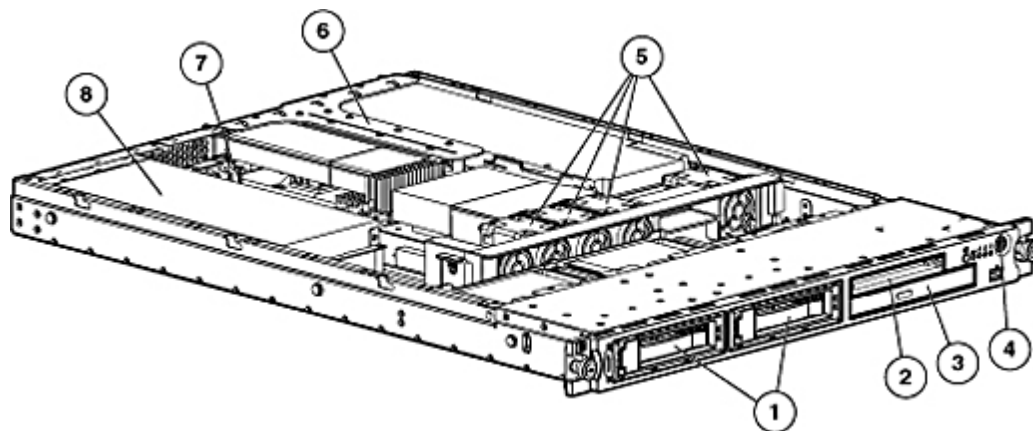


### Overview



1. Support for up to two SATA or SCSI non-hot plug hard drives
2. Optional 1.44MB Diskette Drive Assembly Option Kit
3. Optional CD-ROM/DVD-ROM Drive Assembly Option Kit
4. Front LED Indicators
5. Fan Assembly, 4 NHP Dual Rotor Fans with N+1 Redundancy
6. Two PCI-X slots standard with an optional PCI Express slot
7. 4 - PC3200 DDR1 Memory Slots
8. Power Supply

### What's New

- Intel Pentium 4 Processor 660 with HT Technology and EM64T 3.6 GHz 2MB Level 2 Cache
- Hot Plug SATA and SAS (Serial Attached SCSI) Drive support with the optional 8 port Internal SAS HBA
- Optional CD-RW/DVD Combo Drive
- Support for new iLO Shared Network Port enables access to the iLO management processor through one of the embedded system NICs

### At a Glance

- Several processor options to choose from:
  - Intel Celeron D Processor 340J 2.93 GHz/533MHz FSB 256KB Level 2 Cache
  - Intel Pentium 4 Processors with HT Technology and EM64T 3.4 GHz with 1M or 2M L2 Cache
  - Intel Pentium 4 Processors with HT Technology and EM64T 3.6 GHz with 1MB or 2MB Level 2 Cache (Factory Integrated Only)
- Up to 4GB of advanced ECC PC3200 DDR 400MHz SDRAM Memory
  - 1 GB standard in all Pentium 4 models
  - 512 MB in Celeron D models
- Two available PCI-X slots, including one full-length 64-bit/133MHz slot and one half-length, low-profile 64-bit/100MHz slot
- Optional PCI-Express full-length slot
- Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter
- Integrated iLO Remote Management
- HP embedded 2 Port SATA Controller with RAID 0/1 support
- 1U (1.75") Form Factor
- Optional CD,DVD, or CD-RW/DVD Combo drive and Floppy drive
- Four USB ports (1 front, 1 internal and 2 in rear)
- Intel E7221 Chipset with 800MHz Front Side Bus (533MHz for Celeron Processors)
- New spring-loaded Universal sliding rails for in rack servicing ship standard
- Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system

### Overview

health and UID and SmartStart

- Internal Storage capacity of 1TB (2 x 500GB SATA) or 144GB (2 x 72GB U320 or SAS)
- 350 Watt PFC Power Supply
- Internal USB port can also be used as internal USB port for leave-in USB key support
- Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SCSI hard drives. SATA hard drives have a one-year warranty.

### Standard Features

<b>Processor</b> One of the following depending on Model	Intel Celeron D 2.93 GHz Intel Pentium 4 with HT Technology and EM64T 3.4 GHz Intel Pentium 4 with HT Technology and EM64T 3.6 GHz (Factory Integrated Only)																									
<b>Processor Cache</b> One of the following depending on Model	256KB Level 2 Cache (Celeron D models) 1MB Level 2 Cache (Pentium 4 models) 2MB Level 2 Cache (Pentium 4 models)																									
<b>Chipset</b> One of the following depending on Model	Intel E7221 chipset with 800MHz Front Side Bus (Pentium 4 Models) Intel E7221 chipset with 533MHz Front Side Bus (Celeron D Models)																									
<b>Memory Protection</b>	Advanced ECC																									
<b>Memory</b> One of the following depending on Model	<table border="1"> <tr> <td>Type</td> <td>PC3200 DDR SDRAM running at 400MHz</td> </tr> <tr> <td>Standard (Pentium 4 models)</td> <td>1 GB (1x 1024 MB)</td> </tr> <tr> <td>Standard (Celeron D models)</td> <td>512 MB (1 x 512 MB)</td> </tr> <tr> <td>Maximum</td> <td>4 GB</td> </tr> </table>	Type	PC3200 DDR SDRAM running at 400MHz	Standard (Pentium 4 models)	1 GB (1x 1024 MB)	Standard (Celeron D models)	512 MB (1 x 512 MB)	Maximum	4 GB																	
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<b>Expansion Slots</b>	<table border="1"> <thead> <tr> <th>Slot Number</th> <th>Bus Speed</th> <th>Height</th> <th>Hot Plug</th> <th>PCI Voltage</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>64-bit/133 MHz PCI-X</td> <td>Full</td> <td>no</td> <td>3.3 Volt</td> </tr> <tr> <td>2</td> <td>64-bit/100 MHz PCI-X</td> <td>Half</td> <td>no</td> <td>3.3 Volt</td> </tr> <tr> <td>1</td> <td>PCI Express x4 (x8 connector)</td> <td>Full</td> <td>no</td> <td>N/A</td> </tr> <tr> <td>2</td> <td>64-bit/100 MHz PCI-X</td> <td>Half</td> <td>no</td> <td>3.3 Volt</td> </tr> </tbody> </table>	Slot Number	Bus Speed	Height	Hot Plug	PCI Voltage	1	64-bit/133 MHz PCI-X	Full	no	3.3 Volt	2	64-bit/100 MHz PCI-X	Half	no	3.3 Volt	1	PCI Express x4 (x8 connector)	Full	no	N/A	2	64-bit/100 MHz PCI-X	Half	no	3.3 Volt
Slot Number	Bus Speed	Height	Hot Plug	PCI Voltage																						
1	64-bit/133 MHz PCI-X	Full	no	3.3 Volt																						
2	64-bit/100 MHz PCI-X	Half	no	3.3 Volt																						
1	PCI Express x4 (x8 connector)	Full	no	N/A																						
2	64-bit/100 MHz PCI-X	Half	no	3.3 Volt																						
<b>Storage Controllers</b>	HP embedded 2 Port SATA Controller with RAID 0/1 support. SAS and SCSI controllers available via PCI card.																									

