

	KOCIICO 100					,				
IBM®Machine Type Model Procce	ssor Speed¹/Core		FSB MHz Memory	Disk	Disk controller	Maximum Capacity	Slots x bays	Hard disk bays	Ethernet	Available date
8486 - E1x Celeron® 8486 - E2x Celeron 8486 - E3x Pentium® 8486 - E4x Pentium 4 8486 - E5x Pentium 4 8486 - E6x Pentium 1	D 326 2.53GHz 4 521 2.8GHz/SC 4 531 3.0GHz/SC 4 541 3.2GHz/SC 4 551 3.4GHz/SC	256KB 5 1MB 8 1MB 8	533 256MB 533 512MB 800 512MB 800 512MB 800 512MB 800 512MB 800 512MB	80GB 80GB 80GB 80GB 80GB 80GB 80GB	SATA SATA SATA SATA SATA SATA SATA	500GB 500GB 500GB 500GB 500GB 500GB 500GB	4 x 5 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 2 fixed 2 fixed	Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Sep 2005 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 533MHz F 4 / 2x1MB s one LGA A and Giga o processo	z Single Core FSB / All Optin std on Pentiur A-775 socket, for abit Ethernet. or upgrade	800MHz F mized for m D / 256K our DIMM	SB / Pentiu Extended M B std and m sockets, four	m D 2.8G lemory 64 ax on Cele r slots(1 P	Hz Dual Techno eron / EC CI Expre	logy (EM6 C / full spe ss x8, 1 P	64T) eed CI Expres	s x1, 2
Memory	256MB or 512MB / 80 SDRAM / All Error C									
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 / Ser	k-100 / integ controller ables (to Cl rpm / 9.0 n	grated in I/O C (1.5GB/sec) / D-ROM) / one ns seek / S.M./	ontroller H supports 2 1-drop SA A.R.T.	ub / one con drives stan	nector on dard	planar			
Rack support Bus slots (see below) Chipset	None One PCI E bus / one Intel E7230 chipset MAC, USB, Low Pin keyboard, mouse	/ Memory	Controller Hub	(MCH) / I/	O Controller	Hub (ICH	-7) for P0	CI 2.2, AT/		
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / (PXE) / Wake on LA Some: CD-ROM: 48 Front: two USB (Ver monitor (analog DB- Diagnostic LEDs / erro None	N [®] X-20X ⁶ CD 2.0); <i>Bac</i> 15)	D-ROM, IDE; solk: two serial (9	ome: CDR -pin), para	W/DVD-RON llel, two USE	M Combo: 3 (Ver 2.0)	48X/32X/ , keyboar	48X/16X ⁶ d, mouse,	/ None sta ethernet (andard RJ-45),
Graphics controller	ATI® RN50(ES1000) /	16MB SDR	AM std/max / or	n planar / ar	nalog 15-pin /	up to 1024	x 768 x 3	2 bit @85H	lz	
Security	Optional U-Bolt supp control / operation v				ord / boot se	quence				
Software	ServerGuide™ (CD- installation and confi Director (system ha	iguration to	ool) included ar	nd IBM	512MB PC 2x1GB PC 2x2GB PC IBM 80GB	2-4200 CL 2-4200 CL	.3 ECC [DR2 RoH DR2 RoH	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 (cp) ant / not ho l / manual s l) / not hot-	u heatsink, rea ot-swap switching / Auto -swap /no redu	r, power	IBM 160GE IBM 250GE IBM 500GE 48X/32X/48 IBM Multi-b IBM USB F 36/72GB D VXA-2 Tap	3 SATA-15 3 SATA-15 3 SATA-15 3X/16X Ma burner Plus Portable D DDS/5 Inte	50` (7.2K) 50 (7.2K) 50 (7.2K) ax ⁶ CD-F s iskette D	simple-sv simple-sv simple-sv W/DVD (b	vap HDD vap HDD vap HDD	39M4504 39M4508 39M4514 32R2905 32R2906 05K9276 71P9145 59P6746
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",	1.6", acce access, o access, s access, o	td disk open	lisk)	IBM 20/400 IBM Servel IBM Ultra3: Other optio	GB TR7 In RAID-7t S 20 SCSI C ons at ibi	ATA Concontroller. controller. com/ponentroller. 1 year Internation On site	troller c/us/acces LIMITED \ parts and I tional War 8 8 am-5 pi	WARRAN abor ranty Servi	48P7042 71P8648 13N2249



Slot 2: fullsize, 64-bit PCI-E x1 (43Bbs) 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:

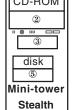
Minimum: 379 Btu/hr (111 watts) Maximum: 853 Btu/hr (250 watts)

- 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	L2 FSB Cache MHz	Memory	Disk	Disk controller	Maximum Capacity	Slots x bays	Hard disk bays	Ethernet	Available date
8486 - EAx Celeron®	D 331 2.66GHz	256KB 533	512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EBx Celeron 8486 - ECx Pentium [®]		256KB 533 1MB 800	512MB 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		2MB 800	512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EEx Pentium	4 631 3.0GHz/SC	2MB 800	512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EFx Pentium 4		2MB 800 4MB 800	512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EHx Pentium		4MB 800 4MB 800	512MB 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	4MB 800	512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Feb 2006
8486 - EKx Pentium	D 930 3.0GHz/DC	4MB 800	512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Mar 2006
Positioning	Uniprocessor, entry							D 1 0	0001411-	FOD /
Processor(s)	Intel® Pentium 4 up Intel Celeron D 2.6) to 3.2GHZ SI 6GHz 533MHz	rgie-Core &	SUUMHZ F Ontimized	SB / Pentil I for Exten	up to ded Memor	3.0GH2 v 64 Te	chnology	re 800MHZ (FM64T)	FSB /
L2 cache	1 or 2MB std on Per									
Implementation	Motherboard contain	ns one LGA-77	5 socket, for							s x1, 2
SMP support	PCI), integrated SAT No SMP support / n									
Sivii Support	140 Sivii Support / II	o processor up	grade							
Memory	512MB / 8GB ¹³ max /									RAM / AII
-	Error Checking and	Correcting (EC	C) / DIMINIS	and ECC r	nemory cont	roller / indust	ry sta / i	unbuffered	/	
SCSI disk controller	None standard / Ult	ra320 SCSI co	ntroller2 (L\	/D 320ME	3/sec) optio	nal for tape	backup			
IDE disk controller	Enhanced IDE / ATA	A-100 / integrate	ed in I/O Čo	ntroller Hu	ıb / one cor	nector on p				
SATA disk controller Cables	Dual channel SATA One 2-drop EIDE ca	controller (1.5	GB/sec) / s	upports 2	drives star	ndard or installed l	aard die	k		
Disk	80GB SATA / 7,200	rpm / 9.0 ms s	eek / S.M.A	R.T.	IA Cable pe	ei iiistalleu i	iaiu uis	N.		
RAID Controller	None standard / Ser									
Rack support	None									
Bus slots (see below)		us / one 64-bit	PCIe™ x8 sl	ot / one 6	4-bit PCle x	1 / two 32-b	t 33MH:	z 5v PCI 2	.2 slots	
Chipset `	Intel E7230 chipset	t / Memory Cor	troller Hub ((MCH) / I/	O Controlle	r Hub (ICH-7	7) for P(CI 2.2, AT	A-100 EIDE	
	MAC, USB, Low Pin keyboard, mouse	Count Interfac	e / Firmware	Hub / Si	/ISC® LPC4	7M192 Supe	er I/O fo	r diskette,	parallel, se	erial,
	keyboard, mouse									
Ethernet	10/100/1000 gigabit		721 / on plar	nar / 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		M IDE: so	ma: CDR	W/DVD-BO	M Combo:4	8Y/30Y/	//QY/16Y6	/ None eta	ndard
Ports	Front: two USB (Ve									
D: ::	monitor (analog DB-	·15)				,	•		,	,
Diagnostics	Diagnostic LEDs / err None	or LEDs for fans	and memor	y / server (diagnostic pr	ograms store	d on IBN	√ Enhance	d Diagnostic	cs CD
Systems mgmt	None									
Graphics controller	ATI® RN50(ES1000) /	16MB SDRAM	std/max / on	planar / an	alog 15-pin /	up to 1024 x	768 x 3	2 bit @100)Hz	
Security	Optional U-Bolt supp	ort via knocko	it / nower o	n nacewo	rd / boot or	aduence				
Security	control / operation					<u> </u>				
- ·	·	<u> </u>			2x1GBPC	2-4200 CL3 E0 2-4200 CL3 E0	CC DDR2	RoHS		30R5148 30R5149
Software	ServerGuide™ (CD installation and conf				2x2GBPC	2-4200 CL3 E0	CCDDR2	RoHS	_	30R5150
	Director (system ha				IBM 80GB	SATA-150 (7.: 3 SATA-150 (7	2K) simpl 2K) simr	e-swap HDI de-swap HF	חר ט	39M4500 39M4504
					IBM 250GE	3 SATA-150 (7 3 SATA-150 (7	.2K) sim	ole-swap HE	DD .	39M4508
Keyboard / mouse	IBM 101 key keyboa	ard / IBM mous	e (both blac	k)	1BM 500GE	3 SATA-150 (7 8X/16X Max ⁶ (.2K) simp :D-RW/D	ole-swap HE IVD (black)	טט	39M4514 32R2905
Cooling fans	Three variable spee supply) / not redund			, power	IBM Multi-b	ourner Plus		, ,		32R2906
Power supply	310 watts / universa	I / manual swite	ching / Autor			Portable Diske DS/5 Internal				40K1692 71P9145
	Server Restart (ASF			dancy /	VXA-2 Tap	e Drive				59P6746
	cooling fan in power	supply (variab	ie speea)			GB TR7 Intern RAID-7t SATA				48P7042 71P8648
		<u> </u>			IBM Ultra3	20 SCSI Conti	oller2			13N2249
CD-ROM					Other option	ons at ibm.co				
2	Bay ① 5.25".HH	1.6", access.	CD-ROM				1 vear	LIMITED V	WARRAN1	Γ Υ 3



black

1.6", access, CD-ROM 1.6", access, open (no disk) 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", 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)

- → 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

Type

Hard

disk bays Ethernet

Available

date

Type Model Pic	CCESSOI	Speed /Core	Cacrie	IVITIZ	Memory	DISK	controller	Сараспу	x bays	uiskbays	Ememer	uale
8486 - EMX Pe 8486 - ENX Pe	ntium [®] 4 631 ntium 4 631 ntium 4 651 ntium D 930	3.0GHz/SC	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
Desitioning	Uninun					all busin		and budge	4-			
Positioning Processor(s)	Intel® P	essor, entry s entium 4 up eleron D 2.660	to 3.4G	Hz Sir	igle-Core 800	MHz FS	B / Pentiu	m D up to	3.0GHz			
L2 cache Implementation	1 or 2M Motherb PCI), int	B std on Pent oard contains egrated SATA support / no	ium 4 / 4 one LG and Gi	IMB s A-775 gabit E	td on Pentium socket, four Ethernet.	D / 256	KB std and	max on Ce	eleron / E	ECC / fuĬl-s	speed	
SMP support Memory		8GB ¹³ max / f	•	- ' `		cookote /	one socket	used / PC3	-4200 E3	3MH- ECC	י חחם פו	DDAM / All
	Error Ch	necking and C	correcting	g (ECC	c) / DIMMs and	d ECC m	emory contr	oller / indus	try std / u	unbuffered	/ /	JANIVI / AII
SCSI disk controlled IDE disk controlled SATA disk control Cables Disk RAID Controller	Enhance ler Dual ch One 2-0 80 or 16	andard / Ultra ed IDE / ATA- annel SATA d frop EIDE cab 60GB SATA / andard / Serv	100 / int controlle cles (to 0 7,200 rp	egrate r (1.50 CD-R0 m / 9.0	d in I/O Contr 3B/sec) / sup 0M) / one 1-d 0 ms seek / S	oller Hub ports 2 (rop SAT .M.A.R.T	o / one con drives stan A cable pe	nector on p dard	lanar			
Rack support Bus slots (see bel Chipset	Intel E7 MAC, U	I Express [®] bus 230 chipset / SB, Low Pin (d, mouse	Memor	y Cont	roller Hub (Mo	CH) / I/C) Controller	Hub (ICH-	7) for P0	CI 2.2, ATA	4-100 EID	E, ethernet serial,
Ethernet		1000 gigabit / Wake on LAN		m® 57	21 / on planar	/ full-du	plex / PHY	and MAC I	ayers / F	Preboot eX	ecution E	nvironment
CD-ROM / diskett Ports	e Somé: (Front: tv	CD-ROM: 48X vo USB (Ver	(-20X ⁶ C 2.0); <i>Ba</i>	D-RO	M, IDE; some o serial (9-pin	e: CDRW), paralle	//DVD-ROM el, two USB	M Combo:4 (Ver 2.0),	8X/32X/ keyboar	48X/16X ⁶ d, mouse,	/ None st ethernet	andard (RJ-45),
Diagnostics Systems mgmt		(analog DB-1 tic LEDs / error		or fans	and memory /	server di	agnostic pro	grams store	ed on IBN	/ Enhance	d Diagnost	ics CD
Graphics controlle	er ATI® RN	50(ES1000) / 1	6MB SD	RAM s	td/max / on pla	nar / ana	log 15-pin /	up to 1024	x 768 x 3	2 bit @100	Hz	
Security		U-Bolt suppo operation w					d / boot se	quence				
Software	installat	Guide™ (CD-bion and config (system hard	guration	tool) ir	ncluded and II	3M	2x1GBPC2 2x2GBPC2	-4200 CL3 E -4200 CL3 E -4200 CL3 E ATA-150 (7.	CC DDR2 CC DDR2	RoHS RoHS)	30R5148 30R5149 30R5150 39M4500
Keyboard / mouse Cooling fans	Three v	l key keyboar ariable speed / not redunda	fans (c	pu he	atsink, rear, p	ower	IBM 160GB IBM 250GB IBM 500GB	SATA-150 (7 SATA-150 (7	7.2K) simp 7.2K) simp 7.2K) simp	ole-swap HD ole-swap HD ole-swap HD	D D	39M4504 39M4508 39M4514 32R2905

Disk

controller

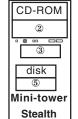
Disk

Maximum

Capacity

Slots

x bays



black

Power supply

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

310 watts / universal / manual switching / Automatic Server Restart (ASR) / not hot-swap /no redundancy /

12

Cache

Speed¹/Core

FSB MHz

Memory

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)

supply) / not redundant / not hot-swap

cooling fan in power supply (variable speed)

- 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

32R2905

32R2906 40K1692 71P9145 59P6746 48P7042

71P8648 13N2249

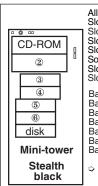
48X/32X/48X/16X Max® CD-RW/DVD (black)
IBM Multi-burner Plus
IBM USB Portable Diskette Drive

36/72GB DDS/5 Internal Tape Drive

VXA-2 Tape Drive IBM 20/40GB TR7 Internal Tape Drive IBM ServeRAID-7t SATA Controller IBM Ultra320 SCSI Controller2

- 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

For GAV systems, lowercase "	y" should be replaced with a coun	try-specific code.					-	-	No. of Street,	-
IBM® Machine Type GAV-model	Proccessor / Speed	L2 FSB cache MHz	Memory	Disk/Disk controller	Maximum Capacity	x bays	Hard disk bays		Ethernet	Available date
8485/8490 1Ay-1Ax P 8485/8490 20y-20x P 8485/8490 2Ay-2Ax P 8485/8490 3Ay-3Ax P 8485/8490 3By-3Bx P 8485/8490 70y-70x P 8485/8490 7Ay-7Ax P 8485/8490 80y-80x P	entium® 4 531 3.0GHz¹ entium 4 630 3.0GHz entium 4 640 3.0GHz entium 4 640 3.2GHz entium 4 650 3.2GHz entium 4 650 3.2GHz entium D 820 2.8GHz entium D 820 2.8GHz entium D 830 3.0GHz entium D 830 3.0GHz	2MB 800 2MB 800 2MB 800 2MB 800 2MB 800 2x1MB 800 2x1MB 800 2x1MB 800 2x1MB 800	512MB 256MB 512MB 512MB 512MB 2x512MB 1GB 1GB 512MB 1GB 512MB	80GB/SATA None/SATA None/SATA 80GB/SATA None/SAS/SAT None/SAS/SAT None/SAS/SAT None/SAS/SAT None/SAS/SAT None/SAS/SAT		4 x 7 4 4 x 7 4 4 x 7 4 4 x 7 4 6 x 7 4				Oct 2005 Oct 2005
Positioning Processor(s)	Single socket, entry so Intel® Pentium 4 up t Optimized for Extend	o 3.4GHz Si	ngle Cor	e 800MHz FSB /	ess ana a / Pentium	istributed	i enteprises			
L2 cache Implementation SMP support	Up to 2MB std on Per Motherboard contains 2 PCI) some: six slots No SMP support / no	itium 4 / 2x1 I one LGA-77 (1 PCI Expre	MB std or 5 socket, ss x8, 1 l	n Pentium D four DIMM sock	ets. some	four slo	ts(1 PCI Expr tegrated SAT	ess x8, A and Gi	1 PCI Exigabit Eth	xpress x1, nernet.
Memory	512MB or 1GB std / 8G DDR2-SDRAM / All Er									
SAS disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	Integrated SAS contro Enhanced IDE / ATA-1 Four channel SATA of One 2-drop EIDE cab Some: 80GB SATA / 7 IBM ServeRAID™ 8e (I	100 / integrat ontroller (3.0 les (to CD-R 7,200 rpm / 9	ed in I/O ()GB/sec) OM) / on(.0 ms see	Controller Hub / / supports 4 driv e 1-drop SATA o k / S.M.A.R.T.	ves standa cable per i	ird nstalled				
Rack support Bus slots (see below) Chipset	5U ⁴ rack mount support All: one PCI-E bus / on 66MHz 3.3v PCI-X slot Intel E7230 chipset / MAC, USB, Low Pin Ckeyboard, mouse	e 64-bit PCI- ts / no hot-sv Memory Cor	E x8 / one vap Active ntroller Hu	e 64-bit PCI-E x1/ p™ PCI slots lb (MCH) / I/O C	ontroller H	ub (ICH7	'R) for PCI 2.	2, ATA-1	00 EIDE	, ethernet
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / E Preboot eXecution Enc CD-ROM: 48X-20X ⁶ C Front: two USB (2.0); Diagnostic LEDs / error Mini-baseboard mana failure, and voltages /	vironment (P) D-ROM, IDE Back: two so LEDs for fans gement cont	XE) / Wał E / None erial (9-pi s and men roller / IP	ke on LAN® standard n), parallel, two l nory / server diagr MI 1.5 / monitor	USB (2.0), nostic progr	keyboar ams store	d, mouse, eth ed on IBM Enh essor temper	anced Di ature, fa	agnostics n speed	and
Graphics controller	ATI® RN50(ES1000) / 1	6MB SDRAM	std/max /	on planar / analog	ց 15-pin / սր	to 1024	x768x32bit@85	5Hz		
Security Software	Mechanical side panel power-on password / without keyboard/mou ServerGuide™ (CD-binstallation and config management), IBM Dinanagement software	boot sequenuse ased automation tool), irector (syste	ce contro ated netw ServeR em hardw	/ork OS AID ™ (RAID /are	IBM 80GB SA IBM 160GB SA IBM 250GB SA IBM 500GB SA 80GB Hot-Swa	TA (7.2K) sii ATA (7.2K) s ATA (7.2K) s ATA (7.2K) s ATA HE	C DDR2RoHS L3 ECC DDR2 RoH L3 ECC DDR2 RoH nple-swap HDD imple-swap HDD imple-swap HDD DD DD	HS HS		30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4514 39M4518 39M4522 39M4522
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink, re on SAS models / not r Some: 400W / not hot- some: 430W / hot-swa switch / Automatic Ser cooling fan in power s	edundant / no -swap / no re p / redundan ver Restart (ot hot-swa dundancy t / all: uni (ASR) /	versal / auto	IBM Remote S IBM 5Ux20D T IBM ServeRAI	upervisor Ad ower-to-Ra D-7t SATA I	dapter II (PCI adapt ck Kit ntegrated Controlle oc/us/accessories	er) `	ck)	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:
- Slot 6:
- 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-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: 2TB¹³ (4 disks x 500GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

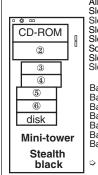
- 1 year parts and labor standard 8485 MTM 3 year parts and labor standard 8490 MTM
- International Warranty Service3
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time

- 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
 (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

For GAV systems, lowercase "y" should be replaced with a country-specific code.

Tor GAV systems, lowercase	"y" snould be replaced with a country	y-specific code.									
IBM® Machine Type GAV-model		L2 FSB cache MHz	Memory	Disk/Disk controller		imum PC acity x		Hard disk bays	Power Supply	Ethernet	Available date
8485/8490 B2y-B2x 8485/8490 G2y-G2x 8485/8490 H2y-H2x 8485/8490 J2y-J2x	Pentium D 920 2.8GHz	2MB 800 4MB 800 4MB 800 4MB 800	512MB 512MB 512MB 2x512MB	None/SATA None/SATA None/SATA None/SAS/S, None/SAS/S. None/SAS/S	ATA	1.0TB 1.0TB 1.0TB	6 x 7	4 simple-swap 4 hot-swap	1x400W 1x400W 1x400W 1x400W	Gigabit Gigabit Gigabit Gigabit	Feb 2006
Positioning Processor(s) L2 cache Implementation SMP support	Single socket, entry ser Intel® Pentium 4 up to Optimized for Extend- 1 or 2MB std on Pentiu Motherboard contains of 2 PCI) some: six slots(* No SMP support / no p	o 3.0GHz Si ed Memory m 4 / 4MB s one LGA-779 1 PCI Expre	ngle-Core 64 Techi std on Pent 5 socket, f ss x8, 1 P	800MHz FS nology (EM6 tium D our DIMM so	B / P 64T) ockets	entium s, some	D up	to 3.2GHz Du	oress x8,	1 PCI E	xpress x1,
Memory	512MB or 1GB std / 8GE DDR2-SDRAM / All Err	3 ¹³ max / four or Checking	r 184-pin go and Corre	old-plated DIMecting (ECC)	M soo	ckets / o Ms and	ne or tv ECC m	vo socket used / nemory controlle	PC2-4200 r / industry	533MH std / unl	z ECC ouffered
SAS disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	Integrated SAS controll Enhanced IDE / ATA-10 Four channel SATA co One 2-drop EIDE cable Some: 80GB SATA / 7, IBM ServeRAID™ 8e (R	00 / integrate introller (3.0 es (to CD-R 200 rpm / 9.	ed in I/O C)GB/sec) / OM) / one .0 ms seek	controller Hub supports 4 o 1-drop SAT / S.M.A.R.1	o / on drives A cal r.	s standa ole per	ard installe	d hard disk			
Rack support Bus slots (see below Chipset	5U ⁴ rack mount suppor) All: one PCI Express® b some: two 64-bit 66MHz Intel E7230 chipset / MAC, USB, Low Pin Co keyboard, mouse	us / one 64-l z 3.3v PCI-X Memory Con	bit PCIe™: (slots / no ntroller Hub	x8 / one 64-b hot-swap Ac (MCH) / I/O	tive™ Con	PCI slot troller F	ots Iub (ICI	H7R) for PCI 2	.2, ATA-1	00 EIDE	
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / Br Preboot eXecution Envi CD-ROM: 48X-20X ⁶ CI Front: two USB (2.0); Diagnostic LEDs / error L Mini-baseboard manag failure, and voltages /	ronment (P) D-ROM, IDE <i>Back:</i> two se LEDs for fans ement conti	XE) / Wake E / None s erial (9-pin s and memo roller / IPM	e on LAN® standard), parallel, tw ory / server di //l 1.5 / moni	o US agnos tors s	B (2.0), stic prog	keybo rams sto	ard, mouse, et ored on IBM En ocessor tempe	hanced Di rature, fa	agnostics n speed	CD and
Graphics controller	ATI® RN50(ES1000) / 16	MB SDRAM	std/max / o	n planar / ana	alog 1	5-pin / u	p to 102	24x768x32bit@8	35Hz		
Security Software	Mechanical side panel k power-on password / b without keyboard/mous ServerGuide™ (CD-ba installation and configu management), IBM Din management software)	poot sequen se ised automa ration tool), rector (syste	ce control ated netwo ServeRA em hardwa	/ operation ork OS I D ™ (RAID	2GE 4GE IBM IBM IBM IBM 80G	8(2x1GB) 8(2x2GB) 80GB SA 160GB S 1250GB S	PC2-4200 PC2-4200 TA (7.2K) ATA (7.2k ATA (7.2k ATA (7.2k ap SATA	ECC DDR2RoHS 0 CL3 ECC DDR2 Ro 0 CL3 ECC DDR2 Ro 0 simple-swap HDD () simple-swap HDD () simple-swap HDD () simple-swap HDD HDD HDD			30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4514 39M4518
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink, rea on SAS models / not re Some: 400W / not hot-s some: 430W / hot-swap switch / Automatic Serv cooling fan in power su	dundant / no swap / no re o / redundan ver Restart (ot hot-swap dundancy t / all: univ (ASR) /	o /	250 73G 146 300 36G 73G 48X IBM IBM IBM	GB Hot-Si BB 10K 3.5 GB 10K 3.5 GB 10K 3.5 BB 15K	wap SATA " SAS Hot 5" SAS Hot 5" SAS Hot " SAS Hot " SAS Hot (16X Max Gupervison ID-7t SAT	AHDD t-Swap HDD ot-Swap HDD ot-Swap HDD t-Swap HDD -Swap HDD 6 CD-RW/DVD-ROM r Adapter II (PCI ada	oter) Ier	ck)	39M4526 40K1039 40K1040 40K1041 40K1042 40K1043 32R2905 59P2984 39R9361 71P8648



- All: Slot 1: 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 2: Slot 3: Slot 4: Some: Slot 5: 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
- 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-HOMINICIOEd

 ♦ 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)

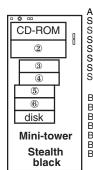
Maximum SATA capacity: 1TB13 (4 disks x 250GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

- 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
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 services/us/its/pdf/wamomxeu.pdf

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

For GAV systems, lowercase "y" should be replaced with a country-specific code.										
IBM® Machine Type GAV-model	Proccessor / Speed L2 Ficache M		Disk/Disk controller	Maximum PCI slots Capacity x bays	Hard disk bays	Power Ava Supply Ethernet	ailable date			
8485/8490 B6ý-B6x 8485/8490 F2y-F2x 8485/8490 F4y-F4x 8485/8490 H4y-H4x 8485/8490 H6y-H6x 8485/8490 H8y-H8x	Pentium 4 631 3.0GHz 2MB 8 Pentium 4 661 3.6GHz 2MB 8 Pentium 4 661 3.6GHz 2MB 8 Pentium D 930 3.0GHz 4MB 9	300 1x512MB 300 2x512MB 300 1x512MB 300 2x512MB 800 2x512MB 800 2x512MB 800 2x512MB 800 2x512MB	1x160GB/SATA 2x160GB/SATA None/SATA None/SAS/SATA 2x250GB/SATA None/SAS/SATA None/SAS/SATA None/SAS/SATA	2 OTB 4 v 7	1 cimplo-cwar	o 1x400W Gigabit May o 1x400W Gigabit May 1x400W Gigabit May 1x400W Gigabit May o 1x400W Gigabit May 2x430W Gigabit May 2x430W Gigabit May 2x430W Gigabit May	7 200E			
Positioning Processor(s)	Single socket, entry server for Intel® Pentium 4 up to 3.6GH Optimized for Extended Men	z Single-Core nory 64 Techn	800MHz FSB / F iology (EM64T)	es' and distributed Pentium D up to	enterprises 3.4GHz Dual	-Core 800MHz FSB	/ All			
L2 cache Implementation SMP support	2MB std on Pentium 4 / 4MB s Motherboard contains one LG/ 2 PCI) some: six slots(1 PCI E No SMP support / no processo	A-775 socket, fo xpress x8, 1 P0	our DIMM sockets	s, some: four slot PCI, 2 PCI-X), int	s(1 PCI Expresented SATA	ess x8, 1 PCI Expre A and Gigabit Ethern	ess x1, let.			
Memory	512MB or 1GB std / 8GB ¹³ max DDR2-SDRAM / All Error Chec									
SAS disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	Integrated SAS controller / sup Enhanced IDE / ATA-100 / inte Four channel SATA controller One 2-drop EIDE cables (to C Some: 160GB SATA; some: 25 IBM ServeRAID™ 8e (RAID 0,	grated in I/O Co (3.0GB/sec) / D-ROM) / one 50GB SATA / 7,	ontroller Hub / on supports 4 drives 1-drop SATA cat 200 rpm / 9.0 ms	s standard ble per installed l s seek / S.M.A.R.	nard disk					
Rack support Bus slots (see below Chipset	5U ⁴ rack mount support via to) All: one PCI Express® bus / one some: two 64-bit 66MHz 3.3v F Intel E7230 chipset / Memory MAC, USB, Low Pin Count Inte keyboard, mouse	64-bit PCle™ x CI-X slots / no Controller Hub	ఁ8 / one 64-bit PC hot-swap Active™ (MCH) / I/O Con	^и PCI slots htroller Hub (ICH7	R) for PCI 2.2	2, ATA-100 EIDE, eth	hernet			
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / Broadcon Preboot eXecution Environmen CD-ROM: 48X-20X° CD-ROM. Front: two USB (2.0); Back: tv Diagnostic LEDs / error LEDs for Mini-baseboard management failure, and voltages / secure	t (PXE) / Wake IDE / None st vo serial (9-pin) fans and memo controller / IPM	on LAN® tandard , parallel, two US ry / server diagnos Il 1.5 / monitors s	6B (2.0), keyboard stic programs store system and proce	I, mouse, ethe d on IBM Enha	anced Diagnostics CD ature, fan speed and)			
Graphics controller	ATI® RN50(ES1000) / 16MB SDF	RAM std/max / or	n planar / analog 1	5-pin / up to 1024x	768x32bit@85	Hz				
Security Software	Mechanical side panel key lock power-on password / boot sec without keyboard/mouse ServerGuide™ (CD-based au installation and configuration t management), IBM Director (see the power of	quence control tomated netwo ool), ServeRAI system hardwa	/ operation	2MB PC2-4200 CL3 EC B(2x1GB) PC2-4200 CL B(2x2GB) PC2-4200 CL M 80GB SATA (7.2K) sin M 160GB SATA (7.2K) si M 250GB SATA (7.2K) si M 500GB SATA (7.2K) si GB Hot-Swap SATA HD	3 ECC DDR2 RoH 3 ECC DDR2 RoH 1ple-swap HDD mple-swap HDD mple-swap HDD mple-swap HDD D	S 3(S 3(3(3) 3(3) 3(3)	0R5148 0R5149 0R5150 9M4500 9M4504 9M4508 9M4514 9M4518 9M4522			
Keyboard / mouse Cooling fans Power supply	management software) and model of the control of th	supply) plus ad t / not hot-swap no redundancy / ndant / all: unive tart (ASR) /	ditional fan 300 360 736 7730 48X Persal / auto IBM	JGB Hot-Sw [*] ap SATA HI JGB Hot-Swap SATA HI JGB 10K 3.5" SAS Hot-Sv JGB 10K 3.5" SAS Hot-Sv JGB 10K 3.5" SAS Hot-Sv JGB 10K 3.5" SAS Hot-Sv JGB 15K 3	rap HDD wap HDD wap HDD rap HDD rap HDD	33 40 40 44 44 44 40 50mbo (black) 33 er) 55	9M4526 9M4526 0K1039 0K1040 0K1041 0K1042 0K1043 2R2905 9P2984 9R9361 1P8648			



- 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: fullsize, 64-bit 66MHz, PCI-X (3.3v) fullsize, 64-bit 66MHz, PCI-X (3.3v) Slot 6: Bav ① Bay ②
- 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 3 Bay 4
- Bay ⑤ Bay 6 Bay ®
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 Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
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- → 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)

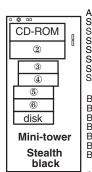
- 1 year parts and labor standard 8485 MTM 3 year parts and labor standard 8490 MTM
- International Warranty Service3

- 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
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 3 year IOR 9x5, 4 hr avg response
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 24x7¹⁴toll-free support for warranty issues during the warranty period³

IBM®Machine Type model		2 FSB the 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 1 Pentium 4 531 3.0GHz 1 Pentium D 820 2.8GHz 2 Pentium D 820 2.8GHz 2 Pentium D 945 3.4GHz 4	MB 800 MB 800 MB 800	1x512MB 1x512MB 1x512MB 2x512MB 2x512MB	None/SAS/SAT/ 1x160GB/SATA None/SAS/SAT/ 2x250GB/SATA None/SAS/SAT/	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	Gigabit Gigabit	Sep 2006
Positioning Processor(s) L2 cache Implementation SMP support	Single socket, entry s Intel® Pentium 4 up t Optimized for Exten 1MB std on Pentium 4 Motherboard contains 2 PCI) some: six slots No SMP support / no	o 3.0GH ded Mei / 2 or 4 one LG, (1 PCI E	Iz Single-Comory 64 Te MB std on PA-775 socke Express x8, 1	ore 800MHz FSE chnology (EM6 entium D t, four DIMM so	3 / Pentiu 4T) ckets, som	m D up t	to 3.4GHz Dua	ress x8,	1 PCI E	xpress x1,
Memory	512MB or 1GB std / 80 DDR2-SDRAM / All E									
SAS disk controlle IDE disk controlle SATA disk contro Cables Disk RAID Controller	r Enhanced IDE / ATA-	00 / inte ontroller les (to C some: 25	egrated in I/C (3.0GB/sec D-ROM) / c 50GB SATA	O Controller Hub O / supports 4 done 1-drop SATA O / 7,200 rpm / 9.0	rives stan cable pe ms seek	dard r installed / S.M.A.	d hard disk R.T.			
Rack support Bus slots (see be Chipset	5U ⁴ rack mount supportions) All: one PCI Express® some: two 64-bit 66Ml Intel E7230 chipset / MAC, USB, Low Pin Ckeyboard, mouse	ous / one Iz 3.3v F Memory	e 64-bit PCIe PCI-X slots / Controller F	™ x8 / one 64-bi no hot-swap Act lub (MCH) / I/O	ve™ PCI s Controller	slots Hub (ICH	H7R) for PCI 2	.2, ATA-	100 EIDE	, ethernet ial,
Ethernet Optical / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / I Preboot eXecution En Some: 48X-20X° CD- Front: two USB (2.0); Diagnostic LEDs / error Mini-baseboard mana failure, and voltages /	vironmer ROM, ID Back: to LEDs for gement	nt (PXE) / W. PE; <i>Some:</i> 4: wo serial (9- r fans and me controller / I	ake on LAN® 8X-32X-48X-16> pin), parallel, two emory / server dia PMI 1.5 / monit	© CD-RW USB (2.0 gnostic pro ors systen	/DVD-RO)), keyboa ograms sto n and pro	M, IDE / None ard, mouse, eth ored on IBM En ocessor tempe	nernet (F hanced D rature, fa	RJ45) and Diagnostica an speed	S CD I and
Graphics controlle	er ATI® RN50(ES1000) / 1	6MB SDF	RAM std/max	/ on planar / anal	og 15-pin /	up to 102	4x768x32bit@8	5Hz		
Security Software	Mechanical side panel power-on password / without keyboard/more ServerGuide™ (CD-binstallation and configmanagement), IBM Dinanagement software	boot sed ise ased au uration t irector (quence cont itomated ne cool), Servel system hard	rol / operation twork OS RAID (RAID	2GB(2x1GE 4GB(2x2GE IBM 80GB S IBM 160GB IBM 250GB IBM 500GB 80GB Hot-S 160GB Hot- 250GB Hot-	SATA (7.2K) SATA (7.2K) SATA (7.2K) SATA (7.2K) Swap SATA I Swap SATA Swap SATA	CL3 ECC DDR2 CL3 ECC DDR2 simple-swap HDD) simple-swap HDD) simple-swap HDD) simple-swap HDD HDD HDD HDD HDD			30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4514 39M4518 39M4522 39M4522
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink, re on SAS models / not re Some: 400W / not hot some: 430W / hot-swa switch / Automatic Se cooling fan in power s	edundan swap / r p / redu ver Res	it / not hot-sv no redundan ndant / all: u tart (ASR) /	vap cy / niversal / auto	73GB 10K 3 146GB 10K 30GB 10K 36GB 15K 3 73GB 15K 3 48X/32X/48 IBM Remote IBM 5Ux20I IBM ServeR	I.5" SAS Hot- 3.5" SAS Hot- 3.5" SAS Hot- I.5" SAS Hot- I.5" SAS Hot- IS Hot- IS SAS HOT-	Swap HDD t-Swap HDD t-Swap HDD Swap HDD Swap HDD CD-RW/DVD-ROM Adapter II (PCI adap	oter) er	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)
- 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 ®
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 Device Drivers and Diagnostics
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- 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
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 Other ServicePac options at
 http://www.ibm.com/

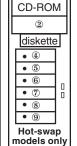
- http://www.ibm.com/
 services/us/its/pdf/wamomxeu.pdf

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

IBM® Type-model Processor	GHz ¹	L2 cache	FSB MHz	Memory	Disk		Disk controlle		-swap c bays	PCI slots x bays	Power suppl number and ty		Available date
8649-42X 1 x Xeon ^T 8649-4AX 1 x Xeon 8649-4BX 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 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 Uli None (oper None (oper 36.4GB Ult None (oper None (oper None (oper None (oper None (oper	n-bay) ra320 10k n-bay) n-bay) ra320 10k n-bay)	Ultra32 Ultra32 Ultra32	0 6 hot- 0 None 0 6 hot- 0 6 hot- 0 None 0 6 hot-	swap (4 fixed) swap swap (4 fixed) swap	6 x 9 6 x 9 6 x 7 6 x 9 6 x 9	One fixed One fixed Two redund. One fixed One fixed Two redund. One fixed Two redund.	Giğabit ant Gigabit Gigabit Gigabit ant Gigabit Gigabit Gigabit	Feb 2004 Feb 2004 Feb 2004 Feb 2004
Processor(s) SMP - L2 Cache Implementation	2-way Syster	SMP / umboard c	ip to tv ontain:	vo Xeon F s two Intel	Iz with 533 Processors (s 604-pin mic available AG	ame spee ro-PGA ZI	d/cache si F sockets.	ize) / 512K , four DIMN	(B std a VI slots, s	eading tea and max / seven slo	chnology at processor s ts (one PCI 2.2	peed , four PCI-X,	one Mini
Memory	DDR-S 2-way	SDRAM I memorv	DIMMs interle	s / four DII ave / dua	VIM gold-con I channel / E	nector slot	s on syste king and	mboard / Correctin	DIMMs r a (ECC)	nust bĕ ir via 16-b	tered 184-pin E nstalled in mato i t Checksum (ailable on 512N	hed pairs [a Chipkill ™ (co	orrects 1, 2,
IDE disk controller SCSI disk controller SCSI channels and cables	suppo 5, 00, one 4-	ogic® 530 rts RAID 10, 1E0, -drop 16-	C1030 -1 mir 50 (ins bit 68-	/ dual ch roring (Er stalled onl ^o pin LVD S	y in Slot 4) Ti CSI cable fro	120 SCSI (roring) / sh wo 16-bit (om system	controller nared with channels (nboard to i	(LVD 320I optional IE one interna nternal disl	MB/sec) BM Serve al and on ks bays;	/ on plan eRAID™-t e externa Hot-swar	planar ar / 64-bit 100N 5i Controller for I) / <i>Internal cha</i> 5 models: one m systemboard	<i>nnel:</i> Fixed c -drop 16-bit	18K models: 68-pin LVD
Cables Disk - features	conne One S	ctor SCSI cabl	e (liste	ed above),	one 2-drop / 10K rpm / 4	EIDE cable	e (to CD-F	ROM)	·		0,0.0		а. 00 р
Rack support Bus slots (see below Chipset	Four 6 Intel E for slo	34-bit 100 27505 ch ts 2 and 3	MHż F ipset / 3 and	PCI-X 1.0 / E7505 M ethernet c	CH (Memory ontroller; Bus	? / öne Min / Controlle s B for slots	r Hub) for s 4 and 5	AGP 8X s and SCSI	lot, P64F controlle	12, ICH4 ; r) / I/O Cd	hot-swap Activ / P64H2 for two ontroller Hub (IC 66 Super I/O off	PCI-X buse H4) for PCI	es (Bus A 2.2 bus
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl	Chip of CD-Reference Front: monito Diagno Winbo	n planar / OM: 48X two USI or (analogostic LED and® W79	/ PCI-) -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	UMHz / full d IDE / <i>Diskei</i> ck: two USB ohone-in (mo or fans and i anar / monito	uplex / Wa tte: 3.5" 1.4 (Ver 2.0), 1 no), line-in memory / s rs system	ake on LAI 44MB disk two serial (stereo), server diag and proce	No / Alert S kette drive (9-pin), pai line-out (st gnostic pro essor temp	rallel, key rereo) ograms s erature,	Format 1 /board, material tored on fan speed	and PHY lave .0 / one rear R. nouse, ethernet IBM Enhanced I and failure, an ng and control)	(RJ-45), Diagnostics	CD
Graphics controller	SVGA	./ ATI® R	ageXL	. / on Mini	PCI adapter	/ 8MB SDI	RAM std a	ınd max / F	PCI 2.2 3	2-bit 33N	IHz / analog 15	pin D-Sub c	onn
Security	hot-sw power	/ap mode -on pass	els) / o _l word /	ptional U-I boot sequ	(locks hot-s Bolt support vuence contro rity slot (for a	via knocko I / operatic	ut / on ock)	Xeon 2.80 Xeon 3.06 2x256MB) GHz/53 3 GHz/53 PC2100	3/512KB 3/512KB CL2.5 E	L2 Cache Prod L2 Cache Prod L2 Cache Prod CC non-Chipkill CDDR-SDRAM	: Upg : Upg : DIMM Kit	24P7861 24P8054 24P8122 73P2868 33L5038
Software	and co		où tool), IBM Dir	omated netw rector (systen		stallation e mgmt	1GB PC2 2GB PC2 IBM 73.40	100 CL2 100 CL2 3B 10K l	.5 ECC E .5 ECC E Jltra320 S	DR-SDRAM D DR-SDRAM D SCSI 68-pin <u>(no</u>	IMM IMM <u>t hot-swp)</u>	33L5039 33L5040 32P0724
Keyboard / mouse Cooling fans	up to a power All: n	six / three supply contredunce one 425	e for p age fa dant / r 5 watt	rocessor(s ns (three not hot-sw std and m	ouse (both be), memory, a dual powe ap / all variable ax / not hot-s	and disk ba r supply m ble speed swap	PS/2) ays / two lodel)	IBM 36.40 IBM 73GE IBM 146G 40X/12X/4	GB 15K U B 10K Ult GB 10K U HOX Max	Jltra320 S ra320 SC Iltra320 S § CD-RW	CSI 68-pin (<u>not</u> CSI Hot-Swap SI Hot-Swap S CSI Hot-Swap internal (black) apter II (PCI ac	SL HDD L HDD SL HDD	32P0725 06P5776 32P0727 32P0728 22P6976 59P2984
Slot 1: half-length, 3:		universa rt (ASR) /	al / vol / coolir	tage-sens ng fan in p	ax / hot-swaring / Automa	tic Server	e spd)	IBM 4U E IBM Serve IBM Serve	xtended RAID-5i RAID-6i	Depth To Controlle Controlle	ower-to-Rack Ki er (adapter for S er (adapter for S pc/us/accessor	t ilot 4) ilot 4)	59P4817 25P3492 71P8595
Slot 2: fullsize, 64-bi	t 100MI	Hz, PCI-)	X 1.0 (3.Śv)		Removal	ole left sid				LIMITED	WARRANT	'V 3
Slot 3: fullsize, 64-bi Slot 4: fullsize, 64-bi						pressing		up Utility in tup	ıvokea b	,	year parts an		



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



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 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-GAV-model Proce	L2 essor GHz¹ cache	FSB MHz Memory	Disk	Disk controller	Hot-swap disk bays	PCI slots x bays	Power supply number and type	Ethernet	Available date
8648-B2U-B2x 1 x 8648-B4U-B4x 1 x 8648-B6U-B6x 1 x		3 800 512MB 3 800 512MB 3 800 512MB	80GB SATA 7200 None (open-bay) None (open-bay)	SATA Ultra320 Ultra320	4 simple-swa 6 hot-swap 6 hot-swap	6 x 9	One fixed One fixed Two redundant	Giğabit	Apr 2006 Apr 2006 Apr 2006
Processor(s) SMP - L2 Cache Implementation Memory	2-way SMP / up Systemboard cor 512MB std / 16G than 4GB DIMMs	to two Xeon Prontains two Intel 6 BB ¹³ max (16GB is) / two slots use	rith 800MHz frontside cessors (same speed 04-pin micro-PGA ZIF maximum can be ach d / four slots available DIMMs must be insta (ECC) via 16-bit Che tained in two chips) a	/cache`size) sockets, six ieved when / PC2-3200	7 / 2MB std and x DIMM slots, si 4GB DIMMs are 400MHz FCC I	max / at x slots (3 escape supported)	processor speed PCI-X, 2 PCI, 1 F ed, 12GB is the m RAM DIMMs / Six	PCI Expre	vith less
SATA disk controller SCSI disk controller Cables RAID Controller	Dual Channel SA Adaptec® 7902 / supports RAID-0 drop 16-bit 68-pir to rear external 6 One SCSI cable	ATA-150 controlled dual channel U & 1 mirroring / LVD SCSI cable 68-pin connector (listed above), tw	er (150MB/sec / two c ltra320 SCSI control Two 16-bit channels e to 6-bay backplane; o one-drop SATA, on / on planar / supports	connectors of lier (LVD 32) (one interna External ch	n planar /suppoi 0MB/sec) / on p il and one extern nannel: cable ava DE cable (to CD	ts ServeF lanar / 64 nal) / <i>Inter</i> ailable as	RAID™ 7e -bit 100MHz PCI- <i>nal channel:</i> Hot-s option pn 24P792	X / Servel wap mod 9 from sy	RAID 7e lels: one 1-
Mechanical Bus slots (see below) Chipset	One PCI-Express Intel E7520 chip supports Adapted	s / three 64-bit (o set / E7525 MCl c 7902, 2 64bit/10	ria tower-to-rack kit op ne 133MHz, 2 100MH H (Memory Controller 00MHz PCI-X slots (5 video, SATA, 4xUSB(Hz) PCI-X 1. Hub) for PC & 6), BUS E	CI-Express x16(v B supports one 6	rid), Broad 34bit/133N	lcom, PXH, ICH5F 1Hz PCI-X slot (4)	R / PXH E / ICH5R	BUS A for two 32-
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl Graphics controller	chip on planar / F CD-ROM: 48X-2: Front: two USB monitor (analog I Diagnostic LEDs Winbond® W791	PCI-X 64-bit 100N 0X ⁶ CD-ROM, ID (Ver 2.0) <i>; Back:</i> DB-15) / error LEDs for D / chip on plana	controller / Broadcom MHz / full duplex / Wak IE / Diskette: 3.5" 1.44 two USB (Ver 2.0), two fans and memory / sar / monitors system a upervisor Adapter II Planar / 16MB SDRA	ke on LAN® / 4MB diskette vo serial (9-p erver diagno and processo	Alert Standard e drive bin), parallel, key estic programs s or temperature, f	Format 2. board, motored on I an speed	0 / one rear RJ-45 ouse, ethernet (R BM Enhanced Dia and failure, and v	J-45), agnostics	CD
Security	hot-swap models power-on passwe without keyboard ServerGuide™ () / optional U-Bol ord / boot sequer /mouse / security CD-based autom	ocks hot-swap disks of the support via knockounce control / operation of slot (for opt cable logated network OS instor (system hardware)	tallation 1G	on 3.0 GHz/800 on 3.2 GHz/800 on 3.4 GHz/800 2MB (2x256) PC B (2x512) PC2-	/2MB L2 (/2MB L2 (/2MB L2 ()2-3200 E 3200 EC(C DDR2	c Upg c Upg c Upg	40K2500 40K2515 40K2516 40K2517 73P3523 39M5818
Keyboard / mouse Cooling fans Power supply(s)	IBM 101 key key Up to six / three power supply cat All: not redunda Some: one 530 v Some: two 514 v All: universal	board / IBM mou for processor(s), ge fans (three in nt / not hot-swap watt std and max vatt std and max / voltage-sensing	se (both black, 6-pin I memory, and disk ba dual power supply mo / all variable speed	PS/2) lys / two libh libh libh libh libh libh libh libh	B (2x1GB) PC2 1/ 80GB SATA-1 1/ 160GB SATA-1 1/ 250GB SATA-1 1/ 364GB 15K L 1/ 73GB 10K UB 1/ 146GB 10K U X/32X/48X Max ⁶	-3200 EC 50 (7.2K) -150 (7.2K) -150 (7.2K) Iltra320 SC Itra320 SC CD-RW rvisor Ada	apter II (PCI adapt	it D DD DD HDD HDD HDD HDD	39M5821 39M5809 40K6864 40K6868 40K6872 30R5096 40K1023 40K1024 22P7042 59P2984 26K6095
Slot 2: fullsize, 3: Slot 3: fullsize, 3: Slot 4: fullsize, 6- Slot 5: fullsize, 6- * support only for ** slot for opt IBM CD-ROM Bay Bay Bay Hot-swap models only Max SAT (4 di		(5v) (5v) (5v) (5v) (5v) (5v) (5v) (5v)	pressing F M	Ott ack color le left side pation/Setup U-F1 at startup up Utility via Configuration pressing Compliant g Power Interiver and IBN as CD-ROM lizing feet ip on top w 6.5" x D 2 x W 165mm bounds (20 to models: mei 7 rotate out se for cabling Failure Anabirector can	A ServeRAID 7t ner options at in anel tility invoked by F1 at startup Utility near TRL+I erface (ACPI) 1.1 A Enhanced included P5.9" TX D 658mm to 25.8kg) tal cage for disk of chassis for	SATA co bm.com/s 1	LIMITED WA year parts and la ternational Warra n site, 8 am-5 pm on-Fri excluding ext business day n site service upg otions (in eligible 3 year IOR 9x5, 1 (ServicePac® par 3 year IOR 24x7, (ServicePac part 3 year IOR 24x7, (ServicePac part 13 year IOR 24x7, (ServicePac part 24x7, (ServicePac part 3 year IOR 24x7, (ServicePac part 3 year IOR 24x7, (ServicePac part 4 year IOR 24x7, (ServicePac part 5 year IOR 24x7, (ServicePac part 6 year IOR 24x7, CServiceSuc year 6 year IOR 24x7, 6 year IOR 24	RRANT abor inty Servi holidays, response grade locations NBD resp t num 96P 4 hr avg num 96P 2 hr avg num 96P 2 hr avg num 96P options m/ f/wamom oport for	cice ³ e time s): ⁷ onse P2248) esponse P2249) response P2250) response P2251) at xeu.pdf warranty

IBM® Type-GAV-model Proce	L2 essor GHz¹ cache	FSB MHz Memor	y Disk	Disk controller	Hot-swap disk bays		Power supply number and type	Ethernet	Available date
8448-B2U-B2x 1 x 8448-B4U-B4x 1 x 8448-B6U-B6x 1 x	Xeon 3.0 2MB	8 800 512M 8 800 512M 8 800 512M	B None (open-bay)	SATA Ultra320 Ultra320	4 simple-swa 6 hot-swap 6 hot-swap	6 x 9	One fixed One fixed Two redundant	Giğabit	Apr 2006 Apr 2006 Apr 2006
Processor(s) SMP - L2 Cache Implementation	1 x Intel® Xeon u 2-way SMP / up Systemboard con	up to 3.4 GHz to two Xeon F tains two Inte	with 800MHz frontsid Processors (same speed 604-pin micro-PGA ZII	le bus (FSI d/cache size sockets, s	B) / EM64T / 2N e) / 2MB std an six DIMM slots, s	IB L2 ECO d max / at six slots (3	Cache / Hyper-T processor speed PCI-X, 2 PCI, 1 F	hreading	technology ess x16)
Memory	512MB std / 16G than 4GB DIMMs connector slots or Error Checking detects 2- through	B ¹³ max (16G c) / two slots u n systemboard and Correction h 8-bit errors o	B maximum can be ach sed / four slots available d / DIMMs must be insta ng (ECC) via 16-bit Ch contained in two chips) a	nieved wher e / PC2-320 alled in mate ecksum Cl available on	n 4GB DIMMs a 0 400MHz ECC ched pairs [a ba hipkill™ (correct 1GB (2x512) D	re supporte DDR2-SD nk] / 2-way s 1, 2, 3, c IMM Kit ar	ed, 12GB is the marked, 12GB is the marked plants of the marked plants of the marked plants on the marked preater.	aximum v 240 pin e / dual d ame chip	vith less gold- channel / and
SATA disk controller SCSI disk controller Cables RAID Controller	Adaptec® 7902 / supports RAID-0 drop 16-bit 68-pin to rear external 6	dual channel & 1 mirroring LVD SCSI ca 8-pin connect	oller (150MB/sec / two of Ultra320 SCSI contro J Two 16-bit channels able to 6-bay backplane or two one-drop SATA, or 1) / on planar / supports	ller (LVD 3 (one intern External o	20MB/sec) / on nal and one exte channel: cable a	planar / 64 rnal) / <i>Intel</i> vailable as	-bit 100MHz PCI-) rnal channel: Hot-s option pn 24P792	wap mod 9 from sy	dels: one 1-
Mechanical	4LI ⁴ Tower (rack	mount sunnor	t via tower-to-rack kit o (one 133MHz, 2 100M ICH (Memory Controller /100MHz PCI-X slots (5 8), video, SATA, 4xUSB	ntion)					ots BUS A for two 32- nterface
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl Graphics controller	monitor (analog Diagnostic LEDs Winbond® W791E	(Ver 2.0) <i>; Bad</i> DB-15) / error LEDs f D / chip on pla	et controller / Broadcom OMHz / full duplex / Wa IDE / Diskette: 3.5" 1.4 sk: two USB (Ver 2.0), to or fans and memory / a anar / monitors system a Supervisor Adapter II on Planar / 16MB SDR	wo senai (9 server diagn and process	-pin), parallel, ke nostic programs sor temperature.	eyboard, m stored on l fan speed	ouse, ethernet (Ru BM Enhanced Dia and failure, and v	1-45),	CD
Security	hot-swap models) power-on passwo) / optional U-l ord / boot sequ	(locks hot-swap disks Bolt support via knockou Jence control / operation rity slot (for opt cable k	ut / X n X ock) X	(eon 3.0 GHz/8((eon 3.2 GHz/8((eon 3.4 GHz/8(10/2MB L2 10/2MB L2 10/2MB L2	Cache EM64TPro Cache EM64TPro Cache EM64TPro Cache EM64TPro	c Upg c Upg	40K2500 40K2515 40K2516 40K2517
Software		tool), IBM Dir	omated network OS insector (system hardware	mgmt 1	12MB (2x256) F GB (2x512) PC GB (2x512) PC GB (2x1GB) PC	2-3200 EC 2-3200 EC	ECC DDR2 C DDR2 C DDR2 ChipK DI CC DDR2 DIMM K	MM Kit	73P3523 39M5818 39M5821 39M5809
Keyboard / mouse Cooling fans Power supply(s)	Up to six / three to power supply cag Not redundant / n	for processor(s ge fans (three not hot-swap / and max / no Automatic Se	ouse (both black, 6-pin s), memory, and disk ba in dual power supply mall variable speed / t hot-swap / universal / rver Restart (ASR) / coud)	PS/2) ays / two odel) IE IE oling fan	BM 80GB SATA BM 160GB SAT BM 250GB SAT BM 36.4GB 15K BM 73GB 10K L BM 146GB 10K 8X/32X/48X Ma BM Remote Sup	150 (7.2K A-150 (7.2 A-150 (7.2 Ultra320 S Ultra320 SC Ultra320 S x ⁶ CD-RW pervisor Ad) simple-swap HD K) simple-swap H K) simple-swap H 6CSI Hot-Swap SL SSI Hot-Swap SL H CSI Hot-Swap SL intemal (black) apter II (PCI adap	D DD DD HDD HDD HDD	40K6864 40K6868 40K6872 30R5096 40K1023 40K1024 22P7042 59P2984
Slot 2: fullsize	, PCI-Express x16 , 32-bit/33MHz, PC , 32-bit/33MHz, PC	CI`(5v) [′]		IE IE	BM ServeRAID- BM ServeRAID	6i+ controll 7t SATA co	ower-to-Rack Kit er (adapter for Slo ontroller /pc/us/accessories	t 5)	26K6095 13N2190 71P8648

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+

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

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

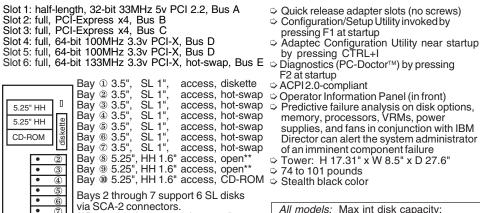
 → DMI 2.2-compliant

- ♦ 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

- 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

IBM® Type-model Qty x F	L2 L3 Processor cache cache Memory Dis	SCSI sk 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 Not 2.67GHz 512KB 0MB 512MB Not 2.8BGHz 512KB 0MB 512MB Not 2.8BGHz 512KB 0MB 512MB Not 3.06GHz 512KB 0MB 512MB Not 3.06GHz 512KB 0MB 512MB Not ship standard with Non-Chipkill DI 	ne 2 x Ultra320 Tower	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 proc 1MB / available on some models / o 2-way SMP / up to two Xeon Proc Systemboard contains two Intel 60 six PCI slots (two hot-swap Active™	3.06 GHz with 533MHz fessor / at processor spee on die of processor / at pressors (same speed/cach 3-pin micro-PGA ZIF socl PCI slots), and integrat	rontside bus / Hyper-Thread d rocessor speed e size) kets, six memory gold-conne ted SCSI, ethernet, graphics	ector DIMM slots,
Memory	512MB std / 12GB max / two slots PC2100 266MHz registered 184-pii DIMMs must be installed in matche 2x100MHz / Error Checking and (through 8-bit errors contained in two	n ECC DDR-SDRAM DIM 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 Chann interface for Bay 8 and 9 (may req devices via external SCSI knockout eEnhanced IDE ATA-100 controller None standard / supports 7200-1500 Six hot-swap / 80-pin SCA-2 connections.	to one hot-spare disk / IEO, 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 support 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-20X6 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 o mouse, parallel, two serial	liskette drive / dust cover (9-pin),graphics (DB-15), ethe	met (RJ-45), two RJ-45 (sys mgmt)
Security	Power-on password / administrator button / unattended boot / selectable			
Systems mgmt Diagnostics Software	IBM Integrated system management H8S2148 / on planar / provides system monitoring such as temp, optional disupports optional Remote Superviscionnector on planar for continuous plant Path Diagnostics™ panel proviailing part (under side cover) / Inform ServerGuide™ (CD-ROM installatio utilities), IBM Director, others	em and environmental lisks, 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 IBM Remote Supervisor Au IBM T541 15" Flat Panel Colo	Cache Proc Upg 71P8967 Cache Proc Upg 02R1988 pkill DDR-SDRAM Kit 73P2868 C DDR-SDRAM DIMM 33L5039 DDR-SDRAM RDIMM 33L5049 oer (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 pow	Alt: voltage-sensing / auto-restart / fan in each ble speed / hot-swap /	36.4GB 15K-2 80 Ultra320 3-Pack Ultra320 Hot-Swap IBM 560W Hot-Swap Power IBM 660W Hot-Swap Power Other options at ibm.com *Not backward compatible with	SCSI Hot-Śwap SL HDD 06P5776 Expansion Kit 33P2751 er Upgrade Kit* 02R1874 Upgrade Kit (3.06 Only) 02R2015 h/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 10MHz 3.3v PCI-X, not hot, Bus B 10MHz 3.3v PCI-X, not hot, Bus B 10MHz 3.3v PCI-X, not hot, Bus B* 13MHz 3.3v PCI-X, hot-swap, Bus C	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 componication 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) If hr x 7 day coverage, hour average response servicePac part number 21P2084) If hr x 7 day coverage, hour average response servicePac part number 21P2085) The toll-free support for warranty es during the warranty period³

IBM® Type-model Qt	y x Processor	L2 cache Memo	ry Disk	SCSI controller	Mechanic		ts x bays swap 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 Xeon 3.2GHz	2MB 1GE 2MB 1GE 2MB 1GE 2MB 1GE 2MB 1GE 2MB 1GE 2MB 1GE	None None None None None	2 x Ultra320	Tower Tower Tower Tower	6x10 (6 hc	ot-swap std; 9 max ot-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 Into ogy (EM64T) 2MB / all mod 2-way SMP / Systemboard	el [®] Xeon™ F) / Simultan dels / on die / up to two > l contains tw	rocesso eous Ma of proce eon Pro o Intel 60	or 2.8, 3.0, 3.2 ulti-threading ssor / at proce cessors (sam 04-pin micro-F	2, 3.4, 3.6, (SMT) / I essor spee e speed/ca PGA ZIF se	3.8 GHz wit Hyper-Threa d ache size) ockets, eight	h 800MHz frontsid ding technology /	mance at an affordable bus / Extended Men	e price mory 64 Te	echnol-
Memory	DIMMs must	be installed ing and Co	n match recting	ed pairs [a ba	nk] / 2-way	memory in or 4-bit erro	terleave / dual cha rs on same chip a	d 240-pin ECC DDR2 - nnel / memory bus run nd detects 2- through	s at 2x200	MHz /
SCSI disk controller SCSI channels IDE controller / cable Disk - capacity Disk - bays	HostRAID su low-cost RAID Two 16-bit ch Bay 8 and 9 knockout in n Enhanced ID None std / su	upports RAIL D 0, 1, 1E, 1 nannels / <i>SC</i> (may require ear (cable re E ATA-100 o	9-0, 1 mi E0, 5, 00 SI Chani a cable) q 24P79 controller -15000 r	rroring with u 1, 10, 50 (instanel B: 16-bit 66 1 or with option 173) or via opt 1 in ICH5R Soppm 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 Dougle adapter work) one connert disk to the connert of the con	sk / optional IBM Stor) controller to backplacluded); supports with external connector on planar / opens Ultra320-enab	e 1-drop IDE cable (C	ller for 68-pin inte via externa D-ROM)	
Mechanical Slots Chipset (see below)	Two PCI-Exp Intel E7520 (slots 2 & 3)	oress (one ho c hipset / Inte / PXH: Bus <i>F</i>	t-plug), t d E7520 , two 64	three PCI-X 6 Memory Con -bit/100MHz F	4-bit (one troller Hub CI-X slots	133MHz and (MCH): PXI (slots 4 & 5	H, ICH5R, Dual Br), Adaptec SCSI B	acks (13N0956) le 32-bit/33MHz slot oadcom ethernet, two us B, one 64-bit/133MI uper I/O / NS PC87417	Hz Hot-Pluç	g slot (slot
Ethernet controller CD-ROM / diskette Rear ports Front port / graphics	Format (2.0) 48X-20X ⁶ CD <i>Rear:</i> two US	/ IPMI (1.5) -ROM / IDE SB (Vers 2.0	/ 1.6" HI , keyboa	H; <i>Diskette:</i> 3 ard, mouse, p	5.5" 1.44ME arallel, two	3 diskette dr serial (9-pi	ive / dust cover n),graphics (DB-15	duplex / Wake on LAN 5), two ethernet (RJ-45 DDR std/max / 32-bit	i), RJ-45 (s	sys mgmt)
Security		cover disk ba	ys, pow	r password / er button, and			Xeon 2.8GHz/2MB I Xeon 3.0GHz/2MB I Xeon 3.2GHz/2MB I	2 Cache Proc Upg		40K2503 40K2504 40K2505
Systems mgmt	H8S2148 / or such as temp Supervisor Ar continuous po	n planar / pro o, optional di dapter II Slim ower (std or	vides sy sks, fans lline with 32y) (n	ment proces stem and env , power supp 20-pin conne o ext pwr req	rironmental / supports ctor on pla d)	monitoring opt. Remote nar for	Xeon 3.4GHZ/2MB I Xeon 3.6GHz/2MB I Xeon 3.8GHz/2MB I 512MB (2x256) PC2	_2 Cache Proc Upg _2 Cache Proc Upg		40K2506 40K2507 40K2508 73P3523 39M5818
Diagnostics Software	(under side c	over) / Inforn ™ (CD-RON	nation LÉ I installa	providing LED ED Panel in fro tion and confi	ont ·	iling part	2GB (2x1GB) PC2-3 73.4GB 10K Ultra32	200 CL3 ECC DDR2 RDIMM 3200 CL3 ECC DDR2 RDIMM 0 SCSI Hot-Swap SSL HDD 20 SCSI Hot-Swap SSL HDD		39M5821 39M5809 40K1023 40K1024
Keyboard / mouse Power supply Fans	std/max: one/ Fan in each s (Opt) two fan	/two 670 wa std/max: four s (rear) / var	t / voltag /six/ two able spe	se (both black ge-sensing / a fans (front), to eed / hot-swap each power	uto-restart vo fans on o / redunda	planar,	IBM ServeRAID-7k (IBM Remote Superv 3-Pack Ultra320 Hot IBM 670W Hot-Swa	0 SCSI Hot-Swap SSL HDD Controller isor Adapter II Slimline -Swap Expansion Kit p Power Upgrade Kit (NA) Libm.com/pc/us/accessories		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 core predictive failure analysis on disk options, access, hot-swap memory, processors, VRMs, power 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

