4 521 2.8GHz/SC 4 531 3.0GHz/SC 4 541 3.2GHz/SC 4 551 3.4GHz/SC	256KB 533 1MB 800 1MB 800 1MB 800 1MB 800 2x1MB 800	512MB 512MB 512MB 512MB 512MB 512MB 512MB	80GB 80GB 80GB 80GB 80GB 80GB	SATA SATA SATA SATA SATA SATA	500GB 500GB 500GB 500GB 500GB 500GB	4 x 5 4 x 5 4 x 5 4 x 5 4 x 5 4 x 5	2 fixed 2 fixed 2 fixed 2 fixed 2 fixed 2 fixed	Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Oct 2005
Positioning Processor(s) L2 cache Implementation SMP support	Uniprocessor, entry Intel® Pentium 4 up Celeron D 2.53GHz 1MB std on Pentium Motherboard contain PCI), integrated SAT No SMP support / no	to 3.4GHz Si 533MHz FSB 4 / 2x1MB std s one LGA-77 A and Gigabit	ngle Core 80 / All Optimi on Pentium 5 socket, fou Ethernet.	00MHz F zed for D / 256K	SB / Pentiur Extended Me B std and ma	m D 2.8GI emory 64 ax on Cele	Hz Dual Techno eron / EC	logy (EMC C / full spe	64T) eed	
Memory	256MB or 512MB / 80 SDRAM / All Error C	GB ¹³ max / four Checking and C	184-pin gold-p Correcting (EC	plated DIN CC) / DIM	MM sockets / o Ms and ECC	one socket memory co	used / Pontroller /	C2-4200 53 industry sto	33MHz ECC d / unbuffere	DDR2- ed /
SCSI disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	None standard / Ultr Enhanced IDE / ATA Dual channel SATA One 2-drop EIDE ca 80GB SATA / 7,200 None standard / Sen	100 / integrat controller (1.5 lbles (to CD-R rpm / 9.0 ms s	ed in I/O Cor GB/sec) / su OM) / one 1- eek / S.M.A.I	ntroller Hu upports 2 -drop SA R.T.	ub / one conr drives stand	nector on p dard	olanar			
Rack support Bus slots (see below) Chipset	None One PCI E bus / one Intel E7230 chipset MAC, USB, Low Pin keyboard, mouse	/ Memory Cor	ntroller Hub (I	MCH) / I/	O Controller	Hub (ICH-	-7) for P0	CI 2.2, AT		
Ethernet	10/100/1000 gigabit /		21 / on plana	ır / full du	plex / PHY a	nd MAC la	ayers / Pi	reboot eXe	cution Env	rironment
CD-ROM / diskette Ports Diagnostics Systems mgmt	(PXE) / Wake on LAI Some: CD-ROM: 48 Front: two USB (Ver monitor (analog DB- Diagnostic LEDs / erro None	X-20X ⁶ CD-R0 2.0); <i>Back:</i> tv 15)	vo serial (9-p	in), paral	lel, two USB	(Ver 2.0),	keyboar	d, mouse,	ethernet (RJ-45),
Graphics controller	ATI® RN50(ES1000) /	16MB SDRAM	std/max / on p	olanar / an	alog 15-pin / ι	up to 1024	x 768 x 3	2 bit @85H	lz	
Security	Optional U-Bolt supp control / operation v				ord / boot see	quence				
Software	ServerGuide™ (CD- installation and confi Director (system ha	guration tool)	included and	IBM	512MB PC2 2x1GB PC2 2x2GB PC2 IBM 80GB	2-4200 CL 2-4200 CL	3 ECC E	DR2 Rob DR2 Rob	IS IS	30R5148 30R5149 30R5150 39M4500
Keyboard / mouse Cooling fans Power supply	IBM 101 key keyboa Three variable speed supply) / not redunda 310 watts / universal Server Restart (ASR cooling fan in power	d fans (cpu he ant / not hot-sv / manual swite) / not hot-swa	eatsink, rear, vap ching / Autom ap /no redund	power	IBM 160GB IBM 250GB IBM 500GB 48X/32X/48 IBM Multi-b IBM USB P 36/72GB D	S SATA-15 S SATA-15 S SATA-15 SX/16X Ma urner Plus ortable Di	50` (7.2K) 50 (7.2K) 50 (7.2K) ax ⁶ CD-R 5 skette D	simple-sv simple-sv simple-sv W/DVD (b	vap HDD vap HDD vap HDD	39M4504 39M4508 39M4514 32R2905 32R2906 05K9276 71P9145
CD-ROM ② ③ disk ⑤	Bay ① 5.25", HH Bay ② 5.25", HH Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1", Bay ⑤ 3.5", SL 1",		open (no dis lisk GBps)	k)	VXA-2 Tap IBM 20/40G IBM ServeF IBM Ultra32 Other optio	e Drive BB TR7 In RAID-7t SA 20 SCSI Cons at ibr	ternal Ta ATA Con ontroller n.com/po 1 year Interna On site	ape Drive stroller 2 c/us/acces LIMITED V parts and I tional War s, 8 am-5 p	WARRAN abor ranty Servi	59P6746 48P7042 71P8648 13N2249



Slot 2: fullsize, 64-bit PCI-E x1 (500MBps) Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)

Removable left side panel

- Configuration/Setup Utility (in flash) memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0
- Device Drivers and Diagnostics CD-ROM included
- ⇒ Four stabilizing feet

- ⇒ 36 to 45.8 pounds (16.3 to 20.8kg)

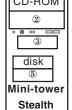
♦BTU Output:

Minimum: 379 Btu/hr (111 watts) Maximum: 853 Btu/hr (250 watts) Mon-Fri excluding holidays,

next business day response time On site service upgrade

- options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response (ServicePac part num 41W9318) 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 41W9317)
- 3 year IOR 9x5, 4 hr avg response (ServicePac part num 41W9316)
- 3 year IOR 9x5, NBD response (ServicePac part num 41W9315)
- Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period

IBM®Machine Type Model Procce	ssor Speed¹/Core		SB MHz Memory	Disk	Disk controller	Maximum Capacity	Slots x bays	Hard disk bays	Ethernet	Available date
8486 - EAx Celeron®	D 331 2.66GHz	256KB 5	33 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EBx Celeron 8486 - ECx Pentium ^e			533 512MB 300 512MB	80GB 80GB	SATA SATA	500GB 500GB	4 x 5 4 x 5	2 fixed 2 fixed	Gigabit Gigabit	Feb 2006 Feb 2006
8486 - EDx Pentium			300 512MB	80GB	SATA	500GB 500GB	4 x 5	2 fixed	Gigabit Gigabit	Feb 2006
8486 - EEx Pentium			800 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EFx Pentium			300 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EGx Pentium 8486 - EHx Pentium			300 512MB 300 512MB	80GB 80GB	SATA SATA	500GB 500GB	4 x 5 4 x 5	2 fixed 2 fixed	Gigabit Gigabit	Feb 2006 Feb 2006
8486 - EJx Pentium I	D 930 3.0GHz/DC		300 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EKx Pentium			300 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Mar 2006
Positioning	Uniprocessor, entry							- Dual Ca	000MII-	ECD /
Processor(s)	Intel® Pentium 4 up Intel Celeron D 2.66									FSB /
L2 cache	1 or 2MB std on Per									
Implementation	Motherboard contain			our DIMM	sockets, fou	ır slots(1 PC	I Expre	ss x8, 1 P	CI Express	x1, 2
SMP support	PCI), integrated SAT No SMP support / n									
	• • • • • • • • • • • • • • • • • • • •	•								
Memory	512MB / 8GB ¹³ max /									RAM / All
	Error Checking and	Correcting	(ECC) / DIIVIIVIS	and ECC	memory con	troller / Indust	ry sta / t	unbullered .	/	
SCSI disk controller	None standard / Ult	ra320 SCS	I controller2 (I	_VD 320MI	3/sec) optio	nal for tape	backup			
IDE disk controller	Enhanced IDE / ATA						lanar			
SATA disk controller Cables	Dual channel SATA One 2-drop EIDE ca	controller	(1.5GB/sec) / D-ROM) / one	1-dron SA	: drives stai T∆ cable n	naara er installed l	hard dis	k		
Disk	80GB SATA / 7,200				iiii oabio p	or inotanou i	iaia aic			
RAID Controller	None standard / Ser	veRAID 7t	controller opti	onal						
Rack support	None									
Bus slots (see below)		us / one 64	bit PCle™ x8	slot / one 6	4-bit PCle x	1 / two 32-b	it 33MH	z 5v PCI 2	.2 slots	
Chipset	Intel E7230 chipset									
	MAC, USB, Low Pin	Count Inte	rface / Firmwa	re Hub / SI	MSC® LPC4	7M192 Sup	er I/O fo	r diskette,	parallel, se	erial,
	keyboard, mouse									
Ethernet	10/100/1000 gigabit		® 5721 / on pl	anar / full-d	uplex / PHY	and MAC I	ayers / F	Preboot eX	Cecution En	vironment
CD-ROM / diskette	(PXE) / Wake on LA Some: CD-ROM: 48		-ROM IDE: s	ome: CDR	W/DVD-BO	M Combo:4	8X/32X	/48X/16X ⁶	/ None sta	ndard
Ports	Front: two USB (Ver									
D: ::	monitor (analog DB-		`	, , , ,		,			, ,	,,
Diagnostics Systems mgmt	Diagnostic LEDs / erro	or LEDs for	fans and memo	ory / server	diagnostic pr	ograms store	d on IBI	M Enhance	d Diagnostic	cs CD
	TNOTIC									
Graphics controller	ATI® RN50(ES1000) /	16MB SDR	AM std/max / o	n planar / ar	nalog 15-pin /	up to 1024 >	768 x 3	2 bit @100	Hz	
Security	Optional U-Bolt supp	ort via kno	ckout / nower	on nasswo	ord / hoot s	anuanca				
Occurry	control / operation v					·				000=110
0 - (1	· · · · · · · · · · · · · · · · · · ·					2-4200 CL3 E0 2-4200 CL3 E0				30R5148 30R5149
Software	ServerGuide™ (CD installation and conf				2x2GBPC	2-4200 CL3 E	CC DDR2	RoHS	_	30R5150
	Director (system ha	rdware mg	mt software)	optional	□ IBM 160GF	SATA-150 (7 3 SATA-150 (7	'2K) simi	ole-swan Hi	מוס	39M4500 39M4504
Kanda a and Time and	· · · · · · · · · · · · · · · · · · ·		·	•	IBM 250GI	3 SATA-150 (7 3 SATA-150 (7	.2K) sim	ole-swap HE	DD DD	39M4508
Keyboard / mouse Cooling fans	IBM 101 key keyboa Three variable spee				48X/32X/4	8X/16X Max ⁶ (.∠k) simi CD-RW/C	วเe-swap HL IVD (black)	טט	39M4514 32R2905
Cooming rains	supply) / not redund			ai, powei	IBM Multi-l	ourner Plus		, ,		32R2906
Power supply	310 watts / universal	/ manual s	witching / Aut			Portable Diske DS/5 Internal				40K1692 71P9145
	Server Restart (ASF cooling fan in power			indancy /	VXA-2 Tap	e Drive				59P6746
	cooming fair in power	supply (va	nable speed)			GB TR7 Intern RAID-7t SAT <i>A</i>				48P7042 71P8648
65.501					IBM Ultra3	20 SCSI Conti	oller2			13N2249
CD-ROM					Other option	ons at ibm.co				FV/3
2	Day @ 5 05 1111	1 (1)	00 0014					LIMITED!	WARRAN1	Y



black

Bay ① 5.25", HH Bay ② 5.25", HH Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1", Bay ⑤ 3.5", SL 1", 1.6", access, CD-ROM 1.6", access, open (no disk) access, open access, std disk access, open

Slot 1: fullsize, 64-bit PCI-E x8 (4GBps) Slot 2: fullsize, 64-bit PCI-E x1 (500MBps) Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)

- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0
- Device Drivers and Diagnostics CD-ROM included ♦ Four stabilizing feet
- ♦ H 16.8" x W 8" x D 19.4"
- ♦ H 427mm x W 203mm x D 493mm
 ♦ 36 to 45.8 pounds (16.3 to 20.8kg)
- ♦BTU Output:

Minimum: 379 Btu/hr (111 watts) Maximum: 853 Btu/hr (250 watts)

□ LIMITED WARRANTY³
 □ 1 year parts and labor
 □ International Warranty Service³

On site, 8 am-5 pm,

Mon-Fri excluding holidays, next business day response time On site service upgrade

- options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
- (ServicePac part num 41W9318) 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 41W9317) 3 year IOR 9x5, 4 hr avg response
- (ServicePac part num 41W9316) 3 year IOR 9x5, NBD response
- (ServicePac part num 41W9315) Other ServicePac options at

http://www.ibm.com/

services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period

Proccessor

IBM®Machine Type Model

Hard

disk bays Ethernet

Available date

Maximum Capacity

Slots

x bays

Disk

controller

Disk

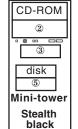
туре імодеі	Procces	SOF	Speed /Core	Cacne	IVIMZ	wemory	DISK	controller	Сарасіту	x bays	aisk bays	Ethernet	date
8486 - ELX 8486 - EMX 8486 - ENX 8486 - E8X	Pentiur Pentiur	n® 4 631 n 4 631 n 4 651 n D 930	3.0GHz/SC 3.0GHz/SC 3.4GHz/SC 3.0GHz/DC	2MB 2MB 2MB 4MB	800 800 800 800	1 x 512MB 1 x 512MB 1 x 512MB 2 x 512MB	160GB 80GB 80GB 80GB	SATA SATA SATA SATA	1TB 1TB 1TB 1TB	4 x 5 4 x 5 4 x 5 4 x 5	2 fixed 2 fixed 2 fixed 2 fixed	Gigabit Gigabit Gigabit Gigabit	June 2006 June 2006 June 2006 June 2006
Positioning Processor(s)		Intel® P	entium 4 up	to 3.4G	Hz Siı	d to meet sma ngle-Core 800 FSB / All Op	MHz FS	B / Pentiu	m D up to	3.0GHz	Dual-Cor	re 800MH (EM64T)	z FSB /
L2 cache Implementatio		1 or 2M Motherb PCI), int	B std on Pent oard contains egrated SATA	ium 4 / one L0 and G	4MB s GA-775 igabit l	td on Pentium socket, four Ethernet.	D / 256	KB std and	max on Ce	eleron / E	ECC / fuĬl-s	speed	
SMP support		No SMF	support / no	proces	sor up	grade							
Memory						d-plated DIMM C) / DIMMs and							DRAM / AII
SCSI disk cont IDE disk cont SATA disk co Cables Disk RAID Controll	roller introller	Enhance Dual ch One 2-0 80 or 16	ed IDE / ATA- annel SATA d Irop EIDE cab OGB SATA /	100 / in controlled bles (to 7,200 rp	tegrate er (1.50 CD-Ro om / 9.	ntroller2 (LVD ed in I/O Contr GB/sec) / sup OM) / one 1-d 0 ms seek / S troller optiona	oller Hub ports 2 Irop SAT .M.A.R.T	o / one con drives stan A cable pe	nector on p	lanar			
Rack support Bus slots (see Chipset	e below)	Intel E7 MAC, U	230 chipset /	/ Memoi	ry Con	PCIe™ x8 slot troller Hub (M e / Firmware F	CH) / I/C	Controller Controller	Hub (ICH-	for P(CI 2.2, AT/	4-100 EID	DE, ethernet serial,
Ethernet CD-ROM / disports Diagnostics Systems mgm		(PXE) / Some: (Front: tv monitor	Wake on LAN CD-ROM: 48X vo USB (Ver : (analog DB-1	I [®] (-20X ⁶ (2.0); <i>B</i> (5)	CD-RC ack: tw	21 / on planal M, IDE; some o serial (9-pir and memory /	e: CDRV n), paralle	· V/DVD-RON el, two USB	M Combo:4 (Ver 2.0),	8X/32X/ keyboar	/48X/16X ⁶ rd, mouse,	/ None st ethernet	tandard (RJ-45),
Graphics con	troller	ATI® RN	50(ES1000) / 1	6MB SE	DRAM s	std/max / on pla	anar / ana	llog 15-pin /	up to 1024	x 768 x 3	2 bit @100	Hz	
Security						ıt / power-on rd/mouse/disp		d / boot se	quence				
Software		installati	on and config	guration	tool) i	ited network on ncluded and I software) option	BM	2x1GBPC2 2x2GBPC2	-4200 CL3 E -4200 CL3 E -4200 CL3 E 6ATA-150 (7.	CC DDR2 CC DDR2	RoHS RoHS)	30R5148 30R5149 30R5150 39M4500
Keyboard / m Cooling fans Power supply		Three vasupply) 310 wat Server F	ariable speed / not redunda ts / universal /	fans (ont / not / manuariant / not h	cpu he hot-sw al switc ot-swa	hing / Automa p /no redunda	ıtic	IBM 160GB IBM 250GB IBM 500GB 48X/32X/48 IBM Multi-bi IBM USB Po 36/72GB DI VXA-2 Tape IBM 20/40G IBM ServeR	SATA-150 (7 SATA-150 (7 SATA-150 (7 X/16X Max ⁶ (urner Plus ortable Diske DS/5 Internal	7.2K) simp 7.2K) simp 7.2K) simp 7.2K) simp CD-RW/D ette Drive Tape Dri Nal Tape Dri	ble-swap HD ble-swap HD ble-swap HD VD (black) ve Drive	D D	39M4504 39M4508 39M4514 32R2905 32R2906 40K1692 71P9145 59P6746 48P7042 71P8648 13N2249

FSB MHz

Memory

Cache

Speed¹/Core



Bay ① 5.25", HH Bay ② 5.25", HH Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1", Bay ⑤ 3.5", SL 1", 1.6", access, CD-ROM 1.6", access, open (no disk) access, open access, std disk access, open

Slot 1: fullsize, 64-bit PCI-E x8 (4GBps) Slot 2: fullsize, 64-bit PCI-E x1 (500MBps) Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)

- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0
- Device Drivers and Diagnostics CD-ROM included Four stabilizing feet
- → H 17.24" x W 8.07" x D 19.57"
- → H 438mm x W 205mm x D 497mm ♦ 30.86 to 37.48 pounds (14 to 17kg)
- ♦BTU Output:

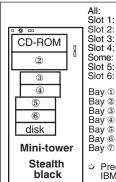
Minimum: 326 Btu/hr (96 watts) Maximum: 1024 Btu/hr (300 watts)

Other options at **ibm.com**/pc/us/accessories

LIMITED WARRANTY³ → 1 year parts and labor → International Warranty Service³

- On site, 8 am-5 pm. Mon-Fri excluding holidays, next business day response time
- On site service upgrade
- options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response (ServicePac part num 41W9318) 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 41W9317) 3 year IOR 9x5, 4 hr avg response
- (ServicePac part num 41W9316) 3 year IOR 9x5, NBD response
- (ServicePac part num 41W9315) Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period

BM @server TM > For GAV systems, lowercase "y					xRE	F by eSe	erver Field S	kills and	Educat	ion Team
IBM® Machine Type GAV-model	Proccessor / Speed	L2 FSB cache MHz	Memory	Disk/Disk controller	Maximum Capacity	PCI slots	Hard disk bays	Power Supply	Ethernet	Available date
8485/8490 10y-10x Pe 8485/8490 12y-12x Pe 8485/8490 12y-12x Pe 8485/8490 20y-20x Pe 8485/8490 2Ay-2Ax Pe 8485/8490 3Ay-3Ax Pe 8485/8490 3Py-3Bx Pe 8485/8490 70y-70x Pe 8485/8490 7Ay-7Ax Pe 8485/8490 80y-80x Pe 8485/8490 8Ay-8Ax Pe	entium 4 531 3.0GH entium 4 630 3.0GH entium 4 640 3.0GH entium 4 640 3.2GH entium 4 650 3.2GH entium D 820 2.8GI entium D 820 2.8GI entium D 830 3.0GI	Izi 1MB 800 Iz 1MB 800 Iz 2MB 800 Iz 2MB 800 Iz 2MB 800 Iz 2MB 800 Iz 2MB 800 Iz 2X1MB 800 Iz 2X1MB 800 Iz 2X1MB 800 Iz 2X1MB 800	512MB 1GB	80GB/SATA None/SATA None/SATA 80GB/SATA None/SATA 8 None/SAS/SA None/SAS/SA None/SAS/SA None/SAS/SA None/SAS/SA None/SAS/SA	1.0TB 1.0TB 1.0TB 1.0TB 1.0TB 1.0TB TA 1.2TB TA 1.2TB 1.0TB TA 1.2TB	4 x 7 4 4 x 7 4 4 x 7 4 4 x 7 4 4 x 7 4 6 x 7 4 6 x 7 4 6 x 7 4 6 x 7 4	fixed simple-swap simple-swap fixed simple-swap hot-swap hot-swap simple-swap hot-swap	1x400W 1x400W 1x400W 1x400W 1x400W 1x400W 2x430W 2x430W 2x430W 2x430W 2x430W	Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Oct 2005 Oct 2005 Oct 2005 Oct 2005 Oct 2005 Oct 2005 Oct 2005 Oct 2005
Positioning Processor(s) L2 cache Implementation	Single socket, entry Intel® Pentium 4 u Optimized for Exte Up to 2MB std on F	to 3.4GHz Sended Memor Pentium 4 / 2x1	ingle Core y 64 Tech MB std on	e 800MHz FSB nology (EM64 Pentium D	/ Pentium T)	D up to	3.0GHz Dua			
SMP support	Motherboard contai 2 PCI) some: six sk No SMP support / r	ots(1 PCI Expre	ess x8, 1 F	PCI Express x1	, 2 PCI, 2 F	PCI-X), in	tegrated SAT	A and Gi	gabit Eth	nernet.
Memory	512MB or 1GB std / DDR2-SDRAM / All	8GB ¹³ max / fou Error Checkin	ır 184-pin g g and Corr	old-plated DIMM recting (ECC) /	l sockets / o DIMMs and	ne or two ECC mer	socket used / nory controller	PC2-4200 / industry	533MH; std / unl	z ECC ouffered
SAS disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	Integrated SAS cor Enhanced IDE / AT Four channel SATA One 2-drop EIDE of Some: 80GB SATA IBM ServeRAID™ 8	A-100 / integra a controller (3. ables (to CD-F / 7,200 rpm / 9	ted in I/O (0GB/sec) / ROM) / one 0.0 ms see	Controller Hub / / supports 4 dr e 1-drop SATA k / S.M.A.R.T.	ives standa cable per	ard installed				
Rack support Bus slots (see below) Chipset	5U ⁴ rack mount sup All: one PCI-E bus / 66MHz 3.3v PCI-X: Intel E7230 chipse MAC, USB, Low Pir keyboard, mouse	one 64-bit PCI slots / no hot-s t / Memory Co	-E x8 / one wap Active ntroller Hu	e64-bit PCI-E x ™ PCI slots b (MCH) / I/O (Controller H	lub (ICH7	R) for PCI 2.	2, ATA-1	00 EIDE	, ethernet
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit Preboot eXecution I CD-ROM: 48X-20X Front: two USB (2.0 Diagnostic LEDs / en Mini-baseboard ma failure, and voltage	Environment (F CD-ROM, ID I); Back: two so or LEDs for fan nagement con	XE) / Wak E / None : serial (9-pir s and mem troller / IPI	te on LAN® histandard n), parallel, two nory / server diaç MI 1.5 / monito	USB (2.0), gnostic prog ors system	keyboard rams store and proc	d, mouse, eth ed on IBM Enh essor temper	anced Dia ature, fai	agnostics n speed	and
Graphics controller	ATI® RN50(ES1000)	/ 16MB SDRAM	l std/max / o	on planar / analo	og 15-pin / u	p to 1024)	768x32bit@85	5Hz		
Security Software	Mechanical side par power-on password without keyboard/n ServerGuide™ (CI installation and con management), IBM management software	/ boot sequent nouse 0-based autom figuration tool) Director (syst	nce contro lated netw , ServeR A em hardw	I / operation fork OS AID™ (RAID	IBM 80GB SA IBM 160GB S. IBM 250GB S. IBM 500GB S. 80GB Hot-Sw 160GB Hot-Sv	PC2-4200 CI PC2-4200 CI TA (7.2K) sir ATA (7.2K) s ATA (7.2K) s ATA (7.2K) s ap SATA HI wap SATA HI	_3 ECC DDR2 Rol _3 ECC DDR2 Rol nple-swap HDD imple-swap HDD imple-swap HDD imple-swap HDD DD	1S 1S		30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4514 39M4518 39M4522 39M4522
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink on SAS models / no Some: 400W / not h some: 430W / hot-s switch / Automatic cooling fan in powe	it redundant / r not-swap / no r wap / redundai Server Restart	ioť hot-swa edundancy nt / all: univ (ASR) /	ıp ' /	IBM Remote S IBM 5Ux20D T IBM ServeRA	716X Max° Cl Supervisor Ac Fower-to-Ra ID-7t SATA Ir	D-RW/DVD-ROM (lapter II (PCI adap	ter)	k)	26K5709 26K5710 26K5711 26K5697 26K5698 32R2905 59P2984 39R9361 71P8648



All: Slot 1: 64-bit PCI-E x8 (4GBps) 64-bit PCI-E x1 (500MBps) 32-bit 33MHz, PCI 2.2 (5v) 32-bit 33MHz, PCI 2.2 (5v) fullsize, Slot 2: fullsize, Slot 3: fullsize, Slot 4: fullsize. Some: fullsize, 64-bit 66MHz, PCI-X (3.3v) fullsize, 64-bit 66MHz, PCI-X (3.3v) Slot 5:

- Bay ① 5.25", HH 1.6", access, CD-ROM Bay ② 5.25", HH 1.6", access, open (no disk) Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, open Bay ⑥ 3.5", SL 1", access, open Bay ⑥ 3.5", SL 1", access, open Bay ⑥ 3.5", SL 1", access, open Bay ⑦ 3.5", SL 1", access, std disk (some)
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure
- Redundant power supplies standard in some models

- Removable left side panel Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0 Device Drivers and Diagnostics
- CD-ROMincluded
- CD-HOMIRICALDED Four stabilizing feet H 17.25" x W 8.5" x D 21.25" H 448mm x W 215.9mm x D 539.75mm 36 to 45.8 pounds (16.3 to 20.8kg)

Maximum SATA capacity: 2TB¹³ (4 disks x 500GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

LIMITED WARRANTY³

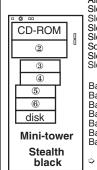
1 year parts and labor standard 8485 MTM 3 year parts and labor standard 8490 MTM

- International Warranty Service3
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time

- next business day response time
 On site service upgrade
 options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
 (ServicePac part num 69P9512)
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num 69P9511)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9510)
 3 year IOR 9x5, NBD response
- 3 year IOR 9x5, NBD response (ServicePac part num 69P9509)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period3

For GAV systems, lowercase "y" should be replaced with a country-specific code IBM® Machine Disk/Disk Maximum PCI slots **FSB** Proccessor / Speed Memory Supply Ethernet **GAV-model** cache MHz controller Capacity x bays disk bays date Type Pentium® 4 521 2.8GHz¹ 1MB
Pentium 4 631 3.0GHz 2MB
Pentium D 920 2.8GHz 4MB
Pentium D 930 3.0GHz 4MB
Pentium D 940 3.2GHz 4MB
Pentium D 940 3.2GHz 4MB simple-swap 1x400W Gigabit Feb 2006 simple-swap 1x400W Gigabit Feb 2006 simple-swap 1x400W Gigabit Feb 2006 hot-swap 1x400W Gigabit Feb 2006 1.0TB 4 x 7 1.0TB 4 x 7 1.0TB 4 x 7 1.0TB 4 x 7 1.0TB 6 x 7 1.0TB 6 x 7 1.2TB 6 x 7 8485/8490 A2y-A2x 800 512MB None/SATA 800 512MB None/SATA 800 512MB None/SATA 800 512MB None/SAS/SATA 800 512MB None/SAS/SATA 800 2x512MB None/SAS/SATA 800 2x512MB None/SAS/SATA 8485/8490 B2y-B2x Pentium 4 8485/8490 G2y-G2x Pentium D 8485/8490 H2y-H2x Pentium D 4 4 4 1x400W Gigabit Feb 2006 1x400W Gigabit Feb 2006 8485/8490 J2y-J2x hot-swap 8485/8490 J4ý-J4x 4 hot-swap Single socket, entry server for small and medium size business' and distributed enterprises Positioning Intel® Pentium 4 up to 3.0GHz Single-Core 800MHz FSB / Pentium D up to 3.2GHz Dual-Core 800MHz FSB / All Optimized for Extended Memory 64 Technology (EM64T)

1 or 2MB std on Pentium 4 / 4MB std on Pentium D Processor(s) L2 cache Motherboard contains one LGA-775 socket, four DIMM sockets, some: four slots(1 PCI Express x8, 1 PCI Express x1 Implementation 2 PCI) some: six slots(1 PCI Express x8, 1 PCI Express x1, 2 PCI, 2 PCI-X), integrated SATA and Gigabit Ethernet. No SMP support / no processor upgrade SMP support 512MB or 1GB std / 8GB13 max / four 184-pin gold-plated DIMM sockets / one or two socket used / PC2-4200 533MHz ECC DDR2-SDRAM / All Error Checking and Correcting (ECC) / DIMMs and ECC memory controller / industry std / unbuffered Memory Integrated SAS controller / supports SAS or SATA drives Enhanced IDE / ATA-100 / integrated in I/O Controller Hub / one connector on planar SAS disk controller IDE disk controller Four channel SATA controller (3.0GB/sec) / supports 4 drives standard
One 2-drop EIDE cables (to CD-ROM) / one 1-drop SATA cable per installed hard disk
Some: 80GB SATA / 7,200 rpm / 9.0 ms seek / S.M.A.R.T. SATA disk controller Cables Disk **RAID** Controller IBM ServeRAID™ 8e (RAID 0, 1) / on planar / supports SATA or SAS interface 5U⁴ rack mount support via tower-to-rack kit option
All: one PCI Express® bus / one 64-bit PCIe™ x8 / one 64-bit PCIe x1/ two 32-bit 33MHz 5v PCI 2.2 slots /
some: two 64-bit 66MHz 3.3v PCI-X slots / no hot-swap Active™ PCI slots
Intel E7230 chipset / Memory Controller Hub (MCH) / I/O Controller Hub (ICH7R) for PCI 2.2, ATA-100 EIDE, ethernet Rack support Bus slots (see below) Chipset MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M192 Super I/O for diskette, parallel, serial, keyboard, mouse 10/100/1000 gigabit / Broadcom® 5721 / on planar / full-duplex / PHY and MAC layers / Preboot eXecution Environment (PXE) / Wake on LAN® Ethernet CD-ROM / diskette CD-ROM: 48X-20X6 CD-ROM, IDE / None standard Ports Front: two USB (2.0); Back: two serial (9-pin), parallel, two USB (2.0), keyboard, mouse, ethernet (RJ45) and monitor Diagnostic LEDs / error LEDs for fans and memory / server diagnostic programs stored on IBM Enhanced Diagnostics CD Mini-baseboard management controller / IPMI 1.5 / monitors system and processor temperature, fan speed and Diagnostics Systems mgmt failure, and voltages / secure remote power on/off / support for optional Remote Supervisor Adapter II Graphics controller ATI® RN50(ES1000) / 16MB SDRAM std/max / on planar / analog 15-pin / up to 1024x768x32bit@85Hz 512MB PC2-4200 CL3 ECC DDR2RoHS
2GB(2x1GB) PC2-4200 CL3 ECC DDR2 RoHS
4GB(2x2GB) PC2-4200 CL3 ECC DDR2 RoHS
1BM 80GB SATA (7.2K) simple-swap HDD
1BM 180GB SATA (7.2K) simple-swap HDD
1BM 180GB SATA (7.2K) simple-swap HDD
1BM 50GB Hot-Swap SATA HDD
250GB Hot-Swap SATA HDD
250GB Hot-Swap SATA HDD
73GB 10K 3.5" SAS Hot-Swap HDD
30GB 10K 3.5" SAS Hot-Swap HDD
30GB 10K 3.5" SAS Hot-Swap HDD
36GB 15K 3.5" SAS Hot-Swap HDD
36GB 15K 3.5" SAS Hot-Swap HDD
36GB 15K 3.5" SAS Hot-Swap HDD
36B 15K 3.5" SAS Hot-Swap HDD
38B 15K 3.5" Security Mechanical side panel key lock / U-Bolt Tie-down capability power-on password / boot sequence control / operation 30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 without keyboard/mouse Software ServerGuide™ (CD-based automated network OS installation and configuration tool), ServeRAID™ (RAID management), IBM Director (system hardware management software) and many utilities 39M4514 39M4518 39M4522 39M4526 Keyboard / mouse Optional 40K1039 40K1040 40K1041 Three fans (fansink, rear, pwr supply) plus additional fan on SAS models / not redundant / not hot-swap Cooling fans 40K1042 Some: 400W / not hot-swap / no redundancy 40K1043 32R2905 59P2984 Power supply some: 430W / hot-swap / redundant / all: universal / auto switch / Automatic Server Restart (ASR) / 39R9361 cooling fan in power supply (variable speed) 71P8648



- 64-bit PCI-E x8 (4GBps) 64-bit PCI-E x1 (500MBps) 32-bit 33MHz, PCI 2.2 (5v) 32-bit 33MHz, PCI 2.2 (5v) Slot 1: fullsize, Slot 2: fullsize, Slot 3: fullsize Slot 4: fullsize, Some: fullsize, fullsize, 64-bit 66MHz, PCI-X (3.3v) 64-bit 66MHz, PCI-X (3.3v) Slot 5:
- Bay ① 5.25", HH 1.6", access, CD-ROM
 Bay ② 5.25", HH 1.6", access, open (no disk)
 Bay ③ 3.5", SL 1", access, open
 Bay ④ 3.5", SL 1", access, std disk (some)
 Bay ⑤ 3.5", SL 1", access, open
 Bay ⑥ 3.5", SL 1", access, open
 Bay ⑦ 3.5", SL 1", access, open
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure
- Redundant power supplies standard in some models

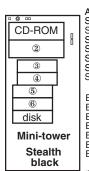
- Removable left side panel
 Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0
- Device Drivers and Diagnostics CD-ROM included
- Four stabilizing feet H 17.25" x W 8.5" x D 21.25" H 448mm x W 215.9mm x D 539.75mm
- 36 to 45.8 pounds (16.3 to 20.8kg)

Maximum SATA capacity: 1TB13 (4 disks x 250GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

LIMITED WARRANTY³

- 1 year parts and labor standard 8485 MTM 3 year parts and labor standard 8490 MTM
- International Warranty Service3
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- next business day response time
 On site service upgrade
 options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
 (ServicePac part num 69P9512)
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num 69P9511)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9510)
 3 year IOR 9x5, NBD response
- 3 year IOR 9x5, NBD response (ServicePac part num 69P9509)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x714 toll-free support for warranty issues during the warranty period3

For GAV systems, lowercase "	y" should be replaced with a country-	-specific code.						The Real Property lies	-
IBM®Machine Type GAV-model	Proccessor / Speed	L2 FSB ache MHz	Memory	Disk/Disk controller	Maximum Capacity		Hard disk bays	Power Supply Ethernet	Available date
8485/8490 B4y-B4x F 8485/8490 B6y-B6x F 8485/8490 F2y-F2x F 8485/8490 F4y-F4x F 8485/8490 H4y-H4x F	Pentium® 4 631 3.0GHz¹ 2 Pentium 4 631 3.0GHz 2 Pentium 4 661 3.6GHz Pentium 4 661 3.6GHz	2MB 800 2MB 800 2MB 800 2MB 800 4MB 800	1x512MB 2x512MB 1x512MB 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB	1x160GB/SAT/ 2x160GB/SAT None/SATA None/SAS/SAT/ 2x250GB/SATA	A 2.0TB A 2.0TB 2.0TB TA 1.2TB	4 x 7 4	simple-swap	0 1x400W Gigabit 0 1x400W Gigabit 0 1x400W Gigabit 1x400W Gigabit 1x400W Gigabit 0 1x400W Gigabit 2x430W Gigabit 2x430W Gigabit	May 2006
Positioning Processor(s) L2 cache	Single socket, entry sen Intel® Pentium 4 up to Optimized for Extende 2MB std on Pentium 4 /	3.6GHz Sired Memory	ngle-Core 64 Techr	800MHz FSB / nology (EM64T	/ Pentium I	stributed e	enterprises		
Implementation SMP support	Motherboard contains or 2 PCI) some: six slots(1 No SMP support / no pr	PCI Expres	s x8, 1 P						
Memory	512MB or 1GB std / 8GB DDR2-SDRAM / All Erro								
SAS disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	Integrated SAS controlle Enhanced IDE / ATA-10 Four channel SATA cor One 2-drop EIDE cables Some: 160GB SATA; so IBM ServeRAID™ 8e (RA	0 / integrate ntroller (3.00 s (to CD-RO me: 250GB	ed in I/O C GB/sec) / DM) / one SATA / 7	ontroller Hub / c supports 4 driv 1-drop SATA c ,200 rpm / 9.0 r	ves standar cable per in ns seek / S	d stalled ha S.M.A.R.T	ard disk		
Rack support Bus slots (see below) Chipset	5U ⁴ rack mount support All: one PCI Express® bu some: two 64-bit 66MHz Intel E7230 chipset / M MAC, USB, Low Pin Cou keyboard, mouse	s / one 64-b 3.3v PCI-X lemory Cont	oit PCle™ > slots / no troller Hub	(8 / one 64-bit F hot-swap Active (MCH) / I/O Ce	e™ PCI slot: ontroller Hu	s ib (ICH7R) for PCI 2.2	, ATA-100 EIDE	, ethernet ial,
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / Bro Preboot eXecution Envir CD-ROM: 48X-20X° CD Front: two USB (2.0); E Diagnostic LEDs / error LE Mini-baseboard manage failure, and voltages / s	onment (PX 0-ROM, IDE Back: two se EDs for fans ement contro	(E) / Wake / None s rial (9-pin) and memo oller / IPN	e on LAN® tandard I, parallel, two l ory / server diagr II 1.5 / monitor	JSB (2.0), k nostic progra s system a	keyboard, ms stored nd proces	mouse, ethe on IBM Enha	ature, fan speed	and
Graphics controller	ATI® RN50(ES1000) / 16N	/IB SDRAM s	std/max / o	n planar / analog	15-pin / up	to 1024x7	68x32bit@85l	Hz	
Security Software	Mechanical side panel ke power-on password / bo without keyboard/mouse ServerGuide™ (CD-bas installation and configur management), IBM Dire	oot sequence e sed automa ration tool),	ce control ted netwo ServeRAI	/ operation 3	512MB PC2-420 2GB(2x1GB) PC 4GB(2x2GB) PC BM 80GB SAT BM 160GB SAT BM 250GB SAT BM 500GB SAT BM 500GB SAT	C2-4200 CL3	ECC DDR2 RoHS	S S	30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4514 39M4518
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink, rea on SAS models / not hot-st some: 430W / not hot-st some: 430W / hot-swap switch / Automatic Serve cooling fan in power sup	r, pwr suppl dundant / no wap / no red / redundant er Restart (A	y) plus ad t hot-swap dundancy / / all: unive	ditional fan	150GB H01-SW2 250GB H0t-SW2 73GB 10K 3.5" 146GB 10K 3.5" 300GB 10K 3.5" 36GB 15K 3.5" S 73GB 15K 3.5" S 48X/32X/48X/10 BM Remote Sul BM 5Ux20D To	APSATA HDLE APSATA HDLE APSATA HDE APSAS Hot-Swa SAS Hot-Swa SAS Hot-Swa APSAS H	p HDD ap HDD ap HDD ap HDD p HDD p HDD RW/DVD-ROM C oter II (PCI adapte Kit grated Controller	er)	39M4518 39M4526 40K1039 40K1040 40K1041 40K1042 40K1043 32R2905 59P2984 39R9361 71P8648



- fullsize, 64-bit PCI-E x8 (4GBps) fullsize, 64-bit PCI-E x1 (500MBps) fullsize, 32-bit 33MHz, PCI 2.2 (5v) fullsize, 32-bit 33MHz, PCI 2.2 (5v) Slot 1: Slot 2: Slot 3: Slot 4 Some: fullsize, 64-bit 66MHz, PCI-X (3.3v) fullsize, 64-bit 66MHz, PCI-X (3.3v) Slot 6:
- Bav ① Bay ② Bay 3
- 5.25", HH 1.6", access, CD-ROM 5.25", HH 1.6", access, open (no disk) 3.5", SL 1", access, open 3.5", SL 1", access, std disk (some) 3.5", SL 1", access, open 3.5", SL 1", access, open 3.5", SL 1", access, open Bay 4 Bay ⑤ Bay 6 Bay ®
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure
- Redundant power supplies standard in some models

- Removable left side panel
 Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0 Device Drivers and Diagnostics CD-ROMincluded
- → Four stabilizing feet
 → H 17.25" x W 8.5" x D 21.25"
 → H 448mm x W 215.9mm x D 539.75mm
- 36 to 45.8 pounds (16.3 to 20.8kg)

Maximum SATA capacity: 2TB13 (4 disks x 500GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

LIMITED WARRANTY³

- 1 year parts and labor standard 8485 MTM 3 year parts and labor standard 8490 MTM
- International Warranty Service3

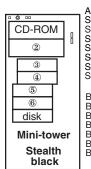
Other options at ibm.com/pc/us/accessories

- International Warranty Service³
 On site, 8 am-5 pm,
 Mon-Friexcluding holidays,
 next business day response time
 On site service upgrade
 options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
 (ServicePac part num 69P9512)
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num 69P9511)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9510)
 3 year IOR 9x5, NBD response
 (ServicePac part num 69P9509)
 Other ServicePac options at
 http://www.ibm.com/

- http://www.ibm.com/
 services/us/its/pdf/wamomxeu.pdf

 24x7¹⁴toll-free support for warranty issues during the warranty period³

IBM®Machine Type model	Proccessor / Speed	L2 FSB cache MHz	Memory	Disk/Disk controller	Maximum Capacity	PCI slots x bays	Hard disk bays	Power Supply	Ethernet	Available date
8485/8490 14U 8485/8490 16U 8485/8490 72U 8485/8490 74U 8485/8490 JAU	Pentium® 4 531 3.0GHz Pentium 4 531 3.0GHz Pentium D 820 2.8GHz Pentium D 820 2.8GHz Pentium D 945 3.4GHz	2 1MB 800 2MB 800 2MB 800	1x512MB 1x512MB 1x512MB 2x512MB 2x512MB	None/SAS/SATA 1x160GB/SATA None/SAS/SATA 2x250GB/SATA None/SAS/SATA	2.0TB 1.2TB 2.0TB	6 x 7 4 x 7 6 x 7 4 x 7 6 x 7	4 hot-swap 4 simple-swap 4 hot-swap 4 simple-swap 4 hot-swap	1x400W 1x400W 1x400W	Giğabit Gigabit Gigabit	Sep 2006 Sep 2006 Sep 2006 Sep 2006 Sep 2006
Positioning Processor(s) L2 cache Implementation SMP support	Single socket, entr Intel® Pentium 4 L Optimized for Ext 1MB std on Pentium Motherboard conta 2 PCI) some: six si No SMP support /	ip to 3.0GH tended Mer m 4 / 2 or 4 ins one LG, lots(1 PCI E	Iz Single-Comory 64 Te MB std on PA-775 socke express x8, 1	ore 800MHz FSE chnology (EM64 entium D et, four DIMM soo	i / Pentiu I T) :kets, som	m D up to	t o 3.4GHz Du lots(1 PCI Ex	press x8,	1 PCI E	xpress x1,
Memory	512MB or 1GB std / DDR2-SDRAM / Al									
SAS disk controlle IDE disk controlle SATA disk contro Cables Disk RAID Controller	r Enhanced IDE / AT	A-100 / inte A controller cables (to C A; some: 25	egrated in I/C (3.0GB/sec D-ROM) / c 50GB SATA	O Controller Hub c) / supports 4 do one 1-drop SATA / 7,200 rpm / 9.0	rives stand cable per ms seek	dard r installed / S.M.A.	d hard disk R.T.			
Rack support Bus slots (see be Chipset	5U ⁴ rack mount su low) All: one PCI Expres some: two 64-bit 66 Intel E7230 chipse MAC, USB, Low Pi keyboard, mouse	is [®] bus / one SMHz 3.3v F St / Memory	e 64-bit PCle PCI-X slots / Controller F	[™] x8 / one 64-bit no hot-swap Acti Hub (MCH) / I/O	ve™ PCI s Controller	slots Hub (ICH	H7R) for PCI 2	2.2, ATA-	100 EIDE	, ethernet ial,
Ethernet Optical / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabi Preboot eXecution Some: 48X-20X ⁶ C Front: two USB (2. Diagnostic LEDs / e Mini-baseboard ma failure, and voltage	Environmer CD-ROM, ID O); Back: two troining to the Back of the Ba	nt (PXE) / W E; <i>Some:</i> 4 wo serial (9- rfans and me controller / I	ake on LAN® 8X-32X-48X-16X pin), parallel, two emory / server dia IPMI 1.5 / monito	6 CD-RW/ USB (2.0 gnostic pro ors system	DVD-RO), keyboa grams sto n and pro	M, IDE / Non ard, mouse, et ored on IBM Er ocessor tempe	thernet (F nhanced D erature, fa	IJ45) and liagnostics an speed	S CD I and
Graphics controlle	er ATI® RN50(ES1000)	/ 16MB SDI	RAM std/max	/ on planar / analo	og 15-pin /	up to 102	4x768x32bit@8	B5Hz		
Security	Mechanical side pa power-on passwor without keyboard/r ServerGuide™ (C installation and cor management), IBM management softw	d / boot sed mouse D-based au nfiguration t I Director (quence cont itomated ne ool), Servel system hard	trol / operation twork OS RAID™ (RAID	4GB(2x2GE IBM 80GB S IBM 160GB IBM 250GB	8) PC2-4200 8) PC2-4200 8ATA (7.2K) SATA (7.2K SATA (7.2K SATA (7.2K SWap SATA I SWap SATA	CL3 ECC DDR2 CL3 ECC DDR2 simple-swap HDD) simple-swap HDI) simple-swap HDI) simple-swap HDI HDD HDD)		30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4514 39M4518 39M4522
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink on SAS models / n Some: 400W / not some: 430W / hot-s switch / Automatic cooling fan in powe	ot redundan hot-swap / r swap / redu Server Res	t / not hot-sy no redundan ndant / all: u tart (ASR) /	wap icy / niversal / auto	73GB10K3 146GB10K 300GB10K 36GB15K3 73GB15K3 48X/32X/48 IBM Remote IBM 5Ux20I IBM ServeR	.5" SAS Hot- 3.5" SAS Hot- 3.5" SAS Hot- .5" SAS Hot- X/16X Max ⁶ & Supervisor D Tower-to-F AID-7t SATA	Swap HDD t-Swap HDD t-Swap HDD Swap HDD Swap HDD CD-RW/DVD-RON Adapter II (PCI ada	ipter) ller	ack)	40K1039 40K1040 40K1041 40K1042 40K1043 32R2905 59P2984 39R9361 71P8648



- 64-bit PCI-E x8 (4GBps) 64-bit PCI-E x1 (500MBps) 32-bit 33MHz, PCI 2.2 (5v) 32-bit 33MHz, PCI 2.2 (5v) fullsize, Slot 1: Slot 2: fullsize, Slot 3: fullsize, Slot 4 fullsize. Some: Slot 5: Slot 6: fullsize, 64-bit 66MHz, PCI-X (3.3v) fullsize, 64-bit 66MHz, PCI-X (3.3v)
- Bay ① 5.25", HH 1.6", access, CD-ROM
 Bay ② 5.25", HH 1.6", access, open (no disk)
 Bay ③ 3.5", SL 1", access, open
 Bay ④ 3.5", SL 1", access, std disk (some)
 Bay ⑤ 3.5", SL 1", access, open
 Bay ⑥ 3.5", SL 1", access, open
 Bay ⑦ 3.5", SL 1", access, open
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure
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- Removable left side panel
 Configuration/Setup Utility (in flash) memory) invoked by pressing F1 at
- startup
 Advanced Configuration Power
 Interface (ACPI) 1.0
 Device Drivers and Diagnostics
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- → Four stabilizing feet
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Maximum SATA capacity: 2TB13 (4 disks x 500GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

LIMITED WARRANTY³

- 1 year parts and labor standard 8485 MTM 3 year parts and labor standard 8490 MTM
- International Warranty Service3

- International Warranty Service³
 On site, 8 am-5 pm,
 Mon-Friexcluding holidays,
 next business day response time
 On site service upgrade
 options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
 (ServicePac part num 69P9512)
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num 69P9511)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9510)
 3 year IOR 9x5, NBD response
 (ServicePac part num 69P9509)
 Other ServicePac options at
 http://www.ibm.com/

http://www.ibm.com/
services/us/its/pdf/wamomxeu.pdf

24x7¹⁴toll-free support for warranty issues during the warranty period³

IBM® Type-model Processor		L2 cache		Memory	Disk		Disk controlle		t-swap k bays	PCI slots x bays		r supply r and type	Ethernet	Available date
8649-42X 1 x Xeon ^{TI} 8649-4AX 1 x Xeon 8649-52X 1 x Xeon 8649-52X 1 x Xeon 8649-5AX 1 x Xeon 8649-5BX 1 x Xeon 8649-6AX 1 x Xeon 8649-6BX 1 x Xeon	2.8B 2.8B 2.8B 3.06 3.06	512KB 512KB	533 533 533 533 533	512MB 512MB 512MB 512MB 512MB 512MB	36.4GB ² UI None (ope None (ope 36.4GB UIt None (ope None (ope 36.4GB UIt None (ope None (ope	n-bay) ra320 10 n-bay) n-bay) ra320 10 n-bay)	Ultra32 K Ultra32 Ultra32	0 6 hot 0 None 0 6 hot 0 6 hot 0 None 0 6 hot	(4 fixed -swap -swap (4 fixed -swap -swap (4 fixed -swap -swap	6 x 9 6 x 9 6 x 7 6 x 9 6 x 9	One fi One fi Two r One fi One fi	xed edundant xed xed edundant xed xed	Giğabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Feb 2004 Feb 2004 Feb 2004 Feb 2004 Feb 2004 Feb 2004 Feb 2004 Feb 2004
Processor(s) SMP - L2 Cache Implementation	2-way Syster	SMP / umboard c	ip to tv ontains	vo Xeon F s two Intel	Iz with 533 l Processors (s 604-pin mic available AG	same spec ro-PGA Z	ed/cache si IF sockets.	iże) / 512 , four DIM	KB std a IM slots, :	eading to and max seven slo	echnology / at proce ots (one F	essor spee PCI 2.2, fo	ed ur PCI-X,	one Mini
Memory	DDR-S 2-way	SDRAM I memorv	DIMMs interle	s / four DII ave / dua	lots used / to MM gold-con I channel / E and detects	nector slo	ts on syste cking and	emboard / Correcti	' DIMMs i na (ECC '	must bĕ) via 16-l	installed i oit Check	n matched sum Chi i	l pairs [a okill ™ (co	rrects 1. 2.
IDE disk controller SCSI disk controller SCSI channels and cables	support 5, 00, one 4- SCSI conne	ogic® 530 rts RAID 10, 1E0, drop 16- cable to 6 ctor	C1030 -1 miri 50 (ins bit 68- 6-bay b	/ dual ch roring (Er stalled only oin LVD S backplane	A-100 / integ annel Ultra: nbedded Mir y in Slot 4) T SCSI cable fr ; External c	320 SCSI roring) / si wo 16-bit om systen hannel: ca	controller hared with channels (onboard to inboard to i	(LVD 320 optional one interr nternal di ble as opti	OMB/sec) IBM Serv Ial and or sks bays;	/ on plar eRAID™ ne extern Hot-swa	nar / 64-b 5i Contro al) / <i>Inten</i> p models	<i>nai channe</i> s: one 1-dr	e <i>l:</i> Fixed d op 16-bit	isk models: 68-pin LVD
Cables Disk - features	One S Some.	CSI cabl 36.4GE	e (liste 3 Ultra3	d above), 320 SCSI	one 2-drop / 10K rpm / 4	EIDE cab 4.7 ms ave	le (to CD-F erage read	ROM) seek / S.	M.A.R.T.	5				
Rack support Bus slots (see below) Chipset	Four 6 Intel E for slot	34-bit 100 27505 ch ts 2 and 3	MHż F ipset / 3 and (PCI-X 1.0 / E7505 M ethernet c	ver-to-rack ki / one PCI 2.2 ICH (Memon ontroller; Bu , ATA-100 E	2 / öne Mir y Controlle s B for slot	er Hub) for ts 4 and 5	AGP 8X and SCS	slot, P64l I controlle	H2, ICH4 er) / I/O C	/ P64H2 ontroller	for two P0 Hub (ICH4	CI-X buse) for PCI	s (Bus A 2.2 bus
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl	CD-RO Front: monito Diagno Winbo	n planar / OM: 48X- two USI or (analogostic LED and® W79	/ PCI-X -20X ⁶ (B (Ver g DB-1)s / err)1D / (C64-bit 10 CD-ROM, 2.0); Bac 5), microp or LEDs f chip on pla	net controller OMHz / full of IDE / Diske ck: two USB chone-in (mo for fans and anar / monito Supervisor	luplex / Witte: 3.5" 1. (Ver 2.0), no), line-ir memory / ors system	ake on LAI 44MB disk two serial 1 (stereo), server dia and proce	N® / Alert cette drive (9-pin), pa line-out (s gnostic pi essor tem	Standard e arallel, ke stereo) rograms s perature,	yboard, r stored on fan spee	1.0 / one nouse, et IBM Enh d and fail	rear RJ-45 hernet (Ru nanced Dia ure, and v	J-45), agnostics	CD
Graphics controller	SVGA	/ ATI® R	ageXL	/ on Mini	PCI adapter	/ 8MB SD	RAM std a	and max /	PCI 2.2 3	32-bit 331	/IHz / ana	alog 15-pin	D-Sub co	onn
Security	hot-sw power	ap mode on pass	els) / o _l word /	otional U-I boot sequ	(locks hot-s Bolt support uence contro urity slot (for	via knocko I / operatio	out / on lock)	Xeon 2.8 Xeon 3.0	0 GHz/53 6 GHz/53 3 PC2100	33/512KE 33/512KE) CL2.5 E	BL2 Cach BL2 Cach CC non-	ne Proc Up ne Proc Up ne Proc Up Chipkill DI	og og	24P7861 24P8054 24P8122 73P2868 33L5038
Software	and co		où tool), IBM Dir	omated netw ector (syster		stallation re mgmt	1GB PC2 2GB PC2 IBM 73.4	2100 CL2 2100 CL2 GB 10K I	2.5 ECC 2.5 ECC Ultra320	DDR-SDI DDR-SDI SCSI 68-	RAM DIMN RAM DIMN pin <u>(not ho</u>	√l <u>ot-swp)</u>	33L5039 33L5040 32P0724
Keyboard / mouse Cooling fans Power supply(s)	up to s power All: n Some. xBX: All:	six / three supply o ot redund one 425 two 514 universa	e for prage factorial fact	rocessor(s ns (three not hot-swa std and m std and m tage-sens	ouse (both b), memory, ain dual powe ap / all variat ax / not hot-ax / hot-swaping / Automatower supply	and disk ber supply note speed swap of / redundatic Server	ant f	IBM 36.4 IBM 73G IBM 1460 40X/12X IBM Ren IBM 4U I IBM Sen IBM Sen	GB 15K UB 10K UB	Ultra320 tra320 S Jltra320 S & CD-RV ervisor A Depth T i Controll i Controll	SCSI Hot CSI Hot-S SCSI Hot- I internal dapter II (ower-to-F er (adapter er (adapter	PCI adapt	HDD HDD HDD er) 4)	32P0725 06P5776 32P0727 32P0728 22P6976 59P2984 59P4817 25P3492 71P8595
Slot 1: half-length, 32 Slot 2: fullsize, 64-bit Slot 3: fullsize, 64-bit Slot 4: fullsize, 64-bit	100MI 100MI	Hz, PCI-) Hz, PCI-)	X 1.0 (X 1.0 (3.Śv) 3.3v)	\$	Remova Configur	lack color ble left sid ation/Setu F1 at star	e panel up Utility i		ру	LIM	ITED WA		Y ³

Slot 4: fullsize, 64-bit 100MHz, PCI-X 1.0* (3.3v) extended Slot 5: fullsize, 64-bit 100MHz, PCI-X 1.0 (3.3v)

Slot 6: Mini PCI type III, 32-bit 33MHz (5v) - used graphics Slot: fullsize, AGP 8X Pro50 (1.5v) - unavailable

* Extended slot for opt IBM ServeRAID-5i

CD-ROM diskette • 4 • (5) • 6 • 7 • 8 • (9) Hot-swap models only

Bay @ 5.25", HH 1.6", access, CD-ROM Bay @ 5.25", HH 1.6", access, open Bay @ 3.5", SL 1", access, diskette

Hot-swap models 6AX and 6BX:

Hot-swap models 6AX and 6BX: ♦ Handle grip on top Six bays ® to ® 3.5", SL 1", access, hot-swp ♦ H 18.4" x W 6.5" x D 26.0" Fixed disk models 62X:

Bay ⓐ 3.5", SL 1", no access, not hot-swap Bay ⑤ 3.5", SL 1", no access, not hot-swap Bay ⑥ 3.5", SL 1", no access, not hot-swap Bay ⑦ 3.5", SL 1", no access, not hot-swap

Maximum internal SCSI disk capacity13: 587.2GB (4 disks x 146.8GB) Fixed: Hot-swap: 880.8GB (6 disks x 146.8GB) ♦ BIOS Setup Utility via F1 at startup LSI Configuration Utility near startup by pressing ČTRL+C

♦ DMI 2.2-compliant

Adv Config Power Interface (ACPI) 1.0a
 Device Driver and IBM Enhanced

Diagnostics CD-ROM included

♦ Four stabilizing feet

→ H 467mm x W 165mm x D 660mm

44 to 57 pounds (20 to 25.8kg)

> Fixed disk models: metal cage for disk bays 4,5,6,7 rotate out of chassis for easy access for cabling

Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure 1 year parts and labor

International Warranty Service³

On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time On site service upgrade

options (in eligible locations):7

3 year IOR 9x5, NBD response (ServicePac® part num 96P2248)

3 year IOR 9x5, 4 hr avg response (ServicePac part num 96P2249) 3 year IOR 24x7, 4 hr avg response

(ServicePac part num 96P2250)

• 3 year IOR 24x7, 2 hr avg response
(ServicePac part num 96P2251)

→ Other ServicePac options at

http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

DIVI (C BCI VCI	X3eries 220 (0040) (1	cordary 2000)	ATILI DY COCI	vei i leid Skills alld Ludo	ation ream
IBM® Type-GAV-model Proce	L2 FSB essor GHz¹cache MHz Memory	Disk Disk controller	Hot-swap PCI slo		Available t date
8648-40y-40x 1 x 3 8648-4Ay-4Ax 1 x 3 8648-4By-4Bx 1 x 3 8648-50Y-50x 1 x 3 8648-5AY-5Ax 1 x 3 8648-5BY-5Bx 1 x 3 8648-60Y-60x 1 x 3 8648-6BY-6Bx 1 x 3	Xeon™ 3.0 2MB 800 512MB 80 Keon 3.0 2MB 800 512MB No Keon 3.0 2MB 800 512MB No Keon 3.2 2MB 800 512MB No Keon 3.4 2MB 800 512MB No	OGB ² SATA 7200 SATA one (open-bay) Ultra320 OGB SATA 7200 SATA one (open-bay) Ultra320 one (open-bay) Ultra320 OGB SATA 7200 SATA one (open-bay) Ultra320 one (open-bay) Ultra320 one (open-bay) Ultra320	3 simple-swap 6 x 6 hot-swap 6 x 3 simple-swap 6 x 6 hot-swap 6 x 6 hot-swap 6 x 3 simple-swap 6 x 3 simple-swap 6 x 6 hot-swap 6 x 6 hot-swap 6 x 6 hot-swap 6 x	7 One fixed Gigabit 9 One fixed Gigabit 9 Two redundant Gigabit 7 One fixed Gigabit 9 Two redundant Gigabit 7 One fixed Gigabit 7 One fixed Gigabit 9 One fixed Gigabit 9 One fixed Gigabit 9 Two redundant Gigabit	Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005
Processor(s) SMP - L2 Cache Implementation	1 x Intel® Xeon up to 3.4 GHz with 2-way SMP / up to two Xeon Proces Systemboard contains two Intel 604-	ssors (same speed/cache siz- pin micro-PGA ZIF sockets,	(a) / EM64T / 2MB L2 If the control of the control	ECC Cache / Hyper-Threading / at processor speed s (3 PCI-X, 2 PCI, 1 PCI Expr	g technology ess x16)
Memory	512MB std / 16GB ¹³ max (16GB ma than 4GB DIMMs) / two slots used / connector slots on systemboard / DII Error Checking and Correcting (E detects 2- through 8-bit errors contain	MMs must be installed in ma CC) via 16-bit Checksum (tched pairs [a bank] / 2-\ Chipkill ™ (corrects 1, 2,	way memory interleave / dúal 3, or 4-bit errors on same chi	with less gold- channel / p and
SATA disk controller SCSI disk controller Cables RAID Controller	Dual Channel SATA-150 controller (Adaptec® 7902 / dual channel Ultra supports RAID-0 & 1 mirroring / To drop 16-bit 68-pin LVD SCSI cable to to rear external 68-pin connector One SCSI cable (listed above), two of IBM ServeRAID 7e (RAID 0 0r 1) / of	a320 SCSI controller (LVD a wo 16-bit channels (one inter to 6-bay backplane; External one-drop SATA, one 2-drop	320MB/sec) / on planar / nal and one external) / <i>l.</i> <i>channel:</i> cable available EIDE cable (to CD-ROM	/ 64-bit 100MHz PCI-X / Serve nternal channel: Hot-swap mo as option pn 24P7929 from s l),	dels: one 1-
Mechanical Bus slots (see below) Chipset	4U ⁴ Tower (rack mount support via One PCI-Express / three 64-bit (one Intel E7520 chipset / E7525 MCH (supports Adaptec 7902, 2 64bit/100M bit/33MHz PCI slots (slots 2 & 3), vid	133MHz. 2 100MHz) PCI-X	1.0 / two 32-bit/33MHz PCI-Express x16(vid), Br B B supports one 64bit/1 Pin Count Interface / NS	/ no hot-swap Active™ PCI sl oadcom, PXH, ICH5R / PXH 33MHz PCI-X slot (4) / ICH5F 6 PC87366 Super I/O off LPC	ots BUS A I for two 32- interface
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl Graphics controller	One gigabit 10/100/1000 ethernet cochip on planar / PCI-X 64-bit 100MH: CD-ROM: 48X-20X ⁶ CD-ROM, IDE / Front: two USB (Ver 2.0); Back: two monitor (analog DB-15) Diagnostic LEDs / error LEDs for far Winbond [®] W791D / chip on planar support for optional Remote Supe SVGA / ATI [®] Radeon™7000M on Planar SVGA / ATI [®] Radeon™700M on Planar SVGA / ATI [®] Radeon S	/ <i>Diskette:</i> 3.5" 1.44MB diske o USB (Ver 2.0), two serial (ns and memory / server diag / monitors system and proces	ette drive 9-pin), parallel, keyboard nostic programs stored o	, mouse, ethernet (RJ-45), on IBM Enhanced Diagnostics	; CD
Security	Mechanical side panel key lock (lock hot-swap models) / optional U-Bolt s power-on password / boot sequence without keyboard/mouse / security sl	upport via knockout /); e control / operation); lot (for opt cable lock) ;	(eon 3.2 GHz/800/2MB (eon 3.4 GHz/800/2MB 512MB (2x256) PC2-320	L2 Cache EM64TProc Upg L2 Cache EM64TProc Upg L2 Cache EM64TProc Upg 00 ECC DDR2	25R8900 25R8901 13N0676 73P3523
Software	ServerGuide™ (CD-based automate and configuration tool), IBM Director software) and many utilities	ed network OS installation - (system hardware mgmt 2	IGB (2x512) PC2-3200 IGB (2x512) PC2-3200 I 2GB (2x1GB) PC2-3200 BM 80GB SATA-150 (7	ECC DDR2 ChipK DIMM Kit ECC DDR2 DIMM Kit	73P3522 73P2865 73P2866 73P8002
Keyboard / mouse Cooling fans	IBM 101 key keyboard / IBM mouse Up to six / three for processor(s), me power supply cage fans (three in dua All: not redundant / not hot-swap / al	(both black, 6-pin PS/2) emory, and disk bays / two al power supply model) Il variable speed	BM 160GB SATA-150 (BM 250GB SATA-150 (BM 36.4GB 15K Ultra32 BM 73GB 10K Ultra320	7.2K) simple-swap HDD 7.2K) simple-swap HDD 0 SCSI Hot-Swap SL HDD SCSI Hot-Swap SL HDD	73P8003 73P8006 06P5776 32P0727
Power supply(s)	Some: one 530 watt std and max / n xBx: two 514 watt std and max / h All: universal / voltage-sensing / Restart (ASR) / cooling fan in power	not hot-swap not-swap / redundant	40X/12X/40X Max ⁶ CD-F BM Remote Supervisor BM 4U Extended Depth	Adapter II (PCI adapter) Tower-to-Rack Kit	32P0728 22P6976 59P2984 26K6095
Slot 5: fullsize, 64-bit Slot 6: fullsize, 64-bit * support only for x8	1/33MHz, PCI (5v) 1/33MHz, PCI (5v) 1 133MHz, PCI-X 1.0 (3.3v) 1 100MHz, PCI-X 1.0 (3.3v)** 1 100MHz, PCI-X 1.0 (3.3v) adaptors	I	BM ServeRAID 7t SATA Other options at ibm.cc panel Utility invoked by In the service of the		13N2190 71P8648
CD-BOM Bay	erveŘAID-6i+ ① 5.25", HH 1.6", access, CD-ROM ② 5.25", HH 1.6", access, open ③ 3.5", SL 1", access, diskette	Adaptec Configuration Adaptec Configuration Startup by pressing DMI 2.2-compliant Adv Config Power In	on Utility near CTRL+I Interface (ACPI) 1.0a	o 1 year parts and labor o International Warranty Serv o On site, 8 am-5 pm, Mon-Fri excluding holidays	s,

diskette • 4 • (5) • 6 • 7 • 8 • 9 Hot-swap models only

Hot-swap models:

Six bays ⊕ to ⊚ 3.5", SL 1", access, hot-swp ♦ Four stabilizing feet Simple-swap models: 2 std, 2 avail(up to 4 \$\display \text{Handle grip on top} SATA HDDs maybe added with ServeRAID \$\display \text{H 18.4" x W 6.5" x D 25.9"} 7t controller)

Bay [@] 3.5", SL 1", simple-swap Bay [@] 3.5", SL 1", simple-swap Bay [@] 3.5", SL 1", simple-swap Bay [@] 3.5", SL 1", fixed

Maximum internal disk capacity¹³: SATA: 500GB (2 disks x 250GB); 1TB (4 disks x 250GB) w/ ServeRAID 7t SCSI: 880.8GB (6 disks x 146.8GB)

- Device Driver and IBM Enhanced
- Diagnostics CD-ROM included

- ♦ H 467mm x W 165mm x D 658mm
- Fixed disk models: metal cage for disk bays 4,5,6,7 rotate out of chassis for easy access for cabling
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

- next business day response time
- On site service upgrade options (in eligible locations):7
- 3 year IOR 9x5, NBD response (ServicePac® part num 96P2248)

 3 year IOR 9x5, 4 hr avg response
- (ServicePac part num 96P2249)

 3 year IOR 24x7, 4 hr avg response
- Syear IOR 24x7, 4 III avg response (ServicePac part num 96P2250)

 3 year IOR 24x7, 2 hr avg response (ServicePac part num 96P2251)

 Other ServicePac options at
- http://www.ibm.com/
- services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

Biii (C 501 V01	X001103) (/ tp::: 2000)		, c		Ladoution ream
IBM® Type-GAV-model Proce	L2 FSB essor GHz¹cache MHz Memory	v Disk	Disk controller		Cl slots Power supply bays number and type	Available Ethernet date
8648-32U-32x 1 x 2 8648-34U-34x 1 x 2 8648-36U-36x 1 x 2 8648-E3U-E3x 1 x 2 8648-E5U-E5x 1 x 2 8648-E5U-E7x 1 x 2 8648-B2U-B2x 1 x 2 8648-B4U-B4x 1 x 2 8648-B6U-B6x 1 x 2	(eon 2.8 2MB 800 512MB (eon 2.8 2MB 800 2GB (eon 2.8 2MB 800 2GB (eon 3.2 2MB 800 2GB (eon 3.0 2MB 800 512MB (eon 3.0 2MB 800 512MB	None (open-bay)	SATA Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 SATA Ultra320 Ultra320	6 hot-swap 6 hot-swap 6 hot-swap 6 hot-swap 4 simple-swap 6 hot-swap	6 x 9 One fixed 6 x 9 Two redundant	Gigabit Sep 2005 Gigabit Sep 2005 Gigabit Sep 2005 Gigabit Sep 2005 Gigabit Sep 2005 Gigabit Sep 2005 Gigabit Apr 2006 Gigabit Apr 2006 Gigabit Apr 2006
Processor(s) SMP - L2 Cache Implementation	1 x Intel® Xeon up to 3.4 GHz 2-way SMP / up to two Xeon P Systemboard contains two Intel	rocessors (same speed	d/cache`size	e) / 2MB std and m	nax / at processor speed	0 0,
Memory	512MB std / 16GB ¹³ max (16GB than 4GB DIMMs) / two slots us connector slots on systemboard Error Checking and Correctin detects 2- through 8-bit errors of	/ DIMMs must be insta ig (ECC) via 16-bit Ch	alled in mato iecksum C h	ched pairs [a bank] / h ipkill ™ (corrects 1,	/ 2-way memory interleat , 2, 3, or 4-bit errors on	naximum with less x 240 pin gold- ve / dual channel / same chip and
SATA disk controller SCSI disk controller	Dual Channel SATA-150 contro Adaptec® 7902 / dual channel supports RAID-0 & 1 mirroring drop 16-bit 68-pin LVD SCSI cato to rear external 68-pin connector One SCSI cable (listed above),	Ultra320 SCSI contro / Two 16-bit channels ble to 6-bay backplane; or two one-drop SATA, or	oller (LVD 32 s (one intern ; <i>External c</i> ne 2-drop F	20MB/sec) / on plar lal and one external channel: cable availa IDF cable (to CD-R	nar / 64-bit 100MHz PCI-) / <i>Internal channel:</i> Hot- able as option pn 24P79 <i>:</i> ROM).	swap models: one 1- 29 from systemboard
Mechanical Bus slots (see below) Chipset	IBM ServeRAID 7e (RAID 0 0r 4U4 Tower (rack mount support	1) / on planar / supports	s SATA or S	SCSI interface / sup	ports ServeRAID 6i+ cor	
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl Graphics controller	One gigabit 10/100/1000 ethermichip on planar / PCI-X 64-bit 10(CD-ROM: 48X-20X° CD-ROM, Front: two USB (Ver 2.0); Bacmonitor (analog DB-15) Diagnostic LEDs / error LEDs ft Winbond® W791D / chip on pla support for optional Remote SVGA / ATI® Radeon™7000M of	et controller / Broadcom DMHz / full duplex / Wal IDE / <i>Diskette</i> : 3.5" 1.4 k: two USB (Ver 2.0), to or fans and memory / sunar / monitors system a	n 5721 / full ke on LAN® l4MB diskett wo serial (9- server diagn and process	gigabit ethernet MA / Alert Standard Fo te drive -pin), parallel, keybo ostic programs stor	C and PHY layer function or at 2.0 / one rear RJ-4 pard, mouse, ethernet (Red on IBM Enhanced Dispeed and failure, and vegeed and failure, and vegeed and failure.	ns / 5 port J-45), agnostics CD
Security	Mechanical side panel key lock hot-swap models) / optional U-E power-on password / boot sequ without keyboard/mouse / security	(locks hot-swap disks Bolt support via knockou lence control / operation	on Xe ut / Xe n Xe ock) Xe	eon 2.8 GHz/800/2N eon 3.0 GHz/800/2N eon 3.2 GHz/800/2N eon 3.4 GHz/800/2N	MB L2 Cache EM64TPro MB L2 Cache EM64TPro MB L2 Cache EM64TPro MB L2 Cache EM64TPro	oc Upg 40K2515 oc Upg 40K2516 oc Upg 40K2517
Software	ServerGuide™ (CD-based auto and configuration tool), IBM Dire software) and many utilities		stallation 10 mgmt 10 20	GB (2x1GB) PC2-32	200 ECC DDR2 00 ECC DDR2 ChipK D 200 ECC DDR2 DIMM F	(it 39M5809
Keyboard / mouse Cooling fans Power supply(s)	IBM 101 key keyboard / IBM mu Up to six / three for processor(spower supply cage fans (three in All: not redundant / not hot-swa Some: one 530 watt std and ma Some: two 514 watt std and ma All: universal / voltage-sensi Restart (ASR) / cooling fan in p	s), memory, and disk ban dual power supply map / all variable speed ax / not hot-swap ax / hot-swap / redundang / Automatic Server	lays / two odel) IB	BM 160GB SATA-15 BM 250GB SATA-15 BM 36.4GB 15K Ultra BM 73GB 10K Ultra BM 146GB 10K Ultra BX/32X/48X Max ⁶ C BM Remote Supervis BM 4U Extended De	0 (7.2K) simple-swap HE 50 (7.2K) simple-swap HE 50 (7.2K) simple-swap H 8320 SCSI Hot-Swap SL 83320 SCSI Hot-Swap 844 SCSI Hot-Swap 850 S	DD 40K6868 DD 40K6872 L HDD 30R5096 HDD 40K1023 HDD 40K1024 22P7042 ter) 59P2984 26K6095
Slot 2: fullsize, 3: Slot 3: fullsize, 3: Slot 4: fullsize, 6: Slot 5: fullsize, 6: Slot 6: fullsize, 6: * support only for ** slot for opt IBM CD-ROM Bay Bay Hot- Six t Simp SAT 7t c Bay Bay Bay Bay Bay Bay Bay Bay Bay Ba	CI-Express x16 (3.3v)* 2-bit/33MHz, PCI (5v) 2-bit/33MHz, PCI (5v) 4-bit 133MHz, PCI-X 1.0 (3.3v) 4-bit 100MHz, PCI-X 1.0 (3.3v)* 4-bit 100MHz, PCI-X 1.0 (3.3v)* 4-bit 100MHz, PCI-X 1.0 (3.3v) x8 adaptors 1 ServeRAID-6i+ ① 5.25", HH 1.6", access, CD-R ② 5.25", HH 1.6", access, open ③ 3.5", SL 1", access, disket swap models: bays ④ to ⑨ 3.5", SL 1", access ble-swap models: 2 std, 2 avait A HDDs maybe added with Stontroller) ④ 3.5", SL 1", simple-swap ⑥ 3.5", SL 1", simple-swap	pressing	IB Oritical Action (Action Action Act	SM ServeRAID 7t SA ther options at ibn canel Utility invoked by a F1 at startup n Utility near CTRL+I terface (ACPI) 1.0a M Enhanced A included	LIMITED WA 1 year parts and land International Warr On site, 8 am-5 pn Mon-Fri excluding next business day On site service up options (in eligible 3 year IOR 9x5, (ServicePac parl	71P8648 ARRANTY³ abor anty Service³ n, holidays, response time grade locations): ⁷ NBD response rt num 96P2248)

• 9

Hot-swap

models only

Bay ® 3.5", SL 1", simple-swap Bay ® 3.5", SL 1", simple-swap Bay ® 3.5", SL 1", simple-swap Bay ® 3.5", SL 1", fixed

Maximum internal disk capacity¹³: Maximum Internal disk capacity*.

