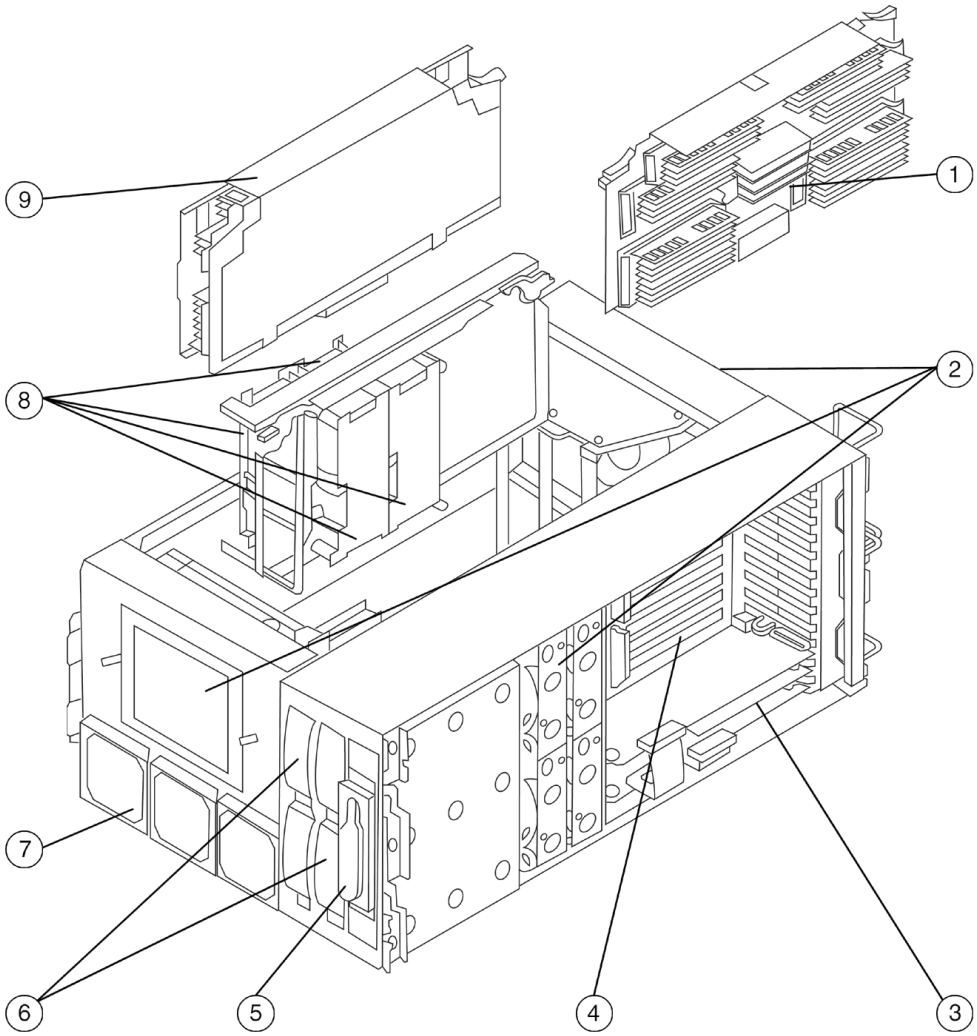
*Overview*




1. Memory Carrier 1 (4 slots)
2. Redundant, Hot-swap Fans
3. Core I/O Ultra160 SCSI, 10/100/1000Base-TX RS-232 and LAN Console
4. PCI-X I/O Slots
5. Removable Media Slot
6. Ultra160 SCSI Hot-plug Disks
7. Redundant, Hot-swap Power Supplies
8. Itanium 2 CPUs
9. Memory Carrier 2 (24 slots)

## At A Glance

### rx5670 Server Product Numbers

- Server and one 1.3-GHz CPU
  A6837B
- Server and one 1.5-GHz CPU
  A6838B

### Standard System Features

- Three Operating System support: HP-UX 11i version 2, Windows Advanced Server, and Linux
- External Ultra160 LVD SCSI port
- Two Internal Ultra 160 LVD SCSI controllers w/dual channels, 2 internal disks per controller
- 10/100/1000Base-TX LAN (with auto speed sensing; RJ-45 connector)
- Management Processor for remote management and HA monitoring
- Telnet and web console via 10/100Base-TX management LAN (RJ-45 connector)
- Three RS-232 serial ports linked to the management processor (multiplexed from a single DB-25 port)
- Factory integration of CPUs, memory, disk drives, removable media, and I/O cards
- Rackmountable into 19-inch cabinets
- Optional stand-alone pedestal mount
- Three-year warranty with next business day on-site