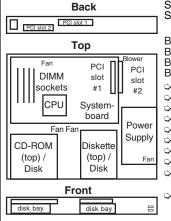
LIMITED WARRANTY³

- 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

BAM							1000 Build	and the same
Locache Processor upgrade Frocessor	Type-model Qty x Product 8865-11Y 1 x Xeon™ 8865-12Y 1 x Xeon™ 8865-1RY 1 x Xeon™ 8865-1SY 1 x Xeon™ 8865-21Y 1 x Xeon™ 8865-2RY 1 x Xeon™ 8865-E1Y 2 x Xeon™	occssor cache MMP 3.16GHz 1MB MMP 3.16GHz 1MB MMP 3.16GHz 1MB MMP 3.16GHz 1MB MMP 3.66GHz 1MB MMP 3.66GHz 1MB MMP 3.66GHz 1MB	Memory slots C 2GB(2x1GB) 4 C 1GB(2x512MB) 4 C 2GB(2x1GB) 4 C 1GB(2x512MB) 4 C 2GB(2x1GB) 4 C 2GB(2x1GB) 4 C 4GB(4x1GB) 8 T	Cards Disks One None	controller ical SAS Tower SAS Tower SAS 7U Rack SAS Tower SAS Tower SAS 7U Rack SAS Tower SAS 7U Rack SAS Tower	bays p 6x12 6x12 6x12 6x12 6x12 6x12 6x12 6x12	wr supplies (yr 2 x775W 3 2 x775W 3	s.) date Sep 2005
gold-connector slots / DIMMs must be installed in matched pairs / PCX-2200 400MHz registered 240-pin DDR-25DAM PIDIMMs (Ferror Checking and Correcting (PCC) van 1-bit (Pcckswam Chipkilli "V Memory Protoxion" (recludent bit steering) and Memory Mirroring" and Hot-swep inon-CS specific) / Hot-add (supported only with Microsoft "Windows" server 2003 ⁽ⁱⁱ⁾ and the pair of the pai	L2 cache Processor upgrade Implementation M 4- Sy	lemory 64 Technology MB / on die of processor -way SMP / up to four X ystem board contains fou	M (EM64T) / Hyper-Thread My / At processor speed / X My / At processors MP (sandar Intel 604-pin micro-PG)	ading technologiceL4v™ Dynar ne speed/cache A4 ZIF sockets	gy nic Server Cache e size)			
SAS cabring DE controller (cabling interaction) but of cabling interactions of controller frough SAS expander, 1 cable for each of the 2 SAS backplanes Hot-seep bays connect to integrated SAS controller frough SAS expander, 1 cable for each of the 2 SAS backplanes Hot-seep bays connect to integrated SAS controller frough DE controller (cabling interaction) but of the cable of the	gó / E	old-connector slots / DIM Error Checking and Co	Ms must be installed in no precting (ECC) via 16-b	natched pairs / it Checksum (PČ2-3200 400MHz Chipkill™ / Memory	egistered 2 ProteXion™	40-pin DDR2-SD	RAM RDIMMs steering) and
models) / 2 BM PCLX 2.0 Host Bridges / 1 supports adapter PCl 33MHz and 66MHz, slot for optional ServerAnD 8i (inc. graphics). ServerVorker* CSBS south Bridge (IDE, USB, bus for Super ID NS 87471 (cliskete, keyboard, nucues), Dual Port Broadcom 5704, and 2 PCLX 2.0 slots Six total Active MP PCLX 2.0 slots Six total Active MP PCLX 2.0 slots Six total Active MP PCLX 2.0 slots Six optional active MP PCLX 2.0 slots Six optional active MP PCLX 2.0 slots Six optional controller by the property of the property	SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays U	ual channel Controller wi lot-swap bays connect to nhanced IDE ATA-33 cor lax: 3.6TB-10k / supports p to Twelve 3.5" hot-sw	red to dual SAS backplan integrated SAS controlle atroller in CSB6 South Bric up to 15,000 rpm disks ap bays / Six standard co	nes or through SAS dge onverged tray /	expander, 1 cable fo 80-pin SCA-2 conne	r each of th	e 2 SAS backpla FH (or 2 HH) Ta	nes
Ethernet Graphics controller Ports Forts Forts Forts Forts Fort USB (Ver 2.0) Forts	mogr Br I/O Slots Si	nodels) / 2 IBM PCI-X 2.0 raphics), ServerWorks® C roadcom 5704, and 2 P ix total Active™ PCI-X 2.	Host Bridges / 1 suppor CSB6 South Bridge (IDE, CI-X 2.0 slots / Host Bridg 0 64-bit slots available wii	ts adapter PCI USB, bus for S ge supports 4 F th power and a	33MHz and 66MHz, Super I/O NS 87417 CI-X 2.0 slots ttention indicator light	slot for option diskette, ke solved sette.	onal ServeRAID 8 yboard, mouse]), ensors control pov	Bi (inc. Dual Port
System's 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 on/off system / monitors power status, op system, temperature, disks, fans, power supplies Drop-down Light Path Diagnostics (operated through IBM Director) available even while server running ServerGuide** Keyboard / mouse Reyboard / mouse Power supplies None standard (because rack-based) Std: two 775 wath bot-swap / redundant with three power supplies (N+1) / worldwide / voltage-sensing / auto-restart / rear accessible fans in each power supply / PFA Cooling fans Options 16B PC2-3200 CL3 ECC RDIMM (2x512MB) 73P2865 Elght hot-swap, redundant, multi-speed fans / One cooling fan in each power supply is not installed / PFA / failure signals Diagnostic LED and mgmt processor Options 16B PC2-3200 CL3 ECC RDIMM (2x512MB) 73P2865 Elgh RC2-3200 CL3 ECC RDIMM (2x512MB) 73P2867 Active Memory 4-slot Expansion Card 13M7409 SM0694 Xeon MP 3.666Hz/1MB L2 cache Proc Upg 13M0694 Xeon MP 3.66Hz/1MB L2 cache Proc Upg 13M0694 Xeon MP 3.66GHz/1MB Xeon MP X	Ethernet Br Graphics controller SN Ports Re	roadcom [®] 5704 10/100/1 VGA / ATI® Radeon Mob <i>Bear:</i> RSA ethernet, RSA	000 dual ethernet / on sy ility 7000 / on planar / 16	stemboard / 64 MB SDRAM sto	1-bit 266Mhz PCI-X 2 1/max / 32-bit 33MHz	.0 / Wake o PCI 2.2 bus	3	
None standard (because rack-based)	Systems management BI confair fair Diagnostics Diagnostics IB	MC standard / Remote Sonnectors / provides remains, power supplies prop-down Light Path DBM Real Time Diagnostics	Supervisor Adapter II sling ote console and mgmt / plagnostics / primary indices (operated through IBM I	mline (optional) power on/off sy cator on inform Director) availab	/ PCI adapter / inclu- estem / monitors pow ation panel with LED ble even while server	er status, op s associated running	p system, temper	ature, disks,
Options 1GB PC2-3200 CL3 ECC RDIMM (2x512MB) 73P2865 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 3.6GGHz/1MB L2 Cache Proc Upg 13N0694 Xeon MP 3.6GGHz/1MB L2 Cache Proc Upg 13N0695 IBM ServeRAID**6 S.5* SAS Hot-Swap HDD 26K5710 BM ServeRAID**6 No.5* SAS Hot-Swap HDD 26K5710 BM 300GB 10K 3.5* SAS Hot-Swap HDD 26K5711 BM 73.4GB 15K 3.5* SAS Hot-Swap HDD 26K5710 BM 73.4	Keyboard / mouse Not Power supplies St ac Cooling fans Ei	one standard (because itd: two 775 watt hot-swa ccessible fans in each poight hot-swap, redundant	rack-based) p / redundant with three power supply / PFA , multi-speed fans / One o	power supplies	(N+1) / worldwide / v	oltage-sensi	Ü	
⇒ 3 year parts and labor	Options 11 20 44 A X X 7	GB PC2-3200 CL3 EC GB PC2-3200 CL3 EC GB PC2-3200 CL3 EC citive Memory 4-slot E Geon MP 3.16GHz/1MB 75 watt Hot-Swap Pow	C RDIMM (2x512MB) C RDIMM (2x1GB) C RDIMM (2x2GB) xpansion Card L2 Cache Proc Upg L2 Cache Proc Upg er Supply (WW)	73P2865 73P2866 73P2867 13M7409 13N0694 13N0695 13M7415	IBM 73.4GB 10K 3 IBM 146GB 10K 3 IBM 300GB 10K 3 Remote Superviso SAS 3.5" 6-drive I IBM 73.4GB 15K 3	3.5" SAS H .5" SAS Ho .5" SAS Ho r Adapter I Backplane 3.5" SAS H	lot-swap HDD ot-Swap HDD ot-Swap HDD II Slimline lot-swap HDD	26K5709 26K5710 26K5711 59P2984 13M7864 26K5698
INSUES QUIDIO IN WATTANTY PORTOGO	⇒ 3 year parts and labor ⇒ International Warranty S • On site, 8 am - 5 pm, Mo coverage excluding holic next business day respo • On site service upgrade (in eligible locations): • 3 year IOR 24x7, 4 hr av (ServicePacpartnum96l • 3 year IOR 24x7, 2 hr avg (ServicePacpartnum96l • 4 year IOR 9x5, NBD res (ServicePacpartnum96l • 5 year IOR 9x5, NBD res (ServicePacpartnum69l • Other ServicePac option http://www.ibm.com/serv us/its/pdf/wamomxeu.pdf ≈ 24x714 toll-free support for	Bay ② 5 Bay ③ 5 Bay ③ 5 Bay ③ 5 Bay § 5 Bay § 5 Bay \$ 15 Bay § 5 Bay § 5 Bay § 10 Bay § 5 Bay	2.25", HH 1.6" access, C 2.25", HH 1.6" access, op 2.25", HH 1.6" access, op 0 10 (six bays): ard 3.5" SL 1" hot-swap to 16 (six bays): al 3.5" SL 1" hot-swap of — Light Path Dieg — Processor Board Tray Opt disk — Opt disk	D-ROM pen* pen* po disk bays disk bays disk bays clik or Tower by Drive CD-ROM HighTape Bay	Stealth black or Tool-free service Tower Dimension Tower Weight: Rack Dimension Rack Dimension Rack Dimension Rack Weight: Access adapter Access process Access power Setup Program Diagnostics (PC SCSISelect by Drop Down Light diagnostic pane problem without Predictive Failur power supplies	olor seability ons: H15.5 149 to 1801 ns: H306m 44 to 158lb s, fans, an sors and s supplies fro by pressing 2-Doctor) b pressing C nt Path Dia 1) for outsic t removing re Analysis memory,	" x W18.2" x D3 bs; 67.6 to 81.7 W17.5" x D28.2 im x W444mm is; 65.4 to 71.7k d memory from ystemboard fror om back g F1 at startup y pressing F2 a trl+A at startup gnostics (level 2 de view of poten cover alerts on disk processors, VR	30"(762mm) Kg x D715mm g top n front at startup tial
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)			acity: 3.6TB with 12x 3	300GB ² hot-sv	vap SAS disks			

IBM [®] Type-model Qty x P	L2 rocessor cache	FSB MHz	Memory	Memory type	Disk	Disk controller	Disk bays	Mech- anical	Slots x bays	Ethernet	Limited warranty	l Available y³ date
8673-72X Pentium 4 8673-73X Pentium 4 8673-82X Pentium 4 8673-83X Pentium 4	2.8BGHz 512KE 3.06GHz 512KE	3 533 3 533	256MB 256MB 256MB 256MB	ECC ECC ECC	40GB EIDE 18.2GB SCSI 40GB EIDE 36.4GB SCSI	Ultra160 ATA-100	2 fixed	1U rack		2 x Gigab 2 x Gigab	it 1 year it 1 year	May2003 May2003 Sep 2003 Sep 2003
Positioning Processor(s) L2 cache SMP support Implementation Memory	A highly affordal Intel® Pentium 512KB / on die No SMP support Systemboard co connector for on 256MB std / 4G	4 up to of proc ntains c e PCI-X	essor / a ne Intel n slot, rise	z ¹ with 50 t process nPGA478 r for one I	33MHz frontside sor speed (no L BB socket (with F PCI-X slot, and i	bus (FS) a cache) Pentium 4 ntegrated	FC-PGA2 chipset,	two EIDE	connec	tors, etherr	net, and g	graphics
	DIMMs / four D Error Checking	IMM go	Id-connec	ctor slots	on systemboar	d / memo						
SCSI disk controller SCSI connectors IDE disk controller Cables Disk - features	SCSI models: SCSI models: Enhanced IDE b SCSI models: EIDE models: SCSI: 18.2GB/3	64-bit 6 On ada ousmast one 2-d one 2-d	6MHz PC opter: one ter / ATA- Irop 16-bi Irop EIDE	I adapte 68-pin 100 supp t LVD SC cable (to	r / one channel v SCSI connector port / two connector SI cable, one 1- o CD-ROM and	with up to ctors on s drop 40-d disk), one	15 devices ystemboo conducto 1-drop E	e support ard r EIDE cab EIDE cable	ole (con	inected to C	ay)	,
Mechanical Architecture / chipsets Bus slots	EIA 19" Rack (ServerWorks® one CIOB-X2 I/O CSB5 South Bri National Semico (See below) two	Grand (D Bridge dge (Thonducto	Champio e (IMB bu iin IMB to r® PC874	n ™ SĹ / 0 s to Host Host Brid 14 Super	CMIC-SL (Supe Bridge for PCI- dge for PCI 2.2- I/O chip (serial	r Lite) Ho X Bus A v based gra , keyboard	st Bridge vith slots phics co d, mouse	(memory and PCI-)	controll (Bus E	er and I/O I S with dual e	Bridge) / ethernet)	
Ethernet controllers CD-ROM / diskette Rear ports Front ports / graphics Console interconnects		X 64-bit OM / IDI oin), two (Vers 1	100MHz E; <i>Disket</i> ethernet .1); <i>Grap</i>	Bus B / fu te: 3.5" 1. (RJ-45),l hics: SV(ıll duplex / PXE / .44MB diskette (keyboard, mous GA / ATI® Rage :	/ Wake or drive / dus e, analog XL / on pla	LAN® / A t cover DB-15 m anar / 8M	lert Stand onitor / no B SDRAM	ard For parallel std/ma	mat 1.0 / tw port	o rear R	J-45 ports
Systems mgmt Diagnostics	WinBond® W833 Diagnostics via Remote Superv	PC-Doo	ctor on a s	standard	IBM Enhanced	Diagnosti	cs CD (di	skette can	be crea	ated) / supp	ort for o	
Security Software	Power-on passw unattended boo ServerGuide ™ utilities), IBM Di	t/select (CD-RC	table boo Minstalla	t / unattei ation and	nded start mode	51 10 12	2MB PC 3B PC21 0GB AT	2100 CL2. 00 CL2.5 E A-100 EIC	5 ECC ECC DI E HDI	DDR-SDR DDR-SDR DR-SDRAM D (7200 rpi	AM DIMI I RDIMN m)*	M33L5038 I 33L5039 09N4231
Cooling fans Power supply Prerequisites	Five fans (three power supply) / 200 watt / unive Monitor, keyboa supports IBM A	variable rsal / au ird, mou	speed / i to-sensin ise, rack,	not redun g / auto-r operatin ing solut	dant or hot-swa estart support g system /	20 36 20 73 R6 S6 IB IB IB IB	i.4GB 15k i.4GB 10k erwer Su erver AID M T541 1 M Net BA M Net BA M ACT L her optio	\ Ultra160 \ Ultra160 \ pervisor A \ \ pervisor A \ pervisor A \ pervisor A \ \ pervisor A \ pervisor	SCSIS SCSIS dapter ra160S nel Col dard Ra rprise sole Ma com/po	SCSI Adapt or Monitor ck Rack	D* D* er (black)	06P5765 06P5766 06P5752 09N7585 06P5740 9512AB1 9306250 930842S 1735L04



Slot 1: halfsize, 64-bit 133MHz PCI X 1.0 (3.3v) Slot 2: halfsize, low-profile, 64-bit 133MHz PCI 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

240GB with two 120GB EIDE disks / supports 15K rpm SCSI disks

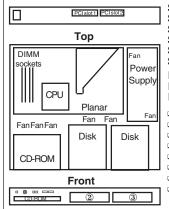
Maximum internal disk capacity¹³ (model dependent): 146.8GB with two 73.4GB SL SCSI disks or

- 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

For GAV systems, lowercase	"y" should be replaced with a cou	untry-specific code	э.				100	A STATE OF THE PARTY OF THE PAR
IBM® Machine Type GAV model	Dranger / Smoot	L2 FSB cache MHz	Memory	Disk controller	Disk bays	Mech- S anical x	lots bays Ethernet	Ltd Available warr ³ 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 512MB 1GB 512MB 512MB 512MB 512MB	SATA SAS/SATA SAS/SATA SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA	2 hot-swap 2 hot-swap	1U rack 1 1U rack 1 1U rack 1 1U rack 1 1U rack 1	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 S ded Memor	ingle Core 80 y 64 Techno	00MHz FSB / P logy (EM64T)		z Dual Cor	e 800MHz FS	B / All
L2 cache SMP support Implementation	Up to 2MB std on Per No SMP support Motherboard contains and two slots: some:	one LGA-77	'5 socket, fou	r DIMM sockets	s, integrated SATA	or SAS/S	ATA, Dual Giç	gabit Ethernet
Memory	512MB std / 8GB ¹³ max All Error Checking and							R2-SDRAM /
	SAS models: Adapter SATA models: Integrat Enhanced IDE busma SAS models: one 1-d SATA models: two 1- None standard	ted Intel cont aster / ATA- rop EIDE ca	roller / two-cha 100 support / ble (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 Pi ard, mouse	ntroller Hub (I n Count Inter	face / Firmware	Hub / SMSC® LP	C47M192	Super I/O for o	diskette,
Ethernet controllers	Dual Gigabit 10/100/rintegrated / port one is	1000 etherne S CSA, port t	t ports / Broawo is PCI 2.2	dcom 5721 / tw / full duplex / PX	o full gigabit ethe E / Wake on LAN®	rnet MAC a / Rear RJ-	ind PHY layer 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			·	•	SB (Vers 2.0)
Console interconnects Systems mgmt	No system-to-system Mini-baseboard mana voltages							ilure, and
Diagnostics	Diagnostic LEDS/ Err Diagnostics CD (disket planar for continuous	ette can be c	reated) / supp	port for optiona				
Security	Power-on password / unattended boot / sele secure remote power	ectable boot er on / off vi	/ unattended a IPMI 1.5	start mode / 20	2MB 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 HD	RoHS RoHS D	30R5148 30R5149 30R5150 39M4500
Software	ServerGuide™ (CD-F utilities), IBM Director			iguration IB	M 160GB SATÂ (7.2Ќ) s M 250GB SATA (7.2Ќ) s OGB Hot-Swap SATA HE OGB Hot-Swap SATA H	simple-swap H[simple-swap H[)D	OD OD	39M4504 39M4508 39M4518 39M4522
Cooling fans Power supply Prerequisites	Seven fans (five fans / variable speed / not 350 watt / universal / Monitor, keyboard, m	redundant of auto-sensin	or hot-swap	er supply) 25 73 14 17 support 30 36 73 14 18	100 S	DD wap HDD Swap HDD Swap HDD wap HDD wap HDD Swap HDD dapter II (PCI ad	dapter)	39M4522 26K5709 26K5710 26K5711 26K5697 26K5698 26K5699 59P2984 71P8648
Back PCIsiot1	Some:				ther options at ibm.com /	-		711 0040



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

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

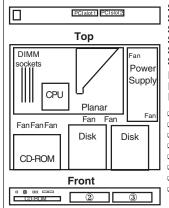
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- on site service upgrade
 options (in eligible locations):
 3 year IOR 9x5, NBD avg response
 (ServicePac part num 69P9505)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9506)

- 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/

issues during the warranty period3

For GAV systems, lowercase	"y" should be replaced with a count	rv-specific code.					-	
IBM® Machine		L2 FSB		Disk	Disk	Mech- Slots		Ltd Available
Type GAV model		che MHz	Memory	controller	bays	anical x bays	s Ethernet v	varr ³ date
	Pentium® 4 631 3.0GHz Pentium D 920 2.8GHz		512MB 1GB	SATA SATA	2 simple-swap 1 2 simple-swap 1			
8849/8491 G4y-G4x	Pentium D 920 2.8GHz	4MB 800	1GB	SAS/SATA	\ 2 hot-swap 1	1U rack 2x3	Dual Gb 1/	/3yr Feb 2006
	Pentium D 930 3.0GHz Pentium D 930 3.0GHz		1GB 1GB	SATA SAS/SATA	2 simple-swap 1 2 hot-swap 1	1U rack 2x3 111 rack 2x3	Dual Gb 1/	/3yr Feb 2006 /3yr Feb 2006
	Pentium D 940 3.2GHz		1GB	SAS/SATA				/3yr Feb 2006
Positioning	A highly affordable, uni							
Processor(s)	Intel® Pentium 4 up to Optimized for Extende					.2GHz Dual-	Core 800MH	Iz FSB / All
L2 cache	2MB std on Pentium 4 /							
SMP support Implementation	No SMP support Motherboard contains of	no I GA-775	encket four	DIMM socke	ate integrated SATA	or \$4\$/\$4T/	A Dual Gina	hit Ethernet
implementation	and two slots: some: (1					01 0/10/0/17	n, Duai Giga	Dit Ethernet
Memory	512MB or 1GB std / 8GE	R ¹³ may / four	184-nin gold-	nlated DIMM s	enckets / one socket us	sed / PC2-420	0 533MHz F	CC DDR2-
Welliory	SDRAM / All Error Che							
SCSI disk controller	SAS models: Adaptec®	9405 chips	et / single-c	hannel / on p	lanar / Integrated Ra	aid 8e (Raid 0	or 1)	
SATA disk controller	SATA models: Integrate	d Intel contro	ller / two-cha	innel / on plar	nar / Integrated Raid 8	Be (Raid 0 or	1) ´	
IDE disk controller Cables	Enhanced IDE busmas SAS models: one 1-dro							
Diek	SATA models: two 1-d					CD-ROM)		
Disk	None standard							
Mechanical	EIA 22" Rack (1U4) / r Intel E7230 chipset / N	ack-mount o	nly	10U\ / UO Ca	natrollor Hub (ICH C)	for DCI 0.0	and DOLV hi	ATA 100
Architecture / chipsets	EIDE, ethernet MAC, U							
•	parallel, serial, keyboar	d, mouse						
Bus slots	(See below) two availal Active™ PCI slots /	ole PCI-X 1.0) 100MHZ OI	r one 64-bit F	Cle™ x8 and one Po	CI-X 1.0 100	VIHZ / NO NO	t-swap
Ethernet controllers	Dual-Gigabit 10/100/10	00 othernet	norte / Broad	1com® 5721 /	two full gigabit ether	rnot MAC and	I DHV lavor	functions /
Ethernet Controllers	integrated / port one is							iuriciioris /
CD-ROM / diskette	24X-10X ⁶ CD-ROM Slin	n/ IDF: Disk	ette: none					
Rear ports	Rear: serial (9-pin), two	ethernet (Ru		rd, mouse, ar	nalog DB-15 monitor /	/ no parallel p	ort / two USI	B (Vers 2.0)
Front ports / Graphics	Front: two USB (Vers 2 ATI® RN50(ES1000) / 16		td/max / on n	lanar / analog	15-nin / un to 1024x76	68x32hit@85H	l ₇	
	, ,		<u> </u>		<u>'</u>			
Systems mgmt	No system-to-system in Mini-baseboard manag						ure. fan failu	ure. and
	voltages				,	•		
Diagnostics	Diagnostic LEDS/ Error Diagnostics CD (diskett							
	planar for continuous p				.a. r.ooto Gaporrio	o. Auapto. II	0 р	00
Security	Power-on password / a	administrator	password /		512MB PC2-4200 CL3 ECC	DDR2RoHS		30R5148
,	unattended boot / selec	table boot /	unattended :	start mode /	2GB(2x1GB) PC2-4200 CL3 4GB(2x2GB) PC2-4200 CL3		S S	30R5149 30R5150
Software	secure remote power ServerGuide™ (CD-RC	on / om via)M installatio	n and confi		IBM 80GB SATA (7.2K) sim IBM 160GB SATA (7.2K) sin	ple-swap HDD	-	39M4500 39M4504
	utilities), IBM Director™	and others			IBM 250GB SATA (7.2K) sin 80GB Hot-Swap SATA HDD	mple-swap HDD		39M4508 39M4518
Cooling fans	Seven fans (five fans f	or system, tv	wo on power	r supply)	160GB Hot-Swap SATA HD 250GB Hot-Swap SATA HD	iD iD		39M4522 39M4526
Power cumb	/ variable speed / not r	edundant or	hot-swap	rt oupport	73GB 10K 3.5" SAS Hot-Swa 146GB 10K 3.5" SAS Hot-Swa	ap HDD wap HDD		40K1039 40K1040
Power supply Prerequisites	350 watt / universal / a Monitor, keyboard, mo		/ auto-restal	it support	300GB 10K 3.5" SAS Hot-Sv 36GB 15K 3.5" SAS Hot-Sw	wap HDD		40K1041 40K1042
•	, , , , , , , , , , , , , , , , , , , ,	,		1	73GB 15K 3.5" SAS Hot-Swa 146GB 15K 3.5" SAS Hot-Sw	ap HDD		40K1043 40K1044
					IBM Remote Supervisor Ada IBM ServeRAID-7t SATA Int	apter II (PCI adapte	er)	59P2984 71P8648
Back					Other options at ibm.com/po	•		
PCI slot 1	Some:	longth full h	aight 64 hit	100MHz PCI	Y 1 0 (3 3))			
		iengui, iuli N	zigiii, 04-DII	IUUIVIMZ PUI	∧ 1.U (J.JV)			



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

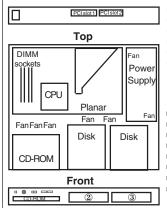
Ships with Diagnostics CD, ServerGuide Setup and Installation CD

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

- 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/ issues during the warranty period3

	xSeries - Judili				XHEF by	eServer F	ieia Sk	diis and	Educat	tion Team
	"y" should be replaced with a country-s			D'. I	D'. I	Marili	Clete			A
IBM® Machine Type GAV model	Processor / Speed	L2 FSB cache MHz	Memory	Disk controlle	Disk r bays	Mech- anical	Slots x bays	Ethernet	Ltd warr ³	Available date
8849/8491 K4v-K4x	Pentium® D 950 3.4GHz/D0 Pentium D 950 3.4GHz/D0 Pentium D 960 3.6GHz/D0	C 4MB 800	2 x 512MB 2 x 512MB 2 x 512MB	SATA SAS/SAT SAS/SAT	2 simple-swap TA 2 hot-swap TA 2 hot-swap	1U⁴ rack 1U rack 1U rack	2x3 2x3 2x3	Dual GB	1/3yr I	May 2006 May 2006 May 2006
Positioning	A highly affordable, uni-pi	rocessor 111	rack-ontimiz	zad sanyar						
Processor(s)	Intel® Pentium D up to 3 (EM64T)					r Extende	ed Men	nory 64	Γechno	ology
L2 cache SMP support Implementation	4MB std on Pentium D / E No SMP support Motherboard contains one and two slots: some: (1 Po	LGA-775 so	cket, four Di			TA or SAS	S/SATA	A, Dual G	igabit E	Ethernet
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 Disk	SAS models: Adaptec® 9 SATA models: Integrated In Enhanced IDE busmaster SAS models: one 1-drop SATA models: two 1-drop None standard	ntel controller · / ATA-100 : EIDE cable :	/ two-channe support / on (connected t	el / on plar e connect o CD-ROI	nar / Integrated Ra or on systemboa M)	aid 8e (Rai rd	d 0 or	or 1) 1)		
Mechanical Architecture / chipsets	EIA 22" Rack (1U ⁴) / racl Intel E7230 chipset / Mer EIDE, ethernet MAC, USB	mory Controll , Low Pin Co	er Hub (MCI	H) / I/O Co e / Firmwa	ontroller Hub (ICH re Hub / SMSC® I	I-S) for PC LPC47M19	01 2.2 a 92 Sup	and PCI-X er I/O for	bus, A	\TA-100 e,
Bus slots	parallel, serial, keyboard, (See below) two available Active™ PCI slots /		00MHz or o	ne 64-bit F	PCIe™ x8 and one	e PCI-X 1.	0 100N	⁄IHz / no	hot-swa	ар
Ethernet controllers	Dual-Gigabit 10/100/1000 integrated / port one is CS	ethernet poi A, port two is	ts / Broadco PCI 2.2 / fu	m® 5721 / Il duplex / F	two full gigabit e XE / Wake on LAN	thernet MAN® / Rear	AC and RJ-45 _I	PHY lay	er funct	tions /
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	thernet (RJ-4)	5),keyboard,	•	Ü				JSB (Ve	ers 2.0)
Console interconnects Systems mgmt	No system-to-system inte Mini-baseboard managem voltages							ure, fan f	ailure,	and
Diagnostics	Diagnostic LEDS/ Error Li Diagnostics CD (diskette o planar for continuous pow	can be create	ed) / support	t for option						
Security	Power-on password / adr unattended boot / selectal	ble boot / un	attended sta	rt mode /	512MB PC2-4200 CL3 2GB(2x1GB) PC2-4200 4GB(2x2GB) PC2-4200	O CL3 ECC DE	DR2 RoHS	S S		30R5148 30R5149 30R5150
Software	secure remote power or ServerGuide™ (CD-ROM utilities), IBM Director™ a	installation	and configu	ration	IBM 80GB SATA (7.2K IBM 160GB SATA (7.2I IBM 250GB SATA (7.2I 80GB Hot-Swap SATA) simple-swap K) simple-swa K) simple-swa	HDD p HDD			39M4500 39M4504 39M4508 39M4518
Cooling fans	Seven fans (five fans for / variable speed / not red			upply)	160GB Hot-Swap SATA 250GB Hot-Swap SATA 73GB 10K 3.5" SAS Ho	A HDD A HDD t-Swap HDD				39M4522 39M4526 40K1039
Power supply Prerequisites	350 watt / universal / auto Monitor, keyboard, mouse	o-sensing / a		support	146GB 10K 3.5" SAS H 300GB 10K 3.5" SAS H 36GB 15K 3.5" SAS Ho 73GB 15K 3.5" SAS Ho 146GB 15K 3.5" SAS H IBM Remote Superviso IBM ServeRAID-7t SAT	ot-Swap HDD ot-Swap HDD t-Swap HDD t-Swap HDD ot-Swap HDD r Adapter II (P	Cl adapte	er)		40K1040 40K1041 40K1042 40K1043 40K1044 59P2984 71P8648
Back	Some:				Other options at ibm.co	m/pc/us/acce	ssories			
PCI slot1	Slot 1: 3/4 ler Slot 2: half le	ngth, full heig	ht, 64-bit 100	OMHz PCI	X 1.0 (3.3v)					
Тор	Some:	0 , 1	*		, ,			EDWAR		
DIMM sockets	Slot 1: 3/4 ler Slot 2: half ler	ngth, full heig ngth, low-pro	nt, 64-bit 100 file, PCIe x8	JIMHZ PCI	x 1.0 (3.3v)	3 year	parts a	nd labor st nd labor st Warranty S	tandard	8849 MTM 8491 MTM



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

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

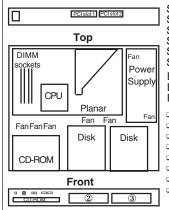
 Other ServicePac options at

http://www.ibm.com/

services/us/its/pdf/wamomxeu.pdf

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

IBM [®] Machine Type model	Processor / Speed	L2 FSB cache MHz M	Memory	Disk controller	Disk bays	Mech- anical	Slots x bays	Ethernet	Ltd warr ³	Available date
8849/8491 FAU 8849/8491 JAU 8849/8491 JBX	Pentium® D 915 2.8GHz/D Pentium D 945 3.4GHz/D Pentium D 945 3.4GHz/D	C 4MB 800 2:	x 512MB	SATA SATA SAS/SATA	2 simple-swa 2 simple-swa 3 2 hot-swap		2x3	Dual GB	3 1/3ýr	Sep 2006 Sep 2006 Sep 2006
Positioning Processor(s) L2 cache SMP support Implementation	A highly affordable, uni-p Intel® Pentium D up to 3 (EM64T) 4MB std on Pentium D / E No SMP support Motherboard contains one and two slots: some: (1 P	3.4GHz Dual-Co CC / full speed LGA-775 socke	o re 800MH et, four DIN	z FSB / A	s, integrated SA			·		
Memory	1GB std / 8GB ¹³ max / four Error Checking and Corre								R2-SDI	RAM / AII
	SAS models: Adaptec® 9 r SATA models: Integrated I Enhanced IDE busmaster SAS models: one 1-drop SATA models: two 1-drop None standard	ntel controller / tv r / ATA-100 sup EIDE cable (cor	wo-channe port / one nnected to	I / on plana connector CD-ROM	r / Integrated Ra · on systemboa)	aid 8e (Rai rd	d 0 or			
Mechanical Architecture / chipsets Bus slots	EIA 22" Rack (1U⁴) / rac Intel E7230 chipset / Me EIDE, ethernet MAC, USE parallel, serial, keyboard, (See below) two available Active™ PCI slots /	mory Controller I 3, Low Pin Count mouse	t Interface	/ Firmware	Hub / SMSC®	LPC47M19	92 Sup	er I/O for	diskett	te,
Ethernet controllers	Dual-Gigabit 10/100/1000 integrated / port one is CS								er func	tions /
CD-ROM / diskette Rear ports Front ports / Graphics	24X-10X° CD-ROM Slim/ Rear: serial (9-pin), two e Front: two USB (Vers 2.0 ATI° RN50(ES1000) / 16MB	thernet (RJ-45),k	keyboard, r	-	· ·		·		USB (V	'ers 2.0)
Console interconnect Systems mgmt Diagnostics	s No system-to-system inte Mini-baseboard managen voltages Diagnostic LEDS/ Error L Diagnostics CD (diskette planar for continuous pov	nent controller / EDS for fans an can be created)	IPMI 1.5 / nd memory / support	monitors : // Diagnost for optiona	system and pro tics via PC-Doc	cessor ter tor on a s	nperat tandar	d IBM Er	nhanced	d
Security Software	Power-on password / adi unattended boot / selecta secure remote power or ServerGuide™ (CD-ROM utilities), IBM Director™ a	ministrator passible boot / unatte	word / ended start 1.5	t mode / 5: 40 ation IE	12MB PC2-4200 CL3 GB(2x1GB) PC2-420 GB(2x2GB) PC2-420 GM 80GB SATA (7.2k M 160GB SATA (7.2 GM 250GB SATA (7.2 DGB Hot-Swap SATA	0 CL3 ECC DE 0 CL3 ECC DE) simple-swap K) simple-swa K) simple-swa	DR2 RoH: DR2 RoH: DHDD Ip HDD	S S		30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4518
Cooling fans Power supply Prerequisites	Seven fans (five fans for / variable speed / not red 350 watt / universal / aut Monitor, keyboard, mous	undant or hot-sv o-sensing / auto	wap	pply) 16 22 77 23 24 36 36 36 14	30GB Hot-Swap SAT 50GB Hot-Swap SAT 30GB 10K 3.5" SAS Ho 46GB 10K 3.5" SAS Ho 0GB 15K 3.5" SAS Ho 3GB 15K 3.5" SAS Ho 3GB 15K 3.5" SAS Ho M Remote Supervisc M ServeRAID-7t SAM	A HDD A HDD t-Swap HDD ot-Swap HDD ot-Swap HDD t-Swap HDD t-Swap HDD ot-Swap HDD ot-Swap HDD	Cl adapte			39M4522 39M4526 40K1039 40K1040 40K1041 40K1042 40K1043 40K1044 59P2984 71P8648
Back	Some:	asth full baight	04 52 400	0	ther options at ibm.cc					



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

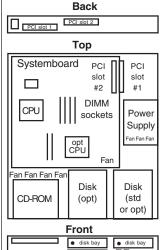
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- on site service upgrade
 options (in eligible locations):
 3 year IOR 9x5, NBD avg response
 (ServicePac part num 69P9505)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9506)

- 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

	IBM® Type-model Qty x Prod	cessor	Proc. Speed	L2 Cache	Memory	Memory type	Disk	Disk controller	Hot -swap or fixed disk bays	Slots x bays	Ethernet		Available 3 date
*	8835-21X 1 x Optero 8835-22X 1 x Optero 8835-31X 1 x Optero 8835-32X 1 x Optero 8835-51X 1 x Optero 8835-52X 1 x Optero 8835-52X 2 x Optero	on™ 240 on 240 on 242 on 242 on 246 on 246 on 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		Ultra320 EIDE Ultra320 EIDE Ultra320 EIDE Ultra320	2 hot-swap 2 fixed 2 hot-swap 2 fixed 2 hot-swap 2 fixed 2 hot-swap	2x3 2x3 2x3 2x3 2x3 2x3 2x3 2x3	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	1 year 1 year 1 year 1 year 1 year 1 year 1 year	Oct 2003 Oct 2003 Oct 2003 Oct 2003 Oct 2003 Oct 2003 Oct 2003
	Processor(s) L2 cache SMP support Implementation	1MB / or 2-way S Systemb	n die of pro MP / up to oard conta	cessor two C ins two	r / at prod opteron P o AMD S	cessor spe rocessors ocket 940	nz HyperTransp eed (no L3 cac (same speed/o micro-PGA ZIF MD Opteron H	he) cache size sockets,	required) six memory D				•
	Memory	slots used SDRAM I memory i	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	s become availa slots available (to s on systemboard runs at 2 x 1001 errors on same of	vo avail. in d / DIMMs MHz / Erro	5DX) / PC2700 must be installed or Checking an	333MH d in ma d Corre	Iz registered tched pairs [acting (ECC)	184-pin a bank] / via 16-b	ECC DDR 2-way oit
	SCSI disk controller IDE controller / cable Disk - capacity Disk - bays	64-bit 10 one 16-b All: Enha EIDE mo SCSI mo	OMHz PCI it internal c nced IDE <i>i</i> 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 two to 15000 r	C1020 / Ultra3 1 mirroring (Ei D cable from sy 5 South Bridge o disk bays (pi pm disks; EIDE pronectors / filler	mbedded I stemboard / two conr rimary) / o : <i>models:</i> 8	Mirroring) with d to backplane nectors on plan one 1-drop EID 30GB / 7200 rp	two SC for two ar / one E cabl m / AT	SI disks in fr disks / no ex 1-drop IDE e to CD-RO A-100 / 8.7m	ont bay ternal c cable (0 M (secons seek	onnector CD-ROM) ondary)
	Mechanical Architecture / chipsets Bus slots	s AMD® 8 1 bridge B HyperTra National	I31 PCI-X for PCI-X ansport clo Semicond	Bridge expan ck (PC uctor®	e Chip prosion slots SI, AC '97 PC87366	rovíding tv s) / 8111 l 7, Etherne 3 Super I/0	I/O HyperTran t, SMBus, USE	es running sport Bri B, EIDE, L	g at 100Mhz (t dge Chip sup PC to BIOS a	oridge A porting	A for SCSI a a 200 Mhz	nd Ethe	ernet;
	Ethernet controllers CD-ROM/diskette/kbd Rear ports Front ports / graphics Console interconnects	on plana 24X-10X' <i>Rear:</i> tw <i>Front:</i> tw C2T Inte	r / PCI-X 6 CD-ROM O USB (Verous) O USB (Verous) O USB (Verous)	4-bit 10 / IDE ers 1.1) rs 1.1); cabling	00MHz B / <i>Diskette</i> , serial (9 <i>Graphics</i> g not sup	us B / full e and keyl d-pin), two :: SVGA / A pported / N	ethernet (RJ-45 ATI® Rage XL / o	on LAN® / SB diskett 5) / paralle n planar / 8	 Alert Standard e and keyboard l port not supp BMB SDRAM st 	d Forma d option orted d/max /	at 1.0 / two r nal); legacy 32-bit 33MHz	eár RJ- not sup z PCI 2.2	45 ports ported 2 Bus A
	Systems mgmt Diagnostics	connector Adapter Diagnosi	MS-9549 or on plana II card not tic LEDs fo pht Path Di	r / opti suppo or fans	onál Rem rted , memory	note Supei / DIMMs a		Optero Optero 512MB 1GB P	on 240 Proces on 242 Proces on 246 Proces 3 PC2700 CL2.5 CC2700 CL2.5	sor Up sor Up ECC D ECC DI	ograde ograde DDR-SDRAM DR-SDRAM	RDIMM	73P2267
	Security Software	unattend ServerG		selecta D-ROM	ble boot . I installat	/ unattend ion and c	rd / led start mode onfiguration	80GB 120GE 36.4GI 73.4GI	ATA-100 EIDE 3 ATA-100 EID B 15K Ultra320 B 15K Ultra320	E HDD* E HDD SCSI I SCSI I	* Hot-Swap SL Hot-Swap SL	_ HDD* _ 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 L	otalStorage F0 erveRAID-6M Portable Disker Y ACT Local Y Remote Co JSB Conversion	SCSI (tte Driv Console nsole N n Optio	256MB Cac e e Manager (Manager (RC n	he) LCM)	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)

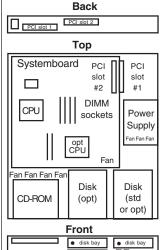
 2 year IOR 24x7, 2 hr avg response
- (ServicePac part num 96P2120)

 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	cessor	Proc. Speed	L2 Cache	Memory	Memory type	Disk	Disk controller	Hot -swap or fixed disk bays	Slots x bays	Ethernet		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 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 Ultra320 EIDE	2 fixed '		2 x Gigabi 2 x Gigabi 2 x Gigabi 2 x Gigabi	t 1 year t 1 year	Jan 2004 Jun 2004
Processor(s) L2 cache SMP support Implementation	1MB / o 2-way S Systemb	n die of pro MP / up to oard conta	ocesso two C ains two	r / at pro opteron F o AMD S	cessor sports Processors ocket 940	nz HyperTransp eed (no L3 cac (same speed/ micro-PGA ZII	he) cache size = sockets,	e required) , six memory D				
Memory	1GB std PC2700 be install Checkin	/ 12GB ma: 333MHz re ed in match	x ¹³ / fougistered ed pairs recting	ır slots en 184-pin s [a bank] (ECC) via	abled with ECC DDR / 2-way me a 16-bit Ch	uni-processor, s -SDRAM DIMMs emory interleave necksum Chipk	x with dua s / six DIM / dual cha	I / two slots used M gold-connectd nnel / memory b	or slots ous runs	on systembo at 2 x 100M	oard / DIN IHz / Erro	or
SCSI disk controller IDE controller / cable Disk - capacity Disk - bays	64-bit 10 one 16-b All: Enha EIDE ma SCSI ma	OMHz PCI bit internal canced IDE codels: One odels: 36.40	-X Bus channe ATA-10 2-drop GB sup	B / support / 16-bit 0 control EIDE coports up	orts RAID- 68-pin LVI ler in CSB able to tw to 15000 r	· 1 mirroring (E D cable from sy	mbedded stemboar / two coni rimary) / c : models:	Mirroring) with d to backplane nectors on plan one 1-drop EID 80GB / 7200 rp	two SC for two ar / one E cabl om / AT	SI disks in f disks / no ex 1-drop IDE e to CD-RC A-100 / 8.7r	ront bay xternal c cable (0 DM (secons seek	onnector CD-ROM) ondary)
Mechanical Architecture / chipset	s AMD ® 8 bridge E HyperTr National	131 PCI-X for PCI-X ansport clo Semicond	Bridge expan ock (PC luctor®	e Chip p sion slot I, AC '97 PC87366	roviding tv s) / 8111 7, Etherne 3 Super I/	I/O HyperTran	es runnin sport Bri 3, EIDE, L	g at 100Mhz (bidge Chip sup LPC to BIOS a	oridge / porting	A for SCSI a a 200 Mhz	and Ethe	ernet;
Ethernet controllers CD-ROM/diskette/kbd Rear ports Front ports / graphics Console interconnect	on plana 24X-10X Rear: tv Front: tv SC2T Inte	or / PCI-X 6 6 CD-ROM vo USB (Ve vo USB (Ve erconnect™	34-bit 10 I / IDE ers 1.1) ers 1.1); ' cablin	00MHz B / <i>Diskett</i> , serial (9 <i>Graphics</i> g not sup	us B / full e and key e-pin), two s: SVGA / A pported / N	ethernet (RJ-4 ATI® Rage XL / c	on LAN® SB disket 5) / paralle on planar /	/ Alert Standard te and keyboard el port not supp 8MB SDRAM st	d Formation orted downward.	at 1.0 / two nal); legacy 32-bit 33MH	reár RJ- not sup Iz PCI 2.2	45 ports ported 2 Bus A
Systems mgmt Diagnostics	connector Adapter Diagnos	d MS-9549 or on plana II card not itic LEDs f ght Path D	ar / Rer suppo or fans	note Sup rted , memor	ervisor / DIMMs :	nent / and processors	Opter 512MI 1GB I 2GB I	on 248 Proces on 250 Proces B PC2700 CL2.5 PC2700 CL2.5 PC2700 CL2.5	ssor Up 5 ECC I ECC D ECC D	ograde DDR-SDRAN DR-SDRAM DR-SDRAM	RDIMM	73P2267 73P2269
Security Software	unattend Server		selecta D-ROM	ble boot I installat	/ unattendi ion and d	rd / ded start mode configuration	120Gl 36.4G 73.4G	ATA-100 EIDI B ATA-100 EID B 15K Ultra320 B 15K Ultra320 TotalStorage F	E HDD SCSI SCSI	* Hot-Swap S Hot-Swap S	L HDD*	32P0735
Cooling fans Power supply Prerequisites	variable 411 wat	speed / notice to a contract of the speed / notice to a contract o	ot redu al / aut	ndant or o-sensing	hot-swap g / auto-re	ver supply) / estart support e), operating s	IBM S USB NetBA ys, NetBA 1.5M	ServeRAID-6M Portable Diske AY ACT Local AY Remote Co USB Conversic a not supported	SCSI tte Driv Consol nsole I on Optic	(256MB Ca re e Manager Manager (R on	che) (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

IBM [®] Type-model Qty x Pr 8676-1AX 1 x Xeon		L2 cache 512KB	FSB MHz 533	Memory 512MB	Memory type Chipkill	Disk None (open)		Hot -swap or fixed disk bays 2 hot-swap			Limited Available warranty ³ date oit 3 year Mar 2003
	er models nt to sup			or netwo	rk infras	tructures req		•		3	,
Positioning Processor(s) L2 cache SMP support Implementation	1 x Intel 512KB / 6 2-way SI Systember	Xeon 2 on die of p IP / up to pard conta	.8BGHz ¹ processo two Xeo ains two l	with 533 r / at proc n Process ntel 603-	BMHz fror essor spe sors (sam pin micro-	ntside bus / H ed (no L3 cach e speed/cache	yper-Threa ne) e size) ets, four m	nance computir ding technolog emory DIMM sl	gy .		ined environments one PCI-X slot,
Memory	PC2100 2 must be i Error Ch	266MHz ronstalled in ecking ar	egistered matche nd Corre	l 184-pin d pairs [a cting (E (ECC DDF bank]/2-	way memory i	Ms / four D nterleave /	dual channel /	memory	bus runs a	emboard / DIMMs It 2 x 100MHz / on same chip and
SCSI disk controller IDE controller / cable Disk - capacity Disk - bays	64-bit 10 one 16-b All: Enha EIDE mo SCSI mo	OMHz PC it internal nced IDE <i>dels:</i> One <i>dels:</i> non-	I-X Bus I channel ATA-100 2-drop I e standa	3 / suppo / 16-bit 6 0 controll EIDE cab rd / support	rts RAID- 68-pin LVI er in CSB le to two o orts up to	1 mirroring (B D cable from s 5 South Bridge disk bays / one 15000 rpm dis	Embedded ystemboar e / two con e 1-drop El sks; <i>EIDE i</i>	nectors on plai DE cable to CI <i>nodels:</i> 40GB	two SC for two nar / one D-ROM / 7200 rp	SI disks in disks / no e 1-drop ID om / ATA-1	front bays / external connector
Mechanical Architecture / chipset	s ServerW one CIOE slot 2 and SMBus, I	orks® Gr 3-X2 I/O E d Ultra320 _PC bus t	ánd Cha Bridge (IM) / CSB5 o Super	mpion™ MB2 bus t South Bi I/O) / Nati	4.0 LĖ / (to Host Bı ridge (Thi ional Sem	CMIC LE Host ridge for PCI->	Bridge (mo Bus A wit Bridge for C87417 S	h slot 1 and du PCI 2.2 Bus C	er and I/ al ether	O Bridge) / net and PC	
Ethernet controllers CD-ROM / diskette Rear ports Front ports / graphics Console interconnect	on planar 24X-10X ^o <i>Rear:</i> or <i>Front:</i> tw s C2T Inter	· / PCI-X 6 · CD-ROM ne USB (V · o USB (V · connect [™]	64-bit 100 /I / IDE; /I /ers 1.1); /ers 1.1); / ^M cable (MHz Bus Diskette: C2T in, C Graphics 10 inch, 2	s A / full du 3.5" 1.44N 22T out, s s: SVGA / 245mm) is	uplex / Wake o MB diskette dri erial (9-pin), tv ATI® Rage XL standard (Ke	n LAN® / Alve / dust covo etherne / on plana / board Vid	t (RJ-45), one F r / 8MB SDRAM	ormat 1. RS-485 (M std/ma M) chair	0 / two rear (sys mgmt) ax / 32-bit 3 ning cable)	RJ-45 ports / no parallel port 3MHz PCI 2.2 bus / one Cable Chain
Systems mgmt Diagnostics	monitoring with 20-p	ig such as in conn o th Diagn	temp, m n planar i ostics ™	nemory, of for conting (LED lig	ptional di nuous pwr ghts indic	sks, fans, pow (no ext pwr red ate failing cor	rer supply / q)	support for op	otional R diagnos	émote Sup tics (via Po	environmental pervisor Adapter C-Doctor in BIOS)
Security	Power-or	ı passwo	ru / adm	unistratoi	r passwoi	ra /			UP	ΓIONS	

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

Nement) 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 33L5038 1GB PC2100 CL2.5 ECC DDR-SDRAM RDIMM 33L5038 2GB PC2100 CL2.5 ECC DDR-SDRAM RDIMM 33L5040 36.4GB 15K Ultra320 SCSI Hot-Swap SL HDD 06P5776 Remote Supervisor Adapter ServeRAIDTM-4Mx Ultra160 SCSI Adapter Cable Chain Technology (C2T) Cable Kit (2 meter breakout cable and 2 meter KVM chaining cable) 06P4792 1735L04

Back PCI slot 2 PCI slot 1 Top Systemboard PCI PCI Light Path slot slot Diagnostics #2 #1 DIMM Power sockets Supply opt CPU CPU Fan Fan Fa an Fan Fan Fa Disk Disk CD-ROM (opt) (std or opt) Diskette Front disk bay 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", access, std fixed or hot-swap disk Bay ④ 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 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
- □ LST 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 FIDE 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 for warranty

240GB with two 120GB EIDE disks issues during the warranty period³

See footnotes for important warranty information

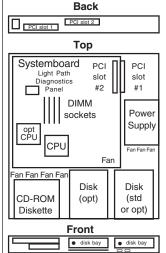
^{• =} Hot-swap

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	Memory type	y Disk	Disk controller	Hot -swap or fixed disk bays	Slots x bays		ailable date
8676-LAX 1	x Xeon 2.8B GHz	512KB	533	512MB Chipkill	None (open)) Ultra320	2 hot-swap	2x4	2 x Gigabit 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 / tEIDE models: One 2-drop EIDE cable to two disk bays / one 1-SCSI models: two hot-swap / 80-pin SCA-2 connectors / filler p	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 rase ServerWorks® Grand Champion™ 4.0 LE / CMIC LE Host Bridone CIOB-X2 I/O Bridge (IMB2 bus to Host Bridge for PCI-X Buslot 2 and Ultra320 / CSB5 South Bridge (Thin IMB to Host Brids SMBus, LPC bus to Super I/O) / National Semiconductor® PC8 (See below) two available PCI-X 1.0 / no hot-swap Active™ PC	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 / to n planar / PCI-X 64-bit 100MHz Bus A / full duplex / Wake on Lz 24X-10X° CD-ROM / IDE; Diskette: 3.5" 1.44MB diskette drive / Rear: one USB (Vers 1.1), C2T in, C2T out, serial (9-pin), two expressions of the configuration of the configurati	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 06P4792 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 64-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 ServeWorks® Grand Champion™ 4.0 LE / CMIC LE Host Bri one CIOB-X2 I/O Bridge (IMB2 bus to Host Bridge for PCI-X B solt 2 and Ultra320 / CSB5 South Bridge (Thin IMB to Host Bri 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 Technology Cable Kit required at end of chain (a cable with sep Ush Integrated system management processor (ISMP) / H8 monitoring such as temp, memory, optional disks, fans, power with 20-pin conn on planar for continuous pwr (no ext pwr reg) unattended boot / selectable boot / unattended start mode ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director™, and others Eight fans (five for system, three on power supply) / variable speed /



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
- 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 for warranty issues during the warranty period3

(X335DC-B) © IBM Corp. January 2004

See footnotes for important warranty information

= Hot-swap

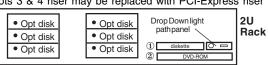
IBM®		L2	Ultra160	SCSI	Mech-	Slots x	Fixed	Alarm	Power		Available
Type-model Qty	Processor	cache Memory	SCSI disk	controller	anical	bays	disk bays			Complian	
	models are des	512KB 2GB 1 signed for networ power environm	k infrastructure			6x4	2 fixed	Yes	DC powe	r NEBS-3	Apr 2002
Positioning Processor(s) L2 cache Implementation SMP support	2 x Intel® Penti 512KB std and Motherboard co 2-way SMP via	ment Building Sysium® III 1.26GHz I max / ECC / at pontains two Intel I a second identica	-S with 133MHz rocessor speed PGA370 sockets Il processor is si	frontside bus / processor ar s, six DIMM so tandard	s d L2 cach ckets, two	ne in FI PCI ris	ip Chip F	in Grid	Array (FC	-PGA2)	ystems
Memory	Error Checkin	B ¹³ max / 6 socket Ig and Correctin MHz / six 168-pin	g (ECC) memor	y controller / m	atched pa	airs req	uired / tw oorts regi	o-way i	nterleavin SDRAM E	g/ ECC DIMM	ls only
SCSI disk controller SCSI channels SCSI disk SCSI disk bays IDE controller / cable	SCSI Channel SCSI Channel 1 x 36GB Ultra Two fixed disk	A-7899W / dual c A: external 16-bi B: one internal 1 160 SCSI, 10K rp bays (not hot-swa controller in South	t .8mm VHDCI 6 6-bit 68-pin LVD om, 4.9ms read s ap) in disk drive	8-pin external cable from co seek, S.M.A.R. carrier that slic	connecto ntroller to T. ⁵ les out fro	r`(no ca two-ba om fron	ables) ay disk dr t	ive carr	rier	4-bit PCI	
Mechanical Rack support PCI bus slots Chipset	Designed for in (See below) thi PCI 2.2 / peer I ServerWorks® South Bridge) / CSB5 South Bridge) / Baseboard Mar	(2U ⁴) x 20-inch d nstallation in a two ree full height full PCI buses / no ho III HE-SL chipso / NB655 Champ ridge for EIDE, US nagement Contro pelow): 4 bays / tv	o-post, 19" rack o length 64-bit 33l ot-swap Active™ et / CNB20HE-S ion I/O Bridge (0 SB, LPC bus for ster	MHz slots / thre PCI slots L North Bridge CIOB20) for PC Super I/O Natio	eé low-pro for CIOB I Bus B (sonal Semi	ofile hall and Poslots, S conduc	of length 6 CI A 32-b CCSI) and Ctor PC8	64-bit 6 bit 33MI d C (slo 741(dis	6MHz PCI Hz (graphi ts) / kette, seri	slots/ cs, etherne	et,
10/100 ethernet CD-ROM / diskette Rear ports	24X-10X ⁶ CD-F Two USB ports connector for fr Y-splitter cable	/ on planar / full d ROM / multisessid & (Version 1.1); R. ront panel alarm r e) us / ATI® Rage XL	on / IDE interface J-45 serial; PS/2 elay contacts / r	e / bootable; <i>E</i> keyboard; two o parallel port	Piskette: 3 RJ-45 et / mouse o	.5" 1.44 hernet connec	4MB disk ; DB-15 ts to USE	cette dri graphic 3 port (c	ve / dust c s; 68-pin s or keyboar	over SCSI; DB- d port with	15 male standard
Security	Power-on pass	sword / admin pas	sword / unatten	ded boot / sele	ctable boo	ot/boo	t without	keyboa	ard / diske	tte write pr	otect
Alarm panel Status LEDs Systems mgmt Diagnostics OS support Software ship group	four alarm pane Operator Infor Integrated ser processors, ter LED diagnostic Red Hat Linux Resource CD	n panel in front be el LEDs: power al rmation Panel (ir vice processor (I mperature, voltac s and on-board d [™] 7.1 (CD-ROM install.), PC-Doctor™ di.	arm fault, critica n front) / includes Baseboard Mana ge, and power si iagnostics provi ation and config	I alarm fault, m s switches (NM agement Contr upplies activat ding an LED m uration utilities	ajor alarm II, power, oller) / on e alarm pa ap to a fai s, Intel Se	n fault, reset) planar anel LE iling co	minor ala and statu / failures EDs / mponent	arm faul us LEDs or thres t rver ma	t s (NIC, dis sholds in fa	k, main po ins, memo	wer) ry,
Keyboard / mouse Power supply	350 watt (-48 t supports dual i	ck-based) two / accessible to -60 V dc [direction of the courses of the course of the	ct current])/ o power source	s)/	1GB S 36.4G IBM E IBM SI	DRAM B 10K 54 (13. leek Ty	I ECC DI Ultra160 8" viewal vo-Buttor	MM 133 SCSI S ble) FS n Mouse	T Monitor e (black)	MM (black)	33L3324 33L3326 06P5751 633147N 28L3673
Fans Prerequisites	fan failure signa fan in each pov Appropriate do	tispeed / not hot- als front panel ala wer supply / fan o power source ar pard, mouse, rack	ırm LED / ın each Pentium ıd customer sup	III processor					/board (bla /us/access		28L3644
Slot 2: fullsize, 64 Slot 3: fullsize, 64 Slot 4: low-profile, 64 Slot 5: low-profile, 64 Slot 6: low-profile, 64 CD-ROM diskette disk bay Bay ① 3.5", 0.5",	-bit 66MHz PCI -bit 66MHz PCI disk bay access, std access, std no access, std	2.2 (5v), Bus B 2.2 (5v), Bus B 2.2 (3.3v), Bus C 2.2 (3.3v), Bus C 2.2 (3.3v), Bus C 2.2 (3.3v), Bus C 2U Rack	Configuration pressing Fixos SCSISelec CTRL+A PC-Doctor Several ha H 3.5" x W H 89 mm x 34 to 37 pc IPMI 1.5 ar	ck color (front bon/Setup Utility 2 at startup the transfer to the transfer	vinvoked l by pressir on diskett tions D 508 mm 16.8 kg) mpiant	ng e	4	1 yeas Interroment	r parts ar national W te, 8 am - rage exclu pousiness c r on site w ade option ons):7 r coverag lidays, 4 h b ServicePa hr x 7 day our avera b ServicePa hr x 7 day our avera c ServicePa 4 toll-free	arranty Se 5 pm, Mon ding holid day respor varranty se s (in eligib e, Mon-Fri r response coverage ge response ac part num coverage ge response ac part num support fo	ervice ³ I - Fri ays, ays, sse time ⁷ ervice ble excluding e time mber) se time se time se time

IDM®		1.0	1111 000	2001		01.1.	Dist.	A1			A
	x Processor	L2 cache Memory	Ultra320 SCSI disk	SCSI controller	anical	Slots x bays	Bays		Power supply	Compliant	Available date
8847-14X 2 x Pentiu 8847-24X 2 x Pentiu DC nower		512KB 2GB 1	x 146.8GB 10K	2 x Ultra320	2U rack	6x3	2 HS	Yes D	C pow	er NEBS-3 er NEBS-3 environme	Jul 2004
Positioning Processor(s) L2 cache Implementation SMP support	Network Equipment 2 x Intel® Pentium 512KB std and mathematical Motherboard control subsystems 2-ways 2-way	nt Building Syster m® Xeon 2.4GH: ax / ECC / at proc ains two Intel So	m (NEBS) levels z with 533MHz essor speed / p ocket 604 INT3	3-compiant for t z frontside bu rocessor and L /FCPGA, six D	elecomn s 2 cache IMM so	<i>nunicati</i> in Flip C	ons car	<i>rier-gra</i> n Grid A	<i>rray</i> (FC	ronments C-PGA2)	
Memory	Up to 2GB std / ships with two 51 matched pairs red	2 GB or 1GB DII	MMs / Error C	hecking and C	orrecti	ng (ECC	C) men	nory co			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- 6.8GB Ultra320 ys (not hot-swap	8mm VHDCI 6 bit 68-pin LVD SCSI, 10K rpm) in disk drive	8-pin external of cable from corn, 4.9ms read scarrier that slid	connecto stroller to eek, S.Mes out f	or (no ca two-ba M.A.R.T rom froi	ables) ay disk .5 nt	drive c	arrier		CI
Mechanical Rack support PCI bus slots Chipset	EIA 19" Rack (2U Designed for insta (See below) three PCI 2.2 / peer PCI Intel® E7501 chip South Bridge) / FI ICH3-S South Brid Baseboard Mana (See diagram below)	Illation in a two-perfull height full le CI buses / no hot poset / 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 slots / thin PCI slots for CIOB and and C (slots) / Super I/O Nat	ee low-p PCI A 6 ional Se	rofile had 4-bit 33 micond	alf leng BMHz (th 64-b graphic	it 66MH s, ether	z PCI slots net,	/
10/100 ethernet CD-ROM / diskette Rear ports	2 x Intel 82546 / c 24X-10X ⁶ CD-RO Two USB ports (V- connector for front Y-splitter cable) SVGA / PCI bus / A	M / multisession ersion 1.1); RJ-45 panel alarm rela	/ IDE interface 5 serial; PS/2 ke y contacts / no p	/ bootable eyboard; two RJ parallel port / mo	-45 ethe	rnet; Di	B-15 gr o USB p	aphics; port (or	68-pin : keyboar	SCSI; DB-1 d port with	5 male standard
Security	Power-on passwo	rd / admin passv	vord / unattend	led boot / selec	table bo	ot / boo	ot with	out key	board		
Alarm panel Status LEDs Systems mgmt Diagnostics OS support Software ship group	External alarm pare La Coperator Informa Integrated service processors, tempo LED diagnostics a Microsoft Windows Resource CD (CI Product Guide)	EDs: power alarm ation Panel (in from processor (Base prature, voltage, and and on-board dial s 2000, Windows	n fault, critical al ont) / includes s eboard Manage and power supp gnostics provid 2003 Advance	arm fault, major witches (NMI, p ement Controller olies activate al- ing an LED ma d Server / Red	alarm fa ower, re- r) / on pla arm pand p to a fa Hat AS	ault, min set) and anar / fai el LEDs ailing co 2.1 / SL	or alarr I status Iures or / ompone LES	m fault LEDs (r thresh ent	NIC, dis olds in fa	k, main pov ans, memor	ver) y,
Keyboard / mouse Power supply	None (since rack-base) std: one (14X) or 480 watt (-48 to supports dual inpuredundant / hot-s	two (24X); <i>max</i> -60 V dc [direc ut sources (two p	t current]) / ower sources) /	ble from rear	2GB PC: Other op						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 oplied wiring,							
Slot 2: fullsize, 64	bit 133MHz PCI-X bit 133MHz PCI-X disk bay access, std CD no access, std disk	(5v), Bus B (5v), Bus B (5v), Bus C ((3.3v), Bus C ((3.3v), Bus C ((3.3v), Bus C	Configurat pressing F SCSISelec CTRL+A PC-Doctor Several has H 3.45" x H 87.6 mm	ick color (front ion/Setup Utility 2 at startup ct near startu	v invoked by pres on disk ations 10.0" m x D 50 16.8 kg	sing ette 08 mm)	0 0 0	3/3 yea Interna On site coveran next bu 2 year upgrad location • 9 hr holic 96P2 • 24 h 4 ho 96P2 • 24 h 2 ho 96P2 24x7 ¹⁴ t	r parts tional W , 8 am - ge exclu sisiness on site e optior ns): covera days, 4 l2122 r x 7 da ur avera 2123 r x 7 da ur avera 2124 toll-free	VARRANT and labor farranty Ser 5 pm, Mon Iding holida day respon- warranty s is (in eligib ge, Mon-Fri hr response ay coverage age respon- support fo the warrant	vice ³ - Fri ys, se time ⁷ ervice e excluding e time e, se time e, se time r warranty