SATA: 500GB (2 disks x 250GB); 1TB (4 disks x 250GB) w/ ServeRAID 7t SCSI: 880.8GB (6 disks x 146.8GB)

44 to 57 pounds (20 to 25.8kg)

Fixed disk models: metal cage for disk bays 4,5,6,7 rotate out of chassis for easy access for cabling

Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

3 year IOR 24x7, 4 hr avg response (ServicePac part num 96P2250)
 3 year IOR 24x7, 2 hr avg response (ServicePac part num 96P2251)
 Other ServicePac options at http://www.ibm.com/services/us/its/pdf/wamomxeu.pdf
 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM® Type-GAV-model Proce	L2 essor GHz¹cac		Memory	Disk	Disk controll		Hot-swap disk bays	PCI slots x bays	Power supply number and type	Etherne	Available t date
8488-32U-32x 1 x 3 8488-34U-34x 1 x 3 8488-36U-36x 1 x 3 8448-B2U-B2x 1 x 3 8448-B4U-B4x 1 x 3 8448-B6U-B6x 1 x 3	Keon 2.8 2M Keon 3.0 2M Keon 3.0 2M	B 800 B 800 B 800 B 800	512MB 512MB 512MB 512MB 512MB 512MB	80GB ² SATA 7 None (open-ba None (open-ba 80GB SATA 72 None (open-ba None (open-ba	ay) Ultra32 ay) Ultra32 200 SATA ay) Ultra32	20 6 20 6 4 20 6	simple-swa hot-swap hot-swap simple-swa hot-swap hot-swap	6 x 9 6 x 9 6 x 7 6 x 9	One fixed One fixed Two redundant One fixed One fixed Two redundant	Gigabit Gigabit Gigabit Gigabit	Apr 2006 Apr 2006
Processor(s) SMP - L2 Cache Implementation	1 x Intel® Xeor 2-way SMP / c Systemboard of	n up to 3 up to two contains	3.4 GHz v Xeon Pro two Intel 6	with 800MHz from ocessors (same s 604-pin micro-PG/	ntside bus (I peed/cache : A ZIF socket:	FSB) / size) / s, six [EM64T / 2M 2MB std an DIMM slots, s	IB L2 EC d max / a six slots (3	C Cache / Hyper- t processor speed B PCI-X, 2 PCI, 1	Threading I PCI Expr	g technology ess x16)
Memory	512MB std / 16 than 4GB DIMI connector slots Error Checkin detects 2- throu	GGB ¹³ ma Ms) / two s on syste g and C ugh 8-bit	ax (16GB) slots use emboard / correcting errors col	maximum can be ed / four slots avai / DIMMs must be g (ECC) via 16-bit ntained in two chi	e achieved wilable / PC2-3 installed in mt Checksumps) available	hen 40 3 200 40 natched Chipl on 1G	GB DIMMs a 00MHz ECC d pairs [a bai kill™ (correct iB (2x512) D	re support DDR2-SE nk] / 2-way s 1, 2, 3, IMM Kit a	ed, 12GB is the n DRAM DIMMs / Si y memory interlea or 4-bit errors on nd greater	naximum x 240 pin ve / dual same chi	with less gold- channel / p and
SATA disk controller SCSI disk controller Cables RAID Controller	Dual Channel Adaptec® 7902 supports RAID drop 16-bit 68- to rear externa One SCSI cab	SATA-15 2 / dual of the control of t	50 controllections of the control of	er (150MB/sec / t Jitra320 SCSI co 'Two 16-bit char le to 6-bay backpi wo one-drop SAT.	wo connecto ntroller (LVE nnels (one int lane; Externa A, one 2-drop	rs on p 0 320N ernal a al char p EIDE	olanar /suppo //B/sec) / on and one extennel: cable av E cable (to Cl	orts Serve planar / 64 rnal) / <i>Inte</i> vailable as D-ROM),		-X / Serve swap mo 29 from s	RAID 7e dels: one 1-
Mechanical Bus slots (see below) Chipset	4U ⁴ Tower (rad One PCI-Expre Intel E7520 ch supports Adap bit/33MHz PCI	ck mount ess / thre iipset / E tec 7902 slots (slo	t support ee 64-bit (c 57525 MC , 2 64bit/1 ots 2 & 3),	via tower-to-rack one 133MHz, 2 1 CH (Memory Cont 00MHz PCI-X slo , video, SATA, 4xl	kit option) 00MHz) PCI- roller Hub) fo its (5 & 6), Bl USB(2.0), Lo	-X 1.0 or PCI-I US B s w Pin	/ two 32-bit/3 Express x16(supports one Count Interfa	3MHz / r vid), Broa 64bit/133 ce / NS P	no hot-swap Active dcom, PXH, ICH5 MHz PCI-X slot (4 C87366 Super I/C	e™ PCI sl iR / PXH) / ICH5R) off LPC	ots BUS A I for two 32- interface
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl Graphics controller	monitor (analogo Diagnostic LEI Winbond® W79	B (Ver 2 g DB-15) Ds / error 91D / ch	.0) <i>; Back.</i> LEDs for ip on plan	two USB (Ver 2.	y / server dia em and proc	i (9-pin agnosti essor i	i), parallel, ke ic programs : temperature.	stored on fan speed	PHY layer functio .0 / one rear RJ-4 nouse, ethernet (R IBM Enhanced D I and failure, and ng and control)	J-45),	; CD
Security	hot-swap mode power-on pass	els) / opti word / b	onal U-Bo oot seque	locks hot-swap di bit support via kno ence control / ope ty slot (for opt cab	ckout / ration	Xeor Xeor Xeor	n 3.0 GHz/80 n 3.2 GHz/80 n 3.4 GHz/80	0/2MB L2 0/2MB L2 0/2MB L2	Cache EM64TPr Cache EM64TPr Cache EM64TPr Cache EM64TPr	oc Upg oc Upg	40K2500 40K2515 40K2516 40K2517
Software		on tool),	IBM Direct	nated network Os ctor (system hard		1GB 1GB	ИВ (2x256) F (2x512) PC2 (2x512) PC2 (2x1GB) PC	2-3200 EC 2-3200 EC	ECC DDR2 CC DDR2 CC DDR2 ChipK D CC DDR2 DIMM	OIMM Kit Kit	73P3523 39M5818 39M5821 39M5809
Keyboard / mouse Cooling fans Power supply(s)	Up to six / three power supply of Not redundant One 530 watts	e for pro cage fans / not hot std and n g / Auton	ocessor(s), s (three in -swap / all nax / not h natic Serv	use (both black, 6, memory, and dis dual power supp I variable speed / not-swap / univers er Restart (ASR)	sk bays / two ly model) sal /	IBM IBM IBM IBM IBM 48X/ IBM	80GB SATA 160GB SATA 250GB SATA 36.4GB 15K 73GB 10K U 146GB 10K 32X/48X Ma Remote Sup	-150 (7.2k A-150 (7.2 A-150 (7.2 Ultra320 St Ultra320 St x ⁶ CD-RW ervisor Ac	() simple-swap HI(X) simple-swap HI(X) simple-swap HI(X) simple-swap I SCSI Hot-Swap SL SCSI Hot-Swap SI internal (black) lapter II (PCI adapower-to-Rack Kit	OD HDD HDD L HDD HDD _ HDD	40K6864 40K6868 40K6872 30R5096 40K1023 40K1024 22P7042 59P2984 26K6095
	, PCI-Express > , 32-bit/33MHz,					IBM IBM	ServeRAID-6 ServeRAID 7	Si+ control 7t SATA c	ler (adapter for Sle	,	13N2190 71P8648

Slot 2: fullsize, 32-bit/33MHz, PCI (5v) Slot 3: fullsize, 32-bit/33MHz, PCI (5v)

Slot 4: fullsize, 64-bit 133MHz, PCI-X 1.0 (3.3v) Slot 5: fullsize, 64-bit 100MHz, PCI-X 1.0 (3.3v)** Slot 6: fullsize, 64-bit 100MHz, PCI-X 1.0 (3.3v)

support only for x8 adaptors

** slot for opt IBM ServeRAID-6i+



Bay ① 5.25", HH 1.6", access, CD-ROM Bay @ 5.25", HH 1.6", access, open Bay @ 3.5", SL 1", access, diskette

Hot-swap models:

Six bays 4 to 9 3.5", SL 1", access, hot-swp Simple-swap models: 2 std, 2 avail(up to 4 SATA HDDs maybe added with ServeRAID 7t controller)

Bay (§ 3.5", SL 1", simple-swap Bay (§ 3.5", SL 1", simple-swap Bay (§ 3.5", SL 1", simple-swap Bay (§ 3.5", SL 1", fixed

Maximum internal disk capacity13: SATA: 500GB (2 disks x 250GB); 1TB (4 disks x 250GB) w/ ServeRAID 7t SCSI: 880.8GB (6 disks x 146.8GB)

- → Raven black color
- ♦ Removable left side panel
- Configuration/Setup Utility invoked by pressing F1 at startup

 BIOS Setup Utility via F1 at startup
- Adaptec Configuration Utility near startup by pressing CTRL+I

 → DMI 2.2-compliant

- ♦ Adv Config Power Interface (ACPI) 1.0a Device Driver and IBM Enhanced Diagnostics CD-ROM included
- Four stabilizing feet
- → Handle grip on top
 → H 18.4" x W 6.5" x D 25.9"
- ♦ H 467mm x W 165mm x D 658mm
- 44 to 57 pounds (20 to 25.8kg)
- Fixed disk models: metal cage for disk bays 4,5,6,7 rotate out of chassis for easy access for cabling
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

LIMITED WARRANTY³

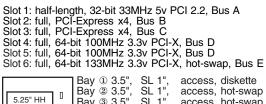
1 year parts and labor

Other options at ibm.com/pc/us/accessories

- International Warranty Service³
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- On site service upgrade options (in eligible locations):7
- 3 year IOR 9x5, NBD response (ServicePac® part num 96P2248) 3 year IOR 9x5, 4 hr avg response
- (ServicePac part num 96P2249) 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 96P2250)
 3 year IOR 24x7, 2 hr avg response (ServicePac part num 96P2251)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM® Type-model Qty x F	L2 L3 Processor cache cache Memory Dis	SCSI k controller Mechanica	Slots x bays I (hot-swap bays)	Power Available supply Ethernet date
8671-KAX 1 x Xeon 8671-L1X 1 x Xeon 8671-LAX 1 x Xeon ≈ 8671-M1X 1 x Xeon ≈ 8671-MAX 1 x Xeon	 2.67GHz 512KB 0MB 512MB Nor 2.67GHz 512KB 0MB 512MB Nor 2.8BGHz 512KB 0MB 512MB Nor 2.8BGHz 512KB 0MB 512MB Nor 3.06GHz 512KB 0MB 512MB Nor 3.06GHz 512KB 0MB 512MB Nor ship standard with Non-Chipkill Dli 	ne 2 x Ultra320 Tower ne	6x10 (6 hot-swap std; 9 max 6x10 (6 hot-swap std; 9 max	560W hot Gigabit Jan 2004 560W fixed Gigabit Jan 2004 560W hot Gigabit Jan 2004 660W fixed Gigabit Jan 2004 660W hot Gigabit Jan 2004
Positioning Processor(s) L2 cache L3 cache SMP support Implementation	Universal server; two-way server us Up to 1 x Intel® Xeon™ Processor 512KB / all models / on die of proce 1MB / available on some models / o 2-way SMP / up to two Xeon Proce Systemboard contains two Intel 603 six PCI slots (two hot-swap Active™	3.06 GHz with 533MHz fessor / at processor spee on die of processor / at pressors (same speed/cach3-pin micro-PGA ZIF soci	rontside bus / Hyper-Thread d rocessor speed e size) kets, six memory gold-conne	ector DIMM slots,
Memory	512MB std / 12GB max / two slots PC2100 266MHz registered 184-pir DIMMs must be installed in matched 2x100MHz / Error Checking and C through 8-bit errors contained in two	n ECC DDR-SDRAM DIN d pairs [a bank] / 2-way n Correcting (ECC) (correc	IMs nemory interleave / dual cha ts 1, 2, 3, or 4-bit errors on	same chip and detects 2-
SCSI channels	LSI Logic® 53C1030 / dual chann supports RAID-1 mirroring with up low-cost RAID 0, 1, 1E, 5, 00, 10, 1 Two 16-bit channels / SCSI Channinterface for Bay 8 and 9 (may requevices via external SCSI knockout eEnhanced IDE ATA-100 controller in None standard / supports 7200-1500 Six hot-swap / 80-pin SCA-2 connections.	to one hot-spare disk / E0, 50 (installed only in : el A: 16-bit 68-pin LVD cauire a cable) or with optic in rear (cable req 32P816 in CSB5 South Bridge / c 00 rpm disks / one backpla	shared with optional IBM S Slot 4) able from controller to backponal 3-Pack Kit (cable included) or via opt ServeRAID addone connector on planar / of ane / all disk bays Ultra320-e	erveRAID™-6i Controller for blane; Channel B: 16-bit 68-pin ded); supports external SCSI apter with external connector(s) ne 1-drop IDE cable (CD-ROM) nabled
Mechanical Chipset	Tower / conversion to or EIA 19" Ra. ServerWorks® Grand Champion™ two CIOB-X2 I/O Bridges (IMB2 bus controllers; IMB2 bus to Host Bridge for PCI 2.2 bus A with slot 1 and gra	4.0 LE / CMIC LE Host Bi to Host Bridge for PCI-X for PCI-X 1.0 Bus C with	ridge (memory controller and 1.0 Bus B with slots 2, 3, 4 a slots 5 and 6) / CSB5 South	I/O Bridge) / nd Ultra320 and ethernet Bridge (Thin IMB to Host Bridge
Ethernet controller CD-ROM / diskette Rear ports Front port / graphics	10/100/1000 gigabit / Broadcom® BC 48X-20X® CD-ROM / IDE / 1.6" HH; Rear: two USB (Vers 1.1), keyboard, Front: one USB (Vers 1.1); Graphics:	<i>Diskette:</i> 3.5" 1.44MB omouse, parallel, two serial	liskette drive / dust cover (9-pin),graphics (DB-15), ethe	rnet (RJ-45), two RJ-45 (sys mgmt)
Security	Power-on password / administrator p button / unattended boot / selectable			
Systems mgmt Diagnostics Software	IBM Integrated system manageme H8S2148 / on planar / provides systemonitoring such as temp, optional di supports optional Remote Superviso connector on planar for continuous p Light Path Diagnostics™ panel prov failing part (under side cover) / Inform ServerGuide™ (CD-ROM installation utilities). IBM Director, others	em and environmental sks, fans, power supp / or Adapter with 20-pin power (no ext pwr reqd) viding LED map to nation LED Panel in front	Xeon 2.67GHz/512KB L2 (Xeon 2.8BGHz/512KB L2 (Xeon 3.06GHZ/512KB L2 (2x256MB PC2100 Non-Ch 512MB PC2100 CL2.5 ECC I GB PC2100 CL2.5 ECC I GB PC2100 CL2.5 ECC I IBM ServeRAID-6i Controll BM Remote Supervisor Au IBM T541 15" Flat Panel Colo	Cache Proc Upg 71P8967 Cache Proc Upg 02R1988 ipkill DDR-SDRAM Kit 73P2868 C DDR-SDRAM DIMM 33L5039 DDR-SDRAM RDIMM 33L5049 er (adapter for slot 4) 71P8595 dapter II (PCI adapter) 59P2984
Keyboard / mouse Power supply	IBM 101-key keyboard / IBM mous MAX: std/max: two/two 660 watt M1X: std/max: one/two 660 watt xAX: std/max: two/two 560 watt Rest: std/max: one/two 560 watt Four fans and two blowers / variab redundant / PFA / fan in each powers / watter watter fans and two blowers / wariab redundant / PFA / fan in each powers / watter wat	All: voltage-sensing / auto-restart / fan in each le speed / hot-swap /		SCSI Hot-Swap SL HDD 06P5776 Expansion Kit 33P2751 er Upgrade Kit* 02R1874 Upgrade Kit (3.06 Only) 02R2015 n/pc/us/accessories th 400Mhz FSB x235
Slot 2: full, 64-bit 10 Slot 3: full, 64-bit 10 Slot 4: full, 64-bit 11 Slot 5: full, 64-bit 13 * Extended slot for c	MHz 5v PCI 2.2, Bus A DMHz 3.3v PCI-X, not hot, Bus B DMHz 3.3v PCI-X, not hot, Bus B DMHz 3.3v PCI-X, not hot, Bus B* MIN BUSH BUSH BUSH BUSH BUSH BUSH BUSH BUSH	Quick release adapter s Configuration/Setup Util pressing F1 at startup LSI Logic Configuration by pressing CTRL+C Diagnostics (PC-Doctor F2 at startup ACPI2.0-compliant Operator Information Pa Predictive failure analys memory, processors, V supplies, and fans in co Director can alert the sy of an imminent compone Tower: H 17.31" x W 8 74 to 101 pounds Stealth black color All models: Max int dis 1.321TB² with nine 146. 3-Pack Ultra160 Hot-Sw	Utility near startup Utility near startup Intel On s cove busi 3 ye upg loca sis on disk options, RMs, power njunction with IBM stem administrator ent failure 1.5" x D 27.6" Isk capacity: 8GB SL disks with ap Expansion Kit	ar parts and labor rnational Warranty Service³ site, 8 am - 5 pm, Mon - Fri erage excluding holidays, next iness day response time² ar on site warranty service rade options (in eligible tions):² hour coverage, on-Fri excluding holidays, hour average response servicePac® part num 21P2083) 4 hr x 7 day coverage, hour average response servicePacpartnumber 21P2084) 4 hr x 7 day coverage, hour average response servicePac part number 21P2085) 714 toll-free support for warranty les during the warranty period³

IBM® Type-model Qty	L2 x Processor cache Memory Disk	SCSI controller Mechanic	Slots x bays al (hot-swap bays)	Power supply	Available Ethernet date
8841-05U-05x 1 x X 8841-15y-15x 1 x X 8841-25y-25x 1 x X 8841-35y-35x 1 x X 8841-45y-45x 1 x X 8841-16y-16x 1 x X 8841-E1y-E1x 1 x X 8841-55U-55x 1 x X	eon 3.2GHz 2MB 1GB None eon 3.4GHz 2MB 1GB None eon 3.6GHz 2MB 1GB None eon 3.0GHz 2MB 1GB None eon 3.0GHz 2MB 1GB 3x73.4G	2 x Ultra320 Tower 2 x Ultra320 Tower 2 x Ultra320 Tower 2 x Ultra320 Tower 2 x Ultra320 Tower 3B 2 x Ultra320 Tower	6x10 (6 hot-swap std; 9 ma 6x10 (6 hot-swap std; 9 ma	x) 1 x 670W hot-swap x) 1 x 670W hot-swap	2xGigabit Mar 2005 2xGigabit Mar 2005 2xGigabit Mar 2005 2xGigabit Mar 2005 2xGigabit Mar 2005 2xGigabit Mar 2005 2xGigabit Mar 2005
Positioning Processor L2 cache SMP support Implementation	Universal server; two-way server Up to 1 x Intel® Xeon™ Processo ogy (EM64T) / Simultaneous M 2MB / all models / on die of proce 2-way SMP / up to two Xeon Pro Systemboard contains two Intel 6 six PCI slots (one hot-swap Active 1GB std / 16GB max / two slots on DIMMs must be installed in match Error Checking and Correcting in two chips) / Active Memory™	or 2.8, 3.0, 3.2, 3.4, 3.6, lulti-threading (SMT) / sesor / at processor specessors (same speed/cout-pin micro-PGA ZIF set PCI slots), and integued / six slots available led pairs [a bank] / 2-wa (ECC) (corrects 1, 2, 3	3.8 GHz with 800MHz frontsi Hyper-Threading technology / ed sache size) sockets, eight memory gold-co grated SCSI, ethernet, graphics / PC2-3200 400MHz register by memory interleave / dual chord yor 4-bit errors on same chip	nnector DIMM slots, ed 240-pin ECC DDR2	emory 64 Technol-
SCSI disk controller SCSI channels IDE controller / cable Disk - capacity Disk - bays	Adaptec AIC 7902 / dual channel HostRAID supports RAID-0, 1 m low-cost RAID 0, 1, 1E, 1E0, 5, 00 Two 16-bit channels / SCSI Channels 8 and 9 (may require a cable knockout in rear (cable req 24P7S Enhanced IDE ATA-100 controller None std / supports 7200-15000 r Six hot-swap / 80-pin SCA-2 connections	el Ultra320 SCSI contr ilrroring with up to one 0, 10, 50 (installed on intrel B: 16-bit 68-pin LVD e) or with optional 3-Pacl 973) or via opt ServeRA r in ICH5R South Bridge rpm disks / one backpla	biler (LVD 320MB/sec) / on pl hot-spare disk / optional IBM ernal connector) cable from controller to backp k Kit (cable included); supports IID adapter with external conn l / one connector on planar / one / all disk bays Ultra320-ena	ServeRAIDTM-7k Contributions; Channel A: 16-be external SCSI devices externs; Carlor IDE cable (6 bled	oller for it 68-pin interface for s via external SCSI CD-ROM)
Mechanical Slots Chipset (see below)	Tower / conversion to EIA 19" Ra Two PCI-Express (one hot-plug), Intel E7520 chipset / Intel E7520 (slots 2 & 3) / PXH: Bus A, two 64 6) / ICH5R: one 32-bit/33MHz slot	three PCI-X 64-bit (one Memory Controller Hul 1-bit/100MHz PCI-X slot:	133MHz and two 100MHz), o o (MCH): PXH, ICH5R, Dual E s (slots 4 & 5), Adaptec SCSI I	ne 32-bit/33MHz´slot troadcom ethernet, two Bus B, one 64-bit/133N	1Hz Hot-Plug slot (slot
Ethernet controller CD-ROM / diskette Rear ports Front port / graphics	Dual 10/100/1000 gigabit / Broadd Format (2.0) / IPMI (1.5) 48X-20X ⁶ CD-ROM / IDE / 1.6" H Rear: two USB (Vers 2.0), keybo Front: one USB (Vers 2.0); Graph	IH; <i>Diskette:</i> 3.5" 1.44N ard, mouse, parallel, tw	B diskette drive / dust cover o serial (9-pin),graphics (DB-1	5), two ethernet (RJ-4	5), RJ-45 (sys mgmt)
Security	Power-on password / administrate front door to cover disk bays, pow unattended boot / selectable boot	ver button, and reset but	ton / Xeon 3.0GHz/2ME Xeon 3.2GHz/2ME	L2 Cache Proc Upg L2 Cache Proc Upg L2 Cache Proc Upg	40K2503 40K2504 40K2505
Systems mgmt	IBM Integrated system manage H8S2148 / on planar / provides sy such as temp, optional disks, fans Supervisor Adapter II Slimline with continuous power (std on 32y) (r	ystem and environments s, power supp / supports n 20-pin connector on pl	Xeon 3.6GHz/2ME Xeon 3.8GHz/2ME Xeon 3.8GHz/2ME 512MB (2x256) PC 1GB (2x512) PC2-	L2 Cache Proc Upg L2 Cache Proc Upg L2 Cache Proc Upg L2-3200 CL3 ECC DDR2 non-C 3200 CL3 ECC DDR2 non-C	pk 39M5818
Diagnostics Software	Light Path Diagnostics™ panel (under side cover) / Information LisserverGuide™ (CD-ROM installa utilities), IBM Director, others	providing LED map to fa ED Panel in front	2GB (2x1GB) PC2 73.4GB 10K Ultra3 146.4GB 10K Ultra	3200 CL3 ECC DDR2 RDIMN 3200 CL3 ECC DDR2 RDIMN 20 SCSI Hot-Swap SSL HDD 320 SCSI Hot-Swap SSL HDD 20 SCSI Hot-Swap SSL HDD	9 39M5809 40K1023
Keyboard / mouse Power supply Fans	IBM 101-key keyboard / IBM moustd/max: one/two 670 watt / voltag Fan in each std/max: four/six/ two (Opt) two fans (rear) / variable spo optional rear fans / PFA / fan in	ge-sensing / auto-restart fans (front), two fans o eed / hot-swap / redund	IBM ServeRAID-7/ IBM Remote Supe n planar, ant with IBM 670W Hot-Sw		71K8642 73P9341 33P2751 25K9560



Bay ① 3.5", SL 1", access, diskette Bay ② 3.5", SL 1", access, hot-swap Bay ③ 3.5", SL 1", access, hot-swap Bay ⑤ 3.5", SL 1", access, hot-swap Bay ⑥ 5.25", HH 1.6" access, open** Bay ⑨ 5.25", HH 1.6" access, open** Bay ⑩ 5.25", HH 1.6" access, CD-ROM ACPI 2.0-compliant Operator Information Panel (in front) Predictive failure analysis on disk options, memory, processors, VRMs, power 5.25" HH CD-ROM ⇒ Tower: H 17.31" x W 8.5" x D 27.6" ⇒ 74 to 101 pounds⇒ Stealth black color

Bays 2 through 7 support 6 SL disks via SCA-2 connectors. Bays 8 and 9 support three 3.5" disks via 3-Pack Kit 33P2751

All models: Max int disk capacity: 1.8TB2 with six 300GB Ultra160 or Ultra320 SCSI hot-swap slimline HDDs

of an imminent component failure

Quick release adapter slots (no screws)

Adaptec Configuration Utility near startup by pressing CTRL+I

supplies, and fans in conjunction with IBM

Director can alert the system administrator

Configuration/Setup Utility invoked by

Diagnostics (PC-Doctor™) by pressing

pressing F1 at startup

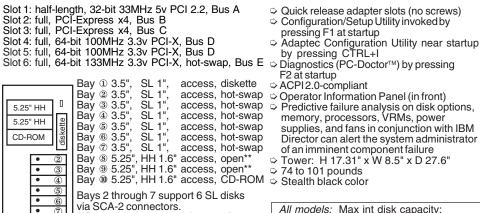
F2 at startup

LIMITED WARRANTY³

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- 3 year on site warranty service upgrade options (in eligible locations):
 - 9 hour coverage, Mon-Fri excluding holidays, 4 hour average response (ServicePac® part num 21P2083)
 - 24 hr x 7 day coverage, 4 hour average response (ServicePac part number 21P2084)
 - 24 hr x 7 day coverage, 2 hour average response
- (ServicePac part number 21P2085) 24x7¹⁴ toll-free support for warranty issues during the warranty period3

Tower

IBM® Type-model Qt	y x Processor	L2 cache Memoi	y Disk	SCSI controller	Mechanic		s x bays wap bays)	Power supply	Ethernet	Available date
8841-0RU-0Rx 1 x 8841-1RU-1Rx 1 x 8841-1SU-1Sx 1 x 8841-2RU-2Rx 1 x 8841-3RU-3Rx 1 x 8841-4RU-4Rx 1 x 8841-5RU-5Rx 1 x	Xeon 3.0GHz Xeon 3.0GHz	2MB 1GB 2MB 1GB 2MB 1GB 2MB 1GB 2MB 1GB 2MB 1GB 2MB 1GB	None None None None None None	2 x Últra320 2 x Últra320 2 x Últra320 2 x Últra320	Tower Tower Tower Tower	6x10 (6 ho	t-swap std; 9 max t-swap std; 9 max) 1 x 670W hot-swap 1 x 670W hot-swap	2xGiğabit 2xGigabit 2xGigabit 2xGigabit 2xGigabit	Apr 2006 Apr 2006 Apr 2006 Apr 2006 Apr 2006
Positioning Processor L2 cache SMP support Implementation	Up to 1 x Int ogy (EM64T 2MB / all mo 2-way SMP Systemboard	el [®] Xeon™ Pr) / Simultane dels / on die o / up to two Xe I contains two	ocesso ous Mu of proces on Pro Intel 60	or 2.8, 3.0, 3.2 ulti-threading ssor / at proce cessors (same 04-pin micro-F	2, 3.4, 3.6, (SMT) / I essor spee e speed/ca PGA ZIF so	or to provide 3.8 GHz with Hyper-Thread d ache size) ockets, eight	power and perform 800MHz frontside ding technology /	mance at an affordab e bus / Extended Me nector DIMM slots,	le price mory 64 Te	echnol-
Memory	DIMMs must Error Check	be installed in	matche	ed pairs [a ba (ECC) (correc	nk] / 2-way ts 1. 2. 3.	/ memory int or 4-bit error	erleave / dual char 's on same chip ar	d 240-pin ECC DDR2 nnel / memory bus rur nd detects 2- through	ns at 2x200	MHz /
SCSI disk controller SCSI channels IDE controller / cable Disk - capacity Disk - bays	HostRAID so low-cost RAII Two 16-bit ch Bay 8 and 9 knockout in re Enhanced ID None std / su	upports RAID - D 0, 1, 1E, 1E, nannels / <i>SCS</i> (may require sear (cable red E ATA-100 coupports 7200-	0, 1 mi 0, 5, 00 <i>I Chanr</i> a cable) 24P79 ontroller	rroring with u, 10, 50 (instance) B: 16-bit 68 or with option 73) or via option ICH5R South on disks / one	up to one I lled on inte 3-pin LVD nal 3-Pack : ServeRAI uth Bridge e backplan	not-spare disernal connect cable from continuous Kit (cable in one dapter word) one connected / all disk b	k / optional IBM S or) ontroller to backpla cluded); supports e ith external connec ctor on planar / on ays Ultra320-enab	e 1-drop IDE cable (C	oller for t 68-pin inte via externa D-ROM)	
Mechanical Slots Chipset (see below)	Two PCI-Exp Intel E7520 (slots 2 & 3)	oress (one hot chipset / Intel / PXH: Bus A,	-plug), t E7520 two 64	hree PCI-X 64 Memory Con bit/100MHz F	4-bit (one troller Hub CI-X slots	133MHz and (MCH): PXH (slots 4 & 5)	H, ICH5R, Dual Bro , Adaptec SCSI Bu	acks (13N0956) e 32-bit/33MHz slot oadcom ethernet, two us B, one 64-bit/133M uper I/O / NS PC87413	Hz Hot-Plu	g slot (slot
Ethernet controller CD-ROM / diskette Rear ports Front port / graphics	Format (2.0) 48X-20X ⁶ CE Rear: two US	/ IPMĬ (1.5) D-ROM / IDE / SB (Vers 2.0),	1.6" Hi	H; <i>Diskette:</i> 3 ard, mouse, pa	.5" 1.44ME arallel, two	3 diskette dri 5 serial (9-pir	ve / dust cover n),graphics (DB-15	duplex / Wake on LA), two ethernet (RJ-4 DDR std/max / 32-bi	5), RJ-45 (s	sys mgmt)
Security	front door to	ssword / adm cover disk bar oot / selectab	s, pow				Xeon 2.8GHz/2MB L Xeon 3.0GHz/2MB L Xeon 3.2GHz/2MB L	2 Cache Proc Upg		40K2503 40K2504 40K2505
Systems mgmt Diagnostics	H8S2148 / or such as temp Supervisor A continuous p	ted system non planar / provo, optional disidapter II Slimlower (std on Diagnostics™	vides sy ks, fans ne with 32y) (n	stem and env , power supp 20-pin conne o ext pwr requ	rironmental / supports ctor on pla d)	monitoring opt. Remote nar for	Xeon 3.4GHZ/2MB L Xeon 3.6GHz/2MB L Xeon 3.8GHz/2MB L 512MB (2x256) PC2- 1GB (2x512) PC2-32	2 Cache Proc Upg 2 Cache Proc Upg		40K2506 40K2507 40K2508 73P3523 39M5818 39M5821
Software	ServerGuide	over) / Informa To (CD-ROM Director, othe	installat				73.4GB 10K Ultra320 146.4GB 10K Ultra32	200 CL3 ECC DDR2 RDIMM DSCSI Hot-Swap SSL HDD 20 SCSI Hot-Swap SSL HDD		39M5809 40K1023 40K1024
Keyboard / mouse Power supply Fans	std/max: one Fan in each (Opt) two fan	keyboard / IE /two 670 watt std/max: four/s s (rear) / varia r fans / PFA	/ voltag six/ two able spe	e-sensing / au fans (front), twed / hot-swap	uto-restart vo fans on o / redunda	planar,	IBM ServeRAID-7k C IBM Remote Supervi 3-Pack Ultra320 Hot- IBM 670W Hot-Swap	sor Adapter II Slimline		30R5097 71K8642 73P9341 33P2751 25K9560



*Bays 8 and 9 support three 3.5" disks via 3-Pack Kit 33P2751

- Quick release adapter slots (no screws) Configuration/Setup Utility invoked by
- - F2 at startup
- ACPI 2.0-compliant
- access, hot-swap Operator Information Panel (in front)
- access, hot-swap access supplies, and fans in conjunction with IBM Director can alert the system administrator of an imminent component failure
 - ⇒ Tower: H 17.31" x W 8.5" x D 27.6" ⇒ 74 to 101 pounds

All models: Max int disk capacity: 1.8TB2 with six 300GB Ultra 160 or Ultra320 SCSI hot-swap slimline HDDs

LIMITED WARRANTY³

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- 3 year on site warranty service upgrade options (in eligible locations):
 - 9 hour coverage, Mon-Fri excluding holidays, 4 hour average response (ServicePac® part num 21P2083)
 - 24 hr x 7 day coverage, 4 hour average response (ServicePac part number 21P2084)
 - 24 hr x 7 day coverage, 2 hour average response (ServicePac part number 21P2085)
- 24x7¹⁴ toll-free support for warranty issues during the warranty period3

Tower

		,	•					_			September 1	-
IBM [®] Type-model Qty x	Processor	L2 cache	Memory	DIMM slots	Memory Cards	/ Disks	SCSI controller	Mechan- ical	Slots x bays	Hot-swap V pwr supplies		ty Available date
	n™ MP 3.160		2GB(2x1GB		One	None	SAS	Tower	6x12	2 x775W	3	Sep 2005
	n™ MP 3.160 n™ MP 3.160		1GB(2x512N 2GB(2x1GB		One One	None None	SAS SAS	Tower 7U Rack	6x12 6x12	2 x775W 2 x775W	3 3	Sep 2005 Sep 2005
	n™ MP 3.160		1GB(2x512N		One	None	SAS	7U Rack		2 x775W	3	Sep 2005
8865-21Y 1 x Xeo	n™ MP 3.660	GHz 1MB	2GB(2x1GB)	´ 4	One	None	SAS	Tower	6x12	2 x775W	3	Sep 2005
	n™ MP 3.660		2GB(2x1GB		One	None	SAS	7U Rack		2 x775W	3	Sep 2005
	n™ MP 3.660 n™ MP 3.160		4GB(4x1GB 1GB(2x512N		Two Two	None None	SAS SAS	Tower 7U Rack	6x12 6x12	2 x775W 2 x775W	3 3	Sep 2005 Sep 2005
Processors	One or two	64-bit Intel®	Xeon™ Process	sor MF	3.16 o	r 3.66GH	1z 1 with 667					
L2 cache	Memory 64	of processor	M (EM64T) / Hy	yper-Ir engad	reading / Ycel 4	technolo Nons	ogy Imic San <i>i</i> ar	Cache				
Processor upgrade			Ceon Processors					Odono				
Implementation	System board	d contains for	ur Intel 604-pin CSI (SAS), ether	micro-l	PGA4 ŽI	F socket		nory board	slot, six Ad	ctive™ PCI-X 2	2.0 slo	ts,
Active Memory™	Up to 4GB st	d / 64GB ma	x ^{12,13} (with 4GB	DIMM	s) using	high-cap	acity memo	ory card / on	e memory	board standa	rd with	4 DIMM
			Ms must be ins prrecting (ECC)									
			Hot-swap (non-									
SAS disk controller	ALL: Adapte	c® AIC-9410	/ Dual-channel	Serial	Attache	ed SCSI	(SAS) 3.00	Hz (3GB/se	ec) / 64-bit	266MHz PCI-	X 2.0	
SAS connectors	Dual channel	Controller wi	red to dual SAS	backp	lanes		` ,	`	,			
SAS cabling			integrated SAS			ugh SAS	expander,	1 cable for	each of th	ne 2 SAS back	(plane	s
IDE controller / cabling Disk - capacity			atroller in CSB6 is up to 15,000 r									
Disk - bays			ap bays / Six st			ged trav	/ 80-pin SC	A-2 connec	tors / One	FH (or 2 HH)	Tape	Drive Bays
Mechanical	EİA 19" rack	models (7U	l ⁴) x 28" deep / :	suppor	ted in N	etBAY™	Racks (suc	h as NetBA	Y42 SR, N	NetBAY42 ER)		
Chipset			ation chipset /									
) Host Bridges / CSB6 South Brid									
			CI-X 2.0 slots / I						nonono, no	byboara, moad	0]), D	adi i dit
I/O Slots	Six total Activ	/e™ PCI-X 2.	0 64-bit slots av	ailable	with pol	ver and	attention inc	dicator lights				to slot) /
-	hot replace, hot upgrade, hot expansion / separated by insulative plastic dividers, all slots supported up to 266MHz											
CD-ROM/diskette	IBM 24X Max	SlimLine CE	D-ROM, IDE (AT	TAPI), 1	I.6" HH,	bootable	9 / 3.5" 1.44	MB diskette	drive	I ANI® / AI		ANTM O
Ethernet Graphics controller			1000 dual etherr pility 7000 / on pl								on LA	AN™ 2
Ports			serial, two USB								serial	. RS-485 /
	Front: USB (\		,	(10	,,	,	ouoo, anan	.go g	Apr. 1100, 1111	0 0 1 1 0 1 1 0 1 0 1 0 1 0 1 0 1 0 1 0		,
Security	Power-on and	d administrate	or passwords / ι	unatten	ded boo	t / selec	table boot					
Systems management	BMC standar	d / Remote S	Supervisor Ada	pter II	slimline	(optiona	I) / PCI ada					
			ote console and	d mgm	t / powe	r on/off s	system / mo	onitors powe	r status, o	pp system, tem	peratu	ıre, disks,
Diagnostics	fans, power s		iagnostics / pri	marv ii	ndicator	on inforr	nation pane	l with LEDs	associate	ed with failing o	oamo	nents /
· ·	IBM Real Tim	ne Diagnostic	s (operated thro	ugh ÍBl	M Directo	or) availa	ıble even wl	hile server ru	unning			,
Software	ServerGuide	™ (CD-ROM	installation and	configu	uration u	tilities), II	3M Director	, and others				
Keyboard / mouse			rd / Tower mode									
Power supplies			p / redundant w		e power	supplies	s (N+1) / wc	orldwide / vo	ltage-sens	sing / auto-rest	art / re	ar
Cooling fans			ower supply / PF , multi-speed far		e coolin	a fan in 4	asch nower	sunnly filler	when now	var eunnly ie n	nt inets	alled /
3			nostic LED and				bacii powci	зарріу ішсі	which pow	vci supply is it	ot ii iste	alica /
Options	1GB PC2-3	200 CL3 EC	C RDIMM (2x	512ME	3) 73P2	2865	IBM Ser	veRAID 6N	1 U320 25	56MB Adapte	r	02R0988
	2GB PC2-3	200 CL3 EC	C RDIMM (2x	1GB)	73P2	2866	IBM 73.4	4GB 10K 3	.5" SAS F	Hot-swap HDI)	26K5709
			C RDIMM (2x2		73P2					ot-Swap HDE		26K5710
	Active Mem	ory 4-siot E	xpansion Card L2 Cache Pro	ne Hne	13M7 13N0			GB 10K 3.9 Supervisor		lot-Swap HDE		26K5711
			L2 Cache Pro					" 6-drive B		ii Siiiiiiile		59P2984 13M7864
	775 watt Ho	t-Swap Pow	er Supply (WV	۷) ۱	13M7	7415	IBM 73.4	4GB 15K 3	.5" SAS F	Hot-swap HDI)	26K5698
			-SCSI Adapte		13N2		IBM 146	GB 15K 3.	5" SAS H	ot-Swap HDD)	26K5699
LIMITED WARF		Bay ① 3	.5", SL 1", a	ccess	, diskett	e		h black col				
			.25", HH 1.6" a			ΣM		free service		=" v \\/10 O" v	ייטטיי	1/760mm)
 International Warrant On site, 8 am - 5 pm, I 			.25", HH 1.6" a .25", HH 1.6" a							5" x W18.2" x llbs; 67.6 to 8		
coverage excluding he		Bays 5 t	o 10 (six bays)):						W17.5" x D2		
next business day res	ponse time ⁷	stand	ard 3.5" SL 1"	hot-sv	vap disk	bays	Rack	Dimension	s: H306n	nm x W444m	m x [0715mm
⇔ On site service upgra (in eligible leastions)	-		to 16 (six bay		n diele l	2010				bs; 65.4 to 71		n
(in eligible locations): • 3 year IOR 24x7, 4 hr			al 3.5" SL 1" h		<u>. </u>					nd memory fr systemboard		
(ServicePac partnum			Light Path Diag	/U⁴ R	ack or	ıower	□ Acces	s bower s	upplies fr	óm back		51.10
• 3 year IOR 24x7, 2 hr			Removable Processi	or Board Tro	v		Setup	<u>Program</u> b	oy pressir	ng F1 at start		
(ServicePac part num • 4 year IOR 9x5, NBD			TIOTHOPADIO I TOUBSSI	Down ild	,					by pressing F Ctrl+A at start		startup
(ServicePac partnum	-	Opt disk	 Opt disk 		Floppy Drive	$\neg \Box$	Drop	Down Light	t Path Dia	agnostics (lev	el 2	
• 5 year IOR 9x5, NBD response Opt disk Opt disk diagnostic panel) for outside view of potential												
(ServicePacpartnum		Opt disk	 Opt disk][CD-ROM			em without			- دامال	
Other ServicePac opti http://www.ibm.com/s		Opt disk	Opt disk	╛	Full High Tape	Bay				s® alerts on o		_
us/its/pdf/wamomxeu.		Opt disk	 Opt disk 	∃⊢·				r supplies, ans with IBI		processors,	v HIVIS	>,
24x7 ¹⁴ toll-free suppor	t for warranty	Opt disk	●Opt disk]	or 2 Half High E	oays			5.10010	BTU Output:		
issues during the warr							1			Ship Config: 2,0	006 Btu/l	hr (588 watts)
All models: M	aximum inter	nal disk cap	acity: 3.6TB w	ith 12	x 300G	B ² hot-s	swap SAS	disks		Full Config: 6,3		

8865-12* 1 x Xeon™ MP 3.16GHz 1MB 2GB(2x1GB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.16GHz 1MB 1GB(2x1GMB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.16GHz 1MB 1GB(2x1GMB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.16GHz 1MB 1GB(2x1GMB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1MB 2GB(2x1GB) 8 None None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-13* 1 x Xeon™ MP 3.6GHz 1	_	RM® 1.2 DIMM Memory SCSI Mechan, Slots v. Hotswan Warranty Available											
Memory 64 Technology ⁷¹ (EM64T) / Hyper-Threading technology 1MB / or die of processor y and 2 processor speed (XeeLaw ⁷¹ (Yyper) amic Server Cache 4wg SMP / up to four Acen Processors MP (sum a speed-cache size) Implementation for one of processors / Acen Processors MP (sum a speed-cache size) Implementation for one of processors (APF (sum a speed-cache size) Implementation for processors (APF (sum a speed-cache size) Indicated (Size) Indicated (Type-model Qty x 8865-11Y 1 x Xeo 8865-12Y 1 x Xeo 8865-1RY 1 x Xeo 8865-1SY 1 x Xeo 8865-21Y 1 x Xeo 8865-2RY 1 x Xeo 8865-E1Y 2 x Xeo	n™ MP 3.16G n™ MP 3.16G n™ MP 3.16G n™ MP 3.16G n™ MP 3.66G n™ MP 3.66G n™ MP 3.66G	cache GHZ 1MB	2GB(2x1GB) 1GB(2x512Ml 2GB(2x1GB) 1GB(2x512Ml 2GB(2x1GB) 2GB(2x1GB) 4GB(4x1GB)	Slots Ca 4 O B) 4 O 4 O B) 4 O 4 O 4 O 4 O 8 Tv	ne None	controller SAS SAS SAS SAS SAS SAS SAS SAS SAS SA	ical Tower Tower 7U Rack 7U Rack Tower 7U Rack Tower 7U Rack Tower	6x12 6x12 6x12 6x12 6x12 6x12 6x12 6x12	pwr supplies 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W	(yrs.) date 3 Sep 2005 3 Sep 2005		
gold-connector slots / DIMMs must be installed in matched pairs / PC2-3200 400Mbt. pregistered 240-pin DDR2-SDRAM FDIMMs / Firmor Checking and Correcting (ECC) via 16-bit Checksum Chippillin / Memory Protein (rectudant bit steering) and Memory Mirroring* and Hot-sway (non-OS specific) / Hot-add (supported only with Microsoft *Windows** Server 2003**Moment of the protein of the p	L2 cache Processor upgrade	Memory 64 7 1MB / on die 4-way SMP / System board	Technology [™] of processor up to four X [™] I contains fou	M (EM64T) / Hy / at processor s eon Processors ur Intel 604-pin n	per-Threa peed / Xc MP (same nicro-PGA	ding techno c eL4v ™ Dyr e speed/cao 4 ZIF sock	logy amic Server he size)	Cache					
Dual channel Controller wired to dual SAS backplanes SAS cabling IDE controller / cabling IDE co	Active Memory™	gold-connector/ Error Check	r slots / DIMI king and Co	Ms must be insta rrecting (ECC)	alled in m via 16-bit	atched pairs : Checksun	/ PČ2-3200 n Chipkill™) 400MHz re / Memory F	gistered 2 ProteXion	240-pin DDR2- ™ (redundant I	SDRAM RDIMMs oit steering) and		
models) / 2 IBM PCIX 2.0 Host Bridges / 1 supports adapter PCI 33MHz and 66MHz, slot for optional ServerAnID 8 (inc. graphics), ServerWorks** CSB6 South Bridge (IDE, USB, bus for Super IV DN 87417 (diskette, keyboard, mouse)), Dual Port Broadcom 5704, and 2 PCIX 2.0 4-bits Bridge supports 4 PCIX 2.0 slots in State Value of the State V	SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays	Dual channel Hot-swap bay Enhanced IDE Max: 3.6TB-1 Up to Twelve	Controller wings connect to E ATA-33 con Ok / supports 3.5" hot-swa	red to dual SAS integrated SAS itroller in CSB6 S up to 15,000 rp ap bays / Six sta	backplane controller South Bridg om disks andard col	es through SA ge nverged tra	S expander,	1 cable for	each of th	he 2 SAS back e FH (or 2 HH)	xplanes Tape Drive Bays		
Ethernet Graphics controller Ports Front: S704 10/10/10/1000 dual ethernet / on systemboard / 64-bit 266Mhz PCPLX 20 / Wake on LAN* / Alert on LAN* 2 Graphics controller Ports Fort: VSB (Ver 2.0) Security Power-on and administrator passwords / unattended boot / selectable boot Systems management BMC standard / Remote Supervisor Adapter II slimiline (optional) / PCI adapter / includes 10/100 ethernet, RJ-11, and serial connectors / provides remote console and mgmt / power or/off system / monitors power status, op system, temperature, disks, fans, power supplies Diagnostics Diagnostics Diagnostics Diagnostics Drop-down Light Path Diagnostics / primary indicator on information panel with LEDs associated with failing components / IBM Real Time Diagnostics (operated through IBM Director) available even while server running Software Keyboard / mouse Power supplies None standard (because rack-based) Stc* two 775 wath hot-swap / redundant with three power supplies (N+1) / worldwide / voltage-sensing / auto-restart / rear accessible fans in each power supply is not installed / PFA failure signals bilagnostic LED and mgmt processor Options 16B PC2-3200 CL3 ECC RDIMM (2x512MB) 73P2865 26B PC2-3200 CL3 ECC RDIMM (2x616B) 73P28861 Acon MP 3.66Hz/1MB L2 Cache Proc Upg 13N0694 Acon MP 3.66Hz/1MB L2 Cache Proc Upg	·	models) / 2 IB graphics), Ser Broadcom 57 Six total Activ	M PCI-X 2.0 verWorks® C 04, and 2 P0 e™ PCI-X 2.0	Host Bridges / SB6 South Bridg CI-X 2.0 slots / H D 64-bit slots ava	1 supports ge (IDE, l lost Bridge ailable with	s adapter P JSB, bus fo e supports 4 n power and	CI 33MHz ar r Super I/O I · PCI-X 2.0 s · attention ind	nd 66MHz, s NS 87417 [c slots dicator lights	lot for optiliskette, ke (optical s	ional ServeRAI eyboard, mous ensors control	D 8i (inc. e]), Dual Port power to slot) /		
System's management BMC standard / Remote Supervisor Adapter II slimiline (optional) / PCI adapter / includes 10/100 ethemet, RJ-11, and serial connectors / provides remote console and mgmt / power on/off system / monitors power status, op system, temperature, disks, fans, power supplies Drop-down Light Path Diagnostics / primary indicator on information panel with LEDs associated with failing components / IBM Real Time Diagnostics (operated through IBM Director) available even while server running ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director, and others Reyboard / mouse Power supplies None standard (because rack-based) Power supplies Std: two 775 watt hot-swap / redundant with three power supplies (N+1) / worldwide / voltage-sensing / auto-restart / rear accessable fans in each power supply / PFA Eight hot-swap, redundant, multi-speed fans / One cooling fan in each power supply iBler when power supply is not installed / PFA / failure signals Diagnostic LED and mgmt processor Options 108 PC2-3200 C13 ECC RDIMM (2x1GB) 73P2865 2GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2865 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2866 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2866 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2867 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2866 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2866 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2867 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2866 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2867 1GB PC2-3200 C13 ECC RDIMM (2x1GB) 73P2866 1GB PC2-3200 C13 E	Ethernet Graphics controller	Broadcom® 5 SVGA / ATI® I Rear: RSA et	704 10/100/1 Radeon Mob hernet, RSA	000 dual etherne ility 7000 / on pla	et / on sys anar / 16M	stemboard / IB SDRAM	64-bit 266M std/max / 32-	hz PCI-X 2.(-bit 33MHz F) / Wake o PCI 2.2 bu	IS			
None standard (because rack-based)	Systems management Diagnostics	BMC standard connectors / p fans, power s Drop-down L IBM Real Tim	d / Remote S provides remo supplies .ight Path Di e Diagnostics	Supervisor Adapte console and agnostics / prints (operated throu	oter II slim mgmt / p mary indica igh IBM Di	nline (option ower on/off ator on info irector) avai	al) / PCI ada system / mo mation pane able even w	onitors powe el with LEDs hile server ru	r status, c associate	op system, tem	perature, disks,		
2GB PC2-3200 CL3 ECC RDIMM (2x1GB) 73P2866 4GB PC2-3200 CL3 ECC RDIMM (2x2GB) 73P2867 Active Memory 4-slot Expansion Card 13M7409 Xeon MP 3.16GHz/1MB L2 Cache Proc Upg 13N0694 Xeon MP 3.66GHz/1MB L2 Cache Proc Upg 13N0695 775 watt Hot-Swap PDD 26K5711 BM 300GB 10K 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5791 BM 73.4GB 10K 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5698 IBM 73.4GB 10K 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" 6-drive Backplane 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5711 Remote Supervisor Adapter II Slimline 59P2984 13M7864 SAS 3.5" SAS Hot-Swap HDD 26K5698 IBM 146GB 15K 3.5" SAS Hot-Swap HDD 26K5698 IBM 13M7864 SAS 3.5" 6-drive Backplane 58 SAS Hot-Swap HDD 26K5698 IBM 146GB 15K 3.5" SAS	Keyboard / mouse Power supplies	None standar Std: two 775 v accessible far Eight hot-swa	rd (because watt hot-swap ns in each po p, redundant,	rack-based) o / redundant wit wer supply / PF multi-speed fan	h three po A s / One co	ower supplie	es (N+1) / wo	orldwide / vo	Ü	· ·			
Bay ② 5.25", HH 1.6" access, CD-ROM Bay ③ 5.25", HH 1.6" access, open* Son site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time? On site service upgrade options (in eligible locations):? 3 year IOR 24x7, 4 hr avg response (ServicePac partnum 96P2254) 4 year IOR 9x5, NBD response (ServicePac partnum 96P2255) Bay ② 5.25", HH 1.6" access, Open* Bay ③ 5.25", HH 1.6" access, open* Bay ③ 5.25", HH 1.6" access, open* Bay ⑤ 6.6 to 81.7Kg Bays 1 to 16 (six bays): Optional 3.5" SL 1" hot-swap disk bays Bays 11 to 16 (six bays): Optional 3.5" SL 1" hot-swap disk bays Access adapters, fans, and memory from top Access power supplies from back Setup Program by pressing F1 at startup Diagnostics (PC-Doctor) by pressing F2 at startup	Options	2GB PC2-32 4GB PC2-32 Active Memo Xeon MP 3. Xeon MP 3. 775 watt Ho	200 CL3 EC 200 CL3 EC ory 4-slot Ex 16GHz/1MB 66GHz/1MB t-Swap Pow	C RDIMM (2x1 C RDIMM (2x2 xpansion Card L2 Cache Pro L2 Cache Pro er Supply (WW	GB) 7 GB) 7 1 c Upg 1 c Upg 1	73P2866 73P2867 73M7409 73N0694 73N0695 73M7415	IBM 73.4 IBM 146 IBM 300 Remote SAS 3.5 IBM 73.4	4GB 10K 3.5 GGB 10K 3.5 GGB 10K 3.5 Supervisor 5" 6-drive B 4GB 15K 3	.5" SAS H 5" SAS H 5" SAS H Adapter ackplane .5" SAS H	Hot-swap HDI lot-Swap HDI lot-Swap HDI II Slimline Hot-swap HDI	26K5709 26K5710 26K5711 59P2984 13M7864 26K5698		
• 5 year IOR 9x5, NBD response (ServicePacpartnum69P2259) → Other ServicePac options at http://www.ibm.com/services/ us/its/pdf/wamomxeu.pdf → 24x7 ¹⁴ toll-free support for warranty • Opt disk	→ 3 year parts and labo → International Warran → On site, 8 am - 5 pm, coverage excluding h next business day re → On site service upgra (in eligible locations	r ty Service ³ Mon - Fri olidays, sponse time ⁷ ade options;; ⁷ aray response 196P2253) avg response 196P2254) response 196P2255) response 169P2259) ions at services/pdf	Bay ② 5. Bay ③ 5. Bay ⑤ 5. Bays 5 tr standa Bays 11 optiona Opt disk Opt disk Opt disk Opt disk Opt disk Opt disk	25", HH 1.6" ac 25", HH 1.6" a	ccess, CEccess, opeccess,	D-ROM en* en* disk bays isk bays or Tower	Stealt Tool-i Towe Rack Rack Rack Acces Acces Diagr Diagr Drop diagn proble Predii	th black col free service or Dimension or Weight: 1- Dimension Weight: 14 ss adapters ss processo ss processo so Program to nostics (PC- Select by p Down Light ostic panel) em without ctive Failurer r supplies,	or eability ns: H15.5 49 to 180 ss: H306r 4 to 158ll fans, all ors and supplies from the control of the control	5" x W18.2" x W18.2" x W17.5" x D2 mm x W444m bs; 65.4 to 71 nd memory from back ng F1 at start by pressing F Ctrl+A at start agnostics (levide view of pog cover s® alerts on coprocessors, or	D30"(762mm) 1.7Kg 28.2" m x D715mm .7Kg om top from front up 2 at startup up el 2 tential lisks,		
issues during the warranty period ³ All models: Maximum internal disk capacity: 3.6TB with 12x 300GB ² hot-swap SAS disks Ship Config: 2,006 Btu/hr (588 watts) Full Config: 6,346 Btu/hr (1860 watts)			nal disk cap	acity: 3.6TB wi	th 12x 3	00GB ² hot	swap SAS	disks					

FSB

Memory

IBM[®]

Ethernet

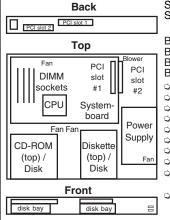
Limited Available

Type-model Qty x	Processor o	cache	MHz	Memory	type	Disk	controller	bays	anical	x bays	Elliemet	warranty	r ³ date
8673-72X Pentium 8673-73X Pentium 8673-82X Pentium 8673-83X Pentium	4 2.8BGHz 5 4 3.06GHz 5	512KB 512KB	533 533	256MB 256MB 256MB 256MB	ECC ECC ECC	40GB EIDE 18.2GB SCSI 40GB EIDE 36.4GB SCSI	Ultra160 ATA-100	2 fixed 2 fixed	1U rack	2x4 2x4	2 x Gigab 2 x Gigab 2 x Gigab 2 x Gigab	it 1 year it 1 year	May2003
Positioning Processor(s) L2 cache SMP support Implementation	Intel® Pent 512KB / o No SMP su Systemboa	itium 4 on die d upport ard con	up to prostains	one Intel	Iz 1 with 5 at process mPGA478	x-optimized serve 33MHz frontside sor speed (no L BB socket (with F PCI-X slot, and i	e bus (FSI 3 cache) Pentium 4	FC-PGA					
Memory	DIMMs / fo	our DI	MM g	old-conne	ctor slots	three slots ava on systemboar emory controller	d / memo					CC DDR-	-SDRAM
SCSI disk controller SCSI connectors IDE disk controller Cables Disk - features	SCSI mod Enhanced SCSI mode EIDE mode	dels: C IDE bu lels: c lels: c	64-bit On adusmas one 2- one 2-	66MHz Polapter: on ster / ATA drop 16-bers drop EIDE	CI adapte e 68-pin -100 supp it LVD SC E cable (to	gle channel Wier / one channel of SCSI connector ort / two connects cable, one 1 o CD-ROM and rpm, 5.2ms read	with up to r ctors on sy -drop 40-c disk), one	15 devices	è support ard r EIDE cal EIDE cable	ole (con	inected to (av)	
Mechanical Architecture / chipse Bus slots	ets ServerWo one CIOB- CSB5 Sou National So	orks® G -X2 I/O ith Brid semicor	Grand Bridge Ige (T Induct	I Champio ge (IMB bo hin IMB to or® PC874	on™ SĹ / us to Hos o Host Bri 114 Supe	supports 16.75 CMIC-SL (Supe t Bridge for PCI- dge for PCI 2.2- r I/O chip (serial hot-swap Active	r Lite) Hos X Bus A v based gra , keyboard	st Bridge vith slots phics co d, mouse	(memory and PCI-2 ntroller, E	controll < Bus E	er and I/O I B with dual e	Bridge) / ethernet)	
Ethernet controllers CD-ROM / diskette Rear ports Front ports / graphic Console interconnect	on planar / 24X-10X ⁶ (<i>Rear:</i> seri s <i>Front:</i> two	PCI-X CD-RC ial (9-p USB (64-bi M / II in), tw Vers	it 100MHz DE; <i>Diske</i> vo etherne 1.1); <i>Gra</i>	Bus B / fi tte: 3.5" 1 t (RJ-45), phics: SV		/ Wake on drive / dus e, analog XL / on pla	LAÑ® / A t cover DB-15 m anar / 8M	lert Stand onitor / no B SDRAM	ard For parallel std/ma	mat 1.0 / tw	o rear Ru	J-45 ports
Systems mgmt Diagnostics	Diagnostic	s via P	C-Do	octor on a	standard	s system and pr IBM Enhanced onn on planar fo	Diagnosti	cs CD (di	skette car	be crea	ated) / supp	ort for op	
Security Software		d boot / ide™ (0	/ sele CD-R	ctable bod OM install	ot / unatte ation and	vord / nded start mode I configuration	51 10 12	2MB PC BB PC21 OGB AT	2100 CL2 00 CL2.5 I A-100 EII	5 ECC ECC DI E HDI	DDR-SDR DDR-SDR DR-SDRAM D (7200 rpi	AM DIMN 1 RDIMM m)*	//33L5038 //33L5039 //09N4231
Cooling fans Power supply Prerequisites	power sup	ply) / v univers eyboar	ariabl sal / a d, mo	le speed / uto-sensi use, rack	not redur ng / auto- , operatin		on 36 IP 73 Re Se IB IB IB IB	i.4GB 15k i.4GB 10k erveRAID M T541 1 M NetBA M NetBA M ACT L her optio	\[\begin{align*} \left(\text{Ultra160} \\ \text{pervisor } A \\ \text{pervisor } A \\ \left(\text{Ultra160} \\ \left(\text{Pervisor } A \\ \left(\text{V42} \text{Ente} \\ \left(\text{Local Conns at ibm.} \]	SCSIS SCSIS dapter ra160S anel Col dard Ra erprise sole Ma com/po	SCSI Adapt lor Monitor ick Rack	D* D* er (black)	06P5765 06P5766 06P5752 09N7585 06P5740 9512AB1 9306250 930842S 1735L04

Disk

Disk

Mech-



Slot 1: halfsize, 64-bit 133MHz PCI X 1.0 (3.3v) Slot 2: halfsize, low-profile, 64-bit 133MHz PCÍ X 1.0 (3.3v) - SCSI adapter in some models

Bay ① 3.5", UltraSlim 0.5", access, Bay ② 5.25", UltraSlim 0.5", access, Bay ③ 3.5", SL 1", no acces Bay ④ 3.5", SL 1", no acces std diskette std CD-ROM no access, std fixed disk no access, open for fixed disk

Raven black front bezel

- H 1.72" (1U) x W 17.3" x D 16.75"; 43.7mm x 439.9mm x425.5mm
- 26 to 28.4 lbs; 11.8kg to 12.9kg (minimum to max configuration) Configuration/Setup Utility: F1 at startup
- Optional System Partition: ALT+F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front
- SCSISelect near startup by pressing CTRL+A (SCSI models) Ships with Diagnostics CD, ServerGuide Setup and Installation
- CD, and IBM Director CD, and Broadcom Ethernet CD
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

Maximum internal disk capacity¹³ (model dependent): 146.8GB with two 73.4GB SL SCSI disks or 240GB with two 120GB EIDE disks / supports 15K rpm SCSI disks

LIMITED WARRANTY³

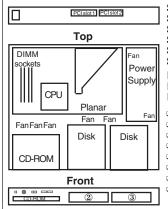
- 1 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in eligible locations):7
 3 year IOR 9x5, NBD avg response
 - (ServicePac® part num 69P9505)

 3 year IOR 9x5, 4 hr avg response
 - (ServicePac part num 69P9506) 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 69P9507)
- 3 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9508)

 → Other ServicePac options at
- http://www.ibm.com/
- services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

See footnotes for important warranty information

For GAV systems, lowercase	"y" should be replaced with a cou	untry-specific cod	de.				100	Name of Street
IBM® Machine Type GAV model	Dranger / Smoot	L2 FSB cache MHz		Disk controller	Disk bays	Mech- S anical x	Slots bays Ethernet	Ltd Available warr³ date
8849/8491 1Áy-Ax F 8849/8491 20y-20x F 8849/8491 30y-30x F 8849/8491 3Ay-3Ax F 8849/8491 40y-40x F	Pentium® 4 531 3.0GHz Pentium 4 531 3.0GHz Pentium D 830 3.0GHz Pentium 4 640 3.2GHz Pentium 4 640 3.4GHz Pentium 4 650 3.4GHz Pentium 4 660 3.6GHz	1MB 800 2x1MB 800 2MB 800 2MB 800 2MB 800	512MB 1 GB 512MB 512MB 512MB	SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA	2 hot-swap 2 hot-swap	1U rack 1U rack 1U rack 1U rack 1U rack	2x3 Dual Gb 2x3 Dual Gb 2x3 Dual Gb 2x3 Dual Gb 2x3 Dual Gb	1/3yr Oct 2005 1/3yr Oct 2005 1/3yr Oct 2005 1/3yr Oct 2005 1/3yr Oct 2005 1/3yr Oct 2005 1/3yr Oct 2005
Positioning Processor(s)	A highly affordable, u Intel® Pentium 4 up t Optimized for Exten	to 3.6GHz 9 ded Memo	Single Core 8 ry 64 Techno	00MHz FSB / F logy (EM64T)		z Dual Co	re 800MHz F	SB / All
L2 cache SMP support Implementation	Up to 2MB std on Per No SMP support Motherboard contains and two slots: some:	one LGA-7	75 socket, fou	r DIMM sockets	s, integrated SATA	or SAS/S	SATA, Dual Gi	gabit Ethernet
Memory	512MB std / 8GB ¹³ max All Error Checking and							DR2-SDRAM /
	SAS models: Adapter SATA models: Integrat Enhanced IDE busma SAS models: one 1-d SATA models: two 1- None standard	ted Intel con aster / ATA- rop EIDE c	troller / two-cha -100 support / able (connecte	annel / on plana one connector ed to CD-ROM)	r / Integrated Raid on systemboard	8e (Raid (0 or 1) ´	
Mechanical Architecture / chipsets Bus slots	EIA 22" Rack (1U⁴) / Intel E7210 chipset / EIDE, ethernet MAC, parallel, serial, keyboa (See below) two avail Active™ PCI slots /	Memory Co USB, Low F ard, mouse	ontroller Hub (l Pin Count Inter	face / Firmware	Hub / SMSC® LP	C47M192	Super I/O for	diskette,
Ethernet controllers	Dual Gigabit 10/100/rintegrated / port one is	1000 ethernes CSA, port	et ports / Broa two is PCI 2.2	dcom 5721 / tw / full duplex / PX	o full gigabit ethe E / Wake on LAN®	net MAC a / Rear RJ	and PHY layer J-45 ports (2)	functions /
CD-ROM / diskette Rear ports Front ports / Graphics	24X-10X ⁶ CD-ROM SI Rear: serial (9-pin), to Front: two USB (Vers ATI ⁸ RN50(ES1000) / 1	vo ethernet (s 2.0)	(RJ-45),keyboa		· ·		·	JSB (Vers 2.0)
Console interconnects Systems mgmt	No system-to-system Mini-baseboard mana voltages							ailure, and
Diagnostics	Diagnostic LEDS/ Err Diagnostics CD (disket planar for continuous	ette can be	created) / sup	port for optiona				
Security	Power-on password / unattended boot / selesecure remote power	ectable boot	t / unattended	start mode / 20	12MB PC2-4200 CL3 EC GB(2x1GB) PC2-4200 C GB(2x2GB) PC2-4200 C M 80GB SATA (7.2K) sii	L3 ECC DDR2 L3 ECC DDR2 mple-swap H[2 RoHS 2 RoHS DD	30R5148 30R5149 30R5150 39M4500
Software	ServerGuide™ (CD-F utilities), IBM Director	ROM installa	ation and conf	figuration IB	:M 160GB SATA (7.2K) s :M 250GB SATA (7.2K) s :GB Hot-Swap SATA HE	simple-swap H simple-swap H D	HDD HDD	39M4504 39M4508 39M4518 39M4522
Cooling fans Power supply Prerequisites	Seven fans (five fans / variable speed / not 350 watt / universal / Monitor, keyboard, m	redundant auto-sensir	or hot-swap	er supply) 25 73 14 art support 36 73 14 18	50GB Hot-Swap SATA H 50GB Hot-Swap SATA H 3GB 10K 3.5" SAS Hot-S 46GB 10K 3.5" SAS Hot-S 5GB 15K 3.5" SAS Hot-S 3GB 15K 3.5" SAS Hot-S 46GB 15K 3.5" SAS Hot-S	DD wap HDD Swap HDD Swap HDD wap HDD wap HDD Swap HDD dapter II (PCI a	adapter)	39M4526 28K5709 26K5710 26K5711 26K5697 26K5698 26K5699 59P2984 71P8648
Back PCIsiot1	Some:	A Laurentia C. P.	Lb-t-back		ther options at ibm.com /	-		7 11 00-10



Slot 1: 3/4 length, full height, 64-bit 100MHz PCI X 1.0 (3.3v) Slot 2: half length, low-profile, 64-bit 100MHz PCI X 1.0 (3.3v)

Slot 1: 3/4 length, full height, 64-bit 100MHz PCI X 1.0 (3.3v)

Slot 2: half length, low-profile, PCI-E x8

Bay $\ 0.5.25$ ", UltraSlim 0.5", access, std CD-ROM Bay $\ 0.3.5$ ", SL 1", access, open for fixed disk Bay $\ 0.3.5$ ", SL 1", access, open for fixed disk

