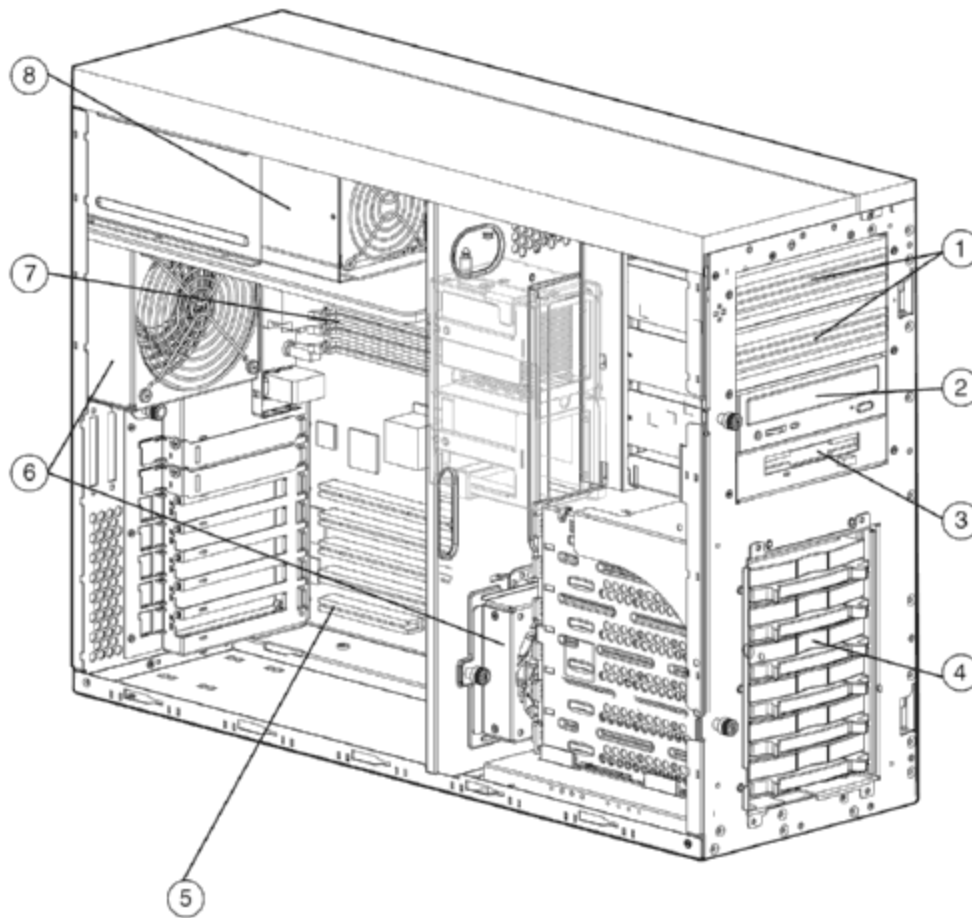


### Overview



- 1. Two Removable Media Bays
- 2. 48X Max IDE (ATAPI) CD-ROM Drive
- 3. 1.44 Diskette Drive
- 4. Six 1" Hot Plug Drive Bays
- 5. Five expansion slots (four 64-bit/100-MHz PCI-X, one 32-bit/33-MHz PCI)
- 6. System fan
- 7. Four DIMM sockets for up to 8GB of memory, optionally interleaved
- 8. Optional 2nd Power Supply for hot-pluggable 1+1 redundancy

### Overview

#### At A Glance

- The ProLiant ML350 G3 is an expandable rack or tower platform delivering affordable 2-way performance and essential availability to corporate workgroups and growing businesses
- Intel Xeon 3.06GHz processors (dual processor capability) with 512-KB level 2 cache standard (full speed) or 2.8 GHz with 1-MB level 3 cache and Hyper-Threading Technology
- ServerWorks Grand Champion LE Chipset
- Up to 533-MHz Front Side Bus (model dependent)
- Integrated Dual Channel Wide Ultra3 SCSI Adapter
- Smart Array 641 (standard in Array Models only)
- NC7760 PCI Gigabit Server Adapter (embedded)
- Up to 1 GB of 2-way interleaving capable PC2100 DDR SDRAM, with Advanced ECC capabilities (Expandable to 8GB)
- Flexible memory configurations allow interleaving (2x1) or non-interleaving
- Five expansion slots: four 64-bit/100-MHz PCI-X, one 32-bit/33-MHz PCI
- Two USB ports
- Standard 6 x 1" Wide Ultra320 ready Hot Plug Drive Cage
- Internal storage capacity of up to 1.80 TB (6 x 300 GB 1"), 2.40 TB (2 x 300 GB 1" + 6 x 300 GB 1") with optional 2-bay hot plug drive cage option
- 500W Hot-Pluggable Power Supply (standard) and an optional 500W Hot-Pluggable Redundant Power Supply (1+ 1) available
- Tool-free entry to chassis and access to components
- ROM based setup utility (RBSU) support and, redundant ROM
- Insight Manager, SmartStart, and Automatic Server Recovery (ASR-2)
- Protected by HP Services, including a three-year, next business day, on-site, limited global warranty and extended Pre-Failure Warranty.