IBM [®] Type-GAV-model Qt	L2 y x Processor Cache	Memory Disk		orm actor	Slots x bays (hot-swap bays)	Power supply	Available Ethernet date			
8840-15y-15U 1 x 8840-16y-16U 1 x 8840-25y-25U 1 x 8840-35y-35U 1 x 8840-36y-36U 1 x 8840-36y-36U 1 x 8840-45y-45U 1 x 8840-E1y-E1U 1 x	Xeon™ 3.0GHz 2MB Xeon 3.0GHz 2MB Xeon 3.2GHz 2MB Xeon 3.4GHz 2MB Xeon 3.4GHz 2MB Xeon 3.6GHz 2MB Xeon 3.0GHz 2MB	1GB None 1GB None 1GB None 1GB None 1GB None 1GB None 1GB None 1GB 3x73.4GB	2 x Ultra320 2 x Ultra320	2U⁴ 2U 2U 2U 2U 2U 2U 2U 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 4x8 (6 hot-swap) 1	x 625W hot-swap x 625W hot-swap x 625W hot-swap x 625W hot-swap x 625W hot-swap 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 s 1 x Intel® Xeon™ Pr 64 Technology (EM6 2MB L2 Cache / on to 2-way SMP / up to to Systemboard contains	ocessor 2.8, 3.0, 64T) / Hyper-Thre lie of processor / vo Xeon Processo	3.2, 3.4, 3.6Gh eading technolog at processor spectors (same speed	z with gy / S eed d/cach	n 800MHz frontside b Simultaneous multi-t ne size)	us / Optimized for hreaded (SMT)	r Extended Memory			
Memory	(100MHz) slots, two f 1GB std / 16GB ¹³ max DDR2-SDRAM DIMM bank] / 2-way memorr Checking and Corre and detects 2- through	c / two slots used s / eight DIMM go y interleave / dual cting (ECC) / opi	/ six slots availa old-connector slot channel / Activitional 16-bit Che	able / ots on ve Me ecksu	DIMMs / PC2-3200 D systemboard / DIMMemory™: Memory mire	DDR2 400MHz reging from the second se	stered 240-pin ECC d in matched pairs [a emory / Error			
SCSI channels	Adaptec® AIC-7902 supports RAID-0 and 5, 00, 10, 1E0, 50 (ins Two 16-bit channels backplane for six disk VHDCI connector / 5 Enhanced IDE ATA-1 None standard / supposix hot-swap / 80-pin 5 for the supposit hot supp	dual channel U 1 with up to on stalled on reserved (one internal and (s; Channel A: 1 supports optional 00 controller in It orts 7200-15000 r	Itra320 SCSI c e hot-spare disk I internal connec one external) / 6-bit 68-pin inte ServeRAID ada CH5 South Bridg pm disks / one ba	ontro k / op ctor) SCSI erface apters ge / c	tional IBM ServeRAID Channel B: 16-bit 68 to support external 8 s with external conne one connector on plar ane	TM-7k Adaptor for log- B-pin LVD cable from the cab	ow-cost RAID 0, 1, 1E om systemboard to external SCSI 0.8mm I devices DE cable (CD-ROM)			
Mechanical Chipset	EIA 19" Rack (2U ⁴) / Intel E7520 / Memor slots 3 & 4) / Intel D ServeRAID 7k Adapt bus to Super I/O) / L (See below) Four ave	rack-mount only y Controller Hub (odson I/O Procce er / ICH5 South E PC-SIO 8742x St	/ supported in (MCH) / Intel I/C sor (supports 1/ bridge (Thin IMB uper I/O	IBM I O Cor 00MH 3 to H	NetBAY™ Rack produ htroller Hub 5 (ICH5) Hz PCI-X slots 1 & 2, ost Bridge for graphic	ucts / no rack to to / Two Intel PCI-X Adaptec AIC-7902	ower conversion Hubs (133MHz PCI-) 2 and optional			
Ethernet controller Optical / diskette Front & Rear ports Graphics	Two gigabit 10/100/10 on planar / PCI-X 64-I 8X-24X6 DVD-ROM / Front: one USB (Ver (RJ-45), two RJ-45 (s SVGA / ATI® Radeon	000 ethernet ports bit 100MHz / full o IDE; <i>Diskette:</i> 3. s 2.0) <i>Rear:</i> two U ys mgmt) / no pa	/Two Broadcor luplex / Wake or 5" 1.44MB diske ISB (Vers 2.0), I rallel port	m [®] 57 n LAN ette di keybo	721 / two full gigabit e 1º / Alert Standard For rive / dust cover pard, mouse, serial (9	rmat 2.0 / two RJ-4 -pin), graphics (DE	5 portś in rear 3-15), two ethernet			
Security	Power-on password /	administrator pass	sword / unattend	led bo	ot / selectable boot se	quence				
Systems mgmt Diagnostics Software	IBM Baseboard Mar H8S2168 / on planar environmental monito fans, power supp / sr Adapter II slimline wi continuous power (no Drop down light pat map to failing part (los ServerGuide™ (CD-F utilities), IBM Directo	/ provides system ring such as tem upports optional fith reseverved corporation provides provided from the diagnostics provided from the p	n and on and configuration and configuration.	ED	Xeon2.8GHz800MHz/2MBL2 Xeon3.0GHz800MHz/2MBL2 Xeon3.2GHz800MHz/2MBL2 Xeon3.4GHz800MHz/2MBL2 Xeon3.6GHz800MHz/2MBL2 Xeon3.6GHz800MHz/2MBL2 512MB(2x256)PC2-3200CL3 IGB(2x56)PC2-3200CL3 IGB(2x1GB)PC2-3200CL3EC 2GB(2x1GB)PC2-3200CL3EC	ProcUpg ProcUpg ProcUpg ProcUpg ProcUpg ECC DDR2Non-ChpkKit CC DDR2-SDRAM	25R8908 25R8902 25R8903 13N0686 13N0687 13N0689 73P3523 73P3522 73P2866 71P8642 73P9341			
Keyboard / mouse Power supply Fans	utilities), IBM Director systems mgmt, others IBMServeRAID-7kAdapter IBMServeRAID-7kAdapter IBMServeRAID-7kAdapt									
Slot 2: low-profile, 6 Slot 3: full, 64-bit 1: Slot 4: full, 64-bit 1: *slots 3 & 4 riser r - Opt disk - Opt	access, slim diskette access, slim DVD-R , access, hot-swap, or , ac	-X, non hot, Bus A I-X non hot, Bus A hot-swap, Bus B* hot-swap, Bus B* CI-Express riser lel DVD-HOM OM Deen for disk Deen for disk Deen for disk DDS5 Tape drive	Quick release Configuration Diagnostics (F System Partiti Network Boot Front indicate SCSI bus act identification system-error Predictive fail memory, proc supplies, and Director can a of an imminen Rack: H 3.36 (H 85.4mm x 46.5 to 62 po Stealth black of	n/Setu PC-Doion Bott: F12 ors LE tivity LED, LED, LED lure a cessor fans i alert that com 6" x W W 42 ounds color	p Utility: F1 at startup octor™): F2 at startup octor™): F2 at startup e2 at startup e2 at startup e2 at startup e3 e4 e5 e6 e7	⇒ 3 year parts a linternational linternational linternational linternational linternational linternational linternational linternations linternations linternations linternations linternations linternations linternations linternations linternations linternational lintern	Warranty Service ³ - 5 pm, Mon - Fri luding holidays, next response time ⁷ warranty service ons (in eligible ge, Mon-Fri excluding hr response time ⁸ 21P2077) y coverage, age response time 21P2078) y coverage, age response time 21P2093) ePac options at			

IBM® Type-GAV-model Q	ty x Processor/Core	L2 Cache Memory Disk		Form Factor	Slots x bays (hot-swap bays)	Power supply	Ethernet	Available date
8840-E3y-E3U 1 x 8840-E4y-E4U 1 x 8840-55y-55U 1 x		2MB 1GB None 2MB 1GB None 2MB 1GB None 2x2MB 2GB None	2 x Ultra320 2 x Ultra320 2 x Ultra320	2U⁴ 2U 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 1 x 625W hot-swap 2 x 625W hot-swap 1 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	Sep 2005 Sep 2005 Sep 2005 Oct 2005
Positioning Processor L2 cache	Intel® Xeon™ Proc / All Optimized for	ay server delivering h cessor up to 3.8GH or Extended Memo d on Single Core / 2x	z Single Core a ry 64 Technolo	800M ogy (I Hž FSB / Xeon Pi EM64T) / Hyper-Th	rocessor 2.8GHz Du reading / Simultane	ıal Core 800 eous multi-tl	MHz FSB rreaded
SMP support Implementation	2-way SMP / up to Systemboard contri	to two Xeon Process tains two Intel PGA60 to full-length PCI-X (ors (same spee 04 micro-PGA Z	d/cad	che size) ockets, eight memo	ry DIMM slots, two lo	ow-profile PC	
Memory	pin ECC DDR2-SE pairs [a bank] / 2-v Checking and Co	16GB ¹³ max / two sl DRAM DIMMs / eight way memory interlea prrecting (ECC) / op bugh 8-bit errors cont	DIMM gold-corve / dual chann tional 16-bit Ch	nnecto el / A ecks	or slots on systemb A ctive Memory™: N	oard / DIMMs must I Memory mirroring, ho	be installed i t-spare mem	n matched ory / Error
SCSI disk controller	supports RAID-0 a 5, 00, 10, 1E0, 50	02 / dual channel L and 1 with up to on (installed on reserved els (one internal and	e hot-spare dis d internal connec	k / op ctor)	otional IBM ServeR	AID [™] -7k Adaptor for	low-cost RAII	O 0, 1, 1E,
	backplane for six VHDCI connector Enhanced IDE AT None standard / su	disks; Channel A: 1 / supports optional - A-100 controller in I upports 7200-15000 r pin SCA-2 connectors	6-bit 68-pin inte ServeRAID ad CH5 South Brid pm disks / one b	erface lapter lge / backp	e to support extern s with external cor one connector on p lane	al SCSI devices via nnector(s) for extern planar / one 1-drop I	external SCS al devices DE cable (C	SI 0.8mm
Mechanical Chipset	Intel E7520 / Men slots 3 & 4) / Inte ServeRAID 7k Ada bus to Super I/O)	J ⁴) / rack-mount only mory Controller Hub el Dodson I/O Procce apter / ICH5 South / LPC-SIO 8742x S available PCI-X 1.0	(MCH) / Intel I/0 esor (supports 1 Bridge (Thin IME uper I/O	O Co 100M 3 to F	ntroller Hub 5 (ICH Hz PCI-X slots 1 & Host Bridge for gra	l5) / Two Intel PCI-X 2, Adaptec AIC-790	Hubs (133M) 2 and option	1Hz PCI-X nal
Ethernet controller Optical / diskette Front & Rear ports Graphics	Two gigabit 10/100 on planar / PCI-X (8X-24X ⁶ DVD-ROM Front: one USB (RJ-45), two RJ-45	0/1000 ethernet ports 64-bit 100MHz / full of M / IDE; <i>Diskette:</i> 3. Vers 2.0) <i>Rear:</i> two Us 5 (sys mgmt) / no pa eon™7000m / on pla	s /Two Broadco duplex / Wake o 5" 1.44MB diske JSB (Vers 2.0), trallel port	om® 5 on LAI ette d keyb	721 / two full gigab N® / Alert Standard frive / dust cover oard, mouse, serial	Format 2.0 / two RJ-I (9-pin), graphics (D	45 ports in re B-15), two et	ear
Security	_	rd / administrator pas						
Systems mgmt Diagnostics	IBM Baseboard I H8S2168 / on platenvironmental mofans, power supp Adapter II slimline continuous power Drop down light	Management Contr nar / provides syster nitoring such as tem / supports optional e with reseverved co (no ext power reqd path diagnostics p (located on front par	oller (BMC) / n and p, optional disk Remote Superv nnector for) anel providing L	(s, risor	Xeon 2.8GHz SC 8 Xeon 2.8GHz DC 8 Xeon 3.0GHz SC 8 Xeon 3.2GHz SC 8 Xeon 3.4GHz SC 8 Xeon 3.6GHz SC 8 Xeon 3.8GHz SC 8	DOMHZ/2MB L2 Proc U 00MHZ/4MB L2 Proc U 00MHZ/2MB L2 Proc U 00MHZ/2MB L2 Proc 00MHZ/2MB L2 Proc 000MHZ/2MB L2 Proc 000MHZ/2MB L2 Proc 000MHZ/2MB L2 Proc 000MHZ/2MB L2 Proc 000MHZ/2MB L2 Proc	Jpg Upg Upg Upg Upg Upg Upg	40K2503 40K2502 40K2504 40K2505 40K2506 40K2507 40K2508 it 73P3523
Software	ServerGuide™ (C	CD-ROM installation ector systems mgmt,	and configuration	on	1GB(2x512)PC2-32	00 CL3 ECC DDR2 N 200 CL3 ECC DDR2 N	lon-Chpk Kit	39M5818 39M5809
Keyboard / mouse Power supply Fans	None standard (be Std/Max: one/two (restart / redundant Calibrated Vector (six fans with optio	ecause rack-based) 625 watt hot-swap / r with two power suppred Cooling™ Std: sional second power supstalled; All: variable sp	ear access / aut lies / auto-sensi x fans; <i>Max:</i> two pply) / redundar	ing elve nt	4GB(2x2GB)PC2-32 IBM ServeRAID-7k IBM Remote Supen 73.4GB 10K Ultra32 146.8GB 10K Ultra3	200 CL3 ECC DDR2- Adapter risor Adapter II Slim 0 SCSI Hot-Swap SL 120 SCSI Hot-Swap SI Hot-Swap Power Supp	SDRAM HDD _ HDD	39M5815 71P8642 73P9341 40K1023 40K1024 26K5097 1735L04
Prerequisites		, mouse, SCSI disk,	rack		NetBAY Remote Co Other options at ib	onsole Manager m.com/pc/us/accesso	ries	1735R16

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/

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

ibivi @server ···· 2	KSeries ····	300 (Julie 2003	")		х	HEF DY	eServer	Field Skills	-nablem	ient Team
IBM®		L3			scsi	Mechan-		RXE	Hot-swap		Available
Type-model Qty x P 8686-1RQ 1 x Xeon [™] < 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 2.0GHz MP 2.5GHz	1MB 3 1MB 3	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	One (not redundar Two redundar Two redundar Two redundar Two redundar Two redundar	nt PCI nt PCI nt 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 prod / on die o / up to fou d contains	Processor MI cessor / at proce of processor / at ur Xeon Process s four Intel 603- ethernet, graphic	essor speed t processor s sors MP (san pin micro-PC	speed ne speed/ca	che size)			.,	ŭ	0,
Memory	1.7-inch tall / pairs / 128-b Error Check	/ one me oit simulta king and	B max ^{12,13} / two mory board sta aneous transfer Correcting (E hrough 8-bit err	andard with 8 from two D ECC) via 16-	8 DIMM gold IMMs / PC -bit Checks	d-connect 1600 200 um Chip	or slots / MHz reg	DIMMs distered	must be insta 184-pin DDR-	alled in r SDRAM	matched 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 standar	ard-wired t d 16-bit L\ adapter 68 DE ATA-33 ard / suppo	Wide Ultra160 S to SCSI backpla VD cable includ 3-pin connector 3 controller in O orts up to 15,000 / converged tray	ane (no cable led for attach on systembo SB4 South E 0 rpm disks	e) / no exterr ning an option oard for this Bridge	nal ŠCSI c nal Servel cable to g	onnector RAID ada	apter to t	he three-bay b	ackplane	
Mechanical	EIA 19" rack	models	(3U4) x 28" dee	p / supporte	d in NetBAY	™ Racks	(such as	NetBAY-	42 SR, NetBA	(42 ER)	
Chipset Slots (Active™ PCI-X) RXE Expansion Port	(one to IBM P 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 2) / PCI 2.2 Bus (Gouth Bridge (ID 0 slots ¹⁰ availabl rade, hot expar up to 12 additio	RXE Expan 0 supports So E, 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 on indicato ulative pla	Host Brid t, adapte C97317' or lights (c stic divide	dge prov r slot wit VUL [dis optical se ers	ides three pee h Remote Sup- kette, keyboard ensors control p	r PCI bus ervisor A d, mouse oower to	ses (two dapter, and e]) slot)/
CD-ROM / diskette Ethernet Graphics controller Ports	Intel 82559 1 SVGA / S3® 3 Rear: RXE-10	0/100 eth Savage4 00 Expans	3.5" 1.44MB disl nernet controller LT / on systeml sion Port (to con urd, mouse, anal	r / on system board / 8MB nnect optiona	SDRAM std al RXE-100),	/max / up RXE Mana	to 1280x agement	1024 at Port (to	64K colors at a manage option	35Hz al RXE-1	100), two
Security	Power-on and	d adminis	strator password	ds / unattend	led boot / sel	ectable bo	oot				
Systems management Diagnostics	console and r	mgmt / po	Adapter / PCI ad ower on/off syste cs TM / primary in	em / monitors	s power statu	s, op syste	em, temp	erature,	disks, fans, po	wer supp	plies
Software	IBM Real Tim available eve	ne Ďiagno en while se e ™ (CD-R	ostics (operated erver running ROM installation	I through IBM	/I Director)	RXE-10 512MB 1GB P0	00 Remot PC1600 C1600 E	te Expan ECC D CC DDF	sion Enclosure DR SDRAM R R SDRAM RDI R SDRAM RDI	DIMM MM	86841RX 33L3283 33L3285
Keyboard / mouse Power supplies	Std: one or tw redundant wi worldwide / w fans in each p	wo 370 wa ith two pov oltage-se power su	use rack-based) att hot-swap; <i>M</i> , wer supplies (so ensing / auto-res pply / PFA ant, multi-speed	ax: 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 It Hot-Sw rveRAID	Hz/1MB Hz/1MB Hz/2MB rap Redu ™-4Mx U	L3 Cache Pro L3 Cache Pro L3 Cache Pro Indant Power S Ultra160 SCSI A 50 SCSI Hot-Sv	c Upg c Upg c Upg Supply Adapter	33L3287 73P8805 73P8806 73P8807 31P6108 06P5736 06P5756
Six available 3.3 volt A	one additiona fan failure sig Active PCI-X slo	al fan in e gnals Diag ots:	each power supp gnostic LED and	oly / PFA /	essor	IBM Ne IBM Into IBM T5	tBAY42 \$ egrated x 41 15" Fl	Standard Series A at Panel	d Rack (SR) Adapter for iSer Color Monitor n/pc/us/access	ies (black)	9306420 1519100 9512AB1
Bus 2 (B) with two slength of the second of the second of two fullsize, 64-teners or two fullsize, 64-teners or two fullsize, 64-teners of two fullsize, 64-teners of two fullsize, 64-teners of the second of the	bit, 133MHz PC bit, 100MHz PC bit, 66MHz PC bit, 66MHz PC bit, 33MHz PC lots supports (s	CI-X, hot-s CI-X, hot-s CI-X, hot-s CI, hot-s CI, hot-s slots 3, 4, 5	swap Differ Dimer Swap Stealtl Tool-fit Swap Tool-fit Swap Stealtl Swap Stealtl Swap Stealtl Swap Stealtl Swap Stealtl Swap Stealtl Swap Swap Swap Swap Swap Swap Swap Swap	nsions: H5.2 nsions: H133 nt: 58.4 to 70I h black color ree serviceat s adapters, p nboard from	3.4mm x W44 lbs; 24.9 to 3 pility processors, r	12.0mm x 1.8kg		⇒ 3 ye ⇒ Inte ⇒ On s	LIMITED Wear parts and rnational Warr site, 8 am - 5 poerage exclud t business day	labor anty Ser m, Mon ling 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

ı	_				<u>-</u>
		\Box	Std		diskette CD-ROM
		Std	or opt	Opt	A Dist. ®
			Power		
		Supply	Supply	Supply	• Disk ④
		لــنـا	لــــا		 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 from from
 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: 220.2GB with three 73.4GB2 hot-swap SCSI disks

- 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

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

IBM [®] Type-model Qty x	Processor	L3 cache	L4 cache	Memory	Disk	SCSI controller	Mech-		MP/RXE	Hot-swap	Mgmt Available adapter date
8870-1BX 2 x Xeon 8870-2BX 2 x Xeon 8870-4BX 2 x Xeon	™ MP 2.2GHz MP 2.7GHz	2MB 2MB	64MB 64MB	0GB Chipkill™ 0GB Chipkill 0GB Chipkill	None	2xUltra32	20 4U ⁴ rac 20 4U rack 20 4U rack	k 6x4 c 6x4	3/1 3/1	Two redundan	t PCI Mar 2004
Positioning Processors L3 cache L4 cache Processor upgrade SMP Expansion Module Additional boards	2 x Intel® Xeo 2MB or 4MB 64MB XceL4™ 64MB in each SMP Expansio One SMP Exp L4 cache, sixte Ports) / each S One I/O Board	n™ Proceach proceach proceach proceach proceach SMP Expandanton Manager DIMN Expandanton CPCI-X	eessor Mocessor Accele Expansior Le stand Lodule s M socke ansion M Host Bi	VIP 2.2, 2.7, o / on die of prerator Cache n Module / EC dard / ready cotd / ready two max ts, three SMP Module activat ridge, SCSI, e	or 3.0GH rocesso (up to CC / 64-l or addin / each o Expans es one l ethernet	Hz ¹ with 40 r / at proce 128MB with bit 400MH ag additional contains for sion Ports (RXE Expants, graphics)	OMHz front essor spee th optional z bus from al processour Intel 603 (second monsion Port (, South Brid	side bus d SMP Exp Cache a ors (up to -pin micro dule con one RXE dge, Sup	/ support of support o	Module) / lability Control) and memory ZIF sockets for via one or two sion Port suppo	ler Xeon MP, 64MB SMP Expansion orted)
Memory	0GB std / 64G 32 DIMM gold PC2100 DDR (1, 2, 3, or 4-k hot-swap and	-connect SDRAM oit errors	tor slots I / Erro i i on san	 / must install r Checking a ne chip; up to 	two inc and Cor two ch	dentical DI recting (E ips at once	MMs at sar ECC) and (e; redunda	me time Chipkill™ nt bit ste	/ 2-way ¹ via M €	emorv ProteX	ion™ ry™ supporting
SCSI disk controller SCSI implementation IDE controller Disk - capacity/bays	First channel to	o internal el to one e longer) 1 ATA-100	l 2-port (external 6-bit LV 0 contro	SCSI backplar .8mm VHDCI 'D cable includ Iler in South B	ne for in 68-pin c ded for a bridge / c	ternal hot-s connector (attaching ar one one-dr	swap disks 16-bit LVD on optional S op IDE cab	(16-bit L\ cable fror erveRAI le to back	/D cable n I/O Bo D adapt cplane fo	e to SCSI backp pard to ext conn er to the two-ba or diskette and	ector) / ay backplane CD-ROM
Mechanical	EIA 19" rack r	nodels (4U ⁴) x 2	8" deep / supp	oorted ir	n NetBAY™	M Racks (su	ch as Ne	tBAY42	SR, NetBAY42	2 ER)
Chipset Slots (Active™ PCI-X)	Expansion Por X Host Bridge Adapter, VIA® PCI 2.2 Bus F	ts / IBM I provides 82C686E supports	Memory three p South SCSI, 6	· I/O Controller eer PCI buses Bridge (IDE A ethernet / PCI-	with tw F / PCI 2 TA-100, X Bus A	o remote I 2.2 Bus E s , USB, Sup A, B, C, D s	/O ports (easupports gra er I/O PC9 support PC	ach to a I aphics, a 7317VUL I-X slots	BM PCI dapter s [keyboard designal	slot with Remotard, mouse]) / ed to the PCI->) / each IBM PCI- e Supervisor (1.0 specification
RXE Expansion Port	hot replace, I One RXE-100	not upgr Remote E	rade, h e Expansio	ot expansion on Enclosure ca	ı '∕ sepa an be sh	rated by in ared betwe	nsulative plen two x44	astic div 5 4-way,	iḋers 8-way, o	r 16-way xSerie	. ,
Ethernet	Dual Broadcor SVGA / ATI® F	n ^å 5704 1 Rage XL <i>i</i> 0 Expans	10/100/1 / on I/O sion Por	000 ethernet Board / 8MB t (to connect	controlle SDRAM optional	er / on I/O E /I std/max / I RXE-100)	Board / full (up to 1280 , RXE Mar	duplex / 6 0x1024 a nagemen	64-bit 66 t 85Hz. t Port, tv	6MHz PCİ bus / wo USB (Vers	S CD-RW, DVD Wake on LAN® 1.1), keyboard,
Security	Power-on and	administ	trator pa	asswords / una	attended	d boot / se	lectable bo	ot			
Systems mgmt Diagnostics	console and m	ngmt / po	ower on	/off system / r	nonitors	s power sta	atus, op sy	stem, ter	nperatur		/ provides remote power supplies components /
Software	IBM Real Timavailable even ServerGuide™ utilities), IBM	e Diagno ı while se ™ (CD-R	ostics (d erver ru OM inst	pperated throunning tallation and o	ıgh IBM	l Director)	IBM Prelo Microso	ad Kit fo	r 1-8 Pr		48166BU
Keyboard / mouse Power supplies Cooling fans	None standar Std: two; max watts at 110v front access / fans in each p Four hot-swap one additional fan failure sign	d (becau two / ho / redund worldwid ower sup o, redund fan in ea nals Diag	use ractot-swaptant at 2 de / volipply / Pant, muach pow	k-based) / 1200 watts /20v with two tage-sensing FA ulti-speed fanser supply / P LED and mgr	power s / auto-re s / FA / nt proce	estart /	Microso 1GB DDR 2GB DDR Xeon MP Xeon MP Xeon MP IBM 73.4G IBM Serve Other opt	ft Windo PC2100 PC2100 2.2GHz/2 2.7GHz/2 3.0GHz/4 iB 10K UI RAID™-∠	ws Serv ECC S ECC S 2MB L3 2MB L3 4MB L3 4MB L3 4MB L3	ver Datacenter DRAM RDIMM CACHE Proc U Cache Proc U Cache Proc U Cache Proc U SCSI Hot-Swap 160 SCSI Adap n/pc/us/access	2003 1 33L5039 1 33L5040 pg 13N0723 pg 13N0722 pg 13N0721 06P5756 ter 37L6889
	66MHz PCI-X, 66MHz PCI-X, 100MHz PCI-X, 133MHz PCI-X, 133MHz PCI-X, 133MHz PCI-X, te Supervisor Ad	hot-swap hot-swap hot-swap hot-swap hot-swap p, 32-bit 3 4U Rad	o Bus A o, Bus B o, Bus B o, Bus C o, Bus C o, Bus D odd Bus	Max weight Stealth bla Tool-free Access pro MP Expa Access po Edition Comment	ns: H178 tt: 110 lb ck color erviceal ocessors nsion M wer sup gram by s (PC-D tt by pre n LED pa ath pane s withou Failure ver Acce plies, an or	Bmm x W48 s; 50kg bility s, memory, odule from plies and d pressing F octor) by p ssing Ctrl+ anel and fro el (1st and tremoving Analysis® a elerator Ca d optional	adapters, a top isks from fr 1 at startup ressing F2 A at startup ont-accessil 2nd level cover) llerts on proche, memo	and ont at startup ole pull- cessors, ry, fans, apacity:	Property of the control of the contr	n site, 9 hr x 5 ext day respon year on site wa yegrade option (cations): 24 hr x 7 day co hour respons No ServicePaca set warranty ma ervices availal ther ServicePa	labor rranty Service ³ day coverage, se time ⁷ rranty service in eligible overage, et ime available) aintenance ole c options at com/services/us/ eu.pdf upport for during the

IBM [®] Machine Type Model Procce			emory	Disk	Disk controller	Maximum Capacity	Optical	Slots x bays	Hard disk bays	Ethernet	Available date
4347 - 26U Athlon 4347 - 48U Opteron	3500+ 2.2GHz/SC 1210 1.8GHz/DC 1210 1.8GHz/DC 1214 2.2GHz/DC 3500+ 2.2GHz/SC 1210 1.8GHz/DC 1218 2.6GHz/DC	512KB 1 x 2x1MB 1 x 2x1MB 2 x 2x1MB 2 x 512KB 1 x 2x1MB 2 x 2x1MB 2 x 2x1MB 2 x	512MB 512MB 512MB 512MB 512MB 512MB 512MB	160GB	SATA SATA SATA SATA SATA SATA SATA	1.5 TB 1.5 TB 1.5 TB 1.5 TB 1.5 TB 1.5 TB 1.5 TB	CD-ROM CD-ROM CD-ROM Combo CD-ROM CD-ROM Combo	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 2 fixed	Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Oct 2006 Oct 2006 Oct 2006 Oct 2006 May 2007 May 2007 June 2007
Positioning Processor(s)	Uniprocessor, entry Single-socket AMD	<i>server desig</i> Opteron 100	ned to m 00 Series	neet sma s Dual-C	all busines ore proce	ss needs a essor up to	<i>nd budgets</i> 2.6GHz or	one Athl	on up to 2.2	2GHz Sing	le-Core
L2 cache Implementation SMP support	2MB std on Optero Motherboard contai Gigabit Ethernet. No SMP support / r	ns one AM2 s	socket, fo				(2 PCI Exp	ress x8,	2 PCI), inte	grated SAT	A and
Memory	512MB or 1GB std Error Checking an	/ 8GB ¹³ max a	/ four 184 (ECC) /	4-pin gol dual-ch	ld-plated annel / in	DIMM sock	kets / PC2-! / unbuffered	5 300 667	MHz ECC I	DDR2-SDF	RAM / AII
SCSI disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	None standard / Ult Enhanced IDE / ATA Dual channel SATA drive standard One 2-drop EIDE co 80, 160 or 250GB S None standard / IBI	ra320 SCSI o A-100 / integra controller (1.	controller ated in I/ 5GB/sec	2 (LVD O Contro) / integr	320MB/se oller Hub rated into	ec) optiona / one conr I/O Contol	al for tape b nector on pl ler Hub / su	ackup anar ıpports u	p to two HD	Ds & one	GoVault™
Rack support Bus slots (see below)	None Two PCI-E x8 slots										
Chipset	Nvidia® nForce™ F ATA-100 EIDE, SAT I/O for diskette, para	A, USB, Low	2200 MC Pin Cou	CP / I/O (nt Interfa	Controller ace / SST	Hub provi 49LF004 <i>A</i>	des: two P0 A, 4Mbit Firi	CI-Expres mware H	ss x8 slots, ub / Winbor	two PCI 2.	2 slots, 4K Super
Ethernet Optical / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabi (PXE) / Wake on LA Some: CD-ROM: 48 Front: two USB(2.0 Diagnostic LEDs / 6 None	N® 3X-20Xº CD-F); <i>Back:</i> one s	ROM, IDE serial(9-p	E; <i>some:</i> oin), one	: CDRW/L parallel,	OVD-ROM four USB(2	Combo: 482 2.0), etherno	x/32X/48 et(RJ-45)	3X/16X ⁶ , IDE), video(DB-	<u>=</u> ·15)	
Graphics controller	ATI® ES1000 / 16M	B SDRAM sto	d/max / o	n planar	r / analog	15-pin / up	to 1024 x	768 x 32	bit @85Hz		
Security	Optional U-Bolt sup control / operation v	port via knoc vithout keybo	kout / po ard/mous	wer-on p se/displa	oassword ay	/ boot seq	uence				
Software	ServerGuide™ (CE installation and con Director (system ha	figuration too	 include 	ed and IE	S 3M ard	512MB PC 2x1GB PC 2x2GB PC	2-5300 CL5 2-5300 CL5 2-5300 CL5	ECC DI ECC DI	DR2 DR2 DR2	LIDD	41Y2726 41Y2729 41Y2732
Keyboard / mouse Cooling fans Power supply	Included / USB only Three variable spee supply) / not redund 310 watts / universa Server Restart (AS cooling fan in powe	ed fans (cpu l dant / not hot- al / manual sw R) / not hot-sv	swap vitching / wap /no i	Automa redundai	itic ncy /	BM 48x-20 16x Max R 48y/32y/48	Dx CD-Rom AM-Read D	Internal VD-Rom CD-RW	DR2 DR2 DR2 imple-swap imple-swap imple-swap imple-swap imple brive (brive (brive (black)	black)	39M4504 39M4508 39M4514 43W7572 39M6342 22P1999 32R2905 32R2906
		1.6", access, 1.6", access, access, oper access, std c	, open (o n disk	ptical or	tape)	BM DDS/5 BM Servel BM SAS H BM Ultra3	purner Plus Portable Dis pult 80GB (S 20GB VXA- 50 Tape Drive RAID 7t SA 1BA Control 20 SCSI Co	e (SCSI) TA Contr ller (for Sontroller 2	oller ATA RAID (2), 1)	32R2300 40K1692 25R0006 25R0045 39M5656 39R8805 25R8060 39R8743



black

Bay ⊕ 3.5", SL 1", access, std disk Bay ⑤ 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 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
- Maximum internal disk capacity¹³: 1.5TB with two 750GB SATA disks

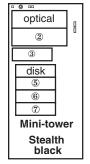
♦ H 17.2" x W 8.1" x D 19.6" → H 438mm x W 205mm x D 497mm

\$ 31 to 38 pounds (14 to 17kg)

- → 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 period³

IBM®Machine Type model	Proccessor	/ Speed	L2 cache		Memory	Disk/Disk controller	Maximum Capacity		Hard disk bays	Power Supply	Ethernet	Available date
4362/4363 24Y/2DY 4362/4363 32Y/3BY 4362/4363 42Y/4BY 4362/4363 43Y/4CY 4362/4363 44Y/4DY 4362/4363 52Y/5BY 4362/4363 56Y/5FY	Pentium D 945 Xeon® 3045 Xeon 3046 Xeon 3056 Xeon 3056 Xeon 3056 Xeon 3056 Xeon 3056	5 3.0GHz ¹ 5 3.0GHz 5 3.4GHz 0 1.86GHz 1 1.86GHz 0 2.13GHz 0 2.13GHz 0 2.4GHz 0 2.4GHz	2x2MB 2x2MB 2 2MB 2 2MB 2 2MB 2 2MB 2 2MB 2 2MB 2 2MB	800 1066 1066 1066 1066 1066 1066	1x512MB 2x512MB 1x512MB 1x512MB 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB	None/SATA None/SATA None/SATA None/SATA 1x160GB/SA None/SAS/SA None/SAS/SA 1x160GB/SA None/SAS/SA None/SAS/SA	2.0TB 2.0TB TA 2.0TB TA 2.0TB 2.0TB TA 2.0TB	5 x 7 5 x 7 5 x 7 5 x 7 5 x 7 5 x 7 5 x 7	4 simple-swap 4 hot-swap 4 simple-swap 4 simple-swap 4 hot-swap	1x400W 1x400W 1x400W 1x400W 1x400W 2x430W 2x430W 1x400W	Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Nov 2006 Nov 2006
Positioning Processor(s) L2 cache Implementation SMP support	Intel® Pentiu for Extended 1MB per core	m D up to d Memory e std on Po contains o video and	o 3.4GI o 64 Te entium one LG. Gigabit	Hz 80 chno D / 2 A-775 t Ethe	OMHz FSB logy (EM64 or 4MB std socket, fou rnet.		2.4GHz 10	66 MH	z FSB / All [•
Memory	512MB or 1G DDR2-SDRAI	B std / 8GI /I / All Eri	3 ¹³ max or Che	/ four cking	184-pin gold and Correc	l-plated DIMM : ting (ECC) / D	sockets / one IMMs and E	or two CC me	socket used / mory controller	PC2-530 / industry	0 667MH y std / un	z ECC buffered
SAS/SATA controller IDE controller SATA controller Cables Disk	Enhanced ID Four channe One 2-drop E	E / ATA-1 I SATA co EIDE cable	00 / inte ontroller es (to o	egrate (3.00 ptical	d in I/O Co GB/sec) / s) / one 1-dr	SAS or SATA ntroller Hub / oupports 4 driv op SATA cab / S.M.A.R.T.	one connec	tor on p d / inte	olanar ['] grated	s / RAID	0,1	
Rack support Bus slots (see below	5U⁴ rack mou) One PCI-E x8						slots					
Chipset		ow Pin Co				ICH) / I/O Cor Hub / SMSC						
Ethernet Optical / diskette Ports Diagnostics Systems mgmt	Preboot eXec 4362 MTMs: Front: two US Diagnostic LE Mini-baseboa	cution Env 48X-20X ⁶ SB (2.0); Ds / error I ard manag	ironmer CD-R0 Rear: to EDs for gement	nt (PX DM, II wo se r fans contre	E) / Wake on E) / Wake on E; 4363 M rial (9-pin), and memonoller / IPMI	nar / full-duple; on LAN® ITMs: 48X-32 parallel, four l / / server diagr 1.5 / monitor on/off / supp	X-48X-16X ⁶ JSB (2.0), I lostic progra s system al	CD-R' ceyboar ms store	W/DVD-ROM rd, mouse, etl ed on IBM Enl cessor tempe	nernet (R nanced D rature, fa	IJ45) and iagnostics an speed	d video s CD l and
Graphics controller	ATI® ES1000(RN50) / 16	MB SD	RAM s	std/max / on	planar / analog	15-pin / up	to 1024	x768x32bit@8	5Hz		
Security Software	Chassiss introlock / U-Bolt boot sequence ServerGuide installation a hardware ma	Tie-down ce control ™ (CD-ba nd configu	capabili / opera sed au iration	ty/povation v ation v atoma tool),	ver-on pass without kyb ted networl IBM Directo	word / d/mouse C OS or (system	BM 80GB SATA BM 160GB SAT	2-5300 E 2-5300 E (7.2K) si A (7.2K) s A (7.2K) s A (7.2K) s A (7.2K) s SATA HE	ECC DDR2 667MH ECC DDR2 667MH mple-swap HDD simple-swap HDD simple-swap HDD simple-swap HDD DD	Z Z		41Y2726 41Y2729 41Y2732 39M4500 39M4504 39M4508 39M4514 39M4518 39M45122
Keyboard / mouse Cooling fans Power supply	Optional Three fans (f on SAS mode Some: 400W some: 430W switch / Auto cooling fan in	els / not re / not hot-; / hot-swap matic Sen	edundar swap / I o / redu ver Res	nt / no no rec ndant start (<i>I</i>	t hot-swap dundancy / / all: univer ASR) /	itional fan	250GB Hot-Swa 30GB 10K 3.5" 46GB 10K 3.5" 800GB 10K 3.5" 806GB 15K 3.5" 806GB 15K 3.5" 806GB 15K 3.5" 807GB 15K 3.5" 8	p SATA H p SATA H AS Hot-S SAS Hot-S AS Hot-S AS Hot-S AS Hot-S Plus (DV Dervisor A Wer-to-Ra TA RAID	IDD IDD Wap HDD Swap HDD Swap HDD wap HDD wap HDD Swap HDD Swap HDD Swap HDD D-RAM) dapter II slimline tck Kit			39M4526 39M4526 39M4530 40K1039 40K1041 40K1041 40K1043 40K1044 32R2906 39Y9566 42C8923 42C1312



- 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

IDM® Mook !		LO ECD	Distr/Dist	Maximum -1:1:	Harri	Power Avail	lab!:
IBM [®] Machine Type model	Proccessor / Speed	Cacife Willz	mory Disk/Disk controller	Maximum slots Capacity x bays	Hard s disk bays	Avui	ilable date
4362/4363 74Y/7DY 4362/4363 82Y/8BY	Pentium® 4 541 3.2GHz¹ Pentium 4 541 3.2GHz Xeon® 3210 2.13GHz Xeon 3210 2.13GHz Pentium E2160 1.8GHz Pentium E2160 1.8GHz	800 1MB 1x5 800 1MB 1x5 1066 8MB 2x1 1066 8MB 2x1 800 1MB 1x5 800 1MB 2x5	GB None/SAS/SA 12MB None/SATA	3.0TB 5 x 7	4 hot-swap 2 4 simple-swap 1	x400W Gb Feb 2	2007 2007 2007 2007
Positioning Processor(s)	Single socket, entry ser Intel® Pentium 4 up to	ver for small and and 3.2GHz	medium size business FSB / Xeon up to 2.1	' and distributed e 3GHz 1066 MHz	enterprises FSB / Dual-Core	e / All Optimized for	.
L2 cache Implementation	Extended Memory 64 T 1MB per std on Pentium Motherboard contains or port, ATI video and Giga	echnology (EM6 4 / 8MB std on) ne LGA-775 sock bit Ethernet.	64T)			-	
SMP support	No SMP support / no pro			5			
Memory	512MB, 1GB or 2GB st 667MHz ECC DDR2-SE try std / unbuffered	d / 8GB ¹³ max / fo PRAM / All Error	our 184-pin gold-plated Checking and Corre	DIMM sockets / cting (ECC) / DIM	one or two socke MMs and ECC m	t used / PC2-5300 emory controller / ind	-sut
SAS/SATA controller IDE controller SATA controller Cables Disk	LSI Logic® 1064e / dau Enhanced IDE / ATA-100 Four channel SATA cont One 2-drop EIDE cables Some: 160GB SATA / 7,	roller (3.0GB/sec) / supports 4 drives st	andard / integrate	ed	0,1	
Rack support Bus slots (see below)	5U ⁴ rack mount support One PCI-E x8 / one PCI	via tower-to-rack -E x1 / three 32-b	kit option oit 33MHz 5v PCI 2.2 s	lots			
Chipset	Intel 3010 chipset / Me MAC, USB, Low Pin Cou mouse	mory Controller F unt Interface / Firm	lub (MCH) / I/O Contro mware Hub / SMSC® S	oller Hub (ICH7R) 6CH5017 Super I/	for PCI 2.2, ATA O for diskette, pa	-100 EIDE, ethernet arallel, serial, keyboar	rd,
Ethernet Optical / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / Br Preboot eXecution Envir 4362 MTMs: 48X-20Xe (Front: two USB (2.0); F Diagnostic LEDs / error Mini-baseboard manage and voltages / secure re	onment (PXE) / \ CD-ROM, IDE; 4 <i>3</i> <i>ear:</i> two serial (9 LEDs for fans and	Wake on LAN® 863 MTMs: 48X-32X-48 -pin), parallel, four USI d memory / server diag	3X-16X ⁶ CD-RW/I B (2.0), keyboard	DVD-ROM, IDE / , mouse, etherne stored on IBM E	nnanced Diagnostics	; CD
Graphics controller	ATI® ES1000(RN50) / 16	SMB SDRAM std/	max / on planar / anal	og 15-pin / up to 1	1024x768x32bit@	҈085Hz	
Security Software	Chassiss intrusion detectiock / U-Bolt Tie-down coupont sequence control / ServerGuide™ (CD-basinstallation and configur. hardware management	apability/power-or operation without ed automated ne ation tool), IBM D	twork OS irector (system in utilities is	2MB PC2-5300 ECC I BB(2x1GB) PC2-5300 I BB(2x2GB) PC2-5300 I M 80GB SATA (7.2K) I M 160GB SATA (7.2K) I M 250GB SATA (7.2K) I M 500GB SATA (7.2K) I M 750GB SATA (7.2K) I	mple-swap HDD simple-swap HDD simple-swap HDD simple-swap HDD	41Y 41Y 39N 39N 39N 39N	72726 72729 72732 M4500 M4504 M4508 M4514 N7572
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink, real on SAS models / not rec Some: 400W / not hot-s some: 430W / hot-swap switch / Automatic Serve cooling fan in power sup	wap / no redunda / redundant / all: er Restart (ASR) /	s additional fan swap ncy / universal / auto / ed)	GB Hot-Swap SATA HOGB 10K 3.5" SAS Hot-GB 10K 3.5" SAS Hot-GB 10K 3.5" SAS Hot-GB 15K 3.5" SAS Hot-	DD IDD IDD IDD IDD Swap HDD -Swap HDD -Swap HDD Swap HDD	39M 39M 39M 43M 40K 40K 40K 40K	M4518 M4522 M4526 M4530 W7576 (1039 (1040 (1041 (1042
			14 IB IB IB Si	GB 15K 3.5" SAS Hot- 6GB 15K 3.5" SAS Hot M Multiburner Plus (DV M Remote Supervisor / M 5Ux20D Tower-to-Ra mple Swap SATA RAID her options at ibm.com	:-Swap HDD D-RAM) Adapter II slimline ick Kit Kit	40K 32R 39Y 42C	(1043 (1044 R2906 (9566 C8923 C1312
	lot 1: fullsize, PCI-E x8 (40		♦ Removable left side p	anel		D WARRANTY ³	2
2 S S S S	lot 4: fullsize, 32-bit 33MH lot 5: fullsize, 32-bit 33MH	z, PCİ 2.2 (5v) z, PCI 2.2 (5v) z, PCI 2.2 (5v)	Configuration/Setup Umemory) invoked by patartup Advanced Configuration Interface (ACPI) 1.0	Jtility (in flash pressing F1 at	MTM	nd labor standard 4362 nd labor standard 4363 Varranty Service ³	
(S)	ay ① 5.25", HH 1.6", access ay ② 5.25", HH 1.6", access ay ③ 3.5", SL 1", access, op	s, open (no disk)	Device Drivers and D CD-ROM included Four stabilizing foot	iagnostics	✓ On site, 8 am- Mon-Fri exclusion next business On site consider On site		

- Mini-tower Stealth black
- Bay ③
 Bay ④
 Bay ⑤
 Bay ⑥
 Bay ⑦ 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
- 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

- → Four stabilizing feet
 → H 17.25" x W 8.5" x D 21.25"
 → H 448mm x W 215.9mm x D

Maximum SATA capacity: 3TB¹³ (4 disks x 750GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

- next business day response time

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

 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)

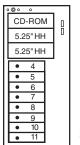
 3 year IOR 9x5, NBD response
 (ServicePac part num 69P9509)

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

3W System x32	230							xREF by S1	IG Fleid	SKIIIS	and Edu	cation	ı ream
IBM® Machine Type model	Processo	or / Speed	L2 cache	FSB MHz	Memory	Disk control		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 45 3.4GHz/DC 1.87GHz/DC 1.87GHz/DC 2.13GHz/DC 2.13GHz/DC 2.4GHz/DC 2.4GHz/DC	2MB 2MB	8 800 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 SATA SAS/S/ SAS/S/ SAS SAS/S/ SAS	ATA 2 ATA 2	2 simple-swap 2 simple-swap 2 simple-swap 2 hot-swap 2 hot-swap 4 hot-swap 4 hot-swap 4 hot-swap	1U⁴ rack 1U rack 1U rack 1U rack 1U rack 1U rack 1U rack 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 pport d contains one l El Express® x8 s	533 FS Optimiz MB std LGA-775	B / Pe ed for on Pe	entium D a Extended Intium D / 2	t 3.4GH Memor or 4MB	z Dual y 64 1 on Xe	I-Core 800MH Fechnology (eon / ECC / fu	Iz 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 I SAS models	el SATA contro DE busmaster , s: one 1-drop E els: two 1-drop	ller (3.0 / ATA-1 IDE cab	GB/sec 00 sup ble (co	c) / suppor oport / one nnected to	ts 2 driv connect Optical)	es sta tor on	indard / integr systemboard	rated into	ress / South	RAID 0,1 n Bridge		
Mechanical Architecture / chipsets Bus slots	Intel 3010 o MAC, USB,	ck (1U⁴) / rack- chipset / Memo Low Pin Count) two PCI-E™ xi	ry Contr Interfac	oller H									nernet
Ethernet controllers Optical / diskette Ports Graphics	integrated / 4364 MTMs Front: two Usystems ma	ual-Gigabit 10/100/1000 ethernet ports / Broadcom® 5721 / two full gigabit ethernet MAC and PHY layer function tegrated / port one is CSA, port two is PCI 2.2 / full duplex / PXE / Wake on LAN® / Rear RJ-45 ports (2) 364 MTMs: 48X-20X6 CD-ROM, IDE; 4365 MTMs: 48X-32X-48X-16X6 CD-RW/DVD-ROM, IDE / Diskette: none ront: two USB (2.0) / Rear: serial (9-pin), two ethernet (RJ-45), keyboard, mouse, video (DB-15), two USB (2.0), cystems management (RJ-45) TI® ES1000(RN50) / 16MB SDRAM std/max / on planar / analog 15-pin / up to 1024x768x32bit@85Hz											one
Console interconnects Systems mgmt Diagnostics	Mini-basebo voltages Diagnostic I Diagnostics	lo system-to-system interconnect cable (separate keyboard, video, mouse ports on back) // Mini-baseboard management controller / IPMI 1.5 / monitors system and processor temperature, fan failure, and										d	
Security Software	unattended secure rem ServerGuid	assword / adm boot / selectabl ote power on le [™] (CD-ROM M Director [™] an	le boot / / off via installati	unatte IPMI on an	ended start 1.5		2GB(2) 4GB(2) IBM 36 IBM 73 IBM 80 IBM 16	PC2-5300 ECC D (1GB) PC2-5300 E (2GB) PC2-5300 E GB SFF SAS HDD GB SFF SAS HDD GB SATA (7.2K) si	CC DDR2 CC DDR2 i 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 universal / auto- yboard, mouse,	dant or -sensing	hot-sw	/ap		1BM 50 80GB H 160GB 250GB 500GB 73GB 1	OGB SATA (7.2K); OGB SATA (7.2K); Hot-Swap SATA HE Hot-Swap SATA H Hot-Swap SATA H Hot-Swap SATA H OK 3.5" SAS Hot-S	simple-swap DD HDD HDD HDD Swap HDD				39M4508 39M4514 39M4518 39M4522 39M4526 39M4530 40K1039 40K1040
Rear Poision III	PCI slot 2	Slot 1: 3/4 leng Slot 2: half leng Some:					36GB 1 73GB 1 146GB IBM Re IBM Sir	10K 3.5" SAS Hot- 10K 3.5" SAS Hot- 5K 3.5" SAS Hot- 5K 3.5" SAS Hot- 15K 3.5" SAS Hot- mote Supervisor A mple-Swap SATA I ptions at ibm.com /	Swap HDD Swap HDD Swap HDD Adapter II slim RAID Kit				40K1041 40K1042 40K1043 40K1044 42C4178 42C1313
DIMM sockets CPU Plana	Fan Fan Disk	Bay ① 3.5", Si Bay ② 3.5", Si Bay ③ 5.25", U Some: Bay ③ 2.5", Si Bay ② 2.5", Si Bay ④ 2.5", Si Bay ⑤ 5.25", U Si Paven black H 1.75" (1U) Configuration Network Boo Operator Info Ships with Dia Predictive Fa alert the adm	L 1", acc ltraSlim FF, accor FF, accor FF, accor FF, accor ItraSlim front bez x W 17 s; 11kg y/Setup U t: F12 a prmation agnostics ailure Ar	cess, of cess, or ces	open for siccess, std pen for hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for side hot- pen for hot	mple-sw optical -swap di -swap di -swap di -swap di optical mx 440 um to ma Setup ar with IBN compon	ap/hot sk sk sk sk sk omm x ax con nd Insta // Direcent fai	-swap disk 559mm figuration) allation CD ctor can lure	J year page 1 year	parts ar parts ar tional v , 8 am- i excluc siness services s (in eligar lor of siness ar IOR vicePac ar IOR vicePac ar IOR vicePac ar IOR vicePac by vicePac sir of a vicePac sir of a sir of a vicePac sir of a	nd labor state Warranty S 5 pm, ding holida day responde upgrade gible locati 9x5, NBD a part num 6 9x5, 4 hr a part num 6 24x7, 4 hr a part num 6 Pac option n.com/ If/wamomx	andard andard ervice ³ ys, nse tim ons): ⁷ vg resp 9P9506 avg res 9P9506 respon 9P9508 is at	4364 MTM 4365 MTM e conse 5) conse 5) ponse 7) se 3)
	Maximum internal disk capacity ¹³ (model dependent): 1TB with two 500GB 3.5" SATA disks, 600GB with two 300 or 292GB with four 2.5" 73GB SAS disks										e support f the warrai		

DIVI SYSTEM X3230 XREF by STG FIELD SKIIIS and												i i caiii
IBM® Machine Type model	Processo	or / Speed	L2 cache	FSB MHz	Memory	Disk controlle	Disk r bays	Mech- anical		Ethernet	Ltd warr ³	Available date
4364/4365 21Y/2AY 4364/4365 82Y/8BY 4364/4365 92Y/9BY 4364/4365 32Y/3BY 4364/4365 72Y/7BY	Xeon® 3210 Xeon 3220 Pentium E216	25 3.0GHz/DC 2.13GHz/DC 2.4GHz/DC 0 1.8GHz/DC 2.66GHz/DC	2x2MB 8MB 8MB 1MB	8 800 1066 1066 800	1 x 512MB 2 x 512MB 2 x 512MB 2 x 512MB 1 x 512MB 2 x 512MB	SATA SAS/SAT SAS/SAT SATA	2 simple-swap	1U ⁴ rack 1U rack 1U rack 1U rack	2x3 2x3 2x3 2x3 2x3	Dual GB Dual GB Dual GB Dual GB	1/3yr 1/3yr 1/3yr 1/3yr	Feb 2007 Feb 2007 Feb 2007 Sep 2007 Sep 2007
Positioning Processor(s) L2 cache SMP support Implementation	Intel® Penti mized for I 2x2MB std o No SMP su Motherboard	um D at 3.0GH Extended Mem on Pentium D / 8 pport	Iž Dual- ory 64 8MB on LGA-775	Core a Techn Xeon	800MHz FS nology (EM / ECC / full	6B / Xeon 64T) speed	or web and network up to 2.66GHz	Dual-Cor	e 1066	MHz FSE		
Memory							ockets / two socke d ECC memory c					DDR2-
SAS/SATA controller SATA controller IDE controller Cables	Four channe Enhanced I SAS models	el SATA contro DE busmaster , s: one 1-drop E els: two 1-drop	ller (3.0 / ATA-1 IDE cab	GB/se 00 sup ble (co	c) / support oport / one nnected to	ts 2 drives connector Optical)	rives / four-port s standard / inter on systemboar ble (connected t	grated into d	South			
Mechanical Architecture / chipsets Bus slots	Intel 3010 o MAC, USB,	ck (1U⁴) / rack- chipset / Memo Low Pin Count) two PCI-E™ xi	ry Contr Interfac	ollér ⊦	Hub (MCH) / mware Hub	/ I/O Cont / SMSC®	roller Hub (ICH7 SCH5017 Super	R) for PCI I/O for se	-E, AT. erial, ke	A-100 EII eyboard, r	DE, eth	nernet
Ethernet controllers Optical / diskette Ports Graphics	integrated / 4364 MTMs Front: two l systems ma	bit 10/100/1000 ethernet ports / Broadcom® 5721 / two full gigabit ethernet MAC and PHY layed / port one is CSA, port two is PCI 2.2 / full duplex / PXE / Wake on LAN® / Rear RJ-45 ports (2) /s: 48X-20X6 CD-ROM, IDE; 4365 MTMs: 48X-32X-48X-16X6 CD-RW/DVD-ROM, IDE / Disket USB (2.0) / Rear: serial (9-pin), two ethernet (RJ-45), keyboard, mouse, video (DB-15), two Ustanagement (RJ-45) / 16MB SDRAM std/max / on planar / analog 15-pin / up to 1024x768x32bit@85Hz										
Console interconnect Systems mgmt Diagnostics	Mini-basebo voltages Diagnostic I Diagnostics	oard manageme LEDS/ Error LE	ent contr DS for f an be cr	roller / fans a reated)	IPMI 1.5 / nd memory // support f	monitors / Diagnos or optiona	system and prod tics via PC-Doct Il slimline Remo	cessor ten or on a st	nperatu andard	l IBM Ent	nanced	d
Security Software	unattended secure rem ServerGuid	assword / adm boot / selectabl ote power on le [™] (CD-ROM M Director [™] an	le boot / / off via installati	unatte IPMI ion an	ended start 1.5	mode / 4 tion 1E IE	12MB PC2-5300 ECC GB(2x1GB) PC2-5300 GB(2x2GB) PC2-5300 8M 36GB SFF SAS HD 8M 73GB SFF SAS HD 8M 80GB SATA (7.2K) 8M 160GB SATA (7.2K)	ECC DDR2 ECC DDR2 D D simple-swap) simple-swap	HDD			41Y2726 41Y2729 41Y2732 40K1051 40K1052 39M4500 39M4504
Cooling fans Power supply Prerequisites	variable spe 351 watt / u	(five fans for seed / not redundant universal / auto- yboard, mouse,	dant or -sensing	hot-sw	/ap	pply) / IE 8 pport 2 5	BM 250GB SATA (7.2K M 500GB SATA (7.2K M 500GB Hot-Swap SATA 60GB Hot-Swap SATA 50GB Hot-Swap SATA 30GB 10K 3.5" SAS Hot 46GB 10K 3.5" SAS Hot) simple-swap HDD HDD HDD HDD HDD Swap HDD	HDD			39M4508 39M4514 39M4518 39M4522 39M4526 39M4530 40K1039 40K1040
Rear PCIsiti		Slot 1: 3/4 leng Slot 2: half len Some:				3: 3: 7: 1: IE IE	DOGB 10K 3.5" SAS Hot 6GB 15K 3.5" SAS Hot 3GB 15K 3.5" SAS Hot 46GB 15K 3.5" SAS Hot 8M Remote Supervisor 8M Simple-Swap SAT/ ther options at ibm.cor	ot-Swap HDD Swap HDD Swap HDD ot-Swap HDD Adapter II slir A RAID Kit				40K1041 40K1042 40K1043 40K1044 42C4178 42C1313
DIMM sockets CPU Plan FanFanFan Disk Optical Front or or aptical 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Fan Fan Disk	Bay ① 3.5", Sind Bay ② 3.5", Sind Sind Sind Sind Sind Sind Sind Sind	ItraSlim FF, accor FF, accor FF, accor FF, accor ItraSlim front bez x W 17 s; 11kg n/Setup U tt: F12 a transition agnostics ailure Ar ninistrato	0.5", a ess, opess, opess, opess, opess, opess, op 0.5", a zel '.32" x to 12.' Jtility: I at start Panel s CD, S nalysis or of an	pen for hot- pen for hot- pen for hot- pen for hot- pen for hot- pen for hot- pen for mot- pen f	mple-swap mple-swap optical swap disk swap disk swap disk optical m x 440m im to max Setup and with IBM componer	hot-swap disk hot-swap disk k k k k k k k k k k k k k k k k k k	□ 1 year □ 3 year □ Interne □ On site Mon-F next b □ On site ○ On	LIMITE parts ar parts ar tational \(\) a, 8 am- ri exclutusiness a service s (in eligi- sar IOR rvicePace ar IOR evicePace ar IOR evicePace service	nd labor sta Marranty S 5 pm, ding holida a day respo e eupgrade gible locati s part num 6 24x7, 4 hr a c part num 6 24x7, 2 hr c part num 6 part num 6 part num 6 m.com/	andard andard ervice ³ ys, nse tim ons): ⁷ vy resp 9P9500 vy resp 9P9500 respon 19P9508 is at	4364 MTM 4365 MTM e conse 5) conse 5) ponse 7) se 3)
	1TB w or 292	rith two 500GB 3. PGB with four 2.5	.5" SATA " 73GB S	a disks, SAS dis	, 600GB with sks	dependent): OGB with two 300GB 3.5" SAS disks Services/us/ris/par/wamomxeu.pdf 24x7 ¹⁴ toll-free support for warranty issues during the warranty period ³					iod ³	

,						-		-		-
IBM® Type-GAV-model	Qty x Processor	L2 Core cache Mer	nory Disk	Disk controller	Mechanical	Slots x bays (std/max)	Warranty	Powersupply	Etherne	Available et date
7973/74-52ý-52x 1 7973/74-62y-62x 1 7973/74-12y-12x 1 7975/76-42y-42x 1 7975/76-52y-52x 1 7975/76-5Ay-5Ax 1 7975/76-62y-62x 1 7975/76-6Ay-6Ax 1 7975/76-14y-14x 1 7975/76-16y-16x 1	x Xeon [™] 5110 1.6GHz x Xeon 5120 1.86GHz x Xeon 5130 2.0GHz x Xeon 5050 3.0GHz x Xeon 5110 1.6GHz x Xeon 5110 1.6GHz x Xeon 5120 1.86GHz x Xeon 5120 1.86GHz x Xeon 5130 2.0GHz x Xeon 5050 3.0GHz x Xeon 5050 3.0GHz x Xeon 55310 1.6GHz x Xeon E5310 1.6GHz x Xeon E5320 1.86GH;	DC 4MB 10 DC 4MB 10	B Opei B Opei B Opei B Opei B Opei B Opei B Opei B Opei B Opei	1 SATA 1 SATA 1 SATA 1 SATA 1 SAS/SATA 1 SAS/SATA	Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower	6x7 (4/4 SS) 6x7 (4/4 SS) 6x7 (4/4 SS) 6x7 (4/4 SS) 6x11 (4/8 HS) 6x11 (4/8 HS)	1/3ýr 1/3yr 1/3yr 1/3yr 1/3yr 1/3yr 1/3yr 1/3yr 1/3yr	1 x 670W fixed 1 x 670W fixed 1 x 670W fixed 1 x 670W fixed 1 x 835W hot-sv 1 x 835W hot-sv 1 x 835W hot-sv 1 x 670W fixed 1 x 835W hot-sv 1 x 670W fixed 1 x 835W hot-sv 1 x 835W hot-sv	GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	Aug 2006 Aug 2006 Aug 2006 Sep 2006
Positioning Processor	Universal server; two- Up to 1 x Intel® Xeon: 1333MHz FSB / 4MB Core / All EM64T	-way server usin 3.0GHz with 667 L2 ECC Cache	g the Xec MHz FSE / Dual-Co	n processor 3 / 1 x Intel X ore / 1 x Inte	to provide p eon 1.86GH: I Xeon 1.860	ower and perfix with 1066MF	ormance Iz FSB / 1 6MHz FSE	at an affordable x Intel Xeon 2.0 8MB L2 ECC	<i>price</i>)GHz with Cache /	h Quad-
L2 cache SMP support Implementation	4 or 8MB / std and m 2-way SMP / up to tv Systemboard contains one PCI slot, integrat	vo Xeon Proces s two Intel LGA7	sors (sam 71 socket	s, eight mer	nory gold-co	nnector DIMM	slots, thre	ee PCI-E slots, tv	vo PCI-X	slots,
Memory	1GB std / 32GB¹³ ma DIMMs must be instal and Correcting (ECC of two x4 DRAM failur Active Memory™: m	lled in matched p (corrects any) res. detects any	airs [a ba 4 or x8 S wo bits in	nk] / Fully E SDRAM devi error within	B uffered / 2-v ce failure, de 8 bytes of da	way memory ir etects all two wata, corrects a	iterleave / ire faults	dual channel / E on DIMMs, detec	rror Che	cking mutations
SAS/SATA controller SAS connectors SAS cabling IDE controller / cable Disk - capacity Disk - bays	MTs 7973/4: native S. eight port SAS(300M Dual channel controlle Mini SAS cable conne IDE ATA 66/33 / one None std / supports 7 Some: four hot-swap	MB/sec) or SATA er wired to hot-su ects controller to connector on pla '200-15000 rpm	(150MB/s vap DASI 4-bay bad nar / one disks / sir	sec) / hot-sw D backplane ckplane 2-drop IDE igle backplar	cable (CD-Range) cable (CD-Range)	ar / PCI-Expre OM) able to dual ba	ss / RAID ckplanes)	0 0, 1 &10	ec [®] AIC-	9580W /
Mechanical Slots (see below) Chipset	Tower / conversion to Three PCI-Express, to Intel 5000P chipset / provides: one PCI-Exp ethernet, IDE, USB, S One 10/100/1000 giga	wo PCI-X 64-bit/ Intel Memory C press x8 slot witl MBus, LPC bus	133MHz a ontroller H 1 x4 Links to NS PC	and one PCI Hub (MCH) p , two 64-bit 8374L for S	32-bit/33MH provides two /100MHz PC uper I/O	PCI-Express : I-X slots, one	32-bit/33N	IHz PCI slot, AT	video, G	SB-2E) aigabit
CD-ROM / diskette Rear ports Front port / graphics Security	48X ⁶ CD-ROM / IDE / Rear: two USB (Vers Front: two USB (Vers Power-on password / disk bays and power I	2.0), keyboard, 2.0); <i>Graphics:</i> administrator pa	mouse, p XVGA / A ssword /	arállel, two : TI® RN50(E front door to	S1000) / on cover	Xeon 5050 3.0G	DDR std/ Hz/667MHz/	max / 32-bit/33N 4MB L2 Cache Proc U	MHZ PCI :	2.2 25R8926
Systems mgmt Diagnostics	IBM Integrated Base H8S2166 / on planar such as temp, optiona Supervisor Adapter II continuous power (no System error LED Pau	/ provides syster al disks, fans, po Slimline with 140 ext pwr reqd)	າ and env	rironmental r	nonitorina	Xeon E5320 1.8 Xeon 5110 1.60 Xeon 5120 1.86 Xeon 5130 2.00 1GB Kit (2x512)	6GHz/1066M iHz/1066MH: GHz/1066MH Hz/1333MHz IB DIMM) PC	14/8MB L2 Cache Proc IHz/8MB L2 Cache Proc z/4MB L2 Cache Proc Iz/4MB L2 Cache Proc z/4MB L2 Cache Proc I S2-5300 DDR2 FBD CL 5300 DDR2 FBD CL4	oc Upg Upg Upg Upg	43W5821 43W5822 40K1231 40K1232 40K1233 39M5782
Software Keyboard / mouse Power supply Fans	ServerGuide™ (CD-FIBM Director, others Optional Some: 670 watt / fixed one/two std/max / red std/max: three/six / th (Opt) two additional moptional fans / PFA / fixed	d / one std/max; undant with two; ree fans (mid-ch nid-chassis fans	some: 835 all: volta assis) / va and one r	5 watt / hot-s ge-sensing / ariable speed	wap / auto-restart I / hot-swap		DIMM) PC2 Hot-Swap HI G Hot-Swap F G Hot-Swap F Hot-Swap HI Hot-Swap HI G Hot-Swap F	-5300 DDR2 FBD CL4 DD HDD HDD DD DD HDD		39M5785 39M5791 40K1039 40K1040 40K1041 40K1042 40K1043 40K1044 39M4530
CD-ROM [E 5.25"HH	Bay 1 5.25", HH 1.6" a Bay 2 5.25", HH 1.6" a Bay 3 5.25", HH 1.6" a Hot-Swap SAS/SATA Bay 4 3 5" SI 1" a	access,open access,open models:		k release ad	apter slots (ı	IBM Remote Su IBM Redundant Otheroptionsat	pervisor Adap Power and C			39Y9566 39Y8487



Tower

Bay 4 3.5", Bay 5 3.5", Bay 6 3.5", Bay 7 3.5", Bay 8 3.5", Bay 9 3.5", Bay 4 3.5", SL 1", Bay 5 3.5", SL 1", Bay 6 3.5", SL 1", Bay 7 3.5", SL 1", Bay 8 3.5", SL 1", Bay 9 3.5", SL 1", Bay 10 3.5", SL 1", Bay 11 3.5", SL 1", access, open access. open access, open access, open access. open access, open access, open access, open

Simple-Swap SATA models:
Bay 8 3.5", SL 1", access, c
Bay 9 3.5", SL 1", access, c
Bay 10 3.5", SL 1", access, c Bay 8 3.5", SL 1", Bay 9 3.5", SL 1", Bay 10 3.5", SL 1", Bay 11 3.5", SL 1", access, open access, open access, open access, open

Slot 1: half-length, PCI-Express x8(x4 electrical)
Slot 2: full, PCI-Express x8
Slot 3: full, PCI-Express x8

Slot 4: full, 64-bit 133MHz 3.3v PCI-X Slot 5: full, 64-bit 133MHz 3.3v PCI-X Slot 6: half-length, 32-bit 33MHz 5.0v PCI

Hot-Swap models: Max internal disk capacity: 2.4TB² with eight 300GB 10K SAS or 4.0TB² with eight 500GB SATA hot-swap HDDs Simple-Swap models: Max internal disk capacity: 1.0TB² with four 250GB SATA non-hot-swap HDDs