Raven black front bezel

- H 1.75" (1U) x W 17.3" x D 22"; 43mm x 440mm x 559mm 24.25 to 30 lbs; 11kg to 12.7kg (minimum to max configuration)
- Configuration/Setup Utility: F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front Ships with Diagnostics CD, ServerGuide Setup and Installation CD
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

600GB with two 300GB SAS disks or 500GB with two 250GB SATA disks

LIMITED WARRANTY³

- 1 year parts and labor standard 8849 MTM
 3 year parts and labor standard 8491 MTM
 International Warranty Service³

- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- on site service upgrade
 options (in eligible locations):
 3 year IOR 9x5, NBD avg response
 (ServicePac part num 69P9505)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9506)

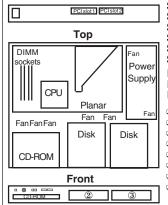
- 3 year IOR 24x7, 4 hr avg response (ServicePac part num 69P9507)
- 3 year IOR 24x7, 2 hr response (ServicePac part num 69P9508) → Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf

 ⇒ 24x7¹⁴ toll-free support for warranty

issues during the warranty period3

Maximum internal disk capacity¹³ (model dependent):

For GAV systems, lowercase	e "y" should be replaced with a country-spe	ecific code					
IBM® Machine	L2	FSB	Disk	Disk	Mech- Slo	nts	Ltd Available
Type GAV model	Processor / Speed cache	MHz Memory	controller	bays	anical x b	ays Ethernet	warr ³ date
8849/8891 G2y-G2x 8849/8891 G4y-G4x 8849/8891 H2y-H2x 8849/8891 H4y-H4x	Pentium® 4 631 3.0GHz 2MB Pentium D 920 2.8GHz 4MB Pentium D 920 2.8GHz 4MB Pentium D 930 3.0GHz 4MB Pentium D 930 3.0GHz 4MB Pentium D 940 3.2GHz 4MB	3 800 1GB 3 800 1GB 3 800 1GB 3 800 1GB	SATA SATA SAS/SATA SATA SAS/SATA SAS/SATA	2 simple-swap 2 hot-swap 2 simple-swap 2 hot-swap	1U rack 2 1U rack 2 1U rack 2 1U rack 2	x3 Dual Gb x3 Dual Gb x3 Dual Gb x3 Dual Gb	1/3yr Feb 2006 1/3yr Feb 2006 1/3yr Feb 2006 1/3yr Feb 2006 1/3yr Feb 2006 1/3yr Feb 2006
Positioning Processor(s)	A highly affordable, uni-pro- Intel® Pentium 4 up to 3.00 Optimized for Extended M 2MB std on Pentium 4 / 4MB	GHz Single-Core 8 Memory 64 Techno	800MHz FSB / Blogy (EM64T)		3.2GHz Dua	al-Core 800N	/IHz FSB / AII
SMP support Implementation	No SMP support Motherboard contains one L and two slots: some: (1 PCI				A or SAS/SA	ATA, Dual Gi	gabit Ethernet
Memory	512MB or 1GB std / 8GB ¹³ m SDRAM / All Error Checking						
SCSI disk controller SATA disk controller IDE disk controller Cables	SAS models: Adaptec® 940 SATA models: Integrated Intenhanced IDE busmaster / SAS models: one 1-drop El SATA models: two 1-drop S None standard	el controller / two-ch ' ATA-100 support / IDE cable (connect	annel / on plan / one connecto ed to CD-ROM	ar / Integrated Raid or on systemboard /I)	8e (Raid 0	d 0 or 1) or 1)	
Mechanical Architecture / chipsets Bus slots	EIA 22" Rack (1U ⁴) / rack- Intel E7210 chipset / Memo EIDE, ethernet MAC, USB, I parallel, serial, keyboard, m (See below) two available F Active™ PCI slots /	ory ControÍler Hub (Low Pin Count Inter ouse	face / Firmwar	e Hub / SMSC® LP	Ć47M192 S	Super I/O for	diskette,
Ethernet controllers	Dual-Gigabit 10/100/1000 e integrated / port one is CSA	thernet ports / Broa , port two is PCI 2.2	adcom® 5721 / ! / full duplex / P	two full gigabit ethe XE / Wake on LAN®	ernet MAC a / Rear RJ-4	and PHY laye 15 ports (2)	er functions /
CD-ROM / diskette Rear ports Front ports / Graphics	24X-10X° CD-ROM Slim/ ID Rear: serial (9-pin), two eth Front: two USB (Vers 2.0) ATI® RN50(ES1000) / 16MB S	ernet (RJ-45),keyboa		· ·	·	•	ISB (Vers 2.0)
Console interconnects Systems mgmt	S No system-to-system intercondini-baseboard management						ilure, and
Diagnostics	voltages Diagnostic LEDS/ Error LEI Diagnostics CD (diskette ca planar for continuous powe	an be created) / sup	port for option				
Security	Power-on password / admi unattended boot / selectable	e boot / unattended	start mode /	512MB PC2-4200 CL3 EC 2GB(2x1GB) PC2-4200 C 4GB(2x2GB) PC2-4200 C	C DDR2RoHS L3 ECC DDR2 R L3 ECC DDR2 R	RoHS RoHS	30R5148 30R5149 30R5150
Software	secure remote power on / ServerGuide™ (CD-ROM in utilities), IBM Director™ and	nstallation and con	figuration	IBM 80GB SATA (7.2K) sii IBM 160GB SATA (7.2K) s IBM 250GB SATA (7.2K) s 80GB Hot-Swap SATA HD	mple-swap HDD simple-swap HDI simple-swap HDI DD) D	39M4500 39M4504 39M4508 39M4518
Cooling fans	Seven fans (five fans for sy / variable speed / not redur	ndant or hot-swap	er supply)	160GB Hot-Swap SATA H 250GB Hot-Swap SATA H 73GB 10K 3.5" SAS Hot-S 146GB 10K 3.5" SAS Hot-S	DD DD wap HDD		39M4522 39M4526 40K1039 40K1040
Power supply Prerequisites	350 watt / universal / auto- Monitor, keyboard, mouse,		art support	146GB 10K 3.5" SAS Hot- 300GB 15K 3.5" SAS Hot-S 36GB 15K 3.5" SAS Hot-S 146GB 15K 3.5" SAS Hot-S BM Remote Supervisor A BM ServeRAID-7t SATA II	Swap HDD wap HDD wap HDD Swap HDD dapter II (PCI ada	apter) oller	40K1041 40K1042 40K1043 40K1044 59P2984 71P8648
Back				Other options at ibm.com/	•		
PCI slot 1	Some:	ith full height 64-hit	100MHz PCL	Υ 1 በ (3 3 _V)			



Slot 1: 3/4 length, full height, 64-bit 100MHz PCI X 1.0 (3.3v) Slot 2: half length, low-profile, 64-bit 100MHz PCI X 1.0 (3.3v)

Slot 1: 3/4 length, full height, 64-bit 100MHz PCI X 1.0 (3.3v)

Slot 2: half length, low-profile, PCle x8

Bay $\ 0.5.25$ ", UltraSlim 0.5", access, std CD-ROM Bay $\ 0.3.5$ ", SL 1", access, open for fixed disk Bay $\ 0.3.5$ ", SL 1", access, open for fixed disk

Raven black front bezel

H 1.75" (1U) x W 17.3" x D 22"; 43mm x 440mm x 559mm 24.25 to 30 lbs; 11kg to 12.7kg (minimum to max configuration)

Configuration/Setup Utility: F1 at startup

Network Boot: F12 at startup

Operator Information Panel in front

Ships with Diagnostics CD, ServerGuide Setup and Installation CD

Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

Maximum internal disk capacity¹³ (model dependent): 600GB with two 300GB SAS disks or 500GB with two 250GB SATA disks

LIMITED WARRANTY³

- 1 year parts and labor standard 8849 MTM
 3 year parts and labor standard 8491 MTM
 International Warranty Service³

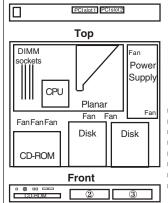
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- on site service upgrade
 options (in eligible locations):
 3 year IOR 9x5, NBD avg response
 (ServicePac part num 69P9505)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9506)

- 3 year IOR 24x7, 4 hr avg response (ServicePac part num 69P9507)
- 3 year IOR 24x7, 2 hr response (ServicePac part num 69P9508) → Other ServicePac options at http://www.ibm.com/

services/us/its/pdf/wamomxeu.pdf

⇒ 24x7¹⁴ toll-free support for warranty issues during the warranty period3

	xSeries 300iii				XHEF by e	Server F	ela Sk	liis and i	Educat	ion ream				
	"y" should be replaced with a country-						01-4-							
IBM® Machine Type GAV model	Processor / Speed	L2 FSB cache MHz	Memory	Disk controller	Disk bays	Mech- anical	Slots x bays	Ethernet	Ltd warr ³	Available date				
8849/8891 K2y-K2x 8849/8891 K4y-K4x	Pentium® D 950 3.4GHz/D Pentium D 950 3.4GHz/D Pentium D 960 3.6GHz/D	OC 4MB 800 OC 4MB 800	2 x 512MB 2 x 512MB	SATA SAS/SATA	2 simple-swap 2 hot-swap	1U⁴ rack 1U rack	2x3 2x3 2x3	Dual GB	1/3yr N	May 2006 May 2006 May 2006				
Positioning Processor(s)	A highly affordable, uni-p				II Optimized for	Extende	ed Men	nory 64 1	 Fechno	ology				
L2 cache SMP support Implementation	(EM64T) 4MB std on Pentium D / E No SMP support Motherboard contains one and two slots: some: (1 P	e LGA-775 so	cket, four DI			ΓA or SAS	3/SATA	ı, Dual Gi	gabit E	ithernet				
Memory	1GB std / 8GB ¹³ max / four Error Checking and Corre								R2-SDF	RAM / AII				
SCSI disk controller SATA disk controller IDE disk controller Cables	SAS models: Adaptec® 9 SATA models: Integrated I Enhanced IDE busmaste SAS models: one 1-drop SATA models: two 1-dro None standard	Intel controller r / ATA-100 s EIDE cable (/ two-channe support / on (connected t	el / on plana e connector to CD-ROM)	r / Integrated Rai on systemboard	id 8e (Raid d	d 0 or	or 1) 1)						
Mechanical Architecture / chipsets	rchitecture / hipsets Intel E7210 chipset / Memory Controller Hub (MCH) / I/O Controller Hub (ICH-S) for PCI 2.2 and PCI-X bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M192 Super I/O for diskette, parallel, serial, keyboard, mouse us slots (See below) two available PCI-X 1.0 100MHz or one 64-bit PCIe™ x8 and one PCI-X 1.0 100MHz / no hot-swap													
Bus slots	parallel, serial, keyboard, mouse (See below) two available PCI-X 1.0 100MHz or one 64-bit PCIe™ x8 and one PCI-X 1.0 100MHz / no hot-swap Active™ PCI slots /													
Ethernet controllers	Dual-Gigabit 10/100/1000 integrated / port one is CS	o ethernet por SA, port two is	ts / Broadco PCI 2.2 / ful	m® 5721 / tv ll duplex / PX	wo full gigabit etl E / Wake on LAN	hernet M <i>A</i> ® / Rear I	اC and RJ-45	PHY laye ports (2)	er funct	tions /				
CD-ROM / diskette Rear ports Front ports / Graphics	24X-10X ⁶ CD-ROM Slim/ Rear: serial (9-pin), two e Front: two USB (Vers 2.0 ATI* RN50(ES1000) / 16MB	ethernet (RJ-45 0)	5),keyboard,		Ü				JSB (Ve	ers 2.0)				
Console interconnects Systems mgmt	No system-to-system into Mini-baseboard managen voltages							ure, fan fa	ailure, a	and				
Diagnostics	Diagnostic LEDS/ Error L Diagnostics CD (diskette planar for continuous pov	can be create	ed) / support	t for optiona										
Security	Power-on password / adunattended boot / selecta secure remote power or	able boot / una	attended sta	rt mode / 20	12MB PC2-4200 CL3 E GB(2x1GB) PC2-4200 GB(2x2GB) PC2-4200	CL3 ECC DD	R2 RoHS R2 RoHS	3		30R5148 30R5149 30R5150				
Software	ServerGuide™ (CD-RON utilities), IBM Director™ a	/l installation :	and configu	ration IB	M 80GB SÁTA (7.2K) M 160GB SATA (7.2K) M 250GB SATA (7.2K) OGB Hot-Swap SATA F	simple-swap) simple-swa) simple-swa	HDD p HDD			39M4500 39M4504 39M4508 39M4518				
Cooling fans	Seven fans (five fans for / variable speed / not red			upply) 16	60GB Hot-Swap SATA 50GB Hot-Swap SATA 8GB 10K 3.5" SAS Hot-	HDD HDD SwapHDD				39M4522 39M4526 40K1039				
Power supply Prerequisites	350 watt / universal / aut Monitor, keyboard, mous	to-sensing / a		30 36 73 14 IB	#6GB 10K 3.5" SAS Ho DOGB 10K 3.5" SAS Hot- SGB 15K 3.5" SAS Hot- #6GB 15K 3.5" SAS Hot- #6GB 15K 3.5" SAS Ho #M Remote Supervisor.	ot-Swap HDD -Swap HDD -Swap HDD ot-Swap HDD Adapter II (PO	Cl adapte	er)		40K1040 40K1041 40K1042 40K1043 40K1044 59P2984 71P8648				
Back Other options at ibm.com/pc/us/accessories														
PCI slot 1	Slot 1: 3/4 le	ngth, full heigh												
Тор	Some:	• •	•		` ,			EDWARF						
DIMM sockets	/ Slot 2: half le	ength, full heigh	ht, 64-bit 100 file, PCle x8)MHz PCI X	1.0 (3.3v)	3 year	parts a	nd labor sta nd labor sta Warranty S	andard 8	8849 MTM 8491 MTM				



Bay ① 5.25", UltraSlim 0.5", access, std CD-ROM Bay ② 3.5", SL 1", access, open for fixed disk Bay ③ 3.5", SL 1", access, open for fixed disk

Raven black front bezel

- → H 1.75" (1U) x W 17.3" x D 22"; 43mm x 440mm x 559mm
 → 24.25 to 30 lbs; 11kg to 12.7kg (minimum to max configuration)
- Configuration/Setup Utility: F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front
- Ships with Diagnostics CD, ServerGuide Setup and Installation CD Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

Maximum internal disk capacity¹³ (model dependent): 600GB with two 300GB SAS disks or 500GB with two 250GB SATA disks

- International Warranty Service³

- International Warranty Service³
 On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
 On site service upgrade options (in eligible locations):7
 3 year IOR 9x5, NBD avg response (ServicePac part num 69P9505)
 3 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9506)
 3 year IOR 24x7, 4 hr avg response

- (Servicerac part num espessor)

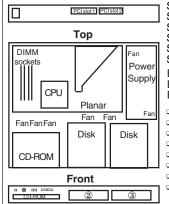
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num espessor)

 3 year IOR 24x7, 2 hr response
 (ServicePac part num espessor)

 Other ServicePac options at http://www.ibm.com/

services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM [®] Machine Type model	Processor / Speed	L2 FSB cache MHz	Memory	Disk controller	Disk bays	Mech- anical	Slots x bays	Ethernet v	Ltd warr ³	Available date
8849/8891 FAU 8849/8891 JAU 8849/8891 JBX	Pentium® D 915 2.8GHz/D0 Pentium D 945 3.4GHz/D0 Pentium D 945 3.4GHz/D0	4MB 800	2 x 512MB	SATA	2 simple-swa 2 simple-swa 2 hot-swap		2x3	Dual GB 1 Dual GB 1 Dual GB 1	/3ýr S	Sep 2006
Positioning Processor(s) L2 cache SMP support Implementation	A highly affordable, uni-printe® Pentium D up to 3 (EM64T) 4MB std on Pentium D / ENO SMP support Motherboard contains one and two slots: some: (1 P6	. 4GHz Dual CC / full spe LGA-775 so	-Core 800M ed ocket, four D	Hz FSB / AI	, integrated SA			·		
Memory	1GB std / 8GB ¹³ max / four Error Checking and Correc								2-SDR	RAM / All
	SAS models: Adaptec® 9 SATA models: Integrated In Enhanced IDE busmaster SAS models: one 1-drop SATA models: two 1-drop None standard	ntel controlle / ATA-100 EIDE cable	r / two-chann support / on (connected t	el / on plana e connector to CD-ROM)	r / Integrated Ra on systemboa	aid 8e (Rai ard	id 0 or			
Mechanical Architecture / chipsets Bus slots	EIA 22" Rack (1U⁴) / rack Intel E7230 chipset / Mer EIDE, ethernet MAC, USB parallel, serial, keyboard, (See below) two available Active™ PCI slots /	nory Control , Low Pin Co nouse	ler Hub (MC ount Interface	e / Firmware	Hub / SMSC®	LPĆ47M1	92 Sup	er I/O for d	liskette	e,
Ethernet controllers	Dual-Gigabit 10/100/1000 integrated / port one is CS								funct	ions /
CD-ROM / diskette Rear ports Front ports / Graphics	24X-10X ⁶ CD-ROM Slim/ I Rear: serial (9-pin), two et Front: two USB (Vers 2.0 ATI® RN50(ES1000) / 16MB	hernet (RJ-4	5),keyboard,		•	·			3B (V€	ers 2.0)
Console interconnects Systems mgmt	No system-to-system inte Mini-baseboard managem	rconnect ca ent controlle	ble (separater / IPMI 1.5	e keyboard, / monitors s	video, mouse system and pro	ports on ocessor te	back) mperat	ure, fan fai	lure, a	and
Diagnostics	voltages Diagnostic LEDS/ Error LI Diagnostics CD (diskette o planar for continuous pow	an be creat	ed) / suppor	t for optional						
Security	Power-on password / adr unattended boot / selectal	ole boot / un	attended sta	rt mode / 20	2MB PC2-4200 CL3 GB(2x1GB) PC2-420 GB(2x2GB) PC2-420	00 CL3 ECC DI	DR2 RoH	S S		30R5148 30R5149 30R5150
Software	secure remote power on ServerGuide™ (CD-ROM utilities), IBM Director™ an	installation	and configu	ration IBI IBI	M 80GB SATA (7.2k M 160GB SATA (7.2 M 250GB SATA (7.2 GB Hot-Swap SATA	() simple-swap !K) simple-swa !K) simple-swa	D HDD ap HDD			39M4500 39M4504 39M4508 39M4518
Cooling fans Power supply Prerequisites	Seven fans (five fans for / variable speed / not redi 350 watt / universal / auto Monitor, keyboard, mouse	undant or ho -sensing / a	t-swap	upply) 16 25 36 36 36 73 14 30 36 73	GB HOT-Swap SAT A OGB HOT-Swap SAT GB 10K 3.5" SAS HO GB 10K 3.5" SAS HO GB 10K 3.5" SAS HO GB 15K 3.	A HDD A HDD t-Swap HDD tot-Swap HDD tot-Swap HDD tot-Swap HDD tot-Swap HDD tot-Swap HDD or Adapter II (P) 'Cl adapte			39M4518 39M4522 39M4526 40K1039 40K1040 40K1041 40K1042 40K1043 40K1044 59P2984 71P8648
Back	_			Ot	her options at ibm.c o	om/pc/us/acce	essories			
PCI slot1	Some: Slot 1: 3/4 ler									



Slot 2: half length, low-profile, 64-bit 100MHz PCI X 1.0 (3.3v)

Slot 1: 3/4 length, full height, 64-bit 100MHz PCI X 1.0 (3.3v)

Slot 2: half length, low-profile, PCle x8

Bay © 5.25", UltraSlim 0.5", access, std CD-ROM Bay @ 3.5", SL 1", access, open for fixed disk Bay @ 3.5", SL 1", access, open for fixed disk

Raven black front bezel

- H 1.75" (1U) x W 17.3" x D 22"; 43mm x 440mm x 559mm 24.25 to 30 lbs; 11kg to 12.7kg (minimum to max configuration)
- Configuration/Setup Utility: F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front
- Ships with Diagnostics CD, ServerGuide Setup and Installation CD
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure

Maximum internal disk capacity¹³ (model dependent): 600GB with two 300GB SAS disks or 500GB with two 250GB SATA disks

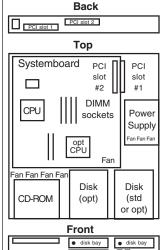
LIMITED WARRANTY³

- 1 year parts and labor standard 8849 MTM
 3 year parts and labor standard 8491 MTM
 International Warranty Service³

- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- on site service upgrade
 options (in eligible locations):
 3 year IOR 9x5, NBD avg response
 (ServicePac part num 69P9505)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9506)
- 3 year IOR 24x7, 4 hr avg response (ServicePac part num 69P9507)
- 3 year IOR 24x7, 2 hr response (ServicePac part num 69P9508) → Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf

 24x7¹⁴ toll-free support for warranty issues during the warranty period3

IDM®		D	1.5		Marrie		Dist.	Hat a	01	11.1	al Assatts to
IBM® Type-model Qty x F	Processor	Proc. Speed		Memory	Memory type	Disk	Disk controller	Hot -swap or fixed disk bays	Slots x bays		d Available ty ³ date
	teron 240 teron 242 teron 242 teron 246 teron 246	1.4Ghz ¹ 1.4Ghz 1.6Ghz 1.6Ghz 2.0Ghz 2.0Ghz 2.0Ghz	1MB 1MB 1MB 1MB 1MB 1MB 1MB	1GB 1GB 1GB 1GB 1GB 1GB 2GB	Chipkill Chipkill Chipkill Chipkill Chipkill Chipkill Chipkill	None (open) 80GB ² EIDE None (open) 80GB ² EIDE None (open) 80GB ² EIDE 36.4GB 10K	Ultra320 EIDE Ultra320 EIDE Ultra320 EIDE Ultra320	2 fixed 2 hot-swap 2 fixed 2 hot-swap 2 fixed	2x3 2x3	2 x Gigabit 1 yea 2 x Gigabit 1 yea	r Oct 2003 r Oct 2003 r Oct 2003 r Oct 2003 r Oct 2003
Processor(s) L2 cache SMP support Implementation	1MB / or 2-way S Systemb	n die of pro MP / up to oard conta	cesso two C ins two	r / at prod opteron P o AMD S	cessor spe rocessors ocket 940	eed (no L3 cac (same speed/	he) cache size = sockets,	e required) six memory D		ruction set / 32-bit	.
Memory	slots used SDRAM memory	d (four slots DIMMs / six nterleave /	used ir DIMM dual ch	n 5DX mo gold-conr annel / m	del) / four s nector slots emory bus	slots available (to on systemboard runs at 2 x 100	wo avail. in d / DIMMs MHz / Erro	5DX) / PC2700 must be installe or Checking an	333MH d in ma d Corre	rocessor, six with did Iz registered 184-pin tched pairs [a bank tecting (ECC) via 16 errors contained in t	n ECC DDR- / 2-way -bit
SCSI disk controll IDE controller / ca Disk - capacity Disk - bays	64-bit 10 one 16-b ble <i>All:</i> Enha <i>EIDE mo</i> <i>SCSI mo</i>	OMHz PCI it internal of inced IDE of odels: One odels: 36.40	-X Bus channe ATA-10 2-drop GB sup	B / suppo I / 16-bit (00 control o EIDE ca ports up t	orts RAID- 68-pin LVI ler in CSB able to tw to 15000 r	1 mirroring (E O cable from sy 5 South Bridge o disk bays (p pm disks; <i>EIDE</i>	mbedded stemboard / two conr rimary) / c <i>models:</i> 8	Mirroring) with d to backplane nectors on plan one 1-drop EID 80GB / 7200 rp	two SC for two ar / one E cabl m / AT	B/sec) / on planar/ SI disks in front ba disks / no external 1-drop IDE cable e to CD-ROM (se A-100 / 8.7ms seel k bays Ultra320-er	ys / connector (CD-ROM) condary)
Mechanical Architecture / chips Bus slots	sets AMD ® 8 bridge B HyperTra National	131 PCI-X for PCI-X ansport clo Semicond	Bridge expan ock (PC uctor®	e Chip prosion slots SI, AC '97 PC87366	roviding tv s) / 8111 /, Etherne S Super I/0	vo PCI-X bridg I/O HyperTran t, SMBus, USE	es running sport Bri 3, EIDE, L	g at 100Mhz (b dge Chip supp .PC to BIOS ar	ridge <i>A</i> porting	a 200 Mhz double	nernet;
Ethernet controllers CD-ROM/diskette/k Rear ports Front ports / graphi Console interconne	on plana kbd 24X-10X <i>Rear:</i> tw ics <i>Front:</i> tw ects C2T Inte	r / PCI-X 6	64-bit 10 I / IDE ers 1.1) rs 1.1); cablin	00MHz B / <i>Diskette</i> , serial (9 <i>Graphics</i> g not sup	us B / full e and keyl e-pin), two :: SVGA / A eported / N	duplex / Wake board: none (U ethernet (RJ-4 TI® Rage XL / o	on LAN® , SB diskett 5) / paralle on planar / 8	/ Alert Standard te and keyboar el port not supp 8MB SDRAM st	d Forma d option orted d/max /	32-bit 33MHz PCI 2	J-45 ports pported 2.2 Bus A
Systems mgmt Diagnostics	connecto Adapter Diagnosi	I MS-9549 or on plana II card not tic LEDs f ght Path Di	r / opti suppo or fans	onál Rem rted , memory	note Super / DIMMs a		Optero Optero 512ME 1GB F	PC2700 CL2.5 I	sor Up sor Up ECC D ECC DI	grade	M 73P2267
Security Software	unattend ServerG		selecta D-ROM	ble boot . I installat	/ unattend ion and c	rd / led start mode onfiguration	80GB 120GE 36.4G 73.4G	ATA-100 EIDE 3 ATA-100 EID B 15K Ultra320 B 15K Ultra320	HDD* E HDD SCSI I SCSI I	· * Hot-Swap SL HDD Hot-Swap SL HDD	09N4226 09N4231 * 32P0734 * 32P0735
Cooling fans Power supply Prerequisites	variable 411 watt	speed / no :/ universa	ot redu al / aut	ndant or o-sensing	hot-swap g / auto-re	ver supply) / estart support e), operating s	IBM S USB F NetBA NetBA 1.5M U	ServeRAID-6M Portable Disket AY ACT Local (SCSI (te Driv Console nsole N n Optio	e Manager (LCM) Manager (RCM) n	24P0960 02R0988 05K9276 1735L04 1735R16 73P5832



* Disk not supported in all e325 systems Slot 1: half-length, 64-bit 100MHz PCI X 1.0 (3.3v); Bus C Slot 2: full-length, 64-bit 100MHz PCI X 1.0 (3.3v); Bus C

Bay © 5.25", UltraSlim 0.5", access, std CD-ROM Bay ② 3.5", SL 1", access, std fixed or hot-swap disk Bay ③ 3.5", SL 1", access, open for fixed or hot-swap disk

- Stealth black color front bezel
- Utility tray in front slides out from under middle bay (USB devices)
- → H 1.72" (1U) x W 17.3" x D 25.7"; 43.7mm x 439.9mm x653.3mm
 → 26 to 32 lbs; 11.8kg to 14.6kg (minimum to max configuration)

- Configuration/Setup Utility: F1 at startup System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front
- LSI Logic Configuration Utility: CTRL+C at startup
- Includes one line cord (9 ft universal interrack HV cable with IEC plug)
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

Maximum internal disk capacity¹³ (model dependent): 293.6GB with two 146.8GB SL SCSI disks or 240GB with two 120GB EIDE disks

LIMITED WARRANTY³

- 1 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in eligible locations):7
 - 1 year IOR 9x5, 4 hr avg response (ServicePac® part num 69P9399)
 - 2 year IOR 24x7, 4 hr avg response (ServicePac part num 96P2119)

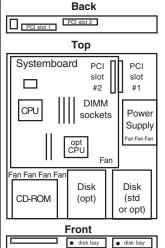
 2 year IOR 24x7, 2 hr avg response
- (ServicePac part num 96P2120)

 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 69P9507)
- 3 year IOR 9x5, NBD response
- (ServicePac part num 69P9506)
 Other ServicePac options at http://www.ibm.com/
- services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period3

See footnotes for important warranty information

 = Hot-swap in some models US models announced August 5, 2003 (X325A) © IBM Corp. August 2003

IBM® Type-model Qty x Pro	ocessor	Proc. Speed	L2 Cache	Memory	Memory type	Disk	Disk controlle	Hot -swap or	Slots x bays	Ethernet v		Available date
8835-61X 1 x Opter 8835-62X 1 x Opter 8835-71X 1 x Opter 8835-72X 1 x Opter	on™ 248 on 248 on 250	2.2Ghz ¹ 2.2Ghz 2.4Ghz 2.4Ghz	1MB 1MB 1MB 1MB	1GB 1GB 1GB 1GB	Chipkill Chipkill Chipkill Chipkill	None (open) 80GB ² EIDE None (open) 80GB EIDE	Ultra320 EIDE	2 hot-swap 2 fixed	2x3 2x3 2x3	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	1 year 1 year 1 year	Jan 2004 Jan 2004 Jun 2004
Processor(s) L2 cache SMP support Implementation	1MB / on 2-way SM Systemboa	die of pro IP / up to ard conta	ocesso two C ains two	r / at proo opteron P o AMD S	cessor spe rocessors ocket 940	eed (no L3 ca (same speed	che) /cache siz IF sockets	, six memóry I				
Memory	PC2700 33 be installed	33MHz re d in match and Corr	gistered ed pairs ecting	l 184-pin l s [a bank] (ECC) via	ECC DDR- / 2-way me . 16-bit C h	SDRAM DIMN emory interleav	ls / six DIM e / dual cha	al / two slots use IM gold-connect annel / memory l cts 1, 2, 3, or 4	or slots o	n systemboa at 2 x 100MH	ard / DIM Iz / Erro	r
SCSI disk controller	64-bit 100	MHz PCI	-X Bus	B/suppo	orts RAID -	1 mirroring (Embedded	Mirroring) with	two SCS	SI disks in fro	ont bays	
IDE controller / cable	e <i>All:</i> Enhan <i>EIDE mod</i>	ced IDE . dels: One	ATA-10 2-drop	00 control	ler in CSB able to tw	5 South Bridg o disk bays (e / two con orimary) /	one 1-drop Ell	nar/one DE cable	1-drop IDE of to CD-ROI	cable (C M (seco	D-ROM)
Disk - capacity Disk - bays								80GB / 7200 r n each disk bay				bled
Mechanical Architecture / chipset Bus slots	s AMD® 813 bridge B f HyperTrar National S	31 PCI-X for PCI-X nsport clo Semicond	Bridge expan ock (PC luctor®	e Chip p sion slots N, AC '97 PC87366	roviding tv s) / 8111 ′, Etherne s Super I/	vo PCI-X brid I/O HyperTra t, SMBus, US	ges runnir nsport Br B, EIDE,	idge Chip sup LPC to BIOS a	bridge A porting	for SCSI a a 200 Mhz (nd Ethe	rnet;
Ethernet controllers CD-ROM/diskette/kbd Rear ports Front ports / graphics Console interconnect	on planar d 24X-10X ⁶ Rear: two s Front: two s C2T Interd	/ PCI-X 6 CD-ROM) USB (Ve) USB (Ve connect™	64-bit 10 1 / IDE ers 1.1) ers 1.1); 1 cablin	00MHz B / <i>Diskette</i> , serial (9 <i>Graphics</i> g not sup	us B / full e and key p-pin), two : SVGA / A pported / N	duplex / Wake board: none (I ethernet (RJ- ATI® Rage XL /	e on LAN® JSB diske 15) / parall on planar / Console M	el port not supp 8MB SDRAM s	d Forma rd option oorted td/max / 3	t 1.0 / two re al); legacy r 32-bit 33MHz	eår RJ-4 not supp : PCl 2.2	45 ports ported Bus A
Systems mgmt Diagnostics	Standard connector Adapter II Diagnositio only / Ligh	on plana card not c LEDs f	ar / Rer suppo or fans	note Sup rted , memory	ervisor / DIMMs a	nent / and processor	Opte 512M s 1GB 2GB	ron 248 Proce ron 250 Proce B PC2700 CL2. PC2700 CL2.5 PC2700 CL2.5	ssor Up 5 ECC D ECC DE ECC DE	grade DR-SDRAM DR-SDRAM	RDIMM	73P2267 73P2269
Security	Power-on					rd / led start mode	120G	B ATA-100 EID B ATA-100 EII	DE HDD*		LIDD*	09N4226 09N4231
Software		ide™ (C	D-ROM	l installat	ion and c	onfiguration	73.40	GB 15K Ultra32 GB 15K Ultra32 TotalStorage F	0 SCSI F	Hot-Swap SL	. HDD*	32P0735
Cooling fans Power supply Prerequisites	variable s 411 watt /	pèed / no universa	ot redu al / aut	ndant or o-sensing	hot-swap j / auto-re	ver supply) / estart support e), operating	IBM USB NetB NetB 1.5M	ServeRAID-6M Portable Diske AY ACT Local AY Remote Co USB Conversion US Supported	SCSI (2) Sette Drive Console Onsole Mon Option	256MB Cac e Manager (lanager (RC	he) LCM) CM)	02R0988 05K9276 1735L04 1735R16 73P5832



Slot 1: half-length, 64-bit 100MHz PCI X 1.0 (3.3v); Bus C Slot 2: full-length, 64-bit 100MHz PCI X 1.0 (3.3v); Bus C

Bay © 5.25", UltraSlim 0.5", access, std CD-ROM Bay ② 3.5", SL 1", access, std fixed or hot-swap disk Bay ③ 3.5", SL 1", access, open for fixed or hot-swap disk

- Stealth black color front bezel
- Utility tray in front slides out from under middle bay (USB devices)
- → H 1.72" (1U) x W 17.3" x D 25.7"; 43.7mm x 439.9mm x653.3mm
 → 26 to 32 lbs; 11.8kg to 14.6kg (minimum to max configuration)

- Configuration/Setup Utility: F1 at startup System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front
- LSI Logic Configuration Utility: CTRL+C at startup
- Includes one line cord (9 ft universal interrack HV cable with IEC plug)
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

Maximum internal disk capacity¹³ (model dependent): 293.6GB with two 146.8GB SL SCSI disks or 240GB with two 120GB EIDE disks

LIMITED WARRANTY³

- 1 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in eligible locations):7
 - 1 year IOR 9x5, 4 hr avg response (ServicePac® part num 69P9399)
- 2 year IOR 24x7, 4 hr avg response (ServicePac part num 96P2119)

 2 year IOR 24x7, 2 hr avg response
- (ServicePac part num 96P2120) 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 69P9507)
- 3 year IOR 9x5, NBD response (ServicePac part num 69P9506)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period3

See footnotes for important warranty information

= Hot-swap in some models

(X325B) © IBM Corp. January 2004

DIVI @ SCI VCI	e320111 (7909) October 2003	XNEF D	by eserver Fleid Skill	s and Education Team
IBM® Type-GAV Qty x	x Processor/Core Speed Cache Memory	Disk/Controller Diskb	Slots pays x bays Ethernet	Limited Available warranty ³ date
7969 - 46y-46x 1 x (7969 - 55y-55x 1 x (7969 - 56y-56x 1 x (7969 - 66y-65x 1 x (7969 - 66y-66x 1 x (7969 - 66y-66x 2 x (7969 - 67y-67x 2 x (7969 - 75y-75x 1 x (7969 - 76y-76x 1 x (7969 - 76y-76x 1 x (7969 - 81y-81x 1 x (Opteron®265/DC 1.8GHz¹ 2MB 2x512MB Chipkill Opteron 270/DC 2.0GHz 2MB 2x512MB Chipkill Opteron 275/DC 2.2GHz 2x2MB 4x1GB Chipkill Opteron 275/DC 2.2GHz 2x2MB 4x1GB Chipkill Opteron 280/DC 2.4GHz 2MB 2x512MB Chipkill Opteron 280/DC 2.4GHz 2MB 2x512MB Chipkill Opteron 280/DC 2.4GHz 1MB 2x512MB Chipkill Opteron 252/SC 2.6GHz 1MB 2x512MB Chipkill Opteron 254/SC 2.8GHz 1MB 2x512MB Chipkill 2x512MB Chipkill 0pteron 254/SC 2.8GHz 1MB	80GB/SATA 2 fixed none/Ultra320 2 hot-80GB/SATA 2 fixed none/Ultra320 2 hot-80GB/SATA 2 fixed 2x36GB/Ultra320 2 hot-80GB/SATA 2 fixed none/Ultra320 2 hot-80GB/SATA 2 fixed none/Ultra32	2x3	bit 1 year Oct 2005
Processor(s) L2 cache SMP support Implementation Memory	Entry 2-way rack server for compute-intesnsive Up to 2 x AMD® Opteron™ 280 Dual Core or 25 supports 32-bit and 64-bit computing 1MB / per core / at processor speed (no L3 cache 2-way SMP / up to two Opteron Processors (sam Systemboard contains two AMD Socket 940 micro ethernet, graphics, one PCI-E x8 and one 64-bit 1: 1GB std / 16GB max¹³ / four slots enabled with ur 160000 x resident and 160000 NR 160000 MM 1800000 NR 1600000 NR 1600000 NR 16000000 NR 16000000000000000000000000000000000000	e) le speed/cache size requir PGA ZIF sockets, eight r 33/100Mhz PCI-X (option t	red) memory DIMM slots, in to convert PCI-X slot to	tegrated SATA or SCSI, o second PCI-E x8)
SCSI disk controller	1GB std / 16GB max ¹³ / four slots enabled with ur PC3200 registered 184-pin ECC DDR-SDRAM DII be installed in matched pairs [a bank] / 2-way men Chipkill™ supported All (not used on SATA models): LSI Logic® 53C10 64-bit 100MHz PCI-X Bus B / supports RAID-1 mi	020 / Ultra320 SCSI contr	roller (LVD 320MB/sec) / on planar /
Disk - capacity Disk - bays	64-bit 100MHz PCI-X Bus B / supports RAID-1 mi one 16-bit internal channel / 16-bit 68-pin LVD cal All: SATA-150 controller / two connectors on plana SCSI models: some: open some: 36GB; SATA mc SCSI models: two hot-swap / 80-pin SCA-2 connectors 15k drives	ctors / filler panels in each	9.0ms seek i disk bay / all disk bay:	s Ultra320-enabled,
Mechanical Architecture/chipsets Bus slots	EIA 19" Rack (1U⁴) / rack-mount only / supported ServerWorks HT2000 System I/O controller con 1GHz and provides PCI-E, PCI-X and Dual Gigabit to the HT2000 via a 8x Hyper Transport bus and p Timer, Watchdog Timer, Interrupt controller and LF (See detail below) one full-length PCI-X 1.0 and on no hot-swap Active™ PCI slots	in 26" deep racks such a inects to the processor su it Ethernet / ServerWorks provides PCI-X, SATA 2.0, PCI le half length PCI-E x8 / open server and server	is the IBM NetBAY™ R bb-system via a 16x Hy is HT1000 South Bridg USB 2.0, ATA 100 IDE otion to convert PCI-X s	ack products //per Transport Bus at e interfaces system I/O E, SMB, IOAPIC, Event
Ethernet controllers Optical/diskette/kbd Rear ports Front ports / graphics Console interconnects	Two gigabit 10/100/1000 ethernet ports / Broadcom on planar / PCI-X 64-bit 100MHz / full duplex / Wal 24X-10X ⁶ CD-ROM / IDE / <i>Diskette and keyboard: Rear:</i> two USB (Vers 2.0), serial (9-pin), two ether Front: two USB (Vers 2.0); <i>Graphics:</i> SVGA / ATI SC2T Interconnect™ cabling not supported / NetBay (RCM), and USB Conversion Option (UCO) are s	арропса		
Systems mgmt Diagnostics Security Software	Standard MS-9549 QLogic system management / compliant / connector on planar / Remote Supervis Adapter II optional Diagnositic LEDs for fans, memory DIMMs and pr PFA / Light Path Diagnostics not supported Power-on password / administrator password / Se On/Off / unattended boot / selectable boot / unattet start mode / text console redirect via serial over L/ServerGuide™ (CD-ROM installation and configuratilities), IBM Director™, and others	opteron 254 Opteron 265 Opteron 275 Opteron 275 Opteron 280 Opteron 280 Opteron 280 Opteron 280 Opteron 280 Opteron 280 Opteron 280 Opteron 280 Opteron 275 Opteron 280 1GB PC3200 80GB SATA-160GB SATA-	Processor Upgrade Processor Upgrade Processor Upgrade Processor Upgrade Processor Upgrade Processor Upgrade O CL3 ECC DDR-SDR/ O CL3 ECC DDR-SDR/ A-150 7.2k HDD A-150 7.2k HDD Itra320 SCSI Hot-Swap	39M4503 25R6903
Cooling fans Power supply Prerequisites	Eight fans (five for system, three inside power sup Calibrated Vector Cooling™ / variable speed / not rnot hot-swap 411 watt / universal / auto-sensing / auto-restart s Monitor, keyboard, mouse, rack, disk (some), os	oply) / redundant / support 146GB 15K l 146.4GB 10K 300GB 10K l IBM TotalSto IBM ServeRA	Ultra320 SCSI Hot-Swa K Ultra320 SCSI Hot-Sv Ultra320 SCSI Hot-Swa Orage FC2-133 Host Bu AID-6M SCSI (256MB)	p HDD 40K1028 wap SL HDD 40K1024 pp SL HDD 40K1025 us Adapter 24P0960 Cache) 02R0988
Back PCISIO12 Top Systemboard PCI	Slot 1: full-length, 64-bit 133/100MHz Slot 2: half-length, PCI-E x8 Bay ① 5.25", UltraSlim 0.5", access, st Bay ② 3.5", SL 1", access, std fixe	td CD-ROM	ll-length, PCI-E x8 option	on USK9276
Slot #1 CPU DIMM socket opt CPU Fa Fan Fan Fan Fan Disk (opt) Front odisk bay	Utility tray in front slides out from und H 1.72" (1U) x W 17.3" x D 25.7"; 43	.7mm x 439.9mm x653.3m imum to max configuration tartup startup _+C at startup al interrack HV cable pcessor(s), voltage regular bly, and disk options y ¹³ (model dependent): 31 disks or	on site, 8 am - 5 pm coverage excluding next business day representation on site service upging (in eligible locations - 1 year IOR 9x5, 4 in (ServicePacpartin - 2 year IOR 24x7, 2 (ServicePacpartin - 3 year IOR 24x7, 2 (ServicePacpartin - 3 year IOR 9x5, Nit (ServicePacpartin - 3 year	nty Services I, Mon - Fri holidays, esponse time? rade options s):? nr avg response num 69P9399) thr avg response um 96P2119) thrad response um 96P2120) thrad gresponse um 96P2120) thrad gresponse um 99P9507) BD response um 69P9505) btions at pess/us/its/pdf/wamomxeu.pdf port for warranty

- System Fathlith Book. ACT I at startup

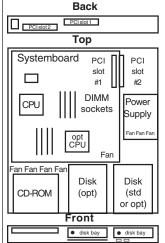
 Network Boot: F12 at startup

 Operator Information Panel in front

 LSI Logic Configuration Utility: CTRL+C at startup
- □ Includes one line cord (9 ft universal interrack HV cable
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

- issues during the warranty period3

IBM®Type-GAV Qty x	Processor/Core	Speed	L2 Cache	Memory	Disk / Contr	roller	Disk bays	Slots x bays	Ethernet	Limited warranty ³	Available date
	Opteron®285/DC Opteron 285/DC		2MB 2MB	2x512MB Chipkill 2x512MB Chipkill	none/Ultra 80GB/SAT	1320 2 TA 2	2 hot-swap 2 fixed	2x3 2x3	Dual Gigabit Dual Gigabit	1 year 1 year	Apr 2006 Apr 2006
•				'					0	,	·
Positioning Processor(s)	Entry 2-way ra Up to 2 x AMI	ack serve	er for con™ 28	compute-intesnsive 5 Dual Core or 25	application 4 Single Co	ns and ore / 800	dual core Mhz Hype	comp erTrans	uting at an a	ittractive gy / Simuli	price aneously
L2 cache SMP support Implementation	2-way SMP / ι	owt ot qu	Optero	outing speed (no L3 cache n Processors (same) Socket 940 micro 8 and one 64-bit 13	e speed/cac	he size ockets, e PCI-X (o _l	required) eight memo otion to col	ory DIM	IM slots, integ CI-X slot to s	grated SAT econd PC	TA or SCSI I-E x8)
Memory	PC3200 registe	ered 184- matched r	oin ECC	ots enabled with un C DDR-SDRAM DIN bank] / 2-way mem	/IMs / eight	DIMM q	old-connec	tor slot	s on systemb	oard / DIN	/IMs must
SCSI disk controller	64-bit 100MHz	PCI-X Bi	ıs B / sı	LSI Logic® 53C10	r rorina (Eml	bedded	Mirrorina) v	with two	o SCSI disks	in front ba	vs /
SATA controller/cable Disk - capacity Disk - bays	one 16-bit inter All: SATA-150 of SCSI models: s	nal chanr controller some: ope wo hot-sv	nel / 16 / two co en some	b-bit 68-pin LVD cat connectors on plana e: 36GB; <i>SATA mo</i> D-pin SCA-2 connec	ole from syst r / two 1-dro dels: 80GB /	temboard p cables / 7200 rp	d to backpl / 1 IDE om / 9.0ms	lane foi seek	r two disks / r	o external	connector
Mechanical Architecture/chipsets	EIA 19" Rack ServerWorks I 1GHz and prov to the HT2000	(1U ⁴) / ra H T2000 S rides PCI- via_a 8x I	ck-mou System E, PCI- Typer T	nt only / supported //O controller con -X and Dual Gigabinansport bus and put of controller and LP	in 26" deep nects to the t Ethernet / s rovides PCI-	racks so process ServerW -X, SATA	uch as the sor sub-sys /orks HT1 \ 2.0, USB	IBM Notem via 000 Sc 2.0, A	letBAY™ Rac a a 16x Hype buth Bridge i TA 100 IDE,	k products r Transpo nterfaces s SMB, IOAF	rt Bus at system I/O PIC, Event
Bus slots	(See detail belono hot-swap A	ow) one fu	ıll-lengtl	of controller and LP n PCI-X 1.0 and one	e half length	PCI-E x	8 / option t	o conv	ert PCI-X slot	to PCI-E	k 8 /
Ethernet controllers	Two gigabit 10/	/100/1000 -X 64-bit	ethern	et ports / Broadcom z / full duplex / Wak	BCM5780 / ke on LAN® /	/ two full / two rea	gigabit eth	ernet N	MAC and PHY	' layer fun	ctions /
Optical/diskette/kbd Rear ports Front ports / graphics Console interconnects	C2T Interconne	ect™ cabli	ng not	z / full duplex / Wal- cette and keyboard: al (9-pin), two ether aphics: SVGA / ATI supported / NetBay option (UCO) are su	Local Cons	diskette / paralle on planar sole Man	and keybo l port not s / 16MB S ager (LCM	pard op support DRAM 1), NetE	tional); legacted ed std/max / 102 Bay Remote 0	/ not supp 24x768x32 Console M	orted 2bit@85Hz anager
Systems mgmt	Standard MS-9 compliant / con	549 QLog	gic syste	em management / I / Remote Supervis	PMI 1.5 or	Opteror	254 Prod 265 Prod	essor	Upgrade		32R2215 32R2021
Diagnostics	Adabter II optio	nal Os for fan	s, mem	nory DIMMs and pr		Opteror	n 275 Proc n 285 Proc 03200 CL3	essor ECC I	Upğrade DDR-SDRAM	kit	32R2023 40K1977 39M5800
Security	Power-on pass On/Off / unatter	word 7 ac nded boo	lministra t / selec	ator password / Se table boot / unatter	nded	2GB P0 80GB S	C3200 CL3 SATA-150 SATA-150	ECC I 7.2k HI	DDR-SDRAM OD	kit	39M5803 39M4503
Software		(CD-RO	M instal	ct via serial over LA llation and configur ners	N ation	73GB 1 146GB 146.4G	5K Ultra32 15K Ultra3 B 10K Ultra	10 SCS 120 SC 1320 S	l Hot-Swap l SI Hot-Swap CSI Hot-Swai	HDD HDD SL HDD	25R6903 90P1319 40K1028 40K1024
Cooling fans	Eight fans (five Calibrated Vect not hot-swap	for syste tor Coolin	m, three g™ / va	e inside power suppriable speed / not re	oly) /	300GB IBM To IBM Se	10K Ultra3 talStorage rveRAID-6	FC2-10 M SCS	SI Hot-Swap 3 33 Host Bus 7 8I (256MB Ca	SL HDD Adapter che)	40K1025 24P0960 02R0988 05K9276



Power supply Prerequisites

Slot 1: full-length, 64-bit 133/100MHz PCI X 1.0 (3.3v) std. / full-length, PCI-E x8 option

Slot 2: half-length, PCI-E x8

not hot-swap 411 watt / universal / auto-sensing / auto-restart support Monitor, keyboard, mouse, rack, disk (some), os

Bay ① 5.25", UltraSlim 0.5", access, std CD-ROM

Bay ② 3.5", SL 1", access, std fixed or hot-swap disk Bay ③ 3.5", SL 1", access, open for fixed or hot-swap disk

Stealth black color front bezel

Utility tray in front slides out from under middle bay (USB devices)

Samy day in Horit sinces out norm under findate bay (USB devices)
 H 1.72" (1U) x W 17.3" x D 25.7"; 43.7mm x 439.9mm x653.3mm
 ≥ 26 to 32 lbs; 11.8kg to 14.6kg (minimum to max configuration)
 Configuration/Setup Utility: F1 at startup
 System Partition Boot: ALT+F1 at startup
 Network Boot: F12 at startup

Operator Information Panel in front

LSI Logic Configuration Utility: CTRL+C at startup

Includes one line cord (9 ft universal interrack HV cable

with IEC plug)

Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

Maximum internal disk capacity¹³ (model dependent): 600GB with two 300GB SL SCSI disks or 320GB with two 160GB SATA disks

LIMITED WARRANTY³ 1 year parts and labor

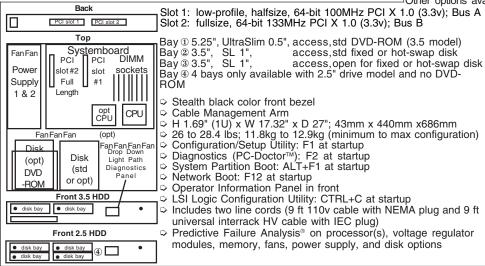
USB Portable Diskette Drive

1 year parts and labor
International Warranty Service®
On site, 8 am - 5 pm, Mon - Fri
coverage excluding holidays,
next business day response time²
On site service upgrade options
(in eligible locations):²
1 year IOR 9x5, 4 hr avg response
(ServicePace® partnum69P9399)
2 year IOR 24x7, 4 hr avg response
(ServicePacepartnum96P2119)
2 year IOR 24x7, 2 hr avg response
(ServicePacpartnum96P210)
3 year IOR 24x7, 4 hr avg response
(ServicePacpartnum69P9507)
3 year IOR 9x5, NBD response
(ServicePacpartnum69P9505)
Other ServicePacpotions at
www.ibm.com/services/us/its/pdf/wan

www.ibm.com/services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty

issues during the warranty period3

IBM® Type-GAV-model Qty	L2 y x Processor cach	e Memory Disk	Disk controller (Optical	Power Supply	Disk bays	Slots x bays	Ethernet		Available date		
8837-1Vy-1Vx 1 x 8837-16y-16x 1 x 8837-25y-25x 1 x 8837-35y-35x 1 x 8837-3Vy-3Vx 1 x 8837-36y-36x 1 x 8837-45y-45x 1 x 8837-E1y-E1x 1 x	1 x Xeon® 3.0GHz 2MB 1GB None (open 3.5) Ultra320 DVD 585W 2 hot-swap 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.0GHz 2MB 1GB None (open 3.5) Ultra320 DVD 585W 2 simple-sp 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.0GHz 2MB 1GB None (open 3.5) Ultra320 DVD 585W 2 simple-sp 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.4GHz 2MB 1GB None (open 3.5) Ultra320 DVD 585W 2 hot-swap 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.4GHz 2MB 1GB None (open 3.5) Ultra320 DVD 585W 2 hot-swap 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.4GHz 2MB 1GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.4GHz 2MB 1GB None (open 3.5) SATA DVD 585W 2 simple-sp 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.4GHz 2MB 1GB None (open 3.5) Ultra320 DVD 585W 2 simple-sp 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 1GB None (open 3.5) Ultra320 DVD 585W 2 hot-swap 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 3.5) Ultra320 DVD 585W 2 hot-swap 2x3 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 DVD 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz 2MB 2GB None (open 2.5) Ultra320 None 585W 2 hot-swap 2x4 2 x Gigabit 3 year Mar 2005 1 x Xeon 3.6GHz											
Positioning Processor(s) Cache SMP support Implementation A highly manageable, ultra-dense 1U, 2-way server that delivers performance computing in space-constrained environments 1 x Intel® Xeon 3.0, 3.2, 3.4, 3.6GHz with 800MHz / 2MB L2 Cache / Extended Memory 64 Technology (EM64T) 2MB L2 cache on all models / on die of processor / at processor speed / ECC 2-way SMP / up to two Xeon Processors (same speed/cache size) Systemboard contains two Intel 604 pin micro-PGA ZIF sockets, eight DIMM slots, two PCI-X slots (one full length 133MHz, one low-profile 100MHz) and integrated SCSI or SATA, dual GB ethernet, graphics												
Memory	connector slots on	1GB std / 16GB max ¹³ / 8 slots (6 avail) / PC2-3200 400MHz registered 240-pin ECC DDR2-SDRAM DIMMs / eight DIMM gold-connector slots on systemboard / DIMMs must be installed in matched pairs [a bank] / 2-way memory interleave / dual channel / Active Memory ^(™) : online spare and memory mirror / Error Checking and Correcting (ECC)										
SCSI disk controller SATA disk Controller IDE controller / cable Disk - MAX capacity Disk - bays	Mirroring) with two Enhanced SATA-1 one 1-drop EIDE c SCSI 3.5: 292GB v	LSI Logic® 53C1020 / Ultra320 SCSI controller (LVD 320MB/sec) / on planar / supports RAID-1 mirroring (Embedded Mirroring) with two SCSI disks in front bays / one 16-bit internal channel / no external connector Enhanced SATA-150 (150MB/sec) controller / two connectors on planar / two one-drop cables one 1-drop EIDE cable to DVD-ROM SCSI 3.5: 292GB with two 146GB HDD SCSI 2.5:four 2.5" 73GB HDD SATA: 500GB with two 250GB HDD SCSI: two hot-swap or four 2.5" hot-swap / 80-pin SCA-2 connectors SATA: 2 simple-swap										
Mechanical Architecture / chipsets Bus slots Ethernet controllers DVD-ROM / diskette Rear ports Graphics	Mechanical Architecture / chipsets EIA 19" Rack (1U⁴) / rack-mount only / supported in 26" deep racks such as the IBM NetBAY™ Rack products Intel E7520 / Intel Memory Controller Hub (MCH) / 3 PCI buses (one 64bit/133MHz PCI-X1.0, one 64bit/100MHz PCI-X1.0, and 32bit/33MHz PCI) / Intel PCI-X Bridge (supports 133MHz PCI-X slots 1 & 2, LSI Logic 53C1020) / ICH5R South Bridge (Thin IMB to Host Bridge for graphics controller, EIDE, USB, SMBus, LPC bus to Super I/O) / National PC87427 Super I/O (supports legacy components; keyboard, mouse, serial) Ethernet controllers Ethernet controllers DVD-ROM / diskette PCI slots / optional full-length PCI-Express x8 Riser Avail Two gigabit 10/100/1000 ethernet ports / Broadcom BCM5721 / two full gigabit ethernet MAC and PHY layer functions / on planar / PCI-X 64-bit 100MHz / full duplex / Wake on LAN® / Alert Standard Format 2.0 / two rear RJ-45 ports Some: DVD-ROM / IDE; Diskette: none Rear: Two USB (2.0), serial (9-pin), video, two ethernet (RJ-45), one RJ-45 (sys mgmt) / mouse ps2 / keyboard ps2											
Systems mgmt Diagnostics	as temp, memory, on planar for contir	Management Controller optional disks, fans, pownuous pwr (no ext pwr re path diagnostics Pull o	er supply / su q)	pport for								
Security	(LED lights indicate Power-on passwor	e failing component) rd / administrator passwo	rd /			2GHz/2MB L2 6GHz/2MB L2				25R8905 13N0667		
Software		selectable boot / unattend D-ROM installation and o tor™, and others		•	512MB 1GB (2x 2GB (2x	(2x256)PC2-32 512)PC2-320(1GB)PC2-320	200 CL3) CL3 E(0 CL3 E	ECC DDR2 CC DDR2 C ECC DDR2 (nipKill	73P3523 73P2865 73P2866		
Cooling fans Power supply Prerequisites	seven-nine fans / variable speed / not-swap / redundant 585 watt hot-swap (second Opt)/ universal / auto sensing / auto re-start Monitor, keyboard, mouse, rack, disk (some), operating sys Monitor, keyboard, mouse, rack, disk (some), operating sy									73P8002 73P8003 90P1305 32P0796 13N2190 73P9341		
Rack					Second PCI-Exp	585W Power ress x8 full-lerotions available	supply ngth rise	r card	oc/us/acc	90P5280 22R9293		

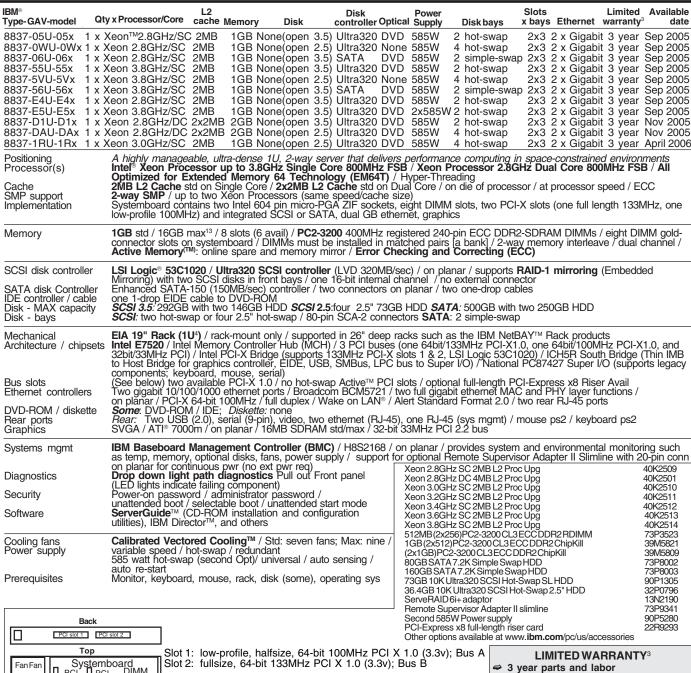


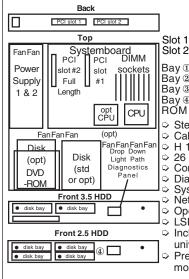
LIMITED WARRANTY³

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time?
- On site service upgrade options (in eligible locations):7
 - 3 year IOR 9x5, 4 hr avg response (ServicePac® part num 21P2072)
 - 3 year IOR 24x7, 4 hr avg response (ServicePac part num 21P2073)
 - 3 year IOR 24x7, 2 hr avg response (ServicePac part num 21P2074)
 - 4 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 69P9244)

 5 year IOR 9x5, NBD response
 - (ServicePac part num 69P9246)

 Other ServicePac options at
- Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period³





Bay ① 5.25", UltraSlim 0.5", access,std DVD-ROM (3.5 model) Bay ② 3.5", SL 1", access,std fixed or hot-swap disk access,open for fixed or hot-swap access, open for fixed or hot-swap disk Bay @ 4 bays only available with 2.5" drive model and no DVD-

- Stealth black color front bezel
- Cable Management Arm
- H 1.69" (1U) x W 17.32" x D 27"; 43mm x 440mm x686mm 26 to 28.4 lbs; 11.8kg to 12.9kg (minimum to max configuration) Configuration/Setup Utility: F1 at startup Diagnostics (PC-Doctor™): F2 at startup System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front
- LSI Logic Configuration Utility: CTRL+C at startup

Includes two line cords (9 ft 110v cable with NEMA plug and 9 ft universal interrack HV cable with IEC plug)

Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in eligible locations):7
 - 3 year IOR 9x5, 4 hr avg response (ServicePac® part num 21P2072)
 - 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 21P2073) 3 year IOR 24x7, 2 hr avg response
 - (ServicePac part num 21P2074) 4 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 69P9244) 5 year IOR 9x5, NBD response
 - (ServicePac part num 69P9246)
 Other ServicePac options at http://www.ibm.com/
 - services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period3

IBM® Type-model Qty x Pr	10.000.00¥	L2 cache	FSB MHz I	Memory	Memory type	Disk	Disk	Hot -swap or fixed disk bay		Ethornot	Limited warranty ³	Available date
8676-1AX 1 x Xeon				512MB		None (open)		2 hot-swap		2 x Gigab		
0070 170X 1 X X0011	2.0D GI12	OIZIND	000	OTZIVID	Ornpitiii	rione (open)	01114020	2 not owap	, <u></u>	Z X Gigub	nt o your r	viai 2000
DC powe	er models	are desi	gned for	netwo	rk infras	tructures req	uiring net	work				
equipme	nt to supp	ort DC	power e	nvironn	nents	•	Ü					
Positioning Processor(s) L2 cache SMP support Implementation	1 x Intel® 512KB / o 2-way SM Systembo	Xeon 2.5 n die of pi IP / up to t ard conta	8BGHz ¹ rocessor two Xeon tins two Ir	with 533 / at proce Process atel 603-p	MHz fror essor spe sors (sam oin micro-	erver that delivintside bus / Hised (no L3 cache speed/cache PGA ZIF sockthernet, graph	yper-Threa ne) size) ets, four me	ding technolo)gy			
Memory	PC2100 2 must be in	66MHz re stalled in ecking an	egistered matched d Correc	184-pin l pairs [a ting (EC	ECC DDF bank] / 2- C) via 16	o slots availab R-SDRAM DIM way memory in 6-bit Checksun ochips)	Ms / four D nterleave /	dual channel	memory	bus ruńs a	t 2 x 100MI	Hz/
SCSI disk controller IDE controller / cable Disk - capacity Disk - bays	64-bit 100 one 16-bit All: Enhar EIDE mod SCSI mod	MHz PCI internal onced IDE in dels: One dels: none	-X Bus B channel / ATA-100 2-drop E standare	/suppor 16-bit 6 controlle IDE cab d / support	rts RAID- 8-pin LVI er in CSB le to two orts up to	C1020 / Ultra 1 mirroring (E D cable from s 5 South Bridgdisk bays / one 15000 rpm disponnectors / fille	Embedded ystemboar e / two con e 1-drop El sks; <i>EIDE r</i>	Mirroring) wit d to backplan nectors on pla DE cable to C models: 40GB	h two SC e for two anar / one D-ROM 5 / 7200 rp	SI disks in disks / no e 1-drop IDI om / ATA-1	front bays external co E cable (CI 00 / 8.7ms	nnector D-ROM) seek
Mechanical Architecture / chipsets	s ServerWo one CIOB slot 2 and SMBus, L	orks® Gra -X2 I/O B Ultra320 PC bus to	and Char gridge (IM / CSB5 (o Super I/	npion ™ B2 bus t South Br O) / Nati	4.0 LE / 0 to Host Bridge (Thi onal Sem	orted in 26" dec CMIC LE Host ridge for PCI-> in IMB to Host niconductor® P swap Active™	Bridge (me (Bus A wit Bridge for C87417 Si	emory control h slot 1 and d PCI 2.2 Bus (ler and I/ ual ether	O Bridge) / net and PC	CI-X Bus B	
Ethernet controllers CD-ROM / diskette Rear ports Front ports / graphics Console interconnect	on planar 24X-10X ⁶ Rear: one Front: two sC2T Interd Technolog	/ PCI-X 64 CD-ROM e USB (Ve o USB (Ve connect™ gy Cable I	4-bit 100N I / IDE; <i>D</i> ers 1.1), 0 ers 1.1); d cable (19 Kit require	MHz Bus iskette: 3 D2T in, C Graphics 0 inch, 2 ed at end	A / full du 3.5" 1.44N 22T out, s 5: SVGA / 45mm) is d of chain	s standard (Ke i (a cable with	n LAN® / AÌ ve / dust co vo ethernet . / on plana yboard Vid separate ke	ert Standard I over t (RJ-45), one r / 8MB SDRA eo Mouse (K\ eyboard, mou	Format 1. RS-485 (M std/ma /M) chair se, monit	0 / two rear (sys mgmt) ax / 32-bit 3 hing cable) tor connect	r RJ-45 por / no paralle 3MHz PCI / one Cable tors)	ts el port 2.2 bus e Chain
Systems mgmt	IBM Integ	rated sy	stem ma	nageme	ent proce	essor (ISMP)	H8S2148	on planar/p	rovides s	ystem and	environme	ental

monitoring such as temp, memory, optional disks, fans, power supply / support for optional Rémote Supervisor Adapter

with 20-pin conn on planar for continuous pwr (no ext pwr req) Diagnostics Security Power-on password / administrator password / unattended boot / selectable boot / unattended start mode Software ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director™, and others Cooling fans Eight fans (five for system, three on power supply) / variable speed / not redundant or hot-swap Power supply 332 watt (-48 to -60 V dc [direct current]) / auto-sensing supports dual input sources (two power sources) / not redundant / not hot-swap / auto-restart support Monitor, keyb., mouse, rack, disk, operating sys, one C2T Kit per chain of servers or NetBAY ACT CAT-5 Prerequisites

Light Path Diagnostics™ (LED lights indicate failing component) and on-board diagnostics (via PC-Doctor in BIOS) OPTIONS Xeon 2.8BGHz/512KB L2 Cache Proc Upg 512MB PC2100 CL2.5 ECC DDR-SDRAM DIMM 331 5038 1GB PC2100 CL2.5 ECC DDR-SDRAM RDIMM 33L5039 2GB PC2100 CL2.5 ECC DDR-SDRAM RDIMM 33L5040 36.4GB 15K Ultra320 SCSI Hot-Swap SL HDD 06P5776 Remote Supervisor Adapter ServeRAID™-4Mx Ultra160 SCSI Adapter 09N7585 06P5736 Cable Chain Technology (C2T) Cable Kit (2 meter 06P4792 breakout cable and 2 meter KVM chaining cable) NetBAY ACT Local Console Manager 1735L04

Back PCI slot 2 PCI slot 1 Top Systemboard PCI PCI Light Path slot slot Diagnostics #2 #1 DIMM Powe sockets Supply opt CPU CPU Fan Fan Fa an Fan Fan Fa Disk Disk CD-ROM (opt) (std or opt) Diskette Front disk bay

Slot 1: halfsize, 64-bit 100MHz PCI X 1.0 (3.3v); Bus A Slot 2: fullsize, 64-bit 100MHz PCI X 1.0 (3.3v); Bus B

Bay @3.5", UltraSlim 0.5", access, std diskette Bay @5.25", UltraSlim 0.5", access, std CD-ROM

Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1", access, std fixed or hot-swap disk access, open for fixed or hot-swap disk

Stealth black color front bezel

- Utility tray in front slides out from under middle bay (USB devices) H 1.72" (1U) x W 17.3" x D 25.7"; 43.7mm x 439.9mm x653.3mm
- 26 to 28.4 lbs; 11.8kg to 12.9kg (minimum to max configuration)
- Configuration/Setup Utility: F1 at startup Diagnostics (PC-Doctor™): F2 at startup
- System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- Operator Information Panel in front
- LSI Logic Configuration Utility: CTRL+C at startup
- Includes two line cords (9 ft 110v cable with NEMA plug and 9 ft universal interrack HV cable with IEC plug)
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

Maximum internal disk capacity¹³ (model dependent): 293.6GB with two 146.8GB SL SCSI disks or 240GB with two 120GB EIDE disks

LIMITED WARRANTY³

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays. next business day response time7
- On site service upgrade options (in eligible locations):7
 - 3 year IOR 9x5, 4 hr avg response (ServicePac® part num 21P2072)
- 3 year IOR 24x7, 4 hr avg response (ServicePac part num 21P2073)
- 3 year IOR 24x7, 2 hr avg response (ServicePac part num 21P2074)
- 4 year IOR 24x7, 4 hr avg response (ServicePac part num 69P9244)
- 5 year IOR 9x5, NBD response
- (ServicePac part num 69P9246)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support forwarranty

issues during the warranty period3 (X335DC-A) © IBM Corp. February 2003

See footnotes for important warranty information

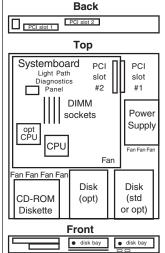
⁼ Hot-swap

IBM @server™ xSeries™ 335 (DC power model) (January 2004) xREF by eServer Field Skills Enablement Team

IBM [⊚] Type-model	Qty x Processor	L2 cache	FSB MHz		mory /pe Disk	Disk controller	Hot -swap or fixed disk bays	Slots x bays	Ethernet	Limited warranty	Available date
8676-LAX 1	x Xeon 2.8B GHz	512KB	533	512MB Chip	pkill None (oper) Ultra320	2 hot-swap	2x4	2 x Gigabi	t 3 year	Jan 2004

DC power models are designed for network infrastructures requiring network equipment to support DC power environments

