

http://www-1.ibm.com/servers/eserver/education/cust/xseries/xref.html

IBM®Machine Type Model Procces		Cache M	SB IHz Memory	Disk	Disk controller	Maximum Capacity	Slots x bays	Hard disk bays	Ethernet	Available date
8486 - E1x Celeron®			33 256MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Sep 2005
8486 - E2x Celeron 8486 - E3x Pentium®			33 512MB 00 512MB	80GB 80GB	SATA SATA	500GB 500GB	4 x 5 4 x 5	2 fixed 2 fixed	Gigabit Gigabit	Sep 2005 Sep 2005
8486 - E4x Pentium 4			00 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Sep 2005
8486 - E5x Pentium 4			00 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Sep 2005
8486 - E6x Pentium 4			00 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Sep 2005
8486 - E7x Pentium I	D 820 2.8GHz/DC	2x1MB 8	00 512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Oct 2005
Positioning Processor(s)	Uniprocessor, entry Intel® Pentium 4 up Celeron D 2.53GHz	to 3.4GHz	Single Core 8	BOOMHz F	SB / Pentiu	m D 2.8GH	z Dual	Core 800 logy (EM	MHz FSB /	/ Intel
L2 cache Implementation	1MB std on Pentium Motherboard contain	4 / 2x1MB is one LGA	std on Pentium -775 socket, fo	n D / 256K	B std and m	nax on Celer	on / EC	C / full spe	eed	s x1, 2
SMP support	PCI), integrated SAT No SMP support / n									
Memory	256MB or 512MB / 8 SDRAM / All Error (
SCSI disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	None standard / Ult Enhanced IDE / AT/ Dual channel SATA One 2-drop EIDE ca 80GB SATA / 7,200 None standard / Ser	A-100 / integ controller (ables (to CE rpm / 9.0 m	grated in I/O Co (1.5GB/sec) / s D-ROM) / one ns seek / S.M.A	ontroller H supports 2 1-drop SA R.T.	ub / one con drives stan	nector on plant	lanar			
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	7) for P(CI 2.2, AT.	A-100 EIDI parallel, se	E, ethernet erial,
Ethernet	10/100/1000 gigabit (PXE) / Wake on LA		5721 / on plan	ar / full du	plex / PHY a	and MAC la	yers / P	reboot eXe	ecution Env	vironment
CD-ROM / diskette Ports	Some: CD-ROM: 48 Front: two USB (Ver monitor (analog DB-	3X-20X ⁶ CD 2.0); <i>Back</i>								
Diagnostics Systems mgmt	Diagnostic LEDs / erro None		fans and memor	y / server	diagnostic pro	ograms store	d on IBN	M Enhance	d Diagnosti	cs CD
Graphics controller	ATI® RN50(ES1000) /	16MB SDRA	AM std/max / on	planar / ar	nalog 15-pin /	up to 1024 x	768 x 3	2 bit @85H	łz	
Security	Optional U-Bolt suppontrol / operation v				ord / boot se	equence				
Software	ServerGuide™ (CD installation and conf Director (system ha	iguration to	ol) included an	d IBM	2x1GB PC 2x2GB PC	2-4200 CL3 2-4200 CL3 2-4200 CL3	ECC E	DR2 Rob DR2 Rob	IS IS	30R5148 30R5149 30R5150
Keyboard / mouse Cooling fans	IBM 101 key keyboa Three variable spee				IBM 160GI	SATA-150 B SATA-150 B SATA-150) (7.2K)	simple-sv	wap HDD	39M4500 39M4504 39M4508
· ·	supply) / not redund	ant / not ho	t-swap		48X/32X/48	8X/16X Max				32R2905
Power supply	310 watts / universa					ourner Plus			•	32R2906
	Server Restart (ASF			ndancy /		Portable Dis				05K9276
	cooling fan in power	supply (var	iable speed)			DS/5 Interr	тат гаре	Drive		71P9145 59P6746
					VXA-2 Tap	GB TR7 Int	ernal Ta	ne Drive		48P7042
CD-ROM						RAID-7t SA				71P8648
I I II	Bay ① 5.25", HH	1.6", acce	ss, CD-ROM		IBM Ultra3	20 SCSI Co	ontroller	2		13N2249
2	Bay 2 5.25". HH		ss, open (no di	sk)	Other option	ons at ibm	. com /p	c/us/acces	ssories	
3	Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1",	access, or access, st						I IMITED	WARRAN	TY ³
	bαy ⊕ υ.υ , υ∟ I ,	access, St	u uisk				1 4000	porte and	labor	• •



Bay 5 3.5", SL 1", access, std di

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

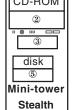
- ⇒ 36 to 45.8 pounds (16.3 to 20.8kg)
- ♦BTU Output:

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

IBM®Machine Type Model Procces	ssor Speed¹/Core	L2 Cache	FSB MHz	Memory	Disk	Disk controller	Maximum Capacity	Slots x bays	Hard disk bays	Ethernet	Available date
8486 - EAx Celeron® 8486 - EBx Celeron 8486 - ECx Pentium®	D 331 2.66GHz 4 521 2.8GHz/SC	256KB 256KB 1MB	533 533 800	512MB 512MB 512MB	80GB 80GB 80GB	SATA SATA SATA	500GB 500GB 500GB	4 x 5 4 x 5 4 x 5	2 fixed 2 fixed 2 fixed	Gigabit Gigabit Gigabit	Feb 2006 Feb 2006 Feb 2006
8486 - EDx Pentium 4 8486 - EEx Pentium 4 8486 - EFx Pentium 4	4 631 3.0GHz/SC	2MB 2MB 2MB	800 800 800	512MB 512MB 512MB	80GB 80GB 80GB	SATA SATA SATA	500GB 500GB 500GB	4 x 5 4 x 5 4 x 5	2 fixed 2 fixed 2 fixed	Gigabit Gigabit Gigabit	Feb 2006 Feb 2006 Feb 2006
8486 - EGX Pentium 8486 - EHX Pentium 8486 - EJX Pentium 1	D 920 2.8GHz/DC D 920 2.8GHz/DC	4MB 4MB 4MB	800 800 800	512MB 512MB 512MB	80GB 80GB 80GB	SATA SATA SATA	500GB 500GB 500GB	4 x 5 4 x 5 4 x 5	2 fixed 2 fixed 2 fixed 2 fixed	Gigabit Gigabit Gigabit	Feb 2006 Feb 2006 Feb 2006
8486 - EKx Pentium I	D 930 3.0GHz/DC	4MB	800	512MB	80GB	SATA	500GB	4 x 5	2 fixed	Gigabit	Mar 2006
Positioning Processor(s) L2 cache Implementation	Uniprocessor, entry Intel® Pentium 4 up Intel Celeron D 2.66 1 or 2MB std on Per Motherboard contain	to 3.2G GHz 53 ntium 4 /	Hz Sing 3MHz F 4MB sto	gle-Core a SB / All of d on Penti	800MHz F Optimized um D / 25	SB / Pention of the control of the c	um D up to ded Memor d max on Ce	3.0GHz y 64 Te eleron / E	echnology ECC / full-	(EM64T) speed	
SMP support	PCI), integrated SAT No SMP support / no	A and G	igabit E	thernet.	ar Billion	00011010, 100	0.0.0(1.1.0	Z EXPIO	00 X0, 1 1	OT EXPIOSE	, , , _
Memory	512MB / 8GB ¹³ max / Error Checking and	four 184- Correctin	pin gold g (ECC	-plated DIM) / DIMMs	IM sockets and ECC r	/ one socke memory cont	t used / PC2 troller / indust	-4200 53 try std / ι	3MHz ECO unbuffered	DDR2-SDI	RAM / AII
SCSI disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	None standard / Ultr Enhanced IDE / ATA Dual channel SATA One 2-drop EIDE ca 80GB SATA / 7,200 None standard / Sen	-100 / in controlled bles (to rpm / 9.0	tegrated er (1.5G CD-RO ms se	d in I/O Co iB/sec) / s M) / one ek / S.M.A	entroller Hu supports 2 1-drop SA R.T.	ub / one cor drives star	nnector on p ndard	lanar			
Rack support Bus slots (see below) Chipset	None One PCI Express® bu Intel E7230 chipset MAC, USB, Low Pin keyboard, mouse	/ Memor	y Contr	oller Hub	(MCH) / I/	O Controlle	r Hub (ICH-	for P(CI 2.2, AT.	A-100 EIDE	
Ethernet	10/100/1000 gigabit / (PXE) / Wake on LAI		om® 572	21 / on pla	nar / full-d	uplex / PHY	and MAC I	ayers / F	Preboot e	(ecution En	vironment
CD-ROM / diskette Ports	Some: CD-ROM: 48 Front: two USB (Ver monitor (analog DB-	2.0); Ba									
Diagnostics Systems mgmt	Diagnostic LEDs / erro None		or fans a	and memor	y / server	diagnostic pr	ograms store	ed on IBN	M Enhance	d Diagnostic	s CD
Graphics controller	ATI® RN50(ES1000) /	16MB SE	RAM st	d/max / on	planar / an	nalog 15-pin /	up to 1024 >	(768 x 3	2 bit @85H	łz	
Security	Optional U-Bolt supp control / operation v					ord / boot se	equence				
Software	ServerGuide™ (CD- installation and confi Director (system ha	guration	tool) in	cluded an	d IBM	2x1GBPC 2x2GBPC IBM 80GB	2-4200 CL3 E 2-4200 CL3 E 2-4200 CL3 E SATA-150 (7.	CC DDR2 CC DDR2 2K) simpl	RoHS RoHS e-swap HD	D	30R5148 30R5149 30R5150 39M4500
Keyboard / mouse Cooling fans	IBM 101 key keyboa Three variable speed supply) / not redunda	d fans (d	cpu hea	ıtsink, rear		IBM Multi-k	3 SATA-150 (7 3 SATA-150 (7 8X/16X Max ⁶ (purner Plus			DD DD	39M4504 39M4508 32R2905 32R2906
Power supply	310 watts / universal Server Restart (ASR cooling fan in power) / not he	ot-swap	/no redur		36/72GB D VXA-2 Tap IBM 20/400	GB TR7 Interr	Tape Dri nal Tape [ve Orive		05K9276 71P9145 59P6746 48P7042
CD-ROM						IBM Servel	RAID-7t SATA 20 SCSI Cont ons at ibm.cc	Controllerolleroller	er	S	71P8648 13N2249
2	Bay ① 5 25" HH	16" 20	race (CD-ROM				1 1000	LIMITED Y	WARRANT	'Y 3



black

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

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

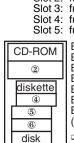
- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- Advanced Configuration Power Interface (ACPI) 1.0
- Device Drivers and Diagnostics CD-ROM included → Four stabilizing feet
- ♦ H 16.8" x W 8" x D 19.4"
- ♦ H 427mm x W 203mm x D 493mm
 ♦ 36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

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

		2901		XSelle			.,.				XHEF D	y eserve	r Field Skills	Enablem	ent ream
				se "x" should be re	placed with			de.							
		/I® Mach GAV	nine model	Processor	GHz ¹	L2 cache	FSB MHz	Memory	Disk	Disk controlle	Maximum er Capacity	PCI slots x bays	Hard disk bays	Ethernet	Available date
*	8482 8482 8482 8482 8482	1Rx 1Sx 2Mx	11X 14X 15X 21X 24X	Pentium 4® Pentium 4 Pentium 4 Pentium 4 Pentium 4	2.8 2.8 2.8 3.0 3.0	1MB 1MB 1MB 1MB 1MB	800 800 800 800 800	512MB 512MB 256MB 512MB 512MB	None 36.4GB U320 None None 36.4GB U320	SCSI SATA SCSI	440.4GB 587.2GB 320GB 440.4GB 587.2GB	5 x 7 5 x 7	3 hot-swap 4 fixed 2 simple-swap 3 hot-swap 4 fixed	Gigabit Gigabit Gigabit	Apr 2004 Apr 2004 Apr 2004 Apr 2004 Apr 2004
≫	8482	2Sx 9Mx 3Mx 3Rx	25X	Pentium 4 Celeron® Pentium 4 Pentium 4 Pentium 4	3.0 2.4 3.2 3.2 3.2	1MB 128KB 1MB 1MB 1MB	800	256MB 256MB 512MB 512MB 256MB	None 80GB SATA None 36.4GB U320 None	SATA SATA SCSI	320GB 320GB 440.4GB	5 x 7 5 x 7	2 simple-swap 2 simple-swap 3 hot-swap 4 fixed 2 simple-swap	Gigabit Gigabit Gigabit Gigabit	Apr 2004 Apr 2004 Jun 2004 Jun 2004
60	Position Proce L2 ca	oning essor(s	s)	uniproces Intel® Pe Up to 1M	ssor, en ntium 4 IB std a	try serve 2.8, 3.0 nd max /	r desig , or 3. ECC /	gned to m 2Ghz with full speed	eet small busir n 800MHz fron	ness need tside bus	ds and bud (FSB) or	<i>lgets</i> Celeron	at 2.4GHz		
		suppo		one AGP No SMP	slot, et	hernet co	ontrolle	r, connect	tor for extender	board (t	wo PCI slo	ts and gr	raphics controll	er)	,
	Memo	ory		PC2700 3 All Error	33MHz Checkin	ECC DDI g and Co	R-SDR/ orrectir	AM (modeling (ECC) /	gold-plated DIM ls 1xx and 2xx) DIMMs and EC DIMM configurati	PC3200 C memory	400MHz Ed controller	cc DDR-9 industry	SDRAM (model std / unbuffered	s 3xx) /	nodels /
	IDE d SATA Cable Disk	isk co disk d	ontrolle ntroller controlle	Enhance er Some: di One 2-dr Some: 36	d IDE / A ual char op EIDE 3.4GB U	ATA-100 inel SAT cables 320 SCS	/ integ A-150 (to CD I / 10,0	rated in I/0 controller 0-ROM) / 3 000 rpm / 4	ntroller (LVD 3 O Controller Hu (150MB/sec) Some: one 5-di 4.7 ms seek / anar / supports	ib / one c rop LVD \$ <i>Some:</i> 80	onnector o SCSI cable GB SATA	<i> Some.</i> 7,200 rp	om / 9.0 ms / <i>A</i>	<i>II:</i> S.M.A.I	₹.T.
				ow) One PCI Intel E72	bus / thr 10 chip ernet M	ee 32-bit set / Me AC, USE	: 33MH mory 0 3, Low	Controller I Pin Count	kit option 2.2 slots / two 6 Hub (MCH) / I/0 t Interface / Firr	O Control	ler Hub (IC	H-S) for	PCI 2.2 and P	CI-X bus,	ATA-100
	Etherr CD-Re Ports	OM /	diskette	Preboot e CD-ROM	Xecutio 2: 48X-20 5 USB (n Enviro 0X ⁶ CD-F Ver 2.0);	nment ROM,	(PXE) / W IDE / <i>Disl</i>	nar / full duplex /ake on LAN® / kette: 3.5" 1.44 al (9-pin), parall	Alert Star MB diske	ndard Forn ette drive	nat 2.0	pard, mouse, et	thernet (F	J-45),
		iostics ms mo	gmt cnt	Diagnostion Diagnostion	LEDS / system	error LEI	cessor	temperat	emory / server oure, fan speed or Adapter II (and failu	ire, and vo	Itages /			
	Graph	nics co	ontrolle					AM std/max analog 15-	c / pin D-Sub conn	512MB	PC2700 C	L2.5 ECC	DDR UDIMM DDR UDIMM DDR UDIMM		06P4053 06P4054
	Secur	rity		via knocl	out / po	ower-on on withou	passw It keyb		J-Bolt support sequence se /	256MB 512MB 1GB PC IBM 800	PC3200 C PC3200 C 3200 CL2 GB 7200 rp	L2.5 ECC L2.5 ECC 5 ECC E om simple	C DDR UDIMM C DDR UDIMM DDR UDIMM e-swap SATA-	150 HDD	
	Softw	are		installatio	n and c	onfigurat	ion to	ol), IBM D	etwork OS irector any utilities	32X/10X IBM Rer	(/40X/16X mote Supe	Max ⁶ CE rvisor Ac	t-swap U320 H D-RW/DVD (bla dapter II (PCI a	ack)	32P0726 22P6973 59P2984
	Coolir	oard / ng fans r supp		Three far on SCSI 340 watts Restart (ns (fansi models , s / unive ASR) / r	nk, rear, / not redursal / aut rsal / aut not hot-sv	pwr su undant to swite wap /ne	/ not hot-	s additional fan swap natic Server ncy /	IBM Ser IBM Ser IBM 20/ IBM 40/ IBM Net	80GB DLT BAY11 Sta	+ Contro Γ Contro Internal 1 Interna andard R	ller		09N4300 13N2190 71P8648 48P7042 24P2398 9306110
		Slot Slot Slot	2: fulls 3: fulls 4: fulls	size, 64-bit 66 size, 64-bit 66 size, 32-bit 33 size, 32-bit 33 size, 32-bit 33	SMHz, P SMHz, P SMHz, P	CI-X (3.3 CI 2.2 (5 CI 2.2 (5	3v) v) v)	♦ (Removable left Configuration/S memory) invoke startup Advanced Confi	etup Utilited by pres	ty (in flash ssing F1 at	InterestOn siMon-	LIMITED WA ar parts and lab national Warrar ite, 8 am-5 pm, Fri excluding h business day r	or nty Servic iolidays,	e ³



Mini-tower

Stealth

black

Bay ① 5.25", HH1.6", access, CD-ROM Bay ② 5.25", HH1.6", access, open (no disk) Bay © 3.25", SL 1", Bay © 3.5", SL 1", access, diskette access, open access (some), open access (some), open access (some), std disk + H 448mm x W 165mm x D 483mm (some)

Metal cage for disk bays 5,6,7 rotate out of chassis for easy access for cabling backplane or working with disks

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

Advanced Configuration Power

Interface (ACPI) 1.0 Device Drivers and Diagnostics

CD-ROM included Four stabilizing feet

→ Handle grip on top
 → H 17.25" x W 6.5" x D 19.0"

♦ 35 to 42 pounds (15.9 to 19.1kg)

Maximum SATA capacity: 320GB¹³ (2 disks x 160GB) Maximum hot-swap SCSI capacity:

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 69P9512)

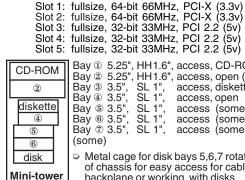
3 year IOR 24x7, 4 hr avg response (ServicePac part num 69P9511) 3 year IOR 9x5, 4 hr avg response

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

439.2GB13 (3 disks x 146.4GB) Maximum fixed SCSI capacity: 585.6GB¹³ (4 disks x 146.4GB)

	For GAV systems, lower	case "v" should be replace	•	_	de.			•		-	-	-
	IBM® Machine Type GAV mode			2 FSB	Memory	Disk	Disk controller	Maximum Capacity	PCI slots x bays	Hard disk bays	Ethernet	Available date
F	8482 - 4My -41x 8482 - 4Ry -44x 8482 - 4Sy -45x 8482 - 5My -51x 8842 - 5Ry -54x 8842 - 5Sy -55x	Pentium 4® EM64 Pentium 4 EM64 Pentium 4 EM64 Pentium 4 EM64 Pentium 4 EM64 Pentium 4 EM64	7 3.2 1M 7 3.2 1M 7 3.4 1M 7 3.4 1M	ИВ 800 ИВ 800 ИВ 800	512MB 512MB 256MB 512MB 512MB 256MB	None 36.4GB U320 None None 36.4GB U320 None	SATA	440.4GB 587.2GB 500GB 440.4GB 587.2GB 500GB	5 x 7	3 hot-swap 4 fixed 2 simple-swap 3 hot-swap 4 fixed 2 simple-swap	Giğabit Gigabit Gigabit Gigabit	Jan 2005 Jan 2005
	Positioning Processor(s) L2 cache Implementation	Intel® Penti Up to 1MB	um 4 3.2 std and mad d contains	& 3.4 Gh ax / ECC / one m478	z with 800 full speed BPGA soc	ket (processor	imized fo	or Extend	ed Memo	ory 64 Techno	• •	,
	SMP support	No SMP su	oport / no	processor	upgrade							
	Memory 256MB or 512MB / 4GB ¹³ max / four 184-pin gold-plated DIMM sockets / one socket used / PC3200 400MHz ECC DDR-SDRAM / All Error Checking and Correcting (ECC) / DIMMs and ECC memory controller / industry std / unbuffered / CAS Latency 3 (CL3) / apart from single-DIMM configurations, memory must be added in matched pairs [a bank]											
	SCSI disk control IDE disk controlle SATA disk contro Cables Disk RAID Controller	er Enhanced II oller 4Sy: single One 2-drop 4Ry: 36.4GI	DE / ÅTA-1 channel S EIDE cab 3 U320 SC	100 / integ SATA-150 les (to CD SSI / 10,00	rated in I/C controller I-ROM) / 4 IO rpm / 4.7	<i>My & 4Ry:</i> one 7 ms seek / S	b / one co supports e 5-drop l .M.A.R.T.	onnector of 2 drives of VD SCSI	n planar standard cable / 4	/sec) / supports 4 dr 4 <i>Sy:</i> one 2-drop upports ServeR	SATA c	able
	Rack support Bus slots (see be Chipset	4U ⁴ rack mo elow) One PCI but Intel E7210 EIDE, ether parallel, ser	s / three 32 chipset / net MAC, l	2-bit 33MH Memory 0 USB, Low	lz 5v PCI 2 Controller H Pin Count	2.2 slots / two 6 Hub (MCH) / I/(O Controll	er Hub (IC	CH-S) for	/ no hot-swap / PCI 2.2 and P0 M192 Super I/O	CI-X bus,	ATA-100
	Ethernet CD-ROM / disket Ports Diagnostics Systems mgmt	te CD-ROM: 4 Front: two U monitor (and Diagnostic LI Monitors sy	ecution Env 8X-20X ⁶ C JSB (Ver 2 alog DB-15 EDs / error stem and	vironment D-ROM, 1 2.0); Back 5) LEDs for fa processor	(PXE) / W IDE / Disk :: two seria ans and me temperate	emory / server oure, fan speed	Alert Star MB diske el, two Us liagnostic p and failu	ndard Forn tte drive SB (Ver 2. programs s re, and vo	nat 2.0 0), keybootored on lotages /	pard, mouse, et IBM Enhanced D monitoring and	Diagnostic	s CD
	Graphics controll	er SVGA / ATI®	Radeon™	7000M / 16	MB SDRA	M std/max / on p	olanar / ana	alog 15-pin				
	Security	Mechanical : via knockou control / op cover tampe	t / power- eration wit	on passw hout keyb	ord / boot oard/mous		512MB F 1GB PC IBM 800	PC3200 C 3200 CL3 3B SATA-	L3 ECC ECC DE 150 (7.2k	DDR UDIMM DDR UDIMM DR UDIMM () simple-swap		06P4049 06P4050 06P4051 73P8002
	Software	ServerGuid installation a (system har	and config	uration to	ol), IBM Di	rector	IBM 250 IBM 36.4	GB SATA 1GB 10K I	150 (7.2 hot-swap	2K) simple-swa _l 2K) simple-swa _l U320 HDD U320 HDD		73P8003 73P8006 32P0726 32P0724
	Keyboard / mous Cooling fans Power supply		(fansink, re dels / not universal / R) / not ho	ear, pwr su redundant auto swite ot-swap /ne	upply) plus / not hot-s ch / Autom o redundar iable spee	additional fan swap atic Server ncy / d)	IBM 146 IBM 36.4 IBM 73.4 32X/10X IBM Rer IBM Ser IBM Ser IBM 20/4 IBM 40/8 Other op	.8GB 10K 4GB 15K I 4GB 15K I /40X/16X note Supe (20D Tow veRAID-6 veRAID-7 40GB TR7 30GB DLT ptions at	hot-swap hot-swap hot-swap Max ⁶ CE ervisor Ac er-to-Rac i+ Contro t SATA C Internal	o U320 HDD U320 HDD U320 HDD O-RW/DVD (bla dapter II (PCI a ok Kit	dapter) De Drive	32P0725 90P1318 90P1319 22P6973 59P2984 09N4300 13N2190 71P8648 48P7042
					A F	Pamayahla laft	Other of	otions at				24P2



Stealth

black

Bay ① 5.25", HH1.6", access, CD-ROM
Bay ② 5.25", HH1.6", access, open (no disk)
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", access (some), open
Bay ⑥ 3.5", SL 1", access (some), open
Bay ⑦ 3.5", SL 1", access (some), std di (some)

Metal cage for disk bays 5,6,7 rotate out of chassis for easy access for cabling backplane or working with disks

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

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

♦ Four stabilizing 1.55.
♦ Handle grip on top
♦ H 17.25" x W 6.5" x D 19.0"
♦ H 448mm x W 165mm x D 483mm

access (some), std disk \$ 35 to 42 pounds (15.9 to 19.1kg)

Maximum SATA capacity 500GB13 (2 disks x 250GB) w/ optional ServeRAID 7t (4 disks x 1TB)

Maximum hot-swap SCSI capacity: 439.2GB¹³ (3 disks x 146.4GB) Maximum fixed SCSI capacity: 585.6GB¹³ (4 disks x 146.4GÉ)

LIMITED WARRANTY³

→ 1 year parts and labor

→ International Warranty Service³

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

On site service upgrade options (in eligible locations):⁷
• 3 year IOR 24x7, 2 hr avg response

(ServicePac part num 69P9512) 3 year IOR 24x7, 4 hr avg response

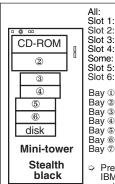
(ServicePac part num 69P9511) 3 year IOR 9x5, 4 hr avg response

(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 24x7¹⁴ toll-free support for warranty

issues during the warranty period

For GAV systems, lowercase "	y" should be replaced with a cou	ntry-specific code.					- 10		No. of Section	-
IBM® Machine Type GAV-model	Proccessor / Speed	L2 FSB cache MHz	Memory	Disk/Disk controller	Maximum Capacity		Hard disk bays	Power Supply	Ethernet	Available date
8485/8490 12y-12x P 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 3.0GHz entium 4 531 3.0GHz entium 4 630 3.0GHz entium 4 640 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	1MB 800 2MB 800 2MB 800 2MB 800 2MB 800 2MB 800 2 2×1MB 800 2 2×1MB 800 2 2×1MB 800 2 2×1MB 800	512MB 512MB 512MB 512MB 512MB 2x512MB 1GB 512MB 1GB 512MB 1GB	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 6 x 7 4 6 x 7 4				Oct 2005 Oct 2005
Positioning Processor(s)	Single socket, entry s Intel® Pentium 4 up Optimized for Exter	to 3.4GHz Si	nale Core	e 800MHz FSB	ess and d / Pentium	isiribulet	i enteprises			
L2 cache Implementation SMP support	Up to 2MB std on Pe Motherboard contains 2 PCI) some: six slots No SMP support / no	ntium 4 / 2x1 s one LGA-77 s(1 PCI Expre	MB std or 5 socket, ess x8, 1 f	Pentium D four DIMM sock	ets, some					
Memory	512MB or 1GB std / 80 DDR2-SDRAM / All E									
SAS disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	Integrated SAS contr Enhanced IDE / ATA- Four channel SATA One 2-drop EIDE cal Some: 80GB SATA / IBM ServeRAID™ 8e	100 / integrat controller (3.0 bles (to CD-F 7,200 rpm / 9	ed in I/O ()GB/sec) (OM) / one .0 ms see	Controller Hub / / supports 4 driv e 1-drop SATA (k / S.M.A.R.T.	ves standa cable per	ard installed				
Rack support Bus slots (see below) Chipset	5U ⁴ rack mount supp All: one PCI-E bus / o 66MHz 3.3v PCI-X sk Intel E7230 chipset MAC, USB, Low Pin of keyboard, mouse	ne 64-bit PCI- ots / no hot-sv / Memory Cor	E x8 / one vap Active ntroller Hu	e 64-bit PCI-E x1/ ™ PCI slots b (MCH) / I/O C	ontroller H	lub (ICH	7R) for PCI 2.2	2, ATA-1	00 EIDE	, ethernet
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / Preboot eXecution Er CD-ROM: 48X-20X ⁶ Front: two USB (2.0); Diagnostic LEDs / erro Mini-baseboard mana failure, and voltages	ovironment (P CD-ROM, IDI Back: two s r LEDs for fand Agement cont	XE) / Wak E / None erial (9-pii s and mem roller / IP	te on LAN® standard n), parallel, two nory / server diagr MI 1.5 / monitor	USB (2.0), nostic progr s system	keyboar ams stor	d, mouse, eth ed on IBM Enh essor temper	anced Di ature, fa	agnostics n speed	CD and
Graphics controller	ATI® RN50(ES1000) /	16MB SDRAM	std/max /	on planar / analog	g 15-pin / u _l	o to 1024	x768x32bit@85	5Hz		
Security Software	Mechanical side pane power-on password / without keyboard/mo ServerGuide™ (CD- installation and confir management), IBM I management softwar	boot sequer use based autom guration tool) Director (syst	ated netw ServeRA em hardw	vork OS AID™ (RAID	4GB(2x2GB) FIBM 80GB SA IBM 160GB SA IBM 250GB SA 80GB Hot-Sw	PC2-4200 C TA (7.2K) si ATA (7.2K) s ATA (7.2K) s ATA (7.2K) s ATA HE		IS IS		30R5148 30R5149 30R5150 39M4500 39M4504 39M4508 39M4518 39M4522 39M4522 26K5709
Keyboard / mouse Cooling fans Power supply	Optional Three fans (fansink, ron SAS models / not Some: 400W / not ho some: 430W / hot-sw switch / Automatic Se cooling fan in power s	redundant / n t-swap / no re ap / redundar erver Restart	ot hot-swa edundancy nt / all: uni (ASR) /	versal / auto	IBM Remote S IBM 5Ux20D T IBM ServeRAI	upervisor A ower-to-Ra D-7t SATA I	Swap HDD Swap HDD wap HDD wap HDD D-RW/DVD-ROM (dapter II (PCI adapt ick Kit ntegrated Controlle pc/us/accessories	er)	ck)	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 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-ROMincluded Four stabilizing feet H 17.25" x W 8.5" x D 21.25" H 448mm x W 215.9mm x D 539.75mm 36 to 45.8 pounds (16.3 to 20.8kg)

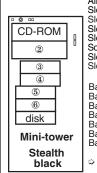
Maximum SATA capacity: 1TB¹³ (4 disks x 250GB) Maximum hot-swap SAS capacity: 1.2TB¹³ (4 disks x 300GB)

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

For GAV systems, lowercase	"y" should be replaced with a coun	try-specific code.						
IBM® Machine Type GAV-model	Proccessor / Speed	L2 FSB cache MHz	Memory	Disk/Disk controller	Maximum PCI slo Capacity x bays		Power Supply Etherne	Available et date
8485/8490 B2y-B2x 8485/8490 G2y-G2x 8485/8490 H2y-H2x 8485/8490 J2y-J2x	Pentium® 4 521 2.8GHz Pentium 4 631 3.0GHz Pentium D 920 2.8GHz Pentium D 940 3.0GHz Pentium D 940 3.2GHz Pentium D 940 3.2GHz	: 2MB 800 z 4MB 800 z 4MB 800 : 4MB 800	512MB) 512MB) 512MB) 2x512MI	None/SATA None/SATA None/SATA None/SAS/S 3 None/SAS/S 3 None/SAS/S		 7 4 simple-swap 7 4 hot-swap 7 4 hot-swap 	0 1x400W Gigab 0 1x400W Gigab 0 1x400W Gigab 1x400W Gigab 1x400W Gigab 1x400W Gigab	oit Feb 2006 oit Feb 2006 oit Feb 2006 oit Feb 2006
Positioning Processor(s)	Single socket, entry solutel® Pentium 4 up to Optimized for Extended	to 3.0GHz S	Single-Cor	e 800MHz FS	B / Pentium D	buted enterprises up to 3.2GHz Du	al-Core 800MHz	FSB / All
L2 cache Implementation	1 or 2MB std on Penti Motherboard contains 2 PCI) some: six slots	one LGA-77 (1 PCI Expr	75 socket, ess x8, 1	four DIMM se				
SMP support	No SMP support / no	processor u	pgrade					
Memory	512MB or 1GB std / 80 DDR2-SDRAM / All E							
SAS disk controller IDE disk controller SATA disk controller Cables Disk RAID Controller	Integrated SAS contro Enhanced IDE / ATA- Four channel SATA of One 2-drop EIDE cab Some: 80GB SATA / 7 IBM ServeRAID™ 8e (100 / integra controller (3. les (to CD-F 7,200 rpm / 9	ted in I/O 0GB/sec) ROM) / on 9.0 ms see	Controller Hul / supports 4 e 1-drop SAT ek / S.M.A.R.	o / one connector drives standard A cable per insta Γ.	alled hard disk		
Rack support Bus slots (see below	5U ⁴ rack mount support i) All: one PCI Express®	bus / one 64	-bit PCIe™	¹ x8 / one 64-b	oit PCle x1/ two 3	2-bit 33MHz 5v PC	CI 2.2 slots /	
Chipset	some: two 64-bit 66MI Intel E7230 chipset / MAC, USB, Low Pin C keyboard, mouse	Memory Co	ntroller Hu	ub (MCH) / I/C	Controller Hub			
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt	10/100/1000 gigabit / I Preboot eXecution En CD-ROM: 48X-20X ⁶ (Front: two USB (2.0); Diagnostic LEDs / error Mini-baseboard mana failure, and voltages	vironment (F DD-ROM, ID Back: two s LEDs for fan gement con	PXE) / Wai E / None serial (9-pi is and mer troller / IP	ke on LAN® standard n), parallel, tw nory / server di PMI 1.5 / mon	o USB (2.0), key agnostic programs itors system and	/board, mouse, etl s stored on IBM En processor tempe	hanced Diagnosti rature, fan spee	cs CD d and
Graphics controller	ATI® RN50(ES1000) / 1	6MB SDRAM	1 std/max /	on planar / ana	alog 15-pin / up to	1024x768x32bit@8	5Hz	
Security	Mechanical side panel power-on password / without keyboard/mou	boot seque			512MB PC2-4200 (2GB(2x1GB) PC2-4 4GB(2x2GB) PC2-4	CL3 ECC DDR2RoHS 4200 CL3 ECC DDR2 Ro 4200 CL3 ECC DDR2 Ro	HS	30R5148 30R5149 30R5150
Software	ServerGuide™ (CD-binstallation and configmanagement), IBM Dimanagement software	pased autom puration tool) pirector (sys), ServeR . tem hardv	AID ™ (RAID	IBM 80GB SATA (7 IBM 160GB SATA (IBM 250GB SATA (80GB Hot-Swap SA 160GB Hot-Swap SA	7.2K) simple-swap HDD 7.2K) simple-swap HDD 7.2K) simple-swap HDD ATA HDD ATA HDD		39M4500 39M4504 39M4508 39M4518 39M4522 39M4526
Keyboard / mouse Cooling fans	Optional Three fans (fansink, re on SAS models / not r				73GB 10K 3.5" SAS 146GB 10K 3.5" SAS 300GB 10K 3.5" SAS 36GB 15K 3.5" SAS 73GB 15K 3.5" SAS	S Hot-Swap HDD ,S Hot-Swap HDD ,S Hot-Swap HDD S Hot-Swap HDD		26K5709 26K5710 26K5711 26K5697 26K5698
Power supply	Some: 400W / not hot some: 430W / hot-swa switch / Automatic Se cooling fan in power s	ıp / redunda rver Restart	nt / all: un (ASR) /	íversal / auto	48X/32X/48X/16X I IBM Remote Super IBM 5Ux20D Towel IBM ServeRAID-7t3	Max ^e CD-RW/DVD-ROM visor Adapter II (PCI ada _l	oter) Ier	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
 (ServicePac part num 69P9509)
 Other ServicePac options at
 http://www.ibm.com/

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

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

IBM® Type-model Processor	GHz ¹	L2 cache	FSB MHz	Memory	Disk		Disk controlle	Hot-swap r disk bays	PCI slots x bays	Power supply number and type	Ethernet	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 Ultr None (open None (open 36.4GB Ultra None (open None (open 36.4GB Ultra None (open None (open	-bay) a320 10K -bay) -bay) a320 10K -bay)	Ultra320 Ultra320 Ultra320	6 hot-swapNone (4 fixed)6 hot-swapHot-swapNone (4 fixed)6 hot-swapHot-swap	6 x 9 6 x 9 d) 6 x 7 6 x 9 6 x 9	One fixed One fixed Two redundant One fixed One fixed Two redundant One fixed One fixed Two redundant One fixed Two redundant	Giğabit Gigabit Gigabit Gigabit Gigabit Gigabit Gigabit	Feb 2004 Feb 2004 Feb 2004 Feb 2004 Feb 2004
Processor(s) SMP - L2 Cache Implementation	2-way Syster	SMP / unboard c	ip to tv ontain:	vo Xeon F s two Intel	Processors (sa 604-pin micro	me speed o-PGA ZIF	d/cache siz sockets,	(FSB) / Hyper-Th ze) / 512KB std four DIMM slots, CSI and ethernet	reading te and max seven slo	chnology / at processor spects (one PCI 2.2, fo	ed our PCI-X,	one Mini
Memory	DDR-S 2-way	SDRAM I memorv	DIMMs interle	s / four DII ave / dua	VIM gold-conn I channel / Er	ector slots ror Check	s on system king and	mboard / DIMMs Correcting (ECC	must bĕ i 3) via 16-k	stered 184-pin ECC nstalled in matched pit Checksum Chi railable on 512MB	d pairs [a pkill ™ (co	rrects 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 / dual c	annel Ultra32 nbedded Mirro y in Slot 4) Tw iCSI cable froi	20 SCSI c ooring) / sha oring) / sha or 16-bit ch m systemb	ontroller ared with nannels (cooard to in	one internal and d nternal disks bays) / on plar veRAID™- ne externa s; Hot-swa	n planar nar / 64-bit 100MHz 5i Controller for lov al) / <i>Internal channe</i> p models: one 1-di om systemboard to	e <i>l:</i> Fixed d op 16-bit	isk models: 68-pin LVD
Cables Disk - features	conne One S	ctor CSI cabl	e (liste	ed above),	one 2-drop E	IDE cable	(to CD-R			•		
Rack support Bus slots (see below Chipset	Four 6 Intel E for slo	34-bit 100 27505 ch ts 2 and 3	MHz F ipset / 3 and	PCI-X 1.0 / E7505 M ethernet c	CH (Memory ontroller; Bus	/ öne Mini Controller B for slots	Hub) for A 4 and 5 a	AGP 8X slot, P64 and SCSI controll	lH2, ICH4 er) / I/O C	o hot-swap Active™ / P64H2 for two Pontroller Hub (ICH4 66 Super I/O off LP	CI-X buse I) for PCI	s (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	OMHz / full du IDE / <i>Disketti</i> ck: two USB (\ ohone-in (mon or fans and m anar / monitors	iplex / Wai e: 3.5" 1.4 Ver 2.0), to o), line-in nemory / s s system a	ke on LAN 4MB disk wo serial ((stereo), li erver diag and proces	Nº / Alert Standard ette drive '9-pin), parallel, ko ine-out (stereo) gnostic programs	eyboard, r stored on fan spee	C and PHY layer fu .0 / one rear RJ-45 nouse, ethernet (R IBM Enhanced Did d and failure, and v ing and control)	J-45), agnostics	CD
Graphics controller	SVGA	./ ATI® R	ageXL	. / on Mini	PCI adapter /	8MB SDF	RAM std a	nd max / PCI 2.2	32-bit 33N	/IHz / analog 15-pir	D-Sub co	onn
Security	hot-sw power	ap mode on pass	els) / o _l word /	ptional U-I boot sequ	(locks hot-sw Bolt support vi Jence control rity slot (for o	a knockou / operation	ut /	Xeon 2.80 GHz/5 Xeon 3.06 GHz/5	33/512KB 33/512KB 0 CL2.5 E	L2 Cache Proc U L2 Cache Proc U L2 Cache Proc U CC non-Chipkill DI	pg pg	24P7861 24P8054 24P8122 73P2868 33L5038
Software	and co		où tool), IBM Dir	omated netwo rector (system		tallation mgmt 2	1GB PC2100 CL 2GB PC2100 CL IBM 73.4GB 10K	2.5 ECC 2.5 ECC Ultra320	DDR-SDRAM DIMI DDR-SDRAM DIMI SCSI 68-pin <u>(not h</u>	VI ot-swp)	33L5039 33L5040 32P0724
Keyboard / mouse Cooling fans	up to a power All: n Some XBX: All:	six / three supply o ot redund one 425 two 514 universa	e for p age fa dant / r 5 watt 4 watt : al / vol	rocessor(s ns (three not hot-swa std and m std and m tage-sens	ouse (both blas), memory, ar in dual power ap / all variable ax / not hot-sv ax / hot-swap ing / Automat	nd disk ba supply mo e speed vap / redunda ic Server	PS/2) ys / two odel) nt	IBM 36.4GB 15K IBM 73GB 10K L IBM 146GB 10K 40X/12X/40X Ma IBM Remote Sup IBM 4U Extende	Ultra320 S Ultra320 S Ultra320 S x ⁶ CD-RW pervisor Ac d Depth T	lapter II (PCI adap	HDD HDD HDD ter)	32P0725 06P5776 32P0727 32P0728 22P6976 59P2984 59P4817 25P3492
Slot 1: half-length, 3: Slot 2: fullsize, 64-bi Slot 3: fullsize, 64-bi Slot 4: fullsize, 64-bi	2-bit 33 t 100Ml t 100Ml	MHz, PC Hz, PCI-) Hz, PCI-)	Cl 2.2 (X 1.0 (X 1.0 (5v) 3.3v) 3.3v)	†	Raven bla Removab	ick color le left side tion/Setu	IBM ServeRAID-(Other options at e panel p Utility invoked	6i Controlle ibm.com	/pc/us/accessories LIMITED WA year parts and I	4) ARRANT	71P8595



* Extended slot for opt IBM ServeRAID-5i

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

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

Hot-swap models 6AX and 6BX:

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

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

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

pressing ČTRL+C

♦ DMI 2.2-compliant

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

Diagnostics CD-ROM included

Four stabilizing feet

→ H 467mm x W 165mm x D 660mm

44 to 57 pounds (20 to 25.8kg)

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

Predictive Failure Analysis on disk(s) with IBM Director can alert the administrator of an imminent component failure 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® L2 FSB Memory Disk Controller Hot-st disk b S648-00y-00x 1 x Xeon 2.8 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-0By-0Bx 1 x Xeon 2.8 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-0By-0Bx 1 x Xeon 2.8 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-10Y-10x 1 x Xeon 3.0 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-1AY-1Ax 1 x Xeon 3.0 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-1BY-1Bx 1 x Xeon 3.0 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-20Y-20x 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2AY-2Ax 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512M	Perswap 6 x 7 One fixed Gigabit Sept 2004 Perswap 6 x 9 One fixed Gigabit Sept 2004 Perswap 6 x 9 Two redundant Gigabit Sept 2004 Perswap 6 x 9 One fixed Gigabit Sept 2004 Perswap 6 x 9 One fixed Gigabit Sept 2004 Perswap 6 x 9 One fixed Gigabit Sept 2004 Perswap 6 x 9 Two redundant Gigabit Sept 2004 Perswap 6 x 9 One fixed Gigabit Sept 2004 Perswap 6 x 9 One fixed Gigabit Sept 2004 Perswap 6 x 9 One fixed Gigabit Sept 2004 Perswap 6 x 9 Two redundant Gigabit Sept 2004 Perswap 6 x 9 Two redundant Gigabit Sept 2004 Perswap 6 x 9 Two redundant Gigabit Sept 2004
8648-00y-00x 1 x Xeon TM 2.8 1MB 800 512MB 80GB ² SATA 7200 SATA 3 simple 8648-0Ay-0Ax 1 x Xeon 2.8 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-0By-0Bx 1 x Xeon 2.8 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-1AY-1Ax 1 x Xeon 3.0 1MB 800 512MB 80GB SATA 7200 SATA 3 simple 8648-1AY-1Ax 1 x Xeon 3.0 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-1BY-1Bx 1 x Xeon 3.0 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2DY-20x 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2DY-2Dx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 8648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 9648-2BY-2Bx 1 x Xeon 3.2 1MB 800 512MB None (open-bay) Ultra320 6 hot-sw 970 SMP - L2 Cache 1x Intel® Xeon up to 3.2 GHz with 800MHz frontside bus (FSB) / EM647 2-way SMP / up to two Xeon Processors (same speed/cache size) / 1MB 800 512MB None (open-bay)	e-swap 6 x 7 One fixed Gigabit Sept 2004
SMP - L2 Cache 2-way SMP / up to two Xeon Processors (same speed/cache size) / 1MB s	
Implementation Systemboard contains two Intel 604-pin micro-PGA ZIF sockets, six DIMM s	std and max / at processor speed
Memory 512MB std / 16GB¹³ max (16GB maximum can be achieved when 4GB DIM than 4GB DIMMs) / two slots used / four slots available / PC2-3200 400MHz connector slots on systemboard / DIMMs must be installed in matched pairs Error Checking and Correcting (ECC) via 16-bit Checksum Chipkill™ (c detects 2- through 8-bit errors contained in two chips) available on 1GB (2x5)	MMs are supported, 12GB is the maximum with less ECC DDR2-SDRAM DIMMs / Six 240 pin gold-[a bank] / 2-way memory interleave / dual channel / corrects 1, 2, 3, or 4-bit errors on same chip and 12) DIMM Kit and greater
SATA disk controller SCSI disk controller Dual Channel SATA-150 controller (150MB/sec / two connectors on planar / Adaptec® 7902 / dual channel Ultra320 SCSI controller (LVD 320MB/sec) supports RAID-0 & 1 mirroring / Two 16-bit channels (one internal and one drop 16-bit 68-pin LVD SCSI cable to 6-bay backplane; External channel: cate to rear external 68-pin connector) / on planar / 64-bit 100MHz PCI-X / ServeRAID 7e e external) / <i>Internal channel:</i> Hot-swap models: one 1-able available as option pn 24P7929 from systemboard
Cables RAID Controller One SCSI cable (listed above), two one-drop SATA, one 2-drop EIDE cable (BM ServeRAID 7e (RAID 0 0r 1) / on planar / supports SATA or SCSI interface.	(to CD-ROM), ace / supports ServeRAID 6i+ controller
Mechanical Bus slots (see below) Chipset 4U ⁴ Tower (rack mount support via tower-to-rack kit option) One PCI-Express / three 64-bit (one 133MHz, 2 100MHz) PCI-X 1.0 / two 3 Intel E7520 chipset / E7525 MCH (Memory Controller Hub) for PCI-Express supports Adaptec 7902, 2 64bit/100MHz PCI-X slots (5 & 6), BUS B supports bit/33MHz PCI slots (slots 2 & 3), video, SATA, 4xUSB(2.0), Low Pin Count I	82-bit/33MHz / no hot-swap Active™ PCI slots s x16(vid), Broadcom, PXH, ICH5R / PXH BUS A s one 64bit/133MHz PCI-X slot (4) / ICH5R for two 32- Interface / NS PC87366 Super I/O off LPC interface
Ethernet One gigabit 10/100/1000 ethernet controller / Broadcom 5721 / full gigabit eth chip on planar / PCI-X 64-bit 100MHz / full duplex / Wake on LAN® / Alert Sta CD-ROM / diskette Ports Ports Diagnostics Systems mgmt cntrl Diagnostics Systems mgmt cntrl One gigabit 10/100/1000 ethernet controller / Broadcom 5721 / full gigabit eth chip on planar / full duplex / Wake on LAN® / Alert Sta CD-ROM: 48X-20X® CD-ROM, IDE / Diskette: 3.5" 1.44MB diskette drive Front: two USB (Ver 2.0); Back: two USB (Ver 2.0), two serial (9-pin), paral monitor (analog DB-15) Diagnostics Systems mgmt cntrl Winbond® W791D / chip on planar / monitors system and processor tempers support for optional Remote Supervisor Adapter II (provides continuous	Ilel, keyboard, mouse, ethernet (RJ-45), rams stored on IBM Enhanced Diagnostics CD ature, fan speed and failure, and voltages /
Graphics controller SVGA / ATI® Radeon™ 7000M on Planar / 16MB SDRAM std and max / 15 pin connector Security Mechanical side panel key lock (locks hot-swap disks on hot-swap models) / optional U-Bolt support via knockout / power-on password / boot sequence control / operation without keyboard/mouse / security slot (for opt cable lock) SVGA / ATI® Radeon™ 7000M on Planar / 16MB SDRAM std Xeon 2.80 € Xeon 3.0 € Xeon 3.0 € Step 1	GHz/800/1MB L2 Cache EM64TProc Upg 13N0671 GHz/800/1MB L2 Cache EM64TProc Upg 13N0672 Hz/800/1MB L2 Cache EM64TProc Upg 13N0673 73P3523 2) PC2-3200 ECC DDR2 73P3522
Software ServerGuide (CD-based automated network OS installation and configuration tool), IBM Director (system hardware mgmt software) and many utilities	E) PC2-3200 ECC DDR2 ChipK DIMM Kit 73P2865 B) PC2-3200 ECC DDR2 DIMM Kit 73P2866 SATA-150 (7.2K) simple-swap HDD 73P8002 SATA-150 (7.2K) simple-swap HDD 73P8003
Keyboard / mouse Cooling fans BM 101 key keyboard / IBM mouse (both black, 6-pin PS/2) up to six / three for processor(s), memory, and disk bays / two power supply cage fans (three in dual power supply model) All: not redundant / not hot-swap / all variable speed Some: one 530 watt std and max / not hot-swap XBX: two 514 watt std and max / hot-swap / redundant All: universal / voltage-sensing / Automatic Server IBM 250GB IBM 36.4GB IBM 73GB 1 IBM 146GB 40X/12X/40 IBM Remote	3 SATA-150 (7.2K) simple-swap HDD 73P8006 38 15K Ultra320 SCSI Hot-Swap SL HDD 06P5776 10K Ultra320 SCSI Hot-Swap SL HDD 32P0727 10K Ultra320 SCSI Hot-Swap SL HDD 32P0728 22P6976 22P6976 e Supervisor Adapter II (PCI adapter) 59P2984 ended Depth Tower-to-Rack Kit 26K6095
Hestart (ASH) / cooling tan in power supply(s) (variable spd) IBM ServeR	AAID-6i+ controller (adapter for Slot 5) 13N2190 AAID 7t SATA controller 71P8648 as at ibm.com/pc/us/accessories sed by LIMITED WARRANTY ³

