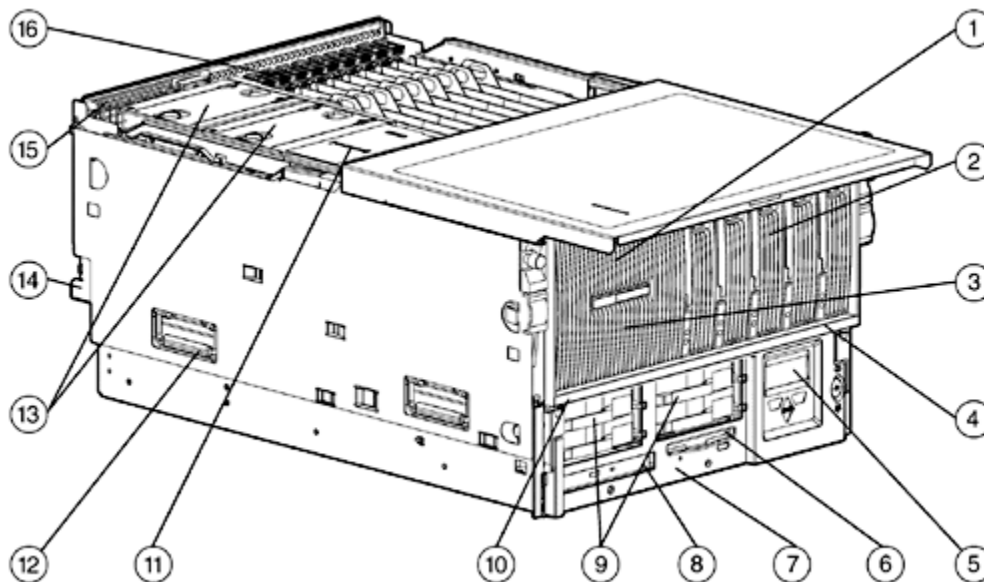


Overview



- | | |
|---|---|
| 1. Processor/Memory Module | 9. Four Ultra320 SCSI Hot Plug Drive Bays (running U3 speeds) |
| 2. Hot Plug RAID Memory Cartridge | 10. Attention LED Indicators |
| 3. Four or Eight Intel Xeon Processors MP with fault tolerant processor power modules | 11. System Interconnect Status Indicator |
| 4. DIMM Status LED | 12. Integrated Lift Handles |
| 5. Integrated Management Display | 13. Redundant Hot Plug Fans |
| 6. Integrated 1.44-MB Diskette Drive | 14. Two Redundant Hot Plug Power Supplies |
| 7. Media Module | 15. I/O Modules |
| 8. Integrated Slimline CD/DVD-ROM Drive, (8X speed for DVD and 24X speed for CD) | 16. Eleven 64-bit PCI-X and PCI I/O expansion slots, all Hot Plug (10 x 100 MHz PCI-X and 1 x 33 MHz PCI) |

What's New

- Intel® Xeon® Processor MP 3.0 GHz/4MB, 2.7 GHz/2MB, or 2.2 GHz/2MB, Processors (eight processor capability)
- Integrated HP NC7170 Dual-Port PCI-X 1000T Gigabit Server Adapter in a slot
- Integrated Slimline CD/DVD-ROM Drive now ships standard in new models

Overview

At A Glance

- Intel Xeon Processor MP 3.0 GHz/4MB, 2.7 GHz/2MB, 2.2 GHz/2MB Processors (eight processor capability)
- Hot Plug RAID Memory using XOR & ECC-protected memory and user-friendly diagnostics
- The ultimate high-density data center server delivering breakthrough 8-way scalable performance for 7 x 24 multi-server rack environments
- Tool less chassis for enhanced serviceability
- 133 MHz SDRAM DIMM memory that is expandable to 64 GB addressable memory (+16GB for full redundancy)
- Integrated Smart Array 5i Controller (Ultra3 support) (supports RAID 0, 1, 1+0, and 5 across internal hard disk drives) (One Internal Channel for RAID Capability for internal drives and one External Channel for tape support only)
- (10) 64-bit/100MHz capable PCI-X slots & (1) 64-bit/33-MHz PCI slot
- Full RILOE II support
- Integrated NC7770 PCI-X Gigabit Server Adapter or Integrated HP NC7170 Dual-Port PCI-X 1000T Gigabit Server Adapter standard depending on the model
- Internal Hot Plug Drive Storage of 1.20TB (4 x 300GB Ultra320 HDD running U3) or one DAT hot plug tape drive and two hot plug hard drives
- Robust set of hot plug and redundant features including Hot Plug RAID Memory, PCI/PCI-X Hot Plug, hot plug drive bays, redundant hot plug fans and power supplies and support for redundant NICs, ASR-2, Remote-Flash Redundant ROM
- Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SCSI hard drives.

Standard Features

Processor One of the following depending on Model	(4) Intel Xeon Processor MP 3.0 GHz/4MB (4) Intel Xeon Processor MP 2.7 GHz/2MB (4) Intel Xeon Processor MP 2.2 GHz/2MB
Cache Memory One of the following depending on Model	4-MB Integrated Level 3 cache (per processor) NOTE: Available with 3.0 GHz models. 2-MB integrated level 3 cache (per processor) NOTE: Available with 2.7 GHz or 2.2 GHz models.
Upgradeability	Upgradeable to eight processors
Chipset	HP developed F8 chipset
Memory Protection	Advanced ECC Hot Plug RAID Memory
Memory	Type 133MHz ECC SDRAM DIMMs Standard 2 GB NOTE: Available with 2.2 GHz model. Standard 4 GB NOTE: Available with 3.0 GHz or 2.7 GHz models. Maximum 64 GB (80 GB total) NOTE: All models come standard with all five memory cartridges populated and Hot Plug RAID Memory enabled. NOTE: In standard Hot Plug RAID Memory mode, addressable memory refers to the portion of memory that is addressable by the OS. Total memory consists of addressable memory plus the redundant memory (stored in the dedicated parity memory cartridge.)
Network Controller	Integrated HP NC7170 Dual-Port PCI-X 1000T Gigabit Server Adapter in a slot NOTE: Available with 3.0 GHz, 2.7 GHz, and 2.2 GHz models.

Standard Features

Expansion Slots	Slot Number	Bus Speed	Bus Number	Hot Plug	PCI Voltage	Notes
	1	64-bit 100MHz PCI-X	11	Yes	3.3V	
	2	64-bit 100MHz PCI-X	11	Yes	3.3V	
	3	64-bit 100MHz PCI-X	9	Yes	3.3V	
	4	64-bit 100MHz PCI-X	9	Yes	3.3V	
	5	64-bit 100MHz PCI-X	7	Yes	3.3V	
	6	64-bit 100MHz PCI-X	7	Yes	3.3V	
	7	64-bit 100MHz PCI-X	5	Yes	3.3V	
	8	64-bit 100MHz PCI- X	5	Yes	3.3V	
	9	64-bit 33MHz PCI	1	Yes	5V	Supported RILOE slot
	10	64-bit 100MHz PCI-X	3	Yes	3.3V	
	11	64-bit 100MHz PCI-X	3	Yes	3.3V	NIC in slot

NOTE: For more information regarding PCI-X, please see the following URL:
<http://www.hp.com/servers/pci-x>.

NOTE: All slots can accept universal keyed PCI cards.

Storage Controllers Smart Array 5i Controller (integrated on system board) supports (Ultra3) (supports RAID 0, 1, 1+0, and 5 across internal hard disk drives)
 Optional support for Ultra3 or Ultra320 storage controllers in an I/O slot to internal drives via array bypass cable kit and required cables ships with all HP ProLiant DL760 in the accessories package.

