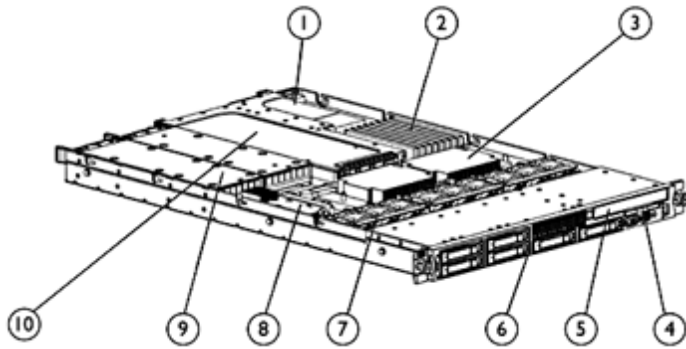
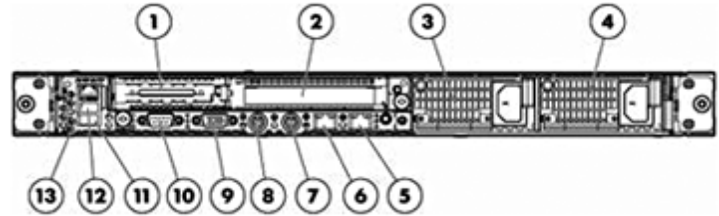


### Overview



#### Front View:

1. Low-profile x8 PCI-Express slot
2. Eight PC2-5300 FB-DIMMs (DDR2 667) slots
3. Up to two Intel Quad-Core or Dual-Core Xeon™ processors
4. Slide-out System Insight Display
5. Slimline removable media bay
6. Up to six SAS/SATA hot plug drive bays
7. Removable fans for easy serviceability
8. Choice of Smart Array P400i Controller or Smart Array E200i Controller
9. Redundant Hot Plug Power Supplies (upgradeable option)
10. Full length/height x8 PCI-Express Slot (optional PCI-X)



#### Rear View:

1. PCI Express expansion slot 1, low-profile, half-length
2. PCI Express expansion slot 2
3. Power supply bay 2
4. Power supply bay 1
5. NIC 2 connector
6. NIC 1 connector
7. Keyboard connector
8. Mouse connector
9. Video connector
10. Serial connector
11. USB connector
12. USB connector
13. iLO 2 NIC connector

### What's New

- New Quad-Core Intel Xeon 5300 sequence processor models are now available with up to 1333MHz Front Side Bus speed, with 8M (2x4MB) L2 Cache (X5355 120W, E5345 80W, E5335 80W, L5320 50W)

### Overview

### At A Glance

Combining concentrated 1U compute power, integrated Lights-Out management, and essential fault tolerance, the DL360 is optimized for space constrained installations. Dual-core Xeon processors, DDR2 Fully Buffered DIMMs, Serial Attached SCSI (SAS) and PCI Express technology provide a high performance system ideal for the full range of scale out applications. What's more, the HP ProLiant DL360 G5 steps up the fault tolerant in an ultra dense platform with redundant power, redundant fans, mirrored memory or online spare memory, embedded RAID capability, and full-featured remote Lights-Out management.

- **Processors:**
  - Up to (2) Quad-Core or Dual-Core Intel® Xeon® processor 5000 sequence
  - Up to (2) Quad-Core Intel Xeon processor 5300 sequence
  - Intel 5000P chipset supporting up to a 1333MHz front-side bus
- **Memory:**
  - Up to 32 GB of memory, supported by (8) slots of PC2-5300 Fully Buffered DIMMs (DDR2-667); 4:1 interleaving; memory mirroring; online spare
- **Storage Controller:**
  - Performance Models: HP Smart Array P400i/256MB BBWC Controller (RAID 0/1/1 +0/5/6) (512MB BBWC optional)
  - Base Models: HP Smart Array P400i/256MB Controller (RAID 0/1/1 +0/5) (512MB BBWC optional)
  - Entry Models: HP Smart Array E200i/64MB Controller (RAID 0/1/1 +0) (128MB BBWC optional)
- **Internal Drive Support:**
  - Up to (6) small form factor (SFF) hot-plug drive bays
  - Slimline media bay supporting DVD, CD or Floppy drive
- **Network Controller:**
  - Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
- **Expansion Slots:**
  - Two PCI-Express expansion slots: (1) full-length, full-height slot; (1) low-profile slot
- **USB 2.0 Ports:**
  - 4 Total: (1) front, (1) internal and (2) rear accessible ports
- **Redundancy:**
  - Multiple layers of fault tolerance through critical component redundancy (power supply and fan redundancy), mirrored memory, embedded RAID capability, and full-featured remote Lights-Out management
- **Management:**
  - Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
  - HP Power Meter and Power Regulator for ProLiant, delivering integrated power monitoring and server level, policy based power management with industry leading energy efficiency and savings on system power and cooling costs
  - Convenient slide-out Systems Insight Display for quick and easy front view server diagnostics
  - ProLiant Essential Foundation Pack standard, including HP Systems Insight Manager, SmartStart, SmartStart Scripting Toolkit, Subscriber's Choice and ROM Based Setup Utility (RBSU)
  - Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health, UID, and SmartStart
- **Form Factor:**
  - 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep
- **Deployment/Serviceability:**
  - Sliding rails for in rack servicing ship standard; optional 1U Cable Management Arm
- **Warranty:**
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. 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. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty.

**NOTE:** Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

### Standard Features

**NOTE:** For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: <http://h71028.www7.hp.com/ERC/downloads/4AA0-6375ENW.pdf>.

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

**Processor**  
One of the following  
depending on Model

- Quad-Core Intel Xeon Processor X5355 (2.66 GHz, 120 Watts, 1333 Front Side Bus (FSB))
- Quad-Core Intel Xeon Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)
- Quad-Core Intel Xeon Processor E5320 (1.86 GHz 80 Watts, 1066 FSB)
- Quad-Core Intel Xeon Processor L5320 (1.86 GHz 50 Watts, 1066 FSB)
- Quad-Core Intel Xeon Processor E5310 (1.60 GHz 80 Watts, 1066 FSB)
- Dual-Core Intel Xeon Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB)
- Dual-Core Intel Xeon Processor 5150 (2.67 GHz, 65 Watts, 1333 FSB)
- Dual-Core Intel Xeon Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB, Low Voltage)
- Dual-Core Intel Xeon Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)
- Dual-Core Intel Xeon Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB)
- Dual-Core Intel Xeon Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)
- Dual-Core Intel Xeon Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB)

**NOTE:** Up to 2 processors supported. Performance configurations include two processors.

**NOTE:** Intel 5300 sequence processors are 64-bit, Quad-Core, and supports Intel VT technology. Intel 5100/5000 sequence processors are 64-bit, Dual-Core, and supports Intel VT technology.

**Cache Memory**  
One of the following  
depending on Model

- 8MB (2 x 4MB) Level 2 cache (5300 sequence)
- 4MB (1 x 4MB) Level 2 cache (5100 sequence)
- 4MB (2 x 2MB) Level 2 cache (5000 sequence)

**Upgradeability**

Upgradeable to quad or dual processing  
Future upgradeable to Xeon Series 5300 Quad-Core, or 5100 Dual-Core processors (Please contact your regional sales support to determine quad core upgradeability. Some of the earlier shipping models may not support this upgrade)

**Chipset**

Intel 5000P chipset  
**NOTE:** For more information regarding Intel chipsets, please see the following URL:  
<http://www.intel.com/products/server/chipsets/>.

**Memory Protection & Functionality**

Advanced ECC (multi-bit error protection), Online Spare, Mirroring  
4-way interleaving

### Standard Features

<b>Memory</b>	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667)
	Standard (Entry or Base Models)	1 GB (2 x 512 MB)
	Standard (Performance Models)	2 GB (2 x 1 GB)
	Standard (Performance Model E5345)	4 GB (4 x 1 GB)
	Maximum	32 GB (8 x 4 GB)

**NOTE:** Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

<b>Network Controller</b>	Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
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Expansion Slots	Slot Number	Bus Speed	Bus Number*	Device Number**	Hot Plug	PCI Voltage
	1	x8 PCI Express	11	0	no	N/A
	2	x8 PCI Express	19	0	no	N/A
	2	64-bit/133MHz PCI-X (option)	16	1	no	3.3 Volt

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

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

<b>Storage Controller</b> One of the following depending on Model	Performance Models:	HP Smart Array P400i/256MB BBWC Controller (RAID 0/1/1+0/5/6) <b>Available upgrades:</b> 512MB memory battery-backed write cache (BBWC) module for RAID 0/1/1+0/5/6.
	Base Models:	HP Smart Array P400i/256MB Controller (RAID 0/1/1+0/5) <b>Available upgrades:</b> 512MB memory battery for battery-backed write cache (BBWC) module for RAID 0/1/1+0/5/6, or battery-backed write cache for RAID 0/1/1+0/5/6.
	Entry Models:	HP Smart Array E200i/64MB Controller (RAID 0/1/1+0) <b>Available upgrades:</b> 128MB memory battery for battery-backed write cache (BBWC) module for RAID 0/1/1+0/5.

