PC Institute

Personal Systems Reference
IBM @server xSeries

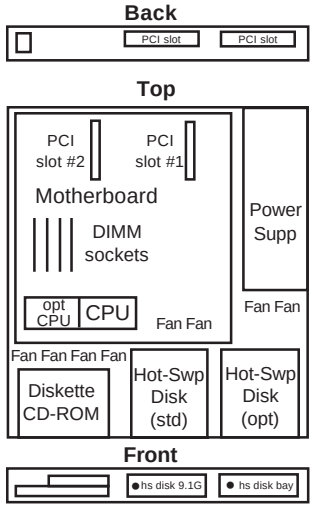
March 2001 - Version 218

IBM @server xSeries 130

IBM® *Appliance Server* Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	10/100 ethernet	Type	Windows Powered OS	Available date
8654-1YX	1 x Pentium® III 800	256MB	9.1GB 10K	Ultra160	1U rack	2 slots x 4 bays	2 hot-swap	2 x ethernet	AS	Preload	Nov 2000

Processor	**Intel® Pentium® III 800EB MHz[1] / 133MHz Front Side Bus**
SMP support	**2-way SMP** via identical processor / both VRMs integrated on planar
Implementation	Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA) / two Intel PGA370 sockets / terminator in empty socket
L2 cache	**256KB** std and max / ECC / full speed
Memory - std / max	**256MB** std / 1GB max
Memory - sockets	4 sockets / 3 available / Error Checking and Correcting (ECC) memory controller
Memory - features	**SDRAM / 133MHz** / ECC DIMMs / 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Disk	9.1GB Ultra160 SCSI / 10,000 rpm 10K-4 / hot-swap / 5.5 ms or less average read seek time / 2.99ms average latency
SCSI disk controller	Adaptec® AIC-7892 / Wide Ultra160 SCSI (LVD 160MB/sec) / single channel / 64-bit PCI / integrated on motherboard
SCSI connectors	Internal 68-pin (attaches 1-drop cable to SCSI backplane); no external SCSI connector
IDE controller	Enhanced IDE / two connectors on planar / one 1-drop IDE cable to CD-ROM / ATA-66
Architecture / chipsets	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE (the North Bridge has two peer PCI buses: PCI Bus 0, 32-bit 33MHz, IB6566 South Bridge, two ethernet controllers, graphics controller); PCI Bus 1, 64-bit 33MHz, SCSI controller, two 64-bit PCI slots) / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Mechanical	**EIA 19" Rack (1U[4])** / rack-mount only / supported in IBM Netfinity Rack products (rack requires vented front door)
Control Panel	Front indicators/switches include Power, Reset, Console Select, Power LED and Fault/info LED
Ethernet controllers	**2 x Intel 82559** ethernet controllers / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit PCI bus / redundant ethernet capability and load balancing support through the connection of both ethernet ports to the same LAN segment / two RJ-45 connectors on rear / supports PXE 2.0 Boot Agent / no Wake on LAN® support
CD-ROM / diskette	24X-10X[6] CD-ROM; CAV (ATAPI); bootable; IDE / 3.5" 1.44MB diskette drive
Serial / parallel / USB	*Serial:* One 9-pin; *Parallel:* None; *USB:* Two ports (Version 1.1); *Mgmt:* Two RS485 ports for systems management
Ports	Two console ports incorporating a mouse, keyboard, and video port
Systems mgmt	**Integrated Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supply
Diagnostics	**Light-Path Diagnostics** (LED lights indicate failing component) and on-board diagnostics (via PC-Doctor in BIOS)
Graphics controller	SVGA / PCI bus / S3® Savage4Pro (on planar) / 8MB SDRAM std and max / DDC2B
Security	Power-on password / administrator password / system owner's name / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Software	**Preloaded and optimally tuned with Windows Powered OS and appliance software stack, Microsoft Internet Information Services 5.0, Netfinity Web Server Accelerator V2, Netfinity Director 2.12 (agent only), Universal Manageability (UM) Server Extensions, Advanced Appliance Configuration Utility**
Keyboard / mouse	None standard
Cooling fans	Eight fans (four for processor(s) and planar, two for disk(s) and planar, two for power supply)
Power supply	200 watt / universal / auto-sensing / auto-restart support
Prerequisites	Remote management console (client workstation), rack cabinet

Pentium III 800/133MHz/256KB Proc Upg	10K2338
256MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3144
9.1GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7204
18.2GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7205
36.4GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7206
Netfinity Gigabit Ethernet Adapter	34L0301
Netfinity Rack (with perforated door and side panels)	9306910
Netfinity Console Server Selector Switch (4-port)	28L0542
Netfinity Console Server Selector Switch (8-port)	94G7445
NetBay 1 x 4 Console Switch	09N4290
NetBay 1 x 4 Console Switch	09N4291
IBM Smart-UPS Model 1400RMB for Netfinity	94G6674
IBM Smart-UPS Model 3000RMB for Netfinity	94G6676
APC Smart-UPS 5000RMB	37L6861



Bay ① 3.5", UltraSlim 0.8", access, std diskette
Bay ② 5.25", UltraSlim 0.8", access, std CD-ROM
Bay ③ 3.5", SL 1", access, std hot-swap disk
Bay ④ 3.5", SL 1", access, open for hot-swap disk

Slot 1: fullsize, 64-bit 33MHz PCI 2.1 (5v)
Slot 2: halfsize, 64-bit 33MHz PCI 2.1 (5v)

- Stealth black
- H 1.72" (1U) x W 17.3" x D 25.7"
- 44 to 62 lbs (minimum to maximum configuration)
- Setup Program is available by pressing F1 at startup
- PC-Doctor diagnostics is available by pressing F2 at startup
- SCSISelect near startup by pressing CTRL+A
- PXE Bullet Agent near startup by pressing CTRL+S
- DMI 2.1, Wired for Management 1.1a
- Includes rack mounting kit
- One line cord
- Predictive failure analysis on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

All models: Max int disk capacity:
72.8GB with two 36.4GB SL SCSI disks

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade option:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time (in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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IBM @server xSeries 135

IBM® *Appliance Server* Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	10/100 ethernet	Type	Preload	Available date
8654-1XX	1 x Pentium® III 800	256MB	9.1GB 10K	Ultra160	1U rack	2 slots x 4 bays	2 hot-swap	2 x ethernet	AS	TurboLinux	Nov 2000

Processor	**Intel® Pentium® III 800EB MHz[1] / 133MHz Front Side Bus**
SMP support	**2-way SMP** via identical processor / both VRMs integrated on planar
Implementation	Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA) / two Intel PGA370 sockets / terminator in empty socket
L2 cache	**256KB** std and max / ECC / full speed
Memory - std / max	**256MB** std / 1GB max
Memory - sockets	4 sockets / 3 available / Error Checking and Correcting (ECC) memory controller
Memory - features	**SDRAM / 133MHz** / ECC DIMMs / 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Disk	9.1GB Ultra160 SCSI / 10,000 rpm 10K-4 / hot-swap / 5.5 ms or less average read seek time / 2.99ms average latency
SCSI disk controller	Adaptec® AIC-7892 / Wide Ultra160 SCSI (LVD 160MB/sec) / single channel / 64-bit PCI / integrated on motherboard
SCSI connectors	Internal 68-pin (attaches 1-drop cable to SCSI backplane); no external SCSI connector
IDE controller	Enhanced IDE / two connectors on planar / one 1-drop IDE cable to CD-ROM / ATA-66
Architecture / chipsets	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE (the North Bridge has two peer PCI buses: PCI Bus 0, 32-bit 33MHz, IB6566 South Bridge, two ethernet controllers, graphics controller); PCI Bus 1, 64-bit 33MHz, SCSI controller, two 64-bit PCI slots) / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Mechanical	**EIA 19" Rack (1U[4])** / rack-mount only / supported in IBM Netfinity Rack products (rack requires vented front door)
Control Panel	Front indicators/switches include Power, Reset, Console Select, Power LED and Fault/info LED
Ethernet controllers	**2 x Intel 82559** ethernet controllers / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit PCI bus / redundant ethernet capability and load balancing support through the connection of both ethernet ports to the same LAN segment / two RJ-45 connectors on rear / supports PXE 2.0 Boot Agent / no Wake on LAN® support
CD-ROM / diskette	24X-10X[6] CD-ROM; CAV (ATAPI); bootable; IDE / 3.5" 1.44MB diskette drive
Serial / parallel / USB	*Serial:* One 9-pin; *Parallel:* None; *USB:* Two ports (Version 1.1); *Mgmt:* Two RS485 ports for systems management
Ports	Two console ports incorporating a mouse, keyboard, and video port
Systems mgmt	**Integrated Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supply
Diagnostics	**Light-Path Diagnostics** (LED lights indicate failing component) and on-board diagnostics (via PC-Doctor in BIOS)
Graphics controller	SVGA / PCI bus / S3® Savage4Pro (on planar) / 8MB SDRAM std and max / DDC2B
Security	Power-on password / administrator password / system owner's name / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Software	**Preloaded and optimally tuned with TurboLinux® 6.05, IBM HTTP Server 1.3.12, Appliance System Management, Advanced Appliance Configuration Utility**

Keyboard / mouse	None standard
Cooling fans	Eight fans (four for processor(s) and planar, two for disk(s) and planar, two for power supply)
Power supply	200 watt / universal / auto-sensing / auto-restart support
Prerequisites	Remote management console (client workstation), rack cabinet

Pentium III 800/133MHz/256KB Proc Upg	10K2338
256MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3144
9.1GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7204
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36.4GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7206
Netfinity Rack (with perforated door and side panels)	9306910
Netfinity Console Server Selector Switch (4-port)	28L0542
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NetBay 1 x 4 Console Switch	09N4290
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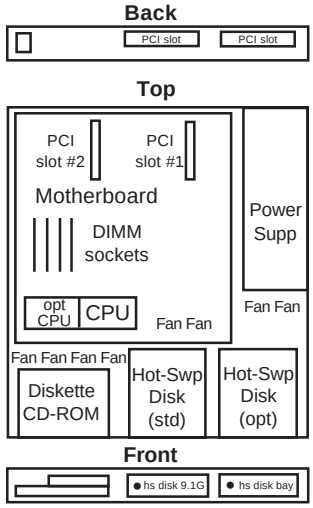
IBM Smart-UPS Model 1400RMB for Netfinity	94G6674
IBM Smart-UPS Model 3000RMB for Netfinity	94G6676
APC Smart-UPS 5000RMB	37L6861



Bay ① 3.5", UltraSlim 0.8", access, std diskette
Bay ② 5.25", UltraSlim 0.8", access, std CD-ROM
Bay ③ 3.5", SL 1", access, std hot-swap disk
Bay ④ 3.5", SL 1", access, open for hot-swap disk

Slot 1: fullsize, 64-bit 33MHz PCI 2.1 (5v)
Slot 2: halfsize, 64-bit 33MHz PCI 2.1 (5v)

- Stealth black
- H 1.72" (1U) x W 17.3" x D 25.7"
- 44 to 62 lbs (minimum to maximum configuration)
- Setup Program is available by pressing F1 at startup
- PC-Doctor diagnostics is available by pressing F2 at startup
- SCSISelect near startup by pressing CTRL+A
- PXE Bullet Agent near startup by pressing CTRL+S
- DMI 2.1, Wired for Management 1.1a
- Includes rack mounting kit
- One line cord
- Predictive failure analysis on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

All models: Max int disk capacity:
72.8GB with two 36.4GB SL SCSI disks

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade option:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time (in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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IBM @server xSeries 150

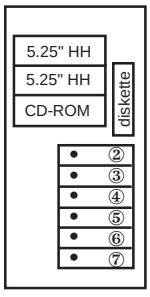
IBM® *Network Attached Storage (NAS) appliance* Type-model	Qnty x Processor(s)	Memory	Disks	SCSI controller	Mechanical	Slots x bays (6 hot-swap)	10/100 ethernet	Type	Windows Powered OS	Available date
8658-33Y	1 x Pentium® III 800	256MB	3 x 36.4GB Ultra160	ServeRAID-4L	Tower	5 slots x 10 bays	2 x ethernet	NAS	Preload	Oct 2000
8658-3XY	2 x Pentium III 800	1GB	6 x 36.4GB Ultra160	ServeRAID-4H	5U rack	5 slots x 10 bays	4 x ethernet	NAS	Preload	Nov 2000

Intel® processor(s)	**One or two Pentium® III 800EB MHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Single Edge Cartridge (SECC2)
Implementation	Motherboard contains two Intel Slot 1 connectors for SECC2 cartridges (open Slot 1 used by terminator), one VRM socket (one VRM integrated), four DIMM sockets, PCI slots, and integrated subsystems
SMP support	**2-way SMP** via second identical 800MHz processor / upgrade via SECC2 into second Slot 1 CPU connector
Memory - std / max	**256MB or 1GB std / 2GB max** (Windows Powered OS prevents addressing more than 2GB)
Memory - sockets	4 sockets / 3 available / **ECC** (all have Error Checking and Correcting (ECC) memory controller) / non-interleaved
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated sockets / PC133-compliant / supports registered SDRAM ECC DIMMs only
SCSI disk controller	*33Y:* **IBM ServeRAID-4L** / Ultra160 SCSI (LVD 160MB/sec) / 64-bit PCI adapter / 1 channel (external/internal) / one 68-pin internal connector, one 68-pin VHDCI external connector / 16MB ECC cache / RAID 0, 1, 1E, 5E, 00, 10,1E0,50 / 16-bit 68-pin LVD cable from internal connector to backplane *3XY:* **IBM ServeRAID-4H** / Ultra160 SCSI (LVD 160MB/sec) / 64-bit PCI adapter / 4 channels (2 external/internal, 2 external only) / two 68-pin internal connectors, four 68-pin VHDCI external connectors / 128MB ECC cache, battery-backed / RAID 0, 1, 1E, 5E, 00, 10, 1E0, 50 / 16-bit 68-pin LVD cable from internal connector to backplane *All:* **Adaptec® AHA-7899** / Ultra160 SCSI (LVD 160MB/sec) / 64-bit PCI / on planar / 2 channels (both internal, no external) / two 68-pin internal connectors on planar
IDE controller / cable	Single Primary IDE (ROSB4) South Bridge / one connector on planar / one 1-drop IDE cable (CD-ROM)
Disk - capacity	Three or six 36.4GB / 7200 rpm / Ultra160 SCSI / 7.0 ms or less average read seek time / 4.17 ms latency / one backplane
Disk - bays	Six hot-swap / 80-pin SCA-2 connectors / common tray with EXP300 and later servers
Mechanical	**Tower or EIA 19" Rack (5U[4])**
Rack support	Rack systems supported in IBM NetfinityRacks / kit available to convert tower to rack (no rack to tower conversion)
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / 64-bit PCI (three PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge) / no hot-swap slots
Chip set	**ServerWorks® ServerSet III™ LE chip set** / NB6635 North Bridge 3.0LE / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 10 bays / three 5.25" HH bays (1 used by CD-ROM) / one diskette bay / six hot-swap bays
10/100 ethernet	*All:* AMD® Am79C975 / on planar / 10BaseT, 100BaseTX / full duplex / RJ-45 connector / 3 front LEDs *33Y:* **1 x Netfinity 10/100 Ethernet Adapter 2** / 32-bit PCI adapter / full duplex / 82559 chip set / in Slot 1 *3XY:* **3 x Netfinity 10/100 Ethernet Adapter 2** / 32-bit PCI adapter / full duplex / 82559 chip set / in Slot 1, 2, 4
CD-ROM / diskette	40X-17X[6] CD-ROM / multisession / IDE interface / 1.6" HH / bootable; *Diskette:* 3.5" 1.44MB diskette drive / dust cover
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One (EPP, ECP) / IEEE 1284 *USB:* Two ports (Version 1.1)
Graphics controller	SVGA / PCI 2.1 bus / S3® Savage4 (on planar) / 8MB SDRAM std/max / 1280x1024 at 16M colors at 100Hz / DDC2B
Security	Power-on password / administrator password / system owner's name / hinged and lockable front door to cover disk bays, power button, and reset button (tower only) / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems mgmt	**Integrated Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supplies
Diagnostics	**Diagnostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / system board error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**Preloaded and optimally tuned with Windows Powered OS and appliance software stack, Netfinity Director 2.12 (agent only), Universal Manageability (UM) Server Extensions, ServeRAID Manager, Advanced Appliance Configuration Utility, Columbia Data Products Open Transaction Manager, Microsoft Services for Unix 2.0**
Keyboard / mouse	*Tower only:* IBM 101-key keyboard / IBM mouse (both black)
Power supply	*Std:* two 250 watt hot-swap; *Max:* three 250 watt hot-swap / redundant with two power supplies / worldwide / voltage-sensing / auto-restart / fans in each power supply
Fans	Two (fan in rear, blower in front) / not hot-swap / PFA / fan failure signals Diagnostic LED and Mgmt Processor / fan in each power supply
Prerequisites	Monitor, disk; rack model requires rack cabinet, mouse, kybd

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

Pentium III 800/133MHz/256KB Proc Upg	10K2338
128MB SDRAM ECC DIMM 133MHz RDIMM II	33L3123
256MB SDRAM ECC DIMM 133MHz RDIMM II	33L3125
512MB SDRAM ECC DIMM 133MHz RDIMM II	33L3127
1GB SDRAM ECC DIMM 133MHz RDIMM II	33L3129
Netfinity 5Ux24D Tower-to-Rack Kit	37L6858
Netfinity 250W Hot-Swap Redundant Pwr Supply	33L3760
36.4GB Ultra160 SCSI Hot-swap SL HDD	37L7203
36.4GB 10K-4 Ultra160 SCSI Hot-swap SL HDD	37L7206

Slot 1: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A*
Slot 2: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A*
Slot 3: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B**
Slot 4: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B*
Slot 5: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B



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 ④ 3.5", SL 1", access, hot swap*
Bay ⑤ 3.5", SL 1", access, hot swap*
Bay ⑥ 3.5", SL 1", access, hot swap*
Bay ⑦ 3.5", SL 1", access, hot swap*
Bay ⑧ 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 or 3 HH hot-swap disks via SCA-2 connectors; Bays 8 and 9 support 3.5" disks via Media Bay Conversion Kit

Rack or Tower (tower shown above)

- Removable, easy release left/top side panel
- Quick release adapter slots (no screws)
- Rail system enables devices (CD-ROM, diskette, tape drives) to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Operator Information Panel (in front)
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with Netfinity Director can alert the system administrator of an imminent component failure
- Tower: H 16.8" x W 8.6" x D 26.0"
- Rack: H 8.6" x W 16.8" x D 24.8"
- 55.7 to 82.7 pounds
- Stealth black color
- All non-hot-swaps bays use rails (no screws) for devices

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options (in eligible locations):**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time**
- **90-day IBM Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap; * = Slot or bay may be occupied by ethernet adapter or disk in some models
** = Slot occupied by ServeRAID adapter
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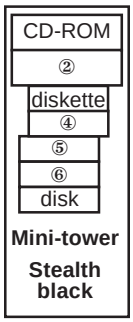
IBM @server xSeries 200