Storage	Diskette Drive	Integrated 1.44 MB Diskette Drive
	Optical Drive	Integrated Slimline CD/DVD-ROM Drive (8X speed for DVD and 24X speed for CD)
	Hard Drives	None

Maximum Internal Storage Type Hot Plug SCSI 1.20TB 4 x 300GB Ultra320 Drives (internal hot plug cage only)
NOTE: The Ultra320 drives run at Ultra3 speeds.

Standard Features

Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	Network RJ-45	1

Graphics Integrated ATI RAGE XL Video Controller with 8-MB SDRAM Video Memory

Form Factor 7U Rack Form Factor; Ships with sliding rack rails and cable management arm; Standard 19" rack-mountable

ProLiant Essentials Foundation Pack Software

HP Systems Insight Manager	HP's new HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. HP SIM are both easy to set up work with the Insight Management Agents, integrated Lights-Out and Remote Insight Lights-Out Edition, and Version Control Agents to deliver robust fault, configuration, and asset management as well as remote administration. With HP SIM customers will also be able to take advantage of role-based security; the ability to manage ProLiant, Integrity, and HP 9000 systems; and plug-ins for storage, client, printer, and power management as well as server rapid deployment, performance management, and workload management. For more details on HP SIM visit http://www.hp.com/go/hpsim .
SmartStart	SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/smartstart . SmartStart version supported (minimum): SmartStart 6.20.
Management Agents	The Management Agents form the foundation for HP's Intelligent Manageability strategy. They provide direct, browser-based access to in-depth instrumentation built into HP servers, workstations, desktops, and portables, and send alerts to Systems Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, please visit the management Web site at http://www.hp.com/servers/manage .
Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
ROMPaq, support software, and configuration utilities	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options available in SmartStart or downloadable from Software and Drivers download pages, linked from the SmartStart website at http://www.hp.com/servers/smartstart .
Survey Utility and diagnostics utilities	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.

Standard Features

Optional ProLiant Essentials Value Packs

Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Rapid Deployment Pack - an automated solution for multi-server deployment and provisioning, enabling companies to quickly and easily adapt to changing business demands.
- Workload Management Pack - provides easier management of complex environments, improving overall server utilization and enabling Windows® 2000 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant Server.
- Performance Management Pack - a performance management solution that identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources.
- Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading virus
- Vulnerability and Patch Management Pack - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats
- Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console.
- Server Migration Pack - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V).

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>

Industry Standard Compliance

ACPI 1.0b Compliant
PCI-X and PCI 2.2 Compliant
PAE Support
Microsoft® Logo certifications

Standard Features

Intelligent Manageability

HP Systems Insight Manager
Remote Insight Lights-Out Edition II (optional)
ROM-Based Setup Utility (RBSU)
Integrated Management Display (IMD)
Server Health logging
Automatic Server Recovery-2 (ASR-2)
System Interconnect Status Indicators
Remote-Flash Redundant ROM
Hot Spare Boot
NOTE: Upon the event of a failed processor or VRM in a multi-processing environment, the system will automatically reboot and use the remaining good processor(s).
Power Down Utility
Power Supply Viewer
Pre-Failure Warranty (covers processors, as well as SCSI hard drives and memory)

Availability

Hot Plug RAID Memory using Industry Standard ECC Memory
PCI-X/PCI Hot Plug with push button functionality
Redundant Hot Plug Fans
Dynamic sector repairing and drive parameter tracking (with Smart Array controllers)
Fault Tolerant Processor Power Modules
Redundant/adaptive load balancing NIC Support
Redundant Hot Plug Power Supplies

Security

Power-on password
Diskette drive control
Diskette boot control
Network server mode
Security provision
Parallel and serial interface control
Administrator's password
Disk configuration lock
Hot plug access security

Server Power Cords

Two Highline IEC to IEC power cords (PDU adapters) ships standard

UPS and PDU Power Cord Matrix

Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units.
<ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf>.

Power Supply

Two Redundant Hot Plug 1150/500-Watt power supplies per system. Power supplies are load sharing and provide 1150 Watts of Redundant power for 220-volt input or 500 Watts of Redundant power for 110-volt input.
NOTE: To ensure redundancy of server power, HP requires that 200-240 VAC power be used for all deployments. This will ensure that both power supplies can support up to their maximum configurations, and remain in a redundant power supply state.
NOTE: A maximum of two power supplies are supported and ship standard with each server.

System Fans

Two Hot-Plug redundant fans ship standard. Two maximum supported.

Standard Features

Required Cabling

For required cabling information, refer to the Web site at:
<http://hp.com/products/servers/ProLiantDL760>.

OS Support

Microsoft Windows 2000
Microsoft Windows 2000 Advanced Server
Microsoft Windows Server 2003 (Standard, and Enterprise)
SCO UnixWare®
LINUX (Red Hat, SuSE)
VMware Virtualization Software

NOTE: For a more complete and up-to-date listing of supported OS's and versions, please visit our OS Support Matrix at: <http://www.hp.com/go/supportos>.

NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant DL760 G2, please see: <http://h18023.www1.hp.com/support/files/server/us/index.html>.

NOTE: For a more complete and up-to-date information on Linux support, please visit HP Linux Web site at <http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html>.

NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at:

<http://h18004.www1.hp.com/products/servers/software/OEM.html>

NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at:

<http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html>.

Rack Airflow Requirements

Rack 10000 series Cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- **Front and rear doors:** If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- **Side:** The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: <http://h18000.www1.hp.com/products/servers/ProLiantDL760/index.html>.

NOTE: Allow a minimum of 48 in (121.92 cm) clearance beyond the front of your rack to permit server installation and removal. This applies to both individual rack installations as well as when aligning rack rows so that the front doors are facing each other.

Standard Features

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to <http://www.hp.com/go/factory-express>.

Custom Builder

Please see the Enterprise Configurator for configuration assistance at: <http://www.hp.com/products/configurator>.

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

NOTE: Limited warranty includes 3 year parts, 3 year labor, 3-year on-site support.

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours, 7 days call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMWare-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

HP Care Pack services include coverage for the HP branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3kVA; these items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: <http://www.hp.com/hps/carepack>

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Models

Model DL760R02 X3.0-4MB, 4096MB (4P) 348442-xx1	Processor(s)	(4) Intel Xeon Processors MP at 3.0 GHz standard (up to 8 supported)
	Cache Memory	4-MB integrated Level 3 cache (per processor)
	Memory	4096 MB (Standard) to 64 GB (Maximum) addressable protected 133MHz ECC SDRAM DIMM (5120 MB total)
	Network Controller	Integrated HP NC7170 Dual-Port PCI-X 1000T Gigabit Server Adapter in a slot
	Storage Controller	Integrated Smart Array 5i Controller (Ultra 3 support) (supports RAID 0, 1, 1+0, and 5 across internal hard disk drives)
	Hard Drives	None
	Internal Storage	1.20TB maximum (with optional hard drives)
	Cache Accelerator	2-MB Cache coherency accelerator embedded on host board
	Optical Drive	Integrated Slimline CD/DVD-ROM Drive (8X/24X)
	Diskette Drive	Integrated 1.44 MB Diskette Drive
	I/O Slots	PCI and PCI-X
	Form Factor	7U Rack Form Factor

Model DL760R02 X2.7-2MB, 4096MB (4P) 348443-xx1	Processor(s)	(4) Intel Xeon Processors MP at 2.7 GHz standard (up to 8 supported)
	Cache Memory	2-MB integrated Level 3 cache (per processor)
	Memory	4096 MB (Standard) to 64 GB (Maximum) addressable protected 133MHz ECC SDRAM DIMM (5120 MB total)
	Network Controller	Integrated HP NC7170 Dual-Port PCI-X 1000T Gigabit Server Adapter in a slot
	Storage Controller	Integrated Smart Array 5i Controller (Ultra 3 support) (supports RAID 0, 1, 1+0, and 5 across internal hard disk drives)
	Hard Drives	None
	Internal Storage	1.20TB maximum (with optional hard drives)
	Cache Accelerator	2-MB Cache coherency accelerator embedded on host board
	Optical Drive	Integrated Slimline CD/DVD-ROM Drive (8X/24X)
	Diskette Drive	Integrated 1.44 MB Diskette Drive
	I/O Slots	PCI and PCI-X
	Form Factor	7U Rack Form Factor