### Standard Features

<b>Processor</b> <i>One of the following depending on Model</i>	Intel Xeon Processor 2.8 GHz/533-1MB Intel Xeon Processor 3.06 GHz/533-512KB
<b>Cache Memory</b>	Integrated 512-KB Level 2 cache (full speed)
<b>Upgradeability</b>	Upgradeable to dual processing
<b>Chipset</b>	ServerWorks Grand Champion LE Chipset with 400-MHz or 533-MHz Front Side Bus (model dependent) <b>NOTE:</b> For more information regarding ServerWorks, please see the following URL: <a href="http://www.serverworks.com/products/overview.html">http://www.serverworks.com/products/overview.html</a> .
<b>Memory</b> <i>One of the following depending on model</i>	2-way interleaving capable PC2100 DDR SDRAM running at 200MHz on 400MHz models or 266MHz on 533MHz models with Advanced ECC capabilities Standard (Non-Array Models) 512 MB Standard (Array Models) 1 GB Maximum 8 GB
<b>Network Controller</b>	NC7760 Gigabit Server Adapter (embedded)
<b>Expansion Slots</b>	I/O (5 Total, 5 Available) 64-bit/100MHz, PCI 4 (4 available) <i>(Array model has 3 available)</i> 32-bit/33MHz, PCI 1 (1 available) PCI Voltage: 3.3 Volt or universal cards 5 Volt or universal cards
<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter Smart Array 641 Controller (Standard in Array Models with 2.8 GHz or greater processors only)
<b>Storage</b>	Diskette Drives 1.44 MB Optical Drive 48x IDE (ATAPI) CD-ROM Drive Hard Drives None Maximum Internal Storage 2.40 TB GB (6 x 300 GB 1" with standard internal hot plug drive cage + (2 x 300 GB 1") with optional ML3xx Two Bay Hot Plug SCSI Drive Cage) External Storage Two external SCSI knockouts available, optional ProLiant ML350 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>

### Standard Features

<b>Interfaces</b>	Parallel	1
	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	Network RJ-45	1
	USB	2
	External SCSI knockouts	2

**NOTE:** Please see the following URL for additional information regarding USB support:  
<http://h18004.www1.hp.com/products/servers/platforms/usb-support.html>.

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<b>Graphics</b>	Integrated ATI RAGE XL Video Controller with 8-MB SDRAM Video Memory
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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 hole racks from 27"- 32" deep (including Compaq/HP 7000, 9000, 10000 and H9 series)</li><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</li></ul> <a href="http://www.racksolutions.com/hp/index.html">http://www.racksolutions.com/hp/index.html</a>
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### Standard Features

#### ProLiant Essentials Foundation Pack Software

HP Systems Insight Manager	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. For more information on HP SIM visit <a href="http://www.hp.com/go/hpsim">http://www.hp.com/go/hpsim</a> .
Management Agents	The Management Agents provide direct, browser-based access to in-depth instrumentation built into HP servers, workstations, desktops, or portables, and send alerts to Systems Insight Manager or other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, visit <a href="http://www.hp.com/servers/manage">http://www.hp.com/servers/manage</a> .
SmartStart	SmartStart simplifies server setup by providing a quick, easy 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> . Minimum SmartStart version supported: 6.1 Latest SmartStart version supported: 7.1
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 alerts on updates as they become available.
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 the Software and Drivers download pages at <a href="http://www.hp.com/go/support">http://www.hp.com/go/support</a> .
Survey Utility and diagnostics utilities	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP 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>● 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.</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><li>● Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions.</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>.

### Standard Features

**Industry Standard Compliance**

ACPI V1.0B Compliant  
PCI 2.2 Compliant  
PXE Support  
WOL Support  
PCI-X 1.0 Compliant  
Novell Certified  
Microsoft® Logo certifications  
USB 1.1

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**Intelligent Manageability**

Insight Manager 7  
HP Systems Insight Manager  
Redundant ROM  
System Firmware Update  
ROMPaq  
Remote Insight Lights-Out Edition II (optional)  
ProLiant RBSU (ROM-Based Setup Utility)  
Automatic Server Recovery-2 (ASR-2)  
Drive Parameter Tracking (with Smart Array Controller)  
Dynamic Sector Repairing (with Smart Array Controller)  
Pre-Failure Warranty (covers processors, memory and hard drives)

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**Security**

Power-on password  
Setup password  
Diskette boot control  
Parallel and serial interface control  
Disk configuration lock  
Power switch security

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**Server Power Cords**

Tower models ship standard with country specific, lowline NEMA power cords.  
Rack models ship standard with an IEC cable. Rack models for some countries also include a NEMA cord.  
Most redundant power supply options ship with country specific power cords with the exception of the IEC redundant power supply (P/N 283655-B21) which ships with an IEC cable only.

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**Power Supply**

500 Watts, 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.

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**System Fans**

2 fans ship standard, 2 fans total supported (does not include power supply fans)

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**Required Cabling**

For required cabling information, refer to the HP Web site at <http://www.hp.com/servers/proliantML350>.

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### Standard Features

#### OS Support

Microsoft Windows Server 2003  
Microsoft Small Business Servers 2003 and 2000  
Microsoft Windows 2000 Server and Advanced Server  
Microsoft Windows NT® Server 4.0 and Terminal Server 4.0  
Novell NetWare  
Novell NetWare Small Business Suite  
SCO OpenServer  
SCO OpenUnix® 8  
SCO UnixWare®  
IBM OS/2 Warp Server for e-business  
LINUX (Red Hat, 2.1 Advanced Server, SuSE, SLES7, UnitedLinux 1.0)

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

**NOTE:** Optional hardware may be required to support some operating systems.

**NOTE:** For an up-to-date listing of the latest drivers available for the ProLiant ML350, please see:

<http://www.compaq.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 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.hp.com/servers/proliantml350>.