### Standard Features

Storage	Diskette Drive	Optional 1.44 MB Diskette Drive option kit is available <b>NOTE:</b> Purchase of floppy drive is required to implement embedded SATA RAID 0/1 with SmartStart 7.2.	
	Optical Drive	Optional CD-ROM, DVD-ROM option kits available <b>NOTE:</b> Purchase of CD-ROM is required for installation of SmartStart.	
	Hard Drives	One of the following: (depending on model): None 80GB SATA HDD	
Maximum Internal Storage Type	Non-Hot Plug SCSI	144GB	2 x 72GB Ultra320
	Hot Plug SAS	292GB	2 x 146GB SAS
	Hot Plug SATA	1TB	2 x 500GB Serial ATA
Interfaces	Serial	1	
	USB 2.0 Ports	1 front, 1 internal and 2 in rear <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>	
	Graphics	1	
	Keyboard	1	
	Mouse	1	
	Network RJ-45	2	
	iLO remote management port	1	
Graphics	Integrated ATI RAGE XL Video Controller with 8-MB SDRAM Video Memory		
Form Factor	Rack (1U), (1.70 in/4.45 cm)		
ProLiant Essentials Foundation Pack Software	HP Systems Insight Manager	HP's new HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. HP SIM are both easy to set up work with the Insight Management Agents, integrated Lights-Out and Version Control Agents to deliver robust fault, configuration, and asset management as well as remote administration. With HP SIM customers will also be able to take advantage of role-based security; the ability to manage ProLiant, Integrity, and HP 9000 systems; and plug-ins for storage, client, printer, and power management as well as server rapid deployment, performance management, and workload management. For more details on HP SIM visit <a href="http://www.hp.com/go/hpsim">http://www.hp.com/go/hpsim</a> .	

### Standard Features

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/smartstart">http://www.hp.com/servers/smartstart</a> . SmartStart version supported (minimum): SmartStart 7.2.
Insight Management Agents	The Insight 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 HP Systems Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, please visit the management Web site at <a href="http://www.hp.com/servers/manage">http://www.hp.com/servers/manage</a> .
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, linked from the SmartStart website at <a href="http://www.hp.com/servers/smartstart">http://www.hp.com/servers/smartstart</a> .
Survey Utility and diagnostics utilities	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 (RDP) is an automated deployment and provisioning solution for all ProLiant servers. RDP includes the ProLiant Integration Module featuring ProLiant server pre-configured events for OS installation, and optimized software drivers, firmware and management agents. Every RDP disc includes 10-node trial licenses for evaluation purposes. RDP requires a license for each server deployed and is available for purchase with HP servers. For more information, visit: <a href="http://www.hp.com/servers/rdp">http://www.hp.com/servers/rdp</a>.</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>• Integrated Lights-Out Advanced Pack - upgrades the Integrated Lights-Out processor to full virtual presence and control with graphical console and virtual media.</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, plus it provides an extra layer of</li></ul>

### Standard Features

protection. The virus throttle feature of the solution slows the propagation of fast spreading virus

- Vulnerability and Patch Management Pack - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats
- Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console.
- Server Migration Pack - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V).

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

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

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#### Industry Standard Compliance

ACPI 2.0  
PCI 2.2 Compliant  
PXE Support  
WOL Support  
Microsoft® Logo certifications  
USB 2.0

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#### Intelligent Manageability

Automatic Server Recovery (ASR)  
iLO Advanced Pack (optional)  
HP Systems Insight Manager  
Integrated Management Log  
Drive Parameter Tracking (with Smart Array Controllers)  
Dynamic Sector Repairing (with Smart Array Controllers)  
Pre-Failure Warranty (covers processors, SCSI hard drives and memory)

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#### Security

Power-on password  
Keyboard password  
Diskette drive control  
Diskette boot control  
Removable CD-ROM/Diskette Drive Assembly  
Administrator's password

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#### Server Power Cords

One 12' Lowline and one 10' Highline (IEC-IEC) power cord ships standard

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#### Power Supply

Auto-sensing 350-Watt PFC Power Supply, CE Mark Compliant

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### Standard Features

#### 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>.

#### System Fans

4 dual rotor fans ship standard. 4 dual rotor fans total supported internally. N+1 (1 rotor only) Redundancy.

#### Ultra Thin Rack Deployment Overview

For the Ultra Thin Rack Deployment Overview, including best practices for the HP ProLiant DL320 G3, please see the following URL: <http://www.hp.com/products/servers/ProLiantdl320/>.

#### Required Cabling

For required cabling information, refer to the Web site at:  
<http://www.hp.com/products/servers/ProLiantdl320/>.

#### OS Support

Microsoft Windows 2000 Server  
Windows Server 2003 (web and standard editions; standard edition for 64-bit extensions)  
Linux (Red Hat, SuSE, UnitedLinux)  
VMware Virtualization Software

**NOTE:** Support differences will exist between the SATA and SCSI configurations.

**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:** For an up-to-date listing of the latest drivers available for the HP ProLiant DL320, please see: <http://h18023.www1.hp.com/support/files/server/us/index.html>.

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

**NOTE:** For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: <http://h18004.www1.hp.com/products/servers/software/OEM.html>

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

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

#### Rack Airflow Requirements

##### Rack 10000 series Cabinets

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

### Standard Features

**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 5,350 sq cm (830 square inches) 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 7 cm (2.75 inches)

**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://h18004.www1.hp.com/products/servers/proliantdl320/index.html>.

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### HP Factory Express Capabilities

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

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

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

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### Custom Builder

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

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### Service and Support

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

**NOTE:** Limited warranty includes 3 year parts, 1 year labor, 1-year on-site support.

**NOTE:** SATA drives have a 1 year warranty.

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

### Standard Features

- days call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMWare-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
  - System Management, Performance Services and Mission Critical Support Solution

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

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

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

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

### Models

<b>DL320R03 C2.93- 256KB, 512MB 372708-001</b>	<b>Processor(s)</b>	Intel Celeron D Processor 340J 2.93 GHz
	<b>Cache Memory</b>	256KB Level 2 cache
	<b>Chipset</b>	Intel E7221 chipset with 533MHz Front Side Bus
	<b>Memory</b>	512 MB (Standard) to 4 GB (Maximum) of Advanced ECC PC3200 DDR SDRAM DIMM Memory
	<b>Network Controller</b>	Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter
	<b>Storage Controller</b>	Intel® 82801FR Integrated Serial ATA Host Controller
	<b>Hard Drives</b>	None ship standard
	<b>Drive Backplane/Cables</b>	None ship standard - See ProLiant DL320 G3 Unique Options below for required hard drive option kits and hard drives.
	<b>Internal Storage</b>	1TB for SATA models, 144GB for SCSI models
	<b>Optical Drive</b>	Optional
	<b>Diskette Drive</b>	Optional
	<b>Form Factor</b>	Rack (1U), (1.75 in/4.45 cm)