Models

Model DL760R02 X2.2-2MB, 2048MB (4P) 348444-xx1	Processor(s)	(4) Intel Xeon Processors MP at 2.2 GHz standard (up to 8 supported)
	Cache Memory	2-MB integrated Level 3 cache (per processor)
	Memory	2048 MB (Standard) to 64 GB (Maximum) addressable protected 133MHz ECC SDRAM DIMM (2560 MB total)
	Network Controller	Integrated HP NC7170 Dual-Port PCI-X 1000T Gigabit Server Adapter in a slot
	Storage Controller	Integrated Smart Array 5i Controller (Ultra 3 support) (supports RAID 0, 1, 1+0, and 5 across internal hard disk drives)
	Hard Drives	None
	Internal Storage	1.20TB maximum (with optional hard drives)
	Cache Accelerator	2-MB Cache coherency accelerator embedded on host board
	Optical Drive	Integrated Slimline CD/DVD-ROM Drive (8X/24X)
	Diskette Drive	Integrated 1.44 MB Diskette Drive
	I/O Slots	PCI and PCI-X
	Form Factor	7U Rack Form Factor

Country Code Key

xx=B2
xx=29
xx=AA

Rack Code Key

Worldwide
Japan
PRC

Options

ProLiant Essentials Value Pack Software

ProLiant Essentials Intelligent Networking Pack

ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License 372906-B21

NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

NOTE: For additional ProLiant Intelligent Networking Pack - Windows License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML

ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License 397004-B21

NOTE: For additional ProLiant Intelligent Networking Pack - Linux License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML

ProLiant Essentials Performance Management Pack

ProLiant Essentials Performance Management Pack, Single-Server License 306696-B21

NOTE: For use with a single server. Contains one license with a unique license activation key, HP Management CD and documentation.

NOTE: The most recent version of the software can always be downloaded at

<http://www.hp.com/products/pmp>.

NOTE: For additional ProLiant Performance Management Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11925_div/11925_div.HTML

ProLiant Essentials Rapid Deployment Pack Windows Edition and Linux Edition Release

Rapid Deployment Pack, Single-Server License 267196-B21

NOTE: This license allows 1 server to be deployed and managed via RDP.

Rapid Deployment Pack, Single-Server License (Japan) 267196-291

NOTE: This license allows 1 server to be deployed and managed via RDP.

NOTE: For additional ProLiant Essentials Rapid Deployment Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.HTML

http://h18000.www1.hp.com/products/quickspecs/11713_div/11713_div.HTML

ProLiant Essentials Workload Management Pack

ProLiant Essentials Workload Management Pack, Single Server License 303284-B21

NOTE: For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11452_div/11452_div.HTML

ProLiant Essentials Virtualization Management Software

ProLiant Essentials Virtual Machine Management Pack, Single-Server License 372214-B21

NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

ProLiant Essentials Server Migration Pack, Single-Migration License

NOTE: Contains one license, enabling 1 server migration, with a unique license activation key and documentation.

NOTE: This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005.

NOTE: For additional ProLiant Essentials Virtualization Management Software License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML

ProLiant Essentials Vulnerability and Patch Management Pack

Options

ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License 371645-B21

NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

NOTE: For additional ProLiant Vulnerability and Patch Management Pack License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12111_div/12111_div.HTML

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>.

NetServer to ProLiant integrations services

HP NetServer to ProLiant integration and assessment service 304164-002

NOTE: HP identifies current levels of NetServer support, services, and management. This service helps maximize customer's ability to add ProLiant platforms into their current environment.

HP TopTools to Insight Manager 7 installation and startup service 304163-002

NOTE: Provides on-site review, installation and configuration services for Insight Manager 7. HP will also re-create, as closely as possible, the views and reports from the customer's current TopTools configuration. This service assures a smooth transition to the ProLiant Essentials software.

HP NetServer to ProLiant Essentials Rapid Deployment Pack installation and startup service 304162-002

NOTE: Install and configure Rapid Deployment Pack in a test environment, then deploy a server image to a maximum of 250 systems in the production environment. This service helps to assure successful system deployment.

Processor

NOTE: Intel Xeon 3.0 GHz/4MB, 2.7 GHz/2MB, 2.2 GHz/2MB, 2.8 GHz/2MB, 2.5 GHz/1MB, 2.0 GHz/2MB, 2.0 GHz/1MB, and 1.5 GHz/1MB processors cannot be mixed in the same server. They all have to be of the same speed.

(4) Intel Xeon MP 3.0 GHz -4MB Processor Option Kit 351050-B21

NOTE: This processor option kit (PN 351050-B21) supports the HP ProLiant DL760 G2 and the HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 3.0GHz/4MB processors.

(4) Intel Xeon MP 2.70 GHz -2MB Processor Option Kit 351051-B21

NOTE: This processor option kit (PN 351051-B21) supports the HP ProLiant DL760 G2 and the HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 2.70 GHz/2MB processors.

(4) Intel Xeon MP 2.20 GHz -2MB Processor Option Kit 351052-B21

NOTE: This processor option kit (PN 351052-B21) supports the HP ProLiant DL760 G2 and the HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 2.20 GHz/2MB processors.

(4) Intel Xeon MP 2.80 GHz -2MB Processor Option Kit 334037-B21

NOTE: This processor option kit (PN 334037-B21) supports the HP ProLiant DL760 G2 and the HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 2.80 GHz-2MB processors.

(4) Intel Xeon MP 2.50 GHz-1MB Processor Option Kit 339072-B21

NOTE: This processor option kit (PN 339072-B21) supports the HP ProLiant DL760 G2 and HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 2.50 GHz-1MB processors.

Options

(4) Intel Xeon MP 2.0 GHz-1MB Processor Option Kit	334036-B21
NOTE: This processor option kit (PN 334036-B21) supports the HP ProLiant DL760 G2 and HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 2.0 GHz-1MB processors.	
(4) Intel Xeon MP 2.0 GHz -2MB Processor Option Kit	287520-B21
NOTE: This processor option kit (PN 287520-B21) supports the HP ProLiant DL760 G2 and the HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 2.0 GHz-2MB processors.	
(4) Intel Xeon MP 1.50 GHz-1MB Processor Option Kit	287519-B21
NOTE: This processor option kit (PN 287519-B21) supports the HP ProLiant DL760 G2 and HP ProLiant DL740 servers. This option kit contains 4 x Intel Xeon MP 1.50 GHz-1MB processors.	

Memory

(SDRAM DIMMs)

2048 MB 133MHz ECC SDRAM Memory Option Kit (1 x 2048 MB)	317093-B21
NOTE: A ROM dated later than 2/14/2003 is needed to use 2 GB DIMMs.	
1024 MB 133MHz ECC SDRAM Memory Option Kit (1 x 1024 MB)	236854-B21
512 MB 133MHz ECC SDRAM Memory Option Kit (1 x 512 MB)	236853-B21
256 MB 133MHz ECC SDRAM Memory Option Kit (1 x 256 MB)	236852-B21
NOTE: Memory must be populated in banks of 10. (2 per memory cartridge x 5 cartridges.) All DIMMs in a bank must be the same sku number.	