<b>Storage</b>	Optical Drives (Slimline Drive bay)	Optional DVD-ROM, DVD/CD-RW Combo (standard in performance models), DVD-RW, or Slimline floppy drive
	Drive Bays	Up to 6 Small Form Factor bays total <b>NOTE:</b> 4 bays active in most models. Smart Array P400i controller and Mini-SAS storage cable (P/N 399546-B21) required for activation of 5th and 6th drive bays.

### Standard Features

Maximum Internal Storage Type	Hot Plug Serial Attached SCSI (SAS)	876GB SAS	6 x 146GB SAS
	Hot Plug Serial ATA (SATA)	720GB SATA	6 x 120GB SATA

Interfaces	Keyboard	1
	Mouse	1
	Serial	1
	Video	1
	USB 2.0 Ports	4 total: 2 rear, 1 front, 1 internal
		<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> .
	Network RJ-45	2
iLO 2 remote management port	1	

**Graphics** Integrated ATI ES1000, 32MB video standard

- 16 bit color: maximum resolution of 1600 x 1200
- 32 bit color: maximum resolution of 1280 x 1024

**NOTE:** Maximum resolution available via iLO 2 remote console is 1280x1024.

**Form Factor** Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)

### ProLiant Essentials Foundation Pack Software

HP Systems Insight Manager

HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible environment to centrally manage servers, storage and other infrastructure devices across multiple operating system platforms.

Through a single management view, HP SIM provides core management services that include device discovery and identification, event views, health monitoring, inventory data collection, software version control and reporting. HP SIM is built on industry standards and is extensible with value-added ProLiant Essentials, Integrity Essentials and Storage Essentials software to meet individual management needs. For more details on HP SIM visit <http://www.hp.com/go/hpsim>.

HP SIM provides organizations with the following benefits:

- Simplifies and consolidates infrastructure lifecycle management using task and query based functionality
- Provides the foundation for infrastructure automation and virtualization
- Enables IT management based on business processes not hardware platforms
- Lowers infrastructure maintenance cost and frees resources for innovation
- Maximizes resource utilization with virtualization technologies
- Provides a central point of integration between infrastructure and Enterprise management tools such as HP OpenView

### 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> . <b>SmartStart version supported (minimum): SmartStart 7.60.</b>
Insight Management Agents	Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers,  Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack. For additional information about the Management Agents and the HP System Management Homepage 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: <a href="http://www.hp.com/go/support">http://www.hp.com/go/support</a>
Insight Diagnostics	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>• <b>Insight Control Environment</b> - is based on HP Systems Insight Manager and ProLiant Essentials software, and brings the value of Insight Control to ProLiant customers by delivering comprehensive health and performance monitoring, remote control, vulnerability scanning and patch management as well as flexible deployment and power management through an integrated installation package and streamlined licensing. For more information, visit: <a href="http://www.hp.com/go/ice">http://www.hp.com/go/ice</a></li><li>• <b>Accelerated iSCSI Pack</b> - enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network.</li><li>• <b>Rapid Deployment Pack (RDP)</b> 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 7-day, 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>• <b>Server Migration Pack</b> - The Server Migration Pack automates the manual processes required for migrating servers between physical or</li></ul>

### Standard Features

#### Optional Remote Management Packs

- virtual platforms (P2V, V2P, and V2V).
- **Server Migration Pack** - P2P Edition: Upgrading or replacing your existing server? Effortlessly transition to new servers with automated, accurate and affordable migration of OS, application and data.
  - **Performance Management Pack** (offered exclusively through the Insight Control suites) - 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.
  - **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
  - **Vulnerability and Patch Management Pack** (offered exclusively through the Insight Control suites) - 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.
  - **Integrated Lights-Out Advanced Pack** - upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication).
  - **Integrated Lights-Out Select Pack** - upgrades the iLO 2 processor with enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication) for servers managed using remote consoles available in iLO 2 Standard and iLO 2 Standard Blade Edition.
  - **Insight Power Manager (IPM)** - upgrades the single-server remote management capabilities of iLO Select/Advanced to include centralized reporting and policy-based management of power consumption and thermal output provided by the Insight Power Manager. IPM unifies all of this functionality within a single user interface - HP Systems Insight Manager.

**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/proliantessential>.

#### Industry Standard Compliance

ACPI 2.0b Compliant  
PCI 2.2 Compliant  
WOL Support  
Microsoft® Logo certifications  
PXE Support  
USB 1.1 and 2.0 Compliant

### Standard Features

#### Remote Management

Integrated Lights-Out (iLO 2) Management 2

- Virtual Text Remote Console (pre-OS only)
- Remote Serial Console
- Virtual Power Button Control
- Virtual Unit ID control
- Integrated Remote Console (ActiveX Control client)
- Dedicated & full function shared network connectivity with VLAN
- Embedded system health
- Present power consumption
- Browser, command line and scripted access
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)
- Advanced Encryption Standard (AES)/Triple Data Encryption Standard (3DES)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

#### Intelligent Manageability

HP Systems Insight Manager

SmartStart

ROM-Based Setup Utility (RBSU)

Remote-Flash Redundant ROM

Integrated Management Log (IML)

Server Health logging

Automatic Server Recovery-2 (ASR-2)

System Insight Display (SID)

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

Hot Spare Boot

**NOTE:** Upon the event of a failed processor or VRM in a multi-processing environment, the system will automatically reboot and use the remaining good processor(s).

Power Down Utility

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

#### Security

Power-on password

Keyboard password

Diskette drive control

Diskette boot control

QuickLock, Network Server Mode

Removable CD and Diskette Drive Assembly

Serial interface control

Administrator's password

Integrated Lights-Out has 12 customizable user accounts and SSL encryption

Integrated Lights-Out can be disabled via a Global Setting

iLO Advance Pack supports directory services integration and two-factor authentication

#### Server Power Cords

High voltage power cord ships standard with all part numbers.

**NOTE:** ProLiant DL servers no longer ship standard with NEMA power cords (187335-001) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (187335-001) must be ordered separately.

### Standard Features

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<b>UPS Power Cord Matrix</b>	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: <a href="http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html">http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html</a>
<b>Power Supply</b>	700W, Optional (1 + 1 redundant) power supply <b>NOTE:</b> PN 399542-B21 contains the optional power supply and an IEC power cable only; purchase if connecting to PDU/UPS that supports IEC cables.
<b>System Fans</b>	9 fans ship standard; N+1 fan redundancy standard
<b>Required Cabling</b>	For required cabling information, refer to the Web site at <a href="http://h18000.www1.hp.com/products/servers/proliantdl360/">http://h18000.www1.hp.com/products/servers/proliantdl360/</a> .
<b>OS Support</b>	Microsoft Windows 2000 Server Microsoft Windows Server 2003 Novell NetWare Red Hat Enterprise Linux SUSE Linux Enterprise Server Solaris 10 32/64-bit VMware Virtualization Software <b>NOTE:</b> SAS and SATA models may have different OS support. Please see OS Support Matrix. <b>NOTE:</b> For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix page at: <a href="http://www.hp.com/go/supportos">http://www.hp.com/go/supportos</a> . <b>NOTE:</b> For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: <a href="http://h18004.www1.hp.com/products/servers/software/OEM.html">http://h18004.www1.hp.com/products/servers/software/OEM.html</a> <b>NOTE:</b> For a listing of the latest drivers available for the HP ProLiant DL360, please see: <a href="http://h18023.www1.hp.com/support/files/server/us/index.html">http://h18023.www1.hp.com/support/files/server/us/index.html</a> . <b>NOTE:</b> For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix: <a href="http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html">http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html</a> <b>NOTE:</b> For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: <a href="http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html">http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html</a> .

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### Standard Features

#### Rack Airflow Requirements

##### Rack 10000 series Cabinets

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

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

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

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

**NOTE:** For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: <http://h18000.www1.hp.com/products/servers/proliantdl360/index.html>.

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<b>Rack Kit</b>	The HP ProLiant DL360 quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000*, 9000, 10000 and HP series) with an adjustment range to fit a rack depth of 21.25" to 37.75".
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<b>Rack Kit</b>	The HP ProLiant DL360 quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000*, 9000, 10000 and HP series) with an adjustment range to fit a rack depth of 21.25" to 37.75".
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<b>Telco Rack Support</b>	HP ProLiant DL360 G5 Telco Rack Kit: 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> )
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<b>Factory Express Portfolio for Servers and Storage</b>	<p>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.</p> <p>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.</p>
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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>.

### Standard Features

#### HP Enterprise Configurator

The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

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

#### Service and Support

HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server and purchased at the same time or afterward that are internal to the enclosure. This also includes the 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, and 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.

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions, provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

**Recommended Service** - simplify ProLiant solution implementation, maintenance, and management.

- **Support** - 3-Year 4-Hour response 24x7 Same Business Day Coverage only
- **Deployment Service** - Installation and Start up only

**Enhanced Service** - optimize service level to increase IT performance and availability.

- **Support** - -3-Year Support Plus 24 only

Refer to the information on "Installation & Start-Up" for service on 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, excluding HP holidays.