*Standard Features*

**Minimum System**

- One 64 bit Itanium 2 CPU: either 1.3 GHz/3 MB cache or 1.5 GHz/6 MB cache
- 1 GB PC2100 ECC Registered DDR266A SDRAM (4×256MB DIMMs)
- One 24 DIMM slot memory carrier board
- Two power supplies

**Maximum Server Capacities**

- Four 64 bit Itanium 2 CPUs: either 1.3 GHz/3 MB cache or 1.5 GHz/6 MB cache
- 96 GB PC2100 ECC Registered DDR266A SDRAM (48×2GB DIMMs)
- Two 24 DIMM slot memory carrier boards (48 DIMM slots total)
- Three Hotswap power supplies, providing N+1 protection for power supplies and power input
- Ten PCI X or PCI I/O adapter cards
- One internal DVD ROM or DDS 3 drive
- Four internal hot plug LVD SCSI disks

**Standard System Features**

- Three Operating System support: HP UX 11i version 2, Windows Advanced Server, and Linux
- Two Internal Ultra 160 LVD SCSI controllers w/dual channels; first controller supports one channel to an external port (U160 SCSI) and one channel to two internal HDDs (UltraWide SCSI), second controller supports one channel to internal HDDs (UltraWide SCSI) and one channel to internal tape or DVD bay (UltraNarrow SCSI). Please note: SCSI bus speed for the internal disk drives is 40MB/s, not the 160MB/s of the controller.
- 10/100/1000Base TX LAN (with auto speed sensing; RJ 45 connector)
- Management Processor for remote management and HA monitoring
- Telnet and web console via 10/100Base TX management LAN (RJ 45 connector)
- Three RS 232 serial ports linked to the management processor (multiplexed from a single DB 25 port)
- Factory integration of CPUs, memory, disk drives, removable media, and I/O cards
- Rackmountable into 19 inch cabinets
- Optional stand alone pedestal mount
- Three year warranty with next business day on site

**High Availability**

- N+1 Hotswap cooling
- Two Hotswap power supplies-optional third power supply for N+1 protection
- On line memory page deallocation
- ECC protected DDR memory
- Memory chip spare to overcome single DRAM chip failures
- Dynamic Processor resilience and deallocation
- UPS power management
- Hot Plug internal disks
- Two independent Ultra SCSI buses to internal disks for mirroring across disks and controllers
- Journal file system with HP UX
- Auto reboot
- HP MC/ServiceGuard for HP UX
- Microsoft Windows Cluster Service
- HP ServiceGuard Extension for RAC for HP UX
- ServiceGuard Manager for HP UX
- Insight Manager 7-proactive fault management
- EMS HA Monitors for HP UX
- ECM Toolkit for HP UX
- HP Cluster Verification Tool for Windows cluster service monitoring
- HP Surestore AutoPath for HP UX
- MirrorDisk for HP UX

**Security**

- Separate LAN for system management
- Password protection on console port
- Disablement of remote console ports
- SSL encryption on web console

*Standard Features*

**Manageability**

- HP Ignite UX for installation and deployment of the operating system
- HP Software Distributor UX for software and patch management
- HP Servicecontrol Suite for HP UX
- HP TopTools for Windows and Linux
- Management processor for comprehensive remote management of HP UX, Windows, and Linux
- Process Resource Manager for HP UX workload management

*Configuration*

**CPU Configuration**

The HP Integrity rx5670 is a symmetrical multiprocessing (SMP) server supporting up to four high performance 64 bit Itanium 2 processors.

