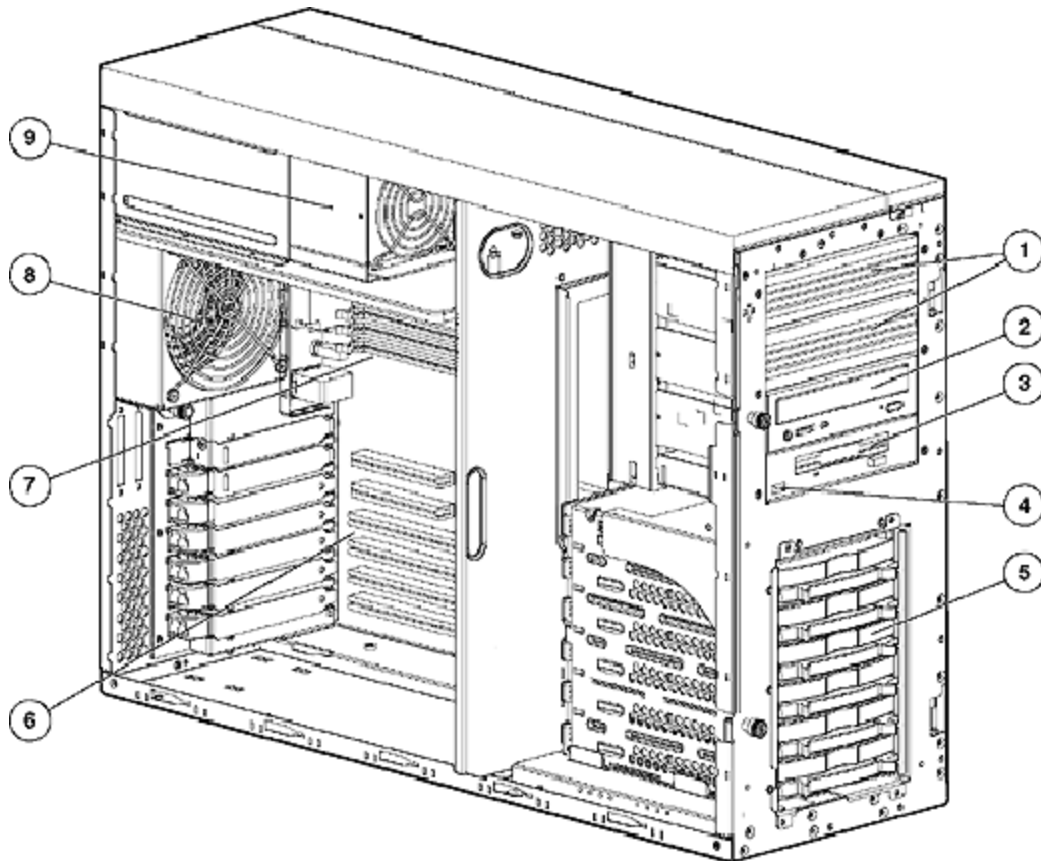


### Overview



1. Two Available Removable Media Bays
2. 48X Max IDE CD-ROM Drive
3. 1.44 Diskette Drive
4. USB Port
5. Six Hot Plug Drive Bays (shown above) or Four Non Hot Plug SCSI Drive Bays (not shown)
6. Six Expansion Slots (four PCI-X, two PCI-Express)
7. Four DIMM sockets for up to 8GB of memory
8. System Fan (an optional redundant system fan is available for non-hot-plug redundancy)
9. Power Supply (**NOTE: In hot plug models, an optional 2nd power supply is available for hot-plug 1 + 1 redundancy**)

### What's New

Introducing the new fourth-generation ProLiant ML350, now available with the latest in processor, memory, and I/O technology. The ProLiant ML350 G4 also includes new features designed to enhance reliability and provide configuration flexibility. New features for the ML350 G4 include:

- Intel® Xeon 3.0, 3.2, and 3.4 GHz processors with 1MB Level 2 cache
  - Intel® E7520 chipset with 800 MHz system bus
  - 333 MHz DDR memory
  - (1) 133 MHz PCI-X slot
  - (2) PCI-Express slots
- NOTE:** For information about PCI Express visit: <http://www.hp.com/servers/pci-express>
- Models supporting non-hot plug SCSI hard drives and non hot plug power
  - Support for optional duplex SCSI backplane, redundant system fan, or second serial port
  - New universal rail solution supporting both square and round hole rack environments

### Overview

#### At A Glance

- The HP ProLiant ML350 G4 is a traditional tower server refined with essential availability features to form a versatile, dependable backbone for expanding businesses and dedicated workgroups
- Intel Xeon 3.0, 3.2, or 3.4 GHz processors (dual processor capability) with 1-MB level 2 cache standard. Processors include support for Hyper-Threading and Extended Memory 64 Technology (EM64T)
- Intel® E7520 chipset
- 800-MHz Front Side Bus
- Integrated Dual Channel Ultra320 SCSI Adapter
- Smart Array 641 (standard in Array Models only)
- NC7761 PCI Gigabit NIC (embedded)
- Up to 1 GB of PC2700 DDR SDRAM with Advanced ECC capabilities (Expandable to 8GB)
- Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, one 64-bit/66-MHz PCI-X, one x4 PCI-Express, and one x8 PCI-Express
- Three USB ports
- Support for Ultra320 SCSI hard drives (six hot plug or four non-hot plug drives supported standard, model dependent)
- Internal storage capacity of up to 1.8 TB (6 x 300 GB 1"); 2.4 TB with optional 2-bay hot plug SCSI drive cage (2 x 300 GB 1" + 6 x 300 GB 1")
- 725W Hot-Plug Power Supply (standard, most models); optional 725W Hot-Pluggable Redundant Power Supply (1+ 1) available. Non hot plug SCSI models include a 460W non hot plug power supply.
- Tool-free chassis entry and component access
- Support for ROM based setup utility (RBSU) and redundant ROM
- Insight Manager, SmartStart, and Automatic Server Recovery 2 (ASR-2) included
- Protected by HP Services with a three-year limited warranty

### Standard Features

**NOTE:** For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

<b>Processor</b>	Intel Xeon Processor 3.4 GHz/800 -1 MB L2
<i>One of the following depending on Model</i>	Intel Xeon Processor 3.2 GHz/800 -1 MB L2
	Intel Xeon Processor 3.0 GHz/800 -1 MB L2

<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
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<b>Upgradability</b>	Upgradable to dual processing
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<b>Chipset</b>	Intel® E7520 Chipset with 800-MHz Front Side Bus
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<b>Memory Protection</b>	Advanced ECC
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<b>Memory</b>	Type	PC2700 DDR SDRAM (333MHz)
<i>One of the following depending on model</i>	Standard for Non-Array Models	512 MB
	Standard for Array Models	1 GB
	Maximum	8 GB

<b>Network Controller</b>	NC7761 Gigabit NIC (embedded)
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Expansion Slots	Slot Number	Bus Speed	Bus Number*	Device Number**	Hot Plug	PCI Voltage
	1	PCI Express x4 (half length)	16	1	no	N/A
	2	PCI Express x8	12	1	no	N/A
	3	64-bit/100MHz PCI-X	9	2	no	3.3 Volt
	4	64-bit/100MHz PCI-X	9	1	no	3.3 Volt
	5	64-bit/133Mhz PCI-X	6	1	no	3.3 Volt
	6	64-bit/66MHz PCI-X	2	2	no	3.3 Volt

**NOTE:** For information about PCI Express visit: <http://www.hp.com/servers/pci-express>

**\*NOTE:** Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

**\*\*NOTE:** Slots are enumerated differently based on OS. Microsoft OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

**NOTE:** All slots can accept universal keyed PCI cards

<b>Storage Controller</b>	Integrated Dual Channel Ultra320 SCSI Adapter
	Smart Array 641 Controller (Standard in Array Models only)

<b>Storage</b>	Diskette Drives	1.44 MB Diskette Drive
	Optical Drive	48x IDE CD-ROM Drive
	Hard Drives	36.4 GB 15,000 rpm hard drive included in non hot plug SCSI models only

### Standard Features

<b>Maximum Internal Storage</b>	Hot Plug SCSI	2.4 TB	(6 x 300 GB with standard internal hot plug drive cage + 2 x 300 GB with optional ML3xx Two Bay Hot Plug SCSI Drive Cage)
	Non hot plug SCSI	891.2 GB	non hot plug SCSI models (4 x 72.8 GB with standard cage + 2 x 300 GB with optional ML3xx Two Bay Hot Plug SCSI Drive Cage)
	External Storage	Two external SCSI knockouts available; optional Internal to External SCSI Cable Option Kit required for external connections	
	<ul style="list-style-type: none"><li>● HD68 Internal to External SCSI Cable Option Kit PN 159547-B22</li><li>● VHDCI Internal to External SCSI Cable Option Kit PN 333370-B21</li></ul>		

<b>Interfaces</b>	Parallel	1	
	Serial	1	(optional 2nd serial port available)
	Pointing Device (Mouse)	1	
	Graphics	1	
	Keyboard	1	
	Network RJ-45	1	
	USB	3	
	External SCSI knockouts	2	
<b>NOTE:</b> Please see the following URL for additional information regarding USB support: <a href="http://h18004.www1.hp.com/products/servers/platforms/usb-support.html">http://h18004.www1.hp.com/products/servers/platforms/usb-support.html</a> .			