Optical Drives

8x CD/DVD-ROM Drive Option Kit	337057-B21
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Hard Drives

Ultra320 SCSI – Universal Hot Plug

HP 300GB U320 10K Universal HDD	350964-B22
HP 146GB U320 10K Universal HDD	286716-B22
HP 72GB U320 10K Universal HDD	286714-B22
HP 146GB U320 15K Universal HDD	347708-B22
HP 72GB U320 15K Universal HDD	286778-B22
HP 36GB U320 15K Universal HDD	286776-B22

NOTE: All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds. U320 drives require an optional U320 Smart Array Controller or U320 SCSI HBA to support U320 transfer rates.

NOTE: Please see the Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/11531_div/11531_div.HTML
(Worldwide)

Options

Storage Controllers	Smart Array 6402/128 Controller	273915-B21
	Smart Array 6404/256 Controller	273914-B21
	512MB DDR BBWC Upgrade	372538-B21
	Smart Array 641 Controller	291966-B21
	Smart Array 642 Controller	291967-B21
	128MB Battery-Backed Cache Enabler	351580-B21
	NOTE: This 128MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.	
	256-MB Battery-Backed Cache Module	254786-B21
	NOTE: This 256-MB Battery-Backed Cache Module supports the Smart Array 5300 series controllers, HP StorageWorks Modular Smart Array 1000 and the HP StorageWorks Modular Smart Array 500.	
	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter (The 64-bit/133-MHz Dual Channel Wide Ultra320 SCSI Adapter (268351-B21) will default to Wide Ultra2 when not used with the Wide Ultra3 hard drives.)	268351-B21
	Ultra320 Expansion Module for SA-6402	273911-B21
	NOTE: Please see the following Controller or SCSI Adapter QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.HTML (Smart Array 6400 Series) http://h18000.www1.hp.com/products/quickspecs/12067_div/12067_div.HTML (Smart Array 641) http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML (Smart Array 642) http://h18000.www1.hp.com/products/quickspecs/10429_div/10429_div.HTML (SCSI Adapter) http://h18000.www1.hp.com/products/quickspecs/11555_div/11555_div.HTML (U320 Adapter)	
<hr/>		
Communications	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	HP NC570C PCI-X Dual-port 4x Fabric Adapter	376158-B21
	HP 24-Port 4x Fabric Copper Switch	376227-B21
	HP 1m 4x Fabric Copper Cable	376232-B21
	HP 3m 4x Fabric Copper Cable	376232-B22
	HP 5m 4x Fabric Copper Cable	376232-B23
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Redundant Options	1150/500-Watt Hot Plug N 1 redundant power supply (North America)	401231-001
	1150/500-Watt Hot Plug N 1 redundant power supply (Int'l)	401231-B31
	1150/500-Watt Hot Plug N 1 redundant power supply (Japan)	401231-291
	NOTE: A maximum of two power supplies are supported by the HP ProLiant DL760 G2 (shipped standard with each server).	

Options

Management Options	Remote Insight Lights-Out Edition II (NA, LA)	227251-001
	Remote Insight Lights-Out Edition II (EMEA)	227251-021
	Remote Insight Lights-Out Edition II (ROW)	227251-371

Tape Drives

NOTE: For the complete listing of Tape Drive offerings for this server, please visit:
<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

For recommended tape drive offerings for this ProLiant server see the following:

Hot Plug Tape Drives

HP StorageWorks DAT 72 SCSI Hot-plug Tape Drive (Carbon) Q1529A

USB Tape Drives

HP StorageWorks DAT 72 USB External Tape Drive (Carbonite) DW027A

External and Rack-Mount Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite) DW064A

NOTE: No internal tape drives fit inside this HP ProLiant server (except hot plug tape). The internal drive shown here is for the 1U and 3U Rack-mount Kit.

HP StorageWorks Ultrium 232 External Tape Drive (Carbonite) DW065B

HP StorageWorks Ultrium 448 External Tape Drive (Carbonite) DW017B

HP StorageWorks Ultrium 960 External Tape Drive (Carbonite) Q1539B

HP StorageWorks 3U Rack-mount kit with one Ultrium 960 (Carbonite) Q1595A

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:

http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html
 (Worldwide)

For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: <http://www.hp.com/go/connect>.

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U Rack-Mount Kit A7445B

NOTE: The 1U Rack-mount Kit can support up to (2) half-height tape drives and compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, Ultrium 215, Ultrium 232 and Ultrium 448 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit A8007A

1U USB Cable Option Kit 396114-B21

NOTE: Converts a 1U SCSI rack-mount kit to a USB interface to support the USB tape drives.

HP StorageWorks 3U Rack-Mount Kit 274338-B22

NOTE: The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple Single-Ended and LVD SCSI tape drives including DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, SDLT 320, SDLT 600, Ultrium 215, Ultrium 230, Ultrium 232, Ultrium 460, Ultrium 448 and Ultrium 960 tape drives.

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:

http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.HTML
 (Worldwide)

Options

Tape Autoloaders

DAT Autoloader

HP StorageWorks DAT 72x6 Autoloader (External) Q1567A

NOTE: Please see the DAT Tape Autoloader QuickSpecs for additional options such as host bus adapters, controllers and media:

http://h18000.www1.hp.com/products/quickspecs/11985_div/11985_div.HTML (Worldwide)

HP StorageWorks 1/8 Tape Autoloader

HP StorageWorks 1/8 Ultrium 960 Tape Autoloader AF204A

HP StorageWorks 1/8 Ultrium 448 Tape Autoloader AF203A

HP StorageWorks 1/8 Ultrium 232 Tape Autoloader AF202A

1/8 Tape Autoloader Rackmount Kit C9268R

NOTE: Required to install the unit in a standard 19-inch rack; includes rails and rackmount instructions.

NOTE: Please reference the 1/8 Tape Autoloader QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at <http://www.hp.com/go/ebs>.

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 Ultrium 960 Drive Library AG115A

HP StorageWorks MSL2024 1 Ultrium 448 Drive Library AG116A

HP StorageWorks MSL2024 2 Ultrium 448 Drive Library AG117A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 Ultrium 448 Drive Library AG320A

HP StorageWorks MSL4048 2 Ultrium 448 Drive Library AG321A

HP StorageWorks MSL4048 1 Ultrium 960 Drive Library AG322A

HP StorageWorks MSL4048 2 Ultrium 960 Drive Library AG323A

HP StorageWorks MSL6000 Tape Library

Ultrium 960 technology

HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library AD606A

HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library AD608A

HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library AD607A

HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library AD609A

Ultrium 460 technology

HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library AD598A

HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library AD600A

HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library AD599A

HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library AD601A

NOTE: Please reference the MSL2024, MSL4048 and MSL6000 Tape Library QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at <http://www.hp.com/go/ebs>.

Options

Magneto-Optical Jukeboxes	HP StorageWorks 9.1 GB Optical Jukeboxes	
	600mx, 4 drive, 64 slot jukebox	C1160M
	1200mx, 4 drive, up to 128 slots	C1104M
	2200mx, 6 drive, up to 238 slots	C1107M
	<p>NOTE: Please see the HP StorageWorks Magneto-Optical Products data sheet for a complete listing of available jukeboxes at: http://www.hp.com/products1/storage/products/archivalprod/brochures/MO_family_pb.pdf</p> <p>NOTE: Please reference the Magneto-Optical Jukebox data sheets at http://www.hp.com/go/optical for additional information needed to create a complete solution.</p>	
Ultra Density Optical Jukeboxes	1900ux, 4 drive, 64 slot jukebox	AA966A
	3800ux, 4 drive, 128 slot jukebox	AA969A
	7100ux, 6 drive, 238 slot jukebox	AA971A
	<p>NOTE: Please see the HP StorageWorks Ultra Density Optical Jukeboxes QuickSpecs for a complete listing of available jukeboxes at: http://h18006.www1.hp.com/products/quickspecs/11944_div/11944_div.html</p> <p>NOTE: Please reference the Ultra Density Optical Jukebox QuickSpecs at http://www.hp.com/go/optical for additional information needed to create a complete solution.</p>	
HP Data Protector Express Software	HP DP Express Backup Server Upgrade for ProLiant Software	BB117AP
	HP DP Express Package for Microsoft Small Business Server	BB118AA
	<p>NOTE: Please see the HP Data Protector Express QuickSpecs for additional information regarding the purchase of HP Data Protector Express software: http://h18000.www1.hp.com/products/quickspecs/12337_div/12337_div.html (Worldwide)</p>	
HP StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20	335921-B21
	<p>NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.</p>	
	HP StorageWorks Modular Smart Array 20 Starter Kit	366172-B21
	<p>NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller.</p> <p>NOTE: The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 3.5" Hot Plug Hard Drives.</p>	
HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB	302969-B21
	<p>NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies.</p>	
	HP StorageWorks Modular Smart Array 30 DB	302970-B21
	<p>NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies.</p> <p>NOTE: The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 Hot Plug Hard Drives.</p>	