**NOTE:** For a complete listing of service offerings and information visit:

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

<http://www.hp.com/go/proliant/carepack>

### Models

#### Models

##### HP DL360 G5 Performance Models

**Quad-Core Models**  
DL360R05 E5345 4GB  
435944-001

**Dual-Core Models**  
DL360R05 5160 2GB  
416566-001  
DL360R05 5150 2GB  
416564-001

**Processor(s)**  
[Two of the following depending on Model](#)

**Cache Memory**  
[One of the following depending on Model](#)

**Memory**  
[One of the following depending on Model](#)

**Network Controller**

**Storage Controller**

**Hard Drive**

**Internal Storage**

**Optical Drive**

**PCI-Express Slots**

**Power Supplies**

**Fans**

**Form Factor**

(2) Quad-Core Intel Xeon E5345 Processor (2.33 GHz, 80 Watts, 1333 FSB)  
(2) Dual-Core Intel Xeon 5160 Processor (3.00 GHz, 80 Watts, 1333 FSB)  
(2) Dual-Core Intel Xeon 5150 Processor (2.66 GHz, 65 Watts, 1333 FSB)  
Quad-Core: 8MB (2 x 4MB ) Level 2 cache; Intel Xeon Processor 5300 Sequence  
Dual-Core: 4MB (1 x 4MB) Level 2 cache; Intel Xeon Processor 5100 Sequence  
2 GB (2 x 1 GB) Standard; PC2-5300 Fully Buffered DIMMs (DDR2-667)  
4 GB (4 x 1 GB) Standard; PC2-5300 Fully Buffered DIMMs (DDR2-667)  
Two embedded NC373i Multifunction Gigabit Server Adapters  
HP Smart Array P400i/256MB BBWC Controller (RAID 0/1/1 +0/5/6)  
No drives included; (6) drive bays active  
876GB SAS; 720GB SATA  
Slimline DVD/CD-RW Combo drive  
1 full-length x8 PCI-Express slot  
1 low-profile x8 PCI-Express slot  
(2) 700W power supplies, redundant  
9 total, redundancy standard  
Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)

##### HP DL360 G5 Base Models

**Quad-Core Models**  
DL360R05 E5335 2GB  
435943-001  
DL360R05 E5320 1GB  
438313-001

**Dual-Core Models**  
DL360R05 5160 1GB  
416565-001  
DL360R05 5150 1GB  
416563-001  
DL360R05 5140 1GB  
416562-001

**Processor(s)**  
[One of the following depending on Model](#)

**Cache Memory**  
[One of the following depending on Model](#)

**Memory**  
[One of the following depending on Model](#)

**Network Controller**

**Storage Controller**

**Hard Drive**

**Internal Storage**

**Optical Drive**

**PCI-Express Slots**

**Power Supply**

(1) Quad-Core Intel Xeon E5335 Processor (2.00 GHz, 80 Watts, 1333 FSB)  
(1) Quad-Core Intel Xeon E5320 Processor (1.86 GHz, 80 Watts, 1066 FSB)  
(1) Dual-Core Intel Xeon 5160 Processor (3.00 GHz, 80 Watts, 1333 FSB)  
(1) Dual-Core Intel Xeon 5150 Processor (2.66 GHz, 65 Watts, 1333 FSB)  
(1) Dual-Core Intel Xeon 5140 Processor (2.33 GHz, 65 Watts, 1333 FSB)  
Quad-Core: 8MB (2 x 4MB) Level 2 cache; Intel Xeon Processor 5300 Sequence  
Dual-Core: 4MB (1 x 4MB) Level 2 cache; Intel Xeon Processor 5100 Sequence  
2 GB (2x1GB) Standard on E5335 Model; PC2-5300 Fully Buffered DIMMs (DDR2-667)  
1 GB (2 x 512 MB) Standard on E5320, 5140-5160, 5060 Models; PC2-5300 Fully Buffered DIMMs (DDR2-667)  
Embedded NC373i Multifunction Gigabit Server Adapters  
HP Smart Array P400i/256MB Controller (RAID 0/1/1 +0/5)  
No drives included; (4) drive bays active.  
(6) bays supported with optional storage cable (PN 399546-B21)  
876GB SAS; 720GB SATA  
Optional DVD, DVD/CD-RW, or Floppy  
1 full-length x8 PCI-Express slot  
1 low-profile x8 PCI-Express slot  
(1) 700W power supply, redundant optional



### Models

Fans	9 total, redundancy standard
Form Factor	Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)

#### HP DL360 G5 Entry Models

Quad-Core Models  
DL360R05 E5310 1GB  
438312-001

Dual-Core Models  
DL360R05 5130 1GB  
416561-001

DL360R05 5120 1GB  
416560-001

DL360R05 5110 1GB  
416559-001

Processor(s) <a href="#">One of the following depending on Model</a>	(1) Quad-Core Intel Xeon Processor E5310 (1.60 GHz 80 Watts, 1066 FSB) (1) Dual-Core Intel Xeon 5130 Processor (2.00 GHz, 65 Watts, 1333 FSB) (1) Dual-Core Intel Xeon 5120 Processor (1.86 GHz, 65 Watts, 1066 FSB) (1) Dual-Core Intel Xeon 5110 Processor (1.6 GHz, 65 Watts, 1066 FSB)
Cache Memory <a href="#">One of the following depending on Model</a>	Quad-Core: 8MB (2x4MB) Level 2 cache- Intel Xeon Processor 5300 Sequence Dual-Core: 4MB (1 x 4MB) Level 2 cache - Intel Xeon Processor 5100 Sequence
Memory	1 GB (2 x 512 MB) Standard; PC2-5300 Fully Buffered DIMMs (DDR2-667)
Network Controller	Embedded NC373i Multifunction Gigabit Server Adapters
Storage Controller	HP Smart Array E200i/64MB Controller (RAID 0/1/1+0)
Hard Drives	No drives included; (4) drive bays active
Internal Storage	876GB SAS; 720GB SATA
Optical Drive	Optional DVD, DVD/CD-RW, or Floppy
PCI-Express Slots	1 full-length x8 PCI-Express slot 1 low-profile x8 PCI-Express slot
Power Supply	(1) 700W power supply, redundant optional
Fans	9 total, N+1 redundancy standard
Form Factor	Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)

### Smart Buys

The ProLiant Smart Buy program offers a collection of promotional server and option products that are configured with SMB in mind, offered at discounted prices, and positioned for quick delivery. Smart Buy server offers are available for a limited time only.

For a full listing of ProLiant Smart Buys available for all server families, visit <http://www.hp.com/go/smartbuy/server/specs>

<b>S-Buy DL360R05 E5335 2GB, 2P 470064-382</b>	<b>Processor(s)</b>  <b>Cache Memory</b> <b>Memory</b> <b>Network Controller</b> <b>Storage Controller</b> <b>Hard Drive</b>  <b>Internal Storage</b> <b>Optical Drive</b> <b>PCI-Express Slots</b>  <b>Power Supplies</b> <b>Fans</b> <b>Form Factor</b>	(2) Quad-Core Intel Xeon E5335 Processor (2.00 GHz, 80 Watts, 1333 FSB)  8MB (2 x 4MB) Level 2 cache 2 GB (2 x 1 GB) Standard; PC2-5300 Fully Buffered DIMMs (DDR2-667) Embedded Dual NC373i Multifunction Gigabit Server Adapters HP Smart Array P400i/256MB Controller (RAID 0/1/1+0/5) None ship standard; (4) drive bays active. (6) bays supported with optional storage cable (PN 399546-B21)  876GB SAS; 720GB SATA Slimline CD-RW/DVD-ROM Combo 1 full-length x8 PCI-Express slot 1 low-profile x8 PCI-Express slot  (2) 700W power supplies, redundant 9 total, N+1 redundancy standard Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)
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<b>S-Buy DL360R05 E5335 2GB, 1P 470064-512</b>	<b>Processor(s)</b>  <b>Cache Memory</b> <b>Memory</b> <b>Network Controller</b> <b>Storage Controller</b> <b>Hard Drive</b>  <b>Internal Storage</b> <b>Optical Drive</b> <b>PCI-Express Slots</b>  <b>Power Supplies</b> <b>Fans</b> <b>Form Factor</b>	(1) Quad-Core Intel Xeon E5335 Processor (2.00 GHz, 80 Watts, 1333 FSB)  8MB (2 x 4MB) Level 2 cache 2 GB (2 x 1 GB) Standard; PC2-5300 Fully Buffered DIMMs (DDR2-667) Embedded Dual NC373i Multifunction Gigabit Server Adapters HP Smart Array P400i/256MB Controller (RAID 0/1/1+0/5) No drives included; (4) drive bays active. (6) bays supported with optional storage cable (PN 399546-B21)  876GB SAS; 720GB SATA Slimline CD-RW/DVD-ROM Combo 1 full-length x8 PCI-Express slot 1 low-profile x8 PCI-Express slot  (1) 700W power supply, redundant optional 9 total, N+1 redundancy standard Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)
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### Smart Buys