<b>Graphics</b>	Integrated ATI RAGE XL Video Controller with 8-MB SDRAM Video Memory VGA connector; up to 1200 x 1600 resolution supported
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<b>Form Factor</b>	Tower or rack (5U)	
	<b>NOTE:</b> Rack models (and rack conversion kit) support:	
	<ul style="list-style-type: none"> <li>● Square or round hole racks, from 24"- 35" deep (including HP Rack System /E and HP Systems, with an adjustment)</li> <li>● Telco racks with 3rd part option kit from Rack Solutions  <a href="http://www.racksolutions.com/hp">http://www.racksolutions.com/hp</a> </li> </ul>	

### 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 HP SIM visit <a href="http://www.hp.com/go/hpsim">http://www.hp.com/go/hpsim</a> .
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 Insight Manager 7 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 <a href="http://www.hp.com/servers/manage">http://www.hp.com/servers/manage</a> .
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 <a href="http://www.hp.com/servers/manage">http://www.hp.com/servers/manage</a> . SmartStart version supported (minimum): SmartStart 7.10
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 <a href="http://www.hp.com/go/subscriberschoice">http://www.hp.com/go/subscriberschoice</a> 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 <a href="http://www.hp.com/go/support">http://www.hp.com/go/support</a> .
Insight Diagnostics Online Edition	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.
Optional ProLiant Essentials Value Packs	Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs: <ul style="list-style-type: none"> <li>● Rapid Deployment Pack - an automated solution for multi-server deployment and provisioning, enabling companies to quickly and easily adapt to changing business demands.</li> <li>● 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.</li> </ul>

**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 V2.0 Compliant  
PCI 2.2 Compliant  
PXE Support  
WOL Support  
PCI-X 1.0 Compliant  
Novell Certified  
Microsoft® Logo certifications

### Standard Features

<b>Availability</b>	Optional Redundant System Fan Optional Hot Plug, Redundant Power supply (most models)
<b>Remote Management</b>	Remote Insight Lights-Out Edition II (optional)
<b>Management</b>	HP Systems Insight Manager SmartStart Redundant ROM System Firmware Update ROMPaq ProLiant RBSU (ROM-Based Setup Utility) Automatic Server Recovery-2 (ASR-2) Dynamic Sector Repairing (with Smart Array Controller) Drive Parameter Tracking (with Smart Array Controller) Pre-Failure Warranty (covers processors, memory and hard drives)
<b>Server Power Cords</b>	Tower models ship standard with a 12' country specific, lowline NEMA power cord. Rack models ship standard with a 10' IEC cable. Rack models for some countries also include a 12' NEMA cord. Most redundant power supply options ship with a 12' country specific power cord. The one exception is the IEC redundant power supply (P/N 358352-B21) which ships with a 10' IEC cable only.
<b>Power Supply</b>	Hot plug models include: 725 Watt, Power Factor Correction (PFC), Hot Plug 100 to 240 VAC Rated Input Voltage (Auto-sensing), CE Mark Compliant Optional 2nd power supply for hot-pluggable 1 + 1 redundancy. Non hot plug models include: 460 Watt, Power Factor Correction (PFC), Non hot plug 100 to 240 VAC Rated Input Voltage (Auto-sensing), CE Mark Compliant
<b>System Fans</b>	1 fan ships standard, 2 fans total supported (does not include power supply or processor heatsink fans)
<b>Required Cabling</b>	For required cabling information, refer to the ProLiant ML350 G4 cabling matrix on the HP Web site at <a href="http://www.hp.com/servers/proliantML350">http://www.hp.com/servers/proliantML350</a> .
<b>OS Support</b>	Microsoft Windows Server 2003 Microsoft Small Business Server 2003 Microsoft Windows 2000 Server and Advanced Server Novell NetWare Novell NetWare Small Business Suite LINUX (Red Hat, SuSE, and UnitedLinux)  <b>NOTE:</b> For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: <a href="http://h18004.www1.hp.com/products/servers/software/OEM.html">http://h18004.www1.hp.com/products/servers/software/OEM.html</a> <b>NOTE:</b> For a complete and up-to-date listing of supported operating systems please visit our OS Support Matrix at: <a href="http://www.hp.com/go/supportos">http://www.hp.com/go/supportos</a> . <b>NOTE:</b> For a complete and up-to-date information on Linux support, please visit the HP Linux Web site at <a href="http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html">http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html</a> <b>NOTE:</b> Optional hardware may be required to support some operating systems. <b>NOTE:</b> For an up-to-date listing of the latest drivers available for the ProLiant ML350, please see: <a href="http://www.compaq.com/support/files/server/us/index.html">http://www.compaq.com/support/files/server/us/index.html</a> .

### Standard Features

#### 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.hp.com/servers/proliantml350>.

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#### Installation of Server into Telco Racks

Support for all 2-post Telco racks requires the use of the ML350 G4 rack kit and an additional option kit from Rack Solutions. <http://www.racksolutions.com/hp>.

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#### HP Factory Express Capabilities

HP Factory Express gives you the flexibility to choose from a full menu of factory capabilities all in one manufacturing facility, in one process, with one touch giving you full control and access to HP's World class manufacturing facility anytime. This approach provides you the speed to deploy your IT needs, with total quality assurance, reliability, and predictability to lower your total cost of ownership by letting HP install, rack, and customize your software and hardware options for you.

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### Standard Features

#### Service and Support

Three-year limited warranty, including hardware diagnostic support, pre-failure warranty (coverage of hard drives, memory and processors).

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

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.

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 HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3KVA. 22" and smaller external monitors will be covered at the same service level and coverage period as the server. 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

<b>ML350T04 HPSCSI x3.0-1MB/800, 512 MB</b> 331890-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.0 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	512 MB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional hard drives & drive cage)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Tower

<b>ML350R04 HPSCSI x3.0-1MB/800, 512 MB</b> 331891-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.0 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	512 MB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Rack (5U)

<b>ML350T04 HPSCSI x3.2-1MB/800, 512 MB</b> 356003-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.2 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	512 MB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Tower

<b>ML350R04 HPSCSI x3.2-1MB/800, 512 MB</b> 356004-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.2 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	512 MB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Rack (5U)

### Models

<b>ML350T04 HPSCSI x3.2-1 MB/800, 1 GB Array</b> 356005-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.2 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	1 GB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>RAID Controller</b>	Smart Array 641
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Tower
<b>ML350R04 HPSCSI x3.2-1 MB/800, 1 GB Array</b> 356006-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.2 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Memory</b>	1 GB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>RAID Controller</b>	Smart Array 641
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Rack (5U)
<b>ML350T04 NHP SCSI x3.0-1 MB/800, 512 MB</b> 354611-xx2	<b>Processor(s)</b>	(1) Intel Xeon Processor 3.0 GHz standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	512 MB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>Hard Drive</b>	(1) 36.4 GB Ultra320 SCSI 15,000 rpm 1" Drive (up to 4 supported)
	<b>Internal Storage</b>	891.2 GB maximum non hot plug and hot plug SCSI (with optional hot plug SCSI drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Tower

### Models

<b>ML350T04 HPSCSI x3.4-1MB/800, 512 MB</b> 370506-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.4 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	512 MB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Tower

<b>ML350R04 HPSCSI x3.4-1MB/800, 512 MB</b> 370507-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.4 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	512 MB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Rack (5U)

<b>ML350T04 HPSCSI x3.4-1MB/800, 1 GB Array</b> 370511-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.4 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	1 GB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>RAID Controller</b>	Smart Array 641
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Tower

<b>ML350R04 HPSCSI x3.4-1MB/800, 1 GB Array</b> 370509-xx1	<b>Processor(s)</b>	(1) Intel Xeon 3.4 GHz processor standard (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1 MB Level 2 cache
	<b>Standard Memory</b>	1 GB
	<b>Network Controller</b>	NC7761 PCI Gigabit NIC (Embedded)
	<b>Storage Controller</b>	Integrated dual channel Ultra320 SCSI adapter
	<b>RAID Controller</b>	Smart Array 641
	<b>Hard Drive</b>	None ship standard (up to 6 supported)
	<b>Internal Storage</b>	2.4 TB maximum hot plug SCSI (with optional drive cage & hard drives)
	<b>Optical Drive</b>	48x IDE (ATAPI) CD-ROM Drive
	<b>Diskette Drive</b>	1.44 MB Diskette Drive
	<b>Form Factor</b>	Rack (5U)