**Processor Details**

- 1.3 GHz or 1.5 GHz frequencies
- Level 3 Cache: 3 MB (1.3 GHz) or 6 MB (1.5 GHz)
- Level 2 Cache: 256 KB
- Level 1 Cache: 32 KB
- Single bit cache error correction
- 50 bit physical addressing
- 64 bit virtual addressing
- 4 GB maximum page size

**CPU Configuration Rules**

- CPUs can be installed one at a time
- CPUs must be installed in the following sequence: 0, 1, 2, 3
- 1.3 GHz and 1.5 GHz CPUs cannot be mixed in the same system

**Memory Configuration**

The HP Integrity rx5670 supports DDR (double data rate) SyncDRAM (synchronous dynamic random access memory) DIMMs with ECC and chip spare protection. The HP Integrity rx5670 supports up to two 24 DIMM memory carrier boards, for a maximum of 48 DIMMs. Each memory carrier board connects to the memory controller via a 6.4 GB/s memory bus. Peak memory bandwidth across both buses and both carrier boards is 12.8 GB/s.

**Memory Loading Rules and Performance Guidelines**

- Memory must be installed in groups of four DIMMs, also known as quads
- Each quad must consist of equal density DIMMs
- Memory can be ordered in quads of 1 GB (4×256MB), 2 GB (4×512MB), 4 GB (4×1GB), or 8 GB (4×2GB)
- Minimum memory is 1 GB (4×256MB)
- Maximum memory is 96 GB, using twelve 4 GB memory quads in both memory carrier boards
- Windows Server 2003 has a maximum memory configuration of 64 GB
- HP UX 11i version 2 and Linux have a maximum memory configuration of 96 GB
- Memory must be loaded in the order depicted on the memory carrier board
- Arrange DIMMs so that the quads with the largest capacity are in the lowest numbered slots.
- Each memory carrier board has its own 6.4 GB/s bus. Configure both memory carrier boards to maximize bandwidth and performance
- If both memory carrier boards are used, load memory equally across the carriers-alternate loading of DIMMs, in groups of four, between the two carriers.

**Racking Configurations**

There are two rail options, static or slider, available for racking the HP Integrity rx5670 into an HP cabinet. The slider rail enables the HP Integrity rx5670 to easily slide out of a cabinet for servicing. The slider occupies one additional EIA unit of rack space. The combination of an HP Integrity rx5670 and slider rail will consume eight EIA units of rack space. The slider also enables the hot swap of four fans in the side cavity. Slider rails are highly recommended.
Static rails are also available. Static rails do not consume EIA space within the cabinet, therefore leaving more EIA space for peripherals. However, using static rails prohibits hot swap of the I/O bay fans. Static rails should only be used when cabinet vertical space prohibits the use of slider rails.
If a rack is not required, the system can be placed in the standalone/deskside mount (A5525A).

**Anti-Tip Feet**

Bolt on anti tip feet are required when racking an HP Integrity rx5670 on a slider. Factory integrated cabinets will include bolt on feet with every cabinet by default. For cabinets that don't already have bolt on feet, order the bolt on anti tip feet (A5540A). Bolt on feet should always be used instead of the pull out foot stored in the cabinet base.

*Configuration*

**Cabinet Space Requirements**

The HP Integrity rx5670 requires a minimum of 24 inches (61 cm) of free space in both the front and rear of the cabinet for proper ventilation. During product installation and servicing, a total of 32 inches (82 cm) of free space is needed at the front of the cabinet.
The depth of HP A490xA cabinets is 39 inches (99 cm). Therefore, a minimum of 87 inches (221 cm) of total space is needed for each cabinet during normal operation. An additional 8 inches (21 cm) is needed during installation and servicing.

**Maximum Configurations**

- Multiple HP Integrity rx5670 systems can be installed into a HP cabinet. The maximum number of systems per cabinet is only limited by the cabinet EIA availability.
- A4900A – Quantity 3 HP Integrity rx5670 (with or without slider rails)
- A4901A – Quantity 4 HP Integrity rx5670 (with or without slider rails)
- A4902A – Quantity 5 HP Integrity rx5670 (with or without slider rails)

**Factory Racking**

HP factories can install multiple HP Integrity rx5670 systems into a single cabinet. In addition, multiple HP Integrity rx5670 configurations can be ordered within a single cabinet. Order product A5580A for factory racking with static rails. Order product A5581A for factory racking with slider rails.

