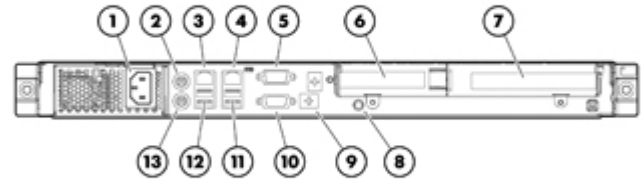
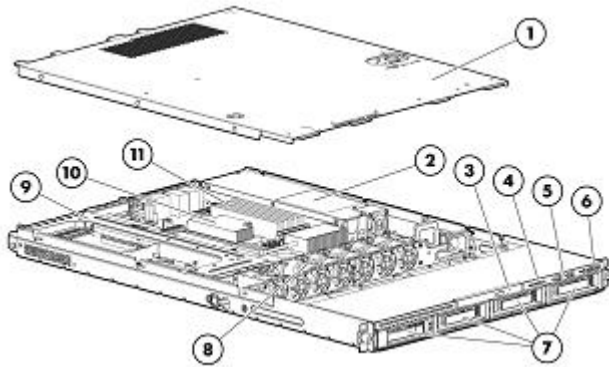


Overview



Front View:

1. Cover
2. Power Supply (400 Watt)
3. Optional Slim 9.5mm DVD ROM
4. Slide-out System Insight Display
5. Front USB connectors (2)
6. Power Button, UID Button, and Front LED Indicators
7. Support for up to four Non-Hot Plug SATA or SAS Hard Drives
8. Non Hot Plug Dual Rotor Fans (4)
9. Two PCI express Slots (one x16, one x4 Lanes)
10. Processor Socket (Intel® Xeon® Quad-Core)
11. Six PC3-10600E UB ECC DDR3 Memory Slots

Rear View:

1. Power supply cable socket
2. Mouse connector
3. NIC 1 connector
4. NIC 2 connector
5. Serial Connector
6. Expansion slot 2, PCI-e x8, Low-profile, Half-length
7. Expansion slot 1, PCI-e x16, Full high, Full-length
8. UID button/LED
9. Management NIC connector
10. Security - Trusted Platform Module Video connector
11. USB connectors (2)
12. USB connectors (2)
13. Keyboard connector

What's New

- Support for HP NC365T 4-port Ethernet Server Adapter

At a Glance

The HP ProLiant DL120 G6 Server is an entry-level rack-optimized server providing you with all confidence of a HP ProLiant server. The single processor, 1U server is ideal for single-application IT infrastructure, web and edge-of-network applications. The HP ProLiant DL120 provides two PCI-Express slots with an optional 3rd x4 PCI-Express slot optional upgrades, including HP HBAs and Smart Array Controllers, provide support for SAS hard disk drives. DL120 G6 HP Lights Out 100i Remote Management provides cost-effective remote management from anywhere, anytime. Plus, you get the cost-effective solution of a single-processor platform with the performance advantages of quad-core technology.

• Processor:

- Intel® Xeon® processor X3400 series
- Intel® 3420 Chipset with up to 1333MHz Front Side Bus (FSB)

NOTE: Intel® Celeron®, Pentium® and Core™ dual-core processors does not support Registered (RDIMM) memory

• Memory:

- 6 DIMM sockets
- Supports up to 16GB, using 4GB PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1333MHz when fully populated at 2 DIMMs per Channel in 4 slots

Overview

- Supports up to 16GB, using 4GB Quad-Rank PC3-8500R DDR3 Registered (RDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 4 slots
- Supports up to 12GB, using 2GB PC3-10600R DDR3 Registered (RDIMM) memory, operating at 1333MHz when fully populated at 3 DIMMs per Channel in 6 slots
- **Storage Controller:**
 - Entry and Base Model: HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
 - **NOTE:** Transfer rate: 3Gb/s SATA
 - **NOTE:** Available upgrade: HP Smart Array Hot Plug Advance Pack for B110i
 - Performance Model: HP Smart Array P212/256MB Controller (RAID 0/1/1+0/5/5+0)
 - **NOTE:** Available upgrades: Battery Kit upgrade (for BBWC), and Smart Array Advanced Pack (SAAP)
- **Internal Drive Support:**
 - Up to 4 LFF SATA/SAS HDD drive bays
 - (1) Optional slim 9.5mm DVD-ROM or DVD RW
- **Network Controller:**
 - Embedded HP NC107i PCI Express Gigabit Server Adapter
- **Expansion Slots:**
 - Two total slots:
 - (1) Full length PCI Express Gen 2 x16 slot (x16 connector)
 - (1) Half-length, low-profile PCI Express x4 slot (x8 connector)
 - Optional (1) PCI-X 1 x1 (x4 connector)
- **USB 2.0 Ports:**
 - Up to 7 Total: (2) front; (1) internal; (4) rear accessible ports
 - Internal USB port (optional) for flexible storage, security, or USB drive key deployment
- **Infrastructure Management:**
 - HP ProLiant Lights-Out 100 simplifies server setup, health monitoring, control, and Lights-Out 100 remote administration. Can be upgraded with a Lights-Out 100 Advanced License for Virtual KVM (remote graphical console) and Virtual Media.
 - With G6, ProLiant 100-series server administrators are able to deploy and monitor their servers using methods similar to 300 series servers and above. Agents and the Easy Set-up CD are available that provide a user experiences consistent with 300 series and above.
 - With Easy Set-up CD, customers get SmartStart "like" deployment tools that reduce the time required for server setup and updates. Easy Set-up CDs and their ISO images are provided with each ProLiant G6 100-series server and are used to perform assisted installations for one or two servers. Users performing multi-server installations involving large numbers of servers may require the following deployment tools:
 - SmartStart Scripting Toolkit - Automated scalable deployment utility
 - Smart Components - a self-executable software consisting of driver and firmware
 - With agents and providers, ProLiant 100 series servers get environmental monitoring that is similar and consistent to that of ProLiant 300 series servers and above. This server now offers the HP Insight Management Agents and HP Insight Management WBEM Providers, two well established sets of management and Internet standards technologies that provide capabilities which provide integration to HP Systems Insight Manager (SIM).
- **Form Factor:**
 - 1U (1.69" / 4.32 cm) Rack Mount Chassis
 - 27.6" (70.0cm) Deep
 - New fixed mounting rails included with all models
- **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 Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. (3-1-1 warranty in APJ). Additional information regarding worldwide limited warranty and technical support is

