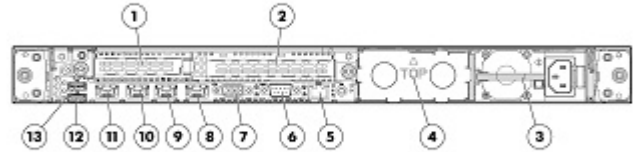
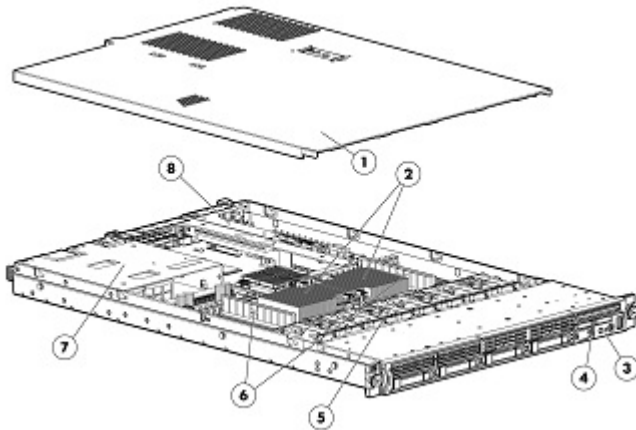


Overview



Front View:

1. Hood Cover
2. Up to two Intel Six-Core, Quad-Core or Dual-Core Xeon™ processors)
3. Video connector
4. Slide-out System Insight Display (SID)
5. Removable fan modules for easy serviceability
6. Eighteen DIMM slots: DDR3 Registered (RDIMM) or Unbuffered (UDIMM) memory
7. Redundant Hot Plug Power Supplies (upgradeable option)
8. 2 PCI-E Slots

Rear View:

1. PCI Express expansion slot 1, low profile
2. PCI Express expansion slot 2 full-height full-length x16 (16, 8, 4, 2, 1), 75W +EXT 75W (option for PCI-X card only support)
3. Power supply bay 1 (populated)
4. Power supply bay 2
5. iLO 3 NIC connector
6. Serial connector
7. Video connector
8. NIC 4 connector
9. NIC 3 connector
10. NIC 2 connector
11. NIC 1 connector
12. USB connector
13. USB connector

At A Glance

The HP ProLiant DL360 G7 combines performance, intelligent power and cooling management with IT management tools and essential fault tolerance, all optimized for space constrained installations. A 1U server with the improved performance of the latest Intel 5600 series processors, Unique HP Thermal Logic Technologies that provide leadership in energy efficiencies and ProLiant iLO 3 remote management. HP continues to provide more performance, flexibility and efficiency for space constrained environments.

● Processors:

- Up to 2 Six-Core, Quad-Core or Dual-Core Intel® Xeon® 5600 or 5500 sequence processors
- Intel® 5520 Chipset

● Memory:

- 18 DDR3 DIMM slots available for RDIMM or UDIMM memory devices
- Memory speeds up to 1333MHz with select processors, memory DIMMs and population.
- Up to 192GB, using 16GB Quad Rank PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when populated at 2 DIMMs per Channel in 12 slots.
- Up to 48GB, using 4GB PC3-10600 DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when populated at 2 DIMMs per Channel in 12 slots.



Overview

- **Storage Controller:**
 - Entry Models: HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
 - Base Models: HP Smart Array P410i/256 MB Controller (RAID 0/1/1+0/5/5+0)
 - Performance Models: HP Smart Array P410i/1G FBWC Controller (RAID 0/1/1+0/5/5+0)
 - Available Smart Array upgrades: 256MB, Battery kit upgrade (to add BBWC to the 256MB Memory option), 512MB BBWC, 512MB FBWC or 1G FBWC and Smart Array Advanced Pack (SAAP)
- **Internal Drive Support:**
 - 4 or 8 small form factor (SFF) hot-plug drive bay options
 - Slimline media bay supporting DVD -ROM/DVD-RW (available only on 4 HDD models)
- **Network Controller:**
 - Two HP NC382i Dual Port Multifunction Gigabit Server Adapter (4 x 1Gb ports total) with TCP/IP Offload Engine, including support for Accelerated iSCSI, plus additional iLO 3 NIC
- **Expansion Slots:**
 - Two PCI-Express Gen 2 expansion slots: (1) full-length, full-height slot and (1) low-profile slot
 - Optional PCI-X Riser expansion slot for PCI-X cards only
- **Ports:**
 - USB 2.0 Support: 4 Total: (1) front, (1) internal for security and (2) rear accessible ports
 - 1 internal Secure Digital (SD) slot
 - Video (2 ports, 1 front and 1 rear)
 - Serial port, 1 rear
 - NOTE: PS/2 ports have been removed for NIC expansion.
- **Integrated Hypervisors (Optional):**
 - VMware virtualization technology
 - Citrix XenServer virtualization technology
- **Redundancy:**
 - Multiple layers of fault tolerance through critical component redundancy (power supply and fan redundancy), mirrored memory, embedded RAID capability, and full-featured remote iLO 3 management.
- **HP Unique Technology:**
 - Built-In Thermal Logic Technologies
 - Sea of Sensors: Intelligent automated management of power and cooling systems to save energy costs
 - Dynamic Power Capping, customer set limits for reduced power usage within performance requirements
- **Power Sources:**
 - Dual Common Slot (CS) Bays for High Efficiency, Right Sized, Hot plug and Redundant Power options
 - HP 460W CS HE Gold Power Supply (ships standard)
 - HP 750W CS HE Gold Power Supply (optional)
 - HP 1200W CS HE Silver Power Supply (optional)
 - HP 1200W -48Vdc Power Supply(optional)
- **Infrastructure Management:**
 - Convenient slide-out Systems Insight Display (SID) for quick and easy front view of server status LEDs, server diagnostics, Automatic Server Recovery (ASR) and ROM Based Setup Utility (RBSU)
 - HP Integrated Lights-Out 3 (iLO 3) management processor for simplified server setup, health monitoring and recovery, power and thermal control, and lights out remote administration.
 - HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
 - HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements.
- **Form Factor:**
 - 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep
- **Operating Systems and Virtualization Software Support for ProLiant Servers:**



Overview

- Supports Microsoft Windows, RHEL, SLES, OEL, Oracle Solaris, VMware, Microsoft Windows HyperV and Citrix XenServer, SLES XEN and Red Hat Virtualization
- **Deployment/Serviceability:**
 - Sliding rails for in rack servicing ship standard; optional 1U Cable Management Arm
 - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement
- **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. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