Models

Country Code Key		Tower Code Key		Rack Code Key
	XX=00		U.S. English	U.S. English
	XX=01		Australia	N/A
	XX=03		UK	N/A
	XX=04		Germany	N/A
	XX=05		France	N/A
	XX=20		Brazil	N/A
	XX=29		Japan	Japan
	XX=37		APD	APD
	XX=42		Europe	Europe
	XX=AA		PRC	PRC

### Configuration Information - Factory Integrated Models (North America only)

#### Step 1: Base Configuration (choose one of the following configurable models)

Models	HP ProLiant ML350G4 HP-SCSI Rack CTO Chassis (North America)	372508-405
	<b>Factory Integrated Model ships with:</b> NC7761 PCI Gigabit NIC (Embedded) Integrated dual channel Ultra320 SCSI adapter Six Hot Plug Drive Bays Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, one 64-bit/66-MHz PCI-X, one x4 PCI-Express, and one x8 PCI-Express Three USB ports 725W Hot-Plug Power Supply 5U Rack Form Factor	
	HP ProLiant ML350G4 HP-SCSI Tower CTO Chassis (North America)	372507-405
	<b>Factory Integrated Model ships with:</b> NC7761 PCI Gigabit NIC (Embedded) Integrated dual channel Ultra320 SCSI adapter Six Hot Plug Drive Bays Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, one 64-bit/66-MHz PCI-X, one x4 PCI-Express, and one x8 PCI-Express Three USB ports 725W Hot-Plug Power Supply 5U Tower form factor	
	HP ProLiant ML350G4 NHP-SCSI Tower CTO Chassis (North America)	372799-405
	<b>Factory Integrated Model ships with:</b> NC7761 PCI Gigabit NIC (Embedded) Integrated dual channel Ultra320 SCSI adapter Four Non Hot Plug SCSI Drive Bays Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, one 64-bit/66-MHz PCI-X, one x4 PCI-Express, and one x8 PCI-Express Three USB ports 460 W non hot plug power supply 5U Tower form factor	

#### Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors	Intel X3.0GHz/800-1MB ML350G4 FIO BASE	358344-L21
	Intel X3.2GHz/800-1MB ML350G4 FIO BASE	358345-L21
	Intel X3.4GHz/800-1MB ML350G4 FIO BASE	370513-L21
Base Memory	256 MB Advanced ECC PC2700 DDR SDRAM DIMM Kit (1 x 256 MB)	358346-B21
	HP ProLiant 512MB PC2700 SGLDIMM FIO BASE	358347-L21
	HP ProLiant 1GB PC2700 SGLDIMM FIO BASE	358348-L21
	2 GB Advanced ECC PC2700 DDR SDRAM DIMM Kit (1 x 2048 MB)	358349-B21
Optical Drive	HP ProLiant 48X CD w/SCREWS FIO BASE	337863-B21
	DVD-ROM Drive Option Kit	217053-B21
	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21

Configuration Information - Factory Integrated Models (North America only)

Step 3: Choose Additional Factory Integratable Options

Controllers	HP ProLiant Smart Array 641 FIO BASE	291966-L21
	Smart Array 642 Controller	291967-B21
	Smart Array 6402/128 Controller	273915-B21
	Smart Array 6404/256 Controller	273914-B21
	64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS	284688-B21
	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter	268351-B21
Hard Drives	<b>Ultra320 Non-Hot Plug</b>	
	<b>NOTE:</b> Ultra320 NHP Drives are for use with HP ProLiant ML350G4 NHP-SCSI Tower CTO Chassis (North America) (PN 372499-405) configurable models only.	
	HP ProLiant 36GB 15K U320 NHP FIO BASE	357012-L21
	36.4 GB 10,000 rpm, U320 Non-Hot Plug Hard Drive, 1"	271832-B21
	72.8 GB 10,000 rpm, U320 Non-Hot Plug Hard Drive, 1"	332751-B21
	<b>Ultra320 Hot Plug</b>	
	36.4-GB 15,000 rpm U320 Universal Hard Drive (1")	286776-B22
	72.8-GB 15,000 rpm U320 Universal Hard Drive (1")	286778-B22
	72.8-GB 10,000 rpm U320 Universal Hard Drive (1")	286714-B22
	146.8-GB 10,000 rpm U320 Universal Hard Drive (1")	286716-B22

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.

### Options

<b>ProLiant ML350 G4 Unique Options</b>	Hot Plug Redundant Power Supply Option Kit (NA, LA)	358352-001
	Hot Plug Redundant Power Supply Option Kit (AUST)	358352-011
	Hot Plug Redundant Power Supply Option Kit (EURO)	358352-021
	Hot Plug Redundant Power Supply Option Kit (UK)	358352-031
	Hot Plug Redundant Power Supply Option Kit (Japan)	358352-291
	Hot Plug Redundant Power Supply Option Kit (IEC)	358352-B21
	<b>NOTE:</b> PN 358352-B21 SKU contains the redundant power supply with an IEC power cable. Only purchase if connecting to a PDU/UPS that supports IEC cables. All other SKUs contain country specific power cables.	
	ProLiant ML350 G4 Tower to Rack Conversion Kit	358350-B21
	ML350 G4 Redundant System Fan Kit	365866-B21
<b>ProLiant Essentials Value Pack Software</b>	Rapid Deployment Pack, 1 User, V1.x	267196-B21
	<b>NOTE:</b> This license allows 1 server to be managed and deployed via the Deployment Server.	
	Rapid Deployment Pack, 1 User, V1.x (Japan)	267196-291
	<b>NOTE:</b> This license allows 1 server to be managed and deployed via the Deployment Server.	
	Rapid Deployment Pack, 10 Users, V1.x	269817-B21
	<b>NOTE:</b> This license allows 10 servers to be managed and deployed via the Deployment Server.	
	Rapid Deployment Pack, 10 Users, V1.x (Japan)	269817-291
	<b>NOTE:</b> This license allows 10 servers to be managed and deployed via the Deployment Server.	
	Rapid Deployment Pack, Flexible Quantity License Kit	302127-B21
	Performance Management Pack, single server	306696-B21
	<b>NOTE:</b> This license allows 1 server to be managed by Performance Management Pack.	
	Performance Management Pack, flexible license kit	306697-B21
	<b>NOTE:</b> A single pack is shipped with a single license key for the total number of licenses ordered	
	ProLiant Essentials Intelligent Networking Pack (1 License)	372906-B21
<b>ProLiant Software Maintenance Subscription</b>	ProLiant Essentials Intelligent Networking Pack Flex License	372950-B21
	ProLiant Essentials Intelligent Networking Pack Track License	372951-B21
	<b>NOTE:</b> Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <a href="http://www.hp.com/servers/proliantessentials">http://www.hp.com/servers/proliantessentials</a> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.	
	<b>NOTE:</b> For more information regarding ProLiant Essentials Software, please see the following URL: <a href="http://www.hp.com/servers/proliantessentials">http://www.hp.com/servers/proliantessentials</a> .	
	ProLiant Software Maintenance Subscription	355060-B21
	ProLiant Software Maintenance Single Release	356573-B21
	ProLiant Foundation Pack Single Release	356604-B21
<b>Processors</b>	<b>NOTE:</b> Please see the SmartStart QuickSpecs for additional information regarding the subscription purchase: <a href="http://h18000.www1.hp.com/products/quickspecs/12007_div/12007_div.HTML">http://h18000.www1.hp.com/products/quickspecs/12007_div/12007_div.HTML</a> (Worldwide) <a href="http://h18000.www1.hp.com/products/quickspecs/12007_na/12007_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12007_na/12007_na.HTML</a> (North America)	
	Intel Xeon 3.4 GHz-1 MB Processor Option Kit	370513-B21
	Intel Xeon 3.2 GHz-1 MB Processor Option Kit	358345-B21
	Intel Xeon 3.0 GHz-1 MB Processor Option Kit	358344-B21

### Options

#### Memory (DIMMs)

**NOTE:** The ML350 G4 requires interleaved memory configurations when more than one DIMM is installed. Base models ship standard with a single DIMM. To upgrade system memory, DIMMs must be installed in identical pairs.

**NOTE:** Each SDRAM Memory kit contains one (1) DIMM.

256 MB Advanced ECC PC2700 DDR SDRAM DIMM Kit (1 x 256 MB)	358346-B21
512 MB of Advanced ECC PC2700 DDR SDRAM DIMM Kit (1 x 512 MB)	358347-B21
1 GB Advanced ECC PC2700 DDR SDRAM DIMM Kit (1 x 1024 MB)	358348-B21
2 GB Advanced ECC PC2700 DDR SDRAM DIMM Kit (1 x 2048 MB)	358349-B21

#### Internal Storage Upgrades

Duplex SCSI Backplane Option Kit	339323-B21
ML3xx Two Bay Hot Plug SCSI Drive Cage	244059-B21
<b>NOTE:</b> The drive cage option kit (PN 244059-B21) has one 1" drive bay and one 1.6" drive bay. It installs in two available removable media bays.	