Overview

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

One of the following depending on Model

Quad-Core Processors

Intel® Xeon® processor HP X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3)

Intel® Xeon® processor HP X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Xeon® processor HP X3450 (2.67GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4)

Intel® Xeon® processor HP X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Xeon® processor HP X3470 (2.93GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

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 are 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.

Dual-Core Processors

Intel® Celeron® processor G1101 (2.26GHz, 73W, 2MB, 1066)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Pentium® processor G6950 (2.8GHz, 73W, 3MB, 1066, HT)

Intel® Xeon® processor L3406 (2.28GHz, 30W, 4MB, 1066, HT, Turbo 2/2)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Core™ processor i3-530 (2.93GHz, 73W, 4MB, 1333, HT)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Core™ processor i3-540 (3.06GHz, 73W, 4MB, 1333, HT)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Cache Memory	Integrated 1x8MB Level3 Intel® Smart Cache
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Chipset	Intel® 3420 Chipset
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Memory Protection	ECC
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Standard Features

Memory

One of the following depending on Model

Type	DDR3 1066/1333MHz Unbuffered (UDIMM) and Registered (RDIMM)
Standard (Entry Model)	2GB (1x2GB) UDIMM
Standard (Base Models)	2GB (1x2GB) UDIMM
Standard (Performance Models)	4GB (2x2GB) RDIMM
Maximum Memory	Supports up to 16GB DDR3 1066/1333 Unbuffered ECC DIMM or 16GB DDR3 800/1066/1333 Registered DIMM. Supports up to 4 UDIMMs or 6 dual rank RDIMMs

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.

Network Controller Embedded NC107i Gigabit Server Adapter

Expansion Slots	Technology	Bus Width***	Connector Width	Bus Number*	Device No.**	Form Factor	Notes
1 (Standard)	PCIe G2	X16	x16	0	1	Full length, full height slot	
2 (Standard)	PCIe G1	X4	x8	0	28	Half height, low profile slot	
1 (Optional)	PCI-X (133MHz, 3.3Volt)	64-bit	N/A	0	1	Full length, full height slot	

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

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

*** Indicates the number of physical electrical lanes running to a PCI-e connector.

Storage Controllers	Entry and Base Model	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0) NOTE: Transfer rate: 3Gb/s SATA NOTE: SATA Hot Plug available via Hot Plug Advance Pack for B110i NOTE: Hot Plug SAS and SATA controllers available via PCI card option. NOTE: Smart Array SAS Controller requires the HP CA ASSY 384SATA to MINI-SAS Kit (P/N 487734-B21) must be ordered.
	Performance Model	HP Smart Array P212/256MB Controller (RAID 0/1/1+0/5/5+0)

Standard Features

Storage	Optical Drive	Optional 9.5mm DVD-ROM, or DVD-RW Drive	
	Hard Drives	Entry Model	Up to 4 non-hot plug SATA/SAS 3.5" drives supported. 1x160GB non hot plug SATA 3.5" drive ships standard NOTE: SAS requires optional HBA or SA card
		Base Model (Cold Plug)	Up to 4 non-hot plug SATA/SAS 3.5" drives supported. None ships standard NOTE: SAS requires optional HBA or SA card. NOTE: SATA Hot Plug available via Hot Plug Advance Pack for B110i NOTE: Support for additional SAS/SATA hot plug drives requires HP Smart Array Controller.
	Performance Model (Hot Plug)	Up to 4 hot plug SATA/SAS 3.5" drives supported. None ships standard	

Maximum Internal Storage Type	Hot Plug SAS	8.0TB	(4 x 2TB) 3.5" SAS
	Non-Hot Plug SATA	8.0TB	(4 x 2TB) 3.5" SATA

Interfaces	Serial	1	
	Pointing Device	1	
	Keyboard	1	
	Graphics	1 (rear)	
	Network RJ-45	2	
	USB 2.0	7 (2 front, 1 internal, 4 rear)	

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

Graphics	64MB shared supports all display resolutions up to 1600 x 1200 16bpp @ 75Hz
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Form Factor	Rack (1U), (1.69 in/4.32 cm), 27.56" deep
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Embedded Manageability	HP ProLiant LO100	HP ProLiant Lights-Out 100, simplifies server setup, control, and lights-out remote administration of ProLiant 100 Series servers and functions without additional software. It can be accessed from any location via LAN or Internet and works hand-in-hand with HP Systems Insight Manager (SIM), helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. Advanced Licenses are required for Virtual KVM and Virtual Media feature activation.
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Key features of LO100 are:

- IPMI 2.0 & SMASH CLP support



Standard Features

- ROM Setup Utility
- Improvements to virtual media with the addition of USB 2.0 drives and protocol support for much faster transfer speeds and DVD-ROM support plus simplified virtual media (floppy and CD with no FFTP server requirements)
- Enhanced browser interface and embedded KVM over IP provides OS-independent remote graphical console
- 24x7 Technical Support and Update (TSU) 1 year support and license upgrades included in Advanced license

NOTE: For more information, see: <http://www.hp.com/go/lo100>

HP Insight Control management software Insight Control server deployment

HP Insight Control server deployment is a deployment solution for HP ProLiant and Integrity servers hosted on a Windows CMS. It automates the process of deploying and provisioning server software, enabling companies to quickly and easily adapt to changing business demands. Insight Control server deployment includes software optimizations for HP servers, including the HP scripting toolkits, configuration jobs for leading industry-standard operating systems, sample unattended files, and HP server support packs that include software drivers, management agents, and important documentation. Deploying servers can be accomplished either through imaging or through scripting.