Stealth black color

Configuration/Setup Utility invoked by

Colligination/Setup offinity invoked by pressing F1 at startup
 RAID Configuration Utility near startup by pressing CTRL+A
 ACPI 2.0-compliant
 Operator Information Panel (in front)

of an imminent component failure

Dower: H 17.3" x W 8.6" x D 29.4"
 42 to 84 pounds

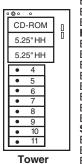
Predictive failure analysis on disk options, memory, processors, VRMs, power

supplies, and fans in conjunction with IBM

Director can alert the system administrator

- 1 yr parts and labor 7973/7975 MTM
- 3 yr parts and labor 7974/7976 MTM 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):⁷
 • 9 hour coverage,
 Mon-Friexcluding holidays,
 - 4hour average response (ServicePac® part num 21P2083) 24 hr x 7 day coverage,
 - 4hour average response (Service Pacpart number 21 P2084)
 - 24 hr x 7 day coverage, 2hour average response (Service Pac part number 21P2085)
- 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM [®] Type-GAV-model	Qty x Processor	L2 Core cache	Memory	Disk	Disk controller	Mechanical		Warranty	Powersupply	Ethern	Available et date
7973/74-C2ý-C2x 1: 7973/74-F2y-F2x 1: 7975/76-B4y-B4y 1:	x Xeon™E5310 1.6GH x Xeon E5320 1.86GH: x Xeon E5335 2.0GHz x Xeon E5310 1.6GHz x Xeon E5320 1.86GH: x Xeon E5335 2.0GHz x Xeon E5335 2.0GHz	Z QC 8MB QC 8MB	1GB 1GB 1GB 1GB 1GB 1GB	Open Open Open Open Open	SATA SATA SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA	Tower Tower Tower A Tower A Tower A Tower A 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)	1/3ýr 1/3yr 1/3yr 1/3yr	1 x 670W fixed 1 x 835W hot-s	GB GB GB	Aug 2007 Aug 2007 Aug 2007 Aug 2007 Aug 2007 Aug 2007 Aug 2007
Positioning Processor L2 cache SMP support	Universal server; two- Up to 1 x Intel® Xeon 8MB / std and max / 2-way SMP / up to tw	-way server 1.86GHz w at processor	rith 1066 speed	SMHz F	FSB / 8MB	L2 ECC Ca	oower and pen che / Quad-C	formance ore / All E	<i>at an affordabl</i> :M64T	e price	
Implementation	Systemboard contains two Intel LGA771 sockets, eight memory gold-connector DIMM slots, three PCI-E slots, two PCI-X slots, one PCI slot, integrated SAS, ethernet and graphics controllers										
Memory	1GB std / 32GB¹³ max / two slots used / six slots available / PC2-5300 667MHz FBD 240-pin ECC DDR2-SDRAM DIMMs / DIMMs must be installed in matched pairs [a bank] / Fully Buffered / 2-way memory interleave / dual channel / Error Checking and Correcting (ECC) (corrects any x4 or x8 SDRAM device failure, detects all two wire faults on DIMMs, detects all permutations of two x4 DRAM failures, detects any two bits in error within 8 bytes of data, corrects any single bit error within 8 bytes of data) / Active Memory™: memory mirroring, online-spare memory, Chipkill										
SAS/SATA controller SAS connectors SAS cabling IDE controller / cable Disk - capacity Disk - bays	MTs 7973/4: native SATA / on planar / PCI-Express / HostRAID 0 & 1 / MTs 7975/6: ServeRAID 8k-I std / Adaptec® AIC-9580W / eight port SAS(300MB/sec) or SATA(150MB/sec) / hot-swap / on planar / PCI-Express / RAID 0, 1 &10 Dual channel controller wired to hot-swap DASD backplane Mini SAS cable connects controller to 4-bay backplane IDE ATA 66/33 / one connector on planar / one 2-drop IDE cable (CD-ROM) None std / supports 7200-15000 rpm disks / single backplane (upgradeable to dual backplanes) Some: four hot-swap SAS/SATA bays (upgradeable to eight); some: four simple-swap SATA bays										
Mechanical Slots (see below) Chipset	Tower / conversion to EIA 26" Rack (5U4) via optional kit 39Y8382 Three PCI-Express, two PCI-X 64-bit/133MHz and one PCI 32-bit/33MHz slot Intel 5000P chipset / Intel Memory Controller Hub (MCH) provides two PCI-Express x8 slots / Enterprise Southbridge(ESB-2E) provides: one PCI-Express x8 slot with x4 Links, two 64-bit/100MHz PCI-X slots, one 32-bit/33MHz PCI slot, ATI video, Gigabit ethernet, IDE, USB, SMBus, LPC bus to NS PC8374L for Super I/O One 10/100/1000 gigabit / Broadcom® BCM 5721 / on planar / PCI-Express / full duplex / Wake on LAN® / IPMI (2.0)										
CD-ROM / diskette Rear ports Front port / graphics Security	48X ⁶ CD-ROM / IDE / 1.6" HH; <i>Diskette:</i> USB only <i>Rear:</i> two USB (Vers 2.0), keyboard, mouse, parallel, two serial (9-pin), graphics (DB-15), one ethernet (RJ-45), RJ-45 (sys mgmt) <i>Front:</i> two USB (Vers 2.0); <i>Graphics:</i> XVGA / ATI ⁶ RN50(ES1000) / on planar / 16MB DDR std/max / 32-bit/33MHz PCI 2.2 Power-on password / administrator password / front door to cover disk bays and power button / unattended boot / selectable boot										
Systems mgmt Diagnostics	IBM Integrated Baseboard Management Controller (BMC) / IPMI 2.0 H8S2166 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports opt. Remote Supervisor Adapter II Slimline with 140-pin connector on planar for continuous power (no ext pwr reqd) System error LED Panel in front						Xeon E5310 1.6GHz/1066MHz/8MB L2 Cache Proc Upg 43W58; Xeon E5320 1.86GHz/1066MHz/8MB L2 Cache Proc Upg 43W58; Xeon E5335 2.0GHz/1066MHz/8MB L2 Cache Proc Upg 43W58; 1GB Kit (2x512MB DIMM) PC2-5300 CL5 ECC Chipkill AMF 39M578; 2GB Kit (2x1GB DIMM) PC2-5300 CL5 ECC Chipkill AMF 39M578; 4GB Kit (2x2GB DIMM) PC2-5300 CL5 ECC Chipkill AMF 39M578;				
Software Keyboard / mouse Power supply Fans	ServerGuide™ (CD-FIBM Director, others Optional Some: 670 watt / fixed one/two std/max / red std/max: three/six / th (Opt) two additional moptional fans / PFA / fixed fax 1 5.25", HH 1.6" a	ROM installad / one std/m undant with ree fans (minid-chassis fa an in each p	tion and lax; som two; all: d-chassians and ower su	e: 835 voltag s) / var one re	watt / hot-s e-sensing / iable speed	wap / auto-restart d / hot-swap	8GB Kit (2x4GB DIMM) PC2-5300 CL5 ECC Chipkill AMF 39M57 73GB 10K SAS Hot-Swap HDD 40K10 146GB 10K SAS Hot-Swap HDD 40K10 300GB 10K SAS Hot-Swap HDD 40K10 36GB 15K SAS Hot-Swap HDD 40K10 73GB 15K SAS Hot-Swap HDD 40K10 146GB 15K SAS Hot-Swap HDD 40K10 500GB 7.2K SATA Hot-Swap HDD 39M45 18M Remote Supervisor Adapter Il Slimline 39Y95 IBM Redundant Power and Cooling Option(NA) 39Y84				



Bay 1 5.25", HH 1.6" access, CD-ROM Bay 2 5.25", HH 1.6" access, open Bay 3 5.25", HH 1.6" access, open Hot-Swap SAS/SATA models:
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 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 11 3.5", SL 1", access, open Bay 13.5", S

Simple-Swap SATA models:
Bay 8 3.5", SL 1", access, o
Bay 9 3.5", SL 1", access, o
Bay 10 3.5", SL 1", access, o
Bay 11 3.5", SL 1", access, o access, open access, open access, open

access, open

Slot 1: half-length, PCI-Express x8(x4 electrical) Slot 2: full, PCI-Express x8 Slot 3: full, PCI-Express x8

Slot 4: full, 64-bit 133MHz 3.3v PCI-X Slot 5: full, 64-bit 133MHz 3.3v PCI-X Slot 6: half-length, 32-bit 33MHz 5.0v PCI

Quick release adapter slots (no screws)
 Configuration/Setup Utility invoked by pressing F1 at startup

RAID Configuration Utility near startup by pressing CTRL+A

ACPI 2.0-compliant

Operator Information Panel (in front)

 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

□ Tower: H 17.3" x W 8.6" x D 29.4"

⇒ 42 to 84 pounds

Stealth black color

LIMITED WARRANTY³

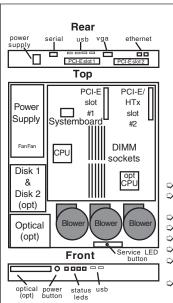
- 1 yr parts and labor 7973/7975 MTM

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

- → 3 yr parts and labor 7974/7976 MTM
 → 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):⁷
 9 hour coverage,
 Mon-Friexcluding holidays, 4hour average response (ServicePac® part num 21P2083) 24 hr x 7 day coverage,
 - 4houraverage response (ServicePacpart number 21P2084) 24 hr x 7 day coverage,
- 2hour average response (ServicePac part number 21P2085) 24x7¹⁴ toll-free support for warranty issues during the warranty period³

Hot-Swap models: Max internal disk capacity: 2.4TB² with eight 300GB 10K SAS or 4.0TB² with eight 500GB SATA hot-swap HDDs Simple-Swap models: Max internal disk capacity: 1.0TB² with four 250GB SATA non-hot-swap HDDs

IBM [®] Type-model Qty	x Processor	Speed/Core	L2 Cache	Optical	Memory	Disk/C	ontrolle	Disk bays	Slots x bays	Ethernet	Warrant (years)	y³ Available date
7984 - 31U 1 x O 7984 - 41U 1 x O 7984 - 51U 1 x O 7984 - 52U 2 x O 7984 - 68U 2 x O 7984 - 6BU 1 x O	opteron™ 2210 pteron 2214 pteron 2216 pteron 2218 pteron 2218 pteron 2220SE pteron 2216 pteron 2220 pteron 2222SE	2.4GHz/DC	2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB	Open CD-RW/DVD Open Open Open Open Open Open Open Open	2x512MB 2x512MB 2x512MB 2x512MB 4x512MB 4x512MB 2x1GB 2x1GB 2x512MB 4x512MB	80GB/ 80GB/ 80GB/ 80GB/ 2x73G	/SATA /SATA /SATA /SATA	2 fixed 2 fixed 2 fixed 2 fixed 2 fixed 2 fixed 2 fixed 2 fixed 2 fixed	2x3 2x3 2x3 2x3 2x3 2x3 2x3 2x3 2x3 2x3	Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit	1 1 1 1 1 1	Sept 2006 Sept 2006 Sept 2006 Sept 2006 Sept 2006 Sept 2006 Nov 2006 Apr 2007 May 2007
Positioning Processor(s) L2 cache SMP support Implementation	1MB / per co 2-way SMP Systemboard	ore / at process / up to two Op I contains two	or spee steron P LGA 12	otimized High ies Dual Core I d / Dual Core I rocessors (sam 07-pin sockets, PCI-E x8 or one	Capable le speed/cad twelve mer	che size	e reauire	d)				
Memory	twelve DIMM interleaving /	l gold-connecto Error Checki	or slots o ng and	ocessor (48GB ts used, eight sl on systemboard Correcting (E 6 pare memory /	/ DIMMs m CC) via 16-l	nust be i bit Chec	nstalled ksum /	in matched	l pairs [a	ı bankî / dual d	channel	/ two-wav
SATA disk controller SATA controller/cable Disk - capacity Disk - bays Mechanical	e Two connect 80GB / 7200 Two 3.5" fixe	ors on planar / rpm / 9.0ms s d / SATA conr	two 1-deek eek ectors /	ovided by HT100 drop cables / or filler panels in only / supported	ne1-drop IDE each disk ba	E čable(ay / sup	for optic ports 15	aľ drive) k drives	·		s	
Architecture/chipsets	slot, HyperTr	ansport bridge	to HT1	System I/O Co 000 South Brido NS PC87427 for	ge / HT1000	ovides:) South	one PC Bridge	-Express x provides: F	16 slot, PCI-X, U	one PCI-Expre SB(2.0), ATI v	ess x8 video, S	or one HTx ATA, Dual
Bus slots	(See detail be	elow) one half-	length F	CI-E x16 and o	ne half-leng	th PCI-E	E x8 / op	tion to con	vert PCI-	-E x8 slot to H	Tx slot	
Ethernet	Two gigabit 1	10/100/1000 etl	nernet p	orts / Broadcom Wake on LAN®	n® 5704 / two	o full gig	abit ethe	ernet MAC	and PH	Y layer function	ns / on p	olanar /
Optical / diskette Rear ports Front ports Graphics Keyboard / mouse	Optional / IDI Rear: four U Front: two U SVGA / ATI®	E / <i>Diskette</i> noi JSB (Vers 2.0) JSB (Vers 2.0)	ne' (USE , serial (00) / on	3 diskette option (9-pin), two ethe planar / 16MB (al) ernet (RJ-45), analo		graphics /	parallel	port not suppo	orted	
Security Systems mgmt	Power-on an IBM Integrat	d administrator ted Baseboard	passwo Mana	ords / unattende gement Contro	ed boot / se bller(BMC) /	lectable / H8216	boot 6 / IPMI	2.0				
Diagnostics	Diagnositic L PFA / Light F	EDs for fans, Path Diagnostic	memory s not su	DIMMs and pr	rocessors /		Dual Con	e AMD Opter	on Proces	ssor Model 2210 ssor Model 2214		40K1208 40K1215
Software	ServerGuide utilities), IBM	e™ (CD-ROM i Director™, and	nstallati d others	on and configu	ration		Dual Core Dual Core	e AMD Opter e AMD Opter	on Proces	ssor Model 2216 ssor Model 2218 ssor Model 2220		40K1210 40K1211 43W7265
Cooling	HDD bays / 1	two tans inside /ector Cooling	power	processors, men supply / iable speed / no			Dual Core 1GB (2x5 2GB (2x1	e AMD Opter 12) PC2-530 GB) PC2-53	on Proces)0 CL5 EC 00 CL5 E(ssor Model 22205 ssor Model 22225 CC DDR2 RDIMI CC DDR2 RDIMI CC DDR2 RDIMI	SE VIKit VIKit	40K1209 43W7266 41Y2759 41Y2762 41Y2765
Power supply Prerequisites	650 watt / ur		sensing rack, o	/ auto-restart su s	upport		8GB (2x4 IBM 80G		00 CL5 E0 SATA HD	CCDDR2 RDIM D		41Y2768 39M4500 39M4504



Maximum internal disk capacity¹³: 1.5TB with two 750GB SATA disks or 600GB with two 300GB SAS disks and optional* SAS controller

Slot 1: Full height, half-length, PCI-E x16 Slot 2: Full height, half-length, PCI-E x8 or HTx

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
- ⇒ H 1.72" (1U) x W 17.3" x D 25.7" H 43.7mm x W 439.9mm x L 653.3mm
- 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 with IEC plug)
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

*IBM SAS HBA Controller option required for SAS support (included on 6BU)



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):?

 1 year IOR 9x5, 4 hr avg response
 (ServicePac part num69P9399)

 2 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum 96P2119)

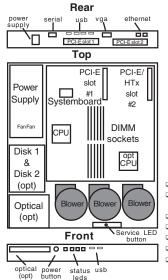
 2 year IOR 24x7, 2 hr avg response
 (ServicePacpartnum 96P2120)

 3 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum 96P2120)

 3 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum 69P9507)

 3 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum 69P9505)
 Other ServicePacpartnum 69P9505)
 Other ServicePac options at
 www.ibm.com/services/us/its/pdf/wamomxeu.pdf
 24x7'4 toll-free support for warranty
 issues during the warranty period³

BM System	X3455						xRE	F by STG	Field	Skills and E	Educatio	n Team
IBM® Type-model	Qty x Processor	Speed/Core	L2 Cache	Optical	Memory	Disk/C	ontroller	Disk bays	Slots x bays	Ethernet	Warrant (years)	y ³ Available date
7984 - 13U 1 7984 - 33U 1 7984 - 43U 1 7984 - 53U 1	x Opteron™ 2210 x Opteron 2214 x Opteron 2216 x Opteron 2218 x Opteron 2218 x Opteron 2220	1.8GHz/DC 2.2GHz/DC 2.4GHz/DC 2.6GHz/DC 2.6GHz/DC 2.8GHz/DC	2MB 2MB 2MB 2MB 2MB 2MB 2MB	Open CD-RW/DVD Open Open Open Open	2x512MB 2x512MB 2x512MB 2x512MB 2x512MB 4x512MB 4x512MB	160GI 160GI 160GI	B/SATA B/SATA B/SATA	2 fixed 2 fixed 2 fixed 2 fixed	2x3 2x3 2x3 2x3 2x3 2x3 2x3	Dual Gigab Dual Gigab Dual Gigab Dual Gigab Dual Gigab Dual Gigab	it 1 it 1 it 1	Aug 2007 Aug 2007 Aug 2007 Aug 2007 Aug 2007 Aug 2007
Positioning Processor(s) L2 cache SMP support Implementation	1MB / per c	ore / at process	or spee	otimized High ries Dual Core I d / Dual Core I rocessors (sam 07-pin sockets, or one HTx slot	Capable				-			
Memory	twelve DIMI	/I aoid-connecta	or slots o	ocessor (48GB ts used, eight sl on systemboard Correcting (E 6 pare memory /	i / Diimims m	nust be i	nstalled	ın matched	i dairs la	ı bankı / dual	channel	/ two-wav
SATA disk contro SATA controller/o Disk - capacity Disk - bays Mechanical	able Two connect 80GB / 7200 Two 3.5" fix	tors on planar / 0 rpm / 9.0ms s ed / SATA conr	/ two '1-c seek nectors /	ovided by HT100 drop cables / or filler panels in only / supported	ne1-drop IDI each disk b	E čable(av / sup	for optica ports 15	aľ drive) k drives	·		ots	
Architecture/chip	sets ServerWorl slot, HyperT GB ethernet	rs™ Chipset / Iransport bridge Iransport bridge Ir., IDE and LPC	HT2100 to HT10 bus to N	System I/O Co 000 South Brido NS PC87427 for	ontroller pr ge / HT1000 r Super I/O	rovides: 0 South	one PCI Bridge	-Express x provides: I	16 slot, PCI-X, U	one PCI-Exp SB(2.0), ATI	ress x8 o video, S	or one HTx ATA, Dual
Bus slots	(See detail b	pelow) one half-	length P	CI-E x16 and o	ne half-leng	gth PCI-E	E x8 / op	tion to con	vert PCI-	E x8 slot to I	HTx slot	
Ethernet Optical / diskette Rear ports Front ports Graphics Keyboard / mous	PCI-X 64-bit Optional / ID Rear: four Front: two SVGA / ATI	: 133MHz / full (DE / <i>Diskette</i> no: USB (Vers 2.0) USB (Vers 2.0)	duplex / ne (USE , serial (00) / on	orts / Broadcom Wake on LAN® 3 diskette option (9-pin), two ethe planar / 16MB (ed)	/ two rear f lal) ernet (RJ-45	RJ-45 pč 5), analo	orts			•	·	olanar /
Security Systems mgmt	Power-on an IBM Integra	nd administrator Ited Baseboard	r passwo d Mana	ords / unattende gement Contro	ed boot / se oller(BMC) /	electable / H8216	boot 6 / IPMI	2.0				
Diagnostics		_EDs for fans, Path Diagnostic		DIMMs and pripported	rocessors /		Dual Core	AMD Opter	on Proces	sor Model 2210 sor Model 2214	1	40K1208 40K1215
Software	ServerGuid utilities), IBN	e ™ (CD-ROM 1 Director™, and	installation	on and configu	ration		Dual Core Dual Core	AMD Opter	on Proces on Proces	sor Model 2216 sor Model 2218 sor Model 2220))	40K1210 40K1211 43W7265
Power supply Prerequisites	HDD bays / Calibrated ' not hot-swa 650 watt / u	two fans inside Vector Cooling p	e power g™ / vari sensing	iabilė śpeed / no / auto-restart su	ot redundan	ut /	2GB (2x10 4GB (2x20 8GB (2x40 IBM 80GE IBM 160G IBM 250G	GÉ) PC2-53(GB) PC2-53(00 CL5 EC 00 CL5 EC 00 CL5 EC SATA HD SATA HE 'SATA H	DD DD	MM Kit MM Kit	41Y2759 41Y2762 41Y2765 41Y2768 39M4500 39M4504 39M4508 39M4514
	ear isb vga ethernet						IBM 750G IBM 73GE	iB 7.2K 3.5' 3 10K 3.5" 5 iB 10K 3.5"	SATA H	DD		43W7572 40K1045 40K1046



Maximum internal disk capacity¹³: 1.5TB with two 750GB SATA disks or 600GB with two 300GB SAS disks and optional* SAS controller

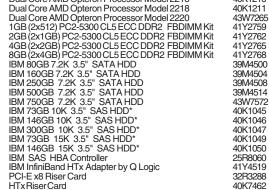
Slot 1: Full height, half-length, PCI-E x16 Slot 2: Full height, half-length, PCI-E x8 or HTx

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
- H 1.72" (1U) x W 17.3" x D 25.7" H 43.7mm x W 439.9mm x L 653.3mm
- 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 with IEC plug)
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

*IBM SAS HBA Controller option required for SAS support



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 coverage excluding holidays, next business day response time⁷
- next business day response time?
 On site service upgrade options
 (in eligible locations):?

 1 year IOR 9x5, 4 hr avg response
 (ServicePacepartnum 69P9399)

 2 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum 96P2119)

 2 year IOR 24x7, 2 hr avg response
 (ServicePacpartnum 96P2120)

 3 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum 69P9507)

 3 year IOR 9x5, NBD response
 (ServicePacpartnum 69P9507)

 3 year IOR 9x5, NBD response
 (ServicePacpartnum 69P9505)
 Other ServicePac options at
 www.ibm.com/services/us/its/pdf/wamomxeu.pdf
 24x7¹⁴ toll-free support for warranty
 issues during the warranty period³

•							10000	_	-
IBM® Type-GAV-model Q	ty x Processor Core	L2 cache Memory	Disk c	Disk controller	Mechanical	Slots x bays I (hot-swap bay	s) Power supply	Ethernet	Available date
7977-22y-22x 1 x 2 7977-42y-42x 1 x 2 7977-52y-52x 1 x 2 7977-62y-62x 1 x 2 7977-82y-72x 1 x 2 7977-92y-92x 1 x 2 7977-92x Xeon™ 5050 3.0GHz DC Xeon 5060 3.2GHz DC Xeon 5110 1.6GHz DC Xeon 5120 1.86GHz DC Xeon 5130 2.0GHz DC Xeon 5140 2.33GHz DC Xeon 5150 2.66GHz DC Xeon 5160 3.0GHz DC Xeon E5320 1.86GHz QC Xeon E5320 1.86GHz QC	4MB 1GB 4MB 1GB 4MB 1GB 4MB 1GB 4MB 1GB 4MB 1GB	Open Si Open Si Open Si	AS/SATA AS/SATA AS/SATA AS/SATA AS/SATA AS/SATA AS/SATA AS/SATA AS/SATA	Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower Tower	6x11 (8 HS std/n 6x11 (8 HS std/n	1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS 1 x 835W HS	2xGigabit 2xGigabit 2xGigabit 2xGigabit 2xGigabit 2xGigabit 2xGigabit 2xGigabit 2xGigabit 2xGigabit	July 2006 July 2006 July 2006 July 2006 July 2006 July 2006 July 2006 July 2006 Dec 2006 Dec 2006	
Positioning Processor	Universal server; two-w. Up to 1 x Intel® Xeon P L2 ECC Cache / Dual-C	rocessor 3.0 GH	he Xeon p	orocessor t	o provide p	ower and perfo	rmance at an afford	lable price	FSB / 4MB
L2 cache SMP support Implementation	4 or 8MB / std and may 2-way SMP / up to two Systemboard contains tone PCI slot, integrated	 / at processor sp Xeon Processors wo Intel LGA771 	oeed s (same s sockets, t	peed/cach twelve mer	e size) nory gold-c				CI-X slots,
Memory	1GB std / 48GB ¹³ max (DIMMs) / two slots use installed in matched pair (ECC) (corrects any x4 failures, detects any two memory mirroring, on	d / ten slots availars [a bank] / Fully or x8 SDRAM de bits in error withi	able / PC2 Buffered vice failure in 8 bytes	2-5300 667 d / 2-way me, detects a of data, co	MHz FBD nemory inte all two wire	240-pin ECC D rleave / dual cha faults on DIMM	DR2-SDRAM DIMI annel / Error Check s, detects all permu	/Is / DIMMs r king and Co r tations of two	must be rrecting x4 DRAM
SAS/SATA controller	Adaptec® AIC-9580W	/ eight port SA	S or SAT	A (300MB	/sec SAS)	(150MB/sec SA	TA) / hot-swap / on	planar / PCI	-Express /
SAS connectors SAS cabling	supports RAID 0, 1, 5 & 10 / Dual channel controller Two mini SAS cables co	ServeRAID 8k std wired to two hot-s	swap DAS	SD backpla	nes	(,		,
IDE controller / cable Disk - capacity Disk - bays	e IDE ATA 66/33 / one co None std / supports 720 Eight hot-swap SAS/SA	00-15000 rpm disl				ROM)			
Mechanical Slots (see below) Chipset	Tower / conversion to E Three PCI-Express, two Intel 5000P chipset / Ir provides to one PCI-Expre	PCI-X 64-bit/133 ntel Memory Cont ess x8 slot with x4	BMHz and roller Hub 4 Links, tw	l one PCI (o (MCH) pr vo 64-bit/1	32-bit/33MH ovides two 00MHz PC	PCI-Express x8 I-X slots, one 3	3 slots / Enterprise S 2-bit/33MHz PCI slo	Southbridge(E t, ATI video,	ESB-2E) Dual
Ethernet controller	Gigabit ethernet, IDE, U Dual 10/100/1000 gigab	oit / Broadcom® Bo	CM 5721	on planar	/ PCI-Expre	ess 64-bit 100M	Hz / full duplex / Wa	ake on LAN®	/ IPMI (2.0)
DVD-ROM / diskette Rear ports Front port / graphics	e 16X ⁶ DVD-ROM / IDE / Rear: two USB (Vers 2 Front: two USB (Vers 2.	1.6" HH; <i>Disketti</i> .0), keyboard, mo 0); <i>Graphics:</i> SV	e: USB or buse, para GA / ATI®	nly illel, two se RN50(ES	erial (9-pin), 1000) / on ¡	graphics (DB-1) planar / 16MB D	5), two ethernet (R.DDR std/max / 32-b	l-45), RJ-45 it/33MHz PC	(sys mgmt)
Security	Power-on password / addisk bays and power but					Xeon 5060 3.2GH:	z/667MHz/4MB L2 Cache z/1066MHz/4MB L2 Cache z/1066MHz/4MB L2 Cache	e Proc Upg	25R8926 25R8912 40K1231
Systems mgmt	IBM Integrated Baseb H8S2166 / on planar / p such as temp, optional of Supervisor Adapter II SI continuous power (no e	provides system a disks, fans, power imline with 140-pi	nd enviror r supp / si n connect	nmental m upports op or on plan	onitoring t. Remote ar for	Xeon 5120 1.86GH Xeon E5310 1.6GH Xeon E5320 1.86G Xeon 5130 2.0GH	Hz/1066MHz/4MB L2 Cacl Hz/1066MHz/8MB L2 Cacl GHz/1066MHz/8MB L2 Cac Iz/1333MHz/4MB L2 Cache	ne Proc Upg ne Proc Upg che Proc Upg e Proc Upg	40K1232 43W5821 43W5822 40K1233
Diagnostics Software	continuous power (no e Light Path Diagnostics (on side cover) / Informa ServerGuide™ (CD-RC utilities), IBM Director, o	ation LED Panel ir M installation and	n front		g part	Xeon 5150 2.66GH Xeon 5160 3.0GH	Hz/1333MHz/4MB L2 Cach Hz/1333MHz/4MB L2 Cach z/1333MHz/4MB L2 Cach B DIMM) PC2-5300 DDR2 I	ne Proc Upg e Proc Upg	40K1234 40K1235 40K1236 39M5782
Karda a nel 7 mana a							IMM) PC2-5300 DDR2 FB		39M5785
Keyboard / mouse Power supply	Optional 835 watt / std/max: one,	/two / hot-swap /	voltage-se	ensing / au	to-restart /	4GB Kit (2x2GB D 146GB 10K SAS F	NMM) PC2-5300 DDR2 FE	D CL4	39M5791 40K1040
Fans	redundant with optional std/max: three/six / three	nower supply				300GB 10K SAS F			40K1040 40K1041
1 4113	(Opt) two additional mid	-chassis tans and	i one rear	/ redundai	nt with	36GB 15K SAS H	•		40K1042
	optional fans / PFA / fan	ın eacn power sı	appiy			73GB 15K SAS Ho 146GB 15K SAS H			40K1043 40K1044
Taves						160GB 7.2K SATA 250GB 7.2K SATA			39M4522 39M4526
Tower						500GB 7.2K SATA			39M4530
DVD-ROM ⊓ Ba	ay 1 5.25", HH 1.6" acc	ess.DVD-ROM					rvisor Adapter II Slimline ower and Cooling Option(N	A)	39Y9566 39Y8487
	av 2 5.25", HH 1.6" acc	ess,open				Other options at ww	w.ibm.com/pc/us/accesso		
5.25"HH B	aý 3 5.25", HH 1.6" acc ay 4 3.5", SL 1", acc				pter slots (up Utility in\		LIMITED	WARRANT	Y 3
	ay 5 3.5", SL 1", acc	ess,hot-swap	pressing	g F1 at sta	rtup	· 1	 3 year parts an International W 	d labor	vice ³
Ba	av 7 3.5". SL 1". acc	ess,hot-swap			nfiguration ng CTRL+	Utility near A	 International W On site, 8 am - 	5 pm, Mon	Fri
• 7 • 8	ay 8 3.5", SL 1", acc ay 9 3.5", SL 1", acc	ess,hot-swap cess,hot-swap cess.hot-swap	ACPI 2. Operato	.0-complia or Informat	nt ion Panel (i	in front)	coverage exclubusiness day in a 3 year on site was a year on year on year on year on year on year on year on year on year on year on year on year	esponse tin	vice

Slot 1: half-length, PCI-Express x8(x4 electrical) Slot 2: full, PCI-Express x8 Slot 3: full, PCI-Express x8

Slot 4: full, 64-bit 133MHz 3.3v PCI-X Slot 5: full, 64-bit 133MHz 3.3v PCI-X

Slot 6: half-length, 32-bit 33MHz 5.0v PCI

Bay 10 3.5", SL 1", access, hot-swap acc supplies, and fans in conjunction with IBM Director can alert the system administrator of an imminent component failure ⊃ Tower: H 17.3" x W 8.6" x D 29.4" ⊃ 74 to 101 pounds

Stealth black color

All models: Max internal disk capacity: 2.4TB² with eight 300GB 10K SAS or 2.0TB² with eight 250GB SATA hot-swap HDDs

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

Qty x Processor

1 x Xeon™ E5335 2.0GHz QC 8MB 1x Xeon E5345 2.33GHz QC 8MB 1x Xeon E5355 2.66GHz QC 8MB

12

Core cache Memory Disk

IRM®

Type-model

7977- F2x 7977- G2x 7977- H2x

Ethernet

2xGigabit 2xGigabit 2xGigabit

Power supply

1 x 835W HS 1 x 835W HS 1 x 835W HS Available

Feb 2007 Feb 2007 Feb 2007

date

Slots x bays

6x11 (8 HS std/max) 6x11 (8 HS std/max) 6x11 (8 HS std/max)

Mechanical (hot-swap bays)

Tower

Tower Tower

Positioning Processor	Universal server; two-way server using the Xeon processor to provide po Up to 1 x Intel® Xeon Processor up to 2.66GHz with 1333MHz FSB / 8	ower and performance at an affordable price BMB L2 ECC Cache / Quad-Core / All EM64T						
L2 cache SMP support Implementation	8MB / std and max / at processor speed 2-way SMP / up to two Xeon Processors (same speed/cache size) Systemboard contains two Intel LGA771 sockets, twelve memory gold-coone PCI slot, integrated SAS, ethernet and graphics controllers	onnector DIMM slots, three PCI-E slots, two PCI-X slots,						
Memory	1GB std / 48GB¹³ max (48GB maximum can be achieved when 4GB DIMMs are supported, 24GB is the max with less than 4GB DIMMs) / two slots used / ten slots available / PC2-5300 667MHz FBD 240-pin ECC DDR2-SDRAM DIMMs / DIMMs must be installed in matched pairs [a bank] / Fully Buffered / 2-way memory interleave / dual channel / Error Checking and Correcting (ECC) (corrects any x4 or x8 SDRAM device failure, detects all two wire faults on DIMMs, detects all permutations of two x4 DRAM failures, detects any two bits in error within 8 bytes of data, corrects any single bit error within 8 bytes of data) / Active Memory™: memory mirroring, online-spare memory, Chipkill							
SAS/SATA controller SAS connectors SAS cabling	Adaptec® AIC-9580W / eight port SAS or SATA (300MB/sec SAS) (supports RAID 0, 1, 5 &10 / ServeRAID 8k std Dual channel controller wired to two hot-swap DASD backplanes Two mini SAS cables connect controller to dual 4-bay backplanes	150MB/sec SATA) / hot-swap / on planar / PCI-Express /						
IDE controller / cable Disk - capacity Disk - bays	DE ATA 66/33 / one connector on planar / one 2-drop IDE cable (DVD-F None std / supports 7200-15000 rpm disks / dual backplanes Eight hot-swap SAS/SATA bays	ROM)						
Mechanical Slots (see below) Chipset	Tower / conversion to EIA 26" Rack (5U ⁴) via optional kit 39Y8382 Three PCI-Express, two PCI-X 64-bit/133MHz and one PCI 32-bit/33MHz slot Intel 5000P chipset / Intel Memory Controller Hub (MCH) provides two PCI-Express x8 slots / Enterprise Southbridge(ESB-2E) provides: one PCI-Express x8 slot with x4 Links, two 64-bit/100MHz PCI-X slots, one 32-bit/33MHz PCI slot, ATI video, Dual Gigabit ethernet, IDE, USB, SMBus, LPC bus to NS PC8374L for Super I/O Dual 10/100/1000 gigabit / Broadcom® BCM 5721 / on planar / PCI-Express 64-bit 100MHz / full duplex / Wake on LAN® / IPMI (2.0)							
DVD-ROM / diskette Rear ports Front port / graphics	16X ⁶ DVD-ROM / IDE / 1.6" HH; <i>Diskette:</i> USB only <i>Rear:</i> two USB (Vers 2.0), keyboard, mouse, parallel, two serial (9-pin), <i>Front:</i> two USB (Vers 2.0); <i>Graphics:</i> SVGA / ATI® RN50(ES1000) / on p	graphics (DB-15), two ethernet (RJ-45), RJ-45 (sys mgmt olanar / 16MB DDR std/max / 32-bit/33MHz PCl 2.2						
Security	Power-on password / administrator password / front door to cover disk bays and power button / unattended boot / selectable boot	Xeon E5335 2.0GHz/1333MHz/8MB L2 Cache Proc Upg						
Systems mgmt Diagnostics Software	IBM Integrated Baseboard Management Controller(BMC) / IPMI 2.0 H8S2166 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports opt. Remote Supervisor Adapter II Slimline with 140-pin connector on planar for continuous power (no ext pwr reqd) Light Path Diagnostics M panel providing LED map to failing part (on side cover) / Information LED Panel in front ServerGuide (CD-ROM installation and configuration utilities), IBM Director, others	Xeon E5355 2.66GHz/1333MHz/8MB L2 Cache Proc Upg 43W582t 1GB Kit (2x512MB DIMM) PC2-5300 DDR2 FBD CL4 39M5782 2GB Kit (2x1GB DIMM) PC2-5300 DDR2 FBD CL4 39M578t 4GB Kit (2x2GB DIMM) PC2-5300 DDR2 FBD CL4 39M579t 146GB 10K SAS Hot-Swap HDD 40K1040 300GB 10K SAS Hot-Swap HDD 40K1041 36GB 15K SAS Hot-Swap HDD 40K1042 73GB 15K SAS Hot-Swap HDD 40K1043 146GB 15K SAS Hot-Swap HDD 40K1043 146GB 15K SAS Hot-Swap HDD 40K1043						
Keyboard / mouse Power supply Fans	Optional 835 watt / std/max: one/two / hot-swap / voltage-sensing / auto-restart / redundant with optional power supply std/max: three/six / three fans (mid-chassis) / variable speed / hot-swap / (Opt) two additional mid-chassis fans and one rear / redundant with optional fans / PFA / fan in each power supply	160GB 7.2K SATA Hot-Swap HDD 39M4522 250GB 7.2K SATA Hot-Swap HDD 39M4526 500GB 7.2K SATA Hot-Swap HDD 39M4530 IBM Remote Supervisor Adapter II Slimline 39Y9566 IBM Redundant Power and Cooling Option(NA) 39Y8487						

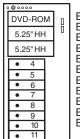
Disk

controller

SAS/SATA SAS/SATA SAS/SATA

Open Open Open

Tower



Bay 1 5.25", HH 1.6" access, DVD-ROM Bay 2 5.25", HH 1.6" access, open Bay 3 5.25", HH 1.6" access, open Bay 4 3.5", SL 1", access, hot-swap Bay 5 3.5", SL 1", access, hot-swap Bay 6 3.5", SL 1", access, hot-swap Bay 7 3.5", SL 1", access, hot-swap Bay 8 3.5", SL 1", access, hot-swap Bay 8 3.5", SL 1", access, hot-swap Bay 9 3.5", SL 1", access, hot-swap Bay 10 3.5", SL 1", access, hot-swap Bay 11 3.5", Access, hot-swap Bay 11 3.5", Access, hot-swap Bay 11 3.5", Access, hot-swap Bay 11 3

Slot 1: half-length, PCI-Express x8(x4 electrical)

Slot 2: full, PCI-Express x8 Slot 3: full, PCI-Express x8

Slot 4: full, 64-bit 133MHz 3.3v PCI-X Slot 5: full, 64-bit 133MHz 3.3v PCI-X Slot 6: half-length, 32-bit 33MHz 5.0v PCI

 Quick release adapter slots (no screws) access, hot-swap Configuration/Setup Utility invoked by pressing F1 at startup

Aurora RAID Configuration Utility near

startup by pressing CTRL+A ACPI 2.0-compliant

Operator Information Panel (in front)

 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 ⇒ Tower: H 17.3" x W 8.6" x D 29.4"

⇒ 74 to 101 pounds

Stealth black color

All models: Max internal disk capacity: 2.4TB2 with eight 300GB 10K SAS or 2.0TB² with eight 250GB SATA hot-swap HDDs

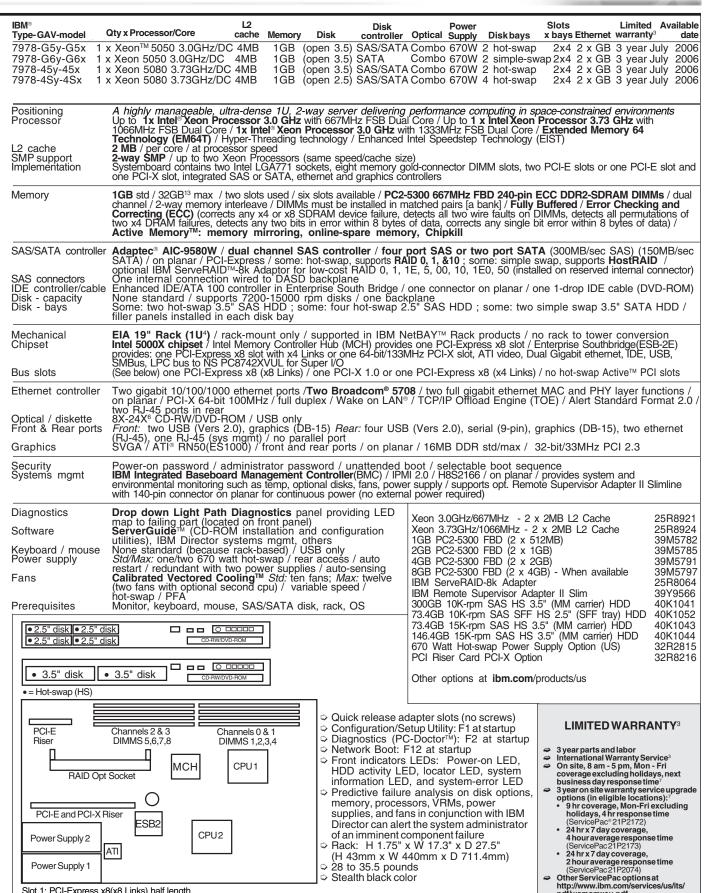
LIMITED WARRANTY³

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

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):²
• 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

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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

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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

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

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

28 to 35.5 pounds Stealth black color

4 hour average response time (ServicePac 21P2173) 24 hr x 7 day coverage,

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

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pdf/wamomxeu.pdf

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

•				·	
IBM® Type-GAV-model	Qty x Processor/Core	L2 cache Memory	Disk Disk controller	Power Optical Supply Diskbay	Slots Limited Available s x bays Ethernet warranty ³ date
7978-6Ay-6Ax 1 x 7978-71y-71x 1 x	x Xeon™ 5150 2.66GHz/D x Xeon 5150 2.66GHz/DC x Xeon 5160 3.0GHz/DC x Xeon 5160 3.0GHz/DC	4MB 1GB (d 4MB 1GB (d	open 3.5) SAS/SATA open 3.5) SAS/SATA	Combo 670W 2 hot-sw Combo 670W 4 hot-sw Combo 670W 2 hot-sw Combo 670W 4 hot-sw	ap 2x4 2 x GB 3 year Aug 2006 ap 2x4 2 x GB 3 year Aug 2006
Positioning Processor L2 cache SMP support	Up to 1x Intel® Xeon Proc 1066MHz FSB Dual Core / Technology (EM64T) / Hy 2 MB / per core / at proces	essor 3.0 GHz w 1 1x Intel® Xeon F per-Threading te ssor speed	with 667MHz FSB Dua Processor 3.0 GHz wi chnology / Enhanced	I Core / Up to 1 x Intel Xeo th 1333MHz FSB Dual Co Intel Speedstep Technolog	n space-constrained environments on Processor 3.73 GHz with re / Extended Memory 64 gy (EIST) two PCI-E slots or one PCI-E slot and
Implementation	one PCI-X slot, integrated \$	SAS or SATA, eth	nernet and graphics co	ntrollers	
Memory	channel / 2-way memory in	terleave / DIMMs s any x4 or x8 SI ects anv two bits	must be installed in m DRAM device failure, c in error within 8 bytes	<pre>latched pairs [a bank] / Full letects all two wire faults o of data, corrects any singl</pre>	in ECC DDR2-SDRAM DIMMs / dual ly Buffered / Error Checking and n DIMMs, detects all permutations of e bit error within 8 bytes of data) /
SAS connectors	SATA) / on planar / PCI-E optional IBM ServeRAID TM One internal connection Enhanced IDE/ATA 100 c	express / some: In the sound interest in the sound in the sound in the sound in the sound in the	hot-swap, supports RA low-cost RAID 0, 1, ² backplane rprise South Bridge /	ID 0, 1, &10 ; some: simpling in the simplication in the simpling in the simplication in the simplication in the simplication	ATA (300MB/sec SAS) (150MB/sec e swap, supports HostRAID / stalled on reserved internal connector) / one 1-drop IDE cable (DVD-ROM) / o simple swap 3.5" SATA HDD /
Mechanical Chipset Bus slots	Intel 5000X chipset / Intel provides: one PCI-Express SMBus, LPC bus to NS PC	Memory Controll x8 slot with x4 Li 8742XVUL for S	ler Hub (MCH) provide inks or one 64-bit/133N uper I/O	s one PCI-Expréss x8 slot //Hz PCI-X slot, ATI video,	/ no rack to tower conversion / Enterprise Southbridge(ESB-2E) Dual Gigabit ethernet, IDE, USB, ks) / no hot-swap Active™ PCI slots
Ethernet controller	Two gigabit 10/100/1000	ethernet ports /*	Two Broadcom® 570	08 / two full gigabit ether	net MAC and PHY layer functions / e (TOE) / Alert Standard Format 2.0 /
Optical / diskette Front & Rear ports Graphics	two RJ-45 ports in rear 8X-24X ⁶ CD-RW/DVD-RC	DM / USB only 0), graphics (DF	3-15) <i>Bear:</i> four USF	3 (Vers 2.0), serial (9-pin), graphics (DB-15), two ethernet
Security Systems mgmt	Power-on password / ad IBM Integrated Baseboar environmental monitoring swith 140-pin connector on password / additional integration in the control of the c	d Management (uch as temp, opti	Controller (BMC) / IPN ional disks, fans, powe	1l 2.0 / H8S2166 / on plana r supply / supports opt. Re	equence ar / provides system and mote Supervisor Adapter II Slimline
Diagnostics Software Keyboard / mouse Power supply Fans Prerequisites	Drop down Light Path map to failing part (locate ServerGuide™ (CD-ROM utilities), IBM Director sy None standard (because Std/Max: one/two 670 war restart / redundant with tw Calibrated Vectored Coo (two fans with optional ser hot-swap / PFA Monitor, keyboard, mouse	d on front panel Installation ar stems mgmt, or rack-based) / Ut thot-swap / rea to power supplie of power supplie of power supplie of yari	nd configuration thers SB only ar access / auto es / auto-sensing fans; Max: twelve able speed /	Xeon 2.66GHz/1333MHz Xeon 3.0GHz/1333MHz - 1GB PC2-5300 FBD (2 x 2GB PC2-5300 FBD (2 x 4GB PC2-5300 FBD (2 x 16 10 10 10 10 10 10 10 10 10 10 10 10 10	2 x 2MB L2 Cache 40K1242 39M5782 1GB) 39M5785 2GB) 39M5791 4GB) 39M5797 ter 25R8064 Adapter II Slim 39Y9566
● 2.5" disk ● 2.5" di ● 2.5" disk ● 2.5" di	SK CD-RW/DVD	ROM		73.4GB 15K-rpm SAS HS 13K-rpm SAS HS 146.4GB 15K-rpm SAS H 670 Watt Hot-swap Powe PCI Riser Card PCI-X Op	S 3.5" (MM carrier) HDD 40K1043 IS 3.5" (MM carrier) HDD 40K1044 or Supply Option (US) 32R2815
• 3.5" disk • = Hot-swap (HS)	3.5" disk			Other options at ibm.co	m /products/us
PCI-E Riser RAID Opt PCI-E and PCI-X R Power Supply 2 Power Supply 1 Slot 1: PCI-Express xt	Socket MCH Socket CPU2 ATI B(x8 Links) half length	nnels 0 & 1 IMS 1,2,3,4 CPU1	 Configuration/Se Diagnostics (PC Network Boot: Front indicators HDD activity LE information LED Predictive failure memory, proces supplies, and far Director can aler of an imminent of Rack: H 1.75" (H 43mm x W 4 28 to 35.5 poun Stealth black col 	LEDs: Power-on LED, ID, locator LED, system D, and system-error LED e analysis on disk option sors, VRMs, power in conjunction with IBM the system administrato component failure k W 17.3" x D 27.5" 40mm x D 711.4mm) ds	3 year parts and labor International Warranty Service ³ On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time ⁷ 3 year on site warranty service upgrade options (in eligible locations): ⁷ 9 hr coverage, Mon-Fri excluding holidays, 4 hr response time
Slot 2*: PCI-Express x * riser determines PCI	:8(x4 Links) or 64-bit 133MHz 3.3	Max interna	length al disk capacity: nodels: 600GB² with t	wo 300GB SL disks	⇒ 24x7 ¹⁴ toll-free support for warranty issues during the warranty period ³

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

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Front indicators LEDs: Power-on LED, HDD activity LED, locator LED, system 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 1.75" x W 17.3" x D 27.5"

(H 43mm x W 440mm x D 711.4mm)

Slot 1:PCI-Express x8(x8 Links) half length

Slot 2*:PCI-Express x8(x4 Links) or 64-bit 133MHz 3.3v PCI-X; both half length

Stealth black color riser determines PCI-Express or PCI-X

CPU2

ESB2

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

4 hour average response time (ServicePac 21P2173)

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

○ Other ServicePacc potions at http://www.ibm.com/services/us/its/pdf/wamomxeu.pdf
 ○ 24X7¹⁴ toll-free support for warranty issues during the warranty period³

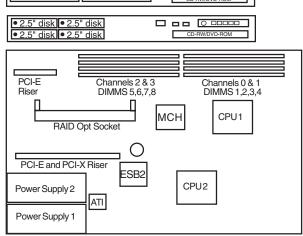
ATI

PCI-E and PCI-X Riser

Power Supply 2

Power Supply 1





HDD activity LED, locator LED, system information LED, and system-error LED ⇒ Predictive failure analysis on disk options memory, processors, VRMs, power

Front indicators LEDs: Power-on LED,

Quick release adapter slots (no screws)

Configuration/Setup Utility: F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 Network Boot: F12 at startup

Other options at ibm.com/products/us

supplies, and fans in conjunction with IBM Director can alert the system administrator of an imminent component failure

⇒ Rack: H 1.75" x W 17.3" x D 27.5"

(H 43mm x W 440mm x D 711.4mm) ⇒ 28 to 35.5 pounds

Slot 1:PCI-Express x8(x8 Links) half length

Slot 2*:PCI-Express x8(x4 Links) or 64-bit 133MHz 3.3v PCI-X; both half length

Stealth black color

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

LIMITED WARRANTY³

32R8216

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);⁷
• 9 hr coverage, Mon-Fri excluding
holidays, 4 hr response time
(ServicePac* 21P2172)
• 24 hr x 7 day coverage,
4 hour average response time

4 hour average response time (ServicePac 21P2173) 24 hr x 7 day coverage, 2 hour average response time (ServicePac21P2074)

○ Other ServicePacc IF2074)
 ○ Other ServicePac options at http://www.ibm.com/services/us/its/pdf/wamomxeu.pdf
 ○ 24X7⁴toll-free support for warranty issues during the warranty period³

riser determines PCI-Express or PCI-X

JW System X3030		ATIET BY STATE	eid Skills and Education Team
IBM® L2 Type-GAV-model Qty x Processor Core cach	Disk ne Memory Disk contro		Available Power supply Ethernet date
7979-G5y-G5x 1 x Xeon™ 5050 3.0GHz DC 4MI 7979-GSy-GSx 1 x Xeon 5050 3.0GHz DC 4MI 7979-H5y-H5x 1 x Xeon 5063 3.2GHz DC 4MI 7979-HSy-HSx 1 x Xeon 5063 3.2GHz DC 4MI	B 1GB Open 3.5" SAS / SA	SATA 4x10 (8 hot-swap) 1 x SATA 4x7 (4 or 6 hot-swap) 1 x	835W Hot-Swap 2xGigabit Jul 2006 835W Hot-Swap 2xGigabit Jul 2006 835W Hot-Swap 2xGigabit Jul 2006 835W Hot-Swap 2xGigabit Jul 2006
Positioning Processor Processor Processor Processor Processor A rack-dense 2-way server of the process of the process of the process of the process of the process of the processor of the p	emory 64 Technology (EM64T	ability and expandability for ap Dual Core / Up to 1 x Intel Xeo) / Hyper-Threading technology	pplication-serving Web environments in Processor 3.2 GHz with 1066MHz / Enhanced Intel Speedstep
Implementation 2-way SMP / up to two Xeon Systemboard contains two Interest Interes	Processors (same speed/cache	ory gold-connector DIMM slots,	four PCI-E slots or two PCI-E slots
channel / 2-way memory interlo Correcting (ECC) (corrects ar	eave / DIMMs must be installed ıy x4 or x8 SDRAM device failu	n matched pairs [a bank] / Full y e, detects all two wire faults on	ECC DDR2-SDRAM DIMMs / dual y Buffered / Error Checking and DIMMs, detects all permutations of bit error within 8 bytes of data) /
SAS connectors One internal connection wir IDE controller/cable Enhanced IDE/ATA 100 controller/cable Enhanced IDE/ATA 100 controller/cable Enhanced IDE/ATA 100 controller/cable Enhanced IDE/ATA 100 controller/cable Enhanced IDE/ATA 100 controller/cable Enhanced IDE/ATA 100 controller	ress / supports RAID 0, 1 & 10 / o red internal connector) / simult	otional IBM ServeRAID™-8k A Aneous SAS and SATA disks external connector e / one connector on planar / one	daptor for low-cost RAID 0, 1, 1E, environments are unsupported
Chipset Intel 5000P chipset / Intel Me bit/133MHz PCI-X slots / Enter ethernet, IDE, USB, SMBus, L	mount only / supported in IBN mory Controller Hub (MCH) pro prise Southbridge(ESB-2E) prov PC bus to NS PC8742XVUL for x8 or two PCI-X 1.0 and two F	rides riser connector for either t ides: two PCI-Express x8 slot v Super I/O	two PCI-Express x8 slots or two 64- vith x4 Links, ATI video, Dual Gigabit
Ethernet controller Dual gigabit 10/100/1000 eth on planar / PCI-Express / ful two RJ-45 ports in rear	nernet ports / Two Broadcom ® I duplex / Wake on LAN® / TC	5708 / two full gigabit ethern P/IP Offload Engine (TOE) / /	et MAC and PHY layer functions / Alert Standard Format 2.0 /
Optical / diskette 8X-24X ⁶ CD-RW/DVD-ROM Front & Rear ports Front: two USB (Vers 2.0)	/ USB only graphics (DB-15) <i>Rear:</i> four Unt), one SAS / no parallel poi) / front and rear ports / on p	JSB (Vers 2.0), serial (9-pin),	graphics (DB-15), two ethernet
Security Systems mgmt Power-on password / admir IBM Integrated Baseboard N environmental monitoring such	nistrator password / unattendolanagement Controller(BMC) /	ed boot / selectable boot sec IPMI 2.0 / H8S2166 / on plana ower supply / supports opt. Ren	quence
Software Software ServerGuide (CD-ROM in utilities), IBM Director system of the control of the	nstallation and configuration ms mgmt, others k-based) / USB only ot-swap / rear access / auto power supplies / auto-sensing The supplies / auto-sensing The supplies / auto-sensing pm Std: five fans; Max: ten dipower supply) / redundant iable speed / hot-swap / PFA	Xeon 3.0GHz/667MHz - 2 Xeon 3.2GHz/1066MHz - 2 1GB PC2-5300 FBD (2 x 2GB PC2-5300 FBD (2 x 4GB PC2-5300 FBD (2 x 8GB PC2-5300 FBD (3	2 x 2MB L2 Cache 25R8927 512MB) 39M5782 1GB) 39M5785 2GB) 39M5791 4GB) - When available 39M5797 2er 25R8064 dapter II Slim 39Y9566 ot-swap 300MB/sec 39M4530
Drop Down	With 3.5" SAS	300GB 10K-rpm SAS HS 73.4GB 10K-rpm SAS SFF 73.4GB 15K-rpm SAS HS 146.4GB 15K-rpm SAS HS 835 Watt Hot-swap Power PCI Riser Card PCI-X Opt	3.5" (MM carrier) HDD 40K1041 F HS 2.5" (SFF tray) HDD 40K1052 3.5" (MM carrier) HDD 40K1043 6 3.5" (MM carrier) HDD 40K1044 Supply Option (US) 40K1905 Supply Option (WW) 40K1906
Bay ③ 3.5", SL 1", access, hot-swap, open for dis Bay ④ 3.5", SL 1", access, hot-swap, open for dis Bay ⑤ 3.5", SL 1", access, hot-swap, open for dis Bay ⑥ 3.5", SL 1", access, hot-swap, open for dis Bay ⑦ 3.5", SL 1", access, hot-swap, open for dis	k k k k ⇔ Quick releas k ⇔ Configuratio	Other options at ibm.com e adapter slots (no screws) n/Setup Utility: F1 at startup	n/products/us LIMITED WARRANTY ³
Drop Down lightpathpanel Second Strict Se	2U Rack with Front indicate HDD activity information Predictive famemory, pro supplies, and Director can of an immine Rack: H 3.3 (H 85.4mm: 46.5 to 65 pt Stealth black Hz 3.3v PCI-X Max internal disk capacity:	color	 ⇒ 3 year parts and labor ⇒ International Warranty Service³ ⇒ On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time⁷
See footnotes for important warranty information	3.5" SAS models: 1.8TB² with 3.5" SATA models: 4.5TB² with 2.5: SAS models: 1.2TB² with	h six 750GB disks eight 146GB SFF disks	(X3650A) © IBM Corp. May 2006

IBM® Type-GAV-model Qt	L2 xy x Processor Core cach	e Memory Disk	Disk controller	Slots x bays (hot-swap bays) Pe	Available ower supply Ethernet date
7979-21v-21v 1 x)	Xeon™ 5110 1.6GHz DC 4ME (eon 5110 1.6GHz DC 4ME (eon 5120 1.86GHz DC 4ME (eon 5120 1.86GHz DC 4ME (eon 5130 2.0GHz DC 4ME (eon 5130 2.0GHz DC 4ME (eon 5130 2.0GHz DC 4ME	1GB Open 3.5" 1GB Open 2.5" 1GB Open 3.5" 1GB Open 2.5" 1GB Open 3.5"	SAS / SATA	4x7 (4 or 6 hot-swap) 1 x 3	335W Hot-Swap 2xGigabit Jul 2006 835W Hot-Swap 2xGigabit Jul 2006 835W Hot-Swap 2xGigabit Jul 2006 335W Hot-Swap 2xGigabit Jul 2006 335W Hot-Swap 2xGigabit Jul 2006 335W Hot-Swap 2xGigabit Jul 2006
Positioning Processor L2 cache SMP support Implementation	1333MHz FSB Dual Core / Ex Speedstep Technology (EIST) 2 MB / per core / at processor 2-way SMP / up to two Xeon	tended Memory 64 T speed Processors (same spe I LGA771 sockets, two	echnology (E eed/cache size elve memory (:M64T) / Hyper-Threading to s) gold-connector DIMM slots,	olication-serving Web environments on Processor 3.0 GHz with echnology / Enhanced Intel
Memory	1GB std / 48GB ¹³ max / two slichannel / 2-way memory interle	ots used / ten slots ava eave / DIMMs must be y x4 or x8 SDRAM de any two bits in error y	ilable / PC2-5 3 installed in ma evice failure, de vithin 8 bytes	300 667MHz FBD 240-pin Eatched pairs [a bank] / Fully etects all two wire faults on of data, corrects any single	CC DDR2-SDRAM DIMMs / dual Buffered / Error Checking and DIMMs, detects all permutations of bit error within 8 bytes of data) /
SAS connectors IDE controller/cable Disk - capacity Disk - bays Tape backup	hot-swap / on planar / PCI-Exp 10, 5 & 6 (installed on reserv One internal connection wire Enhanced IDE/ATA 100 contr None standard / supports 7. Some: six hot-swap 3.5" SAS of Optional internal and external	ress / supports RAID 0, red internal connector ed to DASD backplar oller in Enterprise Soi 200-15000 rpm disks or SATA HDD / some: al / 3.5" / USB or SATA	1 & 10 / option) / simultanec ne / one exte uth Bridge / or s / one back eight hot-swap TA	ial IBM ServeRAID™-8k Acours SAS and SATA disks elemal connector connector ne connector on planar / one plane b 2.5" SAS HDD / filler panel	
Mechanical Chipset Bus slots	EIA 19" Rack (2U ⁴) / rack-r Intel 5000P chipset / Intel Me bit/133MHz PCI-X slots / Enter ethernet, IDE, USB, SMBus, LI (See below) Four PCI-Express	mory Controller Hub (N prise Southbridge(ESE C bus to NS PC8742)	MCH) provides 3-2E) provides XVUL for Sup	s riser connector for either tv : two PCI-Express x8 slot w er I/O	vo PCI-Express x8 slots or two 64- th x4 Links, ATI video, Dual Gigabit
Ethernet controller Optical / diskette Front & Rear ports Graphics	on planar / PCI-Express / ful two RJ-45 ports in rear	duplex / Wake on L	AN® / TCP/IP	Offload Engiñe (TOE) / A	et MAC and PHY layer functions / lert Standard Format 2.0 / graphics (DB-15), two ethernet 32-bit/33MHz PCI 2.3
Security Systems mgmt	Power-on password / admin IBM Integrated Baseboard M environmental monitoring such with 140-pin connector on plan	as temp, optional disk	s, fans, power	supply / supports opt. Rem	uence / provides system and ote Supervisor Adapter II Slimline
Diagnostics Software Keyboard / mouse Power supply Fans Prerequisites Drop Down light path panel USB Vid CD-RW/DVD-ROM Bay ① 5.25", 0.1 Bay ② 3.5", SL 1"	2x 3.5" disk • 3.5" disl 5" access, slimCD-RW/DVD-ROM	in front panel) installation and configures and configures are set of the set	guration s / auto s-sensing ax: ten lundant p / PFA OS	Xeon 1.60GHz/1066MHz - Xeon 1.86GHz/1066MHz - Xeon 2.0GHz/1333MHz - 2 1GB PC2-5300 FBD (2 x 5 2GB PC2-5300 FBD (2 x 1 4GB PC2-5300 FBD (2 x 4 1BM ServeRAID-8k Adapte IBM Remote Supervisor Ad 500GB 7.2K rpm SATA ho 750GB HS SATA 3.5" HDD 300GB 10K-rpm SAS HS 3 73.4GB 15K-rpm SAS HS 3 146.4GB 15K-rpm SAS HS 35 Watt Hot-swap Power PCI Riser Card PCI-X Optic	2 x 2MB L2 Cache x 2MB L2 Cache 40K1232 40K1233 39M5782 (BB) 39M5791 39M5791 25R8064 39Y9566 43W7576 40K1041 40K1052 3.5" (MM carrier) HDD 40K1043 3.5" (MM carrier) HDD 40K1044 Supply Option (US) 40K1905
Bay ③ 3.5", SL 1" Bay ④ 3.5", SL 1" Bay ⑥ 3.5", SL 1" Bay ⑥ 3.5", SL 1" Bay ⑥ 3.5", SL 1" Drop Down light path panel USB Vic CD-RWIDVD-ROM Bay ② 3.5", SF1 1" Bay ② 3.5", SF1 1" Bay ⑥ 2.5", SF1 1" Slot 1*: PCI-Express x8 Slot 3*: low-profile, PC Slot 4*: low-profile, PC Slot 4*: low-profile, PC slots 1 & 2 riser determ	access, hot-swap, open for dis access, hot-swap, open for dislaccess, hot-swap, open for dislacces, hot-swap, open for dislacces, hot-swap, open for dislacces, hot-swap, open for dislacc	2U Rack Dia Dia Dia Dia Dia Dia Dia Dia Dia Dia	uick release a onfiguration/Se agnostics (PC etwork Boot: Font indicators DD activity LE formation LED edictive failure emory, procesipplies, and far rector can ale an imminent cack: H 3.36" x 185.4mm x W 5.5 to 65 poundealth black columns and the columns of th	Other options at ibm.com. dapter slots (no screws) tup Utility: F1 at startup i-Doctor™): F2 at startup 12 at startup LEDs: Power-on LED, D, locator LED, system , and system-error LED analysis on disk options, ssors, VRMs, power as in conjunction with IBM at the system administrator component failure W 17.5" x D 27.5" 443.6mm x D 698mm) ds or	

				xREF by STO		-
IBM®	Dunanan	L2	Disk		Device comply 5th	Available
Type-GAV-model Qty: 7979-51y-51x 1 x Xeo 7979-5Ay-5Ax 1 x Xeo 7979-61y-61x 1 x Xeo 7979-6Ay-6Ax 1 x Xeo 7979-71y-71x 1 x Xeo 7979-7Ay-7Ax 1 x Xeo	n™5140 2.33GHz n 5140 2.33GHz n 5150 2.66GHz	Core cache Memory DC 4MB 1GB	Disk control	ATA Av7 (A or 6 hot-swan)	1 x 835W Hot-Swap 2xGiğab 1 x 835W Hot-Swap 2xGigab 1 x 835W Hot-Swap 2xGigab	oit Jul 2006 oit Jul 2006 oit Jul 2006 oit Jul 2006 oit Jul 2006
Processor L 1 S L2 cache 2 SMP support Implementation	Jp to 1x Intel® Xeor 333MHz FSB Dual bpeedstep Technolo MB / per core / at -way SMP / up to to Systemboard contain	n Processor 1.86 GI Core / Extended Mi ggy (EIST) processor speed two Xeon Processors s two Intel LGA771	Hz with 1066MHz FS emory 64 Technolog s (same speed/cache	B Dual Core / Up to 1 x In yy (EM64T) / Hyper-Thread size) ory gold-connector DIMM :	for application-serving Web entel Xeon Processor 3.0 GHz will ding technology / Enhanced Intelligence of the Police State of two Police State of two Police State of two Police State of two Police State of two Police State of two Police State of two Police State of two Police State of two Police State of two Police State of the Police State of two Police State of the Police State of t	rith el
C C	hannel / 2-way men Correcting (ECC) (c wo x4 DRAM failure	nory interleave / DIM corrects any x4 or x8 s. detects any two b	Ms must be installed SDRAM device failu	n matched pairs [a bank] / re, detects all two wire faul rtes of data. corrects any s	D-pin ECC DDR2-SDRAM DIMI Fully Buffered / Error Checki ts on DIMMs, detects all permu single bit error within 8 bytes of	ng and Itations of
SAS connectors C IDE controller/cable E Disk - capacity Disk - bays S	ot-swap / on planar 0, 5 & 6 (installed Dne internal conne Inhanced IDE/ATA Jone standard / su Some: six hot-swap 3	/ PCI-Express / supp on reserved internation wired to DAS 100 controller in En	orts HAID 0, 1 & 10 / 0 al connector) / simul 6D backplane / one terprise South Bridg 0 rpm disks / one k DD / some: eight hot-	otional IBM ServeRAIDIM- caneous SAS and SATA of external connector e/one connector on planar	A (300MB/sec SAS) (150MB/se 8k Adaptor for low-cost RAID disks environments are unsup 7 one 1-drop IDE cable (CD-RW/ panels installed in each disk ba	0, 1, 1E, ported /DVD-ROM)
Chipset II b	ntel 5000P chipset it/133MHz PCI-X sk thernet, IDE, USB, S	/ Intel Memory Cont ots / Enterprise Soutl SMBus, LPC bus to I	roller Hub (MCH) pro hbridge(ESB-2E) pro NS PC8742XVUL for	ides riser connector for ai	cts / no rack to tower conveither two PCI-Express x8 slots of slot with x4 Links, ATI video, Divap Active™ PCI slots	or two 61-
Optical / diskette 8 Front & Rear ports F () Graphics Security F	on planar / PCI-Exp 5 ports in rear IX-24X ⁶ CD-RW/DV Front: two USB (V RJ-45), one RJ-45 SVGA / ATI® RN50 Power-on password	oress / full duplex / VD-ROM / USB onlers 2.0), graphics ((sys mgmt), one S (ES1000) / front ard	Wake on LAN® / TO y DB-15) <i>Rear:</i> four l AS / no parallel poi nd rear ports / on p assword / unattend	P/IP Offload Engine (TO JSB (Vers 2.0), serial (9- t anar / 16MB DDR std/m	thernet MAC and PHY layer file) / Alert Standard Format 2pin), graphics (DB-15), two enax / 32-bit/33MHz PCI 2.3 t sequence planar / provides system and	0 / two RJ-
Diagnostics Software Keyboard / mouse Power supply Fans C	invironmental monitority in 140-pin connection to failing part (ServerGuide Marchall (Se	oring such as temp, or on planar for cont	potional disks, fans, p inuous power (no ext panel providing LEI nel) and configuration , others USB only rear access / auto plies / auto-sensing ve fans; <i>Max:</i> ten upply) / redundant d / hot-swap / PFA	Dwer supply / supports opt. ernal power required) Xeon 2.33GHz/1333M Xeon 2.66GHz/1333M Yeon 3.0GHz/1333M 1GB PC2-5300 FBD 2GB PC2-5300 FBD 4GB PC2-5300 FBD 8GB PC2-5300 FBD 1BM ServeRAID-8k IBM Remote Supervis	Hz - 2 x 2MB L2 Cache Hz - 2 x 2MB L2 Cache Hz - 2 x 2MB L2 Cache Hz - 2 x 2MB L2 Cache (2 x 512 MB) (2 x 1GB) (2 x 2GB) (2 x 4GB) (dapter for Adapter II Slim TA hot-swap 300MB/sec	40K1234 40K1235 40K1235 40K1236 39M5782 39M5785 39M5797 25R8064 39Y9566 39M4530 43W7576
Drop Down light path panel USB Video	Tape Drive or 2x 3.5" disk access, slimCD-RW access, hot-swap, caccess, hot-swap, caccess, hot-swap, caccess, slimCD-RW	2U Rawith 3.5" disk 3.5" disk 3.5" disk 3.5" sepen for disk oppen for disk oppen for disk		300GB 10K-rpm SAS 73.4GB 10K-rpm SAS 73.4GB 15K-rpm SAS 146.4GB 15K-rpm SA	HS 3.5" (MM carrier) HDD 3 SFF HS 2.5" (SFF tray) HDD 5 HS 3.5" (MM carrier) HDD 5 HS 3.5" (MM carrier) HDD ower Supply Option (US) 6 Option	40K1041
Bay ⑤ 3.5", SL 1", Bay ⑥ 3.5", SL 1", Bay ⑥ 3.5", SL 1", Drop Down light pathpanel USB Video CD-RWIDVD-ROM Bay ① 5.25", O.5" Bay ② 3.5", Bay ③ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Slot 1*: PCI-Express x8(x Slot 2*: PCI-Express x8(x Slot 3: low-profile, PCI-E*slot 4: low-profile, PCI-E*slot 1 & 2 riser determin	access, hot-swap, on the swap, f the swap of the s	open for disk open for disk open for disk open for disk open for disk open for disk open for disk open for disk open for disk open for disk open for disk open for disk open for disk open for disk Op	Configurat Diagnostic Network E Front indic HDD activ information Predictive memory, supplies, a Director or of an immi Rack: H3 (H85.4mr 46.5 to 65 Stealth bla X X X Emal disk capacity: S models: 1.8TB² with TA models: 4.5TB² with	ck color six 300GB SL disks	Tup artup 3 year parts and labor International Warranty Sr On site, 8 am - 5 pm, Moi coverage excluding holic business day response ti business day response ti options (in eligible locat 9 hr coverage, Mon-Fr holidays, 4 hr respons (ServicePac* 21P2077) 24 hr x7 day coverage, 4 hour average respon (ServicePac 21P2078)	ervice ³ n - Fri lays, next me' rvice upgrade ions):' excluding e time se time se time se at ices/us/its/ or warranty eriod ³