#### Optical Drives

CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
<b>NOTE:</b> The DVD-ROM drive is supported in either the CD-ROM bay or a removable media bay. If placed in a removable media bay, it requires the 2-Device IDE cable (PN 305381-B21).	
DVD-ROM Drive Option Kit	217053-B21

#### Hard Drives

##### Ultra320 – 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
36.4-GB 10,000 rpm U320 Universal Hard Drive (1")	286713-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
18.2-GB 15,000 rpm U320 Universal Hard Drive (1")	286775-B22

##### Ultra320 SCSI - Non-Hot Plug

36.4 GB 10,000 rpm, U320 Non-Hot Plug Hard Drive, 1"	271832-B21
36.4 GB 15,000 rpm, U320 Non-Hot Plug Hard Drive, 1"	357012-B21
72.8 GB 10,000 rpm, U320 Non-Hot Plug Hard Drive, 1"	332751-B21

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

**NOTE:** Please see the Wide Ultra320 Universal Hot Plug QuickSpecs for additional technical information on the hard drives Support details, please see the following:

[http://h18000.www1.hp.com/products/quickspecs/11531\\_div/11531\\_div.HTML](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](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
	<b>NOTE:</b> This 128MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.	
	256MB DDR, Battery-Backed Cache Upgrade Kit for SA-6400	273913-B21
	<b>NOTE:</b> This 256-MB DDR, Battery-Backed Cache upgrade kit supports the Smart Array 6400 series controller only.	
	Ultra320 Expansion Module for SA-6402	273911-B21
	64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS	284688-B21
	64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter	268351-B21
	<b>NOTE:</b> 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: <a href="http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.HTML</a> (Smart Array 6400 Series) <a href="http://h18000.www1.hp.com/products/quickspecs/11563_div/11563_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11563_div/11563_div.HTML</a> (Smart Array 641 & Smart Array 642) <a href="http://h18000.www1.hp.com/products/quickspecs/10429_div/10429_div.HTML">http://h18000.www1.hp.com/products/quickspecs/10429_div/10429_div.HTML</a> (SCSI Adapter) <a href="http://h18000.www1.hp.com/products/quickspecs/11555_div/11555_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11555_div/11555_div.HTML</a> (U320 Adapter)	

Communications	HP NC310F PCI-X Gigabit Server Adapter	368169-B21
	HP NC150T PCI 4-port Gigabit Combo Switch Adapter	367132-B21
	NC1020 Cu Gigabit Server Adapter 32 PCI Single Port	353377-B21
	NC6170 Dual Port PCI-X 1000SX Gigabit Server Adapter	313879-B21
	NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter	313881-B21
	NC7771 PCI-X 10/100/1000-T Server Adapter	290563-B21
	Agere PCI V.92 56K Worldwide Controller less Win Modem	DC131B
	<b>NOTE:</b> RJ11 modem adapter is not included.	
	<b>NOTE:</b> NC61XX, NC71XX, NC77XX, or NC1020 NIC can be used for redundancy with the embedded NC7761 Network Controller. The embedded network controller and the NC1020 use the same chipset and are completely compatible. However, when teaming these two NICs with the other NICs, the lack of Jumbo Frames and LSO features on either of them will cause high end NICs to have those features disabled.	

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

Tape Drives	<b>NOTE:</b> For complete listing of tape drive offerings see <a href="http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html">http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html</a> For recommended tape drive offerings for this ProLiant server see the following:	
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#### Ultrium Tape Drives

HP StorageWorks Ultrium 215 Tape Drive, Internal (Carbon)	Q1543A
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### Options

HP StorageWorks Ultrium 215 Tape Drive, External (Carbon)	Q1545A
HP StorageWorks Ultrium 215 rack-mount (Carbon) - Single drive installed in a 3U rack-mount kit	350544-B21
HP StorageWorks Ultrium 215 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7492B
HP StorageWorks Ultrium 230 Tape Drive, Internal (Carbon)	Q1515A
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

**NOTE:** Please see the HP StorageWorks Ultrium 215 and 230 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](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](http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_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

HP StorageWorks DAT 72 Tape Drive, External (Carbon)	Q1523A
HP StorageWorks DAT 72 Tape Drive, Internal (Carbon)	Q1522A
HP StorageWorks DAT 72 Tape Drive, Internal Hot-Plug (Carbon)	Q1529A
HP StorageWorks DAT 72 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	Q1524B
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

**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](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](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>

#### Rack-Mount Tape Drive Enclosures

HP StorageWorks 3U Rack-Mount Kit	274338-B21
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**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
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**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](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](http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML)  
(North America)

HP StorageWorks Tape Array 5300	C7508A
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**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](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](http://h18000.www1.hp.com/products/quickspecs/11878_na/11878_na.HTML)  
(North America)

### Options

#### Tape Autoloaders

##### DAT Autoloader

HP StorageWorks DAT 72x6 Tape Autoloader, Internal (Carbon) Q1566A

HP StorageWorks DAT 72x6 Tape Autoloader, External (Carbon) Q1567A

**NOTE:** Please see the DAT 72x6 Tape Autoloader QuickSpecs for additional options such as host bus adapters, controllers and media:

[http://h18006.www1.hp.com/products/quickspecs/11905\\_div/11905\\_div.html](http://h18006.www1.hp.com/products/quickspecs/11905_div/11905_div.html)  
(Worldwide)

[http://h18006.www1.hp.com/products/quickspecs/11905\\_na/11905\\_na.html](http://h18006.www1.hp.com/products/quickspecs/11905_na/11905_na.html)  
(North America)

HP StorageWorks DAT 40x6 Tape Autoloader, Internal (Flint) C5716A

HP StorageWorks DAT 40x6 Tape Autoloader, External (Flint) C5717A

**NOTE:** Please see the DAT 40x6 Tape Autoloader QuickSpecs for additional options such as host bus adapters, controllers and media:

[http://h18000.www1.hp.com/products/quickspecs/11882\\_div/11882\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/11882_div/11882_div.HTML) (Worldwide)

[http://h18000.www1.hp.com/products/quickspecs/11882\\_na/11882\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11882_na/11882_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:** 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.

#### 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

MSL6030, 1 drive, 30 slots, Ultrium 460, TT 330788-B21

MSL6030, 2 drive, 30 slots, Ultrium 460, TT 330788-B22

MSL6060, 2 drive, 60 slot, Ultrium 460, RM 331196-B21

MSL6060, 2 drive, 60 slot, Ultrium 460, RM with embedded FC router 331196-B22

MSL6060, 2 drive, 60 slot, Ultrium 460, TT 331195-B21

**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

### Options

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
MSL5026S2, 1 drive, 26 slots, SDLT 320, TT	293473-B21
MSL5026S2, 2 drive, 26 slots, SDLT 320, TT	293473-B22

**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

MSL5052S2, 2 drive, 52 slots, SDLT 320, RM	293474-B21
MSL5052S2, 2 drive, 52 slots, SDLT 320, RM with embedded FC router	293474-B24
MSL5052S2, 2 drive, 52 slots, SDLT 320, TT	293476-B21

**NOTE:** Please reference the MSL5052S2 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 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
MSL5030, 1 drive, 30 slots, Ultrium 230, TT	301898-B21
MSL5030, 2 drive, 30 slots, Ultrium 230, TT	301898-B22

**NOTE:** Please reference the MSL5030 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 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
MSL5060, 2 drive, 60 slots, Ultrium 230, TT	301900-B21

**NOTE:** Please reference the MSL5060 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 ESL E-Series Tape Libraries

ESL Extended 712e Tape Library, 0 drive, 712 LTO slots	AA934A
ESL Extended 630e Tape Library, 0 drive, 630 SDLT slots	AA935A
ESL E Ultrium 460 drive kit	AA937A
ESL E SDLT 320 drive kit	AA936A

**NOTE:** Please reference the ESL E-Series Tape Libraries 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 ESL9000 Series Tape Libraries

### Options

license)	
ESL9322 Extended Tape Library, 0 drive, 222 slots (card cage, Interface Mgr card, Command View license)	343377-B21
ESL9000 Ultrium 460 drive kit	330834-B21
ESL9000 Ultrium 230 drive kit	301930-B21
ESL9000 SDLT 320 drive kit	293414-B21