Insight Control server deployment is hosted on a Windows server and is intended for heterogeneous environments deploying Windows, Linux, VMware ESX and Microsoft Hyper-V systems.

Insight Control server deployment 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>.

Core Server Management

ProLiant 100 Series G6 Core Management Software for ProLiant 100 Series Servers

HP provides management solutions that are designed to simplify a server's installation, configuration, and maintenance throughout the entire server lifecycle. This provides the customers with higher levels of operational efficiency and highly reliable systems.

While ProLiant 100 series G6 servers do not support the Insight Foundation Suite for ProLiant, they support a key subset of this important suite software tools and utilities which are very suitable for this class of server: SIM, SMH, agents, providers, and a SmartStart 'like' deployment CD called Easy Set-up which greatly simplifies server set-up. Additionally the ProLiant DL100 and SL100 G6 models support the SmartStart Scripting Toolkit (SSSTK), an automated scalable deployment utility.

Information on core management supported on ProLiant 100 series G6 servers can be found at these URLs:

- Core Management: <http://www.hp.com/go/coremanagement>
- HP ProLiant 100 series Easy Set-up CDs: www.hp.com/servers/easysetup

Core Infrastructure Management

HP Systems Insight Manager

HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across



Standard Features

Insight Management Agents

multiple operating system platforms.

HP Insight Management Agents and Insight Management Providers are available for HP Systems Insight Manager (SIM) Integration. ProLiant 100-series G6 servers can use the same SNMP based Insight Management Agents supported by other ProLiant servers. As a result, administrators can use HP Systems Insight Manager (SIM) 5.3 and greater to manage ProLiant 100-series G6 servers. Administrators can also use any other SNMP- based management tool. These agents are obtained as part of the ProLiant 100-series model-specific "Easy Set-up" CDs, or through <http://www.hp.com/servers/easysetup>

The following capabilities are enabled on the 100-series G6 servers by the SNMP agents:

- Health monitoring capabilities, including monitoring for drives, fans, network, power supplies, and temperature
- Alerting capabilities, including basic alert notification for Smart Array drive pre-failure only
- Performance monitoring capabilities providing information on processor, memory, disk free space, network utilization

Easy Set-up CD

For additional information, please see: <http://www.hp.com/go/insight>

Easy Set-up CDs are available on all 100-series G6 servers and are also available as an ISO image web download. HP ProLiant Easy Set-up CDs provide easy, step-by-step, single and multi-server server utilities for the ProLiant 100-series G6 servers to streamline server setup for 100-series G6 servers. The user experience is consistent with SmartStart and offers the following capabilities:

- Boot environment and GUI
- Assisted Installation: Windows 2003 Server and Windows 2008 Server drivers
- Manual installation: Windows 2003 Server, Windows 2008 Server, and Linux drivers (specific OS support varies by server. Refer to each server's QuickSpecs for supported versions)
- HP Insight Diagnostics
- AutoRun
- Array Configuration Utility (ACU) has been combined with Array Diagnostics Utility (ADU) to offer both configuration of array controllers and storage devices and testing of array controller hardware
- SmartStart Scripting Toolkit (SSSTK) and Smart Components for software and drivers for DL100 and SL100 servers

NOTE: OS and SW available for Manual Installation are listed on each servers' QuickSpecs.

SmartStart Scripting Toolkit (SSSTK)

The SmartStart Scripting Toolkit is a server deployment product that delivers an unattended automated installation for high-volume server deployments. The SmartStart Scripting Toolkit includes a set of utilities for configuring and deploying servers in a customized, predictable, and unattended manner. These utilities enable you to duplicate the configuration of a source server on target servers with minimum user interaction.

Standard Features

The Toolkit is designed for IT experts with experience in scripting operating system installations and configuring ProLiant server hardware.

For additional information, please see:

<http://h18004.www1.hp.com/products/servers/management/toolkit/index.html>

Subscriber's Choice

Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: <http://www.hp.com/go/subscriberschoice> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.

ROMPaq, software and latest drivers

The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options; downloaded from Software and Drivers download pages website at: <http://www.hp.com/go/support> and from www.hp.com/servers/easysetup. Contains the following:

- HP Insight Management Agents for Systems Insight Manager (SIM) Integration
- HP Systems Management Homepage
- Array Configuration Utility (ACU)
- Array Diagnostics Utility (ADU)
- HP Insight Diagnostics

Industry Standard Compliance

ACPI 3.0a
PCI 2.3 Compliant
PXE Support
WOL Support
Microsoft® Logo certifications
USB 2.0
IPMI 2.0
DCMI 1.0

Intelligent Manageability

HP ProLiant Lights-Out 100 with optional LO100 Advanced Licenses for Virtual KVM and Virtual Media.
Embedded IPMI standard reporting
Easy Set-up CD and ISO Image Web downloads
Array Configuration Utility (ACU)
Array Diagnostics Utility (ADU)
HP Insight Diagnostics
HP Insight Management Agents and Insight Management Providers for Systems Insight Manager (SIM) Integration

Standard Features

Security	Power-on password Keyboard password USB Port control Removable DVD-ROM Drive Assembly (optional) Dedicated/Shared LO100 management NIC port Administrator's password
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Security - Trusted Platform Module

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.

NOTE: For more information about TPM, including a white paper, go to www.hp.com/go/TPM

NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.

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.