CD-ROM

diskette

• 4

• (5)

• 6

• 7

• 8

• 9

Hot-swap

models only

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

Hot-swap models:

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

Bay & 3.5", SL 1", simple-swap Bay & 3.5", SL 1", 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)

Adaptec Configuration Utility startup by pressing CTRL+I
 DMI 2.2-compliant

Device Driver and IBM Enhanced Diagnostics CD-ROM included

♦ 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

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

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

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

Other ServicePac options at

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

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

J @ 501 V01	XSeries *** 220 (0040) (F	oblidary 2000)	XIIII Dy C	Server Field Skills and Education Team
IBM® Type-GAV-model Proce	L2 FSB essor GHz¹ cache MHz Memory	Disk Disk controll		I slots Power supply Available bays number and type Ethernet date
8648-40y-40x 1 x 2 8648-4Ay-4Ax 1 x 2 8648-4By-4Bx 1 x 2 8648-50Y-50x 1 x 2 8648-5AY-5Ax 1 x 2 8648-5BY-5Bx 1 x 2 8648-60Y-60x 1 x 2 8648-6AY-6Ax 1 x 2 8648-6BY-6Bx 1 x 2	Keon 3.0 2MB 800 512MB No Keon 3.0 2MB 800 512MB No Keon 3.2 2MB 800 512MB 80 Keon 3.2 2MB 800 512MB No Keon 3.2 2MB 800 512MB No Keon 3.4 2MB 800 512MB No Keon 3.4 2MB 800 512MB No	GB² SATA 7200 SATA ne (open-bay) Ultra32 GB SATA 7200 SATA ne (open-bay) Ultra32 ne (open-bay) Ultra32 GB SATA 7200 SATA ne (open-bay) Ultra32 ne (open-bay) Ultra32 ne (open-bay) Ultra32 ne (open-bay) Ultra32	20 6 hot-swap 20 6 hot-swap 3 simple-swap 20 6 hot-swap 3 simple-swap 3 simple-swap 20 6 hot-swap	6 x 7 One fixed Gigabit Mar 2005 6 x 9 Two redundant 6 x 9 One fixed Gigabit Mar 2005 6 x 9 One fixed Gigabit Mar 2005 6 x 9 Two redundant Gigabit Mar 2005 6 x 7 One fixed Gigabit Mar 2005 6 x 7 One fixed Gigabit Mar 2005 6 x 9 Two redundant Gigabit Mar 2005 6 x 9 Two redundant Gigabit Mar 2005 6 x 9 Two redundant Gigabit Mar 2005
Processor(s) SMP - L2 Cache Implementation	2-way SMP / up to two Xeon Process	sors (same speed/cache s	size) / 2MB std and m	_2 ECC Cache / Hyper-Threading technology nax / at processor speed slots (3 PCI-X, 2 PCI, 1 PCI Express x16)
Memory	512MB std / 16GB¹³ max (16GB max than 4GB DIMMs) / two slots used / for connector slots on systemboard / DIM Error Checking and Correcting (EC detects 2- through 8-bit errors contain	CC) via 16-bit Checksum	Chipkill™ (corrects 1,	upported, 12GB is the maximum with less R2-SDRAM DIMMs / Six 240 pin gold- / 2-way memory interleave / dual channel / 2, 3, or 4-bit errors on same chip and 1 Kit and greater
SATA disk controller SCSI disk controller Cables RAID Controller	supports RAID-0 & 1 mirroring / Tw	320 SCSI controller (LVL to 16-bit channels (one int 6-bay backplane; Externation one 2-droj	D 320MB/sec) / on plan ernal and one external <i>al channel:</i> cable availa o EIDE cable (to CD-R	nar / 64-bit 100MHz PCI-X / ServeRAID 7e) / Internal channel: Hot-swap models: one 1- able as option pn 24P7929 from systemboard OM).
Mechanical Bus slots (see below) Chipset	4U ⁴ Tower (rack mount support via to One PCI-Express / three 64-bit (one Intel E7520 chipset / E7525 MCH (N supports Adaptec 7902, 2 64bit/100M bit/33MHz PCI slots (slots 2 & 3), vide	ower-to-rack kit option) 133MHz, 2 100MHz) PCI- /lemory Controller Hub) fo Hz PCI-X slots (5 & 6), Bl eo, SATA, 4xUSB(2.0), Lo	X 1.0 / two 32-bit/33M r PCI-Express x16(vid) JS B supports one 64b w Pin Count Interface /	Hz / no hot-swap Active™ PCI slots , broadcom, PXH, ICH5R / PXH BUS A , br/133MHz PCI-X slot (4) / ICH5R for two 32- / NS PC87366 Super I/O off LPC interface
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl Graphics controller	One gigabit 10/100/1000 ethernet con chip on planar / PCI-X 64-bit 100MHz CD-ROM: 48X-20X° CD-ROM, IDE / Front: two USB (Ver 2.0); Back: two monitor (analog DB-15) Diagnostic LEDs / error LEDs for fan: Winbond® W791D / chip on planar support for optional Remote Supel SVGA / ATI® Radeon™ 7000M on Plan	/ full duplex / Wake on LA Diskette: 3.5" 1.44MB dis USB (Ver 2.0), two serial s and memory / server dia monitors system and proc	Nº / Alert Standard Fo kette drive (9-pin), parallel, keybo agnostic programs store essor temperature, fan	rmat 2.0 / one rear RJ-45 port pard, mouse, ethernet (RJ-45), ed on IBM Enhanced Diagnostics CD speed and failure, and voltages /
Security	Mechanical side panel key lock (locks hot-swap models) / optional U-Bolt su power-on password / boot sequence without keyboard/mouse / security slo	pport via knockout / control / operation	Xeon 3.2 GHz/800/2N Xeon 3.4 GHz/800/2N 512MB (2x256) PC2-	MB L2 Cache EM64TProc Upg 25R8900 MB L2 Cache EM64TProc Upg 25R8901 MB L2 Cache EM64TProc Upg 13N0676 3200 ECC DDR2 73P3523
Software	ServerGuide™ (CD-based automate and configuration tool), IBM Director (software) and many utilities	d network OS installation (system hardware mgmt	2GB (2x1GB) PC2-32 IBM 80GB SATA-150	00 ECC DDR2 ChipK DIMM Kit 73P2865 200 ECC DDR2 DIMM Kit 73P2866 0 (7.2K) simple-swap HDD 73P8002
Keyboard / mouse Cooling fans Power supply(s)	IBM 101 key keyboard / IBM mouse (Up to six / three for processor(s), melpower supply cage fans (three in dual All: not redundant / not hot-swap / all Some: one 530 watt std and max / nox xBx: two 514 watt std and max / nox not supply for the control of the con	mory, and disk bays / two I power supply model) variable speed ot hot-swap ot-swap / redundant Automatic Server	IBM 160GB SATA-15 IBM 250GB SATA-15 IBM 36.4GB 15K Ultra IBM 73GB 10K Ultra IBM 146GB 10K Ultra 40X/12X/40X Max ⁶ IBM Remote Supervis IBM 4U Extended De	50 (7.2K) simple-swap HDD 73P8003 73P8006 73P8006 3320 SCSI Hot-Swap SL HDD 32P0727 3320 SCSI Hot-Swap SL HDD 32P0727 320 SCSI Hot-Swap SL HDD 32P0728 D-RW internal (black) 22P6976 59r Adapter II (PCI adapter) 59P2984 4pth Tower-to-Rack Kit 26K6095
Slot 5: fullsize, 64-bit Slot 6: fullsize, 64-bit * support only for x8 ** slot for opt IBM Se Bay Bay Bay	/33MHz, PCI (5v) /33MHz, PCI (5v) : 133MHz, PCI-X 1.0 (3.3v) : 100MHz, PCI-X 1.0 (3.3v)** : 100MHz, PCI-X 1.0 (3.3v) adaptors	 Raven black color Removable left sid Configuration/Setu pressing F1 at sta BIOS Setup Utility Adaptec Configura startup by pressing DMI 2.2-compliant Adv Config Power Device Driver and 	IBM ServeRAID 7t SAOther options at ibm e panel p Utility invoked by rtup via F1 at startup tion Utility near g CTRL+I Interface (ACPI) 1.0a	Controller (adapter for Slot 5) ATA controller ATA controller T1P8648 13N2190 71P8648 1 year parts and labor International Warranty Service³ On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time

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

Hot-swap models:

Six bays 4 to 9 3.5", SL 1", access, hot-swp \Leftrightarrow Four stabilizing feet Simple-swap models: 2 std, 2 avail(up to 4 \$\display \text{Handle grip on top} SATA HDDs maybe added with ServeRAID \$\display \text{H 18.4" x W 6.5" x D 25.9"}

7t controller)

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

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

Diagnostics CD-ROM included

♦ 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

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

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

3 year IOR 9x5, 4 hr avg response

(ServicePac part num 96P2249)

3 year IOR 24x7, 4 hr avg response

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

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

Other ServicePac options at

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

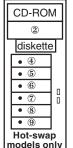
24x7¹⁴ toll-free support for warranty issues during the warranty period³

	•	, , ,	_ ′				The second second	-
	L2 FSB essor GHz¹ cache MHz M		Disk controller	Hot-swap disk bays		Power supply number and type	Ethernet	Available date
8648-32U-32x 1 x) 8648-34U-34x 1 x) 8648-36U-36x 1 x) 8648-E3U-E3x 1 x) 8648-E5U-E5x 1 x) 8648-E7U-E7x 1 x)	(eon 2.8 2MB 800 5 (eon 2.8 2MB 800 2 (eon 2.8 2MB 800 2	12MB 80GB² SATA 7200 112MB None (open-bay) 112MB None (open-bay) 1GB None (open-bay) 1GB None (open-bay) 1GB None (open-bay)	SATA Ultra320 Ultra320 Ultra320 Ultra320 Ultra320	6 hot-swap 6 hot-swap 6 hot-swap	6 x 9 6 x 9 6 x 9 6 x 9	One fixed Two redundant	Giğabit S Gigabit S	Sep 2005 Sep 2005 Sep 2005
Processor(s) SMP - L2 Cache Implementation	2-way SMP / up to two X	GHz with 800MHz frontsic eon Processors (same speed o Intel 604-pin micro-PGA ZI	d/cache`siz	e) / 2MB std an	d max / a	t processor speed	ŭ	0,
Memory	than 4GB DIMMs) / two s connector slots on system Error Checking and Cor	(16GB maximum can be ach lots used / four slots available aboard / DIMMs must be insta rrecting (ECC) via 16-bit Ch rrors contained in two chips) a	e / PC2-320 alled in mat ecksum C	00 400MHz ECC tched pairs [a bar chipkill ™ (correct	DDR2-SI nk] / 2-wa s 1, 2, 3,	DRAM DIMMs / Six y memory interleav or 4-bit errors on s	c 240 pin ac	old-
SATA disk controller SCSI disk controller	Adaptec® 7902 / dual ch supports RAID-0 & 1 mirr drop 16-bit 68-pin LVD SO to rear external 68-pin co		oller (LVD 3 s (one inter ; <i>External</i>	320MB/sec) / ön pal and one external and one external cable av	olanar / 64 nal) / <i>Inte</i> vailable as	4-bit 100MHz PCI- ernal channel: Hot-s	swap mode	els: one 1-
Cables RAID Controller	IBM ServeRAID 7e (RAID	oove), two one-drop SATA, o 0 0 0r 1) / on planar / support	ne 2-drop t s SATA or	SCSI interface / s	D-ROM), supports S	ServeRAID 6i+ con	troller	
Mechanical Bus slots (see below) Chipset	One PCI-Express / three	upport via tower-to-rack kit o 64-bit (one 133MHz, 2 100M 525 MCH (Memory Controlle 64bit/100MHz PCI-X slots (5 2 & 3), video, SATA, 4xUSB	Hz) PCI-X	1.0 / two 32-bit/3 PCI-Express x16(B B supports one Pin Count Interfa	3MHz / r vid), Broa 64bit/133 ce / NS P	no hot-swap Active dcom, PXH, ICH5 MHz PCI-X slot (4) C87366 Super I/O	™ PCI slots R / PXH BU I / ICH5R fo off LPC in	s US A or two 32- terface
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl	chip on planar / PCI-X 64- CD-ROM: 48X-20X6 CD-F Front: two USB (Ver 2.0) monitor (analog DB-15) Diagnostic LEDs / error L	ethernet controller / Broadcon bit 100MHz / full duplex / Wa ROM, IDE / <i>Diskette</i> : 3.5" 1.4 ; <i>Back</i> : two USB (Ver 2.0), t EDS for fans and memory / s	ke on LAN 14MB diske wo serial (9	[®] 7 Alert Standard ette drive 9-pin), parallel, ke postic programs	Format 2 yboard, n	2.0 / one rear RJ-45 nouse, ethernet (R. JBM Enhanced Di	5 port J-45), agnostics C	CD
Graphics controller	support for optional Res SVGA / ATI® Radeon™ 70	on planar / monitors system a mote Supervisor Adapter II 000M on Planar / 16MB SDR	I (provides AM std and	continuous healt d max / 15 pin co	n monitori nector	ng and control)	olageo /	
Security	Mechanical side panel ke hot-swap models) / option power-on password / boo	y lock (locks hot-swap disks lal U-Bolt support via knockol t sequence control / operatio security slot (for opt cable lo	on x ut / x n x	(eon 2.8 GHz/80) (eon 3.0 GHz/80) (eon 3.2 GHz/80))/2MB L2)/2MB L2)/2MB L2	Cache EM64TPro Cache EM64TPro Cache EM64TPro Cache EM64TPro	oc Upg 2 oc Upg 2 oc Upg 2	25R8907 25R8900 25R8901 13N0676
Software		d automated network OS ins M Director (system hardware es	e mgmt 1		-3200 EC -3200 EC	ECC DDR2 C DDR2 C DDR2 ChipK DI CC DDR2 DIMM K	MM Kit	73P3523 73P3522 73P2865 73P2866
Keyboard / mouse Cooling fans Power supply(s)	Up to six / three for proce power supply cage fans (t All: not redundant / not he Some: one 530 watt std a Some: two 514 watt std a All: universal / voltage	BM mouse (both black, 6-pin issor(s), memory, and disk bithree in dual power supply mot-swap / all variable speed and max / not hot-swap and max / hot-swap / redundationsensing / Automatic Server in in power supply(s) (variable	PS/2) IF A STATE OF THE PS/2 IF A STATE OF TH	BM 80GB SATA- BM 160GB SATA BM 250GB SATA BM 36.4GB 15K BM 73GB 10K UI BM 146GB 10K L 10X/12X/40X Max BM Remote Supe	150 (7.2k A-150 (7.2 A-150 (7.2 Ultra320 St Iltra320 SC & CD-RW ervisor Ad	() simple-swap HD (K) simple-swap HI (K) simple-swap HI (K) simple-swap HI (SCSI Hot-Swap SL FI (SSI Hot-Swap SL FI (SSI Hot-Swap SL FI (SSI Hot-Swap SL FI (Dlack) (apter II (PCI adap) (A)	D 7 DD 7 DD 7 . HDD 0 HDD 3 HDD 3 ter) 5	73P8002 73P8003 73P8006 06P5776 32P0727 32P0728 22P6976 59P2984
Slot 2: fullsize, 32	CI-Express x16 (3.3v)* 2-bit/33MHz, PCI (5v)		IE	BM 4U Extended BM ServeRAID-6 BM ServeRAID 7	i+ controll	er (adapter for Slo	t 5) 1	26K6095 13N2190 71P8648

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

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

* support only for x8 adaptors ** slot for opt IBM ServeRAID-6i+



Bay ① 5.25", HH 1.6", access, CD-ROM Bay ② 5.25", HH 1.6", access, open Bay 3 3.5", SL 1", access, diskette Hot-swap models:

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

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

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

→ Raven black color Removable left side panel

Configuration/Setup Utility invoked by pressing F1 at startup

BIOS Setup Utility via F1 at startup

Adaptec Configuration Utility near

startup by pressing CTRL+I

DMI 2.2-compliant

 ♦ Adv Config Power Interface (ACPI) 1.0a
 ♦ Device Driver and IBM Enhanced Diagnostics CD-ROM included

Four stabilizing feet ♦ Handle grip on top
 ♦ H 18.4" x W 6.5" x D 25.9"

→ H 467mm x W 165mm x D 658mm

44 to 57 pounds (20 to 25.8kg)

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

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

LIMITED WARRANTY³

1 year parts and labor

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

International Warranty Service³

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

options (in eligible locations):7 3 year IOR 9x5, NBD response

(ServicePac® part num 96P2248) 3 year IOR 9x5, 4 hr avg response

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

(ServicePac part num 96P2250)

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

→ Other ServicePac options at

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

IBM® Type-GAV-model Proce	essor GHz ¹		FSB MHz Men	nory	Disk	Disk controlle	er	Hot-swap disk bays		Power suppl number and ty		Available et date
8488-32U-32x 1 x 3 8488-34U-34x 1 x 3 8488-36U-36x 1 x 3	Xeon™ 2.8 Keon 2.8 Keon 2.8	2MB 8 2MB 8 2MB 8	800 512 800 512 800 512	MB None	3 ² SATA 72 (open-bay (open-bay	/) Ultra32	0 6	simple-swap hot-swap hot-swap	6 x 9	One fixed One fixed Two redunda	Giğabit	Sep 2005 Sep 2005 Sep 2005
Processor(s) SMP - L2 Cache Implementation	2-way SMI	P/upto	two Xeo	n Processoi	rs (same sp	eed/cache s	ize) /	2MB std an	d max / a	C Cache / Hyp t processor spe B PCI-X, 2 PCI,	ed	
Memory	than 4GB I connector s Error Che	DIMMs) slots on cking a i	/ two slots systembo nd Corre	s used / four ard / DIMM cting (ECC)	r slots availa s must be ir) via 16-bit	able / PC2-3 nstalled in m Checksum	200 4 atche Chipl	00MHz ECC	DDR2-SE nk] / 2-way s 1, 2, 3,	ed, 12GB is the DRAM DIMMs / y memory interl or 4-bit errors on d greater	Six 240 pir	n aold-
SATA disk controller SCSI disk controller Cables RAID Controller	Adaptec® supports R drop 16-bit to rear external one SCSI	7902 / d AID-0 & 68-pin L ernal 68 cable (li	lual chan 1 mirror _VD SCS -pin conn sted abov	nel Ultra32 ing / Two cable to 6- ector e), two one	0 SCSI con 16-bit chann bay backpla -drop SATA	t rolle r (LVD nels (one inte ne; <i>Externa</i> one 2-drop	320N ernal a al chai EIDE	and oné extei <i>nnel:</i> cable av E cable (to Cl	olanar / 64 nal) / <i>Inte</i> ailable as D-ROM).	RAID™ 7e 4-bit 100MHz P <i>rmal channel:</i> H 6 option pn 24P 6erveRAID 6i+ 6	ot-swap mo 7929 from s	dels: one 1-
Mechanical Bus slots (see below) Chipset	4U ⁴ Tower One PCI-E	(rack m xpress /	nount sup three 64	oort via tow bit (one 130 MCH (Mer	er-to-rack ki 3MHz, 2 100 mory Contro	it option) 0MHz) PCI-2 oller Hub) for	X 1.0 PCI-	/ two 32-bit/3 Express x16(3MHz / r	no hot-swap Acdcom, PXH, IC MHz PCI-X slot C87366 Super	tive™ PCI s H5R / PXH	lots BUS A R for two 32- interface
Ethernet CD-ROM / diskette Ports Diagnostics Systems mgmt cntrl Graphics controller	chip on pla CD-ROM: Front: two monitor (ar Diagnostic Winbond® ' support fo	nar / PC 48X-20X USB (V nalog DE LEDs / W791D or optio	CI-X 64-bit (° CD-RC 'er 2.0); I 3-15) error LED / chip on nal Remo	100MHz / fi M, IDE / <i>Di</i> <i>Back:</i> two U s for fans a planar / mo ite Supervi	ull duplex / \ skette: 3.5" SB (Ver 2.0 and memory onitors syste sor Adapte	Wake on LA 1.44MB disk), two serial // server dia m and proce er II (provide	N®7 A kette ((9-pin gnost ssor s con	lert Standard drive I), parallel, ke ic programs s temperature,	Format 2 yboard, m stored on fan speed n monitori	PHY layer fund. 0 / one rear R. nouse, ethernet IBM Enhanced I and failure, and and control)	l-45 port (RJ-45), Diagnostic d voltages	s CD
Security	hot-swap n power-on p	nodels) / password	/ optional d / boot s	ock (locks h U-Bolt supp equence co ecurity slot (ort via knoc ntrol / opera	kout / ation	Xeoi Xeoi Xeoi	n 3.0 GHz/80 n 3.2 GHz/80 n 3.4 GHz/80	0/2MB L2 0/2MB L2 0/2MB L2	Cache EM647 Cache EM647 Cache EM647 Cache EM647	Proc Upg Proc Upg	25R8907 25R8900 25R8901 13N0676
Software	ServerGui and configu software) a	uration to	ool), IBM	automated r Director (sy	network OS stem hardw	installation are mgmt	1GB 1GB		2-3200 E0 2-3200 E0			73P3523 73P3522 73P2865 73P2866
Keyboard / mouse Cooling fans Power supply(s)	Up to six / power supp Not redund One 530 w	three fo oly cage lant / no vatt std a nsing / A	r process fans (threat hot-swar and max / automatic	ee`iń dual po o / all variab not hot-swa Server Res	ory, and disk ower supply le speed / lp / universa	k bays / two model)	IBM IBM IBM IBM IBM 40X/ IBM IBM	80GB SATA 160GB SAT. 250GB SAT. 36.4GB 15K 73GB 10K 146GB 10K /12X/40X Ma Remote Sup 4U Extended	-150 (7.2k A-150 (7.2k A-150 (7.2 Ultra320 Itra320 S Ultra320 S x ⁶ CD-RW ervisor A d Depth T	() simple-swap 2K) simple-swa 2K) simple-swa 2K) Hot-Swap CSI Hot-Swap 6CSI Hot-Swap 1 internal (black dapter II (PCI ower-to-Rack k ler (adapter for	HDD O HDD O HDD O SL HDD SL HDD SL HDD SL HDD j dapter)	73P8002 73P8003 73P8003 73P8006 06P5776 32P0727 32P0728 22P6976 59P2984 26K6095 13N2190

Slot 1: fullsize, PCI-Express x16 (3.3v)*
Slot 2: fullsize, 32-bit/33MHz, PCI (5v)
Slot 3: fullsize, 32-bit/33MHz, PCI (5v)
Slot 4: fullsize, 64-bit 133MHz, PCI-X 1.0 (3.3v)
Slot 5: fullsize, 64-bit 100MHz, PCI-X 1.0 (3.3v)*
Slot 6: fullsize, 64-bit 100MHz, PCI-X 1.0 (3.3v)*
**support only for x8 adaptors

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 \odot 5.25", HH 1.6", access, CD-ROM Bay \odot 5.25", HH 1.6", access, open Bay \odot 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 & Four stabilizing feet

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

IBM ServeRAID 7t SATA controller

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

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

→ Handle grip on top
 → H 18.4" x W 6.5" x D 25.9"

→ H 467mm x W 165mm x D 658mm

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

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

LIMITED WARRANTY³

71P8648

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 Processor cache	L3 cache Memory D	SCSI Pisk controller Mechan	Slots x bays ical (hot-swap bays	Power supply	Available 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 2.8BGHz 512KB 2.8BGHz 512KB 3.06GHz 512KB 3.06GHz 512KB	0MB 512MB N 0MB 512MB N 0MB 512MB N 0MB 512MB N 0MB 512MB N	one 2 x Ultra320 Towo one 2 x Ultra320 Towo	er 6x10 (6 hot-swap std er 6x10 (6 hot-swap std nally available with pur	; 9 max) 560W hot ; 9 max) 560W fixed ; 9 max) 560W hot ; 9 max) 660W fixed ; 9 max) 660W hot	Gigabit Jan 2004
Positioning Processor(s) L2 cache L3 cache SMP support Implementation	Up to 1 x Intel® > 512KB / all mode 1MB / available of 2-way SMP / up Systemboard con	Keon™ Processon els / on die of processon on some models a to two Xeon Processon ntains two Intel 6	or 3.06 GHz with 533Ml deessor / at processor s / on die of processor / a deessors (same speed/c 03-pin micro-PGA ZIF	t processor speed	r-Threading technolog	У
Memory	PC2100 266MHz DIMMs must be i 2x100MHz / Erro	registered 184-ր nstalled in match or Checking and	Correcting (ECC) (co		rors on same chip ar	nd detects 2-
SCSI channels	supports RAID-1 low-cost RAID 0, Two 16-bit chann interface for Bay devices via exterre Enhanced IDE A' None standard / s	mirroring with 1, 1E, 5, 00, 10, nels / SCSI Chan 8 and 9 (may re nal SCSI knockou TA-100 controlle supports 7200-15	up to one hot-spare dis 1E0, 50 (installed only nel A: 16-bit 68-pin LVI quire a cable) or with c ut in rear (cable req 32P r in CSB5 South Bridge 000 rpm disks / one bac	ntroller (LVD 320MB/sek / shared with optional in Slot 4) Coable from controller to ptional 3-Pack Kit (cab 8164) or via opt ServeRey one connector on play collane / all disk bays Ultrot-swap bays with Kit 3	I İBM ServeRAID™-6 to backplane; <i>Chann</i> le included); supports AID adapter with exte anar / one 1-drop IDE ra320-enabled	i Controller for lel B: 16-bit 68-pin s external SCSI limal connector(s) cable (CD-ROM)
Mechanical Chipset	Tower / conversion ServerWorks® G two CIOB-X2 I/O controllers; IMB2	on to or EIA 19" R rand Champion Bridges (IMB2 bu bus to Host Bridd	tack (5U⁴) via optional k ™ 4.0 LE / CMIC LE Hos us to Host Bridge for PC ge for PCI-X 1.0 Bus C v	t for support in IBM NetE t Bridge (memory contro -X 1.0 Bus B with slots 2 ith slots 5 and 6) / CSB USB, SMBus, LPC bus	BAY™ Racks oller and I/O Bridge) / 2, 3, 4 and Ultra320 ar 5 South Bridge (Thin I	nd ethernet MB to Host Bridge
Ethernet controller CD-ROM / diskette Rear ports Front port / graphics	48X-20X ⁶ CD-RO Rear: two USB (V	M / IDE / 1.6" Hi ers 1.1), keyboard	H; <i>Diskette:</i> 3.5" 1.44M I, mouse, parallel, two se	CI-X 64-bit 100MHz / full d B diskette drive / dust c rial (9-pin),graphics (DB-1 on planar / 8MB SDRAM	over 5), ethernet (RJ-45), tv	vo RJ-45 (sys mgmt)
Security	Power-on passwo button / unattend			lockable front door to co		
Systems mgmt Diagnostics Software	H8S2148 / on pla monitoring such a supports optional connector on plar Light Path Diagn failing part (under	nar / provides sys as temp, optional Remote Supervis nar for continuous lostics™ panel pr side cover) / Infor CD-ROM installati	nent processor (ISMP) stem and environmental disks, fans, power supp sor Adapter with 20-pin s power (no ext pwr reqd oviding LED map to rmation LED Panel in from ion and configuration	Xeon 2.8BGHz/512 Xeon 3.06GHZ/512 2x256MB PC2100 I 512MB PC2100 CL2.5 1GB PC2100 CL2.5 2GB PC2100 CL2.5 IBM ServeRAID-61 IBM Remote Super	KB L2 Cache Proc U KB L2 Cache Proc U KB L2 Cache Proc U Non-Chipkill DDR-SD 2.5 ECC DDR-SDRAM 5 ECC DDR-SDRAM 5 ECC DDR-SDRAM 6 COT DDR-SDRAM 6 COT DDR-SDRAM 6 I CC DDR-SDRAM 6 I CC DDR-SDRAM 7 I CONTROLLER 8 I CONTROLLER 8 I CONTROLLER 9 I CONT	pg 71P8967 pg 02R1988 RAM Kit 73P2868 M DIMM 33L5038 RDIMM 33L5039 RDIMM 33L5040 or slot 4) 71P8595 adapter) 59P2984
Keyboard/mouse Power supply	IBM 101-key key MAX: std/max: tw M1X: std/max: two Rest: std/max: on xAX: std/max: on xAX: std/max: on Teour fans and two redundant / PFA	ro/two 660 watt de/two 660 watt do/two 560 watt de/two 560 watt do blowers / varia	All: voltage-sensing / auto-restart / fan in each able speed / hot-swap /	36.4GB 15K-2 80 UI 3-Pack Ultra320 Hot IBM 560W Hot-Swa IBM 660W Hot-Swap Other options at iI	tra320 SCSI Hot-Swa t-Swap Expansion Kit ap Power Upgrade Ki Power Upgrade Kit (3. bm.com/pc/us/acces atible with 400Mhz FSE	up SL HDD 06P5776 33P2751 t* 02R1874 06 Only) 02R2015 sories
5.25" HH 5.25" HH CD-ROM	MHz 5v PCI 2.2, B DMHz 3.3v PCI-X, DMHz 3.3v PCI-X, DMHz 3.3v PCI-X, SMHz 3.3v PCI-X, SMHz 3.3v PCI-X, SMHz 3.3v PCI-X, SMHz 3.5v PCI-X, DI 3.5", SL 1", 2 3.5", SL 1", 3 3.5", SL 1", 6 3.5", SL 1", 6 3.5", SL 1",	Bus A not hot, Bus B not hot, Bus B* hot-swap, Bus C hot-swap, Bus C co-si Controller access, hot-swar access, co-swar	 Quick release adapt Configuration/Setup pressing F1 at startu LSI Logic Configura by pressing CTRL+I Diagnostics (PC-Doo F2 at startup ACP12.0-compliant Operator Information Predictive failure an memory, processor supplies, and fans in Director can alert the of an imminent comp Tower: H 17.31" x 74 to 101 pounds Stealth black color All models: Max interest	Utility invoked by price of the provided by processing to the processing and pro	24 hr x 7 day co 4 hour average (ServicePacpar 24 hr x 7 day co 2 hour average (ServicePacpar 24x7¹⁴ toll-free su 24x7¹⁴ toll-free su	abor ranty Service ³ om, Mon - Fri ng holidays, next ponse time ⁷ ranty service (in eligible e, ing holidays, response art num 21P2083) overage, response tnumber 21P2084) overage, response tnumber 21P2085)

		Memory Disk	SCSI controller Mechan			Available Ethernet date
8841-11ý-11x 1 x X 8841-21y-21x 1 x X 8841-31y-31x 1 x X 8841-32y-32x 1 x X	eon 3.6GHz 1MB	1GB None 1GB None 1GB None 1GB None 1GB None	2 x Ultra320 Towe 2 x Ultra320 Towe 2 x Ultra320 Towe 2 x Ultra320 Towe 2 x Ultra320 Towe	6x10 (6 hot-swap std 6x10 (6 hot-swap std	; 9 max) 1 x 670W hot-s ; 9 max) 1 x 670W hot-s ; 9 max) 1 x 670W hot-s ; 9 max) 2 x 670W hot-s ; 9 max) 1 x 670W hot-s	wap 2xGigabit Aug 2004 wap 2xGigabit Aug 2004 wap 2xGigabit Aug 2004 wap 2xGigabit Aug 2004
Positioning Processor L2 cache	Up to 1 x Intel® Xeo	n™ Processo leous Multi-th	r 2.8, 3.0, 3.2, 3.4, 3 . reading (SMT) / Hy	6 GHz with 800MHz from per-Threading technolog	nd performance at an affor ntside bus / Extended Me ly /	
SMP support Implementation	2-way SMP / up to to Systemboard contain	two Xeon Products two Intel 60	cessors (same speed 4-pin micro-PGA ZIF	/cache size)	gold-connector DIMM slot graphics	S,
Memory	DIMMs / DIMMs mus 2x200MHz / Error C	st be installed Checking and wo chips) / Ad	in matched pairs [a b Correcting (ECC) (o ctive Memory™: me	ank] / 2-way memory into orrects 1, 2, 3, or 4-bit e mory mirroring, online	0 400MHz registered 240- erleave / dual channel / m errors on same chip and d -spare memory / 16-bit (emory bus runs at etects 2- through 8-bit
SCSI disk controller		RAID-0, 1 mii	roring with up to on	e hot-spare disk / option	/ on planar / 64-bit 100Ml al IBM ServeRAID™-7k C	
SCSI channels	Two 16-bit channels Bay 8 and 9 (may re knockout in rear (cal	/ SCSI Chann equire a cable) ole req 24P79	<i>el B:</i> 16-bit 68-pin LV or with optional 3-Pa 73) or via opt ServeF	D cable from controller to ck Kit (cable included); s AID adapter with extern		ices via external SCSI
IDE controller / cable Disk - capacity Disk - bays	None std / supports	7200-15000 rp	m disks / one backp	ane / all disk bays Ultra3	anar / one 1-drop IDE cabl 320-enabled : 33P2751 for up to nine 1	,
Mechanical Slots Chipset (see below)	Two PCI-Express (or Intel E7520 chipset (slots 2 & 3) / PXH: E	ne hot-plug), th / Intel E7520 Bus A, two 64-	nree PCI-X 64-bit (or Memory Controller H bit/100MHz PCI-X sk	e 133MHz and two 100Nub (MCH): PXH, ICH5R, ots (slots 4 & 5), Adaptec	BAY™ Racks (13N0956) MHz), one 32-bit/33MHz s Dual Broadcom ethernet, SCSI Bus B, one 64-bit/1 bus to Super I/O / NS PC8	two PCI-Express x8 slots 33MHz Hot-Plug slot (slot
Ethernet controller	Dual 10/100/1000 gio		om® BCM 5721 / on p	lanar / PCI-X 64-bit 100N	MHz / full duplex / Wake or	LAN® / Alert Standard
CD-ROM / diskette Rear ports Front port / graphics	48X-20X ⁶ CD-ROM Rear: two USB (Vers Front: one USB (Vers	/ IDE / 1.6" HF s 2.0), keyboa s 2.0); <i>Graphi</i>	rd, mouse, parallel, ocs. SVGA / ATI® Rac	leon™ 7000M / on plana	s (DB-15), two ethernet (F r / 16MB DDR std/max / 3	32-bit/33MHz PCI 2.2
Security	Power-on password unattended boot / se	/ administrator lectable boot	password / hinged a	nd lockable front door to	cover disk bays, power b	utton, and reset button /
Systems mgmt Diagnostics	IBM Integrated sys H8S2148 / on planar monitoring such as to supports opt. Remote 20-pin connector on (no ext pwr reqd) Light Path Diagnos failing part (under sid	r / provides sys emp, optional of e Supervisor A planar for con stics™ panel p	stem and environmer disks, fans, power su dapter II Slimline with tinuous power (std c roviding LED map to	xeon 3.4GHz/11 Xeon 3.6GHZ/1 512MB (2x256) In 32y) 1GB (2x512) PC 1GB (2x512) PC 2GB (2x1GB) P 73.4GB 10K Ult	MB L2 Cache Proc Upg MB L2 Cache Proc Upg MB L2 Cache Proc Upg PC2-3200 CL3 ECC DDF2 C2-3200 CL3 ECC DDR2 C2-3200 CL3 ECC DDR2 C2-3200 CL3 ECC DDR2 ra320 SCSI Hot-Swap SL	non-Chipk 73P3522 RDIMM 73P2865 RDIMM 73P2866 HDD 32P0727
Software	front ServerGuide ™ (CD- utilities), IBM Director		on and configuration	36.4GB 15K Ult 73.4GB 15K Ult	Itra320 SCSI Hot-Swap SI ra320 SCSI Hot-Swap SL ra320 SCSI Hot-Swap SL	HDD 06P5776 HDD 32P0735
Keyboard / mouse Power supply Fans	IBM 101-key keyboa std/max: one/two 670 Fan in each std/max planar, (Opt) two fan redundant with optic fan in each power s	0 watt / voltage : four/six/ two is (rear) / varia onal rear fans	e-sènsing / auto-resta fans (front), two fans ble speed / hot-swap	on / IBM T541 15" F 3-Pack Ultra320 IBM 670W Hot-	pervisor Adapter II Slimline lat Panel Color Monitor (bl) Hot-Swap Expansion Kit Swap Power Upgrade Kit at www.ibm.com/pc/us/ad	ack) 9512AB1 33P2751 (NA) 25K9560 ccessories
Slot 2: full, PCĬ-Exp Slot 3: full, PCI-Exp Slot 4: full, 64-bit 10 Slot 5: full, 64-bit 10	oress x8, Bus C 00MHz 3.3v PCI-X, E 00MHz 3.3v PCI-X, E	Bus D Bus D	 Configuration/ pressing F1 at Adaptec Configuration Pressing (iguration Utility near st	artup 3 year parts a International \ On site, 8 am coverage exclusiness day	DWARRANTY ³ nd labor Warranty Service ³ - 5 pm, Mon - Fri luding holidays, next response time ⁷ warranty service
5.25" HH 5.25" HH CD-ROM 2 8ay Bay Bay Bay Bay Bay Bay Bay Bay Bay B	/ ② 3.5", SL 1", ac / ③ 3.5", SL 1", ac / ④ 3.5", SL 1", ac / ⑥ 3.5", SL 1", ac / ⑥ 3.5", SL 1", ac	ccess, open** ccess, CD-RC	ACPI2.0-comp Operator Infor Operator Infor Predictive fail memory, proc supplies, and Director can a of an imminen Tower: H 17. 74 to 101 pou Stealth black	mation Panel (in front) ure analysis on disk opti essors, VRMs, power fans in conjunction with ert the system administ a component failure 31" x W 8.5" x D 27.6" nds	upgrade optic locations):7 • 9 hour cove Mon-Fri ex 4 hour aver (ServicePac 4 hour aver (ServicePac 5 24 hr x 7 da 4 hour aver (ServicePac 5 24 hr x 7 da 2 hour aver	erage, cluding holidays, rage response part num 21P2083) ay coverage, rage response part number 21P2084)
**B	ays 8 and 9 support t isks via 3-Pack Kit 33		1.2TB ² with ni	ne 146.4GB SL disks w 0 Hot-Swap Expansion	ith	e support for warranty the warranty period ³

IBM®	L2		SCSI			Slots x l	nave		Pov	vor		Available
	x Processor cache Memo	ory Disk c	ontroller Me	echanical		ot-swap			sup		Ethernet	
8841-05U-05x 1 x X			2 x Ultra320		6x10 (6	hot-swa	ap std; 9					
8841-15y-15x 1 x X	eon® 3.0GHz 2MB 1GB eon 3.2GHz 2MB 1GB		2 x Ultra320 2 x Ultra320									
8841-35y-35x 1 x X			2 x Ultra320									
8841-45ý-45x 1 x X	eon 3.6GHz 2MB 1GB	None 2	2 x Ultra320	Tower	6x10 (6	hot-swa	ap std; 9	max)	1 x 670V	V hot-swap	2xGigabit	Mar 2005
8841-16y-16x 1 x X		None 2	2 x Ultra320	Tower	6x10 (6	hot-swa	ap std; 9	max)	1 x 670V	V hot-swap	2xGigabit	Mar 2005
8841-E1y-E1x 1 x X 8841-E2y-E2x 2 x X	eon 3.0GHZ 2MB 2GB	3x73.4GB 2 3x73.4GB 2	2 X Ultra320 2 v Hltra320	Tower	6x10 (6	not-swa	ap sta; 9 an etd: 0	max)	1 x 670V	v not-swap v hot-swap	2xGigabit	Mar 2005
	eon 3.8GHz 2MB 1GB		2 x Ultra320									
Positioning	Universal server; two-wa											
Processor	Up to 1 x Intel® Xeon™	Processor 2.	8, 3.0, 3.2,	3.4, 3.6, 3	3.8 GHz	with 80	OMHz fro	ontside				echnol-
10	ogy (EM64T) / Simulta	neous Multi-	threading (SMT) / H	lyper-Th	reading	technolo	ogy /			•	
L2 cache SMP support	2MB / all models / on die 2-way SMP / up to two					2)						
Implementation	Systemboard contains to						morv go	ld-conn	ector DIM	1M slots.		
	six PCI slots (one hot-sv	vap Active™ F	PCI slots), a	nd integra	ated SC	SI, ethe	rnet, gra	phics				
Memory	1GB std / 16GB max / t	wo slots used	l / six slots a	vailable /	PC2-32	200 400ľ	MHz regi	istered	240-pin E	CC DDR2	SDRAM D	IMMs /
•	DIMMs must be installed	l in matched p	oairs [a bank	(] / 2-way	memor	y interlea	ave / dua	al chanr	nel / mem	ory bus rur	ns at 2x200	MHz /
	Error Checking and Co	rrecting (EC	C) (corrects	1, 2, 3, (or 4-bit e	errors or	same o	chip and	d detects	2- through	8-bit errors	s contained
0001 " 1	in two chips) / Active Memory™: memory mirroring, online-spare memory Adaptec AIC 7902 / dual channel Ultra320 SCSI controller (LVD 320MB/sec											
SCSI disk controller												
	HostRAID supports RAI low-cost RAID 0, 1, 1E,						puonai i	DIVI SE	rveRAID.	-7K COHIC	oller for	
SCSI channels	Two 16-bit channels / So	CSI Channel E	3: 16-bit 68-r	oin LVD o	able fro	m contro	oller to ba	ackplan	e; Chani	<i>nel A:</i> 16-bi	t 68-pin inte	erface for
	Bay 8 and 9 (may requir	e a cable) or	with optiona	3-Pack	Kit (cabl	e include	ed); supp	orts ex	ternal SC	SI devices	via externa	al SCSI
IDE controller / cable	knockout in rear (cable r Enhanced IDE ATA-100									NE cable (C		
Disk - capacity	None std / supports 720									L cable (C	D-HOIVI)	
Disk - bays	Six hot-swap / 80-pin SC									nine 15K rp	om disks	
Mechanical	Tower / conversion to El	A 19" Rack (5U4) via opti	ional kit fo	or suppo	ort in IBN	/I NetBA	Y™ Rad	cks (13N0	0956)		
Slots	Two PCI-Express (one h	ot-plug), three	e PĆI-X 64-I	bit (one 1	33MHz	and two	100MH	z), one	32-bit/33	MHz ['] slot		
Chipset (see below)	Intel E7520 chipset / In											
	(slots 2 & 3) / PXH: Bus 6) / ICH5R: one 32-bit/33	A, two 64-bit/ SMHz slot (slo	t 1) ATI vid	eo FIDE	USB 5	& 5), Ad SMBus T	aptec St PC bus	to Sun	94-DIV 133IVI S PC87417	MZ MOT-PIU 7 Super I/C	g siot (siot)	
Ethernet controller	Dual 10/100/1000 gigabi											
Eulemet controller	Format (2.0) / IPMI (1.5)	t / Broaucom	DOW 5/21	/ on plan	ar / PCI	-X 04-DII	. IUUIVIII.	Z / IUII C	iupiex / vv	rake on LAI	N° / Alert S	olanuaru
CD-ROM / diskette	48X-20X ⁶ CD-ROM / IDI	E / 1.6" HH;	Diskette: 3.5	" 1.44MB	diskette	e drive /	dust cov	/er				
Rear ports	Rear: two USB (Vers 2.											
Front port / graphics	Front: one USB (Vers 2.	0); Graphics:	SVGA / AT	l® Radeoi	n'™ 7000	OM / on	planar / ˈ	16MB L	DDH std/n	nax / 32-bi	t/33MHz P	CI 2.2
Security	Power-on password / ac								Cache Proc	. 0		25R8907
	front door to cover disk to unattended boot / selecta		outton, and re	eset butto	ori /				Cache Proc			25R8902
Customa mamt				(ICN/ID)	. /				Cache Proc Cache Proc			25R8903 13N0686
Systems mgmt	IBM Integrated system H8S2148 / on planar / pi					١,			Cache Proc			13N0687
	such as temp, optional of					note 🖯			Cache Proc			13N0689
	Supervisor Adapter II Sli	mline with 20-	pin connecto			5				CDDR2 non-C		73P3523
Diagnostics	continuous power (std o	n 32y) (no ex	kt pwr reqd)	on to f-!	ina ne:+	- 1				DDR2 non-Chi DDR2 RDIMM		73P3522 73P2865
Diagnostics	Light Path Diagnostics (under side cover) / Infor	mation I FD F	onel in fron	iap io iali t	iiig part		,	,		DDR2 RDIMM		73P2866
Software	ServerGuide™ (CD-RO									vap SL HDD		32P0727
	utilities), IBM Director, ot									Swap SL HDD		32P0728
Keyboard / mouse	IBM 101-key keyboard /	IBM mouse ((both black)				3.4GB 15K BM ServeR			vap SL HDD		32P0735 71K8642
Power supply	std/max: one/two 670 wa	att / voltage-se	ensing / auto			- 1			or Adapter II	Slimline		73P9341
Fans	Fan in each std/max: fou								Swap Expans			33P2751
	(Opt) two fans (rear) / va optional rear fans / PF				iit Witti				Power Upgra			25K9560
		., idii iii cac	on power at	איאאי		'	ou ier options	sat www.i l		us/accessories		# 0



Bay ① 3.5", SL 1", access, diskette Bay ② 3.5", SL 1", access, hot-swap Bay ③ 3.5", SL 1", access, hot-swap Bay ⑤ 3.5", SL 1", access, hot-swap Bay ⑥ 5.25", HH 1.6" access, open** Bay ⑨ 5.25", HH 1.6" access, open** Bay ⑩ 5.25", HH 1.6" access, CD-ROM