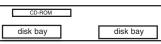
Type-GAV-model	2xGiğabit Dec 2006 Web environments gy (EM64T) / or two PCI-E slots 2-SDRAM DIMMs / Error Checking
Processor Up to 1x Intel® Xeon Processor 1.86GHž with 1066MHz FSB Quad-Core / Extended Memory 64 Technology Enhanced Intel Speedstep Technology (EIST) 8MB / std and max / at processor speed 2-way SMP / up to two Xeon Processors (same speed/cache size) Systemboard contains two Intel LGA771 sockets, twelve memory gold-connector DIMM slots, four PCI-E slots of and two PCI-X slots, integrated SAS, ethernet and graphics controllers Memory 1 or 2GB std / 48GB¹³ max / two slots used / ten slots available / PC2-5300 667MHz FBD 240-pin ECC DDR2 dual channel / 2-way memory interleave / DIMMs must be installed in matched pairs [a bank] / Fully Buffered / and Correcting (ECC) (corrects any x4 or x8 SDRAM device failure, detects all two wire faults on DIMMs, detects of two x4 DRAM failures, detects any two bits in error within 8 bytes of data, corrects any single bit error within 8 Active Memory™: memory mirroring, online-spare memory, Chipkill	or two PCI-E slots 2-SDRAM DIMMs / Error Checking
2-way SMP / up to two 'Xeon Processors (same speed/cache size) Systemboard contains two Intel LGA771 sockets, twelve memory gold-connector DIMM slots, four PCI-E slots and two PCI-X slots, integrated SAS, ethernet and graphics controllers Memory 1 or 2GB std / 48GB¹³ max / two slots used / ten slots available / PC2-5300 667MHz FBD 240-pin ECC DDR2 dual channel / 2-way memory interleave / DIMMs must be installed in matched pairs [a bank] / Fully Buffered / and Correcting (ECC) (corrects any x4 or x8 SDR4M device failure, detects all two wire faults on DIMMs, dete of two x4 DR4M failures, detects any two bits in error within 8 bytes of data, corrects any single bit error within 8 Active Memory™: memory mirroring, online-spare memory, Chipkill	2-SDRAM DIMMs /
dual channel / 2-way memory interleave / DIMMs must be installed in matched pairs [a bank] / Fully Buffered / and Correcting (ECC) (corrects any x4 or x8 SDRAM device failure, detects all two wire faults on DIMMs, dete of two x4 DRAM failures, detects any two bits in error within 8 bytes of data, corrects any single bit error within 8 Active Memory™: memory mirroring, online-spare memory, Chipkill	Error Checking
SAS/SATA controller Adentee® AIC-0580W / dual channel SAS controller / sight new SAS or SATA (2004/D/cos SAS) (4	bytes of data) /
SAS/SATA controller Adaptec® AIC-9580W / dual channel SAS controller / eight port SAS or SATA (300MB/sec SAS) (1 hot-swap / on planar / PCI-Express / supports RAID 0, 1 & 10 / optional IBM ServeRAID™-8k Adaptor for low-co 10, 5 & 6 (installed on reserved internal connector) / simultaneous SAS and SATA disks environments ar One internal connection wired to DASD backplane / one external connector Enhanced IDE/ATA 100 controller in Enterprise South Bridge / one connector on planar / one 1-drop IDE cable None standard / supports 7200-15000 rpm disks / one backplane Some: six hot-swap 3.5" SAS or SATA HDD / some: eight hot-swap 2.5" SAS HDD / filler panels insta Optional internal and external / 3.5" / USB or SATA	3 (CD-KW/DVD-ROIVI)
Mechanical Chipset EIA 19" Rack (2U⁴) / rack-mount only / supported in IBM NetBAY™ Rack products / no rack to towe Intel 5000P chipset / Intel Memory Controller Hub (MCH) provides riser connector for either two PCI-Express x bit/133MHz PCI-X slots / Enterprise Southbridge(ESB-2E) provides: two PCI-Express x8 slot with x4 Links, ATI ethernet, IDE, USB, SMBus, LPC bus to NS PC8742XVUL for Super I/O Bus slots EIA 19" Rack (2U⁴) / rack-mount only / supported in IBM NetBAY™ Rack products / no rack to towe Intel 5000P chipset / Intel 5000P chipse	x8 slots or two 64-
Ethernet controller Dual gigabit 10/100/1000 ethernet ports /Two Broadcom® 5708 / two full gigabit ethernet MAC and PHY on planar / PCI-Express / full duplex / Wake on LAN® / TCP/IP Offload Engine (TOE) / Alert Standard For 45 ports in rear 8X-24X® CD-RW/DVD-ROM / USB only Front: two USB (Vers 2.0), graphics (DB-15) *Rear:* four USB (Vers 2.0), serial (9-pin), graphics (DB-15) *Graphics** (RJ-45), one RJ-45 (sys mgmt), one SAS / no parallel port SVGA / ATI® RN50(ES1000) / front and rear ports / on planar / 16MB DDR std/max / 32-bit/33MHz P Security Systems mgmt Power-on password / administrator password / unattended boot / selectable boot sequence IBM Integrated Baseboard Management Controller(BMC) / IPMI 2.0 / H8S2166 / on planar / provides systems	5), two ethernet
environmental monitoring such as temp, optional disks, fans, power supply / supports opt. Remote Supervisor Arwith 140-pin connector on planar for continuous power (no external power required) 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 Fans Keyboard / mouse Power supply Fans Calibrated Vectored Cooling™ Std: five fans; Max: ten (five fans with optional second power supply) / redundant with ten fans installed; All: variable speed / hot-swap / PFA Monitor, keyboard, mouse, SAS/SATA disk, rack, OS Drop down Light Path Diagnostics panel providing LED Xeon E5310 1.6GHz/1066MHz/8MB L2 Cat Xeon E5320 1.86GHz/1066MHz/8MB L2 C	che 43W5821 Fache 43W5822 39M5782 39M5785 39M5791 39M5797 25R8064 39Y9566
Drop Downlight path panel USB Video CD-RW/DVD-ROM Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1", access, hot-swap, open for disk Bay ④ 3.5", access, hot-swap, open for disk Bay ④ 3.5", access, hot-swap, open for disk Bay ④ 3.5", access, hot-swap, open for disk Bay ④ 3.5	HDD 40K1041 ray) HDD 40K1052 HDD 40K1043 rr) HDD 40K1044
Drop Downlight path panel Service Pactor Service Pactor	Warranty Services - 5 pm, Mon - Fri luding holidays, next responset lime' warranty service upgrade igible locations):' 19e, Mon-Fri excluding hr responset time 2:21P2077) y coverage, age responset time 2:1P2078) y coverage, age response time 2:1P2093) Pac options at m.com/services/us/its/ bu.pdf e support for warranty

Max internal disk capacity:
3.5" SAS models: 1.8TB² with six 300GB SL disks
3.5" SATA models: 4.5TB² with six 750GB disks
2.5: SAS models: 1.2TB² with eight 146GB SFF disks

	•	L2 Core cache Memo	ry Disk	Disk controller	Slots x bays (hot-swap bays)	Powersupply	Ethernet	Available date
7979-A2y-A2x 1 x) 7979-ABy-ABx 1 x X 7979-CBy-CAx 1 x X 7979-CBy-CBx 1 x X 7979-C3y-C3x 1 x X 7979-CCy-CCx 1 x X	(eon™ E5335 2.0GHz (eon E5335 2.0GHz (eon E5320 1.86GHz (eon E5345 2.33GHz (eon E5355 2.66GHz (eon E5355 2.66GHz	QC 8MB 2GB QC 8MB 2GB QC 8MB 2GB QC 8MB 2GB QC 8MB 2GB QC 8MB 2GB	3.5" Open 2.5" Open	SAS/SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA	4x7 (4 or 6 hot-swap) 4x10 (8 hot-swap) 4x10 (8 hot-swap) 4x10 (8 hot-swap) 4x7 (4 or 6 hot-swap) 4x10 (8 hot-swap)	1 x 835W Hot-Swap 1 x 835W Hot-Swap	2xGiğabit E 2xGigabit F 2xGigabit F 2xGigabit F	Dec 2006 Feb 2007 Feb 2007 Feb 2007
Positioning Processor	2U Rack with 3.5" S. Up to 1x Intel® Xeon F. Core / Extended Mer	AS or SATA with Processor 1.86GHz mory 64 Technolo	<i>high availabilit</i> z with 1066MH ogy (EM64T) /	y <i>, scalability</i> z FSB / 1x l i Enhanced Ir	and expandability for ntel Xeon Processor ntel Speedstep Techn	r application-serving up to 2.66GHz with ology (EIST)	Web environ 1333 FSB /	nments Quad-
L2 cache SMP support Implementation	8MB / std and max / 2-way SMP / up to tv Systemboard contains and two PCI-X slots, i	vo`Xeon Procėsso s two Intel LGA771	rs (same speed I sockets, twelv	d/cache size) ve memory g phics controll	old-connector DIMM sers	slots, four PCI-E slots	or two PCI-	-E slots
Memory	1 or 2GB std / 48GB dual channel / 2-way and Correcting (ECC of two x4 DRAM failur Active Memory™:	memory interleave (corrects any x4 res. detects any tw	DIMMs must or x8 SDRAM o bits in error v	be installed device failur vithin 8 bvtes	n matched pairs [a ba e, detects all two wire of data. corrects anv	ank] / Fúlly Buffered faults on DIMMs, de	/ Error Chec tects all perr	cking mutations
	Adaptec® AIC-9580 hot-swap / on planar / 10, 5 & 6 (installed One internal connec Enhanced IDE/ATA None standard / su Some: six hot-swap Optional internal and	on reserved interi ction wired to DA 100 controller in E	nai connector) SD backplane nterprise Sout	/ simultaned e / one exte h Bridge / on	rnal connector e connector on planar	disks environments a / one 1-drop IDE cab	are unsuppo e (CD-RW/D\	νπeα VD-ROM)
Mechanical Chipset Bus slots	EIA 19" Rack (2U ⁴) Intel 5000P chipset / bit/133MHz PCI-X slo ethernet, IDE, USB, S (See below) Four PCI-) / rack-mount or / Intel Memory Cor ts / Enterprise Sou MBus, LPC bus to Express x8 or two	nly / supported ntroller Hub (Mo nthbridge(ESB-2 NS PC8742X PCI-X 1.0 and	d in IBM Ne CH) provides 2E) provides: VUL for Supe d two PCI-E	tBAY™ Rack produ riser connector for ei two PCI-Express x8 er I/O xpress x8 / no hot-sw	cts / no rack to tow ther two PCI-Express slot with x4 Links, AT ap Active™ PCI slots	er conversion x8 slots or t I video, Dual	on two 64- I Gigabit
Ethernet controller Optical / diskette Front & Rear ports Graphics Security	Dual gigabit 10/100/ on planar / PCI-Expi 45 ports in rear 8X-24X° CD-RW/DV Front: two USB (Ve (RJ-45), one RJ-45 SVGA / ATI® RN50(1000 ethernet poress / full duplex / full du	rts / Two Broa / Wake on LAI nly (DB-15) <i>Rea</i> SAS / no para and rear ports	ndcom® 570 N® / TCP/IP r: four USB allel port s / on planar	B / two full gigabit et Offload Engine (TO (Vers 2.0), serial (9- / 16MB DDR std/m	hernet MAC and PHE) / Alert Standard pin), graphics (DB- ax / 32-bit/33MHz	IY layer fund Format 2.0 /	ctions / / two RJ-
Systems mgmt	IBM Integrated Base environmental monitor with 140-pin connector	eboard Manageme ring such as temp,	ent Controller(optional disks,	BMC) / IPMI fans, power	2.0 / H8S2166 / on p supply / supports opt.	olanar / provides syste		imline
Diagnostics Software Keyboard / mouse Power supply Fans Prerequisites	Drop down Light F map to failing part (I. ServerGuide™ (CD utilities), IBM Direct None standard (bec. Std/Max: one/two 83 restart / redundant w Calibrated Vectore (five fans with option with ten fans installe Monitor, keyboard, n	ocated on front particles of the particl	anel) n and configu t, others / USB only rear access / oplies / auto-s five fans, Max supply) / redu ed / hot-swap	auto ensing c: ten ndant / PFA	Xeon E5320 1.86GHz Xeon E5335 2.0GHz/ Xeon E5345 2.33GHz/ Xeon E5355 2.66GHz/ AGB PC2-5300 FBD 44GB PC2-5300 FBD 44GB PC2-5300 FBD 450BBGB PC2-530BBGB PC2-530BB PC2-530	1333MHz/8MB L2 C; z/1333MHz/8MB L2 (z/1333MHz/8MB L2 (2 x 512 MB) (2 x 1GB) (2 x 1GB) (2 x 4GB) dapter or Adapter II Slim	ache 4 Dache 4 Dache 4 Sache 3 Sache 3	43W5822 43W5823 43W5824 43W5825 39M5782 39M5785 39M5791 39M5797 25R8064 39Y9566
Drop Down light path panel USB Vid	Tape Drive or 2x 3.5" disk "access, slimCD-RW access, hot-swap, o access, hot-swap, o access, hot-swap, o	pen for disk pen for disk pen for disk	1		500GB 7.2K rpm SA' 750GB HS SATA HD 300GB 10K-rpm SAS 73.4GB 10K-rpm SAS 73.4GB 15K-rpm SAS 146.4GB 15K-rpm SA 335 Watt Hot-swap P PCI Riser Card PCI-X Other options at ibm	D HS 3.5" (MM carrier SFF HS 2.5" (SFF HS 3.5" (MM carrier S HS 3.5" (MM carrier S HS 3.5" (MM carrier Ower Supply Option (Option	HDD 4 tray) HDD 4) HDD 4 er) HDD 4 US) 4	39M4530 13W7576 10K1041 10K1052 10K1043 10K1044 10K1905 10K1908
Bay (6) 3.5", SL 1", Bay (7) 3.5", SL 1", Drop Down light path panel USB Video 1	Tape Drive -2.5" disk	pen for disk pen f	Cor Dia Dia Net Froi HDD inform Pre mer sup Dire of a Rac (H & 46.5 Ster I-X	nfiguration/Segnostics (PC work Boot: F nt indicators activity LED, ation LED, a dictive failure mory, proces plies, and far actor can ale in imminent c sk: H 3.36" x 85.4mm x W 5 to 65 pound alth black col	or	Distriction 3 year parts: International On site, 8 an coverage ext business dat 3 year on site options (in e options (in e options (in e options)) BM (ServicePa options) A hour ave (ServicePa options) 1) (ServicePa options)	Warranty Servi -5 pm, Mon -1 -	ice ³ Fri s, next y ce upgrade is): cluding me time time t s/us/its/ varranty

	y x Processor	L2 Core cache I		Disk	Disk controller	Slots x bays (hot-swap bays)	Power supply	Ethernet	Available date
7979-JAy-JAx 1 x 2 7979-JBy-JBx 1 x 2 7979-C4y-C4x 1 x 2 7979-CDy-CDx 1 x 2 7979-EDy-EDx 1 x 2	Xeon™ L5310 1.6GHz Xeon L5325 1.86GHz Xeon X5365 3.0GHz Xeon X5365 3.0GHz Xeon X5355 2.66GHz	QC 8MB z QC 8MB QC 8MB QC 8MB z QC 8MB	2GB 2GB 2GB 2GB 4GB	2.5" Open 2.5" Open 3.5" Open 2.5" Open 3.5" Open	SAS/SATA SAS/SATA SAS/SATA SAS/SATA SAS/SATA	4x10 (8 hot-swap) 4x10 (8 hot-swap) 4x7 (6 hot-swap) 4x10 (8 hot-swap) 4x7 (6 hot-swap)	1 x 835W Hot-Swap 1 x 835W Hot-Swap 1 x 835W Hot-Swap 1 x 835W Hot-Swap 2 x 835W Hot-Swap	2xGigabit 3 2xGigabit 3	May 2007 Sep 2007 Sep 2007
Positioning Processor	Up to 1x Intel® Xeon	Processor 3.0	GHz with	h 1333MHz	FSB / Xeon	r and expandability for Processor 1.86GHz eedstep Technology (or application-serving with 1066MHz FSB / EIST)	Web enviro Quad-Core	onments /
L2 cache SMP support Implementation	8MB / std and max / 2-way SMP / up to Systemboard contain and two PCI-X slots,	two Xeon Prod ns two Intel LC	cessors (3A771 sc	ockets, twelv	e memory c	joid-connector Diiviivi	slots, four PCI-E slots	or two PCI	-E slots
Memory	channel / 2-way mer	nory interleave corrects any x4 s. detects anv	e / DIMMs I or x8 S two bits	s must be in DRAM devic in error with	stalled in ma ce failure, de in 8 bvtes of	atched pairs [a bank] / etects all two wire faul f data. corrects anv sir	10-pin ECC DDR2-SE Fully Buffered / Errots ts on DIMMs, detects ngle bit error within 8 b	or Checking	g and
SAS/SATA controller SAS connectors IDE controller/cable Disk - capacity Disk - bays Tape backup	One internal conne	on reserved ection wired to 100 controller	ınternal o DASD r in Ente	connector) backplane rprise South	/ simultaned : / one exte n Bridge / on	ous SAS and SATA ernal connector le connector on planar	A (300MB/sec SAS) (8k Adaptor for low-c disks environments a / one 1-drop IDE cabl D / filler panels inst	.re unsuppo e (CD-RW/D)	VD-ROM)
Mechanical Chipset Bus slots	Intel 5000P chipset bit/133MHz PCI-X sl ethernet, IDE, USB.	/ Intel Memon ots / Enterprise SMBus. LPC b	y Control e Southb ous to NS	ller Hub (MC ridge(ESB-2 S PC8742XV	CH) provides E) provides: /UL for Supe	etBAY™ Rack produ triser connector for ei two PCI-Express x8 er I/O xpress x8 / no hot-sw	cts / no rack to tow ther two PCI-Express slot with x4 Links, AT rap Active™ PCI slots	er conversi x8 slots or video, Dua	ion two 64- Il Gigabit
Ethernet controller Optical / diskette Front & Rear ports Graphics Security	Dual gigabit 10/100 on planar / PCI-Ext 45 ports in rear 8X-24X ⁶ CD-RW/D Front: two USB (V (RJ-45), one RJ-45 SVGA / ATI ⁸ RN50	O/1000 etherno bress / full du VD-ROM / US 'ers 2.0), grap (sys mgmt), (ES1000) / fu	et ports plex / W SB only ohics (D one SA ront and	/ Two Broa c dake on LAN B-15) <i>Rear</i> S / no para l rear ports	dcom® 570 N® / TCP/IP : four USB llel port / on planar	8 / two full gigabit et Offload Engine (TO	hernet MAC and PHE) / Alert Standard Inpin), graphics (DB-nax / 32-bit/33MHz	5), two eth	
Systems mgmt	IBM Integrated Bas	eboard Mana oring such as t	gement temp, opt	Controller(li tional disks,	BMC) / IPMI fans, power	2.0 / H8S2166 / on p supply / supports opt	n sequence blanar / provides syste . Remote Supervisor /		imline
Diagnostics Software Keyboard / mouse Power supply Fans Prerequisites	Drop down Light map to failing part (ServerGuide™ (Clutilities), IBM Direct None standard (becatart / redundant Calibrated Vectore (five fans with optio with ten fans installed Monitor, keyboard,	(located on from the control of the	ont pane llation a mgmt, cased) / Lased) / Lased wap / rea er suppli Std: five ower supe e speed	nd configuing thers JSB only ar access / es / auto-se fans; <i>Max</i> pply) / redur / hot-swap	auto ensing : ten ndant / PFA	Xeon L5310 1.6GHz/ Xeon L5325 1.86GHz/ 1GB PC2-5300 FBD 2GB PC2-5300 FBD 4GB PC2-5300 FBD 8GB PC2-5300 FBD IBM ServeRAID-8k A IBM Remote Supervis	(2 x 1GB) (2 x 2GB) (2 x 4GB) dapter	che ache	44E5033 43W5918 43W5919 39M5782 39M5785 39M5791 39M5797 25R8064 39Y9566 39M4530
Drop Down light path panel USB Vid Vid	Tape Drive or 2x 3.5" disk "access, slimcD-RV access, hot-swap, access, hot-swap, access, hot-swap,	3.5" disk 3.5" disk V/DVD-ROM open for disk open for disk open for disk	2U Rac with 3.5" SA			750GB HS SATA HD 300GB 10K-rpm SAS 73.4GB 10K-rpm SAS 73.4GB 15K-rpm SAS 146.4GB 15K-rpm SA	D HS 3.5" (MM carrier) S SFF HS 2.5" (SFF 1 S HS 3.5" (MM carrier) S HS 3.5" (MM carrier) S HS 3.5" (MM carrier) Ower Supply Option (C Option	HDD 4 ray) HDD 4) HDD 4 er) HDD 4 US) 4	43W7576 40K1041 40K1052 40K1043 40K1044 40K1905 40K1908
Bay ® 3.5", SL 1" Bay ® 3.5", SL 1" Drop Down light path panel USB Vic CD-RW/DVD-ROM DSB Vic Bay © 2.5", SFT 1", Bay © 2.5", SFT 1", Bay © 2.5", SFT 1", Bay © 2.5", SFT 1", Bay © 2.5", SFT 1", Bay © 2.5", SFT 1", Slot 1*: PCI-Express x8 Slot 2*: PCI-Express x8 Slot 2*: PCI-Express x8 Slot 3: low-profile, PC Slot 4: low-profile, PC 'slots 1 & 2 riser determ	Tape Drive Columbia Carl	3v PCI-X .3v PCI-X iternal dis AS mode ATA mod	k	figuration/Segnostics (PC) work Boot: F tot indicators activity LED, ation LED, a dictive failure nory, proces olies, and far ctor can ale n imminent c k: H 3.36" x 5.4mm x W toto 65 pounc alth black col with six 300G with six 750	lor	Driving Eliving Warranty Serv -5 pm, Mon1 uding holiday response time warranty servi igible locatior ge, Mon-Fri et -hr response ti- 21P2077) y coverage, rage response 221P2078) y coverage, rage response 221P2033) Pac options a m.com/service eu.pdf e support for v e warranty peri	rice ³ Fri Fri rs, next e' ce upgrade ss): '' xcluding ime time time t ts/us/its/ warranty od ³		

vi System x365	0 1 (79	(UBU			xREF by STG Field Skills Enablement Te							Team
IBM® Type-model Qty x Pro	cessor	L2 cache	Memory	Ultra320 SCSI disk	SCSI controller	Mechanical	Slots x bays	Disk Bays	Alarm Panel	Power supply	Compliant	Available date
7980-51X 2 x Xeor 7980-52X 2 x Xeor 7980-53X 2 x Xeor 7980-54X 2 x Xeor 7980-55X 2 x Xeor	n™ 3.2GHz n 3.2GHz n 3.2GHz n 3.2GHz		2GB 1GB 2GB 2GB 2GB	Open Open Open 2 x 146.8GB ² 10K 2 x 146.8GB 10K	2 x Ultra320 2 x Ultra320 2 x Ultra320 2 x Ultra320 2 x Ultra320	2U rack 2U rack 2U rack	6x3 6x3 6x3 6x3 6x3	2 HS 2 HS 2 HS 2 HS 2 HS 2 HS	Yes Yes Yes Yes	DC power DC power AC power DC power AC power	NEBS-3 NEBS-3	Aug 2006 May 2006 May 2006 May 2006 May 2006
DC power			-	network infrastru						t DC power	environm	ents
Positioning Processor(s) L2 cache Implementation SMP support	2 x Intel® 2MB std Systemborintegrates	Xeon 3 and ma pard co d subs	3.2GHz v ax / ECC ntains tv ystems	er grade reliability i vith 800MHz FSB / i / at processor spo vo Intel 604 pin m identical processo	Optimized for eed icro-PGA ZIF	r Extended	Memor	y 64 Te	echnol	ogy™ (EM6- PCI riser o	4T) / Hyper connectors,	r-Threading and
Memory	DIMMs m	nust be	installed	max / PC2-3200 mboard / Two soc in matched pairs ive Memory TM : on	[a bank] / two	-way memore	ry interl	eave /	dual-c	hannel / Er ı	/ 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 Cha SCSI Cha Up to tw	annel A annel E o 146.8	l: one int B: externa BGB Ultra	20 SCSI controller ernal 16-bit 80-pin al 16-bit .8mm VHI a320 SCSI, 10K rp in disk drive carri in South Bridge /	LVD cable fro DCI 68-pin ext om, 4.9ms rea	om controlle ternal conne d seek, S.M	er to two ector (no I.A.R.T.	-bày d o cable ⁵ / RA	isk driv s) ID 0 ar	e carrier nd 1		
Mechanical Rack support PCI bus slots Chipset	Designed (See belo PCI 2.2 / Intel® E7 Bridge / 3	for inst ow) thre peer P 520 ch i PCI b	tallation i e full he CI buse: ipset / Ir uses (or	D-inch deep n a two-post, 19" r ight full length 64-ts s / no hot-swap Ad tel Memory Contri te 64-bit/100MHz F let and low-profile C and NS PC8742	oit 133MHz sic ctive™ PCI slo oller Hub (MC PCI-X supporti	ots / three lots ts H) / E7520 ng: SCSI a	w-profil North B nd full-le	e half I Fridge / ength F	ength (PXH I/ PCI rise	64-bit 66MF O bridge / er board, on	IZ PCI slots ICH-5R S : ie 64-bit/10	s / South 00MHz
Bays Ethernet DVD-ROM / diskette Ports	Adapter F 24X-10X ⁶ Rear: Tw SCSI; DE	ault Tol slim-lir o USB 3-15 ma	erance, F ne CD-D ports (V ale conne	bays / two disk baethernet ports / Intel- Failover VD ROM / USB or er 2.0); RJ-45 ser ector for front pane 0); RJ-45 serial	nly ial; combo kev	/board and	mouse;	two R	J-45 e			
Graphics controller	SVGA / F	CI bus	/ ATI® F	Rage XL (on planaı	r) / 16MB SDR	AM std/max	c / 1600	x1200 a	at 16M	colors at 85	5Hz / DB-1	5
Security	Power-or	passw	ord / ad	min password / un	attended boot	/ selectabl	e boot /	boot v	vithout	keyboard		
Alarm panel Status LEDs Systems mgmt	External four alarm Operator Integrate processo	alarm n panel r Inforn d servi rs, tem	panel in LEDs: p nation P ce proce perature	front bezel provid lower alarm fault, of lanel (in front) / in lessor (Baseboard land, voltage, and pov	es 24x7 surve critical alarm fa cludes switche Management wer supplies a	illance of cault, major a es (NMI, po Controller) / activate ala	ritical, nalarm fa wer, res on pla m pane	najor ai ult, min set) an nar / fa el LEDs	nd min or alar d statu ailures (s /	or errors ar m fault s LEDs (NI or threshold	nd power o IC, disk, m Is in fans, i	utages / ain power) memory,
OS support Software ship group	Microsoft® Resource	Windov CD (C	ws™ Sen CD-ROM	er 2003, Enterprise installation and con	Edition / Red Higuration utilitie	Hat® Enterpri s, Intel Serv	se Linux er Contr	3 & 4 A	AS / SL er mana	ISE® Linux E agement sof	Enterprise S tware, Prod	erver 9 uct Guide)
Keyboard / mouse Power supply	Std/Max:	two / re	ear acces) ssible / AC 600 wa V dc) / supports d wap / auto-restart	att (220V) or ual input sourd support	'	ons ava	ilable v	ia spec	cial Bid		
Fans	fan failure	e signal	s front p	not hot-swap / not anel alarm LED / / / fan on each pr								
Prerequisites				ource and custome se, rack, operatin		ng,			✓ Interpretable	LIMITED V	and labor /arranty Se	ervice ³
CD-ROM disk bay	disk	bay	2U Rac	k ♀ Con pres	en black color figuration/Setu ssing F2 at sta	p`Utility inv irtup	oked by		cov nex 2 y upg	site, 8 am - verage exclu tt business ear on site grade option ations):7	uding holid day respor warranty	ays, nse time ⁷ service



Slot 1: fullsize, 64-bit 100MHz PCI-X (5V)
Slot 2: fullsize, 64-bit 100MHz PCI-X (5V)
Slot 3: fullsize, 64-bit 100MHz PCI-X (5V)
Slot 4: low-profile, 64-bit 133MHz PCI-X (3.3V)
Slot 5: low-profile, 64-bit 133MHz PCI-X (3.3V)
Slot 6: low-profile, 64-bit 133MHz PCI-X (3.3V)

Bay @ 3.5", 0.5", access, std CD-DVD ROM Bay @ 3.5", SL 1", access, some std disk Bay @ 3.5", SL 1", access, some std disk

- SCSISelect near startup by pressing CTRL+A

- PC-Doctor™ diagnostics on diskette
 Several hardcopy publications
 H 3.45" x W 17.14" x D 20.0"
 H 87.6 mm x W 435.3 mm x D 508 mm
 34 to 37 pounds (15.4 to 16.8 kg)

All models: Max int disk capacity: 293.6GB² with two 146.8GB SL disks

- locations):7
- 9 hr coverage, Mon-Fri excluding holidays, 4 hr response time 96P2122
- 24 hr x 7 day coverage, 4 hour average response time 96P2123
- 24 hr x 7 day coverage, 2 hour average response time 96P2124
- 24x7¹⁴ toll-free support for warranty issues during the warranty period3

IBM® Type-model Qty	x Processor	Speed/Core	L2 Cache	Optical	Memory	Disk/Cor	ntroller	Disk bays	Slots x bays	War Ethernet (y	rranty ³ Available ears) date
7985 - 11U 1 x O 7985 - 1AU 1 x O 7985 - 21U 1 x O 7985 - 2AU 1 x O 7985 - 4AU 1 x O 7985 - 4AU 1 x O 7985 - 51U 1 x O 7985 - 5AU 1 x O	pteron 2210 pteron 2212 pteron 2212 pteron 2216 pteron 2216 pteron 2218	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 2x512MB 2x512MB 2x512MB 2x512MB 2x512MB	Open/SAS Open/SAS Open/SAS Open/SAS Open/SAS	S/SATA S/SATA S/SATA S/SATA	8-2.5"HS 6-3.5"HS 8-2.5"HS 6-3.5"HS 8-2.5"HS 6-3.5"HS 6-3.5"HS	4x10 4x7 4x10 4x7 4x10 4x7 4x10 4x7	Dual Gigabit Dual Gigabit Dual Gigabit 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 c 2-way SMP Systemboar	MD® Opteron 2 core / at proces // up to two O d contains two	2000 Seri ssor speed pteron Pr AM2 soc	ocessors (sam	ess perform Processors under e speed/cachemory DIMI	ance servented to 2.6GH whe size recommon slots, into	er z¹ / simu uired) egrated S	ltaneously	supports		I-bit computing
Memory	gold-connec	tor slots on sys king and Cor i	stemboard	or (64GB max slots available d / DIMMs mus ECC) via 16-bit	t be installed	d in matché	d pairs [a	a bank) / du	ıal chan	nel / two-way ii	s available; <i>dual</i> / sixteen DIMM nterleaving / re memory /
SAS controller SAS connectors SATA disk controlle IDE controller/cable Disk - capacity Disk - bays	supports RAI connector) One interna Integrated Senhanced II None stand Some: six h	D 0, 1 & 10 / op I connection wi SATA II contro DE/ATA 100 co ard / supports ot-swap 3.5" S	tional IBM ired to DA oller / pro ontroller int 7200-150	ServeRAID™- SD backplane vided by HT10 tegrated in Sou 00 rpm disks /	8k Adaptor f 00 South Br th Bridge / or one backpla	idge / four p ne connecto	RAID 0, oort or on plan	1, 1E, 10, 5 nar / one 1-c	5 & 6 (in	stalled on rese	
Tape backup	each disk b	ay ·		USB or SATA		,				·	
Mechanical Chipset Bus slots Ethernet Optical / diskette Ports	ServerWorl HyperTrans ethernet, ID (See detail I PCI-X or PC Two gigabit PCI-X 64-bi 24x/10x/24x Front: two	ks™ Chipset / port bridge to It E and LPC bus pelow) one full- CI-E x16 slot 10/100/1000 et 100MHz / TC t/8x CD-RW/D\ USB (Vers 2.0	HT2100 HT1000 S to NS Pond height, ful thernet pond P/IP offloa VD / IDE /), DB-15 (t only / suppo System I/O C Couth Bridge / I- CORTAL TO FOR I-length HTx, two orts / Broadcom ad engine (TOE I Diskette none graphics / Rea	ontroller pro IT1000 Sou Der I/O vo low profile I [®] 5706 / two I [®] 5706 diske I [®] (USB diske I [®] four USB	ovides: two Ith Bridge PCI-E x8 a full gigabit X / Wake o tte optional (Vers 2.0).	PCI-Exporovides: and one I ethernet n LAN® /)	ress x8 slo PCI-X, US ow profile F MAC and I two rear R	t, one F B(2.0), A PCI-E x4 PHY lay J-45 por	PCI-Express x4 ATI video, SAT I / option to cor er functions / o ts	l slot, ΓA, Dual GB nvert HTx to
Graphics Keyboard / mouse	SVGA / ATI None stand	alog DB-15 gra ® ES1000(RN5 ard (because i	ipnics / pa 50b) / on p ack-base	arallel port not solanar / 16MB S d) / USB only	supported SDRAM std/i	Du	al Core AN	MD Opteron P	rocessor	Model 2212	25R8938 25R8939
Security Systems mgmt Diagnostics Software	selectable by IBM Integrated H82166 / IF Drop down map to failing ServerGuid	ooot ated Baseboa PMI 2.0 / IBM F n Light Path ng part (locate	rd Manag PowerExe Diagnos ed on from installation	tics panel pr	oller (BMC) oviding LEI	Du 1G 2G 4G 0 8G IBN IBN IBN	al Core AN B (2x512) B (2x1GB) B (2x2GB) B (2x4GB) M 73GB 10 M 146GB 1 M 300GB) PC2-5300 C) PC2-5300 C) PC2-5300 C)K 3.5" SAS 0K 3.5" SAS 10K 3.5" SA	Processor L5 ECC I EL5 ECC I EL5 ECC I CL5 ECC I Hot-Swa S Hot-Sw S Hot-Sw	Model 2218 IDR2 RDIMM Kit IDR2 RDIMM Kit IDR2 RDIMM Kit IDDR2 RDIMM Kt IDDR2 RDIMM Kt IDDR4 IDDR4 IAPHDD* IAPHDD* IAPHDD*	t 41Y2762 t 41Y2765 iit 41Y2768 40K1039 40K1040 40K1041
Power supply Fans Prerequisites	restart / rec Calibrated (five fans w with ten far	dundant with to Vectored Co	wo power coling™ 3 econd pov variable	ap / rear accer supplies / au Std: five fans; wer supply) / i speed / hot-si ack, OS	to-sensing <i>Max:</i> ten	IBM IBM IBM IBM IBM IBM	M 73GB 19 M 146GB M 36GB 19 M 73GB 19 M 500GB M 750GB 3	5K 3.5" SAS 5K 3.5" SAS 15K 3.5" SA 5K SAS SFF 5K SAS SFF 7.2K 3.5" SA 3.5" SATA H	S Hot-Swa S Hot-Swa Hot-Swa Hot-Swa ATA Hot- Iot-Swap	ap HDD* vap HDD* ap HDD* ap HDD* Swap HDD*	40K1042 40K1043 40K1044 40K1051 40K1052 39M4530 43W7576
 □ H 1.72" x W 17. (H 43.7mm x W) □ 26 to 32 pounds □ Stealth black co □ Quick release a □ Configuration/S □ Diagnostics (PC □ Network Boot: F 	439.9mm x D 65 blor dapter slots (no etup Utility: F1 a C-Doctor TM): F2 a	53.3mm) screws) at startup	HDD active information Predictive memory, supplies, a Director ca	cators LEDs: Pow ity LED, locator L n LED, and syster failure analysis of processors, VRM and fans in conjui an alert the syste ent component fail	ED, system m-error LED on disk options ls, power nction with IBN m administrate	PC PC IBM IBM Qlo VI 835 or of	H-E x16 R H-X Riser C M Remote M ServeRA ogic Infinipa 5W Redun		dapter II ontroller band Ada Supply (US	apter S)	25R8060 40K7428 40K7427 39Y9566 25R8064 41Y4519 40K1905
	ack with 2.5		رصصا		Rack with					_IMITED WAI	RRANTY ³
Drop Down light	T D-			Drop Down li	ght 🔽	• 3.5" dick	3	5" dick			

path panel	Tape Drive	000000
USB Video OO =	• 2.5" disk • 2.5" disk	5" disk 5" disk 5" disk 5" disk 5" disk 5" disk
Bay ① 5.25", 0.5", Bay ② 3.5", 2", Bay ③ 2.5", SFF 1", Bay ④ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑥ 2.5", SFF 1", Bay ⑦ 2.5", SFF 1", Bay ⑨ 2.5", SFF 1", Bay ⑨ 2.5", SFF 1",	access, op access, ho access, ho access, ho access, ho access, ho access, ho access, ho	mCD-RW/DVD-ROM pen for tape drive pt-swap, open for disk pt-swap, open for disk pt-swap, open for disk pt-swap, open for disk pt-swap, open for disk pt-swap, open for disk pt-swap, open for disk pt-swap, open for disk pt-swap, open for disk
Bay 10 2.5", SFF 1",	access, ho	t-swap, open for disk

Maximum internal disk capacity13: 4.5TB with six 750GB SATA disks or 1.8TB with six 300GB SAS disks

• = Hot-swap (HS)

Drop Down light pathpanel	• 3.5" disk	• 3.5" disk
USB Vide		• 3.5" disk
CD-RW/DVD-ROM	2x 3.5" disk	• 3.5" disk
Bay ① 5.25",	, access, hot-sv , access, hot-sv , access, hot-sv , access, hot-sv , access, hot-sv	D-RW/DVD-ROM vap, open for disk vap, 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)

Syear 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 (ServicePac partnum96P2123)
2 year IOR 24X7, 2 hr avg response (ServicePac partnum96P2124
3 year IOR 24X7, 4 hr avg response (ServicePac partnum96P2124
3 year IOR 9x5, NBD response (ServicePac partnum 21P2078)
3 year IOR 9x5, NBD response (ServicePac partnum69P9258)
Other ServicePac options at www.ibm.com/services/us/its/pdt/wamomxeu.pdf

24X7¹⁴ toll-free support for warranty issues during the warranty period³

											-
IBM® Type-model Qty	x Processor	Speed/Core	L2 Cache	Optical	Memory	Disk / Controller	Diskbays	Slots x bays	Wa Ethernet (y	rranty³ Av	vailable date
7985 -12U 1 x Op 7985 -1BU 1 x Op 7985 - 61U 1 x Op 7985 - 6AU 1 x Op	oteron™ 2210HE teron 2210HE teron 2220 teron 2220	1.8GHz/DC 1.8GHz/DC 2.8GHz/DC 2.8GHz/DC	2x1MB 2x1MB 2x1MB 2x1MB	CD-RW/DVD CD-RW/DVD CD-RW/DVD CD-RW/DVD	2x512MB 2x512MB	Open/SAS Open/SAS/SATA Open/SAS Open/SAS/SATA	8-2.5"HS 6-3.5"HS 8-2.5"HS 6-3.5"HS	4x10 4x7 4x10 4x7	Dual Gigabit Dual Gigabit Dual Gigabit Dual Gigabit	3 Mai 3 Mai	r 2007 r 2007 r 2007 r 2007
Positioning Processor(s) L2 cache SMP support Implementation	Up to two AMI 1MB / per cor 2-way SMP / Systemboard	D [®] Opteron 20 e / at processo up to two Opt contains two A	00 Series or speed eron Pro M2 sock	cessors (same ets. sixteen me	ocessors up speed/cach emory DIMN	ince server to to 2.8GHz¹ / simulate size required) 1 slots, integrated S(HTx) slot via riser	SAS & SAT				outing
Memory	1 GB std / 320 cpu system: fo gold-connector Error Checkin hardware scru	r slots on syste n g and Corre d	orocessor twelve sl emboard cting (EC	r (64GB max p ots available / / DIMMs must CC) via 16-bit C	er dual cpu PC-5300 66 be installed Checksum /	system) / single cp 7MHz registered : in matched pairs [a Chipkill™ on 1, 2 a	ou system: t 240-pin DD a bank] / du and 4GB D	wo slots R2-SDF al chan IMMs /	s used, six slot RAM RDIMMs nel / two-way i online hot-spa	s availabl [/] sixteen I nterleavin re memor	le; <i>dua</i> l DIMM ig / ry /
SAS controller	connector)				ler / eight k Adaptor fo	port SAS (300MB/s r low-cost RAID 0,	sec SAS) / 1, 1E, 10, 5	hot-swa & 6 (in	p / on planar / stalled on rese	PCI-Expi rved inter	ress / nal
SAS connectors SATA disk controlle IDE controller/cable Disk - capacity Disk - bays	Enhanced IDE None standard Some: six hot- each disk bay	TA II controll /ATA 100 cont d / supports 72 swap 3.5" SAS	er / provi roller inte 200-1500 S HDD (4	ded by HT100 grated in South 0 rpm disks / c 3.5" HDD bay	ı Bridge / on ne backplaı	dge / four port e connector on plar ne tion) / some: eight h	nar/one 1-d not-swap 2.	lrop IDE 5" SAS	cable (CD-RW HDD / filler pa	/DVD-RON	√l) Iled in
Tape backup Mechanical	Optional intern	k (2U4) / rack	k-mount	only / suppor	ted in IBM	NetBAY™ Rack	products /	no rac	k to tower co	nversion	
Chipset Bus slots	(See detail bel	ow) one full-he	I T2100 S 1000 So o NS PC eight, full-l	ystém I/O Co uth Bridge / H 7 87427 for Supe length HTx, two	ntroller prov 11000 Sout er I/O o low profile	vides: two PCI-Exp h Bridge provides: PCI-E x8 and one	ress x8 slot PCI-X, USI low profile F	t, one F B(2.0), / PCI-E x4	PCI-Express x4 ATI video, SAT I / option to cor	. slot, 「A, Dual (∩vert HTx	GB to
Ethernet Optical / diskette	PCI-X or PCI- Two gigabit 10 PCI-X 64-bit 1 24x/10x/24x/8	//100/1000 eth/ 00MHz / TCP/ < CD-RW/DVD	ernet por IP offload) / IDE / /	ts / Broadcom® I engine (TOE) Diskette none (5706 / two / full duplex USB disket	full gigabit ethernet / Wake on LAN® / te optional)	MAC and F two rear R	PHY lay J-45 poi	er functions / c ts	n planar /	<i>'</i>
Ports Graphics Keyboard / mouse	From: two us	g DB-15 graph S1000(RN50)	nics / par o) / on pla	allel port not su anar / 16MB SI	ו מכט זווטו	nax Dual Core AN	-piri), two ei	rocessor	Model 2210HE	n manage 43W	V7271 V7220
Security	Power-on and selectable boo		password	ds / unattended	boot /	1GB (2x512) 2GB (2x1GB)	PC2-5300 CL PC2-5300 C	.5 ECC D	DR2 RDIMMKi DDR2 RDIMMKi	t 41Y: t 41Y:	'2759 '2762
Systems mgmt		d Baseboard	Manage werExec	ement Control eutive™	ler (BMC)	8GB (2x4GB)) PC2-5300 C	L5 ECC I	DDR2 RDIMMKi DDR2 RDIMMK	(it 41Y)	2765 2768
Diagnostics Software		Light Path D part (located	iagnosti on front stallation	i cs panel prov	viding LED	IBM 146GB 1 IBM 300GB IBM 36GB 1: IBM 73GB 1:	OK 3.5" SAS 10K 3.5" SAS 10K 3.5" SAS 5K 3.5" SAS 5K 3.5" SAS	S Hot-Swi S Hot-Swi Hot-Swi Hot-Swi	ap HDD* vap HDD* ap HDD* ap HDD*	40K 40K 40K 40K	(1039 (1040 (1041 (1042 (1043
Power supply Fans	Std/Max: one, restart / redur Calibrated Vo (five fans with with ten fans	two 835 watt dant with two ectored Cool optional sectionstalled: 41/10	hot-swa power : ling™ <i>St</i> ond pow	p / rear acces supplies / auto d: five fans; // er supply) / re	s / auto o-sensing fax: ten dundant	IBM 146GB IBM 36GB 19 IBM 73GB 19	15K 3.5" SA: 5K SAS SFF 5K SAS SFF 7.2K 3.5" SA	S Hot-Swa Hot-Swa Hot-Swa TA Hot-	vap HDD* ap HDD* ap HDD* Swap HDD*	40K 40K 39M 43W	(1044 (1051 (1052 (14530 (17576
Prerequisites	Monitor, keyb	oard, mouse,	disk, ra	ck, OS	ωρ / 1 1 / 1	PCI-X Riser (iser Card			40K	18060 17428 17427

- ⇒ H 1.72" x W 17.3" x D 25.7" (H 43.7mm x W 439.9mm x D 653.3mm)
- ⇒ 26 to 32 pounds

- Stealth black color
- Quick release adapter slots (no screws)
 Configuration/Setup Utility: F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 Network Boot: F12 at startup
- Front indicators LEDs: Power-on LED, HDD activity LED, locator LED, system 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

IBM 50GB 7.2K 3.5" SATA Hot-Swap HDD* IBM 750GB 3.5" SATA Hot-Swap HDD* IBM SAS HBA Controller 39M4530 39N4530 43W7576 25R8060 40K7428 40K7427 PCI-E x16 Riser Card PCI-X Riser Card IBM Remote Supervisor Adapter II Slimline IBM ServeRAID 8k SAS Controller 39Y9566 25R8064 Qlogic Infinipath HTx Infiniband Adapter 835W Redundant Power Supply (US) 40K1905

Other options at ibm.com/products/us

2U Rack with 2.5" SAS

	op Down ligh ath panel	it	Tape Di	rive	2.5	25	2.5	2 2	
00 CI	U; D-RW/DVD-ROM	SB Video	• 2.5" dis	==	5" disk	5" disk	disk	o" disk	
Bay Bav	① 5.25", ② 3.5".	0.5", 2",	access,	slimCl open 1				M	
Bay	② 3.5 , ③ 2.5".	SFF 1".	access,	hot-sv				lisk	
Bay	£ 2.5",	SFF 1",	access,	hot-sv					
Bay	⑤ 2.5",	SFF 1",	access,	hot-sv	vap, o	open i	for d	lisk	
Bay	⑥ 2.5",	SFF 1",	access,	hot-sv					
Ray	⑦ 25"	SEE 1"	200000	hot-ev	uan d	non i	for d	liek	

access,

access.

access,

Maximum internal disk capacity13: 4.5TB with six 750GB SATA disks or 1.8TB with six 300GB SAS disks

SFF 1", SFF 1", SFF 1",

8 2.5",9 2.5",

2.5

Bay Bay

• = Hot-swap (HS)

hot-swap, open for disk

hot-swap, open for disk

hot-swap, open for disk

2U Rack with 3.5" SAS/SATA

pathpanel	• 3.5" disk	• 3.5" disk
UŞB Video	Tape Drive	• 3.5" disk
CD-RW/DVD-ROM	2x 3.5" disk	• 3.5" disk
Bay ① 5.25", 0.5" Bay ② 3.5", SL 1", Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1", Bay ⑥ 3.5", SL 1", Bay ⑥ 3.5", SL 1",	access, hot-swa access, hot-swa access, hot-swa access, hot-swa	-RW/DVD-ROM ap, open for disk ap, open for disk ap, open for disk ap, open for disk ap, open for disk
Bay ⑦ 3.5", SL 1",	access, hot-swa	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)

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
 1 year IOR 9x5, 4 hrays recessions

- (in eligible locations):"

 1 year IOR 9x5, 4 hr avg response (ServicePacePac* part num 69P9403)

 2 year IOR 24x7, 4 hr avg response (ServicePacepart num 96P2123)

 2 year IOR 24x7, 2 hr avg response (ServicePacpart num 96P2124

 3 year IOR 24x7, 4 hr avg response (ServicePacpart num 21P2078)

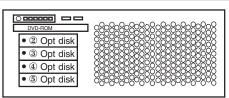
 3 year IOR 9x5, NBD response (ServicePacpart num 21P2078)

 3 year IOR 9x5, NBD response (ServicePacpart num 69P9258)

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

 24x7'* toll-free support for warranty issues during the warranty period³

om Oyotom kor	00							λ	z, c.a	1 1014 01	uno una za	uoutioi	Tourn
IBM® Type-model Qty x Prod	cessor	Speed/Core	L2 cache		PU/Memor cards		DIMM slots o	Disk controller	Mechanical	Slots x bays	Hot-swap pwr supplies	Warranty (yrs.)	Available date
8877-1RY 1 x Optero 8877-2RY 1 x Optero 8877-5RY 2 x Opteror 8877-3RY 1 x Opteror 8877-5SY 2 x Opteror 8877-6RY 2 x Opteror 8677-E4U 2 x Opteror	n 8214 n 8218 n 8220 SE n 8216 n 8220	2.0GHz/DC 2.2GHz/DC 2.6GHz/DC 2.8GHz/DC 2.4GHz/DC 2.8GHz/DC 3.0GHz/DC 2.6GHz/DC	2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB	95W 95W 95W 120W 95W 95W 120W 95W	One One Two One One One One	2x512MB 2x512MB 4x1GB 4x1GB 2x512MB 4x1GB 4x1GB 4x2GB	8 16 16	SAS SAS SAS SAS SAS SAS SAS	4U ⁴ rack 4U rack 4U rack 4U rack 4U rack 4U rack 4U rack 4U rack	7x5 7x5 7x5 7x5 7x5 7x5 7x5 7x5	1 x 1500W 1 x 1500W	ფფფფფფფ	Sep 2006 Sep 2006 Sep 2006 Sep 2006 Apr 2007 Apr 2007 May 2007 Apr 2007
Positioning Processors L2 cache Processor upgrade Implementation	Up to two 1MB / per 4-way SM System bo	way, high perion AMD® Opteror core / at proce P / up to four pard contains to slot for optional perion and contains to slot for optional AMD® AMD® AMD® AMD® AMD® AMD® AMD® AMD®	n 8000 essor s Optero our CP	Series I peed n Proce U/Mem	Dual Core essors (sar ory Card (Processor me speed/ Connectors	r up to cache s, one	3.0GHz¹ size) / Du HTx slot,	/ simultaneou ual Core Cap four PCI-Exp	usly suppo able press slots	orts 32-bit and	d 64-bit d	computing
Active Memory™	standard (ı	i B std / 32GB up to four) with 240-pin DDR2 d Memory Te	n 8 DIM	IM aold-	-connèctor	slots each	n / DIM	IMs must	be installed i	n mátche	d pairs / PC-	5300 667	ΜΗz
SAS disk controller SAS connectors IDE controller / cabling Disk - capacity Disk - bays Mechanical	One intern Enhanced Supports u Four 3.5"	AIC-9580W S RAID™-8k Ad al connection IDE ATA-100 ip to 300GB 1 hot-swap bays ack (4U⁴) / rai	aptor fo wired to control 0K rpm s / conv	or low-co DASD ler integ disks verged t	ost RAID (backplandrated in Screen), 1, 1E, 5, e outh Bridg connector	, 00, 10 e / one rs	o, 1'E0, 50 connecto) (iṅstalled or or on planar /	reserved one 1-dro	l internal cóni op IDE cable	nector) (DVD-R	
Chipset Bus Slots	provides: to Super I/O	rks™ Chipset ss x4 slot, PC South Bridge wo PCI-X 1.0 v) Four total P	slots at	up to 6	ovides: on 4-bit/133M	ie PCI-Exp IHz, USB(2	oress x ²	TI video, I	IDE and LPC	xpress x8 bus to N	S PC87427 fo	or South	Bridge
DVD-ROM / diskette Ethernet Graphics controller Ports	Dual Broad functions / XVGA / A	VD-ROM / no dcom® 5708C / PCI-Expres TI® RN50(ES1 a ethernet, RS. USB(2.0)	10/100 s / full (000) /	duplex on plana	/ Wake o ar / 16MB	n LAN® / SDRAM s	Alert S td/max	standard / 32-bit 3	Format 2.0 / 3MHz PCI 2.	/ two RJ- 2 bus	45 ports in r	ear	
Security Systems mgmt Diagnostics Software	BMC standincludes 10 status, op Drop dow IBM Real	and administra dard / IPMI 2.0 0/100 ethernet system, temp n Light Path Time Diagnosi i de™ (CD-ROI) / Pow and se erature Diagno tics (ope	erExecterial con disks, ostics / erated t	utive™ / R nectors / _I fans, pow primary in hrough IBI	emote Su provides re er supplie: dicator on M Director	pervis emote (s inform) availa	or Adapt console a ation pan able even	ind mgmt / po el with LEDs while server	ower on/o	ff system / m	onitors p	ower
Keyboard / mouse Power supplies	Std: one 1: redundant worldwide	dard (becaus 500 watt hot-s with two powed voltage-sensed Vectored C	wap(24 er supp sing / au	l0 VAĆ) lies (sor uto-resta ı™ <i>Std:</i>	me configu art / PFA three fan	urations) / ns; <i>Max:</i> s	ix /	Dual C Dual C Dual C Dual C Dual C	Core AMD Opter Core AMD Opter Core AMD Opter Core AMD Opter Core AMD Opter Core AMD Opter	ron Process ron Process ron Process ron Process ron Process	sor Model 8214 sor Model 8216 sor Model 8218 sor Model 8220 sor Model 8220		40K1200 40K1201 43W7244 40K1202 43W7246 40K1203
-	power sup	redundant, mu ply / PFA / fan ent processor	ı failüre	signals	Diagnostic	c LED and		1GB (2	Core AMD Opte 2x512) PC2-53 2x1GB) PC2-53	00 CL5 ECC	DDR2 RDIM	M Kit	43W7247 41Y2759 41Y2762



more processors

Bay © 5.25", 0.5", access, std DVD-ROM
Bay © 3.5", SL 1", access, hot-swap, open
Bay ® 3.5", SL 1", access, hot-swap, open
Bay © 3.5", SL 1", access, hot-swap, open
Bay © 5.25", 0.5", access, hot-swap, open
Bay © 5.25", 0.5", access, hot-swap, open

Available expansion slots:

they will run at 100MHz

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,

Max BTU Output: Ship Config:409 Btu/hr (120 watts)

Full Config:1366 Btu/hr (400 watts)

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

2GB (2X1GB) PC2-5300 CL5 ECC DDR2 RDIIMM KIT 4GB (2x2GB) PC2-5300 CL5 ECC DDR2 RDIIMM KIT 8GB (2x4GB) PC2-5300 CL5 ECC DDR2 RDIIMM KIT IBM 73GB 10K HS 3.5" SAS HDD IBM 300GB 10K HS 3.5" SAS HDD IBM 300GB 10K HS 3.5" SAS HDD 41Y2765 41Y2768 40K1039 40K1040 40K1041 IBM ServeRAID 8k SAS Controller 1500W US Power Supply Redundant_Fan Kit - 3 Fans 25R8064 40K7543 40K7545 Processor Pass Thru Card IBM RSA II slimline 40K7547 39Y9566 Other options at ibm.com/products/us

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 69P9507

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/

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

										_	-
IBM [®] Type-model Qty x F	Processor	L Core cad		DIMM Mem	ory ds Disks	Disk Controller	_r Mechanical		Hot-swap V		Available date
8865-13U 1 x Xeon ¹ 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 8865-4TU 1 x Xeon	MP 3.16GHz MP 3.66GHz MP 3.66GHz MP 7020 2.6 MP 7020 2.6	z SC 1M 67GHzDC 2M 67GHzDC 2M	B 1GB(2x512N B 1GB(2x512N B 2GB(2x1GB B 2GB(2x1GB B 2GB(2x1GB B 2GB(2x1GB B 2GB(2x1GB B 2GB(2x1GB B 2GB(2x1GB) 4 On) 4 On) 4 On	e None e None e None e None e None e None	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 6x12 6x12	2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W	3 N 3 N 3 N	May 2006 May 2006 May 2006 May 2006 May 2006 May 2006 May 2006 May 2006 May 2006
Processors L2 cache Processor upgrade Implementation	up to 3.0GH	Iz 667MHz FSI	rocessor MP up B Dual Core / N ie of processor / ion Processors M Intel 604-pin mic Bl (SAS), etherne	etBurst™ / E	xtended	Memory 6	54 Technolo	ogy™ (El	M64T) / Hyper	-Threadi	ing
Active Memory [™]	1 or 2GB stagold-connect RDIMMs / E Chipkill™ / I (supported o	d / 64GB max p for slots each / irror Checking Memory Prote only with Micros	per chassis using DIMMs must be and Correcting Xion™ (redundar oft® Windows™ S	high-capacity installed in m (ECC) via 10 t bit steering Server 2003 TM	memory atched pa 5-bit Che and Mer	card / one irs / PC2-3 cksum nory Mirr	e memory ca 3200 400MH oring ™ and	ard standa Iz registe Hot-swa	ard (up to four red 240-pin D p (non-OS sp) with 4 DR2-SD ecific) /	DIMM PRAM Hot-add
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	Hot-swap ba Enhanced ID Max: 3.6TB-	ys connect to in DE ATA-33 cont 10k / supports	Dual-channel Sed to dual SAS bantegrated SAS coroller in CSB6 Scoroller of 15,000 rpm by bays / Six standar 28" deep / sup	ontroller througouth Bridge outh Bridge odisks	gh SAS ex	cpander, 1	cable for ea	ach of the	e 2 SAS backp	lanes	rive Bays
Chipset I/O Slots	2.0 Host Bri bus for Supe Two suppor Six total Activ	dges / Host Br er I/O NS 874 [.] ts 4 PCI-X 2.0 ve™ PCI-X 2.0	ation chipset / I idge One suppo 7 [diskette, keyl slots 64-bit slots availa cpansion / separa	orts video, op board, mous ble with powe	tional Ser e]), Dual f er and atte	veRaid 8i Port Broad Intion indic	, ServerWo dcom 5704, ator lights (c	rks® CSI and 2 I optical se	36 South Brid PCI-X 2.0 slot nsors control p	ge (IDE s / Host	t Bridge
DVD-ROM / diskette Ethernet Graphics controller Ports	Broadcom® 5	5704 10/100/10 Radeon Mobili ethernet, RSA s	DE (ATAPI), 1.6" I 00 dual ethernet ty 7000 / on plana erial, two USB (V	/ on systembo ar / 16MB SD	oard / 64-b RAM std/r	oit 266Mhz max / 32-b	: PCI-X 2.0 / it 33MHz PC	Cl 2.2 bus	3		
Security Systems management Diagnostics Software	serial connections disks, fans, prop-down IBM Real Tire	rd / IPMI 2.0 / F ctors / provides power supplies Light Path Dia me Diagnostics	passwords / una Remote Supervis remote console and gnostics / prima (operated through stallation and co	sor Adapter I and mgmt / p ary indicator o h IBM Directo	I slimline (lower on/c n informat or) availab	optional) / off system ion panel le even wh	/ monitors p with LEDs a nile server ru	ower sta issociated	tus, op system	n, tempe	erature,
Keyboard / mouse Power supplies Cooling fans	Std: two 775 accessible fa Eight hot-swa	watt hot-swap ans in each pov ap. redundant.	/ Tower model: I / redundant with /er supply / PFA multi-speed fans / stic LED and mg	three power s / One cooling	supplies (N	l+1) / worl	dwide / volta	aģe-sensi	ng / auto-résta		
Options	2GB PC2-3 4GB PC2-3 Active Men Xeon MP 3 Xeon MP 7 Xeon MP 7 Dual Core	3200 CL3 EC0 3200 CL3 EC0 nory 4-slot Ex 3.16GHz/1MB 3.66GHz/1MB 7020 2.67GHz 7040 3.0GHz F X3 Upgrade k	L2 Cache Proc L2 Cache Proc Proc Upg	iB) 39M5 B) 39M5 41Y50 Upg 40K29 Upg 40K29 40K29 40K29	809 812 000 521 520 522 523 005	IBM Serv IBM 73.40 IBM 1460 IBM 3000 Remote S SAS 3.5" IBM 73.40	GB 10K 3.5' GB 10K 3.5' GB 10K 3.5' Gupervisor A 6-drive Ba GB 15K 3.5	U320 25 " SAS H ' SAS H ' SAS H Adapter ckplane " SAS H	6MB Adapter lot-swap HDI ot-Swap HDD ot-Swap HDD	02 0 40 0 40 0 40 39 41 0 40	9R8729 2R0988 0K1039 0K1040 0K1041 9Y9566 1Y5003 0K1043
LIMITED WARF	y Service ³ Mon - Fri blidays, sponse time ⁷ de options ; r avg response 96P2253) avg response 96P2254) response 96P2255) response 66P2259) ons at ervices/ pdf	Bay ② 5.2 Bay ③ 5.2 Bay ④ 5.2 Bays 5 to standa Bays 11 t	5", SL 1", acc 25", HH 1.6" acc 25", HH 1.6" acc 25", HH 1.6" acc 10 (six bays): rd 3.5" SL 1" hot- 16 (six bays): 3.5" SL 1" hot- Light Path Diag 7U Removable Processor Bo Opt disk Opt disk Opt disk Opt disk Opt disk	ess, CD-RO ess, open* ess, open* ot-swap disk swap disk b	bays ays ower	Tool-fro Tower Tower Tower Rack L Rack L Rack V Access Access Setup Diagno SCSIS Drop D diagno probler Predict power	Weight: 148 Dimensions: Dimensions Veight: 144 Stadapters, Stadapt	ability s: H15.5 9 to 180i : H12" x : H306m to 158lb fans, and s opplies for r pressin Octor) b essing C Path Dia for outside emoving Analysis nemory,	g F1 at starting pressing F trl+A at starting gnostics (levide view of posover solutions) alerts on disprocessors,	1.7Kg \(\) 8.2" m x D7.7Kg \(\) 7Kg om top from fro \(\) up \(2 \) at staup \(\) el 2 tential \(\) lisks,	715mm ont