**Installation Into Third-Party Cabinets/Racks**

The HP Integrity rx5670 supports the same non HP racks as the rp5470.

## I/O Architecture

The HP Integrity rx5670 I/O architecture utilizes industry standard PCI X and PCI buses in a unique design for maximum performance, scalability and reliability.

The HP Integrity rx5670 architecture uses eight high speed I/O channels. Each channel provides 0.5 GB/s of sustained I/O throughput. The diagram above shows how these channels are used to provide bandwidth to the ten available PCI X and PCI slots as well as to the multifunction core I/O. Note that the rx5670 backplane has twelve I/O slots, however slots #1 and #3 (counting from the bottom) will always be filled with core I/O. Slot #2 will come factory loaded with a graphics and USB card if the HP Integrity rx5670 is ordered with the Windows operating system. The VGA/USB card is optional for systems ordered with HP UX or Linux.

The three slots at the top of the backplane (#10, 11, and 12) all have their own dedicated 64 bit 133 MHz PCI X bus and their own independent 0.5 GB/s I/O channel. The highest performing I/O cards should be placed in these three slots. The independent channels provide improved I/O performance and error containment. Independence protects each I/O card from bus hangs or extended latencies due to the failure or high bandwidth demands of other I/O cards. Independence also ensures that each I/O card can achieve maximum throughput.

The next six slots (4 through 9) share three 64 bit 66 MHz PCI X buses, with two slots allocated to each bus. Each pair of slots shares a 0.5 GB/s I/O channel. If a 33 MHz card shares a bus with a 66 MHz card, the faster card will downgrade to 33 MHz.

Slot #3 is loaded with a Gigabit LAN/U160 SCSI core I/O card. Every rx5670 contains this card. A dedicated 64 bit 133 MHz PCI X bus and a dedicated 0.5 GB/s I/O channel serve this slot.

Slots #1 and #2 are also used for core I/O. Slot #1 always contains the Management Processor/U160 SCSI core I/O card. Slot #2 will be loaded with the graphics and USB card if a Windows operating system is ordered. Slot #2 is open if HP UX or Linux is ordered. The graphics and USB card is available as an option with HP UX and Linux, and it should always be placed in slot #1. If the graphics and USB card is not used, slot #1 can be used for other PCI I/O cards. Slot #1 always runs at 33 MHz.

All I/O slots are keyed for 3.3V I/O cards. 5V cards are not supported in the HP Integrity rx5670.

| | Number of Slots | Bandwidth Per Slot | Bus Width | Bus Speed | Slot Keying |
|---|---|---|---|---|---|
| Dedicated | 3 | 0.5 GB/s | 64 bits | 133 MHz, 66 MHz or 33 MHz | 3.3 Volts |
| Shared | 6 | 0.5 GB/s per pair of slots (three pairs) | 64 bits | 66 MHz or 33 MHz | 3.3 Volts |
| LAN/SCSI Core | 1 | 0.5 GB/s | 64 bits | 133 MHz | 3.3 Volts |
| Management/SCSI Core | 1 | 0.5 GB/s shared with VGA/USB | 64 bits | 33 MHz | 3.3 Volts |
| VGA/USB[1] | 1 | 512 MB/s shared with Management/SCSI Core | 64 bits | 33 MHz | 3.3 Volts |