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

Quick release adapter slots (no screws)

Configuration/Setup Utility invoked by pressing F1 at startup

Adaptec Configuration Utility near startup by pressing CTRL+I

Diagnostics (PC-Doctor™) by pressing F2 at startup

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 17.31" x W 8.5" x D 27.6"

⇒ 74 to 101 pounds⇒ Stealth black color

All models: Max int disk capacity: 1.2TB2 with nine 146.4GB SL disks with 3-Pack Ultra160 Hot-Swap Expansion Kit

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

CD-ROM

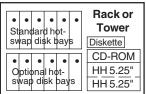
Tower

Din (0 501 V01	xSeries™ 25	o (Julie	2003)		XHEF By es	erver Field 5	kills Enablem	ent ream	
IBM® Type-model Qty x	L3 Processor cache	Memory	ECC memory features	Disk	SCSI controller	Mech- Slots x d anical bays (s	lisk bays std/max) Ethernet	Available date	
8685-71X 1 x Xeon 8685-7RX 1 x Xeon ≈ 8685-72X 2 x Xeon ≈ 8685-73X 2 x Xeon ≈ 8685-81X 1 x Xeon ≈ 8685-8RX 1 x Xeon ≈ 8685-9RX 1 x Xeon ≈ 8685-9RX 1 x Xeon	MP 2.0GHz 1MB MP 2.0GHz 1MB MP 2.0GHz 1MB MP 2.5GHz 1MB MP 2.5GHz 1MB MP 2.8GHz 2MB	512MB Ho 1GB Ho 1GB Ho 1GB Ho 1GB Ho	ot Spare/Chipkill	None None None 2 x 36.4GB 10K None None None None	2 x Ultra160 2 x Ultra160 2 x Ultra160 2 x Ultra160 2 x Ultra160	Rack 7 x10 Tower 7 x10 Tower 7 x10 Tower 7 x10 Rack 7 x10 Tower 7 x10	6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit	Jun 2003 Nov 2003 Nov 2003 Jun 2003 Jun 2003 Jun 2003	
Processors L2 cache L3 cache Processor upgrade Implementation	1 or 2 x Intel® Xec 512KB / on die of p 1MB or 2MB / on di 4-way SMP / up to Systemboard conta one PCI slot, and in	rocessor / at le of process four Xeon Pr ains four Inte	t processor speed sor / at processor s rocessors MP (sar I 603-pin micro-P0	speed ne speed/cache GA ZIF sockets, o	size)	,,	Ů	nnology	
Memory	Up to 3GB std / 24 184-pin ECC DDR installed in matche of a pair or quad o mirroring (memor Chipkill ™ (corrects	-SDRAM DI d pairs or q f DIMMs [a y mirroring	MMs'/ one memoudds [a bank] / 2-bank]; reqs additionsupported with a	orý-board std wit or 4-way memo onal memory ma ny OS) / Error	h 12 DIMM gold-co pry interleave / Ho atching failed bank Checking and Co	onnector slots t Spare Memo () / Active Memorrecting (ECC)	/ DIMMs mus ory (activated l mory™ via me C) via 16-bit (t be by failure emory Checksum	
SCSI disk controller SCSI connectors IDE controller / cablir Disk - capacity Disk - bays	Adaptec® AIC-7899 Channel B: 68-pin Channel A: 68-pin g Enhanced IDE ATA None (or two) stan Std: six hot-swap di	connector or connector or a-100 control dard / supp	n planar to SCSI ba n planar for optiona ller in CSB5 South orts up to 15,000	ackplane (one-dr al one-drop 16-bii Bridge / one one rpm disks / 80-	op 16-bit LVD cable : LVD cable (32P81 -drop IDE cable fro pin SCA-2 connec	e) / 64) to rear 0.8i om IDE controll tors	mm VHDCI cor er to CD-ROM	nnector	
Mechanical Rack / conversion Architecture / chipset	two CIOB-X I/O Bri ethernet and one P SMBus, IOAPIC, L) Six hot-swap PCI-X	oorted in IBM and Champ dges (IMB b PCI 2.2 bus fo PC bus to S (1.0 slots ¹⁰	M NetBAY™ racks ion™ 4.0 HE / CM bus to Host Bridge or SCSI / CSB5 S uper I/O) / five pe available with pov	/ kit available to IC Host Bridge (, one with two Poouth Bridge (Thier PCI buses / Nower and attention	convert tower to ra Memory Controller CI-X buses C and I n IMB to Host Bridg S PC87417 Super indicator lights (op	ack (use NetBar and I/O Bridga D, other with o ge, one PCI 2.2 I/O (diskette, Potical sensors o	AY11 for rack te) and five REI ne PCI-X bus I bus A, EIDE, keyboard, moucontrol power t	MCs / B and USB, ise)	
Ethernet controller CD-ROM / diskette Rear ports Graphics controller	not replace, hot u 10/100/1000 gigabi CD-ROM: 48X-20X Four USB (Vers 1.1 two RJ-45 (for integ SVGA / ATI® Rage	t ethernet / E 6 CD-ROM,), one serial rated systen	Broadcom® BCM 5 IDE (ATAPI), 1.6" (9-pin), keyboard n management pro	703 / on PCI Bus HH, bootable / <i>E</i> (PS/2), mouse (F ocessor) / no para	B / full duplex / Wa Diskette drive: 3.5" 1 PS/2), ethernet (RJ- allel port	ake on LAN® / A 1.44 MB diskett -45), graphics (Alert Standard I te drive, dust c (DB-15),	cover	
Security	Power-on passwor button (tower only)	d / administr	ator password / h	inged and lockal					
Systems management Diagnostics Software		stem manag ar / provides be temp, option emote Supe r for continuo stics™ pane op cover) / In D-ROM instal	gement processo system and enviro nal disks, fans, po rvisor Adapter with ous power (no extre bl providing LED m formation LED Pa llation and configu	r (ISMP) / inmental wer supplies / n 20-pin ernal power req) ap to nel in front	512MB PC1600 E 1GB PC1600 EC 2GB PC1600 EC Xeon MP 2.0GHz Xeon MP 2.5GHz Xeon MP 2.8GHz 370 watt Hot-Swa IBM 7U x 26D Tov	C DDR SDRA C DDR SDRA L/1MB L3 Cach L/1MB L3 Cach L/2MB L3 Cach Hot-Swap Exp ap Redundant wer-to-Rack Col	M RDIMM M RDIMM The Proc Upg Th	32P1474	
Keyboard / mouse Power supply Fans	Tower only: IBM 10 Std: two 370 watth redundant with four universal (voltage s Nine hot-swap red variable speed / PF	03-key keybo not-swap; <i>M</i> power supp sensing) / far lundant fans	pard / IBM mouse ax: four 370 watt lies / tool-free inst as in each power s s / plus fan in each	not-swap / ´all / upply / PFA power supply/	IBM External SCSI Interface Kit (for rear SCSI) Media Bay Cable Kit (2-drop SCSI to HH bays) IBM ServeRAID™-4H Ultra160 SCSI Adapter 37L6 IBM 36.4GB 10K Ultra160 SCSI Hot-Swap SL 06P; IBM 73.4GB 10K Ultra160 SCSI Hot-Swap SL 06P; IBM Remote Supervisor Adapter II S9P; IBM T541 15" Flat Panel Color Monitor (black) Other options at ibm.com/pc/us/accessories				
Standard hotswap disk bays Bay ① 3.5", SL 1" Bay ② 5.25", HH 1. Bay ③ 5.25", HH 1. Bay ③ 5.25", HH 1. Bays 5 to 10 (six bays) Bays 11 to 16 (six bays)	CD-ROM HH 5.25" HH 5.25" , access, diskette 6" access, CD-ROM 6" access, open* 6" access, open* 6" access, open* 1" hot-swap disk bay	04 to 150 lb color .0 e compo- ind labels e hot-swap is oduct Data o BIOS	primarily fo Slot 2: full, 64-bit 1 Slot 3: full, 64-bit 1 Slot 3: full, 64-bit 1 Slot 5: full, 64-bit 1 Slot 5: full, 64-bit 1 Slot 6: full, 64-bit 1 Slot 7: full, 64-bit 1 Slot 8-bit 1 Slot 8-bit 1 Slot 8-bit 1 Slot 9-bit 1 S	rfor optional Rem 00MHz 3.3v PCI-00MHz 3.v PCI-00MHz 3.3v PCI-00MHz 3.v PCI-00MHz 3.3v PCI-00MHz 3.v PCI-00	ote Supervisor Adp X, hot-swap, Bus B X, hot-swap, Bus B X, hot-swap, Bus C X, hot-swap, Bus C X, hot-swap, Bus C X, hot-swap, Bus C bessing F1 at by pressing elect Utility s from top ts generated tor for DIMM(s),	⇒ 3 year par ⇒ Internation ⇔ On site, 8 coverage business of ⇒ On site se (in eligible • 3 year IC (ServiceP • 5 year IC (ServiceP • 5 year IC (ServiceP ⇒ Other ServiteP http://www.its/pdf/war ⇒ 24x714 toll-	nal Warranty S am-5 pm, Mon excluding holi day response ervice upgrade e locations): ⁷ DR 9x5, 4 hr at Pac part num 3 DR 9x5, 4 hr at Pac part num 60 vicePac option w.ibm.com/ser momxeu.pdf free support fressues during to	Service ³ -Fri idays, next time ⁷ options vg resp. 41L2738) avg resp 1L2723) vg resp. 9P9223) is at rvices/us/ or	

See footnotes for important warranty information • = Hot-swap US models announced June 2003 or November 2003

⁽X255C) © IBM Corp. November 2003

IBM [®] Type-model Qty x P		L3 ache Memory	ECC memory features	Disk	SCSI controller		Slots x di bays (s	sk bays std/max) Etherne	Available date
8685-A1X 1 x Xeon ¹⁰ 8685-ARX 1 x Xeon 8685-B1X 1 x Xeon 8685-BRX 1 x Xeon 8685-C1X 1 x Xeon 8685-C1X 1 x Xeon 8685-TEX 2 x Xeon	MP 2.2GHz 21 MP 2.7GHz 21 MP 2.7GHz 21 MP 3.0GHz 41 MP 3.0GHz 41	MB 512MB MB 1GB MB 1GB MB 1GB MB 1GB	Hot Spare/Chipkill™ Hot Spare/Chipkill Hot Spare/Chipkill Hot Spare/Chipkill Hot Spare/Chipkill Hot Spare/Chipkill Hot Spare/Chipkill Hot Spare/Chipkill	None None None None None 3 x 73GB - 10k	2 x Ultra160	Rack Tower Rack Tower Rack	7 x10 7 x10 7 x10 7 x10 7 x10	6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit 6/12 Gigabit	Mar 2004 Mar 2004 Mar 2004 Mar 2004 Mar 2004
Processors L2 cache L3 cache Processor upgrade Implementation	512KB / on die 1MB, 2MB or 4-way SMP / u Systemboard of	e of processo 4MB / on die p to four Xeon contains four Ir	or MP 2.0, 2.2, 2.7, or / at processor spe of processor / at pro Processors MP (san tel 603-pin micro-PC SCSI, ethernet, graph	ed ocessor speed ne speed/cache s 3A ZIF sockets, o	size)		,,	C	inology
Memory	184-pin ECC I installed in ma of a pair or qua mirroring (me	DDR-SDRAM atched pairs of ad of DIMMs emory mirrorin	x / 512 &1GB: two s DIMMs / one memor r quads [a bank] / 2- [a bank]; reqs additing ng supported with a or 4-bit errors on sa	ory-board std with or 4-way memoonal memory ma onal OS) / Error (n 12 DIMM gold- ry interleave / H otching failed ban Checking and C	connect ot Spar ık) / Act orrecti	or slots , e Memo tive Men ng (ECC	/ DIMMs mus ory (activated nory™ via m c) via 16-bit (t be by failure emory Checksum
SCSI disk controller SCSI connectors IDE controller / cabling Disk - capacity Disk - bays	Channel B: 68- Channel A: 68- gEnhanced IDE 7EX: 3 x 73GE	-pin connector -pin connector E ATA-100 cor B - 10K / supp	Itra160 SCSI (LVD 1 or on planar to SCSI bar on planar for optiona ntroller in CSB5 Sou ports up to 15,000 rp max: six additional bar	ackplane (one-droal one-droal al one-drop 16-bit th Bridge / one o om disks / 80-pin	op 16-bit LVD cab LVD cable (32P8 ne-drop IDE cab SCA-2 connecto	ole) / 3164) to le from ors	rear 0.8n IDE con	nm VHDCI cor troller to CD-F	nnector ROM
Mechanical Rack / conversion Architecture / chipset	Rack systems ServerWorks two CIOB-X I/O ethernet and o SMBus, IOAPI Six hot-swap F	supported in Grand Char O Bridges (IMI) one PCI 2.2 bu IC, LPC bus to PCI-X 1.0 slots	r / tower models have IBM NetBAY™ racks npion™ 4.0 HE / CMB bus to Host Bridge is for SCSI / CSB5 S o Super I/O) / five per 10 available with power of expansion / sep	./ kit available to IIC Host Bridge (None with two PC outh Bridge (Thir er PCI buses / NS ver and attention	convert tower to Memory Controlle CI-X buses C and IMB to Host Brid S PC87417 Supe indicator lights (c	rack (user and I/I D, other dige, one of I/O (dieprical s	se NetBA O Bridge er with or e PCI 2.2 skette, k ensors c	AY11 for rack e) and five RE ne PCI-X bus bus A, EIDE eyboard, mou	MCs / B and USB, ise)
Ethernet controller CD-ROM / diskette Rear ports Graphics controller	CD-ROM: 48X Four USB (Ver two RJ-45 (for i	-20Xº CD-ROI s 1.1), one ser integrated sys	t / Broadcom® BCM 5 M, IDE (ATAPI), 1.6" rial (9-pin), keyboard tem management pro anar / 8MB SDRAM	HH, bootable / Di (PS/2), mouse (Pocessor) / no para	<i>iskette drive:</i> 3.5" 'S/2), ethernet (R ıllel port	1.44 MI J-45), g	B diskette raphics (e drive, dust o DB-15),	cover
Security			istrator password / h led boot / selectable l		le front door to co	over dis	k bays, p	ower button,	and reset
Systems managemen Diagnostics Software	t IBM integrated H8S2148 / on p monitoring suc supports option connector on p Light Path Dia failing part (und	d system mar planar / provide ch as temp, op nal Remote Su planar for contil agnostics™ pa der top cover) M (CD-ROM ins	nagement processo es system and enviro tional disks, fans, po ipervisor Adapter with nuous power (no exte anel providing LED ma / Information LED Pa stallation and configu	r (ISMP) / wnmental wer supplies / n 20-pin ernal power req) ap to nel in front ration	512MB PC1600 1GB PC1600 E0 2GB PC1600 E0 Xeon MP 2.0GH Xeon MP 2.5GH Xeon MP 2.8GH 6-pack Ultra320 370 watt Hot-Sv IBM 7U x 26D To	CC DDF CC DDF Iz/1MB Iz/1MB Iz/2MB Hot-Sv vap Rec ower-to-F	R SDRAI R SDRAI L3 Cach L3 Cach L3 Cach vap Expa dundant Rack Cor	M RDIMM M RDIMM e Proc Upg e Proc Upg ansion Kit Power Suppl version Kit III	32P1474
Keyboard / mouse Power supply	Std: two 370 w redundant with universal (volta Nine hot-swap	vatt hot-swap; I four power su age sensing) / D redundant fa	yboard / IBM mouse Max: four 370 watt I pplies / tool-free insta fans in each power s ans / plus fan in each lure signals diagnost	(both black) hot-swap / all / upply / PFA power supply/ ic LED	IBM External SCS Media Bay Cable IBM ServeRAID IBM 36.4GB 10I IBM 73.4GB 10I IBM Remote Su IBM T541 15" FI Other options a	Kit (2-dı ™-4H L K Ultra1 K Ultra1 pervisor at Pane	rop SCSI Iltra160 60 SCS 60 SCS Adapter I Color M	to HH bays) SCSI Adapte I Hot-Swap S I Hot-Swap S II Ionitor (black)	L 06P5755 L 06P5756 59P2984
⇒Tower dim: H15.5"; ⇒Rack dim: H12.0";	x W17.6" x D27.			r for optional Remo	ote Supervisor Ad X, hot-swap, Bus	B ⇒ Int	ear parts	ED WARRAN s and labor al Warranty So um-5 pm. Mon-	ervice ³



- Black color ACPI 1.0
- Orange components and labels indicate hot-swap options
- ⇒ Vital Product Data
- Backup BIOS
- Bay ① 3.5", SL 1", access, diskette Bay ② 5.25", HH 1.6" access, CD-ROM Bay ③ 5.25", HH 1.6" access, open* Bay ④ 5.25", HH 1.6" access, open* Bays 5 to 10 (six bays):

standard 3.5" SL 1" hot-swap disk bays Bays 11 to 16 (six bays): optional 3.5" SL 1" hot-swap disk bays

startup; Diagnostics (PC-Doctor) by pressing F2 at startup; CTRL+A for SCSISelect Utility Removeable top cover

 Access adapters, memory, CPUs from top
 Predictive Failure Analysis[®]: alerts generated by mgmt processor for IBM Director for DIMM(s), processor(s), VRM(s), power supply(s), disk(s), and fans

Slot 4: full, 64-bit 100MHz 3.3v PCI-X, hot-swap, Bus C

Slot 5: full, 64-bit 100MHz 3.3v PCI-X, hot-swap, Bus C Slot 6: full, 64-bit 100MHz 3.3v PCI-X, hot-swap, Bus D

Slot 7: full, 64-bit 100MHz 3.3v PCI-X, hot-swap, Bus D

 \Rightarrow Setup Program is available by pressing F1 at

Maximum internal disk capacity: 880GB2 with twelve 73.4GB SL hot-swap SCSI disks

- 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 41L2738)

 3 year IOR 24x7, 2 hr avg resp (ServicePac part num 31L2723)
 • 5 year IOR 9x5, 4 hr avg response
 - (ServicePac part num 69P9223)
- 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

							1000	2/	
IBM® Type-model Qty x Processor	L2 cache	DIMN Memory slots	l Memory Cards Dis	SCSI ks controller	Mechan- ical	Slots x bays	Hot-swap pwr supplies		y Available date
8865-11Y 1 x Xeon™ MP 3.10 8865-12Y 1 x Xeon™ MP 3.10 8865-18Y 1 x Xeon™ MP 3.10 8865-18Y 1 x Xeon™ MP 3.10 8865-21Y 1 x Xeon™ MP 3.60 8865-2RY 1 x Xeon™ MP 3.60 8865-E1Y 2 x Xeon™ MP 3.60 8865-E2Y 1 x Xeon™ MP 3.60	6GHz 1MB 1 6GHz 1MB 2 6GHz 1MB 1 6GHz 1MB 2 6GHz 1MB 2 6GHz 1MB 4	2GB(2x1GB) 4 1GB(2x512MB) 4 2GB(2x1GB) 4 1GB(2x512MB) 4 2GB(2x1GB) 4 2GB(2x1GB) 4 4GB(4x1GB) 8 1GB(2x512MB) 8	One No One No One No One No Two No	ne SAS	Tower Tower 7U Rack 7U Rack Tower 7U Rack Tower 7U Rack Tower 7U Rack	6x12 6x12 6x12 6x12 6x12 6x12 6x12	2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W	3 3 3 3 3 3 3	Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005
L2 cache Processor upgrade Implementation Memory 64 1MB / on d 4-way SMB System box	I Technology™ (ie of processor / a P / up to four Xeo ard contains four I	on™ Processor MI (EM64T) / Hyper-T at processor speed in Processors MP (Intel 604-pin micro- I (SAS), ethernet, a	hreading tecl / XceL4v™ [same speed/ PGA4 ZIF so	nology lynamic Server cache size)	Cache				
Active Memory [™] Up to 4GB gold-conner / Error Che	std / 64GB max ¹² ctor slots / DIMMs cking and Corre	2.13 (with 4GB DIMM is must be installed ecting (ECC) via 1: ot-swap (non-OS sp	s) using high in matched p 6-bit Checks	airs / PC2-3200 um Chipkill ™	0 400MHz re / Memory F	egistered : ProteXion	240-pin DDR2 n™ (redundant	SDRA- bit stee	.M RDIMMs ering) and
SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays	el Controller wired ays connect to int DE ATA-33 contro -10k / supports up ve 3.5" hot-swap	Dual-channel Serial I to dual SAS backptegrated SAS controller in CSB6 South p to 15,000 rpm dis bays / Six standaru x 28" deep / suppoi	olanes oller through Bridge sks d converged	SAS expander,	, 1 cable for CA-2 connec	each of t	the 2 SAS bade e FH (or 2 HF	kplanes	
models) / 2 graphics), S Broadcom S I/O Slots Six total Ac	IBM PCI-X 2.0 Ho ServerWorks® CSI 5704, and 2 PCI- tive™ PCI-X 2.0 6	on chipset / IBM li ost Bridges / 1 sup B6 South Bridge (IE X 2.0 slots / Host B 64-bit slots available expansion / separa	ports adapte DE, USB, bus ridge suppor with power	PCI 33MHz ar for Super I/O s 4 PCI-X 2.0 s and attention inc	nd 66MHz, s NS 87417 [d slots dicator lights	lot for opt liskette, k (optical s	tional ServeRA eyboard, mous sensors contro	AID 8i (i se]), Du I power	nc. ual Port
Ethernet Broadcom® Graphics controller SVGA / AT	5704 10/100/100 Radeon Mobility ethernet, RSA se	ROM, IDE (ATAPI), 00 dual ethernet / or y 7000 / on planar / rial, two USB (Ver 2	n systemboai 16MB SDR <i>A</i>	d / 64-bit 266M M std/max / 32	hz PCI-X 2.0 -bit 33MHz F) / Wake PCI 2.2 bu	JS		
Systems management BMC stand connectors fans, powe Diagnostics Drop-dowr IBM Real T	ard / Remote Sup / provides remote supplies Light Path Diag me Diagnostics (o	passwords / unatter pervisor Adapter II e console and mgm gnostics / primary i operated through IB stallation and config	I slimline (opt t / power on ndicator on i M Director) a	onal) / PCI ada off system / mo formation pane vailable even w	onitors powe el with LEDs hile server ru	r status, o associate inning	op system, ter	nperatu	ıre, disks,
Rack mode Std: two 77 accessible Eight hot-su	l: none standard / 5 watt hot-swap / ans in each power vap, redundant, m	/ Tower model: IBM redundant with three	1 104-key ke ee power sup ne cooling far	yboard (PS/2 blies (N+1) / wo) / IBM 3-bi orldwide / vol	utton opt Itage-sens	sing / auto-res	tart / re	
Options 1GB PC2- 2GB PC2- 4GB PC2- Active Me Xeon MP Xeon MP 775 watt h	3200 CL3 ECC 3200 CL3 ECC 3200 CL3 ECC mory 4-slot Expa 3.16GHz/1MB L3	RDIMM (2x512MI RDIMM (2x1GB) RDIMM (2x2GB) ansion Card 2 Cache Proc Upç 2 Cache Proc Upç Supply (WW)	73P2865 73P2866 73P2867 13M7409 13N0694	IBM 73. IBM 146 IBM 300 Remote SAS 3.5 IBM 73.	4GB 10K 3.5 6GB 10K 3.5 0GB 10K 3.5 Supervisor 5" 6-drive Ba 4GB 15K 3.5	.5" SAS H 5" SAS H 5" SAS H Adapter ackplane .5" SAS		D :	02R0988 26K5709 26K5710 26K5711 59P2984 13M7864 26K5698 26K5699
LIMITED WARRANTY 3 year parts and labor International Warranty Service On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time? On site service upgrade options (in eligible locations):? 3 year IOR 24x7, 4 hr avg response (ServicePac partnum 96P2253) 3 year IOR 24x7, 2 hr avg response (ServicePac partnum 96P2254) 4 year IOR 9x5, NBD response (ServicePac partnum 96P2255) 5 year IOR 9x5, NBD response (ServicePac partnum 96P2259) Other ServicePac options at http://www.ibm.com/services/ us/its/pdf/wamomxeu.pdf 2 24x7** toll-free support for warranty	Bay ① 3.5" Bay ② 5.25 Bay ③ 5.25 Bay ④ 5.25 Bays 5 to 1 standard Bays 11 to	, SL 1", access 5", HH 1.6" access 5", HH 1.6" access 7", HH 1.6" access 10 (six bays): d 3.5" SL 1" hot-sv 16 (six bays): 3.5" SL 1" hot-sva	s,diskette s,CD-ROM s,open* s,open* wap disk ba ap disk bays Rack or Tov	Steal Tool- Towe Rack Rack Rack Acces Ser Diagr SCSI Drop diagn probl	th black col free service er Dimension or Weight: 1 Dimension Dimension Weight: 14 ss adapters ss process or Program to nostics (PC- Select by p Down Light iem without ctive Failure	or eability ns: H15.49 to 180 s: H10" ; s: H10" ; s: H3061 4 to 1581 , fans, a ors and upplies fip operation of the processing (the path Difference of the path	5" x W18.2" 5" x W17.5" x D mm x W444r lbs; 65.4 to 7 nd memory f systemboard rom back ng F1 at star by pressing Ctrl+A at star agnostics (levide view of p g cover is® alerts on , processors, or	x D30" 31.7Kg 28.2" nx E 1.7Kg 1.7Kg from to from to tup F2 at s tup vel 2 otential disks,	(762mm) D715mm p front startup
issues during the warranty period ³ All models: Maximum into	ernal disk capac	city: 3.6TB with 12	2x 300GB² h	ot-swap SAS	disks		BTU Output: Ship Config: 2 Full Config: 6,		nr (588 watts) r (1860 watts)

8865-11Y 1 x Xeon™ MP 3.16GHz 1MB 2GB(2x1GB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-12Y 1 x Xeon™ MP 3.16GHz 1MB 1GB(2x512MB) 4 One None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-1RY 1 x Xeon™ MP 3.16GHz 1MB 2GB(2x1GB) 4 One None SAS 7U Rack 6x12 2 x775W 3 Sep 2005 8865-1SY 1 x Xeon™ MP 3.16GHz 1MB 1GB(2x512MB) 4 One None SAS 7U Rack 6x12 2 x775W 3 Sep 2005 8865-21Y 1 x Xeon™ MP 3.66GHz 1MB 2GB(2x1GB) 4 One None SAS 7U Rack 6x12 2 x775W 3 Sep 2005 8865-2RY 1 x Xeon™ MP 3.66GHz 1MB 2GB(2x1GB) 4 One None SAS 7U Rack 6x12 2 x775W 3 Sep 2005 8865-2RY 1 x Xeon™ MP 3.66GHz 1MB 2GB(2x1GB) 4 One None SAS 7U Rack 6x12 2 x775W 3 Sep 2005 8865-2RY 1 x Xeon™ MP 3.66GHz 1MB 2GB(2x1GB) 4 One None SAS 7U Rack 6x12 2 x775W 3 Sep 2005 8865-2RY 1 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Two None SAS Tower 6x12 2 x775W 3 Sep 2005 8865-E1Y 2 x Xeon™ MP 3.66GHz 1MB 4GB(4x1GB) 8 Tw	_		•		-					1000	A STATE OF THE PARTY OF THE PAR			
Hemory 64 Technology™ (EM647) / Hyper-Threading technology IMB / on die of processor of processor speed / Xee4.wW/ Dynamic Server Cache Processor upgrade Active Memory™ Active Memory™ Active Memory™ Active Memory™ Dup 1 MaB sid / 640B mark* (1 with 640-pin mice-PGAZ #27 societs), one memory board starks via Active™ PCI-X 2.0 slots, integrated Serial Attach SCSI (SAS), eithered, and graphics Active Memory™ Dup 1 MaB sid / 640B mark** (1 with 468 bilMMs) using high-capacity memory card / one memory board standard with 4 DilMM glots of parts / PCi-X 200 400MHz registered 240-pin DDP4-SDFAM FDIJMMs Active Memory™ Active Memory Mice Make and Parts / PCi-X 200 400MHz registered 240-pin DDP4-SDFAM FDIJMMs Active Memory Mice Make and Parts / PCi-X 200 400MHz registered 240-pin DDP4-SDFAM FDIJMMs Active Memory Mice Make and Parts / PCi-X 200 400MHz registered 240-pin DDP4-SDFAM FDIJMMs Active Memory Mice Make and Parts / PCi-X 200 400MHz registered 240-pin DDP4-SDFAM FDIJMMs Active Memory Mice Mice Mice Mice Mice Mice Mice Mice	Type-model Qty x 8865-11Y 1 x Xeo 8865-12Y 1 x Xeo 8865-1RY 1 x Xeo 8865-1SY 1 x Xeo 8865-21Y 1 x Xeo 8865-2RY 1 x Xeo 8865-E1Y 2 x Xeo	n™ MP 3.160 n™ MP 3.160 n™ MP 3.160 n™ MP 3.160 n™ MP 3.660 n™ MP 3.660 n™ MP 3.660 n™ MP 3.660	cache GHZ 1MB	2GB(2x1GB) 1GB(2x512Ml 2GB(2x1GB) 1GB(2x512Ml 2GB(2x1GB) 2GB(2x1GB) 4GB(4x1GB)	Slots C 4 C B) 4 C 4 C B) 4 C 4 C 4 C 8 T	ards Disks One Non	controller	ical Tower Tower 7U Rack 7U Rack Tower 7U Rack Tower 7U Rack Tower	6x12 6x12 6x12 6x12 6x12 6x12 6x12 6x12	pwr supplies 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W 2 x775W	(yrs.) date 3 Sep 2005			
gold-connector slots / DIMMs must be installed in matched pairs / PC2-3200 400M/Lz registered 24-Qpin DDR2-SDAM RDIMMs / Error Checking and Correcting (ECC) via 16-bit Checksum Chipsellill" / Memory ProteXion" (redundant bit steering) and Memory Mirroring" and Hot-swap (non-OS specific) / Hot-add (supported only with Microsoft Windows" Server 2003 ⁽ⁱⁱⁱ⁾ American Score (Applier) / Adapter (1-2-pin) / Ad	L2 cache Processor upgrade	Memory 64 1MB / on die 4-way SMP / System board	Technology [™] of processor up to four Xo I contains fou	M (EM64T) / Hy / at processor s eon Processors ur Intel 604-pin n	per-Threa peed / X o MP (sam nicro-PGA	nding techn ceL4v™ Dy le speed/ca N4 ZIF sock	ology namic Server che size)	Cache						
Dual channel Controller wired to dual SAS backplanes Das cabling IDE controller / cabling IDE	Active Memory™	gold-connector/ Error Check	r slots / DIMI king and Co	Ms must be insta rrecting (ECC)	alled in m via 16-bi	atched pair t Checksu	s / PČ2-3200 n Chipkill ™) 400MHz re / Memory F	egistered 2 ProteXion	240-pin DDR2- ™ (redundant I	SDRAM RDIMMs bit steering) and			
models) / 2 IBM PCI-X 2.0 Host Bridges / 1 supports adapter PC I 33MHz and 66MHz, slot for optional ServeRAID 8 (inc. graphics), ServerWorks* CSB6 South Bridge (IDE, USB, bus for Super I/O NS 87417 (diskette, keyboard, nouse)), Dual Port Broadcom 5704, and 2 PCI-X 2.0 slots / 10 Six total Active* PCI-X 2.0 slots supported up to 266MHz 2.0 s	SAS connectors SAS cabling IDE controller / cabling Disk - capacity Disk - bays	Dual channel Hot-swap bay Enhanced IDI Max: 3.6TB-1 Up to Twelve	Controller wire connect to E ATA-33 con Ok / supports 3.5" hot-swa	red to dual SAS integrated SAS itroller in CSB6 S up to 15,000 rp ap bays / Six sta	backplane controller South Brid om disks andard co	es through Sage nverged tra	AS expander	1 cable for CA-2 connec	each of the	he 2 SAS back e FH (or 2 HH)	κplanes · Tape Drive Bays			
Ethemet Graphics controller Ports FroatCorn® 5704 10/100/1000 dual ethemet / on systemboard / 64-bit 266Mbx PCH-X 2.0 / Wake on LAN™ 2 Security Systems management Front: USB (Ver 2.0) Front: US	·	models) / 2 IE graphics), Sei Broadcom 57 Six total Activ	M PCI-X 2.0 verWorks® C 04, and 2 PC e™ PCI-X 2.0	Host Bridges / SB6 South Bridg CI-X 2.0 slots / H D 64-bit slots ava	1 support ge (IDE, I lost Bridg ailable with	s adapter F USB, bus for e supports n power an	CI 33MHz ai or Super I/O 4 PCI-X 2.0 s d attention in	nd 66MHz, s NS 87417 [d slots dicator lights	lot for opti liskette, ke (optical s	ional ServeRAI eyboard, mous ensors control	ID 8i (inc. e]), Dual Port power to slot) /			
System's management BMC standard / Remote Suipervisor 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 Diagnostics Diagnostics Diagnostics Drop-down Light Path Diagnostics / primary indicator on information panel with LEDs associated with failing components / IBM Real Time Diagnostics (operated through IBM Director) available even while server running ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director, and others None standard (because rack-based) None standard (because rack-based) ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director, and others None standard (because rack-based) Nature rack-based rack	Ethernet Graphics controller	Ethernet Broadcom® 5704 10/100/1000 dual ethernet / on systemboard / 64-bit 266Mhz PCI-X 2.0 / Wake on LAN® / Alert on LAN™ 2 SVGA / ATI® Radeon Mobility 7000 / on planar / 16MB SDRAM std/max / 32-bit 33MHz PCI 2.2 bus Rear: RSA ethernet, RSA serial, two USB (Ver 2.0), keyboard, mouse, analog DB-15 graphics, two ethernet, std. serial, RS-485 / Front: USB (Ver 2.0) Security Power-on and administrator passwords / unattended boot / selectable boot												
None standard (because rack-based) Std: two 775 wath hot-swap / redundant with three power supplies (N+1) / worldwide / voltage-sensing / auto-restart / rear accessible fans in each power supply / PFA	Systems management Diagnostics	t BMC standard connectors / p fans, power s Drop-down L IBM Real Tim	d / Remote S provides remo supplies .ight Path Di e Diagnostics	Supervisor Adap ote console and agnostics / prints (operated throu	oter II slin mgmt / p nary indic igh IBM D	nline (option cower on/of cator on info pirector) ava	nal) / PCI ada f system / mo ormation pana ilable even w	onitors powe el with LEDs hile server ru	r status, o associate inning	op system, tem	perature, disks,			
2GB PC2-3200 CL3 ECC RDIMM (2x1GB) 73P2866 4GB PC2-3200 CL3 ECC RDIMM (2x2GB) 73P2867 Active Memory 4-slot Expansion Card 13M7409 Xeon MP 3.16GHz/1MB L2 Cache Proc Upg 13N0694 Xeon MP 3.66GHz/1MB L2 Cache Proc Upg 13N0695 775 watt Hot-Swap Power Supply (WW) 13M7415 IBM ServeRAID™-8i SA-SCSI Adapter 13N2227 LIMITED WARRANTY³ 3 year parts and labor Bay ③ 5.25", HH 1.6" access, open* On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time? On site service upgrade options (in eligible locations):² 3 year IOR 24x7, 4 hr avg response (ServicePacpartnum 96P2253) Active Memory 4-slot Expansion Card 13M7409 IBM 146GB 10K 3.5" SAS Hot-Swap HDD 26K5711 IBM 300GB 10K 3.5" SAS Hot-Swap HDD 26K569 IBM 146GB 10K 3.5" SAS Hot-Swap HDD 26K5711 IBM 300GB 10K 3.5" SAS Hot-Swap HDD 26K569 IBM 146GB 10K 3.5" SAS Hot-Swap HDD 26K569 IBM 146GB 10K 3.5" SAS Hot-Swap HDD 26K	Keyboard / mouse Power supplies	None standar Std: two 775 accessible far Eight hot-swa	rd (because watt hot-swap ns in each po p, redundant,	rack-based) o / redundant wit wer supply / PF multi-speed fan	h three p A s / One c	ower suppli	es (N+1) / wo	orldwide / vol	ltage-sens	· ·				
3 year parts and labor International Warranty Service³ On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day responses time² On site service upgrade options (in eligible locations):² 3 year parts and labor Bay ② 5.25", HH 1.6" access, CD-ROM Bay ③ 5.25", HH 1.6" access, open* Tower Dimensions: H15.5" x W18.2" x D30"(762mm) Rack Dimensions: H12" x W17.5" x D28.2" Rack Dimensions: H12" x W17.5" x D28.2" Rack Dimensions: H306mm x W444mm x D715mm Bays 11 to 16 (six bays): Optional 3.5" SL 1" hot-swap disk bays Says 11 to 16 (six bays): Optional 3.5" SL 1" hot-swap disk bays 3 year parts and labor Tower Dimensions: H15.5" x W18.2" x D30"(762mm) Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access parts and labor Tower Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H12" x W17.5" x D28.2" Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access prover Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access prover Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm) Access part Weight: 149 to 180lbs; 67.6 to 81.7Kg Rack Dimensions: H15.5" x W18.2" x D30"(762mm)	Options	2GB PC2-32 4GB PC2-32 Active Mem Xeon MP 3. Xeon MP 3. 775 watt Ho	200 CL3 EC 200 CL3 EC ory 4-slot Ex 16GHz/1MB 66GHz/1MB t-Swap Pow	C RDIMM (2x1 C RDIMM (2x2 xpansion Card L2 Cache Pro L2 Cache Pro er Supply (WW	GB) GB) C Upg C Upg	73P2866 73P2867 13M7409 13N0694 13N0695 13M7415	IBM 73. IBM 146 IBM 300 Remote SAS 3.5 IBM 73.	4GB 10K 3.5 GGB 10K 3.5 GGB 10K 3.5 Supervisor 5" 6-drive Ba 4GB 15K 3.5	.5" SAS H 5" SAS H 5" SAS H Adapter ackplane .5" SAS H	Hot-swap HDI lot-Swap HDI lot-Swap HDI II Slimline Hot-swap HDI	26K5709 26K5710 26K5711 59P2984 13M7864 26K5698			
(ServicePacpartnum96P2254) • 4 year IOR 9x5, NBD response (ServicePacpartnum96P2255) • 5 year IOR 9x5, NBD response (ServicePacpartnum96P2259) • Other ServicePacpartnum69P2259) • Other ServicePac options at http://www.ibm.com/services/ us/its/pdf/wamomxeu.pdf • 24x7¹⁴ toll-free support for warranty Opt disk Opt disk Opt disk Opt disk Opt disk O	→ 3 year parts and labo → International Warran → On site, 8 am - 5 pm, coverage excluding hext business day re → On site service upgra (in eligible locations	or ty Service ³ Mon - Fri noticlays, sponse time ⁷ ade options): ⁷ aray response n96P2253) ary response n96P2254) presponse n96P2255) presponse n96P2259) tions at services/ pdf	Bay ② 5. Bay ③ 5. Bay ⑤ 5. Bays 5 trends bays 11 options Opt disk Opt disk Opt disk Opt disk Opt disk Opt disk	25", HH 1.6" ac 25", HH 1.6" a	ccess, CICcess, op ccess,	D-ROM en* en* disk bays lisk bays or Towe	Steal Tool- Towe Towe Rack Rack Rack Acce Acce Diagr Diagr Drop diagr probl Prebl powe	th black col free service or Dimension or Weight: 1- Dimension Dimension Weight: 14- ss adapters ss processo ss processo so Program to nostics (PC- Select by p Down Light ostic panel) em without ctive Failure or supplies,	or eability ns: H15.5 49 to 180 ss: H306r 4 to 158ll fans, all ors and supplies fr poy pressing Ct Path Dia for outsige Analysis memory,	5" x W18.2" x W18.2" x W17.5" x D2 mm x W444m bs; 65.4 to 71 nd memory from back ng F1 at start by pressing F Ctrl+A at start agnostics (levide view of pog cover s® alerts on corressors, or	D30"(762mm) 1.7Kg 28.2" m x D715mm .7Kg om top from front up 2 at startup up el 2 ttential lisks,			
issues during the warranty period ³ All models: Maximum internal disk capacity: 3.6TB with 12x 300GB ² hot-swap SAS disks Ship Config: 2,006 Btu/hr (588 watts) Full Config: 6,346 Btu/hr (1860 watts)			nal disk cap	acity: 3.6TB wi	th 12x 3	00GB ² ho	-swap SAS	disks						

L2

FSB

Memory

IBM[®]

Ethernet

Limited Available

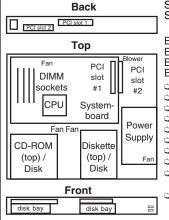
Slots

Type-model Qty	x Processor	cache	MHz	Memory	type	Disk	controlle	r bays	anical	x bays	5	warranty	³ date
8673-72X Pentiu 8673-73X Pentiu 8673-82X Pentiu 8673-83X Pentiu	m 4 2.8BGH m 4 3.06GH	z 512KB z 512KB	533 533	256MB 256MB	ECC ECC ECC	40GB EIDE 18.2GB SCSI 40GB EIDE 36.4GB SCSI	Ultra160 ATA-100	2 fixed 2 fixed	1U rack	2x4 2x4	2 x Gigab 2 x Gigab 2 x Gigab 2 x Gigab	it 1 year it 1 year	May2003 Sep 2003
Positioning Processor(s) L2 cache SMP support Implementation	Intel® P 512KB No SMP Systeml	entium 4 on die support ooard co	4 up to of prontains	to 2.8BGH ocessor / a one Intel n	z ¹ with 5 t process nPGA478	k-optimized serv 33MHz frontside sor speed (no L BB socket (with F PCI-X slot, and i	bus (FS 3 cache) Pentium 4	FC-PGA	2 and heat two EIDE	sink), fo	our memory ctors, etherr	[,] DIMM sl net, and ς	lots, graphics
Memory	DIMMs	four DI	MM g	jold-connec	ctor slots	three slots ava on systemboar nemory controlle	d / memo					CC DDR	-SDRAM
SCSI disk control	er SCSI m					gle channel Wier / one channel				MB/sec)/		
SCSI connectors IDE disk controlle Cables	r Enhanc SCSI m EIDE m	odels: (ed IDE b odels: (odels: (On acusma one 2- one 2-	dapter: one ster / ATA- -drop 16-bi -drop EIDE	e 68-pin 100 sup t LVD SC cable (t	SCSI connecto port / two connects CSI cable, one 1 o CD-ROM and	r ctors on s -drop 40- disk), one	ystembo conducto e 1-drop E	ard r EIDE cal EIDE cable	e (to se	cond disk b	ay)	,
Disk - features						rpm, 5.2ms read							.M.A.H.I.°
Mechanical Architecture / chip Bus slots	osets Server\ one CIC CSB5 S Nationa	Vorks® (B-X2 I/C outh Brid I Semico	Granc D Bridg dge (T Induct	I Champio ge (IMB bu hin IMB to tor® PC874	n™ SL / s to Hos Host Bri 14 Supe	supports 16.75 CMIC-SL (Supe t Bridge for PCI- dge for PCI 2.2- r I/O chip (serial hot-swap Active	r Lite) Ho -X Bus A v based gra , keyboar	st Bridge with slots aphics co d, mouse	(memory and PCI-) ntroller, E	control X Bus E IDE, US	ler and I/O I 3 with dual 6	Bridge) / ethernet)	
CD-ROM / disket Rear ports Front ports / grap Console intercon	on plana e 24X-100 Rear: s nics Front: t	ar / PCI-X (° CD-R(erial (9-p wo USB	(64-b DM / II bin), tv (Vers	it 100MHz DE; <i>Disket</i> vo ethernet 1.1); <i>Grap</i>	Bus B / fi te: 3.5" 1 (RJ-45), hics: SV		/ Wake or drive / dus e, analog XL / on pl	n LAN® / A st cover DB-15 m anar / 8M	Nert Stand onitor / no B SDRAM	ard For parallel l std/ma	mat 1.0 / tw port	o rear R	J-45 ports
Systems mgmt Diagnostics	Diagnos	tics via l	PC-Do	octor on a s	standard	s system and pr IBM Enhanced onn on planar fo	Diagnosti	cs CD (di	skette car	be cre	ated) / supp	ort for or	
Security Software	unatten Server(deḋ boot ≩uide ™ (/sele		t / unatte ation and	vord / nded start mode I configuration	5 51 10 12	12MB PC 3B PC21 20GB AT	2100 CL2 00 CL2.5 I A-100 EII	.5 ECC ECC DI DE HDI	DDR-SDR DDR-SDR DR-SDRAM D (7200 rpi	AM DIMN /I RDIMM m)*	M33L5038 I 33L5039 09N4231
Cooling fans Power supply Prerequisites	power s 200 wat Monitor	upply) / v t / univer keyboa s IBM A	/ariab sal / a rd, mo	le speed / i luto-sensin buse, rack, AT-5 chair	not redur g / auto- operatin		ap 73 R R SG IB IB IB	3.4GB 15I 3.4GB 10I emote Su erveRAIE M T541 - M NetBA M NetBA M ACT I ther optic	C Ultra160 C Ultra160 Ipervisor A IPM-4Lx Ult I5" Flat Pa LY25 Stand LY42 Ente Local Con	SCSIS SCSIS dapter ra160S anel Co dard Ra erprise sole Ma com/po	SCSI Adapt lor Monitor ack Rack	D* D* ter (black)	06P5765 06P5766 06P5752 09N7585 06P5740 9512AB1 9306250 930842S 1735L04

Disk

Disk

Mech-



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

std diskette std CD-ROM no access, std fixed disk no access, open for fixed disk

Raven black front bezel

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

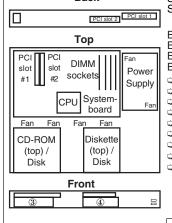
Maximum internal disk capacity¹³ (model dependent): 146.8GB with two 73.4GB SL SCSI disks or 240GB with two 120GB EIDE disks / supports 15K rpm SCSI disks