Options

HP StorageWorks Modular Smart Array 500	HP StorageWorks Modular Smart Array 500 Generation 2 NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML (Worldwide)	335880-B21
HP StorageWorks Modular Smart Array 1000	HP StorageWorks Modular Smart Array 1000 NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)	201723-B22
HP StorageWorks Modular Smart Array 1500 cs	Modular Smart Array 1500 Controller Shelf NOTE: Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at: http://www.hp.com/go/MSA1500cs	AA986A
Cluster Options	ProLiant Cluster Starter Kit NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html (Worldwide) HP HA/F200 for Entry SAN Cluster 364026-B22 HP HA/F200 for Entry SAN Cluster (Japan) 364026-292 NOTE: For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html (Worldwide) ProLiant Cluster HA/F500 for the Enterprise SAN 364024-B21 NOTE: For additional information regarding the ProLiant Cluster HA/F500 for Enterprise SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11933_div/11933_div.html (Worldwide) HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 and Red Hat EL 3 & 4 (2 node license cluster kit) 305199-B26 HP Serviceguard for Linux A.11.16 for SUSE SLES9 and Red Hat EL 3 & 4 (single license version) 307754-B26 HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription T2798AA#001 HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription T2798AA#003 NOTE: For additional information regarding HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html (Worldwide)	

Options

Uninterruptible Power Systems – Rack Mountable	HP UPS R1500 XR (1440VA, 1340 Watt), Low Voltage (NA)	204404-001
	HP UPS R1500 XR (1500VA, 1340 Watt), High Voltage (Int'l)	204404-B31
	HP UPS R1500 XR (1500VA, 1340 Watt), Low Voltage (Japan)	204404-291
	HP UPS R3000 XR (2880VA, 2700 Watt), Low Voltage (NA)	192186-001
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (NA)	192186-002
	HP UPS R3000 XR (2400VA, 2250 Watt), Low Voltage (Japan)	192186-291
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Japan)	192186-292
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Int'l - detachable cord)	192186-B31
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A IEC309 Plug)	192186-B32
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A CEE 7/7 SCHUKO Plug)	192186-B33
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A BS-546 Plug)	192186-AR1
	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage (NA/Jpn)	326529-D71
	HP UPS R5500 XR, (6000VA, 5400 Watt), High Voltage (Int'l)	326529-B31
	UPS R12000 XR N+x (200-240V) (WW-hardwired)	207552-B22
	NOTE: The UPS R12000 XR has a hardwired input and output; requires a 100A circuit.	

HP Monitored Power Distribution Unit (PDU)	HP Monitored Power Distribution Unit: Full Rack Version	
	HP 17.3 kVA S2324 Monitored PDU- dual input, 3-phase, 24A (NA/JPN)	370959-D71
	HP 8.3 kVA S1324 Monitored PDU- single input, 3-phase, 24A (NA/JPN)	370960-D71
	HP 16.6 kVA S2140 Monitored PDU- dual input, 1-phase, 40A (NA/JPN)	370961-D71
	HP 8.6 S1140 Monitored PDU- single input, 1-phase, 40A (NA/JPN)	370962-D71
	HP 22.1 kVA S2316 Monitored PDU- dual input, 3-phase, 16A (INTL)	370963-B31
	HP 11 kVA S 1316 Monitored PDU- single input, 3-phase, 16A (INTL)	370964-B31
	HP 14.7 kVA S2132 Monitored PDU- dual input, 1-phase, 32A (INTL)	370965-B31
	HP 7.4 kVA S1132 Monitored PDU- single input, 1-phase, 32A (INTL)	370966-B31
	HP Monitored Power Distribution Unit: Half Rack Version	
HP 17.3 kVA S348 Monitored PDU- single input, 3-phase, 60A (NA/JPN)	AF916A	
HP 22 kVA S332 Monitored PDU- single input, 3-phase, 32A (INTL)	AF917A	

Modular PDUs 1U/0U (Up to 32 outlets) NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) (NA, Japan)	252663-D71
	NOTE: This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.	
	HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan)	252663-D72
	HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l)	252663-B31
	HP Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC) (WW)	252663-B21
	NOTE: This mPDU (252663-B21), 40A model has a hardwired input.	
HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW)	252663-B24	
NOTE: This PDU has a detachable input power cord and allows for adaptability to country specific power requirements. This model may also be used with the high volt UPSs R3000 XR and R6000 For North America, need to order cable PN 340653-001.		

Options

HP Modular Power Distribution Unit (mPDU), High Volt Model, 40A, Attached Cord, (NA/JPN) 252663-D73

HP Modular Power Distribution Unit (mPDU), High Volt Model, 40A, Attached Cord, (Int'l) 252663-B32

NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords:

http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.HTML (Worldwide)

Third Party Rack Kit Rack Adapter Kit 332815-B21

NOTE: This kit allows HP rack servers to fit in racks that are 24" wide.

Third Party Rack Kit 274739-B21

NOTE: The Third party rack kit supports the HP ProLiant ML530 G2, HP ProLiant ML570 G2, HP ProLiant DL740, and HP ProLiant DL760 G2. Provides support for any rack, square hole or round hole (including HP Rack System /E and HP Systems) with an adjustment range from 23 ½" – 34" deep.

NOTE: The Third Party Rack Kit is required for round hole racks or for square hole racks that do not conform to the adjustment range of the standard rail that ships with the server.

Telco Rack Support NOTE: Support for all 2-post Telco racks requires the Third Party Rack Kit (PN 274739-B21) kit plus an additional option kit from Rack Solutions. The Rack Solutions brackets can be purchased at:

<http://www.racksolutions.com/compaq>.

HP Rack 5000 Series HP 5642 Rack-Unassembled 358254-B21
(Graphite Metallic)

NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

HP Rack 10000 G2 Series 10642 G2 (42U) Rack Cabinet - Pallet AF001A
(Carbon/Graphite Metallic) 10642 G2 (42U) Rack Cabinet - Shock Pallet AF002A
10642 G2 (42U) Rack Cabinet - Crated AF003A

10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet AF004A

10642 G2 (42U) Rack Cabinet, without door - Shock Pallet AF005A

10642 G2 (42U) Rack Cabinet - with Extension, without door - Shock Pallet AF006A

10636 G2 (36U) Rack Cabinet - Pallet AF011A

10636 G2 (36U) Rack Cabinet - Shock Pallet AF012A

10636 G2 (36U) Rack Cabinet - Crated AF013A

10636 G2 (36U) Rack Cabinet , with Extension - Shock Pallet AF014A

10636 G2 (36U) Rack Cabinet, without door - Shock Pallet AF015A

10636 G2 (36U) Rack Cabinet, with Extension, without door - Shock Pallet AF016A

NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.