NOTE: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. 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 the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor	Six-Core Processors Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3) Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3) Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3) Intel® Xeon® Processor L5640 (2.26 GHz, 12MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 2/2/3/3/4/4) Quad-Core Processors Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) Intel® Xeon® Processor L5630 (2.13 GHz, 12MB L3 Cache, 40 Watts, DDR3-1066, HT Turbo 1/1/2/2) Dual-Core Processors Intel® Xeon® Processor E5503 (2.00GHz, 4MB L3 Cache, 80 Watts, DDR3-800) NOTE: Up to 2 processors supported. Performance Model configurations include two processors. NOTE: HT indicates that the processor model supports Intel® /Hyper-Threading Technology NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 6,5,4,3,2 and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5600 and 5500 Series, the letter preceding the model number indicated the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
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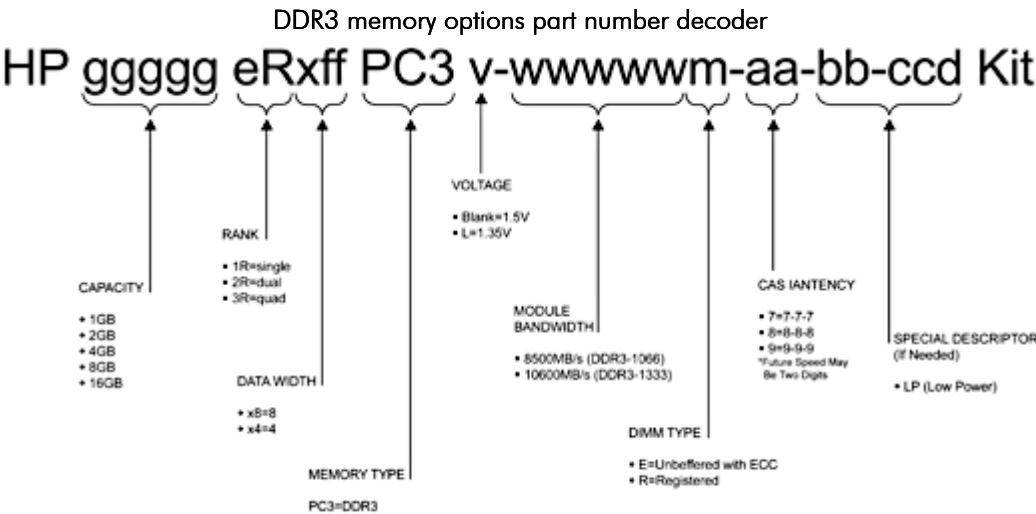
Cache Memory	12MB (1 x 12MB) Level 3 cache NOTE: All processor models except for those identified below. 4MB (1 x 4MB) Level 3 cache NOTE: For processors E5506/E5503.
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Chipset	Intel® 5520 Chipset NOTE: For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/ .
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Standard Features

Memory Protection	Advanced ECC (multi-bit error protection)
	Online Spare mode (available with Intel Xeon 5600 Series processors)
	Mirroring mode
	Lock-step mode

Memory	Type	DDR3 Registered (RDIMM) or Unbuffered (UDIMM)
	Standard (Performance Models)	12GB (6 x 2GB) RDIMM
	Standard (Base Models)	6GB (3 x 2GB) RDIMM
	Standard (Entry Model)	4GB (2 x 2GB) RDIMM
	Maximum Capacity (RDIMM)	192GB (12 x 16GB) for Registered Memory configurations
	Maximum Capacity (UDIMM)	48GB (12 x 4GB) for Unbuffered Memory configurations
NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator .		
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient .		



Network Controller	Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total) with TCP/IP Offload Engine, including support for Accelerated iSCSI
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Standard Features

Expansion Slots	Expansion Slots #	Technology	Bus Width*	Connector Width	Form Factor	Notes
	1	PCI-e	x8	x8	Low profile slot	
	2	PCI-e	x16	x16	Full-length, full-height slot	
	2	PCI-X** (133 MHz, 3.3 Voltage)	64-bit		Full-length, full-height slot	
* Indicates the number of physical electrical lanes running to the connector.						
** Indicates Option kit designed for PCI-X cards only.						
NOTE: For external power requirements for PCI options a PCI Thermal-Power Kit is offered optionally for higher power requirements.						
<hr/>						
Storage Controller One of the following depending on Model	Entry Models	HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)				
	Base Models	HP Smart Array P410i/256 MB Controller (RAID 0/1/1+0/5/5+0)				
	Performance Model	HP Smart Array P410i/1G FBWC Controller (RAID 0/1/1+0/5/5+0)				
	Available upgrades: 256MB, Battery kit upgrade (for 256MB BBWC), 512MB with BBWC, 512MB FBWC, 1G FBWC, and Smart Array Advanced Pack (SAAP-RAID 6 and 6+0).					
	<hr/>					
Storage	Diskette Drive	None Standard				
	Optical Drive	Optional: DVD-ROM, DVD-RW or Slimline floppy drive				
	One of the following depending on Model	NOTE: This option available on 4 drive bay models only.				
		Optional HP External USB CD/DVD R/RW for 8 drive models				
	Hard Drives	None Standard/Optional				
Drive Bays	4 SFF Bays standard with option for up to 8 SFF drive bays total.					
	NOTE: 4 bays standard in Entry, Base and CTO models, with optional upgrade to 8 bays with the SFF HD Backplane Kit (516966-B21). No CD or DVD options available when server is configured with 8 drive bays.					
	NOTE: This option available for 8 drive models. HP External USB CD/DVD R/RW Drive available for 8 drive systems (must be ordered separately).					
<hr/>						
Maximum Internal Storage Type	Hot Plug SAS	4.0TB		8 x 500GB SAS		
	Hot Plug SATA	4.0TB		8 x 500GB SATA		



Standard Features

Interfaces	Serial	1
	Video	1
	Network RJ-45	4
	iLO 3 remote RJ-45 management port	1
	SD slot	1 Internal secure
	USB 2.0 Ports	4 total: 2 rear, 1 front, 1 internal (secure)
	NOTE: Keyboard and Mouse access through USB ports. Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html .	
<hr/>		
Graphics	Integrated ATI ES1000, 32MB video standard	
	<ul style="list-style-type: none">• 16 bit color: maximum resolution of 1600 x 1200• 32 bit color: maximum resolution of 1280 x 1024	
	NOTE: Maximum resolution available via iLO 3 remote console for ProLiant is 1280 x 1024 (for 32 bit color) and 1600 x 1200 (DVR max resolution).	
<hr/>		
Form Factor	1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep	
<hr/>		
HP Insight management software	HP Insight Foundation	<p>Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.</p> <p>HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation.</p> <p>The foundation pack includes:</p> <ul style="list-style-type: none">• HP SmartStart• HP Management• HP ProLiant Firmware Maintenance <p>SmartStart version supported (minimum): SmartStart 8.40. http://www.hp.com/servers/smartstart</p> <p>NOTE: In an effort to support reducing our environmental impact, the HP ProLiant Essentials Foundation Pack media will be available as a selectable option for this server at time of order of a CTO SKU. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.</p>
	HP Integrated Lights-Out 3 (iLO 3)	HP Integrated Lights-Out 3 (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-

Standard Features

HP Insight Control

in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO

HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol

HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: <http://www.hp.com/services/insight>.

HP Insight Dynamics for ProLiant, a product option, is advanced infrastructure management software that enables IT staff to instantly adjust their environments to meet dynamic business demands by provisioning, optimizing and protecting complex infrastructure in minutes. It's a powerful toolkit, integrated-by-design, that accelerates complex technology projects and simplifies daily operations, transforming data center economics. With Insight Dynamics IT professionals can plan capacity and power continuously, balance workloads across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location.

NOTE: For more information, visit:
<http://www.hp.com/go/insightdynamics>

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
- SMBIOS 2.6.1



Standard Features

Security	<p>Power-on password</p> <p>Keyboard password</p> <p>QuickLock, Network Server Mode</p> <p>Serial interface control</p> <p>Administrator's password</p> <p>iLO 3 (Integrated Lights-Out 3) has 12 customizable user accounts and SSL encryption</p> <p>iLO 3 can be disabled via a Global Setting</p> <p>iLO Advanced supports directory services integration</p>
Security Trusted Platform Module	<p>The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: www.hp.com/go/TPM</p> <p>NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.</p> <p>NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.</p>
Server Power Cords	<p>All Standard Model (BTO) servers ship with a high voltage server to PDU power cord. Localized cables may be included with geographic specific models in other world regions.</p> <p>NOTE: ProLiant DL servers do not ship standard with NEMA power cords 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 ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a standard wall receptacle (NEMA-15), the NEMA power cord must be ordered separately and the server will be shipped with both cords. If the order is a Factory-Integration or CTO order only the NEMA-15 power will be shipped. See Power Cords in the Additional Options section below for selection for your region.</p>
UPS Power Cord Matrix	<p>Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units:</p> <p>http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html</p>



Standard Features

Power Supply

HP's Common Slot Power Supply bay design provides the customer with commonality in power supplies across multiple platforms, saving on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with Common Slot, High Efficiency and Right-Size Power Supplies. Common Slot (CS) designates commonality of the power supply across multiple ProLiant servers. HP's new Common Slot power supplies are designed to provide power efficiency without degrading performance of the ProLiant. Power Supplies will have efficiency ratings up to 92%. There are multiple Right Size power options available, depending on the support and configuration of your server. Check the Power Supplies section for power sizes supported. To make sure you select the correct power supply to meet your configuration, we suggest that you use the HP Power Advisor to decide the "Right-Size" for your configuration. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant.