- 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	/ svstem	s lowercas	se "x" should be replaced with	a country-	specific	code			•		- 0.00	-	September 1	-
	IBM	® Mach		Processor	L2	FSB	Memory	Disk	Disk controller	Disk bays	Mech- anical	Slots x bays	Ethernet	Ltd warr ³	Available date
	8836 8836	2Mx 2Sx 3Mx	15X 21X 25X 31X	Pentium 4® 2.8GHz Pentium 4 2.8GHz Pentium 4 3.0GHz Pentium 4 3.0GHz Pentium 4 3.2GHz Pentium 4 3.2GHz	1MB 1MB 1MB 1MB 1MB 1MB	800 800 800 800	512MB 512MB 512MB 512MB	36.4GB SCSI open bay 36.4GB SCSI open bay 36.4GB SCSI open bay	SATA Ultra320 SATA	2 simple-swap 2 fixed 2 simple-swap	1U rack 1U rack 1U rack	2x4 2x4 2x4 2x4	Dual Gb Dual Gb Dual Gb	1 yr 1 yr 1 yr 1 yr	Apr 2004 Jun 2004
	L2 cad SMP s	ssor(s che suppor	ť		ip to 3 ocesso ains on	. 2GH : or / at e Inte	z 1 with 8 process el mPGA	:00MHz frontsid :or speed (no L :478B socket (v	e bus (FS 3 cache) vith Pentiu	um 4 FC-PGA2 a					
SMP support Implementation No SMP support Systemboard contains one Intel mPGA478B socket (with Pentium 4 FC-PGA2 and heatsink), four memory DI riser for two PCI-X slots, and integrated chipset, one EIDE connector, two SATA connectors, ethernet, and g Memory 512MB std / 4GB max¹³ / one slot used / three slots available / PC2700 333MHz (1xx, 2xx) or PC3200 400MF registered 184-pin ECC DDR-SDRAM DIMMs / four DIMM gold-connector slots on systemboard / memory bu 2 x 166MHz / Error Checking and Correcting (ECC) memory controller / PC3200 memory supported in all risers on PCI adapter / one channel Wide Ultra320 SCSI (LVD 320MB/sec) / on PCI adapter / one channel with up to 15 device support / Integrated Raid 7e (Raid 0-1) SCSI models: SCSI models: On PCI adapter: one 68-pin SCSI connector Enhanced IDE busmaster / ATA-100 support / one connector on systemboard SCSI models: one 2-drop 16-bit LVD SCSI cable, one 1-drop EIDE cable (connected to CD-ROM) SATA models: two 1-drop SATA cables, one 1-drop EIDE cable (connected to CD-ROM) SCSI: 36.4GB Ultra320 SCSI, 10K rpm, 4.7ms read seek, S.M.A.R.T.5; SATA: open bay; Mechanical No SMP support Systemboard connectors, two SATA connectors, ethernet, and gold-connector solds on SATA connector / three slots available / PC2700 333MHz (1xx, 2xx) or PC3200 400MF registered, and gold-connector slots on systemboard / memory busystemboard / memory b														ry bus	runs at
SCSI disk controller SCSI models: Adaptec® chipset / single channel Wide Ultra320 SCSI (LVD 320MB/sec) / on PCI adapter / one channel with up to 15 device support / Integrated Raid 7e (Raid 0-1) SCSI models: On PCI adapter: one 68-pin SCSI connector Enhanced IDE busmaster / ATA-100 support / one connector on systemboard SCSI models: one 2-drop 16-bit LVD SCSI cable, one 1-drop EIDE cable (connected to CD-ROM) SATA models: two 1-drop SATA cables, one 1-drop EIDE cable (connected to CD-ROM) SCSI: 36.4GB Ultra320 SCSI, 10K rpm, 4.7ms read seek, S.M.A.R.T. ⁵ ; SATA: open bay;															
	Archit	ecture	/ chipse	ts Intel E7210 chips EIDE, ethernet MA parallel, serial, key	et / Me .C, USE board,	mory B, Lov mous	ControÍl w Pin Co se	er Hub (MCH) ount Interface /	Firmware	Hub / SMSC® LF					
parallel, serial, keyboard, mouse (See below) two available PCI-X 1.0 66MHz / no hot-swap Active™ PCI slots Ethernet controllers Two gigabit 10/100/1000 ethernet ports / Intel Kenai II / two full gigabit ethernet MAC and port one is CSA, port two is PCI 2.2 / full duplex / PXE / Wake on LAN® / Alert Standard Forr 24X-10X® CD-ROM / IDE; Diskette: 3.5" 1.44MB diskette drive / dust cover Rear: serial (9-pin), two ethernet (RJ-45),keyboard, mouse, analog DB-15 monitor / no parameters / graphics Front: two USB (Vers 2.0); Graphics: SVGA / ATI® Radeon 7000 / on planar / 18MB I 33MHz PCI 2.2 bus Console interconnects No system-to-system interconnect cable (separate keyboard, video, mouse ports on												at 2.0 / allel po DR SE	two rear f ort / two U	RJ-45 SB (V	ports ers 2.0)
		ms m		On planar / monite Diagnostics via PC Remote Superviso	-Docto	r on a	ı standar	d IBM Enhance	d Diagno:	stics CD (diskette	can be c			for op	tional
	Secur	•		Power-on passwor unattended boot / s ServerGuide™ (CI utilities), IBM Direc	electab D-ROM	ole bo insta	ot / unati llation ar	tended start mo	de 5	256MB PC2700 C 512MB PC2700 C IGB PC2700 CL2	L2.5 ECC .5 ECC DI .5 ECC DI	DDR-S DR-SD DR-SD	SDRAM DI RAM DIMI RAM DIMI	MM VI	06P4053 06P4054 06P4055 06P4051
	Powe	ng fans r supp quisite	oly	Six fans (four fans / variable speed / / universal / auto- Monitor, keyboard	not red sensing	lunda j / au	nt or ho	t-swap 300 wa rt support	tt 37	BOGB SATA simpleOGB SATA simpleOGB SATA simpleOGB SATA simpleOGB 10K Ultra 33.4GB 10K Ultra 146.4GB 1	pple-swap 320 SCSI 320 SCSI 320 SCSI 320 SCSI or Adapt Ultra320 ATA Con Standard Enterprise Console N	HDD SL 68 SI SL 68 SI SL 6 er II SCSI troller Rack Rack Manage	`(7200 rpr -pin HDD* -pin HDD* 8-pin HDD Adapter er is/accesso	ń)* *	73P8002 73P8003 32P0723 32P0724 32P0725 59P2984 13N2190 71P8648 9306250 930842S 1735L04
			Back	0.01.				MHz PCI X 1.0	(3.3v)	0 (2 2)		INAITE	D WADD	ANIT	V 3



Slot 1: 3/4 size, 64-bit 66MHz PCI X 1.0 (3.3v) Slot 2: half size, low-profile, 64-bit 66MHz PCI X 1.0 (3.3v)

std CD-ROM std diskette no access, std fixed disk no access, open for fixed disk

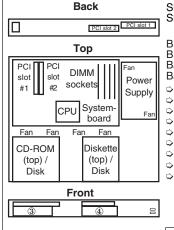
- Raven black front bezel
- ⇒ H 1.72" (1U) x W 17.3" x D 20"; 43.7mm x 439.9mm x 508mm ⇒ 26 to 28 lbs; 11.8kg to 12.7kg (minimum to max configuration) ⇒ Configuration/Setup Utility: F1 at startup

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

Maximum internal disk capacity¹³ (model dependent): 292.8GB with two 146.4GB SL SCSI disks or 320GB with two 160GB EIDE disks / up to 15K rpm SCSI disks

- 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 CAV systems laweress	"u" abould be replaced with	o o o untru	oposific codo	-					1000	-	the sales and
For GAV systems, lowercase IBM® Machine Type GAV model	Processor	L2	FSB MHz Mem	orv Disk	Disk controller	Disk bavs	Mech- anical	Slots x bays	Ethernet	Ltd warr	
8836 - 4My -41x P 8836 - 4Sy -45x P 8836 - 5My -51x P	Pentium 4® 3.2GHz Pentium 4 3.2GHz Pentium 4 3.4GHz Pentium 4 3.4GHz	1MB 1MB 1MB	800 512M 800 512M 800 512M	36.4GB 3 open bay 3 36.4GB	SCSI Ultra320 SATA SCSI Ultra320	2 fixed 2 simple-swap	1U ⁴ rac 1U rac 1U ⁴ rac	ck 2x4 k 2x4 ck 2x4	Dual Gb Dual Gb Dual Gb	1 yr 1 yr 1 yr	Aug 2004 Aug 2004 Jan 2005
Positioning Processor(s) L2 cache SMP support Implementation	A highly affordable intel® Pentium 4 1MB min and man No SMP support Systemboard cont PCI-X slots, and in	at 3.2Ġ x / at p tains or	iHz¹ & 3.40 rocessor s ne Intel PG	Hz with 800 beed / ECC A604 socke	OMHz FSB optim t (with Pentium	4 FC-PGA2 and	heatsink	s), four	memory [DIMM	,
Memory	512MB std / 4GB DIMMs / four DIM Correcting (ECC)	IM gold	-connector	slots on sys							
SCSI disk controller SATA disk controller Cables Disk - features	one channel with	up to 1 er (150 ismaste ne 2-dro o 1-dro	5 device s MB/sec) / c er / ATA-10 pp 16-bit L pp SATA c	upport / Inte in planar / o 00 support / VD SCSI ca ables, one 1	egrated Raid 7e ne connector on one connector able, one 1-drop I-drop EIDE cat	(Raid 0-1) / 68 p systemboard / In on systemboard EIDE cable (cor ble (connected to	in conn tegrated nnected CD-RC	ector of Raid 7 to CD- OM)	n PCI ada 7e (Raid 0 ·ROM)	apter	dapter /
Mechanical Architecture / chipsets Bus slots	EIA 19" Rack (1U Intel E7210 chips EIDE, ethernet Ma parallel, serial, ke (See below) two a	s et / Me AC, US yboard,	emory Con B, Low Pin mouse	roller Hub (I Count Inter	face / Firmware	Hub / SMSC® LP	°C47M1	92 Sup			
Ethernet controllers CD-ROM / diskette Rear ports Front ports / Graphics	Dual Gigabit 10/1 integrated / port of ports (2) 24X-10X ⁶ CD-ROI <i>Rear:</i> serial (9-pir <i>Front:</i> two USB (SVGA / ATI® Rad	ne is Co M Slim/ n), two e Vers 2.	SA, port tw IDE; <i>Disk</i> ethernet (R 0)	b is PCI 2.2 ette: 3.5" 1. J-45),keyboa	/ full duplex / PXI 44MB diskette c ard, mouse, anal	E / Wake on LAN® Irive / dust cover og DB-15 monitor	/ Alert S	tandard	Format 2.0) / Rea	ar RJ-45
Console interconnects	s No system-to-sys	tem int	erconnect	cable (sepa	rate keyboard,	video, mouse po	orts on	back)			
Systems mgmt Diagnostics	On planar / monit Diagnostic LEDS/ Diagnostics CD (o planar for continu	′ Error I diskette	LEDS for for can be cr	ans and me eated) / sup	mory/ Diagnosti port for optional r required)	cs via PC-Doctor Remote Superv	r on a s isor Ada	apter II	with 20-p	in cor	nn on
Security Software	Power-on passwo unattended boot / Secure Remote p ServerGuide™ (C utilities), IBM Dire	selecta wr on/c D-ROM	able boot / off via ASF // installati	unattended 2.0 on and conf	start mode / 18	256MB PC3200 CL 512MB PC3200 CL 1GB PC3200 CL3 I 80GB SATA simp 160GB SATA sim 250GB SATA sim	.3 ECC I ECC DD ble-swap ple-swa ple-swa	DDR-SE R-SDR. HDD p HDD p HDD	ORAM DIM AM DIMM (7200 rpn (7200 rpi) (7200 rpi	M n) m) m)	06P4049 06P4050 06P4051 73P8002 73P8003 73P8006
Cooling fans Power supply Prerequisites	Six fans (four fan / variable speed / / universal / auto- Monitor, keyboard	not red sensin	dundant or g / auto-re	hot-swap 3 start suppor	op watt t stem	36.4GB 10K Ultra 33.4GB 10K Ultra 36.4GB 10K Ultra 36.4GB 15K Ultra 33.4GB 15K Ultra 33.4GB 15K Ultra 33.4GB 15K Ultra 33.4GB 15K Ultra 34.4GB 15K Ultra 35.4GB 15K Ultra 36.4GB 15K	320 SCS 320 SC 320 SC 320 SC or Adap Ultra320 TA Con tandard	SI SL 68 SI SL 6 SI SL 6 SI SL 6 ter II O SCSI troller Rack	3-pin HDD 68-pin HDD 68-pin HD 68-pin HD Adapter	D D	32P0723 32P0724 32P0725 32P0784 32P0785 32P0785 59P2984 13N2190 71P8648 9306250 cessories



Slot 1: half size, 64-bit 66MHz PCI X 1.0 (3.3v) Slot 2: half size, low-profile, 64-bit 66MHz PCI X 1.0 (3.3v)

std CD-ROM std diskette no access, std fixed disk no access, open for fixed disk

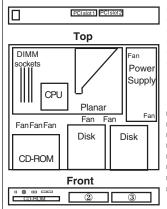
- Raven black front bezel
- ⇒ H 1.72" (1U) x W 17.3" x D 20"; 43.7mm x 439.9mm x 508mm ⇒ 26 to 28 lbs; 11.8kg to 12.7kg (minimum to max configuration) ⇒ Configuration/Setup Utility: F1 at startup

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

Maximum internal disk capacity¹³ (model dependent): 292.8GB with two 146.4GB SL SCSI disks or 500GB with two 250GB SATA disks / up to 15K rpm SCSI disks

- 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	ntry-specific code.						-	1000
IBM [®] Machine Type GAV model	Processor/Speed	L2 FSB cache MHz	Memory	Disk controller	Disk bays	Mech- anical		Ethernet	Ltd Available warr ³ date
8849/8491 1Áy-Ax P 8849/8491 20y-20x P 8849/8491 30y-30x P 8849/8491 3Ay-3Ax F 8849/8491 40y-40x P	Pentium® 4 531 3.0GHz Pentium 4 531 3.0GHz Pentium D 830 3.0GHz Pentium 4 640 3.2GHz Pentium 4 640 3.2GHz 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	2 hot-swap 2 hot-swap	1U rack 1U rack 1U rack 1U rack 1U rack	2x3 2x3 2x3 2x3 2x3	Dual Gb Dual Gb Dual Gb Dual Gb 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, un Intel® Pentium 4 up t Optimized for Extend	o 3.6GHz Sin ded Memory	gle Core 80 64 Technol	0MHz FSB / F ogy (EM64T)		z Dual C	ore 80	0MHz 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-775	socket, four	DIMM sockets	s, integrated SATA	A or SAS	/SATA	, Dual Giç	abit Ethernet
Memory	512MB std / 8GB ¹³ max All Error Checking and								R2-SDRAM /
	SAS models: Adapted SATA models: Integrat Enhanced IDE busma SAS models: one 1-d SATA models: two 1- None standard	ed Intel contro Ister / ATA-10 rop EIDE cabl	ller / two-cha 0 support / e (connecte	nnel / on plana one connector d to CD-ROM	ar / Integrated Raid r on systemboard)	l 8e (Raid	0 or 1		
Mechanical Architecture / chipsets Bus slots	EIA 22" Rack (1U ⁴) / Intel E7210 chipset / EIDE, ethernet MAC, I parallel, serial, keyboal (See below) two avail Active™ PCI slots /	Memory Cont USB, Low Pin ard, mouse	roller Hub (N Count Interfa	ace / Firmware	Hub / SMSC® LF	°C47M19	2 Supe	er I/O for o	liskette,
Ethernet controllers	Dual Gigabit 10/100/1 integrated / port one is								functions /
CD-ROM / diskette Rear ports Front ports / Graphics	24X-10X ⁶ CD-ROM Sli Rear: serial (9-pin), tw Front: two USB (Vers ATI [®] RN50(ES1000) / 10	o ethernet (R. 2.0)	J-45),keyboa		· ·				SB (Vers 2.0)
Console interconnects Systems mgmt	No system-to-system Mini-baseboard mana voltages							ıre, fan fa	ilure, and
Diagnostics	Diagnostic LEDS/ Erro Diagnostics CD (disket planar for continuous	ette can be cre	ated) / supp	ort for optiona	tics via PC-Docto al Remote Superv	r on a sta isor Adap	andard oter II	I IBM Enh with 20-pi	anced n conn on
Security	Power-on password / unattended boot / sele secure remote powe	ectable boot /	unattended :	start mode / 20	12MB PC2-4200 CL3 EC GB(2x1GB) PC2-4200 C GB(2x2GB) PC2-4200 C BM 80GB SATA (7.2K) si	L3 ECC DDI	R2 RoHS R2 RoHS		30R5148 30R5149 30R5150 39M4500
Software	ServerGuide™ (CD-Futilities), IBM Director	ROM installation		guration IE	BM 160GB SATA (7.2K) s BM 250GB SATA (7.2K) s 0GB Hot-Swap SATA HI 60GB Hot-Swap SATA H	simple-swap simple-swap DD	HDD		39M4504 39M4508 39M4518 39M4522
Cooling fans Power supply Prerequisites	Seven fans (five fans / variable speed / not 350 watt / universal / Monitor, keyboard, m	redundant or auto-sensing	hot-swap	r supply) 25 75 rt support 36 36 75 14	50GB Hot-Swap SATA H 3GB 10K 3.5" SAS Hot-S 46GB 10K 3.5" SAS Hot- 00GB 10K 3.5" SAS Hot- 6GB 15K 3.5" SAS Hot-S 3GB 15K 3.5" SAS Hot-S 46GB 15K 3.5" SAS Hot- 3M Remote Supervisor A	IDD wap HDD Swap HDD Swap HDD wap HDD wap HDD Swap HDD dapter II (PC		·)	39M4526 26K5709 26K5711 26K5711 26K5697 26K5698 26K5699 59P2984
Back	Some:	1 langth full b	night 64 hit		BM ServeRAID-7t SATA I other options at ibm.com/	•			71P8648



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

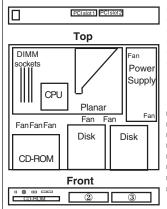
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time

- 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/

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-spe	ecific code.		_		-	-						
IBM® Machine Type GAV model	Processor/Speed L2 cache	FSB	Disk controller	Disk bays	Mech- Slots anical x bays		Available date						
8849/8891 G2y-G2x 8849/8891 G4y-G4x 8849/8891 H2y-H2x 8849/8891 H4y-H4x	Pentium® 4 631 3.0GHz 2ME Pentium D 920 2.8GHz 4ME Pentium D 920 2.8GHz 4ME Pentium D 930 3.0GHz 4ME Pentium D 930 3.0GHz 4MB Pentium D 940 3.2GHz 4MB	3 800 1GB 3 800 1GB 3 800 1GB 3 800 1GB	SATA SATA SAS/SATA SATA SAS/SATA SAS/SATA	2 simple-swap 2 hot-swap 2 simple-swap 2 hot-swap	1U ⁴ rack 2x3 1U rack 2x3	Dual Gb 1/3ýr F Dual Gb 1/3yr F Dual Gb 1/3yr F Dual Gb 1/3yr F	eb 2006 eb 2006 eb 2006 eb 2006						
Positioning Processor(s) L2 cache SMP support Implementation	A highly affordable, uni-pro- Intel® Pentium 4 up to 3.0 Optimized for Extended N 2MB std on Pentium 4 / 4MB No SMP support Motherboard contains one L and two slots: some: (1 PCI	GHz Single-Core Memory 64 Techn B std on Pentium D GA-775 socket, fo	800MHz FSB / I ology (EM64T)) / ECC / full spe ur DIMM socket	ed s, integrated SATA									
Memory	512MB or 1GB std / 8GB ¹³ m SDRAM / All Error Checking						DR2-						
SCSI disk controller SATA disk controller IDE disk controller Cables SAS models: Adaptec® 9405 chipset / single-channel / on planar / Integrated Raid 8e (Raid 0 or 1) SATA models: Integrated Intel controller / two-channel / on planar / Integrated Raid 8e (Raid 0 or 1) SATA models: Integrated Intel controller / two-channel / on planar / Integrated Raid 8e (Raid 0 or 1) SATA models: Integrated Intel controller / two-channel / on planar / Integrated Raid 8e (Raid 0 or 1) SATA models: Inte													
Mechanical Architecture / chipsets Bus slots Mechanical Architecture / Chipset / Memory Controller Hub (MCH) / I/O Controller Hub (ICH-S) for PCI 2.2 and PCI-X bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M192 Super I/O for diskette, parallel, serial, keyboard, mouse (See below) two available PCI-X 1.0 100MHz or one 64-bit PCIe™ x8 and one PCI-X 1.0 100MHz / no hot-swap Active™ PCI slots / PCI													
parallel, serial, keyboard, mouse Bus slots (See below) two available PCI-X 1.0 100MHz or one 64-bit PCIe™ x8 and one PCI-X 1.0 100MHz / no hot-swap													
CD-ROM / diskette Rear ports Front ports / Graphics	24X-10X ⁶ CD-ROM Slim/ ID Rear: serial (9-pin), two eth Front: two USB (Vers 2.0) ATI [®] RN50(ES1000) / 16MB S	ernet (RJ-45),keybo		· ·		,	rs 2.0)						
Console interconnects Systems mgmt	No system-to-system interc Mini-baseboard manageme					e, fan failure, a	nd						
Diagnostics	voltages Diagnostic LEDS/ Error LEI Diagnostics CD (diskette ca planar for continuous powe	an be created) / su	pport for optiona	tics via PC-Doctor al Remote Supervi	r on a standard sor Adapter II v	IBM Enhanced vith 20-pin conn	on						
Security	Power-on password / admi unattended boot / selectable secure remote power on /	e boot / unattende / off via IPMI 1.5	d start mode / 2	12MB PC2-4200 CL3 EC GB(2x1GB) PC2-4200 C GB(2x2GB) PC2-4200 C BM 80GB SATA (7.2K) sii	L3 ECC DDR2 RoHS L3 ECC DDR2 RoHS mple-swap HDD		30R5148 30R5149 30R5150 39M4500						
Software	ServerGuide™ (CD-ROM i utilities), IBM Director™ and	nstallation and coid others	ntiguration le	3M 160GB SATA (7.2K) s 3M 250GB SATA (7.2K) s 0GB Hot-Swap SATA HD	simple-swap HDD simple-swap HDD D_		39M4504 39M4508 39M4518						
Cooling fans Power supply Prerequisites	Seven fans (five fans for sylvariable speed / not redur 350 watt / universal / auto-Monitor, keyboard, mouse,	ndant or hot-swap sensing / auto-res	ver supply) 2 7 tart support 3 3 7 1	60GB Hot-Swap SATA H 50GB Hot-Swap SATA H 3GB 10K 3.5" SAS Hot-S 46GB 10K 3.5" SAS Hot-S 00GB 10K 3.5" SAS Hot-S 3GB 15K 3.5" SAS Hot-S 46GB 15K 3.5" SAS Hot-S 46GB 15K 3.5" SAS Hot-S 46GB 15K 3.5" SAS Hot-S 8M Remote Supervisor.	DD wap HDD Swap HDD Swap HDD wap HDD wap HDD swap HDD swap HDD dapter II (PCI adapter)		39M4522 39M4526 26K5709 26K5710 26K5711 26K5697 26K5698 26K5699 59P2984 71P8648						
Back PCIsiot1	Some:		C	Other options at ibm.com/p	pc/us/accessories								
PCI slot 1		ith, full height, 64-b	it 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, 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

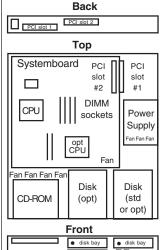
- On site, 8 am-5 pm, Mon-Fri excluding holidays, next business day response time
- on site service upgrade
 options (in eligible locations):
 3 year IOR 9x5, NBD avg response
 (ServicePac part num 69P9505)
 3 year IOR 9x5, 4 hr avg response
 (ServicePac part num 69P9506)
- 3 year IOR 24x7, 4 hr avg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

	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 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 SI Systembo	n die of pro M P / up to oard conta	cessor two C ins two	r / at prod opteron Po 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 in	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	wo avail. in d / DIMMs MHz / Errc	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 iit
	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 onced IDE onced IDE once onced IDE once oncedels: 36.40	-X Bus channe ATA-10 2-drop GB sup	B / support I / 16-bit of the control of EIDE control of ports up the control of	orts RAID- 68-pin LVI ler in CSB able to tw to 15000 r	C1020 / Ultra3 1 mirroring (Ei D cable from sy 5 South Bridge o disk bays (pi pm disks; EIDE pnnectors / filler	mbedded stemboard / two conr rimary) / d : <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	SAMD® 81 bridge B HyperTra National	I 31 PCI-X for PCI-X ansport clo Semicond	Bridge expan ock (PC uctor®	e Chip p sion slots I, AC '97 PC87366	roviding tv s) / 8111 7, Etherne 3 Super I/0	I/O HyperTran t, SMBus, USE	es running sport Bri 3, 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 ⁶ <i>Rear:</i> tw <i>Front:</i> tw C2T Inte	r / PCI-X 6 CD-ROM O USB (Vero USB (Vero USB)	4-bit 10 / IDE ers 1.1) rs 1.1); cablin	00MHz B / <i>Diskette</i> , serial (9 <i>Graphics</i> g not sup	us B / full e and keyl e-pin), two e: SVGA / A eported / N	ethernet (RJ-45 ATI® Rage XL / o	on LAN® / SB diskett 5) / paralle on 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	connecto Adapter Diagnosi	MS-9549 r on plana Il card not tic LEDs fo tht Path Di	r / opti suppo or fans	onál Rem rted , memory	note Super / DIMMs a		Optero Optero 512ME 1GB F	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)

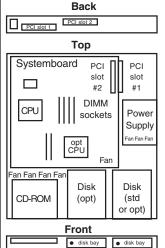
 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 69P9507)
- 3 year IOR 9x5, NBD response (ServicePac part num 69P9506)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period3

See footnotes for important warranty information

= Hot-swap in some models

(X325A) © IBM Corp. August 2003

IBM® Type-model Qty x Pro	ocessor	Proc. Speed	L2 Cache	Memory	Memory type	Disk	Disk controlle	Hot -swap or r fixed disk bays	Slots x bays	Ethernet v		Available date
8835-61X 1 x Opter 8835-62X 1 x Opter 8835-71X 1 x Opter 8835-72X 1 x Opter	on™ 248 on 248 on 250	2.2Ghz ¹ 2.2Ghz 2.4Ghz 2.4Ghz	1MB 1MB 1MB 1MB	1GB 1GB 1GB 1GB	Chipkill Chipkill Chipkill Chipkill	None (open) 80GB ² EIDE None (open) 80GB EIDE	Ultra320 EIDE	2 hot-swap 2 fixed	2x3 2x3 2x3	2 x Gigabit 2 x Gigabit 2 x Gigabit 2 x Gigabit	1 year 1 year 1 year	Jan 2004 Jan 2004 Jun 2004
Processor(s) L2 cache SMP support Implementation	1MB / on 2-way SM Systemboa	die of pro IP / up to ard conta	ocesso two C ains two	r / at proo opteron P o AMD S	cessor spe rocessors ocket 940	eed (no L3 ca (same speed micro-PGA Z	che) /cache siz IF sockets	ology / 64-bit x re required) s, six memory l bus interface				
Memory	PC2700 33 be installed	33MHz re d in match and Corr	gistered ed pairs ecting	l 184-pin l s [a bank] (ECC) via	ECC DDR- / 2-way me . 16-bit C h	-SDRAM DIMN emory interleav	ls / six DIN e / dual cha	al / two slots use //M gold-connect annel / memory acts 1, 2, 3, or 4	or slots o	on systemboa at 2 x 100MH	ard / DIM Hz / Erro	r
SCSI disk controller	64-bit 100	MHz PCI	-X Bus	B/suppo	orts RAID -	1 mirroring (Embedded	l Mirroring) with	two SC	SI disks in fr	ont bays	
IDE controller / cable	e <i>All:</i> Enhan	ced IDE	ATA-10	00 control	ler in CSB	5 South Bridg	ė / two cor	rd to backplane nnectors on pla one 1-drop Ell	nar / one	1-drop IDE	cable (C	D-ROM)
Disk - capacity Disk - bays	SCSI mod	lels: 36.40	GB sup	ports up	to 15000 r	pm disks; <i>EID</i>	E models:	80GB / 7200 r n each disk bay	om / ATA	\-100 / 8.7m	is seek	• •
Mechanical Architecture / chipset Bus slots	s AMD® 813 bridge B f HyperTrar National S	31 PCI-X for PCI-X nsport clo Semicond	Bridge expan ock (PC luctor®	e Chip p sion slots N, AC '97 PC87366	roviding tv s) / 8111 7, Etherne 3 Super I/	wo PCI-X brid I/O HyperTra t, SMBus, US	ges runnir nsport B i B, EIDE,	ridge Chip sup LPC to BIOS a	bridge A porting	for SCSI a a 200 Mhz	nd Ethe	rnet;
Ethernet controllers CD-ROM/diskette/kbd Rear ports Front ports / graphics Console interconnect	on planar d 24X-10X ⁶ Rear: two s Front: two s C2T Interd	/ PCI-X 6 CD-ROM) USB (Ve) USB (Ve connect™	64-bit 10 1 / IDE ers 1.1) ers 1.1); 1 cablin	00MHz B / <i>Diskette</i> , serial (9 <i>Graphics</i> g not sup	us B / full e <i>and key</i> e-pin), two :: SVGA / <i>F</i> eported / N	duplex / Wake board: none (I ethernet (RJ- ATI® Rage XL /	e on LAN® JSB diske 45) / parall on planar / Console M	lel port not sup / 8MB SDRAM s	d Forma rd option oorted td/max / 3	t 1.0 / two r al); legacy i 32-bit 33MHz	eár RJ-4 not supp z PCI 2.2	45 ports ported Bus A
Systems mgmt Diagnostics	Standard connector Adapter II Diagnositio only / Ligh	on plana card not c LEDs f	ar / Rer suppo or fans	note Sup rted , memory	ervisor / DIMMs a	nent / and processor	Opte 512M s 1GB 2GB	ron 248 Proce ron 250 Proce IB PC2700 CL2. PC2700 CL2.5 PC2700 CL2.5	ssor Up 5 ECC D ECC DE ECC DE	grade DR-SDRAM DR-SDRAM	RDIMM	73P2267 73P2269
Security	Power-on					rd / ded start mode	1200	B ATA-100 EIC	DE HDD*		LIDD#	09N4226 09N4231
Software		ide™ (C	D-ROM	l installat	ion and c	configuration	73.40	GB 15K Ultra32 GB 15K Ultra32 TotalStorage F	0 SCSI F	Hot-Swap SL	_ HDD*	32P0735
Cooling fans Power supply Prerequisites	variable s 411 watt /	pèed / no universa	ot redu al / aut	ndant or o-sensing	hot-swap g / auto-re	ver supply) / estart support e), operating	IBM USB NetB sys, NetB 1.5M	ServeRAID-6N Portable Diske AY ACT Local AY Remote Co USB Conversi k not supported	SCSI (2) Sette Drive Console Monsole M	256MB Cac e Manager (Ianager (RC	he) (LCM) CM)	02R0988 05K9276 1735L04 1735R16 73P5832



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

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

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

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

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

LIMITED WARRANTY³

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

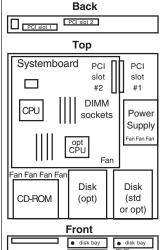
 2 year IOR 24x7, 2 hr avg response
- (ServicePac part num 96P2120) 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 69P9507)
- 3 year IOR 9x5, NBD response (ServicePac part num 69P9506)
 Other ServicePac options at
- http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support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

See footnotes for important warranty information

= Hot-swap in some models

(X325B) © IBM Corp. January 2004

	IBM® Type-GAV Qty x Proce		roc. beed C	L2 Cache N	/lemory	Memory type	Disk	Disk controller	Hot -swap or fixed disk bays	Slots x bays Ethernet	Limited warranty	Available date
•	8848-51Y 1 x Opteror 8848-52Y 1 x Opteror 8848-61Y 1 x Opteror 8848-62Y 1 x Opteror 8848-71Y 1 x Opteron 8848-71Y 1 x Opteron 8848-81Y 1 x Opteron 8848-82Y 1 x Opteron	1 246 2.0 1 248 2.2 1 248 2.2 1 250 2.4 1 250 2.4 1 252 2.6	Ghz 1 Ghz 1 Ghz 1 Ghz 1 Ghz 1 Ghz 1	MB MB MB MB MB	1GB 1GB 1GB 1GB 1GB 1GB 1GB	Chipkill Chipkill Chipkill Chipkill Chipkill Chipkill Chipkill Chipkill	None (open) 80GB ² SATA None (open) 80GB SATA None (open) 80GB SATA None (open) 80GB SATA	Ultra320 SATA Ultra320 SATA Ultra320 SATA Ultra320 SATA	2 fixed 2 hot-swap 2 fixed 2 hot-swap 2 fixed	2x3 2 x Gigabi 2x3 2 x Gigabi	t 1 year t 1 year t 1 year t 1 year t 1 year t 1 year t 1 year	Sept 2004 Sept 2004 Sept 2004 Sept 2004 Sept 2004 Sept 2004 Mar 2005 Mar 2005
	Processor(s)	Up to 2 x A	MD® Op	oteron	™ 246, 2	48, 250, 2	252 with 800Mb	nz HyperT	ransport techno	ology / 64-bit x86	Instructio	n set / 32-
	L2 cache SMP support Implementation	Systemboard	contair	ns two	AMD So	cket 940	sor speed (no l (same speed/c micro-PGA ZIF let, graphics / /	sockets,		DIMM slots, two bus interface	64-bit 133	3/100Mhz
	Memory	PC2700 or F	PC3200 be insta	registe alled in	red 184- matched	pin ECC I	odr-Sóram (DIMMš / e	ight DIMM gold	slots used / six s d-connector slots channel / memor	on system	nboard /
	SCSI disk controller SATA controller/cable Disk - capacity Disk - bays	64-bit 100MF one 16-bit in All: SATA-15 SCSI models	Hz PCI-) ternal cl 50 contro s: open; s: two ho	X Bus I nannel oller / tv SATA ot-swap	B / suppo / 16-bit wo conno <i>models:</i>	orts RAID 68-pin LV ectors on p 80GB / 72	-1 mirroring (E D cable from s planar / two 1-c 200 rpm / ATA-	embedded Systemboa Brop cable -100 / 9.0r	Mirroring) with rd to backplane s / 1 IDE ns seek	VD 320MB/sec) / n two SCSI disks e for two disks / r y / all disk bays U	in front ba no externa	l connector
	Mechanical Architecture/chipsets Bus slots	EIA 19" Rac AMD® 8131 for PCI-X ex HyperTransp National Ser (See detail b no hot-swap	$\Theta(OW)$	/O avaii	anie Pu	nly / supposition of high super logical contract of high super	orted in 26" de p PCI-X bridges Transport Brid SMBus, USB, chip full-length, 1 H	ep racks s s running a ge Chip s SATA, IDI alf / 133M	such as the IBI at 100Mhz (bric supporting a 20 E, LPC to BIOS Hz if using sing	M NetBAY™ Rac Ige A for SCSI ar 00 Mhz double-pu S and Super I/O) gle adapter, 100N	k products nd Etherne Imped / IHz with 2	et; bridge B
	Ethernet controllers Optical/diskette/kbd Rear ports Front ports / graphics Console interconnects	Two gigabit on planar / F 24X-10X° CI Rear: two U Front: two U C2T Intercor (RCM), and	10/100/1 PCI-X 64 D-ROM / JSB (Ve JSB (Vei Inect™ (USB Co	1000 et -bit 100 / IDE / rs 1.1), rs 1.1); cabling conversion	hernet po OMHz Bu <i>Diskette</i> serial (9 <i>Graphio</i> not suppon Optio	orts / Broaus B / full of and keyb 3-pin), two cs: SVGA ported / N n (UCO)	dcom BCM570 duplex / Wake <i>loard:</i> none (US ethernet (RJ-4 / ATI® Rage XI etBay Local Co are supported	04C / two fon LAN® / SB diskette 15) / parall L / on plar onsole Ma	full gigabit ethe Alert Standard e and keyboard el port not sup nar / 8MB SDR nager (LCM), I	rnet MAC and Pl Format 1.0 / two d optional); legacy ported AM std/max / 32- NetBay Remote (HY layer fu rear RJ-4 r not supp bit 33MHz Console M	sports of the sport of the spor
	Systems mgmt	Standard MS connector or					ent / apter II optiona	Opterd	on 246 Proces	sor Upgrade		13N0705 13N0706
	Diagnostics	Diagnositic L only / Light F					nd processors	Optero	on 250 Proces on 252 Proces C2700 CL2.5		M kit	13N0702 13N0703 73P2269
	Security	Power-on pa							C3200 CL3 E0 SATA-150 7.2	CC DDR-SDRAN k HDD*	l kit	73P3233 25R6902
	Software	unattended to ServerGuide utilities), IBM	e™ (CD-	ROM i	installatio	on and co	nfiguration	160GE 36.4G	3 SATA-150 7.: B 15K Ultra320	2k HDD*) SCSI Hot-Swap		25R6903 32P0734
	Cooling fans	Eight fans (fi					r supply) /	IBM T	otalStorage FC	SCSI Hot-Swap 22-133 Host Bus	Adapter	24P0960
	Power supply Prerequisites	variable spec 411 watt / ui Monitor, key	niversal	/ auto-	sensing .	/ auto-rest	tart support , operating sys	USB F NetBA NetBA 1.5M U	Portable Diskett Y ACT Local (Y Remote Cor JSB Conversio	Console Manager nsole Manager (F	(LCM) RCM)	02R0988 05K9276 1735L04 1735R16 73P5832



Slot 1: half-length, 64-bit 133/100MHz PCI X 1.0 (3.3v); Bus C Slot 2: full-length, 64-bit 133/100MHz 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 320GB with two 160GB EIDE disks

LIMITED WARRANTY³

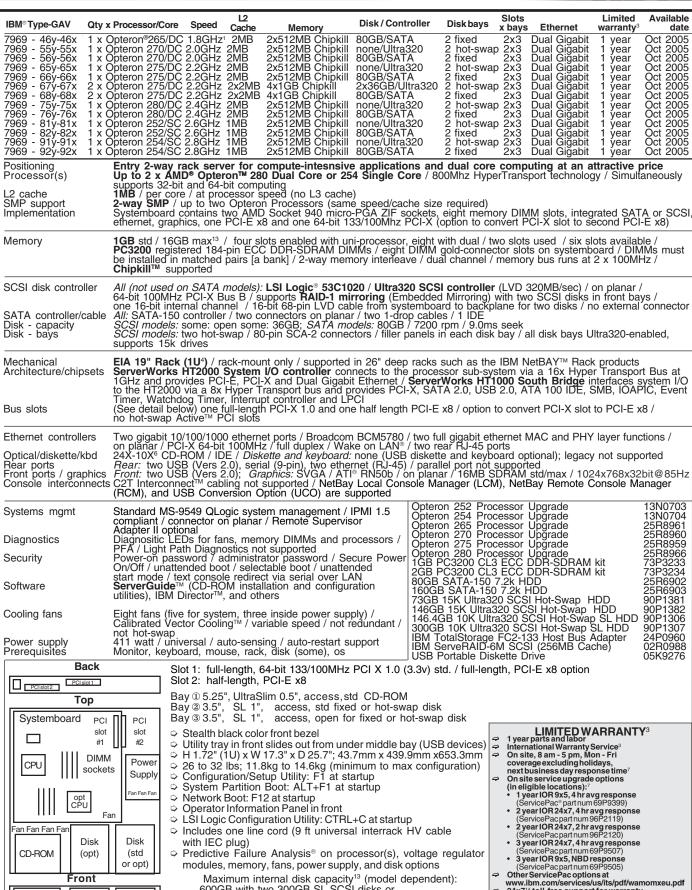
- 1 year parts and labor
- International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in eligible locations):7
 - 1 year IOR 9x5, 4 hr avg response (ServicePac® part num 69P9399)
- 2 year IOR 24x7, 4 hr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

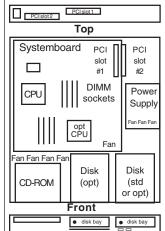
 2 year IOR 24x7, 2 hr avg response
- (ServicePac part num 96P2120)

 3 year IOR 24x7, 4 hr avg response
- (ServicePac part num 69P9507) 3 year IOR 9x5, NBD response
- (ServicePac part num 69P9505)
 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



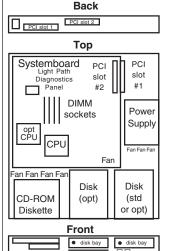


- Network Boot: F12 at startup
- Operator Information Panel in front
- LSI Logic Configuration Utility: CTRL+C at startup
- Includes one line cord (9 ft universal interrack HV cable
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

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

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

IBM® Type-model Qty x P	rocessor	L2 cache	FSB MHz	Memory	Memory type	Disk	Disk controller	Hot -swap or fixed disk bays		Ethernet	Limited warranty ³	Available date
8830-11X 1 x Xeon 8830-12X 1 x Xeon 8830-21X 1 x Xeon 8830-22X 1 x Xeon	2.8B GHz 2.8B GHz 3.06 GHz 3.06 GHz	512KB 512KB 512KB 512KB	533 🖾 533 🖾 533 🖾 533 🖾	512MB 512MB 512MB 512MB 512MB	Chipkill	None (open) 40GB ² EIDE None (open) 40GB ² EIDE	Ultra320 EIDE Ultra320 EIDE	2 hot-swap 2 fixed 2 hot-swap 2 fixed	2x4 2x4 2x4 2x4 2x4	2 x Gigab 2 x Gigab 2 x Gigab 2 x Gigab	it 1 vear	Apr 20031
Positioning Processor(s) L2 cache SMP support Implementation	1 x Intel® 512KB / 6 2-way SM Systembo	Xeon 2.8 on die of pour betreeholden. MP / up to to ard contains	BB or 3. rocessor wo Xeor ins two I	.06GHz ¹ r / at proc n Process ntel 603-	with 533N essor spe sors (same pin micro-	MHz frontside I ed (no L3 cach e speed/cache	ous / Hype e) size) ets, four me	nance computin er-Threading to emory DIMM sl	echnolog	gy		
Memory	PC2100 2 must be i Error Ch	266MHz re nstalled in	gistered matched d Corre	l 184-pin d pairs [a cting (E(ECC DDF bank] / 2- CC) via 16	way memory ir -bit Checksur	Ms / four D iterleave /	IMM gold-conn dual channel /	memory	bus ruńs at	t 2 x 100N	1Hz/
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 o nced IDE o dels: One odels: none	-X Bus E channel ATA-100 2-drop E standa	3 / suppo / 16-bit 6) controll EIDE cab rd / suppo	rts RAID- 68-pin LVI er in CSB: le to two c orts up to	1 mirroring (E D cable from sy 5 South Bridge disk bays / one 15000 rpm dis	mbedded vstemboar v two con 1-drop El ks; EIDE r	controller (LV) Mirroring) with d to backplane nectors on plar DE cable to CI models: 40GB s in each disk	two SC for two nar / one D-ROM 7200 rp	SI disks in disks / no ee 1-drop IDE	front bays external co E cable (C	onnector CD-ROM) s seek
Mechanical Architecture / chipsets Bus slots	ServerW one CIOE slot 2 and SMBus, I	/orks® Gra 3-X2 I/O B d Ultra320 LPC bus to	ind Cha ridge (IN / CSB5 Super I	mpion™ //B2 bus t South B //O) / Nat	4.0 LĖ / 0 to Host Br ridge (Thi ional Sem	CMIC LE Host I idae for PCI-X	Bridge (me Bus A wit Bridge for C87417 Si	h sloṫ 1 and du PCl 2.2 Bus C	er and I/ al ether	O Bridge) / net and PC	I-X Bus E	s with DE, USB,
Ethernet controllers CD-ROM / diskette Rear ports Front ports / graphics Console interconnects	on planar 24X-10X ⁶ <i>Rear:</i> or <i>Front:</i> tw sC2T Inter	r / PCI-X 64 CD-ROM ne USB (Ver ro USB (Ver rconnect™	4-bit 100 / IDE; <i>L</i> ers 1.1), ers 1.1); ¹ cable (*	MHz Bus Diskette: 3 C2T in, C Graphic: 10 inch, 2	s A / full du 3.5" 1.44M 22T out, s s: SVGA / 245mm) is	plex / Wake or IB diskette driv erial (9-pin), tw ATI® Rage XL standard (Key	n LAN® / AÌ re / dust co ro ethernet / on plana rboard Vid	t (RJ-45), one F r / 8MB SDRAN	ormat 1. RS-485 (// std/ma //) chair	0 / two rear (sys mgmt) / ax / 32-bit 33 ning cable) /	RJ-45 pc / no paral 3MHz PC / one Cab	lel port I 2.2 bus
Systems mgmt Diagnostics	monitoring with 20-p	ng such as oin conn or th Diagno	temp, m planar stics™ (nemory, c for contin LED ligh	ptional di luous pwr ts indicate	sks, fàns, pów (no ext pwr req	er supply / Xeon Xeon	on planar / pro support for op 2.4GHz/512K 2.8GHz/512K 2.8BGHz/512	tional F B L2 Ca B L2 Ca	demote Sup ache Proc ache Proc	ervisor A Upg Upg	
Security Software	unattend ServerG	n password ed boot / s uide ™ (CE IBM Direc	electabl D-ROM i	e boot / u nstallatio	nattended	d start mode	512M 1GB I 2GB I 80GB	B PC2100 CL2 PC2100 CL2.5 PC2100 CL2.5 ATA-100 EID BB 15K Ultra320	2.5 ECC ECC D ECC D E HDD	DDR-SDR DR-SDRAN DR-SDRAN *	AM ĎIMN 1 RDIMM 1 RDIMM	33L5039
Cooling fans Power supply Prerequisites	variable 332 watt Monitor, one Cabl	keyboard,	ot redun al / auto mouse, echnolog	dant or I -sensing rack, dis gy (C2T)	hot-swap / auto-re k (some), Kit per ch	oply) / start support operating sys, ain of servers	73.4G Remo xSerie break or NetB	iB 10K-4 Ultra1 ite Supervisor ites Cable Chai out cable and2 AY ACT Local (it not supported	60 SCS Adapter n Techr meter l Console	l Hot-Swap S nology Cab KVM chainir Manager	SLHDD* le Kit (2 i	06P5756 09N7585 meter



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

Stealth black color front bezel

Steatill Diack Color Horit Dezel
 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: E12 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

3 year IOR 24x7, 2 hr avg response

(ServicePac part num 69P9508)

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

issues during the warranty period³

See footnotes for important warranty information

- = Hot-swap in some models
- See US models withdrawn effective March 2004
- △ 533Mhz FSB models may use 400Mhz FSB processors. 400Mhz FSB models may not use 533Mhz FSB processors.