A highly manageable, ultra-dense 1U, 2-way server that delivers 1 x Intel® Xeon 2.8BGHz¹ with 533MHz frontside bus / Hype 512KB / on die of processor / at processor speed (no L3 cache) 2-way SMP / up to two Xeon Processors (same speed/cache siz Systemboard contains two Intel 603-pin micro-PGA ZIF sockets, riser for one PCI-X slot, and integrated SCSI, ethernet, graphics	r-Threading technology re)
512MB std / 8GB max ¹³ / two slots used / two slots available / PC2100 266MHz registered 184-pin ECC DDR-SDRAM DIMMs must be installed in matched pairs [a bank] / 2-way memory inter Error Checking and Correcting (ECC) via 16-bit Checksum C detects 2- through 8-bit errors contained in two chips). Chipkill	/ four DIMM gold-connector slots on systemboard / DIMMs rleave / dual channel / memory bus runs at 2 x 100MHz / Chipkill™ (corrects 1, 2, 3, or 4-bit errors on same chip and
All (not used on EIDE models): LSI Logic® 53C1020 / Ultra320 64-bit 100MHz PCI-X Bus B / supports RAID-1 mirroring (Embone 16-bit internal channel / 16-bit 68-pin LVD cable from syste All: Enhanced IDE ATA-100 controller in CSB5 South Bridge / treation EIDE models: One 2-drop EIDE cable to two disk bays / one 1-6 SCSI models: two hot-swap / 80-pin SCA-2 connectors / filler parts of the standard / supports up to 15000 rpm disks; SCSI models: two hot-swap / 80-pin SCA-2 connectors / filler parts of the standard / supports up to 15000 rpm disks;	pedded Mirroring) with two SCSI disks in front bays / emboard to backplane for two disks / no external connector wo connectors on planar / one 1-drop IDE cable (CD-ROM) drop EIDE cable to CD-ROM EIDE models: 40GB / 7200 rpm / ATA-100 / 8.7ms seek
EIA 19" Rack (1U4) / rack-mount only / supported in 26" deep res ServerWorks® Grand Champion™ 4.0 LE / CMIC LE Host Brid one CIOB-X2 I/O Bridge (IMB2 bus to Host Bridge for PCI-X Buslot 2 and Ultra320 / CSB5 South Bridge (Thin IMB to Host Brid SMBus, LPC bus to Super I/O) / National Semiconductor® PC8 (See below) two available PCI-X 1.0 / no hot-swap Active™ PCI	dge (memory controller and I/O Bridge) / us A with slot 1 and dual ethernet and PCI-X Bus B with dge for PCI 2.2 Bus C with graphics controller, EIDE, USB, 7417 Super I/O chip
Two gigabit 10/100/1000 ethernet ports / Broadcom BCM5703 / t on planar / PCI-X 64-bit 100MHz Bus A / full duplex / Wake on LA 24X-10X6 CD-ROM / IDE; Diskette: 3.5" 1.44MB diskette drive / Rear: one USB (Vers 1.1), C2T in, C2T out, serial (9-pin), two e Front: two USB (Vers 1.1); Graphics: SVGA / ATI® Rage XL / on SC2T Interconnect™ cable (10 inch, 245mm) is standard (Keybo Technology Cable Kit required at end of chain (a cable with sep.	AN® / Alert Standard Format 1.0 / two rear RJ-45 ports dust cover ethernet (RJ-45), one RS-485 (sys mgmt) / no parallel port n planar / 8MB SDRAM std/max / 32-bit 33MHz PCI 2.2 bus ard Video Mouse (KVM) chaining cable) / one Cable Chain
IBM Integrated system management processor (ISMP) / H8 monitoring such as temp, memory, optional disks, fans, powers with 20-pin conn on planar for continuous pwr (no ext pwr req) Light Path Diagnostics™ (LED lights indicate failing compo	supply / support for optional Remote Supervisor Adapter
Power-on password / administrator password /	OPTIONS
unattended boot / selectable boot / unattended start mode ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director™, and others	Xeon 2.8BGHz/512KB L2 Cache Proc Upg 73P6382 2x256MB PC2100 CL2.5 non-Chipkill DIMM 73P2868 512MB PC2100 CL2.5 ECC DDR-SDRAM DIMM 33L5038
Eight fans (five for system, three on power supply) /	1 1GB PC2100 CL2.5 ECC DDR-SDRAM RDIMM 33L5039 2GB PC2100 CL2.5 ECC DDR-SDRAM RDIMM 33L5040
332 watt (-48 to -60 V dc [direct current]) / auto-sensing / supports dual input sources (two power sources) /	36.4GB 15K Ultra320 SCSI Hot-Swap SL HDD 06P5776 Remote Supervisor Adapter 09N7585 ServeRAID™-4Mx Ultra160 SCSI Adapter 06P5736 Cable Chain Technology (C2T) Cable Kit (2 meter
Monitor, keyb., mouse, rack, disk, operating sys, one C2T Kit per chain of servers or NetBAY ACT CAT-5	breakout cable and 2 meter KVM chaining cable) NetBAY ACT Local Console Manager 1735L04
5	1 x Intel® Xeon 2.8BGHz¹ with 533MHz frontside bus / Hype 512KB / on die of processor / at processor speed (no L3 cache) 2-way SMP / up to two Xeon Processors (same speed/cache siz Systemboard contains two Intel 603-pin micro-PGA ZIF sockets, riser for one PCI-X slot, and integrated SCSI, ethernet, graphics 512MB std / 8GB max¹³ / two slots used / two slots available / PC2100 266MHz registered 184-pin ECC DDR-SDRAM DIMMS must be installed in matched pairs [a bank] / 2-way memory intel Error Checking and Correcting (ECC) via 16-bit Checksum C detects 2- through 8-bit errors contained in two chips). Chipkil All (not used on EIDE models): LSI Logic® 53C1020 / Ultra32C d4-bit 100MHz PCI-X Bus B / supports RAID-1 mirroring (Emtone 16-bit internal channel / 16-bit 68-pin LVD cable from syste All: Enhanced IDE ATA-100 controller in CSB5 South Bridge / t EIDE models: One 2-drop EIDE cable to two disk bays / one 15CSI models: none standard / supports up to 15000 rpm disks; SCSI models: two hot-swap / 80-pin SCA-2 connectors / filler p EIA 19" Rack (1U⁴) / rack-mount only / supported in 26" deep reserveWorks® Grand Champion™ 4.0 LE / CMIC LE Host Brid one CIOB-X2 I/O Bridge (IMB2 bus to Host Bridge for PCI-X Bustot 2 and Ultra320 / CSB5 South Bridge (Thin IMB to Host Bris SMBus, LPC bus to Super I/O) / National Semiconductor® PC8 (See below) two available PCI-X 1.0 / no hot-swap Active™ PC Two gigabit 10/100/1000 ethernet ports / Broadcom BCM5703 / on planar / PCI-X 64-bit 100MHz Bus A / full duplex / Wake on L 24X-10X° CD-ROM / IDE; Diskette: 3.5" 1.44MB diskette drive / Rear: one USB (Vers 1.1); Graphics: SVGA / ATI® Rage XL/O CZT Interconnect™ cable (10 inch, 245mm) is standard (Keybo Technology Cable Kit required at end of chain (a cable with sep IBM Integrated system management processor (ISMP) / H8 monitoring such as temp, memory, optional disks, fans, power swith 20-pin conn on planar for continuous pwr (no ext pwr reg) Light Path Diagnostics™ (LED lights indicate failing compotential path of the path of the pat



Slot 1: halfsize, 64-bit 100MHz PCI X 1.0 (3.3v); Bus A Slot 2: fullsize, 64-bit 100MHz PCI X 1.0 (3.3v); Bus B

Bay ① 3.5", UltraSlim 0.5", access, std diskette
Bay ② 5.25", UltraSlim 0.5", access, std CD-ROM
Bay ③ 3.5", SL 1", access, std fixed or he
access, open for fixed access, std fixed or hot-swap disk access, open for fixed or hot-swap disk

Stealth black color front bezel

- Utility tray in front slides out from under middle bay (USB devices)
- → H 1.72" (1U) x W 17.3" x D 25.7"; 43.7mm x 439.9mm x653.3mm
 → 26 to 28.4 lbs; 11.8kg to 12.9kg (minimum to max configuration)

- Configuration/Setup Utility: F1 at startup Diagnostics (PC-Doctor™): F2 at startup System Partition Boot: ALT+F1 at startup
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- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

Maximum internal disk capacity¹³ (model dependent): 293.6GB with two 146.8GB SL SCSI disks or 240GB with two 120GB EIDE disks

LIMITED WARRANTY³

- 3 year parts and labor
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- 3 year IOR 24x7, 4 hr avg response (ServicePac part num 21P2073)
- 3 year IOR 24x7, 2 hr avg response (ServicePac part num 21P2074)
- 4 year IOR 24x7, 4 hr avg response (ServicePac part num 69P9244)
- 5 year IOR 9x5, NBD response
- (ServicePac part num 69P9246)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period3

(X335DC-B) © IBM Corp. January 2004

See footnotes for important warranty information

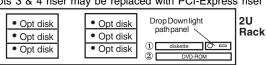
IBM® Type-model Qty	x Processor	L2 cache Memory	Ultra160 SCSI disk	SCSI controller	Mech- anical		Fixed disk bay		Power supply	Complian	Available t date			
	m [®] III 1.26GHz models are designt to support DC p	gned for netwo	ork infrastructui			6x4	2 fixed	Yes	DC powe	r NEBS-3	Apr 2002			
Positioning Processor(s) L2 cache Implementation SMP support	Network Equipm 2 x Intel® Pentic 512KB std and a Motherboard co 2-way SMP via	um® III 1.26ĞH max / ECC / at ntains two Intel second identic	z-S with 133Mh processor spee PGA370 socke al processor is	Iz frontside bu d / processor a ets, six DIMM so standard	is nd L2 cac ockets, two	he in Fl o PCI ri	ip Chip F	Pin Grid	Array (FC	-PGA2)	ystems			
Memory	2GB std / 6GB ¹ Error Checking SDRAM / 133M	and Correctii	ng (ECC) memo	ory controller / r	natched pa	airs req	uired / tw ports reg	vo-way i istered	nterleavin SDRAM E	g / CC DIMM	ls only			
SCSI disk controller SCSI channels SCSI disk SCSI disk bays IDE controller / cable	Adaptec® AHA- SCSI Channel A SCSI Channel E 1 x 36GB Ultra1 Two fixed disk b EIDE ATA-33 co	A: external 16-b B: one internal 60 SCSI, 10K i pays (not hot-sv	oit .8mm VHDCI 16-bit 68-pin LV pm, 4.9ms reac vap) in disk driv	68-pin externa D cable from co I seek, S.M.A.F e carrier that sli	l connecto ontroller to R.T. ⁵ des out fro	or`(no ca o two-ba om fron	ables) ay disk di it	rive carr	ier	1-bit PCI				
Mechanical Rack support PCI bus slots Chipset	Designed for ins (See below) thre PCI 2.2 / peer P ServerWorks® South Bridge) / I CSB5 South Brid Baseboard Mana	EIA 19" Rack (2U⁴) x 20-inch deep Designed for installation in a two-post, 19" rack unit only (not supported in IBM NetBAY™ Racks) / ships with rack mount kit See below) three full height full length 64-bit 33MHz slots / three low-profile half length 64-bit 66MHz PCI slots / PCI 2.2 / peer PCI buses / no hot-swap Active™ PCI slots ServerWorks® III HE-SL chipset / CNB20HE-SL North Bridge for CIOB and PCI A 32-bit 33MHz (graphics, ethernet, South Bridge) / NB6555 Champion I/O Bridge (CIOB20) for PCI Bus B (slots, SCSI) and C (slots) / CSB5 South Bridge for EIDE, USB, LPC bus for Super I/O National Semiconductor PC8741 (diskette, serial, keyboard) and Baseboard Management Controller See diagram below): 4 bays / two disk bays (not hot-swap) / one CD-ROM bay / one diskette bay												
10/100 ethernet CD-ROM / diskette Rear ports	24X-10X ⁶ CD-R Two USB ports (connector for fro Y-splitter cable)	x Intel 82550 / on planar / full duplex / supports Wake on LAN®, PXE 2.0 Boot Agent, Adapter Fault Tolerance Failover 4X-10X® CD-ROM / multisession / IDE interface / bootable; <i>Diskette</i> : 3.5" 1.44MB diskette drive / dust cover wo USB ports (Version 1.1); RJ-45 serial; PS/2 keyboard; two RJ-45 ethernet; DB-15 graphics; 68-pin SCSI; DB-15 male onnector for front panel alarm relay contacts / no parallel port / mouse connects to USB port (or keyboard port with standard												
Security		rower-on password / admin password / unattended boot / selectable boot / boot without keyboard / diskette write protect												
Status LEDs Systems mgmt Diagnostics OS support Software ship group	four alarm panel Operator Inforr Integrated serv processors, tem LED diagnostics Red Hat Linux Resource CD (External alarm panel in front bezel provides 24x7 surveillance of critical, major and minor errors and power outages / four alarm panel LEDs: power alarm fault, critical alarm fault, major alarm fault, minor alarm fault Operator Information Panel (in front) / includes switches (NMI, power, reset) and status LEDs (NIC, disk, main power) Integrated service processor (Baseboard Management Controller) / on planar / failures or thresholds in fans, memory, processors, temperature, voltage, and power supplies activate alarm panel LEDs / LED diagnostics and on-board diagnostics providing an LED map to a failing component Red Hat Linux® 7.1 Resource CD (CD-ROM installation and configuration utilities, Intel Server Control server management software, Product Guide), PC-Doctor™ diagnostics diskette, and IBM Director (on separate CD)												
Keyboard / mouse Power supply	None (since rack Std: two; max: tr 350 watt (-48 to supports dual in redundant / ho	wo / accessible o -60 V dc [dire put sources (to	ect current])/ wo power sourc	es)/	1GB 9 36.4G IBM E IBM 9	SDRAM B 10K 54 (13. leek Tv	1 ECC DI Ultra160 .8" viewa vo-Butto	MM 133 SCSI S ble) FS ⁻ n Mouse	Γ Monitor (e (black)	MM black)	33L3324 33L3326 06P5751 633147N 28L3673			
Fans Prerequisites	Four fans / multi fan failure signa fan in each pow Appropriate de p monitor, keyboa	ispeed / not hot Is front panel al er supply / fan power source a	-swap / not redu arm LED / on each Pentiu and customer su	m III processor ipplied wiring,					board (bla us/access		28L3644			
Slot 1: fullsize, 64-bit 33MHz PCI 2.2 (5V), Bus B Slot 2: fullsize, 64-bit 33MHz PCI 2.2 (5V), Bus B Slot 3: fullsize, 64-bit 33MHz PCI 2.2 (5V), Bus B Slot 3: fullsize, 64-bit 33MHz PCI 2.2 (5V), Bus B Slot 4: low-profile, 64-bit 33MHz PCI 2.2 (3.3v), Bus C Slot 5: low-profile, 64-bit 66MHz PCI 2.2 (3.3v), Bus C Slot 6: low-profile, 64-bit 64-bit 64-bit 64-bit 6								ervice ³ 1 - Fri ays, nse time ⁷ ervice ble excluding e time mber) , se time nber) , se time nber) or warranty						

IBM® Type-model Qty	x Processor	L2 cache Memory	Ultra320 SCSI disk	SCSI controller	Mech- anical	Slots x bays			Power supply	Compliant	Available date
8847-14X 2 x Pentiu 8847-24X 2 x Pentiu		512KB 2GB 1	x 146.8GB 10k	2 x Ultra320	2U rack	6x3	2 HS	Yes D	C powe	er NEBS-3 er NEBS-3 environme	Jul 2004
Positioning Processor(s) L2 cache Implementation SMP support	Network Equipme 2 x Intel® Pentiu 512KB std and ma Motherboard cont subsystems 2-wa	nt Building Syster m® Xeon 2.4GH: ax / ECC / at proc tains two Intel So	m (NEBS) level z with 533MH: essor speed / p ocket 604 INT3	3-compiant for to z frontside buse processor and La //FCPGA, six D	elecomn s 2 cache IMM so	<i>nunicati</i> in Flip C	ions car Chip Pin	rier-gra Grid A	de enviro	onments -PGA2)	
Memory	Up to 2GB std / ships with two 51 matched pairs red	2 GB or 1GB DII	MMs / Error C	hecking and C	orrectin	ng (EC	C) mem	nory cor	/ Four s ntroller /	ockets av	ailable /
SCSI disk controller SCSI channels SCSI disk SCSI disk bays IDE controller / cable	SCSI Channel A: SCSI Channel B: 1 x 73.4GB or 14 Two fixed disk ba	external 16-bit . one internal 16- 16.8GB Ultra320 ays (not hot-swap	8mm VHDCI 6 bit 68-pin LVD SCSI, 10K rpm) in disk drive	8-pin external of cable from con n, 4.9ms read s carrier that slid	connecto troller to eek, S.N es out f	or (no control) or two-ba M.A.R.T rom fro	ables) ay disk :5 nt	drive ca	' arrier		CI
Mechanical Rack support PCI bus slots Chipset Bays	EIA 19" Rack (21 Designed for insta (See below) three PCI 2.2 / peer PCI Intel® E7501 chip South Bridge) / FI ICH3-S South Bri Baseboard Mana (See diagram bel	allation in a two-pe full height full le Cl buses / no hot oset / E7501 MC P64Hz PCI Bus E dge for EIDE, US gement Controlle	ost, 19" rack ur ngth 64-bit 133 -swap Active™ H North Bridge (slots, SCSI) B, LPC bus for	MHz slòts / thre PCI slots e for CIOB and and C (slots) / r Super I/O Nat	e low-p PCI A 6 ional Se	orofile had 64-bit 33 emicond	alf leng 3MHz (th 64-bi	t [′] 66MHz s, etherr	z PCI slots net,	;/
Rear ports	2 x Intel 82546 / c 24X-10X ⁶ CD-RO Two USB ports (V connector for from Y-splitter cable) SVGA / PCI bus /	M / multisession ersion 1.1); RJ-45 t panel alarm rela	/ IDE interface 5 serial; PS/2 ke y contacts / no p	/ bootable eyboard; two RJ parallel port / mo	-45 ethe ouse cor	rnet; D	B-15 gr o USB p	aphics; oort (or l	68-pin S ceyboard	SCSI; DB-1 d port with	5 male standard
Graphics controller SVGA / PCI bus / ATI® Rage XL (on planar) / 8MB SDRAM std/max / 1600x1280 at 16M colors at 85Hz / 15-pin D-shell Security Power-on password / admin password / unattended boot / selectable boot / boot without keyboard											
Status LEDs Systems mgmt Diagnostics OS support	four alarm panel L Operator Informa Integrated servic processors, temp LED diagnostics a Microsoft Window	External alarm panel in front bezel provides 24x7 surveillance of critical, major and minor errors and power outages / four alarm panel LEDs: power alarm fault, critical alarm fault, major alarm fault, minor alarm fault Operator Information Panel (in front) / includes switches (NMI, power, reset) and status LEDs (NIC, disk, main power) Integrated service processor (Baseboard Management Controller) / on planar / failures or thresholds in fans, memory, processors, temperature, voltage, and power supplies activate alarm panel LEDs / LED diagnostics and on-board diagnostics providing an LED map to a failing component Microsoft Windows 2000, Windows 2003 Advanced Server / Red Hat AS 2.1 / SLES Resource CD (CD-ROM installation and configuration utilities, Intel Server Control server management software,									
Keyboard / mouse Power supply	None (since rack- Std: one (14X) or 480 watt (-48 to supports dual inpredundant / hot-s	r two (24X); <i>max</i> - 60 V dc [direc ut sources (two p	t current]) / ower sources) /	ble from rear (IM Mem ecial Bid		73P4126
Fans Prerequisites	Four fans / multisp fan failure signals fan in each power Appropriate DC p monitor, keyboard	front panel alarm supply / fan on e oower source and	LED / ach Pentium III d customer su	processor pplied wiring,							
Slot 2: fullsize, 64	-bit 133MHz PCI-> -bit 133MHz	(5v), Bus B (5v), Bus B (5v), Bus C ((3.3v), Bus C ((3.3v), Bus C ((3.3v), Bus C 2U Rack	⇒ Configurat pressing f ⇒ SCSISele CTRL+A ⇒ PC-Doctol ⇒ Several h ⇒ H 3.45" x ⇒ H 87.6 mr ⇒ 34 to 37 p	ick color (front ion/Setup Utility 2 at startup ct near startup r TM diagnostics ardcopy publica W 17.14" x D 2 n x W 435.3 mr oounds (15.4 to	v invoked by pres on disk ations 0.0" n x D 50 16.8 kg	sing ette 08 mm		3/3 yea Internat On site, coverag next bu 2 year upgrad locatior • 9 hr holid 96P2 • 24 hi 2 hol 96P2 224 x1 ¹⁴ t	r parts a rional Wa 8 am - 5 ge exclus siness don site e option is): coverag ays, 4 h 122 x 7 da ur avera 123 x 7 da ur avera 124 oll-free silional Wall was siness of the silional free silional was siness of the silional was siness of the silional was silional free silional was	y coverage ge respon y coverage ge respon support fo	rvice ³ - Fri ays, se time ⁷ service le excluding e time e, se time r warranty
				Max int disk cap h two 146.8GB		s		issues	uuring ti	he warrant	y perioa*

IBM® Type-GAV-model Qty	L2 y x Processor Cache Memory	SCSI / Disk controller	Form Factor	Slots x bays (hot-swap bays)	Power supply	Available Ethernet date
	Xeon™ 3.0GHz	None 2 x Ultra32:	0 2U ⁴ 0 2U 0 2U 0 2U 0 2U 0 2U 0 2U	4x8 (6 hot-swap) 1) 4x8 (6 hot-swap) 2) 4x8 (6 hot-swap) 1) 4x8 (6 hot-swap) 1) 4x8 (6 hot-swap) 2) 4x8 (6 hot-swap) 1) 4x8 (6 hot-swap) 1)	x 625W hot-swap x 625W hot-swap	2 x Gigabit Mar 200: 2 x Gigabit Mar 200:
Positioning Processor L2 cache SMP support Implementation	A rack-dense 2-way server of 1 x Intel® Xeon™ Processo 64 Technology (EM64T) / 2MB L2 Cache / on die of p 2-way SMP / up to two Xeo Systemboard contains two Ir (100MHz) slots, two full-leng	or 2.8, 3.0, 3.2, 3.4, 3.60 Hyper-Threading technor rocessor / at processor n Processors (same spentel PGA604 micro-PGA	Ghz wit blogy / s speed eed/cac ZIF so	h 800MHz frontside bu Simultaneous multi-t he size) ckets, eight memory D	us / Optimized fo hreaded (SMT)	r Extended Memory w-profile PCI-X
Memory	1GB std / 16GB¹³ max / two DDR2-SDRAM DIMMs / eigh bank] / 2-way memory interle Checking and Correcting (and detects 2- through 8-bit of	slots used / six slots avant DIMM gold-connector eave / dual channel / AcECC) / optional 16-bit C	ailable / slots or ctive Mo Checks	DIMMs / PC2-3200 D n systemboard / DIMM emory™: Memory mirr	DR2 400MHz reg Is must be installer oring, hot-spare n	istered 240-pin ECC of in matched pairs [a nemory / Error
SCSI channels	Adaptec® AIC-7902 / dual supports RAID-0 and 1 with 5, 00, 10, 1E0, 50 (installed of Two 16-bit channels (one in backplane for six disks; Ch VHDCI connector / support Enhanced IDE ATA-100 con None standard / supports 720 Six hot-swap / 80-pin SCA-2	up to one hot-spare of on reserved internal conniternal and one external, annel A: 16-bit 68-pin in its optional ServeRAID a atroller in ICH5 South Bi 00-15000 rpm disks / one	lisk / op nector)) / <i>SCS</i> nterface adapter ridge / o e backpl	otional IBM ServeRAID If Channel B: 16-bit 68 to support external S s with external connector on plantane	TM-7k Adaptor for log- B-pin LVD cable fr SCSI devices via ector(s) for external lar / one 1-drop II	ow-cost RAID 0, 1, 1E om systemboard to external SCSI 0.8mm al devices DE cable (CD-ROM)
Mechanical Chipset	EIA 19" Rack (2U ⁴) / rack-r Intel E7520 / Memory Contr slots 3 & 4) / Intel Dodson ServeRAID 7k Adapter / ICh bus to Super I/O) / LPC-SIO (See below) Four available	oller Hub (MCH) / Intel I/O Proccesor (supports I5 South Bridge (Thin II 0 8742x Super I/O	I/O Cor 100MI MB to F	ntroller Hub 5 (IĊH5) / Hz PCI-X slots 1 & 2, Host Bridge for graphic	Two Intel PCI-X Adaptec AIC-790	Hubs (133MHz PCI-X 2 and optional
Ethernet controller Optical / diskette Front & Rear ports Graphics	Two gigabit 10/100/1000 eth on planar / PCI-X 64-bit 100I 8X-24X ⁶ DVD-ROM / IDE; <i>L</i> Front: one USB (Vers 2.0) (RJ-45), two RJ-45 (sys mgr SVGA / ATI® Radeon™ 7000	ernet ports / Two Broad MHz / full duplex / Wake <i>Diskette:</i> 3.5" 1.44MB dis <i>Rear:</i> two USB (Vers 2.0 nt) / no parallel port	com® 5 on LAN skette d), keybo	721 / two full gigabit et N® / Alert Standard For rive / dust cover pard, mouse, serial (9-	mat 2.0 / two RJ-4-pin), graphics (DE	45 ports in rear 3-15), two ethernet
Security	Power-on password / adminis	strator password / unatte	nded bo	oot / selectable boot se	quence	
Systems mgmt Diagnostics Software	IBM Baseboard Manageme H8S2168 / on planar / provienvironmental monitoring sufans, power supp / supports Adapter II slimline with resecontinuous power (no ext portop down light path diag map to failing part (located o ServerGuide™ (CD-ROM ir utilities), IBM Director syste	des system and ich as temp, optional dis optional Remote Superverved connector for ower reqd) nostics panel providing n front panel) stallation and configura	sks, rvisor LED	Xeon2.8GHz800MHz/2MBL2 Xeon3.0GHz800MHz/2MBL2 Xeon3.2GHz800MHz/2MBL2 Xeon3.4GHz800MHz/2MBL2 Xeon3.6GHz800MHz/2MBL2 Xeon3.6GHz800MHz/2MBL2 512MB(2x256)PC2-3200CL3 1GB(2x512)PC2-3200CL3EC 2GB(2x1GB)PC2-3200CL3EC IBMServeRAID-7kAdapter	ProcUpg ProcUpg ProcUpg ProcUpg ProcUpg ProcUpg ECCDDR2Non-ChpkKit ECDDR2Non-ChpkKit ECDDR2-SDRAM	25R8908 25R8902 25R8903 13N0686 13N0687 13N0689 73P3522 73P3522 73P2866 71P8642
Keyboard / mouse Power supply Fans	None standard (because rac Std/Max: one/two 625 watt he restart / redundant with two p Calibrated Vectored Coolin (six fans with optional second with twelve fans installed; All: PFA	ck-based) ot-swap / rear access / a ower supplies / auto-ser g™ <i>Std:</i> six fans; <i>Max:</i> t d power supply) / redund variable speed / hot-swa	nsing twelve lant	IBM Remote Supervisor Adapte 73.4GB 10K Ultra320 SCSI Hot 146.8GB 10K Ultra320 SCSI Hot 625W (N. America) Hot-Swap F NetBAY Local Console Manage NetBAY Remote Console Mana Other options at ibm.com/pc/us/	-Swap SL HDD ot-Swap SL HDD Power Supply or ger /accessories	73P9341 90P1305 90P1306 26K5097 1735L04 1735R16
Slot 2: low-profile, 6 Slot 3: full, 64-bit 13 Slot 4: full, 64-bit 13 *slots 3 & 4 riser n Opt disk Opt disk Opt disk Opt disk Opt disk Slots 3.5", 0.5", Bay @ 3.5", SL 1", Bay ® 3.5", SL 1", Bay ® 3.5", SL 1",	, access, hot-swap, open for pport six SL disks; or 1 DDS5 T and PCI SCSI adaptor req)	hot, Bus Ac Quick releation, Bus B* Configuration, Bus B* Diagnostic ap, Bus B* System Pauress riser Network Bus B* Front indic SCSI bus identification system-err Predictive memory, pr	ion/Settles (PC-Dirition) s (PC-Dirition B) oot: F1: ators Li activity on LED, oor LED failure a rocesso nd fans n alert the nent con .36" x V x W 4 pounds ck color Max in	ip Utility: F1 at startup octor™): F2 at startup octor™): F2 at startup 2 at startup EDs: Power-on LED, LED, system information LED, and on analysis on disk option rs, VRMs, power in conjunction with IBM he system administrato ponent failure W 17.5" x D 27.5" 43.6mm x D 698mm)	⇒ 3 year parts a ⇒ International ⇒ On site, 8 am coverage exc business day ⇒ 3 year on site upgrade opti locations): • 9 hr covera holidays, 4 (ServicePac • 24 hr x 7 da 4 hour aver (ServicePac • 24 hr x 7 da 2 hour aver (ServicePac • 24 hr x 7 da 2 hour aver (ServicePac • 24x7¹⁴ toll-fre ≥ 24x7¹⁴ toll-fre	and labor Warranty Service ³ 1 - 5 pm, Mon - Fri cluding holidays, next y response time ⁷ warranty service ons (in eligible age, Mon-Fri excluding hr response time 21P2077) ay coverage, rage response time 21P2078) ay coverage, rage response time 21P2093) ePac options at

All Optimized for Extended Memory 64 Technology (EM64T) / Hyper-Threading / Simultaneous multi-threaded 2MB L2 Cache std on Single Core / 2x2MB L2 Cache std on Dual Core / on die of processor / at processor speed 2MB v year on the processor speed 2MB L2 Cache std on Single Core / 2x2MB L2 Cache std on Dual Core / on die of processor / at processor speed 2MB v year on processor speed 2x40 year of the processor speed 2x40 year of the processor speed 3x40 year of yea	IBM [®] Type-GAV-model G	ty x Processor/Core	L2 Cache Memory Dis	SCSI k controller	Form Factor	Slots x bays (hot-swap bays)	Power supply	Ethernet	Available date			
Processor Intel® Xson® Processor up to 3.8GHz Single Core 800MHz FSB / Xson Processor 2.8GHz Dual Core 2 000MHz FSB / Xson Processor 2.8GHz Dual Core 3 0 Minutaneous multi-threaded 20 MB L2 Cache std on Single Core / 2x2MB L2 Cache std on Dual Core / on die of processor / at processor speed 2 way SMB / up to two Xeon Processors (stame speed/cache std)	8840-E3ý-E3U 1 x 8840-E4y-E4U 1 x 8840-55y-55U 1 x 8840-D1y-D1U 1 x	Xeon 2.8GHz/SC Xeon 3.4GHz/SC Xeon 3.8GHz/SC Xeon 2.8GHz/DC	2MB 1GB Nor 2MB 1GB Nor 2MB 1GB Nor 2x2MB 2GB Nor	e 2 x Ultra320 e 2 x Ultra320 e 2 x Ultra320 e 2 x Ultra320	2U 2U 2U 2U 2U	4x8 (6 hot-swap) 4x8 (6 hot-swap) 4x8 (6 hot-swap) 4x8 (6 hot-swap)) 1 x 625W hot-swap) 2 x 625W hot-swap) 1 x 625W hot-swap) 1 x 625W hot-swap	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	Sep 2005 Sep 2005 Sep 2005 Oct 2005			
Active Processing P	Processor L2 cache SMP support	Processor Intel® Xeon™ Processor up to 3.8GHz Single Core 800MHz FSB / Xeon Processor 2.8GHz Dual Core 800MHz FSB / All Optimized for Extended Memory 64 Technology (EM64T) / Hyper-Threading / Simultaneous multi-threaded 2MB L2 Cache std on Single Core / 2x2MB L2 Cache std on Dual Core / on die of processor / at processor speed 2-way SMP / up to two Xeon Processors (same speed/cache size) Systemboard contains two Intel PGA604 micro-PGA ZIF sockets, eight memory DIMM slots, two low-profile PCI-X										
supports RAID-0 and 1 with up to one hot-spare disk / optional IBM ServeRAID**. Adaptor for low-cost RAID 0, 1, 1E 5, 50, 10, 1E, 50, 50 (installed on reserved internal connector) Two 16-bit channels (one internal and one external) / SCSI channel B: 16-bit 68-pin ILVD cable from systemboard to backplane for six disks: Channel A: 16-bit 68-pin ILVD cable from systemboard to backplane for six disks: Channel A: 16-bit 68-pin ILVD cable from systemboard to backplane for six disks: Channel A: 16-bit 68-pin Interface to support external SCSI devices via external SCSI 0.8mm VHDC1 connector / supports optional ServeRAID adapters with external connectors) for external devices [Disk - bays on the support of the	Memory 1GB or 2GB std / 16GB¹³ max / two slots used / six slots available / DIMMs / PC2-3200 DDR2 400MHz registered 240- pin ECC DDR2-SDRAM DIMMs / eight DIMM gold-connector slots on systemboard / DIMMs must be installed in matched pairs [a bank] / 2-way memory interleave / dual channel / Active Memory™: Memory mirroring, hot-spare memory / Error Checking and Correcting (ECC) / optional 16-bit Checksum Chipkill™ corrects 1, 2, 3, or 4-bit errors on same chip											
Chipset Intel E7520 / Memóry Controller Hub (MCH) / Intel I/O Controller Hub 5 (ICH5) / Two Intel PCI-X Hubs (133MHz PCI-X slots 3 & 4) / Intel Dodson I/O Proccesor (supports 100MHz PCI-X slots 1 & 2, Adapter AIC-7902 and optional ServeRAID 7k Adapter / ICH5 South Bridge (Thin IMB to Host Bridge for graphics controller, EIDE, USB, SMBus, LPC bus to Super I/O) / LPC-SIO 8742x Super I/O Bus slots Ethernet controller Optical / diskette Ethernet controller Optical / diskette Front & Rear ports Graphics Security Power-on password / Baseboard Management Controller (BMC) / H8S2168 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports optional Remote Supervisor Adapter II slimline with reservered connector for continuous power (no ext power reqd) Diagnostics Bim Baseboard Management Controller (BMC) / H8S2168 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports optional Remote Supervisor Adapter II slimline with reservered connector for continuous power (no ext power reqd) Diagnostics Diagnostics Software Intel E7520 / Memóry Controller (BMC) / H2F2 / H2	SCSI channels IDE controller/cable Disk - capacity	supports RAID-0 and 1 with up to one hot-spare disk / optional IBM ServeRAID™-7k Adaptor for low-cost RAID 0, 1, 1E, 5, 00, 10, 1E0, 50 (installed on reserved internal connector) Two 16-bit channels (one internal and one external) / SCSI Channel B: 16-bit 68-pin LVD cable from systemboard to backplane for six disks; Channel A: 16-bit 68-pin interface to support external SCSI devices via external SCSI 0.8mm VHDCI connector / supports optional ServeRAID adapters with external connector(s) for external devices e Enhanced IDE ATA-100 controller in ICH5 South Bridge / one connector on planar / one 1-drop IDE cable (CD-ROM) None standard / supports 7200-15000 rpm disks / one backplane										
on plănar / PCI-X 64-bit 100MHz / full duplex / Wake on LAN® / Alert Standard Format 2.0 / two RJ-45 ports in rear 8X-24X® DVD-ROM / IDE; Diskette: 3.5" 1.44MB diskette drive / dust cover Front: one USB (Vers 2.0) Rear.two USB (Vers 2.0), keyboard, mouse, serial (9-pin), graphics (DB-15), two ethernet (RJ-45), two RJ-45 (sys mgmt) / no parallel port SVGA / ATI® Radeon™ 7000m / on planar / 16MB DDR SDRAM std/max / 32-bit 33MHz PCI 2.2 bus Security Power-on password / administrator password / unattended boot / selectable boot sequence Systems mgmt IBM Baseboard Management Controller (BMC) / H8S2168 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports optional Remote Supervisor Adapter II slimline with reseverved connector for continuous power (no ext power reqd) Diagnostics Diagnostics Diagnostics Diagnostics ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director systems mgmt, others Keyboard / mouse Power supply Fans Keyboard / mouse Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites Prerequisites On planar / PCI-X 44MB diskette drive / dust cover / dust c	Chipset	et Intel E7520 / Memóry Controller Hub (MCH) / Intel I/O Controller Hub 5 (ICH5) / Two Intel PCI-X Hubs (133MHz PCI-X slots 3 & 4) / Intel Dodson I/O Procesor (supports 100MHz PCI-X slots 1 & 2, Adaptec AIC-7902 and optional ServeRAID 7k Adapter / ICH5 South Bridge (Thin IMB to Host Bridge for graphics controller, EIDE, USB, SMBus, LPC bus to Super I/O) / LPC-SIO 8742x Super I/O										
Systems mgmt IBM Baseboard Management Controller (BMC) / H8S2168 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports optional Remote Supervisor Adapter II slimline with reseverved connector for continuous power (no ext power reqd) Diagnostics Drop down light path diagnostics panel providing LED map to failing part (located on front panel)	Optical / diskette Front & Rear ports	on planar / PCI-X (8X-24X ⁶ DVD-ROM Front: one USB ((RJ-45), two RJ-45	64-bit 100MHz / ful // / IDE; <i>Diskette:</i> /ers 2.0) <i>Rear:</i> two ն (sys mgmt) / no լ	duplex / Wake 3.5" 1.44MB dis USB (Vers 2.0) parallel port	on LAI kette d , keyb	N® / Alert Standard Irive / dust cover oard, mouse, seria	d Format 2.0 / two RJ al (9-pin), graphics (D	-45 portš in r B-15), two e	ear			
H8S2168 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports optional Remote Supervisor Adapter II slimline with reseverved connector for continuous power (no ext power reqd) Diagnostics Diagnostics Drop down light path diagnostics panel providing LED map to failing part (located on front panel) ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director systems mgmt, others Keyboard / mouse Power supply Keyboard / mouse Power supply Fans H8S2168 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power suppl supports optional Remote Supervisor Adapter II slim in the located on front panel providing LED map to failing part (located on front panel) ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director systems mgmt, others Keyboard / mouse Power supply Keyboard / mouse Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites H8S2168 / on planar / provides system and was temp, optional disks, fans, environmental monitoring such as temp, optional disks, fans, environmental monitoring such as temp, optional disks, fans, power supply 40K2502 Xeon 3.2GHz SC 800MHz/2MB L2 Proc Upg 40K2507 Xeon 3.6GHz SC 800MHz/2MB L2 Proc Upg 40K2507 Xeon 3.6	Security	Power-on passwor	d / administrator pa	ssword / unatter	nded b	oot / selectable bo	ot sequence					
Diagnostics Drop down light path diagnostics panel providing LED map to failing part (located on front panel) ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director systems mgmt, others Keyboard / mouse Power supply Keyboard / mouse Power supply Fans Drop down light path diagnostics panel providing LED map to failing part (located on front panel) ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director systems mgmt, others Xeon 3.8GHz SC 800MHz/2MB L2 Proc Upg 40K2508 12 MED 23200 CL3 ECC DDR2 Non-Chpk Kit 73P3523 12 ME(2x256)PC2-3200 CL3 ECC DDR2 Non-Chpk Kit 73P3523 12 ME(2x256)PC2-3200 CL3 ECC DDR2-SDRAM 12 MED 24 MED 14 MED 15 MED 1	Systems mgmt	H8S2168 / on plar environmental mor fans, power supp Adapter II slimline	nar / provides systemitoring such as te / supports optiona with reseverved of	em and` mp, optional dis Remote Super onnector for		Xeon 2.8GHz DC Xeon 3.0GHz SC Xeon 3.2GHz SC Xeon 3.4GHz SC	800MHz/4MB L2 Proc 800MHz/2MB L2 Proc 800MHz/2MB L2 Proc 800MHz/2MB L2 Proc	Upg Upg Upg Upg Upg	40K2503 40K2502 40K2504 40K2505 40K2506			
ServerGuide™ (CĎ-ROM installation and configuration utilities), IBM Director systems mgmt, others Keyboard / mouse Power supply Fans ServerGuide™ (CĎ-ROM installation and configuration utilities), IBM Director systems mgmt, others None standard (because rack-based) Std/Max: one/two 625 watt hot-swap / rear access / autorestart / redundant with two power supplies / auto-sensing Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites None standard (because rack-based) Std/Max: one/two 625 watt hot-swap / rear access / autorestart / redundant with two power supplies / auto-sensing Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites None standard (because rack-based) Selfex12PC2-3200 CL3 ECC DDR2 Non-Chpk Kit 2GB(2x1GB)PC2-3200 CL3 ECC DDR2-SDRAM 39M5803 39M5816 4GB(2x2GB)PC2-3200 CL3 ECC DDR2-SDRAM 4GB(2x2GB)PC2-3200 CL3 ECC DDR2-SDRAM 39M5803 39M5816 4GB(2x3GB)PC2-3200 CL3 ECC DDR2-SDRAM 4GB(2x2GB)PC2-3200 CL3 ECC DDR2-SDRAM 4GB(2x3GB)PC2-3200 CL3 ECC DDR2-SDRAM 39M5803 39M5816 4GB(2x512)PC2-3200 CL3 ECC DDR2-SDRAM 4GB(2x2GB)PC2-3200 CL3 ECC DDR2-SDRAM 4	Diagnostics	Drop down light	path diagnostics	panel providing	LED	Xeon 3.8GHz SC	800MHz/2MB L2 Proc	Upg	40K2508			
Power supply Std/Max: one/two 625 watt hot-swap / rear access / autorestart / redundant with two power supplies / auto-sensing Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites World Statandard Vectored Cooling™ Std: six fans access / autorestart / redundant with two power supplies / auto-sensing Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites World Max: one/two 625 watt hot-swap / rear access / autorestart / redundant with two power supplies / auto-sensing IBM Remote Supervisor Adapter II Slim 73.4GB 10K Ultra320 SCSI Hot-Swap SL HDD 40K1023 40K102	Software	ServerGuide™ (C	D-ROM installation	n and configura	tion	1GB(2x512)PC2-32 2GB(2x1GB)PC2-33	200 CL3 ECC DDR2 N 3200 CL3 ECC DDR2-	lon-Chpk Kit SDRAM	39M5818 39M5809			
Fans Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA Prerequisites Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / NetBAY Local Console Manager NetBAY Remote Console Manager 1735L04		Std/Max: one/two 6	625 watt hot-swap /	rear access / a		IBM ServeRAID-74 IBM Remote Super	Adapter visor Adapter II Slim		39M5815 71P8642 73P9341			
		Calibrated Vectors (six fans with option with twelve fans ins PFA	ed Cooling™ Std: nal second power s stalled;All: variable s	six fans; <i>Max:</i> tv supply) / redunda speed / hot-swap	welve ant	73.4GB 10K Ultra320 SCSI Hot-Swap SL HDD						
	Prerequisites	Monitor, keyboard,	mouse, SCSI disk	rack				ries	1/35H16			

Slot 1: low-profile, 64-bit 100MHz 3.3v PCI-X, non hot, Bus A Slot 2: low-profile, 64-bit 100MHz 3.3v PCI-X non hot, Bus A Slot 3: full, 64-bit 133MHz 3.3v PCI-X, not hot-swap, Bus B* Slot 4: full, 64-bit 133MHz 3.3v PCI-X, not hot-swap, Bus B* *slots 3 & 4 riser may be replaced with PCI-Express riser



Bay ① 3.5", 0.5", Bay ② 5.25", 0.5" access, slim diskette access, slim DVD-ROM 0.5", Bay ② 5.25", Bay ③ 3.5", Bay ④ 3.5", Bay ⑤ 3.5", Bay ⑥ 3.5", Bay ⑧ 3.5", SL 1" access, hot-swap, open for disk SL 1", SL 1", SL 1", SL 1", SL 1", access, hot-swap, open for disk
Bay ® 3.5", SL 1", access, hot-swap, open for disk Bays 3 through 8 support six SL disks; or 1 DDS5 Tape drive (2 slots used, additional PCI SCSI adaptor req)via SCA-2 connectors

Quick release adapter slots (no screws)

- Configuration/Setup Utility: F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- Front indicators LEDs: Power-on LED, SCSI bus activity LED, system identification LED, information LED, and system-error LED
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with IBM Director can alert the system administrator
- of an imminent component failure

 ⇒ Rack: H 3.36" x W 17.5" x D 27.5" (H 85.4mm x W 443.6mm x D 698mm)
- ⇒ 46.5 to 62 pounds

All models: Max int disk capacity: 1.8TB² with six 300GB SL disks

LIMITED WARRANTY³

- 3 year parts and labor International Warranty Service³ On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time⁷ 3 year on site warranty service upgrade options (in eligible Incati
- - upgrade options (in eligible locations):7

 9 hr coverage, Mon-Fri excluding holidays, 4 hr response time (ServicePace*21P2077)

 24 hr x 7 day coverage, 4 hour average response time (ServicePac21P2078)

 24 hr x 7 day coverage, 2 hour average response time (ServicePac21P2093)

 Other ServicePac options at http://www.ibm.com/services/us/its/t/
- Other Service Pac options at http://www.ibm.com/services/us/its/pdf/ wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

ibivi @server *** 2	x Series ····	300 (0	Julie 2003	")		х	REF by	eServer	Field Skills E	nabiem	lent Team
IBM®		L3			scsi	Mechan-		RXE	Hot-swap		Available
Type-model Qty x P 8686-1RQ 1 x Xeon ³ <8686-1SQ 2 x Xeon <8686-1TQ 2 x Xeon 8686-2RQ 2 x Xeon 8686-3RQ 2 x Xeon	MP 2.0GHz MP 2.0GHz MP 2.5GHz	1MB 1 1MB 3 1MB 2	Memory 1GB Chipkill™ 1GB Chipkill 3GB Chipkill 2 2GB Chipkill 2GB Chipkill	None None x 36.4GB 10 None None	Ultra160 Ultra160 OKUltra160 Ultra160 Ultra160 Ultra160	3U rack 3U rack 3U rack		One One One One	pwr supplies One (not redu Two redundan Two redundan Two redundan Two redundan Two redundan	t PCI t PCI t PCI	Jun 2003 Nov 2003 Nov 2003 Jun 2003
Processors L2 cache L3 cache Processor upgrade Implementation	512KB / on d 1MB or 2MB 4-way SMP / Systemboard	die of proc / on die o / up to fou d contains	Processor MI cessor / at process of processor / at r Xeon Process of four Intel 603-pathernet, graphic	essor speed t processor s sors MP (san pin micro-PC	speed ne speed/ca	che size)			,,	Ü	0,
Memory	1.7-inch tall pairs / 128-b Error Check	/ one mer oit simulta king and	B max ^{12,13} / two mory board sta neous transfer Correcting (E nrough 8-bit err	andard with 8 r from two DECC) via 16-	8 DIMM gold IMMs / PC -bit Checks	d-connect 1600 200 um Chip	or slots / MHz reg	DIMMs istered	must be insta 184-pin DDR-S	lled in n SDRAM	natched RDIMMs /
SCSI disk controller SCSI connectors SCSI cabling IDE controller / cabling Disk - capacity Disk - bays	Controller ha One standard SCSI RAID a Enhanced ID None standa	ard-wired t d 16-bit L\ adapter 68 DE ATA-33 ard / suppo	Wide Ultra160 Sto SCSI backpla VD cable includ B-pin connector 3 controller in O orts up to 15,000 converged tray	ane (no cable led for attach on systembo SB4 South E O rpm disks	e) / no exterr ning an option oard for this Bridge	nal ŠCSI c nal Servel cable to g	onnector RAID ada	ipter to t	he three-bay ba	ackplane	
Mechanical	EIA 19" rack	models	(3U ⁴) x 28" dee	p / supporte	d in NetBAY	™ Racks	(such as	NetBAY	42 SR, NetBAY	42 ER)	
Chipset Slots (Active™ PCI-X) RXE Expansion Port	(one to IBM F PCI-X 1.0, on ServerWorks Six hot-swap hot replace,	PCI-X Hos ne PCI 2.2 s® OSB4 S PCI-X 1.0 hot upgr	/ IBM Memory I/ st Bridge; one to st) / PCI 2.2 Bus (South Bridge (ID) slots 10 available ade, hot expar up to 12 addition	RXE Expan 0 supports S DE, USB, ISA le with power nsion /sepa	sion Port) / II CSI, graphic bus for Supe r and attentic rated by insu	BM PCI-X s, etherne er I/O NS F en indicato ulative pla	Host Brid t, adapte C97317 r lights (o stic divide	dge prov r slot witl VUL [dis ptical se ers	ides three peer h Remote Supe kette, keyboard ensors control p	PCI bus rvisor A I, mouse ower to	ses (two dapter, and e]) slot) /
CD-ROM / diskette Ethernet Graphics controller Ports	24X-10X ⁶ CE Intel 82559 1 SVGA / S3 [®] Rear: RXE-10	D-ROM / 3 0/100 eth Savage4 00 Expans	3.5" 1.44MB disl nernet controller LT / on systeml sion Port (to con rd, mouse, anal	kette drive r / on system board / 8MB nnect optiona	nboard / full o SDRAM std al RXE-100),	luplex / 32 /max / up RXE Man	2-bit PCI to 1280x agement	/ Wake 1024 at Port (to	on LAN® / Alert 64K colors at 8 manage options	on LAN 5Hz al RXE-1	™ 2 100), two
Security	Power-on an	d adminis	trator password	ds / unattend	led boot / sel	ectable bo	oot				
Systems management Diagnostics	console and i	mgmt / po	dapter / PCI ad wer on/off syste cs™ / primary ir	em / monitors	s power statu	s, op syste	em, temp	erature,	disks, fans, pov	wer supp	olies
Software	available eve	en while se e™ (CD-R	OM installation	•	,	512MB 1GB P	PC1600 C1600 E	ECĊ D CC DDF	sion Enclosure DR SDRAM RI R SDRAM RDIN R SDRAM RDIN	ΛM	86841RX 33L3283 33L3285 33L3287
Keyboard / mouse Power supplies Cooling fans	Std: one or two redundant will worldwide / v fans in each	wo 370 wa ith two pov oltage-se power sup	se rack-based) att hot-swap; <i>Mi</i> wer supplies (so nsing / auto-res pply / PFA ant, multi-speed	lax: three hot ome configui start /	:-swap / rations) /	Xeon M Xeon M Xeon M 370 wa IBM Se	IP 2.0GH IP 2.5GH IP 2.8GH tt Hot-Sw rveRAID	dz/1MB dz/1MB dz/2MB ap Redu ™-4Mx U	L3 Cache Prod L3 Cache Prod L3 Cache Prod Indant Power S Ultra 160 SCSI A 50 SCSI Hot-Sw	Upg Upg Upg upply dapter	73P8805 73P8806 73P8807 31P6108 06P5736 06P5756
Six available 3.3 volt	one additiona fan failure sig Active PCI-X slo	al fan in ea gnals Diag ots:	ach power supp gnostic LED and	oly / PFA /	essor	IBM Ne IBM Into IBM T5	tBAY42 \$ egrated x 41 15" Fla	Standard Series A at Panel	d Rack (SR) Adapter for iSeri Color Monitor (n/pc/us/access	es black)	9306420 1519100 9512AB1
Bus 2 (B) with two sl one fullsize, 64-l or two fullsize, 64-l or two fullsize, 64-l or two fullsize, 64-l or two fullsize, 64-l bus 1 (A) with four s four fullsize, 64-l four fullsize, 64-l	bit, 133MHz PC bit, 100MHz PC bit, 66MHz PC bit, 66MHz PC bit, 33MHz PC lots supports (s	CI-X, hot-so CI-X, hot-so CI-X, hot-so CI, hot-so CI, hot-so Slots 3, 4, 5	wap wap wap wap wap wap wap 5, 6): Dimer Weigh Weigh Stealtl	nsions: H5.2 nsions: H133 nt: 58.4 to 70I h black color ree serviceat s adapters, p mboard from	3.4mm x W44 lbs; 24.9 to 3 pility processors, r	12.0mm x 1.8kg		⇒ 3 ye ⇒ Inte ⇒ On s	LIMITED Waser parts and la rnational Warrs site, 8 am - 5 po verage excludi t business day	abor anty Ser m, Mon ing holid	rvice³ - Fri days,

- four fullsize, 64-bit, 66MHz PCI-X, hot-swap or two fullsize, 64-bit, 66MHz PCI, hot-swap or four fullsize, 64-bit, 33MHz PCI, hot-swap

- Bus 0 with one slot supports:
- only for standard Remote Supervisor Adapter halfsize, 64-bit, 33MHz PCI, not hot-swap

	014	Std	0	diskette CD-ROM
ı	Std Power	or opt Power	Opt Power	• Disk ③
ı	Supply	Supply	Supply	• Disk 4
ı	Ľ	lacktriangle	•	 Opt disk

3U Rack

Bay ① 3.5", 0.5", access, diskette Bay ② 3.5", 0.5", access, CD-ROM Bay ③ 3.5", SL 1", access, hot-swap Bay ④ 3.5", SL 1", access, hot-swap Bay ⑤ 3.5", SL 1", access, hot-swap

- Access power supplies and disks from front

- Access power supplies and disks in firm on the Setup Program by pressing F1 at startup
 Diagnostics (PC-Doctor) by pressing F2 at startup
 SCSISelect by pressing Ctrl+A at startup
 Top cover Light Path Diagnostics (level 2 diagnostic panel) for outside view of potential
- problem without removing cover

 □ Information LED panel, diagnostic LED panel,
- and component LEDs give visual indications of system well-being Predictive Failure Analysis® alerts on disks, power supplies, memory, processors, VRMs, and fans with IBM Director

All models: Maximum internal disk capacity:

- next business day response time7
- On site service upgrade options (in eligible locations):7
 - 3 year IOR 24x7, 4 hr avg response (ServicePac® part num 96P2253)
 3 year IOR 24x7, 2 hr avg response
 - (ServicePac part num 96P2254) • 4 year IOR 9x5, NBD response
 - (ServicePac part num 96P2255) 5 year IOR 9x5, NBD response
- (ServicePac part num 96P2259) Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

220.2GB with three 73.4GB2 hot-swap SCSI disks

sw @server™	xSeries™ 36	o (IVOV	/embe	er 20	ບບອງ			XHEF D	y eSer	ver Field Skills	and Educa	ition Team
IBM® Type-model Qty	x Processor	L2 cache	Memory	DIMN		SCS		Mechanical	Slots >	Hot-swap	Warrant (yrs.)	y Available date
8863-1RY 1 x Xeon 8863-2RY 1 x Xeon 8863-3RY 1 x Xeon 8863-4RY 1 x Xeon 8863-E1Y 2 x Xeon 8863-E5Y 2 x Xeon 8863-E6Y 2 x Xeon 8863-E7Y 4 x Xeon	TMMP 3.16GHz MP 3.66GHz MP 7020 2.67GH: MP 7040 3.0GHz MP 3.66GHz MP 3.66GHz MP 3.16GHz	1MB 1MB	2x1GB 2x1GB 2x1GB	4 4 4 4 8 4 4	None None None None	SAS SAS SAS -10k SA SAS SAS	S w/ 8	3U ⁴ rack 3U rack 3U rack 3U rack i 3U rack 3U rack 3U rack 3U rack	6x7 6x7 6x7 6x7 6x7 6x7 6x7 6x7	1 x 1300 1 x 1300 1 x 1300 1 x 1300 2 x 1300 2 x 1300 2 x 1300 2 x 1300 2 x 1300	3 3 3 3 3 3 3 3 3	Apr 2005 Apr 2005 Nov 2005 Nov 2005 Jun 2005 Aug 2005 Sep 2005 Sep 2005
Processors	Up to two 64-bit MP up to 3.0GHz	Intel® Xeo	n™ Proce	essor	MP up	to 3.66G	Hz¹ 66	7MHz FSB	Single	Core / one 64-bit	Intel Xeon	Processor
L2 cache Processor upgrade Implementation	1 or 2 MB / per co 4-way SMP / up to System board con integrated SCSI, e	ore / at pro o four Xeo tains four	ocessor sp In Process Intel 604-r	eed / sors N oin m	XceL4 IP (sam icro-PG/	v™ Dynan e speed/o \4 ZIF so	nic Sen ache si ckets, c	ver Cache ize) / Dual C one memory	ore Cap board	pable slot, six Active™ P	CI-X 2.0 slo	ts, and
Active Memory™	Up to 4GB std / 64 DIMMs must be in and Correcting (E steering) and Men Server 2003 TM	4GB max stalled in r ECC) via 1 nory Mirro	using high matched p 16-bit Che oring™ an	n-capa pairs / e cks u nd Ho	acity me PC2-32 I m Chip t-swap (mory card 00 400Mi kill ™ / Wi non-OS s	/ one i -lz regis th 16 E pecific)	memory boa stered 240-p DIMMs instal / Hot-add (ird stand in DDR lled: Me support	dard with 4 DIMM 2-SDRAM RDIMM emory ProteXion™ ed only with Micro	gold-connects / Error Cl f (redundant soft® Window	etor slots / necking t bit ws TM
SCSI disk controller SCSI connectors SCSI cabling IDE controller / cablin Disk - capacity Disk - bays	ALL: Adaptec® All Controller wired to One standard SAS g Enhanced IDE AT E1x: 3 x 36.4GB-1 Six 2.5" hot-swap	SAS back cable att A-33 contr 0k / suppo	oplane ached to soller in CS orts up to	six-ba B6 S 73GE	y backp outh Bri 3 10K rp	lane dge m disks	`	GB/sec) / 64	-bit 266	MHz PCI-X 2.0 <i>E1</i>	X: ServeRa	aid 8i
Mechanical Chipset	EIA 19" rack mod IBM XA-64e™ 3rd Bridges / Host Brid NS 87417 [diskette 2.0 slots	lels (3U ⁴) Generati Ige One si e, keyboar	x 28" dee on chipse upports vid d, mouse]	p / su et / In deo, d), Dua	ipported itegrated optional al Port B	in NetBA I Processo ServeRaio roadcom	Y™ Rac or and I d 8i, Se 5704, a	cks (such as Memory Cor rverWorks® and 2 PCI-X	NetBA ntroller / CSB6 S (2.0 slo	Y42 SR, NetBAY4 Supports EM64T South Bridge (IDE, ots / Host Bridge To	2 ER) / 2 IBM PC USB, bus fo wo supports	-X 2.0 Hos or Super I/C 4 PCI-X
Slots (Active™) CD-ROM / diskette Ethernet Graphics controller Ports	Six total PCI-X 2.0 upgrade, hot expai 8X° Slim DVD-ROI Broadcom® 5704 1 SVGA / ATI® 7000 Rear: RSA etherne Front: USB (Ver 2.	nsion / sep M / none 0/100/100 m / on pla et. RSA se	parated by 00 dual eth .nar / 16Ml	r insu nernet B SDI	lative pla t / on sys RAM sto	astic divide stemboard I/max / 32	ers, all s d / 64-bi -bit 33N	slots suppor it 266Mhz P JHz PCI 2.2	ted up t CI-X 2.0 bus	o 266MHz) / Wake on LAN®,	Alert on LA	.N™ 2
Security	Power-on and adn	ninistrator	passwords	s / un	attende	d boot / se	electable	e boot				
Systems managemen	nt Remote Supervis remote console an	or Adapte d mgmt /	er II Slimlir power on/	ne (op off sy	otion) / F vstem / r	PCI adapte monitors p	er / inclu ower s	udes 10/100 tatus, op sys	etherne stem, te	et, RJ-11, and seria emperature, disks,	al connector fans, power	s / provides supplies
Diagnostics Software	Drop down Light IBM Real Time Dia ServerGuide™ (C	agnostics ((operated)	throu	ah IBM	Director) a	available	e even while	h LEDs server	associated with fa running	illing compo	nents /
Keyboard / mouse Power supplies	None standard (be Std: one or two 13 redundant with two worldwide / voltage	power su	upplies (so	me c	onfigura	wap / tions) /		4GB PC2-32 8GB PC2-32 Active Memo	00 CL3 E 00 CL3 E orv 4-slot	ECC RDIMM (2x1GB ECC RDIMM (2x2GB) ECC RDIMM (2x4GB Expansion Card MB L2 Cache Proc L)	73P2866 73P2867 30R5145 13M7409 13N0694
Cooling fans	Eight hot-swap, recone additional fan i fan failure signals l	n each po	wer süpply	y / PF	A /	ssor		Xeon MP 3.6 Xeon MP 704 Xeon MP 704 1300 watt Ho	6GHz/11 20 2.67G 40 3.0GH t-Swap I	MB L2 Cache Proc L BHz/2x1MB L2 Cach Hz/2x2MB L2 Cache Power Supply (WW) SAS-SCSI Adapter	lpg e Proc Upg	13N0695 25R8941 25R8942 13M7413 13N2227
Slot 2 - fullsize, 64- Slot 3 - fullsize, 64-	-bit, 266MHzPCI-X, -bit, 266MHzPCI-X, -bit, 266MHzPCI-X,	hot-swap))					IBM ServeRA IBM 36.4GB IBM 73.4GB IBM Remote Dual Core X3	AID 6M L 10K 2.5' 10K 2.5" Supervi 3 upgrad	J320 256MB Adapter SAS Hot-swap HDI SAS Hot-Swap HDI sor Adapter II Slimlir le kit (available 12/0! com/pc/us/accesso)) ne 5)	02R0988 26K5654 26K5655 73P9341 39Y6580
Slot 4 - fullsize, 64- Slot 5 - fullsize, 64- Slot 6 - fullsize, 64- *exclusive slot availa	bit, 266MHzPCI-X, bit, 266MHzPCI-X,	hot-swap	Dime Dime Dime Dime Dime Dime Dime Dime	ensio ght: 6 lth bl	ns: H13	bs; 28.6 r	W442.	.0mm x D70	<i>=</i>	LIMITED 3 year parts an International W On site, 8 am	arranty Se	rvice ³

Opt disk Opt disk Opt disk Opt disk Opt disk Opt disk

3U Rack

Bay ① 5.25", 0.5", Bay ② 2.5", SL 1", Bay ③ 2.5", SL 1", Bay ④ 2.5", SL 1", Bay ⑤ 2.5", SL 1", Bay ⑥ 2.5", SL 1", Bay ⑦ 2.5", SL 1", access,std DVD-ROM access,hot-swap, open access, hot-swap, open

Max BTU Output:

Ship Configuration: 1,086 Btu/hr (318 watts)
Full Configuration: 5,200 Btu/hr (1524 watts)

- Access adapters, power supplies, processors, memory and systemboard from top Setup Program by pressing F1 at startup Diagnostics (PC-Doctor) by pressing F2 at startup SCSISelect by pressing Ctrl+A at startup Drop Down Light Path Diagnostics (level 2 diagnostic panel) for outside view of potential

- diagnostic panel) for outside view of potential problem without removing cover
- Information LED panel, diagnostic LED panel, and component LEDs give visual indications of system well-being
- Predictive Failure Analysis® alerts on disks, power supplies, memory, processors, VRMs, and fans with IBM Director

All models: Maximum internal disk capacity: 440.4GB with six 73.4GB2 hot-swap SAS disks

coverage excluding holidays, next business day response time⁷

On site service upgrade options (in eligible locations):

- 3 year IOR 24x7, 4 hr avg response 96P2253
- 3 year IOR 24x7, 2 hr avg response 96P225 4 year IOR 9x5, NBD response
- 96P2255
- 5 year IOR 9x5, NBD response 69P2259
- Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM @server™ xSeries™ 445 (8-way MS Datacenter#) (3/04) xREF by eServer Field Skills Enablement Team

IBM® Type-model Qty x l	Processor	L3 cache	L4 cache	Memory	Disk	SCSI controller	Mech- anical		SMP/RXE Exp Ports	Hot-swap pwr supplies	Mgmt adapter	Available date
8870-1BX 2 x Xeon 8870-2BX 2 x Xeon 8870-4BX 2 x Xeon	MP 2.7GHz	2MB 2MB 4MB	64MB (OGB Chipkill™ OGB Chipkill OGB Chipkill	None	2xUltra320 2xUltra320 2xUltra320	0 4U rack	6x4	3/1	Two redundan Two redundan Two redundan	PCI	Mar 2004 Mar 2004 Mar 2004
Positioning Processors L3 cache L4 cache Processor upgrade SMP Expansion Module Additional boards	2 x Intel® Xec 2MB or 4MB 64MB XceL4 64MB in each SMP Expansi One SMP Ex L4 cache, sixt Ports) / each One I/O Boar	each prodese each prodese each prodese each prodese each module each prodese each each each each each each each eac	cessor Nocessor Nocessor raccele xpansion lie stand lodule some socket pansion Nocestor Britania not socket pansion Nocestor Rost Britania not socket lost lost lost lost lost lost lost los	// P 2.2, 2.7, o / on die of pricator Cache I Module / EC ard / ready for tot / two max is, three SMP // odule activat ridge, SCSI, e	or 3.0GH rocessor (up to 1 CC / 64-b or adding / each c Expans es one I ethernet	Iz¹ with 400 r / at proce 128MB with bit 400MHz g additiona contains foun sion Ports (s RXE Expan , graphics,	OMHz front essor speen optional bus from I processor Intel 603- second mo sion Port (South Brid	side bud SMP E Cache ors (up -pin mid dule co one RX dge, Su	xpansion and Sca to 8 total cro-PGA 2 nnected v (E Expansion)	sion-critical busin orts Hyper-Three Module) / Iability Controll) and memory ZIF sockets for via one or two sion Port suppo slot for Mgmt / Modules, I/O Bo	ading er Xeon M SMP Ex rted)	IP, 64MB cpansion
Memory	PC2100 DDF	d-connect SDRAN bit errors	tor slots // Error s on sam	/ must install Checking a ne chip; up to	two ind and Cor two chi	dentical DIM recting (Edips at once	/lMs at sai CC) and (; redundai	ne time Chipkil l nt bit st	e / 2-way I™ via M o teering) /	interleaving / emory ProteXi Active Memor		porting
SCSI disk controller SCSI implementation IDE controller Disk - capacity/bays	LSI Logic / Wide Ultra320 SCSI (LVD 32MB/sec) / dual channel / 64-bit 66MHz PCI / integrated RAID-1 on I/O Board First channel to internal 2-port SCSI backplane for internal hot-swap disks (16-bit LVD cable to SCSI backplane) / second channel to one external .8mm VHDCI 68-pin connector (16-bit LVD cable from I/O Board to ext connector) / one standard (longer) 16-bit LVD cable included for attaching an optional ServeRAID adapter to the two-bay backplane Enhanced IDE ATA-100 controller in South Bridge / one one-drop IDE cable to backplane for diskette and CD-ROM No disks standard / supports up to 15K rpm SCSI disks / two hot-swap bays / converged tray / 80-pin SCA-2 connectors EIA 19" rack models (4U4) x 28" deep / supported in NetBAY TM Racks (such as NetBAY42 SR, NetBAY42 ER)											
Mechanical	EIA 19" rack	models	(4U ⁴) x 2	8" deep / supp	oorted in	NetBAY™	Racks (su	ch as N	letBAY42	SR, NetBAY42	ER)	
` ′	IBM XA-32™ 2nd Generation chipset / IBM Cache and Scalability Controller with L4 cache controller and three SMP Expansion Ports / IBM Memory I/O Controller with two remote I/O ports (each to a IBM PCI-X Host Bridge) / each IBM PCI X Host Bridge provides three peer PCI buses / PCI 2.2 Bus E supports graphics, adapter slot with Remote Supervisor Adapter, VIA® 82C686B South Bridge (IDE ATA-100, USB, Super I/O PC97317VUL [keyboard, mouse]) / PCI 2.2 Bus F supports SCSI, ethernet / PCI-X Bus A, B, C, D support PCI-X slots / designed to the PCI-X 1.0 specification X) Six hot-swap PCI-X 1.0 slots¹o available with power and attention indicator lights (optical sensors control power to slot) / hot replace, hot upgrade, hot expansion / separated by insulative plastic dividers of the NEXE-100 Remote Expansion Enclosure can be shared between two x445 4-way, 8-way, or 16-way xSeries 445 servers or attached alone. Both PCI-X 6-packs must be installed to support RIO sharing as each server will access six additional PCI-X slots											IBM PCI- visor ecification to slot) / ervers or
Ethernet	Dual Broadco SVGA / ATI®	m ^å 5704 Rage XL 00 Expan	10/100/1 / on I/O sion Port	000 ethernet of Board / 8MB t (to connect	controlle SDRAM optional	er / on I/O Be 1 std/max / RXE-100),	oard / full oup to 1280 RXE Mar	duplex / 0x1024 lageme	/ 64-bit 66 at 85Hz. nt Port, t	pays / supports SMHz PCI bus / wo USB (Vers ers 1.1)	Wake o	on LAN®
Security	Power-on and	adminis	trator pa	sswords / una	attended	boot / sele	ectable bo	ot				
Systems mgmt Diagnostics Software	console and i	mgmt / p Piagnosti ne Diagn n while s ™ (CD-R	ower on/ cs™ / pr ostics (o server rui lOM inst	off system / rimary indicat perated throunning allation and o	monitors or on in ugh IBM	formation p	tus, op sys banel with IBM Prelo Microso IBM Softw	stem, to LEDs a ad Kit f ft Wind are Su	emperatur associate for 1-8 Pr lows Serv bscription	er Datacenter : Update for	power s ompone 48 2003 48	supplies
Keyboard / mouse Power supplies Cooling fans	None standa Std: two; max watts at 110v front access fans in each Four hot-swa one additiona fan failure sig	rd (beca x: two / h r / redund / worldwi power su p, redund Il fan in e gnals Dia	use rack ot-swap dant at 2: de / volt ipply / Pl dant, mu each pow gnostic I	k-based) / 1200 watts 20v with two age-sensing FA alti-speed fanser supply / P LED and mgr	power s / auto-re s / FA / nt proce	essor	1GB DDR 2GB DDR Xeon MP Xeon MP Xeon MP IBM 73.4G IBM Serve Other opti	PC210 PC210 2.2GHz 2.7GHz 3.0GHz B 10K I RAID™	00 ECC S 00 ECC S 2/2MB L3 2/2MB L3 2/4MB L3 Ultra160 S -4H Ultra	ver Datacenter in DRAM RDIMM in RDIMM RDIMM Cache Proc Up SCSI Hot-Swap 160 SCSI Adapt In/pc/us/access	33 og 13 og 13 og 13 og 13 er 37	3L5039 3L5040 3N0723 3N0722 3N0721 6P5756 7L6889
	G6MHz PCI-X G6MHz PCI-X 100MHz PCI-X 133MHz PCI-X 133MHz PCI-X te Supervisor Ar access, diskett access, CD-RG	, hot-swap, hot-swap, hot-swap, hot-swap, hot-swap, hot-swap, and the duffer all the (Ultrabold (Ul	o Bus A o Bus A o, Bus B o, Bus B o, Bus B o, Bus C o, Bus C o, Bus C o, Bus C	Max weigh Stealth bla Tool-free Access pro Setup Proo Diagnostic SCSISelec Information out Light P diagnostic Predictive XccL4 Ser power sup IBM Direct All model	ns: H178 tt: 110 lb ck color erviceab ocessors nsion Me wer supp gram by ss (PC-D tt by pre: n LED pa ath panes s without Failure A ver Acce plies, an or	mm x W483 s; 50kg billity s, memory, a odule from t plies and dis pressing F1 octor) by pr sssing Ctrl+A anel and fror el (1st and 2 t removing o	adapters, a cop sks from from at startup essing F2 A at startup int-accessite and level cover) erts on proche, memobilisks with	and ont at startu ole pull- cessors ry, fans	Property of the control of the contr	LIMITED WA year parts and ternational War n site, 9 hr x 5 ext day response year on site wa year on site year on	labor ranty Se day co se time rranty se n eligib verage, e time vailable) intenante coption om/ser u.pdf lpport foduring	ervice ³ verage, ervice elle , ace as at vices/us/ or

