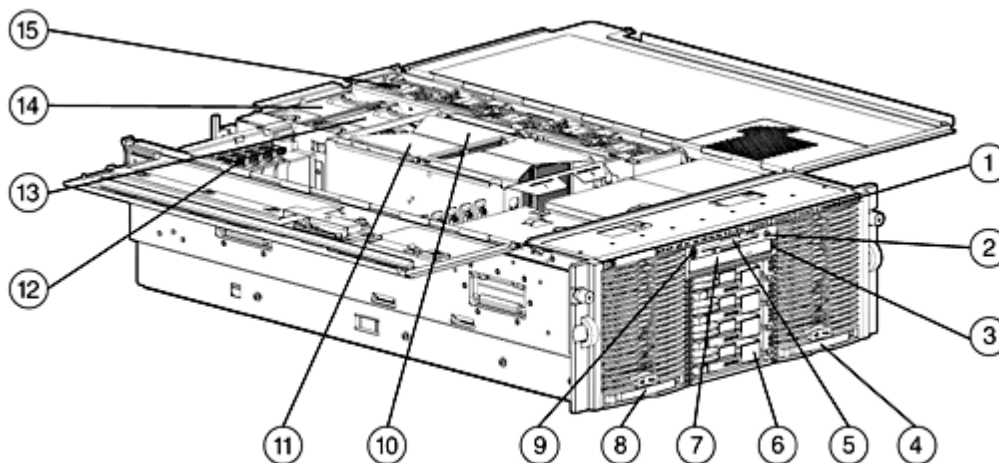


Overview

HP ProLiant DL740



1. LED Diagnostic Display (system health and DIMM status)
2. Unit ID (UID) LED Switch (front and rear)
3. Universal Media Bay Ejector Button
4. Redundant Hot Plug Power Supply #2
5. 1.44MB Diskette Drive
6. Ultra3 Hard Disk Drive Bays (up to four)
7. CD/DVD-ROM Drive in Universal Media Bay (hot pluggable)
8. Redundant Hot Plug Power Supply #1
9. System Power LED Switch
10. Processor Board #2
11. Processor Board #1
12. Six 100MHz/64-bit PCI-X slots
13. Redundant Hot Plug Fan #2
14. Redundant Hot Plug Fan #1
15. Hot Plug RAID Memory Cartridges (five total)

What's New

- Intel® Xeon® Processor MP 3.0 GHz/4MB, 2.7 GHz/2MB, or 2.2 GHz/2MB Processors (eight processor capability)

At A Glance

- Uncompromising 8-way performance and availability in an ultra dense, 4U form factor
- Intel Xeon Processor MP 3.0GHz/4MB, 2.7GHz/2MB, 2.2GHz/2MB Processors (eight processor capability)
- HP developed F8 chipset
- 133 MHz SDRAM Memory, expandable to 64 GB addressable memory
- HP Hot Plug RAID Memory Technology
 - Hot Add, Hot Replace, and Hot Upgrade
 - Uses industry standard ECC-protected memory
- Six 64-bit/100MHz PCI-X slots, all hot pluggable
- Integrated Lights-Out Standard Management (iLO) on system board
- Two NC7781 PCI-X Gigabit NICs (embedded)
- Integrated Smart Array 5i Controller (Ultra3 support) (supports RAID 0, 1, 1+0, and 5 across internal hard disk drives)
- Internal Hot Plug Drive Storage of 1.20 TB (4 x 300 GB Ultra320 1" hard drives running at Wide Ultra3)
- Tool less and modular chassis for enhanced serviceability
- Innovative diagnostic lighting for rapid response to service events
- Unit ID (UID) lighting, front and rear
- Front bezel system health/RAID memory LEDs
- Two 1100W/800W hot plug redundant power supplies standard
- Two hot plug redundant system fans standard
- Rapid deployment racking solution (rack rails and cable management)

Standard Features

Processor <i>Four of the following depending on Model</i>	Intel Xeon Processor MP 3.0 GHz/4MB Intel Xeon Processor MP 2.7 GHz/2MB Intel Xeon Processor MP 2.2 GHz/2MB
Processor <i>Four of the following depending on Model</i>	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.)
Upgradability	Upgradeable to eight processors
Chipset	HP developed F8 chipset
Memory Protection	Advanced ECC Hot Plug RAID Memory
Memory	Type 133MHz ECC SDRAM DIMMs Standard 4 GB (2 x 512 MB x 5 HP RAID Memory Cartridges) (The 5th cartridge is populated for redundancy) NOTE: Available with 3.0 GHz or 2.7 GHz models. Maximum 2 GB (2 x 256 MB x 5 HP RAID Memory Cartridges) (The 5th cartridge is populated for redundancy) NOTE: Available with 2.2 GHz model. Maximum 64 GB addressable (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	Two NC7781 PCI-X Gigabit NICs (embedded)

Standard Features

Expansion Slots	Slot Number	Bus Speed	Bus Number	Hot Plug	PCI Voltage	Notes
	1	64-bit 100MHz PCI-X	7	Yes	3.3V	
	2	64-bit 100MHz PCI-X	7	Yes	3.3V	
	3	64-bit 100MHz PCI-X	11	Yes	3.3V	
	4	64-bit 100MHz PCI-X	11	Yes	3.3V	
	5	64-bit 100MHz PCI-X	3	Yes	3.3V	
	6	64-bit 100MHz PCI-X	3	Yes	3.3V	

NOTE: All slots can accept universal keyed PCI cards.

Storage Controllers Smart Array 5i Controller (integrated on system board), one internal channel, 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 DL740 in the accessories package.

Storage

Diskette Drive	1.44 MB Diskette Drive
Optical Drive (in the Universal Media Bay)	Integrated Slimline CD/DVD-ROM (8X/24X) Combo Drive Option Kit
Hard Drives	None

Maximum Internal Storage Type Hot Plug SCSI 1.20 TB 4 x 300 GB Ultra320, 1" Drives (internal hot plug cage only)

Interfaces

Serial	1
Pointing Device (Mouse)	1
Graphics	1
Hot Plug Keyboard	1
USB (rear only)	1
iLO remote management port	1
Network RJ-45	2

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

Form Factor 4U (7") Rack Form Factor; Ships with sliding rack rails and cable management system; Standard 19" rack-mountable

Standard Features

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 Light-Out and Remote Insight Light-Outs 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.

