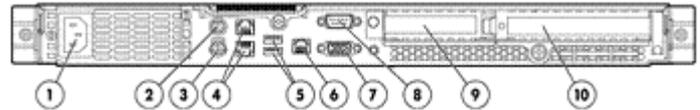
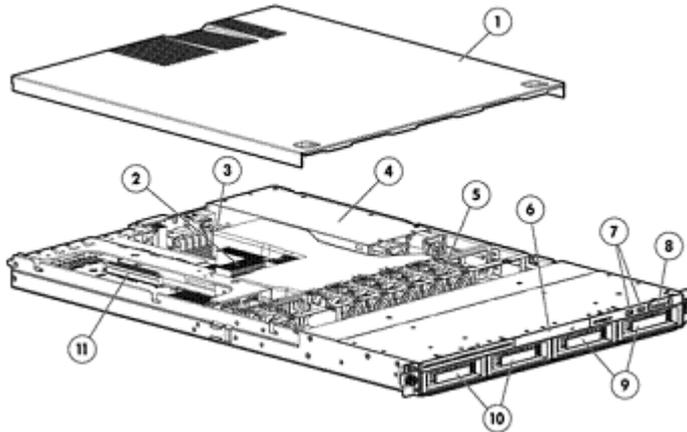


Overview

Hot Plug SAS/SATA and Non-Hot Plug SATA Models



Front View:

1. Access panel
2. Quad-Core Intel® Xeon® 5400 series processors (supports up to two)
3. Eight PC2-5300 (DDR2-667) or PC2-6400 (DDR2-800) fully buffered DIMM memory slots
4. Power supply (650 Watts)
5. System fans
6. Optional CD-RW or DVD-ROM drive
7. Two USB ports
8. Power on/off & system LEDs
9. Optional 3rd and 4th 3.5" Non-Hot plug SATA or hot plug SAS/SATA hard drive bays
10. Standard 1st and 2nd 3.5" Non-Hot plug SATA or hot plug SAS/SATA hard drive bays
11. Expansion Slots:
Non-Hot Plug Models – Two available x16 PCI-Express Gen2 slots
Hot Plug Models – One available x16 PCI-Express Gen2 slot

Rear View:

1. Power Supply Cable Socket
2. PS/2 Mouse Port
3. PS/2 Keyboard Port
4. Two GbE LAN ports for NIC 1 and NIC 2 (RJ-45)
5. Rear USB ports
6. LO100i 10/100 Mbps LAN port for IPMI management (RJ-45)
7. Video Port
8. Serial Port
9. Low-Profile PCI Express x8/PCI-X riser board slot cover
10. Standard height/full-height PCI Express x16/PCI-X riser board

What's New

- Support for up 400GB 3G 10K 3.5" DP SAS Enterprise Hard Drive

At A Glance

The HP ProLiant DL160 G5 server is an affordable 1U, dual processor capable server equipped with essential performance features that provide customers with a platform to design a fully optimized solution. It is ideal for general purpose and high performance computing.

- **Processors:**
 - Supports up to two Intel® Quad-Core 5400 or Dual-Core 5200 sequence processors