| Supported I/O Cards | | | | | | |
|---|---|---|---|---|---|---|
| I/O Card | Product Number | Connector Type(s) | HP-UX | Windows | Linux | Boot Support |
| PCI 2 Gb/s Fibre Channel Adapter | A6795A | LC | Yes | No | No | Yes |
| 2-Gb Fibre Channel HBA | AB232A | LC | No | Yes | No | No |
| 2-Gb Fibre Channel HBA | AB234A | LC | No | No | Yes | No |
| PCI-X Dual Channel 2GB Fibre Channel HBA | A6826A | LC | Yes | No | No | No |
| Single-port U160 SCSI | A6828A | VHDCI | Yes | No | No | Yes |
| Dual-port U160 SCSI | A6829A | VHDCI | Yes | No | No | Yes |
| Single-port U160 SCSI (Windows and Linux) | A7059A | VHDCI | No | Yes | Yes | Yes |
| Dual-port U160 SCSI (Windows and Linux) | A7060A | VHDCI | No | Yes | Yes | Yes |
| Smart Array 5302/128 MB 2-channel RAID Controller | A9825A | VHDCI | No | Yes | Yes | Yes |
| Smart Array 5304/256 MB 4-channel RAID Controller | A9826A | VHDCI | No | Yes | Yes | Yes |
| Smart Array 6402 U320 2-channel RAID Controller | A9890A | VHDCI | Yes | Yes | Yes | Yes |
| Dual-port 100Base-T/Dual port Ultra2 SCSI[1] | A5838A | VHDCI/ RJ-45 | Yes | No | No | No |
| Ultra2 LVD SCSI[1] | A5149A | VHDCI | Yes | No | No | No |
| Dual-port Ultra2 LVD SCSI[1] | A5150A | VHDCI | Yes | No | No | No |
| 1000Base-TX (gigabit copper) | A6825A | RJ-45 | Yes | No | No | No |
| 1000Base-SX (gigabit fiber) | A6847A | Duplex SC | Yes | No | No | No |
| 1000Base-TX (gigabit copper, Windows and Linux) | A7061A | RJ-45 | No | Yes | Yes | No |
| 1000Base-SX (gigabit fiber, Windows and Linux) | A7073A | Duplex SC | No | Yes | Yes | No |
| 10/100Base-TX | A5230A | RJ-45 | Yes | No | No | No |
| 4-port 100Base-TX Ethernet LAN Adapter | A5506B | RJ-45 | Yes | No | Yes | No |
| PCI-X 2Gb Fibre Channel/1000Base-SX Combo Card | A9782A | 2 LC | Yes | No | No | Yes |
| PCI-X 2Gb Fibre Channel/1000Base-T Combo Card | A9784A | 1 LC, 1 RJ-45 | Yes | No | No | Yes |
| FDDI Dual Attach Station LAN Adapter | A3739B | FDDI SC | Yes | No | No | No |
| PCI ATM 155 Mbps MMF Adapter | A5513A | Duplex SC | Yes | No | No | No |
| PCI Token Ring 4/16/100 Adapter | A5783A | RJ-45 and DB-9 | Yes | No | No | No |
| 8-port Terminal Multiplexer | J3592A | RS-232 | Yes | No | No | No |
| 64-port Terminal Multiplexer | J3593A | RS-232 or RS-422 | Yes | No | No | No |
| HyperFabric 2 Fibre Adapter | A6386A | LC Duplex | Yes | No | No | No |
| Graphics/USB | A6869A | | Yes | Yes | Yes | No |
| X.25/SDLC/FR dual port | J3525A | RS-530, RS-232, V.35, RS-449 or X.21 | Yes | No | No | No |

[1]Ultra2 SCSI cards do not support boot or MC/Serviceguard.

**Special Note on the Smart Arry 5302 and 5304 Smart Array RAID controller**

The Smart Array controllers do not automatically rebuild the internal HDD array when a failed drive is replaced. HP expects to provide auto rebuild capability in Q4 2003. Until that time, customers can deploy one of the following workarounds:
1. Reboot the server to begin the rebuild process after the failed drive is replaced.
2. Connect the second channel to the other side of the disk backplane and utilize the Hot Spare feature of the Smart Array (this will require an additional HDD). See the Smart Array User Guide for more details on setting up the Hot Spare feature.
3. Existing HP Server rx5670 customers currently using the NetRAID 2M card with Windows may continue to use their existing controller for internal RAID. The NetRAID 2M will automatically detect a failed drive when it is replaced and begins the rebuild process. This workaround is not available with Linux, as the NetRAID 2M card is not supported in the Linux operating system.

**Integrated Multi-function Core I/O**

The integrated multifunction I/O provides core I/O functionally and includes the management processor, which provides remote management and high availability monitoring capabilities.

- 10/100/1000Base T LAN with RJ 45 connector-Supports LAN boot for operating system installation
- External LVD Ultra160 SCSI (160 MB/s) port (Ultra160 is backward compatible with LVD Ultra2 and with SE SCSI)-Order the appropriate cable to connect to external peripherals, example: VH to HD cable
- Two internal dual-channel Ultra160 SCSI controllers. One channel per internal disk pair and one channel for the removable media bay.