The HP Power Advisor is located at: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

NOTE: All HP Common Slot Power Supplies are not supported by all ProLiant Servers. Please check your server QuickSpecs to confirm support by that server.

Common Slot ProLiant

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP offers multiple Power Supply Options. The following are available for the DL360 G7 server. Power Supplies available:

- HP 460Watts, Common Slot, 92% Efficiency 80PLUS GOLD (ships standard on most models)
- HP 750Watts, Common Slot, 92% Efficiency 80PLUS GOLD
- HP 1200Watts, Common Slot, 90% Efficiency 80PLUS SILVER
- HP 1200W -48Vdc, Common Slot Power Supply

HP's ProLiant Common Slot Power supplies (460W & 750W) support multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative GOLD, 80PLUS GOLD and plans on offering models that meet the Energy Star for Server requirements when they are published.

HP's ProLiant Common Slot Power supplies (1200W) support multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative Bronze, 80PLUS SILVER Power Supply requirements.

HP's -48VDC power supply is designed for those environments that require DC Voltage to operate. This power supply supplies up to 1200Watts of power on 48 Volts DC and comes with a DC power cable.

Redundant Power: Optional (1 + 1 or n+n redundant) power supplies can be purchased through power supply option kits (see Redundant Options for part numbers).

System Fans

3 fan modules ship standard in 1 processor models
4 fan modules ship standard in 2 processor models
Fan redundancy standard with all modules

NOTE: The processor option kit contains 1 additional fan module, when upgrading from a 1 processor to two processor models. A Fan Module Option kit can also be purchased separately for use with PCI Graphics card upgrades. See HP PCI Thermal Power Kit (519254-B21) in the Core Options section.



Standard Features

Required Cabling

For required cabling information, refer to the Web site at:
<http://h18000.www1.hp.com/products/servers/proliantdl360/>.

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server
Microsoft Windows Hyper-V
Red Hat Enterprise Linux (RHEL)
SUSE Linux Enterprise Server (SLES)
Oracle Enterprise Linux (OEL)
Oracle Solaris
VMware
Citrix XenServer

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page www.hp.com/support/DL360G7.

Rack Airflow Requirements

Rack 10000 G2 series Cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 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: www.hp.com/servers/dl360.

Rack Kit

Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.

Telco Rack Support

Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions at: www.hp.com/go/rackandpower



Standard Features

Factory Express Portfolio for Servers and Storage

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

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

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

HP Enterprise Configurator

The HP eConfigure-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 capitalize 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>



Standard Features

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



Models

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

HP DL360 G7 Performance Model Six-Core Models DL360 G7 X5650 579239-xx1	Processor(s)	(2) Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	12 GB (6 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Network Controller	Two HP NC382i Dual Port Multifunction Gigabit Server Adapter (4 x 1Gb Ports)
	Storage Controller	HP Smart Array P410i/512MB with BBWC
	Hard Drive	None ship standard
	Internal Storage	8 SFF SAS/SATA HDD Bays
	Optical Drive	None ship standard
	PCI-Express Slots	PCIe 2.01-full-length, full-height and 1-low profile
	Power Supply	Two 460W Hot Plug Power Supplies, redundant
	Fans	4 total (redundancy standard)
	Insight Control	HP Insight Control No Media single server license, including 1 year of 24x7 Technical Support and Updates
	Form Factor	1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep

HP DL360 G7 Base Models Quad-Core Models DL360 G7 E5640 579240-xx1 DL360G7 E5630 579241-xx1	Processor(s)	(1) Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) (1) Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Network Controller	Two HP NC382i Dual Port Multifunction Gigabit Server Adapter (4 x 1Gb Ports)
	Storage Controller	HP Smart Array P410i/256MB Controller
	Hard Drive	None ship standard
	Internal Storage	4 SFF SAS/SATA HDD Bays (with optional 4SFF HDD upgrade)
	Optical Drive	One Multi-Media bay standard (not available with 4SFF HDD upgrade)
	PCI-Express Slots	PCIe 2.01-full-length, full-height and 1-low profile
	Power Supply	One 460W Hot Plug Power Supply
	Fans	3 total (3 fan modules in 1 Processor Models, 1 additional fan module with 2 Processor Model), fan redundancy standard
	Form Factor	1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep



Models

HP DL360 G7 Entry Model Quad-Core Models DL360 G7 E5506 579243-xx1	Processor(s)	(1) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Network Controller	Two HP NC382i Dual Port Multifunction Gigabit Server Adapter (4 x 1Gb Ports)
	Storage Controller	HP Smart Array P410i/Zero Memory Controller
	Hard Drive	None ship standard
	Internal Storage	4 SFF SAS/SATA HDD Bays (with optional 4SFF HDD upgrade)
	Optical Drive	One Multi-Media bay standard (not available with 4SFF HDD upgrade)
	PCI-Express Slots	PCIe 2.01 -full-length, full-height and 1-low profile
	Power Supply	One 460W Hot Plug Power Supply
	Fans	3 total (3 fan modules in 1 Processor Models, 1 additional fan module with 2 Processor Model), fan redundancy standard
	Form Factor	1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep

Country Code Key	xx=00	US
	xx=20	Brazil
	xx=29	Japan
	xx=37	APD
	xx=42	Europe
	xx=AA	PRC

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 information on CTO product offerings and requirements.

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

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

HP Models	HP ProLiant DL360 G7 Rack CTO Chassis	579237-B21
	Factory Integrated Model ships with:	
	Two HP NC382i Dual Port Multifunction Gigabit Server Adapter (4x1 Gb Ports)	
	HP Smart Array P410i/Zero Memory Controller	
	HP Integrated Lights-Out 3 (iLO 3) embedded	
	2 PCIe 2.0 Slots - 1 full-length, full-height x16 and 1 low-profile x8.	
	4 bay Hot-Plug SAS/SATA Drives(Factory Option for up to 8)	
	4 USB ports(1-front,1-internal, 2-rear)	
	1 Internal Secure Digital(SD) slot	
	3 fan modules; fan redundancy standard	
	1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep	

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

HP Processors	Six-Core Processors	
	Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3) FIO	588062-L21
	Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3) FIO	588064-L21
	Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3) FIO	588066-L21
	Intel® Xeon® Processor L5640 (2.26 GHz, 12MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 2/2/3/3/4/4) FIO	588078-L21
	Quad-Core Processors	
	Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) FIO	588068-L21
	Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) FIO	588070-L21
	Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) FIO	588072-L21
	Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) FIO	588074-L21
	Intel® Xeon® Processor L5630 (2.13GHz, 4MB L3 Cache, 40 Watts, DDR3-1066, HT Turbo 1/1/2/2) FIO	588080-L21
	Dual-Core Processors	
	Intel® Xeon® Processor E5503 (2.00 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) FIO	588076-L21

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

Configuration Information - Factory Integrated Models

processors.

NOTE: HT indicates that the processor model supports Intel® /Hyper-Threading Technology

NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4,3,2 and 1 cores active.

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

NOTE: For the Intel 5500 Series, the letter preceding the model number indicated the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.