Overview

- Quad-Core Intel® Xeon® processors 5400 sequence with 12 MB Level 2 cache
- Dual-Core Intel® Xeon® processors 5200 sequence with 6 MB Level 2 cache
- Intel® 5400 Chipset
- **Memory:**
 - Supports up to 64 GB of PC2-5300 (DDR2-667) and up to 32 GB of PC2-6400 (DDR2-800) fully buffered DIMMs (DDR2-667) with Advanced ECC
- **Internal Drive Support:**
 - Support for up to four 3.5" Non-Hot plug serial ATA (SATA) hard drives or;
 - Support for up to four 3.5" Hot plug Serial Attached SCSI (SAS) or SATA hard drives.
 - **NOTE:** Installation of the [Hot Plug Backplane 1U 2S Kit \(445985-B21\)](#) is required if ordering third or fourth Hard Drives for Hot Plug models only.
 - Internal storage capacity of up to 1.0TB (4 x 1TB Hot Plug 3.5" SATA), 3.0TB (4 x 750 Non-Hot Plug SATA) or 4.0TB (4 x 1TB Hot Plug 3.5" SAS)
- **Network Controller:**
 - Two embedded NC105i PCIe Gigabit Server Adapters
- **Storage Controllers:**
 - Non-Hot Plug SATA Models: HP Embedded SATA RAID Controller
NOTE: Transfer rate: 1.5 Gb/s SATA
 - Hot Plug SAS/SATA Models: HP SC40Ge 4-Port Internal SAS HBA with RAID 0, 1
NOTE: When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required.
NOTE: Transfer rate: 1.5 Gb/s SATA, 3Gb/s SAS
- **Expansion Slots:**
 - Non-Hot Plug Models: Two available PCI Express 2.0 slots:
 - Slot 1: full-length/full-height PCI-Express 2.0 x16
 - Slot 2: low-profile/half-height PCI-Express 2.0 x16
 - Hot Plug Models: One available PCI-Express slot:
 - Slot 1: full-length/full-height PCI-Express 2.0 x16
 - Slot 2: low-profile/half-height PCI-X slot populated by the SAS/SATA storage controller
- **Management:**
 - HP Lights Out 100i Advanced Remote Management with new licensed key activated upgrades for Virtual KVM and virtual media support. LO100i management support for the DL160 G5 includes:
 - IPMI 2.0 & SMASH CLP support
 - 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 FTTP server requirements)
 - Enhanced browser interface and embedded KVM over IP provides OS-independent remote graphical console
 - New Licenses that have EULAs with one-time, optional, license activation key to allow for easy, future upgrades which will be chargeable when they become available.
- **USB Ports:**
 - Five USB ports (two front, one internal, two rear)
- **Optical Drive:**
 - Support for one (optional): DVD-ROM, DVD/CD RW
- **Power Supply:**
 - 650W Power Supply (Non-Hot Plug, Autoswitching)
 - Optional high-efficiency model
 - **NOTE:** Optional high-efficiency model requires the purchase of [HP Power Supply Backplane \(453652-B21\)](#)
- **Additional Features:**
 - Support for:
 - NVIDIA Quadro FX3700 512MB PCIe x 16 graphics card
 - NVIDIA Quadro FX1700 512MB PCIe x 16 graphics card
- **Form Factor:**
 - Rack (1U)
 - Fixed mounting rails included with all models

Overview

- **Deployment/Serviceability:**
 - Tool-less access to all system components for easy in rack serviceability
 - 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. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one year warranty. SAS Midline drives have a one-year warranty. SAS Enterprise drives have a three-year warranty.
 - **NOTE:** Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site 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 a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: <http://h71028.www7.hp.com/ERC/downloads/4AA1-6954ENW.pdf>

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

Processor One of the following depending on Model	Quad-Core Intel® Xeon® processor X5482 (3.20 GHz, 120W, 1600MHz FSB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.
	Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600MHz FSB)
	Quad-Core Intel® Xeon® processor X5470 (3.33 GHz, 120W, 1333MHz FSB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.
	Quad-Core Intel® Xeon® processor X5460 (3.16 GHz, 120W, 1333MHz FSB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.
	Quad-Core Intel® Xeon® processor L5430 (2.60 GHz, 50W, 1333MHz FSB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.
	Quad-Core Intel® Xeon® processor L5420 (2.50 GHz, 50W, 1333MHz FSB)
	Quad-Core Intel® Xeon® processor L5410 (2.33 GHz, 50W, 1333MHz FSB)
	Quad-Core Intel® Xeon® processor E5472 (3.00 GHz, 80W, 1600MHz FSB)
	Quad-Core Intel® Xeon® processor E5462 (2.80 GHz, 80W, 1600MHz FSB)
	Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB)
Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB)	
Dual-Core Processors	
Dual-Core Intel® Xeon® processor X5272 (3.40 GHz, 80W, 1600MHz FSB)	
Dual-Core Intel® Xeon® processor L5240 (3.00 GHz, 40W, TDP, 1333MHz FSB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.	