<b>S-Buy DL360R05 E5345</b> <b>2GB</b> 470064-513	<b>Processor(s)</b>	(1) Quad Core Intel Xeon Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)
	<b>Cache Memory</b>	8MB (2 x 4MB ) Level 2 cache
	<b>Memory</b>	2 GB (2 x 1 GB) Standard; PC2-5300 Fully Buffered DIMMs (DDR2-667)
	<b>Network Controller</b>	Embedded Dual NC373i Multifunction Gigabit Server Adapters
	<b>Storage Controller</b>	HP Smart Array P400i/256MB Controller (RAID 0/1/1+0/5)
	<b>Hard Drive</b>	No drives included; (4) drive bays active. (6) bays supported with optional storage cable (PN 399546-B21)
	<b>Internal Storage</b>	876GB SAS; 720GB SATA
	<b>Optical Drive</b>	Slimline CD-RW/DVD-ROM Combo
	<b>PCI-Express Slots</b>	1 full-length x8 PCI-Express slot 1 low-profile x8 PCI-Express slot
	<b>Power Supplies</b>	(2) 700W power supplies, redundant
	<b>Fans</b>	9 total, N+1 redundancy standard
	<b>Form Factor</b>	Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)

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<b>S-Buy DL360R05 E5345</b> <b>4GB, 2P</b> 470064-553	<b>Processor(s)</b>	(2) Quad Core Intel Xeon Processor E5345 (2.33 GHz, 1333 FSB)
	<b>Cache Memory</b>	8MB (2 x 4MB ) Level 2 cache
	<b>Memory</b>	4 GB (2 x 2 GB) Standard; PC2-5300 Fully Buffered DIMMs (DDR2-667)
	<b>Network Controller</b>	Embedded Dual NC373i Multifunction Gigabit Server Adapters
	<b>Storage Controller</b>	HP Smart Array P400i/256MB Controller (RAID 0/1/1+0/5)
	<b>Hard Drive</b>	No drives included; (4) drive bays active. (6) bays supported with optional storage cable (PN 399546-B21)
	<b>Internal Storage</b>	876GB SAS; 720GB SATA
	<b>Optical Drive</b>	Slimline CD-RW/DVD-ROM Combo
	<b>PCI-Express Slots</b>	1 full-length x8 PCI-Express slot 1 low-profile x8 PCI-Express slot
	<b>Power Supplies</b>	(2) 700W power supplies, redundant
	<b>Fans</b>	9 total, N+1 redundancy standard
	<b>Form Factor</b>	Rack (1U), (1.75 in/4.45 cm); 27.75 inch depth (70.5cm)

### Configuration Information - Factory Integrated Models

**NOTE:** This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

**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.

**NOTE:** FIO indicates that this option only available as a Factory Installable Option.

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

Models	HP ProLiant DL360 G5 Rack CTO Chassis	399524-B21
	<b>Factory Integrated Model ships with:</b>	
	Embedded NC373i Multifunction Gigabit Server Adapter	
	Integrated Lights-Out 2 (iLO 2) embedded	
	1 full-length and 1 low-profile x8 PCI-Express slots	
	9 fans; N+1 fan redundancy	
	(1) 700W power supply, redundant optional	
	Rack (1U), (1.75 in/4.45 cm)	

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

Processors	Quad-Core Intel Xeon Processor X5355 – 2.66GHz, 120 Watts, 1333 FSB	435956-L21
	Quad-Core Intel Xeon Processor E5345 – 2.33GHz, 80 Watts, 1333 FSB	435954-L21
	Quad-Core Intel Xeon Processor E5335 – 2.00GHz, 80 Watts, 1333 FSB	435952-L21
	Quad-Core Intel Xeon Processor E5320 – 1.86GHz, 80 Watts, 1066 FSB	435950-L21
	Quad-Core Intel Xeon Processor L5320 – 1.86GHz, 50 Watts, 1066 FSB	435958-L21
	Quad-Core Intel Xeon Processor E5310 – 1.60GHz, 80 Watts, 1066 FSB	438314-L21
	Dual-Core Intel Xeon Processor 5160 – 3.00 GHz, 80 Watts, 1333 FSB	416579-L21
	Dual-Core Intel Xeon Processor 5150 – 2.66 GHz, 65 Watts, 1333 FSB	416577-L21
	Dual-Core Intel Xeon Processor 5148 – 2.33 GHz, 40 Watts, 1333 FSB	416575-L21
	Dual-Core Intel Xeon Processor 5140 – 2.33 GHz, 65 Watts, 1333 FSB	416573-L21
	Dual-Core Intel Xeon Processor 5130 – 2.00 GHz, 65 Watts, 1333 FSB	416571-L21
	Dual-Core Intel Xeon Processor 5120 – 1.86 GHz, 65 Watts, 1066 FSB	416569-L21
	Dual-Core Intel Xeon Processor 5110 – 1.60 GHz, 65 Watts, 1066 FSB	416567-L21
		<b>NOTE:</b> If High Performance Model features are desired, 2nd processor is included in the Performance Pack part numbers in Step 3 below.
Base Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21

### Configuration Information - Factory Integrated Models

<b>Storage Controllers</b>	HP E200i Controller FIO	399548-B21
	<b>NOTE:</b> If selected, must choose one of the two cache modules below.	
	HP Smart Array E200 64MB FIO Cache	405102-B21
	<b>NOTE:</b> Supports Smart Array E200 Controller only.	
	128MB Battery-Backed Write Cache with Battery Housing	346914-B21
	<b>NOTE:</b> Supports Smart Array E200i Controller.	
	Smart Array P400i controller for DL360 G5	413741-B21
	<b>NOTE:</b> If selected, must choose one of the two cache modules below.	
	HP Smart Array P400 256MB Cache FIO	405139-B21
	<b>NOTE:</b> Supports Smart Array P400 Controller and Smart Array P400i Controller only.	
512MB Battery-backed cache upgrade	405148-B21	
<b>NOTE:</b> Supports Smart Array P400 Controller and Smart Array P400i Controller only.		
HP Smart Array P600/256 BBWC Controller	337972-B21	
<b>NOTE:</b> Requires PCI-X Riser option (PN 405154-B21).		
<b>NOTE:</b> Requires HP SAS 4i to Mini SAS 4i 31 inch/.79 meter cable (PN 411100-B21).		
HP Smart Array 6402/512 FIO Controller	441508-B21	
HP Smart Array 6404/512 FIO CNTRLR	452240-B21	

### Step 3: Choose Additional Factory Integratable Options

<b>Performance Packs</b>	The HP ProLiant DL360 G5 performance packs are necessary to configure a HP ProLiant DL360 G5 Performance Model. HP ProLiant DL360 G5 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd processor, redundant power supplies, Smart Array P400i Controller with 256MB of BBWC, and storage cable to enable the all 6 disk drive bays.	
	<b>NOTE:</b> 331903-B21 Slimline CD-RW/DVD-ROM Combo Drive Option Kit should also be selected along with the Performance Pack skus below to achieve parity to the HP ProLiant DL360 G5 Performance Models.	
	HP DL360G5 X5160 HPM FIO Perf Pack	430107-B21
	HP DL360G5 X5150 HPM FIO Perf Pack	431883-B21
	HP DL360G5 E5345 HPM FIO Perf Pack	435960-B21

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

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

### Options

**NOTE:** Some options may not be factory integratable. Contact your local sales representative for additional information.

<b>HP ProLiant DL360 G5 Unique Options</b>	Quad-Core Intel Xeon Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)	435956-B21
	Quad-Core Intel Xeon Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)	435954-B21
	Quad-Core Intel Xeon Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)	435952-B21
	Quad-Core Intel Xeon Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)	435950-B21
	Quad-Core Intel Xeon Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB)	435958-B21
	Quad-Core Intel Xeon Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)	438314-B21
	Dual-Core Intel Xeon Processor 5160 (3.00 GHz, 80 Watts, 1333 FSB)	416579-B21
	Dual-Core Intel Xeon Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB)	416577-B21
	Dual-Core Intel Xeon Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB)	416575-B21
	Dual-Core Intel Xeon Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)	416573-B21
	Dual-Core Intel Xeon Processor 5130 (2.00 GHz, 65 Watts, 1333 FSB)	416571-B21
	Dual-Core Intel Xeon Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)	416569-B21
	Dual-Core Intel Xeon Processor 5110 (1.60 GHz, 65 Watts, 1066 FSB)	416567-B21
	PCI-X Riser option	405154-B21

**NOTE:** To convert full-length PCI-Express slot to PCI-X slot.

### ProLiant Essentials Offerings

#### ProLiant Essentials Value Pack

##### Accelerated iSCSI Pack

ProLiant Essentials Accelerated iSCSI Pack, No Media, Single License 452679-B21

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

**NOTE:** For additional License Kits, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12466\\_na/12466\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12466_na/12466_na.HTML)

##### Insight Control Environment

HP Insight Control Environment, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates 452148-B21

**NOTE:** For additional License Kits, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12631\\_na/12631\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.HTML)

##### ProLiant Essential RDMA Pack

HP ProLiant Essentials RDMA Pack for Embedded Multifunction Gigabit Server Adapters, No Media, 1-Server License 452681-B21

**NOTE:** For additional License Kits, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12573\\_na/12573\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12573_na/12573_na.HTML)

##### Rapid Deployment Pack

ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates 452151-B21

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

**NOTE:** For additional License Kits, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/11053\\_na/11053\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.HTML)

##### Server Migration Pack

ProLiant Essentials Server Migration Pack, No Media, 1-Migration License, including 1 year of 24x7 Technical Support and Updates 435663-B21

**NOTE:** This license allows 1 P2V, V2P, or V2V migration. Contains one license with a unique license activation key and documentation

**NOTE:** For additional License Kits, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12328\\_na/12328\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12328_na/12328_na.HTML)