Server Power Cords	North America	One 6' Highline (IEC-IEC) power cord ships standard
	Japan	One 6' Highline (IEC) power cord and one 6' Lowline power cord ship standard
	ROW	One 6' Highline (IEC) power cord ships standard

NOTE: HP ProLiant DL120 G6 server ship standard worldwide with a C13 to C14 2M Highline jumper cord. Japanese models also include a 2M Lowline power cord. If customers require a local power cord, they can check the power cord matrix for the appropriate country specific cord. Please see the following power cord matrix: <http://www.hp.com/go/powercordmatrix>.

Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
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UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords .
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System Fans	4 dual rotor fans ship standard.
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Required Cabling	For required cabling information, refer to the Web site at: http://h10010.www1.hp.com/wwpc/us/en/sm/WF05a/15351-15351-3328412-241644-241475-3579703.html .
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Standard Features

Operating Systems and [Microsoft Windows Server](#)

Virtualization Software [Red Hat Enterprise Linux \(RHEL\)](#)

[SUSE Linux Enterprise Server \(SLES\)](#)

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/supportos> and our driver download page <http://www.hp.com/support/DL120G6>

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.

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 Kit

Installation into Telco 2 post, and 4 post, or threaded holes racks requires a 3rd party option kit. Go to: www.hp.com/go/rackandpower for more information.

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 MSxxxx, 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>.

Standard Features

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 times designed to meet your IT and business needs.

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

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of 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 ProLiant server support offers to help you speedily deploy and maximize system uptime.

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

- **Support** - 3-Year 24x7 4 hr Response service support coverage
- **Deployment Service** - HW Installation only

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

- **Support** - 3-Year 24x7 24 hr Call to repair service support coverage
- **Support** -3-Year 24x7 6 hr Call to repair service support coverage
- **Support Plus** -24x7 4 hr Response service support including OS coverage

Refer to the information on the Installation of a ProLiant on the ProLiant Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

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

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

<http://h20219.www2.hp.com/services/us/en/warranty/carepack-servers-proliant.html>

Models

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

Entry Model	Processor	(1) Intel® Pentium® processor G6950 (2.8GHz, 73W, 3MB, 1066)
HP DL120 G6 G6950 NHP SATA 490930-xx1	Cache Memory	3MB Intel® Smart Cache
	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
	Network Controller	Embedded HP NC107i PCI Express Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
	Hard Drives	1 x 160GB 3.5" Non-hot plug SATA
	Internal Storage	Up to 4 large form factor Non-hot plug SAS/Non-hot plug SATA NOTE: SAS support requires Smart Array Controller and HP CA ASSY 38" 4 SATA to MINI-SAS Kit (P/N 591475-B21).
	Optical Drive	None Ships Standard
	Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
	Form Factor	1U

Base Model	Processor	(1) Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3)
HP DL120 G6 X3430 Pluggable SATA 490931-xx1	Cache Memory	8MB Intel® Smart Cache
	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
	Network Controller	Embedded HP NC107i PCI Express Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
	Hard Drives	None Ships Standard
	Internal Storage	Up to 4 large form factor Hot Plug drives (cold pluggable only) NOTE: Hot Plug support requires HP Smart Array Hot Plug Advance Pack for B110i or Smart Array Controller and HP CA ASSY 38" 4 SATA to MINI-SAS Kit (P/N 591475-B21).
	Optical Drive	None Ships Standard
	Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
	Form Factor	1U

Performance Model	Processor	(1) Intel® Xeon® processor X3450 (2.67GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4)
HP DL120 G6 X3450 HP SAS 490932-xx1	Cache Memory	8MB Intel® Smart Cache
	Memory	4GB (2x2GB) PC3-10600R-9 DDR3 RDIMM
	Network Controller	Embedded HP NC107i PCI Express Gigabit Server Adapter
	Storage Controller	HP Smart Array P212/256MB Controller
	Hard Drives	None Ships Standard
	Internal Storage	Up to 4 large form factor Hot Plug drives
	Optical Drive	None Ships Standard
	Power Supply	Autosensing 400-Watt PFC Power Supply, CE Mark Compliant
	Form Factor	1U

Models

Country Code Key	xx=00	US
	xx=29	Japan
	xx=37	APD (Asia excluding Japan)
	xx=42	EURO
	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 only available as a Factory Installable Option.

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

Models	HP DL120G6 NHP CTO Chassis	490933-B21
	Includes:	
	Embedded NC107i Gigabit Server Adapter	
	1 full length PCI Express Gen2 x16 slot (x16 connector) and 1 half length low profile PCI Express x4 slot (x8 connector)	
	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)	
	Rack (1U) form factor, (1.7 in/4.32 cm)	
	Fixed, mounting rails	
	HP DL120G6 HP CTO Chassis	583183-B21
	Includes:	
	Embedded NC107i Gigabit Server Adapter	
	Hot-Plug drive cage, including cables	
	1 full length PCI Express x16 slot (x16 lane) and 1 half length low profile PCI Express x4 slot (x8 lane)	
	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)	
	Rack (1U) form factor, (1.7 in/4.32 cm)	
	Fixed, mounting rails	

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

HP Processor	Quad-Core	
	Intel® Xeon® processor HP X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3), FIO	581869-L21
	Intel® Xeon® processor HP X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3), FIO	578471-L21
	Intel® Xeon® processor HP X3450 (2.67GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4), FIO	581870-L21
	Intel® Xeon® processor HP X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5), FIO	578473-L21
	Intel® Xeon® processor X3470 processor (2.93GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5), FIO	578475-L21
	Dual-Core Processors	
	Intel® Celeron® processor G1101 (2.26GHz, 73W, 2MB, 1066), FIO	599309-L21
	Intel® Pentium® processor G6950 (2.8GHz, 73W, 3MB, 1066), FIO	599308-L21
	Intel® Xeon® processor L3406 (2.28GHz, 30W, 4MB, 1066, HT, Turbo 2/2), FIO	611530-L21
	Intel® Core™ processor i3-530 (2.93GHz, 73W, 4MB, 1333, HT), FIO	599310-L21
	Intel® Core™ processor i3-540 (3.06GHz, 73W, 4MB, 1333, HT), FIO	599311-L21