<b>DL320R03 P3.4-1MB, 1GB 372709-001</b>	<b>Processor(s)</b>	Intel Pentium 4 Processor 541 with HT Technology and EM64T 3.4 GHz
	<b>Cache Memory</b>	1MB Level 2 Cache
	<b>Chipset</b>	Intel E7221 chipset with 800MHz Front Side Bus
	<b>Memory</b>	1 GB (standard) to 4 GB (Maximum) of Advanced ECC PC3200 DDR SDRAM DIMM Memory
	<b>Network Controller</b>	Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter
	<b>Storage Controller</b>	Intel 82801FR Integrated Serial ATA Host Controller
	<b>Hard Drives</b>	None ship standard
	<b>Drive Backplane/Cables</b>	None ship standard - See ProLiant DL320 G3 Unique Options below for required hard drive option kits and hard drives.
	<b>Internal Storage</b>	1TB for SATA models, 144GB for SCSI models
	<b>Optical Drive</b>	Optional
	<b>Diskette Drive</b>	Optional
	<b>Form Factor</b>	Rack (1U), (1.75 in/4.45 cm)

### Models

**DL320R03 P3.4-1MB,  
1GB, 80GB SATA  
370669-001**

<b>Processor(s)</b>	Intel Pentium 4 Processor 541 with HT Technology and EM64T 3.4 GHz
<b>Cache Memory</b>	1MB Level 2 Cache
<b>Chipset</b>	Intel E7221 chipset with 800MHz Front Side Bus
<b>Memory</b>	1 GB (standard) to 4 GB (Maximum) of Advanced ECC PC3200 DDR SDRAM DIMM Memory
<b>Network Controller</b>	Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter
<b>Storage Controller</b>	Intel 82801FR Integrated Serial ATA Host Controller
<b>Hard Drives</b>	80GB SATA HDD
<b>Drive Backplane/Cables</b>	DL320 G3 SAS/SATA HDD Backplane Option Kit
<b>Internal Storage</b>	1TB for SATA models, 144GB for SCSI models
<b>Optical Drive</b>	Optional
<b>Diskette Drive</b>	Optional
<b>Form Factor</b>	Rack (1U), (1.75 in/4.45 cm)

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**DL320R03 P3.4-2MB,  
1GB  
372710-001**

<b>Processor(s)</b>	Intel Pentium 4 Processor 650 with HT Technology and EM64T 3.4 GHz
<b>Cache Memory</b>	2MB Level 2 Cache
<b>Chipset</b>	Intel E7221 chipset with 800MHz Front Side Bus
<b>Memory</b>	1 GB (standard) to 4 GB (Maximum) of Advanced ECC PC3200 DDR SDRAM DIMM Memory
<b>Network Controller</b>	Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter
<b>Storage Controller</b>	Intel 82801FR Integrated Serial ATA Host Controller
<b>Hard Drives</b>	None ship standard
<b>Drive Backplane/Cables</b>	None ship standard - See ProLiant DL320 G3 Unique Options below for required hard drive option kits and hard drives.
<b>Internal Storage</b>	1TB for SATA models, 144GB for SCSI models
<b>Optical Drive</b>	Optional
<b>Diskette Drive</b>	Optional
<b>Form Factor</b>	Rack (1U), (1.75 in/4.45 cm)

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### Models

DL320R03 P3.4-2MB,  
1GB, 80GB SATA  
370670-001

<b>Processor(s)</b>	Intel Pentium 4 Processor 650 with HT Technology and EM64T 3.4 GHz
<b>Cache Memory</b>	2MB Level 2 Cache
<b>Chipset</b>	Intel E7221 chipset with 800MHz Front Side Bus
<b>Memory</b>	1 GB (standard) to 4 GB (Maximum) of Advanced ECC PC3200 DDR SDRAM DIMM Memory
<b>Network Controller</b>	Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter
<b>Storage Controller</b>	Intel 82801FR Integrated Serial ATA Host Controller
<b>Hard Drives</b>	80GB SATA HDD
<b>Drive Backplane/Cables</b>	DL320 G3 SAS/SATA HDD Backplane Option Kit
<b>Internal Storage</b>	1TB for SATA models, 144GB for SCSI models
<b>Optical Drive</b>	Optional
<b>Diskette Drive</b>	Optional
<b>Form Factor</b>	Rack (1U), (1.75 in/4.45 cm)

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### Configuration Information - Factory Integrated Models

**NOTE:** HP does not allow factory integration of options into standard models listed above.

Configure-to-order servers must start with a CTO Chassis.

**NOTE:** This product offering does not support HP Factory Express Server Configuration Level 1.

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

Models	<p>HP ProLiant DL320G3 SATA Rack CTO Chassis <span style="float: right;">374295-405</span></p> <p><b>Factory Integrated Model ships with:</b></p> <p>Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter</p> <p>1 full length/height and 1 half length-low profile 64bit PCI-X slot</p> <p>Integrated Lights-Out (iLO) embedded</p> <p>DL320 G3 SAS/SATA HDD Backplane Option Kit</p> <p>Rack (1U) form factor, (1.75 in/4.45 cm)</p>
	<p>HP ProLiant DL320G3 SCSI Rack CTO Chassis <span style="float: right;">383338-405</span></p> <p><b>Factory Integrated Model ships with:</b></p> <p>Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit network adapter</p> <p>1 full length/height and 1 half length-low profile 64bit PCI-X slot</p> <p>Non Hot Plug U320 SCSI Option Kit</p> <p>Integrated Lights-Out (iLO) embedded</p> <p>DL320 G3 Non Hot Plug U320 SCSI Option Kit</p> <p>Rack (1U) form factor, (1.75 in/4.45 cm)</p>

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

Processors	<p>X3.6/PIV/2M DL320G3 FIO ALL <span style="float: right;">399664-L21</span></p> <p>X3.4/PIV/2M DL320G3 FIO Base <span style="float: right;">385652-L21</span></p> <p>X3.6/PIV/1M DL320G3 FIO Base <span style="float: right;">374868-L21</span></p> <p>X3.4/PIV/1M DL320G3 FIO Base <span style="float: right;">374867-L21</span></p> <p>X2.93/CELERON/256KB DL320G3 FIO Base <span style="float: right;">374866-L21</span></p>
Base Memory	<p>512 MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 512 MB) <span style="float: right;">354560-B21</span></p> <p>1024 MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 X 1024 MB) <span style="float: right;">354563-B21</span></p>
Optical Drive	<p>HP DVD/CD RW Drive Option (ALL) <span style="float: right;">377402-B21</span></p> <p>DL320G3 CD Drive <span style="float: right;">372703-B21</span></p> <p><b>NOTE:</b> Required for installation of SmartStart and OS.</p> <p>DL320G3 DVD-ROM Drive <span style="float: right;">374303-B21</span></p> <p>DL320G3 FLOPPY DRIVE <span style="float: right;">372702-B21</span></p> <p><b>NOTE:</b> Required for installation of SW SATA RAID.</p>

## Configuration Information - Factory Integrated Models

### Step 3: Choose Additional Factory Integratable Options

Controllers	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	<b>NOTE:</b> The HP 8 Internal Port SAS/SATA HBA with RAID requires the purchase of the SATA Rack FIO model and the DL320 SAS/SATA Hot Plug Cable option kit (398307-B21)	
	Smart Array 6404/256 Controller	273914-B21
	Smart Array 6402/128 Controller	273915-B21
	Smart Array 641 Controller	291966-B21
	Smart Array 642 Controller	291967-B21
	Hard Drives	<b>Ultra320 Non-Hot Plug</b>
HP 36GB U320 15K NHP HDD		357012-B21
HP 72GB U320 10K NHP HDD		332751-B21
<b>Serial Attached SCSI - SAS</b>		
HP 36GB 3G SAS 15K 3.5" HDD		375868-B21
HP 72GB 3G SAS 15K 3.5" HDD		375870-B21
HP 146GB 3G SAS 15K 3.5" HDD		375872-B21
<b>Serial ATA (SATA)</b>		
HP 80GB 1.5G SATA 7.2K 3.5" HDD		349237-B21
HP 160GB 1.5G SATA 7.2K 3.5" HDD		349238-B21
HP 250GB 1.5G SATA 7.2K 3.5" HDD		349239-B21
HP 500GB 1.5G SATA 7.2K 3.5" HDD		395473-B21
<b>NOTE:</b> Please note that Serial ATA hot-plug capability and drive LEDs are not supported by the DL320 G3 embedded SATA storage controller.		