##### Server Migration Pack - P2P

### Options

ProLiant Essentials Server Migration Pack - P2P Edition, 1- Migration License, - License Only, No Media <b>NOTE:</b> This license allows 1 migration. Contains one license with a unique license activation key and documentation <b>NOTE:</b> For additional License Kits, please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12467_na/12467_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12467_na/12467_na.HTML</a>	417435-B21
<b>Virtual Machine Management Pack</b> ProLiant Essentials Virtual Machine Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates <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 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>	452153-B21
<b>Remote Management</b>	
<b>Integrated Lights-Out Advanced Pack</b> Integrated Lights-Out Advanced Pack, No Media ,1 Server License <b>NOTE:</b> For additional License Kits, please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/10861_na/10861_na.HTML">http://h18000.www1.hp.com/products/quickspecs/10861_na/10861_na.HTML</a>	452141-B21
<b>Integrated Lights-Out Select Pack</b> Integrated Lights-Out Select Pack, No Media, 1 Server License <b>NOTE:</b> For additional License Kits, please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/10861_na/10861_na.HTML">http://h18000.www1.hp.com/products/quickspecs/10861_na/10861_na.HTML</a>	452158-B21
<b>Integrated Lights-Out Power Management Pack</b> HP iLO Power Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates <b>NOTE:</b> This option kit includes 1 license for iLO Advanced and Insight Power Manager. <b>NOTE:</b> For additional License Kits, please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12632_na/12632_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12632_na/12632_na.HTML</a>	452145-B21
<b>Insight Power Manager</b> HP Insight Power Manager, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates <b>NOTE:</b> This option kit includes 1 license for Insight Power Manager. <b>NOTE:</b> For additional License Kits, please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12623_na/12623_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12623_na/12623_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> .	452677-B21

### Options

<b>Processor</b>	Quad-Core Intel Xeon Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)	435956-B21
	Quad-Core Intel Xeon Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)	435954-B21
	Quad-Core Intel Xeon Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)	435952-B21
	Quad-Core Intel Xeon Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)	435950-B21
	Quad-Core Intel Xeon Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB)	435958-B21
	Quad-Core Intel Xeon Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)	438314-B21
	Dual-Core Intel Xeon Processor 5160 (3.00 GHz, 80 Watts, 1333 FSB)	416579-B21
	Dual-Core Intel Xeon Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB)	416577-B21
	Dual-Core Intel Xeon Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB)	416575-B21
	Dual-Core Intel Xeon Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)	416573-B21
	Dual-Core Intel Xeon Processor 5130 (2.00 GHz, 65 Watts, 1333 FSB)	416571-B21
	Dual-Core Intel Xeon Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)	416569-B21
	Dual-Core Intel Xeon Processor 5110 (1.60 GHz, 65 Watts, 1066 FSB)	416567-B21
<b>Memory (DIMMs)</b>	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
<b>Smart Buy Memory (DIMMs)</b>	1GB FBD PC2-5300 2X512MB Kit	397409-S21
	2GB FBD PC2-5300 2X1GB Kit	397411-S21
	4GB FBD PC2-5300 2X2GB Kit	397413-S21
<b>Optical Drives</b>	Slimline CD-RW/DVD-ROM Combo Option Kit	331903-B21
	Slimline DVD-ROM Drive (8X/24X) Option Kit	264007-B21
	HP DVD±R/RW 8X Slim	383975-B21
	Slimline CD-ROM Drive 24X	356963-B21
<b>Diskette Drive</b>	Slimline Ejectable Floppy drive	390164-B21

### Options

#### Hard Drives

##### Hot Plug SFF SAS 2.5" Drives

HP 36GB 3G SAS 10K SFF SP HDD	375859-B21
HP 36GB 3G SAS 15K SFF SP HDD	431933-B21
HP 36GB 3G SAS 15K SFF DP HDD	418369-B21
HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
HP 72GB 3G SAS 10K SFF DP HDD	384842-B21
HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
HP 72GB 3G SAS 15K SFF DP HDD	418371-B21
HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
HP 146GB 3G SAS 10K SFF DP HDD	418367-B21

**NOTE:** Please see the SAS 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)

##### SFF SATA Hot Plug

HP 60GB 1.5G SATA 5.4K SFF HDD	379306-B21
HP 120GB 1.5G SATA 5.4K SFF HDD	431786-B21

**NOTE:** SATA drives have a 1 year warranty. Please see the SATA 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)

#### Storage Controllers

##### SAS Controllers

##### Smart Array E200i Controller

128-MB Battery-Backed Write Cache (BBWC)	346914-B21
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**NOTE:** Supports Smart Array E200i Controller only.

##### Smart Array E500 Controller

Smart Array E500/256MB Controller	435129-B21
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##### Smart Array P400i Controller

HP Smart Array P400/256MB BBWC Controller	399550-B21
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Battery-backed write cache upgrade	383280-B21
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**NOTE:** For Smart Array P400 Controller and Smart Array P400i Controller only.

512MB Battery-backed cache upgrade	405148-B21
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**NOTE:** For Smart Array P400 Controller and Smart Array P400i Controller only.

##### Smart Array P600 Controller

HP Smart Array P600/256 BBWC Controller	337972-B21
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**NOTE:** Requires DL360 G5 PCI-X conversion kit (PN 405154-B21).

512 MB Battery-Backed Cache Upgrade	372538-B21
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**NOTE:** This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller.

##### Smart Array P800 Controller

HP Smart Array P800/512 BBWC Controller	381513-B21
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## Options

**NOTE:** Please see the following Controller QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/12460\\_na/12460\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12460_na/12460_na.HTML)  
(Smart Array E200 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12700\\_na/12700\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12700_na/12700_na.HTML)  
(Smart Array E500 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12400\\_na/12400\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12400_na/12400_na.HTML)  
(Smart Array P400 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12247\\_na/12247\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12247_na/12247_na.HTML)  
(Smart Array P600 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12616\\_na/12616\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12616_na/12616_na.HTML)  
(Smart Array P800 Controller)

### SAS HBA

HP SC44Ge Host Bus Adapter 416096-B21

HP 8 Internal Port SAS HBA with RAID 347786-B21

**NOTE:** Supports SAS and SATA disk drive. RAID 0,1 supported.

**NOTE:** Please see the following QuickSpecs for additional information:

[http://h18004.www1.hp.com/products/quickspecs/12617\\_na/12617\\_na.html](http://h18004.www1.hp.com/products/quickspecs/12617_na/12617_na.html)  
(SC44Ge HBA)

[http://h18004.www1.hp.com/products/quickspecs/12332\\_na/12332\\_na.html](http://h18004.www1.hp.com/products/quickspecs/12332_na/12332_na.html)  
(SAS HBA)

### SAS Cables

HP Mini SAS 4i 13.4 inch/0.35 m cable 399546-B21

**NOTE:** Used to connect Smart Array P400i Controller to DL360 G5 5th and 6th drive bays.

HP SAS 4i to Mini SAS 4i 31 inch/.79 meter cable 411100-B21

**NOTE:** Used to connect SA-P600, SA-P400, SA-E200 Controllers to the HP ProLiant DL360 G5 drive backplane. This kit supports all six drive bays.

### SCSI Controllers for External Drive/Storage Support

Smart Array 6402/128 Controller 273915-B21

**NOTE:** For support of external drives only.

Smart Array 6404/256 Controller 273914-B21

**NOTE:** For support of external drives only.

Smart Array 642 Controller 291967-B21

**NOTE:** For support of external drives only.

128MB Battery-Backed Cache Enabler 351580-B21

**NOTE:** This 128-MB Battery-Backed Cache Module upgrade kit supports the Smart Array 642 Controller.

512 MB Battery-Backed Cache Upgrade 372538-B21

**NOTE:** This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller.

64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 374654-B21

### SCSI HBA

HP SC11Xe Host Bus Adapter 412911-B21

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/10429\\_na/10429\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/10429_na/10429_na.HTML)  
(SCSI Adapter)

[http://h18000.www1.hp.com/products/quickspecs/11555\\_na/11555\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11555_na/11555_na.HTML)  
(U320 Adapter)

[http://h18000.www1.hp.com/products/quickspecs/11943\\_na/11943\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/11943_na/11943_na.HTML)  
(U320 SCSI HBA)

[http://h18000.www1.hp.com/products/quickspecs/12566\\_na/12566\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.HTML)  
(SC11Xe HBA)

### Options

Communications	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	<b>NOTE:</b> Does not support Windows 2000.	
	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	<b>NOTE:</b> Does not support Windows 2000.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC510F PCIe 10 Gigabit Server Adapter	414126-B21
	<b>NOTE:</b> A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	
	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	<b>NOTE:</b> A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	HP IB 4X SDR PCI-e single PORT HCA	431038-B21
HP IB 4X DDR PCI-e Single PORT HCA	431039-B21	
HP IB 4X DDR PCI-e Dual Port HCA	409376-B21	
HP IB 4X DDR PCI-e SINGLE PORT HCA	448398-B21	

Redundant Options	700W HP redundant power supply with IEC cord only	399542-B21
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### Tape Drives

**NOTE:** For the complete listing of Tape Drive offerings, please see:  
<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 1U USB Rack-Mount Kit with one DAT 72 USB Tape Drive	AG594A
HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive	AG703A

#### SAS Tape Drives

**NOTE:** For the DL360 G5, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks Ultrium 448 SAS Internal Tape Drive	DW085A
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**NOTE:** HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.