Configuration Information - Factory Integrated Models

HP Memory	Unbuffered with ECC DIMMs (UDIMM)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	Registered DIMMs (RDIMM)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-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	
	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.		
NOTE: The below Hard drives can only be selected with the Non-Hot Plug CTO Chassis (P/N 490933-B21)		
SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives		
HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive		454234-B21
HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive		417950-B21
HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive		417855-B21
SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives		
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive		507774-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive		507772-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21	
SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives		
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21	
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21	
HP Power Supplies	HP 400W Power Supply FIO Kit	515739-B21
	HP 500W NHP Power Supply Option Kit	583437-B21

Configuration Information - Factory Integrated Models

Step 3: Choose Additional Options for Factory Integration (only one of the following from each list unless otherwise noted)

HP Storage Controllers SAS Controllers (Required if NHP SAS Hard Drive selected in Step 2)

HP Smart Array P212/256 MB w/Battery FIO	491191-B21
HP Smart Array P411/256 w/Battery FIO	491193-B21
HP Smart Array P212/256MB Controller	462834-B21
HP Smart Array P212/Zero Memory (ZM) Controller	462828-B21

Step 4: Choose Additional Factory Integratable Options

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

Core Options

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

HP Unique Options	HP Internal USB Cable G6 Kit NOTE: This option required to connect a USB device internally.	536769-B21
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HP Memory	<p>Unbuffered with ECC DIMMs (UDIMM)</p> <p>HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500668-B21</p> <p>HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500670-B21</p> <p>HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500672-B21</p> <p>Registered DIMMs (RDIMM)</p> <p>HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500656-B21</p> <p>HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit 500660-B21</p> <p>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.</p> <p>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</p>	
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HP Optical Drives	HP 9.5mm SATA DVD-ROM Optical Drive 481045-B21 HP 9.5mm SATA DVD RW Optical Drive 481047-B21	
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HP Hard Drives	<p>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.</p> <p>NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.</p> <p>SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives</p> <p>HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 516828-B21</p> <p>HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 516816-B21</p> <p>HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 454232-B21</p> <p>HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 516814-B21</p> <p>HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 416127-B21</p> <p>HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 384854-B21</p> <p>SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives</p>	
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Core Options

HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507616-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507614-B21
HP 1TB 3G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461137-B21
HP 750GB 3G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461135-B21

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	454234-B21
HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417950-B21
HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417855-B21

NOTE: 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 LFF (3.5-inch) Midline (MDL) Drives

HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21

SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	571230-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21

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

http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Worldwide)

Core Options

HP Networking	HP NC112T PCI Express 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 NC365T 4-port Ethernet Server Adapter	593722-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
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs		

HP I/O Expansion Options	HP 1U PCI-X Riser Option Kit	516230-B21
	NOTE: For PCI-X Card support only. NOTE: The PCI-X Riser option is available to convert the full-length, full-height PCI-Express slot to PCI-X slot for PCI-X cards only.	

HP Power Supplies	HP 500W NHP Power Supply Option Kit	583437-B21
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Additional Options

Entry-Level Server Management	<p>HP LO100i Advanced Pack License, including 1 year of 24x7 Technical Support and Updates, Electronic</p> <p>NOTE: Electronic LTUs are only available through limited points of sales; if not available, order a printed license entitlement certificate (xxxxxx-B2x) instead.</p>	TA859AAE
HP Insight Software	<p>HP Insight Control server deployment</p> <p>HP Insight Control server deployment, Electronic License including 1 year of 24x7 Technical Support and Updates</p> <p>HP Insight Control server deployment , No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates</p> <p>NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.</p> <p>NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.</p> <p>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.</p> <p>NOTE: Licenses ship without media. The Insight Software Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightcontrol (click on Download button).</p> <p>NOTE: For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html</p>	<p>T9082AAE</p> <p>452151-B21</p>
HP Security-TPM	HP Trusted Platform Module Option Kit	488069-B21
HP Storage Controllers SAS Controllers	<p>Smart Array P212 Controller</p> <p>HP Smart Array P212/Zero Memory Controller</p> <p>HP Smart Array P212/256 MB Controller</p> <p>Smart Array P411 Controller</p> <p>HP Smart Array P411/256 MB Controller</p> <p>HP Smart Array P411/512 MB Battery Backed Write Cache</p> <p>Optional Upgrades</p> <p>1G Flash Backed Write Cache</p> <p>512MB Flash Backed Write Cache</p> <p>HP Smart Array P411/1G Flash Backed Write Cache</p> <p>HP Smart Array P411/512MB Flash Backed Write Cache</p> <p>256 MB Cache Module</p> <p>NOTE: Supported on HP Smart Array P212 Controller only.</p> <p>512MB BBWC</p> <p>NOTE: Supported on HP Smart Array P411 Controller only.</p> <p>Battery Kit upgrade</p> <p>NOTE: To enable BBWC on the 256MB cache.</p> <p>NOTE: Supported on HP Smart Array P212 Controller, and HP Smart Array P411only.</p>	<p>462828-B21</p> <p>462834-B21</p> <p>462830-B21</p> <p>462832-B21</p> <p>534562-B21</p> <p>534916-B21</p> <p>572531-B21</p> <p>578229-B21</p> <p>462968-B21</p> <p>462967-B21</p> <p>462969-B21</p>

Additional Options

HP Smart Array Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support	516471-B21
<p>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.</p>	
HP CA ASSY 38" 4 SATA to MINI-SAS Kit	591475-B21
SCSI HBA	
HP SC11Xe Host Bus Adapter	412911-B21
<p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information:</p> <p>http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller)</p> <p>http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html (Smart Array Advanced Pack)</p> <p>http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)</p>	

HP Backup & Recovery Data Protector Express

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

HP Tape Backup

<p>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.</p>	
HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A
<p>NOTE: For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.</p>	
HP StorageWorks 1U USB Rack-Mount Kit with one DAT 320 USB Tape Drive	AP835A
HP StorageWorks DAT 320 SAS Internal Tape Drive	AJ830A
<p>NOTE: For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.</p>	
HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
<p>NOTE: For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.</p>	

Additional Options

HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive NOTE: For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.	EH847A
HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Tape Autoloader NOTE: Requires HP 1U Tape Autoloader Rack-Mount Kit (AH166A) for rack installation. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.	AH558A
HP StorageWorks MSL2024 Tape Library with one LTO-3 Ultrium 920 SAS Drive NOTE: Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.	AH559A

HP 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 EJ001B
NOTE: 1.5TB of usable 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 D2D2504i Backup System EJ002B
NOTE: 3.0TB of usable 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.