#### Installation of Server into Telco Racks

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

#### 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.

### 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 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>ML350T03 X2.8-1MB/533, 512 MB</b> 359211-xx1	<b>Processor(s)</b>	(1) Intel Xeon 2.8 GHz Processor (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1MB Level 3 cache and 512KB Level 2 cache per processor
	<b>Memory</b>	512 MB (1 x 512MB DIMM)
	<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
	<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	2.40 TB maximum hot plug (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>ML350R03 X2.8-1MB/533, 512 MB</b> 359212-xx1	<b>Processor(s)</b>	(1) Intel Xeon 2.8 GHz Processor (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1MB Level 3 cache and 512KB Level 2 cache per processor
	<b>Memory</b>	512 MB (1 x 512MB DIMM)
	<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
	<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	2.40 TB maximum hot plug (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>ML350T03 X2.8-1MB/533, 1 GB Array</b> 359349-xx1	<b>Processor(s)</b>	(1) Intel Xeon 2.8 GHz Processor (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1MB Level 3 cache and 512KB Level 2 cache per processor
	<b>Memory</b>	1 GB (2 x 512MB DIMMs)
	<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
	<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
	<b>RAID Controller</b>	Smart Array 641
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	2.40 TB maximum hot plug (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>ML350R03 X2.8-1MB/533, 1 GB Array</b> 359351-xx1	<b>Processor(s)</b>	(1) Intel Xeon 2.8 GHz Processor (up to 2 supported)
	<b>Cache Memory</b>	Integrated 1MB Level 3 cache and 512KB Level 2 cache per processor
	<b>Memory</b>	1 GB (2 x 512MB DIMMs)
	<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
	<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
	<b>RAID Controller</b>	Smart Array 641
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	2.40 TB maximum hot plug (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>ML350T03 X3.06-512KB/533, Processor(s)</b>	(1) Intel Xeon 3.06 GHz Processor (up to 2 supported)
<b>512 MB</b>	Integrated 512-KB Level 2 cache per processor
333373-xx1	
<b>Cache Memory</b>	Integrated 512-KB Level 2 cache per processor
<b>Memory</b>	512 MB (1 x 512MB DIMM)
<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
<b>Hard Drive</b>	None ship standard
<b>Internal Storage</b>	2.40 TB maximum hot plug (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>ML350R03 X3.06-512KB/533, Processor(s)</b>	(1) Intel Xeon 3.06 GHz Processor (up to 2 supported)
<b>512 MB</b>	Integrated 512-KB Level 2 cache per processor
333374-xx1	
<b>Cache Memory</b>	Integrated 512-KB Level 2 cache per processor
<b>Memory</b>	512 MB (1 x 512MB DIMM)
<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
<b>Hard Drive</b>	None ship standard
<b>Internal Storage</b>	2.40 TB maximum hot plug (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>ML350T03 X3.06-512KB/533, Processor(s)</b>	(1) Intel Xeon 3.06 GHz Processor (up to 2 supported)
<b>1 GB Array</b>	Integrated 512-KB Level 2 cache per processor
333371-xx1	
<b>Cache Memory</b>	Integrated 512-KB Level 2 cache per processor
<b>Memory</b>	1 GB (2 x 512MB DIMMs)
<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
<b>RAID Controller</b>	Smart Array 641
<b>Hard Drive</b>	None ship standard
<b>Internal Storage</b>	2.40 TB maximum hot plug (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 (5U)

<b>ML350R03 X3.06-512KB/533, Processor(s)</b>	(1) Intel Xeon 3.06 GHz Processor (up to 2 supported)
<b>1 GB Array</b>	Integrated 512-KB Level 2 cache per processor
333372-xx1	
<b>Cache Memory</b>	Integrated 512-KB Level 2 cache per processor
<b>Memory</b>	1 GB (2 x 512MB DIMMs)
<b>Network Controller</b>	NC7760 PCI Gigabit Server Adapter (Integrated/Embedded)
<b>Storage Controller</b>	Integrated Dual Channel Wide Ultra3 SCSI Adapter
<b>RAID Controller</b>	Smart Array 641
<b>Hard Drive</b>	None ship standard
<b>Internal Storage</b>	2.40 TB maximum hot plug (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**

XX=00  
XX=01  
XX=03  
XX=04  
XX=05  
XX=20  
XX=29  
XX=37  
XX=42  
XX=AA

**Tower Code Key**

U.S. English  
Australia  
UK  
Germany  
France  
Brazil  
Japan  
APD  
Europe  
PRC

**Rack Code Key**

U.S. English  
N/A  
N/A  
N/A  
N/A  
N/A  
Japan  
APD  
Europe  
PRC

### Options

<b>ProLiant ML350 G3 Unique Options</b>	Hot Plug Redundant Power Supply Option Kit (NA, LA)	283655-001
	Hot Plug Redundant Power Supply Option Kit (AUST)	283655-011
	Hot Plug Redundant Power Supply Option Kit (EURO)	283655-021
	Hot Plug Redundant Power Supply Option Kit (UK)	283655-031
	Hot Plug Redundant Power Supply Option Kit (Japan)	283655-291
	Hot Plug Redundant Power Supply Option Kit (cable)	283655-B21
	<b>NOTE:</b> PN 283655-B21 contains the redundant power supply with an IEC power cable. Purchase this kit only when connecting to a PDU or UPS that supports IEC cables. All other kits contain country specific power cables.	
	Intel Xeon 2.80 GHz-512KB Processor Option Kit	314763-B21
	<b>NOTE:</b> The 2.8 GHz processor option kit (PN 314763-B21) supports ProLiant ML350 G3 systems with 533 MHz front side bus only. This kit cannot be used in 400 MHz front side bus systems such as those with 2.4 GHz, 2.2GHz or 2.0 GHz processors.	
	Intel Xeon 2.40 GHz-512KB Processor Option Kit	257913-B21
<b>NOTE:</b> This processor option kit (PN 257913-B21) supports the ProLiant ML350 G3 servers.		
ProLiant ML350 G3 Tower to Rack Conversion Kit	290683-B22	

<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.	
	Flexible Quantity License Kit	302127-B21
	License-Only - for use with a Master License Agreement	302128-B21
	ProLiant Essentials Workload Management Pack 2.0 (Featuring Compaq Resource Partitioning Manager version 2.0)	303284-B21
	Performance Management Pack, single server	306696-B21
	<b>NOTE:</b> 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
	<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
	ProLiant Essentials Intelligent Networking Pack Flex License	372950-B21
	ProLiant Essentials Intelligent Networking Pack Track License	372951-B21
	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	
<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> .		