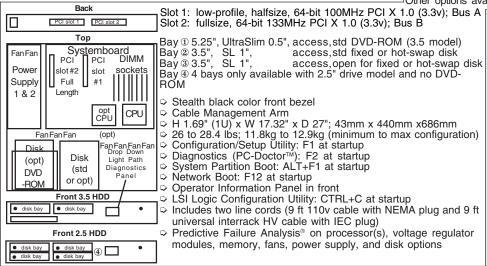
LIMITED WARRANTY³

- 1 year parts and labor
 International Warranty Service³
- On site, 8 am 5 pm, Mon Fri coverage excluding holidays, next business day response time7
- On site service upgrade options (in
 - eligible locations):⁷
 3 year IOR 9x5, NBD 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)
- Other ServicePac options at
- 24x7¹⁴ toll-free support for warranty

(X335B) © IBM Corp. April 2003

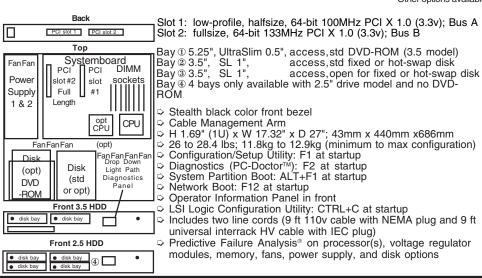
Ü	, ,	
8837-01y-01x 1 x 8837-02y-02x 1 x 8837-11y-11x 1 x 8837-41y-41x 1 x 8837-44y-4Ax 1 x	Xeon® 2.8GHz 1MB 512MB std None (open 3.5) L Xeon 2.8GHz 1MB 512MB std None (open 3.5) S Xeon 3.0GHz 1MB 1GB std None (open 3.5) L Xeon 3.6GHz 1MB 1GB std None (open 3.5) S A highly manageable, ultra-dense 1U, 2-way server that deliven 1 x Intel® Xeon 2.8, 3.0, 3.2, 3.4, 3.6GHz with 800MHz / 1MB 1MB L2 cache on all models / on die of processor / at process 2-way SMP / up to two Xeon Processors (same speed/cache Systemboard contains two Intel 604 pin micro-PGA ZIF socked low-profile 100MHz) and integrated SCSI, dual GB ethernet, g	58TA 585W 2 simple-sp 2x3 2 x Gigabit 3 year Oct 2004 Jitra320 585W 2 hot-swap 2x3 2 x Gigabit 3 year Oct 2004 Jitra320 585W 2 hot-swap 2x3 2 x Gigabit 3 year Oct 2004 Jitra320 585W 4 hot-swap 2x3 2 x Gigabit 3 year Oct 2004 SATA 585W 2 simple-sp 2x3 2 x Gigabit 3 year Oct 2004 ers performance computing in space-constrained environments L2 Cache / Extended Memory 64 Technology (EM64T) sor speed / ECC size) s, eight DIMM slots, two PCI-X slots (one full length 133MHz, one
SCSI disk controller SATA disk Controller IDE controller / cable Disk - MAX capacity Disk - bays	channel / Active Memory(TM): online spare and memory mirror	I channel / no external connector on planar / two one-drop cables GB HDD SATA: 500GB with two 250GB HDD
Mechanical Architecture / chipsets Bus slots Ethernet controllers DVD-ROM / diskette Rear ports Graphics	EIA 19" Rack (1U ⁴) / rack-mount only / supported in 26" deep intel E7520 / Intel Memory Controller Hub (MCH) / 3 PCI buse 32bit/33MHz PCI) / Intel PCI-X Bridge (supports 133MHz PCI-X	or racks such as the IBM NetBAY TM Rack products as (one 64bit/133MHz PCI-X1.0, one 64bit/100MHz PCI-X1.0, and X slots 1 & 2, LSI Logic 53C1020) / ICH5R South Bridge (Thin IMB C bus to Super I/O) / National PC87427 Super I/O (supports legacy CI slots / optional full-length PCI-Express x8 Riser Avail / two full gigabit ethernet MAC and PHY layer functions / / Alert Standard Format 2.0 / two rear RJ-45 ports 45), one RJ-45 (sys mgmt) / mouse ps2 / keyboard ps2
Systems mgmt Diagnostics Security Software	IBM Baseboard Management Controller (BMC) / H8S2168	/ on planar / provides system and environmental monitoring such for optional Remote Supervisor Adapter II Slimline with 20-pin conn Xeon 3.2GHz/1MB L2 Proc Upg 13N0663 Xeon 3.6GHz/1MB L2 Proc Upg 13N0665 512MB (2x256)PC2-3200 CL3 ECC DDR2 RDIMM 73P3523 1GB (2x512)PC2-3200 CL3 ECC DDR2 ChipKill 73P2865 2GB (2x1GB)PC2-3200 CL3 ECC DDR2 ChipKill 73P2866 80GB SATA 7.2K Simple Swap HDD 73P8002
Cooling fans Power supply Prerequisites	seven-nine fans / variable speed / hot-swap / redundant 585 watt hot-swap (second Opt)/ universal / auto sensing / auto re-start Monitor, keyboard, mouse, rack, disk (some), operating sys	160GB SATA 7.2K Simple Swap HDD 73P8003 73GB 10K Ultra320 SCSI Hot-Swap SL HDD 90P1305 36.4GB 10K Ultra320 SCSI Hot-Swap 2.5" HDD 32P0796 ServeRAID 6i+ adaptor 13N2190 Remote Supervisor Adapter II slimline 73P9341 Second 585W Power supply 90P5280 PCI-Express x8 full-length riser card 22R9293 Other options available at www.ibm.com/pc/us/accessories
Fan	Slot 2: fullsize, 64-bit 133MHz PCI X 1.0 (3.3v nboard DIMM of sockets 1 Bay ® 3.5", SL 1", access, std DVD-R Bay ® 3.5", SL 1", access, std fixed o Bay ® 3.5", SL 1", access, open for fixed of Bay ® 4 bays only available with 2.5" drive mod ROM Stealth black color front bezel Cable Management Arm H 1.69" (1U) x W 17.32" x D 27"; 43mm x 4-bit Configuration/Setup Utility: F1 at startup Diagnostics (PC-Doctor™): F2 at startup Configuration Boot: ALT+F1 at startup Coperator Information Panel in front LSI Logic Configuration Utility: CTRL+C at startup contraction in configuration Utility: CTRL+C at startup configuration Panel in front Contraction Panel in front Contraction Panel	LIMITED WARRANTY 3 year parts and labor International Warranty Service On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time? On site service upgrade options (in eligible locations):? 3 year IOR 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) Cother ServicePac options at

IBM® Type-GAV-model Qty	L2 y x Processor cache	e Memory Disk	Disk controller	Optical	Power Supply	Disk bays	Slots x bays	Ethernet		Available date
8837-1Vy-1Vx 1 x 8837-16y-16x 1 x 8837-25y-25x 1 x 8837-35y-35x 1 x 8837-3Vy-3Vx 1 x 8837-36y-36x 1 x 8837-45y-45x 1 x 8837-E1y-E1x 1 x	Xeon 3.0GHz 2MB Xeon 3.2GHz 2MB Xeon 3.4GHz 2MB Xeon 3.4GHz 2MB Xeon 3.4GHz 2MB Xeon 3.6GHz 2MB Xeon 3.0GHz 2MB	3 1GB None (open 2 3 1GB None (open 3. 3 1GB None (open 3. 3 1GB None (open 2. 3 1GB None (open 2. 3 1GB None (open 3. 3 1GB None (open 3.	5) Ultra320 5) SATA 5) Ultra320 5) Ultra320 5) Ultra320 5) SATA 5) Ultra320 5) Ultra320	DVD DVD DVD None DVD DVD DVD	585W 585W 585W 585W 585W 585W 585W 585W	2 hot-swap 4 hot-swap 2 simple-sp 2 hot-swap 4 hot-swap 4 simple-sp 2 hot-swap 4 hot-swap 4 hot-swap 4 hot-swap	2x4 2x3 2x3 2x3 2x4 2x3 2x3 2x3	2 x Gigabit 2 x Gigabit	3 year 3 year 3 year 3 year 3 year 3 year 3 year 3 year	Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005 Mar 2005
Positioning Processor(s) Cache SMP support Implementation	1 x Intel® Xeon 3.0 2MB L2 cache on 2-way SMP / up to Systemboard conta	ble, ultra-dense 1U, 2-wa D, 3.2, 3.4, 3.6GHz with a all models / on die of pro- two Xeon Processors (all models / on die of pro- two Xeon Processors (all models / on die of pro- tins two Intel 604 pin mic and integrated SCSI on	BOOMHz / 2M cessor / at pr same speed/o ro-PGA ZIF s	B L2 Cad ocessor s cache siz sockets, e	che / Exte speed / E e) eight DIMN	nce computing ended Memor CC M slots, two P0	in spac y 64 Te	ce-constraine chnology (E	d environ :M64T)	ments
Memory	connector slots on	ax ¹³ / 8 slots (6 avail) / P systemboard / DIMMs m : online spare and memo	ust be installe	ed in mate	ched pairs	s [a bank] / 2-v	vay mer			
SCSI disk controller SATA disk Controller IDE controller / cable Disk - MAX capacity Disk - bays	Mirroring) with two senhanced SATA-1st one 1-drop EIDE cases 3.5: 292GB w	20 / Ultra320 SCSI com SCSI disks in front bays 50 (150MB/sec) controlle able to DVD-ROM with two 146GB HDD <i>SC</i> p or four 2.5" hot-swap /	/ one 16-bit in er / two conne SI 2.5 :four 2.	ternal charctors on 5" 73GB	annel / n planar / t HDD <i>SA</i>	o external con wo one-drop c TA : 500GB wit	nector ables th two 2		(Embedd	ed
Mechanical Architecture / chipsets Bus slots Ethernet controllers DVD-ROM / diskette Rear ports Graphics	s Intel E7520 / Intel N 32bit/33MHz PCI) / to Host Bridge for g components; keybc (See below) two av Two gigabit 10/100, on planar / PCI-X 6 Some: DVD-ROM, Rear: Two USB (2	") / rack-mount only / sup Memory Controller Hub (Intel PCI-X Bridge (supp graphics controller, EIDE, bard, mouse, serial) vailable PCI-X 1.0 / no ho /1000 ethernet ports / Br 64-bit 100MHz / full duple / IDE; Diskette: none 2.0), serial (9-pin), video, m / on planar / 16MB SD	MCH) / 3 PCI orts 133MHz USB, SMBus ot-swap Active badcom BCM x / Wake on L two ethernet	l buses (c PCI-X sk s, LPC bu 5™ PCI sk 5721 / tw _AN® / Ak (RJ-45),	one 64bit/ ots 1 & 2, us to Sup- ots / option of full gigatert Standa one RJ-4	133MHz PCI-) LSI Logic 53C er I/O) / Natior anal full-length abit ethernet M. ard Format 2.0 I5 (sys mgmt)	(1.0, one C1020) / nal PC87 PCI-Exp AC and / two re	e 64bit/100M ICH5R Sout 7427 Super I/ press x8 Rise PHY layer fu ear RJ-45 por	Hz PCI-X n Bridge (O (suppo r Avail nctions / ts	Thin IMB
Systems mgmt Diagnostics	as temp, memory, on planar for contin	lanagement Controller optional disks, fans, pow nuous pwr (no ext pwr re path diagnostics Pull o	er supply / su q)	apport for						
Security	(LED lights indicate Power-on password	failing component) d / administrator passwo	rd /			2GHz/2MB L2 6GHz/2MB L2				25R8905 13N0667
Software		selectable boot / unattend D-ROM installation and o tor™, and others		e 	512MB 1GB (2x 2GB (2x	(2x256)PC2-32 (512)PC2-320 (1GB)PC2-320	200 CL3 CL3 E 0 CL3 E	ECC DDR2 CC DDR2 C ECC DDR2 (hipKill	73P3523 73P2865 73P2866
Cooling fans Power supply		rariable speed / hot-swap (second Opt)/ universal		g /	160GB 9	ATA 7.2K Sim _l SATA 7.2K Sin OK Ultra320 SO	nple Swa CSI Hot-	, ap HDD ∙Swap SL H⊡		73P8002 73P8003 90P1305
Prerequisites		mouse, rack, disk (som	e), operating	sys	ServeRA Remote Second PCI-Exp	10K Ultra320 AID 6i+ adapto Supervisor Ac 585W Power aress x8 full-ler ptions available	r lapter II supply ngth rise	slimline er card		32P0796 13N2190 73P9341 90P5280 22R9293 essories



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

BM @server™	xSeries™	336 (8837	') - Noven	nber 200)5	хR	REF by eSer	ver Fiel	d Skills an	d Educa	tion Team
IBM® Type-GAV-model Qty	x Processor/Core	L2 cache Memon	/ Disk	Disk controller C)ntical	Power	Disk bays	Slots x bays	Ethernet		Available date
8837-05U-05x 1 x) 8837-06U-06x 1 x) 8837-06U-06x 1 x) 8837-55U-55x 1 x) 8837-54U-56x 1 x) 8837-56U-56x 1 x) 8837-E4U-E4x 1 x) 8837-E5U-E5x 1 x) 8837-D1U-D1x 1 x) 8837-DAU-DAx 1 x)	(eon™2.8GHz/S (eon 2.8GHz/SC (eon 2.8GHz/SC (eon 3.8GHz/SC (eon 3.8GHz/SC (eon 3.8GHz/SC (eon 2.8GHz/SC (eon 2.4GHz/SC (eon 2.8GHz/DC	C 2MB 1GB C 2MB 1GB	None(open 3 None(open 3. None(open 3. None(open 3. None(open 3. None(open 3. None(open 3. None(open 3. None(open 3.	3.5) Ultra320 3.5) Ultra320 5) SATA 6) Ultra320 5) SATA 5) Ultra320 5) Ultra320 5) Ultra320 5) Ultra320	DVD None DVD DVD None DVD DVD DVD	585W 585W 585W 585W 585W 585W 585W 2x585V	2 hot-swap 4 hot-swap 2 simple-sp 2 hot-swap 4 hot-swap 2 simple-sp 2 hot-swap	2x3 2x4 2x3 2x3 2x4 2x3 2x3 2x3 2x3 2x3 2x3	2 x Gigabit 2 x Gigabit	3 year 3 year 3 year 3 year 3 year 3 year 3 year 3 year 3 year	Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Sep 2005 Nov 2005
Positioning Processor(s) Cache SMP support Implementation	A highly manage Intel® Xeon Pro Optimized for 2MB L2 Cache 2-way SMP / u Systemboard or low-profile 100M	p to two Xeon I ontains two Intel	Processors (sar I 604 pin micro-	ne speed/cac PGA ZIF sock	he size kets, ei	e) ght DIMN	on ale of proc // slots, two P	essor/a	t processor s	speea/ E	
Memory	1GB std / 16GE connector slots Active Memory	on systemboard	d / DIMMs must	t be installed i	n matc	hed pairs	[a bank] / 2-	way men	AM DIMMs nory interlea	/ eight DII ve / dual (MM gold- channel /
SCSI disk controller SATA disk Controller IDE controller / cable Disk - MAX capacity Disk - bays	LSI Logic® 530 Mirroring) with the Enhanced SAT. one 1-drop EID SCSI 3.5: 2920 SCSI: two hot-s	wo SCSI disks i A-150 (150MB/s E cable to DVD iB with two 1460	in front bays / oi sec) controller / i-ROM GB HDD <i>SCSI</i> :	ne 16-bit interi two connecto 2.5 :four 2.5" 7	nai cha rs on p 73GB F	innei / no blanar / tv HDD <i>SA</i> 1	o external cor wo one-drop (TA : 500GB w	nector cables ith two 25		(Embedd	ed
Mechanical Architecture / chipsets Bus slots Ethernet controllers DVD-ROM / diskette Rear ports Graphics	EIA 19" Rack (Intel E7520 / In 32bit/33MHz PC to Host Bridge from components; ke (See below) two gigabit 10/on planar / PCI-Some: DVD-Rear: Two USSVGA / ATI® 70	eyboard, mouse o available PCI- 100/1000 etherr -X 64-bit 100MH DM / IDE; <i>Disk</i> e	e, seriai) X 1.0 / no hot-s net ports / Broac Iz / full duplex / <i>ette:</i> none	wap Active™ I dcom BCM572 Wake on LAN	PCI slo 21 / two I® / Ale	ts / optio full giga rt Standa	nal full-length bit ethernet M ard Format 2.0	PCI-Exp IAC and) / two re	ress x8 Rise PHY layer fu ar RJ-45 por	er Avail Inctions / ts	1.0, and (Thin IMB orts legacy
Systems mgmt Diagnostics Security Software	as temp, memo on planar for co Drop down lig (LED lights indic Power-on passi	nt path diagno cate failing comp word / administi t / selectable bo (CD-ROM insta	is, fans, power some ext pwr req) is stics. Pull out Foonent) rator password out / unattended allation and con	supply / supp Front panel / start mode	ort for c	Geon 2.8Gl Geon 2.8Gl Geon 3.2Gl Geon 3.6Gl Geon 3.8Gl Geon 3.8Gl	Remote Supe Hz SC 2MB L2 I Hz DC 4MB L2 I Hz SC 2MB L2 I Hz SC 2MB L2 I Hz SC 2MB L2 I	Proc Upg Proc Upg Proc Upg Proc Upg Proc Upg Proc Upg CL3 ECC DI	apter II Sliml		0-pin conn 25R8907 25R8930 25R8905 13N0667 13N0670 73P3523
Cooling fans Power supply Prerequisites	variable speed	tored Cooling ¹ / hot-swap / red /ap (second Op ard, mouse, rac	lundant t)/ universal / au	uto sensing /	e / 2 8 1 7 3	GB (2x1G) 60GB SAT/ 60GB SAT/ 3GB 10K U 66.4GB 10H 6erveRAID	2)PC2-3200 CL3 B)PC2-3200 CL A 7.2K Simple S FA 7.2K Simple S Ultra320 SCS I F K Ultra320 SCS 16i+ adaptor Ipervisor Adapte	.3 ECC DD wap HDD Swap HDD lot-Swap S I Hot-Swap	R2ChipKill) SLHDD)2.5" HDD		73P2865 73P2866 73P8002 73P8003 90P1305 32P0796 13N2190 73P9341
Back					— S F C	Second 585 CI-Expres	5W Power supp ss x8 full-length ns available at	ly riser card		cessories	90P5280 22R9293
	Slot Slot	t 1: low-profile, t 2: fullsize, 64 (① 5.25", Ultra (② 3.5", SL 1	i-bit 133MHz F Slim 0.5", acce	PCI X 1.0 (3.0	3v); Bu -ROM	ıs B <i>´</i> (3.5 mo	del)	3 year p Internati	MITED WA parts and la ional Warra 8 am - 5 pm	bor nty Servic	ce ³



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

IBM®		L2	FSB		Memory		Disk	Hot -swap or	Slots		Limited	Available
Type-model Qty x Pr	ocessor	cache	MHz	Memory	type	Disk		fixed disk bays		Ethernet	warranty ³	date
8676-1AX 1 x Xeon	2.8B GHz	512KB	533	512MB	Chipkill	None (open)	Ultra320	2 hot-swap	2x4	2 x Gigab	it 3 year I	Mar 2003
	er models nt to supp					tructures req	uiring net	work				
Positioning Processor(s) L2 cache SMP support Implementation	1 x Intel® 512KB / o 2-way SM Systembo	Xeon 2.0 n die of po P / up to tard conta	8BGHz ¹ rocessor two Xeor ins two I	with 533 / at process ntel 603-	BMHz fron essor spe sors (same pin micro-	erver that delive ttside bus / Hy ed (no L3 cach e speed/cache PGA ZIF sock thernet, graph	/per-Threa ne) size) ets, four me	ding technolog	gy			
Memory	PC2100 2 must be in	66MHz re stalled in cking an	egistered matched d Corre	184-pin d pairs [a cting (EC	ECC DDF bank] / 2- CC) via 16	o slots availab R-SDRAM DIM way memory in bit Checksun chips)	Ms / four D nterleave /	dual channel /	memory	bus runs a	t 2 x 100M	Hz/
SCSI disk controller IDE controller / cable	64-bit 100 one 16-bit	MHz PCI internal o	-X Bus E channel	3 / suppo / 16-bit 6	rts RAID- 8-pin LV[C1020 / Ultra: 1 mirroring (ED) cable from significant	Embedded ystemboar	Mirroring) with d to backplane	n two SC e for two	SI disks in disks / no e	front bays external co	nnector
Disk - capacity Disk - bays	EIDE mod	<i>lels:</i> One <i>lels:</i> none	2-drop E standaı	EIDE cab	le to two o	disk bays / one 15000 rpm dis onnectors / fille	e 1-drop El sks; <i>EIDE r</i>	DE cable to C nodels: 40GB	D-ROM / 7200 rp	om / ATA-1	` 00 / 8.7ms	seek
Mechanical Architecture / chipsets	one CIOB slot 2 and SMBus, L	orks® Gra -X2 I/O B Ultra320 PC bus to	and Cha ridge (IM / CSB5 Super I	mpion ™ /IB2 bus t South Bi /O) / Nati	4.0 LE / 0 to Host Br ridge (Thir ional Sem	rted in 26" dee CMIC LE Host ridge for PCI-X n IMB to Host liconductor® P swap Active™	Bridge (me (Bus A wit Bridge for C87417 Si	emory controll h slot 1 and du PCI 2.2 Bus C	er and I/ ual ether	O Bridge) / net and PC	I-X Bus B	
Ethernet controllers CD-ROM / diskette Rear ports Front ports / graphics Console interconnects	on planar 24X-10X ⁶ <i>Rear:</i> one <i>Front:</i> two sC2T Interd	/ PCI-X 64 CD-ROM e USB (Ve o USB (Ve connect™	4-bit 100 /IDE; <i>[</i> ers 1.1), ers 1.1); cable (1	MHz Bus Diskette: 3 C2T in, C Graphics 10 inch, 2	s A / full du 3.5" 1.44M 22T out, s s: SVGA / 45mm) is		n LAN® / AÌ ve / dust co vo ethernet / on plana /board Vid	ert Standard F over t (RJ-45), one l r / 8MB SDRAI eo Mouse (KV	ormat 1. RS-485 (M std/ma M) chair	0 / two rear sys mgmt) ax / 32-bit 3 ling cable)	RJ-45 por / no paralle 3MHz PCI / one Cable	ts el port 2.2 bus

IBM Integrated system management processor (ISMP) / H8S2148 / on planar / provides system and environmental monitoring such as temp, memory, optional disks, fans, power supply / support for optional Remote Supervisor Adapter

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

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

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

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

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

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

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

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

LIMITED WARRANTY³

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

(X335DC-A) © IBM Corp. February 2003

See footnotes for important warranty information

Systems mgmt

US models announced February18, 2003

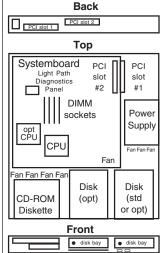
⁼ Hot-swap

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

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

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

A highly manageable, ultra-dense 1U, 2-way server that delivers 1 x Intel® Xeon 2.8BGHz¹ with 533MHz frontside bus / Hype 512KB / on die of processor / at processor speed (no L3 cache) 2-way SMP / up to two Xeon Processors (same speed/cache siz Systemboard contains two Intel 603-pin micro-PGA ZIF sockets, riser for one PCI-X slot, and integrated SCSI, ethernet, graphics	r-Threading technology re)
512MB std / 8GB max ¹³ / two slots used / two slots available / PC2100 266MHz registered 184-pin ECC DDR-SDRAM DIMMs must be installed in matched pairs [a bank] / 2-way memory inter Error Checking and Correcting (ECC) via 16-bit Checksum C detects 2- through 8-bit errors contained in two chips). Chipkill	/ four DIMM gold-connector slots on systemboard / DIMMs rleave / dual channel / memory bus runs at 2 x 100MHz / Chipkill™ (corrects 1, 2, 3, or 4-bit errors on same chip and
All (not used on EIDE models): LSI Logic® 53C1020 / Ultra320 64-bit 100MHz PCI-X Bus B / supports RAID-1 mirroring (Embone 16-bit internal channel / 16-bit 68-pin LVD cable from syste All: Enhanced IDE ATA-100 controller in CSB5 South Bridge / 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 Bridge on 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 / ton 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 € Front: two USB (Vers 1.1); Graphics: SVGA / ATI® Rage XL / or SC2T Interconnect™ cable (10 inch, 245mm) is standard (Keybo Technology Cable Kit required at end of chain (a cable with sep	AN® / Alert Standard Format 1.0 / two rear RJ-45 ports dust cover bthernet (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, power swith 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) /	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 TM -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 inter Error Checking and Correcting (ECC) via 16-bit Checksum C detects 2- through 8-bit errors contained in two chips). Chipkill All (not used on EIDE models): LSI Logic® 53C1020 / Ultra32C 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 / t EIDE models: One 2-drop EIDE cable to two disk bays / one 15CSI models: none standard / supports up to 15000 rpm disks; SCSI models: two hot-swap / 80-pin SCA-2 connectors / filler p EIA 19" Rack (1U⁴) / rack-mount only / supported in 26" deep reserveWorks® Grand Champion™ 4.0 LE / CMIC LE Host Brid one CIOB-X2 I/O Bridge (IMB2 bus to Host Bridge for PCI-X Bustot 2 and Ultra320 / CSB5 South Bridge (Thin IMB to Host Brids ServeWorks® Grand Champion™ 4.0 LE / CMIC LE Host Brid Side 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 Two gigabit 10/100/1000 ethernet ports / Broadcom BCM5703 / on planar / PCI-X 64-bit 100MHz Bus A / full duplex / Wake on Load 2 - 10 / 10 / 10 / 10 / 10 / 10 / 10 / 10



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

IBM®	v Drassassav	L2	Ultra160	SCSI			Fixed		Power	Commiss	Available		
Type-model Qty 2 8827-14X 2 x Pentiu	x Processor m® III 1.26GHz	cache Memory 512KB 2GB 1	x 36.4GB ² 10K	controller 2 x Ultra160	anical 2U ⁴ rack		disk bays 2 fixed			Complian r NEBS-3	date Apr 2002		
		signed for networ power environm		s requiring net	work								
Positioning Processor(s) L2 cache Implementation SMP support	2 x Intel® Penti 512KB std and Motherboard co	ment Building Sys ium® III 1.26GHz- I max / ECC / at p ontains two Intel I a second identica	-S with 133MHz rocessor speed PGA370 sockets	r frontside bus / processor an s, six DIMM soo	s d L2 cach	ne in Fl	ip Chip F	in Grid	Array (FC	-PGA2)	ystems		
Memory	Error Checkin	8 ¹³ max / 6 socket ng and Correctin MHz / six 168-pin	g (ECC) memor	y controller / ma	atched pa	airs req	uired / tw oorts regi	o-way i	nterleavin SDRAM E	g / :CC 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 cl A: external 16-bit B: one internal 10 160 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 slid	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	EIA 19" Rack (Designed for in (See below) thr PCI 2.2 / peer F ServerWorks® South Bridge) / CSB5 South Br Baseboard Mar	(2U ⁴) x 20-inch donstallation in a two ree full height full PCI buses / no ho III HE-SL chipse / NB655 Champiridge for EIDE, US nagement Control below): 4 bays / tv	eep p-post, 19" rack length 64-bit 33l t-swap Active™ et / CNB20HE-S ion I/O Bridge (0 SB, LPC bus for 9 ler	unit only (not si MHz slots / thre PCI slots IL North Bridge CIOB20) for PC Super I/O Natio	upported ee low-pro for CIOB I Bus B (s onal Semi	in IBM ofile ha and P slots, S conduc	NetBAY If length (CI A 32-b CCSI) and ctor PC8	™ Rack 64-bit 60 bit 33Ml d C (slo 741(dis	s) / ships v 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 / multisessic s (Version 1.1); R. ront panel alarm r s) us / ATI® Rage XL	on / IDE interface J-45 serial; PS/2 elay contacts / r	e / bootable; D keyboard; two o parallel port	iskette: 3 RJ-45 et / mouse o	.5" 1.4 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	/ PCI bus / ATI® Rage XL (on planar) / 8MB SDRAM std/max / 1600x1280 at 16M colors at 85Hz / 15-pin D-shell r-on password / admin password / unattended boot / selectable boot / boot without keyboard / diskette write protect											
Alarm panel Status LEDs Systems mgmt Diagnostics OS support Software ship group	four alarm pane Operator Infor Integrated serv processors, ter LED diagnostic Red Hat Linux Resource CD	n panel in front be el LEDs: power al rmation Panel (ir vice processor (t mperature, voltac s and on-board d [™] 7.1 (CD-ROM installa), PC-Doctor™ dia	arm fault, critica n front) / includes Baseboard Mana ge, and power s iagnostics provi ation and config	I alarm fault, m s switches (NM agement Contro upplies activate ding an LED m uration utilities	ajor alarn II, power, oller) / on e alarm pa ap to a fa 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 .ns, 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 S	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 pow Appropriate do	tispeed / not hot-s als front panel ala wer supply / fan o power source ar pard, mouse, rack	.rm LED / n each Pentium nd 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",	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 diskette CD-ROM disk	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 bion/Setup Utility 2 at startup the transfer startup lot of the trans	vinvoked I by pressir on diskett tions 0 508 mm 16.8 kg) mpiant	ng re	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 your avera b ServicePa hr x 7 day your 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		

BM® Type-model Qty x Processor L2 Cache Memory SCSI disk Controller SCSI disk Controller Sederation	ul 2004 es										
Positioning Processor(s) L2 cache Implementation SMP support Degree to the processor of th	ul 2004 es										
Positioning Processor(s) L2 cache Implementation SMP support Processor(s) L2 cache Implementation SMP support Processor(s) SAN Support Processor(grated able /										
ships with two 512 GB or 1GB DIMMs / Error Checking and Correcting (ECC) memory controller / matched pairs required / two-way interleaving / optional 2GB upgrade kit available by special bid SCSI disk controller SCSI channels SCSI channel A: external 16-bit .8mm VHDCI 68-pin external connector (no cables) SCSI Channel B: one internal 16-bit 68-pin LVD cable from controller to two-bay disk drive carrier SCSI disk SCSI disk bays Two fixed disk bays (not hot-swap) in disk drive carrier that slides out from front IDE controller / cable EIDE ATA-66 controller in South Bridge / one connector on planar / one 1-drop IDE cable (to CD-ROM)											
SCSI channels SCSI Channel A: external 16-bit .8mm VHDCI 68-pin external connector (no cables) SCSI Channel B: one internal 16-bit 68-pin LVD cable from controller to two-bay disk drive carrier SCSI disk 1 x 73.4GB or 146.8GB Ultra320 SCSI, 10K rpm, 4.9ms read seek, S.M.A.R.T. ⁵ Two fixed disk bays (not hot-swap) in disk drive carrier that slides out from front IDE controller / cable EIDE ATA-66 controller in South Bridge / one connector on planar / one 1-drop IDE cable (to CD-ROM)											
Mechanical EIA 19" Rack (2U ⁴) x 20-inch deep											
Pack support PCI bus slots PCI bus slots Chipset Designed for installation in a two-post, 19" rack unit only (not supported in IBM NetBAY™ Racks) / ships with rack mo (See below) three full height full length 64-bit 133MHz slots / three low-profile half length 64-bit 66MHz PCI slots / PCI 2.2 / peer PCI buses / no hot-swap Active™ PCI slots Chipset Intel® E7501 chipset / E7501 MCH North Bridge for CIOB and PCI A 64-bit 33MHz (graphics, ethernet, South Bridge) / P64Hz PCI Bus B (slots, SCSI) and C (slots) / ICH3-S South Bridge for EIDE, USB, LPC bus for Super I/O National Semiconductor PC87417 (serial, keyboard) an Baseboard Management Controller Bays See diagram below): 3 bays / two disk bays (hot-swap) / one CD-ROM bay											
10/100 ethernet CD-ROM / diskette Rear ports 2 x Intel 82546 / on planar / full duplex / supports Wake on LAN®, PXE 2.0 Boot Agent, Adapter Fault Tolerance Fail 24X-10X6 CD-ROM / multisession / IDE interface / bootable Two USB ports (Version 1.1); RJ-45 serial; PS/2 keyboard; two RJ-45 ethernet; DB-15 graphics; 68-pin SCSI; DB-15 m connector for front panel alarm relay contacts / no parallel port / mouse connects to USB port (or keyboard port with stan Y-splitter cable) SVGA / PCI bus / ATI® Rage XL (on planar) / 8MB SDRAM std/max / 1600x1280 at 16M colors at 85Hz / 15-pin D-shell	male										
Security Power-on password / admin password / unattended boot / selectable boot / boot without keyboard											
Alarm panel Alarm panel External alarm panel in front bezel provides 24x7 surveillance of critical, major and minor errors and power outages / four alarm panel LEDs: power alarm fault, critical alarm fault, major alarm fault, minor alarm fault Operator Information Panel (in front) / includes switches (NMI, power, reset) and status LEDs (NIC, disk, main power) Integrated service processor (Baseboard Management Controller) / on planar / failures or thresholds in fans, memory, processors, temperature, voltage, and power supplies activate alarm panel LEDs / LED diagnostics and on-board diagnostics providing an LED map to a failing component Microsoft Windows 2000, Windows 2003 Advanced Server / Red Hat AS 2.1 / SLES Resource CD (CD-ROM installation and configuration utilities, Intel Server Control server management software, Product Guide)	r)										
Keyboard / mouse Power supply None (since rack-based) Std: one (14X) or two (24X); max: two / accessible from rear 480 watt (-48 to -60 V dc [direct current]) / supports dual input sources (two power sources) / redundant / hot-swap / auto-restart support	3P4126										
Fans Four fans / multispeed / not hot-swap / not redundant / fan failure signals front panel alarm LED / fan in each power supply / fan on each Pentium III processor Appropriate DC power source and customer supplied wiring, monitor, keyboard, mouse, rack, operating system											
Slot 1: fullsize, 64-bit 64MHz PCl-X (5v), Bus B Slot 2: fullsize, 64-bit 64MHz PCl-X (5v), Bus B Slot 3: fullsize, 64-bit 64MHz PCl-X (5v), Bus B Slot 4: low-profile,64-bit 133MHz PCl-X (3.3v), Bus C Slot 5: low-profile,64-bit 133MHz PCl-X (3.3v), Bus C Slot 6: low-profile,64-bit 133MHz PCl-X (3.3v), Bus C Several hardcopy publications 2U Rack Bay ② 3.5", 0.5", access, std CD-ROM Bay ③ 3.5", SL 1", no access, std disk Bay ④ 3.5", SL 1", no access, optional disk CD-ROM Bay ③ 3.5", SL 1", no access, optional disk Bay ④ 3.5", SL 1", no access, optional disk CD-ROM Bay ④ 3.5", SL 1", no access, optional disk CD-ROM Bay ④ 3.5", SL 1", no access, optional disk CD-ROM Bay ④ 3.5", SL 1", no access, optional disk CD-ROM Bay ④ 3.5", SL 1", no access, optional disk CD-ROM Bay ④ 3.5", SL 1", no access, optional disk	ce ³ Fri S, time ⁷ rvice xcludingtime time time										
All models: Max int disk capacity: 24x7 ¹⁴ toll-free support for wa issues during the warranty pe	heriog										

IBM® Type-GAV-model Qt	y x Processor	L2 Cache	Memory	Disk	SCSI controller	Form Factor	Slots x bays (hot-swap bays)	Power supply	Ethernet	Available date
8840-01y-01U 1 x 8840-11y-11U 1 x 8840-41y-41U 1 x	Xeon™ 2.8GHz Xeon 3.0GHz Xeon 3.6GHz	1MB 1MB 1MB	1GB N	lone 2	x Ultra320 x Ultra320 x Ultra320	2U	4x8 (6 hot-swap) 4x8 (6 hot-swap) 4x8 (6 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	Aug 2004 Aug 2004 Aug 2004
Positioning Processor	A rack-dense 2 1 x Intel® Xee	on™ Proc	essor 2.8,	3.0, 3.2	2, 3.4, 3.6G	ihz wit	<i>pility and expandab</i> h 800MHz frontsio	pility for application-selde bus / Optimized foulti-threaded (SMT)	rving Web er	vironments
L2 cache SMP support Implementation	1MB L2 Cach 2-way SMP / Systemboard	e / on die up to two contains t	of processo Xeon Proce wo Intel PG	or / at p essors A604 n	processor s (same spenicro-PGA	peed ed/cac ZIF so	he size) ckets, eight memo	ory DIMM slots, two loual GB ethernet, grap	ow-profile PC	CI-X
Memory	pin ECC DDR pairs [a bank]	2-SDRAM / 2-way m I Correcti	I DIMMs / einemory intering (ECC) /	ight DIN leave / option	MM gold-co dual chan al 16-bit C l	nnectonel / A	or slots on system active Memory™:	s / PC2-3200 DDR2 4 board / DIMMs must Memory mirroring, ho rects 1, 2, 3, or 4-bit	be installeď i t-spare mem	n matched ory / Error
SCSI disk controller	Adaptec® AIC supports RAIL 5, 00, 10, 1E0	0-0 and 1	with up to	one h	ot-spare di	sk / op	oller (LVD 320MB otional IBM ServeF	8/sec) / on planar / 64 RAID™-7k Adaptor for	1-bit 100MHz low-cost RAI	PCI-X / D 0, 1, 1E,
SCSI channels	Two 16-bit cha backplane for	annels (or six disks;	ne internal a ; <i>Channel A</i>	and one 4: 16-b	e external) it 68-pin in	/ <i>SĆS</i> terface	to support extern	oit 68-pin LVD cable f nal SCSI devices via onnector(s) for extern	external SC	ooard to SI 0.8mm
IDE controller/cable Disk - capacity Disk - bays	None standard	l / support	s 7200-1500	00 rpm	disks / one	backp	lane	planar $/$ one 1-drop I / all disk bays Ultra32		D-ROM)
Mechanical Chipset	Intel E7520 / slots 3 & 4) /	Memóry (Intel Dod Adapter I/O) / LPC	Controller H Ison I/O Pro / ICH5 Sout C-SIO 8742	ub (MC occesor th Brido x Supe	CH) / Intel I (supports ge (Thin IM r I/O	/O Cor 100MI IB to F	ntroller Hub 5 (IĊI Hz PCI-X slots 1 8 Host Bridge for gra	roducts / no rack to H5) / Two Intel PCI-X & 2, Adaptec AIC-79(aphics controller, EID	Hubs (133N) 2 and option	/IHz PCI-X
Ethernet controller Optical / diskette Front & Rear ports Graphics	on planar / PC 8X-24X ⁶ DVD- Front: one US (RJ-45), two F	I-X 64-bit ROM / ID SB (Vers 2 IJ-45 (sys	100MHz / fr PE; <i>Diskette</i> 2.0) <i>Rear:</i> tw s mgmt) / no	ull dupl e: 3.5" 1 o USB o paralle	ex / Wake .44MB disl (Vers 2.0) el port	on LAI kette d , keyb	N® / Alert Standard Irive / dust cover oard, mouse, seria	bit ethernet MAC and I Format 2.0 / two RJ- al (9-pin), graphics (D bit 33MHz PCI 2.2 bu	-45 ports in r B-15), two e	ear
Security	Power-on pass	sword / ad	ministrator p	oasswo	rd / unatter	nded bo	oot / selectable boo	ot sequence		
Systems mgmt	IBM Baseboa H8S2168 / on environmental fans, power s Adapter II slin continuous po	planar / p monitorinupp / sup nline with wer (no e	provides sys ng such as ports option reseverved ext power re	stem ar temp, d nal Ren conne eqd)	nd` optional dis note Super ctor for	visor	Xeon 3.0GHz 800M Xeon 3.2GHz 800M Xeon 3.4GHz 800M Xeon 3.6GHz 800M	MHz/1MB L2 Proc Upg MHz/1MB L2 Proc Upg MHz/1MB L2 Proc Upg MHz/1MB L2 Proc Upg MHz/1MB L2 Proc Upg	Non Chris	13N0688 13N0681 13N0683 13N0684 13N0685
Diagnostics	Drop down limap to failing				l providing	LED	1GB(2x512)PC2-32	2-3200 CL3 ECC DDR2 200 CL3 ECC DDR2 N	lon-Chpk Kit	73P3522
Software	ServerGuide utilities), IBM	M (CÒ-RC	OM installati	on ańd		tion	2GB(2x1GB)PC2-3 IBM ServeRAID-7k	3200 CL3 ECC DDR2-		73P2866 71P8642 73P9341
Keyboard / mouse Power supply	None standard Std/Max: one/t				access / aı	uto	73.4GB 10K Ultra3	20 SCSI Hot-Swap SL 320 SCSI Hot-Swap SI		90P1305 90P1306
Fans	restart / redund Calibrated Ve (six fans with of with twelve fant PFA	dant with to ctored Coptional se	two power s poling™ <i>Sta</i> econd power	upplies d: six fa r supply	/ auto-sens ns; <i>Max:</i> tw /) / redunda	sing velve ant	625W (N. America) NetBAY Local Con NetBAY Remote C) Hot-Swap Power Sup sole Manager onsole Manager	ply	26K5097 1735L04 1735R16
Prerequisites	Monitor, keybo	ard, mous	se, SCSI dis	sk, rack			Other options at II	bm.com /pc/us/accesso	nes	

Slot 1: low-profile, 64-bit 100MHz 3.3v PCI-X, non hot, Bus A○ Quick release adapter slots (no screws) Slot 2: low-profile, 64-bit 100MHz 3.3v PCI-X non hot, Bus A○ Configuration/Setup Utility: F1 at startup Slot 3: full, 64-bit 133MHz 3.3v PCI-X, not hot-swap, Bus B⁺○ Diagnostics (PC-Doctor™): F2 at startup Slot 4: full, 64-bit 133MHz 3.3v PCI-X, not hot-swap, Bus B⁺○ System Partition Boot: ALT+F1 at startup *slots 3 & 4 riser may be replaced with PCI-Express riser ○ Network Boot: F12 at startup ○ Front indicators LEDs: Power-on LED,

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

Bay ① 3.5", 0.5", access, slim diskette
Bay ② 5.25", 0.5" access, slim DVD-ROM
Bay ③ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk
Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk

All models: Max int disk capacity: 880.0GB² with six 146.8GB SL disks

SCSI bus activity LED, system identification LED, information LED, and

Predictive failure analysis on disk options,

supplies, and fans in conjunction with IBM

Director can alert the system administrator

(H 85.4mm x W 443.6mm x D 698mm)

memory, processors, VRMs, power

of an imminent component failure

⇒ Rack: H 3.36" x W 17.5" x D 27.5"

system-error LED

Stealth black color

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?

3 year on site warranty service upgrade options (in eligible locations):7

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

24 hr x 7 day coverage,
4 hour average response time (ServicePac 21P2078)
24 hr x 7 day coverage,

 24 hr x 7 day coverage,
 2 hour average response time (ServicePac 21P2093)

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

via SCA-2 connectors

Rack

IDM®	10	606l F	Clate v heve		Aveilek
IBM [®] Type-GAV-model Qt	L2 y x Processor Cache Memory Disk	SCSI Form controller Factor		Power supply	Availab Ethernet da
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 8840-45y-45U 1 x 8840-E1y-E1U 1 x	Xeon 3.0GHz 2MB 1GB None Xeon 3.2GHz 2MB 1GB None Xeon 3.4GHz 2MB 1GB None Xeon 3.4GHz 2MB 1GB None Xeon 3.6GHz 2MB 1GB None	2 x Ultra320 2U 2 x Ultra320 2U	4x8 (6 hot-swap) 2 x 4x8 (6 hot-swap) 1 x 4x8 (6 hot-swap) 1 x 4x8 (6 hot-swap) 2 x	625VV not-swap	2 x Gigabit Mar 20 2 x Gigabit Mar 20 2 x Gigabit Mar 20 2 x Gigabit Mar 20
Positioning Processor	A rack-dense 2-way server delivering h 1 x Intel® Xeon™ Processor 2.8, 3.0 64 Technology (FM64T) / Librar Thro	, 3.2, 3.4, 3.6Ghz w	th 800MHz frontside bu	is / Optimized for	
L2 cache	64 Technology (EM64T) / Hyper-Thr 2MB L2 Cache / on die of processor /	at processor speed		nreaded (SWI)	
SMP support Implementation	2-way SMP / up to two Xeon Process Systemboard contains two Intel PGA6 (100MHz) slots, two full-length PCI-X (04 micro-PGA ZIF s	ockets, éight memory D		
Memory	1GB std / 16GB ¹³ max / two slots used DDR2-SDRAM DIMMs / eight DIMM g bank] / 2-way memory interleave / dua Checking and Correcting (ECC) / op and detects 2- through 8-bit errors continued to the continue of the continue	I / six slots available old-connector slots out channel / Active National 16-bit Checks	/ DIMMs / PC2-3200 D on systemboard / DIMMs lemory™: Memory mirro	DR2 400MHz regs must be installed oring, hot-spare in	gistered 240-pin ECC ed in matched pairs memory / Error
SCSI disk controller	Adaptec® AIC-7902 / dual channel Usupports RAID-0 and 1 with up to or	ne hot-spare disk / c	oller (LVD 320MB/sec) ptional IBM ServeRAID) / on planar / 64 ^M -7k Adaptor for	l-bit 100MHz PCI-X low-cost RAID 0, 1, 1
SCSI channels	5, 00, 10, 1E0, 50 (installed on reserve Two 16-bit channels (one internal and backplane for six disks; <i>Channel A:</i> 1 VHDCI connector / supports optiona	l one external) / <i>SĆ</i> l 6-bit 68-pin interfac	e to support external S	ĊSI devices via	external SCSI 0.8mi
IDE controller/cable Disk - capacity Disk - bays	Enhanced IDE ATA-100 controller in I None standard / supports 7200-15000 i Six hot-swap / 80-pin SCA-2 connector	CH5 South Bridge / pm disks / one back	one connector on plan	ar / one 1-drop I	DE cable (CD-ROM)
Mechanical Chipset	EIA 19" Rack (2U ⁴) / rack-mount only Intel E7520 / Memory Controller Hub slots 3 & 4) / Intel Dodson I/O Procc ServeRAID 7k Adapter / ICH5 South Ibus to Super I/O) / LPC-SIO 8742x S (See below) Four available PCI-X 1.0	/ / supported in IBM (MCH) / Intel I/O Co esor (supports 100M Bridge (Thin IMB to uper I/O	NetBAY™ Rack produ ontroller Hub 5 (ICH5) / IHz PCI-X slots 1 & 2, Host Bridge for graphic	cts / no rack to t Two Intel PCI-X Adaptec AIC-790	ower conversion Hubs (133MHz PCI 22 and optional
Ethernet controller	Two gigabit 10/100/1000 ethernet ports	•		hernet MAC and	PHY laver functions
Optical / diskette Front & Rear ports Graphics	on planar / PCI-X 64-bit 100MHz / full 8X-24X ⁶ DVD-ROM / IDE; Diskette: 3 Front: one USB (Vers 2.0) Rear:two l (RJ-45), two RJ-45 (sys mgmt) / no pa SVGA / ATI [®] Radeon™ 7000m / on pla	duplex / Wake on LA .5" 1.44MB diskette JSB (Vers 2.0), keyl arallel port	.N® / Alert Standard Ford drive / dust cover poard, mouse, serial (9-	mat 2.0 / two RJ- pin), graphics (D	45 ports in rear B-15), two ethernet
Security	Power-on password / administrator pas				<u> </u>
Systems mgmt	IBM Baseboard Management Contr	oller (BMC) /	Xeon2.8GHz800MHz/2MBL2F	ProcUpg	25R890
Diagnostics	H8S2168 / on planar / provides systemenvironmental monitoring such as ten fans, power supp / supports optional Adapter II slimline with reseverved continuous power (no ext power required Drop down light path diagnostics p	np, optional disks, Remote Supervisor Innector for anel providing LED	Xeon3.0GHz800MHz/2MBL2F Xeon3.2GHz800MHz/2MBL2F Xeon3.4GHz800MHz/2MBL2F Xeon3.6GHz800MHz/2MBL2F Xeon3.6GHz800MHz/2MBL2F 512MB(2x256)PC2-3200 CL3E	ProcUpg ProcUpg ProcUpg ProcUpg CCDDR2Non-ChpkKit	25R890; 25R890; 13N068; 13N068; 13N068; 73P352;
Software	map to failing part (located on front par ServerGuide™ (CD-ROM installation utilities), IBM Director systems mgmt,	and configuration	1GB(2x512)PC2-3200 CL3 ECC 2GB(2x1GB)PC2-3200 CL3 EC IBMServeRAID-7kAdapter	•	73P3522 73P2866 71P8642
Keyboard / mouse	None standard (because rack-based)		IBM Remote Supervisor Adapte 73.4GB 10K Ultra320 SCSI Hot-		73P934 ⁻ 90P1305
Power supply	Std/Max: one/two 625 watt hot-swap / restart / redundant with two power supp		146.8GB10KUltra320SCSIHot	t-SwapSLHDD	90P1306
Fans	Calibrated Vectored Cooling™ Std: s (six fans with optional second power su	ix fans; <i>Max:</i> twelve upply) / redundant	625W (N. America) Hot-Swap P NetBAY Local Console Manager NetBAY Remote Console Manag		26K5097 1735L04 1735R10
busine mulicities a	with twelve fans installed; All: variable sp	•	Otheroptions at ibm.com/pc/us/a		WARRANTY ³
Slot 2: low-profile, 6 Slot 3: full, 64-bit 13 Slot 4: full, 64-bit 13 *slots 3 & 4 riser n Opt disk Opt disk Opt disk Opt disk Opt disk Slots 3.5", 0.5", Bay ② 5.25", 0.5" Bay ③ 3.5", SL 1", Bay ⑤ 3.5", SL 1", Bay ⑥ 3.5", SL 1", Bay ⑥ 3.5", SL 1", Bay ⑥ 3.5", SL 1", Bay ⑧ 3.5", SL 1",	access, hot-swap, open for disk access, hot-swap, open for disk access, hot-swap, open for disk access, hot-swap, open for disk access, hot-swap, open for disk	AD Quick release add AD Configuration/Set AD Diagnostics (PC- AD System Partition I AD Network Boot: F AD Front indicators I AD STAN SCALE AD STAN SCALE AD THE STAN SCALE AD	up Utility: F1 at startup Doctor™): F2 at startup Boot: ALT+F1 at startup I2 at startup LEDs: Power-on LED, LED, system I, information LED, and D I analysis on disk options I by the system administrator I mponent failure W 17.5" x D 27.5" I 443.6mm x D 698mm) S		and labor I Warranty Service ³ n - 5 pm, Mon - Fri cluding holidays, ney y response time ⁷ e warranty service ions (in eligible age, Mon-Fri excludin I hr response time co 21P2077) ay coverage, rage response time c 21P2078) ay coverage, rage response time c 21P2093) cePac options at
(2 slots used, addition via SCA-2 connected	pport six SL disks; or 1 DDS5 Tape drive anal PCI SCSI adaptor req) ors	All models: Max i 880.0GB ² with six		24x7¹⁴ toll-fr 24x7²	ee support for warra g the warranty period