HP StorageWorks Ultrium 920 SAS Internal Tape Drive	EH847A
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**NOTE:** HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.

**NOTE:** Please refer to the "Tape Drives, Tape Autoloaders & Tape Libraries" table in the Storage section of this document for a list of SAS controllers with tape support.

#### Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite)	DW064A
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**NOTE:** HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.

### Options

HP StorageWorks 1U Rack-mount kit with one Ultrium 448 (Carbonite)	DW028B
HP StorageWorks 1U SCSI Rack-mount kit with one Ultrium 920	EH903A

**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)

[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 Ultrium tape drives, please visit: <http://www.hp.com/go/connect>

#### SCSI DAT Drives

HP StorageWorks DAT 160 SCSI External Tape Drive	Q1574A
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**NOTE:** HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.

**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)

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 SCSI Rack-Mount kit	A7445B
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**NOTE:** The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 40, DAT 72, DAT 160, DLT VS160, Ultrium 232, Ultrium 448 and Ultrium 920 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit	A8007A
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**NOTE:** The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 40 USB, DAT 72 USB and DAT 160 USB tape drives.

HP StorageWorks 1U SAS Rack-Mount Kit	AE459A
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**NOTE:** The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the Ultrium 448 SAS and Ultrium 920 SAS 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)

<b>HP D2D Backup System</b>	HP StorageWorks D2D110 Backup System	EH880A
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**NOTE:** 1TB of Disk Storage.

HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit	EH923A
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**NOTE:** 1TB of Disk Storage.

HP StorageWorks D2D120 Backup System	EH884A
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**NOTE:** 2TB of Disk Storage.

HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit	EH924A
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**NOTE:** 2TB of Disk Storage.

**NOTE:** Please see the HP D2D Backup Systems QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/12651\\_na/12651\\_na.HTML](http://h18000.www1.hp.com/products/quickspecs/12651_na/12651_na.HTML)

### Options

#### Tape Autoloaders

##### HP StorageWorks DAT Autoloader

HP StorageWorks DAT 72x10 tape autoloader AE313B

##### HP StorageWorks 1/8 Tape Autoloader

HP StorageWorks 1/8 LTO-3 Ultrium 920 G2 Tape Autoloader AH165A

HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader AH558A

HP StorageWorks 1/8 LTO-2 Ultrium 448 G2 Tape Autoloader AH164A

HP StorageWorks 1/8 LTO-1 Ultrium 232 G2 Tape Autoloader AH163A

HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit AH166A

**NOTE:** Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions

**NOTE:** Please reference the Autoloader QuickSpecs at

<http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at

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

#### Tape Libraries

##### HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library AJ033A

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library AJ034A

HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library AG115A

HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library AG326B

HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library AH559A

HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library AH169A

HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library AG116A

##### HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 LTO-2 Ultrium 448 SCSI Drive Library AG320A

HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library AH560A

HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Drive Library AH171A

HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library AG322A

HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 4GB FC Library AG324B

HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library AJ035A

HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library AJ036A

##### HP StorageWorks MSL8096 Tape Library

HP StorageWorks MSL8096 2 LTO-3 Ultrium 920 SAS Drive Library AH561A

HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 4GB FC Library AH218A

HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 SCSI Drive Library AH219A

HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 SCSI Drive Library AJ039A

HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 4GB FC Library AJ040A

##### HP StorageWorks MSL6000 Tape Library

###### LTO-4 Ultrium 1840 technology

HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 SCSI Drive Library AJ029A

HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 4GB FC Library AJ030A

HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 SCSI Drive Library AJ031A

HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 4GB FC Library AJ032A

###### LTO-3 Ultrium 960 technology

HP StorageWorks MSL6030 1 LTO-3 Ultrium 960 Dr LVDS Library AD606B

HP StorageWorks MSL6030 1 LTO-3 Ultrium 960 Dr FC Library AD608B

HP StorageWorks MSL6030 2 LTO-3 Ultrium 960 Dr LVDS Library AD607B

HP StorageWorks MSL6030 2 LTO-3 Ultrium 960 Dr FC Library AD609B

### Options

HP StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20 <b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.	335921-B21
	HP StorageWorks Modular Smart Array 20 Starter Kit <b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller. <b>NOTE:</b> The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 3.5" Hot Plug Hard Drives.	366172-B21
HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB <b>NOTE:</b> Rack-mountable 14 drive enclosure with single bus, redundant power supplies	302969-B21
	HP StorageWorks Modular Smart Array 30 DB <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 Hot Plug Hard Drives.	302970-B21
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure <b>NOTE:</b> Please see the Modular Smart Array 50 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/12245_na/12245_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.HTML</a>	364430-B21
HP StorageWorks Modular Smart Array 500	HP StorageWorks Modular Smart Array 500 Generation 2 <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>	335880-B21
HP StorageWorks Modular Smart Array 1000	HP StorageWorks Modular Smart Array 1000 <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>	201723-B22
HP StorageWorks Modular Smart Array 1500 cs	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

### Options

<b>Cluster Options</b>	<p>ProLiant Cluster Starter Kit <span style="float: right;">364023-B22</span></p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at:  <a href="http://h18000.www1.hp.com/products/quickspecs/11935_na/11935_na.html">http://h18000.www1.hp.com/products/quickspecs/11935_na/11935_na.html</a></p> <p>HP HA/F200 for Entry SAN Cluster <span style="float: right;">364026-B22</span></p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at:  <a href="http://h18000.www1.hp.com/products/quickspecs/11932_na/11932_na.html">http://h18000.www1.hp.com/products/quickspecs/11932_na/11932_na.html</a></p> <p><b>NOTE:</b> For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: <a href="http://www.hp.com/solutions/highavailability/oracle">http://www.hp.com/solutions/highavailability/oracle</a></p> <p>HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 &amp; 10 and Red Hat EL 3 &amp; 4 (2 node license cluster kit) <span style="float: right;">305199-B26</span></p> <p>HP Serviceguard for Linux ProLiant Cluster, A.11.18 (2 license version - Red Hat EL 4&amp;5, SUSE SLES10) <span style="float: right;">305199-B27</span></p> <p>HP Serviceguard for Linux A.11.16 for SUSE SLES 9 &amp; 10 and Red Hat EL 3 &amp; 4 (single license version) <span style="float: right;">307754-B26</span></p> <p>HP Serviceguard for Linux, A.11.18 (single license version - Red Hat EL 4&amp;5, SUSE SLES10) <span style="float: right;">307754-B27</span></p> <p>HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription <span style="float: right;">T2798AA#001</span></p> <p>HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription <span style="float: right;">T2798AA#003</span></p> <p><b>NOTE:</b> For additional information regarding HP Serviceguard for Linux, 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></p> <p><b>NOTE:</b> For configuration/certification options for HP Serviceguard for Linux please go to: <a href="http://www.hp.com/info/sglx">http://www.hp.com/info/sglx</a></p>
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### StorageWorks Options

#### StorageWorks Fibre Channel HBA

**NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:  
<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A

#### StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter	AH627A
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**NOTE:** Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.

### Options

Uninterruptible Power Systems – Rack Mountable	HP, R1.5kVA UPS, 1U	AF419A
	HP R3000 VA UPS, 2U, L5-30	AF422A
	HP R3000 VA UPS, 2U, L6-20	AF423A
	HP R5500 VA UPS	AF426A

Power Cords	<b>NOTE:</b> The HP ProLiant DL360 G5 ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).	
	Nema 5-15P to IEC320-C13	AF556A

HP Monitored Power Distribution Unit (PDU)	<b>HP Monitored Power Distribution Unit: Full Rack Version</b>	
	17.3 kVA Monitored PDU Model S2324	AF503A
	8.6 kVA Monitored PDU Model S1324	AF504A
	16.6 kVA Monitored PDU Model S2140	AF505A
	8.3 kVA Monitored PDU Model S1140	AF506A
	22 kVA Monitored PDU Model S2316	AF507A
	11 kVA Monitored PDU Model S1316	AF508A
	14.7 kVA Monitored PDU Model S2132	AF509A
	7.3 kVA Monitored PDU Model S1132	AF510A
	4.9kVA Monitored PDU model S124	AF914A
7.3kVA Monitored PDU model S132	AF915A	

Modular PDUs 1U/0U (Up to 32 outlets) <b>NOTE:</b> 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	Fixed Cord Extension Bars	351655-B21
	<b>NOTE:</b> Two extension bar sticks; each with (7) C13 plugs.	
	3.6kVA Model - mPDU, 16A, High	252663-B24
	2.8 kVA Model - mPDU, 24A, Low	252663-D71
	4.9kVA Model - mPDU, 24A, High	252663-D72
	8.3kVA Model - mPDU, 40A, High	252663-B21
	8.3kVA Model - mPDU, 40A, High (power cord attached)	252663-D73
	8.3kVA Model - mPDU 40A, High (core only)	252663-D75
	4.9kVA Model - mPDU 24A, High (core only)	252663-D74
	<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>	

USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21

HP ProLiant DL360 G5 Deployment Options	700W HP redundant power supply with IEC cord only	399542-B21
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### Options