### Step 4: Choose Additional Options for Factory Integration

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

### Options

ProLiant DL320 G3 Unique Options	<p>HP ProLiant DL320 G3/G4 PCI Option Kit <b>NOTE:</b> The PCI riser board assembly ships standard with two riser boards</p> <ul style="list-style-type: none"> <li>• Full-length PCI-X riser board</li> <li>• Half-length riser board</li> <li>• PCI-X (ProLiant DL320 G3 server)</li> </ul> <p>The PCI riser board assembly supports an optional full-length PCI Express riser board in place of the full-length PCI-X riser board.</p>	417135-B21
	<p>PCI-X/PCI-EXPRESS RISER</p>	374281-B21
	Floppy Drive Option Kit	372702-B21
	HP DVD/CD RW Drive Option (ALL)	377402-B21
	DVD ROM Drive Option	374303-B21
	CD ROM Drive Option	372703-B21
	DL320 Hot Plug SAS/SATA Cable Option Kit <b>NOTE:</b> This option is required for the HP 8 int. Port SAS/SATA HBA with RAID. This option with the addition of the DL320G3 SAS/SATA HDD Backplane Option Kit and the HP 8 int. Port SAS/SATA HBA with RAID enables the DL320 G3 for Hot Plug and LED drive support.	398307-B21
	DL320 G3 SAS/SATA HDD Backplane Option Kit <b>NOTE:</b> This option is required on the non-hard drive models for any supported SATA HDD options.	372704-B21
	DL320 G3 Non Hot Plug U320 SCSI Option Kit <b>NOTE:</b> This option is required for use with any supported non Hot Plug U320 SCSI HDD options. A PCI controller is also required; please see Storage Controllers below for U320 controller options.	374282-B21
<hr/>		
ProLiant Essentials Value Pack Software	<p><b>ProLiant Essentials Integrated Lights-Out Advanced Pack</b> ProLiant Essentials Integrated Lights-Out Advanced Pack, 1 server <b>Featuring:</b> sophisticated virtual administration features for ultimate control of servers in the data centers and remote sites. <b>NOTE:</b> For additional ProLiant Integrated Light-Out Advanced Pack License Kits please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11052_na/11052_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11052_na/11052_na.HTML</a></p> <p><b>ProLiant Essentials Intelligent Networking Pack</b> ProLiant Essentials Intelligent Networking Pack, Single Server License <b>NOTE:</b> For use with a single server. Contains one license with a unique license activation key and documentation. <b>NOTE:</b> For additional ProLiant Intelligent Networking Pack License Kits please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12062_na/12062_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12062_na/12062_na.HTML</a></p> <p>ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License <b>NOTE:</b> For additional ProLiant Intelligent Networking Pack - Linux License Kits please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12327_na/12327_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12327_na/12327_na.HTML</a></p> <p><b>ProLiant Essentials Performance Management Pack</b></p>	263825-B21
		372906-B21
		397004-B21

### Options

ProLiant Essentials Performance Management Pack, Single-Server License <b>NOTE:</b> For use with a single server. Contains one license with a unique license activation key, HP Management CD and documentation. <b>NOTE:</b> The most recent version of the software can always be downloaded at <a href="http://www.hp.com/products/pmp">http://www.hp.com/products/pmp</a> . <b>NOTE:</b> For additional ProLiant Performance Management Pack License Kits please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11925_na/11925_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11925_na/11925_na.HTML</a>	306696-B21
<b>ProLiant Essentials Rapid Deployment Pack Windows Edition Release</b> Rapid Deployment Pack, Single-Server License <b>NOTE:</b> This license allows 1 server to be deployed and managed via RDP. <b>NOTE:</b> For additional ProLiant Essentials Rapid Deployment Pack License Kits please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.HTML</a>	267196-B21
<b>ProLiant Essentials Workload Management Pack</b> ProLiant Essentials Workload Management Pack, Single Server License <b>NOTE:</b> For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11452_na/11452_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11452_na/11452_na.HTML</a>	303284-B21
<b>ProLiant Essentials Virtualization Management Software</b> ProLiant Essentials Virtual Machine Management Pack, Single-Server License <b>NOTE:</b> For use with a single server. Contains one license with a unique license activation key and documentation. ProLiant Essentials Server Migration Pack, Single-Migration License <b>NOTE:</b> Contains one license, enabling 1 server migration, with a unique license activation key and documentation. <b>NOTE:</b> This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005. <b>NOTE:</b> For additional ProLiant Essentials Virtualization Management Software License Kits please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12328_na/12328_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12328_na/12328_na.HTML</a>	372214-B21
<b>ProLiant Essentials Vulnerability and Patch Management Pack</b> ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License <b>NOTE:</b> For use with a single server. Contains one license with a unique license activation key and documentation. <b>NOTE:</b> For additional ProLiant Vulnerability and Patch Management Pack License Kits, please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12111_na/12111_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12111_na/12111_na.HTML</a> <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> .	371645-B21

### Options

Memory (DIMMs)	1024 MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 1024 MB)	354563-B21
	512 MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 512 MB)	354560-B21

Internal Storage	CD-ROM Drive Assembly Option Kit	372703-B21
	Floppy Drive Assembly Option kit	372702-B21
	DVD-ROM Drive Assembly Option Kit	374303-B21
	HP DVD/CD RW Drive Option	377402-B21
	DL320 G3 Non Hot Plug U320 SCSI Option Kit	374282-B21
	DL320 G3 SAS/SATA HDD Backplane Option Kit	372704-B21
	<b>NOTE:</b> When adding either SATA or U320 SCSI drives to a non-hard drive DL320 G3 model, the appropriate option kit above is required for operation.	