-770	L2 SCSI For Oty x Processor/Core Cache Memory Disk controller Fac	or (hot-swap bays)	Available Power supply Ethernet date
8840-E3y-E3U 1 x 8840-E4y-E4U 1 x 8840-55y-55U 1 x	x Xeon™ 2.8GHz/SC 2MB 1GB None 2 x Ultra320 2Ux Xeon 2.8GHz/SC 2MB 1GB None 2 x Ultra320 2Ux Xeon 3.4GHz/SC 2MB 1GB None 2 x Ultra320 2Ux Xeon 3.8GHz/SC 2MB 1GB None 2 x Ultra320 2Ux Xeon 2.8GHz/DC 2x2MB 2GB None 2 x Ultra320 2Ux Xeon 2x2MB 2X2	J 4x8 (6 hot-swap) 1 x J 4x8 (6 hot-swap) 2 x J 4x8 (6 hot-swap) 1 x	625W hot-swap 2 x Gigabit Sep 2005 625W hot-swap 2 x Gigabit Oct 2005
Positioning Processor	A rack-dense 2-way server delivering high availability, sca Intel® Xeon™ Processor up to 3.8Ghz Single Core 800 / All Optimized for Extended Memory 64 Technology	MHz FSB / Xeon Proces (EM64T) / Hyper-Thread	ssor 2.8Ghz Dual Core 800MHz FSB ding / Simultaneous multi-threaded
L2 cache SMP support Implementation	2MB L2 Cache std on Single Core / 2x2MB L2 Cache std 2-way SMP / up to two Xeon Processors (same speed/c Systemboard contains two Intel PGA604 micro-PGA ZIF (100MHz) slots, two full-length PCI-X (133MHz) slots, and	ache size) sockets, eight memory DI	IMM slots, two low-profile PCI-X
Memory	1GB or 2GB std / 16GB ¹³ max / two slots used / six slots pin ECC DDR2-SDRAM DIMMs / eight DIMM gold-conne pairs [a bank] / 2-way memory interleave / dual channel / Checking and Correcting (ECC) / optional 16-bit Check and detects 2- through 8-bit errors contained in two chips,	ctor slots on systemboard Active Memory™: Memory	I / DIMMs must be installed in matched ory mirroring, hot-spare memory / Error
SCSI disk controller SCSI channels	r Adaptec® AIC-7902 / dual channel Ultra320 SCSI con supports RAID-0 and 1 with up to one hot-spare disk / 5, 00, 10, 1E0, 50 (installed on reserved internal connector Two 16-bit channels (one internal and one external) / SC backplane for six disks; Channel A: 16-bit 68-pin interfa	optional IBM ServeRAID [™]) <i>SI Channel B:</i> 16-bit 68- ce to support external S0	M-7k Adaptor for low-cost RAID 0, 1, 1E, pin LVD cable from systemboard to CSI devices via external SCSI 0.8mm
IDE controller/cable Disk - capacity Disk - bays	VHDCI connector / supports optional ServeRAID adapt Enhanced IDE ATA-100 controller in ICH5 South Bridge None standard / supports 7200-15000 rpm disks / one back Six hot-swap / 80-pin SCA-2 connectors / filler panels insta	/ one connector on plana plane	ar / one 1-drop IDE cable (CD-ROM)
Mechanical Chipset Bus slots	EIA 19" Rack (2U ⁴) / rack-mount only / supported in IB Intel E7520 / Memory Controller Hub (MCH) / Intel I/O 0 slots 3 & 4) / Intel Dodson I/O Proccesor (supports 100 ServeRAID 7k Adapter / ICH5 South Bridge (Thin IMB to bus to Super I/O) / LPC-SIO 8742x Super I/O (See below) Four available PCI-X 1.0 / no hot-swap Act	controller Hub 5 (ICH5) / MHz PCI-X slots 1 & 2, A Host Bridge for graphics	Two Intel PCI-X Hubs (133MHz PCI-X Adaptec AIC-7902 and optional
Ethernet controller	Two gigabit 10/100/1000 ethernet ports / Two Broadcom ⁶		parnet MAC and PHV layer functions /
Optical / diskette Front & Rear ports Graphics	on planar / PCI-X 64-bit 100MHz / full duplex / Wake on L 8X-24X ⁶ DVD-ROM / IDE; <i>Diskette</i> : 3.5" 1.44MB diskette <i>Front</i> : one USB (Vers 2.0) <i>Rear</i> :two USB (Vers 2.0), key (RJ-45), two RJ-45 (sys mgmt) / no parallel port SVGA / ATI® Radeon™7000m / on planar / 16MB DDR S	AN® / Alert Standard Forr drive / dust cover board, mouse, serial (9-p	mat 2.0 / two RJ-45 ports in rear pin), graphics (DB-15), two ethernet
Security	Power-on password / administrator password / unattended		
Systems mgmt	IBM Baseboard Management Controller (BMC) / H8S2168 / on planar / provides system and environmental monitoring such as temp, optional disks, fans, power supp / supports optional Remote Superviso Adapter II slimline with reseverved connector for continuous power (no ext power regd)	Xeon 2.8GHz SC 800MH Xeon 2.8GHz DC 800MH Xeon 3.0GHz SC 800M	Hz/2MB L2 Proc Upg 25R8907 Hz/4MB L2 Proc Upg 25R8930 Hz/2MB L2 Proc Upg 25R8902 Hz/2MB L2 Proc Upg 25R8903 Hz/2MB L2 Proc Upg 13N0686
Diagnostics	Drop down light path diagnostics panel providing LED	Xeon 3.8GHz SC 800M	Hz/2MB L2 Proc Upg 13N0689
Software	map to failing part (located on front panel) ServerGuide™ (CD-ROM installation and configuration utilities), IBM Director systems mgmt, others	1GB(2x512)PC2-3200 C 2GB(2x1GB)PC2-3200 (CL3 ECC DDR2 Non-Chpk Kit 73P3523 L3 ECC DDR2 Non-Chpk Kit 73P3522 CL3 ECC DDR2-SDRAM 73P2866
Keyboard / mouse Power supply	None standard (because rack-based) Std/Max: one/two 625 watt hot-swap / rear access / auto restart / redundant with two power supplies / auto-sensing	IBM ServeRAID-7k Adap IBM Remote Supervisor	Adapter II Slim 73P9341
Fans	Calibrated Vectored Cooling™ Std: six fans; Max: twelve (six fans with optional second power supply) / redundant with twelve fans installed; All: variable speed / hot-swap / PFA	625W (N. America) Hot-S NetBAY Local Console M	SCSI Hot-Swap SL HDD 90P1306 Swap Power Supply 26K5097 Manager 1735L04
Prerequisites	Monitor, keyboard, mouse, SCSI disk, rack	NetBAY Remote Console Other options at ibm.co	
Slot 2: low-profile, (Slot 3: full, 64-bit 1: Slot 4: full, 64-bit 1:	64-bit 100MHz 3.3v PCI-X, non hot, Bus AD Quick release at 64-bit 100MHz 3.3v PCI-X non hot, Bus AD Configuration/Si 33MHz 3.3v PCI-X, not hot-swap, Bus BD Diagnostics (PC 33MHz 3.3v PCI-X, not hot-swap, Bus BD System Partition may be replaced with PCI-Express riser Detwork Boot: ID Drop Down light path panel SI Drop Down light path panel SI Drop Down SI	etup Utility: F1 at startup -Doctor™): F2 at startup Boot: ALT+F1 at startup 12 at startup LEDs: Power-on LED,	LIMITED WARRANTY 3 year parts and labor International Warranty Service On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time? 3 year on site warranty service

pathpanel **2U** Opt disk Opt disk Rack Opt disk Opt disk Bay ① 3.5", 0.5", Bay ② 5.25", 0.5" access, slim diskette access, slim DVD-ROM

Bay ② 5.25", Bay ③ 3.5", Bay ④ 3.5", Bay ⑤ 3.5", Bay ⑥ 3.5", Bay ⑥ 3.5", Bay ⑧ 3.5", SL 1" access, hot-swap, open for disk Bay ③ 3.5", SL 1", access, hot-swap, open for disk Bay ⑤ 3.5", SL 1", access, hot-swap, open for disk Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk Bay ⑥ 3.5", SL 1", access, hot-swap, open for disk Bay ⑦ 3.5", SL 1", access, hot-swap, open for disk Bay ⑧ 3.5", SL 1", access, hot-swap, open for disk Bays ③ 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

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⇒ Stealth black color

All models: Max int disk capacity: 880.0GB2 with six 146.8GB SL disks

- coverage excluding holidays, next business day response time?

 3 year on site warranty service upgrade options (in eligible locations):

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

 24 hr x 7 day coverage,
 4 hour average response time (ServicePac®21P2078)

 24 hr x 7 day coverage,
 2 hour average response time (ServicePac@1P2093)

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

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

В	IVI @ SEI VEI ···	X3eHes	300	(Julie 200	13)			XHEF D	eserver	riei	a Skills En	abiem	ent i	eam
	IBM®		L3			SCSI	Mechan-	Slots x	RXE	Н	ot-swap	Mgmt	Ava	ilable
		Processor	cache	Memory	Disks	controller	ical		Exp Ports			adapter	r	date
	8686-1RQ 1 x Xec 8686-1SQ 2 x Xec		IMB 1MB	1GB Chipkill ^T 1GB Chipkill	[™] None None	Ultra160 Ultra160					(not reduni redundant			
><	8686-1TQ 2 x Xeo	n MP 2.0GHz	1MB	3GB Chipkill	2 x 36.4GB 10	KUltra160	3U rack	6x5	One	Two	redundant	PCI	Nov	2003
	8686-2RQ 2 x Xeo 8686-3RQ 2 x Xeo		1MB 2MB	2GB Chipkill 2GB Chipkill	None None	Ultra160 Ultra160					redundant redundant			2003 2003
	Processors			™ Processor		r 2.8GHz¹ v	with 400N	/IHz fron	tside bus	/ Hy	per-Threadi	ng tech	nolo	gy
	L2 cache L3 cache			ocessor / at pro of processor /		need								
	Processor upgrade	4-way SMP	/ up to fo	our Xeon Proce	ssors MP (sam	ne speed/ca	che size)						
	Implementation			ns four Intel 603 , ethernet, grap		IA ZIF SOCK	ets, one r	nemory	board slot	, SIX	Active™ PC	I-X SIO	ïS,	
	Memory			GB max ^{12,13} / tw		I). four (2G	B models	s) or six	(3GB mo	dels)	512MB DII	MMs in	 ıstalle	ed /
	,	1.7-inch tall	/ one m	emory board s	tandard with 8	B DIMM gol	d-connec	tor slots	/ DIMMs	mus	st be installe	ed in m	natch	ed
		Error Chec	king an	taneous transf d Correcting	er from two Di (ECC) via 16- l	bit Checks	sum Chi	OIVIHZ re okill ™ (d	egisterea corrects 1	184- , 2, ;	3, or 4-bit e	PRAIN	on sa	invis /
				through 8-bit e				`			, 			
	SCSI disk controller			Wide Ultra160						IHz P	CI / integra	ted on p	plana	ar
	SCSI connectors SCSI cabling			d to SCSI backı LVD cable inclu						he th	ree-bay bac	kplane	;	
	IDE controller / cabli			68-pin connecto			cable to	get signa	als to three	e-bay	backplane			
	Disk - capacity	None standa	ard / sup	ports up to 15,0	000 rpm disks	Ü								
	Disk - bays			s / converged tr										
	Mechanical			s (3U4) x 28" de	· · · · · ·			`			-			
	Chipset			et / IBM Memory ost Bridge; one										
		PCI-X 1.0, or	ne PCI 2	.2) / PCĬ 2.2 Bu	s 0 supports S0	CSI, graphic	s, ethern	et, adapt	ter slot wit	h Rei	mote Super\	isor Ad	dapte	
	Slots (Active™ PCI-)			South Bridge (I.0 slots ¹⁰ availa										
		hot replace,	, hot up	grade, hot exp	ansion /separ	ated by insi	ulative pla	astič divi	ders					
	RXE Expansion Port	·		t up to 12 addi		lots via an	optional	IBM KX	E-100 Re	mote	Expansio	n Enci	osure	е
	CD-ROM / diskette Ethernet			3.5" 1.44MB d		board / full o	duplex / 3	32-bit PC	I / Wake	on I A	AN®/ Alert o	n I AN ^T	гм 2	
	Graphics controller	SVGA / S3®	Savage	4 LT / on system	mboard / 8MB :	SDRAM sto	d/ṁax / up	to 1280	0x1024 at	64K	colors at 85	Hz		
	Ports			nsion Port (to c ard, mouse, an										
	Security	•	,. ,	istrator passwo					· ·					
	Systems manageme													
	Diagnostics			ower on/off sys tics™ / primary										
	Diagnostics			nostics (operate							Enclosure	OHEHRS		11RX
	Software			server running ROM installation		ation	512M	B PC160	00 ECĊ D	DR S	SDRAM RD		33L3	3283
				or, and others	Trana comigan	allon					RAM RDIMI RAM RDIMI			3285 3287
	Keyboard/mouse			ause rack-base		owen /	Xeon	MP 2.00	Hz/1MB	L3 C	ache Proc I	Jpg	73P8	8805
	Powersupplies	redundant w	ith two p	watt hot-swap; ower supplies (some configura		Xeon	MP 2.50 MP 2.80	HZ/1MB	L3 C L3 C	ache Proc I ache Proc I	Jpg Jpa		8806 8807
		worldwide / v	oltage-s	sensing/auto-r	estart/	,	370 wa	att Hot-S	wap Redu	ındar	nt Power Sup	oply	31P6	6108
	Coolingfans	fans in each Six hot-swap		dant, multi-spe	ed fans /						60 SCSI Ad SI Hot-Swa			5736 5756
				each power su agnostic LED a		ecor	IBM N	etBAY42	2 Standard	Rac	k (SR)		9306 1519	6420
	0:	<u> </u>		agnostic LLD a	ina mgimi proce	,3301					er for iSerie: r Monitor (bl			2AB1
	Six available 3.3 vol Bus 2 (B) with two)					at ibm.cor	n /pc/	us/accessoi	ies		
	- one fullsize, 64	4-bit, 133MHz P(CI-X, hot	-swap Spini	ensions: H5.25 ensions: H133.				m	LII	MITEDWA	RRAN'	TY ³	
	- or two fullsize, 64 - or two fullsize, 64			-swap ⇒ Wei	ght: 58.4 to 70lb			. 5 / 0 / 111			arts and lak			
	- or two fullsize, 64	4-bit, 66MHz P0	CI, hot-	-swap	alth black color I-free serviceab	ilitv			□ Inte	rnati	onal Warrar	ity Serv		
	- or two fullsize, 64	4-DIT, 33IVIHZ P	ان, not		ess adapters, p		memory,	and	⇒ Un s	site,	8 am - 5 pm	, won -	Fri	

- Bus 1 (A) with four slots supports (slots 3, 4, 5, 6):
 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

	Std	Std or opt	Opt	diskette CD-ROM
П		Power		• Disk ③
П	Supply	Supply	Supply	• Disk 4
	L•	•	•	 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 adapters, processors, memory, and systemboard from top
- Access power supplies and disks from front
- 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

- 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 (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

IB	M @server™ x	Series™ 365					х	REF by	Server	Field Skills	Enablem	ent Team
	IBM® Type-model Qty x Pro	L3 ocessor cache	Memory	DIMM slots	Disks	SCSI controller	Mechan- ical		RXE xp Ports	Hot-swap pwr supplies	Warrant (yrs.)	y Available date
	8861-1RX 1 x Xeon™ 8862-1RX 1 x Xeon № 8862-2RX 2 x Xeon № 8862-3RX 2 x Xeon №	MP 2.0GHz 1MB MP 2.0GHz 1MB MP 2.5GHz 1MB		8 8 8 16	None None	Ultra320 Ultra320 Ultra320 Ultra320	3U rack 3U rack	6x8 6x8	One One	One (not red One (not red Two redunda Two redunda	un) 1 un) 3 nt 3	Dec 2003 Dec 2003 Dec 2003 Dec 2003
	Processors L2 cache L3 cache Processor upgrade Implementation Memory	1 or 2 x Intel® Xe 512KB / on die of 1MB or 2MB / on d 4-way SMP / up to Systemboard con slots, and integra Up to 2GB std / 3 DIMMs installed / matched pairs / F (ECC) via 16-bit and Active Memo	on™ Processor processor / at pi die of processor o four Xeon Proc tains four Intel ted SCSI, ether 32GB max using one memory be PC2100 200MH. Checksum Chi	MP 2.0, rocessor / at proce essors M 603-pin net, grap g high-ca pard stan z register ipkili™ /	2.5, o speed essor s IP (sam micro-F ohics pacity ndard w red 184 With 1	r 2.8GHz ¹ peed ne speed/c PGA ZIF s memory continuith 8 or 16 4-pin DDR 6 DIMMs	with 400M ache size ockets, o ard / two 5 DIMM g -SDRAM installed:) ne memo (1GB mo old-conne RDIMMs Memory	ry boar del) or ector slo	d slot, six Actions / DIMMs motors / Dimms / Dim	ading ted tive™ PC dels) 512 nust be in nd Corre	chnology CI/PCI-X 2MB Installed in secting
	SCSI disk controller SCSI connectors SCSI cabling IDE controller / cabling Disk - capacity Disk - bays	LSI Logic® 53C103 Supports Raid 0/1 One internal and One standard 16-bi SCSI RAID adapt Enhanced IDE AT None standard / s Six hot-swap bay	one external SC it LVD cable can ter 68-pin conne FA-33 controller supports up to 1	CSI conne be reattace ector on s in CSB6 15,000 rp	ector / ched to system South om disk	internal co optional Se board for Bridge	ontroller werveRAID athis cable	rired to So adapter fro	CSI bad m six-ba	ckplane ay backplane in	stead of r	
	Mechanical	EIA 19" rack mo	dels (3U4) x 28	" deep /	suppor	ted in Net	BAY™ Ra	acks (such	n as Ne	tBAY42 SR, N	etBAY42	2 ER)
	Chipset Slots (Active™ PCI-X) RXE Expansion Port	IBM XA-32™ chip Bridges provide si graphics), and Se / PCI-X Bus 1 sup Six total PCI-X slots sensors control pov One port to suppo	ix peer PCI-X burverWorks® CSE rports gigabit Etles (one unavailable ver to slot) / hot r	uses / PC 36 South nernet, S e) / 5 hot-s eplace, ho	CI-X Bu Bridge CSI, ar swap Po ot upgra	s 0 suppo e (IDE, USI nd slot for CI-X 1.0 slo ade, hot exp	rts adapte B, bus for optional S ts ¹⁰ availat oansion / s	er slot with Super I/O ServeRAID ble with pos separated I	n Remo D NS 87 D adapte wer and by insula	te Supervisor 7417 [diskette er attention indica ative plastic divi	Adapter keyboar ator lights dersby	II (inc. rd, mouse]) (optical
	CD-ROM / diskette Ethernet Graphics controller Ports	24X-10X ⁶ CD-RO Broadcom [®] 5704 1 onboard graphics <i>Rear:</i> RXE-100 Ex two USB (Ver 1.1),	0/100/1000 dual disabled / uses xpansion Port (t	ethernet / s video o o connec	on syst n Rem t optior	ote Super nal RXE-10	visor Ada 00), RXE	pter II Managem	ent Por	t (to manage	optional F	RXE-100),
	Security	Power-on and adn	ninistrator passv	vords / un	attend	ed boot / se	electable b	ooot				
	Systems management Diagnostics	console and mgm Light Path Diagr IBM Real Time Dia	t / power on/off : nostics™ / prima agnostics (opera	system / ary indica ted throu	monito ator on	rs power s informatio	tatus, op :	system, te	emperate	ure, disks, fan	s, power	supplies onents /
	Software	available even whi ServerGuide™ (C utilities), IBM Direct	D-ROM installat		onfigur	ation	1GB P	C2100 E0	CC DDF	DR SDRAM F R SDRAM RDI R SDRAM RDI	MM	33L5038 73P2031 33L5040
	Keyboard / mouse Power supplies	None standard (be Std: one or two 9 redundant with two worldwide / voltage	50 watt hot-swa o power supplies ge-sensing / au	p; <i>Max:</i> i s (some c	onfigur	ations)/	IBM x3 Xeon N Xeon N Xeon N	365Memoi MP 2.0GH MP 2.5GH MP 2.8GH	ry Upgra z/1MB z/1MB z/2MB		c Upg c Upg c Upg	73P9710 73P7073 73P7074 73P7075 73P7214
	Cooling fans	fans in each powe Six hot-swap, redu one additional fan fan failure signals	ındant, multi-spe in each power s	upply / P	FA/	essor	IBM Se IBM 73 IBM In IBM T5	erveRAID 3.4GB 15k tegrated x 541 15" Fl	™-4Mx <ultra3 <series at Pane</series </ultra3 	Ultra160 SCS 20 SCSI Hot-9 Adapter for iS el Color Monito	l Ádapte Swap eries or (black)	r 06P5736 32P0735 1519100 9512AB1
	Six available 3.3 volt P									nsion Enclosu com/pc/us/acc		86841RX
	Standard Remote Su - one fullsize, 64-bit Optional ServeRAID	t, 33MHz PCI, hot upervisor Adapter in t,100MHz PCI-X,ho adapter to install t,133MHz PCI-X,ho adapter to install	ot-swap Dim Stalled Dir We Ste Too Accord-swap	nensions: ight: 63 to alth black ol-free ser ress adap temboard	H133. o 83lbs color viceabi eters, pr	ocessors,	x D27.6" 42.0mm x 7.6kg memory, a	D701mm	□ 1 or □ Inte □ On □ co □ Co	LIMITED W 3 year parts rnational Warı site, 8 am - 5 p verage excluc t business day	ARRAN and laboranty Serom, Mon-	or vice³ - Fri lays,

0 -	CD-ROM	diskette
Opt disk	Opt disk	Opt disk
Opt disk	Opt disk	Opt disk
	3U Rack	

Bay ① 3.5", 0.5", Bay ② 5.25", 0.5" Bay ③ 3.5", SL 1", 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 ⑥ 3.5", SL 1", access, std diskette access,std CD-ROM access, hot-swap, open
- Access power supplies and disks from front
- 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: 878.4GB with six 146.8GB2 hot-swap SCSI disks

- On site service upgrade options (in eligible locations):7
 - 3 year IOR 24x7, 4 hr avg response (30L9186 (8861) / 96P2253 (8862)) 3 year IOR 24x7, 2 hr avg response
 - (31L2722 (8861) / 96P2254 (8862))
 - 4 year IOR 9x5, NBD response (69P9210 (8661) / 96P2255 (8862)
- 5 year IOR 9x5, NBD response 69P9214 (8661) / 69P2259 (8862) 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

(X365A) © IBM Corp. December 2003

	xSeries 300 (Iviai							r Field Skills		
	L3 rocessor cache Memo			SCSI controller	Mechan- ical	bays I		Hot-swap s pwr supplies	(yrs.)	
8861-4RX 1 x Xeon ¹ 8862-4RX 1 x Xeon 8862-5RX 2 x Xeon 8862-6RX 2 x Xeon	MP 2.7GHz 2MB 2GB CI	hipkill 8 hipkill 8	None None	Ultra320 Ultra320 Ultra320 Ultra320	3U rack 3U rack	6x8 6x8	One	One (not red One (not red Two redunda Two redunda	un) 3 nt 3	Mar 2004 Mar 2004 Mar 2004 Mar 2004
Processors L2 cache L3 cache Processor upgrade Implementation	1 or 2 x Intel® Xeon™ Proc 512KB / on die of process 2MB or 4MB / on die of pr 4-way SMP / up to four Xeo Systemboard contains four slots, and integrated SCSI	or / at processor rocessor / at pro on Processors M r Intel 603-pin n	or speed ocessor IP (same micro-P(d speed e speed/ca	iche size)				Ü	0,
Memory	Up to 2GB std / 32GB max DIMMs installed / one men matched pairs / PC2100 2 (ECC) via 16-bit Checksu and Active Memory ™ sup	nory board stan 000MHz register ı m Chipkill ™ / \	dard wi ed 184- With 16	th 8 DIMM -pin DDR- 5 DIMMs i	l gold-cor SDRAM F nstalled: I	nnector s RDIMMs Memory	slots / D / Error	IMMs must be Checking an	installed d Corre	d in ecting
SCSI disk controller SCSI connectors SCSI cabling IDE controller / cablin Disk - capacity Disk - bays	LSI Logic® 53C1030 / Wide One internal and one exter One standard 16-bit LVD cab SCSI RAID adapter 68-pin gEnhanced IDE ATA-33 cor None standard / supports Six hot-swap bays / conve	rnal SCSI conne ble can be reattac connector on s atroller in CSB6 up to 15,000 rpi	ector / in whed to consystemb South Indisks	nternal con optional Ser loard for the Bridge	ntroller wi veRAID a nis cable	red to Soldapter fro	CSI bac m six-ba	kplane ly backplane ins	stead of n	
Mechanical	EIA 19" rack models (3U) x 28" deep / s	supporte	ed in NetE	BAY™ Rad	cks (such	n as Net	BAY42 SR, Ne	etBAY42	ER)
,	IBM XA-32™ chipset / IBN Bridges provide six peer Pographics), and ServerWorks / PCI-X Bus 1 supports gigs Six total PCI-X slots (one una sensors control power to slot) One port to support up to	CI-X busés / PC s® CSB6 South abit Ethernet, S0 vailable) / 5 hot-s) / hot replace, ho	CI-X Bus Bridge CSI, and wap PC ot upgrad	O support IDE, USB I slot for o I-X 1.0 slots Ie, hot expe	s adapter , bus for ptional Se s ¹⁰ availabl ansion / se	r slot with Super I/C erveRAID le with po eparated I	n Remoto D NS 87 D adapte wer and by insula	te Supervisor A 7417 [diskette, er attention indicat tive plastic divid	Adapter I keyboar or lights (lersbv	II (inc. rd, mouse]) (optical
CD-ROM / diskette Ethernet Graphics controller Ports	24X-10X ⁶ CD-ROM / 3.5" Broadcom® 5704 10/100/100 onboard graphics disabled <i>Rear:</i> RXE-100 Expansion two USB (Ver 1.1), keyboard	0 dual ethernet / o / uses video or Port (to connect	on syste n Remo t optiona	te Superval RXE-10	isor Adap 0), RXE N	ter II /lanagem	ent Por	t (to manage o	ptional F	RXE-100),
Security	Power-on and administrator	passwords/una	attende	d boot / se	lectable b	oot				
Systems management Diagnostics	at Remote Supervisor Adapt console and mgmt / power Light Path Diagnostics™ IBM Real Time Diagnostics	on/off system / r / primary indica	monitors ator on i	s power sta information	atus, op s n panel w	ystem, to	emperati s associ	ure, disks, fans ated with failin	, power :	supplies onents /
Software	available even while server ServerGuide™ (CD-ROM ir utilities), IBM Director, and o	nstallation and co others	onfigura	tion	1GB P 2GB P	C2100 E	CC DD	DDR SDRAM F R SDRAM RDI R SDRAM RDI grade Card	IMM	33L5038 73P2031 73P2030 73P9710
Keyboard / mouse Power supplies	None standard (because rac Std: one or two 950 watt h redundant with two powers worldwide / voltage-sensin fans in each power supply /	ot-swap; <i>Max:</i> to upplies (some co g / auto-restart PFA	onfigura / rear a	tions)/	Xeon M Xeon M 950 wa IBM Se	MP 2.7G MP 3.0G att Hot-S erveRAID	Hz/2MB Hz/4MB wap Po¹ D™-6M l	L3 Cache Pro L3 Cache Pro L3 Cache Pro wer Supply (W Jltra320 SCSI	c Upg c Upg W) Adapter	
Cooling fans	Six hot-swap, redundant, m one additional fan in each p fan failure signals Diagnosti	ower supply / PF	FA/	ssor	IBM In	tegrated 541_15" F	xSeries Flat Pan	320 SCSI Hot-9 Adapter for iS el Color Monito ansion Enclosu	eries or (black)	32P0735 1519100 3) 9512AB1 86841RX
Standard Remote 9 one fullsize, 64-I Optional ServeRAII one fullsize, 64-I Optional iSeries IX. three fullsize, 64-I Optional iSeries IX. slots 1 - 6: bit, 33MHz PCI, hot-swap Supervisor Adapter installed bit,100MHz PCI-X, hot-swap D adapter to install bit,133MHz PCI-X, hot-swap	Dimensions: Dimensions: Dimensions: Weight: 63 t Stealth black Colored sei Access adarsystemboard Access pow. Setup Progr. Diagnostics: SCSISelect Top cover Lidiagnostic problem with Information I and compon system well- Predictive F. power suppl and fans with All models: 878.4GB with	EH133.4 to 83lbs k color reviceabil pters, pr d from to rer supplam by pr (PC-Do by pressight Pattanel) for nout rem LED par nent LEC being ailure Alies, mer th IBM I Maximu	4mm x W4; 28.6 to 3 lity occessors, op lies and dis ressing F1 cctor) by pri n Diagnost r outside vi noving cove nel, diagno Ds give visu nalysis® ale mory, procipirector um interna	"x D27.6' 42.0mm x 7.6kg memory, a sks from fr at startup essing F2 a at startup ics (level 2 ew of pote er stic LED p ual indicati erts on dis essors, VI	and cont of at startul of anel, cions of sks, RMs, coacity:	1 0 0 1 no conex 0 no (in 0 0 3) (in 0 0 0 1 (in 0 0	com/pc/us/acc LIMITED W r 3 year parts rnational Warr site, 8 am - 5 p overage exclud t business day site service up eligible locatio oyear IOR 24x7, 30L9186 (8861) year IOR 9x5, 39P9210 (8661) year IOR 9x5, 39P9214 (8661)	/ARRAN and labo anty Ser m, Mon ing holio r respons grade op ns): 4 hr ave / 96P22 2 hr ave / 96P22 NBD res / 96P22 NBD res / 69P22 options opm/	or rvice ³ - Fri days, se time ⁷ ptions g response (53 (8862)) g response (54 (8862)) sponse (255 (8862)) sponse (259 (8862)) s at	

	AGEITES GOO	(110101111	0. 2000,		X1121 D	,	rei i leiu Skills	dire Educa	ition rouni
IBM®		L2	DIMM	SCSI		Slots x	Hot-swap	Warrant	y Available
Type-model Qty	x Processor	cache Memoi	ry slots Disks	controller	Mechanical	bays	pwr supplies	(yrs.)	date
8863-1RY 1 x Xeon 8863-2RY 1 x Xeon 8863-3RY 1 x Xeon 8863-4RY 1 x Xeon 8863-E1Y 2 x Xeon 8863-E5Y 2 x Xeon 8863-E6Y 2 x Xeon 8863-E7Y 4 x Xeon	MP 3.66GHz MP 7020 2.67GHz MP 7040 3.0GHz MP 3.66GHz MP 3.66GHz MP 3.16GHz	2x2MB 2x1G 1MB 4x1G 1MB 2x1G 1MB 2x1G	B 4 None B 4 None B 4 None B 8 3x36.4 B 4 None	SAS SAS SAS SAS I-10k SAS w/ 8 SAS SAS SAS	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 2 x 1300 2 x 1300	3 3 3 3 3 3 3	Apr 2005 Apr 2005 Nov 2005 Nov 2005 Jun 2005 Aug 2005 Sep 2005 Sep 2005
Processors	Up to two 64-bit Ir	ntel® Xeon™ Pro 667MHz FSB Du	cessor MP up	to 3.66GHz¹ 66° Burst™ / Extende	7MHz FSB S	Single C	ore / one 64-bi	t Intel Xeon 4T) / Hyper-	Processor Threading
L2 cache Processor upgrade Implementation	1 or 2 MB / per col 4-way SMP / up to System board conta integrated SCSI, eth	re / at processor four Xeon Proce ains four Intel 604	speed / XceL4 ssors MP (sam 4-pin micro-PG	v [™] Dynamic Sen le speed/cache si A4 ZIF sockets, c	ver Cache ize) / Dual Co one memory	ore Cap board s	able lot, six Active™ F	PCI-X 2.0 slot	s, and
Active Memory™	Up to 4GB std / 64 DIMMs must be ins and Correcting (E steering) and Mem Server 2003™	GB max using hi talled in matched CC) via 16-bit C ory Mirroring™	gh-capacity me I pairs / PC2-32 hecksum Chip and Hot-swap	mory card / one i 200 400MHz regis okill™ / With 16 E (non-OS specific)	memory boar stered 240-pi DIMMs install / Hot-add (s	rd stand n DDR2 ed: Mer supporte	ard with 4 DIMM SDRAM RDIMI nory ProteXion d only with Micr	I gold-connect Ms / Error Ch ™ (redundant osoft® Windov	tor slots / necking : bit ws TM
SCSI disk controller SCSI connectors SCSI cabling IDE controller / cablin Disk - capacity Disk - bays	ALL: Adaptec® AIC Controller wired to S One standard SAS g Enhanced IDE ATA E1x: 3 x 36.4GB-10 Six 2.5" hot-swap b	SAS backplane cable attached to -33 controller in 0 0k / supports up t	o six-bay backp CSB6 South Bri o 73GB 10K rp	olane dge m disks	GB/sec) / 64-l	bit 266N	/IHz PCI-X 2.0 <i>E</i>	1X: ServeRa	aid 8i
Mechanical Chipset	EIA 19" rack mode IBM XA-64e™ 3rd Bridges / Host Bridg NS 87417 [diskette,	els (3U ⁴) x 28" de Generation chip ge One supports keyboard, mous	eep / supported set / Integrated video, optional e]), Dual Port E	in NetBAY™ Rad d Processor and I ServeRaid 8i, Se Broadcom 5704, a	cks (such as Memory Con rverWorks® C and 2 PCI-X	NetBAY troller / S CSB6 Sc 2.0 slot	/42 SR, NetBAY Supports EM641 outh Bridge (IDE s / Host Bridge 1	42 ER) / 2 IBM PCI , USB, bus fo wo supports	-X 2.0 Host or Super I/O 4 PCI-X
Slots (Active™) CD-ROM / diskette Ethernet Graphics controller Ports	2.0 slots Six total PCI-X 2.0 s upgrade, hot expan 8X° Slim DVD-ROM Broadcom® 5704 ft SVGA / ATI® 7000n Rear: RSA ethernet Front: USB (Ver 2.0	slots available wit sion / separated 1 / none 0/100/1000 dual 6 n / on planar / 16 c, RSA serial, two	h power and at by insulative plant ethernet / on sy MB_SDRAM sto	tention indicator li astic dividers, all s stemboard / 64-bi d/max / 32-bit 33N	ights (optical solutions) ights supported it 266Mhz PCI 2.2 I	sensors ed up to CI-X 2.0 bus	control power to 266MHz / Wake on LAN®	slot) / hot rep	olace, hot N™ 2
Security	Power-on and admi	inistrator passwo	rds / unattende	d boot / selectable	e boot				
Systems managemen	nt Remote Supervisor remote console and	r Adapter II Slim I mgmt / power o	nline (option) / F on/off system /	PCI adapter / inclumonitors power s	udes 10/100 tatus, op sys	ethernet tem, ten	t, RJ-11, and ser nperature, disks,	rial connectors fans, power	s / provides supplies
Diagnostics Software	Drop down Light I IBM Real Time Diad ServerGuide™ (CD	anostics (operate	d through IBM	Director) available	e even while	n LEDs i server i	associated with f running	ailing compoi	nents /
Keyboard / mouse Power supplies	None standard (be Std: one or two 130 redundant with two worldwide / voltage-	0 watt hot-swap;	Max: two hot-s	wap / tions) /	4GB PC2-320 8GB PC2-320 Active Memor	0 CL3 E0 0 CL3 E0 ry 4-slot	CC RDIMM (2x1GI CC RDIMM (2x2GE CC RDIMM (2x4GI Expansion Card 1B L2 Cache Proc	B)	73P2866 73P2867 30R5145 13M7409 13N0694
Cooling fans	Eight hot-swap, red one additional fan in fan failure signals D	ı each power süp	plv / PFA /	ssor	Xeon MP 3.66 Xeon MP 702 Xeon MP 704 1300 watt Hot IBM ServeRA	6GHz/1M 0 2.67Gl 0 3.0GH :-Swap P IID™-8i S	MB L2 Cache Proc Hz/2x1MB L2 Cac z/2x2MB L2 Cach ower Supply (WW SAS-SCSI Adapter	Upg he Proc Upg e Proc Upg)	13N0695 25R8941 25R8942 13M7413 13N2227
Six available 3.3 voli Slot 1 - fullsize, 64- Slot 2 - fullsize, 64- Slot 3 - fullsize, 64-	-bit, 266MHzPCI-X, -bit, 266MHzPCI-X, -bit, 266MHzPCI-X,	hot-swap hot-swap			IBM 36.4GB 1 IBM 73.4GB 1 IBM Remote S Dual Core X3	10K 2.5" 10K 2.5" Supervis upgrade	320 256MB Adapte SAS Hot-swap HE SAS Hot-Swap HE or Adapter II Sliml kit (available 12/0 com/pc/us/acces	DD DD ine D5)	02R0988 26K5654 26K5655 73P9341 39Y6580
Slot 4 - fullsize, 64- Slot 5 - fullsize, 64- Slot 6 - fullsize, 64- *exclusive slot availa	-bit, 266MHzPCI-X, -bit, 266MHzPCI-X, able for ServeRAID (hot-swap Dii hot-swap Wi Bi adapter St	mensions: H13 eight: 63 to 83 ealth black colo ol-free service cess adapters	25" x W17.4" x 33.4mm x W442. lbs; 28.6 to 37.6 or ability s, power supplie stemboard from	.0mm x D70° 6kg es, processo	ors,	LIMITE 3 year parts al International V On site, 8 am - coverage ex next business	Varranty Ser 5 pm, Mon cluding holi	rvice³ - Fri days,

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: 1,262 Btu/hr (361 watts) Full Configuration: 4,053 Btu/hr (1045 watts)

- 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 next business day response time7

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

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

IBM @server™ xSeries™ 445 (8-way Xeon MP) (March 2004) xREF by eServer Field Skills Enablement Team

IBM® Type-model Qty x	Processor	L3 cache	L4 cache	Memory	Disk	SCSI controller	Mech- anical		SMP/RXE Exp Ports	Hot-swap pwr supplies		Available date
8870-12X 2 x Xeon 8870-22X 2 x Xeon 8870-42X 4 x Xeon 8870-3EX 2 x Xeon 8870-4EX 4 x Xeon	MP 2.0GHz MP 2.2GHz MP 2.7GHz MP 3.0GHz DP 3.0GHz DP 3.0GHz	2MB 2MB 4MB N/A N/A	64MB 2 64MB 2 64MB 2 64MB 2	2GB Chipkill ^{TI} 2GB Chipkill 2GB Chipkill 2GB Chipkill 2GB Chipkill 2GB Chipkill	None None None None None	2xUltra32 2xUltra32 2xUltra32 2xUltra32 2xUltra32	0 4U rack	6x4 6x4 6x4 6x4 6x4	3/1 3/1 3/1 3/1 3/1	Two redundan Two redundan Two redundan Two redundan Two redundan Two redundan	t PCI t PCI t PCI t PCI t PCI	May 2004 Mar 2004 Mar 2004 Mar 2004 Mar 2004 Mar 2004
Positioning Processors L3 cache L4 cache Processor upgrade SMP Expansion Module Additional boards	Up to 8-way (12 or 4 Intel®) Up to 4MB e 64MB XceL4 64MB in each 4-way SMP (10 one SMP Exp for Xeon, 64MI Expansion Por I/O Board (P Board)	u (1 O1 /	C I IOOL DI	lago, occi,		, grapinos,	Coulii Dii	ago, ou	1 poi 1, o, t	sion-critical busing / supports Hy r speed Module) / ability Controllels only) 603-pin microconnected via o Expansion Port op Modules, 1/4 p Modules, 1/4	luuptoi	,, 0110
Memory	16 DIMM gold / Error Check	-connect t ing and tt once; r	or slots / Correcti edundan	must install to ing (ECC) and t bit steering)	wo inder d Chipk	itical DIMM ill ™ via Me	ls at same mory Prot	time / 2 eXion ™	!-way inte	our 512MB DIM rleaving / PC21 or 4-bit errors hot-add (OS s	00 DDF on same	R SDRAM e chip; up
SCSI disk controller SCSI implementation IDE controller Disk - capacity/bays	First channel second chann one standard Enhanced IDE	to intern lel to one (longer) E ATA-1	al 2-port e externa 16-bit L' 00 contro	: SCSI backp ll .8mm VHD(VD cable incl oller in South	lane for CI 68-pir luded fo Bridge	internal hon connector attaching / one one-	ot-swap dis r (16-bit LV an option drop IDE d	ks (16-l /D cable al Serve able to	oit LVD ca e from I/C eRAID ac backplar	able to SCSI b DBoard to ext dapter to the to he for diskette	ackplan connect wo-bay and CE	ie) / tor) / backplane)-ROM
Mechanical	EIA 19" rack	models	(4U ⁴) x	28" deep / sı	upported	d in NetBA	Y™ Racks	(such a	as NetBA	Y42 SR, NetBA	AY42 EF	R)
Chipset Slots (Active™ PCI-X)	Expansion Po	rts / IRM	Memory	I/O Controller	r with tw	o remote I/	O norts (ea	ich to a	IBM PCI	e controller and -X Host Bridge lot with Remote ard, mouse]) / ed to the PCI-X) / each	IBM PCI-
Slots (Active [™] PCI-X) RXE Expansion Port	One RXE-100	Remote	Expansion	n Enclosure ca	an be sh	ared between	en two x44	5 4-way,	, 8-way, o		s 445 se	ervers or
CD-ROM / diskette Ethernet Graphics controller Ports	Dual Broadco	mª 5704 Rage XL 00 Expan	10/100/1 . / on I/O ision Por	000 ethernet Board / 8MB t (to connect	controlle SDRAM optional	r / on I/O B 1 std/max / RXE-100)	soard / full o up to 1280 , RXE Man	duplex /)x1024 iageme	64-bit 66 at 85Hz nt Port, tv	MHz PCI bus / vo USB (Vers	Wake o	on LAN [®]
Security	Power-on and	l adminis	strator pa	sswords / un	attended	d boot / sel	ectable bo	ot				
Systems mgmt Diagnostics Software	console and r	ngmt / p iagnosti ne Diagn n while s ™ (CD-R	ower on/ i cs ™ / pr ostics (o server ru ROM inst	off system / imary indicat perated throuning allation and o	monitors or on in ugh IBM	power sta formation p Director) ation	tus, op sys panel with xSeries SI 1GB DDR 2GB DDR	stem, te LEDs a MP Exp PC210 PC210	emperatur issociated ansion M 0 ECC S 0 ECC S	ial connectors e, disks, fans, d with failing c odule DRAM RDIMM DRAM RDIMM Cache Proc U	power sompone	supplies
Keyboard / mouse Power supplies Cooling fans	None standar Std: two; max watts at 110v front access / fans in each p Four hot-swap one additiona fan failure sig	c: two / h / redund / worldwi cower su p, redun I fan in e	ot-swap dant at 2 ide / volt upply / Pl dant, mu each pow	/ 1050 watts 20v with two cage-sensing FA ulti-speed fan ver supply / P	power s / auto-re s / FA /	or 550 supplies / estart /	Xeon MP Xeon MP IBM 73.4G IBM Serve IBM Remo NetBAY11 8X/4X/24X IBM T540	2.7GHz 3.0GHz 3.0GHz B 10K PRAID™ ote Sup Standa Max C 15" Fla	J/2MB L3 J/4MB L3 Ultra160 J-6M Ultra ervisor Ad ard Rack CD-RW U t Panel C	Cache Proc U Cache Proc U SCSI Hot-Swa 320 SCSI Ada dapter II-EXA	pg 1; pg 1; p 0; pter 3; 1; 9; olack) 9;	3N0722 3N0721 6P5756 2P0033 3N0382 306110 2P9101
Six available 3.3 volt Slot 1: fullsize, 64-bit Slot 2: fullsize, 64-bit Slot 3: fullsize, 64-bit Slot 4: fullsize, 64-bit Slot 5: fullsize, 64-bit Slot 6: fullsize, 64-bit Slot: used by Remo	66MHz PCI-X, 66MHz PCI-X, 100MHz PCI-X, 100MHz PCI-X, 133MHz PCI-X, 133MHz PCI-X, te Supervisor Access, diskett access, CD-RC access, hot-swaccess, hot-sw	hot-swaphot-sw	o Bus A p, Bus B p, Bus B p, Bus C p, Bus D 33MHz ack	Max weight Stealth blate Tool-free Stealth Blate Tool-	ns: H178 nt: H10 lb lck color lck co	mm x W48 s; 50kg bility s, memory, odule from plies and di pressing F- octor) by pr ssing Ctrl+/ anel and fro li (1st and 2 t removing of	adapters, a top sks from fro 1 at startup ressing F2 A at startup nt-accessite 2nd level cover) lerts on proche, memoritisks with	and ont at startuble pull- cessors ry, fans,	int its war	LIMITED WA year parts and ernational Wai a site, 9 hr x 5 xt day respon year on site w grade option (actions): 4 hr x 7 day co hour respons No ServicePac st warranty m rvices availat her ServicePa tp://www.ibm.c. //pdf/wamomxe x714 toll-free si irranty issues irranty periods ((X445C) © IBM	labor rranty S day co se time arranty in eligib overage, e time available aintenariole c optior com/ser eu.pdf upport f during	ervice ³ verage, 7 service ele ,) nce ns at vices/us/ or the

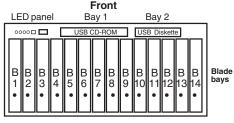
IBM @server™ xSeries™ 445 (8-way MS Datacenter#) (3/04) xREF by eServer Field Skills Enablement Team