Opt disk

24x7¹⁴ toll-free support for warranty

issues during the warranty period3

Opt disk

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

BTU Output:

											_		
	Processor		L2 ore cache	Memory		Memory Cards	RSA II	Disk Controller	Mechanical r	bays	Supplies	(yrs.)	y Available date
8866-11U 1 x Xeon 8866-1RU 1 x Xeon 8866-21U 1 x Xeon 8866-2RU 1 x Xeon 8866-31U 1 x Xeon 8866-31U 1 x Xeon 8866-41U 2 x Xeon 8866-4RU 2 x Xeon	MP 7120N MP 7130N MP 7130N MP 7140N MP 7140N	3.0GHz D 3.16GHz D 3.16GHz D 3.30GHz D 3.30GHz D	C 2x1MB C 2x1MB C 2x1MB C 2x1MB C 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 6x12 6x12	2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 3 x775W 3 x775W	3 3 3 3 3	Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006 Nov 2006
L2 cache L3 cache Processor upgrade Implementation	Up to two 6/ MP up to 3.0 1MB / per co 4MB on 7110 4-way SMP / System board Active™ PCI-	OGHz 667MH re / on die o N & 7120N / up to four Xo d contains fou	z FSB Dua f processor 8MB on 713 eon Process ır Intel 604-ı	I Core / N / at proce BON / 16M Bors MP (Boin micro-	NetBurs ssor sp B on 71 same s PGA4	st™ / Extr eed / Xce 40N peed/cac ZIF socke	ended e L4v ™ [he size) ets. four	Memory (Dynamic S) memory I	64 Technolo Server Cache board slots, f	gy™ (El	//64Т) / Ну	per-Th	nreading
	2 or 4GB std DIMM gold-co SDRAM RDI Chipkill™ / N (supported or	onnector slots	each / DIV	IMs must	be insta	alled in m	atched	pairs / PC	;2-3200 400N	/IHz reas	stered 240-	ıcın Di	DH2-
SAS connectors SAS cabling IDE controller / cabling Disk - capacity	All: Adapted ServeRAID™ Dual-channel Hot-swap bay Enhanced ID Max: 3.6TB-1 Up to Twelve EIA 19" rack	8i / RAID 0,1 controller wirk s connect to E ATA-33 cor 0k / supports	l, 10, 5, 6, 6 ed to dual S integrated S ntroller in CS up to 15.00	0, 1E & 5 SAS backp SAS contro SB6 South OO rom dis	EE / sto planes oller thro Bridge sks	d on 41U ough SAS	& 4RU / S expan	dedicated der, 1 cab	d slot / 64-bit ble for each o	133MHz f the 2 S	: PCI-X / op iAS backpla	tional anes	on others
Chipset I/O Slots	IBM XA-64e [™] Bridges / Hos NS 87417 [di slots Four Active [™]	t Bridge One skette, keybo	supports vic ard, mouse]	deo, option), Dual Po	nal Sen ort Broa	veRaid 8i dcom 570	, Server 04, and	Works® C 2 PCI-X	SB6 South E 2.0 slots / Ho	Bridge (IE est Bridge	DE, USB, be Two supp	us for orts 4	Super I/O PCI-E x8
DVD-ROM / diskette	IBM SlimLine Broadcom® 5 SVGA / ATI® Rear: RSA e	DVD-ROM, I 704 10/100/10 Radeon Mob	rol power to DE (ATAPI) 000 dual etr ility 7000 / o	slot) / hot , 1.6" HH, nernet / or n planar /	t replace bootab systen 16MB 3	e, hot upo ble / 3.5" 1 nboard / 6 SDRAM s	grade, h 1.44 ME 64-bit 26 std/max	ot expans diskette of 66Mhz PC / 32-bit 33	sion / separat drive GI-X 2.0 / Wal BMHz PCI 2.2	ed by ins ke on LA bus	N® / Alert o	n LAN	viders I™ 2
Diagnostics	Power-on and BMC standar RJ-11, and s temperature, Drop-down I IBM Real Tin ServerGuide	d / IPMI 2.0 / erial connecto disks, fans, p _ight Path Di	Remote Su ors / provide ower supplie agnostics /	ipervisor s remote es / optior primary i	Adapte console nal on o indicato	er II slimlir and mgi others r on infori	ne (std o mt / pov mation i	on 41U & wer on/off panel with	systém / mo LEDs assoc	nitors po lated wit	wer status,	op sy	/stem,
Keyboard / mouse Power supplies Cooling fans	Rack model: Some: two; s restart / rear Eight hot-swa PFA / failure	<i>ome:</i> three / 7 accessible far .p. redundant.	775 watt hot ns in each p multi-speed	-swap / re ower supp d fans / Or	edundar ply / PF ne cooli	nt with thro A na fan in	ee pow	er supplies	s (N+1) / wor	ldwide / י	vòltage-ser	•	
Options	2GB PC2-3 4GB PC2-3 Active Mem Xeon 7110l Xeon 7120l Xeon 7130l Xeon 7140l	200 CL3 EC 200 CL3 EC 200 CL3 EC ory 4-slot E: N 2.5GHz/4N N 3.0GHz/4N N 3.16GHz/8 N 3.3GHz/16 ot-Swap Pow	C RDIMM C RDIMM EXPANSION C MB L3/Dual MB L3/Dual MB L3/Dual MB L3/Dua MB L3/Dua	(2x1GB) (2x2GB) card Core Pro Core Pro al Core P al Core P	39N 39N 41Y oc 40k oc 40k roc 40k roc 40k	M5809 M5812 /5000 (1259 (1260 (1261	IBM IBM IBM Ren SAS IBM	ServeRA 73.4GB 146GB 1 300GB 1 note Supe 3.5" 6-d 73.4GB	AID 8i SAS /AID 6M U320 10K 3.5" SA 10K 3.5" SA 10K 3.5" SA ervisor Adap Irive Backpla 15K 3.5" SA	0 256ME AS Hot-s S Hot-S S Hot-S Iter II Sli ane AS Hot-s	wap HDD wap HDD wap HDD mline wap HDD	3 4 4 4 3 4	9R8729 9R8816 0K1039 0K1040 0K1041 9Y9566 1Y5003 0K1043
LIMITED WARR ⇒ 3 year parts and labor ⇒ International Warranty ⇒ On site, 8 am - 5 pm, № coverage excluding ho next business day res; ⇒ On site service upgrac (in eligible locations): • 3 year IOR 24x7, 4 hr (ServicePac partnum) • 3 year IOR 94x7, 2 hr a (ServicePac partnum) • 4 year IOR 9x5, NBD r (ServicePac partnum) • 5 year IOR 9x5, NBD r (ServicePac partnum) ⇒ Other ServicePac optic http://www.ibm.com/se us/its/pdf/wamomxeu.p	/ Service ³ // Mon - Fri // Midays, // ponse time ⁷ // de options // avg response // 301,9187) // avg response // 311,2723) // esponse // 68P9218) // esponse // 68P9222) // ons at // avg response // avg r	Bay @ 5. Bay @ 5. Bay @ 5. Bays 5 to stand. Bays 11	5", SL 1", 25", HH 1.6 25", HH 1.6 25", HH 1.6 5 10 (six bland 3.5" SL to 16 (six bland 3.5" SL Light Path Did Removable P Opt dis Opt dis Opt dis Opt dis Opt dis Opt dis Opt dis	6" access " access " access access ays): 1" hot-s bays): " hot-swa ag 7U4 F	s, DVD- s, open s, open wap dis ap disk	ROM * sk bays bays r Tower		ower Din ower We ack Dinne ack Dinne ack Weig access process property and property and access property access property and access property and access property access property and access property access property and access property access	ack color serviceability nensions: Hight: 149 to ensions: H12 ensions: H3 this lapters, fans ocessors are supplied gram by pressing (PC-Doctor by pressing Light Path panel) for or without remover allure Anapplies, memovith IBM Direstings.	15.5" x 180lbs; 2" x W1 06mm > 20mm > 58lbs; 6, and m od syste s from I sessing F or) by pg Ctrl+A Diagno utside v ving covlysis alory, proector	67.6 to 81 7.5" x D28 c W444mn 5.4 to 71." lemory fro mboard fr back 1 at startu ressing F2 A at startu stics (leve iew of pote erts on die	.7Kg S.2" 1 x D 7Kg m top om fr p 2 at si p 1 2 ential	715mm o ont tartup

BTU Output: Ship Config: 1,170 Btu/hr (343 watts) Full Config: 6,142 Btu/hr (1800 watts)

24x7¹⁴ toll-free support for warranty

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

Opt disk

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

IBM® Type-model Qty x	Processor	C	L2 Core cache	Memory	DIMM slots			Disk Controller			Power Wa		vailable date
8866-51U 2 x Xeo 8866-5RU 2 x Xeo	n™ MP 7150			2x2GB	8	Two Two	Std Std	SAS SAS	Tower	6x12	3 x775W 3 x775W	3 Fe	eb 2007 eb 2007
OCCUPATION EXTRACT	7 70014	0.00112	DO ZATIVID	LALGE	J	1 W O	Old	0/10	70 Haok	OXIZ	0 X//011	0 10	2007
Processors	Two 64-bit I	ntel® Yeon™	Processor	MP up to	3 5GL	lz¹ 667M	Hz FSF	R Dual Cor	ro / NotRurs	st™ / Fv	tended Mem		1
L2 cache	Technology 1MB / per co	™ (EM64T) ore / on die d	/ Hyper-Threesor	eading / at proce	ssor sp	eed / Xc	eL4v™l	Dynamic S	Server Cache) / LX	teriaca ivieri	lory o-	•
L3 cache Processor upgrade	16MB on 718 4-way SMP System boar	NIUC									TH DOLE		
Implementation	System boar Active™ PCI-	d contains to X 2.0 slots, i	our Intel 604- ntegrated Se	pin micro- erial Attach	PGA4 n SCSI	ZIF socke (SAS), et	ets, four thernet,	r memory to and graph	ooard slots, t ics	tour Acti	ve™ PCI-E x	8 slots,	, two
Active Memory™	2 or 4GB sto DIMM gold-o	onnector slot	s each / DIN	/IMs must	be inst	alled in m	natched	pairs / PC	2-3200 400N	VIHz reai	stered 240-p	in DDF	32-
	SDRAM RDI Chipkill™ / I (supported o	MMs / Error Memory Pro	Checking a teXion™ (re	and Corredundant b	ecting (it steer	ECC) via ing) and	16-bit Memor	Checksur y Mirrorin	n g ™ and Hot	-swap (r	non-OS spec	ific) / F	Hot-add
SAS disk controller													
	All: Adapted ServeRAIDT Dual-channe	⁴ 8i / RAID 0. I controller wi	1, 10, 5, 6, 6	60, 1E & 5	EE / sto	d on 51U	& 5RU	/ dedicated	d slot / 64-bit	133MHz	PCI-X / opti	onal or	n others
SAS connectors SAS cabling IDE controller / cabling	Hot-swap ba Enhanced ID	ys connect to E ATA-33 co	integrated sontroller in CS	SAS controls SB6 South	oller thr Bridge	ough SAS	S expar	nder, 1 cab	le for each o	of the 2 S	SAS backplai	nes	
Disk - capacity Disk - bays Mechanical	Max: 3.6TB- Up to Twelv EIA 19" racl	10k / support e 3.5" hot-sw	s up to 15,0 vap bays / S	00 rpm dis ix standar	sks d conve	erged tray	/ / 80-pi	in SCA-2 c	connectors /	One FH	(or 2 HH) Ta	ape Dri	ive Bays
Chipset													
	IBM XA-64e Bridges / Ho NS 87417 [d	st Bridge One iskette, keybo	e supports vi pard, mouse	deo, optio), Dual Po	nal Ser ort Broa	veRaid 8 dcom 57	i, Serve 04, and	rWorks® C 2 PCI-X 2	SB6 South E 2.0 slots / Ho	Bridge (II ost Bridg	DE, USB, but e Two suppo	s for Su orts 4 P	uper I/O PCI-E x8
I/O Slots	slots Four Active™ lights (optical	PCI-E x8 slo sensors con	ots / full heightrol power to	ht, full leng slot) / ho	gth / Tw t replac	o Active⊤ e, hot up	[™] PCI-X grade, ł	2.0 64-bit not expans	slots availab ion / separat	ole with p ted by in	ower and att sulative plast	ention ic divid	indicator lers
DVD-ROM / diskette Ethernet	IBM SlimLine	DVD-ROM,	IDE (ATAPI), 1.6" HH	, bootak	ole / 3.5"	1.44 ME	3 diskette c	lrive I-X 2 0 / Wal	ke on I A	N® / Alert on	I ANT	12
Graphics controller Ports	Broadcom [®] 5 SVGA / ATI [®] <i>Rear:</i> RSA e	Radeon Mol thernet, RSA	oility 7000 / c serial, two l	on planar / JSB(2.0),	16MB kybd, n	SDRAM :	std/max B-15 gra	: / 32-bit 33 aphics, two	MHz PCI 2.2 ethernet, st	2 bus d. serial,	RS-485 / <i>Fr</i>	ont: US	SB (2.0)
Security Systems managemen	Power-on an	d administrat	or password	s / unatte	nded bo	oot / selec	ctable b	000t	ARLI) / PCL a	adanter /	includes 10/	100 oth	nernet
Cystems managemen	RJ-11, and stemperature, Drop-down	erial connect disks, fans, i	ors / provide power suppli	es remote es / optior	console nal on c	and mg	mt / po	wer on/off	system / mo	onitors po	ower status,	op syst	iem,
Diagnostics	Drop-down IBM Real Tir ServerGuide	Light Path Diagnostic	Diagnostics cs (operated	/ primary through II	indicato 3M Dire	r on infor ector) ava	mation ilable e	panel with ven while s	LEDs assoc server runnin	ciated wi ng	th failing con	iponen	its /
Software Keyboard / mouse	Rack model:										e (PS/2)		
Power supplies	Some: two; s	<i>some:</i> three / accessible fa	775 watt hot ans in each p	t-swap / re bower sup	edundar ply / PF	nt with thr FA	ee pow	er supplies	s (N+1) / wor	1dwide /	voltage-sens	-	
Cooling fans	Eight hot-swa PFA / failure	ap, redundan signals Diag	t, multi-spee nostic LED a	d fans / Oi and mgmt	ne cool proces	ing fan in sor	each p	ower suppl	y filler when	power s	upply is not i	nstalled	d /
Options		3200 CL3 E0			B) 39ľ	M5821	IBM	1 ServeRA	ID 8i SAS /	Adapter		391	R8729
		3200 CL3 E0 3200 CL3 E0				И5809 И5812	IBN IBN	1 ServeRA 1 73.4GB	ID 6M U32 10K 3.5" SA	0 256M AS Hot-s	B Adapter swap HDD	39F	R8816 K1039
		3200 CL3 E0 Nory 4-slot E				R5145 Y5000	IBN	1 146GB 1	0K 3.5" SA 0K 3.5" SA	S Hot-S	wap HDD		K1040 K1041
		N 3.5GHz/10 ot-Swap Pov				/4553 /5002	Rer	note Supe	ervisor Adap SK 3.5" SAS	oter II SI	imline	39\	Y9566 K1042
	Tower to F	ack convers drive Back	sion kit '	()	321	R0719 Y5003	IBN	1 73.4GB	15K 3.5" SA 5K 3.5" SA	AS Hot-s	swap HDD	40ł	K1043 K1044
LIMITED WARI	RANTY ³	Bay ① 3	3.5", SL 1",					Stealth bla	ck color				
 3 year parts and labo International Warran 	ty Service ³	Bay 3 5	5.25", HH 1. 5.25", HH 1.0	6" access	s, open	*	▷ T	Tower Dim		15.5" x	W18.2" x D		S2mm)
 On site, 8 am - 5 pm, coverage excluding h 			5.25", HH 1.6 to 10 (six b		s,open	*					67.6 to 81.7 7.5" x D28.		
next business day re	•		dard 3.5" SI I to 16 (six		wap di	sk bays					x W444mm 35.4 to 71.7l		5mm
(in eligible locations • 3 year IOR 24x7, 4 h	,	óptior	nal 3.5" SL	1" hot-sw	<u> </u>		_ ^ /				nemory from emboard fro		nt
(ServicePac part nun • 3 year IOR 24x7, 2 hr	n 30L9187)		Light Path D	iag /U ⁴ I	часк о	r Tower	¬I ▷ Æ	Access po	wer supplie	s from			
(ServicePac partnum • 4 year IOR 9x5, NBD	n 31L2723)		Removable F	Processor Board Tr	ray		□ □	Diagnostic	s (PC-Docte	or) by p	ressing F2 A at startup	at star	rtup
(ServicePac part nun	n 69P9218)	Opt disk Opt disk	Opt dis	—	Floppy Drive	•	□ □	Drop Dowr	n Light Path	Diagno	stics (level	2	
• 5 year IOR 9x5, NBD (ServicePac part num	n 69P9222)	Opt disk Opt disk	Opt dis		CD-R	ОМ	l p	problem w	íthout remo	ving co			
Other ServicePac opt http://www.ibm.com/s	services/	Opt disk Opt disk	Opt dis		Full High T	аре Вау	l p	ower sup	plies, mem	ory, pro	lerts on disl cessors, VF		
us/its/pdf/wamomxeu.	rt for warranty	Opt disk	Opt dis		or 2 Half Hi	gh Bays	a	and tans w	ith IBM Dir		TU Output:		
issues during the war	ranty period3						_				nio Carpar. hip Confia: 1.170	Btu/hr/3	43 watts)

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

Full Config: 6,142 Btu/hr (1800 watts)

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

											_		-
IBM® Type-model Qty	x Processor		L2 cache	Memory	DIMM slots	Memory cards			Mechanica	Slots x l 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 6x7 6x7	1 x 1300 1 x 1300 1 x 1300 1 x 1300 2 x 1300 2 x 1300 2 x 1300	თოოოოო ფი	May 2006 May 2006 May 2006 May 2006 May 2006 May 2006 May 2006
Processors	Up to two 64-bit Ir Processor MP up to	tel® Xe	on™ Pro	ocessor_N	IP up t	o 3.660	GHz¹_66	7MHz FS	B Single	Core / Up	to four 64-b	it Intel	Xeon
L2 cache Processor upgrade Implementation	1 or 2 MB / per cor 4-way SMP / up to System board containtegrated SCSI, eth	e / at p four Xe ins fou	orocessoi eon Proc ir Intel 60	r speed / X essors MP 04-pin micr	cel 4v	™ Dvna	mic Sei	ver Cache	ج				
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 Co eXion™	t be installe orrecting ((redundant	ed in m (ECC) v bit ste	atched ⁄ia 16-k ering) a	nairs / I	PC2-3200	400MHz r	eaistered	240-pin DDR	2-SDRA	M I
SAS disk controller	Some: Adaptec® Ale			Attached	SCSI (SAS) 3.	0GHz (3GB/sec)	/ 64-bit 26	6MHz PC	I-X 2.0 / Serve	Raid 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	I to six-bay CSB6 Sou s d tray / 80-	/ backp uth Bridg pin SC	ge A-2 cor			as NetBA	Y42 SR, I	NetBAY42 ER)	
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⊦ I17 [disk	ne suppor	ts video	o, optio	nal Sei	∿eRaid 8	i, ServerW	orks® CS	SB6 South Bri	dge (IE	DE, USB,
Slots (Active™)	Six total PCI-X 2.0 s	lots av	ailable w								ower to slot) /	hot rep	place, 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 lanar / 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 i agnostic	ors / provid ower supp cs / primar	les rem olies v indica	ote con tor on i	sole an nformat	d mgmt /	power on/o with LEDs	off system associate	/ monitors po	wer sta	tus, op
Keyboard / mouse Power supplies	None standard (be 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-slot 3 16GHz/11	CCRDIMI CCRDIMI Expansion	И(2x2GB) И(2x4GB)		39M5809 39M5812 30R5145 41Y5000 40K2521
Cooling fans	Eight hot-swap, redone additional fan in fan failure signals D	each p	ower su	pply / PFA	/ process	or		Xeon MP Xeon MP Xeon MP 1300 watt	3.66GHz/1 7020 2.67G	MB L2 Cac Hz/2x1ME Hz/2x2MB Power Sup	the Proc Upg B 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			- 11	47.48	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 upgrad	I320 256M SAS Hot- SAS Hot- sor Adapte e kit	B Adapter swap HDD		02R0988 40K1051 40K1052 39Y9566 41Y5005
Slot 5 - fullsize, 64-	bit, 266MHzPCI-X,	hot-sw	ap D	imensions imensions	s: H133	3.4mm	x W442	2.0mm x E	701mm	L	.IMITED WA	RRAN	TY ³
Slot 6 - fullsize, 64- *exclusive slot availa			ap ⇔ M oter ⇔ S	eight: 63 tealth blac	to 83lb	s; 28.6			5	Internat	oarts and lab	ity 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

ow System Asc	30 (0004)							XNE	г ву этс	rieiu 3	okilis aliu Eut	Icalio	II I Calli
IBM®		_	L2			Memory		Disk		Slots x	Hot-swap \	Varrant	y Available
	x Processor n™ MP 7110N 2.5GHz		cache 2x1MB	Memory 2x1GB	slots 4	One	RSA II Opt		Mechanica 3U ⁴ rack		pwr supplies 1 x 1300		Oct 2006
8864-2HU 2 x Xeon	MP 7120N 3.0GHz MP 7130N 3.16GHz	1)(;	2x1MB 2x1MB 2x1MB	2x1GB 2x1GB 2x1GB	4 4	One	Std Std	SAS SAS SAS SAS	3U rack	6x7	1 x 1300 1 x 1300 1 x 1300	3	Oct 2006 Oct 2006
8864-4RU 2 x Xeon	MP 7140N 3.3GHz MP 7150N 3.5GHz	DC	2x1MB	2x2GB 2x2GB	8	One Two	Std	SAS	3U rack	6x7	2 x 1300	333333	Oct 2006
8864-1TU* 1 x Xeon	n MP 7110N 2.5GHz	DC DC	2x1MB 2x1MB	2x1GB	4	Two One	Std Opt	SAS	3U rack 3U rack	6x7	2 x 1300 1 x 1300	3	Feb 2007 May 2007
8864-2TU* 2 x Xeon	1 MP /120N 3.0GHZ	DC	2x1MB	2x1GB	4	One	Opt	SAS	3U rack	6x7	1 x 1300	3	May 2007
Processors	Up to two 64-bit Intel	® Voor	TM Proc	ossor ME	lun t	2 5 G L	1 - 1667N	IU- ECD	Dual Car	. / NotRu	ırct™ / Evtond	od Ma	mony 64
	Technology™ (EM641) / H	yper-Thr	reading	- up u	omia C	12 00 <i>1</i> IV	00h0	Duai Core	7 Nelbu	iist / Exteriu	eu ivie	illory 04
L2 cache L3 cache	Technology™ (EM647 1 MB / per core / at pro 4MB on 7110N & 7120	N / 8M	B on 71	30N / 16N	/B on 7	7140N	erver C	acrie	l Oawa Oaw	-1-1-			
Processor upgrade Implementation	4-way SMP / up to fou System board contains	four l	ntel 604	-pin micro	-PGA4	ZIF so	ckets, f	our memo	ory board	slots, four	Active™ PCI-E	x8 sl	ots, two
A ather Manner TM	Active™ PCI-X 2.0 slots												-
Active Memory [™]	2 or 4GB std / 64GB n DIMM gold-connector s	nax pe slots ea	r cnassi ach / Dll	is using ni MMs must	gn-cap	stalled in	emory on match	ed pairs /	or two me PC2-3200	emory car) 400MHz	ra standara (up z registered 240	to tou)-pin D	r) with 4 DR2-
	SDRAM RDIMMs / Err Chipkill™ / Memory P (supported only with M	or Ch roteXi	ecking on™ (re	and Corredundant I	ecting oit stee	(ECC) ering) ar	via 16- 1 nd Men	ory Mirr	csum oring ™ an	d Hot-sw	ap (non-OS sp	ecific)	/ Hot-add
SAS disk controller	Some: Adaptec® AIC-9 Some: ServeRAID™ 8i	410 / S / RAII	Serial A D 0,1, 10	ttached S 0, 5, 6, 60	CSI (9 , 1E &	SAS) 3.0 5EE / s)GHz (3 td on <i>41</i>	3GB/sec) R <i>U & 5Rl</i>	/ 64-bit 26 J / dedicate	6MHz PC ed slot / 6	XI-X 2.0 4-bit 133MHz F	PCI-X	
SAS connectors SAS cabling	Dual channel controller Two standard SAS cab Enhanced IDE ATA-33	' wired	to SAS	backplane	Э								
IDE controller / cabling Disk - capacity	Supports up to 73GB 1	OK rpr	n disks										
Disk - bays Mechanical	Six 2.5" hot-swap bays EIA 19" rack models	; / con (3U ⁴) x	verged to 28" dec	tray / 80-p ep / suppo	in SCA orted in	A-2 coni NetBA	nectors Y™ Rad	cks (such	as NetBA	Y42 SR, I	NetBAY42 ER)		
Chipset								-					X 2.0 Host
•	IBM XA-64e™ 3rd Ger Bridges / Host Bridge C NS 87417 [diskette, ker	one su Oboard	pports v . mouse	⁄ideo, optĭo el). Dual P	onal Se ort Bro	erveRaio adcom	l 8i, Sei 5704. a	rverWórks ınd 2 PC	s® CSB6 S I-X 2.0 slot	outh' Brid is / Host I	ge (IDE, USB, Bridae Two sur	bus foi ports 4	Super I/O 4 PCI-E x8
Slots (Active™)	slots Four Active™ PCI-E x8			-, -								•	
Optical / diskette	lights (optical sensors of Most: 8x ⁶ DVD ROM /	ontrol	power to	o slot) / ho	ot repla	ce. hot	upgrad	e, hot exp	ansion / se	eparated	by insulative pl	astic d	ividers
Ethernet Graphics controller	Broadcom® 5704 10/10 SVGA / ATI® 7000m / c	()/1()()() dual et	thernet / o	n syste	emboard	1 / 64-bi	t 266Mhz	PCI-X 2.0	/ Wake o	on LAN® / Alert	on LAI	V™ 2
Ports	Rear: RSA ethernet, R	SA ser	ial, two	USB (2.0)	, kybd,	mouse	, DB-15	graphics	, two ether	net, std. s	serial RS-485 /	Front:	USB (2.0)
Security System management	Power-on and administ BMC standard / IPML 2	rator p	assword	ds / unatte	nded I	boot / se	electable ervisor	e boot Adapter	II Slimline	std on 2	PRII 3RII 4RI	I & 5F	311/
Cystem management	BMC standard / IPMI 2 optional on 1RU / PCI a power on/off system / I	adapte	r / includ	des 10/100	ether	net and	serial c	connectors	s / provides	s remote	console and mo	gmt /	107
Diagnostics	Drop down Light Path IBM Real Time Diagno ServerGuide™ (CD-RO	Diag	nostics	/ primary	indica BM Di	tor on ir	formation	on panel	with LEDs	associate	ed with failing o	ompon	ents /
Software	ServerGuide™ (CD-RC	OM ins	tallation	and confi	guration	n utilitie	s), IBM	Director	ille server	ruriirig			
Keyboard / mouse	None standard (becau	se rac	k-basec	d)	0 1/40	`\. Max	t 440				MM (2x1GB)		39M5809
Power supplies	Some: one; some: two hot-swap / redundant w	ith two	power	supplies	some	configu	rations)	/ 8GBPC	22-3200 CL3	BECCRDI	MM (2x2GB) IMM (2x4GB)		39M5812 30R5145
Oneline force	worldwide / voltage-ser	_			`			Xeon 7		Iz/4MB L3	/Dual Core Proc		41Y5000 40K1259
Cooling fans	Eight hot-swap, redund one additional fan in ea	ch pov	ver supp	oly / PFA /				Xeon 7	130N 3.16G	Hz/8MB L	/Dual Core Proc 3/Dual Core Pro		40K1260 40K1261
	tan tailure signals Diagi	nostic	LED and	a mgmt pi	ocess	or		Xeon 7	150N 3.5GH	lz/16MBL	.3/Dual Core Pro .3/Dual Core Pro		40K1262 43V4553
								IBM Se	rveRAID™-	Bi SAS A			41Y5001 39R8729
Two available 3.3 vo								IBM 36.	.4GB 10K 2.	.5" SAS H	6MB Adapter ot-swap HDD		39R8816 40K1051
	-bit, 266MHzPCI-X, ho -bit, 266MHzPCI-X, ho							IBM Re	mote Super	visor Ada	ot-Swap HDD pter II Slimline		40K1052 39Y9566
Four available PCI-I Slot 3 - full-height, fu			. 5.						ptions at ib	m.com/pr	roducts/us/		
Slot 4 - full-height, fu	ıll-length, PCI-E x8			mensions mensions					0701mm	I	LIMITED WAI	RRAN	TY ³
Slot 5 - full-height, fu	ıll-length, PCI-E x8		r) Cto	eight: 63 f ealth blac			to 37.6	6kg			parts and lab		muio o 3
	able for ServeRAID 8i	adapte	^{er} ເ> To	ol-free se	ervicea	ability	f.,			on site	itional Warran e, 8 am - 5 pm	, Mon	- Fri
Opt disk Opt disk Opt disk	●Opt disk Opt disk			cess pro				es, memo	ory and		rage excludin usiness day r		
-Opt disk		Path Diag	sys	stemboar	d from	n top	• • •	•	, L	On site	service upgi	ade o	
31	J Rack		□ Dia	<u>agnostics</u>	(PC-E	octor) I	y pres	sing F2 a		• 3 yea	ir IOR 24x7, 4		response
Bay ① 5 25" 0 5"	access std* DVD-F			SISelect op Down					2	96P2:	253 ir IOR 24x7. 2	hr avo	response

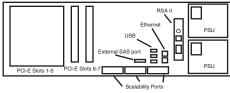
- Bay ① 5.25", 0.5", access, std* DVD-ROM access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open access, hot-swap, open
- 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

- 3 year IOR 24x7, 2 hr avg response 96P2254
 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

• = Hot-swap

, , , , , , , , , , , , , , , , , , ,													
IBM® Type-model Qty	x Processor	Core	L2 cache	DI Memory sl	MM Mer		RSA II	Disk controlle	er Mechanic	Slots x	Hot-swap		ity Available date
7141-1RU 2 x Xeon 7141-2RU 2 x Xeon 7141-3RU 2 x Xeon 7141-4RU 2 x Xeon	™ MP E7210 2.4GHz MP E7320 2.13GHz MP E7330 2.4GHz MP X7350 2.93GHz	DC QC QC QC	2x4MB 2x2MB 2x3MB 2x4MB	4x1GB 4x1GB 8x1GB 8x1GB	16 Tw 16 Tw 32 Fo 32 Fo	o ur	Std Std Std Std	SAS SAS SAS SAS	4U ⁴ rack 4U rack 4U rack 4U rack	7x5 7x5 7x5 7x5 7x5	2 x 1440V 2 x 1440V 2 x 1440V 2 x 1440V	/ 3 / 3	Dec 2007 Dec 2007 Dec 2007 Dec 2007
Processors L2 cache Processor upgrade Implementation	Two 64-bit Intel® Xec Extended Memory 6 2 x 2, 3 or 4 MB / on 4-way SMP / up to fo System board contain PCI-E x8 slots and in	our xed ns foui	n Proce r Intel 60	ssors MP (s 4-pin micro-	eame sp PGA4 z	eea/a	cacne	SIZe)					
Active Memory [™]	4 or 8GB std / 128GI 8 DIMM gold-connec SDRAM DIMMs / Err Chipkill™ / Memory (supported only with	tor sio	ts each /	1)II/II/Ic mu	st he ind	stalle	d in m	atched n	airs / PC2	5300 667	MHz registeri	ad 240	-nın I)I)H2-
SAS disk controller SAS connectors IDE controller Disk - capacity Disk - bays Mechanical	Std: LSI® 1078 SAS 0 Optional: ServeRAID Controller wired to S, Enhanced IDE ATA-1 Supports up to 146G Four 2.5" hot-swap b EIA 19" rack models)™ 10k AS bad 00 coi B 10K	k / RAID ckplane / ntroller ir cor 73GE	5, 5E, 50 & external 4x ICH7 South 15K rpm d	6 / ded SAS po h Bridge isks	icate ort on	d slot i rear	/ dimm / I	PCI-E x8 / battery bad	RAID 0,1 ckup			
Chipset Slots Optical / diskette Ethernet Graphics controller Ports	IBM X4™ 4th Gener. EM64T / provides 7 F vides: IDE, USB, bus Two Active™ PCI-E x replace, hot upgrade 24x/8x° CD-RW/DVD Broadcom® 5709C 1 SVGA / ATI® RN50 (B Rear: RSA ethernet, Front: two USB (2.0)	PCI-E: for Su 8 slots , hot e: Comb 0/100/ ES100 RSA s	x8 slots / uper I/O, s / slots a xpansior oo / none 1000 dua 0) / on p	/ supports op Dual Port Bi available with a / separated al ethernet / lanar / 16ME	ptional S roadcor n power d by insu on syst 3 SDRA	Serve n 570 and a ulative embo	eRAID 19C, F attenti e plas pard / d/max	Xi / IntelisA2(vide on indica tic divide PCI-E x4	© I/O COnt eo) Itor lights (rs / Five Po - / Wake or	roller Hub optical ser CI-E x8 slo n LAN® / Al	7 (ICH7) Sounsors control ots / all full he	uth Brid power ight, ha	lgé pro- to slot) / hot
Security System management Diagnostics Software	Power-on and admin BMC standard / IPMI ethernet and serial of temperature, disks, fc Light Path Diagnos IBM Real Time Diagr ServerGuide [™] (CD-	2.0 / I onnect ans, po ti cs C a nostics	PowerEx tors / pro ower sup ard / prin (operate	xecutive ™ / ovides remoto oplies nary indicato ed through II	Remote e consc or on inf BM Dire	e Sup ble an forma ector)	pervis Id mgr Ition p availa	or Adap nt / powe anel with able even	ter II Slim er on/off sy LEDs ass while serv	stem / mo	nitors power	status,	op system,
Keyboard / mouse Power supplies Cooling fans	None standard (beca Std/Max: Two / 1440 redundant / worldwid Six hot-swap, redund one additional fan in fan failure signals Dia	e / voli lant, m each p	tage-sen Julti-spec Jower su	ising / auto-r ed fans / pply / PFA /	estart /	PFA	80 IB IB	GB PC2-5 GB PC2-5 M Active M Interna eon E7210	300 CL5 E0 300 CL5 E0 Memory 8-s Il Removabl 0 2.4GHz/8l	CC DDR2 F CC DDR2 F slot Expans e Flash Dri MB L2/Dua	I Core Proc)	41Y2762 41Y2771 41Y2768 44E4252 44E4251 44E4244
Optical Light Path Diag Opt (Opt (disk Opt disk						Xo Xo IB IB IB	eon E7330 eon X7350 M ServeF M 73GB M 146GB M 73GB	0 2.4GHz/6I	MB L2/Qua BMB L2/Qu k SAS Con S Hot-swa AS Hot-Swa S Hot-Swa	p HDD ap HDD p HDD		44E4241 44E4242 44E4243 43W4280 40K1052 43X0824 43X0837
	Rear		J										
	RSA II	PSU	Di Di Di Di	mensions: H mensions: H eight: 70 to 9	16.8" x \ 1172mn 95lbs: 3	N17.4 1 x W 1.75	46" x I 443m to 43	D28.35" m x D720 2ka	0mm				
	External SAS port]	¦l ເ> St	ealth black of colors of the c	color			•			IMITED WA		NTY ³



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", access, CD-RW/DVD-ROM access, hot-swap, open hot-swap, open hot-swap, open access, access. access, hot-swap, open

Five available PCI-E x8 slots: Slot 1 - full-height, half-length, PCI-E x8 Slot 2 - full-height, half-length, PCI-E x8 Slot 3 - full-height, half-length, PCI-E x8 Slot 4 - full-height, half-length, PCI-E x8 Slot 5 - full-height, half-length, PCI-E x8

Two available Hot-swap PCI-E x8 slots: Slot 6 - full-height, half-length, PCI-E x8, hot-swap Slot 7 - full-height, half-length, PCI-E x8, hot-swap

- Tool-free serviceability
 Access power supplies from rear
 Access adapters, processors, memory and systemboard from top
 Setup Program by pressing F1 at startup
 Diagnostics (DSA) by pressing F2 at startup
 SAS Select by pressing Ctrl+C 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: 584GB with four 146GB2 hot-swap SAS 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 24x7, 4 hr avg response 10N3059
 - 3 year IOR 24x7, 2 hr avg response
 - 4 year IOR 9x5, NBD response
 - 5 year IOR 9x5, NBD response 10N3065
- 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

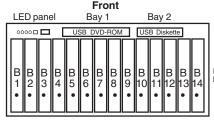
IBM [®] Type-model Qty	x Processor	Core	L2 cache	Memory		Memory cards		Disk controller	Mechanica	Slots x bays	Hot-swap pwr supplies	Warranty	y Available date
8872-7RY 2 x Xeon ^T 8872-8RY 2 x Xeon I	MP 7020 2.66GHz MP 7040 3.0GHz		2x1MB 2x2MB	2x1GB 2x1GB	8	Two Two	None None	SAS SAS	3U⁴ rack 3U rack	6x7 6x7	2 x 1300 2 x 1300	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 fo chassis interconnects System board contain integrated Serial Attac	IT) / I XceL ur Xee ed) s four	Hyper-Th 4v™ Dyr on Proce Intel 60	nreading te namic Sen essors (sar 4-pin micre	echnolo ver Cao me spo o-PGA	ogy che (25 eed/cacl	6MB pe	er 4 CPUs per chase	starting at sis / Dual C	8-way) Core Cap	pable / 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	four) 10-pin Prote	with 4 DI DDR2-9 Xion ™ (i	IMM gold-G SDRAM RI redundant	connect DIMMs bit ste	otor slots s / Erro eering) a	ory card s each / r Chec l and Me	I / 512GB / DIMMs m king and (mory Mirr	max (eight nust be inst Correcting coring ™ an	chassis alled in r (ECC) v d Hot-sw	interconnect) matched pairs via 16-bit Che vap (non-OS s	/ two m / PC2-3 ecksum specific)	emory 3200 / 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 ca Enhanced IDE ATA-3 None / supports up to Six 2.5" hot-swap bay EIA 19" rack models chassis (x3950 or x350 cm.)	er wire ables a	d to SAS	S backplan to six-bay	e backp	olane	`	,					
Chipset Slots (Active™)	IBM XA-64e™ 3rd Go scalability and memor ServerWorks® CSB6 2 5704, and 2 PCI-X 2.0 Six total PCI-X 2.0 slo upgrade, hot expansion	u siots ts ava	s / Host i ilable wi	Bridge Two	o supp nd atte	orts 4 P ention in	CI-X 2. dicator	u siots liahts (opti	cal sensors	control			
DVD-ROM / diskette Ethernet Graphics controller Ports	8X ⁶ Slim DVD-ROM / Broadcom [®] 5704 10/- LAN TM 2 SVGA / ATI [®] 7000M / Rear: Three Scalabilit ethernet, std. serial R	00/10 on play ports	anar / 16 s, RSA e	MB SDRA	M std/ SA sei	max / 3 rial, two	- 2-bit 33	MHz PCI 2	2.2 bus				
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-Futilities), IBM Director	Adapt ngmt / th Dia	t er II slir power o gnostic	nline / PC on/off syste s / priman	I adap em / m / indica / IBM C	iter / inc ionitors ator on i	ludes 1 power :	0/100 ethestatus, op tion panel 2GBPC2-	system, ter	nperatur associate CC RDIMI	e, disks, fans, ed with failing M(2x1GB)	compor	supplies /
Keyboard / mouse Power supplies Cooling fans	None standard (beca Std: Two 1300 watthe redundant with two poauto-restart / rear acc Eight hot-swap, redundant fan in e fan failure signals Dia	ot-swa ower s essible dant, ach pe	p(240 V upplies / e fans in multi-spe ower sup	AC); <i>Max:</i> worldwide each poweed fans / oply / PFA	/ volta er sup /	ge-sens ply / Pf	ing /	Active Mer Xeon MP 7 Xeon MP 7 IBM Serve IBM Serve IBM 36.40 IBM 73.40		Expansion Hz/2x1ME z/2x2MB AS-SCSI 320 256M SAS Hot- SAS Hot-S	n Card 3 L2 Proc Upg L2 Proc Upg I Adapter B Adapter swap HDD Swap HDD		30R5145 41Y5000 40K2522 40K2523 39R8729 02R0988 40K1051 40K1052
16W = 6 x XpandOnD 32W = 8 x XpandOnD 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 +		n				XpandOnI x3950 Sca x3950 E M Dual Core	Demand™So Alability Enat Iodular Expa X3 upgrade	calability (plement M ansion En kit	Cable - 2.9M Iemory Adapter		13M7414 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 *Opt disk *Opt disk *I *I *I *I *I *I *I *I *I *	cit, 266MHzPCI-X, ho cit, 266M	Path Diag Mopen ppen ppen ppen ppen ppen	P Din Din Din Din Din Din Din Din Din Din	mensions: mensions: mensions: eight: 70 to ealth black ol-free se emory and stup Progra agnostics (SSISelect to gpnostic pa blem with ormation L d compone stem well- edictive Fa wer suppli d fans with models:	H128. o 85lbs color viceaboters, p system my by PC-Do out rel ED pa ent LE belilure A es, m n IBM I	35mm o; 31.75 bility boower s board pressing cotor) b bsing Ct ath Diag r outsid moving nel, diag Ds give analysis emory, Director	upplies from to F1 at y press rl+A at grostics e view occupration visual in alerts process	.0mm x Divided of the control of the	startup	3 year Internal On site cover next bu On site (in eligi • 3 year 96P26 • 4 year 96P26 • 5 year 96P26 Other \$ http://wservice 24x7 ¹⁴ t	r IOR 24x7, 2 589 r IOR 9x5, NI 590 r IOR 9x5, NI 694 ServicePac o rww.ibm.com seylus/its/pdf/v oll-free suppo	oor nty Ser , Mon - ng holio respons rade op s):7 hr avg hr avg BD resp ptions a / / wamom ort for v	vice ³ • Fri days, see time ⁷ otions response response oonse at xeu.pdf
Full Configuration:	1,325 Btu/hr (388 wa 5,200 Btu/hr (1524 v	vatťs)	440.	4GB with							during the wa		

IBM®		L2		DIMM M			Disk		Slots x	Hot-swap V	Varranty	Available
		ore cache	Memory					Mechanical		pwrsupplies	(yrs.)	date
8878-2RY 2 x Xeon	MP 7110N 2.5GHz	C 2x1MB	2x1GB 2x2GB 2x2GB 2x2GB 2x2GB	8 - 8 - 16	Two Two Four	None None None None None	SAS SAS SAS SAS SAS	3U 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	Nov 2006 Nov 2006 Nov 2006 Nov 2006 Feb 2007
Processors L2 cache L3 cache Processor upgrade Implementation	Two 64-bit Intel® Xeon Technology™ (EM64T 1MB / per core / XceL4 4MB on 7110N & 7120N 4-way SMP / up to four chassis interconnected System board contains integrated Serial Attache) / Hyper-Th Iv™ Dynamio N / 8MB on 7 ′ Xeon Proce) four Intel 60	reading te Server C 130N / 16l essors (sar 4-pin micre	echnolog ache (25 MB on 7 me spee o-PGA4	jy 56MB p 140N ed/cache	er 4 C e/core)	PUs starting	ng at 8-way sis / Dual C	v) ore Cap	able / up to 32	?-way (eight
Active Memory™	2GB std / 64GB max p cards standard (up to ro 400MHz registered 240 Chipkill [™] / Memory Pr (supported only with Mic	our) with 4 D -pin DDR2-S roteXion™ (IMM göld-c SDRAM RI redundant	connecto DIMMs / bit steei	or slots / Error ring) an	y card each / Check Id Me r	/ 512GB DIMMs m king and (mory Mirro	max (eight ust be insta Correcting oring™ and	chassis alled in n (ECC) v i Hot-sw	interconnect) / natched pairs / ria 16-bit Chec ap (non-OS sp	two me PC2-32 cksum pecific)	emory 200 / Hot-add
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	ALL: Adaptec® AIC-941 RAID 0,1, 10, 5, 6, 60, 1 Dual channel controller 1 Two standard SAS cab Enhanced IDE ATA-33 (None / supports up to 7 Six 2.5" hot-swap bays EIA 19" rack models (chassis (x3950 or x3950	Wired to SAS les attached controller in 3GB 10,000 / converged	tandard or 5 backplan to six-bay CSB6 Sou rpm disks tray / 80-1	n <i>2RY, 3</i> . le backpla th Bridge pin SCA	HY & 4 ane e -2 conn	HY/de	edicated sl	ot / 64-bit 1	33MHz I	PCI-X / optiona	al on oth	ners
Chipset Slots (Active™)	IBM XA-64e™ 3rd Gen scalability and memory of ServerWorks® CSB6 Sc 5704, and 2 PCI-X 2.0 Six total PCI-X 2.0 slots upgrade, hot expansion	control / 2 IE outh Bridge (slots / Host available wi	M PCI-X 2 IDE, USB, Bridge Two th power a	2.0 Host bus for suppor and atten	Bridges Super ts 4 PC tion ind	s / Hos I/O NS I-X 2.0 icator I	t Bridge O 8 87417 [di) slots ights (optic	ne supports iskette, key cal sensors	s video, board, n control r	optional Servel nouse]), Dual F	Raid 8i, Port Bro	adcom
DVD-ROM / diskette Ethernet Graphics controller Ports	8X ^e Slim DVD-ROM / no Broadcom® 5704 10/100 LAN™ 2 SVGA / ATI® 7000M / or Rear: Three Scalability ethernet, std. serial RS-	0/1000 dual n planar / 16 ports, RSA e	MB SDRA	M std/m SA seria	ax / 32- al, two L	-bit 33ľ	MHz PCI 2	2.2 bus				
Security System management Diagnostics Software	Power-on and administr Remote Supervisor Ac remote console and mg BMC / IMPI 2.0 / Powe Drop down Light Path IBM Real Time Diagnos ServerGuide™ (CD-RC utilities), IBM Director	dapter II slir pmt / power or rExecutive Diagnostic stics (operate	nline / PC on/off syste s / priman ed through	I adapte em / moi / indicato / IBM Dir	er / inclu nitors p or on in rector)	ides 10 ower s format	0/100 ethestatus, op status, op status, op status, op status, op status 2GB PC2-34GB PC2-3	system, ten	nperature associate CRDIMN CRDIMN	e, disks, fans, ped with failing of (2x1GB) 1(2x2GB)	compon	supplies /
Keyboard / mouse Power supplies Cooling fans	None standard (becaus Std: Two 1300 watt hot-redundant with two pow auto-restart / rear acces Eight hot-swap, redunda one additional fan in eac fan failure signals Diagn	swap(240 Ver supplies / ssible fans in ant, multi-spe ch power sup	AC); <i>Max:</i> worldwide each poweed fans / pply / PFA	e / voltag ver suppl /	je-sensi ly / PF <i>A</i>	fully ng /	Active Men Xeon 7110 Xeon 7120 Xeon 7130 Xeon 7140 Xeon 7150 IBM Serve	nory 4-slot E N 2.5GHz/4 N 3.0GHz/4 N 3.16GHz/1 N 3.3GHz/10	Expansior MB L3/Du MB L3/Du BMB L3/D BMB L3/D BMB L3/D Adapter	n Card ual Core Proc ual Core Proc Dual Core Proc Dual Core Proc Dual Core Proc Dual Core Proc		41Y5000 40K1259 40K1260 40K1261 40K1262 43V4553 39R8729 39R8816
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- Slot 5 - fullsize, 64-	emand Scalabilty kits 2.3n Demand Scalabilty kits 2.3n Demand Scalabilty kits 2.3 PCI-X 2.0 slots: bit, 266MHzPCI-X, hot- bit, 266MHzPCI-X, hot- bit, 266MHzPCI-X, hot- bit, 266MHzPCI-X, hot- bit, 266MHzPCI-X, hot- bit, 266MHzPCI-X, hot- bit, 266MHzPCI-X, hot-	Sm + 4 x2.9n swap swap swap swap Swap Swap Swap Swap Swap Swap Swap S	mensions: mensions: eight: 70 to ealth black	H128.35 5 85lbs; 3 6 color	5mm x 31.75 to	32" x [W440.	IBM 36.4G IBM 73.4G XpandOnD XpandOnD x3950 Scal x3950 E M Dual Core Other optic 028.15" 0mm x D7	B 10K 2.5" S B 10K 2.5" S bemand™Sc bemand™Sc lability Enab odular Expa X3 upgrade ons at ibm.c	AS Hot-s AS Hot-S alability C alability C lement M nsion En kit com/pc/u L 3 year p	swap HDD Swap HDD Cable - 2.3M Cable - 2.9M emory Adapter	RANT or ty Serv	40K1051 40K1052 13M7414 13M7416 41Y5004 8874-3RY 41Y5005 Y3
*exclusive slot for Se Opt disk Opt disk Opt disk Opt disk The second of the second	Properties and apter opticists of the control of th	⇒ To ⇒ Ac make Design ⇒ Se ⇒ Dir ⇒ SC ⇒ Dr dia en en en en en en en en en en sy en en pro en an All II	emory and stup Progragnostics (CSISelect & Copen Lagnostic papers) and component well-edictive Fawer supplied fans with models:	oters, poil systemiam by price (PC-Doc by pressicight Patanel) for court remount removed being being allure An iBM Di Maximu	wer suboard firessing stor) by ing Ctrl-th Diagroutside oving cel, diagres give valysis mory, prector um inte	rom to F1 at : pressi +A at s nostics view c over nostic I risual ii alerts rocess	startup ng F2 at s startup (level 2 of potential LED panel, ndications on disks, ors, VRMs	rs, startup of s,	covera next bu On site (in eligi • 3 year 96P26 • 4 year 96P26 • 5 year 96P26 Other S http://w service	age excluding siness day reservice upgr ble locations IOR 24x7, 4 188 IOR 24x7, 2 189 IOR 9x5, NB 190 IOR 9x5, NB	g holidespons ade op): hr avg hr avg D resp tions a ramom rt for w	lays, e time ⁷ vitions response response onse onse at xeu.pdf
	5,200 Btu/hr (1524 wa		Hot-swan	JIA 7 U.	, GD 1	.0. 311	ap SAS c	aiono		OB) © IBM Co		

IBM® Type-model Qty	x Processor	Core	L2 cache	Memory		Memory cards		Disk controller	Mechanical	Slots x bays	Hot-swap pwr supplies		y Available date
8878-3AU 4 x Xeon 8878-5AU 4 x Xeon 8878-3BU 4 x Xeon 8878-3BU 4 x Xeon	MMP 7130N 3.16GH MP 7150N 3.5GHz MP 7130N 3.16GHz MP 7150N 3.5GHz	z DC DC DC DC	2x1MB 2x1MB 2x1MB 2x1MB	2x2GB 2x2GB 2x2GB 2x2GB	16 16 16 16	Four Four Four Four	None None	SAS SAS	3U ⁴ rack 3U rack 3U rack 3U rack	6x7 6x7 6x7 6x7	2 x 1300 2 x 1300 2 x 1300 2 x 1300	3 3 3	May 2007 May 2007 May 2007 May 2007
Processors L2 cache L3 cache Processor upgrade Implementation	Four 64-bit Intel® Xe Technology™ (EM6 1MB / per core / Xe 8MB on 7130N / 16M 4-way SMP / up to fo chassis interconnect System board contain integrated Serial Attac	4T) / I L4v™ IB on 7 our Xe ed) ns four	Hyper-Th Dynamic 7140N & on Proce r Intel 60	reading te Server C 7150N essors (sar 4-pin micre	echnolo ache (2 me spe o-PGA	ogy 256MB ed/cach	per 4 (ne/core)	CPUs start	ing at 8-way sis / Dual C	v) ore Cap	able / up to 32	2-way (eight
Active Memory [™]	4GB std / 64GB max cards standard (up to 400MHz registered 2 Chipkill [™] / Memory (supported only with	four) 40-pin Prote	with 4 D DDR2-S Xion™ (IMM göld-o SDRAM Ri redundant	connect DIMMs bit ste	tor slots / Error ering) a	ery card each Chec nd Me	d / 512GB / DIMMs m king and mory Mirr	max (eight nust be insta Correcting roring™ and	chassis alled in n (ECC) v I Hot-sw	interconnect) natched pairs ia 16-bit Che ap (non-OS s	/ two m / PC2-3 cksum specific)	emory 3200 / Hot-add
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	ALL: Adaptec® AIC-S RAID 0,1, 10, 5, 6, 60 Dual channel controll Two standard SAS c Enhanced IDE ATA-3 None / supports up to Six 2.5" hot-swap ba EIA 19" rack models chassis (x3950 or x3)	er wire ables 33 cont o 73GE vs / co	ed to SAS attached troller in 0 B 10,000 onverged	6 backplan to six-bay CSB6 Sou rpm disks tray / 80-l	e backp th Bride pin SC	lane ge A-2 con	nectors	5					
Chipset Slots (Active™)	IBM XA-64e™ 3rd G scalability and memo ServerWorks® CSB6 5704, and 2 PCI-X 2 Six total PCI-X 2.0 slk upgrade, hot expansi	.u siot ots ava	s / Host i ailable wi	Bridge Two	o suppo .nd atte	ention in	CI-X 2. dicator	u siots liahts (opti	cal sensors	control r			
DVD-ROM / diskette Ethernet Graphics controller Ports	8X ⁶ Slim DVD-ROM / Broadcom [®] 5704 10/ LAN [™] 2 SVGA / ATI [®] 7000M / Rear: Three Scalabili' ethernet, std. serial R	100/10 / on pla ty port:	anar / 16 s, RSA e	MB SDRA	M std/r SA ser	max / 32 ial, two	2-bit 33	MHz PCI 2	2.2 bus				
Security System management Diagnostics Software	Power-on and admin Remote Supervisor remote console and ramped in BMC / IMPI 2.0 / Poo Drop down Light PalBM Real Time Diagr ServerGuide™ (CD-utilities), IBM Director	Adapt mgmt / werEx ath Dia nostics ROM i	ter II slir ∕ power o ecutive ™	nline / PC on/off syste	adapt em/m	ter / incl onitors	udes 1 oower :	0/100 ethestatus, op tion panel 2GBPC2- 4GBPC2-	system, ten	nperature associate CRDIMN CRDIMN	e, disks, fans, ed with failing (1(2x1GB) 1(2x2GB)	powers	supplies /
Keyboard / mouse Power supplies Cooling fans	None standard (beca Std: Two 1300 watth redundant with two pauto-restart / rear acc Eight hot-swap, redur one additional fan in a fan failure signals Dia	ot-swa ower s cessible ndant, each p	ap(240 V supplies / e fans in multi-spe ower sup	AC); <i>Max:</i> worldwide each powed fans / oply / PFA	<i>i</i> er sup /	ply / PF	/ fully sing / A	Active Me Xeon 7110 Xeon 7120 Xeon 7130 Xeon 7140 Xeon 7150 IBM Serve	mory 4-slot E DN 2.5GHz/4l DN 3.0GHz/4l DN 3.16GHz/1 DN 3.3GHz/10 DN 3.5GHz/10 ₽RAID™-8i A	Expansion MB L3/Du MB L3/Du BMB L3/D BMB L3/D BMB L3/D Idapter	n Card Jal Core Proc Jal Core Proc Jual Core Proc		41Y5000 40K1259 40K1260 40K1261 40K1262 43V4553 39R8729
16W = 6 x XpandOnI 32W = 8 x XpandOnI Six available 3.3 volt Slot 1 - fullsize, 64- Slot 2 - fullsize, 64-	emand Scalabilty kits 2 Demand Scalabilty kits 3 Demand Scalabilty kits 3 PCI-X 2.0 slots: bit, 266MHzPCI-X, hit, 266MHzPCI-X, hit	.3m 2.3m 2.3m + ot-swa	+ 4 x2.9n	า				IBM 36.40 IBM 73.40 XpandOnI XpandOnI x3950 Sca x3950 E M Dual Core Other opti	BAID 6M U3 BB 10K 2.5" S BB 10K 2.5" S Demand™Sc Demand™Sc alability Enab Iodular Expa X3 upgrade ons at ibm.c	AS Hot-s AS Hot-S alability C alability C lement M nsion End kit	swap HDD Swap HDD Cable - 2.3M Cable - 2.9M emory Adapter closure		39R8816 40K1051 40K1052 13M7414 13M7416 41Y5004 8874-3RY 41Y5005
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	bit, 266MHzPCI-X, hibit,	ot-swa ot-swa ot-swa ot-swa	ap Din ap Din ap Din ap Ste ap Ste ap Ste ap Ste ap Se	mensions: eight: 70 to ealth black ol-free ser ecess adap emory and tup Progra agnostics (CSISelect t	H128.3 85lbs; color rviceab oters, p syster am by p (PC-Do	35mm x ; 31.75 t illity bower s nboard bressing botor) by ssing Cti	upplies from to F1 at press 1+A at	.0mm x D kg , processo p startup ing F2 at startup	ors,	3 year p Internat On site, covera next bu On site (in eligi 3 year	MITED WAF parts and lab ional Warrar 8 am - 5 pm age excludin siness day r service upg ble locations IOR 24x7, 4	or nty Ser , Mon - ig holid respons rade op s):7	vice ³ Fri days, se time ⁷ otions
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 ⑥ 2.5", SL 1", Bay ⑥ 2.5", SL 1", Bay ⑦ 2.5", SL 1",	access, std CD-RC access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access, hot-swap, access	open open open open open	J ⇔ Dr dia pro ⇔ Inf an sy: ⇔ Pro po	op Down I agnostic pa bblem with ormation L d compone stem well- edictive Fa wer suppli	Light Pannel) for out rerusel. ED panent LEI being allure Asies, me	ath Diag r outside noving onel, diag Ds give nalysis® emory, p	nostics view of cover nostic visual i	s (level 2 of potential LED pane indications	of	96P26 • 4 year 96P26 • 5 year 96P26 Other S http://w	IOR 24x7, 2 89 IOR 9x5, NE 90 IOR 9x5, NE 94 ervicePac of ww.ibm.com	BD responding a contract of the contract of th	oonse oonse at
Full Configuration:	1,325 Btu/hr (388 w 5,200 Btu/hr (1524 v rtant warranty informat	watts)	All 1 440.		Maxim	num int		disk capad vap SAS	· · y .	service 24x7 ¹⁴ to issues o	s/us/its/pdf/v oll-free suppo during the wa (3950C) © IB	vamom ort for v arranty	varranty period ³

IBM® Type-model Qty	x Processor	Core	L2 cache	Memory		Memory cards		Disk controller	Mechanical	Slots x bays	Hot-swap pwr supplies		y Available date
8878-3DU 4 x Xeon 8878-5DU 4 x Xeon 8878-3EU 4 x Xeon 8878-3EU 4 x Xeon	MMP 7130N 3.16GH MP 7150N 3.5GHz MP 7130N 3.16GHz MP 7150N 3.5GHz	z DC DC DC DC	2x1MB 2x1MB 2x1MB 2x1MB	2x2GB 2x2GB 2x2GB 2x2GB	16 16 16 16	Four Four Four Four	None None	SAS SAS	3U ⁴ rack 3U rack 3U rack 3U rack	6x7 6x7 6x7 6x7	2 x 1300 2 x 1300 2 x 1300 2 x 1300	3 3 3	May 2007 May 2007 May 2007 May 2007
Processors L2 cache L3 cache Processor upgrade Implementation	Four 64-bit Intel® Xe Technology™ (EM6- 1MB / per core / Xee 8MB on 7130N / 16M 4-way SMP / up to fo chassis interconnect System board contair integrated Serial Attac	4T) / le L4v ™ lB on 7 our Xe ed) ns fou	Hyper-Th Dynamic 7140N & on Proce r Intel 60	nreading te Server C 7150N essors (sar 4-pin micre	echnolo ache (2 me spe o-PGA	ogy 256MB ed/cach	per 4 (ne/core)	CPUs starti) per chas	ing at 8-way sis / Dual C	v) ore Cap	able / up to 3	2-way (eight
Active Memory [™]	4GB std / 64GB max cards standard (up to 400MHz registered 2 Chipkill [™] / Memory (supported only with	four) 40-pin Prote	with 4 D DDR2-S Xion™ (IMM göld-o SDRAM Ri redundant	connect DIMMs bit ste	tor slots / Error ering) a	ery card each Chec nd Me	d / 512GB / DIMMs m king and (mory Mirr	max (eight nust be insta Correcting roring™ and	chassis alled in n (ECC) v I Hot-sw	interconnect) natched pairs ria 16-bit Che ap (non-OS s	/ two m / PC2-3 ecksum specific)	emory 3200 / Hot-add
SAS disk controller SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays Mechanical	ALL: Adaptec® AIC-S RAID 0,1, 10, 5, 6, 60 Dual channel controllo Two standard SAS c Enhanced IDE ATA-3 None / supports up to Six 2.5" hot-swap ba EIA 19" rack models chassis (x3950 or x35	er wire ables 33 con 5 73GE vs / co	ed to SAS attached troller in 0 B 10,000 onverged	6 backplan to six-bay CSB6 Sou rpm disks trav / 80-l	e backp th Bridg	lane ge A-2 con	nectors	8					
Chipset Slots (Active™)	IBM XA-64e™ 3rd G scalability and memol ServerWorks® CSB6 5704, and 2 PCI-X 2 Six total PCI-X 2.0 slc upgrade, hot expansion	.u siot ots ava	s / Host i ailable wi	Bridge Two	o suppo .nd atte	ention in	CI-X 2. dicator	u siots liahts (opti	cal sensors	control r			
DVD-ROM / diskette Ethernet Graphics controller Ports	8X ⁶ Slim DVD-ROM / Broadcom [®] 5704 10/ LAN [™] 2 SVGA / ATI [®] 7000M . <i>Rear</i> : Three Scalabilif ethernet, std. serial R	100/10 / on pl ty port	anar / 16 s, RSA e	MB SDRA	M std/r SA ser	max / 32 ial, two	2-bit 33	MHz PCI 2	2.2 bus				
Security System management Diagnostics Software	Power-on and admini Remote Supervisor remote console and BMC / IMPI 2.0 / Po Drop down Light Pa IBM Real Time Diagr ServerGuide™ (CD-I utilities), IBM Director	Adap mgmt, werEx ath Dia nostics ROM	ter II slir ∕ power o ecutive ™	nline / PC on/off syste	adapt em/m	ter / incl onitors	udes 1 oower :	0/100 ethestatus, op tion panel 2GBPC2- 4GBPC2-	system, ten	nperature associate CRDIMN CRDIMN	e, disks, fans, ed with failing 1/(2x1GB) 1/(2x2GB)	powers	supplies /
Keyboard / mouse Power supplies Cooling fans	None standard (beca Std: Two 1300 watth redundant with two pauto-restart / rear acc Eight hot-swap, redur one additional fan in fan failure signals Dia	ot-swa ower s cessibl ndant, each p	ap(240 V supplies / e fans in multi-spe ower sup	AC); <i>Max:</i> worldwide each powed fans / oply / PFA	<i>i</i> er sup /	ply / PF	/ fully sing / A	Active Mer Xeon 7110 Xeon 7120 Xeon 7130 Xeon 7140 Xeon 7150 IBM Serve	mory 4-slot E DN 2.5GHz/4l DN 3.0GHz/4l DN 3.16GHz/1 DN 3.3GHz/10 DN 3.5GHz/10 ₽RAID™-8i A	Expansion MB L3/Du MB L3/Du BMB L3/D BMB L3/D BMB L3/D Idapter	n Card ual Core Proc ual Core Proc ual Core Proc ual Core Proc ual Core Proc ual Core Proc ual Core Proc		41Y5000 40K1259 40K1260 40K1261 40K1262 43V4553 39R8729
16W = 6 x XpandOnI 32W = 8 x XpandOnI Six available 3.3 volt Slot 1 - fullsize, 64- Slot 2 - fullsize, 64-	emand Scalabilty kits 2 Demand Scalabilty kits 3 Demand Scalabilty kits 3 PCI-X 2.0 slots: bit, 266MHzPCI-X, hebit, 266MHzPCI-X, hebit, 266MHzPCI-X	.3m 2.3m 2.3m + ot-swa	+ 4 x2.9n	า				IBM 36.4G IBM 73.4G XpandOnI XpandOnI x3950 Sca x3950 E M Dual Core Other option	BAID 6M U3 BB 10K 2.5" S BB 10K 2.5" S Demand™Sc Demand™Sc Idability Enab Idodular Expa X3 upgrade ons at ibm.c	AS Hot-s AS Hot-S alability C alability C lement M nsion End kit	swap HDD Swap HDD Cable - 2.3M Cable - 2.9M emory Adapter closure		39R8816 40K1051 40K1052 13M7414 13M7416 41Y5004 8874-3RY 41Y5005
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	bit, 266MHzPCI-X, hebit, 266MHzPCI-X, he	ot-swa ot-swa ot-swa ot-swa	ap Din ap Din ap Din ap Ste ap Ste ap Ste ap Ste ap Se	mensions: eight: 70 to ealth black ol-free ser ecess adap emory and tup Progra agnostics (CSISelect t	H128.3 85lbs; color rviceab oters, p syster am by p (PC-Do	35mm x ; 31.75 t illity bower s nboard bressing botor) by ssing Cti	upplies from to F1 at press 1+A at	.0mm x D kg , processo p startup ing F2 at startup	ors,	3 year p Internat On site, covera next bu On site (in eligi	MITED WAR parts and lak ional Warran 8 am - 5 pm age excludir siness day n service upg ble locations IOR 24x7, 4	oor nty Ser , Mon - ng holid respons rade op s): ⁷	vice ³ Fri days, se time ⁷ otions
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 ⑥ 2.5", SL 1", Bay ⑥ 2.5", SL 1", Bay ⑦ 2.5", SL 1",	Rack access,std CD-RC access,hot-swap, (access,ho	open open open open open	J ⇔ Dr dia pro ⇔ Inf an sy: ⇔ Pro po	op Down I agnostic pa bblem with ormation L d compone stem well- edictive Fa wer suppli	Light Pannel) for out rerusel. ED panent LEI being allure Asies, me	ath Diag r outside noving onel, diag Ds give nalysis® emory, p	nostics view of cover nostic visual i	s (level 2 of potential LED panel indications	of	96P26 4 year 96P26 5 year 96P26 Other S http://w	IOR 24x7, 2 89 IOR 9x5, NE 90 IOR 9x5, NE 94 GervicePac of ww.ibm.com	BD resp BD resp ptions a	oonse oonse at
Full Configuration:	1,325 Btu/hr (388 w 5,200 Btu/hr (1524 v rtant warranty informat	watts)	All 1 440.		Maxim	num int		disk capad vap SAS	· · y .	24x7 ¹⁴ to issues o	s/us/its/pdf/voll-free suppo during the wa	ort for varranty	varranty period ³