Upgradeability Upgradeable to two processors

Chipset Intel® 5400 Chipset

Cache Memory 12 MB (2 x 6 MB) Level 2 cache (5400 sequence)
6 MB (1 x 6 MB) Level 2 cache (5200 sequence)

Memory Protection Advanced ECC capabilities

Memory	Type	PC2-5300 (DDR2-667) and PC2-6400 (DDR2-800)	
	Standard	1 GB	(2 x 512 MB)
	Maximum	32 GB	(8 x 4 GB) PC2-6400
		64 GB	(8 x 8 GB)

Standard Features

Network Controller Two embedded NC105i PCIe Gigabit Server Adapters

Expansion Slots #	Technology	Bus Width	Connector Width*	Bus Number*	Device No.**	Form Factor	Notes
1	PCI-Express 2.0	x16	x16	1	0	Full length, full height	3.3 volts
1	PCI-X***	64-bit	N/A	5	1	Full length, full height	3.3 volts
2	PCI-Express 2.0	x16	x16	6	3	Low Profile	3.3 volts
2	PCI-X***	64-bit	N/A	5	1	Low Profile	3.3 volts

NOTE: All slots can accept universal keyed PCI cards

* Default bus assignment. 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).

*** PCI-X bus speed will be 133MHz when only one PCI-X card is installed. It will be 100MHz when both slots have PCI-X cards installed.

Storage Controller

Non-Hot Plug SATA Models HP Embedded SATA RAID Controller (integrated into the south-bridge) supporting SW RAID 0,1
NOTE: Transfer rate: 1.5 Gb/s SATA

Hot Plug SATA/SAS Models HP SC40Ge HBA with RAID 0, 1
NOTE: When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required.
NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS

NOTE: A diskette drive, USB floppy drive key or virtual FDD using LO100 Advanced Pack is needed to install storage controller drivers during a Windows operating system installation from a CD.

Storage

Optical Drives:

DVD-ROM 8x IDE (ATAPI) DVD-ROM drive, slim (optional)
 DVD/CD RW 24x IDE (ATAPI) CD-ROM drive (optional)
 Diskette Drives Via USB only

Drive Bays:

Non-Hot Plug SATA Up to 4 Non-hot plug SATA 3.5" drives
 Hot Plug SATA/SAS Up to 4 Hot plug SAS/SATA 3.5" drives

Maximum Internal Storage	Non-Hot Plug SATA	3.0TB	4 x 750GB
	Hot Plug SATA	4.0TB	4 x 1TB
	Hot Plug SAS	4.0TB	4 x 1TB

Standard Features

Interfaces	Parallel	None
	Network RJ-45(Ethernet)	2 10/100/1000 NIC ports (plus 1 dedicated for the HP ProLiant Lights Out 100i Remote Management)
	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	USB	5 (two front, one internal, two 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	32MB shared supporting 1600x1200x16M resolution
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Form Factor	Rack (1U), (1.75 in/4.45 cm)
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Server Management Stand Alone Software Product and ProLiant Essentials	Lights-Out 100i	HP Lights-Out 100i Remote Management delivers affordable, entry level remote management capabilities for HP ProLiant 100 Series servers with embedded LO100i. It allows customers or their service providers to remotely manage ProLiant 100 Series servers remotely over a LAN or the Internet and consists of the following:
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- LO100i Standard is embedded remote management and provides basic remote control via telnet, browser, and IPMI 2.0 and SMASH
- LO100i Advanced Pack License are upgrades for essential, secure, remote control, serial console, virtual media, and Virtual KVM (graphical hardware-based, remote console)

NOTE: Flexible and volume quantity (AKA) license kits are available for the Lights-Out 100i Lights-Out 100 Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to each software products' QuickSpecs at this link for more information:

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

ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install using images and scripted profiles. For more information, visit:
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<http://www.hp.com/go/rdp>.

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to:

<http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

Standard Features

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 multiple operating system platforms.

Core Infrastructure Management

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, available through software and drivers download pages website at: <http://www.hp.com/go/support>.

HP Serviceguard for Linux (SG/LX)

HP Serviceguard for Linux is a high availability clustering solution designed to protect applications and services from a wide variety of software and hardware failures, monitoring the health of each server (node) and quickly responding to failures such as those that affect system processes, system memory, LAN media and adapters, and application processes.