IBM [®] Type-model Qty x l	Processor	L3 cache	L4 cache	Memory	Disk	SCSI controller	Mech- anical		SMP/RXE Exp Ports	Hot-swap pwr supplies	Mgmt adapter	Available date
8870-1BX 2 x Xeon 8870-2BX 2 x Xeon 8870-4BX 2 x Xeon	MP 2.7GHz	2MB 2MB 4MB	64MB (OGB Chipkill™ OGB Chipkill OGB Chipkill	None	2xUltra320 2xUltra320 2xUltra320	0 4U rack	6x4	3/1	Two redundan Two redundan Two redundan	PCI	Mar 2004 Mar 2004 Mar 2004
Positioning Processors L3 cache L4 cache Processor upgrade SMP Expansion Module Additional boards	2 x Intel® Xec 2MB or 4MB 64MB XceL4 64MB in each SMP Expansi One SMP Ex L4 cache, sixt Ports) / each One I/O Boar	each prodese each prodese each prodese each prodese each substitution of the each prodese each each each prodese each each prodese each each each each each each each eac	cessor Nocessor Nocessor receive xpansion lile stand lodule so Mocket pansion Nocestor Host Br	// P 2.2, 2.7, o / on die of pricator Cache I Module / EC ard / ready for td / two max is, three SMP // odule activat ridge, SCSI, 6	or 3.0GH rocessor (up to 1 CC / 64-b or adding / each c Expans es one I ethernet	Iz¹ with 400 r / at proce 128MB with bit 400MHz g additional contains foun tion Ports (s RXE Expans , graphics,	OMHz from ssor spee optional bus from I processor Intel 603 second mo sion Port (South Bri	side bud d SMP E Cache ors (up -pin mid dule co one R dge, Su	xpansion and Sca to 8 total cro-PGA 2 nnected v (E Expansion	sion-critical busin orts Hyper-Three Module) / lability Controll) and memory ZIF sockets for via one or two sion Port suppo- slot for Mgmt / Modules, I/O Bo	ading er Xeon M SMP Ex rted)	P, 64MB pansion
Memory	PC2100 DDF	d-connec R SDRAM bit errors	tor slots // Error s on sam	/ must install Checking a ne chip; up to	two ind and Cor two chi	dentical DIM recting (EC ips at once	/lMs at sai CC) and (; redunda	me time Chipkil nt bit si	e / 2-way I™ via M o teering) /	interleaving / emory ProteXi Active Memor		porting
SCSI disk controller SCSI implementation IDE controller Disk - capacity/bays	First channel second chann one standard Enhanced IDI	to interna lel to one (longer) E ATA-10	al 2-port S external 16-bit LV 10 control	SCSI backplaı .8mm VHDCI D cable incluc Iler in South B	ne for int 68-pin c ded for a Bridge / o	ternal hot-sy connector (10 attaching an one one-dro	wap disks 6-bit LVD optional S p IDE cab	(16-bit l cable fr erveRA le to ba	_VD cable om I/O Bo AID adapt ckplane fo	egrated RAID-1 e to SCSI backp pard to ext conne er to the two-ba or diskette and o ay / 80-pin SCA	ane) / ector) / y backp CD-ROM	lane M
Mechanical	EIA 19" rack	models	(4U ⁴) x 2	8" deep / supp	oorted in	NetBAY™	Racks (su	ch as N	letBAY42	SR, NetBAY42	ER)	
Chipset Slots (Active™ PCI-X) RXE Expansion Port	Expansion Po X Host Bridge Adapter, VIA® PCI 2.2 Bus F Six hot-swap hot replace, One RXE-100	orts / IBM provides 82C686I supports PCI-X 1.1 hot upg Remote	Memory s three pe B South I s SCSI, e 0 slots ¹⁰ rade, ho Expansion	I/O Controller eer PCI buses Bridge (IDE A ethernet / PCI- available with ot expansion n Enclosure ca	with two PCI 2 TA-100, X Bus A power A sepan	o remote I/0 2.2 Bus E su USB, Supe A, B, C, D so and attentic rated by instared betweet	O ports (ea upports grader I/O PC9 upport PC on indicate sulative poen two x444	ach to a aphics, 7317VL I-X slots or lights astic d 5 4-way	a IBM PCI adapter s JL [keybo s / design (optical s ividers r, 8-way, c		/ each e Super 1.0 spe power t s 445 se	IBM PCI- visor ecification to slot) / ervers or
Ethernet	Dual Broadco SVGA / ATI®	m ^å 5704 Rage XL 00 Expan	10/100/1 / on I/O sion Port	000 ethernet of Board / 8MB t (to connect	controlle SDRAM optional	er / on I/O Bo I std/max / i RXE-100),	oard / full ou up to 1280 RXE Mar	duplex / 0x1024 nageme	/ 64-bit 66 at 85Hz. nt Port, t	pays / supports SMHz PCI bus / wo USB (Vers ers 1.1)	Wake o	n LAN®
Security	Power-on and	adminis	trator pa	sswords / una	attended	boot / sele	ectable bo	ot				
Systems mgmt Diagnostics Software	console and i	mgmt / p liagnosti ne Diagn n while s ™ (CD-R	ower on/ cs™ / pr ostics (o server rui lOM inst	off system / rimary indicat perated throunning allation and o	monitors or on in ugh IBM	formation p	tus, op sys panel with IBM Prelo Microso IBM Softw	stem, to LEDs ad Kit f ft Wind are Su	emperatur associate for 1-8 Pr lows Serv bscription	er Datacenter : Update for	power s ompone 48 2003 48	supplies
Keyboard / mouse Power supplies Cooling fans	None standa Std: two; max watts at 110v front access fans in each Four hot-swa one additiona fan failure sig	rd (beca x: two / h r / redund / worldwi power su p, redund Il fan in e gnals Dia	use rack ot-swap dant at 2: de / volt ipply / Pl dant, mu each pow gnostic I	k-based) / 1200 watts 20v with two age-sensing FA alti-speed fanser supply / P LED and mgr	power s / auto-re s / FA / nt proce	estart /	1GB DDR 2GB DDR Xeon MP Xeon MP Xeon MP IBM 73.4G IBM Serve Other opt	PC210 PC210 2.2GHz 2.7GHz 3.0GHz B 10K RAID™	00 ECC S 00 ECC S 2/2MB L3 2/2MB L3 2/4MB L3 Ultra160 S -4H Ultra	ver Datacenter in DRAM RDIMM in RDIMM RDIMM Cache Proc Up SCSI Hot-Swap 160 SCSI Adapt In/pc/us/access	33 og 13 og 13 og 13 og 37	3L5039 3L5040 3N0723 3N0722 3N0721 6P5756 7L6889
	G6MHz PCI-X G6MHz PCI-X 100MHz PCI-X 133MHz PCI-X 133MHz PCI-X te Supervisor Ar access, diskett access, CD-RG	, hot-swap, hot-swap, hot-swap, hot-swap, hot-swap, hot-swapdp, 32-bit	o Bus A o Bus A o, Bus B o, Bus B o, Bus B o, Bus C o, Bus C o, Bus C o, Bus C	Max weigh Stealth bla Tool-free Access pro Setup Proo Diagnostic SCSISelec Information out Light P diagnostic Predictive XccL4 Ser power sup IBM Direct All model	ns: H178 tt: 110 lb ck color erviceab ocessors nsion Me wer supp gram by ss (PC-D tt by pre: n LED pa ath panes s without Failure A ver Acce plies, an or	mm x W485 s; 50kg billity s, memory, a odule from to plies and dis pressing F1 octor) by pressing Ctrl+A anel and from el (1st and 2 t removing co	adapters, a cop sks from from at startup essing F2 A at startup int-accessified level cover) erts on prothe, memonisks with all disk c	and ont at startu ble pull- cessors ry, fans	Property of the control of the contr	LIMITED WA year parts and ternational War n site, 9 hr x 5 ext day response year on site wa year on site year on site sat warranty ma yervicePac a year wariah ther ServicePac tp://www.ibm.c s/pdf/wamomxe yeriod³ arranty issues arranty period³	labor ranty Se day co se time rranty se n eligib verage, e vailable) intenan le coption om/servu.pdf	ervice ³ verage, ervice le oce as at vices/us/

IBM® Type-model Qty x		.3 L4 che cache	Memory	Disk	SCSI controller	Mech- anical		SMP/RXE Exp Ports	Hot-swap pwr supplies		Available date
8855-4BY 4 x Itanii 8855-5BY 4 x Itanii 8855-6BY 4 x Itanii	um 2 1.6Ghz 6M	IB 64MB	2GB Chipkill ¹ 2GB Chipkill 2GB Chipkill	None	2 x Ultra320	4U rack	6x2	0/1	Two redundan Two redundan Two redundan	t PCI	Dec 2004
Positioning Processors L2 cache L3 cache L4 cache Processor upgrade SMP Exp. Module Additional boards	Up to 16-way por 4 x Intel® Itanium 256KB each proc 4MB, 6MB or 9M 64MB XceL4™ S ECC / 64-bit 400l 4-way SMP per c Up to 16-way us One I/O Board (P PCI Board (PCI-X	n 2™ Proces cessor / on o IB each proc Gerver Accel MHz bus fror chassis sing four x45 PCI-X Host B	sor 1.5GHz of process essor / on dierator Cache and cache and chassis / reridge, SCSI,	or1.6GH sor / at e of pro e Scalab equires etherne	Iz with 400M processor spocessor / at pility Controlle appropriate 8t, graphics, S	Hz fronts beed brocessor r 3-way or South Brid	side bus speed 16-way dge, Su	kits	slot for Mgmt /	Adapter), one il Board)
Memory	2GB std (using 2 PC2100 266MHz way interleaving / 3, or 4-bit errors o supported with an	registered 18 Active Memon same chip;	4-́pin ECC DI l ory ™ with Er up to two ch	DR-SDR ror Che ips at or	AM DIMMs / ecking and C nce; redundar	DIMMs no contraction of the cont	nust be g (ECC ring) /	installed), Chipki l via memo	in matched pai II™, Memory F ory mirroring (m	rs [a ba ProteXic	nk] / 2- on™ (1, 2,
SCSI disk controller SCSI implementation IDE controller Disk - capacity/bays	ServeRAID adapt Enhanced IDE AT	kplane for in ter and SCSI A-100 contro	ternal hot-swa cable requir ller in South E	ap disks ed if att Bridge/	(16-bit LVD taching externone one one-drop	cable to nal stora IDE cab	SCSI b ge encl e to bad	ackplane osures ckplane fo) / or diskette and	CD-RO	M
Mechanical	EIA 19" rack mod	dels (4U4) x 2	8" deep / sup	ported i	n NetBAY™ F	Racks (su	ch as N	etBAY42	SR, NetBAY42	PER)	
Chipset Slots (Active™ PCI-X RXE Expansion Port	hot replace, hot	Controller with er PCI buses / outh Bridge (IE ports SCSI, e X 1.0 slots ¹⁰ a upgrade, h note Expansio	two remote I/ PCI 2.2 Bus I DE ATA-100, Uthernet / PCI- available with pot expansion on Enclosure co	O ports E suppo JSB, Sup X Bus A power au 1 / sepa an be st	(each to a IBN rts graphics, a per I/O PC973 , B, C, D supp nd attention in arated by instanced between	M PCI-X I adapter si 317VUL [i bort PCI-X adicator li ulative pi 1 two x45	Host Brider Host With International Market Properties (1984) Host Pro	dge) / ead Remote S d, mouse designed tical sens viders , 8-way, o	Supervisor Adap]) / I to the PCI-X 1 sors control pov r 16-way xSerie	oter, .0 speci ver to slo es 455 se	fication ot) /
CD-ROM / diskette Ethernet Graphics controller Ports	Dual Broadcom® 5	5704 10/100/1 le XL / on I/O xpansion Por	000 ethernet Board / 8MB t (to connect	controlle SDRAM optiona	er / on I/O Bo M 125MHz sto I RXE-100), F	ard / full / d/max / u RXE Man	duplex / ip to 12 agemei	64-bit 66 80x1024 nt Port, tv	SMHz PCI bus at 64K colors vo USB (Vers	Wake of the Wake o	
Security	Power-on and adn	ninistrator pas	swords/unat	tended l	boot/selectab	ole boot					
Systems mgmt Diagnostics Software	Remote Supervis console and mgmt Light Path Diagn IBM Real Time Dia available even wh ServerGuide™ (C utilities), IBM Dire	t / power on/o lostics™ / pri agnostics (op lile server run CD-ROM insta	ff system / mo mary indicato erated throug ning Illation and co	nitors por r on info gh IBM D	ower status, o rmation pane Director) It. It ion It	p system I with LEI anium 2 anium 2 anium 2	, tempe Os asso 1.3GHz 1.4GHz 1.5GHz	rature, dis ciated wi /3MB L3 /4MB L3 /6MB L3	sks, fans, powe	r supplie onents / pg pa	es
Keyboard / mouse Power supplies Cooling fans	None standard (b Std: two; max: two watts at 110v / rec front access / worl fans in each power Four hot-swap, recone additional fan	pecause rack o / hot-swap / dundant at 22 ldwide / volta er supply / PF dundant, mul	a-based) / US 1050 watts a 0v with two poge-sensing / a A ti-speed fans	t 220v o ower su auto-res /	r 550 pplies / IE tart / IE IE	GB PC21 GB PC21 BM 73.40 BM 146.8 BM Serve BM RXE- way to 8	100 CL2 100 CL2 3B 15K GB 10h RAID™ 100 Re 3-way E	2.5 ECC E 2.5 ECC E Ultra320 (Ultra320 6M Ultra mote Sto expansion	DDR SDRAM DDR SDRAM SCSI Hot-Swa D SCSI Hot-Swa 320 256MB C rage Enclosure	ap ache	33L5039 33L5040 32P0735 32P0728 02R0988 86841RX 73P9911 73P9715
Bay ② 3.5", 0.5", Bay ③ 3.5", SL 1", Bay ④ 3.5", SL 1",	66MHz PCI-X, hot 66MHz PCI-X, hot 100MHz PCI-X, hot 133MHz PCI-X, hot 133MHz PCI-X, hot ote Supervisor Adp, 3. 4 access, open (Ultraccess, Combo (Uaccess, hot-swap	a-swap Bus A -swap Bus A -swap, Bus B -swap, Bus B -swap, Bus C -swap, Bus C -swap, Bus D 2-bit 33MHz U Rack abay 2000) Jitrabay 2000	Dimension Max weig Stealth bla Tool-free Access pr Access pr SMP Expa Access pr Diagnostic Toflere Count Light F diagnostic Predictive XceL4 Se power sup BM Direc All mode	ns: H17 ht: 120 ht: 120 cock color servicea ocessor ansion M ower sup gram by cs (PC-E ct by pre n LED p oth pan swithou Failure rver Acc uplies, ar tor	9" x W17.3" x 5mm x W440 lbs; 54.30kg r	D28.1" Dmm x D dapters, a p ss from freat startup ssing F2 at startup -accessil d level ever) rts on pro e, memo sks with al disk c	713mm and ont at startu ble pull- cessors ry, fans,	Pool ht its way ks	LIMITED WA year parts and ternational Wa M On Site (IOF usiness-Day c year on site w ygrade option (cations): 24 hr x 7 day cc 26 hour respons 26 P2689 set warranty n services avail ther ServicePa ther ServicePa yetf/www.ibm. s/pdf/wamomx. x714 toll-free s arranty issues warranty perio	labor rranty S i), 9-5 N overage arranty in eligib overage e time naintena able c option com/sereu.pdf upport i during d i a output discounting d i a output d i a out	ervice ³ ext- y service ble , ance as at vices/us/ for the

IBM®		L2	L3	Memori	DIMM	Diaka	SCSI	Mechanical	Slots x			Available
Type-model Qty x Pr 8872-1RY 2 x Xeon ^T	rocessor MMP 2.83GHz	cache 1MB	4MB	Memory 2x1GB	slots 8	None	SAS	3U ⁴ rack	bays 6x7	pwr supplies 2 x 1300	(yrs.)	Jun 2005
8872-2RY 2 x Xeon	MP 3.0GHz	1MB	8MB	2x1GB	8	None	SAS	3U rack	6x7	2 x 1300	3	Jun 2005
8872-3RY 2 x Xeon 8872-5RY 2 x Xeon	MP 7020 2.66GHz	1MB 2MB	8MB	2x1GB 2x1GB	8 8	None None	SAS SAS	3U rack 3U rack	6x7 6x7	2 x 1300 2 x 1300		Jun 2005 Nov 2005
8872-6RY 2 x Xeon		2x2ME		2x1GB	8	None	SAS	3U rack	6x7	2 x 1300	3	Nov 2005
Processors	Two 64-bit Intel® Xe 3.0GHz 667MHz FS	SB Dual	Core	NetBurst	TM / E	xtended	Memory 64	l Technology	™ (EM64	4-bit Xeon Pr IT) / Hyper-Th	ocessor reading	technology
L2 cache L3 cache	1 or 2MB / per core 4 or 8MB / integrate	ed/atpr	ocesso	r speed								
Processor upgrade	4-way SMP / up to chassis interconnect	four Xec	n Proc	essors (sa	me sp	eed/cach	e/core) per	chassis / Dual	Core Ca	apable / up to :	32-way	(eight
Implementation	System board conta integrated Serial Atta	ins four ached S	Intel 60 CSI, etl	04-pin micr nernet, gra	o-PGA phics	4 ZIF so	ckets, one r	nemory board	slot, six	Active™ PCI-X	(2.0 slot	ts, and
Active Memory [™]	2GB std / 64GB ma	x per ch	nassis u	using high-	capaci	ty memo	ry card / 512	2GB max (eig	ht chassi	s interconnect	/ two m	nemory
	cards standard (up t 400MHz registered Chipkill TM / Memor	240-pin	DDR2-	SDRAM R	DIMM	s / Error	Checking a	and Correctin	ig (ECC)	via 16-bit Ch	ecksum) / Uot add
	(supported only with	Microso	oft® Win	idows™ Se	erver 2	9003™	na ivientory	wiiiTOTIIIg ···· a	110 1101-8	swap (11011-03	specific)	/ Hot-auu
SCSI disk controller	ALL: Adaptec® AIC-	-9410 / \$	Serial A	Attached S	CSI (S	SAS) 3.0	GHz (3GB/s	ec) / 64-bit 26	6MHz PC	CI-X 2.0 / Serve	eRaid 8i	optional
SCSI connectors	with dedicated slot Controller wired to S One standard SAS	AS back	plane		ا من ا م ما							
SCSI cabling IDE controller / cabling	Enhanced IDE ATA-	33 contr	oller in	CSB6 Sou	ıth Brid	ane dge						
Disk - capacity Disk - bays	None / supports up	ays / co	nverge	d trav / 80-	pin SC	CA-2 con	nectors					
Mechanical	EIA 19" rack mode chassis (x460 or M)	ls (3U⁴)	x 28" c	leep / supr	orted	in NetBA	Y™ Racks (such as NetB	AY42 SR	, NetBAY42 E	H) / cont	nect eight
Chipset	IBM XA-64e™ 3rd (Generati	ion chi	pset / Inte	grated	Process	or and Mem	nory Controller	/ Suppo	rts EM64T / S	upport fo	or external
	scalability and memory ServerWorks® CSB6	South	oi / ∠ II Bridge	(IDE, USB	, bus f	or Super	5 / FIOSE BITC 1/O NS 874	ige One suppo 17 [diskette, k	eyboard,	mouse]), Dua	Port Br	i, oadcom
Cloto (Activista)	5704, and 2 PCI-X								vo cont	l nouver to alar	/ hat	nlage h-t
Slots (Active™)	Six total PCI-X 2.0 s upgrade, hot expans	iots avai	parated	Ith power a by insulat	ive pla	ention industrict	ers, all slots	supported up	to 266M	Hz	/ not re	place, not
CD-ROM / diskette Ethernet	8X ⁶ Slim DVD-ROM Broadcom [®] 5704 10		00 dual	ethernet p	er cha	ıssis / on	systemboar	d / 64-bit 266ľ	Mhz PCI-	X 2.0 / Wake o	n LAN®	/ Alert on
Graphics controller	LAN™ 2 SVGA / ATI® 7000M						•					
Ports	Rear: Three Scalabi ethernet, std. serial,	lity ports RS-485	, RSA (ethernet, F	SA se	rial, two	USB (Ver 2.	0), keyboard,	mouse, a	nalog DB-15 g	raphics,	two
Security	Power-on and admir	nistrator	passwo	ords / unat	tended	l boot / s	electable bo	ot				
System's managemen	remote console and	mamt /	power	on/off syst	em / n	nonitors ı	oower status	s, op system, t	emperatu	ıre. disks. fans	. power	supplies
Diagnostics	Drop down Light P	ath Dia Inostics	gnostic (operat	:s / primar ed through	y indic i IBM [ator on 11 Director)	ntormation p	anel with LED PC2-3200 CL3	S ASSOCIA	ated with failing	compo	nents / 73P2866
Software	ServerGuide™ (CD utilities), IBM Directo	-ROM IT	istallatio	on and co	nfigura	tion	4GB	PC2-3200 CL3	ECC RDIN	/M(2x2GB)		73P2867 30R5145
Keyboard / mouse	None standard (bed	cause ra	ick-bas	ed)			Activ	PC2-3200 CL3 e Memory 4-slo	t Expansi	on Card		13M7409
Power supplies	Std: Two 1300 watt redundant with two	hot-swap	o; <i>Max:</i>	two hot-sv			ng / Xeon	n MP 3.00GHz/1	IMB L2 8N	MB L3 Proc Upg MB L3 Proc Upg		13N0715 13N0714
Cooling fans	auto-restart / rear ac Eight hot-swap, redu	cessible	fans ir	n each poy	ver sup	oply / PF	A Xeon	MP 7040 3.0G	Hz/2x2ME	1B L2 4MB L3Pr 3 L2 8MB L3 Pr		25R8941 25R8942
Cooming fairs	one additional fan in	each po	wer su	pply / PFA		cor	IBM S	ServeRAID™-8	SAS-SC			13N0713 13N2227
	tan tailure signais Di		LLD	uiu mgmi	DIOCES	501		ServeRAID 6M 36.4GB 10K 2.5				02R0988 26K5654
$8W = 2 \times XpandOnDe$ $16W = 6 \times XpandOnD$							IBM	73.4GB 10K 2.5 ndOnDemand™	5" SAS Hot	t-Swap HDD		26K5655 13M7414
$32W = 8 \times XpandOnD$,		4 x2.9r	m			Xpan	idOnDemand™ -460 Modular E	Scalability	/Cable-2.9M		13M7416 8874-1RY
Six available 3.3 volt							Dual	Core X3 upgra	de kit (ava			39Y6580
Slot 1 - fullsize, 64-l Slot 2 - fullsize, 64-l	bit, 266MHzPCI-X, I	not-swa	ם מ כ	imaneiono	HE OF	5" y \//17	32" x D28.1		pc/	LIMITED WA		TY ³
Slot 3 - fullsize, 64-l Slot 4 - fullsize, 64-l	bit, 266MHzPCI-X, I	not-swaj	o ~ D	imensions:	H128	.35mm x	W440.0mm	V D715mm	⇒ 3 vear	parts and la		
Slot 5 - fullsize. 64-l	bit. 266MHzPCI-X. I	not-swai) ~ ~ ~	leight: 70 t tealth blacl	o 85lbs ccolor	s; 31.75 t	o 38.5kg	-	🗢 Interna	ational Warra	inty Sei	
Slot 6 - fullsize, 64-l *exclusive slot availa	bit, 266MHzPCI-X, I ble for ServeRAID 8	not-swap i adante) ~ T			la Hita .	innline pro-		cove	e, 8 am - 5 pr erage excludi	ng holi	days,
Opt disk Opt disk	Ont dick	T GOOD TO	m	emory and	d syste	emboard	from top	l.		ousiness day e service up		
Opt disk Opt disk	Opt disk	$\overline{}$		etup Progriagnostics	am by (PC-D	pressing	F1 at starturer pressing F	ib di	(in elig	gible location	s): ⁷	•
		ght Path Diag	⇒ S	CSISelect	by pre	ssing Cti	I+A at startu	ip	96P2			•
Bay ① 5.25", 0.5",	Rack access, std CD-R	 MC	di	aġnostic p	anel) fo	or outside	view of pot		• 3 ye : 96P2	ar IOR 24x7 , 1 2689	2 hr avg	response
Bay ② 2.5", SL 1",	access, hot-swap,	open		oblem with formation l			cover Inostic LED I	panel.	• 4 ye	ar IOR 9x5, N	BD resp	oonse
Bay ③ 2.5", SL 1", Bay ④ 2.5", SL 1",	access, hot-swap, access, hot-swap,	open .	ar	nd compor	ient LE	EDs give	visual indica	tions of		ar IOR 9x5, N	BD res	oonse
Bay © 2.5", SL 1", Bay © 2.5", SL 1",	access, hot-swap, access, hot-swap,		₽P		ailure i	Analysis [®]	alerts on d		96P2 ⇔ Other	2694 ServicePac	ptions	at
Bay ② 2.5", SL 1",	access, hot-swap,			ower supp nd fans wit			processors,	VRMs,	http://	www.ibm.com	n/	
Max BTU Output:	4.000 Pt-//- /070						arnal diale -	anacitu:	24x7¹⁴	es/us/its/pdf/ toll-free supp	ort for	warranty
Ship Configuration: Full Configuration:							ernal disk o hot-swap S		issues	during the w	arranty	period ³
Soo footnotes for impor				Hot owen			· ·			(¥460A) ⊚ II		

IBM [⊚] Type-model S	Supported Blades		Switch modules std / max	Switch mod	lules (type)		t Power modules std/max		Blower modules std / max	Mechanica	Available l date
8677-3XX HS20/HS 8677-3RX HS20/HS					B, OPM and CPN B, OPM and CPN		2/4 2/4	2000W 2000W	2/2 2/2		Oct 2004 Mar 2006
Positioning Description	Flexible, innovata Provides common expansion, externa keyboard, video, i	resource I Fibre Cl	s shared by	blade servers	such as power	, system m	anagemer	nt, cablin	g, ethern		
Blade bays	Supports all blad		HS40/JS20	/JS21/LS20 ar	nd SCSI Storage	Expansion	Units / 14	1 hot-plu	ggable ba	ays / front a	access
Switch modules	Std: none; max: fo	ur / hot-sv	wap / rear a	ccess / Gb Eth	ernet / Fibre Ch	annel / Infin	niBand / Op	otical Pa	ss-thru / (Copper Pas	ss-thru
Advanced Management Module	Std: none; max: tv communicates with ports: DB-15 analoshared by up to 14	n integrate og video p	ed system r ort, Dual U	nanagement [:] pı	ocessor on eacl	n server bla	ade / comp	lete KVI	√ switch	local function	onality /
Management Module	Std: one; max: one communicates with DB-15 analog vide shared by up to 14	n integrate o port, P	ed system r S/2 keyboa	nanagement p	rocessor on eac	h server bla	ade / multi	plexor fo	r console	connectivi	ity / ports:
Power modules	Std: two in bays 1 / hot-swap / rear a to all modules and (redundant to each	ccess / 20 blade bay	000 watts a ys 1 through	t 220v / both ren 6 / power for 1	edundant to each bays 7 through 1	n other (N+ 4 requires	N redunda two additio	ncy) / tw nal power	o std mo	dules supp	ly power
Blower modules	Std: two; max: two	/ hot-swa	ap / redunda	ant / variable sp	eed / rear acces	ss / 325 cut	oic ft per m	nin (CFM) / front to	back airfle	OW
Mechanical CD / diskette / USB Keyboard / mouse Ports	EIA 19" rack mod 1XX/2XX: 24X-10) interface / not rem by pressing CD se None standard / p server blade front Rear: keyboard (Front: one USB (V	(° CD-RÓ ovable / fi elect butto rovides K' panel / su PS/2), mo	M 3XX: 8X- ront access n on server VM console apports NetE use (PS/2),	24X ⁶ DVD-RO / shared by up blade front pa support / requ BAY ACT CATS	M / 3.5" 1.44MB to to 14 blade ser nel ests for keyboar 5 chaining solution	diskette dri vers / requi rd, mouse, a ons	ive / one Uests for CI	ISB port D-ROM, by press	(Version diskette of the disket of the diskette of the disket of	1.1) / all Us drive, and Us display butto	JSB port
Security	Login password for recommended in a	r remote	connection							/	
Ethernet Systems mgmt System LED panel	One of the dual in Ethernet Switch M. Provides remote of blowers, power many System LED pane	<i>lodule</i> (the onsole an odules / s	e second et ad mgmt / p system diag	nernet controlle ower on/off bla nostic program	r requires a sec des/modules / n s provided throu	ond optiona nonitors pov gh IBM Dir	al <i>4-port G</i> wer status, ector softv	<i>B Etherr</i> , operatir vare	net Switch ng systen	n Module)	ure, disks,
Cisco Systems Gigabit Nortel Networks Layer Brocade 10 port 4Gb S Brocade 20 port 4Gb S Cisco Systems InfiniBa NetBAY42 Enterprise F NetBAY42 Standard Ra NetBAY25 Standard Ra	AN Switch Module and Switch Module for B Rack Cabinet ack Cabinet	e vitch Module ladeCenter	e	32R1888 32R1892 32R1859 32R1813 32R1812 32R1900 930842S 9306420 9306250 26K4816	IBM Advancec IBM KVW/Red 1U 17" Flat Pa 2U 17" Flat Pa IBM BladeCer IBM 2-button r IBM T115 15" APC Smart-UF • Other option	undant Mana inel Monitor C inel Monitor C nter 4-port GE nter 2-port Fib mouse PS/2 Flat Panel Co PS 5000RMB	gement Moc Console Kit (Console Kit (B Ethernet St re Channel St plor Monitor ((208V)	with kybd/ with kybd/ witch Mod Switch Mod (black)	monitor) ule		25R5778 48P7055 17231UX 17232UX 48P7054 48P7062 28L3673 494215U 37L6861



Rear

SM SM PM 3	Blower module 1 • (std)	PM 1	M M 1	Module
SM SM PM 4	Blower module 2 • (std)	PM 2	M M 2 •	bays
Switch Power modules modules	m	Power Nodules oth std)	mo	gement dule td)

Dimensions: H12.0" x W17.5" x D28" Dimensions: H304.2mm x W444mm x D711.2mm

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

ıle	Switch module bay	
	1 2 3	Ethernet link 1 for all blade servers Ethernet link 2 for all blade servers Network connection 1 for all blade server
t	4	I/O expansion options (Fibre Channel) Network connection 2 for all blade server I/O expansion options (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 time?
- On site service upgrade options (in
 - 3 year IOR 24x7, 2 hr avg response (ServicePac® part num 21P2065)
 3 year IOR 24x7, 4 hr avg response
 - (ServicePac part num 21P2085)
 - 3 year IOR 9x5, 4 hr avg response (ServicePac part num 41L2736)
 5 year IOR 9x5, 4 hr avg response
 - (ServicePac part num 69P9207) 5 year IOR 24x7, 2 hr avg response (ServicePac part num 69P9209)
 - Other ServicePac options at http://www.ibm.com/services/us/ its/pdf/wamomxeu.pdf
 - 24x7¹⁴ toll-free support for warranty issues during the warranty

IBM® Type-model	Supported Blades	Blade Servers std / max		Switch modules (type)	Advanced Managemen modules std / max	Power modules std / max		Blower modules std / max	Mechanical	Available date
8852-4XX HS20	0/HS40/JS20/JS21/LS2	20 0/14	0/10 Ene	t, Fibre Ch, IB, OPM ar	nd CPM 1/2	2/4	2900W	2/2	9U⁴ rack	Mar 2006
Positioning Description Blade bays	Provides commo expansion, exter	on résources nal Fibre Ch	s shared by I nannel storag	ost efficient infrastru blade servers such as le switching and conne JS21/LS20 and Blade	power, system mectivity, and I/O (o	nanageme ptical drive	ent, cablir e, USB a	ig, etherne nd video)	et managen	
Switch modules	Std: none; max: Nortel Networks	ten / hot-sw ™ / Cisco™	ap / rear acc / QLogic™ /	ess / Gb Ethernet / Fib Brocade® / McData®	re Channel / Infin	iBand / O	ptical Pas	ss-thru / C	opper Pass	s-thru /
Advanced Management Modules	communicates w	ith integrate	ed system ma	ess / comprehensive s anagement processor of B 2.0, Serial(RJ45), 10	on each server bla	ade / com	plete KV	M switch I	ocal functio	er / onality /
Power modules	supply power to	blade bays	1 through 7 a	ess / 2900 watts at 220 and both AMMs, SMs 1 vorldwide / voltage-sen	& 2, and all fans	/ two opti	onal mod	ules in ba		
Blower modules	Std: two; max: tv	vo / hot-swa	p / redundan	t / throttlled according t	to incoming air ter	nperature	/ rear ac	cess / fro	nt to back a	irflow
Mechanical Media Tray	DVD-ROM / two	USB ports	(Version 2.0	supported in NetBAY ^T) / Full Light Path Diag nd USB port by pressi	nostic panel / cus	tomer ser	viceable /	front acc de front pa	ess / shared	d by all
Keyboard / mous	on server blade the Rear: two USB,	front panel / two RJ45 (supports Ne one ethernet	nsole support / reques tBAY ACT CAT5 chair and one serial), analoç USB (Media Tray)	ning solutions	,		, ,		•
Security				secure socket layer (S ding security through le					/	
Ethernet	Each of the dual	integrated g	gigabit ethern	et controllers on each b	plade connects to	an option	al <i>GB Etl</i>	nernet Sw	itch Module)
Systems mgmt	disks, blowers, p Manager	ower modu	les / system	wer on/off/reset blades diagnostic programs p	rovided through IE	3M Direct	or softwa	re / Remo	system, tem ote Deployn	perature, nent
System LED pan	eı System LED pai	nei provides	power-on, ic	ocation, over-temperatu	ire, information, a	ınd syster	n-error co	onaltions		

1U 17" Flat Panel Monitor Console Kit (with kybd/monitor) 2U 17" Flat Panel Monitor Console Kit (with kybd/monitor) NetBAY ACT Local Console Manager (CAT5 KVM cabling) NetBAY ACT Remote Console Manager (CAT5 KVM cabling) NetBAY ACT 250mm KVM Conversion Option NetBAY ACT 1.5m KVM Conversion Option Cisco Systems Fiber Intelligent Gigabit Ethernet Switch Module Cisco Systems Gigabit Ethernet Switch Module Nortel Networks Layer 2-7 Gigabit Ethernet Switch Module Brocade 10 port 4Gb SAN Switch Module Brocade 20 port 4Gb SAN Switch Module Cisco Systems InfiniBand Switch Module for BladeCenter NetBAY 42 Enterprise Rack Cabinet	17231UX 17232UX 1735L04 1735R16 32P1636 32P1652 32R1888 32R1859 32R1859 32R1813 32R1812 32R1900 9398425
Cisco Systems InfiniBand Switch Module for BladeCenter NetBAY42 Enterprise Rack Cabinet	32R1900 930842S

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

 Bladecenter H 2900W Power Module
 31R3333

 IBM Advanced Management Module
 25R5778

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

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

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

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

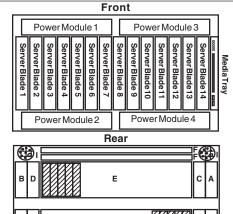
 BladeCenter H Dual 32A AS/NZS 3112/16A IEC320-C20 (ANZ)
 25R5812

 BladeCenter H Serial Port Breakout Cable
 25R5806

 BM PlateCenter A part CR Effects of Carifork Module
 25R5806

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

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



- Dimensions:
- H15.75" x W19" x D29" H400.05mm x W482.6mm x D766.6mm Dimensions:
- Weight: 90 to 350 lb; 40.82 to 158.8kg
- Stealth black color bezel
 Tool-free customer serviceability
- Access server blades, expansion units and power
- modules from front Access modules from rear
- Midplane in center of system to interface for all
- system components
 Predictive Failure Analysis® alerts on blowers, blade server memory, processor(s), and optional disk(s) with IBM Director
- A Advanced Management Module
 B Switch Module Bays 1 & 2 (dedicated ethernet)
 C Switch Module Bays 3 & 4 OR- Bridge Slots
- D Dedicated Bridge Module Slots (up to 4)
- E Blowers (2)
- F High Speed Switch Module Bays (4)
- G Light Path Diagnostic Panel H Aggregated Serial Connector
- Consolidated Redundant Power Inputs (2)

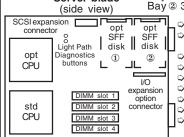
LIMITED WARRANTY³

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

Ε

D

IBM® Type-model Processo	L2 or GHz ¹ cache	FSB MHz Memory	Disk Disk controller	Diskbavs	SCSI Suppor optional stor e		slots x bays	Mech- anical	Ethernet	Available date
8843-L1U 1 x Xeon ¹ 8843-J1U 1 x Xeon 8843-01U 1 x Xeon 8843-01U 1 x Xeon 8843-E7U 1 x Xeon 8843-E7U 1 x Xeon 8843-E7U 1 x Xeon 8843-E8U 1 x Xeon 8843-3RU 1 x Xeon 8843-41U 1 x Xeon 8843-41U 1 x Xeon 8843-5RU 1 x Xeon	M2.8LV 1MB 2.8LV 2MB 3.0LV 2MB 2.8 1MB 12.8 2MB 2.8 2MB 3.0 1MB 13.2 2MB 3.2 2MB 3.2 2MB 3.4 2MB 3.6 1MB 3.6 1MB 3.6 1MB 3.6 2MB	800 512ME 800 1GB 800 1GB 800 1GB 800 512ME 800 1GB 800 1GB 800 1GB 800 1GB 800 1GB 800 1GB 800 1GB	None Ultra320 None Ultra320 None Ultra320 None Ultra320 SGB Ultra320 None Ultra320	2-fixed 2 2-fixed 2		tra320 0 tra320 0) x 2 7) x 2 7	U ⁴ blade U blade	2 x Gigabit 2 x Gigabit	Feb 2005 Feb 2005 Feb 2005 Sep 2004 Mar 2006 Sep 2005 Sep 2004 Mar 2006 Mar 2006 Sep 2004 Mar 2006 Mar 2006 Mar 2006 Mar 2006
8843-E9U 2 x Xeon	3.8 2x2MB		None Ultra320							Sep 2005
Processor(s) SMP - L2 Cache Implementation	technology / L1U 2-way SMP / up Systemboard cor	<i>I, J1U and M5U</i> to two Xeon P ntains two Intel	GHz with 800MHz for the seatures Low Vour occessors (same spoot 604-pin micro-PGA egrated graphics and same seatures and s	lage Proces beed/cache s ZIF sockets	ssor for reduce size) / 1MB sto s, four DIMM sl	ed heat ou d and max	ıput allo x / at pr	wing great ocessor s	ater rack popula speed	ation
Memory	PC2-3200 400M	Hz CL2.5 ECC	two slots used / tw DDR2-SDRAM DIN k] / 2-way memory	MMs / four 2	40 pin gold-cor	nnector sl	ots on s	systembo	ard / DIMMs mi	ust be
SCSI disk controller	LSI Logic® 53C1 PCI-X / supports cable	020 SCSI cont RAID-1 & 1E i	roller / Single chan mirroring / One 16	nel Ultra320 -bit channel	O SCSI control (one internal) /	ller (LVD Internal c	320MB channel:	/sec) / or one 2-dr	n planar / 64-bit op 16-bit 68-pin	100MHz LVD SCSI
SCSI Disk bays External Storage	Two 2.5-inch Sr disks in optional	SCSI Storage I	tor (SFF) Ultra320 i Expansion Unit (80- solutions (including	oin SCA-2 co	onnectors: all S	SCSI bave	ax of tw s Ultra 3	o hot-swa 3 20-enab	ap 3.5" SL Ultra led) /	320 SCSI
Mechanical Architecture/Chipset	7U ⁴ Blade / Supp Intel E7520 chip BUS / ICH5R sup	oorted in IBM B oset / E7525 M	ladeCenter 8677-3X CH (Memory Contro 0) / LSI 1020 / Dual	X or 8677-12 oller Hub) for	XX/2XX (requir PCI-Express b	res upgrad bridge to I	PXH, IC	:H5R / P)	KH BÜS suppor	ts PCI-X ´
BUS slots	interface No PCI or PCI-X	slots (expansi	on via modules or r	network-interf	face option con	nnector)				
Network Interface CD / Diskette / USB Kybd / video / mouse Graphics controller	chip on blade / P adapter fault tole or Optical Passth One connector 3 and 4 of Blader and serial I/O ex None / requests None / requests	CI-X 64-bit 100 rance / Load bannough Module for I/O expans Center / all blac pansion cards profor CD-ROM, of for keyboard, n	net controller / Broad MHz / full duplex / W alancing or teaming (the second control sion option (Fibre C les in a single Blade planned for future re liskette drive, and U nouse, and video in on Planar / 16MB S	Vake on LAN / one of the ler requires a Channel Expe Center mus elease ²⁰ SB port in B BladeCentel	N° / PXE 2.0 Bodual controllers a second option cand) / t contain the saladeCenter by r by pressing the	oot agent / s connects nal switch requires ame expai pressing (ne display	/ Alert S s to an c n or OP! same ir nsion ca CD sele button	tandard Footional, sold obtional, sold oterface nard (or no ect button	Format 2.0 / Fail supported Ethern nodules in bays expansion card on front control	net switch d) / ethernet
Systems Mgmt	on blade / provid event recording,	es system and alert capability	Controller (BMC) environmental mon / RS-485 interface f er Management mod	itoring, or intermana	agement Xeon3 Xeon3 Xeon3	2.8 GHz/800/2 3.0 GHz/800/2 3.2 GHz/800/2 3.4 GHz/800/2	MBL2Cac MBL2Cac MBL2Cac	he EM64TP che EM64TP che EM64TP	rocUpg rocUpg rocUpg	25R8878 25R8877 25R8876 13N0660
Diagnostics	Light Path Diag on-board diagnos	nostics™ (LED stics (via PC-D	D lights indicate failir octor in BIOS)	ng compone	nt) and _{Xeon3}	3.6 GHz/800/2 3.8 GHz/800/2 3 (2x256) PC2	MBL2Cac	he EM64TP		13N0696 13N0697 73P3523
Security	No security intrus administrator pas unattended start	sword / unatter	/ Power-on passwonded boot / selectab	rd / ble boot /	2GB (2 4GB (2	2x512) PC2-3; 2x1GB) PC2-3; 2x2GB) PC2-3; 2x4GB) PC2-3	3200 CL3 3200 CL3	ECC DDR2 F ECC DDR2 F	RDIMM Kit	39M5818 39M5809 39M5812 30R5145
Software ship group	Documentation C	D, Broadcom	CD		IBM36	6.4GB 10K Ult BGB 10K Ultra	tra320 SC	SI2.5"SFF N	HSHDD	40K1037 40K1038
Cooling Fans Power supply(s) Prerequisites	Uses power mod Monitor, keyboar	dule(s) in Blade d. mouse for s	(type 8677) / thermenter modules and f Center (type 8677) etup; ethernet switch operating system		BladeC BladeC BladeC	Center SCSIS Center SFF Fil Center SFF Gi	Storage Exp bre Chann igabit Ether	Unit el Exp Card net Exp Card		26K4817 26K4841 26K4842
0	Bay ①	3.5" 0.5mm	no front access of	ntional 2 5-i					D WARRANT'	Y 3
Scrver b (side vie SCSI expansion connector Opt Opt Dimm : CPU DIMM : DIM	Bay ② opt opt opt SFF SFF disk dis	3.5",9.5mm, I ⇒ Stealth blac ⇒ H 9.7" x W H 24.5cm x ⇒ Configuratic ⇒ Diagnostics ⇒ System Par ⇒ Network B ⇒ PXE Boot A ⇒ Blade contr	no front access, opno front access, opno front access, opno front access, open front bezel 1.14" x D 17.6"; w 2.9cm x D 44. cg (max configurat box/setup Utility:F1 (PC-Doctor): F: tition Boot: ALT+Foot: F12 at startup gent Utility: Ctrl+S of panel on each of the title to the control of the title to the control front	6cm ion) at startup at startup at startup at startup at startup at startup	nch SFF SCS	BI disk	⇒ Inferi ⇒ On s Mon- next ⇒ On s optio • 4 y (Si • 4 y re:	ar parts national ite, 8 an Fri excl busines ite servi ins (in e year IOR ervicePa year IOR gervicePa year IOR	warnanty Sein-5 pm, uding holiday se day responice upgrade eligible locatic 9x5, NBD resc® part num 69 24x7, 4 hr avg	rvice ³ /s, /se time ons): ⁷ sponse 9P9520) response P9521) g



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

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

- - 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)

- 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
 (ServicePace® 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

L3

Frontside

Disk

Disk

SCSI support with

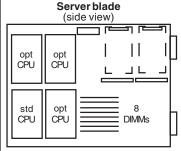
Required

Available

Mech-

Slots

Type-model Qty x Pro	ocessor1	L3 Cache Memory	Frontside Bus Mhz	Disk C	Disk controller	Disk bays		SI suppo Ial expai	ort with nsion unit		Mech- anical	Required chassis	Available date
8839-41X 1 x Xeon ^T		-	400Mhz				-				6U⁴ blade	BladeCente	r Mar 2004
Positioning Processor(s) L2/L3 cache SMP support Implementation	1 x Intel® > 512KB L2 4-way SMF Server blace	e, highly mana Keon 2.8GHz I Cache / 2MB P / up to four of the contains fou expansion unit	MP with 40 L3 Cache Keon MP I Ir Intel 604	00MHz · / on d Proces: 4-pin m	frontside lie of pro sors (san nicro-PG/	e bus / cessor me spe A ZIF s	Hyper- / at pred/cac sockets	Thread rocesso the sizes, eight	ding techror speed e) memory	nológy /	NetBurst™		
Memory	PC2100 26 DIMMs mus 100MHz / I	16GB max ¹³ / to 66MHz register st be installed Error Checkin and detects 2-	ed 184-pir in matche g and Co	n ECC d pairs rrectin	DDR-SE [a bank g (ECC)	ORAM [] / 2-wa) via 16	DIMMs ly mer 3-bit C	s / eigh nory in checks	t DIMM (terleave / um Chip	⁷ dual c kill ™ (d	hannel / m corrects 1,	emory bus ru	ns at 2 x
SCSI disk controller SCSI disk bays External storage	via one cor CIOB-ES I/ 3.5" one-in- Supports m 80-pin SCA	pports option nnector / LSI L /O Bridge (IME ch high SL SC nax of two hot-s -2 connectors IBM TotalStor	ogic® 530 32 bus to SI disks i wap 3.5" (all SCSI	C1020 I Host B n front SL Ultra bays U	Ultra320 bridge) / bays / c a320 SC Iltra320-	SCSI of support one 16- SI disks enable	contro ts RA bit into s in op	ller [LV \ID-1 n ernal c tional S	/D 320MI nirroring hannel / SCSI Stor	3/sec] / [Embe no cabl age Ex	64-bit 136 dded Mirro les or exte	BMHz PCI-X I oring] with two rnal connecto	Bus B from o hot-swap
Mechanical Architecture / chipsets Bus slots	ServerWor sone CIOB- ethernet ar bus to Sup	n IBM BladeCe rks® Grand Cl X2 I/O Bridge nd the I/O expa er I/O, and PC PCI-X slots (e	hampion ^{TI} (IMB2 bus ansion opt II 2.2 Bus	M 4.0 L s to Ho sion cor C with	.E / CMI st Bridge nnector / n graphic	C-LE5 [*] e) for to CSB6 s contr	Host I wo PC South oller /	Bridge I-X Bu Bridge Nation	(memory ses with e (Thin II) aal Semic	Control Bus A MB to Feonduct	ller and I/0 for etherne lost Bridge or® PC874	D Bridge) / doet and Bus B	ouble slot for ISB. LPC
Ethernet controllers Network-interface	Wake on LA 4-port GB I Two conne	10/100/1000 et AN® / Alert Stand Ethernet Switc ectors for I/O n a single Blac	dard Forma h <i>Module</i> expansior	at 1.0 / t (the se n optio	eaming a cond co n / requi	and failo ntroller res san	ver sup requir ne inte	oport/c es a se erface r	one of the econd op nodules i	controlletional E n bays	ers connect thernet Sv 3 and 4 of	s to an optiona vitch Module)	վ ՝
CD / diskette / USB Kybd / video / mouse Graphics	None / requ	lests for CD-RO luests for keybo l [®] Radeon 700	oard, mous	se, and	l video ir	n Blade	Cente	r by pr	essing the	ĕ displa	ay button o		
Systems mgmt Diagnostics	/ on blade a event record communicat Light Path	rated Basebood / provides sys rding, alert cap ation with Blad a Diagnostics) and on-board	tem and e pability / F eCenter n ™ (LED lig	nvironi RS-485 nanage Jhts inc	mental n interfac ment mo dicate fai	nonitori e for odule iling	ng,	512MB 1GB PO 2GB PO IBM HI IBM HI	PC2100 C2100 CL C2100 CL S40 SCS S40 Fibre	CL2.5 E 2.5 EC 2.5 EC I Storg Chan	C DDR-SDI C DDR-SDI e Expansionel Expansi	DRÄM DIMM RAM RDIMM RAM RDIMM on Unit (blade sion Card (wit	h two
Security Software ship group	unattended	password / ad I boot / selecta ation CD, IBM	able boot /	unatte	ended sta		de CD	36.4GE 36.4GE 73.4GE	3 15K Ulti 3 15K Ultr 3 10K Ulti	ra160 S a320 S ra160 S	SCSI Hot-S CSI Hot-Sw SCSI Hot-S	Switch Module wap SL HDD* ap SL HDD* wap SL HDD*	06P5768 06P5776 06P5756
Cooling fans Power supply Prerequisites	on each pro Uses powe Monitor, ke	ng from BladeCocessor and Bler module(s) in eyboard, mous eCenter (type	adeCenter BladeCe e for setu	modul nter (ty p; ethe	les and f pe 8677 ernet swi	ront pa 7)	nel					Swap SL HDD ansion Unit	* 32P0728