### Options

<b>Processors</b>	Intel Xeon 2.8 GHz-1MB Processor Option Kit	352567-B21
	<b>NOTE:</b> The 2.8 GHz-1MB processor option kit (PN 352567-B21) supports ProLiant ML350 G3 systems with 533 MHz front side bus only. This kit cannot be used in 400 MHz front side bus systems such as those with 2.4 GHz, 2.2 GHz or 2.0 GHz processors.	
	Intel Xeon 3.06 GHz-512KB Processor Option Kit	257916-B21
	<b>NOTE:</b> The 3.06 GHz processor option kit (PN 257916-B21) supports ProLiant ML350 G3 systems with 533 MHz front side bus only. This kit cannot be used in 400 MHz front side bus systems such as those with 2.4 GHz, 2.2 GHz or 2.0 GHz processors.	
<b>Processors</b>	Intel Xeon 2.8 GHz-512KB Processor Option Kit	314763-B21
	<b>NOTE:</b> The 2.8 GHz processor option kit (PN 314763-B21) supports ProLiant ML350 G3 systems with 533 MHz front side bus only. This kit cannot be used in 400 MHz front side bus systems such as those with 2.4 GHz, 2.2 GHz or 2.0 GHz processors.	
	Intel Xeon 2.4 GHz-512KB Processor Option Kit	257913-B21
	<b>NOTE:</b> This processor option kit supports ProLiant ML350/ML370/DL380 G3 servers with 400 MHz front side bus only. This kit (PN 257913-B21) cannot be used in 533 MHz front side bus systems such as the 2.8 GHz systems.	
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<b>Memory (DIMMs)</b>	<b>NOTE:</b> The ML350 G3 supports both interleaved and non-interleaved memory configurations. For best performance automatically invoke interleaving by populating memory in identical pairs. If 1GB of total memory is desired add one 512 MB DIMM to the base configuration. Interleaving and installation of memory in pairs is not required. Add any combination of memory DIMMs below to operate in non-interleaved mode.	
	<b>NOTE:</b> Each SDRAM Memory kit contains one (1) DIMM.	
	128 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 128 MB)	287494-B21
	256 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 256 MB)	287495-B21
	512 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 512 MB)	287496-B21
	1024 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 1024 MB)	287497-B21
2048 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 2048 MB)	301044-B21	
<hr/>		
<b>Internal Storage</b>	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 removable media bays.	
<hr/>		
<b>Optical Drives</b>	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	<b>NOTE:</b> The DVD-ROM drive is supported in the CD-ROM bay and in the removable media bay. If placed in the removable media bay, it requires the 2-Device IDE cable (PN 305381-B21).	
	DVD-ROM Drive Option Kit	217053-B21
<hr/>		

### Options

<b>Hard Drives</b>	<b>Ultra320 – Universal Hot Plug</b>	
	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 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)

<b>Storage Controllers</b>	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
	128-MB Cache Module for Smart Array 5302 Controller	153506-B21
	256-MB Battery Backed Cache Module	254786-B21
	<b>NOTE:</b> 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.	
	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/10640_div/10640_div.HTML">http://h18000.www1.hp.com/products/quickspecs/10640_div/10640_div.HTML</a> (Smart Array 5300 Series)	
<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/12067_div/12067_div.HTML">http://h18000.www1.hp.com/products/quickspecs/12067_div/12067_div.HTML</a> (Smart Array 641)		
<a href="http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML">http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML</a> (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)		

### Options

<b>Communications</b>	NC1020 Cu Gigabit Server Adapter 32 PCI Single Port	353377-B21
	NC6170 Dual Port PCI-X 1000SX Gigabit Server Adapter	313879-B21
	NC6770 PCI-X Gigabit Server Adapter, 1000-SX	244949-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 or NC77XX NIC can be used for redundancy with the embedded NC7760 Network Controller.		

<b>Management Options</b>	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

<b>Security</b>	HP/Atalla AXL600L SSL Accelerator Card for ProLiant Servers	524545-B21
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### Tape Drives

**NOTE:** In order to install certain tape drives internally, you may need to remove the rails that come standard on the drives and then re-insert the screws in the mounting holes. Mounting screws are shipped standard with server.

**NOTE:** External tape devices, including both tape drives and tape arrays/enclosures, can be directly connected to the embedded SCSI controller through the SCSI knockout at the back of the server using an optional Internal-to-External SCSI cable. These cables are available in both HD68 and VHDCI.

Review the server cabling matrix for additional information on cables required to connect backup products to the server.

#### **Internal, External, and Rack-Mount Ultrium Tape Drives**

HP StorageWorks Ultrium 215 Tape Drive, Internal (Carbon)	Q1543A
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
HP StorageWorks Ultrium 460 Tape Drive, Internal (Carbon)	Q1518A
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, Internal (Carbonite)	Q1538A
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](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)

### Options

[http://h18006.www1.hp.com/products/quickspecs/12128\\_div/12128\\_div.html](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](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>

#### **Internal, External, Hot-Plug, and Rack-Mount DAT Drives**

**NOTE:** Use of a hot plug tape drives requires installation of the optional two-bay SCSI drive cage.

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, External (Carbon)	C5687C
HP StorageWorks DAT 40 Tape Drive, Internal (Carbon)	C5686B
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>

#### **Internal and External DLT VS Tape Drives**

HP StorageWorks DLT VS80 Tape Drive, Internal (Carbon) WW	337699-B21
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](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](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>

#### **Internal, External and Rack-mount SDLT Tape Drives**

HP StorageWorks SDLT 320 Tape Drive, Internal (Carbon) WW	257319-B21
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

**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](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](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
<b>NOTE:</b> 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.	
HP StorageWorks 3U Rack-Mount Kit	274338-B21
<b>NOTE:</b> 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.	