Hard Drives	<b>Ultra320 - Universal Non-Hot Plug</b>	
	HP 72GB U320 10K NHP HDD	332751-B21
	HP 36GB U320 15K NHP HDD	357012-B21

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

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

[http://h18000.www1.hp.com/products/quickspecs/11531\\_na/11531\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11531_na/11531_na.HTML)

#### Serial Attached SCSI - SAS

HP 146GB 3G SAS 15K 3.5" HDD	375872-B21
HP 72GB 3G SAS 15K 3.5" HDD	375870-B21
HP 36GB 3G SAS 15K 3.5" HDD	375868-B21

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

[http://h18000.www1.hp.com/products/quickspecs/12244\\_na/12244\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.HTML)

#### Serial ATA (SATA)

HP 500GB 1.5G SATA 7.2K 3.5" HDD	395473-B21
HP 250GB 1.5G SATA 7.2K 3.5" HDD	349239-B21
HP 160GB 1.5G SATA 7.2K 3.5" HDD	349238-B21
HP 80GB 1.5G SATA 7.2K 3.5" HDD	349237-B21

**NOTE:** Please note that Serial ATA hot-plug capability and drive LEDs are not supported by the DL320 G3 embedded SATA storage controller. The purchase of the HP 8 Internal Port SAS HBA with RAID, the DL320 G3 SAS/SATA HDD Backplane Option Kit, and the DL320 Hot Plug SAS/SATA Cable Option Kit is required for Hot Plug and LED SAS/SATA support.

**NOTE:** SATA drives have a 1-year warranty. Please see the Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

[http://h18000.www1.hp.com/products/quickspecs/11940\\_na/11940\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11940_na/11940_na.HTML)

### Options

Storage Controllers	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	<b>NOTE:</b> The HP 8 int. Port SAS/SATA HBA with RAID requires the purchase of the SATA Rack FIO model and the DL320 SAS/SATA Hot Plug Cable option kit (398307-B21).	
	Smart Array 6404/256 Controller	273914-B21
	Smart Array 6402/128 Controller	273915-B21
	512MB DDR BBWC Upgrade	372538-B21
	Smart Array 641 Controller	291966-B21
	Smart Array 642 Controller	291967-B21
	128MB BBWC for SA641/642	351580-B21
	<b>NOTE:</b> This 128 MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.	
	64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter	268351-B21
	<b>NOTE:</b> Supports Wide Ultra3, Ultra320 SCSI drives only.	
	<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/11943_na/11943_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11943_na/11943_na.HTML</a> (HP Single Channel Ultra320 SCSI HBA)	
	<a href="http://h18000.www1.hp.com/products/quickspecs/12332_na/12332_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12332_na/12332_na.HTML</a> (HP 8 Internal Port SAS HBA)	
<a href="http://h18000.www1.hp.com/products/quickspecs/12067_na/12067_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12067_na/12067_na.HTML</a> (Smart Array 641)		
<a href="http://h18000.www1.hp.com/products/quickspecs/12069_na/12069_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12069_na/12069_na.HTML</a> (Smart Array 642)		
<a href="http://h18000.www1.hp.com/products/quickspecs/10429_na/10429_na.HTML">http://h18000.www1.hp.com/products/quickspecs/10429_na/10429_na.HTML</a> (SCSI Adapter)		
<a href="http://h18000.www1.hp.com/products/quickspecs/11555_na/11555_na.HTML">http://h18000.www1.hp.com/products/quickspecs/11555_na/11555_na.HTML</a> (U320 Adapter)		
Communications	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC320T PCI Express 1000T Gigabit Server Adapter	367047-B21
	HP NC370F PCI-X Multifunction 1000SX Gigabit Server Adapter	374193-B22
	HP NC370T PCI-X Multifunction 1000T Gigabit Server Adapter	374191-B22
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC1020 PCI 1000T Gigabit Server Adapter	353377-B21
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7170 PCI-X Dual Port Low Profile 1000T Gigabit Server Adapter	383738-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	<b>NOTE:</b> A minimum of 1 GB of memory per port is required for NC370x adapters, with a maximum of two NC370x ports permitted in a server.	
	<b>NOTE:</b> Any NC61XX, NC71XX or NC77XX network adapter can be used for redundancy with the embedded NC7782 network adapter.	
HP NC570C PCI-X Dual-port 4x Fabric Adapter	376158-B21	

### Options

HP NC571C PCI Express Dual-port 4x Fabric Adapter	376160-B21
HP 24-Port 4x Fabric Copper Switch	376227-B21
HP 4x Fabric 1m Copper Cable	376232-B21
HP 4x Fabric 3m Copper Cable	376232-B22
HP 4x Fabric 5m Copper Cable	376232-B23

### Tape Drives

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

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

#### USB Tape Drives

HP StorageWorks DAT 40 USB External Tape Drive (Carbonite)	DW023A
HP StorageWorks DAT 72 USB External Tape Drive (Carbonite)	DW027A

#### External and Rack-Mount Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite)	DW064A
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**NOTE:** No internal tape drives fit inside this HP ProLiant server. The internal drive shown here is for the 1U and 3U Rack-mount Kit.

HP StorageWorks Ultrium 232 External Tape Drive (Carbonite)	DW065B
HP StorageWorks Ultrium 448 External Tape Drive (Carbonite)	DW017B

**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\\_na/11739\\_na.html](http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_na.html)

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>.

#### External, Rack-Mount, and Array Module DAT Drives

HP StorageWorks DAT 72 SCSI External Tape Drive (Carbon)	Q1523B
HP StorageWorks 1U Rack-mount kit with one DAT 72 (Carbon)	A7443A

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

[http://h18000.www1.hp.com/products/quickspecs/11883\\_na/11883\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11883_na/11883_na.HTML)

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

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 1U Rack-Mount Kit	A7445B
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**NOTE:** The 1U Rack-mount Kit can support up to (2) half-height tape drives and compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, Ultrium 215, Ultrium 232 and Ultrium 448 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit	A8007A
1U USB Cable Option Kit	396114-B21

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

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

[http://h18000.www1.hp.com/products/quickspecs/10854\\_na/10854\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML)