USB Removable Media RDX Disk Backup Systems

USB Removable Media RDX Disk Backup Systems

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.

Additional Options

HP Uninterruptible Power Systems

HP Rack-mountable UPS

HP UPS R1500 G2

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 QuickSpecs Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html
(Worldwide)

HP R/T3000 UPS

HP R/T3000 UPS, High voltage, NA/JPN	AF453A
HP R/T3000 UPS, High voltage, detachable inlet cord INTL	AF454A

NOTE: Please see QuickSpecs Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/10671_div/10671_div.html
(Worldwide)

HP Rack-Mountable R5500 UPS

HP R5500 VA UPS, INTL	AF416A
HP R5500 VA UPS, NA/JPN	AF426A

NOTE: Please see QuickSpecs Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/11871_div/11871_div.html
(Worldwide)

HP Power Distribution Units

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

Modular Power Distribution Units 1U/0U (Up to 32 outlets)

NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).

HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan)	252663-D72
HP Modular Power Distribution Units (mPDU), High Voltage 8.3 kVA Modular PDU, 40A, NA/JPN	252663-D73
HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l)	252663-B31
HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW)	252663-B24

NOTE: This PDU has a detachable input power cord and allows for adaptability to country specific power requirements.

NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U

Additional Options

Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords:
http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html
 (Worldwide)

NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu.

HP Rack Series	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	NOTE: Please see the QuickSpecs for Technical Specifications and 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 .	

HP Rack Options	HP KVM Switch Options	
	HP 0x2x16 KVM SVR CNSL G2 VM CAC SW	AF618A
	HP 0x2x32 KVM SVR CNSL G2 VM CAC SW	AF619A
	HP 1x1Ex8 KVM IP CNSL G2 VM CAC SW	AF620A
	HP 2x1Ex16 KVM IP CNSL G2 VM CAC SW	AF621A
	HP 4x1Ex32 KVM IP CNSL G2 VM CAC SW	AF622A
	HP Serial Console Server Options	
	Server console switch 0x2x8	AF616A
	Server console switch 0x2x16	AF617A
		NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm .
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm .	

HP Care Pack Services	Hardware Services On-site Service	
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UJ252E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UJ253E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	UJ251E
	Installation Services	
	Hardware Services 6-Hour Call to Repair On-Site Service	UJ254E
	Hardware Installation, Electronic	UJ261E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/hps/	

Memory

HP ProLiant DL120 G6 Models

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

Standard Memory

SATA Models:

4GB of PC3-10600E DDR3 UDIMM running at 1333MHz with ECC capabilities memory installed.

SAS Models

4GB of PC3-10600R RDIMM running at 1333MHz

Standard Memory Plus Optional Memory

Up to 16 GB memory is available with the optional installation of 4 x 4GB PC3-10600E UDIMM ECC DDR3 SDRAM DIMM Memory kits.

Up to 12GB memory is available with the optional installation of 6 x 2GB PC3-10600R RDIMM DDR3 SDRAM DIMM Memory kits

Up to 16 GB memory is available with the optional installation of 4 x 4GB PC3-8500R RDIMM DDR3 DIMM Memory kits.

NOTE: The below chart does not represent all possible memory configurations.

NOTE: For best performance, it is recommended that customer installs memory in identical pairs (Slots 1 and 3 are interleaving pair. Slots 2 and 4 are interleaving pair).

Some DIMM installation guidelines are summarized below:

- For the HP ProLiant DL120 G6 server with six (6) memory slots
- There are two (2) channels per server
- There are three (3) DIMM slots for each memory channel; six (6) total slots
- Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
- Memory channel 2 consists of the three (3) DIMMs that are furthest from the processor
- Different processor (CPU) has different memory support
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- It is not required, but it is recommended to load the channels similarly if possible
- Support up to 4 DIMMs (2 DIMMs per channel) max 8GB PC3 10600E (DDR3 1333 MHz)
- Support up to 4 DIMMs (2 DIMMs per channel) max 16GB PC3-8500R (DDR3-1066 MHz)
- Support up to 6 DIMMs (3 DIMMs per channel) max 12GB PC3-10600R (DDR3-1333 MHz). Support single, double and quad ranks of DIMM
- Populate DIMMs from heaviest load (double-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the CPU
- No mixing DIMM voltage; all DIMMs must be the same voltage

The UDIMM installing sequence:

	DIMM1E	DIMM2C	DIMM3A	DIMM4F	DIMM5D	DIMM6B
1 DIMMs	Empty	Empty	DIMM	Empty	Empty	Empty
2 DIMMs	Empty	Empty	DIMM	Empty	Empty	DIMM
4 DIMMs	Empty	DIMM	DIMM	Empty	DIMM	DIMM

The RDIMM installing sequence:

	DIMM1E	DIMM2C	DIMM3A	DIMM4F	DIMM5D	DIMM6B
1 DIMMs	Empty	Empty	DIMM	Empty	Empty	Empty
2 DIMMs	Empty	Empty	DIMM	Empty	Empty	DIMM
4 DIMMs	Empty	DIMM	DIMM	Empty	DIMM	DIMM
6 DIMMs	DIMM	DIMM	DIMM	DIMM	DIMM	DIMM