IBM® Type-model	Processor	Memory	Disk	Tape	Disk controller	Mechanical	Slots x bays	Hot-swap disk bays	ethernet	Available date
8478-10X	Celeron™ 667/66	128MB	None	None	Ultra160, EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8478-11X	Celeron 667/66	64MB	15GB	None	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8478-12X	Celeron 667/66	64MB	15GB	Tape	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8478-40X	Pentium® III 800/133	128MB	None	None	Ultra160, EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8478-41X	Pentium III 800/133	64MB	15GB	None	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8478-50X	Pentium III 866/133	128MB	None	None	Ultra160, EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8478-51X	Pentium III 866/133	64MB	15GB	None	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000

Intel® processor	**Celeron 667MHz[1] with 66MHz Front Side Bus** or **Pentium® III 800EB or 866MHz[1] with 133MHz Front Side Bus**
L2 cache	*Celeron:* **128KB** std and max / ECC / at processor speed; *Pentium III:* **256KB** std and max / ECC / at processor speed
	All: Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA)
Implementation	Motherboard contains one Intel PGA370 socket, one integrated VRM, three DIMM sockets, three PCI slots, connector for two-slot PCI extender board, one AGP slot, and integrated ethernet
SMP support	**No SMP** support
Memory - std / max	**64MB or 128MB** std / 1.5GB max
Memory - sockets	3 sockets / 2 available / ECC (Error Checking and Correcting) DIMMs and ECC memory controller
Memory - features	**SDRAM / 133MHz** / three 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports unbuffered SDRAM ECC DIMMs
SCSI disk controller	*Some models:* **Adaptec® 29160LP / single channel Wide Ultra160 SCSI** (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot) / one channel with up to 15 device support
SCSI connectors	*SCSI models:* One 68-pin internal SCSI connector / one 0.8mm VHDCI 68-pin external SCSI connector
RAID support	Supports optional PCI RAID adapters
IDE disk controller	Enhanced IDE busmaster / ATA-66 support (ATA-100 on later models) / two connectors on planar
Cables	*SCSI models:* one 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable (connected to CD-ROM)
	EIDE models: two 2-drop EIDE cables (one cable to CD-ROM, one cable to EIDE disk)
Disk - features	*Some models:* 15GB EIDE / ATA-100 / 7200 rpm / 8.7 ms average read seek time / S.M.A.R.T.
Tape drive	*12X:* 10/20GB TR5 Internal IDE Tape Drive
Rack support	4U[4] rack mount support via tower-to-rack kit option
Architecture / chipsets	**VIA® Apollo Pro133A chip set** / VT82C694X North Bridge (memory controller, PCI 2.2 32-bit 33MHz controller, AGP 4X) / VIA VT82C686A or 686B South Bridge (IDE ATA-66 [686B is ATA-100], USB, diskette, parallel, serial, keyboard, mouse)
100/10Mbps ethernet	Intel 82559 / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit 33MHz PCI bus / support for Wake on LAN®
CD-ROM / diskette	48X-20X[6] CD-ROM / CAV (ATAPI) / bootable / IDE *Diskette:* 3.5" 1.44MB diskette drive
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two (Ver 1.1); keyboard, DB-15 analog video, mouse, audio line in, audio line out, microphone in
Diagnostics	POST and server diagnostic programs are stored on the IBM Enhanced Diagnostics CD
Systems mgmt	Monitoring and alerting of memory, thermal, or voltage faults / support for Wake on LAN, Alert on LAN™ 2, Preboot eXecution Environment (PXE)
Graphics controller	SVGA / S3 Savage4 LT / AGP 4X adapter / 8MB SDRAM std and max / DPMS and DDC2B-compliant / 60Hz to 85Hz vertical refresh / 15-pin D-Sub connector
Security	Cover key lock / U-Bolt support / power-on password / boot sequence control / operation without kybd and mouse / chassis intrusion protection
Software	**ServerGuide**™ (CD-based automated network OS installation and configuration tool), Norton AntiVirus™, and APC PowerChute Plus / includes IBM Director (system hardware mgmt software) and many utilities
Keyboard / mouse	IBM 101-key keyboard / IBM 2-button mouse
Cooling fans	Three cooling fans (power supply, front, rear) / not redundant or hot-swap / fans have two speeds
Power supply	330 watts / universal / auto switch / Automatic Server Restart (ASR) / not redundant or hot-swap / cooling fan in power supply

Pentium III 800MHz/256KB Proc Upg	21P9539
Pentium III 866MHz/256KB Proc Upg	10K3818
64MB SDRAM ECC 133MHz unbuffered DIMM	33L3079
128MB SDRAM ECC 133MHz unbuffered DIMM	33L3081
256MB SDRAM ECC 133MHz unbuffered DIMM	33L3083
512MB SDRAM ECC 133MHz unbuffered DIMM	33L3085
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM 20.4GB ATA-100 EIDE HDD	19K4461
IBM 30GB ATA-100 EIDE HDD	00N8203
IBM 9.1GB 7200rpm Ultra160 SCSI HDD	00N8204
IBM 18.2GB 7200rpm Ultra160 SCSI HDD	00N8205
IBM 36.4GB 7200rpm Ultra160 SCSI HDD	00N8206
IBM 9.1GB 10K Ultra160 SCSI HDD	00N8207
IBM 18.2GB 10K Ultra160 SCSI HDD	00N8208
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209

Slot fullsize, AGP 4X, 25 watt (3.3v) - used by standard AGP graphics adptr
Slot 1: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - slot has Alert on LAN 2 support
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - used by SCSI adapter
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - on two-slot PCI extender board
Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - on two-slot PCI extender board



Mini-tower
Stealth black

Bay ① 5.25", HH1.6", access, CD-ROM
Bay ② 5.25", HH1.6", access, open or tape
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", access, open
Bay ⑥ 3.5", SL 1", access, open
Bay ⑦ 3.5", SL 1", access, disk (some)

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

- Two front stabilizing feet
- Handle grip on top
- H 18.5" x W 6.5" x D 20.0"
- H 470mm x W 165mm x D 508mm
- 35 to 43 pounds (15.9 to 19.5kg)

Maximum internal SCSI disk capacity: 145.6GB (4 disks x 36.4GB)

- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Adv Config Power Interface (ACPI) 1.0
- ISO 9241-3 capable

LIMITED WARRANTY

- **3 year parts / 1 year labor warranty[3]**
- **International Warranty Service[3]**
- **1st year: on site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- **2nd/3rd year: parts exchange only, call 1-800-772-2227**
- **On site warranty upgrade options (in eligible locations):**
  - **24 hr / 7 day coverage, 4 hour average response[7] time (21P2021)**
  - **9 hour coverage, Mon through Fri excluding holidays, next business day response[7] time (21P2022)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet support (www.pc.ibm.com)**
- **IBM or reseller warranty/service**

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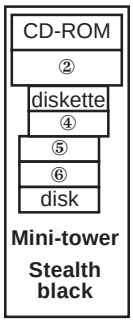
IBM @server xSeries 200 (Spring 2001)

IBM® Type-model	Processor	Memory	Disk	Tape	Disk controller	Mechanical	Slots x bays	Hot-swap disk bays	ethernet	Available date
8478-20X	Celeron™ 733/66	128MB	None	None	Ultra160, EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8478-21X	Celeron 733/66	64MB	20.4GB	None	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8478-22X	Celeron 733/66	64MB	15GB	Tape	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8478-60X	Pentium® III 933/133	128MB	None	None	Ultra160, EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8478-61X	Pentium III 933/133	64MB	15GB	None	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8478-70X	Pentium III 1GHz[1]/133	128MB	None	None	Ultra160, EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8478-71X	Pentium III 1GHz/133	64MB	15GB	None	EIDE	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001

Intel® processor	**Celeron 733MHz[1] with 66MHz Front Side Bus** or **Pentium® III 933MHz[1] or 1GHz with 133MHz Front Side Bus**
L2 cache	*Celeron:* **128KB** std and max / ECC / at processor speed *Pentium III:* **256KB** std and max / ECC / at processor speed *All:* Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA)
Implementation	Motherboard contains one Intel PGA370 socket, one integrated VRM, three DIMM sockets, three PCI slots, connector for two-slot PCI extender board, one AGP slot, and integrated ethernet
SMP support	**No SMP** support
Memory - std / max	**64MB or 128MB** std / 1.5GB max
Memory - sockets	3 sockets / 2 available / ECC (Error Checking and Correcting) DIMMs and ECC memory controller
Memory - features	**SDRAM / 133MHz** / three 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports unbuffered SDRAM ECC DIMMs
SCSI disk controller	*Some models:* **Adaptec® 29160LP / single channel Wide Ultra160 SCSI** (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot) / one channel with up to 15 device support
SCSI connectors	*SCSI models:* One 68-pin internal SCSI connector / one 0.8mm VHDCI 68-pin external SCSI connector
RAID support	Supports optional PCI RAID adapters
IDE disk controller	Enhanced IDE busmaster / ATA-66 support (ATA-100 on later models) / two connectors on planar
Cables	*SCSI models:* one 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable (connected to CD-ROM) *EIDE models:* two 2-drop EIDE cables (one cable to CD-ROM, one cable to EIDE disk)
Disk - features	*Some models:* 20.4GB EIDE / ATA-100 / 7200 rpm / 8.7 ms average read seek time / S.M.A.R.T.
Tape drive	*Model 22X:* 10/20GB TR5 Internal IDE Tape Drive
Rack support	4U[4] rack mount support via tower-to-rack kit option
Architecture / chipsets	**VIA® Apollo Pro133A chip set** / VT82C694X North Bridge (memory controller, PCI 2.2 32-bit 33MHz controller, AGP 4X) / VIA VT82C686B South Bridge (IDE ATA-100, USB, diskette, parallel, serial, keyboard, mouse)
100/10Mbps ethernet	Intel 82559 / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit 33MHz PCI bus / support for Wake on LAN®
CD-ROM / diskette	48X-20X[6] CD-ROM / CAV (ATAPI) / bootable / IDE *Diskette:* 3.5" 1.44MB diskette drive
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two (Ver 1.1); keyboard, DB-15 analog video; mouse; audio line in; audio line out; microphone in
Diagnostics	POST and server diagnostic programs stored on IBM Enhanced Diagnostics CD
Systems mgmt	Monitoring and alerting of memory, thermal, or voltage faults / support for Wake on LAN, Alert on LAN™ 2, Preboot eXecution Environment (PXE)
Graphics controller	SVGA / S3 Savage4 LT / AGP 4X adapter / 8MB SDRAM std and max / DPMS and DDC2B-compliant / 60Hz to 85Hz vertical refresh / analog 15-pin D-Sub connector
Security	Cover key lock / U-Bolt support / power-on password / boot sequence control / operation without kybd and mouse / chassis intrusion protection
Software	**ServerGuide**™ (CD-based automated network OS installation and configuration tool), Norton AntiVirus™, and APC PowerChute Plus / includes IBM Director (system hardware mgmt software) and many utilities
Keyboard / mouse	IBM 101-key keyboard / IBM 2-button mouse
Cooling fans	Three cooling fans (power supply, front, rear) / not redundant or hot-swap / fans have two speeds
Power supply	330 watts / universal / auto switch / Automatic Server Restart (ASR) / not redundant or hot-swap / cooling fan in power supply

Pentium III 933MHz/256KB Proc Upg	10K3819
Pentium III 1GHz/256KB Proc Upg	10K0051
64MB SDRAM ECC 133MHz unbuffered DIMM	33L3079
128MB SDRAM ECC 133MHz unbuffered DIMM	33L3081
256MB SDRAM ECC 133MHz unbuffered DIMM	33L3083
512MB SDRAM ECC 133MHz unbuffered DIMM	33L3085
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM 20.4GB ATA-100 EIDE HDD	19K4461
IBM 30GB ATA-100 EIDE HDD	00N8203
IBM 9.1GB 7200rpm Ultra160 SCSI HDD	00N8204
IBM 18.2GB 7200rpm Ultra160 SCSI HDD	00N8205
IBM 36.4GB 7200rpm Ultra160 SCSI HDD	00N8206
IBM 9.1GB 10K Ultra160 SCSI HDD	00N8207
IBM 18.2GB 10K Ultra160 SCSI HDD	00N8208
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209

Slot fullsize, AGP 4X, 25 watt (3.3v) - used by standard AGP graphics adptr
Slot 1: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - slot has Alert on LAN 2 support
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - used by SCSI adapter
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - on two-slot PCI extender board
Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - on two-slot PCI extender board



Mini-tower
Stealth black

Bay ① 5.25", HH1.6", access, CD-ROM
Bay ② 5.25", HH1.6", access, open or tape
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", access, open
Bay ⑥ 3.5", SL 1", access, open
Bay ⑦ 3.5", SL 1", access, disk (some)

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

- Two front stabilizing feet
- Handle grip on top
- H 18.5" x W 6.5" x D 20.0"
- H 470mm x W 165mm x D 508mm
- 35 to 43 pounds (15.9 to 19.5kg)

Maximum internal SCSI disk capacity:
145.6GB (4 disks x 36.4GB)

- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Adv Config Power Interface (ACPI) 1.0
- ISO 9241-3 capable

LIMITED WARRANTY

- **3 year parts / 1 year labor warranty[3]**
- **International Warranty Service[3]**
- **1st year: on site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- **2nd/3rd year: parts exchange only, call 1-800-772-2227**
- **On site warranty upgrade options (in eligible locations):**
  - **9 hour coverage, Mon through Fri excluding holidays, next business day response[7] time (21P2021)**
  - **24 hr / 7 day coverage, 4 hour average response[7] time (21P2022)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet support (www.pc.ibm.com)**
- **IBM or reseller warranty/service**

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IBM @server xSeries 220

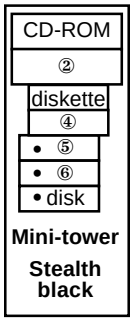
IBM® Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot-swap disk bays	ethernet	Available date
8645-21X	1 x Pentium® III 800/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8645-22X	1 x Pentium III 800/133	128MB	18.2GB	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8645-2AX	1 x Pentium III 800/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	3 hot-swap	10/100 ethernet	Oct 2000
8645-31X	1 x Pentium III 866/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8645-32X	1 x Pentium III 866/133	128MB	18.2GB	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8645-3AX	1 x Pentium III 866/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	3 hot-swap	10/100 ethernet	Oct 2000
8645-41X	1 x Pentium III 933/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8645-42X	1 x Pentium III 933/133	128MB	18.2GB	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Oct 2000
8645-4AX	1 x Pentium III 933/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	3 hot-swap	10/100 ethernet	Oct 2000

Intel® processor(s)	**1 x Pentium® III 800EB, 866, or 933MHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA)
Implementation	Motherboard contains two Intel PGA370 sockets (one used and one with terminator), two VRM sockets (one used and one empty), four DIMM sockets, five PCI slots, and integrated subsystems
SMP support	**2-way SMP** via second identical processor / upgrade via FC-PGA into second PGA370 socket (370-pin ZIF sockets)
Memory - std / max	**128MB** std / 4GB max
Memory - sockets	4 sockets / 3 available / ECC (Error Checking and Correcting) DIMMs and ECC memory controller
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports registered SDRAM ECC DIMMs
SCSI disk controller	**Adaptec® AHA-7892 / single channel Wide Ultra160 SCSI controller** (160MB/sec) / on planar / 64-bit 33MHz PCI 2.1
SCSI connectors	One 68-pin internal connector / no external SCSI connector
RAID support	Supports optional PCI RAID adapters
IDE disk controller	Enhanced IDE busmaster / Ultra DMA/33 (ATA-33) support / one connector on planar
Cables	*Non hot-swap models:* 5-drop 16-bit LVD SCSI cable *Hot-swap models:* 2-drop 16-bit LVD SCSI cable (planar connector to SCSI backplane) *All:* one 2-drop IDE cable (one drop to CD-ROM)
Disk - features	*Some models:* 18.2GB Wide Ultra160 SCSI / 7200 rpm / 6.8ms average read seek time
Rack support	4U[4] rack mount support via tower-to-rack kit option
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / 64-bit PCI (three PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge, USB)
Architecture / chipsets	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE / IB6566 South Bridge for IDE, USB, ISA bus for Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
100/10Mbps ethernet	Intel 82559 / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit 33MHz PCI bus / RJ-45 connector / no support for Wake on LAN® / supports Wake on LAN via optional adapter with 3-wire cable to planar
CD-ROM / diskette	48X-20X[6] CD-ROM / CAV (ATAPI) / bootable / IDE *Diskette:* 3.5" 1.44MB diskette drive
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two (Ver 1.1); keyboard, DB-15 analog video, mouse
Diagnostics	Diagnostic LEDs / error LEDs for processor(s), DIMM(s), Voltage Regulator Module(s), and fan connectors
Systems mgmt cntrl	Two ADM1024 chips / monitors processor temperature, fan speeds, and voltage / **support for optional Remote Supervisor Adapter** (provides continuous health monitoring and control)
Graphics controller	SVGA / S3 Savage4 LT / on planar / 8MB SDRAM std and max / 32-bit PCI / DPMS and DDC2B compliant / 60Hz to 160Hz vertical refresh; 16.7 million colors at 1600x1200 / 15-pin D-Sub connector
Security	Cover key lock / U-Bolt support / power-on password / boot sequence control / operation without kybd and mouse
Software	**ServerGuide**™ (CD-based automated network OS installation and configuration tool), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], Norton AntiVirus™, and APC PowerChute Plus / includes Netfinity Director (system hardware mgmt software) and many utilities
BIOS	2MB in Flash EEPROM
Keyboard / mouse	IBM 101 key keyboard / IBM Enhanced mouse
Cooling fans	Three cooling fans (power supply, front, rear) / not redundant / variable speed front and rear fans
Power supply	330 watts / universal / auto switch / Automatic Server Restart (ASR) /no redundancy / cooling fan in power supply

IBM Remote Supervisor Adapter (PCI adapter)	09N7585
Pentium III 800MHz/256KB Proc Upg	21P9539
Pentium III 866MHz/256KB Proc Upg	10K3818
Pentium III 933MHz/256KB Proc Upg	10K3819
128MB SDRAM ECC DIMM 133MHz RDIMM	33L3142
256MB SDRAM ECC DIMM 133MHz RDIMM	33L3144
512MB SDRAM ECC DIMM 133MHz RDIMM	33L3146
1GB SDRAM ECC DIMM 133MHz RDIMM	33L3152
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM 18.2GB 10K Ultra160 SCSI HDD (not hot-swap)	00N8208
IBM 36.4GB 10K Ultra160 SCSI HDD (not hot-swap)	00N8209
IBM 9.1GB 15K Ultra160 SCSI Hot-Swap HDD	19K0655
IBM 18.2GB 15K Ultra160 SCSI Hot-Swap HDD	19K0656
IBM 36.4GB 10K-4 Ultra160 SCSI Hot-Swap HDD	37L7206

Slot 1: fullsize, 32-bit 33MHz, PCI 2.1 (5v)
Slot 2: fullsize, 32-bit 33MHz, PCI 2.1 (5v)
Slot 3: fullsize, 64-bit 33MHz, PCI 2.1 (5v)
Slot 4: fullsize, 64-bit 33MHz, PCI 2.1 (5v)
Slot 5: fullsize, 64-bit 33MHz, PCI 2.1 (5v)

Maximum internal SCSI disk capacity:
145.6GB (4 disks x 36.4GB)



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 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", access, open
Bay ⑥ 3.5", SL 1", access, open
Bay ⑦ 3.5", SL 1", access, std disk