### Options

HP StorageWorks 5U Rack-Mount Kit	274339-B21
<p><b>NOTE:</b> 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.</p> <p><b>NOTE:</b> Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.HTML">http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.HTML</a> (Worldwide)</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML">http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML</a> (North America)</p>	
HP StorageWorks Tape Array 5300	C7508A
<p><b>NOTE:</b> 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.</p> <p><b>NOTE:</b> Please see the Tape Array 5300 QuickSpecs for additional information regarding this product.</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/11878_div/11878_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11878_div/11878_div.HTML</a> (Worldwide)</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/11878_na/11878_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11878_na/11878_na.HTML</a> (North America)</p>	
<b>Accessories for 3U &amp; 5U Rack-mount Tape Drive Kits</b>	
LVD Cable Kit, VHDCI/HD68	168048-B21
<b>NOTE:</b> For use with the 3U Rack-mount Kit and 5U Rack-mount Kit only.	
LVD Cable Kit, HD68/HD68	242381-B21
<b>NOTE:</b> For use with the 3U Rack-mount Kit and 5U Rack-mount Kit only.	
<b>Accessories for 3U &amp; 5U Rack-mount Tape Drive Kits</b>	
PSU/Fan Upgrade Kit - Redundant hot-swap power supply unit and fan for Tape Array 5300.	
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
<b>NOTE:</b> For use with Tape Array 5300 only	

### Options

#### Tape Autoloaders

##### DAT Autoloader

HP StorageWorks DAT 72x6 Internal Autoloader	Q1566A
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](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](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:** 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/>

#### 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
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
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### Options

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	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> 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

ESL9595 Extended Tape Library, 0 drive, 400 slots (card cage, Interface Mgr card, Command View license)	343378-B21
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>

### Options

<b>Magneto-Optical Jukeboxes</b>	<b>HP StorageWorks 9.1 GB Entry-level Optical Storage</b>	
	220mx, 1 drive, 24 slot jukebox	C1118M
	220mx, 2 drive, 24 slot jukebox	C1119M
	<b>NOTE:</b> Please reference the Magneto-Optical Jukebox data sheets at <a href="http://www.hp.com/go/optical">http://www.hp.com/go/optical</a> for additional information needed to create a complete solution	
	<b>HP StorageWorks 9.1 GB Mid-range Jukeboxes</b>	
	300mx, 2 drive, 32 slot jukebox	C1150M
	600mx, 4 drive, 64 slot jukebox	C1160M
	700mx, 2 drive, 76 slot jukebox	C1170M
	<b>NOTE:</b> Please reference the Magneto-Optical Jukebox data sheets at <a href="http://www.hp.com/go/optical">http://www.hp.com/go/optical</a> for additional information needed to create a complete solution	
	<b>Ultra Density Optical Jukeboxes</b>	
700ux, 1 drive, 24 slot jukebox	AA962A	
700ux, 2 drive, 24 slot jukebox	AA963A	
1100ux, 2 drive, 38 slot jukebox	AA964A	
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	
<b>NOTE:</b> Please reference the Ultra Density Optical Jukebox QuickSpecs at <a href="http://www.hp.com/go/optical">http://www.hp.com/go/optical</a> for additional information needed to create a complete solution		

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<b>HP StorageWorks Modular Smart Array 500</b>	HP StorageWorks Modular Smart Array 500 Generation 2	335880-B21
<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)		

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<b>Cluster Options</b>	HP Serviceguard for Linux ProLiant Cluster (2 node license cluster kit) A.11.15	305199-B24
	<b>NOTE:</b> Kit includes 2 licenses, documentation and an Ethernet crossover cable.	
	HP Serviceguard for Linux (single license version for ordering flexibility and to ease ordering for larger cluster) A.11.15	307754-B24
	<b>NOTE:</b> Kit includes single license version and documentation.	
<b>NOTE:</b> For additional information regarding the HP Serviceguard for Linux License, please see the following QuickSpecs at:		
<a href="http://h18000.www1.hp.com/products/quickspecs/11518_na/11518_na.html">http://h18000.www1.hp.com/products/quickspecs/11518_na/11518_na.html</a> (North America)		
<a href="http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html">http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html</a> (Worldwide)		

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### Options

<b>External Storage – Tower and Rack</b>	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
	StorageWorks Modular Smart Array 30 OpenView Storage Mirroring HA Kit - APD	359079-371
	StorageWorks Modular Smart Array 30 OpenView Storage Mirroring HA Kit - EURO	359079-421
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	
<b>HP StorageWorks Modular Smart Array 1500 cs</b>	Modular Smart Array 1500 Controller Shelf	AA986A
	<b>NOTE:</b> Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at: <a href="http://www.hp.com/go/MSA1500cs">http://www.hp.com/go/MSA1500cs</a>	
<b>HP StorageWorks Modular Smart Array 1000</b>	HP StorageWorks Modular Smart Array 1000	201723-B22
	<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)	
<b>Network Storage Router</b>	M2402 2FCX 4SCSI LVD Network Storage Router	262653-B21
	M2402 2FCX 4SCSI HVD Network Storage Router	262654-B21
	M2402 4 channel LVD SCSI Module	262659-B21
	M2402 4 channel HVD SCSI Module	262660-B21
	M2402 2 channel FC Module	262661-B21
<b>UPS and PDU Power Cord Matrix</b>	<b>Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units:</b> <a href="ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf">ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf</a>	

### Options

<b>Uninterruptible Power Systems – Tower UPSs</b>	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

<b>Uninterruptible Power Systems – Rack UPSs</b>	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	
	HP UPS R12000 XR N+ x (200-240V) (WW-hardwired)	207552-B22	
	<b>NOTE:</b> The UPS R12000 XR has a hardwired input and output.		