ROMPaa, 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 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.
- 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.

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
PXE Support
Microsoft® Logo certifications

Standard Features

Intelligent Manageability Integrated Lights-Out (iLO) Standard Management

- Virtual Text Remote Console
- Virtual Power Button Control
- Dedicated LAN Connectivity
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) Security
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

Integrated Lights-Out (iLO) Advanced Pack (supports Advanced features such as Graphical Remote Console and Virtual Floppy - available as a separate option)

HP Systems Insight Manager

Remote Insight Lights-Out Edition II (optional)

ROM-Based Setup Utility (RBSU)

Integrated Management Log (IML)

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

Pre-Failure Warranty (covers processors, as well as hard drives and memory)

Dynamic sector repairing and drive parameter tracking (with Smart Array controllers)

Availability

Hot Plug RAID Memory - delivering unsurpassed memory protection and server availability:

- Uses industry standard ECC SDRAM DIMMs
- Fully redundant architecture, with no more performance overhead than is currently experienced with ECC protection.
- Same level of redundancy as achieved with memory mirroring, at only 25% of the additional memory expense when compared to mirroring.
- Customer can choose to run in non-RAID memory mode by populating only the first 4 memory cartridges.
- **Hot Add**
 - Add a new bank of DIMMs while the server is running
 - OS/Application enabled
- **Hot Upgrade**
 - Upgrade from a lower capacity DIMM to a higher capacity DIMM while the server is running
 - OS/Application enabled
- **Hot Replace**
 - Replace a failed DIMM while the server is running
 - OS/Application transparent

Six 64bit/100MHz PCI-X Hot Plug slots with push button functionality

Dual 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

Dual Redundant Hot Plug Power Supplies

Standard Features

Serviceability

- Innovative Diagnostic Lighting throughout server
 - LED display on front bezel indicates system health and DIMM status
 - LED display on memory cartridges indicates cartridge power and attention status
- Tool-less, virtually cable-less interior design
- Tool-less access to interior of server
- Hot pluggable universal media bay (CD/DVD-ROM drive ships standard) ejects without the use of tools
- Front access power supplies
- PCI Card Guides locks full length PCI cards in place during transit
- SCSI Drive Cage connects directly to system board – no cables.
- Modular mechanical design allows tool-less access to major subsystems for easy upgrades and servicing
 - Host Module: Processor, Memory, and I/O Subsystems
 - Power and Media Module: SCSI Backplane, Power Supplies, Universal Media Bay
- Quick Deploy Racking System
- Tool-less design "snap in" rails

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 IEC to IEC Highline power cords (PDU adapters) ship standard

Power Supply

Two Redundant Hot Plug 1100/800-Watt power supplies per system. Power supplies are load sharing and provide 1100 Watts of Redundant power for 220-volt input or 800 Watts of power for 115-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. Use of 110V power is not recommended.

NOTE: Due to the increased power consumption of the new Intel Xeon MP processors, power redundancy may not be supported on all server configurations when using 115-120 VAC power. Please refer to the Power Supply Calculator <http://activeanswers.compaq.com/> to determine if your configuration is redundant.

NOTE: A maximum of two power supplies are supported (shipped standard with each server).

System Fans

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

Required Cabling

For required cabling information, refer to the HP Web site at:
<http://h18004.www1.hp.com/products/servers/proliantdl740/index.html>.

Standard Features

OS Support

Microsoft Windows 2000
Microsoft Windows 2000 Advanced Server
Microsoft Windows Server 2003 (Standard and Enterprise)
LINUX (Red Hat, SuSE)

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 DL740, 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>

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://www5.compaq.com/products/servers/ProLiantdl740/index.html>.

NOTE: Allow a minimum of 48 inches (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.

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, EVA3000 & EVA5000, XP, rackable tape libraries and configurable network switches.

For more information on how to order please contact your sales representative or go to <http://www.hp.com/go/factory-express>.

Standard Features

Service and Support

Three-year limited warranty, including hardware diagnostic support, pre-failure warranty (coverage of hard drives, memory and processors). The warranty is fully supported by HP Services and a worldwide network of resellers and service providers. In addition 90-day's getting started software telephone support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services.

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

DL740R01 X3.0-4MB, 4096MB (4P) 348445-xxx	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	Two NC7781 PCI-X Gigabit NICs (embedded)
	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	1.20 TB maximum (with optional hard drives)
	Cache Accelerator	2-MB Cache coherency accelerator embedded on host board
	Optical Drive	Slimline CD/DVD-ROM Drive (8X/24X)
	Diskette Drive	1.44 MB Diskette Drive
	I/O Slots	PCI-X
	Form Factor	4U Rack Form Factor

DL740R01 X2.7-2MB, 4096MB (4P) 348446-xxx	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	Two NC7781 PCI-X Gigabit NICs (embedded)
	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	1.20 TB maximum (with optional hard drives)
	Cache Accelerator	2-MB Cache coherency accelerator embedded on host board
	Optical Drive	Slimline CD/DVD-ROM Drive (8X/24X)
	Diskette Drive	1.44 MB Diskette Drive
	I/O Slots	PCI-X
	Form Factor	4U Rack Form Factor

Models

DL740R01 X2.2-2MB, 2048MB (4P) 348447-xxx	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	2048MB (Standard) to 64 GB (Maximum) addressable protected 133MHz ECC SDRAM DIMM (5120 MB total)
	Network Controller	Two NC7781 PCI-X Gigabit NICs (embedded)
	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	1.20 TB maximum (with optional hard drives)
	Cache Accelerator	2-MB Cache coherency accelerator embedded on host board
	Optical Drive	Slimline CD/DVD-ROM Drive (8X/24X)
	Diskette Drive	1.44 MB Diskette Drive
	I/O Slots	PCI-X
	Form Factor	4U Rack Form Factor