**NOTE:** Please reference the ESL9000 Series Tape Libraries 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>

#### Magneto-Optical Jukeboxes

##### HP StorageWorks 9.1 GB Entry-level Optical Storage

220mx, 1 drive, 24 slot jukebox	C1118M
220mx, 2 drive, 24 slot jukebox	C1119M

##### HP StorageWorks 9.1 GB Mid-range 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

#### 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

**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

#### External Storage – Tower and Rack

HP StorageWorks Modular Smart Array 20	335921-B21
<b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.	
HP StorageWorks Modular Smart Array 20 Starter Kit	366172-B21
<b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller.	
<b>NOTE:</b> The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 1" Hot Plug Hard Drives.	
HP StorageWorks Modular Smart Array 30 SB	302969-B21
<b>NOTE:</b> Rack-mountable 14 drive enclosure with single bus, redundant power supplies	
HP StorageWorks Modular Smart Array 30 DB	302970-B21
<b>NOTE:</b> Rack-mountable 14 drive enclosure with dual bus, redundant power supplies	
<b>NOTE:</b> The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 1" Hot Plug Hard Drives.	
StorageWorks Modular Smart Array 30 OpenView Storage Mirroring HA Kit - WW	359079-B21
StorageWorks Modular Smart Array 30 OpenView Storage Mirroring HA Kit - Japan	359079-291
Redundant Power Supply 499W	338296-B21
Ultra320 Dual Bus I/O Module for Modular Smart Array 30	287483-B21
Ultra320 Single Bus I/O Module for Modular Smart Array 30	287484-B21

### Options

HP StorageWorks Modular Smart Array 500	<p>HP StorageWorks Modular Smart Array 500 Generation 2</p> <p><b>NOTE:</b> 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:  <a href="http://h18000.www1.hp.com/products/quickspecs/11956_na/11956_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11956_na/11956_na.HTML</a>            (North America)  <a href="http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML</a>            (Worldwide)</p>	335880-B21
	<p>HP StorageWorks Modular Smart Array 500</p> <p><b>NOTE:</b> Please see the Modular Smart Array 500 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at:  <a href="http://h18000.www1.hp.com/products/quickspecs/11050_na/11050_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11050_na/11050_na.HTML</a>            (North America)  <a href="http://h18000.www1.hp.com/products/quickspecs/11050_div/11050_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11050_div/11050_div.HTML</a>            (Worldwide)</p>	201724-B21
Cluster Options	<p>ProLiant Cluster Starter Kit</p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at:  <a href="http://h18000.www1.hp.com/products/quickspecs/11935_na/11935_na.html">http://h18000.www1.hp.com/products/quickspecs/11935_na/11935_na.html</a>            (North America)  <a href="http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html">http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html</a> (Worldwide)</p> <p>ProLiant Cluster Kit with OpenView Storage Mirroring</p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster Kit with OpenView Storage Mirroring please see the following QuickSpecs at:  <a href="http://h18000.www1.hp.com/products/quickspecs/11934_na/11934_na.html">http://h18000.www1.hp.com/products/quickspecs/11934_na/11934_na.html</a>            (North America)  <a href="http://h18000.www1.hp.com/products/quickspecs/11934_div/11934_div.html">http://h18000.www1.hp.com/products/quickspecs/11934_div/11934_div.html</a> (Worldwide)</p> <p>ProLiant Cluster HA/F200 for the Entry Level SAN</p> <p>ProLiant Cluster HA/F200 for the Entry Level SAN (Japan)</p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at:  <a href="http://h18000.www1.hp.com/products/quickspecs/11932_na/11932_na.html">http://h18000.www1.hp.com/products/quickspecs/11932_na/11932_na.html</a>            (North America)  <a href="http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html">http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html</a> (Worldwide)</p> <p>ProLiant Cluster HA/F500 for the Enterprise SAN</p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster HA/F500 for Enterprise SAN please see the following QuickSpecs at:  <a href="http://h18000.www1.hp.com/products/quickspecs/11933_na/11933_na.html">http://h18000.www1.hp.com/products/quickspecs/11933_na/11933_na.html</a>            (North America)  <a href="http://h18000.www1.hp.com/products/quickspecs/11933_div/11933_div.html">http://h18000.www1.hp.com/products/quickspecs/11933_div/11933_div.html</a> (Worldwide)</p>	<p>364023-B21</p> <p>364025-B21</p> <p>364026-B21</p> <p>364026-291</p> <p>364024-B21</p>
HP StorageWorks Modular Smart Array 1500	<p>Modular Smart Array 1500 Controller Shelf</p> <p><b>NOTE:</b> Please see the StorageWorks Modular SAN Array 1500 QuickSpecs for additional options and configuration information at:  <a href="http://www.hp.com/go/MSA1500cs">http://www.hp.com/go/MSA1500cs</a></p>	AA986A
HP StorageWorks Modular Smart Array 1000	<p>HP StorageWorks Modular Smart Array 1000</p> <p><b>NOTE:</b> Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at  <a href="http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML</a>            (North America)  <a href="http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML</a> (Worldwide)</p>	201723-B22

### Options

#### 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>.

#### Uninterruptible Power Systems – Tower UPS

HP UPS Model T700 (700VA, 500 Watt), Low Voltage (NA)	204015-001
HP UPS Model T700 (700VA, 500 Watt), High Voltage (Int'l)	204015-B31
HP UPS Model T700 (700VA, 500 Watt), Low Voltage (Japan)	204015-291
HP UPS T1000 XR (1000 VA, 700 Watts), Low Voltage (NA)	204155-001
HP UPS T1000 XR (1000 VA, 700 Watts), High Voltage (Int'l)	204155-B31
HP UPS T1000 XR (1000VA, 700Watts) 100 VAC (JPN)	312803-291
HP UPS T1500 XR (1440 VA, 1050 Watts) (NA)	204155-002
HP UPS T1500 XR (1500 VA, 1050 Watts) (Int'l)	204155-B32
HP UPS T1500 XR (1500 VA, 1050 Watts) (Japan)	204155-292
HP UPS T2200 XR (1920 VA, 1600 Watts) Low Voltage (NA)	204451-001
HP UPS T2200 XR (2200 VA, 1600 Watts) High Voltage (NA)	204451-002
HP UPS T2200 XR (2200 VA, 1600 Watts) (Int'l)	204451-B31
HP UPS T2200 XR (2200 VA, 1600 Watts) (Japan)	204451-291

#### Uninterruptible Power Systems – HP Rack UPS

HP UPS R1500 XR (100 to 127) (NA)	204404-001
HP UPS R1500 XR (208 to 480) (Int'l)	204404-B31
HP UPS R1500 XR (100 to 127) (Japan)	204404-291
HP UPS R3000 XR (120V) (NA)	192186-001
HP UPS R3000 XR (208V) (NA)	192186-002
HP UPS R3000 XR (100V) (Japan)	192186-291
HP UPS R3000 XR (208V) (Japan) HP UPS R3000 XR (200V) (Japan)	192186-292
HP UPS R3000 XR (230V) (Int'l - detachable cord)	192186-B31
HP UPS R3000 XR (230V) (16A IEC309 Plug)	192186-B32
HP UPS R3000 XR (230V) (16A CEE 7/7 SCHUKO Plug)	192186-B33
HP UPS R3000 XR (230V) (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

### Options

#### 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
<b>NOTE:</b> 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
<b>NOTE:</b> 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
<b>NOTE:</b> 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.	
<b>NOTE:</b> 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: <a href="http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML</a> (North America) <a href="http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.HTML</a> (Worldwide)	

#### USB Options

HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
USB Easy Access Keyboard (Carbonite/Silver)	DC168B#
256MB HP Drive Key	DL973B
Multibay USB cradle	DC373A#ABA
Multibay USB cradle	DC373A#B13

#### USB Easy Access Keyboard (Carbonite/Silver) Country Key Code

Dash #	Description	Dash #	Description
A2M	ICELAND	ABT	HE
AB0	TAWA	ABU	UK
AB1	KOR	ABV	ARA
AB2	PRC	ABX	FIN
AB6	FRA	ABY	DEN
AB7	GRK	ABZ	ITL
AB8	TURK	AC0	BEL
AB9	PORT	AC4	BRZ
ABA	US	ACB	RUSS
ABB	EURO	AKB	CZE
ABC	FCAN	AKC	HUNG
ABD	GR	AKD	POL
ABE	SP	AKL	THAI
ABF	FR	AKN	BHCSY
ABH	NL	AKR	SLOV
ABJ	Japan	ARK	ICELAND
ABM	LA	B15	KAZ
ABN	NOR	UUZ	SWISS
ABS	SW		