IBM [⊚] Type-model Qty x Pi	rocessor	L2 cache	L3 cache	Memory	DIMM slots	Disks	SCSI controller	Mechanical	Slots x bays	Hot-swap pwr supplies		/ Available date
8872-1RY 2 x Xeon 8872-2RY 2 x Xeon 8872-3RY 2 x Xeon 8872-5RY 2 x Xeon 8872-6RY 2 x Xeon	MP 3.0GHz MP 3.33GHz MP 7020 2.66GHz MP 7040 3.0GHz	1MB 2MB 2x2MB		2x1GB 2x1GB 2x1GB 2x1GB 2x1GB	8 8 8 8	None None None None None	SAS SAS SAS SAS SAS	3U⁴ rack 3U rack 3U rack 3U rack 3U rack	6x7 6x7 6x7 6x7 6x7	2 x 1300 2 x 1300 2 x 1300 2 x 1300 2 x 1300	3 3 3 3	Jun 2005 Jun 2005 Jun 2005 Nov 2005 Nov 2005
Processors L2 cache L3 cache Processor upgrade Implementation	Two 64-bit Intel® Xd 3.0GHz 667MHz FS 1 or 2MB / per core 4 or 8MB / integrate 4-way SMP / up to chassis interconnec System board containtegrated Serial Atta	/ XceL4 ed / at pro four Xeo cted) ins four I	ocessoi n Proce	namic Sei r speed essors (sa)4-pin mici	ver Ca ame sp ro-PGA	che (256 eed/cach	e/core) per	chassis / Dua	at 8-way) I Core Ca	apable / up to	32-way	(eight
Active Memory™	2GB std / 64GB ma cards standard (up t 400MHz registered d Chipkill™ / Memon (supported only with	o four) w 240-pin [rith 4 D DDR2-9	IMM gold SDRAM F	-connec	ctor slots s / Error	each / DIM Checking	Ms must be in and Correction	nstalled in na (ECC)	n matched pairs I) via 16-bit Ch	s / PC2-: I ecksum	3200 1
SCSI disk controller SCSI connectors SCSI cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	ALL: Adaptec® AIC- with dedicated slot Controller wired to S One standard SAS Enhanced IDE ATA- None / supports up Six 2.5" hot-swap b: EIA 19" rack mode chassis (x460 or M)	SAS back cable atta -33 contro to 73GB ays / cor	plane ached toller in 10,000 overged x 28" d	to six-bay CSB6 So rpm disk tray / 80 eep / sup	backpl uth Brid s -pin SC ported	ane Ige CA-2 con n NetBA	nectors	,				•
Chipset	IBM XA-64e™ 3rd 0 scalability and memo ServerWorks® CSB6 5704, and 2 PCI-X	Generation control South E 2.0 slots	on chi ol / 2 IE Bridge (/ Host	pset / Inte BM PCI-X (IDE, USE Bridge Tw	egrated 2.0 Ho 3, bus f 0 supp	Process st Bridge or Super orts 4 Po	or and Men s / Host Brid I/O NS 874 CI-X 2.0 slot	nory Controlle dge One supp 117 [diskette, I is	r / Suppo orts video keyboard,	orts EM64T / S o, optional Sen , mouse]), Dua	upport fo eRaid 8 I Port Br	or external ii, oadcom
Slots (Active™)	Six total PCI-X 2.0 s upgrade, hot expans) / hot re	place, hot
CD-ROM / diskette Ethernet Graphics controller Ports	8X ⁶ Slim DVD-ROM Broadcom [®] 5704 10 LAN [™] 2 SVGA / ATI [®] 7000M <i>Rear</i> : Three Scalabi ethernet, std. serial,)/100/100 I / on plai	nar / 16	SMB SDR	AM std	/max / 32	2-bit 33MHz	PCI 2.2 bus				
Security Systems managemen Diagnostics Software	Power-on and admint Remote Supervisor remote console and Drop down Light PIBM Real Time Diac ServerGuide™ (CD utilities), IBM Director	r Adapte mgmt / p Path Diag gnostics (-ROM in	er II slii power anostic	mline / P(on/off sys :s / prima:	CI adap tem / n v indic	nter / incl nonitors p ator on ir	udes 10/100 bower status oformation p 2GB 4GB	0 ethernet, RJ s, op system,	temperations associated the second temperature the second temperatur	ure, disks, fans ated with failino MM(2x1GB) MM(2x2GB)	s, power	supplies
Keyboard / mouse Power supplies Cooling fans	None standard (bec Std: Two 1300 watt redundant with two auto-restart / rear ac Eight hot-swap, redu one additional fan in fan failure signals Di	hot-swap power su pcessible undant, m each pov	o; <i>Max:</i> pplies / fans in nulti-spe wer sup	two hot-si /worldwide n each poi eed fans / oply / PFA	e / volta wer sur . /	igė-sensi oply / PF	ng / Xeor Xeor Xeor Xeor Xeor IBM IBM	ve Memory 4-slon MP 2.83GHz/ MP 3.00GHz/ MP 7020 2.67 MP 7040 3.00 MP 3.33GHz/ ServeRAID™.8 ServeRAID 6M	ot Expans 1MB L2 4l 1MB L2 8l 1MB L2 8l GHz/2x1M Hz/2x2M 1MB L2 8l ii SAS-SC U320 256	ion Card VB L3 Proc Upg VB L3 Proc Upg VB L2 4MB L3 Pro VB L2 8MB L3 Pro VB L3 Proc Upg SI Adapter MB Adapter	oc Upg	13M7409 13N0715 13N0714 25R8941 25R8942 13N0713 13N2227 02R0988
8W = 2 x XpandOnDe 16W = 6 x XpandOnD 32W = 8 x XpandOnD Six available 3.3 volt Slot 1 - fullsize, 64-1	Demand Scalability kits Demand Scalability kits PCI-X 2.0 slots:	2.3m 2.3m +		n			IBM Xpar Xpar MXE Dual	36.4GB 10K 2.5 73.4GB 10K 2.5 ndOnDemand™ ndOnDemand™ -460 Modular E Core X3 upgra er options at ib	5" SAS Ho Scalabilit Scalabilit xpansion de kit (ava	ot-Swap HDD y Cable - 2.3M y Cable - 2.9M Enclosure	i	26K5654 26K5655 13M7414 13M7416 8874-1RY 39Y6580
Slot 2 - fullsize, 64-Slot 3 - fullsize, 64-Slot 4 - fullsize, 64-Slot 5 - fullsize, 64-Slot 5 - fullsize, 64-Slot 6 - fullsize, 64-Yexclusive slot availa Opt disk Opt disk Opt disk Opt disk Opt disk Opt disk The state of t	bit, 266MHzPCI-X, I bit, 2	not-swap not-swap not-swap is adapte is adapte open open open open open open open ope	Dio	imensions reight: 70 to realth blac cool-free seccess adaremory and to programme tup. Programme	: H128. to 85lbs k color erviceal pters, d syste am by (PC-D by pre-Light Fanel) fo hout re Light Flanel LE-being ailure dilies, m th IBM Maxir	35mm x s; 31.75 t bility power si mboard pressing octor) by ssing Ctrath Diagor outside moving canel, diagons give Analysis emory, p Director num international signature of the state of t	upplies, profrom top F1 at startu pressing F I+A at startu nostics (leve	cessors, up 2 at startup up el 2 tential panel, attions of lisks, VRMs,	 Intern On sit cove next I On si (in eli 3 ye 96P 3 ye 96P 5 ye 96P 5 ye 20 24x7¹⁴ 	r parts and la ational Warrate, 8 am - 5 pi perage excludi business day te service up gible location ar IOR 24x7, 2689 ar IOR 9x5, N 2694 ServicePac of www.ibm.com toll-free supps during the w	abor anty Sei m, Mon ing holi respon grade o ns): 4 hr avg 2 hr avg IBD res poptions n/ /wamon oort for	rvice ³ - Fri idays, se time ⁷ ptions g response g response ponse ponse at nxeu.pdf warranty

IBM®Machine Type Model Procce	ssor Speed¹/Core	L2 Cache	Memory	Disk	Disk controller	Maximum Capacity	Optical	Slots x bays	Hard disk bays	Ethernet	Available date
4347 - 22U Athlon® 4347 - 42U Opteron 4347 - 44U Opteron 4347 - 64U Opteron	1210 1.8GHz/DC	2x1MB	1 x 512MB 1 x 512MB 2 x 512MB 2 x 512MB	80GB 80GB 160GB 160GB	SATA SATA SATA SATA	1 TB 1 TB 1 TB 1 TB	CD-ROM CD-ROM CD-ROM Combo	4 x 5 4 x 5 4 x 5 4 x 5	2 fixed 2 fixed 2 fixed 2 fixed	Gigabit Gigabit Gigabit Gigabit	Oct 2006 Oct 2006 Oct 2006 Oct 2006
Positioning Processor(s)	Uniprocessor, ent Single-socket AMI	ry server D® Optero	<i>designed to</i> n 1000 Seri	<i>meet sr</i> es Dual-	<i>mall busir</i> Core pro	ness needs cessor up	and budge to 2.4GHz	ets or one A	Athlon up to	2.2GHz S	ingle-Core
L2 cache Implementation	2MB std on Opter Motherboard conta Gigabit Ethernet.	ains one <i>i</i>	AM2 socket,	four DII	CC / full sp MM socke	peed ets, four sl	ots(2 PCI E	xpress	x8, 2 PCI),	integrated	SATA and
SMP support	No SMP support	no proce	ssor upgrad	е							
Memory	512MB or 1GB std Checking and Cor	I / 8GB ¹³ m rrecting (E	ax / four 184 E CC) / dual-cl	-pin gold- hannel /	-plated DII industry s	MM sockets td / unbuffe	s / PC2-5300 red	667MH	z ECC DDR	2-SDRAM	/ All Error
SCSI disk controller IDE disk controller SATA disk controller	None standard / L Enhanced IDE / A Dual chambel SAT	FA control	ler (1.5GB/s	:ec) / int	egrated i	nto I/O Co	ntoller Hub	/ sunna	orts un to tv	vo HDDs 8	one
Cables Disk RAID Controller	GoVault [™] drive s One 2-drop EIDE 80 or 160GB SAT None standard / IE	A / / ,200	ipin / 9.0 mis	o occivi	O.IVI.A.II.		per installe	ed hard	disk		
Rack support Bus slots (see below	None Two PCI-E x8 slot	ts / two 32	-bit 33MHz (5v PCI 2	.2 slots						
Chipset	Nvidia® nForce™ ATA-100 EIDE, Sø Super I/O for disk	ATA. USB	. Low Pin Co	ICP / I/Count Inte	O Controllerface / S	ler Hub pro ST 49LF00	ovides: two 04A, 4Mbit F	PCI-Exp irmware	oress x8 slo e Hub / Win	ots, two PC bond® PC8	l 2.2 slots, 374K
Ethernet	10/100/1000 gigat (PXE) / Wake on	pit / Broad	com 5721 /	on plana	ar / full du	plex / PHY	and MAC I	ayers /	Preboot eX	ecution Env	vironment
Optical / diskette Ports Diagnostics Systems mgmt	Some: CD-ROM: Front: two USB(2. Diagnostic LEDs / 6 None	48X-20X6	CD-ROM, I one serial(9 for fans and	DE; sor p-pin), or memory	me: CDR\ ne paralle r / server o	W/DVD-RC I, four USI diagnostic p	OM Combo: B(2.0), ethe programs sto	48X/32 rnet(RJ: red on II	2X/48X/16X -45), video(3M Enhance	⁶ , IDE DB-15) ed Diagnosti	cs CD
Graphics controller	ATI® ES1000 / 16M	IB SDRAN	std/max / on	planar /	analog 15	-pin / up to	1024 x 768	x 32 bit (@85Hz		
Security	Optional U-Bolt su control / operation	ipport via n without	knockout / p keyboard/m	ower-or ouse/dis	n passwo splay	rd / boot s	sequence				
Software	ServerGuide™ (Cinstallation and co Director (system	onfiguratio	n tool) inclu	ded and	andard	2x2GB PC	2-5300 CL 2-5300 CL 2-5300 CL	5 FCC	DDR2		41Y2726 41Y2729 41Y2732 39M4500
Keyboard / mouse Cooling fans	Included / USB on Three variable spe	eed fans	(cpu heatsir	nk, front,	, power	IBM 160G IBM 250G	B SATA-15 B SATA-15	0 (7.2K) 0 (7.2K) 0 (7.2K)	simple-swa) simple-sw) simple-sw	ap HDD ap HDD	39M4504 39M4508
Power supply	supply) / not redu 310 watts / univer Server Restart (A cooling fan in pow	sal / manı SR) / not	ual switching hot-swap /n	o redund	dancy /	IBM Multi- IBM USB IBM GoVa	burner Plus Portable Di ult 80GB (S	skette [SATA)			39M4514 32R2905 32R2906 40K1692 25R0006
	3ay ① 5.25", HH 3ay ② 5.25", HH		cess, optica			IBM 400/8 IBM 160/3 IBM DDS/ IBM HH L IBM DLTV IBM SAS I	00GB LT03 20GB VXA 5 Tape Driv TO2 Tape	3 Tape -3 Tape ve (SCS Drive (S ve (SAT oller (for	SCSI) 「A) SATA RAII	SI)	39M5657 25R0045 39M5656 39M5658 39M5659 25R8060 39R8743



Bay ® 3.5", SL 1", access, open Bay ® 3.5", SL 1", access, std disk Bay ® 3.5", SL 1", access, open

Slot 1: fullsize, PCI-E x8 (4GBps) Slot 2: fullsize, PCI-E x8 (4GBps) Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)

- Removable left side panel
 Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0
- Device Drivers and Diagnostics CD-ROM included
- ⇒ Four stabilizing feet

- ♦ H 17.2" x W 8.1" x D 19.6"
 ♦ H 438mm x W 205mm x D 497mm
- ♦ 31 to 38 pounds (14 to 17kg)
- ♦BTU Output:

Minimum: 185 Btu/hr (54 watts) Maximum: 853 Btu/hr (250 watts)

♦ Maximum internal disk capacity¹³: 1TB with two 500GB SATA disks

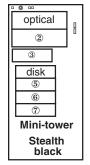
Other options at ibm.com/pc/us/accessories

- → 1 year parts and labor
 → International Warranty Service³
- International Warranty Service³
 On site, 8 am-5 pm,
 Mon-Fri excluding holidays,
 next business day response time
 On site service upgrade
 options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
 (ServicePac part num 41W9318)
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num 41W9317)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 41W9316)

- (ServicePac part num 41W9316)

 3 year IOR 9x5, NBD response
- (ServicePac part num 41W9315)
- Other ServicePac options at http://www.ibm.com/
- services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

		cache	MHz	Memory	Disk/Disk controller			Hard disk bays	Power Supply	Ethernet	Available date
Xeon 3040 Xeon 3040 Xeon 3050 Xeon 3050 Xeon 3050 Xeon 3050 Xeon 3060	1.86GHz 1.86GHz 1.86GHz 2.13GHz 2.13GHz 2.13GHz 2.4GHz	2MB 2MB 2MB 2MB 2MB 2MB 2MB 4MB	1066 1066 1066 1066 1066 1066	2x512MB 2x512MB 2x512MB 2x512MB	None/SATA None/SATA 1x160GB/SAT None/SAS/SA None/SAS/SA 1x160GB/SAT None/SAS/SA	2.01B 2.0TB TA 2.0TB TA 2.0TB TA 2.0TB TA 2.0TB TA 2.0TB	5x7 5x7 5x7 5x7 5x7 5x7	4 simple-swap 4 simple-swap 4 simple-swap 4 hot-swap 4 hot-swap 4 hot-swap 4 hot-swap	1x400W 1x400W 1x400W 1x400W 1x400W 2x430W 2x430W 1x400W	Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006
Intel® Pentiur	n D úp to	3.4GI	dz 80	OMHz FSB	/ Xeon up to				ual-Cor	e / All C	ptimized
1MB per core Motherboard of support, ATI v	std on Pe contains o ideo and	entium I one LG Gigabit	D / 2 (A-775 : Ethe	or 4MB std socket, fou rnet.	on Xeon	ets, two PC	Expre	ess slots, thre	e PCI slo	ots, SAS	/SATA
512MB or 1GE DDR2-SDRAN	3 std / 8Gl I / All Err	3 ¹³ max or Che	/ four	184-pin gold and Correc	-plated DIMM s ting (ECC) / DI	ockets / one MMs and E	or two	socket used / mory controller	PC2-530 / industry	0 667MH y std / un	z ECC buffered
Enhanced IDE Four channel One 2-drop E	E / ATA-10 SATA co IDE cable	00 / inte introller es (to o	egrate (3.00 ptical	d in İ/O Coı 3B/sec) / sı) / one 1-dr	ntroller Hub / o upports 4 drive op SATA cable	ne connect	or on p I / inte	olanar ' grated	s / RAID	0,1	
						slots					
MAC, USB, Lo	ow Pin Co										
Preboot eXec 4362 MTMs: Front: two US Diagnostic LED Mini-baseboa	ution Env 48X-20X ⁶ B (2.0); Os / error l rd manag	ironmer CD-R(<i>Rear:</i> to EDs for ement	nt (PX DM, II vo se fans contro	E) / Wake of DE; 4363 Mrial (9-pin), and memonoller / IPMI	on LAN® ' ITMs: 48X-32) parallel, four U // server diagno 1.5 / monitors	(-48X-16X ⁶ ISB (2.0), k ostic prograr s system ar	CD-R eyboains stor	W/DVD-ROM rd, mouse, eth ed on IBM Enh cessor tempe	nernet (R nanced D rature, fa	J45) and iagnostica In speed	d video s CD I and
ATI® ES1000(F	RN50) / 16	MB SDI	RAM s	std/max / on	planar / analog	15-pin / up 1	o 1024	x768x32bit@8	5Hz		
lock / U-Bolt T boot sequence ServerGuide installation an	Tie-down e e control ™ (CD-ba d configu	capabili / opera sed au ration f	ty/povation voltoma: stoma: sool),	ver-on pass without kyb ted network IBM Directo	word / 44 d/mouse E c OS E or (system E ilities 86	GB(2x1GB) PC GB(2x2GB) PC BM 80GB SATA BM 160GB SAT. BM 250GB SAT. BM 500GB SAT. DGB Hot-Swap	2-5300 E 2-5300 E (7.2K) si A (7.2K) s A (7.2K) s A (7.2K) s SATA HI O SATA H	ECC DDR2 667MH ECC DDR2 667MH imple-swap HDD simple-swap HDD simple-swap HDD simple-swap HDD DD HDD HDD	z z		41Y2726 41Y2729 41Y2732 39M4500 39M4504 39M4514 39M4518 39M4518
on SAS mode Some: 400W / some: 430W / switch / Autor	ls / not re / not hot-s / hot-swap natic Sen	dundar swap / i o / redu ver Res	it / no no rec ndant tart (<i>F</i>	t hot-swap lundancy / / all: univer ASR) /	sal / auto	50GB Hot-Swaj 00GB Hot-Swaj 3GB 10K 3.5" S 46GB 10K 3.5" S 3GB 15K 3.5" S 3GB 15K 3.5" S 46GB 15K 3.5" S M Multiburner M Memote Sup M 5Ux20D Tov imple Swap SA	D SATA HOS SATA HOS SAS HOT- SAS HOT- SAS HOT- SAS HOT- SAS HOT- Plus (DV ervisor A Ver-to-Ra TA RAID	IDD IDD IDD IMAP HDD SWAP HDD SWAP HDD IWAP HDD IWAP HDD SWAP HDD D-RAM) Idapter Il slimline ack Kit Kit			39M4526 39M4530 40K1039 40K1040 40K1041 40K1043 40K1044 32R2906 39Y9566 42C8923 42C1312
	Pentium® D 915 Pentium D 915 Pentium D 915 Pentium D 915 Pentium D 915 Pentium D 915 Pentium D 915 Pentium D 915 Pentium D 915 Pentium D 915 Pentium D 915 Xeon 3040 Xeon 3040 Xeon 3050 Xeon 3050 Xeon 3060 Single socket, Intel® Pentiur for Extended 1MB per core Motherboard caupport, ATI v No SMP supp 512MB or 1GE DDR2-SDRAN LSI Logic® 11 Enhanced IDE Four channel One 2-drop E Some: 160GB 5U4 rack mou One PCI-E x8 Intel 3010 ch MAC, USB, Le board, mouse 10/100/1000 c Preboot eXec 4362 MTMS: Front: two US Diagnostic LED Mini-baseboa failure, and v ATI® ES1000(F Chassiss intru lock / U-Bolt T boot sequenc ServerGuide installation an hardware man Optional Three fans (fa on SAS mode Some: 400W some: 430W some:	Xeon 3040 1.86GHz Xeon 3040 1.86GHz Xeon 3050 2.13GHz Xeon 3060 2.4GHz Processor / Speed cache Pentium® D 915 3.0GHz 2x2MB Pentium D 915 3.0GHz 2x2MB Pentium D 945 3.4GHz 2x2MB Xeon® 3040 1.86GHz 2MB Xeon 3040 1.86GHz 2MB Xeon 3050 2.13GHz 2MB Xeon 3060 2.4GHz 4MB Xeon 3050 2.13GHz 2MB Xeon 3050 2.13GHz X	Pentium® D 915 3.0GHz¹ 2x2MB 800 Pentium D 915 3.0GHz¹ 2x2MB 800 Pentium D 945 3.4GHz 2x2MB 800 Pentium D 945 3.4GHz 2X2MB 800 Xeon® 3040 1.86GHz 2MB 1066 Xeon 3040 1.86GHz 2MB 1066 Xeon 3050 2.13GHz 2MB 1066 Xeon 3060 2.4GHz 4MB 1066 Xeon 3050 2.13GHz 2MB 1066 Xeon 3050 2.13GHz Xeon 3050 2.13GHz Xeon 3050 2.13GHz Xeon 3060 2.4GHz Xeon 3	Pentium® D 915 3.0GHz¹ 2x2MB 800 1x512MB Pentium D 915 3.0GHz¹ 2x2MB 800 1x512MB Pentium D 945 3.4GHz 2x2MB 800 1x512MB Pentium D 945 3.4GHz 2x2MB 800 1x512MB Pentium D 945 3.4GHz 2x2MB 800 1x512MB Xeon® 3040 1.86GHz 2MB 1066 1x512MB Xeon 3040 1.86GHz 2MB 1066 2x512MB Xeon 3040 1.86GHz 2MB 1066 2x512MB Xeon 3050 2.13GHz 2MB 1066 2x512MB Xeon 3050 2.13GHz 2MB 1066 2x512MB Xeon 3050 2.13GHz 2MB 1066 2x512MB Xeon 3060 2.4GHz 4MB 1066 2x512MB Xeon 3050 2.13GHz 2MB 1066 2x512MB Xeon 3060 2.4GHz 4MB 1066 2x512MB Xeo	Pentium® D 915 3.0GHz² 2x2MB 800 1x512MB None/SATA Pentium D 915 3.0GHz² 2x2MB 800 1x512MB None/SATA None/SATA Pentium D 945 3.4GHz 2x2MB 800 1x512MB None/SATA None/SATA Xeon³ 3040 1.86GHz 2MB 1066 1x512MB None/SATA Xeon³ 3040 1.86GHz 2MB 1066 2x512MB 1x160GB/SAT Xeon 3040 1.86GHz 2MB 1066 2x512MB None/SATA Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SASTA Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SASTA Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SASSA Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SASSA Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SASSA Single socket, entry server for small and medium size busine Inte® Pentium D up to 3.4GHz 800MHz FSB / Xeon up to for Extended Memory 64 Technology (EM64T) 1MB per core std on Pentium D / 2 or 4MB std on Xeon Motherboard contains one LGA-775 socket, four DIMM socke support, ATI video and Gigabit Ethernet. No SMP support / no processor upgrade 512MB or 1GB std / 8GB¹³ max / four 184-pin gold-plated DIMM s DDR2-SDRAM / All Error Checking and Correcting (ECC) / DI LSI Logic® 1064e / daughter card / supports SAS or SATA Enhanced IDE / ATA-100 / integrated in I/O Controller Hub / or Four channel SATA controller (3.0GB/sec) / supports 4 drive One 2-drop EIDE cables (to optical) / one 1-drop SATA cabl Some: 160GB SATA / 7,200 rpm / 9.0 ms seek / S.M.A.R.T. 5U⁴ rack mount support via tower-to-rack kit option) One PCI-E x8 / one PCI-E x1 / three 32-bit 33MHz 5v PCI 2.2 Intel 3010 chipset / Memory Controller Hub (MCH) / I/O Con MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC¹ some: 160GB SATA / 7,200 rpm / 9.0 ms seek / S.M.A.R.T. 5U⁴ rack mount support via tower-to-rack kit option) One PCI-E x8 / one PCI-E x1 / three 32-bit 33MHz 5v PCI 2.2 Intel 3010 chipset / Memory for fars and memory / server diagn Mini-baseboard management controller / Inplication of the support of fars and memory / server diagness	Proccessor / Speed cache MHz Pentium® D 915 3 0GHz 2 x2/MB 800 1x512MB None/SATA 2.0TB Pentium D 915 3 0GHz 2x2/MB 800 2x512MB None/SATA 2.0TB Pentium D 915 3 0GHz 2x2/MB 800 2x512MB None/SATA 2.0TB Pentium D 915 3 0GHz 2x2/MB 800 2x512MB None/SATA 2.0TB Pentium D 915 3 0GHz 2x2/MB 800 2x512MB None/SATA 2.0TB Rentium D 915 3 0GHz 2x4/MB 800 2x512MB None/SATA 2.0TB Xeon 3040 1.86GHz 2MB 1066 2x512MB None/SATA 2.0TB Xeon 3040 1.86GHz 2MB 1066 2x512MB None/SATA 2.0TB Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB Xeon 3050 2.13GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB Xeon 3050 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB Xeon 3050 2.1GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB Xeon 3	Processor / Speed acache MHz Memory controller Capacity x bays Pentium D 915 3.0GHz 2x2MB 800 2x512MB None/SATA 2.0TB 5 x 7 Pentium D 915 3.0GHz 2x2MB 800 2x512MB None/SAS/SATA 2.0TB 5 x 7 Pentium D 945 3.4GHz 2x2MB 800 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2x2MB 1066 12512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 186GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x 7 None 3400 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.	Processor / Speed cache MHz Memory controller Capacity xbays diskbory pertium D 915 3.0GHz 2x2MB 800 1x512MB None/SATA 2.0TB 5x7 4 simple-swap Pertium D 945 3.0GHz 2x2MB 800 2x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon® 3040 1.86GHz 2MB 1066 1x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon® 3040 1.86GHz 2MB 1066 1x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon® 3040 1.86GHz 2MB 1066 2x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SATA 2.0TB 5x7 4 simple-swap Xeon 3050 2.13GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3050 2.13GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2.4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5x7 4 hot-swap Xeon 3060 2x64Hz 4MB 1066 2x612	Processor / Speed cache MHz Memory controller Capacity x bays disk bays Supply Pentium® p 915 3.0GHz 22/MB 800 2x512MB None/SATS 2.0TB 5 x7 4 simple-swap 1x400W Pentium D 945 3.0GHz 2x2/MB 800 2x512MB None/SAS/SATA 2.0TB 5 x7 4 hot-swap 1x400W Pentium D 945 3.0GHz 2x2/MB 800 2x512MB None/SATS 2.0TB 5 x7 4 hot-swap 1x400W Seon® 3040 1.86GHz 2MB 1066 2x512MB None/SATS 2.0TB 5 x7 4 simple-swap 1x400W Seon® 3040 1.86GHz 2MB 1066 2x512MB None/SATS 2.0TB 5 x7 4 simple-swap 1x400W Seon 3040 1.86GHz 2MB 1066 2x512MB None/SATS 2.0TB 5 x7 4 simple-swap 1x400W Seon 3060 2x6GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 1x400W Seon 3060 2x13GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 1x400W Seon 3060 2x13GHz 2MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4MB 1066 2x512MB None/SAS/SATA 2.0TB 5 x7 4 bit-swap 2x430W Seon 3060 2x4GHz 4x4B 3x42MB 3x4	Processor / Speed Cache MHz Memory Controller Capacity xbays diskbays Supply Etherory	



- Slot 1: fullsize, PCI-E x8 (4GBps)
 Slot 2: fullsize, PCI-E x1 (500MBps)
 Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
 Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
 Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v) Bay ① 5.25", HH 1.6", access, optical Bay ② 5.25", HH 1.6", access, open (no disk) Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std disk (some) Bay ⑤ 3.5", SL 1", access, open Bay ⑥ 3.5", SL 1", access, open Bay ⑥ 3.5", SL 1", access, open Bay ⑦ 3.5", SL 1", access, open
- Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure
- Redundant power supplies standard in some models

- Removable left side panelConfiguration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0 Device Drivers and Diagnostics
- CD-ROM included
- ♦ Four stabilizing feet
 ♦ H 17.25" x W 8.5" x D 21.25"
 ♦ H 448mm x W 215.9mm x D 539.75mm
- 36 to 56 pounds (16.3 to 25.2kg)

Maximum SATA capacity: 2TB¹³ (4 disks x 500GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

LIMITED WARRANTY³

- 1 year parts and labor standard 4362 MTM 3 year parts and labor standard 4363 MTM
- International Warranty Service3
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- next business day response time
 On site service upgrade
 options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
 (ServicePac part num 69P9512)
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num 69P9511)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9510)
 3 year IOR 9x5, NBD response
 (ServicePac part num 69P9509)
 Other ServicePac options at
 http://www.ibm.com/

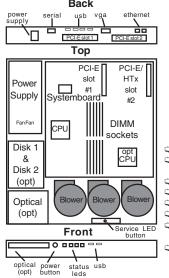
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf

24x7¹⁴ toll-free support for warranty issues during the warranty period³

3W System X3	250							xREF by S1	IG Fleid	SKIIIS	and Edu	cation	ı ream
IBM® Machine Type model	Processo	or / Speed	L2 cache	FSB MHz	Memory	Disk contro		Disk bays	Mech- anical		Ethernet	Ltd warr ³	Available date
4364/4365 22Y/2BY 4364/4365 42Y/4BY 4364/4365 44Y/4DY 4364/4365 52Y/5BY 4364/4365 54Y/5DY	Pentium® D 94 Xeon® 3040 Xeon 3040 Xeon 3050 Xeon 3050 Xeon 3060	1 2.93GHz/DC 15 3.4GHz/DC 1.87GHz/DC 1.87GHz/DC 2.13GHz/DC 2.13GHz/DC 2.4GHz/DC 2.4GHz/DC	256KB 2x2ME 2MB 2MB 2MB 2MB 4MB 4MB	3 800 1066 1066 1066 1066	1 x 512MB 1 x 512MB 2 x 512MB 2 x 512MB 2 x 512MB 2 x 512MB 2 x 512MB 2 x 512MB 2 x 512MB	SATA SATA SAS/S, SAS/S, SAS SAS/S, SAS/S, SAS	ATA ATA	2 simple-swap 2 simple-swap 2 simple-swap 2 hot-swap 2 hot-swap 4 hot-swap 4 hot-swap 4 hot-swap	1U rack	2x3 2x3 2x3 2x3 2x5 2x5	Dual GB Dual GB Dual GB Dual GB Dual GB Dual GB	1/3yr 1/3yr 1/3yr 1/3yr 1/3yr 1/3yr	Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006
Positioning Processor(s) L2 cache SMP support Implementation	Intel® Celer Core 1066M 256KB std o No SMP sup Motherboard	d dense 1U, sir on at 2.93GHz MHz FSB / All on Celeron / 2x2 oport d contains one I I Express® x8 s	533 FS Optimiz 2MB std LGA-77!	B / Pe ed for on Pe	entium D a Extended Intium D / 2	t 3.4GH Memor or 4MB	z Dua y 64 on Xe	II-Core 800MH Technology (eon / ECC / fu	Hz FSB / (EM64T) Il speed	Xeon	up to 2.4		
Memory		GB std / 8GB ¹³ n											DDR2-
SAS/SATA controller SATA controller IDE controller Cables	Four channe Enhanced II SAS models	el SATA contro DE busmaster , s: one 1-drop E els: two 1-drop	ller (3.0 / ATA-1 IDE cat	GB/se 00 sup ole (co	c) / suppor oport / one nnected to	ts 2 driv connec Optical)	es sta tor on	andard / integ systemboard	rated into	ress / I	RAID 0,1 n Bridge		
Mechanical Architecture / chipsets Bus slots	Intel 3010 c MAC, USB,	ck (1U⁴) / rack- chipset / Memo Low Pin Count two PCI-E™ x	ry Conti Interfac	roller F									nernet
Ethernet controllers Optical / diskette Ports Graphics	integrated / 4364 MTMs Front: two U systems ma	port one is CSA :: 48X-20X ⁶ CD JSB (2.0) / <i>Rea</i> inagement (RJ-	A, port tv -ROM, I ar: seria 45)	vo is P IDE; <i>4</i> I (9-pin	CI 2.2 / full 365 MTMs: n), two ethe	duplex / · 48X-32 rnet (RJ-	PXE / \ X-48X -45), k	Wake on LAN® K-16X® CD-RV eyboard, mou	/ Rear F V/DVD-Ro se, video	RJ-45 p OM, IE (DB-1	oorts (2) DE / <i>Diske</i> 5), two US	<i>ette:</i> no	one
Console interconnects Systems mgmt Diagnostics	Mini-basebo voltages Diagnostic L Diagnostics	TI® ES1000(RN50) / 16MB SDRAM std/max / on planar / analog 15-pin / up to 1024x768x32bit@85Hz o system-to-system interconnect cable (separate keyboard, video, mouse ports on back) ini-baseboard management controller / IPMI 1.5 / monitors system and processor temperature, fan failure, and bitages iagnostic LEDS/ Error LEDS for fans and memory/ Diagnostics via PC-Doctor on a standard IBM Enhanced iagnostics CD (diskette can be created) / support for optional slimline Remote Supervisor Adapter II with dedicate ot on planar for continuous power (no external power required)											d
Security	unattended secure rem ServerGuid	assword / adm boot / selectabl ote power on le TM (CD-ROM M Director TM an	le boot / / off via installat	unatte a IPMI ion an	ended start 1.5		2GB(2: 4GB(2: IBM 36 IBM 73 IBM 80 IBM 16	8 PC2-5300 ECC D x1GB) PC2-5300 E x2GB) PC2-5300 E x6GB SFF SAS HDD 8GB SFF SAS HDD 0GB SATA (7.2K) si 0GGB SATA (7.2K)	CC DDR2 CC DDR2) imple-swap I simple-swap	HDD HDD			41Y2726 41Y2729 41Y2732 40K1051 40K1052 39M4500 39M4504
Cooling fans Power supply Prerequisites	variable spe 351 watt / u	(five fans for seed / not redundant niversal / auto- yboard, mouse,	dant or -sensing	hot-sw	/ap		IBM 50 80GB I 160GB 250GB 500GB 73GB 1	50GB SATA (7.2K): 10GB SATA (7.2K): 14 Hot-Swap SATA H 13 Hot-Swap SATA H 15 Hot-Swap SATA H 16 Hot-Swap SATA H 10 K 3.5" SAS Hot-S	simple-swap DD HDD HDD HDD Swap HDD				39M4508 39M4514 39M4518 39M4522 39M4526 39M4530 40K1039 40K1040
Rear Post of Top	PCI slot2	Slot 1: 3/4 leng Slot 2: half leng Some:					36GB 1 73GB 1 146GB IBM Re IBM Sir	3 10K 3.5" SAS Hot- 3 10K 3.5" SAS Hot- 15K 3.5" SAS Hot- 15K 3.5" SAS Hot- 8 15K 3.5" SAS Hot- emote Supervisor A mple-Swap SATA I options at ibm.com/	Swap HDD Swap HDD ·Swap HDD Adapter II slin RAID Kit				40K1041 40K1042 40K1043 40K1044 42C4178 42C1313
DIMM sockets Fan Fan Fan Disk Optical Front Or ORIGINAL ORIGINAL ORIGINAL Or ORIGINAL Fan Fan Disk	Bay ① 3.5", SI Bay ② 3.5", U Some: Bay ② 2.5", SI Bay ② 2.5", SI Bay ③ 2.5", SI Bay ③ 2.5", SI Bay ④ 2.5", SI Bay ⑤ 5.25", U □ Raven black □ H 1.75" (1U) □ 24.4 to 28 lb □ Configuratior □ Network Boo □ Operator Info □ Ships with Dia □ Predictive Falert the adm	L 1", acc ltraSlim FF, acc FF, acc FF, acc ltraSlim front be: x W 17 ss; 11kg h/Setup lot: F12 a primation agnostica ailure Ar ninistrato	ecess, opess, op	open for siccess, std pen for hot- pen for side for hot- pen for hot- pen for side for hot- pen for hot- pen for side for hot- pen for	mple-sw optical -swap d -swap d -swap d optical mm x 440 um to m Setup al with IBN compon	ap/hot ap/hot sk sk sk sk sk ax cor ad Inst I Dire- ent fai	t-swap disk t-swap disk t-swap disk s 559mm offiguration)	J year ya yayar ya Interna On site Mon-Fr Next bu On site options J year ya year (Ser ya year ya ya ya ya ya ya ya ya ya ya ya ya ya	LIMITE parts ar parts ar sartional Versions in excluding siness service so (in eligar IOR service Pacar nd labor state Warranty S 5 pm, ding holidate day response upgrade gible location of the state o	andard andard ervice ³ ys, nse tim ons): ⁷ vg resp 9P9506 yg resp 9P9506 respon 9P9508 is at	4364 MTM 4365 MTM e conse 5) conse 5) ponse 7) se 3)		
	or 292	GB with four 2.5	.5 SATA " 73GB S	sks	services/us/its/pdf/wamomxeu.pdf B with two 300GB 3.5" SAS disks 24x7 ¹⁴ toll-free support for warra issues during the warranty perio								

								-	-
IBM [®] Type-GAV-model G	Qty x Processor C	L2 Core cache Memo	ry Disk	Disk controller I	Mechanical	,	Warranty	Powersupply	Availabl Ethernet dat
7975/76-52y-52x 1x 7975/76-5Ay-5Ax 1x 7975/76-62y-62x 1x	Aty x Processor ⟨ Xeon™5110 1.6GHz ⟨ Xeon 5120 1.86GHz ⟨ Xeon 5130 2.0GHz ⟨ Xeon 5110 1.6GHz ⟨ Xeon 5110 1.6GHz ⟨ Xeon 5110 1.86GHz ⟨ Xeon 5120 1.86GHz ⟨ Xeon 5120 1.86GHz ⟨ Xeon 5130 2.0GHz ⟨ Xeon 5130 2.0GHz ⟨ Xeon 5130 2.0GHz	DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE DC 4MB 1GE	None None None None None None None	SATA SATA SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA	Tower	6x7 (4/4 SS) 6x7 (4/4 SS) 6x7 (4/4 SS) 6x11 (4/8 HS) 6x11 (4/8 HS) 6x11 (4/8 HS) 6x11 (4/8 HS) 6x11 (4/8 HS) 6x11 (4/8 HS)	1/3ýr 1 1/3yr 1 1/3yr 1 1/3yr 1 1/3yr 1 1/3yr 1	x 670W fixed x 670W fixed x 670W fixed x 835W hot-si x 670W fixed x 835W hot-si x 670W fixed x 835W hot-si x 635W hot-si	GB Aug 200 GB Aug 200 GB Aug 200 Wap GB Aug 200
Positioning Processor L2 cache SMP support Implementation	Universal server; two-w Up to 1 x Intel® Xeon F 1333MHz FSB Dual C 4MB / all models / at pr 2-way SMP / up to two Systemboard contains	ore / Extended I rocessor speed o Xeon Processo	viemory rs (same	e speed/cach	ogy (EM64) e size)				
Memory	one PCI slot, integrated 1GB std / 32GB¹³ max DIMMs must be installe and Correcting (ECC) of two x4 DRAM failure Active Memory™: me	d SAS, ethernet / two slots used ed in matched pa (corrects any x4 s. detects any tw	and grap / six slot irs [a bar or x8 Slot o bits in	ts available / hk] / Fully Bu DRAM devic	PC2-5300 6 uffered / 2-ve failure, des	667MHz FBD 2 vay memory in tects all two wata, corrects an	240-pin E	CC DDR2-SDR	RAM DIMMs / Error Checking
SAS connectors SAS cabling	Some: Adaptec® AIC supports RAID 0, 1 &10 / S Dual channel controller Mini SAS cable connect IDE ATA 66/33 / one co	C-9580W / eight ServeRAID 8k-I std wired to hot-swats controller to 4	port SA Some: r DASD bay bac	AS(300MB/senative SATA / 6) backplane kplane	ec) or SATA on planar / P	(150MB/sec) CI-Express / su	/ hot-swap upports RAI I	o / on planar / F D 0 & 1	PCI-Express /
IDE controller / cable Disk - capacity Disk - bays Mechanical	None std / supports 72 Some: four hot-swap S Tower / conversion to E	00-15000 rpm di AS/SATA bays (sks / sing upgradea	gle backpland able to eight)	e (upġradea ; some: four	ble to dual bad		S	
Slots (see below) Chipset Ethernet controller	Three PCI-Express, two Intel 5000P chipset / I provides: one PCI-Exprethernet, IDE, USB, SM One 10/100/1000 gigab	o PCI-X 64-bit/13 ntel Memory Cor ress x8 slot with : 1Bus, LPC bus to	3MHz a ntroller H x4 Links, x8 PC	nd one PCI : lub (MCH) pi two 64-bit/1 8374L for Su	32-bit/33MH ovides two 00MHz PC per I/O	PCI-Express x I-X slots, one 3			
CD-ROM / diskette	48X ⁶ CD-ROM / IDE / 1 Rear: two USB (Vers 2 Front: two USB (Vers 2	1.6" HH; <i>Diskette</i>	e: USB o	nly		· ·		,	
Security	Power-on password / a disk bays and power but	administrator pas utton / unattende	sword / f d boot / s	ront door to selectable bo	cover ot			L2 Cache Proc Upg L2 Cache Proc Upg	
Systems mgmt Diagnostics	IBM Integrated Baseb H8S2166 / on planar / such as temp, optional Supervisor Adapter II S continuous power (no e System error LED Pane	provides system disks, fans, pow dimline with 140-pext pwr read)	and envi er supp /	ronmental m supports op	onitoring t. Remote	1GB Kit (2x512M 2GB Kit (2x1GB I	IB DIMM) PC2 DIMM) PC2-5 DIMM) PC2-5 Hot-Swap HDI		39M578
Software	ServerGuide™ (CD-RCIBM Director, others		nd config	guration utilitie	es),	300GB 10K SAS 36GB 15K SAS F 73GB 15K SAS F	Hot-Swap HDI Hot-Swap HDI))	40K104 40K1042 40K1043
Keyboard / mouse Power supply Fans	Optional Some: 670 watt / fixed / one/two std/max / redu std/max: three/six / thre (Opt) two additional mic optional fans / PFA / far	ndant with two; <i>a</i> ee fans (mid-chas d-chassis fans ar	<i>II:</i> voltag sis) / vai id one re	ge-sensing / a riable speed	auto-restart / hot-swap	146GB 15K SAS 80GB 7.2K SATA 160GB 7.2K SATA 250GB 7.2K SATA 80GB 7.2K SATA 160GB 7.2K SATA 250GB 7.2K SATA	A Hot-Swap Hl A Hot-Swap II A Hot-Swap II A Hot-Swap II A Simple-Swap A Simple-Swap A Simple-Swa	DD HDD HDD p HDD ap HDD	40K104: 39M451: 39M452: 39M450: 39M450: 39M450: 39M450:
CD-ROM Bay	y 1 5.25", HH 1.6" acc y 2 5.25", HH 1.6" acc y 3 5.25", HH 1.6" acc t-Swap SAS/SAT t-4 3 5" SI 1" acc	ess,open ess,open nodels:				IBM Remote Sup IBM Redundant F Otheroptions at w	ervisor Adapto Power and Co	er II Slimline	39Y9566 39Y8487
Bay 4 3.5", SL 1", access, open Bay 5 3.5", SL 1", access, open Bay 6 3.5", SL 1", access, open Bay 6 3.5", SL 1", access, open Bay 7 3.5", SL 1", access, open Bay 8 3.5", SL 1", access, open Bay 9 3.5", SL 1", access, open Bay 9 3.5", SL 1", access, open Bay 10 3.5", SL 1", access, open Bay 11 3.5", SL 1", access, open Bay 13.5", SL 1", access, open Bay 10 3.5", SL 1"									
Slot 4: full, 64-bit 1 Slot 5: full, 64-bit 1	33MHz 3.3v PCI-X 33MHz 3.3v PCI-X 32-bit 33MHz 5.0v PC	2.4TB² with 4.0TB² with Simple-Swa	eight 30 eight 50 ap mode	Max interna 10GB 10K SA 10GB SATA 10GB SATA r 10GB SATA r	AS or hot-swap H rnal disk ca	IDDs apacity:	(Se • 24 l 2 h (Se ≈ 24x7 ¹⁴	rvicePac part n hr x 7 day cov our average re rvicePac part n toll-free supp	umber 21P2084) erage.

BM System x3	3455					xRE	F by STG	Field S	Skills and E	ducatio	n Team
IBM® Type-model Qty	x Processor	Speed/Core	L2 Cache	Optical	Memory [Disk / Controller	Diskbays	Slots x bays	Ethernet	Warranty (years)	³ Available date
7984 - 31U 1 x C 7984 - 41U 1 x C 7984 - 51U 1 x C	Opteron™ 2210 Opteron 2214 Opteron 2216 Opteron 2218 Opteron 2216 Opteron 2220SE	2.2GHz/DC 2.4GHz/DC 2.6GHz/DC	2MB 2MB 2MB 2MB 2MB 2MB 2MB	None CD-RW/DVD None None None None	2x512MB 2x512MB 2x512MB 2x512MB 2x512MB 4x512MB 4x512MB	80GB/SATA 80GB/SATA 80GB/SATA 80GB/SATA 80GB/SATA 80GB/SATA	2 fixed 2 fixed 2 fixed 2 fixed 2 fixed 2 fixed	2x3 2x3 2x3 2x3 2x3 2x3 2x3	Dual Gigabi Dual Gigabi Dual Gigabi Dual Gigabi Dual Gigabi Dual Gigabi	t 1 t 1	Sept 2006 Sept 2006 Sept 2006 Sept 2006 Sept 2006 Sept 2006
Positioning Processor(s) L2 cache SMP support Implementation	Up to two AM	1D® Opteron 20 re / at processo)00 Serí or speed	pute-intesnsive es Dual Core P d / Dual Core C rocessors (same 07-pin sockets, or one HTx slot	Processors up Capable	to 2.8GHz ¹ / s	simultaneou	usly supp	orts 32-bit ar	nd 64-bit	
Memory	1 or 2 GB sto available; dua twelve DIMM interleaving / 1, 2 and 4GB	d / 24GB max ¹ al cpu system: 1 gold-connecto Error Checkir DIMMs / onlin	³ per pro four slot r slots o ng and le hot-sp	ocessor (48GB) s used, eight sk n systemboard Correcting (EC pare memory / h	max per dua ots available / DIMMs mu CC) via 16-bit nardware scr	I cpu system) / PC-5300 6671 st be installed it Checksum / Xubbing	single cpu MHz regis n matched (celerated	system: tered 24 pairs [a Memory	two slots use 0-pin DDR2- bank] / dual o r Technolog	d, four sl SDRAM channel / y™ / Chi _l	ots RDIMMs / two-way okill™ on
SATA disk controller SATA controller/cable Disk - capacity Disk - bays Mechanical	e Two connecto 80GB / 7200	ors on planar / rom / 9.0ms se	two 1-d eek	vided by HT100 Irop cables / on filler panels in e nly / supported	e1-drop IDE	čable(for optica	ıl' drive)			S	
Architecture/chipsets	ServerWorks slot, HyperTra GB ethernet,	s™ Chipset / H ansport bridge IDE and LPC b	IT2100 to HT10 ous to N	System I/O Co 000 South Bridg IS PC87427 for	ontroller prov je / HT1000 : Super I/O	vides: one PCI- South Bridge p	Express x provides: P	16 slot, o CI-X, US	one PCI-Expr SB(2.0), ATI v	ess x8 or rideo, SA	one HTx TA, Dual
Bus slots	(See detail be	elow) one half-le	ength P	CI-E x16 and or	ne half-length	PCI-E x8 / opt	ion to conv	ert PCI-l	E x8 slot to H	Tx slot	
Ethernet Optical / diskette Rear ports Front ports Graphics Keyboard / mouse	Optional / IDE Rear: four U Front: two U SVGA / ATI®	: / <i>Diskette</i> nor ISB (Vers 2.0), SB (Vers 2.0)	e (USB serial (9 0) / on r	orts / Broadcom Wake on LAN® diskette optiona 9-pin), two ethe olanar / 16MB S ed)	al) rnet (RJ-45),	analog DB-15					anar /
Security Systems mgmt	Power-on and IBM Integrate	d administrator ed Baseboard	passwo Mana ç	ords / unattende gement Contro	d boot / sele ller(BMC) / l	ctable boot H82166 / IPMI	2.0				
Diagnostics		EDs for fans, rath Diagnostics		DIMMs and propported	ocessors /	Dual Core	AMD Opter	on Proces	sor Model 2210 sor Model 2214 sor Model 2216		40K1208 40K1215 40K1210
Software	ServerGuide utilities), IBM	™ (CD-ROM in Director™, and	nstallatio I others	on and configur	ation	Dual Core Dual Core	AMD Optero	on Processon Process	sor Model 2218 sor Model 2220	SE	40K1211 40K1209
Cooling	HDD bays / to	wo fans inside	nower's	rocessors, mem supply / able speed / no	,	2GB (2x10 4GB (2x20 8GB (2x40 IBM 80GF	GÉ) PC2-53(GB) PC2-53(GB) PC2-53(3.7.2K, 3.5", 3	00 CL5 EC 00 CL5 EC 00 CL5 EC SATA HDI	CDDR2 RDIM CDDR2 RDIM CDDR2 RDIM CDDR2 RDIN D	M Kit M Kit	41Y2759 41Y2762 41Y2765 41Y2768 39M4500
Power supply Prerequisites	650 watt / un	iversal / auto-s oard, mouse,	ensing / rack, os	/ auto-restart su	pport	IBM 160G IBM 250G	iB 7.2K 3.5" iB 7.2K 3.5' iB 7.2K 3.5'	SATA HE SATA H	DD DD		39M4504 39M4508 39M4514
power serial usb supply PCI-Esiot Top	vga ethernet PCI-Eslot2 PCI-E/	1TB with t 600GB wi	wo 500 th two 3	al disk capacity IGB SATA disk 300GB SAS dis S controller	s or	IBM 73GE IBM 146G IBM 300G IBM 73GE IBM 146G IBM SAS	3 10K 3.5" S 6B 10K 3.5" 6B 10K 3.5" 3 15K 3.5" 6B 15K 3.5" HBA Contro Riser Card	SAS HDD* SAS HDD SAS HDD SAS HDD SAS HDD)*)* *		40K1045 40K1046 40K1047 40K1049 40K1050 25R8060 32R3288 40K7462
Power slo #1 Supply Systemboa	ll clot			t, half-length, F t, half-length, F			ions at ibm.	com/pc/us	s/accessories		



Bay \odot 5.25", UltraSlim 0.5", access, optional optical Bay \odot 3.5", SL 1", no access, std fixed disk Bay \odot 3.5", SL 1", no access, open for fixed disk

- Stealth black color front bezel

- Steathfolds color from bezer

 H 1.72" (1U) x W 17.3" x D 25.7"

 H 43.7mm x W 439.9mm x L 653.3mm

 Solution 26 to 32 lbs; 11.8kg to 14.6kg (minimum to max configuration)

 Configuration/Setup Utility: F1 at startup

 Network Boot: F12 at startup

- Operator Information Panel in front
- Includes one line cord (9 ft universal interrack HV cable \Diamond with IEC plug)
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

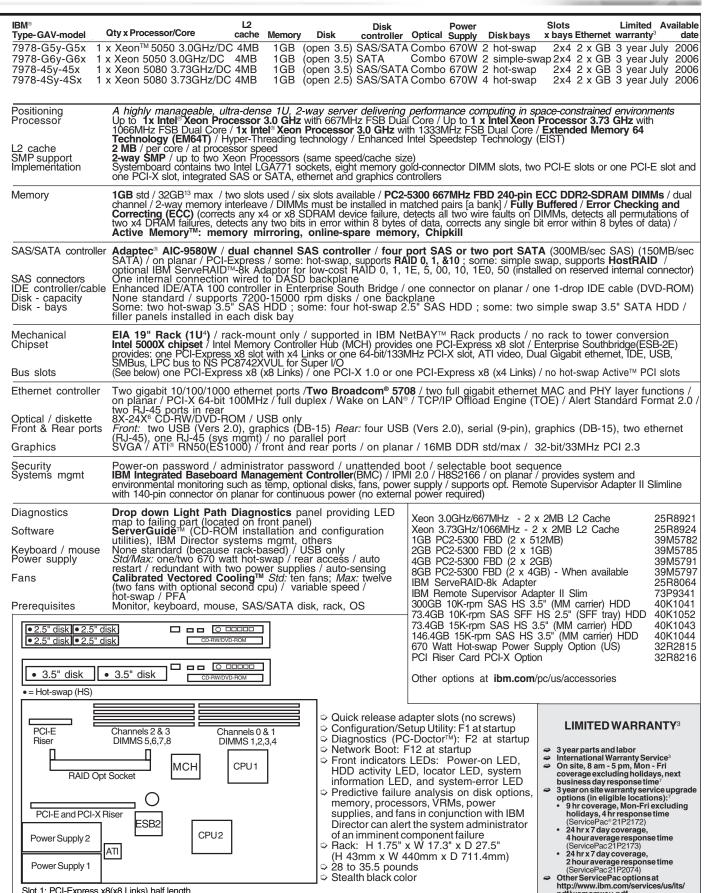
LIMITED WARRANTY³

- 1 year parts and labor
 International Warranty Service³
 On site, 8 am 5 pm, Mon Fri
 coverage excluding holidays,
 next business day response time²
 On site service upgrade options
 (in eligible locations):²
 1 year IOR 9x5, 4 hr avg response
 (ServicePac® partnum@P9399)
 2 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum@PP2119)
 2 year IOR 24x7, 2 hr avg response
 (ServicePacpartnum96P2119)
 3 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum96P9507)
 3 year IOR 9x5, NBD response
 (ServicePacpartnum69P9507)
 3 year IOR 9x5, NBD response
 (ServicePacpartnum69P9505)
 Other ServicePac options at
 www.lbm.com/services/us/its/pdf/wamomxeu.pdf
 24x7*4 tol-free support for warranty
 issues during the warranty period³

- issues during the warranty period³

*IBM SAS HBA Controller option required for SAS support

IBM®	L2 Corp. cache Memory		Slots x bays ot-swap bays) Power supply Eti	Available nernet date
7977-12y-12x 1 x > 7977-22y-22x 1 x >	y x Processor	None CAC / CATA Tower Gull	(8 hot-swap std/max) 1 x 835W hot-swap 2x (8 hot-swap std/max) 1 x 835W hot-swap 3x (8 hot-swap std/max) 1 x 835W hot-swap 3x (8 hot-swap std/max) 1 x 835W hot-swap 2x (8 hot-swap std/max) 1 x 835W hot-swap 3x (8 hot-swap std/max) 1 x 835W	Cigobit Jul 2006
Positioning Processor L2 cache SMP support Implementation	Universal server: two-way server using Up to 1 x Intel® Xeon Processor 3.0 CFSB Dual Core / Extended Memory 2MB / per core / all models / at process 2-way SMP / up to two Xeon Processor	the Xeon processor to provide positive with 667MHz FSB Dual Core 64 Technology (EM64T) / Hypersor speed ors (same speed/cache size) 1 sockets, twelve memory gold-core	ower and performance at an affordable pri / Up to 1 x Intel Xeon Processor 3.2 GHz	ce with 1066MHz
Memory	(ECC) (corrects any x4 or x8 SDRAM (lly Buffered / 2-way memory inter device failure, detects all two wire t thin 8 bytes of data, corrects any s	MMs are supported, 24GB is the max with 1240-pin ECC DDR2-SDRAM DIMMs / DIN leave / dual channel / Error Checking and faults on DIMMs, detects all permutations disingle bit error within 8 bytes of data) / Acti	d Correcting of two x4 DRAM
SAS/SATA controller SAS connectors SAS cabling	Adaptec® AIC-9580W / eight port S supports RAID 0, 1, 5 &10 / ServeRAID 8k sto Dual channel controller wired to two ho Two mini SAS cables connect controlle	l t-swap DASD backplanes	150MB/sec SATA) / hot-swap / on planar /	PCI-Express /
IDE controller / cable Disk - capacity Disk - bays	IDE ATA 66/33 / one connector on plar None std / supports 7200-15000 rpm d Eight hot-swap SAS/SATA bays	nar / one 2-drop IDE cable (DVD-F	ROM)	
Mechanical Slots (see below) Chipset	Tower / conversion to EIA 26" Rack (5three PCI-Express, two PCI-X 64-bit/1 Intel 5000P chipset / Intel Memory Coprovides: one PCI-Express x8 slot with Gigabit ethemet, IDE, USB, SMBus, LP Dual 10/100/1000 gigabit / Broadcom®	33MHz and one PCI 32-bit/33MH: introller Hub (MCH) provides two l x4 Links, two 64-bit/100MHz PCI 'C bus to NS PC8374L for Super I,	z slot PCI-Express x8 slots / Enterprise Southbrid -X slots, one 32-bit/33MHz PCI slot, ATI vi /O ss 64-bit 100MHz / full duplex / Wake on L	dge(ESB-2E) deo, Dual AN® / IPMI (2.0)
DVD-ROM / diskette Rear ports Front port / graphics	16X ⁶ DVD-ROM / IDE / 1.6" HH; <i>Diske</i>	ette: USB only	graphics (DB-15), two ethernet (RJ-45), R. blanar / 16MB DDR std/max / 32-bit/33MH	
Security	Power-on password / administrator pasdisk bays and power button / unattende	ssword / front door to cover	Xeon 3.0GHz/667MHz/4MB L2 Cache Proc Upg Xeon 3.2GHz/1066MHz/4MB L2 Cache Proc Upg	25R8926 25R8912
Systems mgmt Diagnostics Software	IBM Integrated Baseboard Managen H8S2166 / on planar / provides system such as temp, optional disks, fans, pow Supervisor Adapter II Slimline with 140-continuous power (no ext pwr reqd) Light Path Diagnostics™ panel provic (on side cover) / Information LED Panel ServerGuide™ (CD-ROM installation autilities), IBM Director, others	and environmental monitoring ver supp / supports opt. Remote pin connector on planar for ling LED map to failing part	Xeon 1.6GHz/1066MHz/4MB L2 Cache Proc Upg Xeon 1.86GHz/1066MHz/4MB L2 Cache Proc Upg Xeon 2.0GHz/1333MHz/4MB L2 Cache Proc Upg Xeon 2.33GHz/1333MHz/4MB L2 Cache Proc Upg Xeon 3.0GHz/1333MHz/4MB L2 Cache Proc Upg Xeon 3.0GHz/1333MHz/4MB L2 Cache Proc Upg Xeon 3.0GHz/1333MHz/4MB L2 Cache Proc Upg IGB Kit (2x512MB DIMM) PC2-5300 DDR2 FBD CL4 2GB Kit (2x1GB DIMM) PC2-5300 DDR2 FBD CL4 4GB Kit (2x2GB DIMM) PC2-5300 DDR2 FBD CL4	40K1231 40K1232 40K1233 40K1235 40K1235 40K1236 39M5782 39M5785 39M5785
Keyboard / mouse Power supply Fans	Optional 835 watt / std/max: one/two / hot-swap redundant with optional power supply std/max: three/six / three fans (mid-cha (Opt) two additional mid-chassis fans ar optional fans / PFA / fan in each power	ssis) / variable speed / hot-swap / nd one rear / redundant with	73GB 10K SAS Hot-Swap HDD 146GB 10K SAS Hot-Swap HDD 300GB 10K SAS Hot-Swap HDD 36GB 15K SAS Hot-Swap HDD 73GB 15K SAS Hot-Swap HDD 146GB 15K SAS Hot-Swap HDD	40K1039 40K1040 40K1041 40K1042 40K1043 40K1044
5.25"HH 5.25"HH • 4 • 5 • 6 • 8 Bar Bar Bar Bar Bar	/ 1 5.25", HH 1.6" access, DVD-RON / 2 5.25", HH 1.6" access, open / 3 5.25", HH 1.6" access, open / 4 3.5", SL 1", access, hot-swap / 5 3.5", SL 1", access, hot-swap / 6 3.5", SL 1", access, hot-swap / 7 3.5", SL 1", access, hot-swap	 Quick release adapter slots (n Configuration/Setup Utility inv 	BOGB 7.2K SATA Hot-Swap HDD 160GB 7.2K SATA Hot-Swap HDD 250GB 7.2K SATA Hot-Swap HDD 250GB 7.2K SATA Hot-Swap HDD IBM Remote Supervisor Adapter II Slimline IBM Redundant Power and Cooling Option(NA) Otheroptions at www.ibm.com/pc/us/accessories 10 SCrewS) O SCREWS) O Keed by	39M4518 39M4522 39M4526 39Y9566 39Y8487
Tower Slot 1: half-length Slot 2: full, PCI-E Slot 3: full, PCI-E Slot 4: full, 64-bit Slot 5: full, 64-bit	/ 8 3.5", SL 1", access,hot-swap / 9 3.5", SL 1", access,hot-swap / 10 3.5", SL 1", access,hot-swap / 11 3.5", SL 1", access,hot-swap / PCI-Express x8(x4 electrical)	pressing F1 at startup Aurora RAID Configuration Ustartup by pressing CTRL+/ ACPI 2.0-compliant Operator Information Panel (ii Predictive failure analysis on memory, processors, VRMs, supplies, and fans in conjunct Director can alert the system of an imminent component fai Tower: H 17.3" x W 8.6" x 74 to 101 pounds Stealth black color	Juliity near A A A A A A A A A A A A A	olidays, next e time? service ligible nolidays, sonse m 21P2083) ge, sonse ber 21P2084)
	2.4	models: Max internal disk cap ITB ² with eight 300GB 10K SAS ITB ² with eight 250GB SATA hot	acity: (ServicePac part num or 24x7 ¹⁴ toll-free support issues during the warr	ber 21P2085) for warranty



riser determines PCI-Express or PCI-X

See footnotes for important warranty information

Max internal disk capacity: 3.5" SAS models: 600GB² with two 300GB SL disks

Stealth black color

2.5: SAS models: 292GB2 with four 73.4GB SFF disks

3.5" SATA models: 1TB2 with two 500GB SL disks

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pdf/wamomxeu.pdf

24x7¹⁴toll-free support for warranty issues during the warranty period³



riser determines PCI-Express or PCI-X

See footnotes for important warranty information

Power Supply 1

Max internal disk capacity: 3.5" SAS models: 600GB² with two 300GB SL disks

28 to 35.5 pounds Stealth black color

2.5: SAS models: 292GB2 with four 73.4GB SFF disks

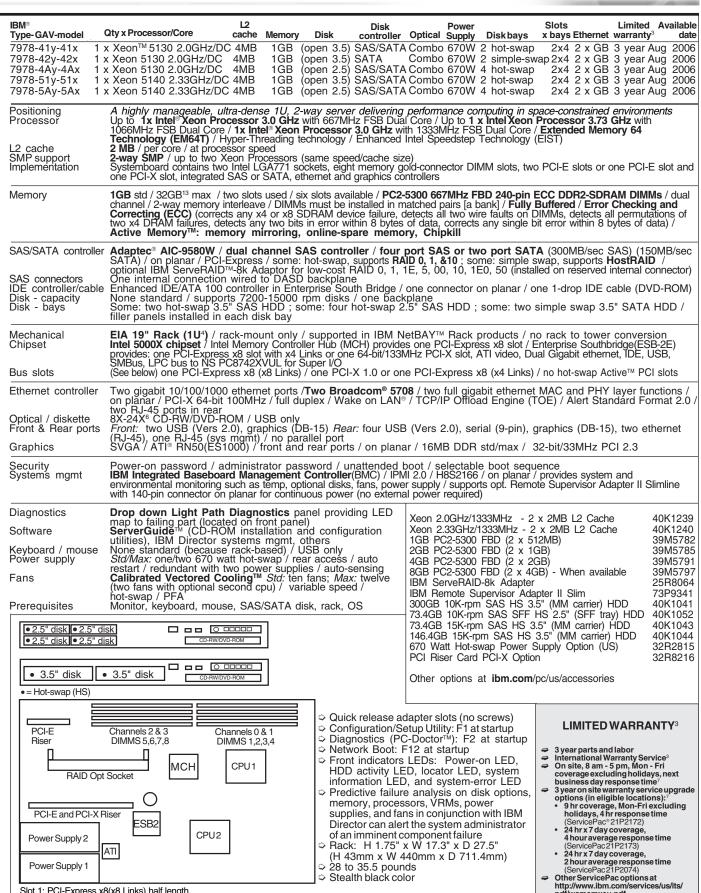
3.5" SATA models: 1TB2 with two 500GB SL disks

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2 hour average response time (ServicePac 21P2074) Other ServicePac options at http://www.ibm.com/services/us/its/

pdf/wamomxeu.pdf

24x7¹⁴toll-free support for warranty issues during the warranty period³



riser determines PCI-Express or PCI-X

See footnotes for important warranty information

Max internal disk capacity: 3.5" SAS models: 600GB² with two 300GB SL disks

2.5: SAS models: 292GB2 with four 73.4GB SFF disks

3.5" SATA models: 1TB2 with two 500GB SL disks

Stealth black color

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24x7¹⁴toll-free support for warranty issues during the warranty period³

•				ia ckine and Eddodion ream
7978-61y-61x 1 7978-6Ay-6Ax 1 7978-71y-71x 1	x Xeon 5150 2.66GHz/DC 4MB 1GB(o x Xeon 5160 3.0GHz/DC 4MB 1GB(o	pen 3.5) SAS/SATA pen 3.5) SAS/SATA pen 3.5) SAS/SATA	Optical Supply Diskbays Combo 670W 2 hot-sway Combo 670W 2 hot-sway Combo 670W 2 hot-sway Combo 670W 4 hot-sway	2x4 2 x GB 3 year Aug 2006 2x4 2 x GB 3 year Aug 2006
Positioning Processor L2 cache SMP support Implementation	A highly manageable, ultra-dense 1U, 2-w. Up to 1x Intel® Xeon Processor 3.0 GHz wir 1066MHz FSB Dual Core / 1x Intel® Xeon Processor 3.0 GHz wir 1066MHz FSB Dual Core / 1x Intel® Xeon Processor Speed 2 MB / per core / at processor speed 2-way SMP / up to two Xeon Processors (sa Systemboard contains two Intel LGA771 sochone PCI-X slot, integrated SAS or SATA, ethe	th 667MHz FSB Dua rocessor 3.0 GHz wi hnology / Enhanced ame speed/cache siz kets, eight memory g	I Core / Up to 1 x Intel Xeor th 1333MHz FSB Dual Core Intel Speedstep Technology e) old-connector DIMM slots, tw	n Processor 3.73 GHz with / Extended Memory 64 (EIST)
Memory	1GB std / 32GB¹³ max / two slots used / six channel / 2-way memory interleave / DIMMs r Correcting (ECC) (corrects any x4 or x8 SDI two x4 DFAM failures, detects any two bits in Active Memory™: memory mirroring, o	must be installed in m RAM device failure, o n error within 8 bytes	atched pairs [a bank] / Fully letects all two wire faults on of data, corrects any single	ECC DDR2-SDRAM DIMMs / dual Buffered / Error Checking and DIMMs, detects all permutations of bit error within 8 bytes of data) /
SAS connectors	Adaptec® AIC-9580W / dual channel SASATA) / on planar / PCI-Express / some: ht optional IBM ServeRAID™-8k Adaptor for kt One internal connection wired to DASD benhanced IDE/ATA 100 controller in Enterp None standard / supports 7200-15000 rp Some: two hot-swap 3.5" SAS HDD; son filler panels installed in each disk bay	ow-cost RAID 0, 1, 1 backplane brise South Bridge /	IE, 5, 00, 10, 1E0, 50 (insta one connector on planar /	alled on reserved internal connector) one 1-drop IDE cable (DVD-ROM)
Mechanical Chipset Bus slots	EIA 19" Rack (1U4) / rack-mount only / s Intel 5000X chipset / Intel Memory Controlle provides: one PCI-Express x8 slot with x4 Lin SMBus, LPC bus to NS PC8742XVUL for Su (See below) one PCI-Express x8 (x8 Links) /	r Hub (MCH) provide ıks or one 64-bit/133N per I/O	s one PCI-Express x8 slot / /IHz PCI-X slot, ATI video, D	Enterprise Southbridge(ESB-2E) lual Gigabit ethernet, IDE, USB,
Ethernet controller Optical / diskette Front & Rear ports Graphics	Two gigabit 10/100/1000 ethernet ports /Tron planar / PCI-X 64-bit 100MHz / full dupl two RJ-45 ports in rear 8X-24X° CD-RW/DVD-ROM / USB only <i>Front</i> : two USB (Vers 2.0), graphics (DB-(RJ-45), one RJ-45 (sys mgmt) / no parall SVGA / ATI® RN50(ES1000) / front and respectively.	lex / Wake on LAN®	/ TCP/IP Offload Engine (TOE) / Alert Standard Format 2.0 /
Security Systems mgmt	Power-on password / administrator passw IBM Integrated Baseboard Management C environmental monitoring such as temp, optio with 140-pin connector on planar for continuo	ontroller(BMC) / IPM nal disks, fans, powe	ll 2.0 / H8S2166 / on planar r supply / supports opt. Rem	/ provides system and
Diagnostics Software Keyboard / mouse Power supply Fans Prerequisites •2.5" disk	d configuration ners B only access / auto s / auto-sensing ans; <i>Max</i> : twelve ble speed /	Xeon 2.66GHz/1333MHz - Xeon 3.0GHz/1333MHz - 2 1GB PC2-5300 FBD (2 x 5 2GB PC2-5300 FBD (2 x 6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	x 2MB L2 Cache 40K1242 39M5782 (GB) 39M5785 (GB) 39M5791 39M5797 (GB) - When available r 25R8064 (apter II Slim 73P9341 40K1041 (HS 2.5" (SFF tray) HDD 40K1052 3.5" (MM carrier) HDD 40K1043 3.5" (MM carrier) HDD 40K1044 Supply Option (US) 32R2815	
• 3.5" disk	• 3.5" disk	-	PCI Riser Card PCI-X Option Other options at ibm.com	on 32R8216
PCI-E Riser RAID Opt PCI-E and PCI-X F Power Supply 2 Power Supply 1		 Configuration/Si Diagnostics (PC Network Boot: For indicators HDD activity LE information LED Predictive failure memory, processupplies, and fail Director can ale of an imminent c Rack: H 1.75" 	LEDs: Power-on LED, D, locator LED, system, and system-error LED e analysis on disk options, sors, VRMs, power is in conjunction with IBM the system administrator omponent failure (W 17.3" x D 27.5" 40mm x D 711.4mm) ds	LIMITED WARRANTY³ ⇒ 3 year parts and labor ⇒ International Warranty Service³ ⇔ On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time² ⇒ 3 year on site warranty service upgrade options (in eligible locations):7 • 9 hr coverage, Mon-Fri excluding holidays, 4 hr response time (ServicePac® 21P2172) • 24 hr x7 day coverage, 4 hour average response time (ServicePac® 21P2173) • 24 hr x7 day coverage, 2 hour average response time (ServicePac® 21P2074) ⇔ Other ServicePac 21D2074)

* riser determines PCI-Express or PCI-X

See footnotes for important warranty information

Max internal disk capacity: 3.5" SAS models: 600GB² with two 300GB SL disks 2.5: SAS models: 292GB² with four 73.4GB SFF disks

3.5" SATA models: 1TB2 with two 500GB SL disks

(ServicePac21P2173)

• 24 hr x 7 day coverage,
2 hour average response time
(ServicePac21P2074)

• Other ServicePac options at
http://www.ibm.com/services/us/its/
pdf/wamomxeu.pdf