								-		400
IBM [®] Type-model	S	Blade Swit ervers modu d / max std / r	les	odules (type)	Managemen modules std / max	modules	Power Module Wattage		Mechanical	Available I date
8677-3RX HC10/H		0/14 0/4		IB, OPM and CPM		2/4	2000W	2/2	7U⁴ rack	
Positioning Description	Flexible, innovative Provides common re expansion, external keyboard, video, mo	esources shar Fibre Channe	ed by blade server	rs such as power,	system m	anagemer	nt, cabling			
Blade bays	Supports all blades		torage Expansion l	Jnits / 14 hot-plug	gable bays	/ front acc	cess			
Switch modules	Std: none; max: four	/ hot-swap /	rear access / Gb Et	thernet / Fibre Cha	annel / Infin	iBand / O	ptical Pa	ss-thru / (Copper Pas	s-thru
Advanced Management Module (8677-3RXonly)	Std: one on 3RX; m controller / communi functionality / ports: I all ports shared by u	cates with into DB-15 analog	egrated system ma video port, Dual U	nagement process	sór on eacl	h server b	lade / co	mplete K	VM switch	local
Management Module (8677-3XXonly)	Std: one on 3XX; macontroller / communiconnectivity / ports: I connection port / all	cates with int DB-15 analog	egrated system ma video port, PS/2 k	nagement procest	sor on éac	h server b	ĺade / m	ultiplexor	for console	,
Power modules	Std: two in bays 1 ar / hot-swap / rear acc to all modules and b (redundant to each of	ess / 2000 w lade bays 1 th	atts at 220v / both rough 6 / power for	redundant to each bays 7 through 1	other (N+l 4 requires	N redunda two additic	ancy) / two nal power	o std mo	dules supp	ly power
Blower modules	Std: two; max: two /	hot-swap / re	dundant / variable s	speed / rear acces	s / up to 32	25 cubic ft	per min	(CFM) / f	ront to back	c airflow
Mechanical DVD / diskette / USB	EIA 19" rack mode 3XX/3RX: 8X-24X ⁶ E access / shared by u server blade front pa	OVĎ-RÓM/3 up to 14 blade	.5" 1.44MB diskette	drive / one USB p	oort (Versio	n 1.1) / all	USB inte	erface / n	ot removab	le / front button on
Keyboard / mouse	None standard / pro	vides KVM co	nsole support / red	uests for keyboar	d, mouse, a	and video	by press	ing the d	isplay butto	n on
Ports	server blade front pa Rear: keyboard (PS Front: one USB (Ver	5/2), mouse (F	S NetBAY ACT CA 2S/2), analog DB-15	5 graphics (on star	ndard mgm	t module)	/ no seria	al or para	allel ports /	
Security	Login password for recommended in rad								/	
Ethernet	One of the dual integ								ıle)	
Systems mgmt	Provides remote cor blowers, power mod	sole and mg	mt / power on/off bl	lades/modules / m	nonitors pov	wer status	, operatir	ng systen	n, temperati	ure, disks,
System LED panel	System LED panel p							nditions		
Cisco Systems Gigat Nortel Networks Laye Brocade 10 port 4Gb Brocade 20 port 4Gb Cisco Systems Infinië NetBAY42 Enterprise NetBAY42 Standard I NetBAY25 Standard I	SAN Switch Module Band Switch Module for Blac Rack Cabinet Rack Cabinet	ch Module deCenter	32R1888 32R1892 32R1859 32R1813 32R1812 32R1900 930842S 9306420 9306250 26K4816	IBMAdvanced IBMKVW/Redt 1U 17" Flat Pat 2U 17" Flat Pat IBM BladeCen IBM BladeCen IBM 2-button n IBM T115 15" I APC Smart-UP	undant Mana nel Monitor C nel Monitor C ter 4-port GB ter 2-port Fibr nouse PS/2 Flat Panel Cc S 5000RMB	gement Moc Console Kit (Console Kit (B Ethernet Stree Channel Stree Channel Street)	with kybd/i with kybd/i 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	Modu
SM SM 2	PM 4	Blower module 2 • (std)	PM 2	M M 2	bays

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 Blade
- 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

	Switch	
	module	
ule	bay	function
	1	Ethernet link 1 for all blade servers
	2	Ethernet link 2 for all blade servers
	3	Network connection 1 for all blade server
		I/O expansion options (Fibre Channel)
t	4	Network connection 2 for all blade server
		I/O expansion options (Fibre Channel)

**68W models only

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

Power

Blower

IBM® Type-model	Supported Blades		modules std / max	Switch modules (type)	Managemer modules std / max	modules		modules std / max	Mechanica	Available I date
8852-4XX HS20 LS21)/HS21/JS20/JS21/LS2 /LS41	20/ 0/14	0/10 E	net, Fibre Ch, IB, OPM and C	CPM 1/2	2/4	2900W	2/2	9U⁴ rack	Mar 2006
Positioning Description	Provides commo expansion, exter	on resource nal Fibre C	s shared bhannel stor	most efficient infrastructury blade servers such as powage switching and connectivesion Units / 14 hot-swapable	ver, system n ity, and I/O (c	nanageme ptical drive	nt, cablir	ng, ethern		ment and
Switch modules				ccess / Gb Ethernet / Fibre (/ / Brocade® / McData®	Channel / Infir	iBand / Op	otical Pa	ss-thru / C	opper Pass	s-thru /
Advanced Management Modules	communicates w	ith integrate	ed system i	ccess / comprehensive systemanagement processor on e JSB 2.0, Serial(RJ45), 10/10	ach server bl	ade / com	plete KV	M switch	local function	ller / onality /
Power modules	supply power to	blade bays	in through	ccess / 2900 watts at 220V / 7 and both AMMs, SMs 1 & 5 5-10 used / worldwide / volta	2, and all blov	vers / two o	optional r	nodulés ir	bays 3 an	odules d 4
Blower modules	Std: two; max: tv	vo / hot-swa	ap / redund	ant / throttlled according to in	coming air te	mperature	/ rear ac	cess / fro	nt to back a	airflow
Mechanical Media Tray	DVD-ROM / two	USB ports	s (Version 2	o / supported in NetBAY™ R 2.0) / Full Light Path Diagnos I and USB port by pressing I	tic panel / cus	tomer sen	riceable .			ed by all
Keyboard / mouse				console support / requests fo		nouse, and	d video b	y pressin	g the displa	y button
Ports	Rear: two USB,	two RJ45	(one ethern	NetBAY ACT CAT5 chaining et and one serial), analog DE vo USB (Media Tray)		(on advar	iced mgr	nt module) / one seri	al
Security				/ secure socket layer (SSL) oviding security through locks					/	
Ethernet	Each of the dual	integrated	gigabit ethe	rnet controllers on each blad	e connects to	an optiona	al <i>GB Et</i>	hernet Sw	itch Module	9
Systems mgmt	disks, blowers, p Manager	ower modu	ules / systei	power on/off/reset blades/mo m diagnostic programs provi	ded through I	BM Directo	or softwa	ire / Remo		
System LED pane	el System LED par	nel provide:	s power-on	, location, over-temperature,	information, a	and systen	n-error c	onditions		
1										

1U 17" Flat Panel Monitor Console Kit (with kybd/monitor)	17231UX
2U 17" Flat Panel Monitor Console Kit (with kybd/monitor)	17232UX
NetBAY ACT Local Console Manager (CAT5 KVM cabling)	1735L04
NetBAY ACT Remote Console Manager (CAT5 KVM cabling)	1735R16
NetBAY ACT 250mm KVM Conversion Option	32P1636
NetBAY ACT 1.5m KVM Conversion Option	32P1652
Cisco Systems Fiber Intelligent Gigabit Ethernet Switch Module	32R1888
Cisco Systems Gigabit Ethernet Switch Module	32R1892
Nortel Networks Layer 2-7 Gigabit Ethernet Switch Module	32R1859
Brocade 10 port 4Gb SAN Switch Module	32R1813
Brocade 20 port 4Gb SAN Switch Module	32R1812
Cisco Systems InfiniBand Switch Module for BladeCenter	32R1900
NetBAY42 Enterprise Rack Cabinet	930842S

Blade

Switch

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
 40K9605

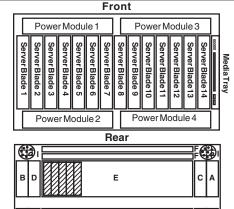
 BM PlateCenter A part CR Effects of Carlots Module
 40K9605

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

Advanced

Power

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

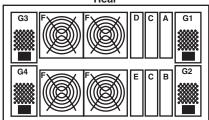
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В D

IBM [⊚] Type-model Supp			Switch modules std / max		Switch odules (type)	Storage modules std / max	Advanced Management modules std / max	modules	Power Module Wattage	Blower modules std / max	Mechanica	Available I date
	S20/HS21/HS21XM/	0/6	0/3		Fibre Ch, IB, CPM and S		1/1	2/4	950/1450V	V 4/4	7U⁴ rack	Dec 2007
LS20/LS2 8886-E1X1 HC10/HS LS20/LS2	S20/HS21/HS21XM/	0/6	1/3	Enet,	Fibre Ch, IB, CPM and S	1/2	1/1	4/4	950/1450V	V 4/4	7U⁴ rack	Dec 2007
Positioning Description Blade bays	Greatly Improved Provides common and expansion, ex Supports all blad	resour kternal F	ces shar ibre Cha	ed by annel s	blade servers storage switc	s such as po hing and co	ower, system innectivity, an	manager d I/O (op	ated Stor ment, cab tical drive	rage ling, ethe , USB an	rnet mana d video)	agement
Switch modules	Std: some: one; se Pass-thru	ome: no	ne; <i>max.</i>	three	/ hot-swap /	rear access	/ Gb Etherne	et / Fibre	Channel	Optical I	Pass-thru	/ Copper
Storage modules	Std: some: one; so hot-swap 3.5" SA				front access	/ 2 power s	upplies requir	ed per m	iodule / ea	ach modu	ie support	s six
Advanced Management Modules	Std/max: one / ho municates with int ports: DB-15 anal	tegrated	system	mana	gement proc	essor on ea	ch server bla	de / com	olete KVN	1 switch lo	ocal functi	onality /
Power modules	Std: two; max: fou (N+N redundancy modules 3 and 4	r / hot-s) / world required	wap / rea lwide / vo l with 2nd	ar acce oltage d Stora	ess / 1450 wa -sensing / au age module i	atts at 220V to-restart / 2 nstalled	/ / 950 watts a 2 fans per pov	at 110V / wer modu	redundar ıle / modu	it within p ules 1 and	air d 2 standa	rd /
Fan Packs	Std/max: four / ho	t-swap /	redunda	ant / th	rottlled acco	rding to inco	oming air tem	perature	/ rear acc	ess / fron	t to back	airflow
Mechanical Media Tray	EIA 19" rack mod DVD-ROM / two I by all blade serve	dels (U⁴ USB poi rs / requ) x 29" d rts (Versi lests for	eep / s on 2.0 DVD-F	supported in)) / Full Light ROM and US	NetBAY™ F Path Diagn B port by pi	Racks (such a ostic panel / c ressing DVD s	s NetBA\ customer select but	/42 ER) serviceal tton on se	ole / front erver blad	access / s e front pa	shared nel
Keyboard / mouse	None standard / L	JSB / pr	ovides K	VM cc	onsole suppo	rt / requests	for keyboard	l, mouse,	and vide	o by pres	sing the d	isplay
Ports	button on server the Rear: two USB, the Front: two USB (N	WO KJ4	o (one et	herne	t and one se	rial), analog	DB-15 graph	ics (on a	dvanced	mgmt mo	dule)	
Security	Login password for recommended in	or remot rack en	e connec vironmen	ction / it prov	secure socke iding security	et layer (SS / through loo	L) security for ckable doors	remote i	managem security m	ent acce leasures	ss/	
Ethernet	Each of the dual i	ntegrate	ed gigabi	t ether	net controlle	rs on each l	olade connec	ts to an o	ptional <i>G</i>	B Ethern	et Switch	Module
Systems mgmt	Provides remote of perature, disks, blueployment Mana	owers, p	and mgr power me	nt / po odules	wer on/off/re s / system dia	set blades/r agnostic pro	modules / mo grams provid	nitors pov ed throug	wer status jh IBM Di	s, operatir rector sof	ng system tware / Re	, tem- emote
System LED panel	System LED pane	el provid	es powe	r-on, l	ocation, over	-temperatur	e, informatior	n, and sys	stem-erro	r conditio	ns	
Brocade 10-port Switc Cisco Systems 4Gb 10 QLogic 4Gb FC 10-por	0-port Fibre Channel S	eCenter witch Mo	dule		32R1813 39Y9284 43W6724	BladeCenter	S 6-Disk Stora S 950W/1450V S Serial Pass-t	V Auto-Ser	nsing Powe	r Supplies	3 & 4	43W3581 43W3582 43W3583

QLogic 4Gb FC 10-port Full Fabric Switch
IBM BladeCenter SAS Connectivity Module
IBM BladeCenter Optical Pass-thru module
IBM BladeCenter Copper Pass-thru module
IBM BladeCenter PCI Expansion Unit 2
IBM BladeCenter PCI I/O Expansion Unit IBM DPI C19 PDU+C19 without line cord
IBM DPI C19 3 Phase PDU+C19 with attached line cord 39Y9195 39M2818 39Y9316 39M2819 39Y9320 DPI 60A Three Phase C19 Enterprise PDU with IEC309 3P+G 25K8373 43W6692 (208V) fixed line cord DPI 60A Single Phase C19 Enterprise PDU w/o line cord 39Y8923 39Y8948 750GB DP HS SATA HDD 43W7580 Other options at ibm.com/products/us Solutions available from IBM BladeCenter Alliance program partners IBM Server 73GB 15K SAS HS IBM Server 146GB 15K SAS HS 43W7523 43W7524 300GB SAS 15K HS 500GB SATA2 HDD 43X0802 39M4558

Front Disk Storage Module bays Server Blade Server Blade Server Blade Blade Blade ω 4 Media Tray Rear



- Dimensions:
- H12" x W17.5" x D28.9" H306.3mm x W440mm x D733.4mm Dimensions:
- Weight: 90 to 240 lb; 40.82 to 108.86kg
- Stealth black color bezel
- Tool-free customer serviceability
 Access server blades, battery backup units, media tray
- and storage modules from front Access AMM, expansion modules, blower and power 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 Serial Module Bay
 C I/O Module Bays 3 & 4
 D I/O Module Bay 1 for ethernet switch
 E I/O Module Bay 2 for future use
 F Blower Modules (4) std G • Power Module Slots - G1&G2 std / G3&G4 opt

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, 2 hr avg response (ServicePac® part num 46D3900) 3 year IOR 24x7, 4 hr avg response (ServicePac part num 46D3899) 3 year IOR 9x5, 4 hr avg response (ServicePac part num 46D3898) 5 year IOR 9x5, 4 hr avg response (ServicePac part num 46D3906) 5 year IOR 24x7, 2 hr avg response (ServicePac part num 46D3908)

Other ServicePac options at http://www-1.ibm.com/services/ us/its/pdf/wamomxeu.pdf

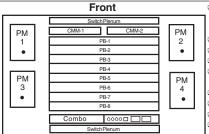
24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM® Type-model	Supported Blades	Blade Servers std / max		Switch module		Managemen modules std / max	modules		Blower modules std / max	Mechanical	Available date
8720-1RX HS20/HS2	21**/HS40/JS20/JS21/	0/8	0/4 Ene	t, Fibre Ch, IB, 0	,		2/4	1300W	4/4	8U ⁴ rack	Jul 2004
LS20/LS2 8720-2RX HS20/HS2 LS20/LS2	21**/HS40/JS20/JS21/	0/8	0/4 Ene	t, Fibre Ch, IB, 0	OPM and CPI	M 1/2	2/4	1300W	4/4	8U rack	Mar 2006
Positioning Description	Flexible, innovative Provides common re expansion, external I keyboard, video, mo	esources s Fibre Char	hared by b	lade servers su	ch as power,	system m	anagemer	nt, cablin	g, etherno	et manager	nent and
Blade bays	Supports all blades	and PCI	I/O Expans	ion Blades / 8 h	not-pluggable	server bay	s / front a	ccess			
Switch modules	Std: none; max: four	/ hot-swap	o / rear acce	ess / Gb Ethern	et / Fibre Cha	annel / Infin	iBand / O	otical Pa	ss-thru / (Copper Pas	s-thru
Advanced Management Module	Std: none; max: two communicates with in ports: DB-15 analog shared by up to 8 bla	ntegrated : video port	system mar . Dual USE	nagement proce	essor oń each	n server bla	ade / comr	olete KVN	/I switch ∣	ocal function	nalitv /
Power modules	Std: two in bays 1 ar C14 male appliance management module power to switch bays	es, blade b	1 - 4 aı	nd media tray; t	wo addititiona	ıl power ma	odules pro	vide full s	Max) at 5 bays 1 & system re	0/60Hz / tw k 2, both dundent po	o IEC320 wer and
Blower modules	Std: four; max: four / (CFM) / front to back	Calibrated airflow; fil	Vectored (tered air in	Cooling / hot-sw take	ap / redundar	nt / variable	e speed / r	ear acce	ss / 330 (cubic ft per	min
Mechanical Optical / USB Keyboard / mouse Ports	EIA 19" rack model 24X-10X-24X-8X° Co blade servers / reque None standard / prov server blade front pa Rear: keyboard (PS Telco Alarm Panel Front: two USB (Vers	ombo /Tw ests for op vides KVM nel /2), mouse	o USB port tical cd and I console su	(Version 1.1) / I USB port(s) by upport / request	all USB interform of the control of	ace (types) select but d, mouse, a	A & C) / fi ton on ser and video	ont acce ver blade by press	e front pa sing the d	inel isplay butto	n on
Security	Login password for r	emote cor	nnection / s	ecure socket la	yer (SSL) sec	curity for re	mote mar	nagemen	t access	/	
Ethernet	recommended in rac Each of the dual inte <i>Module</i>	grated gig	abit etherne	et controllers on	each blade s	e doors or ervers con	nects to a	n optiona	sures Il <i>4-port C</i>	GB Etherne	: Switch
Systems mgmt	Provides remote con blowers, power mod	sole and rules / syst	ngmt / pow em diagnos	ver on/off blades stic programs p	s/modules / m rovided throug	onitors pough IBM Dir	wer status ector softv	, operatir vare	ng system	n, temperati	ure, disks,
System LED panel	System LED panel p	rovides po	ower-on, loc	ation, critical, m	ajor and mind	or alarm co	onditions				

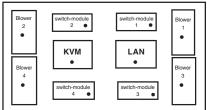
IBM BladeCenter T Advanced Management Module McData EFCM Element Managerfor BladeCenter IBM BladeCenter HS20 Low Profile Handle (800Mhz blade) IBM BladeCenter HS40 Low Profile Handle IBM BladeCenter T Filter NetBAY42 Enterprise Rack Cabinet Four Post Rack Mount Kit Two Post Rack Mount Kit

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

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



Rear



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 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 (Gb Ethernet/Fibre Channel)
4	Network connection 2 for all blade server I/O expansion options (Gb ethernet/Fibre Channel)

LIMITED WARRANTY³

32R0833

371 6861

494215U 25K8373

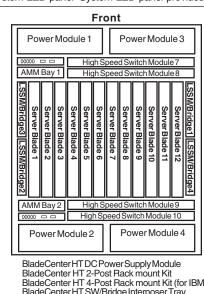
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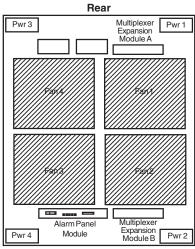
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- 3 year parts and labor
 International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in eligible locations):⁷
 3 year IOR 24x7, 2 hr avg response
- (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 period

IBM® Type-model	Supported Blades		Switch modules std / max	Switch mod	aules	Advanced Management modules std / max	Power modules std / max	Power module Wattage	Fan modules std / max	Mechanical	Available date
	HS21/JS20/JS21/LS20/ _S41/AMC/NGW	0/12	0/8 E	Enet, 10Gb Enet, X IB, OPM and	Fibre Ch, IB CPM	, 1/2	2/4	2535W (DC -48V)	4/4	12U⁴ rack	Jun 2007
Positioning Description Blade bays	Leadership High Spe Provides common resc expansion, external sto Supports all blades a	ed, High ources sha orage swit and Blade	Performa ared by bla ching and Expansion	nce, carrier gra ade servers such connectivity, and Units / 12 hot-s	de blade pla as power, s I/O (USB ar wapable bay	atform for system mar nd video) s / front acc	Next Gel agement, cess	neration , cabling,	Network ethernet	<i>application</i> managemen	s it and
High Speed Switch Modules	Std: none; max: four/ h										
Legacy SwitchModules	Std: none; max: four/ he Optical Pass-thru / Cop	ot-swap / oper Pass	front acces s-thru /	s / Gb Eth / 10G	b Eth uplink	4Gb Fibre	Channel	/ 4X Infin	iBand upli	nk /	
Advanced Management Modules	Std: one; max: two / ho communicates with inte DB-15 analog video po	ot-swap / egrated sy ort, Dual	front acces stem man USB 2.0, S	ss / comprehensi agement process Serial(RJ45), 10/1	ve system m sor on each s 00 ethernet	anagement server blade remote mar	functions o / comple nagement	s / Power ete KVM connecti	PC®440G switch loc on port	P controller and functional	/ ity / ports:
Power Modules	Std: two; max: four / horedundancy) / power moth advanced manage blade bays 7-12 and all	ot-swap / 1 nodules 1 ement mo I High Spe	front acces and 2 supp dules, mult eed Switch	s / input voltage oort blade bays 1 tiplexer expansio Modules / world	range -48VD - 6, all legac n modules ar dwide / auto-r	C to -60VD y switch an nd alarm pa restart / 3 fa	C (Min/Ma d bridge r Inel modu Ins per po	ax) / redunodules, le / powe wer mod	undant wit upper and er modules ule	hin pair (N+N I lower medi s 3 and 4 su	N a trays, oport
Fan Modules	Std/max: four / hot-swa	ıp / redun	dant / spee	ed controlled acc	ording to am	bient air ter	nperature	/ rear ac	cess / froi	nt to back air	rflow
Mechanical EIA 19" rack models (12U⁴) x 706mm deep / supported in NetBAY™ Racks with seismic bracing											
Media Tray	Std: one; max: two / tw swap / front access / s	o USB 2.0 hared by	0 ports / tw all blade se	o internal compa ervers / requests	ct flash slots for USB por	/ Full Light ts by pressi	Path Diag ng media	nostic pa select b	nel / custoutton on s	omer service erver blade t	eable / hot front panel
Keyboard / mouse	None standard / USB / server blade front pane	provides	KVM cons	ole support / req	uests for key	board, mou	ise and vi	ideo by p	ressing th	e display bu	tton on
Ports	Rear: DB-15 telco alar Front: two or four USB			d one DB-50 bla	de serial agg	regate for b	reak out	cable (bo	th on alar	m panel mod	dule);
Security	Login password for rer recommended in rack	note conr environm	nection / se ent providir	cure socket layeng security throu	er (SSL) secu gh lockable (ırity for rem doors or otl	ote mana ner securi	igement a ty measi	access / ires		
Ethernet	Each of the dual integra	ated gigat	oit ethernet	controllers on ea	ich blade cor	nects to an	optional	GB Ethe	rnet Switc	h Module	
Systems mgmt	Provides remote conso disks, fans, power mod	ole and m dules / sys	gmt / powe stem diagn	er on/off/reset bla ostic programs p	des/modules rovided throu	/ monitors ugh IBM Di	power strector soft	atus, ope tware / R	erating systemate De	tem, temper eployment M	ature, anager
System LED panel	System LED panel pro	vides pov	ver-on, loca	ation, Critical, Ma	jor and Mino	r telecom a	arm indic	ators, fro	nt and rea	ar of chassis	





		Pwr 4	Module	Expansion Module B	Pwr 2
BladeCenter HT DC Power Supply Mor BladeCenter HT 2-Post Rack mount K BladeCenter HT 4-Post Rack mount K BladeCenter HT 4-Post Rack mount K BladeCenter HT SW/Bridge Interposer BladeCenter HT HS Interposer W/Th. BladeCenter HT Advanced Managem BlMBladeCenter HT Redundant Media Tra BladeCenter HT Filter (4 pack) BladeCenter HT Bezel w/Air Filter & Ca BladeCenter HT Compact Flash 1GB GladeCenter	Cit (for IBM 70 Tray Imb Screws Ent Module Ir Inent Module by Able Mgmt C Option Option It Ethemet S Inh Module Itel	nterposer ollar		42C 42C 42C 42C 42C 42C 42C 42C 42C 42C	C5279 C5279 C5281 C5284 C5300 C5302 C5305 C5316 C5306 C5316 C5278 C5307 C5310 R1888 R1892 R0881 R1812

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

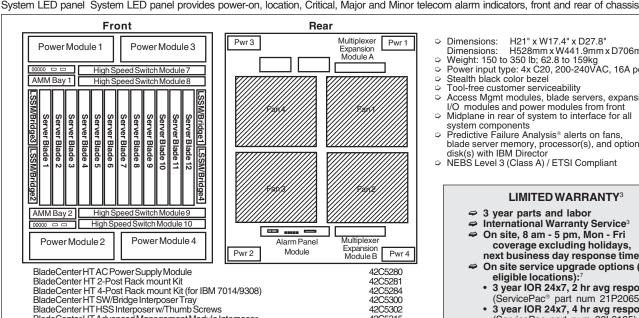
- H21" x W17.4" x D27.8" H528mm x W441.9mm x D706mm Dimensions: Dimensions:
- Weight: 150 to 350 lb; 62.8 to 159kg Power input type: 4x 4-post terminal, -48VDC to -60VDC, 60A per input
 - Stealth black color bezel
- Tool-free customer serviceability Access Mgmt modules, blade servers, expansion units,
- I/O modules and power modules from front Midplane in rear of system to interface for all
- system components
 Predictive Failure Analysis® alerts on fans, blade server memory, processor(s), and optional disk(s) with IBM Director

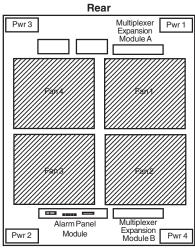
 NEBS Level 3 (Class A) / ETSI Compliant

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, 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 69P9209) Other ServicePac options at
- http://www-1.ibm.com/services/ us/its/pdf/wamomxeu.pdf
- **24x7**¹⁴ toll-free support for warranty issues during the warranty

IBM [⊚] Type-model	Supported Blades		Switch modules std / max	Switch mod	lules	Advanced Vlanagement modules std / max	Power modules std / max	Power module Wattage	Fan modules std / max	Mechanical	Available date
	HS21/JS20/JS21/LS20/ _S41/AMC/NGW	0/12	0/8 E 4	net, 10Gb Enet, X IB, OPM and (Fibre Ch, IB, CPM	1/2	2/4	3160W (AC 240V)	4/4	12U ⁴ rack	Jun 2007
Positioning Description Blade bays	Leadership High Spe Provides common resexpansion, external sto Supports all blades a	eed, High ources sha orage swit and Blade	Performal ared by bla ching and Expansion	nce, carrier grade ade servers such connectivity, and Units / 12 hot-sv	de blade pla as power, s I/O (USB an vapable bays	atform for system mar ad video) s / front acc	Next Gel nagement, cess	neration cabling,	Network ethernet	<i>application</i> managemen	es at and
High Speed Switch Modules	Std: none; max: four/ h	not-swap /	front acces	ss / 10Gb Etherne	et / 4X InfiniE	Band / Copp	oer 4X Pa	ss-thru			
Legacy SwitchModules	Std: none; max: four/ h Optical Pass-thru / Co			s / Gb Eth / 10Gb	o Eth uplink /	4Gb Fibre	Channel	4X Infini	Band upli	nk /	
Advanced Management Modules	Std: one; max: two / h communicates with int DB-15 analog video p	earateḋ sv	stem man	agement process	or on each s	servěr blad	e / comple	ete KVM	switch loc	P controller al functional	/ ity / ports:
Power Modules	Std: two; max: four / h (N+N redundancy) / potrays, both advanced r support blade bays 7-1	ot-swap / f ower modu nanageme 12 and all	front accessules 1 and 2 ent modules High Speed	s / input voltage r 2 support blade b s, multiplexer exp d Switch Modules	range -48VD0 bays 1- 6, all bansion modu s / worldwide	C to -60VD legacy swith les and ala e / voltage-	C (Min/Match and brand brand) arm panel sensing / a	ax) at 50/idge mod module / auto-resta	60Hz / red lules, upp power m art / 3 fans	dundant with er and lower odules 3 and s per power i	nin pair r media d 4 module
Fan Modules	Std/max: four / hot-swa	ap / redun	dant / spec	ed controlled acco	ording to amb	oient air ter	nperature	/ rear ac	cess / fror	nt to back air	rflow
Mechanical	EIA 19" rack models	(12U ⁴) x	706mm de	ep / supported in	NetBAY™ R	acks with	seismic br	acing			
Media Tray	Std: one; max: two / tw swap / front access / s	o USB 2.0 chared by	0 ports / tw all blade se	o internal compacervers / requests	ct flash slots for USB port	/ Full Light s by press	Path Diaging media	nostic pa select bu	nel / custoutton on s	omer service erver blade	eable / hot front panel
Keyboard / mouse	None standard / USB server blade front pane	/ provides el	KVM cons	ole support / requ	uests for key	board, mou	use and vi	deo by p	ressing th	e display bu	tton on
Ports	Rear: DB-15 telco ala Front: two or four USE	rm panel i 3 2.0 (Med	nterface an lia Tray)	d one DB-50 blad	de serial agg	regate for t	oreak out	cable (bo	th on alan	m panel mod	dule);
Security	Login password for rerecommended in rack	mote conr environm	nection / se ent providir	cure socket layer ng security throug	r (SSL) secu gh lockable d	rity for rem doors or ot	ote mana her securi	gement a ty measu	access / ires		
Ethernet	Each of the dual integr	ated gigat	oit ethernet	controllers on ea	ch blade con	nects to ar	optional	GB Ethei	net Switc	h Module	
Systems mgmt	Provides remote conso	ole and m dules / sys	gmt / powe stem diagn	er on/off/reset blac ostic programs p	des/modules rovided throu	/ monitors ugh IBM Di	power st rector soft	atus, ope ware / R	rating sys emote De	tem, temper ployment M	ature, anager
System LED panel	System LED panel pro	vides pov	ver-on, loca	tion, Critical, Mai	or and Minor	telecom a	larm indic	ators, fro	nt and rea	r of chassis	





42C5280 BladeCenter HT 2-Post Rack mount Kit BladeCenter HT 4-Post Rack mount Kit (for IBM 7014/9308) BladeCenter HT SW/Bridge Interposer Tray 42C5281 42C5284 42C5300 BladeCenter HTHSS Interposer w/Thumb Screws BladeCenter HT Advanced Management Module Interposer 42C5302 42C5315 IBM BladeCenter Advanced Management Module 25R5778 BladeCenterHTRedundantMediaTray
BladeCenterHTFilter (4 pack)
BladeCenterHTBezel w/AirFilter & Cable Mgmt Collar 42C5305 42C5316 BladeCenter HT Compact Flash 1GB Option
BladeCenter HT Compact Flash 4GB Option
Cisco Systems Fiber Intelligent Gigabit Ethernet Switch Module 42C5307 42C5310 32R1888 Cisco Systems Gigabit Ethernet Switch Module Qlogic 20 Port 4Gb SAN Switch Module 32R1892 26R0881 Brocade 20 Port 4Gb SAN Switch Module 32R1812

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

- H21" x W17.4" x D27.8" H528mm x W441.9mm x D706mm Dimensions: Dimensions:
- Weight: 150 to 350 lb; 62.8 to 159kg Power input type: 4x C20, 200-240VAC, 16A per input Stealth black color bezel
- Tool-free customer serviceability Access Mgmt modules, blade servers, expansion units, I/O modules and power modules from front
- Midplane in rear of system to interface for all
- system components Predictive Failure Analysis® alerts on fans, blade server memory, processor(s), and optional disk(s) with IBM Director
- NEBS Level 3 (Class A) / ETSI Compliant

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, 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 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

IBM [⊚] Type-model Prod	cessor	GHz¹ C	L2 Core cache	Watts M	emory	Disk	os	Graphics ada	pter	Mechanical	Ethernet	Available date
7996-21x 1 x Core ¹ 7996-51x 1 x Core 2 7996-5Ax 1 x Core 2 7996-5Bx 1 x Core 2	2 Duo E6700	1.86 2.66 2.66 2.66	DC 2MB DC 4MB DC 4MB DC 4MB	65W 65W	2GB(2GB(60GB SATA 60GB SATA	Vista 64-bit Vista 64-bit	Quadro® NVS Quadro NVs 1 Quadro FX 16 Quadro FX 16	20M 00M	single slot blade single slot blade single slot blade single slot blade	1 x Gb 1 x Gb	Sep 2007 Sep 2007
Positioning Processor(s) SMP L2 Cache Implementation	Intel® Core 2 I All Dual-Core Single Proces 2 or 4MB std Systemboard of	Ouo up f / All op ssor, no and ma: contains connect	to 1.86GHz timized fo upgrade x / at proce one Intel L ctor, one I/C	z / 2MB L r Extend ssor spe GA775 s) and Gra	.2 ECC ed Me ed socket,	Cache / Comory 64 Teo	chnology (El	to 2.66GHz / 4I M64T) for either Intel ir	MB L2	ablilty, flexibility as ECC Cache / All ed graphics or on aligabit ethernet N	1066MH e MXM3	form
Memory	1, 2 or 4GB sto DIMMs / non-E								300 66	7MHz un-buffered	I DDR2-S	SDRAM
Graphics Controller	Professional 2 Advanced 3D											
SATA disk controller SATA disk bay External Storage	SATA controlle One 2.5-inch S Support for IBN	Small F	orm Facto	r (SFF) S	/IB/sec SATA in	/ support fo iternal fixed	r one 2.5" SA disk bays	TA disks				
Mechanical Architecture/Chipset	Single slot blace Intel Q965 Exp video adapter adapter, PCI-E	p ress c / Integra	hipset / Gr ited Contro	aphics M ller Hub 8	lemory 3 (ICH	Controller F B) provides:	lub provides: SATA, USB 2	integrated graph .0, PCI-Express	nics an 1x link	d PCI-Express 16 to I/O and Graph	Sx link to nics trans	MXM3 mission
Ethernet	full-duplex / TC	P/IP Of ects to	fload Engir	ne (TOE)	/ Wake	on LAN / S	erial over LAI	N / PXE 2.0 Boo	t agent	s / chip on blade / t / Alert Standard Video Compressi	Format 2	2.0 /
DVD / diskette	Optional via US				liance	/ requests fo	r DVD-ROM,	diskette and US	B port	in BladeCenter b	y pressin	g media
Keyboard / mouse	Provided by Re				USB o	nly						
Systems Mgmt										nvironmental mor ter Management		vent
Security	No security int	rusion p	rotection /	Power-or	n passv	word / admin	istrator passv	vord / unattende	d boot	/ selectable boot		
Software ship group	Documentation	n CD, Br	oadcom Cl	D, Server	Guide	CD						
Cooling Fans	Uses cooling for	rom Blad	deCenter (t	ypes 86	77, 872	20, 8730, 88	52) / therma	al sensors on ea	ch prod	cessor and Blade	Center m	odules
Power supply(s) Prerequisites	Uses power m	odule(s)						enter (types 867	7, 872	0, 8730, 8852)		
DIMMO	Server blade (top view)	•						2GB (2x1GB) PC2-	5300 CL 5300 CL	5 DDR2 667MHz Kit 5 DDR2 667MHz Kit 5 DDR2 667MHz Kit		41Y2822 41Y2825 41Y2828

DIMM slot 4 DIMM slot 3 SFF A control panel on top front of blade disk has following LEDs: 1 DIMM slot 1 Power good I/O & Graphics Power state transmission Blade location adapter Over temperature CPU MXM Information General fault

IBM CP20 Workstation Connection Device 3096CDX Other options at ibm.com/products/us

Bay 1 2.5", 9.5mm, no front access, 2.5-inch 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
- 12 lbs; 5.4kg (max configuration)
 Configuration/Setup Utility: F1 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 HC10 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, power and power state indication

 Preinstalled¹¹ OS: Windows® Vista Business Blade PC Edition
- ⇒ Supported¹¹ OS: Windows XP Professional 64-bit Edition

- 1 year parts and labor
 International Warranty Service³
 On site, 8 am-5 pm, Mon-Fri excluding holidays,

- Mon-Fri excluding holidays,
 next business day response time
 On site service upgrade
 options (in eligible locations):
 3 year IOR 9x5, NBD response
 (ServicePac® part num 44T6086)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 44T6087)
 3 year IOR 24x7, 4 hr avg response
 (ServicePac part num 44T6088)
 3 year IOR 24x7, 2 hr avg response
 (ServicePac part num 44T6089)
 Other ServicePac options at
 http://www.ibm.com/services/us/its/pdf/
 wamomxeu.pdf
- wamomxeu.pdf 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM® Type-model	Supported Blades		Switch modules std / max	Switch modules (type			nt Power modules std / max	Power Module Wattage	Blower modules std / max	Mechanical	Available date
	621**/HS40/JS20/JS21/ 21**/LS41**	0/8	0/4 Enet	, Fibre Ch, IB, OPM	and CPM	1/2	2/4	1300W	4/4	8U⁴ rack	Jul 2004
8730-2RX HS20/HS	521**/HS40/JS20/JS21/ 21**/LS41**	0/8	0/4 Enet	, Fibre Ch, IB, OPM	and CPM	1/2	2/4	1300W	4/4	8U rack	Mar 2006
Positioning Description	Provides common i	resources Fibre Cha	shared by b	vestment protection ade servers such as e switching and conn	s power.	svstem n	nánademe	nt. cablir	ia. ethern	et managei	ment and
Blade bays	Supports all blade	s and PCI	I/O Expans	ion Units / 8 hot-pluç	ggable se	rver bays	/ front ac	cess			
Switch modules	Std: none; max: fou	r / hot-swa	p / rear acce	ess / Gb Ethernet / F	ibre Chai	nnel / Infi	niBand / C	ptical Pa	ıss-thru /	Copper Pas	ss-thru
Advanced Management Module	Std: none; max: two communicates with ports: DB-15 analog shared by up to 8 b	integrated video por	'system mar t, Dual USE	ess / comprehensive nagement processor s 2.0, Serial(RJ45), 1	system i on each 0/100 eth	managen server bl ernet ren	nent function ade / com note mana	ons / Pov plete KV gement o	werPC®44 M switch connectio	10GP contro local function n port / all	oller / onality / ports
Management Modules	controller / commur connectivity / contro	nicates with Is external	n integrated : Telco alarm	ss (I/O ports) / comp system managemen panel / ports: DB-15 port / all ports share	t process analog v	or on eac video por	ch server l t, PS/2 ke	ent func plade / m yboard p	tions / Po nultiplexor port, PS/2	werPC® 40 for console 2 mouse po	1 rt, 10/100
Power modules	IEC320 C14 male a	appliance c	onnector / 1:	swap / front access / 300 watts / two std n nd media tray; two a rs 5 - 8 <i>All</i> : load bala	nodules (i	in slots 1	& 2) suppl	v power	to switch	bays 1 & 2	. both
Blower modules	Std: four; max: four (CFM) / front to bac			Cooling / hot-swap / lake	redundan	t / variabl	e speed /	rear acce	ess / 330	cubic ft per	min
Mechanical Optical / USB	EIA 19" rack mode 24X-10X-24X-8X ⁶ (els (8U ⁴) x Combo / Tv	20" deep / dvo USB port	designed for EIA-310 (Version 1.1) / all U	D (types SB interfa	A & C) a	nd UTF fo	ur post r	acks y up to ei	ght blade se	ervers /
Keyboard / mouse	None standard / pro	ovides KVI	A console su	by pressing CD selection port / requests for	keyboard	l, mouse,	and video	by pres	sing the o	display butto	on on
Ports	server blade front p Rear: keyboard (Ps Telco Alarm Panel Front: Two USB (Ve	\$/2), mous	, ,,	alog DB-15 graphics	(on stand	dard mgn	nt module)	/ no seri	ial or para	allel ports / I	DB15
Security	Login password for	remote co	nnection / s	ecure socket layer (ing security through	SSL) sec	urity for r	emote ma	nagemer	nt access	/	
Ethernet	Each of the dual int	egrated gi	gabit etherne	t controllers on each	blade se	erver conr	nects to an	optional	GB Ethe	ernet Switch	Module
Systems mgmt	Provides remote co blowers, power mo	nsole and dules / sys	mgmt / pow tem diagnos	er on/off blades/mod tic programs provide	lules / mo ed throug	onitors po h IBM Di	wer status rector soft	s, operati ware	ng syster	n, temperat	ure, disks,
System LED panel	System LED panel	provides p	ower-on, loc	ation, critical, major a	and mino	r alarm o	onditions				

IBM BladeCenter T Advanced Management Module	32R0835	IBM 1300W AC Power Supply Module (x2)	32R0834
McData EFCM Element Managerfor BladeCenter	32R1799	IBM APC Smart-UPS 5000RMB (208V)	37L6861
IBM BladeCenter HS20 Low Profile Handle (800Mhz blade)	25K8360	IBM T115 15" Flat Panel Color Monitor (black)	494215U
IBM BladeCenter HS40 Low Profile Handle	25K8359	BladeCenter PCI I/O Expansion Unit	25K8373
IBM BladeCenter T Filter	25K8376	IBM DS4000 EXP700 Fibre Channel Expansion Unit	17001RS
NetBAY42 Enterprise Rack Cabinet	930842S	IBM USB Floppy Drive	05K9276
Four Post Rack Mount Kit	32R0837	,	
Two Post Rack Mount Kit	32R0836	 Other options at ibm.com/products/us 	
		 Solutions available from IBM BladeCenter Alliance progra 	am partners

Front 2 •

ΡМ

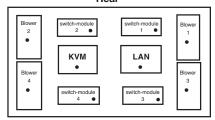
4

- Dimensions: H13.76"(8U) x W17.4" x D20"(front bezel to rear I/O); H349.5mmxW441.9mmxD508mm
- 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 enviroments
- Air Intake Filtering
- Predictive Failure Analysis® alerts blade server memory, processor(s), and optional disk(s) with IBM Director

Rear

PB-6

PB-7



Bay	Switch function
1 2 3 4	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 (Gb Ethernet/Fibre) Network connection 2 for all blade server I/O expansion options (Gb Ethernet/Fibre)

- 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, 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

IBM® Type-model	Blade Switch Servers modules Supported Blades Std / max std / max	Available date
		Jul 2004 1ar 2006
Positioning Description	Flexible, innovative design provides investment protection and reduces deployment costs for NEBS environment Provides common resources shared by blade servers such as power, system management, cabling, ethernet management expansion, extend a point of the protection of the protection of the protection of the protection of the protection of the protection of the protection of the protection of the protection of the protection of the protection and protection and protection and protection of the protection and pro	ent and
Blade bays	keyboard, video, mouse) Supports all blades HS20/HS40/JS20/JS21/LS20 and PCI I/O Expansion Blades / 8 hot-pluggable server bays / front ac	ccess
Switch modules	Std: none; max: four / hot-swap / rear access / Gb Ethernet / Fibre Channel / InfiniBand / Optical Pass-thru / Copper Pass-	-thru
Advanced Management Module	Std: none; max: two / hot-swap / rear access / comprehensive system management functions / PowerPC®440GP controlle communicates with integrated system management processor on each server blade / complete KVM switch local functional ports: DB-15 analog video port, Dual USB 2.0, Serial(RJ45), 10/100 ethernet remote management connection port / all poshared by up to 8 blade servers	ality /
Power modules	Std: two in bays 1 and 2, max: four / hot-swap / front access / input voltage range -48V - 60V (Min/Max) at 50/60Hz / two C14 male appliance connector / 1300 watts / two std modules (in slots 1 & 2) supply power to switch bays 1 & 2, both management modules, blade bays 1 - 4 and media tray; two addititional power modules provide full system redundent power to switch bays 3 & 4, and blade bays 5 - 8 All: load balancing / voltage-sensing / auto-restart	
Blower modules	Std: four; max: four / Calibrated Vectored Cooling / hot-swap / redundant / variable speed / rear access / 330 cubic ft per m (CFM) / front to back airflow; filtered air intake	nin
Mechanical Optical / USB	EIA 19" rack models (8U ⁴) x 20" deep / designed for EIA-310D and UTF Four Post Racks 24X-10X-24X-8X ⁶ Combo / Two USB port (Version 1.1) / all USB interface (types A & C) / front access / shared by up to ei blade servers / requests for optical cd and USB port(s) by pressing CD select button on server blade front panel	eight
Keyboard / mouse	None standard / provides KVM console support / requests for keyboard, mouse, and video by pressing the display button server blade front panel	on
Ports	Rear: keyboard (PS/2), mouse (PS/2), analog DB-15 graphics (on standard mgmt module) / no serial or parallel ports / DE Telco Alarm Panel Front: two USB (Version 1.1) /	B-15
Security	Login password for remote connection / secure socket layer (SSL) security for remote management access / recommended in rack environment providing security through lockable doors or other security measures	
Ethernet	Each of the dual integrated gigabit ethernet controllers on each blade servers connects to an optional 4-port GB Ethernet S Module	Switch
Systems mgmt System LED panel	Provides remote console and mgmt / power on/off blades/modules / monitors power status, operating system, temperature blowers, power modules / system diagnostic programs provided through IBM Director software System LED panel provides power-on, location, critical, major and minor alarm conditions	e, disks,

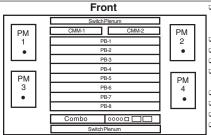
IBM BladeCenter T Advanced Management Module McData EFCM Element Managerfor BladeCenter IBM BladeCenter HS20 Low Profile Handle (800Mhz blade) IBM BladeCenter HS40 Low Profile Handle IBM BladeCenter T Filter NetBAY42 Enterprise Rack Cabinet Four Post Rack Mount Kit Two Post Rack Mount Kit

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

32R0833 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

Вау	Switch Function
1	Ethernet link 1 for all blade servers
2	Ethernet link 2 for all blade servers
3	Network connection 1 for all blade server
	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

⇒ 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

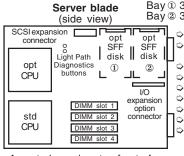
(ServicePac part num 41L2736) • 5 year IOR 9x5, 4 hr avg response (ServicePac part num 69P9207)

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 Processo	L2 or GHz¹ cache	FSB MHz	Memory	Disk	Disk controller	Disk bays	op	SCSI Supportional sto	port with or 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 8843-35y-35x 1 x 8843-45y-45x 1 x 8843-25y-25x 1 x 8843-05y-05x 1 x 8843-55y-55x 1 x 8843-E7y-E7x 1 x 8843-E9y-E9x 2 x	Xeon 3.0LV 2MB Xeon 3.2 2MB Xeon 3.2 2MB Xeon 3.4 2MB Xeon 3.6 2MB Xeon 3.2 2MB Xeon 2.8 2MB Xeon 2.8 2MB	800 800 800 800 800 800 800 800 800	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	2212212212212	Hot-swap Hot-swap Hot-swap Hot-swap Hot-swap Hot-swap Hot-swap Hot-swap Hot-swap Hot-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 Sep 2005
Processor(s)	1 or 2 x Intel® Xe technology / L1U	eon up	to 3.8GHz and M5U: F	with eature	800MHz fi	rontside b	nus ((FSB) / F	M64T / 1-	MB I 2	FCC Cac	he / Hyper-Thi	reading ation
SMP - L2 Cache Implementation	technology / L1U 2-way SMP / up Systemboard cor expansion option	ntains to connec	wo Intel 60- ctor, integra	essors 4-pin r ated gr	nicro-PGA aphics and	eed/cache ZIF socke I dual Giga	size ts, fo abit e	our DIMN ethernet	A slots, one	SCSI	expansion	connector, one	e I/O
Memory	512MB/1GB std A PC2-3200 400MH installed in match	/ 16GB Hz CL2 led pair	¹³ max / two 2.5 ECC DE s [a bank] /	o slots PR2-SI 2-way	used / two DRAM DIM memory i	slots avai Ms / four nterleave /	ilable 240 ′ dua	e / pin gold- al channel	connector I / Chipkill™	slots or	systemboa	ard / DIMMs m	ust be
SCSI disk controller	LSI Logic® 53C1 PCI-X / supports	020 SC RAID- 1	CSI controlle 1 & 1E mir	er / Si i r oring	ngle chani / One 16-	nel Ultra3: bit channe	20 S l (or	CSI con ne interna	troller (LV l) / <i>Internal</i>	D 320N channe	IB/sec) / on el: one 2-dro	planar / 64-bit pp 16-bit 68-pir	100MHz LVD SCSI
SCSI Disk bays	cable Two 2.5-inch Sn	nall Fo	rm Factor	(SFF)	Ultra320 ir	nternal fixe	d dis	sk bays /	Supports i	nax of	two hot-swa	ap 3.5" SL Ultra	a320 SCSI
External Storage	disks in optional Support for IBM	TotalSto	orage™ solu	utions	(including I	FAStT and	INA	S family	of products	ys Uitr	aszu-enabi	eu) /	
Mechanical Architecture/Chipset	7U ⁴ Blade / Supp Intel E7520 chip BUS / ICH5R sup interface	opons u	JSB (1.0) /	LSI 10)20 / Duai E	Broadcom	5/04	45 / 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	n 26K4816) rts PCI-X O off LPC
BUS slots	No PCI or PCI-X												
Network Interface CD / Diskette / USB Kybd / video / mouse Graphics controller	Dual gigabit 10/1 chip on blade / Pl adapter fault toler or Optical Passtr One connector 3 and 4 of Bladet and serial I/O exp None / requests I None / requests I SVGA / ATI® Rac	Center / Cansion	/ all blades cards plan	in a si ined fo	ngle Blade or future rel	Center mu lease ²⁰	ist co	ontain the	same exp	ansion	card (or no	expansion car	d) / ethernet
Systems Mgmt	iBM Baseboard on blade / provide event recording, a communication w	es syst alert ca	em and en pability / R	vironm S-485	iental móni interface fo	toring, or intermar		ement Xe Xe Xe	on3.0GHz/800 on3.2GHz/800 on3.4GHz/800)/2MBL2C)/2MBL2C)/2MBL2C	Cache EM64TP Eache EM64TP Cache EM64TP Cache EM64TP Cache EM64TP	ocUpg rocUpg rocUpg	25R8878 25R8877 25R8876 13N0660 13N0696
Diagnostics	Light Path Diagon on-board diagnos	nostics stics (vi	s™ (LED lig a PC-Docto	hts ind or in B	dicate failin BIOS)	g compon	ent)	and Xe	on 3.8GHz/800 2MB (2x256) P	/2MBL2C C2-3200E	ache EM64TPr CCDDR2		13N0697 73P3523
Security	No security intrus administrator pas unattended start	sword /	otection / Po / unattende	ower-c d boot	on passwor :/selectabl	rd / le boot /		2G 4G 8G	iB (2x2GB) PC iB (2x4GB) PC	2-3200 Cl 2-3200 Cl 2-3200 Cl	.3 ECC DDR2 F .3 ECC DDR2 F .3 ECC DDR2 F	RDIMM Kit RDIMM Kit	39M5818 39M5809 39M5812 30R5145
Software ship group	Documentation C	D, Bro	adcom CD								CSI2.5" SFF N SI2.5" SFF NF		40K1037 40K1038
Cooling Fans Power supply(s) Prerequisites	Uses cooling from sensors on each Uses power mod Monitor, keyboard disk, BladeCente	lule(s) II	n BladeCer	nter (tv	rbes 8677.	8852 and	872	anel Bla		Fibre Cha Gigabit Eth			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

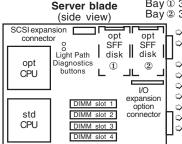
Predictive Failure Analysis® alerts on memory, processor(s), and optional disk(s) with IBM Director

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® Type-model Pi	rocessor	GHz ¹	L2 cache	FSB MHz	Memory	Disk	Disk controller	Diskbays			ort with r exp unit	slots x bays	Mech- anical	Ethernet	Available date
8843-0Ry-0Rx 1 8843-2Ry-2Rx 1 8843-3Ry-3Rx 1 8843-4Ry-4Rx 1 8843-5Ry-5Rx 1	x Xeon x Xeon x Xeon	3.2 3.4	2MB 2MB 2MB 2MB 2MB	800 800 800 800 800	1GB 1GB 1GB 1GB 1GB	None	Ultra320 Ultra320 Ultra320 Ultra320 Ultra320	2-fixed	2 Hot-s 2 Hot-s 2 Hot-s 2 Hot-s 2 Hot-s	swap swap swap swap swap	Ultra320 Ultra320 Ultra320 Ultra320 Ultra320	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 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
Processor(s) SMP - L2 Cache Implementation	techne 2-way Syste	ology y SMF mboai	/ <i>L1U,</i> P / up t rd cont	<i>J1U a</i> o two ains tv	<i>nd M5U:</i> Xeon Pro vo Intel 6	Feature cessors 04-pin r	800MHz 1 es Low Vo s (same sp micro-PGA raphics and	lage Proc eed/cache ZIF socke	essor fo size) / 2 ets, four	r redu 2MB DIMM	M64T / 1-2 liced heat of std and m I slots, one	ouput al ax / at SCSI	PECC Cac llowing great processor sexpansion	he / Hyper-Th tter rack popul peed connector, one	reading ation e I/O
Memory	512M PC2-3 install	IB/1GE 3200 4 led in r	3 std / 400MH matche	16GB z CL2 ed pair	¹³ max / tv .5 ECC D s [a bank]	vo slots DR2-S / 2-wa	used / two DRAM DIN y memory	o slots ava /IMs / four interleave	ilable / 240 pin / dual-ch	gold-d annel	connector / Chipkill™	slots on	systemboa	ard / DIMMs m	nust be
SCSI disk controller	PÇI-X	(/ sup	53C10 ports F	20 SC RAID-1	SI contro & 1E mi	ller / Si rroring	n gle chan / One 16	nel Ultra3 -bit channe	20 SCSI el (one in	l cont	roller (LVI) / Internal	D 320N channe	IB/sec) / on el: one 2-dro	planar / 64-bi p 16-bit 68-pi	t 100MHz n LVD SCSI
SCSI Disk bays External Storage	cable Two 2 disks Suppo	2.5-ind in opti	ch Sm ional S IBM T	all Fo l CSI S otalSto	rm Facto torage Ex orage™ so	r (SFF) pansior lutions	Ultra320 i 1 Unit (80-) (including	nternal fixe oin SCA-2 FAStT and	ed disk b connected NAS fa	ays / ors; a l amily c	Supports r II SCSI ba of products	max of t ys Ultra	two hot-swa a320-enabl	ap 3.5" SL Ultr ed) /	a320 SCSI
Mechanical Architecture/Chipse	BUS / interfa	/ ICH5 ace	R supp	oorts L	JSB (1.0)	/ LSI 10)20 / Dual	Broadcom	5704S /	Low I	Pin Count	ade to 2 PXH, Interfac	2000W pow ICH5R / PX e / NS PC8	er supply optio (H BUS suppo 7366 Super I/	on 26K4816) orts PCI-X O off LPC
BUS slots				•	•		odules or r				,	o+ NAAC	and DLIV I	war franctions	/
Network Interface CD / Diskette / USB Kybd / video / mous	chip c adapt or <i>Op</i> One c single plann None	on blacter faul tical F conne Blade ed for / requ	de / PC It tolera Passthr ector fo eCente future uests fo	cl-X 64 ance / ough I or I/O or must releas or CD-	-bit 100M Load bala <i>Module</i> (th expansio t contain t e ²⁰ ROM, disl	Hz / full ncing c ne seco n optic he sam kette dr	duplex / Vorteaming and controllem / require expansion (ive. and U	Vake on LA / one of the ler requires s same in on card (o SB port in	AN® / PX e dual co s a secon terface m r no expa BladeCe	E 2.0 ontrolle nd opt nodule ansior enter b	Boot agen ers connectional switch es in bays or card) / et	t / Alert ts to ar th or Ol 3 and 4 hernet	Standard F n optional, s PM) of BladeC and serial I/	ayer functions format 2.0 / Fa upported Ethe enter / all blad O expansion on front control panel	ilover, rnet switch es in a cards
Graphics controller	SVGA	á/ĂŤi	® Rade	eon [™] 7	7000M on	Planar	7 16MB SI	DRAM std	and max	x / 15	pin connec	ctor		ontrol panel	
Systems Mgmt	on bla event	ade / p recor	orovide ding, a	s syste lert ca	em and ei pability / F	nvironm RS-485	er (BMC) nental mon interface fement mod	itoring, or interma		nt Xed Xed Xed	on3.0GHz/800 on3.2GHz/800 on3.4GHz/800	/2MBL2C)/2MBL2C)/2MBL2C	Cache EM64TP Fache EM64TP Cache EM64TP Cache EM64TP Cache EM64TP	ocUpg rocUpg rocUpg	25R8878 25R8877 25R8876 13N0660 13N0696
Diagnostics	Light on-bo	Path ard di	Diagn agnost	ostics ics (vi	™ (LED li a PC-Doc	ights in tor in E	dicate failir BIOS)	ng compor	ent) and	d Xec		/2MBL2C	ache EM64TPr		13N0697 73P3523
Security	admir	nistraťo		word /			on passwo t / selectab			2GE 4GE	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	Docui	menta	tion CI	D, Bro	adcom Cl)				IBM	136.4GB 10K	Ultra320 S	CSI2.5" SFF N	HSHDD	40K1037 40K1038
Cooling Fans Power supply(s) Prerequisites	Monit	or, kev	yboard	, mous	se for seti	up; ethe	677, 8852 a enter modu ypes 8677, ernet switch I 8720, ope	n module,		Blace Blace	deCenterSCS deCenterSFF deCenterSFF	IStorage E Fibre Cha Gigabit Eth	Exp Unit		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 @ 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)

- Configuration/Setup Utility:F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 System Partition Boot: ALT+F1 at startup

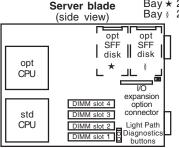
Network Boot: F12 at startup PXE Boot Agent Utility: Ctrl+S at startup Blade control panel on each HS20 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power

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)

- - 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 o	Disk controller	Disk bays	SCSI Suppo storage ex		slots x bays	Mech- anical	Ethernet	Available date
7981-2Fy 1 x Xeo 7981-3Fy 1 x Xeo	on™ 1.67 on 2.0	2MB 2MB	667 667	1GB 1GB	Open Open	SAS SAS	2-fixed 2-fixed	Not Supp Not Supp		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	ogy for re 2-way SN Systembo	duced p IP / up ard con	ower to two tains t	consump Xeon L\ vo Intel 4	otion and V Proce 178-pin	d heat ou ssors (sa micro-FCF	put allowi me speed PGA ZIF s	667 MHz fror age Process ng greater rad il/cache size) / sockets, four D gigabit etherne	k populati ' 2MB cac IMM slots	s (FSB) att) with ion the std a s, one SC	/ 2MB L2 EC Enhanced Inte and max / at pr CSI expansion of	C Shared Ad Il SpeedStep® occessor speed connector, one	vanced Technol-
Memory	1GB std /	16GB ¹³ ector sk	max /	two slots	used/foard/2	two slots a 2-way mer	available / mory inter	PC2-3200 400 deave / DIMMs	OMHz CL2	2.5 ECC installed	DDR2-SDRAM in matched pa	I RDIMMs / for irs [a bank] / c	ur 240 pin lual-channe
Disk controller Disk bays External Storage	Two 2.5-i	nch Sm	nall Fo	rm Fact	or (SFF	·) SAS int	ernal fixed	Dual Internal of d disk bays / 0 NAS family o)GB Std /	146.8GE	rts RAID-0 & 1 3 max	mirroring	
Mechanical Architecture/Chipset BUS slots	Intel E752 Bridge, du Bus Interfa	20 chips al GB E ace to L	set / M Etherne SI1064	CH (Men et and 1 F 1 and AT	nory Co PCI-X b I Radeo	ntroller Hu us segme n 7000M .	ıb) for higl nt for dau / Dual Bro	0, 8730, and 8 h-speed memo ghter card / IC adcom 5704S network-interfa	ory and PC CH-S supp S		ss / PXH-V BUS 3 (1.0), on-blade or)	S supports PC e service proc	I-E to PCI- essor, PCI-
Ethernet Network Interface DVD / Diskette / USB Kybd / video / mouse	chip on bla fault tolera Optical Pa One consisingle Bla planned fo None / rec	ade / PC ance / La assthrou nector f deCente or future quests f	CI-X 64 oad ba ugh Mo or I/O er mus releas or DVI or key	l-bit 133N alancing of bodule (the expansi at contain se ²⁰ D-ROM, of board, m	AHz / ful or teaming secon on option the saidiskette	Il duplex / ing / one of d controllo on / requ me expan drive, and	Wake on of the duater require ires same sion card	LAN® / PXE 2 all controllers of s a second op interface mod (or no expanse trin BladeCenter by press	OBoot agonnects to brional swidules in basion card) ter by presing the dispersion of	pent / Ale an optic at or C ays 3 an bethern ssing sel sisplay bu	AC and PHY la rt Standard For- onal, supported iPM) d 4 of BladeCe et and serial I/0 lect button on fr itton on front co	mat 2.0 / Failo Ethernet switenter / all blade Dexpansion of control pa	ver, adapte ch or es in a eards
Graphics controller Systems Mgmt	IBM Base	eboard provide ording, a	Mana es syst alert ca	gement em and apability /	Contro environ RS-48	ller (BMC mental mo 5 interface	b) / H8S2 onitoring, of for interi	std and max / 168 / management	Dual-Core li Dual-Core li 1GB (2x512	ntel Xeon Pi ntel Xeon Pi 2MB Kit) PC	rocessor LV 1.67 GH rocessor LV 2.0 GHz 2-3200 CL3 ECC DDR: 3200 CL3 ECC DDR:	ProcUpg DR2 SDRAM RDIM	25R888 25R888 M 39M581 39M580
Diagnostics	Light Pat on-board	h Diagr	nostic tics (v	s ™ (LED ia PC-Do	lights in	ndicate fa BIOS)	iling com	ponent) and	8GB (2x4G)	BKit) PC2-3	3200 CL3 ECC DDR: 3200 CL3 ECC DDR: F 2.5" SAS HDD		39M5812 30R5145 26K5776
Security	No securi administra unattende	ty intrus	sion prosword	otection /	Power	on passv		/	73GBNonh BladeCente IBMBladeC	not-swap SF er SFF Fibre enter SFF G	F2.5"SASHDD Channel Exp Card Sigabit Ethernet Expa		26K5777 26K4841 39R8624 26K4842
Software ship group	Documen	tation C	D, Bro	adcom (CD				1		n/pc/us/accessories	-	
Cooling Fans Power supply(s) Prerequisites	sensors o	n each er mod eyboard	procesule(s)	ssor and n Blade(se for se	BladeC Center (etup; eth	enter mod types 867 nernet swi	dules and 7, 8720, tch modu	352) / thermal I front panel 8730, 8852) Ie, g system	Su ioi option		p.s. day days 000011100		



- 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), and optional disk(s) with IBM Director

Maximum internal disk capacity for each HS20 LV

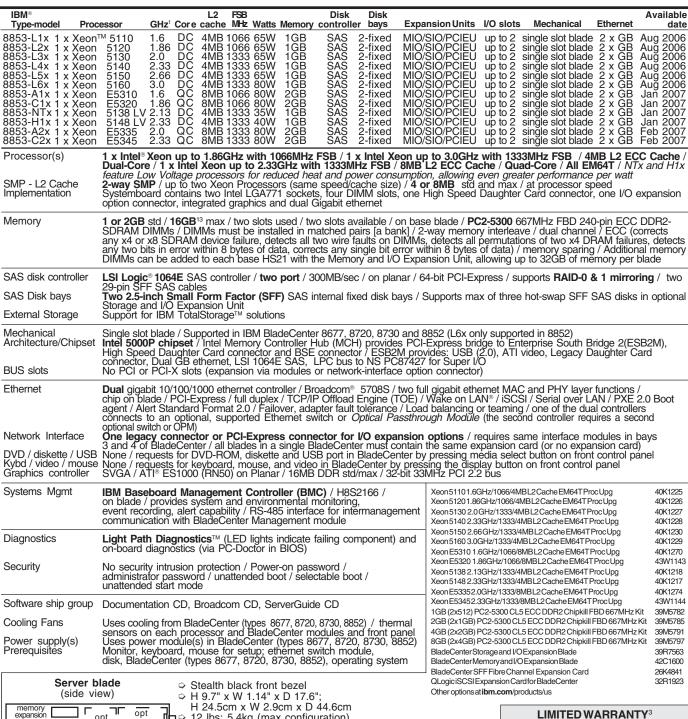
blade_server13: 146GB with two 73GB SAS disks

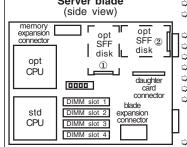
LIMITED WARRANTY3

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





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

- 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 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

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

Maximum internal disk capacity for each HS21 blade server13: 292GB with two 146GB SAS disks (with BladeCenter Storage Expansion Unit 3 x 146GB for total of 730GB)

- 3 year parts and labor
- 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):