HP Memory

Registered DIMMs (RDIMMs)

HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
HP 4GB 1Rx4 PC3-10600R-9 Kit	593339-B21
HP 4GB 1Rx4 PC3L-10600R-9 Kit	604504-B21

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
HP 8GB 2Rx4 PC3L-10600R-9 Kit	604506-B21

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21
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Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
HP 4GB 2Rx8 PC3-10600E-9 Kit	500672-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

NOTE: For more information on ProLiant Energy Efficient Features, see:

www.hp.com/go/proliant-energy-efficient

NOTE: PC3L is a low voltage memory.

HP Power Supplies

NOTE: Many HP ProLiant Servers offer Common Slot Power Supplies. These power supplies come in multiple power ratings with high efficiency levels to offer the Right-Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at "www.hp.com/go/proliant-energy-efficient" or www.hp.com/go/hppoweradvisor

NOTE: The following Common Slot Power Supplies are supported on the DL360 G7 Server.

HP 460W CS HE Power Supply Kit	503296-B21
HP 750W CS HE Power Supply Kit	512327-B21



Configuration Information - Factory Integrated Models

HP 1200W CS HE Power Supply Kit	500172-B21
HP 1200W -48V DC CS Power Supply	437573-B21
NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables. DC Power supplies come with DC power cable included.	

Step 3: Choose Additional Factory Integratable Options

HP Storage Controllers	NOTE: For additional Cache Memory Options for the standard integrated Smart Array(P410i) see HP Storage Controllers section in Step 4: below.	
	NOTE: For additional Storage Controller Options select from these options. See Additional Options in next section below for more details.	
	HP Smart Array P212/256 MB w/ Battery FIO	491191-B21
	HP Smart Array P411/256 MB w/ Battery FIO	491193-B21
HP Performance Packs	NOTE: For more information on optional controllers. http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html	
	The HP ProLiant DL360 G7 performance packs are necessary to configure a HP ProLiant DL360 G7 Performance Model. HP ProLiant DL360 G7 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd X5650 processor, redundant 460w power supplies, 1GB of FBWC and second HDD backplane for full 8 SFF hard drive support.	
	HP DL360G7 X5650 HPM FIO Perf Pack	593829-B21
HP Insight Software	HP Insight Control, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	582765-B21
	HP Insight Control for Linux, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	TC203A

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" sections below.

Core Options

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

HP Unique Options	HP DL360G7 SFF HD Backplane Kit	516966-B21
	NOTE: Integrated Optical/DVD cannot be used with this option. Optional External USB CD/DVD Drive available.	
	HP DL360 SL 12.7mm SATA DVD	532066-B21
	HP DL360 SL 12.7mm SATA DVD-RW Optical kit	532068-B21
	NOTE: Integrated DVD/Optical drive option is supported on 4 Hard drive models only.	
	PCI-X Riser option	518824-B21
	NOTE: For PCI-X Card support only.	
	NOTE: To convert full-length, full-height PCI-Express slot to PCI-X slot for PCI-X cards only.	

HP Processor	Six-Core Processors	
	Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	588062-B21
	Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	588064-B21
	Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	588066-B21
	Intel® Xeon® Processor L5640 (2.26 GHz, 12MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 2/2/3/3/4/4)	588078-B21
	Quad-Core Processors	
	Intel® Xeon® Processor E5640 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	588068-B21
	Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	588070-B21
	Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	588072-B21
	Intel® Xeon® Processor L5630 (2.13 GHz, 4MB L3 Cache, 40 Watts, DDR3-800)	588080-B21
	Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)	588074-B21
	Dual-Core Processors	
	Intel® Xeon® Processor E5503 (2.00 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)	588076-B21
	NOTE: Up to 2 processors supported. Performance Model configurations include two processors.	
	NOTE: HT indicates that the processor model supports Intel® /Hyper-Threading Technology	
	NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 6,5,4,3,2 and 1 cores active.	
	NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.	
	NOTE: For the Intel 5500 Series, the letter preceding the model number indicated the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.	



Core Options

HP Memory

Registered DIMMs (RDIMMs)

HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
HP 4GB 1Rx4 PC3-10600R-9 Kit	593339-B21
HP 4GB 1Rx4 PC3L-10600R-9 Kit	604504-B21

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
HP 8GB 2Rx4 PC3L-10600R-9 Kit	604506-B21

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21
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Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
HP 4GB 2Rx8 PC3-10600E-9 Kit	500672-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.

NOTE: PC3L is a low voltage memory.

HP Drive Cage Options

HP DL360G6 SFF HD Backplane Kit

516966-B21

NOTE: For 4 addition HD Bays, slots 5-8. This option will work on both DL360 G6 and G7 servers.

NOTE: Optical/DVD cannot be used with this option.

HP Optical Drives

HP DL360 SL 12.7mm SATA DVD

532066-B21

HP DL360 SL 12.7mm SATA DVD-RW Optical kit

532068-B21

NOTE: Integrated DVD/Optical drive option is supported on 4 Hard drive models only.



Core Options

HP Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 300GB 6G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 300GB 3G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	492620-B21
HP 146GB 6G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
HP 146GB 3G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	504062-B21
HP 146GB 6G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
HP 146GB 3G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418367-B21
HP 72GB 6G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
HP 72GB 3G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418371-B21

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 500GB 6G SAS 7.2K rpm SFF (2.5inch) Midline 1yr Warranty Hard Drive	507610-B21
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NOTE: SAS Enterprise drives have a 3 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html
(Worldwide)

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21

SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	460355-B21
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NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html
(Worldwide)

SATA Hot Plug Midline (MDL) Solid State Drives

HP 60GB 3G SATA 2.5in MDL 1y Wty SSD	572071-B21
HP 120GB 3G SATA 2.5in MDL 1y Wty SSD	572073-B21

RECOMMENDATION: For best performance of SSD drives it is recommended that any Smart Array Controller use a max of 4 drives. For this product a second Smart Array option can be used for the second set of 4 SSD drives.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html
(Worldwide)



Core Options

HP Networking

Gigabit Ethernet Adapters

HP NC112T PCIe Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

10 Gigabit Ethernet Adapters

HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
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NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each NC522SFP adapter.

NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
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NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each NC550SFP adapter.

NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs

HP 10 GbE PCI-e G2 Dual Port NIC	516937-B21
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HP Infiniband

HP IB 4X DDR PCI-e Dual Port HCA	409376-B21
HP IB 4X QDR PCI-e G2 Dual Port HCA	517721-B21
HP 4X QDR PCI-e G2 QLogic InfiniBand Dual Port HCA	583211-B21
HP IB 4X DDR Conn-X PCI-e G2 Dual Port HCA	483514-B21
HP IB 4X QDR CX-2 PCI-e G2 Dual Port HCA	592520-B21
HP IB 4X DDR CX-2 PCI-e G2 Dual Port HCA	592521-B21
HP IB 4X DDR PCI-e DUAL PORT 0 mem HCA	483513-B21

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html.

HP I/O Expansion Options

PCI-X Riser option	518824-B21
NOTE: To convert full-length, full-height PCI-Express slot to PCI-X slot for PCI-X cards only.	



Core Options

HP Power Supplies

CAUTION: Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at "www.hp.com/go/proliant-energy-efficient" In ProLiant Servers that have more than one power slot (bay), only same size power supplies are recommended. If non-matched power supplies are inserted you will get errors and operation will fail.

HP 460W CS HE Power Supply Kit	503296-B21
HP 750W CS HE Power Supply Kit	512327-B21
HP 1200W CS HE Power Supply Kit	500172-B21
HP 1200W -48V DC CS Power Supply	437573-B21

NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables. DC Power Supply comes with DC power cable.
NOTE: For regional specific power cables please refer to Power Cable section below.

HP Cooling Options

HP PCI Thermal Power Kit	519254-B21
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NOTE: Supports 3rd Party PCI Video Graphics cards.