• 24xT**toll-free support for warranty
issues during the warranty period³

	y x Processor Core cache Xeon™ 5050 3.0GHz DC 4MB		Disk controller M SAS / SATA	echanica Rack	Slots x bays al (hot-swap bays) 4x7 (4 or 6 hot-swap) 1	Power supply Ethe x 835W Hot-Swap 2xGi	
7979-GSý-GSx 1 x 2 7979-H5v-H5x 1 x 2	Xeon 5050 3.0GHz DC 4MB Xeon 5063 3.2GHz DC 4MB Xeon 5063 3.2GHz DC 4MB	1GB None S 1GB None S 1GB None S	SAS / SATA SAS / SATA	Rack Rack Rack	4x10 (8 hot-swap) 1 4x7 (4 or 6 hot-swap) 1	x 835W Hot-Swap 2xGi x 835W Hot-Swap 2xGi x 835W Hot-Swap 2xGi x 835W Hot-Swap 2xGi	gabit Jul 2006 gabit Jul 2006
Positioning Processor	A rack-dense 2-way server of Up to 1x Intel® Xeon Process FSB Dual Core / Extended M Technology (EIST)	or 3.0 GHz with	n 667MHz FSI	B Dual (Core / Up to 1 x Intel Xe	on Processor 3.2 GHz	with 1066MHz
L2 cache SMP support Implementation	2 MB / per core / at processor 2-way SMP / up to two Xeon Systemboard contains two Inte and two PCI-X slots, integrated	Processors (sar LGA771 socke	me speed/cac ets, twelve me and graphics	he size) emory go controlle	old-connector DIMM slot rs	s, four PCI-E slots or tw	o PCI-E slots
Memory	1GB std / 48GB¹³ max / two sl channel / 2-way memory interle Correcting (ECC) (corrects are two x4 DRAM failures, detects Active Memory™: memory	eave / DIMMs m ny x4 or x8 SDR anv two bits in	ust be installe AM device fai error within 8	d in mat lure, de bytes o	tched pairs [a bank] / Fu tects all two wire faults of f data, corrects any sing	IIv Buffered / Error Che	cking and
SAS connectors	Adaptec® AIC-9580W / dui hot-swap / on planar / PCI-Exp 10, 5 & 6 (installed on reserv One internal connection win Enhanced IDE/ATA 100 cont None standard / supports 7 Some: six hot-swap 3.5" SA Optional internal and extern	ress / supports R ed internal con ed to DASD ba oller in Enterpri 200-15000 rpm S HDD / some	AID 0, 1 & 10 / nector) ackplane / or se South Brid disks / one eight hot-sy	optiona ne exter lae / one	ıl IBM ServeRAID™-8k rnal connector e connector on planar / o	Adaptor for low-cost R/	AID 0, 1, 1E, RW/DVD-ROM)
Mechanical Chipset	EIA 19" Rack (2U ⁴) / rack-Intel 5000P chipset / Intel Me bit/133MHz PCI-X slots / Enter ethernet, IDE, USB, SMBus, LI (See below) Two PCI-Express	mory Controller prise Southbridg PC bus to NS PC	Hùb (MCH) p je(ESB-2E) pr C8742XVUL fo	rovides ovides: or Supe	riser connector for either two PCI-Express x8 slot r I/O	r two PCI-Express x8 slo with x4 Links, ATI video	ots or two 64- o, Dual Gigabit
Ethernet controller Optical / diskette Front & Rear ports Graphics	Dual gigabit 10/100/1000 eth on planar / PCI-Express / ful two RJ-45 ports in rear 8X-24X° CD-RW/DVD-ROM <i>Front:</i> two USB (Vers 2.0), (RJ-45), one RJ-45 (sys mg SVGA / ATI® RN50(ES1000	l duplex / Wake / USB only	e on LAN® / 1	CP/IP	Offload Engine (TOE)	/ Alert Standard Forma	t 2.0 /
Security Systems mgmt	Power-on password / admir IBM Integrated Baseboard N environmental monitoring such with 140-pin connector on plan	as temp, option	al disks, fans,	power s	supply / supports opt. Re	equence lar / provides system and emote Supervisor Adapte	d er II Slimline
Diagnostics Software Keyboard / mouse Power supply Fans Prerequisites	Drop down Light Path Dia map to failing part (located of ServerGuide™ (CD-ROM in trillities), IBM Director syste None standard (because rac Std/Max: one/two 835 wath restart / redundant with two properties of the fars with optional second with ten fans installed; All: var Monitor, keyboard, mouse, S	n front panel) installation and ms mgmt, othe k-based) / USB ot-swap / rear a power supplies g	configurationers s only access / auto / auto-sensin ns; <i>Max:</i> ten n) / redundant ot-swap / PFA	g 88 81 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	BM ServeRAID-8k Adar BM Remote Supervisor / 300GB 10K-rpm SAS HS	2 x 2MB L2 Cache x 512MB) x 1GB) x 2GB) x 4GB) - When available oter	25R8926 25R8927 39M5782 39M5785 39M5791 39M5797 25R8064 39Y9566 40K1041
Drop Down lightpath panel USB Vid CD-RW/DVD-ROM Bay ① 5.25", 0.	2x 3.5" disk • 3.5" disk 5" access, slimCD-RW/DVD-ROM	with 3.5" SAS		7 1 8 8 F	3.4GB 15K-rpm SAS H	S 3.5" (MM carrier) HDD HS 3.5" (MM carrier) HD er Supply Option (US) er Supply Option (WW) ress Option	40K1043
Bay ② 3.5", SL 1" Bay ③ 3.5", SL 1" Bay ④ 3.5", SL 1"	 access, hot-swap, open for dis 	k		C	Other options at ibm.co	om/pc/us/accessories	
Bay @ 3.5", SL 1" Bay © 3.5", SL 1" Bay © 3.5", SL 1" Bay © 3.5", SL 1" Drop Down lightpathpanel CD-RWIDVID-ROM Bay ① 5.25", SFT 1", Bay ② 2.5", SFT 1", Bay ⑥ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1", Bay ⑨ 2.5", SFT 1",	access, hot-swap, open for dis access, hot-swap, open for dispersion in the formation in the forma	2U Rack with 2.5" SAS	 Configurati Diagnostic Network B Front indic HDD activi informatior Predictive memory, p supplies, a Director ca of an immir Rack: H 3 	ion/Setus (PC-I oot: F1: attors L tators EDs: Power-on LED, locator LED, system and system-error LED analysis on disk option ors, VRMs, power in conjunction with IBM he system administrato nponent failure W 17.5" x D 27.5" 43.6mm x D 698mm)	3 year parts and laborational Warra- on site, 8 am - 5 pm coverage excluding business day respor 3 year on site warran options (in eligible I • 9 hr coverage, Mcholidays, 4 hr resport (ServicePac 21P20 • 24 hr x 7 day cover 4 hour average response (ServicePac 21P20 • 24 hr x 7 day cover 2 hour average response control to the service of the service o	or tty Service ³ Mon - Fri nolidays, next isset time ⁷ ty service upgrade ocations): ⁷ n-Fri excluding ionse time 077) age, sponse time (78) age, sponse time	
Hot-swap (HS) Slot 1*: PCI-Express xt Slot 2*: PCI-Express xt Slot 3: low-profile, PC Slot 4: low-profile, PC *slots 1 & 2 riser detern*	3(x8 Links) or full length 64-bit 133Ml 3(x8 Links) or half length 64-bit 133M I-Express x8(x4 Links)	Hz 3.3v PCI-X Hz 3.3v PCI-X Max internal 3.5" SAS mod	Stealth bladisk capacity dels: 1.8TB ²	ck color		(ServicePac 21P20 Other ServicePac op http://www.ibm.com/ pdf/wamomxeu.pdf ≥ 24x7**toll-free supp issues during the warral	tions at services/us/its/ ort for warranty ity period ³

See footnotes for important warranty information



See footnotes for important warranty information



IBM® Type-model Qty x Pro	ocessor	L2 cache N	lemory	Ultra320 SC	SI disk	SCSI controller	Mechanica	Slots x bays	Disk Bays	Alarm Panel	Power supply	Compliant	Available date
7980-52X 2 x Xeor 7980-53X 2 x Xeor 7980-54X 2 x Xeor 7980-55X 2 x Xeor	1 3.2GHz	2MB 2MB	1GB 2GB 2GB 2GB	Open Open 2 x 146.8GI 2 x 146.8GI	B ² 10K B 10K	2 x Ultra320 2 x Ultra320 2 x Ultra320 2 x Ultra320	2U⁴ rack 2U rack 2U rack 2U rack	6x3 6x3 6x3 6x3	2 HS 2 HS 2 HS 2 HS	Yes Yes Yes Yes	DC power AC power DC power AC power	NEBS-3 NEBS-3	May 2006 May 2006 May 2006 May 2006
DC power	r models ard	e desig				tures requiri		equipm		suppor	t DC power	environm	ents
Positioning Processor(s) L2 cache Implementation SMP support	2 x Intel® x 2MB std a Systemboa integrated	keon 3.2 and max ard conf subsys	2GHz w (/ ECC tains tw stems	vith 800MHz / at process vo Intel 604	FSB / sor spe pin mid	or providers of Optimized for ed ero-PGA ZIF r is standard	sockets, s	Memor	y 64 To	echnolo	•	, ,,	ŭ
Memory	DIIVIIVIS ML	ıst de ir	nstalled	in matched	pairs is	400MHz regi ets used / Fo a bank] / two ine spare an	-wav mem	orv interi	eave /	duai-cr	nannei / Er	/ Six DIMI BB or 1GB ror Check	M gold- DIMMs / ing and
SCSI disk controller SCSI channels SCSI disk SCSI disk bays IDE controller / cable	SCSI Chai SCSI Chai Up to two Two hot-sv	nnel A: nnel B: 1 46.80 wap dis	one inte externa BB Ultra k bavs	ernal 16-bit 8 al 16-bit .8mi a320 SCSI, 1 in disk drive	80-pin` m VHD 10K rpr e carrie	LVD cable from the control of the co	om controll ternal conr d seek, S.I out from f	er to two nector (no M.A.R.T. ront	o-báy d o cable ⁵ / RA	isk drives) ID 0 an	e carrier d 1		architecture
Mechanical Rack support PCI bus slots Chipset	Designed f	for insta	llátion i			ack unit only (it 133MHz ski tive™ PCI sko ller Hub (MC CI-X support PCI riser boa 7 for Super I/							
Bays Ethernet DVD-ROM / diskette Ports	Dual Gigab Adapter Fa 24X-10X ⁶ s Rear: Two SCSI; DB-	oit 10/100 oult Toler slim-line o USB p 15 male	0/1000 e rance, F e CD-D orts (Ve e conne	ethernet ports Failover VD ROM / U er 2.0); RJ-4	/ Intel 8 ISB onl 15 seria t panel	s (hot-swap) 32546 / on pla ly al; combo ke alarm relay	nar / full-duṗ yboard anc	olex / sup _l I mouse;	ports W	/ake on J-45 et			
Graphics controller	SVGA / PC	CI bus /	ATI® R	Rage XL (on	planar)	/ 16MB SDF	RAM std/ma	x / 1600	x1200	at 16M	colors at 8	5Hz / DB-1	5
Security	Power-on	passwo	rd / adr	min passwor	rd / una	attended boo	t / selectab	le boot /	boot v	vithout	keyboard		
Alarm panel Status LEDs Systems mgmt	four alarm Operator Integrated	panel [*] L Informa Servic	.EDs: p ation Pa e proce	ower alarm f anel (in fron essor (Baset	fault, cr nt) / inc board N	es 24x7 surve ritical alarm fa ludes switch Management rer supplies	ault, major es (NMI, p Controller)	alarm fai ower, res / on pla	ulf, mir set) an nar / fa	ior aları d statu: ailures d	m fault s LEDs (N	IC, disk, m	ain power)
OS support Software ship group	Microsoft® \ Resource	Windows CD (CE	s™ Serv D-ROM i	rer 2003, Ente installation an	erprise I nd confi	Edition / Red I guration utilitie	Hat® Enterpo es, Intel Ser	rise Linux ver Contr	3 & 4 z ol serve	AS / SU er mana	SE® Linux E gement sof	Enterprise S tware, Prod	erver 9 uct Guide)
Keyboard / mouse Power supply	DC 600 wa	wo / rea att (-48	r acces to -60	śsible / AC 6	orts du	ıal input sour	,	ions avai	ilable v	ia spec	ial Bid		
Fans	fan failure	signals	front pa	not hot-swap anel alarm L / / fan on ea	ED /								
Prerequisites				ource and cu se, rack, op		supplied wiri	ng,						
Slot 2: fullsize, 64		z PCI-X z PCI-X Iz PCI-)	((5V) ((5V) X (3.3V	')	Confi press	en black colo iguration/Setu sing F2 at sta ISelect near L+A	ıp`Utility inv artup	oked by		 ⇒ 3/3 ⇒ Inte ⇒ On cov nex ⇒ 2 ye upg loca 	LIMITED N year parts ernational M site, 8 am - erage exclut t business ear on site grade optionations):7	and labor larranty Se 5 pm, Mor uding holid day respor warranty ns (in eligit	ervice ³ n - Fri ays, nse time ⁷ service
Slot 6: low-profile, 6: CD-ROM disk bay Bay ② 3.5", 0.5", Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1",	disk ba	ay 2 CD-D\	X (3.3V 2U Rac VD ROI disk	() () () () () () () () () () () () () (⇒ PC-E⇒ Seve⇒ H 3.4⇒ H 87	Doctor™ diag ral hardcopy 45" x W 17.1 .6 mm x W 4 o 37 pounds (publicatio 4" x D 20.0 35.3 mm x	ns " D 508 m		• 2 • 2 • 2 • 2 9	olidays, 4 16P2122 14 hr x 7 da 1 hour aver 16P2123 14 hr x 7 da 1 hour aver 16P2124	hr respons ay coverag age respon ay coverag age respon	se time e, nse time e, nse time
,	, -			2	All mod 293.6GE	<i>els:</i> Max int 3° with two 1	Max int disk capacity: h two 146.8GB SL disks → 24x7 ¹⁴ toll-free support for w. issues during the warranty p						

IBM® Type-model Qty	x Processor	Speed/Core	L2 Cache	Optical	Memory	Disk / Controller	Disk bays	Slots x bays		ranty ³ Available ears) date
7985 - 11U 1 x 0 7985 - 14U 1 x 0 7985 - 21U 1 x 0 7985 - 24U 1 x 0 7985 - 41U 1 x 0 7985 - 44U 1 x 0 7985 - 51U 1 x 0 7985 - 54U 1 x 0	opteron 2210 opteron 2212 opteron 2212 opteron 2216 opteron 2216	0 1.8GHz/DC 1.8GHz/DC 2.0GHz/DC 2.0GHz/DC 2.4GHz/DC 2.4GHz/DC 2.6GHz/DC 2.6GHz/DC	2x1MB 2x1MB 2x1MB 2x1MB 2x1MB 2x1MB	CD-RW/DVD CD-RW/DVD CD-RW/DVD CD-RW/DVD CD-RW/DVD CD-RW/DVD CD-RW/DVD CD-RW/DVD	2x512MB 2x512MB 2x512MB 2x512MB	Open/SAS Open/SAS/SAT. Open/SAS Open/SAS/SAT. Open/SAS Open/SAS/SAT. Open/SAS	A 6-3.5"HS 8-2.5"HS A 6-3.5"HS 8-2.5"HS	4x7 4x10 4x7 4x10 4x7 4x10	Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit	3 Nov 2006 3 Nov 2006
Positioning Processor(s) L2 cache SMP support Implementation	Up to two A 1MB / per of 2-way SMF Systemboa	AMD® Opteron 2 core / at proces P / up to two O rd contains two	2000 Seri ssor spee pteron Pi AM2 soo	d rocessors (sam	Processors of speed/cathernory DIM	ip to 2.6GHz ¹ / sir the size required) M slots, integrated	·	• •		. 0
Memory	Error Chec	king and Cori	recting (i	sor (64GB max slots available d / DIMMs mus ECC) via 16-bit / hardware scru	Checksum	u system) / single 67MHz registere d in matched pairs / Xcelerated Mer	cpu system: t d 240-pin DE s [a bank] / du nory Techno	two slo DR2-SD Ial chai Iogy™	ts used, six slot: PRAM RDIMMs / nnel / two-way ir / Chipkill™ on	s available; <i>dual</i> sixteen DIMM nterleaving / 1, 2 and 4GB
SAS controller	Adaptec® A supports RA connector)	AIC-9580W / du ID 0, 1 & 10 / opt	ual chan tional IBN	nel SAS contro I ServeRAID™-	oller / eight 8k Adaptor i	port SAS (300M or low-cost RAID	B/sec SAS) / 0, 1, 1E, 10, 5	hot-sw 5 & 6 (ii	ap / on planar / nstalled on rese	PCI-Express / ved internal
SAS connectors SATA disk controll IDE controller/cable Disk - capacity Disk - bays	One internated integrated Enhanced I None stand	SATA II contro DE/ATA 100 co lard / supports not-swap 3.5" S.	oller / pro ontroller in 7200-150	tegrated in Sou 100 rpm disks /	th Bridge / o one backpla	ne connector on p		•	,	,
Tape backup			nal / 3.5" .	/ USB or SATA						
Mechanical Chipset Bus slots	ServerWor HyperTrans ethernet, ID (See detail	ks™ Chipset / port bridge to H E and LPC bus	HT2100 HT1000 S Is to NS P	System I/O C South Bridge / I C87427 for Sup	ontroller pro HT1000 Soυ Der I/O	I NetBAY™ Rac ovides: two PCI-E th Bridge provide e PCI-E x8 and on	xpress x8 slo es: PCI-X, US	t, one B(2.0),	PCI-Express x4 ATI video, SAT	slot, A, Dual GB
Ethernet Optical / diskette Ports	Two gigabit PCI-X 64-bi 24x/10x/24x Front: two	10/100/1000 e t 100MHz / TC 8x CD-RW/D\<br USB (Vers 2.0	P/IP offio /D / IDE). DB-15	ad engine (TOE / <i>Diskette</i> none graphics / <i>Rea</i>	E) / full duple e (USB diske r: four USB	(Vers 2.0), serial	[®] / two rear R	J-45 po	orts	·
Graphics Keyboard / mouse	SVGA / AT None stand	alog DB-13 gla l® ES1000(RN5 lard (because r	60b) / on pack-base	arallel port not s planar / 16MB S d) / USB only	SDRAM std/	Dual Core	AMD Opteron F AMD Opteron F AMD Opteron F	rocesso	or Model 2212	25R8938 25R8939 25R8940
Security	Power-on a selectable b		or passwo	ords / unattende	ed boot /	Dual Core	AMD Opteron F	rocesso	or Model 2218 DDR2 RDIMM Kit	40K1212
Systems mgmt	IBM Integr		rd Mana	gement Contro	oller (BMC)	/ 2GB(2x10	BB) PC2-5300 C	L5 ECC	DDR2 RDIMM Kit DDR2 RDIMM Kit	41Y2762
Diagnostics	Drop dow	n Light Path	Diagnos	stics panel pr	oviding LEI) 8GB (2x40		L5 ECC	DDR2 RDIMMK	
Software	ServerGuio utilities), IBI	le ™ (CD-ROM M Director™, ar	installation od others	nt paṅel) on and configui	ration	IBM 146G IBM 300G	B 10K 3.5" SAS B 10K 3.5" SAS B 15K 3.5" SAS	S Hot-S\ S Hot-S	vap HDD* wap HDD*	40K1040 40K1041
Power supply	Std/Max: o	ne/two 835 wa	att hot-sw	ap / rear acce	ess / auto	IBM 73GB	15K 3.5" SAS	Hot-Sw	/ap HDD*	40K1042 40K1043
Fans	(five fans v	vith optional se	econd bo	r supplies / au Std: five fans; wer supply) / i speed / hot-sv	edundant	IBM 73GB	B 15K 3.5" SA 15K SAS SFF 15K SAS SFF B 7.2K 3.5" SA	Hot-Sw	/ap HDD*	40K1044 40K1051 40K1052 39M4530
Prerequisites	Monitor, ke	eyboard, mous	e, disk,	rack, OS		IBM SAS	HBA Controller Riser Card		Chapilob	25R8060 40K7428
26 to 32 poundStealth black of Quick release	/ 439.9mm x D 6: ls olor adapter slots (no Setup Utility: F1 a C-Doctor™): F2	53.3mm) s screws) at startup	HDD activinformatic Predictive memory, supplies, Director of	cators LEDs: Pow rity LED, locator L on LED, and systen failure analysis of processors, VRM and fans in conjuntan alert the syste ent component fail	ED, system m-error LED on disk options ls, power nction with IBI m administrat	PCI-X Rise IBM Remo IBM Serve Qlogic Infii 835W Rec		ontroller band Ac Supply (U	dapter JS)	40K7427 39Y9566 25R8064 41Y4519 40K1905
1										

2U Rack with 2.5" SAS

2U Rack with 3.5" SAS/SATA

• 3.5" disk

• 3.5" disk

Drop Down light

pathpanel

Drop Down light path panel	Tape Drive	• 2.5 • 2.5 • 2.5 • 2.5
UŞB Video	• 2.5" disk	disk disk
Bay (9 5.25", 0.5", Bay (2) 3.5", 2", Bay (3) 2.5", SFF 1", Bay (4) 2.5", SFF 1", Bay (5) 2.5", SFF 1", Bay (6) 2.5", SFF 1", Bay (7) 2.5", SFF 1", Bay (8) 2.5", SFF 1", Bay (9) 2.5", SFF 1", Bay (9) 2.5", SFF 1",	access, slimCl access, open access, hot-sv access, hot-sv access, hot-sv access, hot-sv access, hot-sv access, hot-sv access, hot-sv access, hot-sv	D-RW/DVD-ROM for tape drive vap, open for disk vap, open for disk
Maximum internal disk	capacity ¹³ :	

• = Hot-swap (HS)

3TB with six 500GB SATA disks or

1.8TB with six 300GB SAS disks

		J.	B \	/ideo	Tape Dr	ive	• 3.5" disk
CE	D-RW/	DVD-ROM	_		2x 3.5" c	lisk	• 3.5" disk
Bay Bay Bay Bay Bay Bay Bay	3 4 5 6	5.25", 3.5", 3.5", 3.5", 3.5", 3.5", 3.5",	SL SL SL SL SL SL	1", 1", 1", 1",	access, access, access, access, access, access,	hot-swa hot-swa hot-swa hot-swa	-RW/DVD-ROM ap, open for disk ap, open for disk
	_						

Slot 1: Riser slot for PCI-Express x16(x16 Links), 64-bit 133MHz 3.3v PCI-X or HTx risers Slot 2: low-profile, PCI-Express x8(x4 Links) Slot 3: low-profile, PCI-Express x8(x8 Links) Slot 4: low-profile, PCI-Express x8(x8 Links)

- Jayear parts and labor International Warranty Service³ On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time⁷ On site service upgrade options (in eligible locations):⁷ 1 year IOR 9x5, 4 hr avg response (ServicePac*partnum69P9403) 2 year IOR 24x7, 4 hr avg response (ServicePacpartnum96P2123) 2 year IOR 24x7, 2 hr avg response (ServicePacpartnum96P2124 3 year IOR 24x7, 4 hr avg response (ServicePacpartnum96P2124) 3 year IOR 24x7, 4 hr avg response (ServicePacpartnum96P9258) Other ServicePacpartnum69P9258) Other ServicePac pottons at www.ibm.com/services/us/its/pdt/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

Type-model Qty x Processor

IBM[®]

Hot-swap Warranty Available

pwr supplies (yrs.)

Slots x

bays

8877-1RY 1 x Optero 8877-2RY 1 x Optero 8877-4RY 2 x Optero 8877-5RY 2 x Optero	on 8218 2.6GHz/DC 2	MB 95W (MB 95W]	One 2x512MB One 2x512MB Two 4x1GB Two 4x1GB	16	SAS 4U SAS 4U	l ⁴ rack I rack I rack I rack	7x5 7x5 7x5 7x5 7x5	1 x 1500W 1 x 1500W 1 x 1500W 1 x 1500W 1 x 1500W	3 3 3 3	Sep 2006 Sep 2006 Sep 2006 Sep 2006
Positioning Processors L2 cache Processor upgrade Implementation	Up to 4-way, high perfor One AMD® Opteron 8000 9 1MB / per core / at proces 4-way SMP / up to four O System board contains for dedicated slot for optional f	Series Dual Core sor speed pteron Processo Ir CPU/Memory	e Processor up to rs (same speed/ Card Connectors	o 2.8GH cache si s, one H	z¹ / simultañ ze) / Dual C Tx slot, four	eously sup Fore Capab PCI-Expre	ports 32: le ss slots,	-bit and 64-b	oit comp	outing
Active Memory™	1 or 2GB std / 32GB max standard (up to four) with 8 registered 240-pin DDR2-S Xcelerated Memory Tech	per processor (B DIMM gold-cor BDRAM RDIMMs Inology TM / Chip	128GB max per inector slots eacl / two-way interle okill™ on 1, 2 an	chassis h / DIMM aving / E d 4GB D	using four o Is must be i Error Check DIMMs / onli	cpu/memon nstalled in r ing and Co ne hot-spar	/ cards) matched orrecting e memo	/ one cpu/m pairs / PC-5 g (ECC) via ry / hardwar	emory (300 66 16-bit C re scrub	card 7MHz Checksum / obing
SAS disk controller SAS connectors IDE controller / cabling Disk - capacity Disk - bays Mechanical	Adaptec® AIC-9580W SA: IBM ServeRAID™-8k Adap One internal connection wi Enhanced IDE ATA-100 co Supports up to 300GB 10k Four 3.5" hot-swap bays / EIA 19" Rack (4U") / rack	ntor for low-cost I red to DASD base controller integrate converged tray	RAID 0, 1, 1E, 5, ckplane ed in South Bridg	, 00, 10, e / one c	1E0, 50 (iṅs connector or	stalled on re n planar / or	eserved i ne 1-drop	nternal conn DE cable	nector) (DVD-R	
Chipset Bus Slots	ServerWorks™ Chipset / PCI-Express x4 slot, PCI-E to HT1000 South Bridge / provides: Vo PCI-X 1.0 slo Super I/O (See below) Four total PCI	ots at up to 64-bi	V 133IVIHZ, USB(2.0), A 1 1	video, IDE a	and LPC bi	is to ins	PC8/42/ 10	or	
DVD-ROM / diskette Ethernet Graphics controller Ports	8X° Slim DVD-ROM / none Dual Broadcom® 5708C 10 functions / PCI-Express / XVGA / ATI® RN50(ES10) Rear: RSA ethernet, RSA Front: two USB(2.0))/100/1000 ether full duplex / W full duplex / W	/ake on LAN® / 16MB SDRAM s	Alert Sta td/max /	andard Fori 32-bit 33MF	mat 2.0	vo RJ-4 ous	5 ports in re	ear	
Security Systems mgmt Diagnostics Software	Power-on and administrate BMC standard / IPMI 2.0 / ethernet and serial connectemperature, disks, fans, porop down Light Path Di IBM Real Time Diagnostics ServerGuide™ (CD-ROM	tors / provides re lower supplies l agnostics / prin s (operated throu	emote console a nary indicator on ugh IBM Director	nd mgmi informat) availab	t / power on ion panel w le even whil	off system	/ monito	rs power sta	atus, op	system,
Keyboard / mouse Power supplies	None standard (because Std: one 1500 watt hot-swaredundant with two power worldwide / voltage-sensing	ap(240 VAC): <i>M</i>	ax: two hot-swap configurations) / PFA)/	Dual Core A Dual Core A Dual Core A	AMD Opteron AMD Opteron AMD Opteron	Processo Processo	or Model 8212 or Model 8214 or Model 8218 or Model 8220S	SE .	40K1200 40K1201 40K1202 40K1203
Cooling fans	Calibrated Vectored Co hot-swap, redundant, multi- power supply / PFA / fan fa management processor / r more processors	-speēd fans / on ailure signals Dia	e additional fan ir gnostic LED and	n each I	2GB (2x1G 4GB (2x2G 8GB (2x4G IBM 73GB IBM 146GE IBM 300GE	B) PC2-5300 B) PC2-5300 B) PC2-5300 10K HS 3.5" B 10K HS 3.5 B 10K HS 3.5	CL5 ECC CL5 ECC CL5 ECC SAS HD 5" SAS HI 5" SAS HI	DD DD	ИKit ИKit	41Y2759 41Y2762 41Y2765 41Y2768 40K1039 40K1040 40K1041
DVD-ROM 2 Opt disk 3 Opt disk			utput: 409 Btu/hr (120 366 Btu/hr (400		1500W US Redundant	RAID 8k SAS Power Supp Fan Kit - 3 F Pass Thru Ca slimline	ly ans			25R8064 40K7543 40K7545 40K7547 39Y9566

CPU/Memory

cards

12

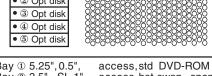
cache Watts

Speed/Core

DIMM

Disk

Memory slots controller Mechanical



Bay ① 5.25", 0.5", access,std DVD-ROM Bay ② 3.5", SL 1", access,hot-swap, open access,hot-swap, open Bay ④ 3.5", SL 1", Bay ⑤ 3.5", SL 1", access,hot-swap, open access,hot-swap, open access,hot-swap, open access,hot-swap, open

Available expansion slots:

Slot 1 - fullsize, PCI-Express x16 Slot 2 - fullsize, PCI-Express x8

Slot 3 - fullsize, PCI-Express x8

Slot 4 - fullsize, PCI-Express x4 Slot 5 - fullsize, 64-bit, PCI-X 1.0, 100/133MHz* Slot 6 - fullsize, 64-bit, PCI-X 1.0, 100/133MHz*

RSA slot - supports RSA II slimline adapter *If one PCI-X 133MHz card is plugged into slot 6 and slot 5 is empty, then it will run at 133MHz. If one PCI-X 133 MHz card is plugged into slot 5 and 6 is empty, then it will run at 100MHz. If two 133MHz cards are plugged into slots 5 and 6, they will run at 100MHz

Other options at ibm.com/pc/us/accessories

Dimensions: H7" x W19" x D28"

Dimensions: H178mm x W483mm x D711mm

Weight: 26 to 32lbs; 11.8 to 14.6kg

Stealth black color Tool-free serviceability

Access adapters, power supplies, processors, memory and systemboard from top

Setup Program by pressing F1 at startup Diagnostics (PC-Doctor) by pressing F2 at startup

Drop Down Light Path Diagnostics (level 2 diagnostic panel) for outside view of potential problem without removing cover

Information LED panel, diagnostic LED panel, and component LEDs give visual indications of system well-being

Predictive Failure Analysis® alerts on disks, power supplies, memory, processors, VRMs, and fans with IBM Director

All models: Maximum internal disk capacity: 1.2TB with four 300GB2 hot-swap SAS disks

LIMITED WARRANTY3

3 year parts and labor

International Warranty Service³

On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time7

On site service upgrade options (in eligible locations):7

 3 year IOR 24x7, 4 hr avg response 69P950

 3 year IOR 24x7, 2 hr avg response 69P9508

• 1 year IOR 9x5, NBD response 69P9398

• 2 year IOR 9x5, NBD response 96P2117

Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf

24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM® Type-model Qty x l	Processor	Core ca	_2 che Memory	DIMM slots	Memory Cards	/ Disks	Disk Controlle	_r Mechanical		Hot-swap	Warranty Availabl (yrs.) dat
8865-13U 1 x Xeon 8865-17U 1 x Xeon 8865-22U 1 x Xeon 8865-2TU 1 x Xeon 8865-3TU 1 x Xeon 8865-3TU 1 x Xeon 8865-42U 1 x Xeon 8865-42U 1 x Xeon	MP 3.66GHz MP 3.66GHz MP 7020 2 6	: SC 11 : SC 11 :7GHzDC 21	MB 1GB(2x512) MB 1GB(2x512) MB 2GB(2x1GB)	3) 4 3) 4 4	One One One One One One One	None None None None None None None	SAS SAS SAS SAS SAS SAS	Tower 7U Rack Tower 7U Rack Tower 7U Rack Tower 7U Rack Tower 7U Rack	6x12 6x12 6x12 6x12 6x12	2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W	3 May 200 3 May 200
Processors L2 cache Processor upgrade Implementation	One 64-bit I up to 3.0GH 1 or 2MB / p 4-way SMP System boar integrated Se	ntel® Xeon™ I Iz 667MHz FS per core / on o / up to four Xe d contains fou erial Attach SC	Processor MP up BB Dual Core / N die of processor / eon Processors N r Intel 604-pin mi SI (SAS), etherne	to 3.66 letBurst at proce IP (same cro-PGA et, and gr	GHz¹ 60 M / Extended Soor special Soor s	67MHz ended I eed / Xo cache s ockets, t	FSB Sin Memory (eL4v™ D size) four mem	gle Core / c 64 Technolo ynamic Serv ory board sk	one 64-bi ogy™ (El ver Cache ots, six A	t Intel Xeon M64T) / Hype e ctive™ PCI-X	Processor MP r-Threading 2.0 slots,
Active Memory [™]	1 or 2GB sta gold-connect RDIMMs / E Chipkill TM / I (supported o	d / 64GB max or slots each / rror Checking Memory Prote nly with Micro	per chassis using DIMMs must be g and Correcting Xion™ (redundal soft® Windows™ S	high-ca installed (ECC) nt bit ste Server 20	pacity m in matc via 16-b ering) a 003 [™]	emory hed pai it Chec nd Men	card / one rs / PC2- ksum nory Mirr	e memory ca 3200 400M⊦ roring ™ and	ard standa Iz registe Hot-swa	ard (up to fou red 240-pin D p (non-OS sp	r) with 4 DIMM DR2-SDRAM Decific) / Hot-add
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	Dual-channe Hot-swap ba Enhanced ID	l controller wire ys connect to F ATA-33 cor	Dual-channel Sed to dual SAS baintegrated SAS outroller in CSB6 So up to 15,000 rpm ap bays / Six stan () x 28" deep / su	ackplane ontroller t outh Brid	s through : ae	SAS ex	pander, 1	cable for ea	ch of the	2 SAS back	olanes
Chipset I/O Slots	2.0 Host Bri bus for Supe Two suppor Six total Activ	dges / Host E er I/O NS 874 ts 4 PCI-X 2.∪ ve™ PCI-X 2.0	ration chipset / bridge One support 17 diskette, key of slots 64-bit slots availate 64-paragraphic 6	orts vide board, n able with	o, optior nouse]), power a	nal Ser Dual F and atte	veRaid 8 Port Broad ntion indic	i, ServerWo dcom 5704, cator lights (c	rks® CSE and 2 F optical ser	36 South Brid PCI-X 2.0 slo	dge (IDE, USB, ts / Host Bridge
DVD-ROM / diskette Ethernet Graphics controller Ports	Broadcom® 5 SVGA / ATI®	5704 10/100/10 Radeon Mobi thernet, RSA	DE (ATAPI), 1.6" 000 dual ethernet lity 7000 / on plan serial, two USB (\	/ on syst ar / 16M	temboar B SDRA	d / 64-b .M std/n	it 266Mhz nax / 32-b	z PCI-X 2.0 / bit 33MHz PC	2.2 bus	3	
Security Systems management Diagnostics Software	serial connections serial connections disks, fans, prop-down IBM Real Tires	rd / IPMI 2.0 / ctors / provides bower supplies Light Path Di ne Diagnostics	r passwords / una Remote Supervists remote console agnostics / prima (operated through installation and co	sor Ada and mgr ary indica ah IBM C	pter II sl nt / pow ator on ir director) :	imline (er on/o nformati availabl	optional) / ff system on panel e even w	with LEDs a	ssociated		
Keyboard / mouse Power supplies Cooling fans	Std: two 775 accessible fa Fight hot-swa	watt hot-swap Ins in each po Por redundant	d / Tower model: o / redundant with wer supply / PFA multi-speed fans ostic LED and mo	three po	wer sup oling far	plies (N	l+1) / wor	ldwide / volta	age-sensi	ng / auto-rést	
Options	2GB PC2-3 4GB PC2-3 Active Men Xeon MP 3 Xeon MP 7 Xeon MP 7 Dual Core	3200 CL3 EC 3200 CL3 EC nory 4-slot Ex 3.16GHz/1MB 3.66GHz/1MB 020 2.67GHz 040 3.0GHz X3 Upgrade I		AB) 3 AB) 3 Upg 4 Upg 4 Upg 4 uded) 4	9M582 9M580 9M581 1Y5000 0K2521 0K2520 0K2522 0K2523 1Y5005	9	IBM Serv IBM 73.4 IBM 1460 IBM 3000 Remote S SAS 3.5" IBM 73.4	GB 10K 3.5 GB 10K 3.5 GB 10K 3.5 Supervisor A G-drive Ba GB 15K 3.5	U320 25 " SAS H ' SAS H ' SAS H Adapter I ckplane " SAS H	6MB Ådapte lot-swap HD ot-Swap HDI ot-Swap HDI	D 40K1039 0 40K1040 0 40K1041 39Y9566 41Y5003 D 40K1043
LIMITED WARF	ry Service ³ Mon - Fri olidays, sponse time ⁷ de options : ⁷ ra vg response 96P2253) avg response 96P2254) response 96P2255) response 69P2259) ions at ervices/ pdf	Bay @ 5. Bay @ 5. Bay @ 5. Bays 5 to stands Bays 11	5", SL 1", acc 25", HH 1.6" acc 25", HH 1.6" acc 25", HH 1.6" acc 25", HH 1.6" acc 5 10 (six bays): ard 3.5" SL 1" hot 10 (six bays): al 3.5" SL 1" hot 11 (six bays): al 3.5" SL 1" hot 12 (six bays): al 3.5" SL 1" hot 13 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): al 3.5" SL 1" hot 4 (six bays): 4 (six bays): 6 (six bays): 6 (six bays): 6 (six bays): 6 (six bays): 6 (six bays): 6 (six bays): 6 (six bays): 7 (six bays): 8 (six bays): 8 (six bays): 8 (six bays): 9 (six bays):	ess, CE ess, ope ess, ope ot-swap swap di U4 Rack	o-ROM en* en* disk ba isk bays	ys ver	Tool-fr Tower Tower Tower Rack I Rack I Rack N Access Access Setup Diagno SCSIS Drop I diagno proble Predic	Weight: 14: Dimensions: Dimensions: Weight: 144 s adapters, s processor s power sul Program by setics (PC-E elect by pre Down Light stic panel) m without re tive Failure	ability s: H15.5 9 to 180l H12" x H12" x H306m to 158lb fans, and s and s opplies fro pressin Octor) b essing C Path Dia for outsic emoving Analysis nemory,	bs; 67.6 to 8 W17.5" x Di W17.	28.2" In x D715mm I.7Kg

All models: Maximum internal disk capacity: 3.6TB with 12x 300GB2 hot-swap SAS disks

•	•									-0.00	_	_	
IBM® Type-model Qty x	Processor	C	L2 Core cache	Memory		Memory Cards	RSA II	Disk Controller	Mechanical		Power Wa Supplies (y Available date
8866-11U 1 x Xeoi 8866-1RU 1 x Xeoi 8866-2RU 1 x Xeoi 8866-2RU 1 x Xeoi 8866-31U 1 x Xeoi 8866-31U 1 x Xeoi 8866-4RU 2 x Xeoi 8866-4RU 2 x Xeoi	n MP 7110N 2 n MP 7120N 3 n MP 7120N 3 n MP 7130N 3 n MP 7130N 3 n MP 7140N 3	2.5GHz I 3.0GHz I 3.0GHz I 3.16GHz I 3.16GHz I 3.30GHz I	DC 2x1MB DC 2x1MB DC 2x1MB DC 2x1MB DC 2x1MB DC 2x1MB DC 2x1MB DC 2x1MB DC 2x1MB	2x1GB 2x1GB 2x1GB 2x1GB 2x1GB 2x1GB 2x2GB 2x2GB	4 4 4 4 4 8 8	One One One One One Two Two	Opt Opt Opt Opt Opt Opt Std Std	SAS SAS SAS SAS SAS SAS SAS	Tower 7U Rack Tower 7U Rack Tower 7U Rack Tower 7U Rack Tower 7U Rack	6x12 6x12 6x12	2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 3 x775W 3 x775W	3333333	Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006
Processors L2 cache L3 cache Processor upgrade Implementation	Up to two 64 MP up to 3.0 1MB / per cor 4MB on 7110 4-way SMP / System board Active™ PCI->	GHz 667MH re / on die (N & 7120N / up to four) I contains fo	Hz FSB Dua of processor / 8MB on 713 (eon Processour Intel 604-	I Core / N / at proce 30N / 16M sors MP (pin micro-	NetBurs ssor sp B on 71 same s PGA4 2	st™ / Exte eed / Xce 40N :peed/cacl ZIF socke	ended l eL4v ™ [ne size) ts, four	Memory 6 Dynamic S memory b	64 Technolo Server Cache Doard slots, f	gy™ (EN	//64Т) / Нур	oer-Th	nreading
Active Memory [™]	2 or 4GB std DIMM gold-co SDRAM RDIN Chipkill™ / M (supported on	nnector slot /IMs / Error	s each / DIM Checking a	'IMs must and Corre	be insta ectina (alled in mi ECC) via	atched 16-bit (pairs / PC: Checksun	2-3200 400N n	/IHz regis	stered 240-	pin Di	DH2-
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	All: Adaptec® ServeRAID™ Dual-channel Hot-swap bay Enhanced IDE Max: 3.6TB-1 Up to Twelve EIA 19" rack	8i / RAID 0, controller wi s connect to E ATA-33 co	,1, 10, 5, 6, 6 ired to dual S o integrated S ontroller in CS	6 0, 1E & 5 SAS backp SAS contro SB6 South	EE / sto planes oller thro Bridge	on 410 a	& 4RU / S expan	dedicated der, 1 cab	l slot / 64-bit le for each o	133MHz of the 2 S	PCI-X / op AS backpla	tional anes	on others
Chipset	IBM XA-64e Th Bridges / Hos NS 87417 [dis slots	3rd General Bridge One	ration chipse e supports vi	et / Integra	ated Pro	ocessor a veRaid 8i,	nd Men Server	nory Contr	roller / Suppo SB6 South E	orts EM6 Bridge (ID	4T / 2 IBM DE, USB, bu	PCI-) us for	X 2.0 Host Super I/O
I/O Slots	Four Active™ lights (optical	PCI-E x8 slo sensors con	ots / full heigh itrol power to	nt, full leng slot) / ho	gth / Tw t replac	o Active™ e, hot upg	PCI-X grade, h	2.0 64-bit ot expans	slots availab ion / separat	le with po ed by ins	ower and a sulative plas	ttentio stic div	n indicator viders
DVD-ROM / diskette Ethernet Graphics controller Ports	IBM SlimLine Broadcom® 57 SVGA / ATI® Rear: RSA et	704 10/100/ ⁻ Radeon Mol	1000 dual eth oility 7000 / o	nernet / or n planar /	systen 16MB 3	nboard / 6 SDRAM s	64-bit 26 std/max	66Mhz PC / 32-bit 33	I-X 2.0 / Wal MHz PCI 2.2	2 bus			
Security Systems management	Power-on and BMC standard RJ-11, and se temperature,	d / IPMI 2.0 / erial_connect	/ Remote Su fors / provide	ipervisor is remote	Adapte	er II slimlir e and mar	ne (std d	on 41U & 4					
Diagnostics Software	Drop-down L IBM Real Tim ServerGuide	ight Path L	Diagnostics	/ primary i	ndicato	r on intorr	nation p lable ev IBM Dir	oanel with ven while s rector, and	LEDs assoc server runnin I others	ciated wit	h failing coi	mpone	ents /
Keyboard / mouse Power supplies	Rack model: I	ome: three /	775 watt hot	:-swap / re	edundar	nt with thre	rd (PS/ ee powe	2) / IBM 3- er supplies	-button optica (N+1) / wor	al mouse Idwide / v	e (PS/2) voltage-sen	sing /	auto-
Cooling fans	restart / rear a Eight hot-swa PFA / failure s	o, redundan	t, multi-speed	d fans / Oi	ne cooli	ng fan in	each po	ower suppl	y filler when	power su	upply is not	instal	led /
Options	1GB PC2-32 2GB PC2-32 4GB PC2-32 Active Mem Xeon 7110N Xeon 7120N Xeon 7130N Xeon 7140N 775 watt Ho	200 CL3 E0 200 CL3 E0 ory 4-slot E I 2.5GHz/4 I 3.0GHz/4 I 3.16GHz/1 I 3.3GHz/10	CC RDIMM CC RDIMM Expansion C MB L3/Dual MB L3/Dual 8MB L3/Dual 6MB L3/Dua	(2x1GB) (2x2GB) Card Core Pro Core Pro al Core P al Core P	39N 39N 41N oc 40k oc 40k roc 40k roc 40k	M5809 M5812 /5000 (1259 (1260 (1261	IBM IBM IBM IBM Ren SAS IBM	ServeRA 73.4GB 146GB 1 300GB 1 note Supe 3.5" 6-di 73.4GB	IID 8i SAS A IID 6M U320 10K 3.5" SA 0K 3.5" SA 0K 3.5" SA ervisor Adap rive Backpla 15K 3.5" SA 5K 3.5" SA	0 256ME AS Hot-s S Hot-S S Hot-S oter II Sli ane AS Hot-s	wap HDD wap HDD wap HDD mline wap HDD	3 4 4 4 3 4	9R8729 9R8816 9K1039 9K1040 9K1041 9Y9566 1Y5003 9K1043
LIMITED WARF	y Service ³ Mon - Fri olidays, sponse time ⁷ de options ; ⁷ r avg response 30L9187) avg response 31L2723) response 69P9218) response	Bay ② 5 Bay ③ 5 Bays 5 Stand Bays 11 optior Opt disk Opt disk	Opt dis	6" access 5" access ays): _ 1" hot-s bays): 1" hot-swa ag 7U4 F	s, DVD- s, open s, open wap dis ap disk	ROM * sk bays bays r Tower		ower Dimower Wei ack Dime lack Dime lack Weig access adaccess process poetup Propilagnostics (CSISelectrop Down iagnostic	ck color serviceability lensions: H1 ght: 149 to ensions: H1 ensions: H3 ensio	15.5" x 1 180lbs; 1 2" x W1 06mm x 58lbs; 6 s, and m nd syste s from I sessing F or) by ping Ctrl+A Diagno utside v	67.6 to 81. 7.5" x D28 x W444mm 5.4 to 71.7 temory froi mboard fro pack 1 at startup ressing F2 A at startup stics (level tiew of pote	7Kg S.2" 1 x D' Kg 1 top om fr at si 2	715mm oont
Other Service Pac opti http://www.ibm.com/s us/its/pdf/wamomxeu. 24x7 ¹⁴ toll-free suppor	ons at ervices/ pdf	Opt disk Opt disk Opt disk Opt disk	Opt dis Opt dis Opt dis Opt dis	sk sk —	Full High Ta	ape Bay		redictive ower sup	Failure Ana plies, memo ith IBM Dire	lysis® al ory, proe ector	erts on dis		,

Opt disk

Ship Config: 1,170 Btu/hr (343 watts)

BTU Output:

24x7¹⁴ toll-free support for warranty

issues during the warranty period $^{\scriptscriptstyle 3}$

													-
IBM® Type-model Qty	x Processor		L2 cache	Memory	DIMM slots	Memory cards			Mechanica	Slots x al bays	Hot-swap pwr supplies		y Available date
8863-1SY 1 x Xeon 8863-2SY 1 x Xeon 8863-3SY 1 x Xeon 8863-4SY 1 x Xeon 8863-E8Y 2 x Xeon 8863-E9Y 1 x Xeon 8863-EAY 4 x Xeon	MP 3.66GHz 7020 MP 2.67GHz 7040 MP 3.0GHz MP 3.66GHz MP 3.16GHz	DC SC SC	1MB 1MB 2x1MB 2x2MB 1MB 1MB 2x1MB	2x1GB 2x1GB 2x1GB 2x1GB 2x1GB 2x1GB 8x1GB	4 4 4 4 4 16	One One One One One Four	None None None None None None	SAS SAS SAS SAS SAS SAS	3U⁴ rack 3U rack 3U rack 3U rack 3U rack 3U rack 3U rack	6x7 6x7 6x7 6x7 6x7	1 x 1300 1 x 1300 1 x 1300 1 x 1300 2 x 1300 2 x 1300 2 x 1300	3333333	May 2006 May 2006 May 2006 May 2006 May 2006 May 2006 May 2006
Processors	Up to two 64-bit In Processor MP up to	tel® Xe	eon™ Pro	ocessor N	IP up t	o 3.660	GHz¹_66	7MHz FS	B Single	Core / Up	to four 64-k	it Intel	Xeon
L2 cache Processor upgrade Implementation	Processor MP up to 1 or 2 MB / per cor 4-way SMP / up to System board conta integrated SCSI, eth	e / at p four Xe ins fou	orocessoi eon Proc ur Intel 60	r speed /) essors MP 04-pin micr	cel 4v	™ Dvna	mic Sei	rver Cache	2				
Active Memory™	2GB std / 64GB ma connector slots eacl RDIMMs / Error Ch Chipkill TM / Memor (supported only with	n / DIM necking y Prote	lMs must g and C eXion ™	t be installe orrecting (redundant	ed in m (ECC) v bit ste	atched ⁄ia 16-k ering) a	nairs / I	PC2-3200	400MHz i	eaistered.	240-pin DDR:	2-SDRA	AM I
SAS disk controller	Some: Adaptec® Ale			Attached	SCSI (SAS) 3.	0GHz ((3GB/sec)	/ 64-bit 26	6MHz PC	I-X 2.0 / Serve	eRaid 8	i <i>std on</i>
SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	E8Y & EAY / options Dual channel contr Two standard SAS Enhanced IDE ATA Supports up to 73G Six 2.5" hot-swap b EIA 19" rack mode	oller win cables -33 cor B 10K ays / c	red to SA attached atroller in rpm disk converged	d to six-bay CSB6 Sou s d tray / 80-	/ backp uth Bridg pin SC	ge A-2 cor			ı as NetBA	Y42 SR, I	NetBAY42 EF	3)	
Chipset	IBM XA-64e [™] 3rd 2.0 Host Bridges / bus for Super I/O N Two supports 4 PO	Host E VS 874	Bridge O⊦ 117 [disk	ne suppor	ts video	o, optio	nal Sei	rveRaid 8	i, ServerW	orks® CS	SB6 South Br	idge (IE	DE, USB,
Slots (Active™)	Six total PCI-X 2.0 s	lots av	ailable w								ower to slot)	hot rep	olace, hot
DVD-ROM / diskette Ethernet Graphics controller Ports Security	upgrade, hot expan: 8X° Slim DVD-ROM Broadcom® 5704 10 SVGA / ATI® 7000m Rear: RSA ethernet Front: USB (Ver 2.0 Power-on and admi	/ none 0/100/1 n / on p , RSA)	e 000 dual blanar / 16 serial, tw	ethernet / 6MB SDR/ o USB (Ve	on syst AM std/i er 2.0), l	emboai nax / 3 keyboai	rd / 64-l 2-bit 33 rd, mou	oit 266Mhz MHz PCI se, analog	z PCI-X 2.(2.2 bus) / Wake o			
Systems management	BMC standard / IPM	11 2.0 /	Remote	Superviso	or Adar	ter II S	limline	std on E8	BY & EAY/	optional o	n others / PCI	adapte	r / includes
Diagnostics Software	10/100 ethernet and system, temperature Drop down Light F IBM Real Time Diad ServerGuide™ (CD	l serial e, disks Path D i	connecto s, fans, p iagnostic	ors / provic oower supp cs / primar	les rem olies v indica	ote con tor on i	sole an nformat	id mgmt / tion panel	power on/o with LEDs	off system associate	/ monitors po	wer sta	itus, op
Keyboard / mouse Power supplies	None standard (bec Std: one 1300 watt redundant with two worldwide / voltage-	hot-swa power	ap(240 V supplies	AC); <i>Max:</i> (some cor	nfiguration		/	4GBPC2 8GBPC2 Active Me	-3200 CL3 E -3200 CL3 E -3200 CL3 E emory 4-slo	CCRDIMN CCRDIMI Expansion	M(2x2GB) M(2x4GB)		39M5809 39M5812 30R5145 41Y5000 40K2521
Cooling fans	Eight hot-swap, redi one additional fan in fan failure signals D	each p	oower su	pply / PFA	/ process	or		Xeon MP Xeon MP Xeon MP 1300 watt	3.66GHz/1 7020 2.670	MB L2 Cac GHz/2x1ME Hz/2x2MB Power Sup	che Proc Upg 3 L2 Cache Pro L2 Cache Proc ply (WW)		40K2520 40K2522 40K2523 41Y5001 39R8729
Slot 2 - fullsize, 64- Slot 3 - fullsize, 64-	PCI-X 2.0 slots: bit, 266MHzPCI-X, bit, 266MHzPCI-X, bit, 266MHzPCI-X, bit, 266MHzPCI-X.	hot-sw hot-sw	ap ap	·	. 115.0	- 11	4.7.4"	IBM Serve IBM 36.40 IBM 73.40 IBM Rem Dual Core Other opt	eRAID 6M L GB 10K 2.5' GB 10K 2.5' ote Supervi e X3 upgrac	J320 256M ' SAS Hot- ' SAS Hot- sor Adapte le kit	B Adapter swap HDD		02R0988 40K1051 40K1052 39Y9566 41Y5005
Slot 5 - fullsize, 64-	bit, 266MHzPCI-X,	hot-sw	ap D	imensions	s: H133	3.4mm	x W442	2.0mm x D	701mm	L	IMITED WA	RRAN	TY ³
Slot 6 - fullsize, 64- *exclusive slot availa			ap ⇒ M oter ⇒ S	Veight: 63 tealth blac	to 83lb	s; 28.6			5	Internat	parts and lab	nty Ser	vice ³

Opt disk Opt disk Opt disk Opt disk Opt disk Opt disk

3U Rack

Bay ① 5.25", 0.5", Bay ② 2.5", SL 1", Bay ③ 2.5", SL 1", Bay ④ 2.5", SL 1", Bay ⑤ 2.5", SL 1", Bay ⑥ 2.5", SL 1", Bay ⑦ 2.5", SL 1", access,std DVD-ROM access,hot-swap, open access, hot-swap, open

Max BTU Output:

Ship Configuration: 1,086 Btu/hr (318 watts)
Full Configuration: 5,200 Btu/hr (1524 watts)

- Tool-free serviceability
- Access processors from front
- Access adapters, power supplies, memory and systemboard from top

- Setup Program by pressing F1 at startup

 Diagnostics (PC-Doctor) by pressing F2 at startup

 SCSISelect by pressing Ctrl+A at startup

 Drop Down Light Path Diagnostics (level 2
- diagnostic panel) for outside view of potential problem without removing cover Information LED panel, diagnostic LED panel,
- and component LEDs give visual indications of system well-being
- Predictive Failure Analysis® alerts on disks, power supplies, memory, processors, VRMs, and fans with IBM Director

All models: Maximum internal disk capacity: 440.4GB with six 73.4GB2 hot-swap SAS disks

- ➡ International Warranty Service³ On site, 8 am - 5 pm, Mon - Fri
- coverage excluding holidays, next business day response time⁷ On site service upgrade options
- (in eligible locations): • 3 year IOR 24x7, 4 hr avg response 96P2253
- 3 year IOR 24x7, 2 hr avg response 96P225
- 4 year IOR 9x5, NBD response 96P2255
- 5 year IOR 9x5, NBD response 69P2259
- Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM®	_	L2		DIMM	Memory		Disk		Slots x	Hot-swap	Warranty	/ Avail	able
Type-model Qty x Processor	Core	cache	Memory	slots	cards	RSA II	controller	Mechanical	bays	pwr supplies	(yrs.)		date
8864-1RU 1 x Xeon™ MP 7110N 2.5GI 8864-2RU 2 x Xeon MP 7120N 3.0GHz 8864-3RU 2 x Xeon MP 7130N 3.16GH 8864-4RU 2 x Xeon MP 7140N 3.3GHz	z DC	2x1MB 2x1MB 2x1MB 2x1MB 2x1MB	2x1GB 2x1GB 2x1GB 2x2GB	4 4 4 8	One One One Two	Opt Std Std Std	SAS SAS SAS SAS	3U⁴ rack 3U rack 3U rack 3U rack	6x7 6x7 6x7 6x7	1 x 1300 1 x 1300 1 x 1300 2 x 1300	3 3 3 3	Oct 2	2006 2006 2006 2006

Processors	Up to two 64-bit Intel® Xeon™ Processor MP up to 3.3GHz¹667Mh	Hz FSB Dual Core / NetBurst™ / Extended Memory 64
L2 cache	Technology™ (EM64T) / Hyper-Threading 1 MB / per core / at processor speed / XceL4v_™ Dynamic Server Car	che
L3 cache	4MB on 7110N & 7120N / 8MB on 7130N / 16MB on 7140N	
Processor upgrade Implementation	4-way SMP / up to four Xeon Processors MP (same speed/cache siz System board contains four Intel 604-pin micro-PGA4 ZIF sockets, for	ur memory board slots, four Active™ PCI-E x8 slots, two
<u> </u>	Active™ PCI-X 2.0 slots and integrated SCSI, ethernet, graphics	•
Active Memory [™]	2 or 4GB std / 64GB max per chassis using high-capacity memory cagold-connector slots each / DIMMs must be installed in matched pairs RDIMMs / Error Checking and Correcting (ECC) via 16-bit Check Chipkill™ / Memory ProteXion™ (redundant bit steering) and Memo (supported only with Microsoft® Windows™ Server 2003™	:/PC2-3200 400MHz registered 240-pin DDR2-SDRAM
SAS disk controller	Some: Adaptec® AIC-9410 / Serial Attached SCSI (SAS) 3.0GHz (30	GB/sec) / 64-bit 266MHz PCI-X 2.0
SAS connectors	Some: ServeRAID™ 8i / RAID 0,1, 10, 5, 6, 60, 1E & 5EÉ / std on 4R Dual channel controller wired to SAS backplane	U / dedicated slot / 64-bit 133MHz PCI-X
SAS cabling	Two standard SAS cables attached to six-bay backplane Enhanced IDE ATA 33 controller in CSB6 South Bridge	
Disk - capacity	Supports up to 73GB 10K rpm disks	
Disk - bays Mechanical	Six 2.5" hot-swap bays / converged tray / 80-pin SCA-2 connectors EIA 19" rack models (3U¹) x 28" deep / supported in NetBAY™ Rack	(s (such as NetBAY42 SR. NetBAY42 ER)
Chipset	IBM XA-64e™ 3rd Generation chipset / Integrated Processor and M	,
Onipact	Bridges / Host Bridge One supports video, optional ServeRaid 8i, Serv NS 87417 [diskette, keyboard, mouse]), Dual Port Broadcom 5704, an slots	rerWorks® CSB6 South Bridge (IDE, USB, bus for Super I/O d 2 PCI-X 2.0 slots / Host Bridge Two supports 4 PCI-E x8
Slots (Active™)	Four Active™ PCI-E x8 slots / full height, full length / Two Active™ PCI-	X 2.0 64-bit slots available with power and attention indicator
DVD-ROM / diskette	lights (optical sensors control power to slot) / hot replace, hot upgrade, 8X ⁶ Slim DVD-ROM / none	
Ethernet Graphics controller	Broadcom® 5704 10/100/1000 dual ethernet / on systemboard / 64-bit SVGA / ATI® 7000m / on planar / 16MB SDRAM std/max / 32-bit 33MF	266Mhz PCI-X 2.0 / Wake on LAN® / Alert on LAN™ 2 Hz PCI 2.2 hus
Ports	Rear: RSA ethernet, RSA serial, two USB (2.0), kybd, mouse, DB-15	graphics, two ethernet, std. serial RS-485 / Front: USB (2.0)
Security	Power-on and administrator passwords / unattended boot / selectable	boot
System management	BMC standard / IPMI 2.0 / PowerExecutive™ / Remote Supervisor / 1RU / PCI adapter / includes 10/100 ethernet and serial connectors / p	provides remote console and mgmt / power on/off system /
Diagnostics	monitors power status, op system, temperature, disks, fans, power status, op system, temperature, disks, fans, power status, op system, temperature, disks, fans, power status, op system, temperature, disks, fans, power st	upplies hand left by associated with failing components /
Software	IBM Real Time Diagnostics (operated through IBM Director) available ServerGuide™ (CD-ROM installation and configuration utilities), IBM	even while server running
		
Keyboard / mouse Power supplies	None standard (because rack-based) Some: one; some: two / 1300 watt hot-swap(240 VAC); Max: two	2GB PC2-3200 CL3 ECC RDIMM (2x1GB)
	hot-swap / redundant with two power supplies (some configurations) / worldwide / voltage-sensing / auto-restart / PFA	8GB PC2-3200 CL3 ECC RDIMM (2x4GB) 30R5145 Active Memory 4-slot Expansion Card 41Y5000
Casling fons		Xeon 7110N 2.5GHz/4MB L3/Dual Core Proc 40K1259
Cooling fans	Eight hot-swap, redundant, multi-speed fans / one additional fan in each power supply / PFA /	Xeon 7130N 3.16GHz/8MB L3/Dual Core Proc 40K1261
	fan failure signals Diagnostic LED and mgmt processor	Xeon 7140N 3.3GHz/16MB L3/Dual Core Proc
		IBM ServeRAID™-8i SAS Adaptér` 39R8729 IBM ServeRAID 6M U320 256MB Adapter 39R8816
Two available 3.3 vo	olt PCI-X 2.0 slots:	IBM 36.4GB 10K 2.5" SAS Hot-swap HDD 40K1051
Slot 1 - fullsize, 64	-bit, 266MHzPCI-X, hot-swap	IBM 73.4GB 10K 2.5" SAS Hot-Swap HDD40K1052IBM Remote Supervisor Adapter II Slimline39Y9566
Slot 2 - fullsize, 64	-bit, 266MHzPCI-X, hot-swap	Other options at ibm.com/pc/us/accessories
Four available PCI-	Z XO SIUIS.	Care opacie at initionity por do accomposition

Slot 3 - full-height, full-length, PCI-E x8 Slot 4 - full-height, full-length, PCI-E x8 Slot 5 - full-height, full-length, PCI-E x8

Slot 6 - full-height, full-length, PCI-E x8

*exclusive slot available for ServeRAID 8i adapter





3U Rack

Bay ① 5.25", 0.5", Bay ② 2.5", SL 1", Bay ③ 2.5", SL 1", Bay ④ 2.5", SL 1", Bay ⑤ 2.5", SL 1", Bay ⑥ 2.5", SL 1", Bay ⑦ 2.5", SL 1", access,std DVD-ROM access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open

Max BTU Output:

Ship Configuration: 1,086 Btu/hr (318 watts)
Full Configuration: 5,200 Btu/hr (1524 watts)

Dimensions: H5.25" x W17.4" x D27.6" Dimensions: H133.4mm x W442.0mm x D701mm

Weight: 63 to 83lbs; 28.6 to 37.6kg

Stealth black color

Tool-free serviceability

Access processors from front

Access adapters, power supplies, memory and systemboard from top

Setup Program by pressing F1 at startup

Diagnostics (PC-Doctor) by pressing F2 at startup SCSISelect by pressing Ctrl+A at startup Drop Down Light Path Diagnostics (level 2

diagnostic panel) for outside view of potential problem without removing cover Information LED panel, diagnostic LED panel,

and component LEDs give visual indications of system well-being Predictive Failure Analysis® alerts on disks,

power supplies, memory, processors, VRMs, and fans with IBM Director

All models: Maximum internal disk capacity: 440.4GB with six 73.4GB2 hot-swap SAS disks

LIMITED WARRANTY³

3 year parts and labor

International Warranty Service³ On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time⁷

On site service upgrade options (in eligible locations):

3 year IOR 24x7, 4 hr avg response 96P2253 3 year IOR 24x7, 2 hr avg response

96P225 4 year IOR 9x5, NBD response

96P225

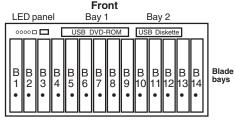
5 year IOR 9x5, NBD response 69P2259

Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

,	30 (8872)							X	,		diis and Ed		
IBM® Type-model Qty	x Processor	Core	L2 cache	Memory		Memory cards		Disk controller	Mechanica	Slots x bays	Hot-swap pwr supplies		y Available date
8872-7RY 2 x Xeon ^T 8872-8RY 2 x Xeon	^M MP 7020 2.66GHz MP 7040 3.0GHz	DC DC	2x1MB 2x2MB	2x1GB 2x1GB	8	Two Two	None None	SAS SAS	3U⁴ rack 3U rack	6x7 6x7	2 x 1300 2 x 1300	3 3	May 2006 May 2006
Processors L2 cache L3 cache Processor upgrade Implementation	Two 64-bit Intel® Xec Technology™ (EM64 1 or 2MB / per core / None 4-way SMP / up to for chassis interconnecte System board contain integrated Serial Attac	xceL our Xe ed) os four	. 4v ™ Dyn on Proce · Intel 604	iamic Serv essors (sar 4-pin micro	ver Ca me spo o-PGA	cne (25 eed/cac	he/core)	per chas	starting at sisis / Dual C	8-way) Core Capa	able / up to 3	2-way (eight
Active Memory [™]	2GB std / 64GB max cards standard (up to 400MHz registered 24 Chipkill™ / Memory (supported only with I	per c four) 40-pin Prote Micros	hassis us with 4 DI DDR2-S Xion™ (r oft® Wind	sing high-o MM gold-o DRAM RI redundant dows™ Se	capacit connect DIMMs bit steem	ty memo ctor slots s / Erro eering) a 003 TM	ory card s each / r Check and Mer	/ 512GB DIMMs n ing and nory Miri	max (eight nust be inst Correcting roring™ an	chassis i alled in m (ECC) v d Hot-sw	interconnect) natched pairs ia 16-bit Che ap (non-OS	/ two model / PC2-3 ecksum specific)	emory 200 / Hot-add
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	ALL: Adaptec® AIC-9 with dedicated slot Dual channel controlle Two standard SAS case Enhanced IDE ATA-3 None / supports up to Six 2.5" hot-swap bay EIA 19" rack models chassis (x3950 or x350 cm to the support of the	er wire ables a 3 cont	d to SAS attached roller in 0	backplan to six-bay CSB6 Sou	e backr th Bric	olane Ige	,	·					
Chipset Slots (Active™)	IBM XA-64e™ 3rd Go scalability and memor ServerWorks® CSB6 3 5704, and 2 PCI-X 2. Six total PCI-X 2.0 slo upgrade, hot expansion	y cont South .0 slots ots ava	rol / 2 IBI Bridge (I s / Host E illable wit	M PCI-X 2 IDE, USB, 3ridge Two h power a	2.0 Ho bus for supposited and atte	st Bridge or Supe oorts 4 F ention in	es / Hos r I/O NS CI-X 2.0 Idicator I	t Bridge (8 87417 (d) slots ights (opti	One support diskette, key ical sensors	s video, d /board, m control p	optional Serve nouse]), Dual	Port Bro	adcom
DVD-ROM / diskette Ethernet	8X ⁶ Slim DVD-ROM / Broadcom [®] 5704 10/1	none 100/10	000 dual	ethernet p	er cha	ssis / or	n system	nboard / 6	4-bit 266Mh	nz PCI-X	2.0 / Wake o	n LAN®	/ Alert on
Graphics controller Ports	LAN TM 2 SVGA / ATI [®] 7000M / Rear: Three Scalabilit ethernet, std. serial R	on play y ports S-485	anar / 16l s, RSA e / <i>Front:</i>	MB SDRA thernet, R One USB	M std/ SA se (Ver 2	/max / 3 rial, two 2.0)	2-bit 33ľ USB (V	MHz PCI : er 2.0), k	2.2 bus eyboard, m	ouse, ana	alog DB-15 gi	raphics,	two
Security Systems management Diagnostics Software	Power-on and administration Remote Supervisor remote console and n BMC / IMPI 2.0 / Drop down Light Pa IBM Real Time Diagn ServerGuide™ (CD-F utilities), IBM Director	Adapt ngmt / th Dia	t er II slin power c agnostics	nline / PC on/off syste s / priman	I adap em / m / indica	oter / inc nonitors ator on	ludes 10 power s informati	0/100 ether status, op ion panel 2GBPC2-	system, ter	nperature associate CC RDIMM	e, disks, fans, ed with failing 1 (2x1GB)	compon	supplies /
Keyboard / mouse Power supplies Cooling fans	None standard (beca Std: Two 1300 watt he redundant with two po auto-restart / rear acc Eight hot-swap, redun one additional fan in e fan failure signals Dia	ot-swa ower s essible idant, each po	ap(240 V/ applies / e fans in multi-spe ower sup	AC); <i>Max:</i> worldwide each powed fans / ply / PFA /	/ volta /er sup /	ige-sens oply / Pf	/ fully sing / =A	8GB PC2- Active Me Xeon MP Xeon MP IBM Serve IBM Serve IBM 36.40 IBM 73.40	3200 CL3 E0 mory 4-slot I 7020 2.66GH	CC RDIMM Expansion Hz/2x1MB z/2x2MB L AS-SCSI 320 256ME SAS Hot-S	(2x4GB) Card Card L2 Proc Upg Proc Upg Adapter Adapter Wap HDD		30R5145 41Y5000 40K2522 40K2523 39R8729 02R0988 40K1051 40K1052 13M7414
16W = 6 x XpandOnE 32W = 8 x XpandOnE Six available 3.3 volt	emand Scalabilty kits 2. Demand Scalabilty kits 2. Demand Scalabilty kits 2. PCI-X 2.0 slots: bit. 266MHzPCI-X, ho	2.3m 2.3m +		1				XpandOnl x3950 Sca x3950 E N Dual Core	Demand™So alability Enat Modular Expa x3 upgrade	calability Colement Mansion End	able - 2.9M emory Adapte	r	13M7416 41Y5004 8874-3RY 41Y5005
Slot 2 - fullsize, 64- Slot 3 - fullsize, 64- Slot 4 - fullsize, 64- Slot 5 - fullsize, 64- Slot 6 - fullsize, 64- *exclusive slot for Se Opt disk Opt disk Opt disk Opt disk The state of the state	bit, 266MHzPCI-X, hobit, 2	ot-swa ot-swa ot-swa ot-swa ot-swa ot-swa ot-swa M open open open open open open	p Dirippo Diri	mensions: mensions: mensions: eight: 70 to salth black ol-free ser cess adap emory and tup Progra agnostics (SISelect to p Down L gnostic pa blem with bornation L d compone stem well- edictive Fa wer suppli d fans with	H128. 9 85lbs 1 color rviceat betters, 1 syste am by (PC-Do) 1 presignt Panel) for out reached the panel better panel	35mm s; 31.75 bility power s mboard pressing octor) b ssing Ct ath Dia- or outsid moving anel, dia- iDs give Analysis emry, Director	c W440. to 38.5k supplies, from to g F1 at s y pressi r1+A at s gnostics e view o cover gnostic L visual ir alerts process	omm x Dg processo pstartup ng F2 at startup (level 2 f potentia LED pane ndications on disks, ors, VRM	startup	3 year p Internation on site, covera next build on site (in eligiil • 3 year 96P26 • 3 year 96P26 • 4 year 96P26 • 5 year 96P26 Other S http://wservices	IOR 24x7, 2 89 IOR 9x5, NI 90 IOR 9x5, NI	oor nty Ser n, Mon - ng holid respons girade op s): hr avg thr avg BD resp BD resp ptions a l/	vice ³ Fri days, se time ⁷ otions response response oonse oonse at
Full Configuration:	1,325 Btu/hr (388 wa 5,200 Btu/hr (1524 v	vatts)	440.4	nodels: 4GB with							Juring the wa		