The following is a quick summary of HP Serviceguard for Linux features and support. For the most recent list of Linux distributions & kernels, servers and storage supported with Serviceguard for Linux, see the Serviceguard for Linux Datasheet, available at: <http://www.hp.com/go/sglx/info>.

- Supported Linux Distributions:
 - Red Hat EL 4
 - Red Hat EL 5
 - SUSE SLES10
- Supported Server Platforms
 - HP Integrity BladeSystem to Superdome
 - HP ProLiant BladeSystem p-Class & c-Class
 - HP ProLiant DL
 - HP ProLiant ML
 - IBM System x
 - Dell PowerEdge
 - Sun x64
 - Fujitsu Siemens PRIMERGY
- Supported Virtual Machines
 - SG/LX in HP Integrity Virtual Machines guests
 - SG/LX in VMware ESX guests
 - SG/LX in Red Hat and SUSE Xen hosts (DOM0)
- Application Integration Toolkits
 - HP Serviceguard for Linux Oracle Database Toolkit
 - HP Serviceguard Extension for SAP on Linux (SGeSAP/LX)
 - Free Application Integration Toolkits:
 - Apache
 - MySQL
 - NFS
 - PostgreSQL
 - Samba
 - Tomcat
 - Sendmail

Standard Features

- Disaster Tolerant Solutions
 - HP Serviceguard for Linux Extended Distance Cluster (XDC) extends cluster distances up to 100 km, utilizes software RAID mirroring for data replication and is storage array independent
 - HP StorageWorks XP/EVA Cluster Extension Software for Linux (CLX) works seamlessly with HP Serviceguard for Linux, HP StorageWorks Continuous Access, and HP Disk Arrays to automate failover and failback between sites
- Software updates are distributed by HP Services to customers with support contracts

NOTE: For additional information on HP Serviceguard for Linux, visit: <http://www.hp.com/go/sglx> or see the HP Serviceguard for Linux QuickSpecs.

NOTE: HP Serviceguard for Linux products for HP ProLiant and select 3rd party x86 class servers include 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/swsupport>.

Industry Standard Compliance

ACPI V2.0 Compliant
PCI 2.2 Compliant
PXE Support
WOL Support
Microsoft® Logo certifications
IPMI 2.0, SMASH CLP compliant

Manageability

HP Lights-Out 100i Standard provides the following OS-independent remote control capabilities:

- Virtual power
- System event log access
- System health
- Remote serial console (serial redirection)
- Browser, Telnet access
- SMASH-CLP compliant
- IPMI 2.0 compliant

HP Lights-Out 100i Advanced Pack provides license key activated upgrades to the following:

- Virtual KVM (KVM over IP functionality embedded on the system board)

Security

Power-on password
Setup password

Standard Features

Server Power Cords	<p>One 6' Highline (IEC-IEC) power cord ships standard</p> <p>NOTE: HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.</p> <p>If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.</p>
UPS and PDU 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>
Power Supply	<p>650 Watts, auto-switching, PFC (Power Factor Correcting)</p> <p>NOTE: Factory upgradeable to high-efficiency (HE) power supply for lower TCO</p>
System Fans	<p>6 system fans ship standard; Non-hot plug, Non-redundant</p>
OS Support	<p>Microsoft Windows Server 2003 R2 Microsoft Windows Server 2008 Microsoft Windows Small Business Server 2008 Microsoft Windows Essential Server 2008 Red Hat Enterprise Linux SUSE Linux Enterprise Server Sun Solaris for x64/x86-based Systems</p> <p>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/DL160G5.</p>
Rack Airflow Requirements	<p>Rack 10000 series Cabinets</p> <p>The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.</p> <p>CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:</p> <p>Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 5,350 sq cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches)</p> <p>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.</p>

Standard Features

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/dl160.

Rack Support

The DL Fixed Rail System supports installation in racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 and HP series), with an adjustment range of 24" - 36". Installation into Telco 2 post, and 4 post, or threaded holes racks requires a 3rd party option kit. For additional information, please visit: www.racksolutions.com.

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 MSAXxxx, 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.

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 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 that are purchased at the same time or afterward and internal to the enclosure. It 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 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.