Additional Options

HP Insight Software

HP Insight Control

HP Insight Control, Single-Server License including 1 year of 24x7 Technical Support and Updates 452148-B22

HP Insight Control suite, No Media, Electronic License including 1 year of 24x7 Technical Support and Updates T9074BAE

HP Insight Control, Electronic License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates TC278AAE

HP Insight Control, Tracking License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates TC275A

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.

NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.

NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/insightupdates>.

NOTE: For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html

HP Insight Control for Linux

HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic TC213AAE

HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates TC209A

HP Insight Control for Linux, Media pack (DVD) - No licenses included TC208A

NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.

NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: <http://www.hp.com/go/ic-linux> (click on Download button).

NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.

NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html

HP Integrated Lights-Out (iLO) Advanced

HP Integrated Lights-Out Advanced, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates 512485-B21

HP ProLiant Essentials Integrated Lights-Out Advanced Pack, Electronic, including 1 year of 24x7 Technical Support and Updates TA850AAE



Additional Options

HP Insight Software Media Kit	436222-B21
NOTE: Insight Software DVD media without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Insight Dynamics, HP Insight Control for Microsoft System Center, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.	
NOTE: This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service	
NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at:	
http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html	
HP Insight Control Server Deployment	
HP Insight Control server deployment, Electronic License including 1 year of 24x7 Technical Support and Updates	T9082AAE
HP Insight Control server deployment, Single-Server License including 1 year of 24x7 Technical Support and Updates	452151-B21
NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.	
NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.	
NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	
NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates .	
NOTE: For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	

HP Security - TPM	HP Trusted Platform Module Option Kit	488069-B21
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HP Storage Controllers	NOTE: The DL360 G7 Server comes standard with an integrated P410i Smart Array Controller designed to manage up to 8 SFF hard drives from HP. For additional capabilities and capacities HP offers additional Smart Arrays. (BBWC=Battery Backed Write Cache and FBWC=Flash Back Write Cache)	
SAS Controllers		
Smart Array P212 Controller		
HP Smart Array P212/Zero Memory Controller		462828-B21
HP Smart Array P212/256 MB Controller		462834-B21
Smart Array P411 Controller		
HP Smart Array P411/256MB Controller		462830-B21
HP Smart Array P411/512MB with BBWC Controller		462832-B21
HP Smart Array P411/512MB Flash Backed Write Cache		578229-B21
HP Smart Array P411/1G Flash Backed Write Cache		572531-B21



Additional Options

Smart Array P812 Controller

HP Smart Array P812/1G Flash Backed Cache Controller

487204-B21

NOTE: The HP Smart Array P812/1G Flash Backed Cache Controller has the ability to support 8 internal drives on the DL360 G7 as well as external storage solutions. For use with the internal 8 drives the Mini-SAS to Mini-SAS, 25.50" & 28.00" option kit (PN: 496013-B21) is required.

Optional Upgrades

NOTE: For Smart Array P410i Controller and Smart Array P212 Controller.

256 MB Cache Module

462968-B21

NOTE: Supported on HP Smart Array P212 Controller and HP Smart Array P410i Controller.

512MB BBWC

462967-B21

512MB Flash Backed Write Cache

534916-B21

NOTE: Supported on the Smart Array P410i Controller only.

1G Flash Backed Write Cache

534562-B21

NOTE: Supported on the Smart Array P410i Controller only.

Battery Kit upgrade

462969-B21

NOTE: To enable BBWC on the 256MB cache kits.

Mini-SAS to Mini-SAS, 25.50" & 28.00"

496013-B21

HP Smart Array Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support

516471-B21

NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html
(Smart Array P212 Controller)

http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html
(Smart Array P411 Controller)

http://h18000.www1.hp.com/products/quickspecs/13558_div/13558_div.html
(Smart Array P812 Controller)

http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html
(Smart Array Advanced Pack)

SAS HBA

HP SC08Ge Host Bus Adapter

488765-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html
(SC08Ge HBA)

SCSI HBA

HP SC11Xe Host Bus Adapter

412911-B21

NOTE: Recommended HBA for SCSI tape drive connect.

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html
(SC11Xe HBA)



Additional Options

HP Power Cords

NOTE: The HP ProLiant DL360 G7 ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). For specific regional power cords purchase from the following.

Nema 5-15P to IEC320-C13	AF556A
Power Cord, Euro, 10A 250 V Straight (6 ft/1.83 m)	AF568A
Power Cord, UK, 10A 250 V Straight (6 ft/1.83 m)	AF570A
Power Cord, Danish, 10A 250 V Straight (6 ft/1.83 m)	AF566A
Power Cord, Swiss, 10A 250 V Straight (6 ft/1.83 m)	AF565A
Power Cord, Italian, 10A 250 V Straight (6 ft/1.83 m)	AF571A
Power Cord, South Africa, 10A 250 V Straight (8.2 ft/2.5 m)	AF567A
HP 1.83m 10A C13 IL Power Cord	AF564A
HP 1.83m 10A C13 NBR14136 Brazil Pwr Crd	AF591A
HP 2.5M 16A C13-IS1293 India Pwr Cord	SG579A
HP 2.5m C13 AU/NZ Power Cord	AF569A
HP 2m C13 JPN Power Cord	AF572A
HP PWR CRD 1.83m 10A C13-CHINA	AF557A
HP PWR CRD 1.83m 10A C13-KOREA	AF560A
HP PWR CRD 1.83m 10A C13-TAIWAN	AF561A
HP Pwr Crd 1.83m 10A C13 Th-Ph Kit	AF559A
HP PWR CRD 2.0m 10A C13-INDIA	AF562A
HP PWR CRD 2.5m 10A C13-ARGENTINA	AF558A
HP RDNT 2m,10A, C13-C14 JMPR CORD	AF573A

Backup & Recovery Software

HP Data Protector Express

HP Data Protector Express 4.0 SP1 Backup Server	BB117BA
HP Data Protector Express 4.0 SP1 for Microsoft Small Business Server	BB118BA
HP Data Protector Express Backup Server 4.0 SP1 Upgrade from Data Protector Express Single Server Edition	BB117BT

NOTE: One of these Data Protector Express base products is required. To see available options: <http://www.hp.com/go/dataprotectorexpress>



Additional Options

Tape Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP StorageWorks tape backup products see: <http://www.hp.com/go/connect>.

HP StorageWorks DAT 320 USB Tape Drive in 1U USB Rack Kit	AP835A
HP StorageWorks DAT 320 SAS Internal Tape Drive	AJ830A
NOTE: For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A
NOTE: For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks LTO-4 Ultrium 1760 Tape Drive in 1U SAS Rack Kit	EH946B
NOTE: Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks LTO-5 Ultrium 3000 Tape Drive in 1U SAS Rack Kit	EJ014A
NOTE: Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks MSL2024 Tape Library with one LTO-4 Ultrium 1760 SAS Drive	AK378A
NOTE: Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks MSL4048 Tape Library with two LTO-4 Ultrium 1760 SAS Drives	AK380A
NOTE: Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	

Disk Backup

NOTE: For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk backup products see: <http://www.hp.com/go/connect>.

HP StorageWorks D2D Backup Systems with Backup Data Deduplication

HP StorageWorks D2D2502i Backup System	EJ001A
NOTE: 1.5TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP StorageWorks D2D2503i Backup System	EH945A
NOTE: 2.25TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP StorageWorks D2D4004i Backup System	EH938A
NOTE: 3.0TB (expandable to 7.5TB) of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	



Additional Options

HP StorageWorks D2D4112fc Backup System	EH993A
NOTE: 9.0TB (expandable to 18.0TB) of useable network disk backup capacity. Fibre Channel SAN connected appliance. Direct server attach is not supported, requires connection via SAN fabric. See http://www.hp.com/go/connect for supported Fibre Channel Host Bus Adapters.	
HP StorageWorks RDX Removable Disk Backup Systems USB	
HP StorageWorks RDX320 Internal Removable Disk Backup System	AJ767A
NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 320GB of disk capacity per data cartridge.	
HP StorageWorks RDX500 Internal Removable Disk Backup System	AJ934A
NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.	
HP StorageWorks RDX750 Internal Removable Disk Backup System	AW577A
NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 750GB of disk capacity per data cartridge.	