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

- Four stabilizing feet
- Handle grip on top
- H 18.5" x W 6.5" x D 20.0"
- H 470mm x W 165mm x D 508mm
- 35 to 43 pounds (15.9 to 19.5kg)

- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Diagnostics (PC-Doctor) by pressing F2 at startup
- Alt+F1 at startup for optional system partition
- Adv Config Power Interface (ACPI) 1.0
- ISO 9241-3 capable

LIMITED WARRANTY

- **3 year parts / 1 year labor warranty[3]**
- **International Warranty Service[3]**
- **1st year: on site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
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  - **24 hr / 7 day coverage, 4 hour average response[7] time**
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- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet support (www.pc.ibm.com)**
- **IBM or reseller warranty/service**

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No warranties are expressed or implied in this summary
• = Hot Swap bays in some models
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IBM @server xSeries 220 (Spring 2001)

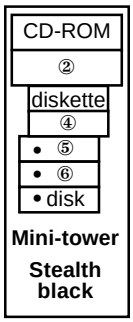
IBM® Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot-swap disk bays	ethernet	Available date
8645-51X	1 x Pentium® III 1GHz[1]/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8645-52X	1 x Pentium III 1GHz/133	128MB	18.2GB	Ultra160	Mini Tower	5 slots x 7 bays	None	10/100 ethernet	Mar 2001
8645-5AX	1 x Pentium III 1GHz/133	128MB	None	Ultra160	Mini Tower	5 slots x 7 bays	3 hot-swap	10/100 ethernet	Mar 2001

Intel® processor(s)	**1 x Pentium® III 1GHz with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA)
Implementation	Motherboard contains two Intel PGA370 sockets (one used and one with terminator), two VRM sockets (one used and one empty), four DIMM sockets, five PCI slots, and integrated subsystems
SMP support	**2-way SMP** via second identical processor / upgrade via FC-PGA into second PGA370 socket (370-pin ZIF sockets)
Memory - std / max	**128MB** std / 4GB max
Memory - sockets	4 sockets / 3 available / ECC (Error Checking and Correcting) DIMMs and ECC memory controller
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports registered SDRAM ECC DIMMs
SCSI disk controller	**Adaptec® AHA-7892 / single channel Wide Ultra160 SCSI controller** (160MB/sec) / on planar / 64-bit 33MHz PCI 2.1
SCSI connectors	One 68-pin internal connector / no external SCSI connector
RAID support	Supports optional PCI RAID adapters
IDE disk controller	Enhanced IDE busmaster / Ultra DMA/33 (ATA-33) support / one connector on planar
Cables	*Non hot-swap models:* 5-drop 16-bit LVD SCSI cable *Hot-swap models:* 2-drop 16-bit LVD SCSI cable (planar connector to SCSI backplane) *All:* one 2-drop IDE cable (one drop to CD-ROM)
Disk - features	*Some models:* 18.2GB Wide Ultra160 SCSI / 10K rpm / 5.2ms average read seek time
Rack support	4U[4] rack mount support via tower-to-rack kit option
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / 64-bit PCI (three PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge, USB)
Architecture / chipsets	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE / IB6566 South Bridge for IDE, USB, ISA bus for Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
100/10Mbps ethernet	Intel 82559 / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit 33MHz PCI bus / RJ-45 connector / no support for Wake on LAN® / supports Wake on LAN via optional adapter with 3-wire cable to planar
CD-ROM / diskette	48X-20X[6] CD-ROM / CAV (ATAPI) / bootable / IDE *Diskette:* 3.5" 1.44MB diskette drive
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two (Ver 1.1); keyboard, DB-15 analog video, mouse
Diagnostics	Diagnostic LEDs / error LEDs for processor(s), DIMM(s), Voltage Regulator Module(s), and fan connectors
Systems mgmt cntrl	Two ADM1024 chips / monitors processor temperature, fan speeds, and voltage / **support for optional Remote Supervisor Adapter** (provides continuous health monitoring and control)
Graphics controller	SVGA / S3 Savage4 LT / on planar / 8MB SDRAM std and max / 32-bit PCI / DPMS and DDC2B compliant / 60Hz to 160Hz vertical refresh; 16.7 million colors at 1600x1200 / 15-pin D-Sub connector
Security	Cover key lock / U-Bolt support / power-on password / boot sequence control / operation without kybd and mouse
Software	**ServerGuide**™ (CD-based automated network OS installation and configuration tool), IBM Director (system hardware mgmt software) and many utilities, Norton AntiVirus™, APC PowerChute Plus
BIOS	2MB in Flash EEPROM
Keyboard / mouse	IBM 101 key keyboard / IBM Enhanced mouse
Cooling fans	Three cooling fans (power supply, front, rear) / not redundant / variable speed front and rear fans
Power supply	330 watts / universal / auto switch / Automatic Server Restart (ASR) /no redundancy / cooling fan in power supply

Pentium III 1GHz/256KB Proc Upg	10K0051
128MB SDRAM ECC DIMM 133MHz RDIMM	33L3142
256MB SDRAM ECC DIMM 133MHz RDIMM	33L3144
512MB SDRAM ECC DIMM 133MHz RDIMM	33L3146
1GB SDRAM ECC DIMM 133MHz RDIMM	33L3152
IBM 9.1GB 10K Ultra160 SCSI HDD (not hot-swap)	00N8207
IBM 18.2GB 10K Ultra160 SCSI HDD (not hot-swap)	00N8208
IBM 36.4GB 10K Ultra160 SCSI HDD (not hot-swap)	00N8209
IBM 9.1GB 15K Ultra160 SCSI Hot-Swap HDD	19K0655
IBM 18.2GB 15K Ultra160 SCSI Hot-Swap HDD	19K0656
IBM 36.4GB 10K-4 Ultra160 SCSI Hot-Swap HDD	37L7206
IBM Remote Supervisor Adapter (PCI adapter)	09N7585
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM Netfinity ServeRAID-4L Ultra160 SCSI Controller	37L6091

Slot 1: fullsize, 32-bit 33MHz, PCI 2.1 (5v)
Slot 2: fullsize, 32-bit 33MHz, PCI 2.1 (5v)
Slot 3: fullsize, 64-bit 33MHz, PCI 2.1 (5v)
Slot 4: fullsize, 64-bit 33MHz, PCI 2.1 (5v)
Slot 5: fullsize, 64-bit 33MHz, PCI 2.1 (5v)

Maximum internal SCSI disk capacity:
145.6GB (4 disks x 36.4GB)



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 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", access, open
Bay ⑥ 3.5", SL 1", access, open
Bay ⑦ 3.5", SL 1", access, std disk

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

- Four stabilizing feet
- Handle grip on top
- H 18.5" x W 6.5" x D 20.0"
- H 470mm x W 165mm x D 508mm
- 35 to 43 pounds (15.9 to 19.5kg)

- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Diagnostics (PC-Doctor) by pressing F2 at startup
- Alt+F1 at startup for optional system partition
- Adv Config Power Interface (ACPI) 1.0
- ISO 9241-3 capable

LIMITED WARRANTY

- **3 year parts / 1 year labor warranty[3]**
- **International Warranty Service[3]**
- **1st year: on site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- **2nd/3rd year: parts exchange only, call 1-800-772-2227**
- **On site warranty upgrade options (in eligible locations):**
  - **24 hr / 7 day coverage, 4 hour average response[7] time (21P2022)**
  - **9 hour coverage, Mon through Fri excluding holidays, next business day response[7] time (21P2023)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet support (www.pc.ibm.com)**
- **IBM or reseller warranty/service**

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No warranties are expressed or implied in this summary
• = Hot Swap bays in some models
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IBM @server xSeries 230

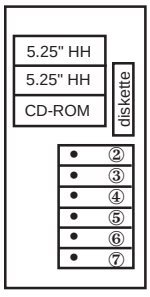
IBM® Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	ethernet	Available date
8658-61Y	1 x Pentium® III 1GHz[1] 133	128MB	None	2 x Ultra160	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	Oct 2000
8658-6RY	1 x Pentium III 1GHz/133	128MB	None	2 x Ultra160	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	Oct 2000

Intel® processor(s)	**1 x Pentium® III 1GHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Single Edge Cartridge (SECC2)
Implementation	Motherboard contains two Intel Slot 1 connectors for SECC2 cartridges (open Slot 1 used by terminator), one VRM socket (one VRM integrated), four DIMM sockets, PCI slots, and integrated subsystems
SMP support	**2-way SMP** via second identical processor / upgrade via SECC2 into second Slot 1 CPU connector
Processor upgrades	Models with 800EB and 866MHz can not upgrade to 933MHz
Memory - std / max	**128MB std / 4GB max**
Memory - sockets	4 sockets / 3 available / **ECC** (all have Error Checking and Correcting (ECC) memory controller) / non-interleaved
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated sockets / PC133-compliant / supports registered SDRAM ECC DIMMs only
SCSI disk controller	**Adaptec® AHA-7899 / dual channel Wide Ultra160 SCSI controller** (LVD 160MB/sec) / Ultra 160/m / on planar / 64-bit PCI / supports IBM ServeRAID adapters (no hardware RAID standard)
SCSI channels	Two internal 16-bit channels / both internal (no external) *SCSI Channel A:* 16-bit 68-pin LVD cable from controller to backplane *Channel B:* 16-bit 68-pin interface (not used)
IDE controller / cable	Single Primary IDE (ROSB4) South Bridge / one connector on planar / one 1 drop IDE cable (CD-ROM)
Disk - capacity	**None standard** / supports 7200-10000 rpm disks / 1 backplane
Disk - bays	Six hot-swap / 80-pin SCA-2 connectors / common tray with EXP200 and later systems like Netfinity and xSeries systems
Mechanical	**Tower or EIA 19" Rack (5U[4])**
Rack support	Rack systems supported in IBM NetfinityRacks / kit available to convert tower to rack (no rack to tower conversion)
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / 64-bit PCI (three PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge) / no hot-swap slots
Chip set	**ServerWorks® ServerSet III™ LE chip set** / NB6635 North Bridge 3.0LE / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 10 bays / three 5.25" HH bays (1 used by CD-ROM) / one diskette bay / six hot-swap bays
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 3 front LEDs
CD-ROM / diskette	40X-17X[6] CD-ROM / multisession / IDE interface / 1.6" HH / bootable; *Diskette:* 3.5" 1.44MB diskette drive / dust cover
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One (EPP, ECP) / IEEE 1284 *USB:* Two ports (Version 1.1)
Graphics controller	SVGA / PCI 2.1 bus / S3® Savage4 (on planar) / 8MB SDRAM std/max / 1280x1024 at 16M colors at 100Hz / DDC2B
Security	Power-on password / administrator password / system owner's name / hinged and lockable front door to cover disk bays, power button, and reset button (tower only) / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems mgmt	**Netfinity Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supplies
Diagnostics	**Diagnostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / system board error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], AntiVirus software, and APC PowerChute Plus / includes Netfinity Director, others
Keyboard / mouse	*Tower only:* IBM 101-key keyboard / IBM mouse (both black)
Power supply	*Std:* one 250 watt hot-swap; *Max:* three 250 watt hot-swap with optional Exp Kit 37L6881 / redundant with two power supplies / worldwide / voltage-sensing / auto-restart / fans in each power supply
Fans	Two (fan in rear, blower in front) / not hot-swap / PFA / fan failure signals Diagnostic LED and Mgmt Processor / fan in each power supply
Prerequisites	Monitor, disk, network operating system, keybd/mouse (rack)

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

Pentium III 1GHz/133MHz/256KB Proc Upg	19K4640
128MB SDRAM ECC DIMM 133MHz RDIMM II	33L3123
256MB SDRAM ECC DIMM 133MHz RDIMM II	33L3125
512MB SDRAM ECC DIMM 133MHz RDIMM II	33L3127
1GB SDRAM ECC DIMM 133MHz RDIMM II	33L3129
Netfinity 5Ux24D Tower-to-Rack Kit	37L6858
Netfinity 250W Hot-Swap Redundant Pwr Supply	33L3760
Netfinity Media Bay Conversion Kit	10K2340
Hot-Swap Power Supply Expansion Kit (3 conn)	37L6881
18.2GB 15K rpm Ultra160 SCSI Hot-Swap HDD	19K0656
36.4GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7206

Slot 1: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 2: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 3: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 4: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 5: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B



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 ④ 3.5", SL 1", access, hot swap
Bay ⑤ 3.5", SL 1", access, hot swap
Bay ⑥ 3.5", SL 1", access, hot swap
Bay ⑦ 3.5", SL 1", access, hot swap
Bay ⑧ 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 or 3 HH hot-swap disks via SCA-2 connectors; Bays 8 and 9 support 3.5" disks via Media Bay Conversion Kit

Rack or Tower (tower shown above)

- Removable, easy release left/top side panel
- Quick release adapter slots (no screws)
- Rail system enables devices (CD-ROM, diskette, tape drives) to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Operator Information Panel (in front)
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with Netfinity Director can alert the system administrator of an imminent component failure
- Tower: H 16.8" x W 8.6" x D 26.0"
- Rack: H 8.6" x W 16.8" x D 24.8"
- 55.7 to 82.7 pounds
- Stealth black color
- All non-hot-swaps bays use rails (no screws) for devices

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time (in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®.[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap
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IBM @server xSeries 240

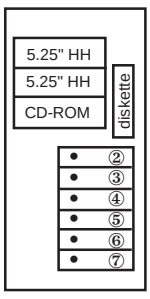
IBM® Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	ethernet	Available date
8664-81Y	1 x Pentium® III 1GHz/133	256MB	None	2 x Wide Ultra2	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	Oct 2000
8664-8RY	1 x Pentium III 1GHz/133	256MB	None	2 x Wide Ultra2	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	Oct 2000

Intel® processor(s)	**1 x Pentium® III 1GHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Single Edge Cartridge (SECC2)
Implementation	*Processor Complex* contains two Intel Slot 1 connectors for SECC2 cartridges (open Slot 1 used by terminator), two VRM sockets (one used), four DIMM sockets, and Reliance CNB3.0LE North Bridge
SMP support	**2-way SMP** via second identical processor / upgrade via SECC2 into second Slot 1 CPU connector
Memory - std / max	**256MB std / 4GB max**
Memory - sockets	4 sockets / 3 available / **ECC** / (all have Error Checking and Correcting (ECC) memory controller) / non-interleaved
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports registered SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)
SCSI disk controller	**Adaptec® AHA-7897 / dual channel Wide Ultra2 SCSI controller** (LVD 80MB/sec) / on planar / 64-bit PCI / two channels (one internal/one external) / supports IBM ServeRAID adapters (no hardware RAID standard)
SCSI channels	*SCSI Channel A:* 16-bit 68-pin LVD cable from controller to backplane *SCSI Channel B:* 16-bit 68-pin interface (hardwired) to external SCSI port (.8mm VHDCI connector)
Extra SCSI cable	Includes a terminated 2-drop 16-bit Ultra SCSI non-LVD cable for optional SCSI devices in open 5.25" bays
IDE controller / cable	Single Primary IDE (ROSB4) South Bridge / one connector on planar / one 1 drop IDE cable (CD-ROM)
Disk - capacity	**None standard** / supports 7200-15000 rpm disks / 1 backplane
Disk - bays	Six hot-swap / no trays included (disks ship w/ trays) / 80-pin SCA-2 connectors / common tray with 8500R and EXP300
Mechanical	**Tower or EIA 19" Rack (5U[4])**
Rack support	Rack systems supported in IBM NetfinityRacks / kit available to convert tower to rack (no rack to tower conversion)
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / **Active PCI™ with hot-swap PCI slots** (hot replace, hot upgrade, hot expansion) / 64-bit PCI (three hot-swap PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge)
Chip set	**ServerWorks® ServerSet 3.0LE chip set** / North Bridge (CNB3.0LE) / South Bridge (ROSB4) for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 10 bays / three 5.25" HH bays (1 used by CD-ROM) / one diskette bay / six hot-swap bays
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 3 front LEDs
CD-ROM / diskette	40X-17X[6] CD-ROM / multisession / IDE interface / 1.6" HH / bootable; *Diskette:* 3.5" 1.44MB diskette drive / dust cover
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One (EPP, ECP) / IEEE 1284 *USB:* Two ports
Graphics controller	SVGA / PCI 2.1 bus / S3® Trio64 3D (on planar) / 4MB SGRAM std/max / up to 1280x1024 at 64K colors at 85Hz / DDC2B
Security	Power-on password / administrator password / system owner's name / hinged and lockable front door to cover disk bays, power button, and reset button (tower only) / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems mgmt	**Integrated Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supplies
Diagnostics	**Daignostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / systemboard error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], AntiVirus software, and APC PowerChute Plus / includes Netfinity Director, others
Keyboard / mouse	*Tower only:* IBM 101-key keyboard / IBM mouse (both black)
Power supply	*Std:* two 250 watt hot-swap; *Max:* three 250 watt hot-swap / **redundant with two power supplies** / worldwide / voltage-sensing / auto-restart / fans in each power supply
Fans	Three redundant, hot-swap fans / easy removal / PFA / fan failure signals Diagnostic LED and Mgmt Processor / power supply fans

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

Pentium III 1GHz/133MHz/256KB Proc Upg	19K4640
128MB SDRAM ECC DIMM 133MHz (registered)	33L3058
256MB SDRAM ECC DIMM 133MHz (registered)	33L3060
512MB SDRAM ECC DIMM 133MHz (registered)	33L3062
1GB SDRAM ECC DIMM 133MHz (registered)	33L3064
Netfinity 5Ux24D Tower-to-Rack Kit	37L6858
Netfinity 250W Hot-Swap Redundant Pwr Supply	33L3760
36.4GB 10K-4 Ultra160 SCSI Hot-swap SL HDD	37L7206
9.1GB 15K-rpm Ultra160 SCSI Hot-swap SL HDD	19K0655
18.2GB 15K-rpm Ultra160 Hot-swap SL HDD	19K0656

Slot 1: fullsize, 32-bit PCI 2.1 (5v), Bus A
Slot 2: fullsize, 32-bit PCI 2.1 (5v), Bus A
Slot 3: fullsize, 64-bit PCI 2.1 (5v), Hot-swap, Bus B
Slot 4: fullsize, 64-bit PCI 2.1 (5v), Hot-swap, Bus B
Slot 5: fullsize, 64-bit PCI 2.1 (5v), Hot-swap, Bus B



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 ④ 3.5", SL 1", access, hot swap
Bay ⑤ 3.5", SL 1", access, hot swap
Bay ⑥ 3.5", SL 1", access, hot swap
Bay ⑦ 3.5", SL 1", access, hot swap
Bay ⑧ 5.25", HH 1.6" access, CD-ROM
Bay ⑨ 5.25", HH 1.6" access, open
Bay ⑩ 5.25", HH 1.6" access, open

Bays 2 through 7 support 6 SL disks or 3 HH hot-swap disks via SCA-2 connectors

Rack or Tower (tower shown above)

- Removable, easy release left/top side panel
- Quick release adapter slots (no screws)
- New rail system enables devices (CD-ROM, diskette, tape drives) to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Operator Information Panel (in front)
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with Netfinity Manager can alert the system administrator of an imminent component failure
- Tower: H 16.8" x W 8.6" x D 26.0"
- Rack: H 8.6" x W 16.8" x D 24.8"
- 55.7 to 82.7 pounds
- Stealth black color
- All non-hot-swaps bays use rails (no screws) for devices