Memory

Following are memory options available from HP:

HP Memory

Unbuffered with ECC DIMMs (UDIMM)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500668-B21

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500670-B21

HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500672-B21

Registered DIMMs (RDIMM)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500656-B21

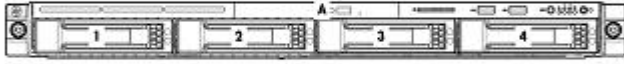
HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit 500660-B21

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

Storage

1- 4 Four SATA or SAS drive bays



A Optical Drive Bay: Optional DVD-ROM, or DVD-RW drive

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
9.5mm IDE DVD-ROM or DVD-RW Drive	Up to 1	A	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0) NOTE: Transfer rate:3Gb/s SATA

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 LFF (3.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K DP	Up to 4	1-4	HP Smart Array P212 Controller NOTE: Support for transfer rates up to 3 Gb/s
450GB 6G SAS 15K DP			
450GB 3G SAS 15K DP			
300GB 6G SAS 15K DP			
300GB 3G SAS 15K DP			
146GB 3G SAS 15K DP			

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G SAS 7.2K DP	Up to 4	1-4	HP Smart Array P212 Controller NOTE: Support for transfer rates up to 3 Gb/s
750GB 3G SAS 15K DP			

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

Quantity Supported	Position Supported	Controller
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Storage

600GB 6G SAS 15K DP	Up to 4	1-4	HP Smart Array P212 Controller
450GB 6G SAS 15K DP			NOTE: Support for transfer rates up to 3 Gb/s
450GB 3G SAS 15K DP			
300GB 3G SAS 15K DP			
146GB 3G SAS 15K DP			

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
1TB 3G SATA 7.2K			NOTE: Transfer rate:3Gb/s SATA
750GB 3G SATA 7.2K			
500GB 3G SATA 7.2K			
250GB 3G SATA 7.2K			

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
1TB 3G SATA 7.2K			NOTE: Transfer rate:3Gb/s SATA
500GB 3G SATA 7.2K			

SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
160GB 3G SATA 7.2K			NOTE: Transfer rate:3Gb/s SATA

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
160GB 3G SATA 7.2K			NOTE: Transfer rate:3Gb/s SATA

SATA Non-Hot Plug LFF (3.5-inch) Drives

	Quantity Supported	Position Supported	Controller
250GB 1.5G SATA 7.2K	Up to 4	1-4	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
160GB 1.5G SATA 7.2K			NOTE: Transfer rate:3Gb/s SATA

Maximum Storage Capacity - (SAS drives)

Internal	8.0TB (4 x 2TB SAS)
External	28.0TB (1 x (14 x 2TB SAS))
Total	36.0TB

Storage

Maximum Storage Capacity - (SATA Drives)

Internal	8.0TB (4 x 2TB SATA)
External	24.0TB [1 x (12 x 2TGB SATA)]
Total	32.0TB

NOTE: In order to implement integrated SATA RAID with Easy 'set-up CD' on Windows 2000/2003, the use of a floppy drive is necessary.

Tape and Disk 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	Recommended Controller	Part Number
HP StorageWorks SCSI Tape Drives 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	External	HP SC11Xe Host Bus Adapter Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks USB Tape Drives DAT 40 DAT 72 DAT 160 DAT 320 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
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 SAS controller Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21



Storage

HP StorageWorks SCSI Tape Autoloaders DAT 72x10 Autoloader 1/8 G2 Autoloader	External	HP SC11Xe Host Bus Adapter Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks SCSI Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Controller 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 SAS controller 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.	
HP StorageWorks USB RDX Removable Disk Backup System RDX160 RDX320 RDX500 RDX750	External	USB 2.0 port	N/A
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	