Options

NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.HTML
(Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

HP Rack 10000 Series (Graphite Metallic)	10642 (42U) Infrastructure Rack (Low Voltage)	379006-001
	10642 (42U) Infrastructure Rack (High Voltage)	379005-001
	HP Rack S10614 (14U) Rack Cabinet – Shock Pallet	292302-B22
	HP Rack 10842 (42U, 800mm wide) – Pallet	257415-B21
	HP Rack 10842 (42U, 800mm wide) – Shock Pallet	257415-B22
	HP Rack 10647 (47U) – Pallet	245160-B21
	HP Rack 10647 (47U) – Crated	245160-B23
	HP Rack 10642 (42U) – Pallet	245161-B21
	HP Rack 10642 (42U) – Shock Pallet	245161-B22
	HP Rack 10642 (42U) – Crated	245161-B23
	HP Rack 10636 (36U) – Pallet	245162-B21
	HP Rack 10636 (36U) – Shock Pallet	245162-B22
	HP Rack 10636 (36U) – Crated	245162-B23
	HP Rack 10622 (22U) – Pallet	245163-B21
	HP Rack 10622 (22U) – Shock Pallet	245163-B22
	HP Rack 10622 (22U) – Crated	245163-B23

NOTE: xxxxxx-B21 (pallet) used to ship empty racks shipped on a truck. -B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). xxxxxx-B23 (crated) used for air shipments of empty racks.

NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML
(Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

Options

Keyboards and Monitors	TFT7210R Rack Mounted 17" Monitor	348373-B21
	NOTE: For a complete list of Monitors please view the following URL: http://www.hp.com/go/kvm .	
	TFT7600RKM US	AG052A
	TFT7600RKM UK	AG053A
	TFT7600RKM GR	AG054A
	TFT7600RKM FR	AG055A
	TFT7600RKM IT	AG056A
	TFT7600RKM SP	AG057A
	TFT7600RKM DEN	AG058A
	TFT7600RKM NOR	AG059A
	TFT7600RKM SE/FI	AG060A
	TFT7600RKM SWI	AG061A
	TFT7600RKM PORT	AG062A
	TFT7600RKM BEL	AG063A
	TFT7600RKM JPN2	AG064A
	TFT7600RKM RUS	AG065A
	TFT7600RKM INTL	AG066A
	1U Rack Keyboard & Drawer (Carbon)	257054-xx1

Country Code Key (for 1U Rack Keyboard & Drawer (PN 257054-xx1))

XX = 001	US	XX = 091	Norway
XX = 031	UK	XX = 101	Sweden/Finland
XX = 041	Germany	XX = 111	Switzerland
XX = 051	France	XX = 131	Portugal
XX = 061	Italy	XX = 181	Belgium
XX = 071	Spain	XX = 291	Japan
XX = 081	Denmark	XX = B31	International

NOTE: For additional information regarding Rack Options, please see the following URL: <http://www.hp.com/go/rackandpower>.

HP KVM Switch Options	IP Console Switch Box (KVM/IP), 3 x 1 x 16	262586-B21
	IP Console Switch Box (KVM/IP), 1 x 1 x 16	262585-B21
	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm .	
	HP 1x 4 USB/PS2 KVM Switch, TT (NA/JPN)	371301-D71
	HP 1x 4 USB/PS2 KVM Switch, TT (AU/NZ)	371301-011
	HP 1x 4 USB/PS2 KVM Switch, TT (UK)	371301-031
	HP 1x 4 USB/PS2 KVM Switch, TT (EU)	371301-A21
	HP 1x 4 USB/PS2 KVM Switch, RM (ALL)	371302-B21
HP PS2 KVM Cable with audio, 6', 2-pack	371730-B21	



Options

HP USB KVM Cable with audio, 6', 2-pack 371729-B21

NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: <http://www.hp.com/go/kvm>.

HP Serial Console Server Options

HP 16 Port Serial Console Server (worldwide) AF101A
 HP 48 Port Serial Console Server (worldwide) AF102A
 Serial Adapter, RJ45-DB9 DCE Female, 1 Pack AF103A
 Serial Adapter, RJ45-DB9 DCE Female, 8 Pack AF110A

NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: <http://www.hp.com/go/kvm>.

NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: <http://www.hp.com/go/kvm>.

Service and Support Offerings (HP Care Pack Services)

Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic U4623E
 4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4624E

Installation & Start-up Services

Hardware Installation, Electronic U4633E
 Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic U4634E

Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic U4635E

Onsite HW support, 8am-9pm, M-F, 4hr response and Linux O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic U4637E

Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic U4636E

Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic U4638E

6-Hour Call to Repair, On-site Service 7-Day x 24-Hour Coverage, 3 Years

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4625E

NOTE: For more information, customer/resellers can contact <http://www.hp.com/services/carepack>.

Memory

HP ProLiant DL760 G2 2.2 GHz/2MB or 2.0 GHz/1MB, 2048MB (4P)

Standard Memory

2048 MB addressable buffered ECC SDRAM DIMM memory (2 x 256 MB DIMMs x 5 Hot-Plug RAID Memory Cartridges. The 5th cartridge is populated for redundancy.)

Standard Memory Plus Optional Memory

Up to 51,200 MB of addressable ECC SDRAM DIMM memory is available with the installation of optional ECC SDRAM DIMM memory expansion kits.

Standard Memory Replaced with Optional Memory

Up to 65,536 MB of addressable ECC SDRAM DIMM memory is available with the removal of standard memory and the installation of optional ECC SDRAM DIMM memory expansion kits.

NOTE: 8 slots per Hot-Plug RAID Memory Cartridge. Up to 64 GB addressable memory total. Memory must be added in banks of two DIMMs per cartridge across all five (four if running in a non-redundant mode) Hot-Plug RAID Memory Cartridges. Charts do not represent all possible configurations.

Memory		Slot							
		1	2	3	4	5	6	7	8
Cartridge 1 (C1)	Standard	256 MB	256 MB	empty	empty	empty	empty	empty	empty
	Optional	256 MB	256 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 2 (C2)	Standard	256 MB	256 MB	empty	empty	empty	empty	empty	empty
	Optional	256 MB	256 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 3 (C3)	Standard	256 MB	256 MB	empty	empty	empty	empty	empty	empty
	Optional	256 MB	256 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 4 (C4)	Standard	256 MB	256 MB	empty	empty	empty	empty	empty	empty
	Optional	256 MB	256 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 5 (C5)	Standard	256 MB	256 MB	empty	empty	empty	empty	empty	empty
	Optional	256 MB	256 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB

Following are memory options available from HP:

- 2048 MB 133MHz ECC SDRAM Memory Option Kit (1 x 2048 MB) 317093-B21
NOTE: A ROM dated later than 2/14/2003 is needed to use 2 GB DIMMs.
- 1024 MB 133MHz ECC SDRAM Memory Option Kit (1 x 1024 MB) 236854-B21
- 512 MB 133MHz ECC SDRAM Memory Option Kit (1 x 512 MB) 236853-B21
- 256 MB 133MHz ECC SDRAM Memory Option Kit (1 x 256 MB) 236852-B21

Memory

HP ProLiant DL760 G2 3.0 GHz/4MB, 2.7 GHz/2MB, 2.5 GHz/2MB or 2.8 GHz/2MB 4096MB (4P)

Standard Memory

4096 MB buffered ECC SDRAM DIMM memory (2 x 512 MB DIMMs x 5 Hot-Plug Memory Cartridges. The 5th cartridge is populated for redundancy.)

Standard Memory Plus Optional Memory

Up to 53,248 MB of SDRAM DIMM memory is available with the installation of optional SDRAM DIMM memory expansion kits.

Standard Memory Replaced with Optional Memory

Up to 65,536 MB of SDRAM DIMM memory is available with the removal of standard memory and the installation of optional SDRAM DIMM memory expansion kits.