IBM®	у Визорови	Core	L2 cache	Mamani		Memory		Disk controller	Mechanica	Slots x	Hot-swap \	Varranty	y Available
Type-model Qty 8878-1RY 2 x Xeon ^T 8878-2RY 2 x Xeon	x Processor MMP 7110N 2.5GHz			2x1GB 2x2GB		Two	None	SAS	3U⁴ rack 3U rack		2 x 1300 2 x 1300		Nov 2006 Nov 2006
8878-2RY 2 x Xeon 8878-3RY 2 x Xeon 8878-4RY 2 x Xeon	MP 7120N 3.0GHz MP 7130N 3.16GHz MP 7140N 3.3GHz	DC 2 DC 2	2x1MB 2x1MB 2x1MB	2x2GB 2x2GB 2x2GB	8 8 8 16	Two Two Four	None None None	SAS	3U rack 3U rack 3U rack	6x7	2 x 1300 2 x 1300 2 x 1300	3 3 3 3	Nov 2006 Nov 2006 Nov 2006
Processors L2 cache L3 cache Processor upgrade Implementation	Two 64-bit Intel® Xec Technology™ (EM64 1MB / per core / Xce 4MB on 7110N & 712 4-way SMP / up to f chassis interconnects System board contain integrated Serial Attact	IT) / H L4v ™ [ON / 8N our Xec ed) is four	lyper-Th Dynamic VIB on 7 on Proce Intel 60	reading te Server C 130N / 16l ssors (sar 4-pin micre	echnolo ache (2 MB on me spe o-PGA	ogy 256MB 7140N eed/cacl	per 4 (ne/core	CPUs startir) per chass	ng at 8-wa is / Dual (ay) Core Cap	able / up to 32	?-way (eight
Active Memory [™]	2GB std / 64GB max cards standard (up to 400MHz registered 24 Chipkill™ / Memory (supported only with I	per ch four) v 40-pin Prote) Vlicroso	nassis u: vith 4 DI DDR2-S (ion™ (i oft® Wind	sing high-o MM gold-o SDRAM RI redundant dows™ Se	capacity connect DIMMs bit ste erver 20	y memo stor slots s / Erro ering) a 003 TM	ory card s each , r Chec and Me	d / 512GB r / DIMMs m king and C mory Mirro	max (eight ust be ins Correcting oring™ an	t chassis talled in n j (ECC) v id Hot-sw	interconnect) / natched pairs / ia 16-bit Che ap (non-OS s	two m PC2-3 cksum pecific)	emory 3200 / Hot-add
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	ALL: Adaptec® AIC-9 RAID 0,1, 10, 5, 6, 60 Dual channel controllel Two standard SAS ca Enhanced IDE ATA-3 None / supports up to Six 2.5" hot-swap bas EIA 19" rack models chassis (x3950 or x35	er wired ables a 3 contr 73GB /s / col 6 (3U 4)	d to SAS ttached oller in (10,000 nverged x 28" de	S backplan to six-bay CSB6 Sou rpm disks tray / 80- eep / supp	e backp th Bride pin SC orted in	olane ge A-2 cor n NetBA							
Chipset Slots (Active TM)	IBM XA-64e™ 3rd G scalability and memor ServerWorks® CSB6 5704, and 2 PCI-X 2. Six total PCI-X 2.0 slo upgrade, hot expansion	y contr South I 0 slots ts avai	ol / 2 IB Bridge (/ Host I lable wit	M PCI-X 2 IDE, USB, Bridge Two th power a	2.0 Hos , bus fo o suppo and atte	st Bridge or Supe orts 4 P ention in	es / Ho: r I/O N: CI-X 2. dicator	st Bridge O S 87417 [di 0 slots liahts (optic	ne suppor skette, ke al sensors	ts video, yboard, n s control r	optional Serve nouse]), Dual F	Raid 8i Port Bro	, oadcom
DVD-ROM / diskette Ethernet	8X ⁶ Slim DVD-ROM / Broadcom [®] 5704 10/		00 dual	ethernet p	er chas	ssis / or	n syster	nboard / 64	-bit 266M	hz PCI-X	2.0 / Wake on	LAN®	/ Alert on
Graphics controller Ports	LAN TM 2 SVGA / ATI® 7000M / Rear: Three Scalabilit ethernet, std. serial R	on pla y ports S-485 /	nar / 16 , RSA e <i>Front:</i>	MB SDRA thernet, R One USB	M std/i SA ser (Ver 2	max / 3. rial, two 2.0)	2-bit 33 USB (\	MHz PCI 2 Ver 2.0), ke	.2 bus yboard, m	ouse, ana	alog DB-15 gra	aphics,	two
Security System management Diagnostics Software	Power-on and admini Remote Supervisor remote console and r BMC / IMPI 2.0 / Pow Drop down Light Pa IBM Real Time Diagn ServerGuide™ (CD-F utilities), IBM Director	Adaptengmt / verExeth Diagonal ostics	er II slin power c cutive™ gnostic: (operate	nline / PC on/off syste s / primary d through	I adap em / m indica IBM D	ter / inc ionitors ator on i director)	ludes 1 power	0/100 ethe status, op s	system, te with LEDs 3200 CL3 E	mperature associate CC RDIMN	e, disks, fans, ped with failing of (2x1GB)	powers	supplies /
Keyboard / mouse Power supplies Cooling fans	None standard (beca Std: Two 1300 watth redundant with two poauto-restart / rear acc Eight hot-swap, redundant fan in e fan failure signals Dia	ot-swap ower su essible dant, r ach po	o(240 V upplies / fans in nulti-spe wer sup	AC); <i>Max:</i> worldwide each powed fans / pply / PFA	e / volta /er sup /	ige-sen: ply / Pf	sina / I	Xeon 7120 Xeon 7130 Xeon 7140 IBM Servel IBM Servel	nory 4-slot N 2.5GHz/₄ N 3.0GHz/₄ N 3.16GHz/ N 3.3GHz/ RAID™-8i RAID 6M U;	Expansior 4MB L3/Du 4MB L3/Du /8MB L3/D 16MB L3/D Adapter 320 256MI	n Card ual Core Proc ual Core Proc ual Core Proc ual Core Proc ual Core Proc ual Core Proc		30R5145 41Y5000 40K1259 40K1260 40K1261 40K1262 39R8729 39R8816 40K1051
16W = 6 x XpandOnE 32W = 8 x XpandOnE Six available 3.3 volt Slot 1 - fullsize, 64- Slot 2 - fullsize, 64- Slot 3 - fullsize, 64- Slot 4 - fullsize, 64-	emand Scalabilty kits 2. Demand Scalabilty kits 2. Demand Scalabilty kits 2 PCI-X 2.0 slots: bit, 266MHzPCI-X, ho bit, 266MHzPCI-X, ho bit, 266MHzPCI-X, ho bit, 266MHzPCI-X, ho	3m 2.3m 2.3m + ot-swap ot-swap ot-swap	4 x2.9m	mensions:	H5.05' H128.3	" x W17 35mm >	W440	XpandOnD x3950 Scal x3950 E Mo Dual Core 2 Other option D28.15"	B 10K 2.5" lemand™S lemand™S ability Enal odular Expa X3 upgrade ons at ibm.	SAS Hot-S calability C calability C blement M ansion End kit .com/pc/u	Swap HDD Cable - 2.3M Cable - 2.9M emory Adapter	RANT	40K1051 40K1052 13M7414 13M7416 41Y5004 8874-3RY 41Y5005
Slot 5 - fullsize, 64- Slot 6 - fullsize, 64- *exclusive slot for Se *Opt disk *Opt disk *Opt disk *Opt disk	bit, 266MHzPCI-X, hobit, 2	M ppen ppen ppen ppen ppen ppen ppen ppe	S Web Steel S See S Direction S S Direction S S Direction S S Direction S S Direction S S Direction S S Direction S S Direction S S Direction S S Direction S Direction S S Direction S Di	eight: 70 to ealth black ol-free sei cess adap emory and tup Progra agnostics (SSISelect to pp Down L gnostic pa bblem with bodiem with od compon- stem well- edictive Fa wer suppli d fans with	o 85lbs; color rviceaboters, p syster am by p (PC-Doby pressight Panel) for sout reruent LEI being aillure A ies, men IBM I	; 31.75 islity cower somboard pressing octor) by ssing Ct ath Diag r outsidmoving nel, diag Ds give analysis emory, Director	supplies from to g F1 at y press rl+A at gnostics e view cover gnostic visual alerts process	skg, processor pp startup ing F2 at s startup s (level 2 of potential LED panel, indications on disks, sors, VRMs	startup of	Internation of the coverage of	ional Warran 8 am - 5 pm, age excludin, siness day re service upgr ble locations IOR 24x7, 4 88 IOR 24x7, 2 89 IOR 9x5, NB 90 IOR 9x5, NB 94 ervicePac op ww.ibm.com/s/us/its/pdf/w	ty Ser, Mon - g holicespons rade op): hr avg hr avg D resp otions a	Fri days, se time ⁷ ptions response response ponse ponse at execupdf
Ship Configuration: Full Configuration:	1,325 Btu/hr (388 wa 5,200 Btu/hr (1524 v	vatťs)	440.4					disk capac vap SAS d	').	24x7 ¹⁴ to issues o	oll-free suppo during the wa	rt for v rranty	varranty period ³

IBM [⊚] Type-model S			Switch modules std / max	Switch mod	ules (type)		t Power modules std / max		Blower modules std / max	Mechanica	Available I date
8677-3XX HS20/HS 8677-3RX HS20/HS					B, OPM and CPN B, OPM and CPN		2/4 2/4	2000W 2000W	2/2 2/2		Oct 2004 Mar 2006
Positioning Description	Flexible, innovation Provides common expansion, external keyboard, video, n	resource: I Fibre Cl	s shared by	y blade servers	such as power	, system m	anagemer	nt, cablin	g, ethern		
Blade bays	Supports all blade		HS40/JS20)/JS21/LS20 ar	nd SCSI Storage	Expansion	Units / 14	1 hot-plu	ggable ba	ays / front a	access
Switch modules	Std: none; max: for	ur / hot-sv	wap / rear a	ccess / Gb Eth	ernet / Fibre Ch	annel / Infir	niBand / O	otical Pa	ss-thru / (Copper Pa	ss-thru
Advanced Management Module (8677-3RXonly)	Std: one on 3RX; r controller / commun functionality / ports: all ports shared by	nicates w DB-15 a	rith integrate Inalog video	ed system man port, Dual US	agement proces	sor on eac	h server b	lade / co	mplete K	VM switch	local
Management Module (8677-3XXonly)	Std: one on 3XX; r controller / commun connectivity / ports: connection port / a	nicates w DB-15 a	rith integrate Inalog video	ed system man port, PS/2 ke	agement proces yboard port, PS	sor on éac	h server b	ĺade / m	ultiplexor	for console	Э
Power modules	Std: two in bays 1 at hot-swap / rear act to all modules and (redundant to each	ccess / 20 blade bay	000 watts a ys 1 througl	t 220v / both ren n 6 / power for l	edundant to each pays 7 through 1	n other (N+ 14 requires	N redunda two additic	incy) / twonal power	o std mo	dules supp	ly power
Blower modules	Std: two; max: two	/ hot-swa	ıp / redunda	ant / variable sp	eed / rear acces	ss / up to 32	25 cubic ft	per min	(CFM) / f	ront to bac	k airflow
Mechanical DVD / diskette / USB Keyboard / mouse	EIA 19" rack mod 3XX/3RX: 8X-24X° access / shared by server blade front p. None standard / pr	DVD-RC up to 14 canel	OM / 3.5" 1.4 blade sen	44MB diskette d vers / requests	drive / one USB for CD-ROM, dis	port (Versic skette drive	on 1.1) / all , and USE	USB into port by	erface / n pressing	ot removal CD select	button on
Ports	server blade front p Rear: keyboard (P Front: one USB (Vo	panel / su S/2), mo	pports NetE use (PS/2),	BAY ACT CATS	chaining solution	ons					
Security	Login password for recommended in ra									/	
Ethernet	One of the dual into Ethernet Switch Mo									<i>1</i> 0 \	
Systems mgmt	Provides remote co	onsole`an	id mgmt / p	ower on/off bla	des/modules / n	nonitors po	wer status	, operatir			ture, disks,
System LED panel	System LED panel								nditions		
Cisco Systems Gigabit Nortel Networks Layer Brocade 10 port 4Gb S Brocade 20 port 4Gb S Cisco Systems InfiniBa NetBAY42 Enterprise F NetBAY42 Standard Ra NetBAY25 Standard Ra	AN Switch Module and Switch Module for Bla Rack Cabinet ack Cabinet	e itch Module adeCenter	Э	32R1888 32R1892 32R1859 32R1813 32R1812 32R1900 930842S 9306420 9306250 26K4816	IBM Advancec IBM KVW/Red 1U 17" Flat Pa 2U 17" Flat Pa IBM BladeCer IBM 2-button r IBM T115 15" APC Smart-UF • Other option	undant Mana unel Monitor C unel Monitor C nter 4-port GE nter 2-port Fib mouse PS/2 Flat Panel Co PS 5000RMB	gement Moc Console Kit (Console Kit (B Ethernet Stree Channel Stree Channel Street)	with kybd/ with kybd/ witch Mod Switch Mod (black)	monitor) ule		25R5778 48P7055 17231UX 17232UX 48P7054 48P7062 28L3673 494215U 37L6861



Rear

SM SM 1	PM 3	Blower module 1 • (std)	PM 1	M M 1
SM 4 2 •	PM 4	Blower module 2 • (std)	PM 2	M M 2 •

Switch Power modules Power Management modules module (both std) (std)

- Dimensions: H12.0" x W17.5" x D28" Dimensions: H304.2mm x W444mm x D711.2mm
- Weight: 99 to 240 lb; 44.91 to 108.86kg
- Stealth black color bezel
- Tool-free customer serviceability
- Access server blades and SCSI Expansion Units from front
- bays 🗅 Access modules from rear
 - Midplane in center of system to interface for all major system components
 - Prédictive Failure Analysis® alerts on blowers, blade server memory, processor(s), and optional disk(s) with IBM Director

Module	Switch module bay	Switch module function
bays	1 2 3	Ethernet link 1 for all blade servers Ethernet link 2 for all blade servers Network connection 1 for all blade server I/O expansion options (Fibre Channel)
gement dule td)	4	Network connection 2 for all blade server I/O expansion options (Fibre Channel)

- ⇒ 3 year parts and labor
 ⇒ International Warranty Service³
 ⇒ On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time?
- On site service upgrade options (in
 - 3 year IOR 24x7, 2 hr avg response (ServicePac® part num 21P2065)
 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 21P2085)
 - 3 year IOR 9x5, 4 hr avg response (ServicePac part num 41L2736)
 5 year IOR 9x5, 4 hr avg response
 - (ServicePac part num 69P9207)
 - 5 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9209) Other ServicePac options at
- http://www.ibm.com/services/us/ its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty
 - issues during the warranty

IBM® Type-model	Supported Blades	Blade Servers std / max		Switch modules (type)	Advanced Management modules std / max	Power modules std / max		Blower modules std / max	Mechanical	Available date
8852-4XX HS20	0/HS40/JS20/JS21/LS2	0 0/14	0/10 Ene	t, Fibre Ch, IB, OPM ar	nd CPM 1/2	2/4	2900W	2/2	9U⁴ rack	Mar 2006
Positioning Description	Provides commo expansion, exter	n resources nal Fibre Ch	s shared by the storage	ost efficient infrastrublade servers such as pe switching and conne JS21/LS20 and Bladee	power, system mectivity, and I/O (or	anageme	ent, cablir e. USB a	ig, ethernend nd video)	et managen	
Switch modules	Std: none; max: Nortel Networks	ten / hot-sw ™ / Cisco™	ap / rear acc / QLogic™ /	ess / Gb Ethernet / Fib Brocade® / McData®	re Channel / Infini	Band / O	ptical Pas	ss-thru / C	opper Pass	s-thru /
Advanced Management Modules	communicates w	ith integrate	ed system ma	ess / comprehensive s anagement processor o B 2.0, Serial(RJ45), 10	on each server bla	ade / com	plete KV	M switch I	ocal functio	er / onality /
Power modules	supply power to	blade bays	1 through 7 a	ess / 2900 watts at 220 and both AMMs, SMs 1 10 used / worldwide / v	& 2, and all blow	ers / two	optional r	nodules in	bays 3 and	
Blower modules	Std: two; max: tv	vo / hot-swa	p / redundan	t / throttlled according t	to incoming air ter	nperature	/ rear ac	cess / fro	nt to back a	irflow
Mechanical Media Tray	DVD-ROM / two	USB ports	(Version 2.0	supported in NetBAY [†]) / Full Light Path Diag Ind USB port by pressi	nostic panel / cust	omer ser	viceable .	front acc de front pa	ess / shared	d by all
Keyboard / mous	on server blade the Rear: two USB,	front panel / two RJ45 (supports Ne one ethernet	nsole support / reques tBAY ACT CAT5 chair and one serial), analoç USB (Media Tray)	ning solutions	,		, ,		•
Security				secure socket layer (S ding security through le					/	
Ethernet	Each of the dual	integrated o	gigabit ethern	et controllers on each b	plade connects to	an option	al <i>GB Eti</i>	nernet Sw	itch Module)
Systems mgmt	disks, blowers, p Manager	ower modu	les / system	wer on/off/reset blades diagnostic programs p	rovided through IE	3M Direct	or softwa	re / Remo	system, tem ote Deployn	perature, nent
System LED pan	ei System LED pai	nei provides	power-on, ic	ocation, over-temperatu	ire, information, a	na syster	n-error c	onaltions		

BladeCenter H 2900W Power Module pair with Fan Packs 31R3335

 Bladecenter H 2900W Power Module
 31R3333

 IBM Advanced Management Module
 25R5778

 BladeCenter H Double 30A NEMA L6-30P (208V) 4.3M
 25R5783

 BladeCenter H Dual 32A IEC 309 P+N+G/16A IEC 320-C20 (230V) 4.3M 25R5784
 25R5785

 BladeCenter H Triple 16A IEC 320-C20 (200-240V) 2.8M
 25R5785

 BladeCenter H Double 30A KSC 8305 (220V) 4.3M (Korea)
 25R5811

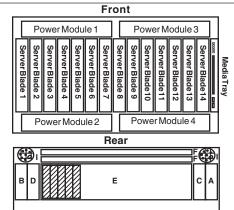
 BladeCenter H Dual 32A AS/NZS 3112/16A IEC320-C20 (ANZ)
 25R5812

 BladeCenter H Serial Port Breakout Cable
 25R5806

 BladeCenter A Serial Port Breakout Cable
 25R5806

 IBM BladeCenter 4-port GB Ethernet Switch Module 48P7054 IBM BladeCenter 2-port Fibre Channel Switch Module 48P7062

Other options at ibm.com/products/us
 Solutions available from IBM BladeCenter Alliance program partners



- Dimensions:
- H15.75" x W19" x D29" H400.05mm x W482.6mm x D766.6mm Dimensions:
- Weight: 90 to 350 lb; 40.82 to 158.8kg
- Stealth black color bezel
 Tool-free customer serviceability
- Access server blades, expansion units and power
- modules from front Access modules from rear

- Midplane in center of system to interface for all system components
 Predictive Failure Analysis® alerts on blowers,
- blade server memory, processor(s), and optional disk(s) with IBM Director
- A Advanced Management Module
 B Switch Module Bays 1 & 2 (dedicated ethernet)
 C Switch Module Bays 3 & 4 OR- Bridge Slots
- D Dedicated Bridge Module Slots (up to 4)
- E Blowers (2)
- F High Speed Switch Module Bays (4)
- G Light Path Diagnostic Panel H Aggregated Serial Connector
- Consolidated Redundant Power Inputs (2)

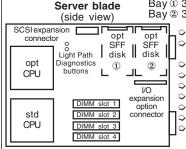
LIMITED WARRANTY³

- 3 year parts and labor
 International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in
 - 3 year IOR 24x7, 2 hr avg response (ServicePac® part num 21P2065)
 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 21P2085)
 - 3 year IOR 9x5, 4 hr avg response (ServicePac part num 41L2736)
 - 5 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9207)
 - 5 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9209)
 - Other ServicePac options at http://www-1.ibm.com/services/ us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty

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								0010					
IBM® Type-model Processo	L2 or GHz ¹ cache	FSB MHz	Memory	Disk	Disk controller	Diskbays	opt	CSI Supp ional sto	r exp unit	slots x bays	Mech- anical	Ethernet	Available date
8843-L1y-L1x 1 x 8843-J1y-J1x 1 x 8843-M5y-M5x 1 x 8843-25y-25x 1 x 8843-E2y-E2x 1 x 8843-45y-45x 1 x 8843-25y-25x 1 x 8843-25y-25x 1 x 8843-55y-55x 1 x 8843-E7y-E7x 1 x 8843-E7y-E7x 1 x 8843-E9y-E9x 2 x	Xeon 3.0LV 2N Xeon 3.2 2N Xeon 3.2 2N Xeon 3.4 2N Xeon 3.6 2N Xeon 3.2 2N Xeon 2.8 2N Xeon 3.8 2N Xeon 2.8 2N	B 800 B 800 B 800 B 800 B 800 B 800 B 800 B 800	1GB 1GB 2GB 1GB 1GB 1GB 1GB 1GB 512MB	None 36GB None None None 36GB None None	Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320	2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed	2 H H H H H H H H H H H H H H H H H H H	ot-swap ot-swap ot-swap ot-swap ot-swap ot-swap ot-swap ot-swap ot-swap ot-swap ot-swap	Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320	0 x 2 0 x 2	7U blade 7U blade	2 x Gigabit 2 x Gigabit	Feb 2005 Feb 2005 Feb 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005 Sep 2005 Sep 2005 Sep 2005
Processor(s)	1 or 2 x Intel®	Xeon u	o to 3.8GF	lz with	800MHz f	rontside h	us (FSB) / F	M64T / 1-2	MB I 2	FCC Cac	he / Hyper-Thi	reading
SMP - L2 Cache Implementation	technology / L1 2-way SMP / u Systemboard c expansion option	p to two ontains on conne	Xeon Pro two Intel 60 ector, integ	cessors 04-pin r rated gr	s Low vol s (same spo micro-PGA raphics and	eed/cache ZIF socke d dual Giga	size) ets, fo abit e	/ 1 or 2 our DIMM thernet	MB std ard slots, one	nd 4ME SCSI	max / at p	rocessor spee	d e I/O
Memory	512MB/1GB st PC2-3200 400I installed in mate	d / 16GE MHz CL ched pai	3 ¹³ max / tv 2.5 ECC D rs [a bank]	vo slots DR2-SI / 2-way	used / two DRAM DIM y memory i	slots ava IMs / four nterleave /	ilable 240 ' dual	/ pin gold- channel	connector / Chipkill™	slots or	systemboa	ard / DIMMs m	oust be
SCSI disk controller	LSI Logic® 530 PCI-X / support	1020 S s RAID -	CSI contro 1 & 1E mi	ller / Si rroring	ngle chan / One 16-	nel Ultra3 bit channe	20 S el (one	CSI con te interna	t roller (LVI I) / <i>Internal</i>	D 320N channe	IB/sec) / on el: one 2-dro	planar / 64-bi p 16-bit 68-pir	100MHz LVD SCSI
SCSI Disk bays	Two 2.5-inch 3 disks in optiona	Small Fo	orm Factor	(SFF)	Ultra320 ir	nternal fixe	d dis	k bays /	Supports r	nax of	two hot-swa	ap 3.5" SL Ultr	a320 SCSI
External Storage	Support for IBN	1 TotalS	torage™ sc	lutions	(including l	FAStT and	I NAS	ectors; a S family o	of products	ys Uitr	a320-enabi	ea) /	
Mechanical Architecture/Chipset BUS slots	7U⁴ Blade / Sup Intel E7520 ch BUS / ICH5R s interface No PCI or PCI-	upports	USB (1.0)	LSI 10)20 / Dual I	Broadcom	5/04	S / Low	Pin Count	ade to 2 PXH, Interfac	2000W pow ICH5R / PX e / NS PC8	er supply optic (H BUS suppo 7366 Super I/0	on 26K4816) orts PCI-X O off LPC
Ethernet										at MAC	and DHV Is	aver functions	,
Network Interface CD / Diskette / USB Kybd / video / mouse Graphics controller	Dual gigabit 10 chip on blade / adapter fault to or Optical Pass One connecto 3 and 4 of Blad and serial I/O e None / request None / request SVGA / ATI® R	eCenter xpansio	/ all blades n cards pla	s in a si nned fo	ingle Blade or future re	Center mu lease ²⁰	ist co	ntain the	same exp	ansion	card (or no	expansion car	d) / ethernet
Systems Mgmt	IBM Baseboar on blade / prov event recording communication	ides svs	tem and er	าvironm	nental móni	torina.		ment Xe	on3.0GHz/800 on3.2GHz/800 on3.4GHz/800	/2MBL2C)/2MBL2C)/2MBL2C	Cache EM64TP Cache EM64TP Cache EM64TP Cache EM64TP	ocUpg rocUpg rocUpg	25R8878 25R8877 25R8876 13N0660
Diagnostics	Light Path Dia on-board diagn	gnostic ostics (v	s™ (LED li ria PC-Doc	ghts in tor in B	dicate failin BIOS)	g compon	ent) a	and Xe	on 3.8GHz/800 2MB (2x256) P	/2MBL2C C2-3200E			13N0696 13N0697 73P3523
Security	No security intradministrator parameters unattended sta	assword	otection / F / unattend	Power-ced boot	on passwor t / selectab	rd / le boot /		2G 4G	B (2x2GB) PC	2-3200 CL 2-3200 CL	BECC DDR2 .3 ECC DDR2 F .3 ECC DDR2 F .3 ECC DDR2 F	RDIMM Kit	39M5818 39M5809 39M5812 30R5145
Software ship group	Documentation	CD, Bro	oadcom CI)							CSI2.5" SFF N SI2.5" SFF NH		40K1037 40K1038
Cooling Fans Power supply(s) Prerequisites	Uses cooling fr sensors on each Uses power model Monitor, keybood disk, BladeCen	odule(s)	in BladeCe	enter (ty	/pes 8677, arnet switch	8852 and	8720	mal Bla Bla Bla Bla	deCenterSCS deCenterSFF deCenterSFF	I Storage E Fibre Cha Gigabit Eth	Exp Unit		26K4817 26K4841 26K4842



- Power good
- Blade location
- Over temperature
- Information
- · General fault

Bay ① 3.5", 9.5mm, no front access, optional 2.5-inch SFF SCSI disk Bay 2 3.5", 9.5mm, no front access, optional 2.5-inch SFF SCSI disk

Stealth black front bezel

- ⇒ H 9.7" x W 1.14" x D 17.6"; H 24.5cm x W 2.9cm x D 44.6cm ⇒ 12 lbs; 5.4kg (max configuration)

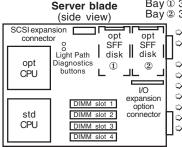
- 12 lbs; 5.4kg (max configuration)
 Configuration/Setup Utility:F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 System Partition Boot: ALT+F1 at startup
 Network Boot: F12 at startup
 PXE Boot Agent Utility: Ctrl+S at startup
 Blade control panel on each HS20 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS20 blade server¹³: 146GB with two 73GB SCSI disks (with BladeCenter SCSI Storage Expansion Unit 2 x 300GB for total of 746GB)

- 3 year parts and labor
 ☐ International Warranty Service³
 ☐ On site, 8 am-5 pm,
 ☐ Mon-Fri excluding holidays,
 ☐ next business day response time
 ☐ On site service upgrade
 ☐ options (in eligible locations):7
 ☐ 4 year IOR 9x5, NBD response
 ☐ (ServicePac® part num 69P9520)
 ☐ 4 year IOR 9x5, 4 hr avg response
 ☐ (ServicePac part num 69P9521)
 ☐ 4 year IOR 24x7, 4 hr avg
 response

- response (ServicePac part num 69P9522) 4 year IOR 24x7, 2 hr avg
- e 4 year 10h 24A7, 2 hi dig response (ServicePac part num 69P9523) ⇒ Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf ⇒ 24x7¹⁴ toll-free support for warranty issues during the warranty period³ issues during the warranty period3

IBM®			L2	FSB			Disk			Suppo		slots	Mech-		Available
	ocessor				Memory		controller						anical	Ethernet	date
8843-0Ry-0Rx 1 x 8843-2Ry-2Rx 1 x 8843-3Ry-3Rx 1 x 8843-4Ry-4Rx 1 x 8843-5Ry-5Rx 1 x	⁄ Xeon	3.2 3.4 3.6 3.8	2MB 2MB 2MB 2MB 2MB	800 800 800 800 800	1GB 1GB 1GB 1GB 1GB	None None	3 Ultra320 Ultra320 Ultra320 Ultra320 Ultra320	2-fixed 2-fixed	2 Hot-s 2 Hot-s 2 Hot-s 2 Hot-s	swap l swap l swap l swap l	Jitra320 Jitra320 Jitra320 Jitra320 Jitra320	0 x 2 0 x 2 0 x 2 0 x 2 0 x 2	7U blade 7U blade 7U blade 7U blade 7U blade	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	Mar 2006 Mar 2006 Mar 2006 Mar 2006 Mar 2006
			10.14						(505				. = 00 0		
Processor(s) SMP - L2 Cache Implementation	techno 2-way Systen	logy SMF nboa	/ <i>L1U,</i> P / up t rd cont	<i>J1U a</i> two tains to	and M5U: Xeon Pro wo Intel 6	Feature cessors 04-pin	es Low Vo l	l age Proc eed/cache ZIF socke	essor for size) / 2 ets, four [r reduc 2 MB s DIMM :	ed heat o	ouput a	llowing grea	he / Hyper-Thater rack populater rac	ation
Memory	512ME PC2-3 installe	3/1GI 200 4 ed in i	3 std / 100MH matche	16GB Iz CL2 ed pair	¹³ max / tv 1.5 ECC D s [a bank	wo slots DR2-S /2-wa	s used / two DRAM DIM y memory i	slots ava MMs / four nterleave	ilable / 240 pin / dual-ch	gold-co annel /	onnector Chipkill ^{TI}	slots or	n systemboa	ard / DIMMs m	nust be
SCSI disk controller	PCI-X	ogic ® / sup	53C10 ports F	20 SC RAID- 1	CSI contro I & 1E mi	ller / Si rroring	ngle chan / One 16-	nel Ultra3 bit channe	20 SCSI el (one in	contro ternal)	oller (LVI / <i>Internal</i>	D 320N channe	1B/sec) / on el: one 2-dro	planar / 64-bi p 16-bit 68-pi	t 100MHz n LVD SCSI
SCSI Disk bays External Storage	disks i	n opt	ional S	icsi s	torage Ex	pànsioi	Ultra320 in n Unit (80-p (including l	oin SCA-2	connecto	ors; all	SCSI ba	ıys Ultr	two hot-swa a320-enabl	ap 3.5" SL Ultr ed) /	a320 SCSI
Mechanical Architecture/Chipset	7U ⁴ Bla Intel E BUS / interfa	7520 ICH5	Suppo chips R supp	orted ir set / E ports l	n IBM Blad 7525 MCI JSB (1.0)	deCento H (Men / LSI 10	er 8677-3X nory Contro 020 / Dual B	X or 8677- ller Hub) f 3roadcom	-1XX/2XX or PCI-E 5704S /	X (requ express Low P	ires upgr bridge to in Count	ade to 2 PXH, Interfac	2000W pow ICH5R / PX e / NS PC8	er supply option (H BUS suppo 17366 Super I/0	on 26K4816) orts PCI-X O off LPC
BUS slots			PCI-X	slots (expansior	via m	odules or n	etwork-inte	erface op	otion co	nnector)				
Ethernet Network Interface	chip or adapte or <i>Opt</i> One c	n blacer fau Fical F Onne Blade	de / PC It tolera Passthr ector fo eCente	CI-X 64 ance / rough or I/O er mus	l-bit 100M Load bala <i>Module</i> (th expansio t contain 1	Hz / full incing one secon n optic	duplex / Wor teaming / ond controllent / require	lake on La one of the er requires s same int	AN® / PXI e dual co s a secor terface m	E 2.0 E ontroller nd option nodules	Boot agen rs connec onal switc in bays	nt / Alert cts to ar ch or O 3 and 4	Standard For optional, something (Standard For Standard F	ayer functions of a format 2.0 / Faupported Ethe enter / all blade O expansion of	ilover, rnet switch es in a
CD / Diskette / USB Kybd / video / mouse Graphics controller	None /	requ	iests fo	or CD- or kevt	ROM, dis	use, an	rive, and US nd video in I r / 16MB SE	BladeCent	er by pre	essina	the displa	av butto	elect button n on front c	on front contro ontrol panel	ol panel
Systems Mgmt	on blacevent	de / p recor	orovide ding, a	s syst lert ca	ém and e pability / f	nvironn RS-485	er (BMC) / nental moni interface fo ement mod	toring, or interma		Xeon Xeon Xeon	3.0GHz/800 3.2GHz/800 3.4GHz/800)/2MBL2()/2MBL2()/2MBL2(Cache EM64TP Cache EM64TP Cache EM64TP Cache EM64TP Cache EM64TP	ocUpg rocUpg rocUpg	25R8878 25R8877 25R8876 13N0660 13N0696
Diagnostics	Light on-boa	Path ard di	Diagn agnost	ostics ics (vi	s™ (LED I a PC-Doo	ights in tor in E	dicate failin BIOS)	g compor	ent) and	I Xeon)/2MBL2C	Cache EM64TPr		13N0697 73P3523
Security	No sec admini unatte	strato	or pass	word /	otection / unattend	Power-o	on passwor t / selectab	rd / le boot /		2GB 4GB	(2x1GB) PC (2x2GB) PC	2-3200 Cl 2-3200 Cl	BECC DDR2 L3 ECC DDR2 F L3 ECC DDR2 F L3 ECC DDR2 F	RDIMM Kit	39M5818 39M5809 39M5812 30R5145
Software ship group	Docum	nenta	tion CI	D, Bro	adcom C	D				IBM3	36.4GB 10K	Ultra320 S	SCSI2.5" SFF N	HSHDD	40K1037 40K1038
Cooling Fans	Uses	coolin	g from	Blade	Center (t	pes 86	677, 8852 a	nd 8720)	/ thermal	Blade	eCenterSCS	I Storage E			26K4817 26K4841
Power supply(s) Prerequisites	Uses r	owe	r modi	ıle(s) i	n BladeC	enter (tv	enter modul ypes 8677, ernet switch d 8720, ope	8852 and	8720)	Blade	eCenterSFF	Gigabit Etl	hernet Exp Card /us/accessories		26K4842



- Power good
- Blade location
- Over temperature
- Information
- General fault

Bay ① 3.5", 9.5mm, no front access, optional 2.5-inch SFF SCSI disk Bay 2 3.5", 9.5mm, no front access, optional 2.5-inch SFF SCSI disk

Stealth black front bezel

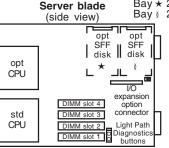
 ⇒ Stealth black front bezel
 ⇒ H 9.7" x W 1.14" x D 17.6";
 H 24.5cm x W 2.9cm x D 44.6cm
 ⇒ 12 lbs; 5.4kg (max configuration)
 ⇒ Configuration/Setup Utility:F1 at startup
 ⇒ Diagnostics (PC-Doctor™): F2 at startup
 ⇒ System Partition Boot: ALT+F1 at startup
 ⇒ Network Boot: F12 at startup
 ⇒ PXE Boot Agent Utility: Ctrl+S at startup
 ⇒ Blade control panel on each HS20 blade server provides media select button, keyboard/mouse/video select button media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power

Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS20 blade server¹³: 146GB with two 73GB SCSI disks (with BladeCenter SCSI Storage Expansion Unit 2 x 300GB for total of 746GB)

- response (ServicePac part num 69P9522) 4 year IOR 24x7, 2 hr avg
- response
 (ServicePac part num 69P9523)
 Other ServicePac options at http://www.ibm.com/
 services/us/its/pdf/wamomxeu.pdf
 24x7¹⁴ toll-free support for warranty issues during the warranty period3

IBM® Type-model Process	or GHz ¹	L2 cache	FSB MHz	Memory	Disk c	Disk ontroller	Disk bays	SCSI Suppo storage ex		slots x bays	Mech- anical	Ethernet	Available date
7981-2Fy 1 x Xeo 7981-3Fy 1 x Xeo	n™ 1.67 n 2.0	2MB 2MB	667 667	1GB 1GB	Open Open	SAS SAS	2-fixed 2-fixed	Not Supp Not Supp	orted	1 x 2 1 x 2	single blade single blade	2 x Gigabit 2 x Gigabit	Mar 2006 Mar 2006
Processor(s) SMP - L2 Cache Implementation	1 or 2 x D Transfer (ogy for red 2-way SMI Systemboa	Dual-Cor Cache A duced po P / up to ard conta	re Into Architower of two ains to	el® Xeon tecture / consump Xeon L\	LV up Feature Stion and Proces	to 2.0 G es Ultra d heat ou ssors (sa micro-ECI	Hz with Low Vol put allowine speed	667 MHz from age Process ng greater rac d/cache size) /	tside bus or (31 wa k populat 2MB cac	s (FSB) att) with ion the std a	/ 2MB L2 EC Enhanced Inte and max / at pro CSI expansion of	C Shared Ad I SpeedStep® ocessor speed	vanced Technol-
	expansion	option o	conne	ctor, inte	grated g	raphics a	and dual (Gigabit etherne	et Siot	5, 0110 00	от схранзют с	or in ector, or ic	. 1/0
Memory	1GB std / 1 gold-conne / Chipkill / h	ector slo	ts on	systemb	oard / 2	-way mei	mory inter	leave / DIMMs	OMHz CL2 s must be	2.5 ECC installed	DDR2-SDRAM in matched pa	RDIMMs / fou irs [a bank] / d	ur 240 pin lual-channe
Disk controller Disk bays External Storage	LSI Logic [®] Two 2.5-in Support for	[®] 1064 S nch Sma r IBM To	SAS c all Fo otalSt	controlle orm Fact orage™ s	r on pla or (SFF solutions	nar (3.00) SAS int (includin	Bb/sec) / I ernal fixed g DS and	Dual Internal o d disk bays / 0 I NAS family o	hannels / IGB Std / f products	suppo 146.8GE s)	rts RAID-0 & 1 3 max	mirroring	
Mechanical Architecture/Chipset	Single slot Intel E7520	blade / S 0 chips	Suppo et / M	orted in IE CH (Men	BM Blad	eCenter 8 ntroller Hu	3677, 872 ub) for hig	0, 8730, and 8 h-speed memo	852 ory and Po	CI-Expre	ss / PXH-V BUS 3 (1.0), on-blade	S supports PC	I-E to PCI-X
BUS slots	Bus Interfa	ice to LS	SI1064	1 and AT	l Radeo	n 7000M	/ Dual Bro	ghter card / IC padcom 5704S network-interfa	,			e service proce	essor, PCI-X
Ethernet Network Interface	chip on bla fault tolerar Optical Pa One conn single Blad	ide / PC nce / Lo ss <i>throu</i> d ector fo deCente	I-X 64 ad ba gh <i>M</i> o or I/O r mus	l-bit 133N alancing o odule (the expansi at contain	/IHz / ful or teami e secon on opti	l duplex / ng / one (d controll on / requ	Wake on of the dua er require ires same	LAN® / PXE 2 al controllers co s a second op e interface mod	OBoot aconnects to tional swalles in both	gent / Ale o an optic itch or C ays 3 an	AC and PHY la rt Standard For onal, supported PM) d 4 of BladeCe et and serial I/0	mat 2.0 / Failo Ethernet switen enter / all blade	ver, adapter ch or es in a
DVD / Diskette / USB Kybd / video / mouse Graphics controller	None / req	uests fo	r DVE or keyl	D-ROM, oboard, m	ouse, a	nd video	in BladeC	rt in BladeCen Center by press std and max /	sing the d	isplay bu	ect button on fi tton on front co	ont control pa ontrol panel	nel
Systems Mgmt	IBM Basel on blade / event reco communica	provide: rding, al	s syst lert ca	em and apability /	environr RS-485	mental mo interface	onitoring, e for interi	168 / management	Dual-Core I 1GB (2x512 2GB (2x1G	ntel Xeon P 2MB Kit) PC B Kit) PC2-3	rocessorLV1.67GH rocessorLV2.0GHz 2-3200CL3ECCDDR 3200CL3ECCDDR	ProcUpg DR2 SDRAM RDIM 2 SDRAM RDIMM	39M5809
Diagnostics	Light Path on-board d	n Diagn diagnost	ostics ics (vi	s ™ (LED ia PC-Do	lights in	ndicate fa BIOS)	iling com	ponent) and	8GB (2x4G	B Kit) PC2-3	3200 CL3 ECC DDR: 3200 CL3 ECC DDR: F2.5"SAS HDD		39M5812 30R5145 26K5776
Security	No security administrat unattended	for pass	word	otection / / unatten	Power- ded boo	on passy ot / select	vord / able boot	/	BladeCente IBMBladeC	erSFFFibre CenterSFFC	F2.5" SAS HDD Channel Exp Card Gigabit Ethernet Expa Gigabit Ethernet Expa		26K5777 26K4841 39R8624 26K4842
Software ship group	Documenta	ation CE	D, Bro	adcom (CD						n/pc/us/accessories		
Cooling Fans Power supply(s) Prerequisites	sensors or	n each p er modu eyboard.	oroces Ile(s) i , mou	ssor and n Blade(se for se	BladeC Center (t etup; eth	enter mo types 867 ernet swi	dules and 7, 8720, tch modu	852) / thermal I front panel 8730, 8852) ile, g system					



- Power good
- Blade location
- Over temperature
- Information

· General fault

Bay ★ 2.5",6.35cm, no front access Bay ₹ 2.5",6.35cm, no front access

Stealth black front bezel

Stealth black front bezel
H 9.7" x W 1.14" x D 17.6";
H 24.5cm x W 2.9cm x D 44.6cm
12 lbs; 5.4kg (max configuration)
Configuration/Setup Utility: F1 at startup
Diagnostics (PC-Doctor™): F2 at startup
System Partition Boot: ALT+F1 at startup
Network Boot: F12 at startup
PXE Boot Agent Utility: Ctrl+S at startup
Blade control panel on each HS20 blade server provides
media select button, keyboard/mouse/video select button media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power Predictive Failure Analysis® alerts on memory, processor(s),

Maximum internal disk capacity for each HS20 LV

and optional disk(s) with IBM Director

blade_server13:

146GB with two 73GB SAS disks

LIMITED WARRANTY3

3 year parts and labor
International Warranty Service³
On site, 8 am-5 pm,
Mon-Fri excluding holidays,
next business day response time
On site service upgrade
options (in eligible locations):7
• 4 year IOR 9x5, NBD response
(ServicePac® part num 69P9520)
• 4 year IOR 9x5, 4 hr avg response
(ServicePac part num 69P9521)
• 4 year IOR 24x7, 4 hr avg
response

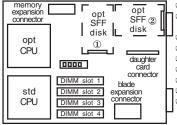
- response (ServicePac part num 69P9522) 4 year IOR 24x7, 2 hr avg

• 4 year 10h 24x7, 2 iii day response (ServicePac part num 69P9523) Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM [⊚] Type-model Pro	cessor GHz ¹		SB Hz Watts	Memory c	Disk ontrolle	Disk er bays	Expansion U	Units I	/O slots	Mechanical	Ethernet	Available date
8853-L1x 1 x Xeon 8853-L2x 1 x Xeon 8853-L3x 1 x Xeon 8853-L4x 1 x Xeon 8853-L5x 1 x Xeon 8853-L6x 1 x Xeon	™ 5110 1.6 5120 1.86 5130 2.0 5140 2.33 5150 2.66 5160 3.0	4MB 10	67 65W 67 65W 33 65W 33 65W 33 65W 33 85W	1GB 1GB 1GB 1GB 1GB	SAS SAS SAS SAS SAS	2-fixed 2-fixed 2-fixed 2-fixed 2-fixed 2-fixed	MIO/SIO/PO MIO/SIO/PO MIO/SIO/PO MIO/SIO/PO MIO/SIO/PO MIO/SIO/PO	CIEU CIFU	up to 2 up to 2 up to 2 up to 2 up to 2 up to 2 up to 2	single slot blade single slot blade single slot blade single slot blade single slot blade single slot blade	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	Aug 2006 Aug 2006 Aug 2006 Aug 2006 Aug 2006 Aug 2006
Processor(s) SMP - L2 Cache Implementation	Cache / Dua	al Core / I / up to tw d contains	Hyper-Thr o Xeon F two Intel	eading ted rocessors LGA771	chnolog (same sockets	ly speed/ca s, four DII	ache size) / 41 MM slots, one			1333MHz FSB / at processor sp ghter Card conne		
Memory	SURAIVI dev	ice tallure	. aetects a	ali two wire	e iauits	on Diiviiv	is. detects all	permutat	ions of tv	667MHz FBD 240 dual channel / E vo x4 DRAM failu y sparing / Additi GB of memory pe	ires, detects a	nv iwo diis i
SAS disk controller	LSI Logic® 1 29-pin SFF 9	1064E SA SAS cable	S controlles	er / two p	ort / 30	00MB/sec	/ on planar /	64-bit PC	I-Expres	s / supports RAII	D-0 & 1 mirro	ring / two
SAS Disk bays External Storage	Two 2.5-inc Storage and Support for	I/O Expa	nsion Unit	t ` ´	SAS in	iternal fixe	ed disk bays /	Supports	max of	three hot-swap S	SFF SAS disks	s in optional
Mechanical Architecture/Chipset BUS slots	Single slot bl Intel 5000P High Speed connector, D No PCI or P	lade / Sup chipset / Daughter Dual GB et CI-X slots	ported in Intel Mer Card con hernet, LS	IBM Blade nory Conti nector and SI 1064E S on via mo	eCenter roller H d BSE SAS, L	8677, 87 ub (MCH connecto PC bus to or network	720, 8730 and) provides PC r / ESB2M pro o NS PC8742 c-interface opt	1 8852 (L6 DI-Express ovides: U 27 for Sup tion conn	Sx only su s bridge t SB (2.0), per I/O ector)	upported in 8852) to Enterprise Sou , ATI video, Lega	th Bridge 2(E cy Daughter 0	SB2M), Card
Ethernet Network Interface	Alert Standa optional, sur	rd Format poorted Et	2.0 / Fail hernet sv	over, adap vitch or <i>O</i>	oter fau <i>ptical F</i>	lt toleranc <i>Passthrou</i>	e / Load balar <i>ah Module</i> (th	ncing or t ne second	eaming / controlle	t MAC and PHY I / Serial over LAN one of the dual or requires a secon res same interfact sion card (or no e	controllers con d optional swit	nects to an I ch or OPM)
DVD/ diskette / USB Kybd / video / mouse Graphics controller	None / regue	ests for ke	yboard, n	nouse, and	d video	in Blade	BladeCenter b Center by pres max / 32-bit 3	ssing the	display b	select button on outton on front co	front control p ntrol panel	anel
Systems Mgmt	IBM Basebo on blade / pr event record communicati	rovides sy ling, alert	stem and capability	environm / RS-485	ental m interfac	nonitoring, be for inte	2166 / rmanagement	Xeon1.86 Xeon2.00 Xeon2.33	6GHz/1066/4 GHz/1333/4 8GHz/1333/4	MBL2 Cache EM64TPn 4MBL2 Cache EM64TP MBL2 Cache EM64TP 4MBL2 Cache EM64TPn	rocUpg ocUpg rocUpg	40K1225 40K1226 40K1227 40K1228
Diagnostics	Light Path I on-board dia	Diagnosti agnostics	cs ™ (LE[(via PC-D) lights ind octor in B	dicate fa	ailing con	nponent) and	Xeon 3.00 1GB (2x5	GHz/1333/4 12) PC2-53	4MBL2CacheEM64TF MBL2CacheEM64TPr 00 CL5 ECC DDR2Chi	ocUpg pkill FBD 667MHz l	
Security	No security administrator unattended s	r passwor	d / unatte	/ Power-onded boot	n pass / selec	word / table boo	t /	4GB (2x2 8GB (2x4	GB) PC2-50 GB) PC2-50	300 CL5 ECC DDR2 CH 300 CL5 ECC DDR2 CH 300 CL5 ECC DDR2 CH SFF SAS HDD	ipkill FBD 667MHz	:Kit 39M5791
Software ship group	Documentati	ion CD, B	roadcom	CD, Serve	erGuide	e CD		IBM 73G	B NHS 2.5"	SFF SAS HDD and I/O Expansion Blade		26K5777 39R7563
Cooling Fans Power supply(s) Prerequisites	Uses cooling sensors on a Uses power Monitor, key disk, BladeC	module(s board, mo) in Blade buse for s	etup; ethe	rnet sv	77, 8720, /itch mod	8730, 8852) ule,	BladeCer BladeCer BladeCer QLogiciS Cisco4X Cisco4X QLogic 4 Emulex4	nterMemory nterSFF Fibr nterSFF Gig CSI Expans InfiniBand S InfiniBand E GBSFF Fib GBSFF Fibr	and I/O Expansion Blade re Channel Expansion I abit Ethernet Expansion ion Card for Blade Cente Switch Module for Blade Expansion Card for Blad re Channel Expansion C om/pc/us/accessories	e Card Card er Center eCenter eard for BladeCente	42C1600 26K4841 39R8624 32R1923 32R1756 32R1760 er 26R0890

Server blade (side view)

Bay 1 3.5", 9.5mm, no front access, optional 2.5-inch SFF SAS disk Bay 2 3.5", 9.5mm, no front access, optional 2.5-inch SFF SAS disk



A control panel on top front of blade has following LEDs:

- Power good
- Blade location
- Over temperature
- Information · General fault

- Stealth black front bezel
- ⇒ H 9.7" x W 1.14" x D 17.6"; H 24.5cm x W 2.9cm x D 44.6cm

- H 24.5cm x W 2.9cm x D 44.6cm 12 lbs; 5.4kg (max configuration) Configuration/Setup Utility:F1 at startup Diagnostics (PC-DoctorTM): F2 at startup System Partition Boot: ALT+F1 at startup Network Boot: F12 at startup PXE Boot Agent Utility: Ctrl+S at startup

- Blade control panel on each HS21 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s). and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS21 blade server¹³: 146GB with two 73GB SAS disks (with BladeCenter Storage Expansion Unit 3 x 146GB for total of 584GB)

- response (ServicePac part num 69P9522) 4 year IOR 24x7, 2 hr avg
- e 4 year 10h 24A7, 2 hi dig response (ServicePac part num 69P9523) ⇒ Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf ⇒ 24x7¹⁴ toll-free support for warranty issues during the warranty period³ issues during the warranty period3

L3

Frontside

Disk

Disk

SCSI support with

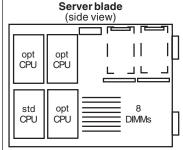
Required

Available

Mech-

Slots

Type-model Qty x Pro	ocessor1	L3 Cache Memory	Bus Mhz	Disk o	Disk controller	Disk bays		Si support nal expans			Mech- anical	Required chassis	Available date
< 8839-41X 1 x Xeon [™]	™ 2.8GHz M	IP2MB 2GB	400Mhz	None	None	None	2 ho	ot-swap l	Jltra320	0x2	6U⁴ blade	BladeCente	r Mar 2004
Positioning Processor(s) L2/L3 cache SMP support Implementation	1 x Intel® 512KB L2 4-way SM Server bla	e, highly mana Xeon 2.8GHz N Cache / 2MB I P / up to four X de contains fou expansion unit	IP with 40 L 3 Cache (eon MP I r Intel 604	00MHz / on d Proces: 1-pin m	frontside lie of pro sors (san nicro-PG	e bus / ocessor me spe A ZIF s	Hyper / at p eed/cae sockets	-Threadir rocessor che size) s, eight r	ng techn speed nemory	ology /	NetBurst [⊤]	[™] microarchite	
Memory	PC2100 20 DIMMs mu 100MHz /	16GB max ¹³ / tv 66MHz registered ast be installed in Error Checking and detects 2-	ed 184-pir n matche g and Co	n ECC d pairs rrectin	DDR-SI a bank g (ECC	DRAM] / 2-wa) via 16	DIMMs ay mer 6-bit C	s / eight mory inte Checksur	DIMM g rleave / n Chipl	dual c kill™ (c	hannel / m corrects 1,	nemory bus ru	ns at 2 x
SCSI disk controller	via one co CIOB-ES 3.5" one-ir Supports r	pports optiona nnector / LSI L I/O Bridge (IMB nch high SL SC nax of two hot-s A-2 connectors /	ogic® 530 2 bus to SI disks i wap 3.5" \$	1020 l Host B n front SL Ultra	Ultra320 Bridge) / bays / c a320 SC	SCSI suppor one 16- SI disk	contro ts R / bit int s in op	oller [LVD AID-1 mi n ernal cha) 32ÓMÈ rroring annel / r	Š/seć] / [Embe no cabl	64-bit 13 dded Mirr es or exte	3MHz PCI-X oring] with tween connected to the connected t	Bus B from o hot-swap
External storage		r IBM TotalStora						IAS famil	y of prod	ducts)			
Mechanical		in IBM BladeCer											
Architecture / chipsets	sone CIOB- ethernet a bus to Sup	rks® Grand Ch -X2 I/O Bridge on nd the I/O expander I/O, and PC PCI-X slots (e	(IMB2 bus insion opt I 2.2 Bus	to Ho ion cor C with	est Bridge nnector in graphic	e) for to CSB6 cs conti	wo PC South roller /	CI-X Buse n Bridge ' Nationa	es with I (Thin IN I Semic	Bus A · //B to F onduct	for etherne lost Bridge or® PC874	et and Bus B e) for EIDE, U	for JSB, LPC
Ethernet controllers Network-interface	Wake on L 4-port GB Two conn	t 10/100/1000 ett AN® / Alert Stand Ethernet Switch ectors for I/O € in a single Blad	lard Forma Module expansior	t 1.0 / t (the se optio	teaming a econd co n / requi	and faild ntroller res sar	ver su requir ne inte	pport / on res a sec erface mo	e of the ond opt odules ir	controlle ional E n bays	ers connect thernet Sv 3 and 4 of	ts to an optiona vitch Module) f BladeCenter	al .
CD / diskette / USB Kybd / video / mouse Graphics	None / rec	uests for CD-ROI Juests for keybo	ard, mous	se, and	l video ir	n Blade	Cente	er by pres	ssing the	e displa	ay button c	on front contro	ol panel ol panel
Systems mgmt Diagnostics	/ on blade event reco communic Light Patl	rated Baseboa / provides syst ording, alert cap ation with Blade n Diagnostics t) and on-board	em and e ability / F eCenter n (LED lig	nviron RS-485 nanage hts inc	mental r interfac ment m dicate fa	nonitori e for odule iling	ing,	512MB P 1GB PC2 2GB PC2 IBM HS4	C2100 (2100 CL 2100 CL 40 SCS	CL2.5 E 2.5 EC 2.5 EC I Storg	C DDR-SD C DDR-SD e Expansi	c Upg SDRAM DIMM RAM RDIMM RAM RDIMM on Unit (blade sion Card (wi	13N0653 33L5038 33L5039 33L5040 e) 26K4847 th two
Security		password / adi		•		-)	ports;	each po	rt requ	ires a FC S	Switch Module wap SL HDD*	e) 48P7061
Software ship group	unattende	d boot / selecta ation CD, IBM	ble boot /	unatte	ended st		~ ~	36.4GB 1	15K Ultra	a320 S0	CSI Hot-Sw	vap SL HDD* swap SL HDD*	06P5776
Coolingfans		ng from BladeC						146.8GB	10K U	tra320	SCSI Hot-	Swap SL HDD	
Power supply Prerequisites	on each produced on each produced uses power Monitor, keep to the contract of	rocessor and Bla er module(s) in eyboard, mouse eCenter (type 8	adeCenter BladeCe for setu	modul nter (ty p; ethe	les and f ype 867 ernet sw	ront pa 7) itch mo	inel	" DISK re	equires S	ocsi s	iorage Exp	ansion Unit	



A control panel on top front of blade has following LEDs:

- Powergood
- Blade location
- Overtemperature
- Information
- General fault

- Stealth black front bezel
 H 9.7" x W 1.14" x D 17.6";
 H 24.5cm x W 2.9cm x D 44.6cm
- 12 lbs; 5.4kg (max configuration)
- Configuration/Setup Utility: F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
- System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- PXE Boot Agent Utility: Ctrl+S at startup
- Blade control panel on each HS40 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

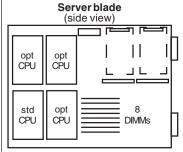
Maximum internal disk capacity for each HS40 blade server13: 293.6GB* with two 146.8GB SL SCSI disks

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays,
- next business day response time⁷ On site service upgrade options (in eligible locations):
 - 3 year IOR 24x7, 2 hr avg response (ServicePac® part num 69P9519) 3 year IOR 24x7, 4 hr avg response

 - (ServicePac part num 69P9518)

 3 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9517)
 - 5 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9525)
 - 5 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9527)
 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support forwarranty issues during the warranty period3

IBM® Type-model Qty x Pro	L3 ocessor ¹ Cache Memory	Frontside Dis Bus Mhz Disk contro		SCSI support with tional expansion unit	Slots Mech- x bays anical	Required chassis	Available date
8839-61X 1 x Xeon ¹	™ 2.2GHz MP 2MB 1GB ™ 2.7GHz MP 2MB 2GB ™ 3.0GHz MP 4MB 2GB	400Mhz None Nor 400Mhz None Nor 400Mhz None Nor	e None 2	hot-swap Ultra320 hot-swap Ultra320 hot-swap Ultra320	0x2 7U4 blad	e BladeCenter	Mar 2004
Positioning Processor(s) L2/L3 cache SMP support Implementation	Ultra-dense, highly mana 1 x Intel® Xeon MP up to 512KB L2 Cache / Up to 4-way SMP / up to four X Server blade contains four connector, two I/O expan	3.0GHz with 400MHz to 4MB L3 Cache / on Xeon MP Processors ur Intel 604-pin micro-	ontside bus / die of proces same speed/ GA ZIF sock	Hyper-Threading tecsor / at processor / cache size) kets, eight memory	hnology / NetBui speed DIMM slots, on	st™ microarchite	
Memory	Up to 2GB std / 16GB m. PC2100 266MHz register DIMMs must be installed 100MHz / Error Checkin same chip and detects 2-	red 184-pin ECC DDF in matched pairs [a b og and Correcting (E	-SDRAM DIM ank] / 2-way r CC) via 16-b i	MMs / eight DIMM on memory interleave / it Checksum Chip	old-connector s dual channel / kill™ (corrects	memory bus rur	ns at 2 x
SCSI disk controller SCSI disk bays	via one connector / LSI L CIOB-ES I/O Bridge (IME 3.5" one-inch high SL SC Supports max of two hot-s	_ogic® 53C102ŏ Ultra 32 bus to Host Bridge CSI disks in front bays swap 3.5" SL Ultra320	320 SCSI cor) / supports / one 16-bit SCSI disks in	ntroller [LVD 32ÓMÉ RAID-1 mirroring internal channel / i	Š/seć] / 64-bit 1 [Embedded Mi no cables or ex	33MHz PCI-X E rroring] with two ternal connecto	Bus B from hot-swap
External storage	80-pin SCA-2 connectors Support for IBM TotalStor			d NAS family of pro	ducts)		
Mechanical	Supported in IBM BladeCe ServerWorks® Grand Cl						
Architecture / chipsets Bus slots	ethernet and the I/O Bridge ethernet and the I/O expa bus to Super I/O, and PO No PCI or PCI-X slots (e	(IMB2 bus to Host Br ansion option connec Cl 2.2 Bus C with gra	dge) for two or / CSB6 So phics controlle	PCI-X Buses with buth Bridge (Thin IN er / National Semic	Bus A for ether IB to Host Brid onductor® PC8	net and Bús B f ge) for EIDE, U	for SB, LPC
Ethernet controllers	Four gigabit 10/100/1000 et Wake on LAN® / Alert Stand 4-port GB Ethernet Switch	dard Format 1.0 / teami	ng and failover	support / one of the	controllers conne	cts to an optiona	
Network-interface	One connector for I/O e blades in a single BladeC	expansion option / re	quires same i	interface modules i	n bays 3 and 4		/ all
CD / diskette / USB	None / requests for CD-F					ect button on fro	ont control
Kybd / video / mouse Graphics	e None / requests for keyboa SVGA / ATI® Radeon 700					ront control pane	el
Systems mgmt	Intel integrated Baseboa / on blade / provides sys event recording, alert car communication with Blad	tem and environment pability / RS-485 inter leCenter managemen	al monitòring, face for module	Xeon 2.2Ghz/2N			13N0656
Diagnostics	Light Path Diagnostics component) and on-board			Xeon 2.7Ghz/2N S) Xeon 3.0Ghz/4N	IB L3 Cache P	roc Upg	13N0655 13N0654
Security	Power-on password / ad unattended boot / selecta			512MB PC2100 (1GB PC2100 CL	2.5 ECC DDR-S	DRAM RDIMM	33L5038 33L5039
Software ship group	Documentation CD, IBM			IDIVI 11040 000	I Storge Expan	sion Unit (blade	
Cooling fans	Uses cooling from BladeCe thermal sensors on each p and front panel	rocessor and BladeCer	ter modules	36.4GB 15K Ultr	ort requires a FC a160 SCSI Hot	Switch Module Swap SL HDD*	
Power supply Prerequisites	Uses power module(s) in B Monitor, keyboard, mouse t disk, BladeCenter (types 86	for setup; ethernet switch	h module,	73.4GB 10K Ulti	a160 SCSI Hot- tra320 SCSI Ho	Swap SL HDD* t-Swap SL HDD	06P5756



- Powergood
- Blade location
- Overtemperature
- Information
- · General fault

- Stealth black front bezel
- ⇒ H 9.7" x W 1.14" x D 17.6"; H 24.5cm x W 2.9cm x D 44.6cm
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Maximum internal disk capacity for each HS40 blade server¹³: 600GB* with two 300GB SL SCSI disks

LIMITED WARRANTY³

3 year parts and labor

Disk requires SCSI Storage Expansion Unit

- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays,
- next business day response time⁷ On site service upgrade options (in eligible locations):
 - 3 year IOR 24x7, 2 hr avg response (ServicePac® part num 69P9519) 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 69P9518)

 3 year IOR 9x5, 4 hr avg response
 - (ServicePac part num 69P9517)
 - 5 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9525)
 - 5 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9527)
 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support forwarranty issues during the warranty period3

L3

Frontside

Disk

Disk

SCSI support with

IBM[®]

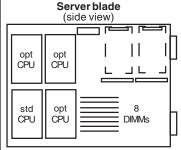
Required

Available

Mech-

Slots

Type-model Qty x Pro	ocessor1	Cache Memory	Bus Mhz	Disk 0	controller	bays		al expai			anical	chassis	date
8839-21X 1 x Xeon ^T	™ 2.0GHz MI	1MB 1GB	400Mhz	None	None	None	2 h	ot-swap	Ultra320	0x2	7U⁴ blade	BladeCenter	Apr 2004
Positioning Processor(s) L2/L3 cache SMP support Implementation	1 x Intel® X 512KB L2 0 4-way SMP Server blad	e, highly mana eon 2.0GHz N Cache / 1MB I / up to four X e contains fou cpansion conne	IP with 40 L 3 Cache (eon Prod r Intel 60	00MHz :/ond :essors 4-pin m	frontside lie of pro (same s nicro-PG	e bus / cessor speed/c A ZIF s	Hyper / at p cache socket	-Thread rocesso size) s, eight	ding techror speed memory	ology /	['] NetBurst™ slots,		cture
Memory	PC2100 26 DIMMs mus 100MHz / E	6GB max ¹³ / tv 6MHz registerest be installed in ferror Checking and detects 2-	ed 184-pii n matche g and Co	n ECC d pairs rrectin	DDR-SE a bank] g (ECC)	DRAM I] / 2-wa) via 16	DIMM ay mei S-bit (s / eigh mory in Checks :	t DIMM g terleave / um Chip l	dual c kill™ (d	hannel / m corrects 1,	emory bus rur	ns at 2 x
SCSI disk controller SCSI disk bays	via one cor CIOB-ES I/ 3.5" one-inc	ports optional nector / LSI L O Bridge (IMB ch high SL SC ax of two hot-s	ogic® 530 2 bus to SI disks i	C1020 l Host B n front	Ultra320 Bridge) / bays / c	SCSI suppor ne 16-	contro ts R/ bit int	oller [LV AID-1 n ernal cl	/D 320ME nirroring hannel / i	3/sec] / [Embe no cab	64-bit 133 dded Mirro les or exte	BMHz PCI-X E oring] with two rnal connector	Bus B fror hot-swa
External storage	80-pin SCA	-2 connectors / IBM TotalStora	all SCSI	bays U	Iltra320-	enable	ed			-	parision or	111.7	
Mechanical		n IBM BladeCer									as the IBM	NetBAY™ Rac	k products
Architecture / chipsets	ServerWor sone CIOB-> ethernet an bus to Supe	ks® Grand Ch	nampion™ (IMB2 bus Insion opt I 2.2 Bus	M 4.0 L s to Ho sion cor C with	.E / CMI est Bridge nnector / n graphic	C-LE5 e) for to CSB6 s contr	Host wo PO South foller	Bridge D-X Bu h Bridge 'Nation	(memory ses with e (Thin IN aal Semic	contro Bus A IB to H onduct	oller and I/C for etherne Host Bridge or® PC874	D Bridge) / do et and Bus B f e) for EIDE, U	ouble slot for SB, LPC
Ethernet controllers		10/100/1000 eth	•						•		,	MHz buses / ful	II duplex /
Network-interface CD / diskette / USB	Wake on LA 4-port GB E One conne blades in a None / requ	N® / Alert Stand Ethernet Switch ctor for I/O ex single BladeC lests for CD-R	lard Forma Module kpansion enter mus	at 1.0 / t (the se optior st conta	teaming a cond count n / require ain the sa	and failo ntroller res sam ame ex	ver su requii ne inte pansi	pport / c es a se erface n on card	one of the econd opt nodules in l (or no ex	controllional E tonal E bays xpansio	ers connect thernet Sw 3 and 4 of on card)	s to an optional ritch Module) BladeCenter	/ all
Kybd / video / mouse Graphics		ests for keyboa ® Radeon 700										nt control pane	el
Systems mgmt Diagnostics	/ on blade / event recor communica Light Path	ated Baseboa provides syst ding, alert cap tion with Blade Diagnostics ¹¹ and on-board	em and e ability / F eCenter n	nvironi RS-485 nanage Ihts inc	mental n interface ment me dicate fai	nonitòri e for odule iling	ing, ´	512MB 1GB P0	PC2100 (C2100 CL	CL2.5 E 2.5 EC	C DDR-SDI	DRAM DIMM RAM RDIMM	13N065 ⁻ 33L5038 33L5039
Security Software ship group	unattended	assword / adi boot / selecta tion CD, IBM	ble boot /	unatte	ended sta			IBM HS	S40 SCS S40 Fibre	Storg Chan	e Expansionel Expans	RAM RDIMM on Unit (blade sion Card (with Switch Module)	h two
Cooling fans Power supply Prerequisites	on each pro Uses powe Monitor, ke	g from BladeC cessor and Bla r module(s) in yboard, mouse Center (type 8	adeCenter BladeCe for setu	modul nter (ty p; ethe	les and f pe 8677 ernet swi	ront pa 7)	nel	36.4GE 36.4GE 73.4GE 146.8G	3 15K Últr 3 15K Ultra 3 10K Ultr 3B 10K Ul	a160 S a320 S a160 S tra320	SCSI Hot-S CSI Hot-Sw SCSI Hot-S SCSI Hot-S	wap SL HDD* ap SL HDD* wap SL HDD* Swap SL HDD ansion Unit	06P5768 06P5776 06P5756



A control panel on top front of blade has following LEDs:

- Powergood
- Blade location
- Overtemperature
- Information
- · General fault

- Stealth black front bezel
 H 9.7" x W 1.14" x D 17.6";
 H 24.5cm x W 2.9cm x D 44.6cm
- 12 lbs; 5.4kg (max configuration)
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- Network Boot: F12 at startup
- PXE Boot Agent Utility: Ctrl+S at startup
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- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS40 blade server13

293.6GB* with two 146.8GB SL SCSI disks

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays,
- next business day response time⁷ On site service upgrade options (in eligible locations):
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 3 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9517)
 - 5 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9525)
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 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support forwarranty issues during the warranty period3

Qty x Processor

L2 GHz¹ Core cache

IBM® Type-model

Ethernet

NEBS

Mechanical

Available

date

Type-model Qty X PTC	DCessor	GIIZ	COIC	Cacile	WEITIOTY	DISK	Days	expansion u	III Abays	Mechanica	Elliernet	INEDS	uate
8842-RTU 2 x Powe	erPC 970FX	(2.2	SC	512KB	2GB	N/A	None	None	0 x 0	9.5mm blade	2 x Gigabit	Yes	May 2006
Positioning Processor(s) L2 Cache SMP support Implementation	512KB La 2-way SN Server bla	2 Cac /IP / v ade co	che vith two ntains	o PowerP two IBM	C Process	ors (san	ne spee	d/cache size) s soldered to p		tions environn		ntroller, F	Fibre
Memory	2GB std (DIMM gol	2x1G d-con	B) / 8 0 necto	GB ¹³ max , r slots / DII	/ two slots VIMs must	used / tv be insta	wo slots lled in n	available / PC natched pairs [-2700 333 a bank] / 2	MHz CL2.5 EC0 -way memory ir	C DDR-SDRA nterleave / du	M DIMM al-channe	/Is / four el
IDE controller Disk bays External Storage	Enhanced None (HD Support fo	DE DE DE DE DE DE DE DE DE DE DE DE DE D	ATA-1 ot sup 1 Tota	00 control ported in N Storage™	ler in AMD NEBS envir solutions (i	8111 Sonment	outh Bri) g FAStT	dge and NAS fam	ily of produ	ıcts)			
Mechanical	Single-wid	de Bla	de / N	EBS Supp	ort in IBM E	BladeCe	nter T						
Architecture/Chipset	IBM U3 N IDE / Bro	lorthi adco	oridge m 570	e / AMD 8 1 4S / NS P	131 Hyper 1 C87417 St	Transpo uper I/O	ort Tuni	nel and PCI-X interface	Bridge / A	AMD 8111 Sout	thbridge prov	iding US	SB1.1 and
BUS slots	No PCI o	r PCI-	X slot	s (expansi	on via mod	dules or	network	c-interface option	on connect	or)			
Ethernet Controllers	Dual Giga chip on bl adapter fa or Optical	abit 1 ade / ault tol / Pass	0/100/ PCI-X leranc sthroug	/1000 ethe 64-bit 133 e / Load ba gh Module	rnet control MHz / full of alancing or (the secon	ller / Bro duplex / teaming d contro	Dadcom Wake og / one o oller req	n® 5704S / two n LAN® / PXE of the dual cont uires a second	full gigabit 2.0 Boot ag trollers con optional s	ethernet MAC a gent / Alert Stan nects to an option witch or OPM)	and PHY layed dard Format 2 onal, supporte	r function 2.0 / Failo d Ethern	ns / over, net switch
Network Interface	One conn BladeCen	ector iter / a	for I/C) expansio les in a sin	n option (F Igle BladeC	ibre Cha Center m	annel Ex lust con	(pansion Card) tain the same	/ requires expansion	same interface card (or no expa	modules in b ansion card)	ays 3 an	id 4 of
DVD / Diskette / USB Kybd / video / mouse Graphics controller		quests	s for D	VD-ROM,	diskette dr	ive, and	USB p	ort in BladeCe	nter by pre	ssing media sel	ect button on	front con	ntrol panel
Systems Mgmt	IBM Integration in the provides standard capability with Blade	grated systen / RS- eCent	l Serv n and 485 ir er Ma	ice Proces environmenterface for nagement	ssor / H82 ⁻ ental monito intermana module / C	148 / IPI oring, ev gement luster S	VII 1.5 / vent recommu commu system I	on blade / ording, alert nication Management	2GB PC-270 IBM BladeCei IBM BladeCe	0 ECC CL 2.5 DDR R 0 ECC CL 2.5 DDR R nter T Advanced Mana nter T Chassis (AC Ve	DIMM agement Module ersion)		39M5839 39M5843 32R0835 87301RX
Diagnostics	Light Pat on-board	h Dia diagn	gnos ostics	t ics (LED I (via PC-D	lights indica octor in Blo	ate failing OS)	g compo	onent) and	IBM 1300W A	nterTChassis (DC Ve .C PowerSupply (x2) .C PowerSupply (x2)	ersion)		87201RX 32R0834 32R0833
Security	No securi administra unattende	ator pa	asswo	rd / unatte	/ Power-or nded boot /	n passw / selecta	ord / ble boo	t/	QLogic 4GB	s Fiber Intelligent Giga SFF Fibre Channel Ex Optical Pass-thru Modi	oansion Card for B		26K6547 26R0884 39Y9320
Software ship group	Documen	tation	CD, I	BM Direct	or CD, Dev	rice Driv	er CD		Other option	s at ibm.com /pc/us/	accessories		
Cooling Fans	Uses coo	ling fro	om Bl	adeCenter	T (types 8	730 and	8720)	thermal					
Power supply(s) Prerequisites	Uses pow Monitor, k	ver ma ceyboa	odule(ard, m	s) in Blade ouse for s	:Center I (1 etup; ether	types 87 net swit	730 and ch mod	8720) ule, FCC erating system					

Disk

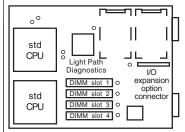
bays

Disk

Memory

Optional storage slots expansion unit x bays

Server blade (side view)



A control panel on top front of blade has following LEDs:

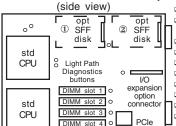
- Power good
- Blade location
- Over temperature
- Information
- · General fault

- Stealth black front bezel
- ⇒ H 9.7" x W 1.14" x D 17.6";
- H 24.5cm x W 2.9cm x D 44.6cm
- ⇒ 12 lbs; 5.4kg (max configuration) ⇒ RTU 2-core 250W

- RTU 2-core 250W
 Configuration/Setup Utility:F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 System Partition Boot: ALT+F1 at startup
 Network Boot: F12 at startup
 PXE Boot Agent Utility: Ctrl+S at startup
 Blade control panel on each JS20 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error. information, location, disk and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

- response (ServicePac part num 69P9522) 4 year IOR 24x7, 2 hr avg
- response
 (ServicePac part num 69P9523)
 Other ServicePac options at http://www.ibm.com/
 services/us/its/pdf/wamomxeu.pdf
 24x7¹⁴ toll-free support for warranty issues during the warranty period3