Country Code Key

XXX=B21

XXX=292

XXX=AA2

Rack Code Key

Worldwide

Japan

PRC

Options

HP ProLiant DL740 Unique Options	Low Line (115V) Cable Kit, C-13 to 5-15P	317424-001
	DL740 Folding Metal Cable Management Arm	321716-B21
<p>NOTE: The Low Line Cable Kit consists of a single, 9 foot, IEC C-13 to 5-15P, 10 Amp cord. HP highly recommends running your HP ProLiant DL740 at high line (220V) voltage to ensure power redundancy for all of your robust, business-critical configurations. Because of the increasing power requirements of the memory and microprocessor subsystems, the HP ProLiant DL740 does not support power redundancy for all configurations when running at low line voltage. Please refer to the Power Supply Calculator http://h71019.www7.hp.com/ActiveAnswers/cache/71108-0-0-0-121.aspx to determine if your low line configuration is redundant.</p>		
ProLiant Essentials Value Pack Software	ProLiant Essentials Performance Management Pack Single Server License	306696-B21
	NOTE: This license allows 1 server to be managed by Performance Management Pack.	
	ProLiant Essentials Performance Management Pack, 10 Pack Server License	374055-B21
	Performance Management Pack, flexible license kit	306697-B21
	NOTE: A single pack is shipped with a single license key for the total number of licenses ordered.	
	ProLiant Essentials Workload Management Pack (Featuring Compaq Resource Partitioning Manager version 2.0)	303284-B21
	ProLiant Essentials Integrated Lights-Out Advanced Pack	263825-B21
	ProLiant Essentials Intelligent Networking Pack, 1 License	372906-B21
	ProLiant Essentials Intelligent Networking Pack Flex License	372950-B21
	ProLiant Essentials Intelligent Networking Pack Track License	372951-B21
	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 Virtual Machine Management Pack, Flexible-Quantity License	372215-B21
	NOTE: For use with multiple servers. This part number can be used to purchase multiple licenses with a single activation key.	
	ProLiant Essentials Virtual Machine Management Pack, Tracking License	372216-B21
	NOTE: For use with signed and implemented Activation Key Agreements only. Purchase of this part number entitles the customer to deploy additional licenses of the product under the terms of the existing Activation Key Agreement.	
	ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License	371645-B21
	ProLiant Essentials Vulnerability and Patch Management Pack, 10-Server License	372029-B21
	ProLiant Essentials Vulnerability and Patch Management Pack, Flexible-Quantity License	371646-B21
	ProLiant Essentials Vulnerability and Patch Management Pack, Tracking license for new servers	371647-B21
ProLiant Essentials Vulnerability and Patch Management Pack, Tracking license for installed servers	378372-B21	
ProLiant Essentials Vulnerability and Patch Management Pack, 1-Server 10-Desktop Bundle License	389941-B21	
ProLiant Essentials Server Migration Pack, Single-Server License	375345-B21	
ProLiant Essentials Server Migration Pack, Flexible-Quantity License	375346-B21	

Options

ProLiant Essentials Server Migration Pack, Tracking license	375347-B21
ProLiant Essentials Server Migration Pack, 10-Server License	390739-B21
<p>NOTE: This license allows 10 servers to be migrated from a physical server to a 10 virtual machines. Or this license can be used to migrate a 10 virtual machines from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005.</p> <p>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.</p> <p>NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.</p>	

HP NetServer integration Services	HP NetServer to ProLiant integration and assessment service	304164-002
	<p>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.</p>	
	HP TopTools to Insight Manager 7 installation and startup service	304163-002
	<p>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.</p>	

Processor	<p>NOTE: Intel Xeon 3.0 GHz/4MB, 2.7 GHz/2MB, 2.2 GHz/2MB, 2.8 GHz/2MB, 2.0 GHz/2MB, 2.5 GHz/1MB, 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 and cache size.</p>	
	(4) Intel Xeon MP 3.0GHz -4MB Processor Option Kit	351050-B21
	<p>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 3.0 GHz-4MB processors.</p>	
	(4) Intel Xeon MP 2.70 GHz -2MB Processor Option Kit	351051-B21
	<p>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 2.7 GHz-2MB processors.</p>	
	(4) Intel Xeon MP 2.20 GHz -2MB Processor Option Kit	351052-B21
	<p>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 2.2 GHz-2MB processors.</p>	
	Intel Xeon MP 2.80 GHz -2MB Processor Option Kit (4P)	334037-B21
<p>NOTE: This processor option kit (PN 334037-B21) supports the HP ProLiant DL740 and the HP ProLiant DL760 G2 servers. This option kit contains 4 x Intel Xeon MP 2.8 GHz-2MB processors.</p>		
Intel Xeon MP 2.5 GHz -1MB Processor Option Kit (4P)	339072-B21	
<p>NOTE: This processor option kit (PN 339072-B21) supports the HP ProLiant DL740 and the HP ProLiant DL760 G2 servers. This option kit contains 4 x Intel Xeon MP 2.5 GHz-1MB processors.</p>		
Intel Xeon MP 2.0 GHz -1MB Processor Option Kit (4P)	334036-B21	
<p>NOTE: This processor option kit (PN 334036-B21) supports the HP ProLiant DL740 and the HP ProLiant DL760 G2 servers. This option kit contains 4 x Intel Xeon MP 2.0 GHz-1MB processors.</p>		

Options

Intel Xeon MP 2.0 GHz -2MB Processor Option Kit (4P) 287520-B21

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

Intel Xeon MP 1.50 GHz-1MB Processor Option Kit (4P) 287519-B21

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

Memory (SDRAM DIMMs) 2048MB 133MHz ECC SDRAM Memory Option Kit (1x2048MB) 317093-B21
1024MB 133MHz ECC SDRAM Memory Option Kit (1x1024MB) 236854-B21

512MB 133MHz ECC SDRAM Memory Option Kit (1x512MB) 236853-B21

256MB 133MHz ECC SDRAM Memory Option Kit (1x256MB) 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 HP DVD+R/RW 8X Slim 383975-B21

Hard Drives *Ultra320 SCSI – Universal Hot Plug*

300-GB 10,000 rpm U320 Universal Hard Drive (1") 350964-B22

146.8-GB 10,000 rpm U320 Universal Hard Drive (1") 286716-B22

72.8-GB 10,000 rpm U320 Universal Hard Drive (1") 286714-B22

146.8-GB 15,000 rpm U320 Universal Hard Drive (1") 347708-B22

72.8-GB 15,000 rpm U320 Universal Hard Drive (1") 286778-B22

36.4-GB 15,000 rpm U320 Universal Hard Drive (1") 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:

U320 Hard Drive QS:

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

http://h18000.www1.hp.com/products/quickspecs/11531_na/11531_na.HTML
(North America)