HP 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>

Brocade Fibre Channel HBAs

HP StorageWorks 81B PCI-e FC HBA Single Port	AP769A
HP StorageWorks 82B PCI-e FC HBA Dual Port	AP770A
HP StorageWorks 41B 4Gb PCI-e FC HBA	AP767A
HP StorageWorks 42B 4Gb Dual-Port PCI-e FC HBA	AP768A

Emulex Fibre Channel HBAs

HP StorageWorks 81E PCI-e FC HBA Single Port	AJ762A
HP StorageWorks 82E PCI-e FC HBA Dual Port	AJ763A
HP StorageWorks FC2142 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242 Dual Channel 4Gb PCI-e HBA	A8003A

QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e FC HBA Single Port	AK344A
HP StorageWorks 82Q PCI-e FC HBA Dual Port	AJ764A
HP StorageWorks FC1142 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA	AE312A

StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter	AH627A
NOTE: Recommended HBA for MSL SCSI Tape Library connect.	

StorageWorks Converged Network Adapter

HP CN1000E 2P Converged Network Adapter	AW520A
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Additional Options

HP Disk Storage Systems	MSA SAN Storage Arrays	
	HP StorageWorks 60 Modular Smart Array	418408-B21
	NOTE: Supports 12 SFF drives, and SAS 3 Gb/s and SATA 1.5 Gb/s.	
	NOTE: Please see the QuickSpecs for additional options and configuration information at:	
	http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html	
	HP StorageWorks 70 Modular Smart Array	418800-B21
	NOTE: Supports 25 SFF drives, and SAS 3 Gb/s and SATA 1.5 Gb/s.	
	NOTE: Please see the QuickSpecs for additional options and configuration information at:	
	http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html	
	HP 2012sa Single Controller Modular Smart Array	AJ752A
Disk Enclosures	NOTE: Please see the QuickSpecs for additional options and configuration information at:	
	http://h18000.www1.hp.com/products/quickspecs/13045_div/13045_div.html	
	(Worldwide)	
	HP StorageWorks D2700 Disk Enclosure	AJ941A
	NOTE: Please see the QuickSpecs for additional options and configuration information at:	

http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html
(Worldwide)

HP Uninterruptible Power Systems	HP Rack-mountable UPS	
	HP R1500 G2 UPS	
	HP, R1.5kVA UPS, 1U, NA	AF419A
	HP, R1.5kVA UPS, 1U, INTL	AF418A
	HP, R1.5kVA UPS, 1U, JPN/TW	AF421A
	NOTE: Please see the QuickSpecs for additional information:	
	http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html	
	HP Rack-Mountable R5500 UPS	
	HP R5500 VA UPS, INTL	AF416A
	HP R5500 VA UPS, NA/JPN	AF426A
	NOTE: Please see the QuickSpecs for additional information:	
	http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html	
	HP R/T3000 Uninterruptible Power System (UPS)	
	HP R/T3000 UPS, High voltage NA/JPN	AF453A
	HP R/T3000 UPS, High voltage, detachable inlet cord INTL	AF454A
	NOTE: Please see the QuickSpecs for additional information:	
	http://h18000.www1.hp.com/products/quickspecs/13417_div/13417_div.html	
	NOTE: For additional information on HP Uninterruptible Power Systems please go to:	
	www.hp.com/servers/rackups .	
	NOTE: For additional information on sizing your server, please reference:	
	http://www.upssizer.com .	



Additional Options

HP Power Distribution Units	Monitored PDUs	
	HP Monitored Power Distribution Unit: Full Rack Version	
	HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A (NA/JPN)	AF504A
	HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A (NA/JPN)	AF506A
	HP 11 kVA S1316 Monitored PDU- single input, 3Ø, 16A (INTL)	AF508A
	HP 7.3 kVA S1132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF510A
	HP Monitored Power Distribution Unit: Half Rack Version	
	HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A (NA/JPN)	AF914A
	HP 7.3 kVA S132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF915A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html	
	Modular PDUs 1U/0U	
	NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).	
	3.6kVA Model - mPDU, 16A, High (WW)	252663-B24
	4.9kVA Model - mPDU, 24A, High (NA/JPN)	252663-D72
	7.3kVA Model - mPDU, 32A, High (INT'L)	252663-B31
	8.3kVA Model - mPDU, 40A, High (power cord attached) (NA/JPN)	252663-D73
	NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu .	
HP Rack Series	HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower .	



Additional Options

HP Rack Options	HP Server Console Switches	
	Server console switch 0x2x8	AF616A
	Server console switch 0x2x16	AF617A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html (Worldwide)	
	0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC	AF618A
	0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC	AF619A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html (Worldwide)	
	HP IP Console Switch G2 with Virtual Media & CAC	
	1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC	AF620A
	2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC	AF621A
HP USB and SD Options	4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC	AF622A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html (Worldwide)	
	Rack Kit	
	1U Cable Management Arm Kit	365403-B21
	<hr/>	
	USB 1.44-MB External Diskette Drive	DC141B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 4GB SD Flash Media Kit	580387-B21
	NOTE: Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization .	
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Additional Options

HP Care Pack Services	Hardware Services 4-Hour On-site Service	
	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
	Hardware Services 6-Hour Call to Repair On-site Service	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4498E
	Hardware Services Next Business Day On-Site Service	
	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
	Support Plus	
	Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4508E
	Support Plus 24	
	Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, 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
NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack .		



Memory

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

DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:

www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For servers with eighteen (18) memory slots:
 - There are three (3) channels per processor; six (6) channels per server
 - There are three (3) DIMM slots for each memory channel; eighteen (18) total slots
 - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
 - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- You can only have up to eight (8) ranks installed per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3,6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors
- No mixing DIMM voltage; all DIMMs must be the same voltage

DIMM slot/capacity/populated speed table										
DIMM Type	Registered DIMMS (RDIMMs)							Unbuffered with ECC DIMMs (UDIMMs)		
	Single Rank (1R)	Dual Rank (2R)				Quad Rank (4R)		Single Rank (1R)	Dual Rank (2R)	
DIMM Rank										
DIMM Capacity	4GB	2GB	4GB	8GB	8GB	4GB	16GB	1GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
SLOTS THAT CAN BE POPULATED										
18 slot servers	18	18	18	18	18	12	12	12	12	12
MAXIMUM CAPACITY (GB)										
	72	36	72	144	144	48	192	12	24	48
POPULATED DIMM SPEED (MHz)										
1 DIMM Per Channel	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
2 DIMM Per Channel	1333*	1333*	1333*	1066	1333*	800	800	1333	1333	1333*
3 DIMM Per Channel	800	800	800	800	800	n/a	n/a	n/a	n/a	n/a

* - supported with ROM update via ROM Based Setup Utility (RBSU). UDIMM support is only on 12-slot servers.