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

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

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

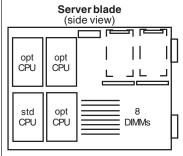
Maximum internal disk capacity for each HS40 blade server13: 293.6GB* with two 146.8GB SL SCSI disks

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 forwarranty issues during the warranty period3

IBM® Type-model Qty x Pro	L3 ocessor¹ Cach	ne Memory	Frontside Bus Mhz	Dis Disk contr			SCSI suppo tional expa		Slots x bays		Required chassis	Available date
8839-51X 1 x Xeon ^T 8839-61X 1 x Xeon ^T 8839-71X 1 x Xeon ^T	[™] 2.7GHz MP 2M [™] 3.0GHz MP 4M	IB 2GB IB 2GB		None No None No	ne No	one 2 one 2		Ultra320 Ultra320	0x2 0x2	7U ⁴ blade 7U ⁴ blade 7U ⁴ blade	BladeCenter BladeCenter BladeCenter	Mar 2004
Positioning Processor(s) L2/L3 cache SMP support Implementation	Ultra-dense, hig 1 x Intel® Xeon I 512KB L2 Cach 4-way SMP / up Server blade cor connector, two I	MP up to 3 ne / Up to o to four X ntains four	3.0GHz with 4MB L3 (eon MP P 1ntel 604-	n 400MHz Cache / or rocessors pin micro-	frontsid die of same) PGA 2	le bus / f proces s speed/ ZIF sock	Hyper-Thresor / at pi cache siz cets, eight	eading tech rocessor s e) memory	nnology speed DIMM	/ NetBurst slots, one		
Memory	Up to 2GB std / PC2100 266MH: DIMMs must be 100MHz / Error same chip and of	z registere installed in Checking	ed 184-pin n matched g and Cor	ECC DDF pairs [a b recting (E	R-SDR. ank] / E CC) vi	AM DIM 2-way r ia 16-bi	IMs / eigh nemory in t Checks	t DIMM g terleave / um Chipk	old-cor dual c kill™ (c	nnector slo hannel / m corrects 1,	emory bus rur	ns at 2 x
SCSI disk controller	None / support via one connect CIOB-ES I/O Br 3.5" one-inch his Supports max of 80-pin SCA-2 co	or / LSI Loridge (IMB) gh SL SC f two hot-sv	ogic [®] 53C [.] 2 bus to F SI disks in wap 3.5" S	1020 Ultra lost Bridg front bay L Ultra320	320 S(e) / su s / one SCSI	CSI cor pports • 16-bit disks in	troller [LV RAID-1 n internal c	/D 320ME nirroring hannel / r	/sec] / [Embe lo cabl	64-bit 133 dded Mirro es or exte	BMHz PCI-X E oring] with two rnal connector	Bus B from hot-swap
External storage	Support for IBM						d NAS fam	nily of proc	lucts)			
Mechanical Architecture / chipsets Bus slots	Supported in IBM ServerWorks® (sone CIOB-X2 I/O ethernet and the bus to Super I/O No PCI or PCI-2	Grand Ch O Bridge (e I/O expa O, and PCI	ampion ™ IMB2 bus nsion option I 2.2 Bus 0	4.0 LE / to Host B on connec C with gra	CMIC- ridge) tor / C phics o	LE5 Ho for two SB6 Sc controlle	st Bridge PCI-X Bu outh Bridger er / Nation	(memory ses with E e (Thin IM al Semico	contro Bus A IB to F onduct	ller and I/0 for etherne lost Bridge or® PC874	O Bridge) / do et and Bus B f e) for EIDE, U	uble slot or SB, LPC
Ethernet controllers Network-interface CD / diskette / USB	Four gigabit 10/10 Wake on LAN® / / 4-port GB Ethen One connector blades in a singl None / requests	Alert Stand net Switch for I/O ex le BladeCe	ard Format Module (t cpansion c enter must	1.0 / team the second option / re contain th	ing and d contro equires ne sam	l failover oller rec s same i ne expai	support / d quires a se nterface n nsion card	one of the o econd opti nodules in I (or no ex	controlle onal E bays cpansic	ers connect thernet Sw 3 and 4 of on card)	s to an optional vitch Module) BladeCenter	/ all
Kybd / video / mouse Graphics	panel None / requests f SVGA / ATI® Ra										nt control pane	I
Systems mgmt Diagnostics	Intel integrated / on blade / provevent recording, communication Light Path Diag component) and	vides systo , alert cap with Blade gnostics™	em and er ability / Rs Center ma (LED ligh	nvironmen S-485 inte anagemer nts indicat	tal moi rface f it modi e failin	nitòring, for ule g	Xeon 2 Xeon 2	2.7Ghz/2N	1B L3 (Cache Pro Cache Pro Cache Pro	c Upg	13N0656 13N0655 13N0654
Security Software ship group	Power-on passy unattended boot	word / adr t / selectal	ministrator ble boot /	password unattende	l / d start	mode	512MB 1GB P0 2GB P0	PC2100 (C2100 CL2 C2100 CL2	CL2.5 E 2.5 EC 2.5 EC	CC DDR-S DDR-SDI DDR-SDI	SDRAM DIMM RAM RDIMM RAM RDIMM on Unit (blade)	33L5038 33L5039 33L5040 26K4847
Cooling fans Power supply Prerequisites	Uses cooling from on each process Uses power mo Monitor, keyboa disk, BladeCent	sor and Bla dule(s) in ird, mouse	deCenter BladeCen for setup	modules a iter (type i ; ethernet	nd fror 8677) switch	nt panel	36.4GE 36.4GE 73.4GE 146.8G	S40 Fibre s; each po 3 15K Ultra 3 15K Ultra 3 10K Ultra 6B 10K Ult	Chan rt requ a160 S a320 S0 a160 S ra320	nel Expansires a FC S CSI Hot-S CSI Hot-Sw CSI Hot-S SCSI Hot-S	sion Card (with Switch Module) wap SL HDD* rap SL HDD* wap SL HDD* Swap SL HDD*	n two) 48P7061 06P5768 06P5776 06P5756



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

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

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

Disk requires SCSI Storage Expansion Unit

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

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

L3

Frontside

Disk

Disk

SCSI support with

IBM[®]

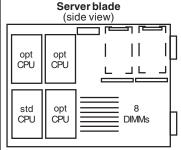
Required

Available

Mech-

Slots

Type-model Qty x Pro	ocessor1	Cache Memory	Bus Mhz	Disk 0	controller	bays		nal expai			anical	chassis	date
8839-21X 1 x Xeon ^T	™ 2.0GHz M	IP 1MB 1GB	400Mhz	None	None	None	2 ho	ot-swap	Ultra320	0x2	7U⁴ blade	BladeCenter	Apr 2004
Positioning Processor(s) L2/L3 cache SMP support Implementation	1 x Intel® 2 512KB L2 4-way SMI Server blace	e, highly mana Xeon 2.0GHz N Cache / 1MB I P / up to four X de contains fou expansion conne	IP with 40 L3 Cache Geon Proc r Intel 60-	00MHz / on d essors 4-pin m	frontside lie of pro (same s nicro-PG	e bus / cessor speed/c A ZIF s	Hyper / at p ache socket	r-Thread rocesso size) s, eight	ding technor speed to memory	ology /	['] NetBurst™ slots,		cture
Memory	PC2100 26 DIMMs mu 100MHz / I	16GB max ¹³ / tv 66MHz registere st be installed i Error Checkin e and detects 2-	ed 184-pii n matche g and Co	n ECC d pairs rrectin	DDR-SE a bank] g (ECC)	DRAM I] / 2-wa) via 16	DIMM: ay mei 6-bit (s / eigh mory in Checks :	it DIMM g terleave / um Chipl	dual c kill™ (d	hannel / m corrects 1,	emory bus rur	ns at 2 x
SCSI disk controller SCSI disk bays	via one col CIOB-ES I. 3.5" one-in	pports optiona nnector / LSI L /O Bridge (IMB ich high SL SC nax of two hot-s	ogic® 530 2 bus to SI disks i	C1020 I Host B n front	Ultra320 Bridge) / bays / c	SCSI suppor ne 16-	contro ts R/ bit int	oller [LV AID-1 n ernal cl	/D 320ME nirroring hannel / r	3/sec] / [Embe no cab	64-bit 133 dded Mirro les or exte	BMHz PCI-X E oring] with two rnal connector	Bus B fron hot-swap
External storage	80-pin SCA	A-2 connectors / IBM TotalStora	all SCSI	bays U	Iltra320-	enable	d			-	parision or	111.7	
Mechanical		in IBM BladeCer									as the IBM	NetBAY™ Rac	k products
Architecture / chipsets	ServerWon sone CIOB- ethernet ar bus to Sup	rks® Grand Ch	ampion™ IMB2 bus Insion opt I 2.2 Bus	M 4.0 L s to Ho sion cor C with	.E / CMI est Bridge nnector / n graphic	C-LE5 e) for to CSB6 s contr	Host wo PC Soutl oller /	Bridge CI-X Bu h Bridge Nation	(memory ses with le e (Thin IN nal Semice	contro Bus A IB to H onduct	oller and I/C for etherne Host Bridge or® PC874	D Bridge) / do et and Bus B f e) for EIDE, U	ouble slot for SB, LPC
Ethernet controllers		: 10/100/1000 eth	•						•		,	MHz buses / ful	II duplex /
Network-interface CD / diskette / USB	Wake on LA 4-port GB One conne blades in a None / req	AN® / Alert Stand Ethernet Switch ector for I/O ex a single BladeC uests for CD-R	lard Forma Module (pansion enter mus	at 1.0 / t (the se optior st conta	teaming a cond count n / require ain the sa	and failo ntroller res sam ame ex	ver su requir ne inte pansi	pport / c res a se erface n on card	one of the econd opt nodules ir I (or no ex	controllional E tonal E bays xpansio	ers connect thernet Sw 3 and 4 of on card)	s to an optional ritch Module) BladeCenter	/ all
Kybd / video / mouse Graphics		uests for keyboa I® Radeon 700										nt control pane	el
Systems mgmt Diagnostics	/ on blade event reco communica Light Path	rated Baseboa / provides syst rding, alert cap ation with Blade Diagnostics ¹¹) and on-board	em and e ability / F eCenter n // (LED lig	nvironi RS-485 nanage Jhts inc	mental n interface ment me dicate fai	nonitòri e for odule iling	ng, ´	512MB 1GB P	PC2100 (C2100 CL	CL2.5 E 2.5 EC	C DDR-SDI	DRAM DIMM RAM RDIMM	13N0651 33L5038 33L5039
Security Software ship group	unattended	password / adı d boot / selecta ation CD, IBM	ble boot /	unatte	ended sta			IBM HS	S40 SCS S40 Fibre	Storg Chan	e Expansionel Expans	RAM RDIMM on Unit (blade sion Card (with Switch Module)	h two
Cooling fans Power supply Prerequisites	on each pro Uses power Monitor, ke	ng from BladeC ocessor and Blader module(s) in eyboard, mouse eCenter (type 8	adeCenter BladeCe for setu	modul nter (ty p; ethe	les and f pe 8677 ernet swi	ront pa 7)	nel	36.4GE 36.4GE 73.4GE 146.8G	3 15K Últr 3 15K Ultra 3 10K Ultr 3B 10K Ul	a160 S a320 S a160 S tra320	SCSI Hot-S CSI Hot-Sw SCSI Hot-S SCSI Hot-S	wap SL HDD* ap SL HDD* wap SL HDD* Swap SL HDD ansion Unit	06P5768 06P5776 06P5756



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

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

- Stealth black front bezel
 H 9.7" x W 1.14" x D 17.6";
 H 24.5cm x W 2.9cm x D 44.6cm
- 12 lbs; 5.4kg (max configuration)
- 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 forwarranty issues during the warranty period3

IBM[®]

Ethorno

Mechanical

Available

Type-model Qty x Pro	cessor GHz1 (Core ca	ache	Memory	Disk c	ontroller	bays		ion unit	x bays	Mechanicai	Ethernet	date
	970MP 2.7* 970MP 2.5*		IMB 2x1MB	2x512MB 2x1GB		SAS :		3 Hot Sv 3 Hot Sv	vap SAS** vap SAS**	0 x 2 0 x 2	9.5mm blade 9.5mm blade	2 x Gigabit 2 x Gigabit	Mar 2006 Mar 2006
Positioning Processor(s) L2 Cache SMP support Implementation	2-core or 4- Server blade	che per core SI contair	core MP / up ns two	to two Police	owerPC rPC mic	Process	sors (sam ssors sold	e speed/o dered to p	ache size) lanar, four	DIMM s	Ition through Iots, 17X PCI I	Express, SAS	controller,
Memory	1GB or 2GB PC2-4200 53 [a bank] / 2-v	std / 1 33MHz way me	6GB ¹³ CL4 E0	max / two: CC DDR2- terleave / c	slots use SDRAM dual-cha	ed / two I DIMMs Innel / C	slots ava s / four DI chipkill with	ilable / PC MM gold- h x4 DIMN	C2-3200 40 connector	00MHz C slots / D	CL3 ECC DDR2 IMMs must be	2-SDRAM DIM installed in ma	Ms or tched pairs
SAS Disk controller	One integrate	ed / Citi	rine SA	S controlle	er / two p	oort / on	planar / 6	64-bit 133	MHz PCI->	K / suppo	orts RAID-0 &	10	
SAS Disk bays	Supports ma	x of two	o non-h	ot-swap 2.	.5" / sma	all form	factor (SF	F) SCSD	SAS drive	s / 3.0G	B/s		
External Storage	Support for II	BM Tota	alStora	ge™ solutio	ons (incl	uding F	AStT and	NAS fam	ily of produ	ucts)			
Mechanical Architecture/Chipset	Single-wide EIBM U4 Nor AMD 8111 S	Blade / S thbridg Southbr	Suppor je / BC ridge pr	ted in IBM M5780 PC roviding US	BladeCe I Expre SB1.1 ar	enter, IB ss, PCI nd Video	M BladeC -X Bridge o / NS PC	Center T** e and Hyp C87427 S	and IBM E perTransp uper I/O of	BladeCer ort Tunr f LPC in	nter H nel for PCle an terface	d Dual Gigabit	Ethernet /
BUS slots	No PCI or P	CI-X slo	ots (exp	ansion via	module	s or ne	twork-inte	rface option	on connect	tor)			
Ethernet Controllers Network Interface DVD / Diskette / USB Kybd / video / mouse Graphics controller	Dual Gigabi chip on blade adapter fault or Optical Pa One connect 3 and 4 of Bi and serial I/C None / reque None / reque SVGA / ATI®	lor for 1/ ladeCer ests for ests for	nter / al nsion ca DVD-R keyboa	ansion option op	a single a single d for fut tte drive , and vic	BladeC ture rele and Ut deo in B	enter must ease ²⁰ SB port in ladeCente	sion Card st contain BladeCe er by pres	the same nter by pre sing the di	expansions same in expansion in	MAC and PHY ert Standard Fo an optional, su OPM) nterface modulon card (or no edition on front co	layer functions rmat 2.0 / Failt pported Etherr es in bays expansion card on on front cor ntrol panel	; / over, net switch) / ethernet ntrol panel
Systems Mgmt	provides sys capability / R with BladeCe IBM Power B	tem and IS-485 i enter Ma	d envird interfact anagen	onmental n e for intern	nonitorin nanager	g, even	t recordin mmunicat	g, alert ion	2GB (2x1GB 4GB (2x2GB 1GB (2x512N) PC2-4200) PC2-4200 MB) PC2-32	00 ECC CL4 DDR2 ECC CL4 DDR2 RE ECC CL4 DDR2 RE 00 ECC CL3 DDR2	IIMM Kit IIMM Kit RDIMM Kit	41Y2703 41Y2707 41Y2711 39M5821
Diagnostics	Light Path I on-board dia	Diagnos gnostics	stics (L s (via F	ED lights i	ndicate in BIOS	failing c	omponen	t) and	4GB (2x2GB 8GB (2x4GB) PC2-3200) PC2-3200	ECC CL3 DDR2 RD ECC CL3 DDR2 RD ECC CL3 DDR2 RD	IMM Kit	39M5809 39M5812 41Y2703
Security	No security i administrator unattended s	passw	ord/ur						IBM 73GB 10 QLogic 4GB	KSAS 2.5" SFF Fibre C	SFF NHS HDD SFF NHS HDD hannel Expansion C Ethernet Expansion (
Software ship group	Documentati	on CD,	IBM D	irector CD	, Device	Driver	CD		TopSpin Infini	iBand Expar	nsion Card for BladeC for BladeCenter		26K6457 73P6000
Cooling Fans Power supply(s) Prerequisites	Uses cooling sensors on e Uses power Monitor, keyl disk, BladeC	module	e(s) in E	BladeCente	r (types	8677, 8	3852 and	8720)	BladeCenter	Optical Pass		es	39Y9320
Server b	_			nm, no fro									

Disk

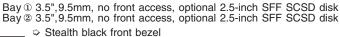
Diek

Disk

Optional storage

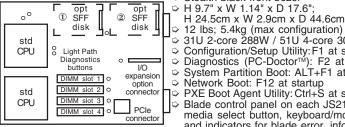
slots

y have



12 lbs; 5.4kg (max configuration) 31U 2-core 288W / 51U 4-core 308W

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



(side view)

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

- Over temperature

Power good Blade location

Information General fault

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, 2.6GHz BladeCenter T (8720):31x, 2.6GHz;51x, 2.3GHz **BladeCenterTandBladeCenterStorageExpansionUnitsupportavailable3rdQuarter2006

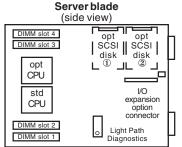
LIMITED WARRANTY3

2 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

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 period³ issues during the warranty period3

IBM® Type-model Qty x Pro	ocessor ¹ Speed/Core	L2 Memory Cache	Disk Disk Disk controller bays	SCSIsupport	Slots Mech- x bays anical	Required Available chassis date
8850-82U 1 x Opte		1GB 1MB 1GB 1MB 2GB 1MB	OMB SCSI 2 fixed 7 OMB SCSI 2 fixed 7 OMB SCSI 2 fixed 7	wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF wo 2.5-inch SFF	0x2 7U ⁴ blade 0x2 7U blade 0x2 7U blade 0x2 7U blade 0x2 7U blade	BladeCenter Mar 2006 BladeCenter Mar 2006 BladeCenter Mar 2006 BladeCenter Mar 2006 BladeCenter Mar 2006
Positioning Processor(s) L2/L3 Cache SMP support Implementation	Up to 2 x AMD® Opter 1MB L2 Cache per c 2-way SMP / up to t Server blade contain	on / 275 Dual Core, AMD Dire two Opteron pros s two AMD 940	formance modular compressions and compressions and content architecture occasions (same speed/ca) micro PGA ZIF sockets, ort, integrated graphics a	re 2.8ĞHz / simultar e ensures lower lat che size) four memory DIM	eously supports 32 ency I/O	2-bit and 64-bit computing
Memory	PC3200 266MHz reg DIMMs must be insta Error Checking and	gistered 184-pir alled in matched I Correcting (E	ots used / two slots availa ECC DDR VLP SDRAM d pairs [a bank] / 2-way m ECC) via 16-bit Checksu contained in two chips)	RDIMMs / four DI emory interleave /	dual channel	•
SCSI disk bays	on planar / supports drives / one 16-bit in Supports max of two 40-pin SCA-2 conne	RĂID-1 mirro nternal channe not hot-swap ctors / all SCS	20 Ultra320 SCSI controll pring [Embedded Mirrorir I / no cables or external 2.5" SL Ultra320 SCSI di bays Ultra320-enable	ng] with two non-ho connector) sks d	ot-swap 2.5" / sm	all form factor (SFF)
Other controllers External storage	Support for SFF or I Support for IBM Tota	egacy Etherne alStorage™ sol	t or Fibre Channel I/O ca utions (including FAStT a	rds, Myrinet or Infi nd NAS family of	niBand Expansio products)	n cards
·	AMD 8131 PCI-X Br PCI-X expansion slo HyperTransport clock Super I/O chip	ridge Chip pro ts) / AMD 811 k (PCI, SMBus	deCenter supported in 28" viding two PCI-X buses r 1 HyperTransport Bridg , USB, LPC to BIOS and	unning at 600Mhz e Chip supporting Super I/O) / Nation	(bus A for SCSI a 200 Mhz doub anal Semiconduct	and Ethernet, bus B for ble-pumped
Bus slots		` '	via modules or network-i	· ·		II dunlay / Maka an L ANI®
Kybd / video / mouse	/ Alert Standard Forma switch or Passthroug One connector for 3 and 4 of BladeCen- card) / ethernet and None / requests for C	at 1.0 / teaming a th Module (the I/O expansion ter / all blades serial I/O expand D-ROM, disketteyboard, mouse	dcom® BCM5704S / on blad and failover support / one of second controller requires option (Fibre Channel E in a single BladeCenter m nsion cards planned for fu e drive, and USB port in Bl , and video in BladeCenter	the dual controllers of a second optional xpansion Card) / rust contain the saruture release ²⁰ adeCenter by pressiby pressing the dis	connects to an opti- I switch or PM) equires same intene expansion care ing CD select butt play button on fror	onal, supported Ethernet erface modules in bays d (or no expansion on on front control panel at control panel
Graphics Systems mgmt	IBM integrated system	em manageme	// / on blade / 16MB SDR/ nt processor (ISMP) /	Low Power Opte	ron 250 Process	or Upgrade 25R8892
Diagnostics	for communication wir Light Path Diagnost	ording, alert ca _l th BladeCenter ics ™ (LED light	pability / RS-485 interface management module	Low Power Opte Low Power Opte Low Power Opte 2GB (2x1GB kit)	eron 252 Process eron 254 Process eron 270 Process eron 275 Process DDR-SDRAM VLP DDR-SDRAM VLP	or Upgrade 25R8937 or Upgrade 25R8894 or Upgrade 25R8895 RDIMM 39M5849
Security	Power-on password / unattended boot / sele			8GB (2x4GB kit)	DDR-SDRAM VLP	RDIMM 41Y2756
Software ship group			CD, Device Driver CD	IBM 73.4GB SFI	- Non-hot-swap	10K SCSI HD 40K1037 10K SCSI HD 40K1038
Cooling fans Power supply Prerequisites	on each processor an Uses power module(s	nd BladeCenter s) in BladeCent ouse for setup;	ethernet switch module,	IBM SFF Fibre	S20 Low Profile F Channel Expansi t Ethernet Expan Channel Expans	on Card 26K4841 sion Card 26K4842



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

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

Bay $\ 2.5$ ", 9.5mm, no front access, optional ThinkPad® SCSI disk Bay $\ 2.5$ ", 9.5mm, no front access, optional ThinkPad® SCSI disk

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

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

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

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 41C5906)
 - 3 year IOR 24x7, 4 hr avg response (ServicePacpart num 41C5907)
 - · 4 year IOR 9x5, 4 hr avg response (ServicePacpartnum41C5908) • 4 year IOR 24x7, 4 hr avg response
 - (ServicePacpart num 41C5909)
 - 5 year IOR 9x5, 4 hr avg response (ServicePacpart num 41C5910)
 - 5 year IOR 24x7, 4 hr avg response (ServicePacpart num 41C5911)
 - Other ServicePac options at http://www.ibm.com/ services/us/its/pdf/wamomxeu.pdf
- 24x7¹⁴ toll-free support for warranty issues during the warranty period³

IBM [®] Type-model	Blade Switch Servers modules Supported Blades std / max std / max Switch modules (type) Blade Switch modules modules modules modules modules std / max blade modules modules std / max blade wattage std / max blade modules modules modules modules wattage std / max blade wattage
	20/HS40/JS20/JS21/LS20 0/8 0/4 Enet, Fibre Ch, IB, OPM and CPM 1/2 2/4 1300W 4/4 8U ⁴ rack Jul 2004 20/HS40/JS20/JS21/LS20 0/8 0/4 Enet, Fibre Ch, IB, OPM and CPM 1/2 2/4 1300W 4/4 8U rack Mar 2006
Positioning Description	Flexible, innovative design provides investment protection and reduces deployment costs for NEBS environments Provides common resources shared by blade servers such as power, system management, cabling, ethernet management and expansion, external Fibre Channel storage switching and connectivity, and I/O (combo CD/DVD drive, and ports for USB, keyboard, video, mouse)
Blade bays	Supports all blades HS20/HS40/JS20/JS21/LS20 and PCI I/O Expansion Blades / 8 hot-pluggable server bays / front access
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 controller / communicates with integrated system management processor on each server blade / complete KVM switch local functionality / ports: DB-15 analog video port, Dual USB 2.0, Serial(RJ45), 10/100 ethernet remote management connection port / all ports shared by up to 8 blade servers
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 IEC320 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 and 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 min (CFM) / front to back airflow; filtered air intake
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° Combo / Two USB port (Version 1.1) / all USB interface (types A & C) / front access / shared by up to eight blade servers / requests for optical cd and USB port(s) by pressing CD select button on server blade front panel
Keyboard / mouse	None standard / provides KVM console support / requests for keyboard, mouse, and video by pressing the display button on server blade front panel
Ports	Rear: keyboard (PS/2), mouse (PS/2), analog DB-15 graphics (on standard mgmt module) / no serial or parallel ports / DB-15 Telco Alarm Panel Front: two USB (Version 1.1) /
Security	Login password for remote connection / secure socket layer (SSL) security for remote management access /
Ethernet	recommended in rack environment providing security through lockable doors or other security measures Each of the dual integrated gigabit ethernet controllers on each blade servers connects to an optional 4-port GB Ethernet Switch Module
Systems mgmt	Provides remote console and mgmt / power on/off blades/modules / monitors power status, operating system, temperature, disks
System LED panel	blowers, power modules / system diagnostic programs provided through IBM Director software System LED panel provides power-on, location, critical, major and minor alarm conditions

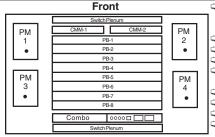
IBM BladeCenter T Advanced Management Module McData EFCM Element Managerfor BladeCenter IBM BladeCenter HS20 Low Profile Handle (800Mhz blade) IBM BladeCenter HS40 Low Profile Handle IBM BladeCenter T Filter NetBAY42 Enterprise Rack Cabinet Four Post Rack Mount Kit Two Post Rack Mount Kit

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

32R0835 37L6861 494215U 25K8373 17001RS 05K9276

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

• Solutions available from IBM BladeCenter Alliance program partners



Rear

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

Weight: 98 to 192 lb; 44.5 to 87.38kg

Stealth black color bezel

Tool-free customer serviceability

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

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

Air Intake Filtering

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

Bay	Switch Function
1 2 3	Ethernet link 1 for all blade servers 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

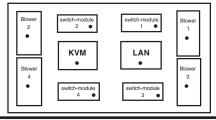
24x7¹⁴ toll-free support for warranty issues during the warranty period

IBM® Type-model S		Blade Switch Servers modules td / max std / ma			Managemen modules std / max	modules		Blower modules	Mechanical	Available date
8730-1RX All: HS20/h	HS40/JS20/JS21/LS20 HS40/JS20/JS21/LS20	0/8 0/4 E	net, Fibre Ch, If	B, OPM and CPI B, OPM and CPI	M 1/2	2/4 2/4	1300W 1300W	4/4 4/4	8U ⁴ rack 8U rack	Jul 2004
Positioning Description	Flexible, innovative Provides common res expansion, external Fi keyboard, video, mou	sources shared b ibre Channel storuse)	y blade servers age switching a	such as power and connectivity,	, system m and I/O (c	nanageme ombo CD	nt, cabling -RW/DVD	g, ethern and poi	et manage ts for USB	ment and
Blade bays	Supports all blades	HS20/HS40/JS2	0/JS21/LS20 ar	nd PCI I/O Expa	nsion Units	s / 8 hot-pl	uggable	server ba	ys / front a	ccess
Switch modules	Std: none; max: four /	hot-swap / rear	access / Gb Eth	ernet / Fibre Ch	annel / Infir	niBand / C	ptical Pa	ss-thru /	Copper Pas	ss-thru
Advanced Management Module	Std: none; max: two / communicates with in ports: DB-15 analog v shared by up to 8 blad	tegrated system ideo port, Dual l	management [†] pr	ocessor on eacl	n server bla	ade / com	plete KVI	√ switch	local function	onality /
Management Modules	Std: one; max: two / h controller / communica connectivity / controls ethernet remote mana	ates with integrat external Telco al	ed system man arm panel / port	agement proces s: DB-15 analog	sor on each	ch server l i, PS/2 ke	olade / m	ultiplexor	for console	e
Power modules	Std: two in bays 1 and IEC320 C14 male app management modules power to switch bays a	oliance connector s, blade bays 1 -	/ 1300 watts / t 4 and media tra	wo std modules y; two addititiona	(in slots 1 a al power m	& 2) suppl odules pro	y power to vide full s	o switch	bays 1 & 2	, both
Blower modules	Std: four; max: four / (CFM) / front to back a			-swap / redunda	nt / variable	e speed /	rear acce	ss / 330	cubic ft per	min
Mechanical Optical / USB Keyboard / mouse Ports	EIA 19" rack models 24X-10X-24X-8X° Cor requests for optical CI None standard / provi server blade front pan <i>Rear:</i> keyboard (PS/2 Telco Alarm Panel	mbo / Two USB in the control of the	port (Version 1.1 s) by pressing (e support / requ	All USB inter Select button ests for keyboar	face / front on blade s d, mouse,	access / s server fror and video	shared by nt panel by press	up to eigning the c	lisplay butto	on on
	Front: Two USB (Vers	sion 1.1)								
Security Ethernet	Login password for re recommended in rack Each of the dual integ	environment pro	oviding security	through lockable	e doors or	other sec	urity mea	sures		Module
Systems mgmt	Provides remote cons blowers, power modu							ng systen	n, temperat	ure, disks,
System LED panel	System LED panel pro	ovides power-on,	location, critical	, major and min	or alarm co	onditions				
IBM BladeCenter T A McData EFCM Elem- IBM BladeCenter HS	Advanced Management ent Managerfor BladeCo 20 Low Profile Handle (i 40 Low Profile Handle iilter B Rack Cabinet nt Kit	Module enter	32R0835 32R1799 25K8360 25K8359 25K8376 930842S 32R0837 32R0836	IBM 1300W A IBM APC Sma IBM T115 15" BladeCenter F IBM DS4000 I IBM USB Flop Other option Solutions ava	C Power S art-UPS 50 Flat Panel PCI I/O Exp EXP700 Fil opy Drive as at ibm.c	Supply Mod 00RMB (2 Color Mod pansion Ur bre Chann com/produ	208V) nitor (blac nit nel Expan ncts/us	sion Unit	1	32R0834 37L6861 494215U 25K8373 17001RS 05K9276 rtners
	Front witch Plenum	☐ Dimensions	s: H13 76"(8U) x W	/17.4" x D20"(front	bezel to rear	· I/O):	LII	MITEDV	VARRAN	ГҮ ³

2 PB-4 PM 4 PB-6 PB-7

- 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

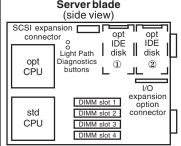
Rear



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
- 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

8832-GTX 1 x Xeon 8832-9TX 1 x Xeon		533Mhz 533Mhz		None EIDE	2 fixed	2 H2 H	ltra3200	0x2	01 14 block		
			ZIVID IV	None EIDE		2 HS U		0x2 0x2		e BladeCenter T e BladeCenter T	
L2/L3 Cache SMP support Implementation	Ultra-dense, highly 1 x Intel® Xeon 2.5 512KB L2 Cache / 2-way SMP / up to Server blade contain one SCSI expansion	HGz or 3 0 - 2MB Lotwo Xeons two Inte	3.2GHz _3 Cache n Proce l 604-pir	with 533MHz e / on die of ssors (same n micro-PGA 2	frontside processo speed/ca ZIF socke	e bus / H or / at pro ache size ets, four n	yper-Thread ocessor speces) nemory DIM	ding ted eed 1M slots	hnology /	connectors,	tecture
•	1GB std / 8GB max PC2100 266MHz re must be installed in Error Checking an detects 2- through 8	gistered 18 matched p d Correcti	84-pin E0 airs [a ba i ng (ECC	CC DDR-SDF ank] / 2-way r C) via 16-bit (RAM DIM nemory in hecksu i	Ms / four nterleave	/ dual char	nnel / me	emory bus	runs at 2 x 100M	IHz/
SCSI disk controller	Enhanced IDE ATA IDE disk / no cable disks / space for or None / supports covia one connector / CIOB-ES I/O Bridg 3.5" one-inch high	e as IDE d nly one ID optional S / LSI Logic e (IMB2 b	lisk attac E disk i CSI Sto c® 53C1 ous to Ho	ches to riser f an I/O expa orage Expan 020 Ultra320 ost Bridge) /	card and ansion op sion Un SCSI co supports	Í tray (indotion inst it (a blad ontroller s RAID-	cluded with alled [Fibre de occupyin [LVD 320M 1 mirroring	option Chanring adja (B/sec) (B/sec)	kit) / Sup nel] / RAII cent blade / 64-bit 13 edded Mir	ports max of tw D-1 mirroring s e slot / connects 33MHz PCI-X B roring] with two	o IDE tandard s to HS20 us B from hot-swap
SCSI disk bays	Supports max of tw 80-pin SCA-2 conne Support for IBM Tot	o hot-swar ectors / all	o 3.5" SL SCSI ba	_ Ultra320 SC ays Ultra320	SI disks enabled	in option I	al SCSI Sto	orage E			
Architecture / chipsets	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										
Network-interface CD / diskette / USB Kybd / video / mouse	rinet controllers Two gigabit Ethernet controllers / Broadcom® BCM5704S / on blade / two PCI-X 64-bit 133MHz buses / full duplex / Wake on LAN® / Alert Standard Format 1.0 / teaming and failover support / 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 I diskette / USB None / requests for CD-ROM, diskette drive, and USB port in BladeCenter by pressing CD select button on front control panel drivideo / mouseNone / requests for keyboard, mouse, and video in BladeCenter by pressing the display button on front control panel										
Diagnostics	IBM integrated systems 1882148 / on blade monitoring, event refor communication with Light Path Diagnocomponent) and on	e / provides ecording, a with Blade0 stics ™ (LE	s system lert capa Center m ED lights	and environr ability / RS-48 nanagement r indicate failir	nental 5 interfac nodule ng	ce Pro 512 1G 1S) 2G	B PC2100 (B PC2100 (0 CL2.5 CL2.5 EC CL2.5 EC	ECC DDR CC DDR-S CC DDR-S	.3 Cache I-SDRAM DIMM IDRAM RDIMM IDRAM RDIMM ISION Unit (blade	13N0650 33L5038 33L5039 33L5040
	Power-on password unattended boot / so Documentation CD	electable b	oot/una	attended star		IBN p	/I HS20 Fib orts; each	re Chan port req	nel Expan uires a FC	ision Card (with the Switch Module) A-100 HDD	:WO
Cooling fans Power supply Prerequisites	Uses cooling from sensors on each p front panel Uses power modul Monitor, keyboard, disk, BladeCenter	BladeCen processor a e(s) in Bla mouse fo	ter (type and Blac adeCent or setup;	e 8720/30) / deCenter moter (type 867 ethernet sw	thermal dules ar 7) itch mod	36. 36. 73. 146	4GB 15K U 4GB 15K U 4GB 10K U 3.8GB 10K	lltra160 ltra320 \$ lltra160 Ultra320	SCSI Hot- SCSI Hot-S SCSI Hot- SCSI Ho	-Swap SL HDD* Swap SL HDD* -Swap SL HDD* t-Swap SL HDD* transion Unit	06P5768 06P5776 06P5756
Server bl	lade Ba	ay ① 3.5",	9.5mm, r	no front acces	s, option	l al ThinkF	Pad®IDE dis	sk ≈ 3	year part	ED WARRANT s and labor al Warranty Serv	



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

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

Bay ② 3.5", 9.5mm, no front access, optional ThinkPad IDE disk

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

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

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

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

IBM® Type-GAV Processor	GHz ¹	L2 cache	FSB MHz	Memory	Disk Disk control	er Diskbays	SCSI Supp	ort with	slots x bays	Mech- anical	Ethernet	Available date
8843-LTy 1 x Xeon 8843-4Ty 1 x Xeon	™ 2.8 Low V		800		None Ultra3		2 Hot-swap 2 Hot-swap					Feb 2005
8843-419 1 X Ae011	3.0GHZ	TIVID	800	IGB	None Onlas	20 Z-lixeu	2 1101-5Wap	Olliaozu	0 X Z	70 blade	Z X Gigabit	1 eb 2003
Processor(s) 1 x Intel® Xeon 2.8 Low Voltage or 3.6 GHz with 800MHz frontside bus (FSB) / EM64T / 1MB L2 ECC Cache / Hyper-												
Processor(s)	Threading t	echnology	/ / Lo\	w Voltage	Processors	reduce heat	output for inc	rreased rad	ck densi	ity without in	icreased cooli	/per- ng capacity
SMP - L2 Cache Implementation	Systemboa	rd contain	s two	Intel 604	essors (same s l-pin micro-PG ted graphics a	a ZIF socke	ts, four DIMM	std and ma I slots, one	ax / at p SCSI e	expansion co	onnector, one	I/O
Memory	512MB/1GI PC2-3200 4 installed in	B std / 8G 400MHz 0 matched p	B ¹³ m L2.5 pairs [a	ax / two : ECC DD a bank] /	slots used / tw R2-SDRAM D 2-way memon	o slots availa IMMs / four v interleave /	able / 240 pin gold-o dual channel	connector s	slots on	systemboar	rd / DIMMs m	ust be
SCSI disk controller	LSI Logic® PCI-X / sup	53C1020 ports RAI	SCSI D-1 &	controlle 1E mirr	er / Single cha oring (support	nnel Ultra3 ed in 32-bit	20 SCSI cont legacy mode of	roller (LVI only) / One	320Ml 16-bit	B/sec) / on p channel (on	olanar / 64-bit e internal) / <i>In</i>	100MHz ternal
SCSI Disk bays	channel: on Two 2.5-in	e 2-drop ch Small	16-bit Form	68-pin L\ Factor (oring (support /D SCSI cable (SFF) Ultra320	internal fixe	d disk bays /	Supports n	nax of t	wo hot-swap	3.5" SL Ultra	320 SCSI
External Storage	Support for	IBM Tota	IStora	age Expa ge™ solu	ansion Unit (80 tions (including	FAStT and	NAS family o	of products	ys Ultra	320-enable	a) /	
Mechanical Architecture/Chipset	7U Blade / Intel E7520 BUS / ICHS interface	Supported chipset SR suppor	d in IB / E752 ts USI	M Blade0 25 MCH B (1.0) / L	Center T 8720- (Memory Cont SI 1020 / Dua	1XX or 8730 roller Hub) f I Broadcom)-1XX or PCI-Expres 5704S / Low I	s bridge to Pin Count I	PXH, I	CH5R / PXI e / NS PC87	H BUS suppoi '366 Super I/C	ts PCI-X off LPC
BUS slots		PCI-X slot	s (exp	oansion v	ria modules or	network-inte	erface option o	connector)				
Ethernet Network Interface	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)											net switch
CD / Diskette / USB Kybd / video / mouse Graphics controller	None / required None / require	O expansulests for Callests for k	sion ca DD-RC eyboa	ards plani DM, diske ard, mous	ned for future ette drive, and se, and video i lanar / 16MB s	release20 JSB port in n BladeCent	BladeCenter ber by pressing	y pressing the displa	CD sel			
Systems Mgmt	recording, a intermanage	alert capat ement cor	oility / mmun	RS-485 i	ntroller (BMC) nterface for ith BladeCente		/ on blade / p	rovides sy:	stem an	d environme	ental monitorir	ng, event
Diagnostics	Manageme Light Path component BIOS)	Diagnos) and on-b	tics™ ooard	(LED ligi diagnosti	hts indicate fai ics (via PC-Do	ling ctor in	Xeon 2.8 G Xeon 3.6 G 512MB (2x2	Hz/800/1M 256) PC2-3	IB L2 C 3200 EC	ache EM64 ⁻ CC DDR2	Γ Proc Upg	13N0699 13N0659 73P3522
Security	administrato	or passwo	ird/u	nattended		ord /		В́) РС2-32	00 ECC	DDR2 Chip	ok rdimm ki	
Software ship group	selectable to Documenta				ode		IBM 36.4GE	3 10K Ultra	320 SC	: DDR2 G111 SI 2.5"SFF I 2.5" SFF N		90P1312 90P1313
Cooling Fans	sensors on front panel	each pro	cesso	r and Bla	ype 8720/30) / adeCenter mod	lules and	BladeCente BladeCente BladeCente	r SCSI Sto r SFF Fibr r SFF Giga	rage Ex e Chani abit Ethe	kp Unit nel Exp Card ernet Exp Ca	d	26K4817 26K4841 26K4842
Power supply(s) Prerequisites	Monitor, ke	yboard, m	iouse	for setup	ter T (type 872 ; ethernet swit rating system			r SCSI Sto Panel Moi	rage Ex nitor Co	u Module kpansion Un nsole Kit w/ c/us/accesso	US Kybd	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 opt SFF SFF SFF SFF Light Path L Diagnostics JL ^② 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

- H 24.5cm x W 2.9cm x D 44.5cm

 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

 Riede control panel on each HS20 blade:
- ➡ 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)

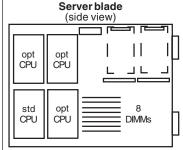
LIMITED WARRANTY³

- 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
- (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 Positioning Processor(s) L2/L3 cache SMP support Implementation Ultra-dense, highly manageable modular computing platform with superior 4-way performance Up to 1 x Intel® Xeon 2.8GHz MP with 400MHz frontside bus / Hyper-Threading technology / NetBurst™ microarchitec S12KB L2 Cache / 2MB L3 Cache / on die of processor / at processor speed 4-way SMP / up to four Xeon MP Processors (same speed/cache size) Server blade contains four Intel 604-pin micro-PGA ZIF sockets, four memory DIMM slots, one SCSI expansion connector, integrated graphics and four ethernet ports												
Memory	2GB std / 16GB max ¹³ / two slots used / six slots available / eight total slots PC2100 266MHz registered 184-pin ECC DDR-SDRAM DIMMs / four DIMM gold-connector slots on systemboard / DIMMs must be installed in matched pairs [a bank] / 2-way memory interleave / dual channel / memory bus runs at 2 x 100MHz / Error Checking and Correcting (ECC) via 16-bit Checksum Chipkill™ (corrects 1, 2, 3, or 4-bit errors on same chip and detects 2- through 8-bit errors contained in two chips) / memory can be mixed											
	ntroller None / supports optional SCSI Storage Expansion Unit (a blade occupying adjacent blade slot / connects to HS20 via one connector / LSI Logic® 53C1020 Ultra320 SCSI controller [LVD 320MB/sec] / 64-bit 133MHz PCI-X Bus B from CIOB-ES I/O Bridge (IMB2 bus to Host Bridge) / supports RAID-1 mirroring [Embedded Mirroring] with two hot-swap 3.5" one-inch high SL SCSI disks in front bays / one 16-bit internal channel / no cables or external connector)											
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	•	Ü	•	Jnit /				
Mechanical	Supported in IBM BladeCe	nter (type 8	B677) / BladeCe	nter suppor	ted in 28" deep ra	cks suc	h as the IBI		ck products			
Architecture / chipsets	ServerWorks® Grand Champion™ 4.0 LE / CMIC-LE5 Host Bridge (memory controller and I/O Bridge) / Architecture / chipsets one CIOB-X2 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 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											
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	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	<i>h Module</i> xpansion d s in a sing	(the second cor option (Fibre Ch le BladeCenter	ntroller req nannel Expa must cont	uires a second on ansion Card) / requal tain the same ex	ptional uires sa	Ethernet S me interfac	Switch Module) e modules in ba	ys 3 and 4			
CD / diskette / USB Kybd / video / mouse Graphics	None / requests for CD-R0 None / requests for keyboo SVGA / ATI® Radeon 700	ÖM, diskett ard, mouse	e drive, and US , and video in B	B port in Bl ladeCenter	adeCenter by pre	display b	outton on fr					
Systems mgmt	Intel integrated Basebo / on blade / provides sys event recording, alert ca	tem and e pability / F	nvironmental n IS-485 interfac	nonitoring, e for	512MB PC210 1GB PC2100 (0 CL2.5 CL2.5 E	ECC DDR CC DDR-S	-SDRAM DIMM DRAM RDIMM	13N0653 33L5038 33L5039			
Diagnostics	communication with Blad Light Path Diagnostics component) and on-board	™ (LED lig	hts indicate fai	ling	B) IBM HS40 File	SI Stor ore Cha	ge Expans nnel Expa	sion Unit (blade nsion Card (wit	th two			
Security	Power-on password / adunattended boot / selecta			art mode	IBM HS40 40	GB ² 540	0 rpm ATA		48P7063			
Software ship group	Documentation CD, IBM				'∐ 36.4GB 15K U	ltra320 \$	SCSI Hot-S		06P5776			
Cooling fans	Uses cooling from BladeC on each processor and Bl							Swap SL HDD* -Swap SL HDD				
Power supply Prerequisites	Uses power module(s) ir Monitor, keyboard, mous disk, BladeCenter (type	BladeCe e for setu	nter (type 8677 p; ethernet swi	7) .	* Disk requires							



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

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

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

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

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

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



The following terms are trademarks or registered trademarks of International Business Machines Corporation in the United States or other countries or both: IBM, Asset ID, C2T Interconnect, Active PCI, Alert on LAN, BladeCenter, Chipkill, ClusterProven, IntelliStation, the e-business logo, LAN Client Manager, Light Path Diagnostics, NetBAY, Netfinity, OS/2, Predictive Failure Analysis, ServerGuide, ServerProven, ServeRAID, ServicePac, SMART Reaction, SystemXtra, TechConnect, ThinkVision, TotalStorage, Update Connector, Wake on LAN, XA-32, XceL4, and xSeries.

Microsoft, Windows and Windows NT are trademarks or registered trademarks of Microsoft Corporation. Intel, Celeron, Pentium, MMX, Itanium and Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Opteron is a trademark or registered trademark of AMD Corporation. Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both. Other company, product and service names may be trademarks or service marks of others.

This publication was developed for products and services offered in the United States. IBM may not offer the products, services of features discussed in this document in other countries. Information is subject to change without notice. Consult your local IBM representative for information on offerings available in your area.

IBM reserves the right to change specifications or other product information without notice. IBM makes no representation or warranty regarding third party products or services. This publication could include technical inaccuracies or typographical errors. References herein to IBM products and services do not imply that IBM intends to make them available in other countries. IBM PROVIDES THIS PUBLI-CATION AS IS WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PUR-POSE. Some jurisdictions do not allow disclaimer of express of implied warranties; therefore this disclaimer may not apply to you.

 Copyright International Business Machines Corporation, 2003.
 All rights reserved

IBM Systems Group Department L4VA 3039 Cornwallis Road Research Triangle Park, NC 27709 June 29, 2005 - usxref.pdf



North America

Products & services

Support & downloads

My account

Select a country

IBM Global Services

IBM Global Services

Business & technology topics

IT services

Training

Conferences & events

Services A - Z

IBM Global Services search

Related links:

IBM Business Partners

Industries Topics IT services



The UK's largest insurance provider is on demand

Norwich Union unveils Pay As You Drive™

☐ Flash (110KB)

Non-Flash

Get the Flash player



The untold RFID story

Exploring the human capital challenges



- See why the right partners make all the difference



IBM Business Consulting Services shows real results for our clients.









Subscribe

Sign up to receive monthly e-mail updates with fresh thinking and in-depth analyses from our consultants.



Global CRM Study

About IBM

Privacy

Terms of use

Contact