Technical Specifications

System Unit	Dimensions (H x W x D) 4.32 x 44.81 x 70.0 mm (1.69" x 17.64" x 27.56") (with bezel)									
	Weight (approximate)	<table border="0"> <tr> <td style="padding-right: 20px;">Maximum</td> <td>31.49 lb (14.3kg)</td> </tr> <tr> <td colspan="2">(four hard drives, power supply, and processor installed)</td> </tr> <tr> <td style="padding-right: 20px;">Minimum</td> <td>28.2lb (12.8kg)</td> </tr> <tr> <td colspan="2">(one hard drive, power supply, and processor installed)</td> </tr> </table>	Maximum	31.49 lb (14.3kg)	(four hard drives, power supply, and processor installed)		Minimum	28.2lb (12.8kg)	(one hard drive, power supply, and processor installed)	
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(four hard drives, power supply, and processor installed)										
Minimum	28.2lb (12.8kg)									
(one hard drive, power supply, and processor installed)										
	Input Requirements (per power supply)	<table border="0"> <tr> <td style="padding-right: 20px;">Range Line Voltage</td> <td>90 - 132 VAC, 180 - 264 VAC</td> </tr> <tr> <td style="padding-right: 20px;">Rated Input Current</td> <td>6 A (at 100 VAC), 3 A (at 200 VAC)</td> </tr> <tr> <td style="padding-right: 20px;">Rated Input Frequency</td> <td>47 to 63 Hz</td> </tr> <tr> <td style="padding-right: 20px;">Rated Input Power</td> <td><550W (at 100 VAC) 550W (at 200 VAC)</td> </tr> </table>	Range Line Voltage	90 - 132 VAC, 180 - 264 VAC	Rated Input Current	6 A (at 100 VAC), 3 A (at 200 VAC)	Rated Input Frequency	47 to 63 Hz	Rated Input Power	<550W (at 100 VAC) 550W (at 200 VAC)
Range Line Voltage	90 - 132 VAC, 180 - 264 VAC									
Rated Input Current	6 A (at 100 VAC), 3 A (at 200 VAC)									
Rated Input Frequency	47 to 63 Hz									
Rated Input Power	<550W (at 100 VAC) 550W (at 200 VAC)									
	BTU Rating	<table border="0"> <tr> <td style="padding-right: 20px;">Maximum</td> <td>1314 BTU/hr (at 100 VAC), 1314 BTU/hr (at 200 VAC)</td> </tr> </table>	Maximum	1314 BTU/hr (at 100 VAC), 1314 BTU/hr (at 200 VAC)						
Maximum	1314 BTU/hr (at 100 VAC), 1314 BTU/hr (at 200 VAC)									
	Power Specifications	<p>To review typical system power ratings use the 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</p> <ul style="list-style-type: none"> - Click on the system of interest. Example: DL120 G6 - Follow the instructions of the next screens. 								
	Power Supply Output (per power supply)	<table border="0"> <tr> <td style="padding-right: 20px;">Rated Steady-State Power</td> <td>400 W (at 100 VAC), 400 W (at 200 VAC)</td> </tr> <tr> <td style="padding-right: 20px;">Maximum Peak Power</td> <td>430 W (at 100 VAC), 430 W (at 200 VAC)</td> </tr> </table>	Rated Steady-State Power	400 W (at 100 VAC), 400 W (at 200 VAC)	Maximum Peak Power	430 W (at 100 VAC), 430 W (at 200 VAC)				
Rated Steady-State Power	400 W (at 100 VAC), 400 W (at 200 VAC)									
Maximum Peak Power	430 W (at 100 VAC), 430 W (at 200 VAC)									
	System Inlet Temperature	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).</td> </tr> <tr> <td style="padding-right: 20px;">Non-operating</td> <td>-30° to 65°C (-22° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).</td> </tr> </table>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).	Non-operating	-30° to 65°C (-22° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).				
Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).									
Non-operating	-30° to 65°C (-22° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).									
	Relative Humidity (non-condensing)	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.</td> </tr> <tr> <td style="padding-right: 20px;">Non-operating</td> <td>5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.</td> </tr> </table>	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.				
Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.									
Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.									
	Altitude	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>3050 m (10,000 ft). This value may be limited</td> </tr> </table>	Operating	3050 m (10,000 ft). This value may be limited						
Operating	3050 m (10,000 ft). This value may be limited									

Technical Specifications

			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		
	LWAd		6.30 B
	LpAm		44.1 dBA
	Operating		
	LWAd		6.34 B
	LpAm		44.4 dBA
Emissions Classification (EMC)	FCC Rating		Class A
	Normative Standards		CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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.

Power Supply	Input voltage specifications	Rated input voltage	100 VAC to 240 VAC
	Input Specifications	Rated input line	90 VAC to 264VAC
		Frequency range	47 to 63 Hz
		Rated input power	@ 115V input, Rated input power = 500W (assume output wattage=400W) @ 230V input, Rated input power = 500W (assume output wattage=400W)
		Rated input current	6 A, 3 A (110 V, 220 V)
		Steady state power	400W (rated)
	BTU Rating		1710 BTU/hr
	Ambient temperature range	Operating	41° to 122° F (5° to 50° C)
		Non-operating	-40° to 167° F (-40° to 75° C)
	Relative humidity (non-condensing)	Operating	5% to 95%
		Non-operating	5% to 95%
	Dielectric voltage withstand	Input to output	2150 VDC minimum, withstand 1 min
		Input to ground	2150 VDC minimum, withstand 1 min
Maximum Wet Bulb Temperature		104° F (40° C)	

Technical Specifications

Integrated Serial ATA Controller	Simultaneous drive transfer channels	4 channels		
	Transfer rate synchronous (maximum theoretical)	150 MB/s per channel; 300 MB/s in RAID 0 pair		
	Data transfer method	Intel® 82801IR Integrated Serial ATA Host Controller (non-RAID mode) Intel® 82801IR Integrated Serial ATA Host Controller (RAID Mode)		
	Drive support	Serial ATA		
	Data transfer modes	Legacy Mode Combined Mode		
	Protocol	Serial ATA		
	Feature	NCQ (Native Command Queuing); AHCI (Advanced Host Controller Interface)		
	RAID levels supported	0, 1		
	RAID Features	Supports multiple logical volumes Setup through ROM based Array Configuration Utility Installation scripting support NOTE: This controller does not support Hot Plug functions or LED functions.		
	RAID OS Support	Microsoft Windows Server 2003 NOTE: In order to implement integrated SATA RAID with Smart Start 7.90 on Windows 2000/2003, the use of a floppy drive is necessary. Linux (Red Hat, SuSE, UnitedLinux)		
	Embedded HP NC107i PCIe Gigabit Server Adapter	Network Interface	10Base-T/ 100Base-TX/ 1000Base-TX	
			Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
		Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX	
Data Transfer Method		Four lane (x4), 100MHz PCI Express Reference Clock		
Controller		BCM5723		
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)	2000Mb/s	
Connector	RJ-45 connector			
Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)		
	10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)		

Technical Specifications

**HP 160GB 3G SATA
7.2K rpm LFF (3.5-inch)
Non-hot Plug Entry 1yr
Warranty Hard Drive**

458947-B21

Capacity	160,041MB
Height Maximum drive dimension	1.028 in. (26.1 mm)
Width	4.00 in (101.6 mm)
Depth Maximum drive dimension	5.787 in (147.0 mm)
Interface	Serial ATA
Transfer Rate (Maximum)	3Gb/s
Native Command Queuing	Supported
Seek Time (typical reads, including settling)	Single Track 2.0 ms Average <11 ms Full-Stroke 22.0 ms
	Rotational Speed 7,200 rpm
Physical Configuration	Bytes/Sector 512 Logical Blocks 312,581,808
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)

**Environment-friendly
Products and
Approach**

**End-of-life
Management and
Recycling**

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

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

Technical Specifications

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