<b>HP Power Distribution Unit with Power Monitoring</b>	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

### Options

<b>Modular PDUs 1U/0U</b> (Up to 32 outlets) <b>NOTE:</b> 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) <b>NOTE:</b> 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) <b>NOTE:</b> 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) <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.	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) <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)	252663-B32	
<b>USB Options</b>	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	USB Optical Scroll Mouse (Carbonite)	DD441B
<b>Other</b>	ProLiant ML3xx Internal to External SCSI Cable Option Kit (HD68)	159547-B22
	ProLiant ML3xx Internal to External SCSI Cable Option Kit (VHDCI) <b>NOTE:</b> The ProLiant ML3xx Internal to External SCSI Cable Option Kits (PN 159547-B21 and 333370-B21) are supported by the ML330 G3, ML350 G3/G4, and ML370 G4 products.	333370-B21
<b>Custom Builder</b>	Please see the Enterprise Configurator for configuration assistance at: <a href="http://www.hp.com/products/configurator">http://www.hp.com/products/configurator</a> .	
<b>Rack Conversion Kit</b>	ProLiant ML350 G3 Tower to Rack Conversion Kit (HP branded)	290683-B22
	Rack Adapter Kit <b>NOTE:</b> This kit allows HP rack servers to fit in racks that are 24" wide.	332815-B21

### Options

<b>HP Rack 5000 Series</b> (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
<b>Rack Options for Rack 5000 Series</b>	Stabilizer Kit for 5642 rack (Graphite Carbon) <b>NOTE:</b> The stabilizing kit is used to prevent rack from tipping over.	374493-B21
	Baying Kit for 5642 rack (Graphite Carbon) <b>NOTE:</b> The baying kit is used to join two or more HP 5642 racks.	374499-B21
<b>HP Rack 10000 Series</b> (Graphite Metallic)	10642 (42U) Infrastructure Rack (Low Voltage)	379006-001
	10642 (42U) Infrastructure Rack (High Voltage)	379005-001
	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
	<p><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</p> <p><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.</p> <p><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)</p> <p><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>.</p>	
<b>Rack Options for HP Rack 10000 Series</b>	<b>NOTE:</b> For additional information regarding Rack Options, 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> .	
	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
	<b>Country Code Key</b> (for TFT5600 Rack Keyboard Monitor (PN 221546-xx1))	

### Options

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

**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>.

### 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

**NOTE:** For additional information regarding HP KVM Switches and options, please see the following URL:  
<http://h18004.www1.hp.com/products/servers/proliantstorage/rack-options/list.html#console>

### Options

<b>HP Factory Express</b>	<b>Factory Installation, Racking, and Customization Services</b>	
	Factory Express Server Configuration Level 1	293355-888
	<b>NOTE:</b> 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
	<b>NOTE:</b> 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
	<b>NOTE:</b> 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).	
	<b>NOTE:</b> 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
	<b>NOTE:</b> 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).	
	<b>NOTE:</b> 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
	<b>NOTE:</b> 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).	
	<b>NOTE:</b> Available on ProLiant rack models only.	
	<b>NOTE:</b> Factory Express Engineered Solution Level 6 is a custom solutions available through Factory Express. Please contact your local reseller or Account Manager.	

### Options

<b>Service and Support Offerings</b> (HP Care Pack Services)	<b>Hardware Services On-site Service</b>	
	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
	<b>Installation &amp; Start-up Services</b>	
	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
	<b>Support Plus</b>	
	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
	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.	U4526A
	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	U4526E
	<b>Support Plus 24</b>	
	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 Linux O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays.	U4527A
	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	U4527E
	<b>NOTE: For more information, customer/resellers can contact</b>	
	<a href="http://www.hp.com/services/carepack">http://www.hp.com/services/carepack</a>	

### Memory

#### HP ProLiant ML350 G3 Array Models

The ML350 G3 supports both interleaved and non-interleaved memory configurations. Array models ship standard with two 512MB DIMMs, interleaved. For best performance, automatically invoke interleaving by populating memory upgrades in identical pairs. Interleaving memory and installing in pairs is not required. Add any combination of memory DIMMs to operate in non-interleaved mode.

#### Standard Memory

1 GB (expandable to 8GB) of 2-way interleaving capable PC2100 DDR SDRAM running at 200MHz on 400MHz models or 266MHz on 533MHz models, with Advanced ECC capabilities (2x 512MB)

**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

A total of up to 5.1 GB of total memory can be implemented by upgrading the standard array configuration with an installation of two optional PC2100-MHz Registered ECC DDR SDRAM 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 DIMM and the optional installation of PC2100-MHz Registered ECC DDR SDRAM DIMMs.

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

		Slot 1	Slot 2	Slot 3	Slot 4
<b>Standard</b>	<b>1 GB</b>	<b>512 MB</b>	<b>512 MB</b>	<b>Empty</b>	<b>Empty</b>
<b>Optional</b>	<b>1.5 GB</b>	<b>512 MB</b>	<b>512 MB</b>	<b>2048 MB</b>	<b>2048 MB</b>
<b>Maximum</b>	<b>8 GB</b>	<b>2048 MB</b>	<b>2048 MB</b>	<b>2048 MB</b>	<b>2048 MB</b>
<b>2x1 Interleaved Memory (Recommended)</b>		<b>Pair 1</b>		<b>Pair 2</b>	
	<b>Total Memory</b>	<b>Slot 1</b>	<b>Slot 2</b>	<b>Slot 3</b>	<b>Slot 4</b>
<b>Recommended Configurations for Array Models</b>	<b>1 GB</b>	<b>512 MB</b>	<b>512 MB</b>	<b>Empty</b>	<b>Empty</b>
	<b>1.5 GB</b>	<b>512 MB</b>	<b>512 MB</b>	<b>256 MB</b>	<b>256 MB</b>
	<b>2 GB</b>	<b>512 MB</b>	<b>512 MB</b>	<b>512 MB</b>	<b>512 MB</b>

Following are memory options available from HP:

- 128MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 128 MB) 287494-B21
- 256MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 256 MB) 287495-B21
- 512MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 512 MB) 287496-B21

**NOTE:** To invoke interleaving in your array model, order this kit for a total of 1-GB of interleaved memory.

- 1024MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 1024 MB) 287497-B21
- 2048MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 2048 MB) 301044-B21

### Memory

#### HP ProLiant ML350 G3 Non-Array Models

The ML350 G3 supports both interleaved and non-interleaved memory configurations. Base models ship standard with one 512 MB DIMM, non-interleaved. For best performance automatically invoke interleaving by populating memory in identical pairs. Interleaving memory and installing in pairs is not required. Add any combination of memory DIMMs to operate in non-interleaved mode.