Options

Storage Controllers	Smart Array 6402/128 Controller	273915-B21
	Smart Array 6404/256 Controller	273914-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.	
	128-MB Cache Module for Smart Array 5302 Controller	153506-B21
	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.	
	256MB DDR, Battery-Backed Cache Upgrade Kit for SA-6400	273913-B21
	NOTE: This 256-MB DDR, Battery-Backed Cache upgrade kit supports the Smart Array 6400 series controller only.	
	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/1187_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)		

Communications	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC6170 PCI-X Dual Port 1000SX Gigabit Server Adapter	313879-B21
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	NOTE: Any NIC on the option list can be used for redundancy with the embedded NC7781 Network Controller.	
	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

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

Security	HP/Atalla AXL600L SSL Accelerator Card for ProLiant Servers	524545-B21
	AXL300 Accelerator PCI Card for ProLiant Servers	227933-B21

Tape Drives

Ultrium Tape Drives - External, Rack-Mount and Array

HP StorageWorks Ultrium 215 Tape Drive, External (Carbon)	Q1545A
HP StorageWorks Ultrium 215 rack-mount (Carbon) - Single drive installed in a 1U rack-mount kit	A7444A
HP StorageWorks Ultrium 215 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7492B
HP StorageWorks Ultrium 230 Tape Drive, External (Carbon)	Q1517A
HP StorageWorks Ultrium 230, Rack-mount (Carbon) - Single drive installed in a 3U rack-mount kit	350545-B21
HP StorageWorks Ultrium 230 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7470B
HP StorageWorks Ultrium 448 Tape Drive, External (Carbonite)	DW017A
HP StorageWorks Ultrium 448, Rack-mount (Carbonite) - Single drive installed in a 1U rack-mount kit	DW028A
HP StorageWorks Ultrium 460 Tape Drive, External (Carbon)	Q1520A
HP StorageWorks Ultrium 460, Rack-mount (Carbon) - Single drive installed in a 3U rack-mount kit	350546-B21
HP StorageWorks Ultrium 460 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	Q1512B
HP StorageWorks Ultrium 960 Tape Drive, External (Carbonite)	Q1539A
HP StorageWorks Ultrium 960 Rack-mount (Carbonite) - Single drive installed in a 3U rack-mount kit	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)

http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_na.html

(North America)

http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html

(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/12128_na/12128_na.html

(North America)

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>

DAT Drives - External, Rack-Mount and Array Module

HP StorageWorks DAT 72 Tape Drive, External (Carbon)	Q1523A
HP StorageWorks DAT 72 Tape Drive, Internal Hot-Plug (Carbon)	Q1529A
HP StorageWorks 1U Rack-Mount Kit with one DAT 72 drive (Carbon)	A7443A

Options

HP StorageWorks DAT 72 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	Q1524B
HP StorageWorks DAT 40 Tape Drive, External (Carbon)	C5687C
HP StorageWorks DAT 40 Tape Drive, Internal Hot-Plug (Carbon)	Q1546A
HP StorageWorks DAT 40 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7497B
HP StorageWorks DAT 24e Tape Drive, External (Flint)	C1556D
HP StorageWorks DAT 24 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7498A

NOTE: Please see the DAT Tape Drive QuickSpecs for controllers, media, and other options:

http://h18000.www1.hp.com/products/quickspecs/11883_div/11883_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/11883_na/11883_na.HTML
(North America)

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

External DLT VS Tape Drives

HP StorageWorks DLT VS80 Tape Drive, External (Carbon) NA	337699-B22
HP StorageWorks DLT VS80 Tape Drive, External (Carbon) Int'l	337699-B31
HP StorageWorks DLT VS80 Tape Drive, External (Carbon) Japan	337699-291

NOTE: Please see the DLT VS80 Tape Drive QuickSpecs for additional options such as host bus adapters, controllers, media, and other options:

http://h18006.www1.hp.com/products/quickspecs/11403_div/11403_div.HTML
(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/11403_na/11403_na.HTML
(North America)

For an up-to-date listing of the latest O/S and software support details for the DLT VS80, please visit: <http://www.hp.com/go/connect>

External and Rack-mount SDLT Tape Drives

HP StorageWorks SDLT 320 Tape Drive, External (Carbon) NA	257319-001
HP StorageWorks SDLT 320 Tape Drive, External (Carbon) Int'l	257319-B31
HP StorageWorks SDLT 320 Tape Drive, External (Carbon) Japan	257319-291
SDLT 600 External Tape Drive, North America	A7519A
SDLT 600 External Tape Drive, Worldwide	A7520A
SDLT 600 in 3U Rack (1) Drive	A7965A

NOTE: Please see the SDLT 320 Tape Drive QuickSpecs for additional options such as adapters, controllers, and media.

http://h18006.www1.hp.com/products/quickspecs/11840_div/11840_div.HTML
(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/11840_na/11840_na.HTML
(North America)

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

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U Rack-Mount Kit	A7445A
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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 DAT 24, DAT40, DAT72, DLT VS 80, and Ultrium 215 tape drives.

Options

HP StorageWorks 3U Rack-Mount Kit	274338-B21
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, DLT VS80, SDLT 320, Ultrium 215, Ultrium 230, and Ultrium 460 Tape Drives.	
HP StorageWorks 5U Rack-Mount Kit	274339-B21
NOTE: The 5U Rack-Mount Kit can support up to 4 full-height tape drives and is compatible with SDLT 320, Ultrium 230, and Ultrium 460 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)	
http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML (North America)	
HP StorageWorks Tape Array 5300	C7508A
NOTE: The Tape Array 5300 is a 3U enclosure that supports up to 2 full-height or 4 half-height hot-swap array modules, including DAT and Ultrium tape drives. Cables and terminators are not included and must be ordered separately.	
NOTE: Please see the Tape Array 5300 QuickSpecs for additional information regarding this product.	
http://h18000.www1.hp.com/products/quickspecs/11878_div/11878_div.HTML (Worldwide)	
http://h18000.www1.hp.com/products/quickspecs/11878_na/11878_na.HTML (North America)	
Accessories for 3U & 5U Rack-mount Tape Drive Kits	
LVD Cable Kit, VHDCI/HD68	168048-B21
NOTE: For use with the 3U Rack-mount Kit and 5U Rack-mount Kit only.	
LVD Cable Kit, HD68/HD68	242381-B21
NOTE: For use with the 3U Rack-mount Kit and 5U Rack-mount Kit only.	
Accessories for 3U & 5U Rack-mount Tape Drive Kits	
<i>PSU/Fan Upgrade Kit - Redundant hot-swap power supply unit and fan for Tape Array 5300.</i>	
68-pin HD multi-mode terminator	C2364A
1.0m 68-pin VHDCI to 68-pin HD cable	C2361B
2.5m 68-pin VHDCI to 68-pin HD cable	C2362B
5.0m 68-pin VHDCI to 68-pin HD cable	C2365A
10.0m 68-pin VHDCI to 68-pin HD cable	C2363B
0.5m 68-pin HDI to 68-pin HD cable LVD/SE	C2978B
1.5m 68-pin HDI to 68-pin HD cable LVD/SE	C2979B
0.9m 68-pin HDI to 68-pin HD cable LVD/SE	C2911C
2.5m 68-pin HDI to 68-pin HD cable LVD/SE	C2924C
NOTE: For use with Tape Array 5300 only	