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options (in eligible locations):**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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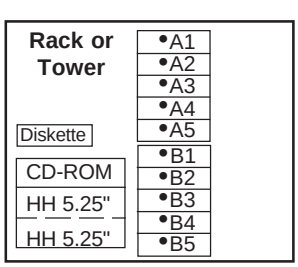
IBM @server xSeries 250

IBM® Type-model	Qnty x Processor	L2 cache	Memory	ECC	Disk	SCSI controller	Mechanical	Slots x bays	Hot-swap disk bays	ethernet	Available date
8665-61Y	1 x Xeon 700/100	1MB	512MB	Chipkill™	None	2 x Ultra160	Tower	6 slots x 14 bays (10 hs)		10/100 ethernet	Mar 2001
8665-71Y	1 x Xeon 700/100	2MB	512MB	Chipkill	None	2 x Ultra160	Tower	6 slots x 14 bays (10 hs)		10/100 ethernet	Mar 2001
8665-81Y	1 x Xeon 900/100	2MB	512MB	Chipkill	None	2 x Ultra160	Tower	6 slots x 14 bays (10 hs)		10/100 ethernet	Apr 2001
8665-6RY	1 x Xeon 700/100	1MB	512MB	Chipkill	None	2 x Ultra160	8U[4] rack	6 slots x 14 bays (10 hs)		10/100 ethernet	Mar 2001
8665-7RY	1 x Xeon 700/100	2MB	512MB	Chipkill	None	2 x Ultra160	8U rack	6 slots x 14 bays (10 hs)		10/100 ethernet	Mar 2001
8665-8RY	1 x Xeon 900/100	2MB	512MB	Chipkill	None	2 x Ultra160	8U rack	6 slots x 14 bays (10 hs)		10/100 ethernet	Apr 2001

Processor(s)	**1 x Intel® Pentium® III Xeon™ 700 or 900MHz[1] with 100MHz Front Side Bus**
L2 cache	**1MB** or **2MB** / full speed
Implementation	Each processor with ECC L2 cache integrated in Single Edge Contact (SEC) cartridge in Intel Slot 2
Processor upgrade(s)	**4-way SMP** / to four identical Pentium III Xeon Slot 2 (SC330) CPUs /
Mechanical	Each processor has one VRM / Processor Board has one Memory Board slot, six PCI slots, four Intel Slot 2 slots, four VRM slots (all removable as a slide out Shuttle for easy serviceability)
Mem - std / max / type	**512MB std / 16GB[13] max / Chipkill™** multibit error correction using ind std ECC DIMMs (fixes 1 to 4-bit errors on same chip) / Chipkill performed by memory controller and firmware
Memory - sockets	One Memory Board std and max / 16 sockets / 12 available (four 128MB DIMMs standard) / 4-way memory interleave
Memory - support	**SDRAM / 100MHz** / sixteen 168-pin gold-plated DIMM 3.3 volt sockets / PC100-compliant / requires 4 identical DIMMs supports **registered** SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)
SCSI controller	Adaptec® AIC-7896 / no integrated RAID controller
SCSI channels	Two Wide Ultra2 SCSI channels (LVDS 80MB/sec) / each channel supports 15 devices
Cache / bus	No cache / PCI Bus C 32-bit 33MHz / controller on Input/Output Board
Connectors and cabling	*Channel A:* one 0.8mm VHDCI external SCSI connector *Channel B:* 68-pin internal connector on power backplane with 16-bit LVD cable to one hot-swap backplane
Additional cables	16-bit LVD cable on second backplane connector left unconnected at other end (requires Ultra160 SCSI Repeater Card to connect both backplanes into a single channel 10-bay configuration) / two-drop 16-bit LVD SCSI cable included to support devices in two left bays
IDE controller / cabling	Enhanced IDE controller / one drop IDE cable from one IDE connector to CD-ROM
Mechanical	**EIA 19" rack (8U[4]) or tower**
Rack / conversion	Rack systems supported in IBM NetBAY rack products / kits available to convert rack to tower or tower to rack
Architecture / chip set	**ServerWorks® ServerSet III HE** / CNB20HE North Bridge (PCI 2.2 and memory controller) / CIOB I/O Bridge (Frontside Bus interface from PCI bus to North Bridge) / OSB4 South Bridge (EIDE, ISA Bridge, USB, SMBus, IOAPIC) / three peer PCI 2.1 buses (A: 64-bit 66MHz, B: 64-bit 33MHz, C: 32-bit 33MHz) / NS PC97317VUL Super I/O
Active™ PCI slots	**4 hot-swap PCI slots**[10] with power and attention indicator lights (optical sensors control power to slot) / **Active PCI** via hot replace, hot upgrade, hot expansion (see below for details)
Bays	14 bays total: **10 hot-swap disk bays** / three 5.25" HH bays (1 used by CD) / one 3.5" SL bay (diskette)
Ethernet controller	AMD® Am79C975 / on PCI Bus C / 10BaseT, 100BaseTX / full duplex / RJ-45 connector / 3 LEDs
CD-ROM / diskette drv	*CD-ROM:* 48X-20X[6] CD-ROM / IDE (ATAPI) / 1.6" HH / bootable; *Diskette drive:* 3.5" 1.44 MB diskette drive / dust cover
Ports	*Serial:* Three 9-pin (one for Mgmt Processor); *Parallel:* One 25-pin; *USB:* Two Ver 1.1; Keyboard; Mouse; RS485 mgmt
Graphics controller	SVGA / PCI Bus C / S3® Trio-3D (on Input/Output Board) / 4MB SGRAM std/max / up to 1024x768 at 256 colors at 85Hz
Security	Power-on password / administrator password / selectable boot / secure mode (disables keyboard and mouse) / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems management	**Advanced System Mgmt Processor** (service processor) / on planar / provides remote console and mgmt / power on/off system / monitors temperature, disks, fans, power supply
Diagnostics	**Light-Path Diagnostics™ Panel** providing LED map to failing part (under top cover) / Information LED Panel in front
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Norton AntiVirus, APC PowerChute Plus / includes IBM Director™ and others
Keyboard / mouse	*Tower only:* IBM 101-key keyboard / IBM mouse (both black)
Power supply	*Std:* two 250 watt hot-swap; *Max:* four 250 watt hot-swap / three provide N+1 redundancy for typical config / tool-free install / universal (voltage sensing) / fans in each power supply / PFA
Fans	Four logical fans / **seven hot-swap redundant fans** (3 in disk area, 2 in slot area, 2 in CPU area) / variable speed / PFA / fan failure signals Diagnostic LED and Mgmt Processor / plus fan in each power supply

128MB SDRAM 100MHz ECC DIMM (register)	33L3113
256MB SDRAM 100MHz ECC DIMM (register)	33L3115
512MB SDRAM 100MHz ECC DIMM (register)	33L3117
1GB SDRAM 100MHz ECC DIMM (register)	33L3119
2GB SDRAM 100MHz ECC **Kit** (4x512MB)	33L3147
Netfinity® 250W Hot-Swap Redund Power Sup	33L3760
Pentium III Xeon 700MHz/1MB Proc Upg II	10K2331
Pentium III Xeon 700MHz/2MB Proc Upg II	10K2332
Pentium III Xeon 900MHz/2MB Proc Upg II	19K4635
Netfinity 8Ux24D Tower-to-Rack Kit	37L6859
Netfinity 8Ux24D Rack-to-Tower Kit	37L6860
IBM PCI Fast/Wide Ultra LVD Adapter	33L5000
IBM ServeRAID-4M Ultra160 SCSI Controller	37L6080
IBM ServeRAID-4H Ultra160 SCSI Controller	37L6889
IBM EXP300	35311RU
Ultra160 SCSI Repeater Card	37L7086

- Tower dim: H 15.7" x W 19" x D 28"; 88 to 123 lbs
- Rack dim: H 13.8" x W 17.3" x D 27.6"; 88 to 123 lbs



Optional NetBAY3 pedestal (supports 2 more NetBAY3's)

- Black color
- ACPI 1.0
- Orange components and labels indicate hot-swap options
- Suppliers Declaration
- Vital Product Data
- Backup BIOS

Split backplane: 5 SL 3.5" bays in each backplane (HH bays not supported)

Disks not supported in 5.25" bays

Slot 1: full,64-bit 66MHz 3.3v PCI, not hot, Bus A
Slot 2: full,64-bit 66MHz 3.3v PCI, not hot, Bus A
Slot 3: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B
Slot 4: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B
Slot 5: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B
Slot 6: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B

- Setup Program is available by pressing F1 at 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 Adv System Mgmt Processor for IBM Director for DIMM(s), processor(s),VRM(s), power supply(s), disk(s), and fans

Maximum internal disk capacity: 364GB[2] with ten 36.4GB SL hot-swap SCSI disks

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time** (30L9187)
  - **24 hr / 7 day coverage, 2 hour average response[7] time** (31L2723)
  - **(in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap

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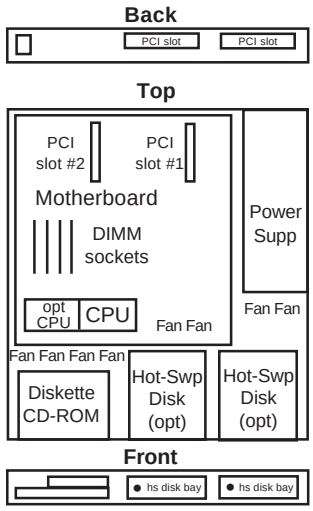
IBM @server xSeries 330

IBM® Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	ethernet	Available date
8654-11Y	1 x Pentium® III 800/133	256MB	None	Ultra160	1U rack	2 slots x 4 bays	2 hot-swap	2 x 10/100 ethernet	Oct 2000
8654-31Y	1 x Pentium III 866/133	256MB	None	Ultra160	1U rack	2 slots x 4 bays	2 hot-swap	2 x 10/100 ethernet	Oct 2000
8654-41Y	1 x Pentium III 933/133	256MB	None	Ultra160	1U rack	2 slots x 4 bays	2 hot-swap	2 x 10/100 ethernet	Nov 2000
8654-51Y	1 x Pentium III 1GHz/133	256MB	None	Ultra160	1U rack	2 slots x 4 bays	2 hot-swap	2 x 10/100 ethernet	Nov 2000

Processor	**Intel® Pentium® III 800EB, 866, 933MHz or 1GHz[1] / 133MHz Front Side Bus**
SMP support	**2-way SMP** via identical processor / both VRMs integrated on planar
Implementation	Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA) / two Intel PGA370 sockets / terminator in empty socket
L2 cache	**256KB** std and max / ECC / full speed
Memory - std / max	**256MB** std / 4GB max / Error Checking and Correcting (ECC) memory controller
Memory - sockets	4 sockets / 3 available
Memory - features	**SDRAM / 133MHz** / ECC DIMMs / 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
SCSI disk controller	Adaptec® AIC-7892 / Wide Ultra160 SCSI (LVD 160MB/sec) / single channel / 64-bit PCI / integrated on motherboard
SCSI connectors	Internal 68-pin (attaches 1-drop cable to SCSI backplane); no external SCSI connector
RAID support	No hardware RAID standard / supports optional ServeRAID PCI adapter (see below)
IDE controller	Enhanced IDE / two connectors on planar / one 1-drop IDE cable to CD-ROM / ATA-66
Architecture / chipsets	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE (the North Bridge has two peer PCI buses: PCI Bus 0, 32-bit 33MHz, IB6566 South Bridge, two ethernet controllers, graphics controller); PCI Bus 1, 64-bit 33MHz, SCSI controller, two 64-bit PCI slots) / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Mechanical	**EIA 19" Rack (1U[4])** / rack-mount only / supported in IBM Netfinity Rack products (rack requires vented front door)
Control Panel	Front indicators/switches include Power, Reset, Console Select, Power LED and Fault/info LED
Ethernet controllers	**2 x Intel 82559** ethernet controllers / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit PCI bus / redundant ethernet capability and load balancing support through the connection of both ethernet ports to the same LAN segment / two RJ-45 connectors on rear / supports PXE 2.0 Boot Agent / no Wake on LAN® support
CD-ROM / diskette	**24X-10X[6] CD-ROM;** CAV (ATAPI); bootable; IDE / 3.5" 1.44MB diskette drive
Serial / parallel / USB	*Serial:* One 9-pin; *Parallel:* None; *USB:* Two ports (Version 1.1); *Mgmt:* Two RS485 ports for systems management
Console interconnects	System-to-system interconnect cable (10 inch, 245mm) is standard (Keyboard Video Mouse (KVM) chaining cable) / daisy chain connection to adjacent server / supports large rack deployments of daisy chained servers / chain functions with multiple server (not contiguous in chain) outage / one Cable Chain Technology Cable Kit required at end of chain (a cable with separate keyboard, mouse, monitor connectors)
Systems mgmt	**Netfinity Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supply
Diagnostics	**Light-Path Diagnostics** (LED lights indicate failing component) and on-board diagnostics (via PC-Doctor in BIOS)
Graphics controller	SVGA / PCI bus / S3® Savage4Pro (on planar) / 8MB SDRAM std and max / DDC2B
Security	Power-on password / administrator password / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Software	**ServerGuide**™ (CD-ROM installation and configuration utilities), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], AntiVirus software, and APC PowerChute Plus / includes Netfinity Director, others
Keyboard / mouse	None standard
Cooling fans	Eight fans (four for processor(s) and planar, two for disk(s) and planar, two for power supply)
Power supply	200 watt / universal / auto-sensing / auto-restart support
Prerequisites	Monitor, keyboard, mouse, rack, SCSI disk, operating system, one Cable Chain Technology (C2T) Console Cable Kit per chain of servers

Pentium III 800/133MHz/256KB Proc Upg	10K3810
Pentium III 866/133MHz/256KB Proc Upg	10K3806
Pentium III 933/133MHz/256KB Proc Upg	10K0052
Pentium III 1GHz/133MHz/256KB Proc Upg	10K0053
128MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3142
256MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3144
512MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3146
1GB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3152
9.1GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7204
18.2GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7205
36.4GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7206
ServeRAID-4L Ultra160 SCSI Adapter	37L6091
ServeRAID-4M Ultra160 SCSI Adapter	37L6080
Netfinity Rack (with perforated door and side panels)	9306910
Netfinity Rack Front Door Kit	06P6010
xSeries Cable Chain Technology Cable Kit (contains 2 meter breakout cable and 2 meter KVM chaining cable)	06P4792



Bay ① 3.5", UltraSlim 0.8", access, std diskette
Bay ② 5.25", UltraSlim 0.8", access, std CD-ROM
Bay ③ 3.5", SL 1", access, open for hot-swap disk
Bay ④ 3.5", SL 1", access, open for hot-swap disk

Slot 1: fullsize, 64-bit 33MHz PCI 2.1 (5v)
Slot 2: halfsize, 64-bit 33MHz PCI 2.1 (5v)

- Stealth black
- H 1.72" (1U) x W 17.3" x D 25.7"
- 22 to 28 lbs (minimum to maximum configuration)
- Setup Program is available by pressing F1 at startup
- PC-Doctor diagnostics is available by pressing F2 at startup
- SCSISelect near startup by pressing CTRL+A
- PXE Bullet Agent near startup by pressing CTRL+S
- DMI 2.1, Wired for Management 1.1a
- Includes rack mounting kit
- 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

All models: Max int disk capacity: 72.8GB with two 36.4GB SL SCSI disks

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time (in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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IBM @server xSeries 340

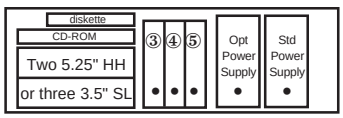
IBM® Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	ethernet	Available date
8656-6RY	1 x Pentium® III 1GHz/133	128MB	None	2 x Ultra160	3U rack	5 slots x 7 bays	3 hot-swap	10/100 ethernet	Oct 2000

Intel® processor(s)	**1 x Pentium® III 1GHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Single Edge Cartridge (SECC2)
Implementation	Motherboard contains two Intel Slot 1 connectors for SECC2 cartridges (open Slot 1 used by terminator), one VRM socket (one VRM integrated), four DIMM sockets, PCI slots, and integrated subsystems
SMP support	**2-way SMP** via second identical processor / upgrade via SECC2 into second Slot 1 CPU connector
Memory - std / max	**128MB std / 4GB max**
Memory - sockets	4 sockets / 3 available / **ECC** / (all have Error Checking and Correcting (ECC) memory controller) / non-interleaved
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports registered SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)
SCSI disk controller	**Adaptec® AHA-7899 / dual channel Wide Ultra160 SCSI controller** (LVD 160MB/sec) / Ultra 160/m / on planar / 64-bit PCI / no hardware RAID standard
SCSI channels	Two internal 16-bit channels / both internal (no external) *SCSI Channel A:* 16-bit 68-pin LVD cable from controller to backplane *Channel B:* 16-bit 68-pin interface (not used)
IDE controller / cable	Single Primary IDE / one connector on planar / one 1 drop IDE cable (CD-ROM)
Disk - capacity	**None standard** / supports 7200-10000 rpm disks / 1 backplane / SAF-TE 1.0-compliant
Disk - bays	Three hot-swap / 80-pin SCA-2 connectors / common tray with EXP300 and later systems
Mechanical	**EIA 19" Rack (3U[4])** x 26-inch deep
Rack support	Rack systems supported in IBM Netfinity Racks
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / 64-bit PCI (three PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge)
Chip set	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 7 bays / three hot-swap bays
Status LEDs	**Operator Information Panel** (in front) / includes power-on, disk, ethernet, information, system error
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 2 front LEDs
CD-ROM / diskette	24X-10X[6] CD-ROM / multisession / IDE interface / bootable; *Diskette:* 3.5" 1.44MB diskette drive
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One (EPP, ECP) / IEEE 1284 *USB:* Two ports (Version 1.1)
Graphics controller	SVGA / PCI 2.1 bus / S3® Savage4 (on planar) / 8MB SDRAM std/max / 1280x1024 at 16M colors at 100Hz / DDC2B
Security	Power-on password / administrator password / system owner's name / hinged bezel to cover disk bays, power button, and reset button / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems management	**Integrated Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supplies
Diagnostics	**Diagnostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / system board error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**ServerGuide**™ (CD-ROM installation and configuration utilities), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], AntiVirus software, and APC PowerChute Plus / includes Netfinity Director, others
Upgradeable EEPROMs	BIOS (remote), diagnostics (remote), and Mgmt Processor on motherboard can be upgraded
Keyboard / mouse	None standard
Power supply	*Std:* one 270 watt hot-swap; *Max:* two 270 watt hot-swap / **front access** / redundant with two power supplies / worldwide / voltage-sensing / auto-restart / fans in each power supply
Fans	Three (two in middle, one in rear) / **hot-swap** / redundant (any single fan can fail while maintaining cooling) / PFA / fan failure signals Diagnostic LED and Mgmt Processor / fan in each power supply
Prerequisites	Monitor, disk, network oper system, keyboard, mouse, rack

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

Pentium III 1GHz/133MHz/256KB Proc Upg	19K4640
128MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3123
256MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3125
512MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3127
1GB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3129
Netfinity 270W Hot-Swap Redundant Pwr Supply	37L6880
Netfinity 3-Pack Ultra160 Hot-Swap Exp Kit	33L5050
18.2GB 15K-rpm Ultra160 SCSI Hot-Swap HDD	19K0656
18.2GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7205
36.4GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	37L7206