#### Standard Memory

512 MB (expandable to 8GB) of 2-way interleaving capable PC2100 DDR SDRAM running at 200MHz on 400MHz models or 266MHz on 533MHz models with Advanced ECC capabilities (1x 512 MB)

**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 6.7 GB optional memory is available with the installation of PC2100-MHz Registered ECC DDR SDRAM DIMMs.

#### Standard Memory Replaced with Optional Memory

Up to 8.2 GB of memory is available with the removal of the standard 512-MB of memory and the optional installation of PC2100-MHz Registered ECC DDR SDRAM DIMM installed.

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

Memory		Slot 1	Slot 2	Slot 3	Slot 4
Standard	512 MB	512 MB	Empty	Empty	Empty
Optional	6.5 GB	512 MB	2048 MB	2048 MB	2048 MB
Maximum	8 GB	2048 MB	2048 MB	2048 MB	2048 MB
Recommended Configurations for Base Models	Total Memory Desired	1	2	3	4
	1 GB	512 MB	512 MB	Empty	Empty
	2 GB	512 MB	512 MB	512 MB	512 MB
	4 GB	1 GB	1 GB	1 GB	1 GB

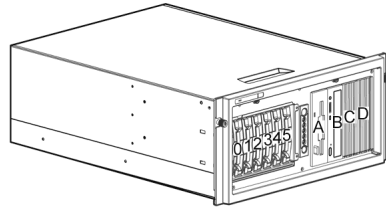
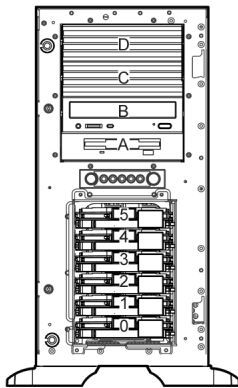
Following are memory options available from HP:

- 128MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 128 MB) 287494-B21
- 256MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 256 MB) 287495-B21

**NOTE:** To invoke interleaving in your base model, order this kit for a total of 512MB of interleaved memory.

- 512MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 512 MB) 287496-B21
- 1024MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 1024 MB) 287497-B21
- 2048MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (1 x 2048 MB) 301044-B21

### Storage



- 0 - 5      6 x 1" SCSI Hard Drive Bays
- A          1.44 MB Diskette Drive
- B          48x CD-ROM
- C, D      Available half height bay

### Drive Support

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

**NOTE:** The Two Bay Hot Plug SCSI Drive Cage requires the use of both available removable media bays (C+D). In most cases, it is not possible to install both a non hot plug tape drive and the two bay hot pug SCSI drive cage option.

### Hard Drives

#### Ultra320 Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
<b>1-inch</b>			
300-GB 10,000 rpm	Up to 6	0-5	Integrated Dual Channel Wide Ultra3 SCSI Adapter
146.8-GB 10,000 rpm			Smart Array 5302/128 Controller
72.8-GB 10,000 rpm			Smart Array 5304/256 Controller
146.8-GB 15,000 rpm			Smart Array 6402/128 Controller
72.8-GB 15,000 rpm			Smart Array 6404/256 Controller
36.4-GB 15,000 rpm			Smart Array 641 Controller
			<b>(NOTE: The Smart Array 641 Controller now ships standard with Array models.)</b>
			Smart Array 642 Controller
			64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter

**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 30 Family	Up to 13	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller 64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
Modular Smart Array 500 System	1	External	Please see the Modular Smart Array 500 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 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](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](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 Enclosure)

Internal	2.40 TB (6 x 300 GB 1" Ultra320 hot plug hard drives with standard internal drive cage + 2 x 300 GB 1" Ultra320 Hot plug hard drive using the optional ML3xx Two Bay Hot Plug SCSI Drive Cage)
External	100.80 TB (14 x 300 GB) x 244
Total	103.20 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](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	Position Supported	Controller
HP StorageWorks DAT 40 or DAT 72 Tape Drive, Internal Hot-Plug	Up to 3 per drive cage. <b>NOTE: drives are 1.5 height devices</b>	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
Ultrium 215, Internal	1	C + D	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter
Ultrium 230, Internal			64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS

### Storage

Ultrium 460, Internal

HP StorageWorks DAT 24, DAT 40 or DAT 72 Tape Drive, Internal	2	C, D	64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
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HP StorageWorks DLT VS80 or SDLT 320 Tape Drive, Internal	1	C + D	64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
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HP StorageWorks External Tape Drives: Ultrium 215, 230, or 460 DAT 24, 40, or 72 DLT VS80 SDLT 320	2	C, D	64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
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HP StorageWorks DAT 40x6 Tape Autoloader, Internal	1	C + D	64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
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HP StorageWork External Tape Autoloaders: DAT 40x6 1/8 Ultrium 460 1/8 SDLT 320 1/8 Ultrium 1/8 DLT VS80 SSL1016 Ultrium 460 SSL1016 SDLT320 SSL1016 DLT1	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
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Tape Libraries: MSL6000 (Ultrium 460 -based) MSL5026S2 (SDLT 320-based) MSL5052S2 (SDLT 320-based) MSL5030 (Ultrium 230 -based) MSL5060 (Ultrium 230 -based) ESL 712e ESL 630e ESL9322 ETLA ESL9595 ETLA	<a href="#">Please reference the MSL Tape Library QuickSpecs to determine configuration requirements</a>	External	64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
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### Power Specifications

<b>Part Number</b>	264166-001
<b>Spare Kit</b>	292237-001
<b>Operational Input Voltage Range (V rms)</b>	90 to 264
<b>Frequency Range (Nominal) (Hz)</b>	47 to 63 (50/60)