**Integrated Management Processor Functionality**

- Dedicated 10/100Base T LAN port for LAN console and embedded web console access
- DB 25 serial port-multiplexed (using W cable) into three RS 232 ports: local ASCII console, remote/modem console, and general purpose
- Password protected console ports
- Console mirroring between all local, modem, LAN, and web consoles
- Remote power up and power down control
- Configurable remote access control
- Event notification to system console-Provides connectivity, information, and support for HP UX tools (such as STM and EMS) to notify by email, pager and/or HP response centers.
- Interface to system monitoring and diagnostic hardware via an internal IC bus
- Secure Sockets Layer security on web console

**Internal Disk Drives**

- The HP Integrity rx5670 supports up to four internal low profile or half height hot plug disk drives.
- Two Ultra160 SCSI controllers provide each disk drive pair with an independent SCSI channel
- Supported by MirrorDisk/UX across both disk drives and controllers
- Supports Smart Array 5302 and 5304 Ultra160 SCSI RAID with Windows and Linux operating system. Order internal Smart Array cables for the rx5670 (A9828A) to connect Smart Array card to internal drives
- 36 GB 15K, 73 GB 15K, and 146 GB 10K hot plug disks are supported

**System Console Configurations**

The HP Integrity rx5670's integrated Management Processor provides five methods for console connections.

- SSL secured Web console accessible through the 10/100Base T management LAN
- Standard telnet connections accessible through the 10/100Base T management LAN
- Local VT100 or hpterm terminal, or VT100 or hpterm emulator via local RS 232 serial connection
- Remote VT100 or hpterm terminal, or VT100 or hpterm emulator via external modem
- VGA graphics console using the A6869A graphics card - supported on Windows, Linux, and HP UX

**HP Integrity rx5670 Power Subsystem**

The HP Integrity rx5670 provides a high level of integrated power protection:

- N+1 redundant hotswap power supplies
- N+1 redundant AC power input protection with electrical phase isolation
- Power monitoring and control

The HP Integrity rx5670 supports up to three hotswap power supplies for N+1 protection. Two supplies are shipped as standard and are required for correct system operation. The hotswap design allows for the online replacement of a power supply when N+1=3 supplies are configured in the server.

The HP Integrity rx5670 provides an independent power input receptacle for each power supply. The independent design provides protection against losing the connection from a power cord or breaker. The HP Integrity rx5670 power cords should always be plugged into separate breakers when possible.

The chart below displays the AC power needs of the HP Integrity rx5670 at various configurations. These power figures are based on actual measurements under typical server workloads, and are appropriate for power budgeting at customer installations. Theoretically, a maximum configuration can draw up to 2,089 Watts AC. Power consumption at the theoretical maximum is unlikely in typical server applications.

| HP Integrity rx5670 AC Power Requirements at Various Configurations | | | | | | |
|---|---|---|---|---|---|---|
| CPUs | DIMMs | I/O Cards | Volt Amps | Watts, AC | Amps @ 115V | Amps @ 230V |
| 1 | 4 | 2 | 510 | 500 | 4.4 | 2.2 |
| 1 | 16 | 6 | 595 | 583 | 5.2 | 2.6 |
| 1 | 32 | 10 | 690 | 676 | 6.0 | 3.0 |
| 2 | 4 | 2 | 575 | 563 | 5.0 | 2.5 |
| 2 | 16 | 6 | 673 | 660 | 5.9 | 2.9 |
| 2 | 32 | 10 | 784 | 768 | 6.8 | 3.4 |
| 4 | 4 | 2 | 707 | 693 | 6.2 | 3.1 |
| 4 | 16 | 6 | 803 | 787 | 70. | 3.5 |
| 4 | 32 | 10 | 914 | 896 | 8.0 | 4.0 |
| 4 | 48 | 10 | 971 | 952 | 8.5 | 4.2 |