Slot 1: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 2: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 3: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 4: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 5: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B



Bay ① 3.5", US 0.8", access, diskette
Bay ② 3.5", US 0.8", 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
Bay ⑥ 5.25", HH 1.6", access*
Bay ⑦ 5.25", HH 1.6", access*

Bays 6 through 7 support two HH devices or an optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit to convert these two bays into three hot-swap disk bays

- Rail system enables devices (CD-ROM, diskette, tape drives) to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Several hardcopy publications
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with Netfinity Director can alert the system administrator of an imminent component failure
- Rack: H 5.25" x W 16.3" x D 26.0"
- 44 to 62 pounds
- Stealth black color
- Two 5.25" bays use rails (no screws) for devices

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time (in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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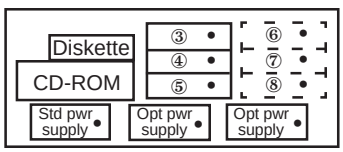
IBM @server xSeries 350

IBM® Type-model	Qnty x Processor	L2 cache	Memory	Disk	SCSI controller	Slots	Bays std	Bays max	HS power supplies	Ethernet	Mechanical	Available date
8682-4RY	1 x Xeon 700/100	1MB	512MB	None	2 x Ultra 160	6	5 (3HS)	8 (6HS)	1 (3 Max)	10/100	4U[4] rack	Mar 2001
8682-5RY	1 x Xeon 700/100	2MB	512MB	None	2 x Ultra 160	6	5 (3HS)	8 (6HS)	1 (3 Max)	10/100	4U rack	Mar 2001
8682-6RY	1 x Xeon 900/100	2MB	512MB	None	2 x Ultra 160	6	5 (3HS)	8 (6HS)	1 (3 Max)	10/100	4U rack	Apr 2001

Processor(s)	**1 x Intel® Pentium® III Xeon™ 700 or 900MHz[1] with 100MHz Front Side Bus**
L2 cache	**1MB** std and max / at processor speed or **2MB** std and max / at processor speed
Implementation	Motherboard contains four Intel Slot 2 connectors for SECC cartridges (fourth Slot 2 occupied by terminator), PCI slots, one slot for Memory Board, and integrated subsystems / all VRMs integrated in processors
SMP support	**4-way SMP** via identical processors / upgrade via SECC into Slot 2 CPU connectors /
Mem - std / max / type	**512MB std / 16GB max[13] / Chipkill™** multibit error correction using ind std ECC DIMMs (fixes 1 to 4-bit errors on same chip) / Chipkill performed by memory controller and firmware
Memory - sockets	One Memory Board std and max / 16 sockets / 12 available (four 128MB DIMMs standard) / 4-way memory interleave
Memory - support	**SDRAM / 100MHz** / sixteen 168-pin gold-plated DIMM 3.3 volt sockets / PC100-compliant / requires 4 identical DIMMs Supports **registered** SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)
SCSI disk controller	**Adaptec® AHA-7899 / dual channel Wide Ultra160 SCSI controller** (LVD 160MB/sec) / Ultra 160/m / on planar / 64-bit PCI / no hardware RAID standard
SCSI channels	Two 16-bit channels / both internal or one internal with one external / *Channel A:* 16-bit 68-pin LVD cable from controller to backplane / *Channel B:* internal 16-bit connector to use internally or can attach standard bulkhead LVD cable through punch out for external connector
Extra SCSI cable	Includes a 16-bit LVD SCSI cable for external SCSI devices via an external 0.8mm VHDCI connector
IDE controller / cable	Single Primary IDE / one connector on planar / one 1-drop IDE cable (CD-ROM)
Disk - bays	Hot-swap (HS)/ 3 bays std / 6 max / 80-pin SCA-2 connectors / common tray with EXP300 and later systems
Mechanical	**EIA 19" Rack (4U[4])**
Rack support	Supported in IBM NetBay® Racks
Architecture	Three peer PCI 2.2 buses / Bus A: 32-bit 33MHz (1 PCI slot, ethernet, graphics, South Bridge, Mgmt Processor daughtercard) / Bus B: 64-bit 66MHz (3 PCI slots) / Bus C: 64-bit 33MHz (2 PCI slots, SCSI controller)
Slots (Active™ PCI)	(See below) 6 hot-swap PCI slots[10] available / hot replace, hot upgrade, hot expansion
Chip set	**ServerWorks® ServerSet 2.0HE chip set** / NB6536 North Bridge 2.0HE / NB6555IO Bridge 2.0 (Inter Module Bus with two 16-bit links to 6536) / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 5 bays / three hot-swap disk bays standard (option for three additional hot-swap disk bays)
Status LEDs	**Operator Information Panel** (in front) / includes power-on, disk, ethernet, information, system error
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 2 front LEDs
CD-ROM / diskette	48X-20X[6] CD-ROM / multisession / IDE interface / bootable; *Diskette:* 3.5" 1.44MB diskette drive / dust cover
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One *USB:* Two ports (Version 1.1) *Adv Sys Mgmt:* Two RJ-45
Graphics controller	SVGA / PCI 2.1 bus / S3® Savage4 (on planar) / 8MB SDRAM std/max / 1280x1024 at 16M colors at 100Hz / DDC2B
Security	Power-on password / administrator password / hinged bezel to cover power button and reset button / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems management	**Advanced System Mgmt Processor** / on daughtercard / ISA bus proprietary connector / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temp, fans, and power supplies
Diagnostics	**Diagnostics LED Panel** Light-Path Diagnostics™ (under cover) / provides an LED map to failing component / motherboard error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**ServerGuide™** (installation and configuration utilities), AntiVirus software, and APC PowerChute Plus / IBM Director
Keyboard / mouse	None standard
Power supply	*Std:* one 270 watt hot-swap; *Max:* three 270 watt hot-swap / **front access** / redundant with two power supplies in most cases; redundancy with three in all cases / auto-restart
Fans	Six (four for disks, memory, PCI; two for processors) / **hot-swap** / redundant (any single fan can fail while maintaining cooling / PFA / fan failure signals Diagnostic LED and Mgmt Processor / fan in each power supply
Prerequisites	Monitor, disk, operating system, keyboard, mouse, rack

Pentium III Xeon 700/100MHz/1MB Proc Upg	00N7946
Pentium III Xeon 700/100MHz/2MB Proc Upg	00N7944
Pentium III Xeon 900/100MHz/2MB Proc Upg	19K4633
128MB 100MHz SDRAM ECC RDIMM	33L3113
256MB 100MHz SDRAM ECC RDIMM	33L3115
512MB 100MHz SDRAM ECC RDIMM	33L3117
1GB 100MHz SDRAM ECC RDIMM	33L3119
2GB 100MHz SDRAM ECC RDIMM **Kit** (4 x 512MB)	33L3147
9.1GB 10K-4 Ultra160 SCSI Hot-Swap SL	37L7204
18.2GB 10K-4 Ultra160 SCSI Hot-Swap SL	37L7205
36.4GB 10K-4 Ultra160 SCSI Hot-Swap SL	37L7206
Netfinity® 3-Pack Ultra160 Hot-Swap Exp Kit	33L5050
ServeRaid-4H Ultra 160 SCSI Controller	37L6889
Netfinity 270W Hot-Swap Redundant Pwr Supply	37L6880
ServicePac® IOR 24x7x2 hour response[7]	30L9186
ServicePac IOR 24x7x4 hour response[7]	31L2722

Slot 1: fullsize, 32-bit 33MHz PCI (5v), hot-swap, Bus A
Slot 2: fullsize, 64-bit 66MHz PCI (3.3v), hot-swap, Bus B
Slot 3: fullsize, 64-bit 66MHz PCI (3.3v), hot-swap, Bus B
Slot 4: fullsize, 64-bit 66MHz PCI (3.3v), hot-swap, Bus B
Slot 5: fullsize, 64-bit 33MHz PCI (5v), hot-swap, Bus C
Slot 6: fullsize, 64-bit 33MHz PCI (5v), hot-swap, Bus C



Bay ① 3.5", SL 1", access, diskette
Bay ② 3.5", HH1.6", 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
*Bay ⑥,⑦,⑧ Optional 3-Pack for 3 SL 1.0" hot-swap disk bays (otherwise not usable)

- Rail system enables CD-ROM and diskette to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Several hardcopy publications
- Predictive Failure Analysis® on disk options, memory, processors, power supplies, and fans in conjunction with IBM Director can alert the system administrator of an imminent component failure
- Rack: H 7.0" x W 19.0" x D 28.0"
- 62 to 77 pounds
- Stealth black color

All models: Max int disk capacity: 218.4GB² with six 36.4GB SL disks

WARRANTY SERVICE SUPPORT

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour response[7] time**
  - **24 hr / 7 day coverage, 2 hour respse[7] time (in eligible locations)**
- **90-day IBM Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], bulletin board, fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap
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IBM @server xSeries 370

IBM® Type-model	Qnty x Processor	L2 cache	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot-swap slots	Hot-swap pwr supplies	Mgmt adapter	Available date
8681-1RX	1 x Xeon 700/100	1MB	512MB	None	2 x Wide Ultra2	8U[4] rack	12 slots x 4 bays (12 hs)	Three	redundant	PCI	Mar 2001
8681-2RX	1 x Xeon 700/100	2MB	512MB	None	2 x Wide Ultra2	8U rack	12 slots x 4 bays (12 hs)	Three	redundant	PCI	Mar 2001
8681-3RX	1 x Xeon 900/100	2MB	512MB	None	2 x Wide Ultra2	8U rack	12 slots x 4 bays (12 hs)	Three	redundant	PCI	Apr 2001

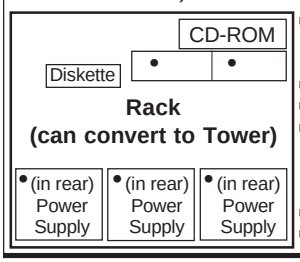
processor(s)	**1 x Intel® Pentium® III Xeon™ 700 or 900MHz[1] with 100MHz Front Side Bus**
L2 cache	**1MB or 2MB** / full speed
Processor upgrade(s)	**8-way SMP** / up to eight Pentium III Xeon processors (same speed/cache size) / two 64-bit 100MHz processor buses
Features	*Standard:* one Processor Board with four Intel Slot 2 sockets (one processor bus) *Maximum:* two Processor Boards (second processor bus) / requires two Cache Coherency Filter Cards (reduces cache snoop bus traffic between two processor buses) / 'Mezzanine Exp Kit' has one Processor Board that requires 'Netfinity® 4X Accelerator Filter' containing two 1MB Cache Coherency Filter Cards (one for each Processor Board)
Memory - std / max	**512MB** / 32GB
Memory - std DIMMs	4 x 128MB DIMM
Memory - type	PC100-compliant 3.3v registered 168-pin SDRAM RDIMMs / 100MHz / gold connectors **Error Checking and Correcting (ECC)** memory and memory controller (Profusion Memory Controller MAC and DIB)
Memory - cards	One Memory Card std (one memory bus) / two cards max (second memory bus) / each card has 16 sockets / 16GB max per card / second card supports two-way cache line interleaving
SCSI disk controller	Adaptec® AIC-7897 / no integrated RAID controller
SCSI channels	Two Wide Ultra2 SCSI channels (LVDS 80MB/sec)
SCSI implementation	64-bit PCI / integrated on I/O Function Card
SCSI connectors	One 68-pin connector internal and one .8mm VHDCI connector external / each channel supports up to 15 devices
SCSI cabling	One 16-bit LVD cable to two bay backplane / one 16-bit LVD cable from controller to external 68-pin VHDCI connector
IDE controller / cabling	Enhanced IDE controller in PIIX4E / one one-drop IDE cable from IDE controller to CD-ROM
Disk - capacity	**None** / supports 10,000 rpm disks / converged tray is interchangeable with EXP200/300 and later Netfinity systems
Disk - bays	Hot-swap / no trays included (disks ship with trays) / 80-pin SCA-2 connectors

All models: Maximum internal disk capacity: 72.8GB with two 36.4GB[2] HH Hot-swap SCSI disks

Mechanical	**EIA 19" rack models (8U[4])** x 28" deep
Rack / conversion	Supported in NetBAY Enterprise Racks and current racks with extension options / kit available to convert rack to tower
Architecture	**Intel Profusion®** chip set / one midplane (interconnects major buses and components) / four PCI 2.2 buses (four PB64) numbered 0, 4, 10, 13 to allow hot-swap of PCI-to-PCI bridge adapters
I/O Function Card	64-bit 33MHz PCI adapter / includes controllers for SVGA (32-bit PCI), SCSI, and PIIX4E (32-bit PCI Intel 82371AB for EIDE, ISA Bridge, USB) / Super I/O (NS PC97317VUL on 16-bit ISA) off PIIX4E
Slots (Active™ PCI)	12 hot-swap PCI slots[10] available **with power and attention indicator lights** (optical sensors control power to slot) / **Hot replace, hot upgrade, hot expansion** / separated by insulative plastic dividers / PCI Hot-Plug Specification 1.0
LAN adapter	No standard NIC controller or adapter
CD-ROM / Diskette	*CD-ROM:* 48X-20X[6] CD-ROM / IDE interface off PIIX4E / 1.6" HH / bootable; *Diskette drive:* 3.5" 1.44MB / dust cover
Ports	Two 9-pin serial / one 25-pin parallel / two USB / one keyboard / one mouse / one SVGA (all in rear)
Graphics controller	SVGA / S3® Trio3D / integrated on I/O Function Card / 4MB SGRAM std/max / up to 1024x768 at 256 colors at 85Hz
Security	Power-on and administrator passwords / mountable in an optional secure rack enclosure / selectable drive-startup / keyboard password / Advanced Remote Management security (user log-in password, read-only or read/write access, dial back)
Systems management	**Netfinity Advanced System Mgmt PCI Adapter** (service processor) / PCI adapter / includes 10/100 ethernet, dual serial, and RS 485 bus connectors / provides remote console and mgmt / power on/off system / monitors power status, operating system, temperature, disks, fans, power supply / NS LM78 hardware monitor (voltage, temperature, fans)
Diagnostics	**Light-Path Diagnostics**™ / primary indicator on information panel with LEDs associated with failing components
LCD information panel	**Intelligent front panel** / two 16 character lines of status info
Software	**ServerGuide**™ - CD-ROM installation and configuration utilities, AntiVirus, and APC PowerChute Plus / includes IBM Director and others
Keyboard / mouse	None standard (since for rack)
Power supplies	**Hot-swap / redundant /** *std and max:* three 750 watt at 220v or 550 watts at 110v / universal (voltage sensing) / fans in each power supply / each has individual power cord / PFA
Fans	**Nine fans / six hot-swap redundant** (three fans in front for cpu area, three fans in middle for memory and adapter area) / one fan in each power supply / PFA / fan failure signals Diagnostic LED and mgmt processor

Netfinity 128MB SDRAM DIMM (registered) II	20L0245
Netfinity 256MB SDRAM DIMM (registered) II	20L0247
Netfinity 512MB SDRAM DIMM (registered) II	20L0249
Netfinity 1GB SDRAM DIMM (registered) II	33L3056
Netfinity 8500R Memory Card (16 sockets)	28L4454
Pentium III Xeon 700MHz/1MB Proc Upg	10K2330
Pentium III Xeon 700MHz/2MB Proc Upg	10K2166
Pentium III Xeon 900MHz/2MB Proc Upg	19K4637
Netfinity 8Ux28D Rack-to-Tower Conversn Kit	28L4705
NetBAY3E (3U pedestal on bottom)	36L9701
Netfinity Mezzanine Expansion Kit	10K2337
Netfinity 4X Accelerator Filter (two 1MB filters)	10K2335
Netfinity ServeRAID™-4H Ultra160 SCSI Adptr	37L6889

- Dimensions: H14.0" x W17.3" x D29.4"; 147-170lbs
- Tool-free top, front, and rear access
- Access adapters from top
- Access memory, processors, and disks from front
- Access power supplies from rear
- Setup Program by pressing F1 at startup
- Diagnostics (PC-Doctor) by pressing F2 at startup
- Six power cords (9' each) included (three 110v and three 220v)



- Two 1.6" high HH 3.5" bays (both hot-swap)
- Stealth black color
- 4 removable handles
- (If convert to tower) supports up to three NetBAY3 units on bottom
- Wired for Mgmt 1.1a
- DMI 2.0, ACPI 1.0

Slot 1: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 2: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 3: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 4: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 5: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 6: fullsize, 64-bit 66MHz PCI, hot-swap, Bus C
Slot 7: fullsize, 64-bit 66MHz PCI, hot-swap, Bus C
Slot 8: fullsize, 64-bit 66MHz PCI, hot-swap, Bus B
Slot 9: fullsize, 64-bit 66MHz PCI, hot-swap, Bus B
Slot 10: fullsize, 64-bit 33MHz PCI, hot-swap, Bus A
Slot 11: fullsize, 64-bit 33MHz PCI, hot-swap, Bus A
Slot 12: fullsize, 64-bit 33MHz PCI, hot-swap, Bus A
Slot*: fullsize, 64-bit 33MHz PCI, not hot-sw, Bus A
Slot**: fullsize, 32-bit 33MHz PCI, not hot-sw, Bus A

* used by I/O Function Card
** used by Advanced Remote Mgmt PCI Adapter

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

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time** (30L9187)
  - **24 hr / 7 day coverage, 2 hour average response[7] time** (31L2723) **(in eligible locations)**
- **"IBM Start Up Support"**
- **IBM SystemXtra®.[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com/server) support**
- **IBM or reseller warranty/service**

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• = Hot Swap

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[1] MHz and GHz only measures internal clock speed (or bus speed where indicated), not application performance. Many factors affect application performance.

[2] When referring to a hard drive capacity, GB equals one billion bytes, and TB equals one trillion bytes. Total user-accessible capacity depends on operating environment.

[3] For terms and conditions or copies of IBM's limited warranty, call 1 800 772-2227 in the U.S. Limited warranty includes International Warranty Service in those countries where this product is offered. Telephone support may be subject to additional charges. For warranties including on site service, the customer may be asked diagnostic questions before a technician is sent.

[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] Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

[7] Service levels are response time objectives and are not guarantees. On-site service provided after IBM attempts to resolve the problem remotely.

[8] Subject to conditions.

[9] Applications may vary from retail version and may not include all documentation or functions. Not all applications available separately. Titles subject to change without notice.

[10] Updated drivers and hot-swap services for certain operating systems may be required to support PCI hot-swap functions.

[13] Maximum memory may require replacement of standard memory with optional maximum memory module.

[14] Response time varies. May exclude some holidays.

[15] Warranty and support for ServerProven solutions is provided by the manufacturer, not IBM. IBM makes no respresentations or warranties.

[16] SystemXtra is available to commercial and state and local government customers with valid credit. Leasing is based on a minimum qualifying level of $1,000 of IBM Personal Systems Group hardware. Program is subject to change without notice. Additional terms, conditions and limitations may apply. IBM Global Financing offerings are made available through IBM Credit Corporation in the US and other IBM subsidiaries and divisions worldwide.