Options

Tape Autoloaders

DAT Autoloader

HP StorageWorks DAT 72x6 External Autoloader

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)

http://h18000.www1.hp.com/products/quickspecs/11985_na/11985_na.HTML
(North America)

HP StorageWorks 1/8 Tape Autoloader

1/8 Ultrium 460 Tape Autoloader, Tabletop

AA927A

1/8 SDLT 320 Tape Autoloader, Tabletop

AA926A

1/8 Ultrium 230 Tape Autoloader, Tabletop

C9572CB

1/8 DLT VS80 Tape Autoloader, Tabletop

C9264CB

1/8 Tape Autoloader Rackmount Kit

C9268R

NOTE: Required to install the 1/8 tape autoloader in a standard 19-inch rack.

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>.

HP StorageWorks SSL1016 Tape Autoloader

SSL1016 Ultrium 460 Tape Autoloader

330821-B21

SSL1016 SDLT 320 Tape Autoloader

330816-B21

NOTE: Please reference the SSL1016 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 MSL6000 Tape Library

MSL6030, 1 drive, 30 slots, Ultrium 460, RM

330731-B22

MSL6030, 2 drive, 30 slots, Ultrium 460, RM

330731-B23

MSL6030, 1 drive, 30 slots, Ultrium 460, RM with embedded FC router

330731-B24

MSL6030, 2 drive, 30 slots, Ultrium 460, RM with embedded FC router

330731-B25

MSL6060, 2 drive, 60 slot, Ultrium 460, RM

331196-B21

MSL6060, 2 drive, 60 slot, Ultrium 460, RM with embedded FC router

331196-B22

NOTE: Please reference the 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>.

HP StorageWorks MSL5026S2 Tape Library

MSL5026S2, 1 drive, 26 slots, SDLT 320, RM

293472-B22

MSL5026S2, 2 drive, 26 slots, SDLT 320, RM

293472-B23

MSL5026S2, 1 drive, 26 slots, SDLT 320, RM with embedded FC router

293472-B24

MSL5026S2, 2 drive, 26 slots, SDLT 320, RM with embedded FC router

293472-B25

NOTE: Please reference the MSL5026S2 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>.

HP StorageWorks MSL5052S2 Tape Library

Options

MSL5052S2, 2 drive, 52 slots, SDLT 320, RM	293474-B21
MSL5052S2, 2 drive, 52 slots, SDLT 320, RM with embedded FC router	293474-B24

NOTE: Please reference the [MSL5052S2 Tape Library QuickSpecs at http://www.hp.com/go/automation](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>.

HP StorageWorks MSL5030 Tape Library

MSL5030, 1 drive, 30 slots, Ultrium 230, RM	301897-B22
MSL5030, 2 drive, 30 slots, Ultrium 230, RM	301897-B23
MSL5030, 1 drive, 30 slots, Ultrium 230, RM with embedded FC router	301897-B24
MSL5030, 2 drive, 30 slots, Ultrium 230, RM with embedded FC router	301897-B25

NOTE: Please reference the [MSL5030 Tape Library QuickSpecs at http://www.hp.com/go/automation](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>.

HP StorageWorks MSL5060 Tape Library

MSL5060, 2 drive, 60 slots, Ultrium 230, RM	301899-B22
MSL5060, 2 drive, 60 slots, Ultrium 230, RM with embedded FC router	301899-B23

NOTE: Please reference the [MSL5060 Tape Library QuickSpecs at http://www.hp.com/go/automation](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>.

HP StorageWorks ESL E-Series Tape Libraries

ESL Extended 712e Tape Library, 0 drive, 712 LTO slots	AA934B
ESL Extended 630e Tape Library, 0 drive, 630 SDLT slots	AA935B
ESL Extended 322e Tape Library, 0 drive, 322 LTO slots	AA939B
ESL Extended 286e Tape Library, 0 drive, 286 SDLT slots	AA940B
ESL E-Series Ultrium 460 drive kit	AA937A
ESL E-Series Ultrium 460-FC drive kit	AA941A
ESL E-Series SDLT 320 drive kit	AA936A
ESL E-Series e2400-FC 2G Interface Controller	AA928A

NOTE: Please reference the [ESL E-Series Tape Libraries QuickSpecs at http://www.hp.com/go/automation](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 Mid-range Optical Jukeboxes

300mx, 2 drive, 32 slot jukebox	C1150M
600mx, 4 drive, 64 slot jukebox	C1160M
700mx, 2 drive, 76 slot jukebox	C1170M

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.

HP StorageWorks 9.1 GB High-end Optical Jukeboxes

1200mx, 4 drive, up to 128 slots	C1104M
1200mx, 6 drive, up to 128 slots	C1105M
2200mx, 4 drive, up to 238 slots	C1111M
2200mx, 6 drive, up to 238 slots	C1107M
2200mx, 10 drive, up to 238 slots	C1110M

Ultra Density Optical Jukeboxes

1000ux, 2 drive, 32 slot jukebox	AA965A
1900ux, 4 drive, 64 slot jukebox	AA966A
1900ux, 4 mixed drive, 64 slot jukebox	AA968A
2300ux, 2 drive, 76 slot jukebox	AA967A
3800ux, 4 drive, 128 slot jukebox	AA969A
3800ux, 6 drive, 128 slot jukebox	AA970A
7100ux, 4 drive, 238 slot jukebox	AA973A
7100ux, 6 drive, 238 slot jukebox	AA971A
7100ux, 10 drive, 238 slot jukebox	AA972A
7100ux, 6 mixed drive, 238 slot jukebox	AA974A

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.