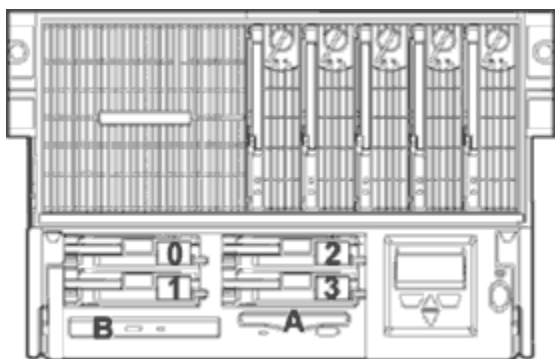
NOTE: 8 slots per Hot-Plug RAID Memory Cartridge. Up to 64 GB addressable memory total. Memory must be added in banks of two DIMMs per cartridge across all five (four if running in a non-redundant mode) Hot-Plug RAID Memory Cartridges. Charts do not represent all possible configurations.

Memory		Slot							
		1	2	3	4	5	6	7	8
Cartridge 1 (C1)	Standard	512 MB	512 MB	empty	empty	empty	empty	empty	
	Optional	512 MB	512 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 2 (C2)	Standard	512 MB	512 MB	empty	empty	empty	empty	empty	
	Optional	512 MB	512 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 3 (C3)	Standard	512 MB	512 MB	empty	empty	empty	empty	empty	
	Optional	512 MB	512 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 4 (C4)	Standard	512 MB	512 MB	empty	empty	empty	empty	empty	
	Optional	512 MB	512 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
Cartridge 5 (C5)	Standard	512 MB	512 MB	empty	empty	empty	empty	empty	
	Optional	512 MB	512 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB
	Maximum	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB

Following are memory options available from HP:

- 2048 MB 133MHz ECC SDRAM Memory Option Kit (1 x 2048 MB) 317093-B21
NOTE: A ROM dated later than 2/14/2003 is needed to use 2 GB DIM
- 1024 MB 133MHz ECC SDRAM Memory Option Kit (1 x 1024 MB) 236854-B21
- 512 MB 133MHz ECC SDRAM Memory Option Kit (1 x 512 MB) 236853-B21
- 256 MB 133MHz ECC SDRAM Memory Option Kit (1 x 256 MB) 236852-B21

Storage



- 0 - 3 Ultra320 SCSI Hot Plug drive bays
- A Integrated 1.44MB Diskette drive
- B Integrated Slimline CD/DVD-ROM Drive (8X/24X)

Drive Support

	Quantity Supported	Position Supported	Controller
Integrated Media			
Integrated 1.44-MB Diskette Drive	Up to 1	A	Integrated
Integrated Slimline CD/DVD-ROM Drive (8X/24X)	Up to 1	B	Integrated IDE

Hard Drives

Ultra320 Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
300GB U320 10K	Up to 4	0-3	Integrated 5i Smart Array Controller
146.8GB U320 10K			Smart Array 6402/128 Controller
72.8GB U320 10K			Smart Array 641 Controller
146.8GB U320 15K			Smart Array 642 Controller
72.8GB U320 15K			64-bit/133-MHz Dual Channel Ultra320 SCSI Adapter
36.4GB U320 15K			

NOTE: All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds.

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Family	1 per SCSI VHDCI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller
Modular Smart Array 30 Family	Up to 13	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller 64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
Modular Smart Array 500 G2 System	1	External	Please see the Modular Smart Array 500 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/msa500
Modular Smart Array 1000	Please see the Modular Smart Array 1000 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs (URL below) for the latest list of supported HBAs
Modular Smart Array 1500 cs	Please see the Modular Smart Array 1500 cs QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1500 cs QuickSpecs (URL below) for the latest list of supported HBAs

Modular Smart Array 1000:

http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)

Modular Smart Array 1500 cs: <http://www.hp.com/go/MSA1500cs>

Maximum Storage Capacity - (SCSI Attached)

Internal	1.20TB (4 x 300 GB Ultra320)
External	184.8TB hot plug SCSI storage (44 x (14 x 300 B Ultra320))
Total	186.0TB

Tape Drives, Tape Autoloaders, & Tape Libraries

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:

<http://h18000.www1.hp.com/products/quickspecs/Division/10233.html> (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders & Tape Libraries listed below, please see the following:

<http://h18000.www1.hp.com/products/quickspecs/Division/10809.html> (Worldwide)

NOTE: For complete listing of tape drive offerings see

<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

For details on connecting tape drives to this server, see the following:



Storage

	Quantity Supported	Position Supported	Controller
HP StorageWorks Tape Drives, Hot Plug DAT 24 USB DAT 40 USB DAT 72 USB	1	0-3	Smart Array 5i Controller (integrated on system board) 64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Drives, USB External DAT 40 USB DAT 72 USB	1 per USB port	External	USB port
HP StorageWorks Tape Drives, External Ultrium 232 Ultrium 448 Ultrium 460 DAT 40 DAT 72 DLT VS80 DLT VS160 SDLT 320	Up to 2	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Drives, External Ultrium 960 SDLT 600	1 per SCSI Channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Autoloaders, External DAT 72x6 Tape Autoloader 1/8 Tape Autoloader	1 autoloader per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Rack-mount Tape Drive Enclosures 1U Rack-Mount Kit 3U Rack-Mount Kit 5U Rack-Mount Kit	1 per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Libraries, External MSL2024 (Ultrium 448 and 960-based) MSL4048 (Ultrium 448 and 960-based) MSL6000 (Ultrium 960 and 460-based) MSL6000 (SDLT 600-based) MSL5026S2 (SDLT	Please reference the MSL Tape Library QuickSpecs to determine configuration requirements	External	Please consult the EBS connectivity matrix at http://www.hp.com/go/ebs for detailed connectivity information.



Storage

320-based)
MSL5052S2 (SDLT
320-based)

Technical Specifications

System Unit	Dimensions (HxWxD)	12.14 x 17.5 x 27 in (30.83 x 44.45 x 68.58 cm)
	Weight	165 lb (75 kg)
	No hard drives installed, two power supplies	
Input Requirements (per power supply)	Rated Input Voltage (lowline/highline)	100 to 120 VAC/200 to 240 VAC
	Rated Input Frequency	47 to 63 Hz (lowline/highline)
	Input Power	740W/1700W (lowline/highline)
	Rated Input Current (lowline/highline)	8A at 100 VAC/10A at 200 VAC
BTU Rating (Maximum output) (NOTE that the maximum heat output by the server is equal to the electrical power input.)	1555 Watts [5309 BTU/hr]	(System is configured to draw maximum power)
Power Supply Output Power (per power supply)	Rated Steady-State Power	500W/1150W (lowline/highline)
	Maximum Peak Power	540W/1150W (lowline/highline)
Temperature Range	Operating	50° to 95° F at sea level, altitude de-rating of 1.8° F per 1,000 ft to 10,000 ft (10° to 35° C at sea level, altitude de-rating of 1° C per 300 m to 3,000 m). Maximum rate of change is 18°F/Hr (10°C/Hr)
	Non-operating	-22° to 140 ° F (-30° to 60° C). Maximum rate of change is 36° F/Hr (20° C/Hr)
	Shipping	-22° to 122° F (-30° to 50° C)
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity, 82.4°F (28°C) maximum wet bulb temperature, non-condensing
	Non-operating	5 to 95% relative humidity, 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing
Maximum Wet Bulb Temperature	101.7° F (38.7° C)	
Acoustic Noise	Idle (Fixed Disk Drives Spinning)	
	L_{WA}d (BELS)	6.9
	L_{pAm} (dBA)	53