Rack Kits	1U Cable Management Arm <b>NOTE:</b> Package contains two cable management arms.	365403-B21
HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack Unassembled <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_na/12074_na.HTML">http://h18000.www1.hp.com/products/quickspecs/12074_na/12074_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> .	358254-B21
HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet – Pallet AF001A 10642 G2 (42U) Rack Cabinet – Shock Pallet AF002A 10642 G2 (42U) Rack Cabinet – Crated AF003A 10642 G2 (42U) Rack Cabinet, with Extension – Shock Pallet AF004A 10636 G2 (36U) Rack Cabinet – Pallet AF011A 10636 G2 (36U) Rack Cabinet – Shock Pallet AF012A 10636 G2 (36U) Rack Cabinet – Crated AF013A 10636 G2 (36U) Rack Cabinet, with Extension – Shock Pallet AF014A 10622 G2 (22U) Rack Cabinet - Pallet AF021A 10622 G2 (22U) Rack Cabinet - Shock Pallet AF022A 10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet AF041A 10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet AF042A 10647 G2 (47U) Rack Cabinet - Pallet AF031A <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> .	
HP Rack 10000 Series (Graphite Metallic)	HP Rack S10614 (14U) Rack Cabinet – Shock Pallet 292302-B22 <b>NOTE:</b> xxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). <b>NOTE:</b> It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all HP equipment is qualified to be shipped in the Rack 10000 series <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_na/10995_na.HTML">http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_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>	

### Options

<b>Keyboards and Monitors</b>	TFT7210R Rack Mounted 17" Monitor	348373-B21
	TFT7600 Rackmount Keyboard Monitor	AG052A
	1U Rackmount Keyboard with USB	AG072A

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

<b>HP KVM Switch Options</b>	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
	<b>NOTE:</b> Requires PS/2 and one USB port on server.	
	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 1x4 Console Switch	AF611A
	PS2 Server Console Cable, 6 ft, 2 pack	AF612A
USB Server Console Cable, 6 ft, 2 pack	AF613A	

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

<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

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

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

## Options

Service and Support Offerings (HP Care Pack Services)	<b>Hardware Services 4-Hour On-site Service</b>	
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4496E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4497E
	<b>Hardware Services 6-Hour Call to Repair On-site Service</b>	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4498E
	<b>Hardware Services Next Business Day On-Site Service</b>	
	Hardware Installation, Electronic	U4506E
	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	U4507E
	<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	U4508E
<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, Electronic	U4509E	
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	U6310E	
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	U8332E	
<b>NOTE:</b> For more information, customer/resellers can contact <a href="http://www.hp.com/services/carepack">http://www.hp.com/services/carepack</a> .		

### Memory

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

**NOTE:** Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

#### HP ProLiant DL360 G5 Entry and Base Models

##### Standard Memory

1 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) installed (2 x 512 MB)

##### Upgrading Memory and Memory Interleaving

When upgrading memory, DIMMs 1A and 3A must match. DIMMs 5B and 7B, DIMMs 2C and 4C, and DIMMs 6D and 8D must match and must be installed as a pair. When DIMMs 1A and 2A are populated the system is automatically configured for 2:1 interleaving. When all 4 banks are populated the system is automatically configured for 4:1 interleaving. When four, six, or eight DIMMs are populated with identical DIMMs the system is automatically configured for bank interleaving.

##### Standard Memory Plus Optional Memory

Up to 25 GB memory is available with the standard memory of 1 GB and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

##### Standard Memory Replaced with Optional Memory

Up to 32 GB of memory is available with the removal of the standard 512 MB of memory and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

**NOTE:** 4 GB Fully Buffered DIMMs kits will be available shortly following server availability to allow a maximum of 32 GB. Today's maximum is 16 GB utilizing 2 GB DIMMs.

**NOTE:** Chart does not represent all possible configurations.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	1 GB	512 MB	512 MB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	25 GB	512 MB	512 MB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

**NOTE:** In the online spare configuration, the ROM automatically configures the last populated bank as the spare memory. If only banks A and B are populated, bank B is the spare bank. If banks A, B, and C are populated, bank C is the spare bank, If banks A, B, C and D are populated, bank D is the spare bank, Online spare memory is configured through RBSU.

**NOTE:** Mirrored Memory uses mirrored banks to provide a high level of memory redundancy. Customer chooses to implement or not: User selectable via BIOS and default is off.

#### Following are memory options available from HP:

1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21

### Memory

#### HP ProLiant DL360 G5 Performance Models

##### Standard Memory

2 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) (2 x 1 GB)

##### Upgrading Memory and Memory Interleaving

When upgrading memory, DIMMs 1A and 2A must match. DIMMs 3B and 4B, DIMMs 5C and 6C, and DIMMs 7D and 8D must match and must be installed as a pair. When DIMMs 1A and 2A are populated the system is automatically configured for 2:1 interleaving. When all 4 banks are populated the system is automatically configured for 4:1 interleaving. When four, six, or eight DIMMs are populated with identical DIMMs the system is automatically configured for bank interleaving.

##### Standard Memory Plus Optional Memory

Up to 14 GB memory is available with the standard memory of 2 GB and the optional installation PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

##### Standard Memory Replaced with Optional Memory

Up to 32 GB of memory is available with the removal of the standard 1 GB of memory and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

**NOTE:** Chart does not represent all possible configurations.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	2 GB	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	14 GB	1 GB	1 GB	2 GB	2 GB	2 GB	2 GB	2 GB	2 GB
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

**NOTE:** In the online spare configuration, the ROM automatically configures the last populated bank as the spare memory. If only banks A and B are populated, bank B is the spare bank. If banks A, B, and C are populated, bank C is the spare bank, Online spare memory is configured through RBSU.

**NOTE:** Mirrored Memory uses mirrored banks to provide a high level of memory redundancy. Customer chooses to implement or not: User selectable via BIOS and default is off.

Following are memory options available from HP:

1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21

Online spare FBDIMM configuration requirements (in addition to general configuration requirements):

- When only bank A is being used, it must be fully populated with dual-rank FBDIMMs.
- If banks A and C are being used, they must be fully populated.
- If installed, bank A and bank C must contain FBDIMMs with identical part numbers.
- If installed, bank B and bank D must also contain FBDIMMs with identical part numbers.

In online spare mode, FBDIMMs must be populated as specified in the following table:

Configuration	Branch 0 Bank A 1A and 3A	Branch 0 Bank C 2C and 4C	Branch 1 Bank B 5B and 7B	Branch 1 Bank D 6D and 8D
1*	X	-	-	-
2	X	X	-	-
3	X	X	X	X

**\*NOTE:** Configuration 1 is only supported if using bank A, populated with dual-rank FBDIMMs.

### Memory

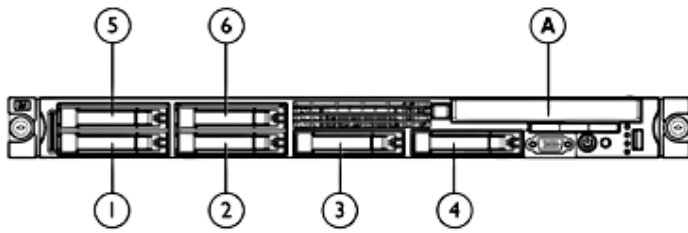
Mirrored memory FBDIMMs configuration requirements (in addition to general configuration requirements):

- Banks A and B must be fully populated.
- Bank A and bank B must contain FBDIMMs with identical part numbers. If installed, bank C and bank D must also contain FBDIMMs with identical part numbers.

When using mirrored memory mode, FBDIMMs must be populated as specified in the following table:

Configuration	Bank A 1A and 3A	Bank B 5B and 7B	Bank C 2C and 4C	Bank D 6D and 8D
1	X	X	-	-
2	X	X	X	X

### Storage



- 1-6 6 x SFF SAS Hot Pluggable Hard Drive Bays
- A Slimline Bay: Optional optical or floppy drive

### Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
Slimline 1.44-MB Diskette Drive	Up to 1	A	Integrated
Slimline 24x IDE CD-ROM Drive	Up to 1	A	Integrated IDE
Slimline DVD-ROM Drive (8x/24x) Option Kit (Servers)	Up to 1	A	Integrated IDE
Slimline DVD/CD-RW Combo Option Kit	Up to 1	A	Integrated IDE
Slimline DVD-RW Drive (8X) Option Kit	Up to 1	A	Integrated IDE

### Hard Drives

#### Hot Plug SFF SAS 2.5" Drives

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K SP	6	1-6	HP Smart Array E200i/64MB Controller
146GB 3G SAS 10K DP			HP Smart Array E500 Controller
72GB 3G SAS 10K SP			HP Smart Array P400i/512MB BBWC Controller
72GB 3G SAS 10K DP			HP Smart Array P400i/256MB Controller
72GB 3G SAS 15K SP			HP Smart Array P600/256 BBWC Controller
72GB 3G SAS 15K DP			HP Smart Array P800/512 BBWC Controller
36GB 3G SAS 10K SP			Please see <b>NOTES</b> below regarding hard drive quantity supported by Smart Array Controller.
36GB 3G SAS 15K SP			
36GB 3G SAS 15K DP			
36GB 3G SAS 15K DP			

**NOTE:** The Smart Array E200i Controller can support a maximum of 4 hard drives.

**NOTE:** The Smart Array P400i Controller can support a maximum of 6 hard drives. To support drives 5 and 6, the optional HP Mini SAS 4i 13.4 inch/0.35 m cable is required (PN 399546-B21).