[19] Between January 1, 2000 and December 31, 2000, these xSeries systems include license entitlement for Lotus Domino Application Server R5, five Notes Collaboration Client licenses, and five web browser Client Access licenses at no additional charge.

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Research Triangle Park, NC 27709

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PC Institute

Personal Systems Reference
IBM Netfinity Servers

March 2001 - Version 218

IBM Netfinity® 4500R

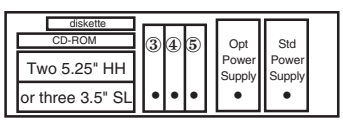
IBM® Netfinity®: Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	ethernet	Available date
✂ 8656-2RY	1 x Pentium® III 667/133	128MB	None	2 x Ultra160	3U rack	5 slots x 7 bays	3 hot-swap	10/100 ethernet	April 2000
✂ 8656-1RY	1 x Pentium III 733/133	128MB	None	2 x Ultra160	3U rack	5 slots x 7 bays	3 hot-swap	10/100 ethernet	April 2000
✂ 8656-3RY	1 x Pentium III 800/133	128MB	None	2 x Ultra160	3U rack	5 slots x 7 bays	3 hot-swap	10/100 ethernet	May 2000
8656-4RY	1 x Pentium III 866/133	128MB	None	2 x Ultra160	3U rack	5 slots x 7 bays	3 hot-swap	10/100 ethernet	May 2000
8656-5RY	1 x Pentium III 933/133	128MB	None	2 x Ultra160	3U rack	5 slots x 7 bays	3 hot-swap	10/100 ethernet	June 2000

Intel® processor(s)	**1 x Pentium® III 667, 733, 800EB, 866, or 933MHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Single Edge Cartridge (SECC2)
Implementation	Motherboard contains two Intel Slot 1 connectors for SECC2 cartridges (open Slot 1 used by terminator), one VRM socket (one VRM integrated), four DIMM sockets, PCI slots, and integrated subsystems
SMP support	**2-way SMP** via second identical processor / upgrade via SECC2 into second Slot 1 CPU connector
Memory - std / max	**128MB std / 4GB max**
Memory - sockets	4 sockets / 3 available / **ECC** / (all have Error Checking and Correcting (ECC) memory controller) / non-interleaved
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports registered SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)
SCSI disk controller	**Adaptec® AHA-7899 / dual channel Wide Ultra160 SCSI controller** (LVD 160MB/sec) / Ultra 160/m / on planar / 64-bit PCI / no hardware RAID standard
SCSI channels	Two internal 16-bit channels / both internal (no external) *SCSI Channel A:* 16-bit 68-pin LVD cable from controller to backplane *Channel B:* 16-bit 68-pin interface (not used)
IDE controller / cable	Single Primary IDE / one connector on planar / one 1 drop IDE cable (CD-ROM)
Disk - capacity	**None standard** / supports 7200-10000 rpm disks / 1 backplane / SAF-TE 1.0-compliant
Disk - bays	Three hot-swap / 80-pin SCA-2 connectors / common tray with EXP200 and later systems like 5600, 8500R
Mechanical	**EIA 19" Rack (3U[4])** x 26-inch deep
Rack support	Rack systems supported in IBM Netfinity Racks
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / 64-bit PCI (three PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge)
Chip set	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 7 bays / three hot-swap bays
Status LEDs	**Operator Information Panel** (in front) / includes power-on, disk, ethernet, information, system error
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 2 front LEDs
CD-ROM / diskette	24X-10X[6] CD-ROM / multisession / IDE interface / bootable; *Diskette:* 3.5" 1.44MB diskette drive
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One (EPP, ECP) / IEEE 1284 *USB:* Two ports (Version 1.1)
Graphics controller	SVGA / PCI 2.1 bus / S3® Savage4 (on planar) / 8MB SDRAM std/max / 1280x1024 at 16M colors at 100Hz / DDC2B
Security	Power-on password / administrator password / system owner's name / hinged bezel to cover disk bays, power button, and reset button / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems management	**Netfinity Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supplies
Diagnostics	**Diagnostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / system board error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], AntiVirus software, and APC PowerChute Plus / includes Netfinity Director, others
Keyboard / mouse	None standard
Power supply	*Std:* one 270 watt hot-swap; *Max:* two 270 watt hot-swap / **front access** / redundant with two power supplies / worldwide / voltage-sensing / auto-restart / fans in each power supply
Fans	Three (two in middle, one in rear) / **hot-swap** / redundant (any single fan can fail while maintaining cooling) / PFA / fan failure signals Diagnostic LED and Mgmt Processor / fan in each power supply
Prerequisites	Monitor, disk, network oper system, keyboard, mouse, rack

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

Pentium III 667/133MHz/256KB Proc Upg	00N7949
Pentium III 733/133MHz/256KB Proc Upg	00N7943
Pentium III 800EB/133MHz/256KB Proc Upg	10K2338
Pentium III 866/133MHz/256KB Proc Upg	19K4630
Pentium III 933/133MHz/256KB Proc Upg	19K4631
Pentium III 1GHz/133MHz/256KB Proc Upg	19K4640
128MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3123
256MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3125
512MB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3127
1GB SDRAM ECC DIMM 133MHz (RDIMM II)	33L3129
Netfinity 270W Hot-Swap Redundant Pwr Supply	37L6880
Netfinity 3-Pack Ultra160 Hot-Swap Exp Kit	33L5050

Slot 1: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 2: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 3: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 4: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 5: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B



Bay ① 3.5", US 0.8", access, diskette
Bay ② 3.5", US 0.8", 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
Bay ⑥ 5.25", HH 1.6", access*
Bay ⑦ 5.25", HH 1.6", access*

Bays 6 through 7 support two HH devices or an optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit to convert these two bays into three hot-swap disk bays

- Rail system enables devices (CD-ROM, diskette, tape drives) to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Several hardcopy publications
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with Netfinity Director can alert the system administrator of an imminent component failure
- Rack: H 5.25" x W 16.3" x D 26.0"
- 44 to 62 pounds
- Stealth black color
- Two 5.25" bays use rails (no screws) for devices

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time (in eligible locations)**
- **90-day IBM Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap
✂= 8656-2R4 withdrawn effective December 2000; 1RY and 3RY effective March 2001

IBM Netfinity® 5100 (Spring 2000)

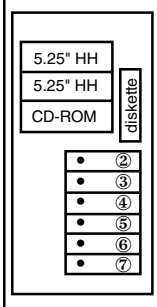
IBM® Netfinity®: Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	ethernet	Available date
✂ 8658-31Y	1 x Pentium® III 800/133	128MB	None	2 x Ultra160	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
✂ 8658-3RY	1 x Pentium III 800/133	128MB	None	2 x Ultra160	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
8658-41Y	1 x Pentium III 866/133	128MB	None	2 x Ultra160	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
8658-4RY	1 x Pentium III 866/133	128MB	None	2 x Ultra160	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
8658-51Y	1 x Pentium III 933/133	128MB	None	2 x Ultra160	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	June 2000
8658-5RY	1 x Pentium III 933/133	128MB	None	2 x Ultra160	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	June 2000

Intel® processor(s)	**1 x Pentium® III 800EB, 866, or 933MHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Single Edge Cartridge (SECC2)
Implementation	Motherboard contains two Intel Slot 1 connectors for SECC2 cartridges (open Slot 1 used by terminator), one VRM socket (one VRM integrated), four DIMM sockets, PCI slots, and integrated subsystems
SMP support	**2-way SMP** via second identical processor / upgrade via SECC2 into second Slot 1 CPU connector
Processor upgrades	Models with 800EB and 866MHz can not upgrade to 933MHz; only 933MHz models can upgrade to 1GHz
Memory - std / max	**128MB std / 4GB max**
Memory - sockets	4 sockets / 3 available / **ECC** (all have Error Checking and Correcting (ECC) memory controller) / non-interleaved
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated sockets / PC133-compliant / supports registered SDRAM ECC DIMMs only
SCSI disk controller	**Adaptec® AHA-7899 / dual channel Wide Ultra160 SCSI controller** (LVD 160MB/sec) / Ultra 160/m / on planar / 64-bit PCI / supports IBM ServeRAID adapters (no hardware RAID standard)
SCSI channels	Two internal 16-bit channels / both internal (no external) *SCSI Channel A:* 16-bit 68-pin LVD cable from controller to backplane *Channel B:* 16-bit 68-pin interface (not used)
IDE controller / cable	Single Primary IDE (ROSB4) South Bridge / one connector on planar / one 1 drop IDE cable (CD-ROM)
Disk - capacity	**None standard** / supports 7200-10000 rpm disks / 1 backplane
Disk - bays	Six hot-swap / 80-pin SCA-2 connectors / common tray with EXP200 and later systems like 5600, 8500R
Mechanical	**Tower or EIA 19" Rack (5U[4])**
Rack support	Rack systems supported in IBM NetfinityRacks / kit available to convert tower to rack (no rack to tower conversion)
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / 64-bit PCI (three PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge) / no hot-swap slots
Chip set	**ServerWorks® ServerSet III™ LE chip set** / NB6635 North Bridge 3.0LE / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 10 bays / three 5.25" HH bays (1 used by CD-ROM) / one diskette bay / six hot-swap bays
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 3 front LEDs
CD-ROM / diskette	40X-17X[6] CD-ROM / multisession / IDE interface / 1.6" HH / bootable; *Diskette:* 3.5" 1.44MB diskette drive / dust cover
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One (EPP, ECP) / IEEE 1284 *USB:* Two ports (Version 1.1)
Graphics controller	SVGA / PCI 2.1 bus / S3® Savage4 (on planar) / 8MB SDRAM std/max / 1280x1024 at 16M colors at 100Hz / DDC2B
Security	Power-on password / administrator password / system owner's name / hinged and lockable front door to cover disk bays, power button, and reset button (tower only) / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems mgmt	**Netfinity Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supplies
Diagnostics	**Diagnostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / system board error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], AntiVirus software, and APC PowerChute Plus / includes Netfinity Director, others
Keyboard / mouse	*Tower only:* IBM 101-key keyboard / IBM mouse (both black)
Power supply	*Std:* one 250 watt hot-swap; *Max:* three 250 watt hot-swap with optional Exp Kit 37L6881 / redundant with two power supplies / worldwide / voltage-sensing / auto-restart / fans in each power supply
Fans	Two (fan in rear, blower in front) / not hot-swap / PFA / fan failure signals Diagnostic LED and Mgmt Processor / fan in each power supply
Prerequisites	Monitor, disk, network operating system, keybd/mouse (rack)

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

Pentium III 800/133MHz/256KB Proc Upg	10K2338
Pentium III 866/133MHz/256KB Proc Upg	19K4630
Pentium III 933/133MHz/256KB Proc Upg	19K4631
Pentium III 1GHz/133MHz/256KB Upg (only 5xx)	19K4640
128MB SDRAM ECC DIMM 133MHz RDIMM II	33L3123
256MB SDRAM ECC DIMM 133MHz RDIMM II	33L3125
512MB SDRAM ECC DIMM 133MHz RDIMM II	33L3127
1GB SDRAM ECC DIMM 133MHz RDIMM II	33L3129
Netfinity 5Ux24D Tower-to-Rack Kit	37L6858
Netfinity 250W Hot-Swap Redundant Pwr Supply	33L3760
Netfinity Media Bay Conversion Kit	10K2340
Hot-Swap Power Supply Expansion Kit (3 conn)	37L6881

Slot 1: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 2: fullsize, 32-bit 33MHz PCI 2.1 (5v), Bus A
Slot 3: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 4: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B
Slot 5: fullsize, 64-bit 33MHz PCI 2.1 (5v), Bus B



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 ④ 3.5", SL 1", access, hot swap
Bay ⑤ 3.5", SL 1", access, hot swap
Bay ⑥ 3.5", SL 1", access, hot swap
Bay ⑦ 3.5", SL 1", access, hot swap
Bay ⑧ 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 or 3 HH hot-swap disks via SCA-2 connectors; Bays 8 and 9 support 3.5" disks via Media Bay Conversion Kit

Rack or Tower (tower shown above)

- Removable, easy release left/top side panel
- Quick release adapter slots (no screws)
- Rail system enables devices (CD-ROM, diskette, tape drives) to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Operator Information Panel (in front)
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with Netfinity Director can alert the system administrator of an imminent component failure
- Tower: H 16.8" x W 8.6" x D 26.0"
- Rack: H 8.6" x W 16.8" x D 24.8"
- 55.7 to 82.7 pounds
- Stealth black color
- All non-hot-swaps bays use rails (no screws) for devices

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time (in eligible locations)**
- **90-day IBM Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap
✂ = Models 31Y and 3RY withdrawn effective December 2000

IBM Netfinity® 5600 (Spring 2000)

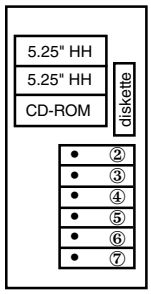
IBM® Netfinity®: Type-model	Qnty x Processor	Memory	Disk	SCSI controller	Mechanical	Slots x bays	Hot -swap disk bays	ethernet	Available date
✂ 8664-41Y	1 x Pentium® III 733/133	256MB	None	2 x Wide Ultra2	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
✂ 8664-4RY	1 x Pentium III 733/133	256MB	None	2 x Wide Ultra2	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
✂ 8664-51Y	1 x Pentium III 800/133	256MB	None	2 x Wide Ultra2	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
✂ 8664-5RY	1 x Pentium III 800/133	256MB	None	2 x Wide Ultra2	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	May 2000
8664-61Y	1 x Pentium III 866/133	256MB	None	2 x Wide Ultra2	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	June 2000
8664-6RY	1 x Pentium III 866/133	256MB	None	2 x Wide Ultra2	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	June 2000
8664-71Y	1 x Pentium III 933/133	256MB	None	2 x Wide Ultra2	Tower	5 slots x 10 bays	6 hot-swap	10/100 ethernet	June 2000
8664-7RY	1 x Pentium III 933/133	256MB	None	2 x Wide Ultra2	5U rack	5 slots x 10 bays	6 hot-swap	10/100 ethernet	June 2000

Intel® processor(s)	**1 x Pentium® III 733, 800EB, 866, or 933MHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed / processor and L2 cache in Single Edge Cartridge (SECC2)
Implementation	*Processor Complex* contains two Intel Slot 1 connectors for SECC2 cartridges (open Slot 1 used by terminator), two VRM sockets (one used), four DIMM sockets, and Reliance CNB3.0LE North Bridge
SMP support	**2-way SMP** via second identical processor / upgrade via SECC2 into second Slot 1 CPU connector
Memory - std / max	**256MB std / 4GB max**
Memory - sockets	4 sockets / 3 available / **ECC** / (all have Error Checking and Correcting (ECC) memory controller) / non-interleaved
Memory - features	**SDRAM / 133MHz** / four 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Memory - support	Supports registered SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)
SCSI disk controller	**Adaptec® AHA-7897 / dual channel Wide Ultra2 SCSI controller** (LVD 80MB/sec) / on planar / 64-bit PCI / two channels (one internal/one external) / supports IBM ServeRAID adapters (no hardware RAID standard)
SCSI channels	*SCSI Channel A:* 16-bit 68-pin LVD cable from controller to backplane *SCSI Channel B:* 16-bit 68-pin interface (hardwired) to external SCSI port (.8mm VHDCI connector)
Extra SCSI cable	Includes a terminated 2-drop 16-bit Ultra SCSI non-LVD cable for optional SCSI devices in open 5.25" bays
IDE controller / cable	Single Primary IDE (ROSB4) South Bridge / one connector on planar / one 1 drop IDE cable (CD-ROM)
Disk - capacity	**None standard** / supports 7200-10000 rpm disks / 1 backplane
Disk - bays	Six hot-swap / no trays included (disks ship w/ trays) / 80-pin SCA-2 connectors / common tray with 8500R and EXP200
Mechanical	**Tower or EIA 19" Rack (5U[4])**
Rack support	Rack systems supported in IBM NetfinityRacks / kit available to convert tower to rack (no rack to tower conversion)
Bus slots (see below)	PCI 2.1 (33MHz) / dual peer PCI / **Active PCI™ with hot-swap PCI slots** (hot replace, hot upgrade, hot expansion) / 64-bit PCI (three hot-swap PCI slots, SCSI controller) / 32-bit PCI (two PCI slots, graphics, ethernet, South Bridge)
Chip set	**ServerWorks® ServerSet 3.0LE chip set** / North Bridge (CNB3.0LE) / South Bridge (ROSB4) for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Bays / available	(See diagram below): 10 bays / three 5.25" HH bays (1 used by CD-ROM) / one diskette bay / six hot-swap bays
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 3 front LEDs
CD-ROM / diskette	40X-17X[6] CD-ROM / multisession / IDE interface / 1.6" HH / bootable; *Diskette:* 3.5" 1.44MB diskette drive / dust cover
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One (EPP, ECP) / IEEE 1284 *USB:* Two ports
Graphics controller	SVGA / PCI 2.1 bus / S3® Trio64 3D (on planar) / 4MB SGRAM std/max / up to 1280x1024 at 64K colors at 85Hz / DDC2B
Security	Power-on password / administrator password / system owner's name / hinged and lockable front door to cover disk bays, power button, and reset button (tower only) / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Systems mgmt	**Netfinity Advanced System Mgmt Processor** / on planar / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temperature, fans, and power supplies
Diagnostics	**Daignostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / systemboard error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Lotus® Domino® Application Server R5 (Windows NT or Linux version) plus five client licenses[19], AntiVirus software, and APC PowerChute Plus / includes Netfinity Director, others
Keyboard / mouse	*Tower only:* IBM 101-key keyboard / IBM mouse (both black)
Power supply	*Std:* two 250 watt hot-swap; *Max:* three 250 watt hot-swap / **redundant with two power supplies** / worldwide / voltage-sensing / auto-restart / fans in each power supply
Fans	Three redundant, hot-swap fans / easy removal / PFA / fan failure signals Diagnostic LED and Mgmt Processor / power supply fans

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

Pentium III 733/133MHz/256KB Proc Upg	00N7943
Pentium III 800EB/133MHz/256KB Proc Upg	10K2338
Pentium III 866/133MHz/256KB Proc Upg	19K4630
Pentium III 933/133MHz/256KB Proc Upg	19K4631
128MB SDRAM ECC DIMM 133MHz (registered)	33L3058
256MB SDRAM ECC DIMM 133MHz (registered)	33L3060
512MB SDRAM ECC DIMM 133MHz (registered)	33L3062
1GB SDRAM ECC DIMM 133MHz (registered)	33L3064
Netfinity 5Ux24D Tower-to-Rack Kit	37L6858
Netfinity 250W Hot-Swap Redundant Pwr Supply	33L3760

Slot 1: fullsize, 32-bit PCI 2.1 (5v), Bus A
Slot 2: fullsize, 32-bit PCI 2.1 (5v), Bus A
Slot 3: fullsize, 64-bit PCI 2.1 (5v), Hot-swap, Bus B
Slot 4: fullsize, 64-bit PCI 2.1 (5v), Hot-swap, Bus B
Slot 5: fullsize, 64-bit PCI 2.1 (5v), Hot-swap, Bus B