### Options

<b>Tape Autoloaders</b>	<p><b>DAT Autoloaders</b></p> <p>HP StorageWorks DAT 72x6 Autoloader (External) <span style="float: right;">Q1567A</span></p> <p><b>NOTE:</b> Please see the DAT 72x6 Tape Autoloader QuickSpecs for additional options such as host bus adapters, controllers and media:  <a href="http://h18006.www1.hp.com/products/quickspecs/11905_na/11905_na.html">http://h18006.www1.hp.com/products/quickspecs/11905_na/11905_na.html</a></p> <p><b>HP StorageWorks 1/8 Tape Autoloader</b></p> <p>HP StorageWorks 1/8 Ultrium 960 Tape Autoloader <span style="float: right;">AF204A</span></p> <p>HP StorageWorks 1/8 Ultrium 448 Tape Autoloader <span style="float: right;">AF203A</span></p> <p>HP StorageWorks 1/8 Ultrium 232 Tape Autoloader <span style="float: right;">AF202A</span></p> <p>1/8 Tape Autoloader Rackmount Kit <span style="float: right;">C9268R</span></p> <p><b>NOTE:</b> Required to install the unit in a standard 19-inch rack; includes rails and rackmount instructions</p> <p><b>NOTE:</b> Please reference the 1/8 Tape Autoloader QuickSpecs at <a href="http://www.hp.com/go/automation">http://www.hp.com/go/automation</a> for additional information needed to create a complete solution; reference current compatibility information at <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a></p>
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<b>Tape Libraries</b>	<p><b>HP StorageWorks MSL2024 Tape Library</b></p> <p>HP StorageWorks MSL2024 1 Ultrium 960 Drive Library <span style="float: right;">AG115A</span></p> <p>HP StorageWorks MSL2024 1 Ultrium 448 Drive Library <span style="float: right;">AG116A</span></p> <p>HP StorageWorks MSL2024 2 Ultrium 448 Drive Library <span style="float: right;">AG117A</span></p> <p><b>HP StorageWorks MSL4048 Tape Library</b></p> <p>HP StorageWorks MSL4048 1 Ultrium 448 Drive Library <span style="float: right;">AG320A</span></p> <p>HP StorageWorks MSL4048 2 Ultrium 448 Drive Library <span style="float: right;">AG321A</span></p> <p>HP StorageWorks MSL4048 1 Ultrium 960 Drive Library <span style="float: right;">AG322A</span></p> <p>HP StorageWorks MSL4048 2 Ultrium 960 Drive Library <span style="float: right;">AG323A</span></p> <p><b>HP StorageWorks MSL6000 Tape Library</b></p> <p><b>Ultrium 960 technology</b></p> <p>HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library <span style="float: right;">AD606A</span></p> <p>HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library <span style="float: right;">AD608A</span></p> <p>HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library <span style="float: right;">AD607A</span></p> <p>HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library <span style="float: right;">AD609A</span></p> <p><b>Ultrium 460 technology</b></p> <p>HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library <span style="float: right;">AD598A</span></p> <p>HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library <span style="float: right;">AD600A</span></p> <p>HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library <span style="float: right;">AD599A</span></p> <p>HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library <span style="float: right;">AD601A</span></p> <p><b>NOTE:</b>Please reference the MSL2024, MSL4048 and MSL6000 Tape Library QuickSpecs at <a href="http://www.hp.com/go/automation">http://www.hp.com/go/automation</a> for additional information needed to create a complete solution; reference current compatibility information at <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a></p>

### Options

Magento-Optical Jukeboxes	HP StorageWorks 9.1 GB Entry-level Optical Storage	
	600mx, 4 drive, 64 slot jukebox	C1160M
	1200mx, 4 drive, up to 128 slots	C1104M
	2200mx, 6 drive, up to 238 slots	C1107M
	<p><b>NOTE:</b> Please see the HP StorageWorks Magneto-Optical Products data sheet for a complete listing of available jukeboxes at:  <a href="http://www.hp.com/products1/storage/products/archivalprod/brochures/MO_family_pb.pdf">http://www.hp.com/products1/storage/products/archivalprod/brochures/MO_family_pb.pdf</a></p> <p><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.</p>	
HP Data Protector Express Software	HP DP Express Backup Server Upgrade for ProLiant Software	BB117AP
	HP DP Express Package for Microsoft Small Business Server	BB118AA
	<p><b>NOTE:</b> Please see the HP Data Protector Express QuickSpecs for additional information regarding the purchase of HP Data Protector Express software:  <a href="http://h18000.www1.hp.com/products/quickspecs/12337_na/12337_na.html">http://h18000.www1.hp.com/products/quickspecs/12337_na/12337_na.html</a></p>	
HP StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20	335921-B21
	<p><b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.</p> <p>HP StorageWorks Modular Smart Array 20 Starter Kit</p> <p><b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller.</p> <p><b>NOTE:</b> The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 3.5" Hot Plug Hard Drives.</p>	366172-B21
HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB	302969-B21
	<p><b>NOTE:</b> Rack-mountable 14 drive enclosure with single bus, redundant power supplies</p> <p>HP StorageWorks Modular Smart Array 30 DB</p> <p><b>NOTE:</b> Rack-mountable 14 drive enclosure with dual bus, redundant power supplies</p> <p><b>NOTE:</b> The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 Hot Plug Hard Drives.</p>	302970-B21
HP StorageWorks Modular Smart Array 500	HP StorageWorks Modular Smart Array 500 Generation 2	335880-B21
	<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></p>	
HP StorageWorks Modular Smart Array 1000	HP StorageWorks Modular Smart Array 1000	201723-B22
	<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></p>	

### Options

<b>HP StorageWorks Modular Smart Array 1500 cs</b>	Modular Smart Array 1500 Controller Shelf <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>	AA986A
<b>StorageWorks Options</b>	StorageWorks 2 Gb, 64-bit/133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for Windows 2000, Windows Server 2003 and Linux	281541-B21
	<b>NOTE:</b> FCA2214 2 Gb Fibre Channel Host Bus Adapter is a single channel, 64-bit/133 MHz PCI-X-to Fibre Channel Host Bus Adapter (HBA) with an embedded multi-mode optical interface.	
	FCA2408 - HP StorageWorks 2 Gb, 64-Bit/133 MHz Single Channel, PCI- X-to-Fibre Channel Host Bus Adapter for Windows® 2000 and Windows Server® 2003	343073-B21
	<b>NOTE:</b> FCA2408 HP StorageWorks 2 Gb, 133 MHz PCI-X-to-Fibre Channel Host Bus Adapter (HBA) with optical small-form-factor (SFF) (LC) interface.	
	FCA2404DC - HP StorageWorks 2 Gb, Dual Channel, 133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for Windows 2000, and Windows Server 2003	323264-B21
	<b>NOTE:</b> FCA2404DC HP StorageWorks 2 Gb Fibre Channel Host Bus Adapter is a dual channel, 133 MHz, PCI-X to Fibre Channel Host Bus Adapter (HBA) with an embedded multi-mode optical interface.	
	FCA2404 - StorageWorks 2 Gb, single channel, 133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for Windows 2000, Windows NT and Windows Server 2003	305573-B21
	<b>NOTE:</b> FCA2404 StorageWorks 2 Gb, Fibre Channel Host Bus Adapter is a single channel, multi-path failover, 133 MHz, PCI-X to Fibre Channel Host Bus Adapter (HBA) with an embedded multi-mode optical interface for ProLiant Server connects.	
	StorageWorks 2 Gb, Dual Port, 64-Bit/133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for W2K, Windows Server 2003 and Linux	321835-B21
	<b>NOTE:</b> FCA2214DC StorageWorks 2 Gb Dual Port, Fibre Channel Host Bus Adapter is a 64-bit/133 MHz, PCI-X-to Fibre Channel Host Bus Adapter (HBA) with an embedded multi-mode optical interface.	
<b>Uninterruptible Power Systems – Rack UPS</b>	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage	326529-D71
	HP UPS R1500 XR (1440VA, 1340 Watt), Low Voltage	204404-001
	HP UPS R3000 XR (2880VA, 2700 Watt), Low Voltage	192186-001
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage	192186-002
	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage	326529-D71
	HP UPS R12000 XR, N+ x (12KVA, 12KW) High Voltage	207552-B22
	<b>NOTE:</b> The UPS R12000 XR has a hardwired input and output connection.	
<b>USB Options</b>	USB Optical Scroll Mouse (Carbonite)	DD441B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	256MB HP Drive Key II (USB 2.0)	PH657A