Options

External Storage	HP StorageWorks Modular Smart Array 20 NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.	335921-B21
	HP StorageWorks Modular Smart Array 20 Starter Kit NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller. NOTE: The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 1" Hot Plug Hard Drives.	366172-B21
	HP StorageWorks Modular Smart Array 30 SB NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies.	302969-B21
	HP StorageWorks Modular Smart Array 30 DB NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies. NOTE: The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 1" Hot Plug Hard Drives.	302970-B21
	Redundant Power Supply 499W	338296-B21
	Ultra320 Dual Bus I/O Module for MSA30	287483-B21
	Ultra320 Single Bus I/O Module for MSA30	287484-B21
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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_na/11956_na.HTML (North America) http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML (Worldwide)	335880-B21
<hr/>		
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_na/11935_na.html (North America) http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html (Worldwide)	364023-B21
	ProLiant Cluster Kit with OpenView Storage Mirroring NOTE: For additional information regarding the ProLiant Cluster Kit with OpenView Storage Mirroring please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11934_na/11934_na.html (North America) http://h18000.www1.hp.com/products/quickspecs/11934_div/11934_div.html (Worldwide)	364025-B21
	ProLiant Cluster HA/F200 for the Entry Level SAN	364026-B21
	ProLiant Cluster HA/F200 for the Entry Level SAN (Japan)	364026-291

Options

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_na/11932_na.html
(North America)

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_na/11933_na.html
(North America)

http://h18000.www1.hp.com/products/quickspecs/11933_div/11933_div.html
(Worldwide)

HP Serviceguard for Linux ProLiant Cluster A.11.15 for SUSE SLES 8 / UnitedLinux 1.0 and Red Hat EL 3 (2 node license cluster kit).

305199-B24

HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 and Red Hat EL 3 (2 node license cluster kit)

305199-B25

HP Serviceguard for Linux License A.11.15 for SUSE SLES 8 / UnitedLinux 1.0 and Red Hat EL 3 (single license version)

307754-B24

HP Serviceguard for Linux A.11.16 for SUSE SLES9 and Red Hat EL 3 (single license version)

307754-B25

NOTE: For additional information regarding the HP Serviceguard for Linux License, please see the following QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11518_na/11518_na.html
(North America)

http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html
(Worldwide)

HP StorageWorks
Modular Smart Array
1500 cs

Modular Smart Array 1500 Controller Shelf

AA986A

NOTE: Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at:

<http://www.hp.com/go/MSA1500cs>

HP StorageWorks
Modular Smart Array
1000

HP StorageWorks Modular Smart Array 1000

201723-B22

NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at

http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML
(North America)

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

Options

StorageWorks Options	StorageWorks SAN Switch 2/16	322118-B21
	StorageWorks SAN Switch 2/16-EL Upgrade Kit	325889-B21
	StorageWorks Director 2/64	286809-B21

NOTE: Please see the StorageWorks Director 2/64 QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/11003_na/11003_na.HTML
(North America)

http://h18000.www1.hp.com/products/quickspecs/11003_div/11003_div.HTML
(Worldwide)

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

Uninterruptible Power Systems – Rack Mountable	HP UPS R1500 XR (1440VA, 1340 Watt), Low Voltage (NA)	204404-001
	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 (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
	HP 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.

Custom Builder	Please see the Enterprise Configurator for configuration assistance at: http://www.hp.com/products/configurator .	
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Options

HP Power Distribution Unit with Power Monitoring	HP Power Distribution Unit with Power Monitoring Model S2324 - dual input, 3 phase, 24A (NA/JPN)	370959-D71
	HP Power Distribution Unit with Power Monitoring Model S1324 - single input, 3 phase, 24A (NA/JPN)	370960-D71
	HP Power Distribution Unit with Power Monitoring Model S2140 - dual input, 1 phase, 40A (NA/JPN)	370961-D71
	HP Power Distribution Unit with Power Monitoring Model S1140 - single input, 1 phase, 40A (NA/JPN)	370962-D71
	HP Power Distribution Unit with Power Monitoring Model S2316 - dual input, 3 phase, 16A (INTL)	370963-B31
	HP Power Distribution Unit with Power Monitoring Model S1316 - single input, 3 phase, 16A (INTL)	370964-B31
	HP Power Distribution Unit with Power Monitoring Model S2132 - dual input, 1 phase, 32A (INTL)	370965-B31
	HP Power Distribution Unit with Power Monitoring Model S1132 - single input, 1 phase, 32A (INTL)	370966-B31

Modular Power Distribution Units - 1U0U (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) NOTE: This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.	252663-D71
	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) NOTE: This mPDU (252663-B21), 40A model has a hardwired input.	252663-B21
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW) 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.	252663-B24
	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) 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_na/11041_na.HTML (North America) http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.HTML (Worldwide)	252663-B32