Memory

NOTES:

- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, you still run at 1066MHz
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- 95 Watt CPU's are required for 1333MHz DIMM speeds. All other CPU's are capable of up to 1066MHz
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

18 DIMM SLOTS (9 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G	1	G	Chnl 1
	2	D	2	D	
	3	A	3	A	
Chnl 2	4	H	4	H	Chnl 2
	5	E	5	E	
	6	B	6	B	
Chnl 3	7	I	7	I	Chnl 3
	8	F	8	F	
	9	C	9	C	

Standard memory configuration (1 CPU model)

- 6GB, consisting of three (3) 2GB dual-rank PC3-10600 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; empty	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; empty	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; empty	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	



Memory

Standard memory plus optional memory (1 CPU model)

- 54GB, consisting of three (3) 2GB RDIMMs plus six (6) 8GB RDIMMs
 - 3x 2GB dual-rank PC3-10600 RDIMMs
 - 6x 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; 8GB DIMM	1	G; empty	Chnl 1
	2	D; 8GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; 8GB DIMM	4	H; empty	Chnl 2
	5	E; 8GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; 8GB DIMM	7	I; empty	Chnl 3
	8	F; 8GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

Standard memory replaced with optional memory (1 CPU model) RDIMM maximum configuration

- 72GB, consisting of nine (9) 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; 8GB DIMM	1	G; empty	Chnl 1
	2	D; 8GB DIMM	2	D; empty	
	3	A; 8GB DIMM	3	A; empty	
Chnl 2	4	H; 8GB DIMM	4	H; empty	Chnl 2
	5	E; 8GB DIMM	5	E; empty	
	6	B; 8GB DIMM	6	B; empty	
Chnl 3	7	I; 8GB DIMM	7	I; empty	Chnl 3
	8	F; 8GB DIMM	8	F; empty	

UDIMM maximum configuration (1 CPU model)

- 12GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs



Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 2GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 2GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 2GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

Standard memory replaced with optional memory (2 CPU model) RDIMM maximum configuration

- 192GB, consisting of twelve (12) 16GB quad-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; 16GB DIMM	
	3	A; 16GB DIMM	3	A; 16GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; 16GB DIMM	
	6	B; 16GB DIMM	6	B; 16GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; 16GB DIMM	
	9	C; 16GB DIMM	9	C; 16GB DIMM	

UDIMM maximum configuration (2 CPU model)

- 24GB, consisting of twelve (12) 2GB dual-rank PC3-10600 UDIMMs



Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 2GB DIMM	2	D; 2GB DIMM	
	3	A; 2GB DIMM	3	A; 2GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 2GB DIMM	5	E; 2GB DIMM	
	6	B; 2GB DIMM	6	B; 2GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 2GB DIMM	8	F; 2GB DIMM	
	9	C; 2GB DIMM	9	C; 2GB DIMM	

NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB

Following are memory options available from HP:

HP Memory

Registered DIMMs (RDIMMs)

HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
HP 4GB 1Rx4 PC3-10600R-9 Kit	593339-B21
HP 4GB 1Rx4 PC3L-10600R-9 Kit	604504-B21

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21

HP 8GB 2Rx4 PC3L-10600R-9 Kit

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
HP 4GB 2Rx8 PC3-10600E-9 Kit	500672-B21



Memory

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

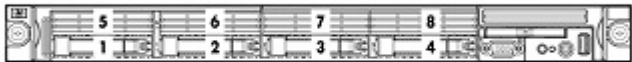
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.

NOTE: PC3L is a low voltage memory.



Storage

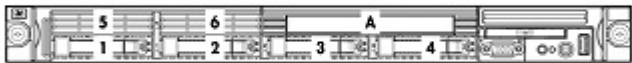
1-8 8 x SFF SAS Hot Pluggable Hard Drive Bays. Optical Media Bay not available for this configuration



1-4 4 x SFF SAS Hot Pluggable Hard Drives

A Optical Media Bay

5, 6 Blanks (these HDD Bays are not available when DVD installed)



Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
HP DL360 SL 12.7mm SATA DVD-RW	1	Slim Line Bay	Integrated SATA
HP DL360 SL 12.7mm SATA DVD	1	Slim Line Bay	Integrated SATA
NOTE: DVD/Optical drive options supported on 4 hard drive models only.			

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 3G SAS 10K DP	8	1-8	HP Smart Array P212/Zero Memory Controller
300GB 6G SAS 10K DP			HP Smart Array P212/256 MB Controller
146GB 6G SAS 15K DP			HP Smart Array P411/256 MB Controller
146GB 6G SAS 10K DP			HP Smart Array P411/512 MB BBWC Controller
146GB 15K 2.5 SAS DP			
146GB 3G SAS 10K DP			
72GB 6G SAS 15K DP			

Storage

72GB 3G SAS 15K DP

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K DP	8	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K 160GB 3G SATA 7.2K	8	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K 120GB 1.5G SATA 5.4K	8	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD 120GB 3.0G SATA SSD	8	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller



Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
60 Modular Smart Array	Up to 4	External	HP Smart Array P212/256 MB Controller
	Up to 8	External	HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller
70 Modular Smart Array	Up to 2	External	HP Smart Array P212/256 MB Controller
	Up to 4	External	HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller
HP 2000sa Modular Smart Array Controller	Up to 4	External	HP SC08Ge Host Bus Adapter
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/ 256 MB Controller
	Up to 4	External	HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

Tape and Disk-Based Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media, including the internal fitting models, see: <http://www.hp.com/go/tape>. For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk and tape backup products see: <http://www.hp.com/go/connect>.

	Position Supported	Controller	Part Number
HP StorageWorks SCSI Tape Drives	External	HP SC11Xe Host Bus Adapter	412911-B21
LTO-1 Ultrium 232			
LTO-2 Ultrium 448			
LTO-3 Ultrium 920			
LTO-3 Ultrium 960			
LTO4 Ultrium 1760			
LTO-4 Ultrium 1840			
DAT 40			
DAT 72			
DAT 160			
1U Rack-Mount Kit			
3U Rack-Mount Kit			
HP StorageWorks USB Tape Drives	External	USB 2.0 Port	N/A
DAT 40			
DAT 72			
DAT 160			
DAT 320			
1U USB Rack-Mount Kit			



Storage

HP StorageWorks SAS Tape Drives DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 LTO-5 Ultrium 3000 LTO-5 Ultrium 3280 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP Smart Array P212/Zero Memory Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP StorageWorks SCSI Tape Autoloaders DAT 72x10 Autoloader 1/8 G2 Autoloader	External	HP SC11Xe Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks SCSI Tape Libraries, External MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	AH627A
HP StorageWorks SAS Tape Autoloaders and Libraries 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP Smart Array P212/Zero Memory Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP StorageWorks Fibre Channel Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for connectivity information and the supported Fibre Channel HBAs shown in this QuickSpecs.	N/A
HP StorageWorks USB RDX Removable Disk Backup System RDX160 RDX320 RDX500 RDX750	External	USB 2.0 Port	N/A



Storage

HP StorageWorks D2D Backup Systems, iSCSI D2D2500i D2D4000i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP StorageWorks D2D Backup Systems, Fibre Channel D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: http://www.hp.com/go/connect	N/A



Power Specifications

HP 460W Power Supply Part Number - AC 460W PSU 80PLUS GOLD Rated	503296-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Max Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Max. Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

Optional Power Supplies

HP 750W Power Supply Part Number - AC 750W PSU 80PLUS GOLD Rated	512327-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	750	750	750	750	750	750	750
Nominal Input Current (A rms)	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Max Rated Input Wattage Rating (Watts)	857	847	824	825	820	820	820
Max. Rated VA (Volt-Amp)	894	884	859	859	854	854	854
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	2925	2892	2812	2812	2797	2797	2797



Power Specifications

HP 1200W Power Supply Part Number - AC1200W PSU 80PLUS SILVER Rated	500172-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.7	9.0	7.0	6.8	6.4	9.1	5.9
Max Rated Input Wattage Rating (Watts)	930	1034	1348	1348	1348	1348	1348
Max. Rated VA (Volt-Amp)	970	1079	1406	1406	1406	1406	1406
Efficiency (%) at Max. Rated Output Wattage	86	87	89	89	89	89	89
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	3174	3530	4600	4600	4600	4600	4600