<b>Nominal Input Voltage (Vrms)</b>	<b>100</b>	<b>115</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Max Rated Output Wattage Rating	500	500	500	500	500	500
Nominal Input Current (A rms)	7.8	6.7	3.7	3.4	3.2	3.0
Max Rated Input Wattage Rating (Watts)	769	758	746	735	725	714
Max. Rated VA (Volt-Amp)	785	773	761	750	739	729
Efficiency (%)	65	66	67	68	68	70
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.31	0.36	0.65	0.69	0.72	0.75
Maximum Inrush Current (A peak)	21	24	43	46	48	50
Maximum Inrush Current duration (milliseconds)	20	20	20	20	20	20

### System Specifications

#### ML350 Generation 3 (G3) Fully Configured

Up to 2 Processors, 4 Memory Slots, 8 Hard Drives, 5 PCI Slots, and 2 Hot Plug Power Supplies

<b>Nominal Input Voltage (Vrms)</b>	<b>100</b>	<b>115</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Fully Loaded System Input Wattage (W)	557	549	541	534	526	519
Fully Loaded System Input Current (A rms)	5.7	4.9	2.7	2.5	2.3	2.2
Fully Loaded System Thermal (BTU-Hr)	1900	1872	1846	1820	1794	1770
Fully Loaded System VA (Volt-Amp)	569	560	552	545	537	530
System Leakage with all power supplies loaded (mA)	0.63	0.72	1.30	1.38	1.44	1.50
System Inrush Current with all power supplies loaded (A)	42	48	86	92	96	100
Power cord requirements	Nema 5-15P to IEC320-C13			Option no./Spare no: See Power Cord chart		
	IEC320-C13 to IEC320-C14			Option no./Spare no: 142257-001/142258-B21		

#### 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 G3
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

### Technical Specifications

<b>System Unit – Tower</b>	<b>Dimensions</b> (HxWxD) (with feet/bezel)	18.5 x 10.25 x 26 in (46.99 x 26.04 x 66.04 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)	Range Line Voltage	100 to 120 VAC/200 to 240 VAC
		Rated Input Frequency	50 Hz to 60 Hz
		Input Power	538W @ 110 VAC
		Rated Input Current	7.4A/3.7A
		<b>Line Frequency</b>	50 to 60 Hz
	<b>BTU Rating</b>	1,839 BTU/hr	
	<b>SCSI Connectors</b>	Two internal HD68 connectors	
		<i>(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.)</i>	
	<b>Power Supply Output Power</b> (per power supply)	Rated Steady-State Power	500W
<b>Temperature Range</b>			
<b>Maximum Wet Bulb Temperature</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>Relative Humidity</b> (non-condensing)	82.4° F (28° C)		
	Operating	10% to 90%	
<b>Acoustic Noise</b>	Non-operating	5% to 90%	
	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		

### Technical Specifications

<b>System Unit – Rack</b>	<b>Dimensions</b> (HxWxD)	8.61 x19 x 24 in (21.87 x48.26 x 60.96 cm)	
	<b>Weight</b> (approximate)	60 lb (27.24 kg) (without hard drives)	
	<b>Input Requirements</b> (per power supply)	Range Line Voltage	100 to 120 VAC/200 to 240 VAC
		Rated Input Frequency	50 Hz to 60 Hz
		Input Power	538W @ 110 VAC
		Rated Input Current	7.4A/3.7A
		<b>Line Frequency</b>	50 to 60 Hz
	<b>BTU Rating</b>	1,839 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) and either of the two SCSI knockouts.)	
	<b>Power Supply Output Power</b> (per power supply)	Rated Steady-State Power	500W
	<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	

### Technical Specifications

<b>48X Max IDE (ATAPI) CD-ROM Drive</b>	<b>Disk</b>	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) Photo CD (Single and Multi-session) Mixed Mode (Audio and Data combined) CD-R
		Capacity	540 MB (Mode 1, 12 cm) 650 MB (Mode 2, 12 cm)
	<b>Block Size</b>	Mode 1 Mode 2 CD-DA CD-XA	2,048 bytes 2,340 bytes, 2,336 bytes 2,352 bytes 2,328 bytes
	<b>Interface</b>	IDE (ATAPI)	
	<b>Access Times</b> (typical)	Random Full-Stroke	<100 ms <150 ms
	<b>Data Transfer Rate</b>	Sustained Burst Bus Rate	3000 to 7200 KB/s (20X to 48X) 150 KBps to 7,200 KBps 16.7 MBps
	<b>Cache Buffer</b>	128 KB	
	<b>Start-up Time</b> (typical)	< 7seconds	
	<b>Stop Time</b>	< 4seconds	
	<b>Laser Parameters</b>	Type Wave Length	Semiconductor Laser GaAlAs 780 ± 25 nm
	<b>Operating Conditions</b>	Temperature Humidity	41° to 113° F (5° to 45° C) 10% to 80%
	<b>Dimensions</b>	(HxWxD, maximum) Weight	1.7 x 5.85 x 8.11 in (4.29 x 14.86 x 20.60 cm) 2.09 lb (0.95 kg)

<b>NC7760 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 802.3u 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 10/100/1000Base-TX	Categories 3, 4 or 5 UTP; up to 328 ft (100 m) Category 5 UTP; up to 328 ft (100 m)

### Technical Specifications

<b>Integrated Dual Channel Wide Ultra3 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>	160 MB/s per channel
	<b>Maximum Transfer Rate per PCI Bus (peak)</b>	267 MB/s per channel
	<b>SCSI Protocols</b>	Wide Ultra2 SCSI Wide-Ultra SCSI-3 Fast SCSI-2
	<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> <small>(NOTE: The Smart Array 641 Controller ships standard with the Array Models only.)</small>	<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 upgradeable 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>	1.80 TB (6 X 300 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>	Ultra320, 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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