Options

Third Party Rack Kit	<p>Third Party Rack Kit</p> <p>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 1/2" - 34" deep.</p> <p>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.</p> <p>Telco Rack Support:</p> <p>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/hp.</p> <p>Rack Adapter Kit</p> <p>NOTE: This kit allows HP rack servers to fit in racks that are 24" wide.</p>	274739-B21
HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
Rack Options for Rack 5000 Series	<p>Stabilizer Kit for 5642 rack (Graphite Carbon)</p> <p>NOTE: The stabilizing kit is used to prevent rack from tipping over.</p> <p>Baying Kit for 5642 rack (Graphite Carbon)</p> <p>NOTE: The baying kit is used to join two or more HP 5642 racks.</p>	<p>374493-B21</p> <p>374499-B21</p>
HP Rack 10000 Series (Graphite Metallic)	<p>10642 (42U) Infrastructure Rack (Low Voltage)</p> <p>10642 (42U) Infrastructure Rack (High Voltage)</p> <p>HP Rack S10614 (14U) Rack Cabinet– Shock Pallet</p> <p>HP Rack 10842 (42U, 800mm wide) – Pallet</p> <p>HP Rack 10842 (42U, 800mm wide) – Shock Pallet</p> <p>HP Rack 10647 (47U) – Pallet</p> <p>HP Rack 10647 (47U) – Crated</p> <p>HP Rack 10642 (42U) – Pallet</p> <p>HP Rack 10642 (42U) – Shock Pallet</p> <p>HP Rack 10642 (42U) – Crated</p> <p>HP Rack 10636 (36U) – Pallet</p> <p>HP Rack 10636 (36U) – Shock Pallet</p> <p>HP Rack 10636 (36U) – Crated</p> <p>HP Rack 10622 (22U) – Pallet</p> <p>HP Rack 10622 (22U) – Shock Pallet</p> <p>HP Rack 10622 (22U) – Crated</p> <p>HP Rack 10614 (14U) – Shock Pallet</p>	<p>379006-001</p> <p>379005-001</p> <p>292302-B22</p> <p>257415-B21</p> <p>257415-B22</p> <p>245160-B21</p> <p>245160-B23</p> <p>245161-B21</p> <p>245161-B22</p> <p>245161-B23</p> <p>245162-B21</p> <p>245162-B22</p> <p>245162-B23</p> <p>245163-B21</p> <p>245163-B22</p> <p>245163-B23</p> <p>292303-B22</p>
	<p>NOTE: -B21 (pallet) used to ship empty racks shipped on a truck</p> <p>-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)</p> <p>-B23 (crated) used for air shipments of empty racks</p> <p>NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all HP equipment is qualified to be shipped in the Rack 10000 series</p>	

Options

NOTE: For additional information regarding Rack Options, please see the following URL: <http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

Rack Options for HP Rack 10000 Series

NOTE: For additional information regarding Rack Options, please see the following URL: <http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

HP Rack Light Kit (Neon)	361589-B21
HP Rack Plinth Kit (Carbon)	251960-B21
42U Side Panel – Graphite Metallic	246099-B21
36U Side Panel – Graphite Metallic	246102-B21
47U Side Panel – Graphite Metallic	255486-B21
TFT5600 Rack Keyboard Monitor	221546-xx1

Country Code Key (for TFT5600 Rack Keyboard Monitor (PN 221546-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

1U Rack Keyboard & Drawer (Carbon)	257054-xx1
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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://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

Options

HP KVM Switch Options	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	IP Console Switch Box (KVM/IP), 1 x 1 x 16	262585-B21
	IP Console Switch Box (KVM/IP), 3 x 1 x 16	262586-B21
	HP 1x4 USB/PS2 KVM Switch, RM (ALL)	371302-B21
	HP 1x4 USB/PS2 KVM Switch, TT, (EURO)	371301-A21
	HP 1x4 USB/PS2 KVM Switch, TT (UK)	371301-031
	HP 1x4 USB/PS2 KVM Switch, TT, (AUST/NZ)	371301-011
	HP 1x4 USB/PS2 KVM Switch, TT, (NA/JPN)	371301-D71
	PS/2 Interface Adapter, 8 pack	262587-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	CAT5 KVM Expansion Module	262589-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	CAT5e Cable 3', 4 pack	263474-B21
	CAT5e Cable 6', 8 pack	263474-B22
	CAT5e Cable 12', 8 pack	263474-B23
	CAT5e Cable 20', 4 pack	263474-B24
	CAT5e Cable 40', 1 pack	263474-B25

Service and Support Offerings

(HP Care Pack Services)

NOTE: The Service and Support Offerings specifying Microsoft O/S in the description cover Windows NT, Windows 2000 Server/Advanced Server or Novell NetWare Operating System.

Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years	U4713A
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4713E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years	U4714A
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4714E

Installation & Start-up Services

Hardware Installation	U4723A
Hardware Installation, Electronic	U4723E
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.	U4724A
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	U4724E

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.	U4725A
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	U4725E
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	U4727A

Options

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 U4727E

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. U4726A

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 U4726E

Onsite HW support 24x7, 4hr response and Linux O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays. U4728A

Onsite HW support 24x7, 4hr response and Linux O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic U4728E

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 U4715A

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4715E

NOTE: For more information, customer/resellers can contact

<http://www.hp.com/services/carepack>

Memory

HP ProLiant DL740 2.2 GHz/2MB or 2.0 GHz/1MB, 2048 MB (4P)

Standard Memory

2048 MB addressable protected 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. 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. Tables do not represent all possible configurations.

		Bank 1 (Standard Memory)		Bank 2		Bank 3		Bank 4	
Memory		Slots							
		1	2	3	4	5	6	7	8
Cartridge 1 (C1)	Standard	256 MB	256 MB						
	Optional	256MB	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						
	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	256MB	256 MB						
	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						
	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						
	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:

- 2048MB 133MHz ECC SDRAM Memory Option Kit (1 x 2048MB) 317093-B21
- 1024MB 133MHz ECC SDRAM Memory Option Kit (1 x 1024MB) 236854-B21
- 512MB 133MHz ECC SDRAM Memory Option Kit (1 x 512MB) 236853-B21
- 256MB 133MHz ECC SDRAM Memory Option Kit (1 x 256MB) 236852-B21

Memory

HP ProLiant DL740 3.0 GHz/4MB, 2.7 GHz/2MB, 2.8 GHz/2MB or 2.5 GHz/1MB 4096 MB (4P)

Standard Memory

4096 MB addressable protected 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 53,248MB 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.

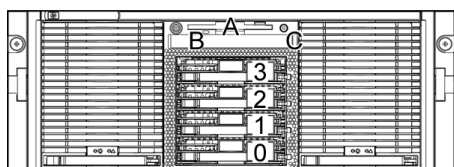
NOTE: 8 slots per Hot-Plug RAID Memory Cartridge. Memory must be added in banks of two DIMMs per cartridge across all five (four if running in a non-redundant mode) Hot-Plug RAID Memory Cartridges. Tables do not represent all possible configurations.