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 ④ 3.5", SL 1", access, hot swap
Bay ⑤ 3.5", SL 1", access, hot swap
Bay ⑥ 3.5", SL 1", access, hot swap
Bay ⑦ 3.5", SL 1", access, hot swap
Bay ⑧ 5.25", HH 1.6" access, CD-ROM
Bay ⑨ 5.25", HH 1.6" access, open
Bay ⑩ 5.25", HH 1.6" access, open

Bays 2 through 7 support 6 SL disks or 3 HH hot-swap disks via SCA-2 connectors

Rack or Tower (tower shown above)

- Removable, easy release left/top side panel
- Quick release adapter slots (no screws)
- New rail system enables devices (CD-ROM, diskette, tape drives) to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Operator Information Panel (in front)
- Predictive failure analysis on disk options, memory, processors, VRMs, power supplies, and fans in conjunction with Netfinity Manager can alert the system administrator of an imminent component failure
- Tower: H 16.8" x W 8.6" x D 26.0"
- Rack: H 8.6" x W 16.8" x D 24.8"
- 55.7 to 82.7 pounds
- Stealth black color
- All non-hot-swaps bays use rails (no screws) for devices

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time**

  (in eligible locations)
- **90-day IBM Start Up Support**
- **IBM SystemXtra®[,16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap

✂ = 4xx and 5xx models withdrawn effective December 2000

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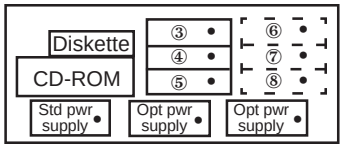
IBM Netfinity® 6000R

IBM® Netfinity®:	Rack 1 x Pentium® Xeon™ III 700MHz Open bay	Rack 1 x Pentium III Xeon 700MHz Open bay
Type - model	**8682-1RY**	**8682-2RY**
Mechanical	**EIA 19" Rack (4U[4])**	
Disk - capacity	**None standard** / supports 7200-10000 rpm disks / LVD disks only / SAF-TE 1.0-compliant	
Disk - bays	Hot-swap / 3 bays std / 6 max / 80-pin SCA-2 connectors / common tray with EXP200 and later systems like 5600, 8500R	
Rack support	Supported in IBM NetBay® Racks	
Available date	May 2000	
Intel® processor(s)	**1 x Pentium III Xeon 700/100MHz**[1]	**1 x Pentium III Xeon 700/100MHz**
L2 cache	**1MB** std and max / at processor speed	**2MB** std and max / at processor speed
Implementation	Motherboard contains four Intel Slot 2 connectors for SECC cartridges (fourth Slot 2 occupied by terminator), PCI slots, one slot for Memory Board, and integrated subsystems / all VRMs integrated in processors	
SMP support	**4-way SMP** via identical processors / upgrade via SECC into Slot 2 CPU connectors / Pentium III Xeon 900MHz upgrade available	
Mem - std / max / type	**512MB std / 16GB max** / **Chipkill**™ multibit error correction using ind std ECC DIMMs (fixes 1 to 4-bit errors on same chip) / Chipkill performed by memory controller and firmware	
Memory - sockets	One Memory Board std and max / 16 sockets / 12 available (four 128MB DIMMs standard) / 4-way memory interleave	
Memory - support	**SDRAM / 100MHz** / sixteen 168-pin gold-plated DIMM 3.3 volt sockets / PC100-compliant / requires 4 identical DIMMs Supports **registered** SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)	
SCSI disk controller	**Adaptec® AHA-7899 / dual channel Wide Ultra160 SCSI controller** (LVD 160MB/sec) / Ultra 160/m / on planar / 64-bit PCI / no hardware RAID standard	
SCSI channels	Two 16-bit channels / both internal or one internal with one external / *Channel A:* 16-bit 68-pin LVD cable from controller to backplane / *Channel B:* internal 16-bit connector to use internally or can attach standard bulkhead LVD cable through punch out for external connector	
Extra SCSI cable	Includes a 16-bit LVD SCSI cable for external SCSI devices via an external 0.8mm VHDCI connector	
IDE controller / cable	Single Primary IDE / one connector on planar / one 1-drop IDE cable (CD-ROM)	
Architecture	Three peer PCI 2.2 buses / Bus A: 32-bit 33MHz (1 PCI slot, ethernet, graphics, South Bridge, Mgmt Processor daughtercard) / Bus B: 64-bit 66MHz (3 PCI slots) / Bus C: 64-bit 33MHz (2 PCI slots, SCSI controller)	
Slots (Active™ PCI)	(See below) 6 hot-swap PCI slots[10] available / hot replace, hot upgrade, hot expansion	
Chip set	**ServerWorks® ServerSet 2.0HE chip set** / NB6536 North Bridge 2.0HE / NB6555IO Bridge 2.0 (Inter Module Bus with two 16-bit links to 6536) / IB6566 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)	
Bays / available	(See diagram below): 5 bays / three hot-swap disk bays standard (option for three additional hot-swap disk bays)	
Status LEDs	**Operator Information Panel** (in front) / includes power-on, disk, ethernet, information, system error	
10/100 ethernet	AMD® Am79C975 / on planar / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 2 front LEDs	
CD-ROM / diskette	40X-17X[6] CD-ROM / multisession / IDE interface / bootable; *Diskette:* 3.5" 1.44MB diskette drive / dust cover	
Serial / parallel / USB	*Serial:* Three 9-pin (one for Mgmt Processor) *Parallel:* One *USB:* Two ports (Version 1.1) *Adv Sys Mgmt:* Two RJ-45	
Graphics controller	SVGA / PCI 2.1 bus / S3® Savage4 (on planar) / 8MB SDRAM std/max / 1280x1024 at 16M colors at 100Hz / DDC2B	
Security	Power-on password / administrator password / hinged bezel to cover power button and reset button / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode	
Systems management	**Advanced System Mgmt Processor** / on daughtercard / ISA bus proprietary connector / provides remote console and mgmt / allows diagnostic, reset, POST, and auto recovery functions / monitors temp, fans, and power supplies	
Diagnostics	**Diagnostics LED Panel** (under cover) / Light-Path Diagnostics™ provides an LED map to failing component / motherboard error LEDs / diagnostics in ROM by pressing F2 at startup for PC-Doctor	
Software	**ServerGuide**™ (installation and configuration utilities), AntiVirus software, and APC PowerChute Plus / IBM Director, others	
Keyboard / mouse	None standard	
Power supply	*Std:* one 270 watt hot-swap; *Max:* three 270 watt hot-swap / **front access** / redundant with two power supplies in most cases; redundancy with three in all cases / auto-restart	
Fans	Six (four for disks, memory, PCI; two for processors) / **hot-swap** / redundant (any single fan can fail while maintaining cooling / PFA / fan failure signals Diagnostic LED and Mgmt Processor / fan in each power supply	
Prerequisites	Monitor, disk, network oper system, keyboard, mouse, rack	

Pentium III Xeon 700/100MHz/1MB Proc Upg	00N7946
Pentium III Xeon 700/100MHz/2MB Proc Upg	00N7944
Pentium III Xeon 900/100MHz/2MB Proc Upg	19K4633
128MB 100MHz SDRAM ECC RDIMM	33L3113
256MB 100MHz SDRAM ECC RDIMM	33L3115
512MB 100MHz SDRAM ECC RDIMM	33L3117
1GB 100MHz SDRAM ECC RDIMM	33L3119
2GB 100MHz SDRAM ECC RDIMM **Kit** (4 x 512MB)	33L3147
Netfinity 270W Hot-Swap Redundant Pwr Supply	37L6880
36.4GB 10K-4 Ultra160 SCSI Hot-Swap SL	37L7206
Netfinity 3-Pack Ultra160 Hot-Swap Exp Kit	33L5050

Slot 1: fullsize, 32-bit 33MHz PCI (5v), hot-swap, Bus A
Slot 2: fullsize, 64-bit 66MHz PCI (3.3v), hot-swap, Bus B
Slot 3: fullsize, 64-bit 66MHz PCI (3.3v), hot-swap, Bus B
Slot 4: fullsize, 64-bit 66MHz PCI (3.3v), hot-swap, Bus B
Slot 5: fullsize, 64-bit 33MHz PCI (5v), hot-swap, Bus C
Slot 6: fullsize, 64-bit 33MHz PCI (5v), hot-swap, Bus C



Bay ① 3.5", SL 1", access, diskette
Bay ② 3.5", HH1.6", 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
*Bay ⑥,⑦,⑧ Optional 3-Pack for 3 SL 1.0" hot-swap disk bays (otherwise not usable)

- Rail system enables CD-ROM and diskette to snap in and out without screws
- Configuration/Setup Utility invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Several hardcopy publications
- Predictive Failure Analysis® on disk options, memory, processors, power supplies, and fans in conjunction with IBM Director can alert the system administrator of an imminent component failure
- Rack: H 7.0" x W 19.0" x D 28.0"
- 62 to 77 pounds
- Stealth black color

All models: Max int disk capacity: 218.4GB[2] with six 36.4GB SL disks

WARRANTY SERVICE SUPPORT

- **3 year parts and labor warranty**[3]
- **International Warranty Service**[3]
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour response**[7] **time**
  - **24 hr / 7 day coverage, 2 hour respse**[7] **time (in eligible locations)**
- **90-day IBM Start Up Support**
- **IBM SystemXtra®**[,16]
- **24 hour / 7 day telephone**[14]**, bulletin board, fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap
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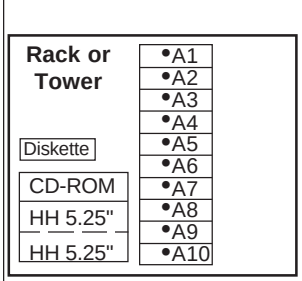
IBM Netfinity® 7100 (Spring 2000)

IBM® Netfinity®	Tower / NetBAY3 1 x Pentium III Xeon open bay	Rack 1 x Pentium III Xeon open bay	Tower / NetBAY3 1 x Pentium III Xeon open bay	Rack 1 x Pentium III Xeon open bay
Type - model	**8666-31Y**	**8666-3RY**	**8666-41Y**	**8666-4RY**
Mechanical	**Tower**	**EIA 19" rack (8U[4])**	**Tower**	**EIA 19" rack (8U[4])**
Rack / conversion	Rack systems supported in IBM Netfinity Rack products / kits available to convert rack to tower or tower to rack			
Disk - capacity / bays	**None standard** / hot-swap / no trays included (disks ship w/ trays) / 80-pin SCA-2 connectors / 1 backplane (bank)			
Planned availability	June 2000			
Intel® processor(s)	**1 x Pentium® III Xeon™ 700/100MHz**[1]			
L2 cache	**1MB** / full speed		**2MB** / full speed	
Implementation	Each processor with ECC L2 cache integrated in Single Edge Contact (SEC) cartridge in Intel Slot 2			
Processor upgrade(s)	**4-way SMP** / to four identical Pentium III Xeon™ Slot 2 (SC330) CPUs / upgrade to Pentium III Xeon 900MHz supported			
Mechanical	Each processor has one VRM / Processor Board has one Memory Board slot, six PCI slots, four Intel Slot 2 slots, four VRM slots (all removable as a slide out Shuttle for easy serviceability)			
Mem - std / max / type	**256MB std / 16GB**[13] **max / ECC** (Error Checking and Correcting memory controller and DIMMs)			
Memory - sockets	One Memory Board std and max / 16 sockets / 12 available (four 64MB DIMMs standard) / 4-way memory interleave			
Memory - features	**SDRAM / 100MHz** / sixteen 168-pin gold-plated DIMM 3.3 volt sockets / PC100-compliant / requires 4 identical DIMMs			
Memory - support	Supports **registered** SDRAM ECC DIMMs only (64, 128, 256, 512MB, and 1GB)			
Chipkill upgrade	Upgrade to Chipkill™ (multibit error correction on same chip) via Upgrade Kit 10K2169 (also includes 4 Active PCI slots)			
SCSI controller	Adaptec® AIC-7896 / no integrated RAID controller			
SCSI channels	Two Wide Ultra2 SCSI channels (LVDS 80MB/sec) / each channel supports 15 devices			
Cache / bus	No cache / PCI Bus C 32-bit 33MHz / controller on Input/Output Board			
Connectors and cabling	*Channel A:* one 0.8mm VHDCI external SCSI connector *Channel B:* 68-pin internal connector on power backplane with 16-bit LVD cable to hot-swap backplane			
Additional cable	Two-drop 16-bit LVD SCSI cable included to support devices in two left bays			
IDE controller / cabling	Enhanced IDE controller / one drop IDE cable from one IDE connector to CD-ROM			
Architecture / chip set	**ServerWorks® ServerSet III HE chip set** / CNB20HE North Bridge (PCI 2.2 and memory controller) / CIOB I/O Bridge (Frontside Bus interface from PCI bus to North Bridge) / OSB4 South Bridge (EIDE, ISA Bridge, USB, SMBus, IOAPIC) / three peer PCI 2.1 buses (A: 64-bit 66MHz, B: 64-bit 33MHz, C: 32-bit 33MHz) / NS PC97317VUL Super I/O			
Active PCI™ slots	None standard / upgrade to 4 Active PCI 64-bit slots (like Netfinity 7600) via Upgrade Kit 10K2169 (also includes chipkill)			
Bays	14 bays total: **10 hot-swap disk bays** / three 5.25" HH bays (1 used by CD) / one 3.5" SL bay (diskette) / see below *Tower models:* Optional NetBAY3 on bottom (3U pedestal for rack-based devices) / supports 2 more NetBAY3			
Ethernet controller	AMD® Am79C975 / on PCI Bus C / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 3 LEDs			
CD-ROM / diskette drv	*CD-ROM:* 40X-17X[6] CD-ROM / IDE (ATAPI) / 1.6" HH / bootable; *Diskette drive:* 3.5" 1.44 MB diskette drive / dust cover			
Ports	*Serial:* Three 9-pin (one for Mgmt Processor); *Parallel:* One 25-pin; *USB:* Two Ver 1.1; Keyboard; Mouse; RS485 mgmt			
Graphics controller	SVGA / PCI Bus C / S3® Trio-3D (on Input/Output Board) / 4MB SGRAM std/max / up to 1024x768 at 256 colors at 85Hz			
Security	Power-on password / administrator password / front door and top cover mechanical lock (tower only) / NetBAY3 bezel lock / selectable boot / secure mode (disables keyboard and mouse) / diskette, mouse, CD-ROM disable / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode			
Systems management	**Netfinity Advanced System Mgmt Processor** (service processor) / on planar / provides remote console and mgmt / power on/off system / monitors temperature, disks, fans, power supply			
Diagnostics	**Light-Path Diagnostics™ Panel** providing LED map to failing part (under top cover) / Information LED Panel in front			
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Norton AntiVirus, APC PowerChute Plus / includes Netfinity Director™ and others			
UpgradeableEEPROMs	BIOS (remote), diagnostics, and Mgmt Processor EEPROMs can be upgraded			
Keyboard / mouse	*Tower:* IBM 101-key keyboard / IBM mouse (both black)			
Power supply	*Std:* two 250 watt hot-swap; *Max:* four 250 watt hot-swap / three provide N+1 redundancy for typical config / tool-free install / universal (voltage sensing) / fans in each power supply / PFA			
Fans	Four logical fans / **five hot-swap fans** (2 in disk area, 1 in slot area, 2 in CPU area) / variable speed / PFA / fan failure signals Diagnostic LED and Mgmt Processor / plus fan in each power supply			

Netfinity Active PCI/Chipkill Upgrade Kit	10K2169
64MB SDRAM 100MHz ECC DIMM (register)	33L3067
128MB SDRAM 100MHz ECC DIMM (register)	33L3113
256MB SDRAM 100MHz ECC DIMM (register)	33L3115
512MB SDRAM 100MHz ECC DIMM (register)	33L3117
1GB SDRAM 100MHz ECC DIMM (register)	33L3119
Netfinity 250W Hot-Swap Redundant Power Sup	33L3760
Pentium III Xeon 700MHz/1MB Proc Upg II	10K2331
Pentium III Xeon 700MHz/2MB Proc Upg II	10K2332
Pentium III Xeon 900MHz/2MB Proc Upg II	19K4635
Netfinity 8Ux24D Tower-to-Rack Kit	37L6859
Netfinity 8Ux24D Rack to Tower Kit	37L6860
IBM Netfinity EXP15 Rack Storage Enclosure	35202RU
IBM Netfinity NetBAY3	10L6912
IBM Netfinity Rack	9306900

- Tower dim: H 15.7" x W 19" x D 28"; 88 to 123 lbs
- Rack dim: H 13.8" x W 17.3" x D 27.6"; 88 to 123 lbs



Optional NetBAY3 pedestal (supports 2 more NetBAY3's)

- Black color
- ACPI 1.0
- Orange components and labels indicate hot-swap options
- Suppliers Declaration
- Vital Product Data
- Backup BIOS

Backplane A:
10 SL 3.5" bays
or 7 HH 3.5" bays

Disks not supported in 5.25" bays

Maximum internal disk capacity:
364GB[2] with ten 36.4GB SL hot-swap SCSI disks

Slot 1: full, 64-bit 66MHz 3.3v PCI, not hot, Bus A
Slot 2: full, 64-bit 66MHz 3.3v PCI, not hot, Bus A
Slot 3: full, 64-bit 33MHz 5v PCI, not hot, Bus B
Slot 4: full, 64-bit 33MHz 5v PCI, not hot, Bus B
Slot 5: full, 64-bit 33MHz 5v PCI, not hot, Bus B
Slot 6: full, 64-bit 33MHz 5v PCI, not hot, Bus B

- Setup Program is available by pressing F1 at startup; Diagnostics (PC-Doctor) by pressing F2 at startup; CTRL+A for SCSISelect Utility
- Removeable top cover and two side covers
- Access adapters, memory, CPUs from top
- Predictive failure analysis: alerts generated by Adv System Mgmt Processor for Netfinity Director for DIMM(s), processor(s),VRM(s), power supply(s), disk(s), and fans

LIMITED WARRANTY

- **3 year parts and labor warranty[3]**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response[7] time**
  - **24 hr / 7 day coverage, 2 hour average response[7] time (in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®,[16]**
- **24 hour / 7 day telephone[14], fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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IBM Netfinity® 7600

IBM® Netfinity®: Type-model	Qnty x Processor	L2 cache	Memory	ECC	Disk	SCSI controllers	Mechanical	Slots x bays	Hot-swap disk bays	Available date
✂ 8665-1RY	1 x Xeon™ 550/100	1MB	512MB	Chipkill™	None	ServeRAID™-3HB, AIC-7896	8U rack	6 slots x 14 bays (10 hs)		Mar 2000
✂ 8665-2RY	1 x Xeon 550/100	2MB	512MB	Chipkill	None	ServeRAID-3HB, AIC-7896	8U rack	6 slots x 14 bays (10 hs)		Mar 2000
✂ 8665-3RY	1 x Xeon 700/100	2MB	512MB	Chipkill	None	ServeRAID-3HB, AIC-7896	8U rack	6 slots x 14 bays (10 hs)		Jun 2000
8665-4RY	1 x Xeon 700/100	1MB	512MB	Chipkill	None	ServeRAID-4M, AIC-7896	8U rack	6 slots x 14 bays (10 hs)		Oct 2000
8665-5RY	1 x Xeon 700/100	2MB	512MB	Chipkill	None	ServeRAID-4M, AIC-7896	8U rack	6 slots x 14 bays (10 hs)		Oct 2000