Technical Specifications

Power Supply	1150/500W, Hot Plug Redundant (2 standard)	One Redundant Power Supply (optimized to provide full redundancy at 220 volts)													
	Input Specifications	<table border="0"> <tr> <td>Normal Line Voltage</td> <td>100 to 120 VAC/200 to 240 VAC</td> </tr> <tr> <td>Range Input Line</td> <td>90 to 132 VAC/180 to 265 VAC</td> </tr> <tr> <td>Frequency Range</td> <td>47 to 63 Hz</td> </tr> <tr> <td>Power Factor</td> <td>0.95</td> </tr> <tr> <td>Input Current</td> <td>8 A at 100 VAC/10 A at 200 VAC</td> </tr> <tr> <td>Inrush Current</td> <td><70 A at 132 VAC (cold start)</td> </tr> <tr> <td>Holdup Time</td> <td>20 ms from zero crossing at 120 VAC</td> </tr> </table>	Normal Line Voltage	100 to 120 VAC/200 to 240 VAC	Range Input Line	90 to 132 VAC/180 to 265 VAC	Frequency Range	47 to 63 Hz	Power Factor	0.95	Input Current	8 A at 100 VAC/10 A at 200 VAC	Inrush Current	<70 A at 132 VAC (cold start)	Holdup Time
Normal Line Voltage	100 to 120 VAC/200 to 240 VAC														
Range Input Line	90 to 132 VAC/180 to 265 VAC														
Frequency Range	47 to 63 Hz														
Power Factor	0.95														
Input Current	8 A at 100 VAC/10 A at 200 VAC														
Inrush Current	<70 A at 132 VAC (cold start)														
Holdup Time	20 ms from zero crossing at 120 VAC														
	General Specifications	<table border="0"> <tr> <td>Full Output Rating</td> <td>To 104° F (40° C) and 5,000 ft (1524 m) To 89.6° F (32° C) and 10,000 ft (3,048 m) (derate linearly)</td> </tr> <tr> <td>Minimum Load</td> <td>1 A on 5 V output; 1 A on 12 V output; 0.5 A on 3.3 V output</td> </tr> </table>	Full Output Rating	To 104° F (40° C) and 5,000 ft (1524 m) To 89.6° F (32° C) and 10,000 ft (3,048 m) (derate linearly)	Minimum Load	1 A on 5 V output; 1 A on 12 V output; 0.5 A on 3.3 V output									
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	Ambient Temperature Range	<table border="0"> <tr> <td>Operating</td> <td>41° to 122° F (5° to 50° C)</td> </tr> <tr> <td>Storage</td> <td>-40° to 185° F (-40° to 85° C)</td> </tr> </table>	Operating	41° to 122° F (5° to 50° C)	Storage	-40° to 185° F (-40° to 85° C)									
	Operating	41° to 122° F (5° to 50° C)													
Storage	-40° to 185° F (-40° to 85° C)														
	Dielectric Voltage Withstand	<table border="0"> <tr> <td>Input to Output</td> <td>3,000 VAC/min</td> </tr> <tr> <td>Input to Ground</td> <td>1,500 VAC/min</td> </tr> </table>	Input to Output	3,000 VAC/min	Input to Ground	1,500 VAC/min									
	Input to Output	3,000 VAC/min													
Input to Ground	1,500 VAC/min														
	Input Transient Susceptibility	<table border="0"> <tr> <td>Common and Differential Mode (superimposed on AC line)</td> <td>2,500 V, 1µs, damped sinusoid 600 V, 10 µs pulse</td> </tr> <tr> <td>Differential Mode</td> <td>20% step change in AC input voltage</td> </tr> </table>	Common and Differential Mode (superimposed on AC line)	2,500 V, 1µs, damped sinusoid 600 V, 10 µs pulse	Differential Mode	20% step change in AC input voltage									
	Common and Differential Mode (superimposed on AC line)	2,500 V, 1µs, damped sinusoid 600 V, 10 µs pulse													
Differential Mode	20% step change in AC input voltage														

Slimline CD/DVD-ROM Combo Drive (8X/24X)	Shipping Dimensions	13.88 x 11.38 x 9.25 in (35.26 x 28.91 x 23.50 cm)		
	Shipping Weight	5 lb (2.27 kg)		
Disk	Applicable Disk	DVD-R (Read Only) 2.6 GB/side DVD-RAM (Read Only) 5.2 GB/side DVD-RAM (Read Only) CD-ROM Mode-1 data disc CD-ROM Mode-2 data disc CD Audio disc CD-Extra CD-ROM CD-R CD Text PhotoCD CD-I (mode 2) CD-I Ready CD-Bridge		
	Capacity	DVD-ROM	DVD-SL	4.7 GB/side
			DVD-DL	8.5 GB/side
			Double Sided	9.40 GB/side
		DVD-R		3.95 GB/side
		DVD-RAM		2.6 GB/side and 5.2 GB/
		CD-ROM	Mode-1	650 MB (550 MB)

Technical Specifications

		Mode-2	742 MB (640 MB)
	Block Size	DVD	2,048 bytes
		CD	2,352 (Mode-0)
			2352, 2340, 2336, 2048 bytes (Mode-1)
			2352, 2340, 2336, 2048 bytes (Mode-2)
	Diameter	120 mm, 80 mm (with adapter at vertical mounting mode)	
Loading Mechanism	Tray type		
Interface	EIDE (ATAPI)		
Access Times (typical)	Random	DVD-ROM < 120 ms, CD-ROM < 110 ms	
	Full-Stroke	DVD-ROM < 240 ms, CD-ROM < 160 ms	
Audio Output Level (typical)	Line-out	CD 0.7 Vrms at 47 Kohms Load	
Data Transfer Rate	DVD-ROM	Single Layer	10.8 MB/sec. Max.
	DVD-RAM	2.77 MB/sec. Maxz	
	CD-ROM	7.2 MB/sec. Max.	
Cache Buffer	2 MB		
Spin-up Time (typical)	less than 10 seconds		
MTBF	120,000 Power On Hours (POH)		
Ambient Temperature	Operating	-22° to 140° F (-30° to 60° C)	
Relative Humidity	Operating	10% to 80%	
	Storage/Transportation	5% to 95%	
Dimensions	(HxWxD, maximum)	0.5 x 5.04 x 5.1 in (12.7x128x129.4 mm)	
Option Kit Contents	DVD-ROM drive with installation guide, warranty card, registration card		

Technical Specifications

Smart Array 5i Controller (integrated on system board)	Protocol	Wide Ultra3 SCSI
	Processor	32-bit RISC
	XOR engine	Hardware RAID
	Electrical interface	Low Voltage Differential (LVD)
	Simultaneous Drive Transfer Channels	2
	Channel Transfer Rate	320 MB/s total; 160 MB/s per channel
	SCSI Port Connectors	One external and one internal SCSI port
	Memory	32 MB of DRAM used for code, transfer buffers, and non-battery-backed read cache
	Peak transfer rate	160 MB/s
	Logical Drives Supported	32
	Software Upgradeable Firmware	Yes
	RAID Support	RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping and Mirroring) RAID 1 (Mirroring) RAID 0 (Striping)
	Disk Drive and Enclosure Protocol Support	Ultra2 and Ultra3

NC7170 Dual-Port PCI-X 1000T Gigabit Server Adapter	Network Interface Compatibility	Two 10/100/1000-T ports IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 802.3ad, IEEE 802.3p, and IEEE 802.3Q
	Data Transfer Method	64-bit/133MHz PCI-X, compatible with 64/100, 64/66, 64/33 and 32/33
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s 10Base-T (Full-Duplex) 20 Mb/s 100Base-TX (Half-Duplex) 100 Mb/s 100Base-TX (Full-Duplex) 200 Mb/s 1000Base-T (Half and Full-Duplex) 2000 Mb/s
	Connector	Two RJ-45
	Cable Support	10Base-T Category 3,4 or 5 UTP; up to 328 ft (100 m) 10/100/1000Base-T Category 5 UTP (2 pair); up to 328 ft (100 m)

Technical Specifications

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.