*Technical Specifications*

| | | |
|---|---|---|
| **Server model number** | rx5670 | |
| **Server product numbers** | Server and one 1.3 GHz CPU | A6837B |
| | Server and one 1.5 GHz CPU | A6838B |
| | Number of Processors | 1-4 |
| **Supported Processors** | **1.3-GHz Intel® Itanium® 2 processor** | |
| | Cache | 3 MB |
| | Floating Point Coprocessor included | Yes |
| | TPM estimate (4 way configuration) | 100 K |
| | **1.5-GHz Itanium 2 processor** | |
| | Cache | 6 MB |
| | Floating Point Coprocessor included | Yes |
| | TPM estimate (4 way configuration) | 120 K |
| **System Memory** | Minimum memory | 1 GB |
| | Maximum memory capacity | 96 GB |
| **Internal Disks** | Max. disk mechanisms | 4 |
| | Max. disk capacity | 438 GB |
| **Standard Integrated I/O** | Ultra160 SCSI-LVD | Yes |
| | 10/100/1000Base T (RJ 45 connector) | Yes |
| | RS 232 serial ports (multiplexed from DB 25 port) | 3 |
| | 10/100Base T management port (RJ 45 connector) | Yes |
| **I/O buses and slots** | Total PCI X and PCI Slots | 10 |
| | 3 133 MHz, 64 bit slots on 3 dedicated PCI X buses | |
| | 6 66 MHz, 64 bit slots distributed on 3 PCI X buses; 2 slots per bus | |
| | 1 33 MHz, 32 bit PCI slot; recommended for graphics card | |
| **Maximum Mass Storage Host Bus Adapters** (see supported I/O table) | Ultra160 SCSI-LVD | 10 |
| | Dual-port Ultra160 SCSI–LVD | 10 |
| | Dual port HVD/FWD SCSI | 10 |
| | Smart Array Ultra160 SCSI RAID | 9 (only 1 for internal drives) |
| | 2 Gb single port fibre channel | 10 |

| | | |
|---|---|---|
| **Maximum Network Interface Cards** (see supported I/O table) | 1000Base SX | 10 |
| | 1000Base TX | 10 |
| | 10/100Base TX | 10 |
| | Dual port X.25 | 10 |

| | | |
|---|---|---|
| **Electrical Characteristics** | AC Input power | 100 240V 50/60 Hz |
| | Hotswap Power supplies | 2 included, 3rd for N+1 |
| | Redundant AC power inputs | 2 included, 3rd for N+1 |
| | Typical current requirements at 230V | 5 A (shared across inputs) |
| | Typical maximum power dissipation | 952 Watts |
| | Theoretical maximum power dissipation | 2,089 Watts |
| | Power factor at full load | 0.98 |
| | Typical Heat dissipation (BTUs/hour) | 3,250 |
| | Maximum Heat dissipation (BTUs/hour) | 7,135 |

| | | |
|---|---|---|
| **Site Preparation** | Site planning and installation included | No |
| | Depth (in/mm) | 30.5 in (774 mm) |
| | Width (in/mm) | 19 in (482 mm) |
| | Rack Height (EIA/in/mm) | 7 U/12.25 in/322 mm |
| | Pedestal Height (in/mm) | 14.5 in (368 mm) |
| | Weight (lb/kg) Maximum | 161 lb (73 kg) |

| | | |
|---|---|---|
| **Environmental Characteristics** | Acoustics (operator/bystander) at 77° F/25° C) | <7.5 Bels LwA |
| | Operating Temperature (up to 5000 ft/1524 m)[1] | 41° to 95° F (5° to 35° C) |
| | Non-operating Temperature | -40° to 158° F (-40° to 70° C) |
| | Maximum rate of temperature change | 10° C/hour |
| | Operating relative humidity | 15% to 80% RH non-condensing |
| | Non-operating relative humidity | 5% to 90% non-condensing |
| | Operating altitude above sea level | 1,0000 ft (3,000 m) maximum |
| | Non-operating altitude above sea level | 1,5000 ft (4,600 m) maximum |

[1] Max operating temperature range up to 5000 ft. For higher altitudes de rate the max temperature by 2°C/1000 ft above 5000 ft.

| | | |
|---|---|---|
| **Regulatory Compliance** | Electromagnetic | Complies with FCC Rules and Regulations, Part 15 as a Class A digital device. |
| | Interference | Manufacturer's Declaration to EN55022 Level A, VCCI Registered, Class A, Korea RLL |
| | Safety | UL Listed, CSA Certified, TUV GS Mark compliant with EN 60950 and EN 41003 |