Intel® processor(s)	**1 x Pentium® III Xeon™ 550 or 700MHz**[1] **with 100MHz Front Side Bus**
L2 cache	**1MB** or **2MB** / full speed
Implementation	Each processor with ECC L2 cache integrated in Single Edge Contact (SEC) cartridge in Intel Slot 2
Processor upgrade(s)	**4-way SMP** / to four identical Pentium III Xeon™ Slot 2 (SC330) CPUs / upgrade to Pentium III Xeon 900MHz supported
Mechanical	Each processor has one VRM / Processor Board has one Memory Board slot, six PCI slots, four Intel Slot 2 slots, four VRM slots (all removable as a slide out Shuttle for easy serviceability)

Mem - std / max / type	**512MB std / 16GB**[13] **max / Chipkill™** multibit error correction using ind std ECC DIMMs (fixes 1 to 4-bit errors on same chip) / Chipkill performed by memory controller and firmware
Memory - sockets	One Memory Board std and max / 16 sockets / 12 available (four 128MB DIMMs standard) / 4-way memory interleave
Memory - support	**SDRAM / 100MHz** / sixteen 168-pin gold-plated DIMM 3.3 volt sockets / PC100-compliant / requires 4 identical DIMMs supports **registered** SDRAM ECC DIMMs only (128, 256, 512MB, and 1GB)

SCSI controller	IBM ServeRAID-3HB adapter (3 channels) or IBM ServeRAID-4M (2 channels) / *all:* Adaptec® AIC-7896 (two channels)
SCSI channels	*ServeRAID-3HB and AIC-7896:* Wide Ultra2 SCSI channels (LVDS 80MB/sec) / each channel supports 14 devices *ServeRAID-4M:* Wide Ultra160 SCSI channels (LVDS 160MB/sec) / each channel supports 14 devices
ServeRAID cache / bus	*ServeRAID-3HB:* 32MB std/max with 32MB mirrored battery-backup cache / PCI Bus B 64-bit 33MHz *ServeRAID-4M:* 64MB ECC std/max battery-backup cache / PCI Bus B 64-bit 33MHz
Adaptec cache / bus	*Adaptec AIC-7896:* No cache / PCI Bus C 32-bit 33MHz / controller on Input/Output Board
Connectors and cabling	*Internal channel of ServeRAID:* 68-pin int conn (1 on -3HB, 2 on -4M) with 16-bit LVD cable to hot-swap backplane *External channels of ServeRAID:* two 0.8mm VHDCI connectors on rear of adapter
Additional cable	Two-drop 16-bit LVD SCSI cable included to support devices in two left bays
IDE controller / cabling	Enhanced IDE controller / one drop IDE cable from one IDE connector to CD-ROM
Disk - capacity / bays	**None standard** / hot-swap / no trays included (disks ship w/ trays) / 80 pin SCA-2 connectors / 1 backplane (bank)

Mechanical	**EIA 19" rack (8U**[4]**)**
Rack / conversion	Rack systems supported in IBM Netfinity Rack products / kits available to convert rack to tower or tower to rack
Architecture / chip set	**ServerWorks® ServerSet III HE** / CNB20HE North Bridge (PCI 2.2 and memory controller) / CIOB I/O Bridge (Frontside Bus interface from PCI bus to North Bridge) / OSB4 South Bridge (EIDE, ISA Bridge, USB, SMBus, IOAPIC) / three peer PCI 2.1 buses (A: 64-bit 66MHz, B: 64-bit 33MHz, C: 32-bit 33MHz) / NS PC97317VUL Super I/O
Active PCI™ slots	**4 hot-swap PCI slots**[10] with power and attention indicator lights (optical sensors control power to slot) **/ Active PCI** via hot replace, hot upgrade, hot expansion (see below for details)
Bays	14 bays total: **10 hot-swap disk bays** / three 5.25" HH bays (1 used by CD) / one 3.5" SL bay (diskette)

Ethernet controller	AMD® Am79C975 / on PCI Bus C / **10BaseT, 100BaseTX / full duplex** / RJ-45 connector / 3 LEDs
CD-ROM / diskette drv	*CD-ROM:* 40X-17X[6] CD-ROM / IDE (ATAPI) / 1.6" HH / bootable; *Diskette drive:* 3.5" 1.44 MB diskette drive / dust cover
Ports	*Serial:* Three 9-pin (one for Mgmt Processor); *Parallel:* One 25-pin; *USB:* Two Ver 1.1; Keyboard; Mouse; RS485 mgmt
Graphics controller	SVGA / PCI Bus C / S3® Trio-3D (on Input/Output Board) / 4MB SGRAM std/max / up to 1024x768 at 256 colors at 85Hz

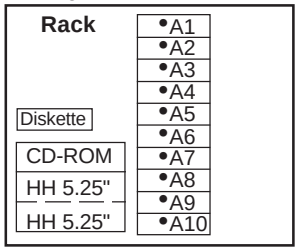
Security	Power-on password / administrator password / selectable boot / secure mode (disables keyboard and mouse) / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode

Systems management	**Netfinity Advanced System Mgmt Processor** (service processor) / on planar / provides remote console and mgmt / power on/off system / monitors temperature, disks, fans, power supply
Diagnostics	**Light-Path Diagnostics™ Panel** providing LED map to failing part (under top cover) / Information LED Panel in front
Software	**ServerGuide™** (CD-ROM installation and configuration utilities), Norton AntiVirus, APC PowerChute Plus / includes Netfinity Director™ and others

Keyboard / mouse	None since rack systems
Power supply	*Std:* three 250 watt hot-swap; *Max:* four 250 watt hot-swap / three provide N+1 redundancy for typical config / tool-free install / universal (voltage sensing) / fans in each power supply / PFA
Fans	Four logical fans / **seven hot-swap redundant fans** (3 in disk area, 2 in slot area, 2 in CPU area) / variable speed / PFA / fan failure signals Diagnostic LED and Mgmt Processor / plus fan in each power supply

128MB SDRAM 100MHz ECC DIMM (register)	33L3113
256MB SDRAM 100MHz ECC DIMM (register)	33L3115
512MB SDRAM 100MHz ECC DIMM (register)	33L3117
1GB SDRAM 100MHz ECC DIMM (register)	33L3119
Netfinity 250W Hot-Swap Redund Power Sup	33L3760
Pentium III Xeon 550MHz/1MB Proc Upg II	33L5057
Pentium III Xeon 550MHz/2MB Proc Upg II	33L5058
Pentium III Xeon 700MHz/1MB Proc Upg II	10K2331
Pentium III Xeon 700MHz/2MB Proc Upg II	10K2332
Pentium III Xeon 900MHz/2MB Proc Upg II	19K4635
Netfinity 8Ux24D Tower-to-Rack Kit	37L6859
Netfinity 8Ux24D Rack-to-Tower Kit	37L6860
IBM Netfinity NetBAY3	10L6912
IBM Netfinity NetBAY3 Caster Set	10L6913
IBM Netfinity Rack	9306900

- Dimensions: H 13.8" x W 17.3" x D 27.6";
- Weight: 91 to 120 lbs



Maximum internal disk capacity:
364GB[2] with ten 36.4GB SL hot-swap SCSI disks

- Black color
- ACPI 1.0
- Orange components and labels indicate hot-swap options
- Suppliers Declaration
- Vital Product Data
- Backup BIOS

Backplane A:
10 SL 3.5" bays
or 7 HH 3.5" bays

Disks not supported in 5.25" bays

Slot 1: full,64-bit 66MHz 3.3v PCI, not hot, Bus A
Slot 2: full,64-bit 66MHz 3.3v PCI, not hot, Bus A
Slot 3: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B
Slot 4: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B
Slot 5: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B
Slot 6*: full,64-bit 33MHz 5v PCI, *hot swap*, Bus B

* Occupied by 64-bit ServeRAID adapter

- Setup Program is available by pressing F1 at 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 Adv System Mgmt Processor for Netfinity Director for DIMM(s), processor(s),VRM(s), power supply(s), disk(s), and fans

LIMITED WARRANTY

- **3 year parts and labor warranty**[3]
- **International Warranty Service**[3]
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am - 5 pm, Mon- Fri coverage**
- **Next business day average response time**
- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response**[7] **time**
  - **24 hr / 7 day coverage, 2 hour average response**[7] **time (in eligible locations)**
- **IBM Server Start Up Support**
- **IBM SystemXtra®**[,16]
- **24 hour / 7 day telephone**[14]**, fax, electronic, and Internet (www.pc.ibm.com) support**
- **IBM or reseller warranty/service**

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• = Hot Swap

✂= Models 1RY, 2RY, and 3RY withdrawn effective December 2000

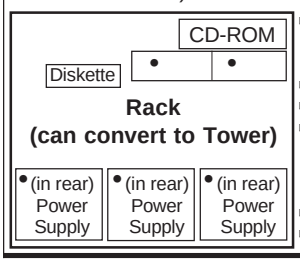
IBM® Netfinity® 8500R (Spring 2000)

IBM® Netfinity®:	Rack 1 x Pentium III Xeon 700MHz open bay	Rack 1 x Pentium III Xeon 700MHz open bay
Type - model	**8681-7RY**	**8681-8RY**
Mechanical	**EIA 19" rack models (8U[4])** x 28" deep	
Rack / conversion	Supported in NetBAY Enterprise Racks and current racks with extension options / kit available to convert rack to tower	
Disk - capacity	**None** / supports 10,000 rpm disks / converged tray is interchangeable EXP200/300 and later Netfinity systems	
Disk - bays	Hot-swap / no trays included (disks ship with trays) / 80-pin SCA-2 connectors / common tray with 5600 and EXP200	
Planned availability	May 2000	May 2000
Intel® processor(s)	**1 x Pentium® III Xeon™ 700/100MHz**[1]	**1 x Pentium III Xeon 700/100MHz**
L2 cache	**1MB** / full speed	**2MB** / full speed
Processor upgrade(s)	**8-way SMP** / up to eight Pentium III Xeon processors (same speed/cache size) / two 64-bit 100MHz processor buses / Pentium III Xeon 900MHz upgrade available	
Features	*Standard:* one Processor Board with four Intel Slot 2 sockets (one processor bus) *Maximum:* two Processor Boards (second processor bus) / requires two Cache Coherency Filter Cards (reduces cache snoop bus traffic between two processor buses) / 'Mezzanine Exp Kit' has one Processor Board that requires 'Netfinity® 4X Accelerator Filter' containing two 1MB Cache Coherency Filter Cards (one for each Processor Board)	
Memory - std / max	**512MB** / 32GB	**512MB** / 32GB
Memory - std DIMMs	4 x 128MB DIMM	4 x 128MB DIMM
Memory - type	PC100-compliant 3.3v registered 168-pin SDRAM RDIMMs / 100MHz / gold connectors **Error Checking and Correcting (ECC)** memory and memory controller (Profusion Memory Controller MAC and DIB)	
Memory - cards	One Memory Card std (one memory bus) / two cards max (second memory bus) / each card has 16 sockets / 16GB max per card / second card supports two-way cache line interleaving	
SCSI disk controller	Adaptec® AIC-7897 / no integrated RAID controller	
SCSI channels	Two Wide Ultra2 SCSI channels (LVDS 80MB/sec)	
SCSI implementation	64-bit PCI / integrated on I/O Function Card	
SCSI connectors	One 68-pin connector internal and one .8mm VHDCI connector external / each channel supports up to 15 devices	
SCSI cabling	One 16-bit LVD cable to two bay backplane / one 16-bit LVD cable from controller to external 68-pin VHDCI connector	
IDE controller / cabling	Enhanced IDE controller in PIIX4E / one one-drop IDE cable from IDE controller to CD-ROM	
Architecture	**Intel Profusion®** chip set / one midplane (interconnects major buses and components) / four PCI 2.2 buses (four PB64) numbered 0, 4, 10, 13 to allow hot-swap of PCI-to-PCI bridge adapters	
I/O Function Card	64-bit 33MHz PCI adapter / includes controllers for SVGA (32-bit PCI), SCSI, and PIIX4E (32-bit PCI Intel 82371AB for EIDE, ISA Bridge, USB) / Super I/O (NS PC97317VUL on 16-bit ISA) off PIIX4E	
Slots (Active PCI™)	12 hot-swap PCI slots[10] available **with power and attention indicator lights** (optical sensors control power to slot) / **Hot replace, hot upgrade, hot expansion** / separated by insulative plastic dividers / PCI Hot-Plug Specification 1.0	
LAN adapter	No standard NIC controller or adapter	
CD-ROM / Diskette	*CD-ROM:* 40X-17X[6] CD-ROM / IDE interface off PIIX4E / 1.6" HH / bootable; *Diskette drive:* 3.5" 1.44MB / dust cover	
Ports	Two 9-pin serial / one 25-pin parallel / two USB / one keyboard / one mouse / one SVGA (all in rear)	
Graphics controller	SVGA / S3® Trio3D / integrated on I/O Function Card / 4MB SGRAM std/max / up to 1024x768 at 256 colors at 85Hz	
Security	Power-on and administrator passwords / mountable in an optional secure rack enclosure / selectable drive-startup / keyboard password / Advanced Remote Management security (user log-in password, read-only or read/write access, dial back)	
Systems management	**Netfinity Advanced System Mgmt PCI Adapter** (service processor) / PCI adapter / includes 10/100 ethernet, dual serial, and RS 485 bus connectors / provides remote console and mgmt / power on/off system / monitors power status, operating system, temperature, disks, fans, power supply / NS LM78 hardware monitor (voltage, temperature, fans)	
Diagnostics	**Light-Path Diagnostics** / primary indicator on information panel with LEDs associated with failing components	
LCD information panel	**Intelligent front panel** / two 16 character lines of status info	
Software	**ServerGuide**™ - CD-ROM installation and configuration utilities, AntiVirus, and APC PowerChute Plus / includes IBM Director and others	
Keyboard / mouse	None standard (since for rack)	
Power supplies	**Hot-swap / redundant /** *std and max:* three 750 watt at 220v or 550 watts at 110v / universal (voltage sensing) / fans in each power supply / each has individual power cord / PFA	
Fans	**Nine fans / six hot-swap redundant** (three fans in front for cpu area, three fans in middle for memory and adapter area) / one fan in each power supply / PFA / fan failure signals Diagnostic LED and mgmt processor	

All models: Maximum internal disk capacity: 72.8GB with two 36.4GB[2] HH Hot-swap SCSI disks

Netfinity 128MB SDRAM DIMM (registered) II	20L0245
Netfinity 256MB SDRAM DIMM (registered) II	20L0247
Netfinity 512MB SDRAM DIMM (registered) II	20L0249
Netfinity 1GB SDRAM DIMM (registered) II	33L3056
Netfinity 8500R Memory Card (16 sockets)	28L4454
Pentium III Xeon 700MHz/1MB Proc Upg	10K2330
Pentium III Xeon 700MHz/2MB Proc Upg	10K2166
Pentium III Xeon 900MHz/2MB Proc Upg	19K4637
Netfinity 8Ux28D Rack-to-Tower Conversn Kit	28L4705
NetBAY3E (3U pedestal on bottom)	36L9701
Netfinity Mezzanine Expansion Kit	10K2337
Netfinity 4X Accelerator Filter (two 1MB filters)	10K2335
Netfinity ServeRAID-4H Ultra160 SCSI Adapter	37L6889
Netfinity EXP300 Storage Expansion Unit	35311RU

- Dimensions: H14.0" x W17.3" x D29.4"; 147-170lbs
- Tool-free top, front, and rear access
- Access adapters from top
- Access memory, processors, and disks from front
- Access power supplies from rear
- Setup Program by pressing F1 at startup
- Diagnostics (PC-Doctor) by pressing F2 at startup
- Six power cords (9' each) included (three 110v and three 220v)



- Two 1.6" high HH 3.5" bays (both hot-swap)
- Stealth black color
- 4 removable handles
- (If convert to tower) supports up to three NetBAY3 units on bottom
- Wired for Mgmt 1.1a
- DMI 2.0, ACPI 1.0

Slot 1: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 2: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 3: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 4: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 5: fullsize, 64-bit 33MHz PCI, hot-swap, Bus D
Slot 6: fullsize, 64-bit 66MHz PCI, hot-swap, Bus C
Slot 7: fullsize, 64-bit 66MHz PCI, hot-swap, Bus C
Slot 8: fullsize, 64-bit 66MHz PCI, hot-swap, Bus B
Slot 9: fullsize, 64-bit 66MHz PCI, hot-swap, Bus B
Slot 10: fullsize, 64-bit 33MHz PCI, hot-swap, Bus A
Slot 11: fullsize, 64-bit 33MHz PCI, hot-swap, Bus A
Slot 12: fullsize, 64-bit 33MHz PCI, hot-swap, Bus A
Slot*: fullsize, 64-bit 33MHz PCI, not hot-sw, Bus A
Slot**: fullsize, 32-bit 33MHz PCI, not hot-sw, Bus A

* used by I/O Function Card
** used by Advanced Remote Mgmt PCI Adapter

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- **On site warranty upgrade options:**
  - **24 hr / 7 day coverage, 4 hour average response**[7] **time**
  - **24 hr / 7 day coverage, 2 hour average response**[7] **time (in eligible locations)**
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• = Hot Swap

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[1] MHz and GHz only measures internal clock speed (or bus speed where indicated), not application performance. Many factors affect application performance.

[2] When referring to a hard drive capacity, GB equals one billion bytes, and TB equals one trillion bytes. Total user-accessible capacity depends on operating environment.

[3] For terms and conditions or copies of IBM's limited warranty, call 1 800 772-2227 in the U.S. Limited warranty includes International Warranty Service in those countries where this product is offered. Telephone support may be subject to additional charges.

[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] Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

[7] Service levels are response time objectives and are not guarantees.

[8] Subject to conditions.

[9] Applications may vary from retail version and may not include all documentation or functions. Not all applications available separately. Titles subject to change without notice.

[10] Updated drivers and hot-swap services for certain operating systems may be required to support PCI hot-swap functions.

[11] Available only on select Netfinity servers meeting predefined criteria, to include Netfinity 5500, 5500 M10, 5500 M20, 5600, 7000 M10 and 8500R only, having completed Microsoft Cluster Server certification as listed on ServerProven web site; IBM reserves the right to change the terms and conditions of the program at any time, without notice. For more details, refer to *www.pc.ibm.com/us/solutions/netfinity/999guarantee.html* or see your IBM PSG sales representative.

[12] Intel uses EB to designate the attributes of these processors. E stands for advanced transfer (full speed) cache and B stands for 133MHz front side bus.

[13] On Netfinity 7100 and 7600, 16GB support with availability of 1GB DIMMS. Manufactured to Netfinity server standards; availability cannot be guaranteed.

[14] Response time varies. May exclude some holidays. On-site service provided after IBM attempts to resolve the problem remotely.

[15] Warranty and support for ServerProven solutions is provided by the manufacturer, not IBM.

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[17] For Netfinity 5500 M20, detailed information regarding system requirements to support this processor will be provided at a later date.

[18] Domino Server offer valid until December 31, 1999 and may vary by model. Check Netfinity web site for details.

[19] Between January 1, 2000 and December 31, 2000, these Netfinity Servers include license entitlement for Lotus Domino Application Server R5, five Notes Collaboration Client licenses, and five web browser Client Access licenses at no additional charge.

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