### Options

<b>ProLiant DL320 Deployment Options</b>	<b>Rack Adapter Kit</b> <b>NOTE:</b> This kit allows HP rack servers to fit in racks that are 24" wide. <b>NOTE:</b> Telco Rack Support - Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions: <a href="http://www.racksolutions.com/hp">http://www.racksolutions.com/hp</a>	332815-B21
<b>HP Rack 5000 Series (Graphite Metallic)</b>	<b>HP 5642 Rack-Unassembled</b> <b>NOTE:</b> Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: <a href="http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML">http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML</a> (Worldwide) <b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">www.hp.com/go/rackandpower</a> .	358254-B21
<b>HP Rack 10000 G2 Series (Carbon/Graphite Metallic)</b>	10642 G2 (42U) Rack Cabinet - Pallet 10642 G2 (42U) Rack Cabinet - Shock Pallet 10642 G2 (42U) Rack Cabinet - Crated 10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet 10642 G2 (42U) Rack Cabinet, without door - Shock Pallet 10642 G2 (42U) Rack Cabinet - with Extension, without door - Shock Pallet 10636 G2 (36U) Rack Cabinet - Pallet 10636 G2 (36U) Rack Cabinet - Shock Pallet 10636 G2 (36U) Rack Cabinet - Crated 10636 G2 (36U) Rack Cabinet , with Extension - Shock Pallet 10636 G2 (36U) Rack Cabinet, without door - Shock Pallet 10636 G2 (36U) Rack Cabinet, with Extension, without door - Shock Pallet <b>NOTE:</b> It is mandatory to use a shock pallet when shipping racks with equipment installed. <b>NOTE:</b> Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: <a href="http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.HTML</a> <b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a> .	AF001A AF002A AF003A AF004A AF005A AF006A AF011A AF012A AF013A AF014A AF015A AF016A

### Options

HP Rack 10000 Series (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, 800mm wide) Rack Cabinet – Pallet	257415-B21
	HP 10842 (42U, 800mm wide) Rack Cabinet – Shock Pallet	257415-B22
	HP 10647 (47U) Rack Cabinet – Pallet	245160-B21
	HP 10647 (47U) Rack Cabinet – Shock Pallet	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

**NOTE:** xxxxx-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). xxxxx-B23 (crated) used for air shipments of empty racks.

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

[http://h18000.www1.hp.com/products/quickspecs/10995\\_na/10995\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML)

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

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Rack Options for HP Rack 10000 Series	TFT7210R Rack Mounted 17" Monitor	348373-B21
	<b>NOTE:</b> For a complete list of Monitors please view the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a>	
	TFT7600RKM	AG052A
	1U Rack Keyboard & Drawer (Carbon)	257054-001
	<b>NOTE:</b> For additional information regarding Rack Options, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a>	

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### Options

<b>HP KVM Switch Options</b>	IP Console Switch Box (KVM/IP), 3 x 1 x 16	262586-B21
	IP Console Switch Box (KVM/IP), 1 x 1 x 16	262585-B21
	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	<b>NOTE:</b> Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .	
	HP 1x 4 USB/PS2 KVM Switch, TT	371301-D71
	HP 1x 4 USB/PS2 KVM Switch, RM	371302-B21
	HP PS2 KVM Cable with audio, 6', 2-pack	371730-B21
	HP USB KVM Cable with audio, 6', 2-pack	371729-B21
<b>NOTE:</b> For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .		

<b>HP Serial Console Server Options</b>	HP 16 Port Serial Console Server	AF101A
	HP 48 Port Serial Console Server	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	<b>NOTE:</b> Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .	
<b>NOTE:</b> For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .		

<b>Service and Support Offerings (HP Care Pack Services)</b>	<b>Hardware Services On-site Service</b>	
	Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	U4479E
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4480E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4481E
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4482E
	<b>Installation &amp; Start-up Services</b>	
	Hardware Installation, Electronic	U4490E
	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	U4491E
	<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, Electronic	U4492E
<b>Support Plus 24</b>		

### Options

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	U4493E
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.	U6309E
Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic.	U8331E

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

## Memory

### HP ProLiant DL320 G3 All Models

#### Standard Memory

512 MB PC3200 ECC DDR SDRAM installed (1 x 512 MB SDRAM DIMM) on Celeron model; 1 GB (1 x 1024 MB SDRAM DIMMs) on all P4 models.

#### Standard Memory Plus Optional Memory

Up to 4096 MB memory is available with the optional installation of PC3200 ECC DDR SDRAM Memory kits.

**NOTE:** The chart below represents the P4 models with 1GB standard memory, and does not represent all possible configurations. Memory can be populated in any order with any of the supported DIMMs listed. For optimal performance, the total amount of memory in slots 1A and 2A should equal to the total amount of memory in slots 3B and 4B.

Memory		Slot			
		1A	2A	3B	4B
Standard	1024 MB	1024 MB	Empty	Empty	Empty
Optional	2048 MB	512 MB	512 MB	512 MB	512 MB
Maximum	4096 MB	1024 MB	1024 MB	1024 MB	1024 MB

Following are memory options available from HP:

- 1024 MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 1024 MB) 354563-B21
- 512 MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 512 MB) 354560-B21

### Storage



- 1- 2 Two SATA or SCSI non-hot plug drive bays
- A Removable 1.44 MB Diskette Drive Assembly Kit
- B Optional CD-ROM/DVD Drive Assembly Kit

### Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
1.44-MB Diskette Drive	Up to 1	A	Integrated
Low-profile IDE (ATAPI) CD-ROM Drive	Up to 1	B	Integrated IDE (ATAPI)
Low-profile IDE DVD-ROM Drive	Up to 1	B	Integrated IDE

### Hard Drives

#### Ultra320 SCSI Non-Hot Plug Drives

	Quantity Supported	Position Supported	Controller
36.4GB U320 15K	Up to 2	1-2	Smart Array 6402/128 Controller
72.8GB U320 15K			Smart Array 6404/256 Controller
			Smart Array 642 Controller
			64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
			64-bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS

#### SAS Drives

	Quantity Supported	Position Supported	Controller
36GB 3G SAS 15K	Up to 2	1-2	HP 8 Internal Port SAS HBA with RAID
72GB 3G SAS 15K			
146GB 3G SAS 15K			

### Serial ATA Drives

	Quantity Supported	Position Supported	Controller
80GB 1.5G SATA 7.2K	Up to 2	1-2	HP embedded 2 Port SATA Controller with RAID 0/1 support
160GB 1.5G SATA 7.2K			
250GB 1.5G SATA 7.2K			
500GB 1.5G SATA 7.2K			

## Storage

### External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20	Please see the Modular Smart Array 20 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 20 QuickSpecs below see the list of supported controllers
Modular Smart Array 30 Family	Up to 14	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller 64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
Modular Smart Array 500 G2	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 1000: [http://h18000.www1.hp.com/products/quickspecs/11033\\_na/11033\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML)

### Maximum Storage Capacity - (Enclosure with SCSI models)

Internal	145GB (2 x 72GB SCSI)
External	4.20TB (1 x (14 x 300GB Ultra320))
Total	4.35TB

**NOTE:** In order to implement integrated SATA RAID with Smart Start 7.2, purchase of floppy drive is required.

### Maximum Storage Capacity - (SATA Enclosure with SATA models)

Internal	1TB (2 x 500GB SATA)
External	6.00TB (1 x (12 x 500GB SATA Drives))
Total	7.00TB