HP 1200W PSU 48VDC Input Part Number	437573-B21		
Input Voltage Range (DCV)	36-72		
Frequency Range (Nominal) (Hz)	DC		
Nominal Input Voltage (Vrms)	36	48	72
Maximum Rated Output Wattage	1200	1200	1200
Nominal Input Current (A rms)	38	28	19
Max Rated Input Wattage Rating (Watts)	1380	1350	1365
Max. Rated VA (Volt-Amp)	1380	1350	1365
Efficiency (%) at Max. Rated Output Wattage	87	89	88
Power Factor	N/A	N/A	N/A
Leakage Current (mA)	N/A	N/A	N/A
Max. Inrush Current (A peak)	20	25	35
Max. Inrush Current duration (mS)	1	1	3
Maximum British Thermal Unit Rating (BTU-Hr)	4713	4610	4662

To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor



Technical Specifications

System Unit	Dimensions (H x W x D) (with bezel)	1.70 x 16.78 x 27.25 in (4.32 x 42.62 x 69.22 cm)		
	Weight (approximate)	Maximum	39.5 lb (17.92 kg)	
		(all hard drives, power supplies, and processors installed)		
		Minimum	32 lb (14.51 kg)	
		(one hard drive, power supply, and processor installed)		
	Input Requirements (for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies)	Rated Line Voltage	100 to 240 VAC	
		Rated Input Current	4.5 Amps (at 120VAC) to 2.2 Amps (at 240 VAC)	
		Rated Input Frequency	50 to 60 Hz	
	BTU Rating	Maximum	1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC)	
	Power Specifications	To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor		
Power Supply Output (per power supply)	- Click on the system of interest. Example: DL360 G7			
	- Follow the instructions of the next screens.			
	Rated Steady-State Power	460 W (at 100 VAC), 460 W (at 200 VAC)		
	Maximum Peak Power	460 W (at 100 VAC), 460 W (at 200 VAC)		
System Inlet Temperature	Operating	NOTE: See Power Supply Specifications tables for complete details on 460W PSU and optional 750W and 1200W Power Supply Options.		
		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.		
	Non-operating	System performance may be reduced if operating with a fan fault or above 30° C (86° F).		
		-40° to 70° C (-40° to 158° F). Maximum rate of change is 20° C/hr (36° F/hr).		
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28° C (82.4° F) maximum wet bulb temperature, non-condensing.		

Technical Specifications

	Non-operating	5 to 95% relative humidity (Rh), 38.7° C (101.7° F) maximum wet bulb temperature, non-condensing.
Altitude	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).
Acoustic Noise	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 (Single Processor, Note 1)	
	L WAd	4.3 B Average Bystander
	L pAm	27 dBA
	Operating	
	L WAd	4.8 B Average Bystander
	L pAm	32 dBA
	Idle (Dual Processors, Note 2)	
	L WAd	4.9 B Average Bystander
	L pAm	33 dBA
Operating		
	L WAd	5.4 B Average Bystander
	L pAm	38 dBA
NOTES:		
Note 1) Configuration tested included an Intel X5520 quad-core 2.27GHz processor, one 72GB SAS HDD, four 250GB 5400 rpm SATA hard drives, six system fans, three 4GB(2x2GB) DIMM's, and one power supply (1P SKU).		
Note 2) Configuration tested included two Intel X5520 quad-core 2.27GHz processors, one 72GB SAS HDD, four 250GB 5400 rpm SATA hard drives, eight system fans, six 4GB(2x2GB) DIMM's, and one power supply (2P SKU).		
Note 3) Values are subject to change without notification and are for reference only.		
Note 4) Performance of system, options, and ancillary equipment will vary depending on the system configuration.		
Note 5) Levels presented do not account for non-Hewlett-Packard installed hardware.		
Emissions Classification (EMC)	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22; K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1



Technical Specifications

NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

Integrated Lights-Out 3 (iLO 3) integrated on system board	Architecture	PCI Express based health and remote management ASIC
	Processor	PCI Express RISC processor core running at 250MHz
	Upgradeability	Option firmware upgradeable via Flash ROM.
	Video Support	1600 x 1200 DVR max resolution
	Interfaces	One Ethernet Sideband connection (10/100/1000 Mb/s)
		One Ethernet network connection (10/100Mb/s)
	Memory	128-MB SDRAM with ECC
	Operating System Support	Microsoft Windows 2008 R2
		Microsoft Windows 2008 (32 bit and 64 bit)
		Microsoft Windows Server 2008 Standard Edition (32bit and 64bit)
		Microsoft Windows Server 2008 Enterprise Edition (32bit and 64bit)
		Microsoft Windows Server 2003 and Windows Server 2003 R2, and Windows Server 2003 for Extended Systems Standard Edition, Enterprise Edition
		Red Hat Enterprise Linux 5.4 (32 bit and 64 bit)
		SUSE LINUX Enterprise Server 11 (32bit and 64bit)
		SUSE LINUX Enterprise Server 10 (32bit and 64bit)
		VMware ESX 4.0
		VMware ESX 3.5.0
Client System Support		Microsoft Windows 7
		Microsoft Windows XP Professional Edition
		Microsoft Windows Vista Business and Ultimate Editions
		Red Hat Enterprise Desktop 5.00
		SUSE Linux Enterprise Desktop 11
Client Browser Support		SUSE Linux Enterprise Desktop 10
		Microsoft Internet Explorer 8
		Microsoft Internet Explorer 7
		Microsoft Internet Explorer 6
		Firefox 3.5 (on supported Windows and Linux systems)
Command Line Support		Firefox 3.0 (on supported Windows and Linux systems)
		Secure Shell and serial port access
		Secure Socket Layer
		Secure Shell version 2 (Password and certificate)
		Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface
Security		AES encryption of video
		RC4 encryption of video



Technical Specifications

	Directory Support Services	Active Directory v1.0 (Windows 2003)
	Driver Support	HP ProLiant iLO 3 Management Controller Driver Package iLO Management Channel Interface Driver
	Management protocols supported	SNMP, IPMI 2.0 (System and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HP RIBCL XML

Smart Array P410i Controller	Dimensions	Embedded
	Disk Drive and Enclosure Interface - Transfer rate	6Gb/s SAS (Serial Attached SCSI) 3Gb/s SATA (Serial ATA)
	SAS Connectors	2 internal (Mini-SAS) x8 wide port connectors
	Cache Memory Speed	DDR2-800MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 5G PCIe 2.0 provides 4GB/s maximum bandwidth
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth
	Cache Memory	40-bit 256MB ECC protected cache (72-bit 512MB BBWC module upgrades available); transportable with battery-backed upgrade
	Logical Drives Supported	Up to 64 logical drives
	Maximum Logical Drive Capacity	Greater than 2TB
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) NOTE: RAID 6, 6+0 can be enabled with either <ul style="list-style-type: none">Minimum of 256 MB cache, Battery kit and Smart Array Advanced Pack License key option upgradesMinimum of 512 MB BBWC and Smart Array Advanced Pack License key option upgrades
		RAID 5, 5+0 (Distributed Data Guarding) NOTE: The 256 MB is required to enable RAID 5, 5+0 support of the Smart Array P410i
		RAID 1+0 (Striping & Mirroring)
		RAID 0 (Striping)
	Upgradeable Firmware	Upgradeable Firmware with recovery ROM feature

Technical Specifications

Embedded NC382i Dual Port Multifunction Gigabit Server Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
		IEEE 802.3ad 1000Base-TX	
		IEEE 802.1p 100Base-TX	
		IEEE 802.1q 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Controller	BCM5709C	
	Network Transfer Rate	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
	Connector	Two RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
100Base-TX		Category 5 or higher UTP; up to 328 ft (100 m)	
1000BaseTX		Category 5 or higher UTP; up to 328 ft (100 m)	

Environment-friendly Products and Approach	End-of-life Management and Recycling	<p>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.</p> <p>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.</p>
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Technical Specifications

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