		-	•						-		-
IBM® Type-model Qty x Prod	essor GHz ¹	Core	L2 cache	Memory	Disk (Disk controller		Optional storage expansion unit	Mechanical	Ethernet	Available date
8844-31U 2 x PPC 9 8844-51U 2 x PPC 9 8844-E3U 2 x PPC 9 8844-E5U 2 x PPC 9	70MP 2.7* 70MP 2.5* 70MP 2.7* 70MP 2.5*	DC SC	1MB	2x512MB 400MHz 2x1GB 400MHz 2x1GB 533MHz 2x2GB 533MHz	Open Open 1x73GE 1x73GE	SAS SAS SAS SAS	2 Fixed 2 Fixed 2 Fixed 2 Fixed	3 Hot Swap SAS*** 3 Hot Swap SAS*** 3 Hot Swap SAS*** 3 Hot Swap SAS***	9.5mm blade 9.5mm blade 9.5mm blade 9.5mm blade	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	Mar 2006 Mar 2006 Aug 2006 Aug 2006
Positioning	maintenand	ce cos . For	sts. The the nee	S21 blade server del h built-in virtualization me and money on s JS21 is also optimiz ds of SMB and HPC tegrated storage for	ted for sc the JS2	ientific re 1 Expres	searcn i s model	n lite sciences and s s (E3U, E5U) are av	seismic anaiysis	with its integr	ated vector
Processor(s) L2 Cache SMP support Implementation	1MB L2 C 2-core or 4 Server blace	ache 4-cor de co	per core SMP / ntains tv	DMP up to 2.7GHz* 5 two PowerPC Proce to IBM PowerPC mi Channel, Myrinet and	essors (si croproces	ngle core	or dual	core) planar, four DIMM s	slots, 17X PCI E graphics and di	Express, SAS ual Gigabit eth	controller, nernet
Memory	1, 2 or 4Gi 4200 533N bank] and	B std 1Hz C banks	/ 16GB L4 ECC must n	³ max / two slots use DDR2-SDRAM DIN natch in speed (MHz	ed / two s /IMs / fou), though	lots availa r DIMM o not size	able / Po pold-con / 2-way	C2-3200 400MHz Cl nector slots / DIMMs memory interleave /	3 ECC DDR2-3 must be install dual-channel /	SDRAM DIMN ed in matched Chipkill with x	Is or PC2- I pairs [a 4 DIMMs
SAS Disk controller SAS Disk bays External Storage	Supports n	nax of	two no	AS controller / two po n-hot-swap 2.5" / sm orage™ solutions (inc	all form fa	actor (SF	F) SAS	drives / 3.0GB/s / E3		ude one 73Gl	3 drive std
Mechanical Architecture/Chipset	Single-wide IBM U4 No AMD 8111	Blad orthb Sout	e / Supp ridge / I hbridge	oorted in IBM BladeC BCM5780 PCI Expre providing USB1.1 a	center, IBI ess, PCI- and Video	M BladeC X Bridge / NS PC	enter To and Hy 087427	* and IBM BladeCer /perTransport Tun Super I/O off LPC in	nter H nel for PCle and terface	d Dual Gigabi	t Ethernet /
BUS slots	No PCI or	PCI->	(slots (expansion via modul	es or net	work-inte	rface op	tion connector)			
Ethernet Controllers Network Interface	adapter fau or <i>Optical</i> i One legacy	ult tole <i>Passti</i> y coni	rance / hrough i nector o	00 ethernet controller -bit 133MHz / full dup Load balancing or te <i>Module</i> (the second r PCI-Express conne in a single BladeCer	aming / o controller ector for I/	ne of the requires O expan	dual co a secor sion opt	ntrollers connects to nd optional switch or ions / requires same	an optional, su OPM) interface modu	pported Etheri ules in bays 3	net switch
DVD / Diskette / USB Kybd / video / mouse Graphics controller	None / req None / req SVGA / AT	uests uests 1® RN	for DVE for keyt 150 on F	D-ROM, diskette drive poard, mouse, and vi Planar / 32MB DDR S	e, and US deo in Bl SDRAM s	B port in adeCente td and m	BladeC er by pre ax / 15 p	enter by pressing messing the display but bin connector	edia select butto tton on front co	on on front co ntrol panel	ntrol panel
Systems Mgmt	provides sy capability /	ystem RS-4	and en 85 inter	Processor / H8216 vironmental monitori face for intermanage gement module / Clu HACMP	ng, event ment con	recordin nmunicat	g, alert on	, ,	DECC CL4 DDR2 RD DECC CL4 DDR2 RD DECC CL4 DDR2 RD 200 ECC CL3 DDR2 I	IMM Kit IMM Kit IMM Kit RDIMM Kit	41Y2703 41Y2707 41Y2711 41Y2723 39M5821
Diagnostics	Light Path	Diag	nostics	(LED lights indicate	failing co	mponen	t) and	2GB (2x1GB) PC2-3200 4GB (2x2GB) PC2-3200			39M5809 39M5812
Security	No security administrat unattended	/ intru or pa	sion pro ssword /	a`PC-Doctor in BIOS stection / Power-on p unattended boot / s	oassword electable	/ boot /		8GB (2x4GB) PC2-3200 IBM36GB 10K SAS 2.5' IBM73GB 10K SAS 2.5'	SFFNHSHDD	DIMM Kit	41Y2703 26K5776 26K5777
Software ship group Cooling Fans Power supply(s) Prerequisites	Documenta Uses coolii sensors or Uses powe Monitor, ke	ation (ng fro n each er mod eyboal	CD, IBM m Blade n proces dule(s) i d, mou:	Director CD, Device Center (types 8677, sor and BladeCente n BladeCente or setup; etherne s 8677, 8852 and 87	8852 and r modules 8 8677, 8 t switch r	d 8720) / s and froi 852 and nodule,	nt panel 8720)	QLogic4GB SFFFibre C BladeCenter SFF Gigabi Cisco InfiniBand Expans Myrinet Expansion Card Cisco 4X InfiniBand Swi Cisco 4X InfiniBand Exp Other options at ibm.c	tEthernet Expansion C ion Card for BladeCer for BladeCenter tch Module for BladeC ansion Card for Blade	Card for BladeCente nter Center eCenter	
Server b				.5mm, no front acc							



- Power good
- Blade location
- Over temperature
- Information
- General fault

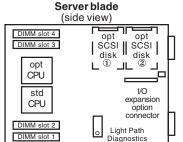
- Stealth black front bezel \Diamond H 9.7" x W 1.14" x D 17.6"
- H 24.5cm x W 2.9cm x D 44.6cm
- 12 lbs; 5.4kg (max configuration) 31U/E3U 2-core 288W / 51U/E5U 4-core 308W
- Configuration/Setup Utility:F1 at startup Diagnostics (PC-Doctor™): F2 at startup
- System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
 PXE Boot Agent Utility: Ctrl+S at startup
- Blade control panel on each JS21 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s) and optional disk(s) with IBM Director

Maximum internal disk capacity for each JS21 blade server¹³: 146GB with two 73GB SCSI disks (with BladeCenter Storage Expansion Unit 3 x 73GB for total of 219GB***)

*Processor frequency is dependent upon which BladeCenter chassis the JS21 is installed: BladeCenter (8677): 31x, 2.6GHz; 51x, 2.3GHz BladeCenter H (8852): 31x, 2.7GHz; 51x, 2.5GHz BladeCenter T (8720): 31x, 2.6GHz; 51x, 2.3GHz BladeCenter T (8720): 31x, 2.6GHz; 51x, 2.3GHz **BladeCenter T NEBS compliance available September 2006 ***BladeCenter Storage Expansion Unit support available 2nd Quarter 2007

- - response (ServicePac part num 69P9522) 4 year IOR 24x7, 2 hr avg
- response
 (ServicePac part num 69P9523)
 Other ServicePac options at http://www.ibm.com/
 services/us/its/pdf/wamomxeu.pdf
 24x7¹⁴ toll-free support for warranty
- issues during the warranty period3

IBM® Type-model Qty x Pro	ocessor ¹ Speed/Core	L2 Memory Cache	Disk Disk controller	Disk r bays	SCSIsupport	Slots Med x bays anid		Available date
8850-55U 1 x Opte 8850-65U 1 x Opte 8850-71U 1 x Opte	ron 246 2.0 GHz/SC ron 270 2.0 GHz/DC ron 275 2.2 GHz/DC ron 250 2.4 GHz/SC ron 252 2.6 GHz/SC	1GB 1MB 1GB 1MB	0MB SCSI 0MB SCSI 0MB SCSI	2 fixed T 2 fixed T 2 fixed T	wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF	0x2 7U ⁴ bl 0x2 7U bli 0x2 7U bli 0x2 7U bli 0x2 7U bli	ade BladeCenter ade BladeCenter ade BladeCenter	Apr 2005 Jul 2005 Apr 2005
Positioning Processor(s) L2/L3 Cache SMP support Implementation	Ultra-dense, low p Up to 2 x AMD® Opter 1MB L2 Cache per c 2-way SMP / up to Server blade contain and InfiniBand expan	core, AMD Dire two Opteron pro s two AMD 940	ect Connect A ocessors (same o micro PGA Z	rchitecture e speed/ca IF sockets,	e ensures lower la che size) four memory DIM	itency I/O		
Memory	1 or 2GB std / 16GB PC3200 266MHz rec DIMMs must be insta Error Checking and and detects 2- through	alled in matched I Correcting (E	l pairs [a bank] : CC) via 16-bit	/ 2-way m : Checksu i	ole RDIMMs / four D emory interleave / m Chipkill™ (corr	IMM gold-con dual channe ects 1, 2, 3, 0	nector slots on sys l or 4-bit errors on s	stemboard ame chip
IDE controller/bays SCSI disk controller SCSI disk bays Other controllers External storage	None One integrated / LSI on planar / supports drives / one 16-bit i Supports max of two 40-pin SCA conne Support for SFF or I Support for IBM Tota	RĂID-1 mirro nternal channe o not hot-swap ectors / all SCS egacy Ethernet	oring [Embedde I / no cables of 2.5" SL Ultra32 I bays Ultra32 or Fibre Char	ed Mirrorin r external d 20 SCSI di 20-enabled nnel I/O ca	g] with two non-h connector) sks ! rds, Myrinet or In	ot-swap 2.5" finiBand Expa	/ small form factor	B / (SFF)
Mechanical Architecture / chipsets Bus slots	Supported in IBM Bla AMD 8131 PCI-X BI PCI-X expansion slo HyperTransport cloc Super I/O chip No PCI or PCI-X slo	ridge Chip provits) / AMD 811 k (PCI, SMBus	viding two PCI- 1 HyperTrans , USB, LPC to	-X buses roport Bridg BIOS and	unning at 600Mhz e Chip supportin Super I/O) / Nati	(bus A for S g a 200 Mhz onal Semicor	etBAY™ Rack produ CSI and Ethernet, double-pumped nductor® PC87417	ucts bus B for
Ethernet controllers Network-interface DVD / diskette / USB Kybd / video / mouse Graphics	Two gigabit Ethernet of Alert Standard Formas witch or Passthroug One connector for 3 and 4 of BladeCen card) / ethernet and None / requests for DNone / requests for SVGA / ATI® Radeor	at 1.0 / teaming a The Module (the I/O expansion ter / all blades i serial I/O expar JD-ROM, diskett	Ind failover supp second controll option (Fibre n a single Blad nsion cards pla e drive, and USF	ort / one of ler requires Channel E leCenter m nned for fu 3 port in Bla	the dual controllers a second option of the second option of the second in the second in the second option of the second of the	connects to are all switch or Prequires same me expansion	n optional, supported M) e interface modules n card (or no expan	d Ethernet s in bays sion
Systems mgmt	IBM integrated sys H8S2148 / on blade monitoring, event re- for communication w	/ provides syst cording, alert c	tem and enviro apability / RS-4	nmental 185 interfa	Low Power Opter	on 250 Process on 252 Process on 254 Process	or Upgrade or Upgrade or Upgrade	25R8891 25R8892 25R8893 25R8937 25R8894
Diagnostics	Light Path Diagnos component) and on-	stics™ (LED lig board diagnost	hts indicate fai	iling ctor in BIOS	Low Power Opter Low Power Opter	on 275 Process on 280 Process	or Upgrade or Upgrade	25R8895 25R8896
Security	Power-on password unattended boot / se	/ administrator electable boot /	password / unattended sta	art mode	2GB(2x1GBkit) DI 4GB(2x2GBkit) DI 8GB(2x4GBkit) DI	DR-SDRAMVLP DR-SDRAMVLP	RDIMM RDIMM	39M5849 39M5852 41Y2756
Software ship group	Documentation CD,	IBM Director C	D, Device Driv	er CD	IBM 36.4GB SFF IBM 73.4GB SFF AMD Opteron LS	Non-hot-swap	10K SCSI HD	40K1037 40K1038 25R7748
Cooling fans Power supply Prerequisites	Uses cooling from Blat thermal sensors on ea and front panel Uses power module(s) Monitor, keyboard, mo	ach processor an) in BladeCenter	d BladeCenter r (types 8677, 88	modules 52 and 872	BladeCenter SC: IBM SFF Fibre C IBM SFF Gigabit	SI Storage Exp hannel Expans Ethernet Expar	Unit ion Card ision Card	26K4817 26K4841 26K4842 48P7061
	disk, BladeCenter (typ	es 8677, 8852 a	nd 8720), opera	ting system	Other options at	_	s/accessories	



- Power good
- Blade location
- Overtemperature
- Information
- General fault

Bay @ 2.5",9.5mm, no front access, optional SFF SCSI disk Bay @ 2.5",9.5mm, no front access, optional SFF SCSI disk

- Stealth black front bezel
- H 9.7" x W 1.14" x D 17.6"; H 24.5cm x W 2.9cm x D 44.6cm

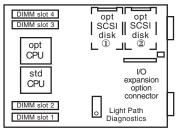
- 11 lbs; 5.0kg (max configuration) Configuration/Setup Utility: F1 at startup Diagnostics (PC-Doctor™): F2 at startup
- System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- PXE Boot Agent Utility: Ctrl+S at startup
- Blade control panel on each LS20 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

Maximum internal disk capacity for each LS20 blade server¹³: 146GB with two 73.4GB SFF SCSI disks

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in eligible locations):7
 - 3 year IOR 9x5, 4 hr avg response (ServicePac® part num 41C5906)
 - 3 year IOR 24x7, 4 hr avg response (ServicePacpart num 41C5907)
 - 4 year IOR 9x5, 4 hr avg response (ServicePacpartnum41C5908)
 - 4 year IOR 24x7, 4 hr avg response (ServicePacpartnum 41C5909) • 5 year IOR 9x5, 4 hr avg response
 - (ServicePacpart num 41C5910)
 - 5 year IOR 24x7, 4 hr avg response (ServicePacpart num 41C5911)
 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM® Type-model Qty x Pro	ocessor¹ Speed/Core M	L2	Disk Disk controller	Disk	SCSI support	Slots x bays	Mech- anical	Required chassis	Available date
8850-56U 1 x Opte 8850-66U 1 x Opte	eron 270 2.0 GHz/DC eron 275 2.2 GHz/DC	1GB 1MB 1GB 1MB 1GB 1MB	0MB SCSI 0MB SCSI	2 fixed T 2 fixed T	wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF	0x2 7l 0x2 7l	J ⁴ blade J blade J blade	BladeCenter BladeCenter BladeCenter	Mar 2006 Mar 2006
8850-76U 1 x Opte 8850-82U 1 x Opte	eron 280 2.4 GHz/DC eron 252 2.6 GHz/SC 2	1GB 1MB 2GB 1MB 2GB 1MB	0MB SCSI 0MB SCSI	2 fixed T 2 fixed T	wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF	0x2 7l 0x2 7l	J blade	BladeCenter BladeCenter BladeCenter	Mar 2006 Mar 2006
Positioning	Ultra-dense, low pow Up to 2 x AMD® Opteron								
Processor(s) L2/L3 Cache SMP support	1MB L2 Cache per cor	e, AMD Dire	ct Connect Ai	chitecture	ensures lower la	itency 1/O			
Implementation	2-way SMP / up to two Server blade contains t and InfiniBand expansion	on card supp	ort, integrated (grapnics ar	nd dual ethernet	/IM slots,	two SCS	I connectors,	Myrinet
Memory	1 or 2GB std / 16GB m PC3200 266MHz regist DIMMs must be installe Error Checking and C and detects 2- through	tered 184-bin	ECC DDR VL	P SDRAM	RDIMMs / four D	IMM gold- dual charects 1, 2,	-connectonnel nnel 3, or 4-b	or slots on sys	stemboard ame chip
IDE controller/bays SCSI disk controller	None One integrated / LSI Lo on planar / supports F	RAID-1 mirro	rina (Embedde	ed Mirrorin	al with two non-h	ec] / 64-bi ot-swap 2	t 133MH 2.5" / sm	z PCI-X Bus all form factor	B / (SFF)
SCSI disk bays	drives / one 16-bit inte Supports max of two no 40-pin SCA-2 connected	ot hot-swap 2	2.5" SL Ultra32	20 SCSI di	sks I				
Other controllers External storage	Support for SFF or leg Support for IBM TotalS	acy Ethernet Storage™ solu	or Fibre Chan itions (including	g FAStT a	nd NAS family of	<u> </u>			
Mechanical Architecture / chipsets	Supported in IBM Blades AMD 8131 PCI-X Brid. PCI-X expansion slots) HyperTransport clock (Super I/O chip	eCenter / Blac ge Chip prov) / AMD 8111 PCI, SMBus,	leCenter suppo viding two PCI- I HyperTrans r USB, LPC to	rted in 28" X buses ru ort Bridg BIOS and	deep racks such unning at 600Mhz e Chip supportin Super I/O) / Nati	as the IBN (bus A fo g a 200 N onal Sem	// NetBA or SCSI a Ihz doub iconduct	/™ Rack produ and Ethernet, ble-pumped or® PC87417	ucts bus B for
Bus slots	No PCI or PCI-X slots	(expansion v	via modules or	network-ir	nterface option co	nnector)			
Ethernet controllers Network-interface	Two gigabit Ethernet cont / Alert Standard Format 1 switch or <i>Passthrough</i> One connector for I/O 3 and 4 of BladeCenter	.0 / teaming a Module (the someone of the someone	nd failover supposecond controll option (Fibre (ort / one of er requires Channel Ex eCenter m	the dual controllers a second optionax pansion Card) /	connects to al switch of requires some	o an option of the control of the co	onal, supported erface modules I (or no expan	d Ethernet
DVD / diskette / USB Kybd / video / mouse Graphics	card) / ethernet and se None / requests for DVD- None / requests for key SVGA / ATI® Radeon N	riai i/O expar -ROM, diskette board, mous lobility 7000M	e drive, and USE e, and video in 1 / on blade / 1	nned for fu B port in Bla BladeCen 6MB SDR	deCenter by pressiter by pressiter by pressing the MM std/max / 32-b	ng media s e display it 33MHz	select but button or PCI 2.2 t	ton on front con front control ous	ntrol panel panel
Systems mgmt	IBM integrated system H8S2148 / on blade / pmonitoring, event reconfor communication with	orovides syst rding, alert ca	em and enviro apability / RS-4	nmental´ I85 interfac	Low Power Opter	on 252 Proc on 254 Proc on 270 Proc	cessor Up cessor Up cessor Up	grade grade grade	25R8892 25R8893 25R8937 25R8894
Diagnostics	Light Path Diagnostic component) and on-bo	s ™ (LED ligl ard diagnost	nts indicate fai ics (via PC-Doc	ling tor in BIOS		on 280 Prod DR-SDRAM	cessor Up VLP RDIM	grade M	25R8895 25R8896 39M5849
Security	Power-on password / a unattended boot / selection	administrator ctable boot /	password / unattended sta	ırt mode	4GB(2x2GBkit) DI 8GB(2x4GBkit) DI IBM 36.4GB SFF	DR-SDRAM Non-hot-sv	VLPRDIM wap 10K S	M CSIHD	39M5852 41Y2756 40K1037
Software ship group	Documentation CD, IBI	M Director C	D, Device Driv	er CD	IBM 73.4GB SFF AMD Opteron LS	20 Low Pro	file Handle		40K1038 25R7748
Cooling fans	Uses cooling from Blade(thermal sensors on each and front panel	processor an	d BladeCenter r	nodules	BladeCenter SC: IBM SFF Fibre C IBM SFF Gigabit IBM HS20 Fibre C	hannel Exp Ethernet E	ansion Ca xpansion (Card	26K4817 26K4841 26K4842 48P7061
Power supply Prerequisites	Uses power module(s) in Monitor, keyboard, mouse disk, BladeCenter (types	e for setup: et	hérnet switch m	odule.	Other options at				

Server blade (side view)



A control panel on top front of blade has following LEDs:

- Powergood
- Blade location
- Overtemperature
- Information
- General fault

Bay $\, @$ 2.5", 9.5mm, no front access, optional SFF SCSI disk Bay $\, @$ 2.5", 9.5mm, no front access, optional SFF SCSI disk

- Stealth black front bezel
- ⇒ 11 lbs; 5.0kg (max configuration)
- Configuration/Setup Utility: F1 at startup
- ⇒ Diagnostics (PC-Doctor™): F2 at startup
- System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- ⇒ PXE Boot Agent Utility: Ctrl+S at startup
 ⇒ Blade control panel on each LS20 blade server provides
- media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

Maximum internal disk capacity for each LS20 blade server¹³: 146GB with two 73.4GB SFF SCSI disks

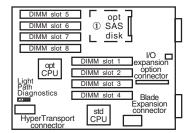
- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time?
- On site service upgrade options (in eligible locations):7
 - 3 year IOR 9x5, 4 hr avg response (ServicePac® part num 41C5906)
 - 3 year IOR 24x7, 4 hr avg response (ServicePac part num 41C5907)
 - 4 year IOR 9x5, 4 hr avg response (ServicePac part num 41C5908)
 4 year IOR 24x7, 4 hr avg response
 - (ServicePacpartnum41C5909)

 5 year IOR 9x5, 4 hr avg response
 - 5 year IOR 9x5, 4 hr avg response (ServicePac part num 41C5910)
 - 5 year IOR 24x7, 4 hr avg response (ServicePac part num 41C5911)
 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM [®] Type-model Qty x Pi	rocessor ¹	Speed/Core	L2 Cache	Watts	Memory	Disk controlle	Disk er bays	Expansi	on Units	I/O slots	Mechanical	Ethernet	Available date
7971-31U 1 x Opter 7971-3AU 1 x Opter 7971-51U 1 x Opter 7971-6AU 1 x Opter	ron 2212HE ron 2212 ron 2216HE	2.0GHz/DC	2MB 2MB 2MB 2MB	68W 95W 68W 95W	1GB 1GB 2GB 2GB	SAS SAS SAS SAS	1 fixed 1 fixed 1 fixed 1 fixed	I SIO/F I SIO/F I SIO/F	PCIEU PCIEU PCIEU PCIEU	up to 2 up to 2	single slot blade single slot blade	2 x Gigabit	Oct 2006
Positioning Processor(s) L2 Cache SMP support Implementation	Up to 2 x A 1MB L2 Ca 2-way SMI Systemboa connector,	AMD Opteron 2 ache per core, P / up to two ard contains two one HyperTra	2000 Se AMD E Opteron o LGA nsport E	ries Du Direct proce 1207-p expans	ual Core a Connect ssors (sa in socket sion conne	at up to 2 Archited me spee s, eight I ector, into	2.6GHz / cture er ed/cache DIMM sl egrated	/ simultan nsures lov e size) lots, one graphics	eously s wer later Legacy l and Gig	Supports 3 ncy I/O Daughter gabit ethe		omputing	xpansion
Memory	1 or 2GB s PC5300 66 DIMMs mu (ECC) via contained i	std / 16GB ma 57MHz register st be installed 16-bit Checks n two chips), I	x ¹³ (32G red 240- in match s um Chi nardware	B max pin E0 ned pa i pkill ™ e scrul	with 4GE CC DDR2 iirs [a bar (corrects obing	B DIMMS VLP SD nk] / 2-wa s 1, 2, 3,	S*) / two DRAM R By memo or 4-bit	slots use RDIMMs / ory interle errors or	ed / six s eight DI ave / du same o	lots availa MM gold- al channe chip and c	ible connector slots c el / Error Checki detects 2- throug	on systemboa n g and Corr h 8-bit errors	ard / ecting
IDE controller/bays SAS disk controller	None One integra fully popula	ated / LSI Logi Ited Storage a	c® 1064 nd I/O E	SAS o	controller ion blade	1.5/3Gb/s / no cab	sec] / Poles or ex	CI-X 64-b xternal co	oit/133Ml onnector	Hz / on pla	anar / supports F	RAID-1, 1E &	5 with
SAS disk bays External storage	One non he Support for	ot-swap 2.5" S ' IBM TotalSto	FF SAS rage™ s	disk / solution	Supports is	up to th	ree hot-	swap SFI	F SAS d	isks in op	tional Storage an	d I/O Expans	sion Unit
Mechanical Architecture/Chipsets	Single slot l ServerWor Card conne Bridge / HT	blade / Suppor rks [™] Chipset ector and Blac 1000 South E	ted in IB / HT200 le Stora Bridge p	BM Blad BM Hypologe Exports of the second s	deCenter perTranspoansion c s: USB(2	8677, 87 port Sys onnector .0), ATI v	720, 873 stem I/O r, PCI-X video, D	30 and 88 30 Control bridge to bridge e	52 ler provi LSI 106 thernet,	des: PCI- 4 SAS, H LPC bus	Express bridge t yperTransport br to Winbond PC8	o Legacy Da idge to HT10 7427 for Sup	aughter 000 South er I/O
Bus slots	No PCI or	PCI-X slots (e	xpansio	n via n	nodules d	r networ	k-interfa	ice option	connec	tor)			
Ethernet controllers Network-interface	Dual gigabi chip on bla Standard F optional, su One legac 3 and 4 of	it 10/100/1000 de / PCI-X 64- ormat 1.0 / Lo ipported Ether y connector (BladeCenter /	Etherne bit 133N ad balar net switc or PCI-E all blade	t contract contract of the con	ollers / Br is / full-du or teaming Passthrou single Bla	roadcom [®] plex / TC g / Failove gh <i>Modu</i> ctor for adeCente	BCM5° CP/IP Offer, adap ale (the s I/O exp er must o	706S / tv floadEngi oter fault to second co contain th	vo full gione (TOE) olerance ontroller options and ne same	gabit ethe) / Wake / one of t requires a / requires expansion	met MAC and Phon LAN® / Serial he dual controller a second optiona same interface rocard (or no exp	HY layer function over LAN / And a connects to a connect set of the connects o	tions / Alert o an M) ays
DVD / diskette / USB Kybd / video / mouse Graphics	None / requ	uests for DVD- uests for keybo T® Radeon® R	oard, mo	ouse, a	and video	in Blade	Center I	by pressii	ng the di	splay butt	dia select button on on front contr	on front cont ol panel	trol panel
Systems mgmt	on blade / pevent recor	provides syste ding, alert cap ation with Blac	m and e ability /	environ RS-48	mental m 5 interfac	iónitoring e for inte	Ι,	gement C	Oual Core Al Oual Core Al Oual Core Al	MD Opteron F MD Opteron F MD Opteron F	Processor Model 2212 F Processor Model 2212 Processor Model 2218H Processor Model 2218 ELS ECC DDR2 VLP RI	E	25R8898 25R8931 25R8899 25R8897 39M5861
Diagnostics	Light Path on-board d	Diagnostics iagnostics (via	M (LED PC-Doo	lights i	indicate fa BIOS)	ailing con	nponent	t) and 2	GB (2x1GE GB (2x2GE	B) PC2-5300 (B) PC2-5300 (CL5 ECC DDR2 VLP F CL5 ECC DDR2 VLP F	RDIMM Kit RDIMM Kit	39M5864 39M5867
Security		oassword / adi boot / unattend				ınattende	ed boot /	/ 16	BM 36GB N	3) PC2-4200 (IHS 2.5" SFF IHS 2.5" SFF		DIMM Kit*	39M5870 26K5776 26K5777
Software ship group	Documenta	ation CD, Devi	ce Drive	er CD,	ServerGu	uide CD					/OExpansionBlade nannel Expansion Card	l	39R7563 26K4841
Cooling fans Power supply Prerequisites	sensors on Uses powe Monitor, ke	ng from BladeC each process or module(s) in hyboard, mous Center (types	or and I BladeC e for set	3ladeC enter up; etl	Center mo (types 86 nernet sw	odules an 77, 8720 vitch mod	nd front , 8730, ule,	ermal panel 8852)	BladeCenter QLogic iSCS Cisco 4X Infi Cisco 4X Infi QLogic 4GB	SFF Gigabit I SI Expansion C IniBand Switc IniBand Expa ISFF Fibre Cl	Ethernet Expansion Car Card for BladeCenter th Module for BladeCen nsion Card for BladeCe nannel Expansion Card	d ater enter for BladeCenter	39R8624 32R1923 32R1756 32R1760 26R0890
						· 					nannel Expansion Cardi pc/us/accessories	rorBladeCenter	39Y9186

- Power good
- Blade location
- Over temperature
- Information
- · General fault

Server blade (side view)



- Stealth black front bezel
- ⇒ H 9.7" x W 1.14" x D 17.6"; H 24.5cm x W 2.9cm x D 44.6cm
- ⇒ 11 lbs; 5.0kg (max configuration)
 ⇒ Configuration/Setup Utility: F1 at startup
 ⇒ Diagnostics (PC-Doctor™): F2 at startup
 ⇒ Network Boot: F12 at startup
 ⇒ PXE Boot Agent Utility: Ctrl+S at startup
 ⇒ Plade control panel on each LS21 blade of

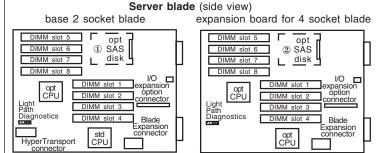
- ➡ Blade control panel on each LS21 blade provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

LIMITED WARRANTY³

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time?
- On site service upgrade options (in eligible locations):7
 - 3 year IOR 9x5, 4 hr avg response (ServicePac®partnum69P9517)
 - 3 year IOR 24x7, 4 hr avg response (ServicePacpart num 69P6918)
 - 4 year IOR 9x5, 4 hr avg response (ServicePacpart num 69P5921) 4 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 69P5922) 5 year IOR 9x5, 4 hr avg response (ServicePacpart num 69P9525)
 - 5 year IOR 24x7, 4 hr avg response (ServicePacpart num 69P9526)
 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x714 toll-free support for warranty issues during the warranty period³

Bay ① 2.5", 9.5mm, no front access, optional SFF SAS disk

IBM® Type-model Qty x Pr	rocessor¹ Speed/0	L2 Core Cache	Watts	Memory co	Disk ontroller	Disk bays	Expansion	on Units	I/O slots	Mechanical	Ethernet	Available date	
7972-31U 1 x Optero 7972-32U 2 x Optero 7972-3AU 1 x Optero 7972-3BU 2 x Optero 7972-51U 1 x Optero 7972-52U 2 x Optero 7972-6AU 1 x Optero 7972-6BU 2 x Optero	on 8212HE 2.0GH; on 8212 2.0GH; on 8212 2.0GH; on 8216HE 2.4GH; on 8216HE 2.4GH; on 8218 2.6GHz	z/DC 2MB z/DC 2MB z/DC 2MB z/DC 2MB z/DC 2MB z/DC 2MB	68W 95W 95W 68W 68W 95W 95W	1GB 2GB 1GB 2GB 2GB 4GB 2GB 4GB	SAS SAS SAS SAS SAS	1 fixed 2 fixed 1 fixed 2 fixed 1 fixed 2 fixed 1 fixed 2 fixed	SIO/P SIO/P SIO/P SIO/P SIO/P SIO/P SIO/P	CIEU	up to 2 up to 2	single slot blade double slot blade single slot blade double slot blade single slot blade double slot blade single slot blade double slot blade	2 x Gigabit 4 x Gigabit 2 x Gigabit 4 x Gigabit 2 x Gigabit	Oct 2006 Oct 2006 Oct 2006 Oct 2006 Oct 2006 Oct 2006	
Positioning Processor(s) L2 Cache SMP support Implementation	Ultra-dense, low Up to 4 x AMD Op 1MB L2 Cache pe 2 or 4-way SMP of Systemboard control one Blade expansi	oteron 8000 er core, AMI / up to four (tains up to fo	Series I Direc Opteror our LGA	Dual Core a t Connect n processor 1207-pin s	at up to Architers (same sockets,	2.6GHz ecture e e speed up to si	: / simulta ensures I /cache s ixteen DI	aneously ower lat ize) IMM slot	v supports ency I/O s, up to tv	32-bit and 64-bit of the state	omputing er Card con		
Memory	1, 2 or 4GB std / 1 two or four slots us DIMM gold-connec channel / Error Cl and detects 2- thro	ctor siots on hecking an d	system d Corre	ecting (EC	viivis mu C) via 1	ıst be in 6-bit C l	istalled ir 1ecksun	n matche n Chipk i	an naire ia	nanki / 2-wav me	morv interies	ave / ana	
SAS disk controller SAS disk bays External storage	Up to two integrate supports RAID-1, Up to two non hot- sion Unit Support for IBM T	1E & 5 with -swap 2.5" S	fully po	opulated St S disks / Su	troller 1.5 orage a upports	5/3Gb/s nd I/O E up to th	ec] / PCI Expansion ree hot-s	-X 64-bi n blade , wap SF	t/133MHz / no cable: F SAS dis	/ on planar / suppo s or external conne ks in optional Stora	orts RAID 0, ector age and I/O	1 / Expan-	
Mechanical Architecture/Chipsets Bus slots	Single or double slass ServerWorks™ Cl Legacy Daughter bridge to HT1000 PC87427 for Super No PCI or PCI-X states	hipset / Up Card conned South Bridge	to two ctors and e/ HT1	HT2000 H y Id Blade St 000 South	yperTra orage E Bridge	nsport xpansic provide	System on conne es: USB(2	I/O Cor ctor, PC 2.0), ATI	itrollers p I-X bridge video, Du	roviding: PCI-Expr to LSI 1064 SAS, al GB ethernet, LF	ress bridges HyperTrans PC bus to W	to sport inbond	
Ethernet controllers Network-interface	Up to four gigabit I 64-bit 133MHz bus four full gigabit eth over LAN / Alert S Up to two legacy 3 and 4 of BladeC	ernet MAC a Standard Formander Connector	ind PH\ mat 2.0 or PC I	Y layer fund / Failover, I -Express (ctions / fi adapter connec	ull-duple r fault to tor for l	ex / TCP/ lerance / I/O expa	TP Offloa Remote I nsion c	adEngine (e Direct M e ptions / r	TOE) / iSCSI / Wa emory Access (RE equires same inte	ike on LAN® MA) rface module	/ Serial es in bays	
DVD / diskette / USB Kybd / video / mouse Graphics		or keyboard,	mouse,	, and video	in Blad	ėCenter	by pres	sing the	display bu	edia select button Itton on front contr	on front con ol panel	trol panel	
Systems mgmt	IBM Baseboard I on blade / provide event recording, a communication w	s system an lert capability	d enviro / / RS-4	onmental m 185 interfac	nónitorin e for int	g,	gement	Dual Core Dual Core Dual Core	AMD Opteron AMD Opteron AMD Opteron	Processor Model 8212 H Processor Model 8212 Processor Model 8216HI Processor Model 8218	Ξ	25R8934 25R8932 25R8935 25R8933	
Diagnostics	Light Path Diagn on-board diagnost	ostics ™ (LE ics (via PC-l	D lights Doctor i	s indicate fa in BIOS)	ailing co	mponer	nt) and	2GB (2x10 4GB (2x20	GB) PC2-5300 GB) PC2-5300	CL5 ECC DDR2 VLP RE OCL5 ECC DDR2 VLP R OCL5 ECC DDR2 VLP R	DIMM Kit DIMM Kit	39M5861 39M5864 39M5867	
Security	No security intrusion administrator pass unattended start m	word / unatte				oot /		IBM 36GB IBM 73GB BladeCent	GB) PC2-4200 NHS 2.5" SFI NHS 2.5" SFI er Storage and		39M5870 26K5776 26K5777 39R7563		
Software ship group	Documentation CI	D, Device Di	iver CE), ServerG	uide CD)		BladeCenter SFF Fibre Channel Expansion Card 26h BladeCenter SFF Gigabit Ethernet Expansion Card 39f QLogic iSCSI Expansion Card for BladeCenter 32f					
Cooling fans Power supply Prerequisites	Uses cooling from sensors on each p Uses power modu Monitor, keyboard disk, BladeCenter	ıle(s) in Blad , mouse for	eCente setup; e	r (types 86 ethernet sw	77, 872 vitch mo	0, 8730 dule,	, 8852)	Cisco 4X II Cisco 4X II QLogic 4G Emulex 4G	nfiniBand SwinfiniBand Exp GBSFF Fibre C GBSFF Fibre C	Card for BladeCenter tch Module for BladeCent ansion Card for BladeCent Channel Expansion Card for BladeCenthannel Expansion Card for Channel Expansion Card for Lypc/us/accessories	nter orBladeCenter	32R1923 32R1756 32R1760 26R0890 39Y9186	



- Power good
- Blade location
- Over temperature
- Information
- General fault

Bay $\ 2.5$ ", 9.5mm, no front access, optional SFF SAS disk Bay $\ 2.5$ ", 9.5mm, no front access, optional SFF SAS disk

- Stealth black front bezel
- ⇒ H 9.7" x W 1.14" x D 17.6"; H 24.5cm x W 2.9cm x D 44.6cm

- Network Boot: F12 at startup
- PXE Boot Agent Utility: Ctrl+S at startup
- ⇒ Blade control panel on each LS41 blade server provides media select button, keyboard/mouse/video select button, ⇒ 11 lbs; 5.0kg (max configuration)
 ⇒ Configuration/Setup Utility: F1 at startup
 ⇒ Diagnostics (PC-Doctor™): F2 at startup
 ⇒ Predictive Failure Analysis® alerts on memory, processor(s),
 - and optional disk(s) with IBM Director

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays,
- next business day response time
- On site service upgrade options (in eligible locations):7
- 3 year IOR 9x5, 4 hr avg response (ServicePac® partnum12x7014)
- 3 year IOR 24x7, 4 hr avg response (ServicePacpartnum 12x7015)
- 4 year IOR 9x5, 4 hr avg response (ServicePacpartnum 12x7018) • 4 year IOR 24x7, 4 hr avg response
- (ServicePacpartnum 12x7019) • 5 year IOR 9x5, 4 hr avg response
- (ServicePacpartnum 12x7022)
- 5 year IOR 24x7, 4 hr avg response (ServicePacpartnum 12x7023)
- Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x714 toll-free support for warranty issues during the warranty period³

IBM [⊚] Type-model	Supported Blades		Switch modules std / max	Switch module	es (type)	Managemen modules std / max	modules		Blower modules std / max	Mechanica	Available I date
	0/HS40/JS20/JS21/LS20 0/HS40/JS20/JS21/LS20			t, Fibre Ch, IB, t, Fibre Ch, IB,			2/4 2/4	1300W 1300W	4/4 4/4	8U ⁴ rack 8U rack	Jul 2004 Mar 2006
Positioning Description	Flexible, innovative Provides common resexpansion, external F keyboard, video, mos Supports all blades	sources s libre Char use)	shared by bl nnel storage	lade servers su e switching and	connectivity,	, system m and I/O (co	anagemer ombo CD/I	nt, cabling DVD driv	g, etherno e, and po	et manage orts for USI	ment and B,
Blade bays	•••										
Switch modules	Std: none; max: four	hot-swa	p / rear acce	ess / Gb Etherr	net / Fibre Ch	annel / Infin	iBand / O _l	otical Pa	ss-thru / (Copper Pas	ss-thru
Advanced Management Module	Std: none; max: two communicates with in ports: DB-15 analog values and by up to 8 bla	tegrated video port	system mar , Dual USB	nagement proc	essor oń eacl	h server bla	ide / comp	lete KVI	/I switch	local function	onality /
Power modules	Std: two in bays 1 and C14 male appliance of management module power to switch bays	connector s, blade k	· / 1300 watt bays 1 - 4 ar	s / two std mod nd media tray; t	dules (in slots two addititiona	1 & 2) suppal power mo	ply power odules pro	to switch vide full s	bays 1 8	k 2, both	
Blower modules	Std: four; max: four / (CFM) / front to back	Calibrated airflow; fil	d Vectored (Itered air int	Cooling / hot-sw take	vap / redunda	ınt / variable	e speed / r	ear acce	ss / 330 (cubic ft per	min
Mechanical Optical / USB	EIA 19" rack models 24X-10X-24X-8X ⁶ Co blade servers / reque	mbo / Tw	o USB port	(Version 1.1) /	all USB inter	face (types	A & C) / fi	ont acce			eight
Keyboard / mouse	None standard / prov server blade front par	ides KVĺv	I console su	ipport / request	s for keyboar	d, mouse,	and video	by press	ing the d	isplay butto	on on
Ports	Rear: keyboard (PS/: Telco Alarm Panel Fr	2), mouse			phics (on sta	ndard mgm	it module)	/ no seri	al or para	illel ports /	DB-15
Security	Login password for re									/	
Ethernet	recommended in rack Each of the dual integ Module									GB Etherne	t Switch
Systems mgmt	Provides remote cons	sole and	mgmt / pow	er on/off blade	s/modules / n	nonitors po	wer status	operatir	ng system	n, temperat	ure, disks,
System LED panel	blowers, power modu System LED panel pr							vare			

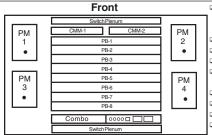
IBM BladeCenter T Advanced Management Module McData EFCM Element Managerfor BladeCenter IBM BladeCenter HS20 Low Profile Handle (800Mhz blade) IBM BladeCenter HS40 Low Profile Handle IBM BladeCenter T Filter NetBAY42 Enterprise Rack Cabinet Four Post Rack Mount Kit Two Post Rack Mount Kit

32R0835 32R1799 25K8360 25K8359 25K8376 930842S IBM USB Floppy Drive 32R0837 32R0836

IBM 1300W DC Power Supply Module (x2)
IBM APC Smart-UPS 5000RMB (208V)
IBM T115 15" Flat Panel Color Monitor (black)
BladeCenter PCI I/O Expansion Unit II
IBM DS4000 EXP700 Fibre Channel Expansion Unit 37L6861 494215U 25K8373 17001RS 05K9276

• Other options at ibm.com/pc/us/accessories

• Solutions available from IBM BladeCenter Alliance program partners



Rear KVM LAN Dimensions: H13.76"(8U) x W17.4" x D20"(front bezel to rear I/O): H349.5mm x W441.9mm x D508mm

Weight: 98 to 192 lb; 44.5 to 87.38kg

Stealth black color bezel

Tool-free customer serviceability

Access server blades, power supplies, mgmt modules, media tray and expansion units from front

Access switch modules and blowers from rear Fits into Standard Central Office environments

Air Intake Filtering

Predictive Failure Analysis® alerts on blowers, blade server memory, processor(s), and optional disk(s) with IBM Director

Bay	Switch Function
1 2	Ethernet link 1 for all blade servers Ethernet link 2 for all blade servers
3	Network connection 1 for all blade server
0	I/O expansion options (Gb Ethernet/Fibre Channel)
4	Network connection 2 for all blade server I/O expansion options (Gb ethernet/Fibre Channel)

LIMITED WARRANTY³

32R0833

3 year parts and labor
 International Warranty Service³

On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time7 On site service upgrade options (in

Signature applications (in eligible locations):
 3 year IOR 24x7, 2 hr avg response (ServicePac® part num 21P2065)
 3 year IOR 24x7, 4 hr avg response

(ServicePac part num 30L9185)

3 year IOR 9x5, 4 hr avg response (ServicePac part num 41L2736) • 5 year IOR 9x5, 4 hr avg response

(ServicePac part num 69P9207) 5 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9205)

Other ServicePac options at http://www.ibm.com/services/us/ its/pdf/wamomxeu.pdf

24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM [®] Type-model Si	upported Blades		Switch modules std / max	Switch modu	ules (type)		nt Power modules std / max		Blower modules std / max	Mechanica	Available I date
8730-1RX All: HS20/F 8730-2RX All: HS20/F					3, OPM and CP 3, OPM and CP		2/4 2/4	1300W 1300W	4/4 4/4	8U ⁴ rack 8U rack	Jul 2004 Mar 2006
Positioning Description	Flexible, innovative Provides common re expansion, external keyboard, video, mo	esources : Fibre Cha	shared by b	lade servers	such as power	r, system m	nanageme	nt, cablin	g, ethern	et manage	ment and
Blade bays	Supports all blades		S40/JS20/JS	621/LS20 an	d PCI I/O Expa	ansion Units	s / 8 hot-pl	uggable	server ba	ys / front a	iccess
Switch modules	Std: none; max: four	/ hot-swa	p / rear acc	ess / Gb Ethe	ernet / Fibre Ch	nannel / Infi	niBand / C	ptical Pa	ss-thru /	Copper Pa	ss-thru
Advanced Management Module	Std: none; max: two communicates with i ports: DB-15 analog shared by up to 8 bl.	ntegrated video por	system mai t, Dual USE	nagement pr	ocessor on eac	h server bl	ade / com	plete KVI	VI switch	local function	onality /
Management Modules	Std: one; max: two / controller / communiconnectivity / controller thernet remote mar	cates with s external	integrated Telco alarm	system mana panel / port	agement proces s: DB-15 analog	ssor on ead g video por	ch server b t, PS/2 ke	olade / m	ultiplexor	for console	Э
Power modules	Std: two in bays 1 ar IEC320 C14 male ar management module power to switch bays	opliance c es, blade l	onnector / 1: bays 1 - 4 a	300 watts / tv nd media tray	vo std modules y; two additition	(in slots 1 al power m	& 2) suppl odules pro	y power to vide full s	to switch	bays 1 & 2	, both
Blower modules	Std: four; max: four / (CFM) / front to back				swap / redunda	ant / variabl	e speed /	rear acce	ss / 330	cubic ft per	min
Mechanical Optical / USB Keyboard / mouse Ports	EIA 19" rack model 24X-10X-24X-8X° Corequests for optical (None standard / proserver blade front pa Rear: keyboard (PS Telco Alarm Panel Front: Two USB (Ve	ombo / Tv CD, and U vides KVN nel /2), mous	vo USB port ISB port(s) to Indicate the state of the stat	(Version 1.1 by pressing Cupport / reque) / all USB inter DD select buttor ests for keyboa	rface / front n on blade rd, mouse,	access / s server fror and video	shared by nt panel by press	up to ei	lisplay butto	on on
Security Ethernet	Login password for recommended in rac Each of the dual inte	k environ	ment provid	ing security	through lockabl	le doors or	other seco	urity mea	sures		n Module
Systems mgmt	Provides remote con blowers, power mod								ng syster	n, temperat	ture, disks,
System LED panel	System LED panel p		ower-on, loc	ation, critical	, major and mir	nor alarm co	onditions				
McData EFCM Eleme	ilter Rack Cabinet nt Kit	Center	blade)	32R0835 32R1799 25K8360 25K8359 25K8376 930842S 32R0837 32R0836	IBM 1300W A IBM APC Sm IBM T115 15' BladeCenter IBM DS4000 IBM USB Flo Other option Solutions av	art-UPS 50 " Flat Panel PCI I/O Exp EXP700 Fi ppy Drive ns at ibm.o	000RMB (2 I Color Mo cansion Ur bre Chann com/produ	208V) ´nitor (blac nit nit nel Expan	sion Unit		32R0834 37L6861 494215U 25K8373 17001RS 05K9276
	ront vitchPlenum		imensions: H	13.76"(8U) x W	17.4" x D20"(fron	t bezel to rea	r I/O);	LII	MITED	VARRAN	ГҮ ³

2 PB-2 PB-4 ΡМ 4 PB-6 PB-7

Rear

- **KVM** LAN
- Bay Switch function Ethernet link 1 for all blade servers 2 Ethernet link 2 for all blade servers Network connection 1 for all blade server I/O expansion options (Gb Ethernet/Fibre) 4 Network connection 2 for all blade server I/O expansion options (Gb Ethernet/Fibre)

Access server blades, power supplies, mgmt modules, media tray and expansion units from front

- 3 year parts and labor
 International Warranty Service³
 On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in
 - 3 year IOR 24x7, 2 hr avg response
 (ServicePac® part num 21P2065)
 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 30L9185)
 - · 3 year IOR 9x5, 4 hr avg response (ServicePac part num 41L2736) • 5 year IOR 9x5, 4 hr avg response
 - (ServicePac part num 69P9207) 5 year IOR 24x7, 2 hr avg response
 - (ServicePac part num 69P9205) Other ServicePac options at
- http://www-1.ibm.com/services/ us/its/pdf/wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period3

H349.5mmxW441.9mmxD508mm

Weight: 98 to 192 lb; 44.5 to 87.38kg Stealth black color bezel

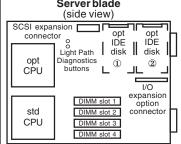
Access switch modules and blowers from rear Fits into Standard Central Office environments

Predictive Failure Analysis® alerts blade server memory, processor(s), and optional disk(s) with IBM Director

Tool-free customer serviceability

Air Intake Filtering

IBM® Type-model Qty x Pro	ocessor ¹ Memory	Frontside Bus Mhz (L3 Cache Disk	Disk controller	Disk bays	SCSI support wit optional stor exp u			Required chassis	Available date	
8832-GTX 1 x Xeor 8832-9TX 1 x Xeor		533Mhz 2 533Mhz 2				2 HS Ultra320 2 HS Ultra320	0x2 0x2		BladeCenter T BladeCenter T		
Positioning Processor(s) L2/L3 Cache SMP support	Ultra-dense, highly 1 x Intel® Xeon 2. 512KB L2 Cache / 2-way SMP / up to	5 HGz or 3 ′ 0 - 2MB L	3.2GHz with 3 Cache /	n 533MHz on die of p	frontside processo	bus / Hyper-Thre r / at processor s	ading ted		letBurst™ archi	tecture	
Implementation	Server blade contai one SCSI expansio	ins two Intel	604-pin mi	cro-PGA Z	ÏF socke	ts, four memory D					
Memory	GB std / 8GB max ¹³ / two slots used / two slots available / C2100 266MHz registered 184-pin ECC DDR-SDRAM DIMMs / four DIMM gold-connector slots on systemboard / DIMMs nust be installed in matched pairs [a bank] / 2-way memory interleave / dual channel / memory bus runs at 2 x 100MHz / irror Checking and Correcting (ECC) via 16-bit Checksum ChipkilI™ (corrects 1, 2, 3, or 4-bit errors on same chip and letects 2- through 8-bit errors contained in two chips)										
IDE controller/bays SCSI disk controller	Enhanced IDE AT. IDE disk / no cable disks / space for connector via one connector CIOB-ES I/O Bridg 3.5" one-inch high	e as IDE di only one IDI optional So / LSI Logic ge (IMB2 bu	sk attache E disk if ar CSI Storag 53C1020 us to Host	s to riser on I/O expa ge Expans J Ultra320 Bridge) / s	card and nsion op sion Uni SCSI co supports	tray (included wittion installed [Fikt t (a blade occupentroller [LVD 320 RAID-1 mirrori	th option ore Chan ying adja)MB/sec] ng [Emb	kit) / Supp nel] / RAID cent blade / 64-bit 13 edded Mirr	orts max of two -1 mirroring someous slot / connects 3MHz PCI-X Bound oring] with two	o IDE tandard s to HS20 us B from hot-swap	
SCSI disk bays	Supports max of tw 80-pin SCA-2 conn	o hot-swap ectors / all :	3.5" SL UI SCSI bays	tra320 SC Ultra320-	SI disks i enabled	n optional SCSI S	Storage E			,	
External storage	Support for IBM To			·							
Mechanical Architecture / chipsets Bus slots	one CIOBE-S I/O ethernet and the I/LPC bus to Super	Supported in IBM BladeCenter (type 8677) / BladeCenter supported in 28" deep racks such as the IBM NetBAY™ Rack products ServerWorks® Grand Champion™ 4.0 LE / CMIC LE Host Bridge (memory controller and I/O Bridge) / single slot one CIOBE-S I/O Bridge (IMB2 bus to Host Bridge) for two PCI-X Buses with Bus A for ethernet and Bus B for ethernet and the I/O expansion option connector / CSB6-U South Bridge (Thin IMB to Host Bridge) for EIDE, USB, IPC bus to Super I/O, and PCI 2.2 Bus C with graphics controller / National Semiconductor® PC87417 Super I/O chip I/O PCI-X slots (expansion via modules or network-interface option connector)									
Ethernet controllers Network-interface CD / diskette / USB Kybd / video / mouse Graphics	/ Alert Standard Forr switch or Optical F One connector fo 3 and 4 of BladeCe card) / ethernet an None / requests for	mat 1.0 / tea Passthrough or I/O expananter / all blood d serial I/O CD-ROM, of keyboard, r	ming and fand Module (to maion option	ailover supp he second on (Fibre single Blace cards place re, and US video in B	ort / one controlle Channel leCenter nned for B port in ladeCent	of the dual controller requires a sec Expansion Card, must contain the future release ²⁰ BladeCenter by pressing the	ers conne ond option of require same ex ressing C edisplay b	cts to an opinal switch on same into pansion ca	ional, supported or OPM) erface modules rd (or no expan ton on front con	d Ethernet s in bays sion trol panel	
Systems mgmt Diagnostics	IBM integrated sy. H8S2148 / on blade monitoring, event re for communication Light Path Diagno component) and or	stem mana e / provides ecording, al with BladeC estics™ (LE	agement prospersion of the system and lert capabilic center manage of the system of th	rocessor (d environm ity / RS-48 agement m licate failin	ISMP) / nental 5 interfac nodule g	Xeon 3.2Gh: Proc Upg 512MB PC21 1GB PC2100 S) 2GB PC2100	z/512KB 00 CL2.5 0 CL2.5 E 0 CL2.5 E	ECC DDR- CC DDR-SI CC DDR-SI	SDRAM DIMM DRAM RDIMM DRAM RDIMM	13N0650 33L5038 33L5039 33L5040	
Security	Power-on passwor				modo	IBM HS20 F	ibre Char	inel Expans	ion Unit (blade sion Card (with t	wo	
Software ship group	unattended boot / s Documentation CD					IBM HS20 4	0ĠB² 540	i0 rpm ATA		48P7063	
Cooling fans Power supply Prerequisites	Uses cooling from sensors on each p front panel Uses power modu Monitor, keyboard disk, BladeCenter	orocessor a le(s) in Bla , mouse for	and`BladeC ideCenter (r setup; etl	Center mod (type 8677 nernet swi	dules an ')	d 36.4GB 15K 73.4GB 10K 146.8GB 10I	Ultra320 : Ultra160 < Ultra32	SCSI Hot-S SCSI Hot-S SCSI Hot- Storage Ex	Swap SL HDD* -Swap SL HDD* pansion Unit		
Server b	lade B	Say ① 3.5", 9	9.5mm, no f	ront acces	s, optiona	 al ThinkPad®IDE (disk 🗢 3	year parts	D WARRANT		
(side vi	ew) B	av ② 3.5".9	9.5mm. no f	ront acces	s. option	al ThinkPad IDE d	isk 🗢 I	nternationa	I Warranty Serv	ice ³	



- Powergood
- Blade location
- Overtemperature
- Information
- · General fault

Bay @ 3.5", 9.5mm, no front access, optional ThinkPad IDE disk

- Stealth black front bezel
- ⇒ H 9.7" x W 1.14" x D 17.6"; H 24.5cm x W 2.9cm x D 44.6cm
- 12 lbs; 5.4kg (max configuration)
- Configuration/Setup Utility: F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
- System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup
- PXE Boot Agent Utility: Ctrl+S at startup
- Blade control panel on each HS20 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS20 blade server¹³: 80GB with two 40GB EIDÉ disks or 293.6GB* with two 146.8GB SL SCSI disks

- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time⁷
- On site service upgrade options (in eligible locations):
 - 3 year IOR 24x7, 2 hr avg response
 - (ServicePac® part num 69P9519) 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 69P9518)

 3 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9517)
 - 5 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9525)
 - 5 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9527)
 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support forwarranty issues during the warranty period3

IBM[®]

FSB

Available

Mech-

slots

Type-GAV Processor	GHz ¹	cache MHz	Memory	Disk c	ontroller	Disk bays	optic	onal sto	r exp unit	x bays	anical	Ethernet	date
8843-LTy 1 x Xeon ^T 8843-4Ty 1 x Xeon	[™] 2.8 Low Vol 3.6GHz										7U ⁴ blade 7U ⁴ blade	2 x Gigabit 2 x Gigabit	Feb 2005 Feb 2005
Processor(s) SMP - L2 Cache Implementation	1 x Intel® Xec Threading tec 2-way SMP / Systemboard expansion op	chnology / Lo up to two Xe contains two	w Voltage eon Proce Intel 604	e Procce essors (s I-pin mid	essors re same spe cro-PGA	duce heat ed/cache ZIF socke	outpu size) / ets, fou	it for inc / 1MB ir DIMM	rřeaseh ra	ıck densi	tv without in	creased cool	ina canacityl
Memory	512MB/1GB : PC2-3200 40 installed in ma	0MHz CL2.5	ECC DD	R2-SDF	ram dim	Ms / four	240 pi			slots on	systemboar	d / DIMMs m	ust be
SCSI disk controller SCSI Disk bays External Storage	LSI Logic® 53 PCI-X / supported one Channel: one Two 2.5-inch disks in option Support for IE	orts RAID-1 & 2-drop 16-bit I Small For m	68-pin L\ Factor (oring (s /D SCS (SFF) U	supported I cable Itra320 in	in 32-bit ternal fixe	legacy d disk	mode of bays /	only) / Or Supports	ne 16-bit max of to	channel (on wo hot-swar	e internal) / <i>Ir</i> o 3.5" SL Ultra	: 100MHz nternal a320 SCSI
Mechanical Architecture/Chipset BUS slots	7U Blade / Su Intel E7520 o BUS / ICH5R interface No PCI or PC	chipset / E75 supports US	25 MCH B (1.0) / L	(Memor _SI 1020	y Control 7 / Dual E	ler Hub) fo Broadcom	or PCI 5704S	5 / Low I	Pin Count	Interface	CH5R / PXI e / NS PC87	H BUS suppo 366 Super I/0	rts PCI-X O off LPC
Ethernet Network Interface CD / Diskette / USB Kybd / video / mouse Graphics controller	Dual gigabit 1 chip on blade adapter fault 1 con connect 3 and 4 of Bla and serial I/O None / reque None / reque SVGA / ATI®	adeCenter/a expansion c	(pansion II blades i ards plan	option n a sing ned for	(Fibre Ci gle Blade(future rele	nannei Ex Center mu ease ²⁰	cpansic ist con	tain the	same exp	s same pansion c	ard (or no e	expansion car	d) / ethernet
Systems Mgmt Diagnostics	IBM Baseboa recording, ale intermanagen Management Light Path D	ert capability / nent commur module ∂iagnostics ™	RS-485 i lication w (LED lial)	nterface ith Blad hts indic	e for eCenter cate failin	a					d environme		ng, event
Security	component) a BIOS)	and on-board	diagnosti	ics (via	PC-Docto	or in	Xeo 512l 1GE	n 3.6 G MB (2x2 3 (2x512	Hz/800/11 256) PC2- 2) PC2-32	MB L2 Ca 3200 EC 00 CL3	ache EM64 ⁻ CC DDR2 ECC DDR2	Γ Proc Üpg	13N0659 73P3522 73P3522
Software ship group	No security in administrator selectable boo Documentation	password / u ot / unattende	nattended ed start m	d boot /	password	u /	IBM	36.4GE	3 10K Ultr	a320 SC	DDR2 Chip DDR2 Chip SI 2.5"SFF I 2.5" SFF N	OK RDIMM KI OK RDIMM KI NHS HDD IHS HDD	it 73P2866 it 73P2867 90P1312 90P1313
Cooling Fans Power supply(s) Prerequisites	Uses cooling sensors on er front panel Uses power r Monitor, keyb disk, BladeCe	ach processo module(s) in I oard, mouse	or and Bla BladeCen for setup	ideCent iter T (ty ; ethern	er modul pe 8720/ et switch	es and /30)	Blace Blace Blace Blace 17-ir	leCente leCente leCente leCente leCente	er SCSI Ster SFF Fiber SFF Giger Optical Ser SCSI Ster Panel Mo	orage Ex re Chanr jabit Ethe Pass-thru orage Ex pnitor Col	p Unit nel Exp Card ernet Exp Ca	d ard it US Kybd	26K4817 26K4841 26K4842 02R9080 26K4817 17231UX

Disk

SCSI Support with

Server blade (side view) SCSI expansion اك opt SFF opt S | SFF | SFF | SFF | SFF | SFF | L Diagnostics opt 2 CPU buttons I/O expansion DIMM slot 1 option std DIMM slot 2 connector CPU DIMM slot 3 DIMM slot 4

A control panel on top front of blade has following LEDs:

- Power good
- Blade location
- Over temperature
- Information
- General fault

- Stealth black front bezel
- → H 9.7" x W 1.14" x D 17.6";
 → H 24.5cm x W 2.9cm x D 44.6cm

- 12 lbs; 5.4kg (max configuration)
 Configuration/Setup Utility: F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 System Partition Boot: ALT+F1 at startup

- Network Boot: F12 at startup
 PXE Boot Agent Utility: Ctrl+S at startup
- ➡ Blade control panel on each HS20 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power
- Predictive Failure Analysis® alerts on memory, processor(s) and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS20 blade server¹³: 146GB with two 73GB SCSI disks (with BladeCenter SCSI Storage Expansion Unit 2 x 146GB for total of 438GB)

- 3 year parts and labor
- International Warranty Service³
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- On site service upgrade
- options (in eligible locations):⁷
 4 year IOR 9x5, NBD response (ServicePac® part num 69P9520)
- 4 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9521) 4 year IOR 24x7, 4 hr avg response
- (ServicePac part num 69P9522)

 4 year IOR 24x7, 2 hr avg response
 (ServicePac part num 69P9523)

 → Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period³

Frontside

L3

IBM[®]

Required

Available

Mech-

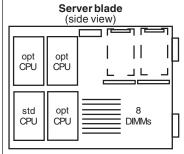
Type-model Qty x Pro	cessor ¹ Cache Memor	y Bus Mhz	Disk controller		optional exp. unit	x bays	anical	chassis	date			
8839-6TX 1 x Xeon ^T	[™] 2.8GHz MP 2MB 2GB	400Mhz	None None	None	2 H-S Ultra320	0x2	8U4 blade	BladeCenter T	Mar 2004			
Positioning Processor(s) L2/L3 cache SMP support Implementation	Ultra-dense, highly man Up to 1 x Intel® Xeon 2. 512KB L2 Cache / 2MB 4-way SMP / up to four Server blade contains fo one SCSI expansion con	8GHz MP L3 Cache Xeon MP ur Intel 60	with 400MHz fro e / on die of pro Processors (sar 4-pin micro-PG	ontside bus cessor / at me speed/o A ZIF sock	/ Hyper-Threadi processor spee cache size) ets, four memor	ng techr d y DIMM	nology / Noslogy	etBurst™ microa				
Memory	2GB std / 16GB max ¹³ / two slots used / six slots available / eight total slots PC2100 266MHz registered 184-pin ECC DDR-SDRAM DIMMs / four DIMM gold-connector slots on systemboard / DIMMs must be installed in matched pairs [a bank] / 2-way memory interleave / dual channel / memory bus runs at 2 x 100MHz / Error Checking and Correcting (ECC) via 16-bit Checksum Chipkill™ (corrects 1, 2, 3, or 4-bit errors on same chip and detects 2- through 8-bit errors can be mixed											
SCSI disk controller	None / supports optional SCSI Storage Expansion Unit (a blade occupying adjacent blade slot / connects to HS20 via one connector / LSI Logic® 53C1020 Ultra320 SCSI controller [LVD 320MB/sec] / 64-bit 133MHz PCI-X Bus B from CIOB-ES I/O Bridge (IMB2 bus to Host Bridge) / supports RAID-1 mirroring [Embedded Mirroring] with two hot-swap 3.5" one-inch high SL SCSI disks in front bays / one 16-bit internal channel / no cables or external connector) Supports max of two hot-swap 3.5" SL Ultra320 SCSI disks in optional SCSI Storage Expansion Unit / 80-pin SCA-2 connectors / all SCSI bays Ultra320-enabled											
External storage	Support for IBM TotalSto	rage™ solu	tions (including	FAStT and	NAS family of p	roducts)						
Mechanical	Supported in IBM BladeConserverWorks® Grand Conserver Co	enter (type	8677) / BladeCe	nter suppor	ted in 28" deep ra	cks sucl	n as the IB	M NetBAY™ Ra	ck products			
Architecture / chipsets Bus slots	sone CIOB-X2 I/O Bridge ethernet and the I/O exp bus to Super I/O, and P No PCI or PCI-X slots ((IMB2 bus pansion op CI 2.2 Bus	s to Host Bridge tion connector / C with graphic	e) for two f ' CSB6 Soi s controlle	PCI-X Buses wit uth Bridge (Thin r / National Sem	h Bus A IMB to niconduc	for ether Host Brid otor® PC87	net and Bus B ae) for EIDE. U	JSB. LPC			
Ethernet controllers	Four gigabit 10/100/1000 e Wake on LAN® / Alert Star 4-port GB Ethernet Swit	ndard Forma	at 1.0 / teaming a	ınd failover :	support / one of th	ne contro	llers conne	ects to an optiona	al			
Network-interface	Two connectors for I/O of BladeCenter / all blad ethernet and serial I/O e	expansion es in a sing	option (Fibre Ch gle BladeCenter	annel Expa	nsion Card) / req ain the same ex	uires sar	ne interfac	e modules in ba	ys 3 and 4			
	None / requests for CD-Re None / requests for keybo SVGA / ATI® Radeon 70	OM, disket ard, mouse	te drive, and US e, and video in B	B port in BladeCenter	adeCenter by preby by breed by pressing the	display b	outton on fi					
Systems mgmt	Intel integrated Basebo / on blade / provides sy- event recording, alert ca communication with Bla	stem and e pability / F	environmental n RS-485 interfac	nonitòring, e for	512MB PC210 1GB PC2100 (0 CL2.5 CL2.5 E0	ECC DDR	roc Upg I-SDRAM DIMM DRAM RDIMM DRAM RDIMM	13N0653 33L5038 33L5039 33L5040			
Diagnostics	Light Path Diagnostics component) and on-boar	™ (LED lig	hts indicate fai	ling	IBM HS40 SC IBM HS40 Fib	SI Stor	ge Expans	sion Unit (blade nsion Card (wi	e) 26K4847 th two			
Security Software ship group	Power-on password / a unattended boot / select Documentation CD, IBM	able boot	unattended st	art mode	ports; each port requires a FC Switch Module) 48P706 IBM HS40 40GB ² 5400 rpm ATA-100 HDD 48P706 36.4GB 15K Ultra160 SCSI Hot-Swap SL HDD* 06P576							
Cooling fans	Uses cooling from Blade				_ 00.7GD 1010 C				06P5776 06P5756			
Power supply Prerequisites	on each processor and E Uses power module(s) i Monitor, keyboard, mou disk, BladeCenter (type	BladeCente n BladeCe se for setu	modules and f nter (type 8677 p; ethernet swi	ront panel 7)	* Disk requires SCSI Storage Expansion Unit							

Disk

SCSI support with

Slots

Disk



A control panel on top front of blade has following LEDs:

- Powergood
- Blade location
- Overtemperature
- Information
- General fault

- Stealth black front bezel
 H 9.7" x W 1.14" x D 17.6";
 H 24.5cm x W 2.9cm x D 44.6cm
- 12 lbs; 5.4kg (max configuration)
- Configuration/Setup Utility: F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
- System Partition Boot: ALT+F1 at startup
- Network Boot: F12 at startup PXE Boot Agent Utility: Ctrl+S at startup
- Blade control panel on each HS40 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk
- activity, and power Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS40 blade server13: 293.6GB* with two 146.8GB SL SCSI disks

- 3 year parts and labor
- International Warranty Service³
 On site, 8 am 5 pm, Mon Fri coverage excluding holidays,
- next business day response time⁷ On site service upgrade options (in eligible locations):
 - 3 year IOR 24x7, 2 hr avg response (ServicePac® part num 69P9519) 3 year IOR 24x7, 4 hr avg response

 - (ServicePac part num 69P9518)

 3 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9517)
 - 5 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9525) 5 year IOR 24x7, 2 hr avg response
 - (ServicePac part num 69P9527)
- Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period3

Warranty information: For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC, 27709, Attn: Dept JDJA/B203. IBM makes no representation or warranty regarding third party products or services.

- MHz/GHz only measures microprocessor internal clock speed; many factors affect application perfomance.
- MB/GB/TB = 1 million/billion/trillion bytes when referring to storage capacity. Accessible capacity is less; up to 3GB is used in service partition.
- For terms and conditions or a copy of IBM's Statement of Limited Warranty, call 1 800 772-2227 in the U.S. Copies available upon request. Telephone support may be subject to additional charges. For onsite labor, IBM will attempt to diagnose and resolve the problem remotely before sending a technician. International Warranty Service is available in any country in which this product is sold and serviced. Service delivery methods and parts availability vary by country, may be different from that in the country of purchase, and are subject to change without notice. Fees and restrictions may apply in some countries.
- ⁴ A single "U", or rack unit, is 1.75" or 44.45mm.
- 5 S.M.A.R.T. stands for Self-Monitoring, Analysis and Reporting Technology.
- ⁶ CD and DVD drives speeds are variable and are often less than the maximum.
- These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family or household purposes. Not all machiné 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. A service technician is scheduled to arrive at your location within two or four business hours or the next business day (depending on service) after remote problem determination is completed. For the 9x5x4-hour service, calls dispatched after 1:00 p.m. local time, you can expect the service technician to arrive by the morning of the next business day. For non-critical service requests, a service technician will arrive by the end of the following business day. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. External peripherals, such as racks, tape drives, and channel controllers, require their own, separate service coverage, they are not covered under the attached Machine. Service activation is required immediately following purchase. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. For failing non-IBM components, customer must provide replacement part unless IBM has a Technical Support Agreement with the manufacturer. Service does not cover accessories, supply items and certain parts such as batteries, frames and covers. Not available in all states; call your IBM representative for details.

- 8 Subject to conditions.
- ⁹ Some software may differ from retail version (if any) and may not include user manuals or all program functionality. Software license agreements may apply.
- ¹⁰ Updated drivers and hot-swap services for certain operating systems may be required to support PCI hot-swap functions.
- ¹¹ Fire GL1, Fire GL2 and Fire GL4 are trademarks of ATI Technologies, Inc., and are used under license.
- ¹² Installation of 2GB RDIMMs requires BIOS and diagnostic firmware version 1.08 or later. When more than 8GB of memory is installed, the integrated SCSI controller must be disabled.
- Maximum memory and internal hard disk capacities may require the replacement of standard component with largest supported component available.
- ¹⁴ Response times may vary. May exclude some holidays. Telephone support may be subject to additional charges.
- ¹⁵ IBM makes no respresentations or warranties regarding non-IBM products and services that are ServerProven, including but not limited to the implied warranties of merchantability and fitness for particular purpose. These products are offered and warranted by third parties, not IBM.
- Asset ID allows your computer to be scanned by various radio frequency emitting devices which must be purchased separately from independent companies.
- Y Some software may differ from its retail version (if available), and may not include user manual or all program functionality. Software license agreements may apply.
- Diskettes and hard copy documentation available at extra charge.
- For combination drives, maximum possible speeds only are given in the following order: CD read, CD write, CD re-write, DVD read
- Statement of direction and subject to availability.
- Max physical memory is currently 16GB contingent on general availability of 4GB memory DIMMS, running under select 64-bit Linux distributions; addressable capacity is less. Under select 32-bit Linux distributions, maximum physical memory is 16GB contingent on general availability of 4GB memory modules, with a maximum of 3GB allocated per thread. Maximum physical memory is 4GB running under Microsoft Windows XP Professional operating system; addressable capacity is less.
- 22 16GB Memory max with PC2700 DIMMs, 8GB Max with PC3200 DIMMs



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