**NOTE:** In order to implement integrated SATA RAID with Smart Start 7.2, purchase of floppy drive is required.

**NOTE:** The External capacity section relates to the HP StorageWorks Modular Smart Array 20.

### Tape Drives, Tape Autoloaders & Tape Libraries

### Storage

**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)

**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)

**NOTE:** For complete listing of tape drive offerings see  
<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

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

	Quantity Supported	Position Supported	Controller
<b>HP StorageWorks Tape Drives, USB External</b> DAT 24 USB DAT 40 USB DAT 72 USB	1 per USB port	External	USB port
<b>HP StorageWorks Tape Drives, External</b> Ultrium 232 Ultrium 448 Ultrium 460 DAT 40 DAT 72 DLT VS80 DLT VS160 SDLT 320	Up to 2	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
<b>HP StorageWorks Tape Drives, External</b> Ultrium 960 SDLT 600	1 per SCSI Channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
<b>HP StorageWorks Autoloaders, External</b> DAT 72x6 Tape Autoloader 1/8 Tape Autoloader	1 autoloader per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
<b>HP StorageWorks Rack-mount Tape Drive Enclosures</b> 1U Rack-Mount Kit 3U Rack-Mount Kit 5U Rack-Mount Kit	1 per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS

## Storage

### HP StorageWorks Tape Libraries, External

MSL2024 (Ultrium 448 and 960-based)

MSL4048 (Ultrium 448 and 960-based)

MSL6000 (Ultrium 960 and 460-based)

MSL6000 (SDLT 600-based)

MSL5026S2 (SDLT 320-based)

MSL5052S2 (SDLT 320-based)

Please reference the MSL Tape Library QuickSpecs to determine configuration requirements

External

Please consult the EBS connectivity matrix at <http://www.hp.com/go/ebs> for detailed connectivity information.

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (HxWxD)	1.70 x 16.78 x 24.0 in (4.32 x 42.62 x 60.96 cm)	
	<b>Weight</b> (no drives installed)	24.0 lb (10.91 kg)	
	<b>Weight</b> (fully configured with two hard drives, four DIMM modules, and a PCI expansion board)	27.0 lb (12.27 kg)	
<b>Input Requirements</b>	Range Line Voltage	90 to 264 VAC	
	Nominal Line Voltage	100 to 120 VAC/220 to 240 VAC	
	Rated Input Current	6 A (100 to 120 VAC) to 3 A (200 to 240 VAC)	
	Rated Input Frequency	47 to 63 Hz	
	Rated Input Power	@ 115V input, Rated input power = 486W (assume output wattage=350W) @ 230V input, Rated input power = 479W (assume output wattage=350W)	
	<b>Power Supply Output</b>	Steady State Power	350 W (rated)
		<b>NOTE:</b> 1. +3.3V and +5V total O/P power 130W Maximum. 2. +3.3V, +5V and +12V total O/P power 324W Maximum.	
<b>Environmental Operating</b>	<b>Operating</b>	Ambient Temperature	50° to 95° F (10° to 35° C)
		Temperature Derating	1.8° F per 1000 ft to 10,000 ft (1° C per 300 m to 3000 m)
		Relative Humidity	10% to 90% (non-condensing)
		Maximum wet bulb temperature	82° F (28° C)
<b>Non-operating Storage</b>		Temperature	-22° to 140° F (-30 to 60° C)
		Relative Humidity	5% to 95% (non-condensing)
		Maximum wet bulb temperature	102° F (38.7° C)
<b>Non-operating Shipping</b>		Temperature	-22° to 140° F (-30 to 60° C)
		Relative Humidity	5% to 95% (non-condensing)
		Maximum wet bulb temperature	102° F (38.7° C)

### Technical Specifications

Acoustic Noise	Idle at 23 degree C ambient (Fixed Disk Drives Spinning)	
	L WAd (BELS)	=6.4
	Bystander L pAm (dBA)	=47
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	=6.4
	Bystander L pAm (dBA)	=47

Serial ATA Hard Drives	80 GB 7.2K 349237-B21	Capacity	80,000 MB	
		Height	1.028 in/2.611cm	
		Width	4.0 in (10.16 cm)	
		Interface	Serial ATA	
		Transfer Rate Synchronous (Maximum)	1.5 Gb/s	
		Seek Time (typical reads, including settling)	Single Track	0.9 ms
			Average	9.0 ms
			Full-Stroke	17.0 ms
			Rotational Speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
	Logical Blocks		156,301,488	
	Operating Temperature	41° to 131° F (5° to 55° C)		

Power Supply	Input voltage specifications	Rated input voltage	100 VAC to 240 VAC	
		Input Specifications		
		Rated input line	90 VAC to 264VAC	
		Frequency range	47 to 63 Hz	
		Rated input power	@ 115V input, Rated input power = 486W (assume output wattage=350W) @ 230V input, Rated input power = 479W (assume output wattage=350W)	
		Rated input current	6 A, 3 A (110 V, 220 V)	
		Steady state power	350W (rated)	
		BTU Rating	1710 BTU/hr	
		Ambient temperature range	Operating	50° to 118° F (10° to 48° C)
			Non-operating	-40° to 158° F (-40° to 70° C)
		Relative humidity (non-condensing)	Operating	55% to 85%
			Non-operating	5% to 95%

### Technical Specifications

<b>Dielectric voltage withstand</b>	Input to output	1800 VAC/minute
	Input to ground	1800 VAC/minute
<b>Maximum Wet Bulb Temperature</b>	41.3C	

<b>Embedded NC7782 Dual Port NIC</b>	<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>	64-bit/100MHz PCI-X
	<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 (Half and Full-Duplex) 2000Mb/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)

<b>Integrated Dual Channel Serial ATA Controller</b>	<b>Simultaneous drive transfer channels</b>	2 channels
	<b>Transfer rate synchronous (maximum theoretical)</b>	150 MB/s per channel; 300MB/s in RAID 0 pair
	<b>Data transfer method</b>	Intel® 82801FR Integrated Serial ATA Host Controller (non-RAID mode) Intel® 82801FR Integrated Serial ATA Host Controller (RAID Mode)
	<b>Drive support</b>	Serial ATA
	<b>Data transfer modes</b>	Legacy Mode Combined Mode
	<b>Protocol</b>	Serial ATA
	<b>Feature</b>	NCQ (Native Command Queuing);AHCI (Advanced Host Controller Interface)

### Technical Specifications

<b>Integrated Serial ATA Controller</b>	<b>Transfer rate synchronous (maximum)</b>	150 MB/s per channel; 300MB/s in RAID 0 pair
	<b>Protocol</b>	Serial ATA
	<b>Drive support</b>	HP Universal Serial ATA
	<b>Data transfer modes</b>	ATA data-transfer modes supported SATA 1.0, SATA II PIO modes 0-4 Multiword DMA modes 0-2 Ultra DMA modes 0-6
	<b>RAID levels</b>	0, 1
	<b>Feature</b>	Supports Pre-Failure Warranty of SATA Hard Drives Support for Systems Insight Manager Supports multiple logical volumes Setup through ROM based Array Configuration Utility Installation scripting support
	<b>OS Support</b>	Microsoft Windows 2000 Server Microsoft Windows Server 2003 Novell NetWare Linux (Red Hat, SuSE, UnitedLinux)

**NOTE:** This controller does not support LED functions  
This controller does not support Hot Plug functions

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