 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

IBM® Type-model Prod	essor	GHz ¹	Core	L2 cache	FSB MHz	Watts	Memory	Disk controlle	Disk r bays	Expan	sion Units	I/O slots	Mechanical	Ethernet	Available date
8853-J1x 1 x Xeon 8853-J2x 1 x Xeon 8853-C3x 1 x Xeon 8853-C4x 1 x Xeon	L5320 X5355	1.6 1.86 2.66 3.0	QC QC	8MB 8MB 8MB 8MB	1066 1333	50W 120W	2GB 2GB	SAS SAS SAS SAS	2-fixed 2-fixed	MIO/S MIO/S	IO/PCIEU IO/PCIEU IO/PCIEU IO/PCIEU	up to 2 up to 2	single slot blade single slot blade single slot blade single slot blade	2 x GB 2 x GB	Apr 2007 Apr 2007 Apr 2007 Sep 2007
Processor(s)	Cache /	Quad	l-Core	All \	EM64	T / J1	x and z	Iz FSB / I2x featur	1 x Inte e Low V	l Xeon 'oltage	up to 3.0 processor	GHz with	h 1333MHz FSI uced heat and μ	B / 8MB L	.2 ECC sumption,
SMP - L2 Cache Implementation	allowing 2-way SI Systemb expansio	MP / i	ŭp to contai	two Xe ns two	on P	rocéss LGA7	ors (sa 71 sock	me speed dets, four ics and d	d/cache s DIMM s ual Giga	size) / { lots, on bit ethe	BMB std e High Sp ernet	and max beed Dau	/ at processor sighter Card con	speed nector, on	e I/O
Memory	DIMMs / SDRAM (in error w	DIMM device vithin 8	s mus failure bytes	st be in: e, dete s of dat	stallec cts all a, cor	l in ma two w rects a	itched pa ire faults ny single	airs [a bar s on DIMN e bit error	nk] / 2-wa ls, detect within 8	ay memots all people bytes of	ory interlea rmutations f data) / m	ave / dual of two x4 emory spa	Hz FBD 240-pin channel / ECC (DRAM failures, aring / Additional f memory per bla	corrects ar detects an memory D	ny x4 or x8 ny two bits
SAS disk controller					troller	/ two	port / 30	00MB/sec	/ on plar	nar / 64	-bit PCI-Ex	rpress / sı	upports RAID-0	& 1 mirror	ing / two
SAS Disk bays	29-pin SF Two 2.5- Storage a	inch S	Small	Form		r (SFF) SAS ir	nternal fixe	ed disk b	ays / Sı	upports ma	ax of three	hot-swap SFF	SAS disks	in optional
External Storage	Support f	for IBN	/I Tota	ılStoraç	ge™ s	olution	s								
Mechanical Architecture/Chipset	Intel 500 High Spe	0P ch ed Da	ipset luahte	∵Intel I r Card	Memo conne	ry Cor	ntroller H nd BSE	lub (MCH connecto) provide r / ESB2l	s PCI-E M provi	xprèss bri des: USB	dge to En (2.0), ATI	rted in 8852) Iterprise South B video, Legacy D	Bridge 2(ES Daughter Ca	B2M), ard
BUS slots	No PCI o	r, Dua or PCI-	X slot	etnerne s (expa	t, LSI ansior	1064E 1 via m	odules	or network	o NS PC c-interfac	e option	or Super I/ connecto	r)			
Ethernet	chip on b	lade / lert Sta to an	PCI-E andaro optio	xpress d Forma nal, su	/ full o at 2.0	duplex / Failo	/ TCP/IF ver, ada	P Offload I pter fault t	Engine (T olerance	OE) / V / Load	Vake on L/ balancing	AN® / iSC or teamin	C and PHY layer SI / Serial over L g / one of the du ond controller req	AN / PXE 2 al controlle:	2.0 Boot rs
Network Interface	One lega	acy co	onnec	tor or	PCI-E	xpres	s conne	ector for l	I/O expa	nsion o	options / r	equires s	ame interface m card (or no expa	odules in b	pays
DVD / diskette / USB Kybd / video / mouse Graphics controller	None / re	eauests	s for D	VD-RO	DM. di	skette	and US	B port in I	BladeCer	าter bv เ	oressina m	rėdia sele	ct button on fron	t control pa	inel
Systems Mgmt	on blade	/ provi	ides s , alert	ystem capab	and e ility / F	nvironr RS-485	mental n 5 interfac	C) / H8S2 nonitoring, ce for inte nodule		ment	XeonL5320 1 XeonX5355 2 XeonX5365 3	.86GHz/1066 2.66GHz/1333 3.0GHz/1333	BMBL2 Cache EM64T 5/8MBL2 Cache EM647 3/8MBL2 Cache EM64 /8MBL2 Cache EM647	FProcUpg TProcUpg ProcUpg	43W1145 43W6084 43W6088 43W6133
Diagnostics	Light Par on-board	th Dia diagn	ignos ostics	tics ™ ((via P	LED I	ights in	ndicate f BIOS)	failing con	nponent)	and	2GB (2x1GB) 4GB (2x2GB)	PC2-5300 CI PC2-5300 CI	5 ECC DDR2 Chipkill F L5 ECC DDR2 Chipkill L5 ECC DDR2 Chipkill	FBD 667MHz I FBD 667MHz I	Kit 39M5785 Kit 39M5791
										1.3	8GB (2x4GB)	PC2-5300 CI	5 FCC DDB2 Chinkill	FBD 667MHz I	Kit 39M5797

unattended start mode Software ship group Documentation CD, Broadcom CD, ServerGuide CD Uses cooling from BladeCenter (types 8677, 8720,8730, 8852**) / thermal sensors on each processor and BladeCenter modules and front panel Uses power module(s) in BladeCenter (types 8677, 8720, 8730, 8852**) Monitor, keyboard, mouse for setup; ethernet switch module, disk, BladeCenter (types 8677, 8720, 8730, 8852**), operating system Cooling Fans Power supply(s) Prerequisites

No security intrusion protection / Power-on password

administrator password / unattended boot / selectable boot /

8GB (2x4GB) PC2-5300 CL5 ECC DDR2 Chipkill FBD 667MHz Kit 39M5797 BladeCenterStorage and I/O Expansion Blade 39R7563 BladeCenterMemoryandI/OExpansionBlade 42C1600 BladeCenterSFFFibreChannel Expansion Card 26K4841 QLogic iSCSI Expansion Card for BladeCenter Other options at ibm.com/products/us

Server blade (side view) memory expansion SFF ② connecto SĖF disk disk L opt (1) CPU L daughter 0000 card DIMM slot 1 blade expansion connector DIMM slot 2 CPU DIMM slot 3 DIMM slot 4

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

Power good

Security

- Blade location
- Over temperature
- Information

General fault

Stealth black front bezel

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 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

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

292GB with two 146GB SAS disks (with BladeCenter Storage Expansion Unit 3 x 146GB for total of 730GB)

Maximum internal disk capacity for each HS21 blade server13:

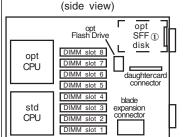
- 3 year parts and labor
- International Warranty Service³
- On site, 8 am-5 pm, Mon-Friexcluding holidays, next business day response time

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

 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





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

- Stealth black front bezelH 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 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

Bay 1 2.5", no front access, optional 2.5-inch SFF SAS disk

Maximum internal disk capacity for each HS21 XM blade server13: 146GB with one SAS disk (with BladeCenter Storage Expansion Unit 3 x 146GB for total of 438GB)

LIMITED WARRANTY³

3 year parts and labor

Other options at ibm.com/products/us/

- 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):

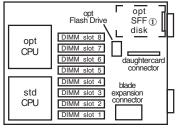
 4 year IOR 9x5, NBD response
 (ServicePac® part num 69P9520)

 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

IBM®				L2	FSB			Disk	Disk					Available
Type-model F	Processor	GHz ¹	Core	cache	MHz	Watts	Memory	controlle	r bays	Expansion Units	I/O slots	Mechanical	Ethernet	date
7995-J1x 1 x X 7995-J2x 1 x X 7995-J3x 1 x X	(eon L5320	1.8	QC	8MB 8MB 8MB	1333	50W	1ĞB	SAS SAS SAS	1-fixed 1-fixed 1-fixed	SIO SIO SIO	up to 2	single slot blade single slot blade single slot blade	2 x Gb	Sep 2007

Processor(s)	1 x Intel® Xeon up to 2.0GHz with 1333MHz FSB / 8MB L2 ECC Cad	che / Quad-Core / All EM64T							
SMP - L2 Cache Implementation	2-way SMP / up to two Xeon Processors (same speed/cache size) / 8M Systemboard contains two Intel LGA771 sockets, eight DIMM slots, one option connector, integrated graphics and dual Gigabit ethernet	B L2 std and max / at processor speed High Speed Daughter Card connector, one I/O expansion							
Memory	1 GB std / 32GB ¹³ max / two slots used / six slots available / on base bla DIMMs / DIMMs must be installed in matched pairs [a bank] / 2-way mer SDRAM device failure, detects all two bit faults on DIMMs, detects all per error within 8 bytes of data, corrects any single bit error within 8 bytes of	mory interleave / dual channel / ECC (corrects any x4 or x8 mutations of two x4 DRAM failures, detects any two bits in							
SAS disk controller SAS Disk bays	LSI Logic® 1064E SAS controller / two port / 300MB/sec / on planar / 6 One 2.5-inch Small Form Factor (SFF) SAS internal fixed disk bays / S Storage and I/O Evanging Light / supports PAID 0. 1 and 5	4-bit PCI-Express / one 29-pin SFF SAS cable Supports max of three hot-swap SFF SAS disks in optional							
Flash Storage External Storage	Storage and I/O Expansion Unit / supports RAID 0, 1 and 5 Dedicated USB-based slot on system planar for optional USB 2.0 flash memory card (IBM 4 or 8GB Modular Flash Drive) Support for IBM TotalStorage™ solutions								
Mechanical Architecture/Chipset	High Speed Daughter Card connector and BSE connector / ESB2M pro- connector, Dual GB ethernet, LSI 1064E SAS. LPC bus to NS PC87427	vidès: USB (2.0), ATI video, Legacy Daughter Card							
BUS slots	No PCI or PCI-X slots (expansion via modules or network-interface option	on connector)							
Ethernet	Dual gigabit ethernet controller / Broadcom® 5708S / two full gigabit ethernet MAC and PHY layer functions / chip on blade / PCI-Express / full duplex / TCP/IP Offload Engine (TOE) / Wake on LAN® / iSCSI / Serial over LAN / PXE 2.0 Boot agent / Alert Standard Format 2.0 / Failover, adapter fault tolerance / Load balancing or teaming / one of the dual controllers connects to an optional, supported Ethernet switch or <i>Optical Passthrough Module</i> (the second controller requires a second optional switch or OPM)								
Network Interface	One legacy connector or PCI-Express connector for I/O expansion 3 and 4 of BladeCenter / all blades in a single BladeCenter must contain	options / requires same interface modules in bays							
DVD / diskette / USB Kybd / video / mouse Graphics controller	None / requests for DVD-ROM, diskette and USB port in BladeCenter by None / requests for DVD-ROM, diskette and USB port in BladeCenter by None / requests for keyboard, mouse, and video in BladeCenter by press SVGA / ATI® ES1000 (RN50) on Planar / 16MB DDR std/max / 32-bit 33	r pressing media select button on front control panel sing the display button on front control panel							
Systems Mgmt	IBM Baseboard Management Controller (BMC) / H8S2166 / on blade / provides system and environmental monitoring, event recording, alert capability / RS-485 interface for intermanagement communication with BladeCenter Management module	XeonL5310 1.6GHz/1333/8MBL2 Cache EM64T Proc Upg 42C0571 XeonL5320 1.8GHz/1333/8MBL2 Cache EM64T Proc Upg 43W3917 XeonL5335 2.0GHz/1333/8MBL2 Cache EM64T Proc Upg 43W3944 1GB (2x512) PC2-5300 CL5 ECC DDR2 Chipkill FBD 667MHz Kit 39M5782							
Diagnostics	Light Path Diagnostics ™ (LED lights indicate failing component) and on-board diagnostics (via PC-Doctor in BIOS)	26B (2x16B) PC2-5300 CL5 ECC DDR2 Chipkill FBD 667MHz kit 39M5785 4GB (2x2GB) PC2-5300 CL5 ECC DDR2 Chipkill FBD 667MHz kit 39M5791 8GB (2x4GB) PC2-5300 CL5 ECC DDR2 Chipkill FBD 667MHz kit 39M5797							
Security	No security intrusion protection / Power-on password / administrator password / unattended boot / selectable boot / unattended start mode	BladeCenterStorage and I/O Expansion Blade 39R7563 BladeCenter SFF Fibre Channel Expansion Card 26K4841 QLogiciSCSI Expansion Cardfor BladeCenter 32R1923 IBM 4GB Modular Flash Device 39R8697							
Software ship group Cooling Fans Power supply(s) Prerequisites	Documentation CD, Broadcom CD, ServerGuide CD Uses cooling from BladeCenter chassis / thermal sensors on each processor and BladeCenter modules and front panel Uses power module(s) in BladeCenter chassis Monitor, keyboard, mouse for setup; ethernet switch module, disk, BladeCenter chassis, operating system	IBM8GB Modular Flash Device 43W3934 Other options at ibm.com/products/us/							





- 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

- ⇒ System Partition Door. ALTHIT 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

Bay $\ensuremath{\text{@}}\xspace$ 2.5", no front access, optional 2.5-inch SFF SAS disk

Maximum internal disk capacity for each HS21 XM blade server13: 146GB with one SAS disk (with BladeCenter Storage Expansion Unit 3 x 146GB for total of 438GB)

- 3 year parts and labor
- □ 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):

 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

Qty x Processor

L2 GHz¹ Core cache

IBM® Type-model

Ethernet

NEBS

Mechanical

Available

date

Type-model Qty X PTC	JUESSUI	GIIZ	COIC	Cacile	WEITIOTY	DISK	Days	expansion ui	III Abays	Mechanica	Elliernet	INEDS	uate
8842-RTU 2 x Powe	rPC 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	:he vith tw ontain:	o PowerP two IBM	C Process	ors (san	ne spee	d/cache size) s soldered to p		tions environn		ntroller, F	-ibre
Memory	2GB std (DIMM gol	2x1G d-con	B) / 8 0 necto	GB ¹³ max r slots / Dll	/ 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 I 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 * 4S / NS P	131 Hyper 1087417 St	Transpo uper I/O	off LPC	nel and PCI-X interface	Bridge / A	AMD 8111 Sout	thbridge prov	riding US	3B1.1 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 Gigabit 10/100/1000 ethernet controller / Broadcom® 5704S / two full gigabit ethernet MAC and PHY layer functions / chip on blade / PCI-X 64-bit 133MHz / full duplex / Wake on LAN® / PXE 2.0 Boot agent / Alert Standard Format 2.0 / Failover, adapter fault tolerance / Load balancing or teaming / one of the dual controllers connects to an optional, supported Ethernet switch or Optical Passthrough Module (the second controller requires a second optional switch or OPM)												
Network Interface	One conn BladeCen	ector iter / a	for I/C all blac) expansio les in a sir	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	d 4 of
DVD / Diskette / USB Kybd / video / mouse Graphics controller	None / re None None	quests	s for D)VD-ROM,	diskette dr	ive, and	USB p	ort in BladeCei	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	essor / 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 //anagement	2GB PC-270 IBM BladeCei IBM BladeCe	0 ECC CL 2.5 DDR R 0 ECC CL 2.5 DDR R nterT Advanced Mana nterT Chassis (AC Ve	DIMM agement Module ersion)		39M5839 39M5843 32R0835 87301RX
Diagnostics	Light Pat on-board	h Dia diagn	gnos ostics	t ics (LED (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

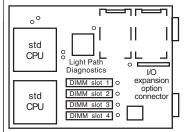
bays

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

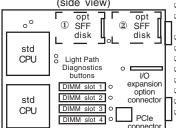
- RTU 2-core 250W
 Configuration/Setup Utility:F1 at startup
 Diagnostics (PC-Doctor™): F2 at startup
 System Partition Boot: ALT+F1 at startup
 Network Boot: F12 at startup
 PXE Boot Agent Utility: Ctrl+S at startup
 Blade control panel on each JS20 blade server provides media select button, keyboard/mouse/video 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

LIMITED WARRANTY3

- 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

	L2 cessor GHz ¹ Core cache	Memory	Disk co		bays	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 8844-41U 2 x PPC 9	70MP 2.7* SC 1MB 2 70MP 2.5* DC 2x1MB 2 70MP 2.7* SC 1MB 2 70MP 2.5* DC 2x1MB 2 70MP 2.3* DC 2x1MB 2	ex512MB 400MHz ex1GB 400MHz ex1GB 533MHz ex2GB 533MHz ex1GB 533MHz	Open Open 1x73GB 1x73GB Open	SAS 2 SAS 2 SAS 2 SAS 2	2 Fixed 2 Fixed 2 Fixed 2 Fixed 2 Fixed	3 Hot Swap SAS*** 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 9.5mm blade	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	Mar 2006 Mar 2006 Aug 2006 Aug 2006 Oct 2006
Positioning	The IBM BladeCenter JSz server consolidation. With Linux partitions, saving tin maintenance costs. The d accelerator. For the need 533MHz memory and inte	ne and money on s IS21 is also optimiz s of SMB and HPC	etup and d ed for scie . the JS21	epioyme entific res Expres	ent, or m search ir s models	nigrating older UNIX n life sciences and s (E3U. E5U) are a	. workloads to Bl seismic analysis	adeCenter to with its integr	reduce ated vector
Processor(s) L2 Cache SMP support Implementation	2 x IBM PowerPC [™] 9701 1MB L2 Cache per core 2-core or 4-core SMP / t Server blade contains two Gigabit Ethernet, Fibre Ch	wo PowerPC Proce	essors (sin croprocess	gle core	or dual lered to	core) planar, four DIMM	slots, 17X PCI E	xpress, SAS ual Gigabit eth	controller, nernet
Memory	1, 2 or 4GB std / 16GB ¹³ 4200 533MHz CL4 ECC bank] and banks must ma	max / two slots use DDR2-SDRAM DIN atch in speed (MHz	ed / two slo MMs / four), though r	ots availa DIMM g not size	able / PC old-conr [/] 2-way r	2-3200 400MHz C nector slots / DIMM memory interleave	L3 ECC DDR2-3 s must be install dual-channel /	SDRAM DIMNed in matched Chipkill with x	As or PC2- d pairs [a 4 DIMMs
SAS Disk controller SAS Disk bays External Storage	One integrated / IBM SAS Supports max of two non- Support for IBM TotalStor	S controller / two po hot-swap 2.5" / sm age™ solutions (inc	rt / on plan all form fac luding FAS	nar / 64-k ctor (SFF StT and	oit 133M F) SAS o NAS far	Hz PCI-X / support drives / 3.0GB/s / E nily of products)	s RAID-0 & 1 3X and E5X incl	ude one 73GI	3 drive std
Mechanical Architecture/Chipset BUS slots	Single-wide Blade / Supporting 18M U4 Northbridge / But AMD 8111 Southbridge No PCI or PCI-X slots (expense)	orted in IBM BladeC CM5780 PCI Expre providing USB1.1 a	enter, IBM ess, PCI-X and Video	BladeC Bridge / NS PC	enter T* and Hy 87427	* and IBM BladeCe perTransport Tun ion allo off LPC in	nter H nel for PCle and nterface	d Dual Gigabi	t Ethernet /
Ethernet Controllers Network Interface	Dual Gigabit 10/100/100/chip on blade / PCI-X 64-t 2.0 / Failover, adapter fau Ethernet switch or <i>Optica</i> One legacy connector or BladeCenter / all blades in	D ethernet controller of 133MHz / full dup It tolerance / Load to It Passthrough Mod PCI-Express conne	r / Broadc blex / Wake balancing c bule (the se ector for I/C	om® 578 e on LAI or teamir cond co D expans	30 / two N® / Seriang / one ntroller r	full gigabit ethernet al over LAN / PXE : of the dual controlle equires a second c ons / requires sam	MAC and PHY 2.0 Boot agent / ers connects to a ptional switch o e interface modu r no expansion o	layer function Alert Standard n optional, su OPM) ales in bays 3	s / I Format pported and 4 of
DVD / Diskette / USB Kybd / video / mouse Graphics controller	None / requests for DVD- None / requests for keybo SVGA / ATI® RN50 on Pla	ROM, diskette drive pard, mouse, and vi anar / 32MB DDR S	e, and USE deo in Bla SDRAM sto	B port in deCented and ma	BladeCe er by pre ax / 15 p	enter by pressing m ssing the display buin connector	nedia select butto utton on front co	on on front co ntrol panel	ntrol panel
Systems Mgmt	IBM Integrated Service In provides system and envicapability / RS-485 interfaction with BladeCenter Manage IBM PowerExecutive™ / In the Interfaction of the IBM PowerExecutive™ / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExecutive / In the IBM PowerExec	ronmental monitorii	na. event r	recordina	a. alert		0 ECC CL4 DDR2 RD 0 ECC CL4 DDR2 RD 0 ECC CL4 DDR2 RD 200 ECC CL3 DDR2 I	MM Kit MM Kit MM Kit RDIMM Kit	41Y2707 41Y2711 41Y2715 41Y2703 39M5821
Diagnostics Security	Light Path Diagnostics on-board diagnostics (via No security intrusion prote administrator password / unattended start mode	ection / Power-on p	assword /) and	2GB (2x1GB) PC2-320 4GB (2x2GB) PC2-320 8GB (2x4GB) PC2-320 IBM 36GB 10K SAS 2.5 IBM 73GB 10K SAS 2.5	0 ECC CL3 DDR2 RD 0 ECC CL3 DDR2 RD "SFF NHS HDD "SFF NHS HDD	MM Kit IMM Kit	39M5809 39M5812 41Y2703 26K5776 26K5777
Software ship group Cooling Fans Power supply(s) Prerequisites	Documentation CD, IBM Uses cooling from BladeC sensors on each process Uses power module(s) in Monitor, keyboard, mouse disk, BladeCenter (types	or and BladeCenter BladeCenter (types e for setup; etherne	r modules § 8677, 889 t switch m	and fror 52 and 8 odule,	nt panel 3720)	QLogic 4GB SFF Fibre BladeCenter SFF Gigab Cisco InfiniBand Expan. Myrinet Expansion Carc Cisco 4X InfiniBand Sw Cisco 4X InfiniBand Exp Other options at ibm.c	it Ethernet Expansion C sion Card for Blade Cer I for Blade Center itch Module for Blade C pansion Card for Blade	ard for BladeCente tter Center Center	
Server b (side vi	lade Baý ② 3.5",9.5 ew)	mm, no front accomm, no front accomm, no front accomb black front bezen x W 1.14" x D 17	ess, option	nal 2.5-					



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

- H 24.5cm x W 2.9cm x D 47.5cm.

 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***)

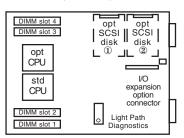
*Processor frequency is dependent upon which BladeCenter chassis the JS21 is installed: BladeCenter (8677): 31x, 2.6GHz; 51x, 2.3GHz BladeCenter H (8852): 31x, 2.7GHz; 51x, 2.5GHz BladeCenter T (8720): 31x, 2.6GHz; 51x, 2.3GHz BladeCenter T (8720): 31x, 2.6GHz; 51x, 2.3GHz **BladeCenter T NEBS compliance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

LIMITED WARRANTY3

- - 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®		L2	Disk	Disk		Slots Mech-	Required	Available
Type-model Qty x Pro		Memory Cache	Disk controller		SCSI support	x bays anical	chassis	date
	eron 270 2.0 GHz/DC eron 275 2.2 GHz/DC	1GB 2MB 1GB 2MB	OMB SCSI		wo 2.5-inch SFF wo 2.5-inch SFF	0x2 7U ⁴ blade 0x2 7U blade	 BladeCenter BladeCenter 	
8850-72U 1 x Opte	eron 250 2.4 GHz/SC	1GB 1MB	OMB SCSI	2 fixed T	wo 2.5-inch SFF	0x2 7U blade	BladeCenter	Mar 2006
	eron 280 2.4 GHz/DC eron 252 2.6 GHz/SC	1GB 2MB 2GB 1MB	OMB SCSI		wo 2.5-inch SFF	0x2 7U blade 0x2 7U blade	BladeCenter	
	eron 254 2.8 GHz/SC	2GB 1MB			wo 2.5-inch SFF wo 2.5-inch SFF	0x2 7U blade	BladeCenter BladeCenter	
Positioning	Ultra-dense, low po	ower, full per	formance mod	dular com	puting platform	with superior I	performance	
Processor(s) L2/L3 Cache	Ultra-dense, low po Up to 2 x AMD® Optero 1MB L2 Cache per c	on / 280 Dual Co	ore 2.4GHz / 254	1 Single Cor	e 2.8ĞHz / simulta	neously supports 3	32-bit and 64-bit	computing
SMP support	2-way SIMP / IID to the	wo Opteron pr	ocessors isame	sneed/ca	che size)			
Implementation	Server blade contains graphics and dual eth	s two AMD 940 pernet) micro PGA ZI	F sockets,	four memory DIM	IM slots, two SC	SI connectors,	integrated
Manaami	<u> </u>				la.			
Memory	1 or 2GB std / 16GB PC3200 266MHz reg	max 7 two sid istered 184-pin	ECC DDR VL	iots availad P SDRAM	ne RDIMMs / four D	IMM gold-connec	tor slots on sys	stemboard
	DIMMs must be insta	lled in matched	pairs [a bank]	/ 2-way me	emory interleave /	dual channel	hit arrare on e	ama ahin
	DIMMs must be insta Error Checking and and detects 2- throug	h 8-bit errors	contained in two	chips)	ii Cilipkiii (Coll	ecis 1, 2, 3, 01 4	-bit ellois oil s	ame cmp
IDE controller/bays	None							
SCSI disk controller	One integrated / LSI on planar / supports	Logic® 53C102	20 Ultra320 SC	SI controlle	er [LVD 320MB/se	ec] / 64-bit 133M	Hz PCI-X Bus	B /
	drives / one 16-bit ir	nternal channe	I / no cables or	external	onnector)	01-3Wap 2.3 / 31	nan ionn iacioi	(311)
SCSI disk bays	drives / one 16-bit in Supports max of two 40-pin SCA-2 connec	not hot-swap ctors / all SCS	2.5" SL Ultra32 31 bavs Ultra32	20 SCSI dis 2 0-enabled	sks I			
Other controllers	Support for SFF or le Support for IBM Total	egacy Ethernet	or Fibre Chan	nel I/O car	rds	araduata)		
External storage								
Mechanical	Supported in IBM Black AMD 8131 PCI-X Br	deCenter / Blad idge Chin pro	deCenter suppo	rted in 28"	deep racks such	as the IBM NetBA	Y™ Rack prod	ucts hus B for
Alcilitecture / Chipsets	PCI-X expansion slot HyperTransport clock	ts) / AMD 811	1 HyperTransp	ort Bridge	e Chip supporting	g a 200 Mhz dou	ble-pumped	DU3 D 101
	HyperTransport clock Super I/O chip	(PCI, SMBus	, USB, LPC to	BIOS and	Super I/O) / Nati	onal Semiconduc	ctor® PC87417	
Bus slots	No PCI or PCI-X slot	ts (expansion	via modules or	network-ir	nterface option co	nnector)		
Ethernet controllers	Two gigabit Ethernet co							
	/ Alert Standard Format	t 1.0 / teaming a h Module (the	ınd failover suppo second controll	ort / one of t	the dual controllers	connects to an op	tional, supporte	d Ethernet
Network-interface	Switch or Passthrough One connector for I 3 and 4 of BladeCent	O expansion	option (Fibre	Channel Ex	(pansion Card) /	requires same in	terface module:	s in bays
	and 4 of BladeCent card) / ethernet and s	er / all blades i serial I/O expar	in a single Blad nsion cards plai	eCenter munned for fur	ust contain the sa ture release ²⁰	me expansion ca	rd (or no expar	ision
DVD / diskette / USB	card) / ethernet and s None / requests for DV	D-ROM, diskett	e drive, and USE	BladeCont	deCenter by pressi	ng media select bu	utton on front co	ntrol panel
Kybd / video / mouse Graphics	None / requests for k SVGA / ATI® Radeon	Mobility 7000N	// / on blade / 1	6MB SDRA	M std/max / 32-b	it 33MHz PCI 2.2	bus	pariei
Systems mgmt	IBM integrated syst							
e jetomo mgm	H8S2148 on blade	/ provides syst	tem and enviro	nmental	Low Power Opter	on 250 Processor U on 252 Processor U	ograde	25R8892 25R8893
	monitoring, event rec for communication wi	ith BladeCente	apability / HS-4 er management	module		on 254 Processor U on 270 Processor U		25R8937 25R8894
Diagnostics	Light Path Diagnos				Low Power Opter	on 275 Processor U	ograde	25R8895
Diagnostics	component) and on-t	poard diagnost	tics (via PC-Doc	tor in BIOS) Low Power Opter 2GB(2x1GBkit) DI	on 280 Processor U DR-SDRAMVLPRDII	ograde VIM	25R8896 39M5849
Security	Power-on password				4GB (2x2GBkit) DI	DR-SDRAMVLP RDII	MM	39M5852
Coounty	unattended boot / sel			ırt mode	IBM 36.4GB SFF	DR-SDRAMVLPRDII Non-hot-swap 10K	SCSIHD	41Y2756 40K1037
Software ship group	Documentation CD, I	BM Director C	D, Device Driv	er CD	IBM 73.4GB SFF	Non-hot-swap 10K 20 Low Profile Hand	SCSIHD	40K1038 25R7748
	Uses cooling from Blad				BladeCenter SC	SI Storage Exp Unit		26K4817
Cooling fans	thermal sensors on each	ch processor ar	nd BladeCenter r	nodules		hannel Expansion (Ethernet Expansior		26K4841 26K4842
Power supply	and front panel Uses power module(s)	in BladeCenter	(types 8677 88	52 and 8720	IBM HS20 Fibre (Channel Expansion		48P7061
Prerequisites	Monitór, kevboard, mói	use for setup: e	thernet switch m	odule.	' I	ibm.com/products/	/us/	
	disk, BladeCenter (type	es 86//, 8852 a	na 8/20), opera	ung system				

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
 - (ServicePac part num 41C5909)
 5 year IOR 9x5, 4 hr avg response
 - (ServicePacpartnum41C5910)
 5 year IOR 24x7, 4 hr avg response
 (ServicePacpartnum41C5911)
 - 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	rocessor1	Speed/Core	L2 Cache	Watts	Memory	Disk controll	Disk er bays	Expansion Uni	ts 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 7971-E1U 2 x Opter 7971-2TU 1 x Opter 7971-2TU 1 x Opter 7971-61U 1 x Opter	on 2218 on 2216HE on 2210HE on 2210HE	2.0GHz/DC 2.4GHz/DC 2.6GHz/DC 2.4GHz/DC 1.8GHz/DC 1.8GHz/DC	2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB	68W 95W 68W 95W 95W 68W 45W 95W 68W	1GB 1GB 2GB 2GB 4GB 1GB 1GB 2GB 2GB	SAS SAS SAS SAS SAS SAS SAS	1 fixed 1 fixed 1 fixed 1 fixed 1 fixed 1 fixed 1 fixed 1 fixed 1 fixed	SIO/PCIEU SIO/PCIEU SIO/PCIEU SIO/PCIEU SIO/PCIEU SIO/PCIEU SIO/PCIEU SIO/PCIEU	up to 2 up to 2	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	Oct 2006 Oct 2006 Oct 2006 Dec 2006 Jan 2007 Feb 2007 Feb 2007
Positioning Processor(s) L2 Cache SMP support Implementation	1MB L2 Car 2-way SMP Systemboar	che per core, 7 / up to two (7 d contains tw	AMD Opteron o LGA	Direct proce 1207-p	Connect ssors (sa oin socket	: Archite Ime spe Is, eight	ecture en ed/cache DIMM sk	nsures lower lat	ency I/O / Daughter	with superior p 32-bit and 64-bit c Card connector, ernet		
Memory	1 or 2GB st PC5300 667 DIMMs mus (ECC) via 1 contained in	td / 16GB max 7MHz register tt be installed 6-bit Checks n two chips), h	k ¹³ (320 red 240 in mato s um Ch nardwar	B max -pin E0 ched pa i ipkill ™ re scrul	with 4G CC DDR2 airs [a bar (corrects bbing	B DIMM 2 VLP SI nk] / 2-w s 1, 2, 3	IS*) / two DRAM R ay memo , or 4-bit	slots used / six DIMMs / eight ory interleave / errors on same	slots avail DIMM gold dual chann e chip and	able -connector slots o el / Error Checki i detects 2- througl	on systemboo ng and Corr h 8-bit errors	ard / recting
IDE controller/bays SAS disk controller		_								anar/supports F		
SAS disk bays External storage	Support for	IBM TotalSto	rage™	solution	าร					otional Storage an		
Mechanical Architecture/Chipsets	Single slot b ServerWork Card connec Bridge / HT	olade / Suppor ks™ Chipset : ctor and Blac 1000 South E	ted in IE / HT20 le Stora Bridge (BM Bla 00 Hy l age Ex provide	deCenter perTrans pansion c es: USB(2	8677, 8 port Sy connecto 2.0), ATI	720, 873 stem I/O or, PCI-X video, Do	0 and 8852 Controller probridge to LSI 1 ual GB etherne	ovides: PCI 064 SAS, I i, LPC bus	-Express bridge t HyperTransport br to Winbond PC87	o Legacy Da idge to HT10 7427 for Sup	aughter 000 South er I/O
Bus slots	No PCI or F	PCI-X slots (ex	xpansic	n via r	nodules d	or netwo	rk-interfa	ce option conn	ector)			
Ethernet controllers Network-interface	Standard For optional, sur One legacy	ormat 1.0 / Loa pported Etheri / connector (ad bala net swit or PCI-	ncing of tch or <i>l</i> Expres	or teaming Passthroù S s conne	g / Failo\ <i>igh Mod</i> ector for	ver, adapt lule (the s r I/O exp a	ter fault tolerand second controlle ansion option	ce / one of er requires s / requires	ernet MAC and Ph on LAN® / Serial the dual controller a second optional same interface r on card (or no exp	's connects to I switch or P modules in b	o an M) ays
DVD / diskette / USB Kybd / video / mouse Graphics	None / requ	ests for keybo	oard, m	ouse, a	and video	in Blade	eCenter t	adeCenter by poy pressing the P-bit 33MHz PC	display but	edia select button ton on front contr	on front con ol panel	trol panel
Systems mgmt	on blade / p event record	oard Manage provides system ding, alert cap ation with Blad	m and (ability /	enviror RS-48	ımental m 35 interfac	nónitorin æ for int	g,	ement Dual Core Dual Core Dual Core	AMD Opteron AMD Opteron AMD Opteron	ProcessorModel2210 H ProcessorModel2212 H ProcessorModel2212 ProcessorModel2216H ProcessorModel2218	ΙE	40K1263 25R8898 25R8931 25R8899 25R8897
Diagnostics	Light Path on-board dia	Diagnostics agnostics (via	M (LED PC-Do	lights octor in	indicate f BIOS)	ailing co	mponent) and Dual Core	AMD Opteron	Processor Model 2218H Processor Model 2220		44E5246 40K1264
Security		assword / adr				unattend	ed boot /	2GB (2x1 4GB (2x2	GB) PC2-5300 GB) PC2-5300	CL5 ECC DDR2 VLP RI CL5 ECC DDR2 VLP R CL5 ECC DDR2 VLP F	RDIMM Kit RDIMM Kit	39M5861 39M5864 39M5867
Software ship group	Documentat	tion CD, Devi	ce Drive	er CD,	ServerG	uide CD)		GB) PC2-4200 3 NHS 2.5" SFF	CL4 ECC DDR2 VLP R SAS HDD	DIMM Kit*	39M5870 26K5776
Cooling fans	sensors on	g from BladeC each process module(s) in	or and	Blade(Center mo	odules a	nd front p	rmal canel 8852) IBM 73Gi BladeCer BladeCer	NHS 2.5" SFF terStorage and terSFF Fibre C	SAS HDD I/OExpansion Blade hannel Expansion Card		26K5777 39R7563 26K4841
Power supply Prerequisites	Monitor, key	board, mouse Center (types	e for se	etup; et	hernet sv	vitch mo	dule,	tem QLogic iS	CSI Expansion GBSFF Fibre C	Ethernet Expansion Car Card for BladeCenter Channel Expansion Card hannel Expansion Card f	forBladeCenter	39R8624 32R1923 26R0890 39Y9186
Serv	er blade		A conti	rol pan	el on top	front o	f			n/pc/us/accessories		

(side view) DIMM slot 5 ① SAS DIMM slot 6 ___disk DIMM slot 7 DIMM slot 8 □ I/O □ expansion option DIMM slot 1 opt CPU DIMM slot DIMM slot 3 nostics Blade Expansion connector std CPU HyperTransport

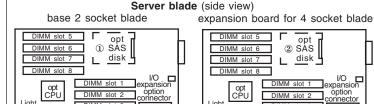
Bay 1 2.5", 9.5mm, no front access, optional SFFSAS disk

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
- 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
- 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

- 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 (ServicePac part 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
 - (ServicePacpartnum 69P9525)
 - 5 year IOR 24x7, 4 hr avg response (ServicePac part 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

		Speed/Core	L2 Cache	Watts	Memory		Disk er bays	Expansi	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 7972-6EU 4 x Optero	on 8212 2 on 8212 2 on 8216HE 2 on 8216HF 2	2.0GHz/DC 2.0GHz/DC 2.0GHz/DC 2.0GHz/DC 2.4GHz/DC 2.4GHz/DC 2.4GHz/DC 2.6GHz/DC 2.6GHz/DC	2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB 2MB	68W 95W 95W 68W 95W 95W 95W	1GB 2GB 1GB 2GB 2GB 4GB 4GB 4GB	SAS SAS SAS SAS SAS SAS SAS SAS	1 fixed 2 fixed 1 fixed 2 fixed 1 fixed 2 fixed 2 fixed 2 fixed 2 fixed	SIO/F SIO/F SIO/F SIO/F SIO/F	PCIEU PCIEU PCIEU PCIEU PCIEU PCIEU PCIEU PCIEU PCIEU	up to 2 up to 2	single slot blade double slot blade single slot blade double slot blade single slot blade double slot blade double slot blade double slot blade double slot blade	4 x Giğabit 2 x Gigabit 4 x Gigabit 2 x Gigabit 4 x Gigabit 2 x Gigabit 4 x Gigabit 4 x Gigabit	Oct 2006 Oct 2006 Oct 2006 Oct 2006 Oct 2006 Oct 2006
Positioning	Ultra-dense	, low powe	er, dual	or qu	ad sock	et, full	perform	ance m	odular o	omputing	platform with s 32-bit and 64-bit o	uperior per	formance
Processor(s) L2 Cache SMP support Implementation	1MB 12 Ca	che per core	e. AMD	Direc	t Connec	ct Archi	tecture	ensures	lower lat	encv I/()	32-bit and 64-bit of vo Legacy Daught phics and Gigabit		
Memory	DIMINI dold-	connector si rror Checki i	ots on s ng and	system Corre	board / Decting (E	Oliviivis m CC) via	iust be i 16-bit C	nstalled i hecksur	n matche n Chipk	ed bairs la	ade / (32/64GB m ECC DDR2 VLP S bank] / 2-way me cts 1, 2, 3, or 4-bi	morv interlea	ave / dual
SAS disk controller	Up to two in	tegrated / LS	S <u>I</u> Logic	® 1064	4 SAS co	ntroller 1	.5/3Gb/s	sec] / PC	I-X 64-bi	t/133MHz	/ on planar / supp	orts RAID 0,	1/
SAS disk bays	Supports RA Up to two no sion Unit	AID-1, 1E & on hot-swap	5 with 2.5" SF	fully po FF SAS	opulated S S disks / S	Storage a Supports	and I/O up to the	Expansion ree hot-s	n blade . swap SF	/ no cable: F SAS dis	/ on planar / supp s or external conn ks in optional Stor	ector age and I/O	Expan-
External storage	Support for	IBM TotalSt	orage™	solution	ons								
Mechanical Architecture/Chipsets Bus slots	Single or do ServerWork Legacy Dau bridge to HT PC87427 fo No PCI or F	ıghter Card (Γ1000 South or Super I/O	connect Bridge	tors an / HT1 0	d Blade S 000 Sout	Storage th Bridg	Expansi e provid	on conne es: USB(ector, PC 2.0), ATI	I-X bridge video, Du	roviding: PCI-Exp to LSI 1064 SAS aal GB ethernet, LI	ress bridges , HyperTrans ^{>} C bus to W	to sport inbond
Ethernet controllers Network-interface	four full giga over LAN / / Up to two I	IHZ bus / doi Ibit ethernet Alert Standa legacy conr	uble soo MAC ar rd Form nector (cket bla nd PH\ nat 2.0 or PCI	ade adds / layer fur / Failove -Express	Broadco nctions / r, adapte conne	om BCN full-dupl er fault to ctor for	1570857 ex / TCP plerance 1/0 exp a	dual10/1 /IP Offloa / Remote ansion c	00/1000 E adEngine (e Direct M ptions / r	blade / Broadcom Ethernet controllers TOE) / iSCSI / Wa emory Access (RI equires same inte on card (or no exp	s / PCI-Expre ake on LAN® DMA) rface module	SS / up to / Serial es in bays
DVD / diskette / USB Kybd / video / mouse Graphics	None / requ None / requ SVGA / ATI	ests for DVI ests for keyt Badeon® F	D-ROM, poard, r RN50 or	, disket nouse, n plana	te drive, a and vide ar / 16MB	and USE o in Blac DDR st	B port in deCente d/max /	BladeCe r by pres 32-bit 33	enter by p ssing the MHz PC	oressing m display bu I 2.2 bus	edia select button utton on front contr	on front con ol panel	trol panel
Systems mgmt	IBM Baseb on blade / p event record communica	rovides syst	em and pability	l enviro / RS-4	onmental 185 interfa	mónitorii ace for ir	ng, nterman		DualCore DualCore DualCore	AMD Opteror AMD Opteror AMD Opteror	n Processor Model 8212 F n Processor Model 8212 n Processor Model 8216 H n Processor Model 8218 CL5 ECC DDR2 VLP RI	E	25R8934 25R8932 25R8935 25R8933 39M5861
Diagnostics	Light Path on-board dia	Diagnostics agnostics (vi	s™ (LEI a PC-D	D lights Octor i	s indicate n BIOS)	failing c	ompone	ent) and	2GB (2x10 4GB (2x20	GB) PC2-5300 GB) PC2-5300	OCL5 ECC DDR2 VLP F OCL5 ECC DDR2 VLP F	DIMM Kit RDIMM Kit	39M5864 39M5867
Security	No security administrato unattended	or password	otection / unatte	/ Pow	er-on pas boot / sele	ssword / ectable b	oot /		IBM 36GE IBM 73GE BladeCen	8 NHS 2.5" SF 8 NHS 2.5" SF terStorage and	F SAS HDD d I/O Expansion Blade		39M5870 26K5776 26K5777 39R7563
Software ship group	Documentat	tion CD, Dev	vice Dri	ver CE), Server(Guide Cl	D		BladeCen	terSFF Gigab	Channel Expansion Card it Ethernet Expansion Car		26K4841 39R8624
Cooling fans	Uses cooling	g from Blade	Center	(types	8677, 8720	0, 8730, 8	852) / t	hermal			Card for BladeCenter Channel Expansion Card	forBladeCenter	32R1923 26R0890
Power supply Prerequisites	Uses cooling sensors on Uses power Monitor, key disk, Blade	r module(s) i /board, mou	n Blade se for s	eCente setup; e	r (types 8 ethernet s	8677, 872 switch m	20, 8730 odule,), 8852)	Emulex 40	GBSFFFibre(Channel Expansion Card		39Y9186



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

Blade

Expansion connector

Stealth black front bezel

HyperTransport connector

- ⇒ H 9.7" x W 1.14" x D 17.6"
- H 24.5cm x W 2.9cm x D 44.6cm

DIMM slot

- 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

I/O pexpansion option connector

Blade Expansion connector

DIMM slot 4

Blade control panel on each LS41 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

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® 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

A control panel on top front of

blade has following LEDs:

Power good

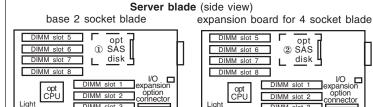
Information

General fault

Blade location

Overtemperature

IBM®	on a second of the second of t	L2	Mamaru	Disk	Disk	Evnanci	on I Inite	I/O slots	Mechanical	Ethornot	Available date		
7972-4TU 2 x Optero 7972-7AU 1 x Optero 7972-7BU 2 x Optero 7972-61x 1 x Optero	ocessor' Speed/Core on 8214HE 2.2GHz/DC on 8220 2.8GHz/DC on 8218HE 2.6GHz/DC on 8218HE 2.6GHz/DC	2MB 68W 2MB 95W 2MB 95W 2MB 68W 2MB 68W	2GB 2GB 4GB 2GB	SAS SAS SAS SAS SAS	2 fixed 1 fixed 2 fixed 1 fixed 2 fixed 2 fixed	SIO/P SIO/P	CIEU	up to 2 up to 2 up to 2 up to 2 up to 2 up to 2 up to 2	double slot blade single slot blade double slot blade single slot blade double slot blade	2 x Gigabit e 4 x Gigabit 2 x Gigabit	Feb 2007 Feb 2007 Feb 2007 Apr 2007		
Positioning Processor(s) L2 Cache SMP support Implementation	Ultra-dense, low pow Up to 4 x AMD Opteror 1MB L2 Cache per cor 2 or 4-way SMP / up t Systemboard contains one Blade expansion c	n 8000 Series e. AMD Dire	Dual Cor ct Conne	e at up to	2.8GHz tecture	z / simulta ensures l	aneously ower lat	supports ency I/O	32-bit and 64-bit	computing			
Memory	1, 2 or 4GB std / 16GB two or four slots used / DIMM gold-connector s channel / Error Check and detects 2- through	max ¹³ with d six or twelve lots on syster ing and Corr 8-bit errors of	ouble soc slots avail nboard / [ecting (E ontained i	ket blade lable / P(DIMMs m : CC) via n two chi	e / 32 GE 25300 66 nust be ir 16-bit C ips), hard	8 max ¹³ w 67MHz re nstalled ir hecksun dware sci	rith quad egistered matche n Chipk i rubbing	l socket bla 240-pin E ed pairs [a ill™ (corred	ade / (32/64GB m CC DDR2 VLP S bank] / 2-way me cts 1, 2, 3, or 4-b	ax with 4GB DRAM RDIN emory interlea it errors on s	DIMMS*) /IMs / four ave / dual ame chip		
SAS disk controller SAS disk bays	Up to two integrated / L supports RAID-1, 1E 8 Up to two non hot-swar sion Unit	5 with fully p 2.5" SFF SA	opulated S disks /	ontroller 1 Storage a Supports	.5/3Gb/s and I/O I s up to th	ec / PCI- Expansion ree hot-s	X 64-bit n blade wap SFI	/133MHz / / no cables F SAS disl	on planar / supp s or external conr ks in optional Sto	orts RAID 0, ector rage and I/O	1 / Expan-		
External storage	Support for IBM TotalS												
Mechanical Architecture/Chipsets	Single or double slot blasserverWorks Chipse Legacy Daughter Card bridge to HT1000 South PC87427 for Super I/O	n Briage / Hi	ed in IBM I HT2000 nd Blade 1000 Sou	BladeCer HyperTr Storage th Bridg	nter 8677 ansport Expansion e provide	7, 8720, 8 System on conne es: USB(2	730 and I/O Cor ctor, PC 2.0), ATI	l 8852 htrollers p I-X bridge video, Du	roviding: PCI-Exp to LSI 1064 SAS al GB ethernet, L	ress bridges 5, HyperTrans PC bus to W	to sport inbond		
Bus slots	No PCI or PCI-X slots	(expansion vi											
Ethernet controllers Network-interface	Up to four gigabit Ethern 64-bit 133MHz bus / do four full gigabit ethernet over LAN / Alert Standa Up to two legacy con 3 and 4 of BladeCenter	nector or PC	,ı-⊏xpres:	s conne	CLOT IOT	I/O expa	nsion o	puons / n	equires same inte	enace module	es in bays		
DVD / diskette / USB Kybd / video / mouse Graphics	None / requests for DV None / requests for key SVGA / ATI® Radeon®	board, mouse	e, and vide	eo in Blad	deCente	r by pres	sing the	display bu	edia select buttor tton on front cont	on front con rol panel	trol panel		
Systems mgmt	IBM Baseboard Mana on blade / provides sys event recording, alert communication with Bla	tem and envi apability / RS-	onmental 485 interf	monitorii ace for ir	ng, ntermana		Dual Core Dual Core 1GB (2x51	AMD Opteron AMD Opteron 12) PC2-5300	Processor Model 8214h Processor Model 8218h Processor Model 8220 CL5 ECC DDR2 VLP	HE DIMM Kit	40K1265 44E5247 40K1266 39M5861		
Diagnostics	Light Path Diagnostic on-board diagnostics (v				compone	nt) and	4GB (2x20 8GB (2x40	GB) PC2-5300 GB) PC2-4200	OCL5 ECC DDR2 VLP I OCL5 ECC DDR2 VLP OCL4 ECC DDR2 VLP I	RDIMM Kit	39M5864 39M5867 39M5870 26K5776		
Security	No security intrusion pr administrator password unattended start mode						IBM 36GB NHS 2.5" SFF SAS HDD IBM 73GB NHS 2.5" SFF SAS HDD BladeCenter Storage and I/O Expansion Blade BladeCenter SFF Fibre Channel Expansion Card BladeCenter SFF Gigabit Ethernet Expansion Card						
Software ship group	Documentation CD, De	vice Driver C	D, Server	Guide C	D		QLogic iS0	CSI Expansion	t Etnernet Expansion Ca Card for BladeCenter Channel Expansion Card		39R8624 32R1923 26R0890		
Cooling fans	Uses cooling from Blade	eCenter (types	8677, 872	20, 8730, 8	852) / th	nermal			Channel Expansion Card		39Y9186		
Power supply Prerequisites	Uses cooling from Blade sensors on each proce Uses power module(s) Monitor, keyboard, mod disk, BladeCenter (type	in BladeCent ise for setup; is 8677, 8720	er (types 8 ethernet : , 8730, 88	8677, 872 switch m 352), ope	and from 20, 8730 odule, erating sy	stem	Otheroptic	onsat ibm.com	n/pc/us/accessories	DWARRAI	NTV ³		



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

Blade

Expansion connector

Stealth black front bezel

HyperTransport connector

- 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)

DIMM slot

- 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

Blade coansion

DIMM slot 4

Blade control panel on each LS41 blade server provides media select button, keyboard/mouse/video select button, and indicators for blade error, information, location, disk activity, and power

A control panel on top front of

blade has following LEDs:

Power good

Information

General fault

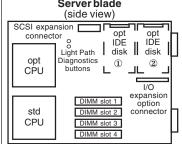
Blade location

Overtemperature

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

Type-model Qty x Proc 8832-GTX 1 x Xeon 3 8832-9TX 1 x Xeon 2	3.2GHz 1GB 2.4GHz 1GB Ultra-dense, highly	Frontside Bus Mhz 533Mhz 533Mhz	2MB	Disk None None			optio	SI support with nal stor exp un		anical	Required chassis BladeCenter T	Available date
8832-9TX 1 x Xeon 2	2.4GHz 1GB Ultra-dense, highly				EIDE	2 fixed	2 H	2 I Iltra 320	0x2	8l l ⁴ hlade	PladaCantar T	
Positioning /				None	EIDE			S Ultra320	0x2		BladeCenter T	
Docitioning /												
Processor(s) 1 L2/L3 Cache 5	i x intel® Xeon 2.5 512KB L2 Cache / 2-way SMP / up to	HGz or : 0 - 2MB	3.2GHz L3 Cacl	: with : he / oi	533MHz 1 n die of p	frontside rocesso	bus br/at	/ Hyper-Thre processor sp	ading ted		NetBurst™ archi	tecture
	Server blade contair one SCSI expansior											
F n E	IGB std / 8GB max PC2100 266MHz re must be installed in Error Checking and detects 2- through 8	gistered 1 matched p d Correct	84-pin E airs [a l ing (EC	ECC D bank] . :C) via	DR-SDR. / 2-way m : 16-bit C l	AM DIM emory ii hecksu i	IMs / f nterle	ave / dual cha	annel / me	emory bus r	uns at 2 x 100M	lHz/
SCSI disk controller N	Enhanced IDE ATA DE disk / no cable disks / space for or None / supports or via one connector / CIOB-ES I/O Bridg 3.5" one-inch high	as IDE d nly one ID ptional S LSI Logi e (IMB2 b	lisk atta DE disk BCSI St c® 53C ous to F	aches if an t orage 1020 Host E	to riser of I/O expanse Expanse Ultra320 Bridge) / s	ard and asion op op op op op op op op op op op op op	d tray ption i it (a l ontrol s RA	(included wi installed [Fib blade occupy ler [LVD 320 ID-1 mirrori	th option re Chani /ing adja MB/sec] ng [Emb	kit) / Supp nel] / RAID cent blade / 64-bit 13 edded Mirr	oorts max of tw I-1 mirroring s slot / connects 3MHz PCI-X B oring] with two	tandard to HS20 us B from hot-swap
SCSI disk bays S	Supports max of two 30-pin SCA-2 conne	o hot-swa _l ectors / all	p 3.5" S SCSI b	SL Ultr Days U	a320 SC9 Jitra320- 6	SI disks enablec	in opt 1	ional SCSI S	torage E			,
	Support for IBM Tot											
Architecture / chipsets e	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, LPC bus to Super I/O, and PCI 2.2 Bus C with graphics controller / National Semiconductor® PC87417 Super I/O chip No PCI or PCI-X slots (expansion via modules or network-interface option connector)											
Network-interface C 3 C CD / diskette / USB N Kybd / video / mouseN	Alert Standard Form switch or <i>Optical Po</i> One connector for 3 and 4 of BladeCe card) / ethernet and None / requests for 0	nat 1.0 / tea assthroug r I/O expa nter / all b d serial I/O CD-ROM, keyboard,	aming a th Modu ansion blades i D expar diskette mouse,	and faile ale (the option on a sin on sion of edrived and v	over suppo e second n (Fibre (ngle Blad cards plad e, and USI video in Bl	ort / one controll Channe eCenter nned for B port in adeCen	of the ler red I Expa r must r futur Blade iter by	e dual controlle quires a secc ansion Card) t contain the re release ²⁰ eCenter by propressing the	ers connected on the condition of the co	cts to an openal switch es same interpretable pansion ca	tional, supported or OPM) terface modules rd (or no expan tton on front con	d Ethernet s in bays sion
Systems mgmt III In note that the system is not	BM integrated sys 48S2148 / on blade monitoring, event re or communication v Light Path Diagnos component) and on	tem man / provides cording, a vith Blade stics™ (LE	ageme s syster alert cap Center ED light	nt promand and bability manages indicates	environm // RS-485 gement m	ISMP) / nental 5 interfactiodule g	ce OS)	Xeon 3.2Ghz Proc Upg 512MB PC21 1GB PC2100 2GB PC2100	2/512KB 00 CL2.5 CL2.5 E CL2.5 E	ECC DDR- CC DDR-SI CC DDR-SI	SDRAM DIMM DRAM RDIMM DRAM RDIMM	13N0650 33L5038 33L5039 33L5040
	Power-on password					modo		IBM HS20 Fi	bre Char	nel Expans	ion Unit (blade sion Card (with t	wo
Software ship group D	unattended boot / se Documentation CD,							IBM HS20 4	OĠB² 540	0 rpm ATA		48P7063 06P5768
Power supply UPrerequisites N	Jses cooling from sensors on each p ront panel Jses power modul Monitor, keyboard, disk, BladeCenter	rocessor e(s) in Bla mouse fo	and`Bla adeCer or setup	adeCe nter (ty o; ethe	enter mod ype 8677 ernet swit	dules ar	nd	36.4GB 15K 73.4GB 10K	Jltra320 (Ultra160 (Ultra320	SCSI Hot-S SCSI Hot-S SCSI Hot Storage Ex	Swap SL HDD* -Swap SL HDD	06P5776 06P5756 32P0728
Server bla	ade Ba	ay ① 3.5",	9.5mm,	, no fro	ont access	s, option	al Thi	nkPad®IDE d	isk ≈ 3	year parts		



- 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 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® Type-GAV Processor	L2 FSB	Disk emory Disk controller	Diekhaye	SCSI Supp	ort with	slots	Mech- anical	Ethernet	Available date
		2MB None Ultra320 None Ultra320							
Processor(s) SMP - L2 Cache	1 x Intel® Xeon 2.8 Low Volt Threading technology / Low \ 2-way SMP / up to two Xeon	ottage Proccessors re Processors (same spe	duce heat ed/cache	output for inc size) / 1MB s	reased rac std and ma	ck densi ax / at p	ty without in rocessor sp	creased cooli eed	ng capacity
Implementation Memory	Systemboard contains two Interparts option connector, in 512MB/1GB std / 8GB ¹³ max	ntegrated graphics and	dual Giga	bit ethernet	SIOIS, ONE	50516	expansion co	onnector, one	1/0
	PC2-3200 400MHz CL2.5 EC installed in matched pairs [a b	C DDR2-SDRAM DIM	Ms / four	240 pin gold-c		slots on	systemboar	d / DIMMs mi	ust be
SCSI disk controller	LSI Logic® 53C1020 SCSI co PCI-X / supports RAID-1 & 1I channel: one 2-drop 16-bit 68-	E mirroring (supported pin LVD SCSI cable	in 32-bit I	egacy mode c	only) / `One	e 16-bit	channel (on	e internal) / <i>In</i>	ternal
SCSI Disk bays External Storage	Two 2.5-inch Small Form Fadisks in optional SCSI Storage Support for IBM TotalStorage	actor (SFF) Ultra320 in e Expansion Unit (80-p	iternal fixe in SCA-2 (d disk bays / S connectors; al	Supports n I SCSI ba	nax of to vs Ultra	vo hot-swap 320-enable	3.5" SL Ultra d) /	320 SCSI
Mechanical Architecture/Chipset	7U Blade / Supported in IBM I Intel E7520 chipset / E7525 BUS / ICH5R supports USB (interface	BladeCenter T 8720-1X MCH (Memory Control	(X or 8730 ler Hub) fo	-1XX or PCI-Express	s bridge to	PXH, I	CH5R / PXH / NS PC87	H BUS suppor 366 Super I/C	ts PCI-X) off LPC
BUS slots	No PCI or PCI-X slots (expar	sion via modules or ne	etwork-inte	rface option c	onnector)				
Ethernet Network Interface CD / Diskette / USB Kybd / video / mouse Graphics controller	Ethernet Dual gigabit 10/100/1000 ethernet controller / Broadcom 5704S / two full gigabit ethernet MAC and PHY layer functions / chip on blade / PCI-X 64-bit 100MHz / full duplex / Wake on LAN® / PXE 2.0 Boot agent / Alert Standard Format 2.0 / Failover, adapter fault tolerance / Load balancing or teaming / one of the dual controllers connects to an optional, supported Ethernet switch or Optical Passthrough Module (the second controller requires a second optional switch or OPM) One connector for I/O expansion option (Fibre Channel Expansion Card) / requires same interface modules in bays 3 and 4 of BladeCenter / all blades in a single BladeCenter must contain the same expansion card (or no expansion card) / ethernet and serial I/O expansion cards planned for future release ²⁰ None / requests for CD-ROM, diskette drive, and USB port in BladeCenter by pressing CD select button on front control panel None / requests for keyboard, mouse, and video in BladeCenter by pressing the display button on front control panel								
Systems Mgmt	IBM Baseboard Managemer recording, alert capability / RS intermanagement communica	-485 interface for	H8S2168	on blade / pi	rovides sy	stem an	d environme	ental monitorir	ng, event
Diagnostics	Management module Light Path Diagnostics™ (Light Component) and on-board dia BIOS)	ED lights indicate failing gnostics (via PC-Docto	g or in	Xeon 2.8 Gl Xeon 3.6 Gl 512MB (2x2	Hz/800/1M 256) PC2-3	IB L2 Ca	ache EM641 C DDR2		13N0699 13N0659 73P3522
Security Software chip group	No security intrusion protection administrator password / unat selectable boot / unattended selectable boot / unattended selectable boot / unattended selectable protection CD Procedure.	tended boot / · start mode	d /	1GB (2x512 2GB (2x1GE	2) PC2-320 B) PC2-32 B) PC2-32	00 CL3 00 ECC 00 ECC	ECC DDR2 DDR2 Chip DDR2 Chip	oK RDIMM Kit oK RDIMM Kit NHS HDD	
Software ship group Cooling Fans	Uses cooling from BladeCent	er T (type 8720/30) / th	ermal	IBM 73GB 1 BladeCenter BladeCenter	10K Ultra32 r SCSI Sto	20 SCS rage Ex	2.5" SFF N p Unit	IHS HDD	90P1313 26K4817 26K4841
Power supply(s) Prerequisites	sensors on each processor a front panel Uses power module(s) in Bla Monitor, keyboard, mouse for disk, BladeCenter (type 8677)	deCenter T (type 8720/ setup; ethernet switch	/30)	BladeCenter BladeCenter BladeCenter 17-inch Flat Other option	r SFF Giga r Optical F r SCSI Sto Panel Moi	abit Ether Pass-thruit Prage Ex Prage Control	ernet Exp Ca I Module pansion Uni nsole Kit w/	ard it US Kybd	26K4842 02R9080 26K4817 17231UX

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

Server blade (side view) SCSI expansion opt SFF opt SFF SFF SFF Light Path disk L JL ^② Diagnostics opt 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

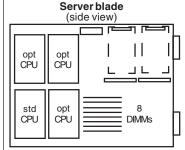
Maximum internal disk capacity for each HS20 blade server¹³: 146GB with two 73GB SCSI disks (with BladeCenter SCSI Storage Expansion Unit 2 x 146GB for total of 438GB)

- 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

IBM® Type-model Qty x Pro	<u> </u>		Disk Disk controller	bays (SCSI support with optional exp. unit	Slots x bays		Required chassis	Available date
8839-6TX 1 x Xeon	™ 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 mana Up to 1 x Intel® Xeon 2.8 512KB L2 Cache / 2MB 4-way SMP / up to four 3 Server blade contains for one SCSI expansion con	BĞHz MP v L3 Cache Xeon MP I ur Intel 604	vith 400MHz fro / on die of pro Processors (sar 1-pin micro-PG	ontside bus cessor / at me speed/d A ZIF sock	 Hyper-Threadi processor spee cache size) tets, four memor 	ng téchi d y DIMM	nology / Ne	etBurst™ microa	
Memory	2GB std / 16GB max ¹³ / t PC2100 266MHz registere must be installed in match Error Checking and Corr detects 2- through 8-bit e	ed 184-pin ed pairs [a recting (E0	ECC DDR-SDR bank] / 2-way m CC) via 16-bit C	AM DIMMs nemory inte hecksum	s /̃ four DIMM gold erleave / dual cha Chipkill ™ (corred	nnel / m cts 1, 2,	emory bus	runs at 2 x 100	MHz/
	None / supports option via one connector / LSI I CIOB-ES I/O Bridge (IMB 3.5" one-inch high SL SC	₋ogic® 530 32 bus to CSI disks i	1020 Ultra320 Host Bridge) / n front bays / c	SCSI consupports one 16-bit is	troller [LVD 320] RAID-1 mirrorir internal channel	MB/sec] ig [Emb / no ca	/ 64-bit 1: edded Mir bles or ext	33MHz PCI-X I roring] with two ernal connectors	Bus B from o hot-swap
SCSI disk bays External storage	Supports max of two hot-s 80-pin SCA-2 connectors Support for IBM TotalStor	/ all SCSI	bays Ultra320-	enabled	•	Ŭ	•	Jnit /	
Mechanical	Supported in IBM BladeCe		, ,		, ,			M NetBAY™ Rad	ck products
Architecture / chipsets	ServerWorks® Grand C sone CIOB-X2 I/O Bridge ethernet and the I/O exp. bus to Super I/O, and PC No PCI or PCI-X slots (6	hampion™ (IMB2 bus ansion opt II 2.2 Bus	4.0 LE / CMI to Host Bridge ion connector / C with graphic	C-LE5 Hos e) for two l CSB6 So s controlle	st Bridge (memo PCI-X Buses wit uth Bridge (Thin er / National Sem	ry conti h Bus A IMB to niconduc	oller and I I for ether Host Bridg otor® PC87	/O Bridge) / net and Bus B ge) for EIDE, U	for ISB, LPC
Ethernet controllers	Four gigabit 10/100/1000 et	hernet cont	rollers / Intel 825	545GM/8254	46EB / on blade /	two PCI	-X 64-bit 10		
Network-interface CD / diskette / USB	Wake on LAN® / Alert Stan. 4-port GB Ethernet Switc Two connectors for I/O e of BladeCenter / all blade ethernet and serial I/O ex None / requests for CD-RO	h Module xpansion of s in a sing xpansion of DM, diskett	(the second con option (Fibre Challe BladeCenter ards planned for e drive, and US	ntroller requannel Expander must contor future read by future read B port in Bl	uires a second of ansion Card) / requals the same ex lease ²⁰ leadeCenter by pre	optional uires sa pansion essing C	Ethernet Some interface card (or note that the card for note that th	Switch Module) e modules in ba o expansion cautton on front co	ys 3 and 4 ard) /
Kybd / video / mouse Graphics	e None / requests for keyboo SVGA / ATI® Radeon 700							ont control pane	el .
Systems mgmt	Intel integrated Basebo / on blade / provides sys event recording, alert ca communication with Blad	tem and e pability / F	nvironmental n IS-485 interfac	nonitoring, e for		0 CL2.5 CL2.5 E	ECC DDR CC DDR-S	-SDRAM DIMM DRAM RDIMM	13N0653 33L5038 33L5039 33L5040
Diagnostics	Light Path Diagnostics component) and on-board	™ (LED lig	hts indicate fai	ling	IBM HS40 SC IBM HS40 Fit	SI Stor	ge Expans nnel Expa	sion Unit (blade nsion Card (wit	e) 26K4847 th two
Security	Power-on password / adunattended boot / selecta			art mode	IBM HS40 40	ĠB ² 540	0 rpm ATA		48P7063
Software ship group	Documentation CD, IBM				36.4GB 15K U 36.4GB 15K U			Swap SL HDD* wap SL HDD*	06P5768 06P5776
Cooling fans	Uses cooling from BladeC on each processor and B	adeCenter	modules and f	ront panel		Ultra320	SCSI Hot	Swap SL HDD* -Swap SL HDD &pansion Unit	
Power supply Prerequisites	Uses power module(s) ir Monitor, keyboard, mous disk, BladeCenter (type	e for setu	p; ethernet swi			2301			



- 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

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, 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 performance.
- 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.
- ³ 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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