### Options

Other	ProLiant ML350 G4 Second Serial Port Option Kit	338288-B21
	ProLiant ML3xx Internal to External SCSI Cable Option Kit (HD68)	159547-B22
	ProLiant ML3xx Internal to External SCSI Cable Option Kit (VHDCI)	333370-B21
	<b>NOTE:</b> The ProLiant ML3xx Internal to External SCSI Cable Option Kits (PN 159547-B21 and 333370-B21) are supported by the ML330, ML350, and ML370 products. <b>NOTE:</b> For a complete list of keyboards and mice please view the following URL: <a href="http://h30143.www3.hp.com/options.cfm?oid=89301&amp;from=enter.cfm&amp;param=oid&amp;val=89301#m_11">http://h30143.www3.hp.com/options.cfm?oid=89301&amp;from=enter.cfm&amp;param=oid&amp;val=89301#m_11</a>	
Custom Builder	Please see the Enterprise Configurator for configuration assistance at: <a href="http://www.hp.com/products/configurator">http://www.hp.com/products/configurator</a> .	
Rack Conversion Kit	ProLiant ML350 Generation 4 Tower to Rack Conversion Kit	358350-B21
	Rack Adapter Kit	332815-B21
	<b>NOTE:</b> This kit allows HP rack servers to fit in racks that are 24" wide.	
HP Rack 10000 Series (Graphite Metallic)	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	HP 10842 (42U) Rack Cabinet - Pallet	257415-B21
	HP 10842 (42U) Rack Cabinet - Shock Pallet	257415-B22
	HP 10647 (47U) Rack Cabinet - Pallet	245160-B21
	HP 10647 (47U) Rack Cabinet - Crated	245160-B23
	HP 10642 (42U) Rack Cabinet - Pallet	245161-B21
	HP 10642 (42U) Rack Cabinet - Shock Pallet	245161-B22
	HP 10642 (42U) Rack Cabinet - Crated	245161-B23
	HP 10636 (36U) Rack Cabinet - Pallet	245162-B21
	HP 10636 (36U) Rack Cabinet - Shock Pallet	245162-B22
	HP 10636 (36U) Rack Cabinet - Crated	245162-B23
	HP 10622 (22U) Rack Cabinet - Pallet	245163-B21
	HP 10622 (22U) Rack Cabinet - Shock Pallet	245163-B22
	HP 10622 (22U) Rack Cabinet - Crated	245163-B23
	<b>NOTE:</b> -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) -B23 (crated) used for air shipments of empty racks <b>NOTE:</b> It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all Compaq equipment is qualified to be shipped in the Rack 10000 series. <b>NOTE:</b> Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: <a href="http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML">http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML</a> (Worldwide) <a href="http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML">http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML</a> (North America) <b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html">http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html</a>	

### Options

#### Rack Options for HP Rack 10000 Series

HP Light kit for 10000 series rack	361589-B21
HP Plinth kit for 10000 series rack	251960-B21
42U Side Panel Graphite Metallic	246099-B21
36U Side Panel Graphite Metallic	246102-B21
47U Side Panel Graphite Metallic	255486-B21

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

KVM USB Interface Adapter	336047-B21
Server Console Switch 1 x 4 port (100-230 VAC)	400336-001
Server Console Switch, 0 x 1 x 8 port	336044-B21
Server Console Switch, 0 x 2 x 16 port	336045-B21
Server Console Switch 1 x 4 port (100-230 VAC) (Int'l)	400336-B31
Server Console Switch 1 x 4 port (100-230 VAC) (Japan)	400336-291
IP Console Switch Box, 1 x 1 x 16	262585-B21
IP Console Switch Box, 3 x 1 x 16	262586-B21
IP Console Interface Adapter, 8 pack	262587-B21
IP Console Interface Adapter, 1 pack	262588-B21
IP Console Expansion Module	262589-B21
CPU to Server Console Cable, 12'	110936-B21
CPU to Server Console Cable, 3'	110936-B24
CPU to Server Console Cable, 7'	110936-B25
IP CAT5 Cable 3', 4 pack	263474-B21
IP CAT5 Cable 6', 8 pack	263474-B22
IP CAT5 Cable 12', 8 pack	263474-B23
IP CAT5 Cable 20', 4 pack	263474-B24
IP CAT5 Cable 40', 1 pack	263474-B25
Switch Box Connector Kit (high voltage) (Int'l)	144007-B33
TFT5600 Rack Keyboard Monitor	221546-xx1
TFT7210R Rack Mounted 17" Monitor	348373-B21

**NOTE:** For a complete list of Monitors please view the following URL:  
<http://h18004.www1.hp.com/products/monitors/>.

1U Rack Keyboard & Drawer (Carbon)	257054-xx1
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#### Country Code Key for Keyboards

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 Factory Express

#### Factory Installation, Racking, and Customization Services

Factory Express Server Configuration Level 1 293355-888

**NOTE:** Free Installation of HP Options - Installation of HP Options memory, NICs, hard drives, controllers, processors, I/O cards, pre-install standard OEM OS image, and tape drives. Installation fees will apply to all non-HP certified hardware and asset tags.

Factory Express Server Configuration Level 2 266326-888

**NOTE:** Includes Level 1 Customer Intent of a ProLiant server and options configuration, OS installation, custom image download, IP addressing, network setting, and custom packaging. Customer unique requirements (quick restore creation, cd duplication, test reports, real-time reporting of server MAC address, password, and RILOE). Customer access, validation and control through VPN (price/server).

Factory Express Rack Integration Level 3 with 1 - 3 servers or storage enclosures 325736-888

Factory Express Rack Integration Level 3 with 4 - 9 servers or storage enclosures 232539-888

Factory Express Rack Integration Level 3 with 10 or more servers or storage enclosures 325735-888

**NOTE:** Includes Level 1 Customer Intent for standard mounted servers and storage units plus standard cable mgmt, RAID configuration, servers & storage, power distribution, networking gear and accessories (price/rack).

**NOTE:** Available on ProLiant rack models only.

Factory Express Rack Integration Level 4 with 1 - 3 servers or storage enclosures 325734-888

Factory Express Rack Integration Level 4 with 4 - 9 servers or storage enclosures 232540-888

Factory Express Rack Integration Level 4 with 10 or more servers or storage enclosures 325733-888

**NOTE:** Includes Level 2 Customer Intent plus customer defined cable management and naming convention, customer furnished image download, IP addressing, cluster configurations (SQL, External storage RAID). Quick restore creation, cd duplication, test reports, real-time reporting of server MAC address, password, RILOE). Customer access and validation through VPN (price/rack).

**NOTE:** Available on ProLiant rack models only.

Factory Express Rack Integration Level 5 with 1 - 3 servers or storage enclosures 325732-888

Factory Express Rack Integration Level 5 with 4 - 9 servers or storage enclosures 232541-888

Factory Express Rack Integration Level 5 with 10 or more servers or storage enclosures 325731-888

**NOTE:** Includes Level 4 Customer Intent plus Custom SW layering and extended test, Customer access, validation and control through VPN, Clustered racks with networking gear and / or external storage array, Start-up installation services custom quote. (price/rack).

**NOTE:** Available on ProLiant rack models only.

**NOTE:** Factory Express Engineered Solution Level 6 is a custom solutions available through Factory Express. Please contact your local reseller or Account Manager.

### Options

#### 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	U4512A
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years (Electronic)	U4512E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years	U4513A
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years (Electronic)	U4513E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years	U4514A
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years (Electronic)	U4514E

##### O/S and Hardware Installation

Hardware Installation	U4522A
Hardware Installation (Electronic)	U4522E
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.	U4523A
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)	U4523E

##### 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.	U4524A
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)	U4524E

##### 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.	U4525A
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	U4525E
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.	U6308A
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	U6308E
Onsite HW support 24x7, 4hr response and Red Hat ES2.1 Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays.	U8330A
Onsite HW support 24x7, 4hr response and Red Hat ES2.1 Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U8330E

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

### Memory

**NOTE:** Memory configurations listed do not apply to "Factory Integrated Models".

#### HP ProLiant ML350 G4 Memory Configuration

The ML350 G4 requires memory interleaving when more than one DIMM is installed. For interleaving, DIMMs must be populated in identical pairs. The system will not boot properly if multiple DIMMs of varying density or type are installed in the system.

#### Standard Memory

All ML350 G4 models ship with a single Advanced ECC PC2700 DDR SDRAM DIMM (running at 333 MHz).

Most models include a single 512 MB DIMM.

Array models include a single 1 GB DIMM.

**NOTE:** Advanced ECC Memory - ECC protection provides the ability to detect and correct single bit memory errors while Advanced ECC extends this coverage to include protection against multiple simultaneous errors on a DIMM. Advanced ECC detects and corrects 4bit memory errors that occur within a single DRAM chip on a DIMM. Advanced ECC algorithms work in combination with industry standard ECC DIMMS.

#### Standard Memory Plus Optional Memory

Up to 6.1 GB of total memory can be implemented with the installation of three optional PC2700 DIMMs.

#### Standard Memory Replaced with Optional Memory

Up to 8.2 GB of total memory can be implemented with the removal of the standard 512-MB or 1 GB DIMM and the installation of four 2 GB PC2700 DIMMs.