		Bank 1 (Standard Memory)		Bank 2		Bank 3		Bank 4	
Memory		Slots							
		1	2	3	4	5	6	7	8
Cartridge 1 (C1)	Standard	512 MB	512 MB						
	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						
	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						
	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						
	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						
	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:

- 2048MB 133MHz ECC SDRAM Memory Option Kit (1 x 2048MB) 317093-B21
- 1024MB 133MHz ECC SDRAM Memory Option Kit (1 x 1024MB) 236854-B21
- 512MB 133MHz ECC SDRAM Memory Option Kit (1 x 512MB) 236853-B21
- 256MB 133MHz ECC SDRAM Memory Option Kit (1 x 256MB) 236852-B21

Storage



- 0-3 1" Ultra3 Hot Plug Drive Bays
- A 1.44-MB Diskette Drive
- B Slimline CD/DVD-ROM Drive, Hot Pluggable, in Universal Media Bay
- C Universal Media Bay Eject Button

Drive Support

	Quantity Supported	Position Supported	Controller
Integrated Media			
Integrated 1.44-MB Diskette Drive	Up to 1	A	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
1-inch	Up to 4	0-3	Integrated Smart Array 5i Controller
300-GB 10,000 rpm			Smart Array 641 Controller
146.8-GB 10,000 rpm			Smart Array 642 Controller
72.8-GB 10,000 rpm			64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter
146.8-GB 15,000 rpm			
72.8-GB 15,000 rpm			
36.4-GB 15,000 rpm			

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.

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array Family	Up to 13	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller 64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
Modular Smart Array 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)

http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML (North America)

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

Maximum Storage Capacity - (SCSI Attached)

Internal	1,20 TB (4 x 300 GB Ultra320 1" Drives)
External	100.80 TB hot plug SCSI storage (24 x (14 x 300 GB Ultra320 1" Drives))
Total	102.00 TB

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/North_America/10233.html (North America)

<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/North_America/10809.html (North America)

<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>

Storage

	Quantity Supported	Position Supported	Controller
HP StorageWorks Tape Drives, Internal Hot Plug DAT 40 Tape Drive DAT 72 Tape Drive	Up to 1	0+1 or 2+3	Smart Array 5i Controller (integrated on system board) Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller Smart Array 641 Controller 64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Drives, External Ultrium 215 Tape Drive Ultrium 230 Tape Drive Ultrium 460 Tape Drive SDLT 320 Tape Drive	Up to 2 per controller	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Drives, External Ultrium 960	Up to 1	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Drives, External DAT 72 Tape Drive DAT 40 Tape Drive DAT 24 Tape Drive DLT VS80 Tape Drive DLT VS160 Tape Drive	Up to 3 per controller	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Autoloaders, External DAT 72x6 Tape Autoloader 1/8 Tape Autoloader SSL1016 Tape Autoloader	1 autoloader per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 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/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS

Storage

HP StorageWorks Tape Libraries, External	Please reference the MSL Tape Library QuickSpecs to determine configuration requirements	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
MSL6060 (Ultrium 460 - based)			
MSL6030 (Ultrium 460 - based)			
MSL5026S2 (SDLT 320- based)			
MSL5052S2 (SDLT 320- based)			
MSL5030 (Ultrium 230 - based)			
MSL5060 (Ultrium 230 - based)			
HP StorageWorks ESL E-Series Tape Libraries	Please reference the ESL e-series & ESL9000 Series Tape Libraries QuickSpecs to determine configuration requirements	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
ESL 712e			
ESL 630e			
ESL 322e			
ESL 286e			

Technical Specifications

System Unit	Dimensions (HxWxD)	7.00 x 17.5 x 28.7 in (17.78 x 44.45 x 72.90 cm)		
	Weight	105 lb (47.63 kg)		
	No hard drives installed, two power supplies			
	Input Requirements (per power supply)	Rated Input Voltage	115 to 120 VAC/200 to 240 VAC (lowline/highline)	
		Rated Input Frequency	47 to 63 Hz (lowline/highline)	
		Input Power	1060W/1440W (lowline/highline)	
		Rated Input Current	10A at 115 VAC/8A at 200 VAC (lowline/highline)	
	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]	Please refer to the Power Calculator at: http://h30099.www3.hp.com/configurator/powercalcs.asp .	
		(System is configured to draw maximum power) Use of 110 volt power sources is not recommended.		
	Power Supply Output Power (per power supply)	Rated Steady-State Power	800W/1100W (lowline/highline)	
Maximum Peak Power		800W/1100W (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	5% to 95% relative humidity, non-condensing		
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 WAd (BELS)	7.6		
	L pAm (dBA)	59		

Technical Specifications

Power Supply	1100/800W, 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>115 to 127 VAC/200 to 240 VAC</td> </tr> <tr> <td>Range Input Line</td> <td>115 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>10 A at 115 VAC/8 A at 200 VAC</td> </tr> <tr> <td>Inrush Current</td> <td>100 A</td> </tr> <tr> <td>Holdup Time</td> <td>21 ms from zero crossing at 120 VAC</td> </tr> </table>	Normal Line Voltage	115 to 127 VAC/200 to 240 VAC	Range Input Line	115 to 132 VAC/180 to 265 VAC	Frequency Range	47 to 63 Hz	Power Factor	0.95	Input Current	10 A at 115 VAC/8 A at 200 VAC	Inrush Current	100 A	Holdup Time
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	Input Transient Susceptibility	Common and Differential Mode (superimposed on AC line) ± 1kV line on AC power port for 1 minute; ± 0.5kV on signal/control lines													

Slimline CD/DVD-ROM Combo Drive (8X/24X) (Multibay)	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-ROM		
		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-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

Technical Specifications

		DVD-R	3.95 GB/side
		DVD-RAM	2.6 GB/side and 5.2 GB/
		CD-ROM Mode-1	650 MB (550 MB)
		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 (sustained)	DVD-ROM	Single Layer	10.8 MB/sec. Max.
	DVD-RAM	2.77 MB/sec. Max	
	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 (Stripping)
	Disk Drive and Enclosure Protocol Support	Ultra2 and Ultra3

Two NC7781 PCI-X Gigabit NICs (embedded)	Network Interface	10/100/1000-T
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX
	Data Transfer Method	64-bit/66MHz PCI-X
	Network Transfer Rate	10Base-T (Half-Duplex), 10 Mb/s 10Base-2 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	RJ-45
	Cable Support	10Base-T Categories 3, 4 or 5 UTP up to 328 ft (100 m) 100Base-TX Category 5 UTP up to 328 ft (100 m)

Technical Specifications

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