**NOTE:** The Smart Array P600 Controller requires HP SAS 4i to Mini SAS 4i 31 inch/.79 meter cable (PN 411100-B21).

### Storage

#### Serial-ATA (SATA) Hard Drive

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K	6	1-6	HP Smart Array E200i/64MB Controller
60GB 1.5G SATA 5.4K			HP Smart Array E500 Controller
			HP Smart Array P400i/512MB BBWC Controller
			HP Smart Array P400i/256MB Controller
			HP Smart Array P600/256 BBWC Controller
			HP Smart Array P800/512 BBWC Controller
			Please see <b>NOTES</b> below regarding hard drive quantity supported by Smart Array Controller.

**NOTE:** The Smart Array E200i Controller can support a maximum of 4 hard drives.

**NOTE:** The Smart Array P400i Controller can support a maximum of 6 hard drives. To support drives 5 and 6, the optional HP Mini SAS 4i 13.4 inch/0.35 m cable is required (PN 399546-B21).

**NOTE:** The Smart Array P600 Controller requires HP SAS 4i to Mini SAS 4i 31 inch/.79 meter cable (PN 411100-B21).

#### External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Family	Please see the Modular Smart Array 20 QuickSpecs to determine configuration requirements	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
Modular Smart Array 30 Family	Please see the Modular Smart Array 30 QuickSpecs to determine configuration requirements.	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
Modular Smart Array 50 Enclosure	2	External	HP Smart Array P600/256 BBWC Controller
Modular Smart Array 500 G2 System	1	External	Smart Array 642 Controller (used as Host Bus Adapter) Please see the Modular Smart Array 500 G2 QuickSpecs for the latest list of supported HBAs: <a href="http://www.hp.com/go/msa500">http://www.hp.com/go/msa500</a>
Modular Smart Array 1500 cs	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

## Storage

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

### Tape Drives, Tape Autoloaders, Tape Libraries & D2D Backup

**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 and 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>

**NOTE:** SAS Tape Drives: Connecting hard drive cage and SAS tape to the same SAS Controller using split cable (supplied with tape drive) deactivates 1 of the hard drive bays. Actual hard drive bay deactivated depends on where split cable plugs into SAS drive connector. Example: 3x SAS cable connector plugged into SAS drive connector (5-8) on the back of the hard drive cage would mean drive bay 8 is deactivated.

	Position Supported	Controller	Controller Part Number
<b>HP StorageWorks SCSI Tape Drives, External</b>	External	HP SC11Xe Host Bus Adapter	412911-B21
LTO-1 Ultrium 232			
LTO-2 Ultrium 448			
LTO-2 Ultrium 460			
LTO-3 Ultrium 920			
LTO-3 Ultrium 960			
LTO-4 Ultrium 1840			
DAT 40			
DAT 72			
DAT 160			
DLT VS160			
SDLT 600			
1U Rack-Mount Kit			
3U Rack-Mount Kit			
<b>HP StorageWorks USB Tape Drives, External</b>	External	USB 2.0 Port	N/A
DAT 40 USB			
DAT 72 USB			
DAT 160 USB			
1U USB Rack-Mount Kit			

### Storage

<b>HP StorageWorks SAS Tape Drives, External</b> LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS 1U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter <b>NOTE: Recommended.</b> HP Smart Array E500 Controller <b>NOTE: The following SAS Smart Array controllers require ROM Flash version 2.04 or higher for SAS tape support:</b> HP Smart Array P400/256MB Controller HP Smart Array P400/512MB Controller	416096-B21  435129-B21  405132-B21 411064-B21
<b>HP StorageWorks SCSI Tape Automation, External</b> DAT 72x10 Autoloader 1/8 Tape Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC11Xe Host Bus Adapter  HP U320e SCSI Host Bus Adapter <b>NOTE: Only valid for MSL tape libraries.</b>	412911-B21  AH627A
<b>HP StorageWorks SAS Tape Automation, External</b> 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP SC44Ge Host Bus Adapter  <b>NOTE: Please visit <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a> for details about minimum SAS controller firmware version and SAS cabling requirements.</b>	416096-B21
<b>HP StorageWorks Fibre Tape Automation, External</b> MSL2024 MSL4048 MSL6000	External	Please consult the EBS connectivity matrix at <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a> for detailed connectivity information.	N/A
<b>HP StorageWorks D2D Backup Systems</b> D2D110 D2D120	External	Embedded Network Controller	N/A

## Power Specifications

To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL:  
<http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls>

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL360 G5
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D) (with bezel)	1.70 x 16.78 x 27.75 in (4.32 x 42.62 x 70.49 cm)	
	<b>Weight</b> (approximate)	Maximum (all hard drives, power supplies, and processors installed)	37 lb (16.78 kg)
		Minimum (one hard drive, power supply, and processor installed)	27.5 lb (12.47 kg)
<b>Input Requirements</b> (per power supply)	<b>Rated Line Voltage</b>	90 - 132 VAC, 180 - 264 VAC	
	<b>Rated Input Current</b>	8.5 A (at 100 VAC), 4.2 A (at 200 VAC)	
	<b>Rated Input Frequency</b>	47 to 63 Hz	
	<b>Rated Input Power</b>	854 W (at 100 VAC), 844 W (at 200 VAC)	
<b>BTU Rating</b>	Maximum	2916 BTU/hr (at 100 VAC), 2882 BTU/hr (at 200 VAC)	
<b>Power Specifications</b>	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: <a href="http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls">http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls</a>  - Click on the system of interest. Example: DL360 G5 - Follow the instructions of the next screens.		
<b>Power Supply Output</b> (per power supply)	<b>Rated Steady-State Power</b>	700 W (at 100 VAC), 700 W (at 200 VAC)	
	<b>Maximum Peak Power</b>	700 W (at 100 VAC), 700 W (at 200 VAC)	
<b>System Inlet Temperature</b>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).	
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).	
<b>Relative Humidity</b> (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.	
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.	

### Technical Specifications

<b>Altitude</b>	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
<b>Acoustic Noise</b>	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle	
	L WAd	6.4 B
	L pAm	49 dBA
	Operating	
L WAd	6.4 B	
L pAm	49 dBA	

<b>Smart Array E200i Controller</b>	<b>Disk Drive and Enclosure Interface</b>	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)	
	<b>SAS Connectors</b>	2 internal (SFF8484) x4 wide port connectors	
	<b>Cache Memory Speed</b>	DDR-1/266 MHz provides up to 4.2 GB/s maximum bandwidth.	
	<b>Server Interface</b>	x4 2.5G PCIe provides 2GB/s maximum bandwidth.	
	<b>SAS Speed</b>	x8 3G SAS provides 2.4GB/s maximum bandwidth.	
	<b>Cache Memory</b>	40-bit 64MB or 128MB cache: ECC protection, battery-backed, and transportable	
	<b>Logical Volumes Supported</b>	Up to 32 logical volumes	
	<b>Maximum Volume Capacity</b>	3TB (6 x 500GB)	
	<b>Host Memory Addressing</b>	64-bit, supporting greater than 4GB server memory space	
	<b>RAID Support</b>	RAID 5 (Distributed Data Guarding) requires 128MB BBWC option	
		RAID 1, 1+0 (Striping & Mirroring)	
		RAID 0 (Striping)	
	<b>Upgradeable Firmware</b>	Upgradeable Firmware	

### Technical Specifications

<b>Smart Array P400i Controller</b>	<b>Disk Drive and Enclosure Interface</b>	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	<b>SAS Connectors</b>	2 internal (SFF8484) x4 wide port connectors
	<b>Cache Memory Speed</b>	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	<b>Server Interface</b>	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	<b>SAS Speed</b>	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	<b>Cache Memory</b>	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	<b>Logical Drives Supported</b>	Up to 32 logical drives
	<b>Maximum Logical Drive Capacity</b>	3 TB (6 x 500GB)
	<b>Host Memory Addressing</b>	64-bit, supporting greater than 4GB server memory space
	<b>RAID Support</b>	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade
		RAID 5 (Distributed Data Guarding)
		RAID 1+0 (Striping & Mirroring)
		RAID 0 (Striping)
	<b>Upgradeable Firmware</b>	Upgradeable Firmware with recovery ROM feature

<b>Embedded NC373i Multifunction Gigabit Server Adapters</b>	<b>Network Interface</b>	10/100/1000-T		
	<b>Compatibility</b>	EEE 802.3 10Base-T		
		IEEE 802.3ab 1000Base-T		
		IEEE 802.3u 100Base-TX		
	<b>Data Transfer Method</b>	PCI Express, four lanes (x4)		
	<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)	2000 Mb/s	
<b>Connector</b>	RJ-45			
<b>Cable Support</b>	10Base-T	Categories 3, 4 or 5 UTP up to 328 ft (100 m)		
	10/100/1000 Base-TX	Category 5 UTP up to 328 ft (100 m)		

### Technical Specifications

#### Environment-friendly Products and Approach

#### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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