#### Common Memory Upgrades from Standard Memory

**NOTE:** Charts do not represent all possible memory configurations.

		Pair 1		Pair 2	
Std. Mem (non-Array)	512 MB	512 MB	Empty	Empty	Empty
	1 GB	512 MB	512 MB	Empty	Empty
	2 GB	512 MB	512 MB	512 MB	512 MB
	3 GB	512 MB	512 MB	1 GB	1 GB
	5 GB	512 MB	512 MB	2 GB	2 GB
		Pair 1		Pair 2	
Std. Mem (Array)	1 GB	1 GB	Empty	Empty	Empty
	2 GB	1 GB	1 GB	Empty	Empty
	3 GB	1 GB	1 GB	512 MB	512 MB
	4 GB	1 GB	1 GB	1 GB	1 GB
	6 GB	1 GB	1 GB	2 GB	2 GB

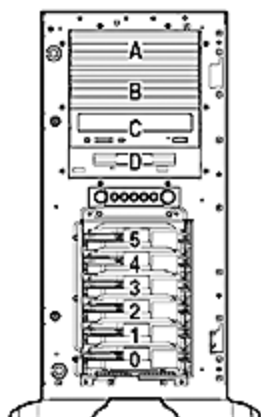
Following are memory options available from HP:

**NOTE:** All memory kits are single DIMM kits

- 256 MB of Advanced ECC PC2700 DDR SDRAM DIMM Memory Kit (1 x 512 MB) 358346-B21
- 512 MB of Advanced ECC PC2700 DDR SDRAM DIMM Memory Kit (1 x 512 MB) 358347-B21
- 1 GB of Advanced ECC PC2700 DDR SDRAM DIMM Memory Kit (1 x 1024 MB) 358348-B21
- 2 GB of Advanced ECC PC2700 DDR SDRAM DIMM Memory Kit (1 x 2048 MB) 358349-B21

**NOTE:** 2 GB DIMMs are supported in memory slots 1 and 2 only when slots 3 and 4 are also populated with 2 GB DIMMs. In all other instances, 2 GB DIMMs should be installed in slots 3 and 4.

### Storage



0 - 5	6 x 1" in SCSI Hard Drive Bays
or	
N0 - N3	4 x 1" non-hot plug Hard Drive Bays
D	1.44 MB Diskette Drive
C	48x CD-ROM
A,B	Available half height bay

### Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
1.44-MB Diskette Drive	Up to 1	D	Integrated
IDE (ATAPI) CD-ROM Drive	Up to 2	A, B, C	Integrated IDE
DVD-ROM Drive Option Kit	Up to 2	A, B, C	Integrated IDE
ML3xx Two Bay Hot Plug SCSI Drive Cage	Up to 1	A + B	Integrated SCSI

### Hard Drives

#### Ultra320 SCSI - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
<b>1-inch</b>	Up to 6	0-5	Integrated Dual Channel Ultra320 SCSI Adapter
300-GB 10,000 rpm			Smart Array 641 Controller
146.8-GB 10,000 rpm			(NOTE: The Smart Array 641 Controller ships standard with Array models.)
72.8-GB 10,000 rpm			Smart Array 6402/128 Controller
36.4-GB 10,000 rpm			Smart Array 6404/256 Controller
72.8-GB 15,000 rpm			Smart Array 642 Controller
36.4-GB 15,000 rpm			64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter
18.2-GB 15,000 rpm			

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

#### Ultra320 SCSI - Non-Hot Plug

	Quantity Supported	Position Supported	Controller
<b>1-inch</b>	Up to 4	N0-N4, C, D	Integrated Dual Channel Wide Ultra320 SCSI Adapter
72.8-GB 10,000 rpm			Smart Array 641 Controller
36.4-GB 10,000 rpm			(NOTE: The Smart Array 641 Controller ships standard with Array models.)
			Smart Array 6402/128 Controller
			Smart Array 6404/256 Controller
			Smart Array 642 Controller
			64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter

**NOTE:** Installation of Non hot plug SCSI drives in the removable media bays (position C or D) requires the purchase of an additional SCSI cable.

### Storage

#### External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Family Up to 2		External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller
Modular Smart Array 30 Family Up to 2		External	Integrated Dual Channel Wide Ultra320 SCSI Adapter <b>NOTE:</b> Connection of an external device to the embedded SCSI controller requires an internal-to-external cable (PN 159547-B22 or 333370-B21) 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 or 500 G2	1	External	Please see the Modular Smart Array 500 or 500 G2 QuickSpecs for the latest list of supported HBAs: <a href="http://www.hp.com/go/msa500">http://www.hp.com/go/msa500</a> .
Modular Smart Array 1500 cs or 1000	Please see the Modular Smart Array 1500 cs or Modular Smart Array 1000 QuickSpecs links below to determine configuration requirements		Please see the Modular Smart Array 1500 cs or Modular Smart Array 1000 QuickSpecs (URL below) for the latest list of supported HBAs.
Modular Smart Array 1000: <a href="http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML</a> (Worldwide) <a href="http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML</a> (North America)			
Modular Smart Array 1500: <a href="http://www.hp.com/go/MSA1500cs">http://www.hp.com/go/MSA1500cs</a>			

#### 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](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](http://h18000.www1.hp.com/products/quickspecs/North_America/10809.html) (North America)

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

	Quantity Supported	Position Supported	Controller
HP StorageWorks DAT 40 or DAT 72 Tape Drive, Internal Hot-Plug	Up to 3 per drive cage. <b>NOTE:</b> drives are 1.5 height devices	0-5	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 Ultrium 230 Tape Drive, Internal (non hot plug)	1	C + D	Integrated Dual Channel Ultra320 SCSI 64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks DAT 72 or Ultrium 215 Tape Drive, Internal (non hot plug)	2	C,D	Integrated Dual Channel Ultra320 SCSI 64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Ultrium 215, Ultrium 230, or DAT 72 Tape Drive, External	2	External	Integrated Dual Channel Ultra320 SCSI <b>NOTE:</b> Connection of an external device to the embedded SCSI controller requires an internal-to-external cable (PN 159547-B22 or 333370-B21) 64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter

Storage

64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS			
3U & 5U Rack-mount Kits Tape Array 5300			
HP StorageWorks Tape Autoloader, Internal DAT 72x6 DAT 40x6	1	C + D	Integrated Dual Channel Ultra320 SCSI 64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Autoloaders, External DAT 72x6 DAT 40x6 1/8 Ultrium 460 1/8 SDLT 320 1/8 Ultrium 230 1/8 DLT VS80 SSL1016 Ultrium 460 SSL1016 SDLT320 SSL1016 DLT1	1 autoloader per SCSI channel	External	Integrated Dual Channel Ultra320 SCSI <b>NOTE:</b> Connection of an external device to the embedded SCSI controller requires an internal-to-external cable (PN 159547-B22 or 333370-B21) 64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Libraries MSL6000 (Ultrium 460 based) MSL5026S2 (SDLT 320 based) MSL5052S2 (SDLT 320 based) MSL5030 (Ultrium 230 based) MSL5060 (Ultrium 230 based) ESL712e ESL630e ESL9322 ETLA ESL9595 ETLA	Please reference the relevant MSL or ESL Tape Library QuickSpecs to determine configuration requirements	External	Integrated Dual Channel Ultra320 SCSI <b>NOTE:</b> Connection of an external device to the embedded SCSI controller requires an internal-to-external cable (PN 159547-B22 or 333370-B21) 64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS



### Power Specifications

#### Models with Hot Plug Power

Part Number	345875-001
Spare Kit	365063-001
Operational Input Voltage Range (V rms)	90 to 264
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	725	725	725	725	725	725
Nominal Input Current (A rms)	9.4	7.9	4.2	4.0	3.8	3.6
Max Rated Input Wattage Rating (Watts)	906	895	873	863	863	863
Max. Rated VA (Volt-Amp)	915	904	910	899	909	909
Efficiency (%)	80	81	83	84	84	84
Power Factor	0.99	0.99	0.96	0.96	0.95	0.95
Leakage Current (mA)	0.31	0.36	0.65	0.69	0.72	0.75
Maximum Inrush Current (A peak)	10	12	28	22	23	24
Maximum Inrush Current duration (milliseconds)	3					

#### Models with Non Hot Plug Power

Part Number	342481-001
Spare Kit	365220-001
Operational Input Voltage Range (V rms)	90 to 264
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	460	460	460	460	460	460
Nominal Input Current (A rms)	6.9	5.9	3.2	3.0	2.8	2.7
Max Rated Input Wattage Rating (Watts)	676	667	648	639	639	639
Max. Rated VA (Volt-Amp)	690	680	682	680	680	680
Efficiency (%)	69	69	71	72	72	72
Power Factor	0.98	0.98	0.95	0.94	0.94	0.94
Leakage Current (mA)	0.31	0.36	0.65	0.69	0.72	0.75
Maximum Inrush Current (A peak)	10	12	28	22	23	24
Maximum Inrush Current duration (milliseconds)	3					

#### NOTES:

ActiveAnswers Power Calculation

Power calculator is LIVE on ActiveAnswers Web site. This is an external link.

Follow this link: <http://h30099.www3.hp.com/configurator/powercalcs.asp>

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: ML350 G4
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

## Technical Specifications

System Unit - Hot Plug SCSI Tower	Dimensions (HxWxD) (with feet/bezel)	18.5 x 10.25 x 26 in (46.99 x 26.04 x 66.04 cm)	
	Dimensions (HxWxD) (without feet/bezel)	17.5 x 8.5 x 24 in (44.50 x 21.59 x 60.96 cm)	
	Weight(approximate)	60 lb (27.24 kg) (without hard drives)	
	Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC
		Rated Input Frequency	50 Hz to 60 Hz
		Input Power	906W @ 100VAC
		Rated Input Current	9.2A(100VAC),4.3A(200VAC)
	Rated Line Frequency	50 to 60 Hz	
	BTU Rating	3,125 BTU/hr	
	SCSI Connectors	Two internal HD68 connectors	
		(Support for either two internal, two external, or a mix of internal/external is available. This is achieved using an internal to external SCSI cable option kit (PN 159547-B22) and either of the two SCSI knockouts.)	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	725W
	Temperature Range	Operating	50° to 95° F (10° to 35° C) (No direct sustaining sunlight)
		Storage (up to one year)	-40° to 158° F (-40° to 70° C)
	Maximum Wet Bulb Temperature	82.4° F (28° C)	
	Relative Humidity (non-condensing)	Operating	10% to 90%
		Non-operating	5% to 90%
	Acoustic Noise	Idle (Fixed Disk Drives Spinning)	
		L WAd (BELS)	6.5
		L pAm (dBA)	48
		Operating (Random Seeks to Fixed Disks)	
		L WAd (BELS)	6.5
		L pAm (dBA)	48

## Technical Specifications

System Unit - Hot Plug SCSI Rack	Dimensions (HxWxD)	8.61 x19 x 24 in (21.87 x48.26 x 60.96 cm)		
	Weight(approximate)	60 lb (27.24 kg) (without hard drives)		
	Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC	
		Rated Input Frequency	50 Hz to 60 Hz	
		Input Power	906W @ 100VAC	
		Rated Input Current	9.2A(100VAC),4.3A(200VAC)	
	Rated Line Frequency	50 to 60 Hz		
	BTU Rating	3,125 BTU/hr		
	SCSI Connectors	Two internal HD68 connectors		
		<b>NOTE:</b> Support for either two internal, two external, or a mix of internal/external is available. This is achieved using an internal to external SCSI cable option kit, PN 159547-B22 or 333370-B21, and either of the two SCSI knockouts.		
	Power Supply Output Power (per power supply)	Rated Steady-State Power	725W	
	Temperature Range	Operating	50° to 95° F (10° to 35° C) (No direct sustaining sunlight)	
		Storage (up to one year)	-40° to 158° F (-40° to 70° C)	
	Maximum Wet Bulb Temperature	82.4° F (28° C)		
	Relative Humidity (non-condensing)	Operating	10% to 90%	
		Non-operating	5% to 90%	
	Acoustic Noise	Idle (Fixed Disk Drives Spinning)		
		L WAd (BELS)	6.5	
		L pAm (dBA)	48	
		Operating (Random Seeks to Fixed Disks)		
		L WAd (BELS)	6.5	
		L pAm (dBA)	48	

### Technical Specifications

<b>System Unit - Non Hot Plug SCSI Tower</b>	<b>Dimensions</b> (HxWxD) (with feet/bezel)	18.5 x 10.25 x 25.75 in (46.99 x 26.04 x 65.4 cm)	
	<b>Dimensions</b> (HxWxD) (without feet/bezel)	17.5 x 8.5 x 24 in (44.50 x 21.59 x 60.96 cm)	
	<b>Weight</b> (approximate)	60 lb (27.24 kg) (without hard drives)	
	<b>Input Requirements</b> (per power supply)	Rated Line Voltage	100 to 120 VAC
		Rated Input Frequency	50 Hz to 60 Hz
		Input Power	676W @ 100 VAC
		Rated Input Current	6.9A(100VAC)/3.3A(200VAC)
		Rated Line Frequency	50 to 60 Hz
	<b>BTU Rating</b>	2,360 BTU/hr	
	<b>SCSI Connectors</b>	Two internal HD68 connectors	
		(Support for either two internal, two external, or a mix of internal/external is available. This is achieved using an internal to external SCSI cable option kit,PN 159547-B22 or 333370-B21, and either of the two SCSI knockouts.)	
	<b>Power Supply Output Power</b> (per power supply)	Rated Steady-State Power	460W
	<b>Temperature Range</b>	Operating	50° to 95° F (10° to 35° C) (No direct sustaining sunlight)
		Storage (up to one year)	-40° to 158° F (-40° to 70° C)
	<b>Maximum Wet Bulb Temperature</b>	82.4° F (28° C)	
	<b>Relative Humidity</b> (non-condensing)	Operating	10% to 90%
		Non-operating	5% to 90%
	<b>Acoustic Noise</b>	Idle (Fixed Disk Drives Spinning)	
		L WAd (BELS)	6.0
		L pAm (dBA)	46.3
		Operating (Random Seeks to Fixed Disks)	
		L WAd (BELS)	6.0
		L pAm (dBA)	46.5
<b>NC7761 PCI Gigabit Server Adapter</b> (embedded)	<b>Network Interface</b>	10Base-T/100Base-TX/1000Base-TX	
	<b>Compatibility</b>	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 80.3u 100Base-TX	
	<b>Data Transfer Method</b>	32-bit bus-master PCI	
	<b>Network Transfer Rate</b>	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-TX	1000Mb/s
	<b>Connector</b>	RJ-45	
	<b>Cable Support</b>	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

### Technical Specifications

<b>Integrated Dual Channel Ultra320 SCSI Adapter</b>	<b>Drives Supported</b>	Up to 28 SCSI devices (14 per channel)
	<b>Data Transfer Method</b>	64-bit PCI bus-master
	<b>SCSI Channel Transfer Rate</b>	320 MB/s per channel
	<b>Maximum Transfer Rate per PCI Bus (peak)</b>	400 MB/s per channel
	<b>SCSI Protocols</b>	Wide Ultra2 SCSI
		Wide-Ultra SCSI-3
		Ultra320 SCSI
	<b>Electrical Protocol</b>	Low Voltage Differential (LVD)
	<b>SCSI Termination</b>	Active Termination
	<b>External SCSI Connectors</b>	Optional VHDCI and HD68 internal-to-external connectors
	<b>Internal SCSI Connectors</b>	Two 68-Pin Wide-Ultra SCSI-3 connectors

<b>Smart Array 641 Controller</b> <i>(NOTE: The Smart Array 641 Controller ships standard with the 3.2 GHz Array Models only.)</i>	<b>Protocol</b>	Ultra320 SCSI
	<b>SCSI Electrical Interface</b>	Low Voltage Differential (LVD)
	<b>Drives Supported</b>	Up to 6 Ultra 320, Ultra3 and Ultra2 SCSI hard drives
	<b>SCSI Port Connectors SA-641</b>	One internal SCSI port
	<b>Data Transfer Method</b>	64-Bit PCI bus-master
	<b>PCI Bus Speed</b>	64-bit, 133-MHz PCI-X (1 GB/s maximum bandwidth)
	<b>PCI</b>	3.3 volt PCI slot compatibility only
	<b>Simultaneous Drive Transfer Channels</b>	One
	<b>Channel Transfer Rate</b>	320-MB/s total; 320-MB/s per channel
	<b>Software upgradable Firmware</b>	Yes
	<b>Cache Memory</b>	64-MB DRAM used for code, transfer buffers, and non-battery backed read cache
	<b>Logical Drives Supported</b>	32
	<b>Maximum Capacity</b>	880.8 GB (6 X 146.8 GB)
	<b>Memory Addressing</b>	64-bit, supporting servers memory greater than 4 GB
	<b>RAID Support</b>	RAID 5 (Distributed Data Guarding)
		RAID 1 + 0 (Striping & Mirroring)
		RAID 1 (Mirroring)
		RAID 0 (Striping)
	<b>Upgradeable Firmware</b>	2-MB Flashable ROM
	<b>Disk Drive and Enclosure Protocol Support</b>	Ultra 320, Ultra2 and Ultra3
	<b>Warranty</b>	Maximum: The remaining warranty of the HP server product in which it is installed (to a maximum three-year limited warranty)
		Minimum: One-year, on-site limited warranty
		Pre-Failure Warranty: Drives attached to the Smart Array Controller and monitored under Insight Manager are supported by a Pre-Failure (replacement) Warranty. For complete details, consult the HP Support Center or refer to your HP Server Documentation.

### *Technical Specifications*

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