Standard Features

- **Support Service** – 3 Year, 9x5 Next Business Day coverage, excluding HP holidays only
- **Deployment Service** – Hardware Installation only

Enhanced Service – Optimize service level to increase IT performance and availability

- **Support Service** – 3 Year 13x5 Same Business Day, 4-Hour response coverage
- **Deployment Service** – Installation and Start-up only

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.

For a complete listing of service offerings and information visit:

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

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

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL160 G5 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configurations to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects:
<http://www.hp.com/techservers/clusters/ucp/index.html>

HPC Interconnects	InfiniBand	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports
	Myrinet XP	PCI-X Rev D, Rev E and Rev F adapters

Models

Non-Hot Plug Serial ATA (SATA) Models

NOTE: Non-Hot Plug models are not upgradeable to Hot Plug. Non-Hot Plug models require the addition of the HP HBA SAS-SATA 4x1LN Cable Kit (P/N: 452130-B21) in order to connect a hardware RAID controller.

<p>HP DL160 G5 X5472 Non-Hot Plug SATA, 2GB, (1P) 445198-xx1</p> <p>HP DL160 G5 E5430 Non-Hot Plug SATA, 1GB, (1P) 445197-xx1</p> <p>HP DL160 G5 E5405 Non-Hot Plug SATA, 1GB, (1P) 445196-xx1</p>	<p>Processor(s) One of the following depending on model</p> <p>Cache Memory</p> <p>Memory One of the following depending on model</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Hard Drive</p> <p>Internal Storage</p> <p>Optical Drive</p> <p>Form Factor</p>	<p>(1) Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600 MHz FSB)</p> <p>(1) Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB)</p> <p>(1) Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB)</p> <p>12MB (2 x 6MB) Level 2 cache</p> <p>2GB (2 x 1GB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (X5472 models)</p> <p>1GB (2 x 512MB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (E5430, E5405 models)</p> <p>Two embedded NC105i PCIe Gigabit Server Adapters</p> <p>HP Embedded SATA RAID Controller</p> <p>160GB NHP SATA HDD</p> <p>3.0TB maximum (4 x 750GB Non-Hot plug 3.5" SATA hard drives)</p> <p>Optional CD/DVD-ROM, DVD/CD RW</p> <p>Rack (1U)</p>
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Hot Plug Serial ATA (SATA)/ Serial Attached SCSI (SAS) Models

<p>HP DL160 G5 X5472 Hot Plug SAS/SATA, 2GB, (1P) 445204-xx1</p> <p>HP DL160 G5 E5430 Hot Plug SAS/SATA, 1GB, (1P) 445203-xx1</p> <p>HP DL160 G5 E5405 Hot Plug SAS/SATA, 1GB, (1P) 445202-xx1</p>	<p>Processor(s) One of the following depending on model</p> <p>Cache Memory</p> <p>Memory One of the following depending on model</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Hard Drive</p> <p>Internal Storage</p> <p>Optical Drive</p> <p>Form Factor</p>	<p>(1) Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600 MHz FSB)</p> <p>(1) Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB)</p> <p>(1) Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB)</p> <p>12 MB (2 x 6 MB) Level 2 cache</p> <p>2 GB (2 x 1 GB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (X5472 models)</p> <p>1 GB (2 x 512 MB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (E5430, E5405 models)</p> <p>Two embedded NC105i PCIe Gigabit Server Adapters</p> <p>HP SC40Ge SAS HBA with RAID</p> <p>None ship standard (up to 4 Hot Plug SATA or SAS drives supported)</p> <p>4.0TB max. (4 x 1TB Hot Plug 3.5" SAS/SATA hard drives)</p> <p>Optional CD/DVD-ROM, DVD/CD RW</p> <p>Rack (1U)</p>
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Models

Country Code Key	xx = 00	U.S.
	xx = 20	Brazil (P/N 445202-201 only)
	xx = 29	Japan
	xx = 37	APD
	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 additional information.

NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.

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

NOTE: FIO indicates that this option is a Factory Installable Option.

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

Non-Hot Plug SATA Model

NOTE: Non-Hot Plug models are not upgradeable to Hot Plug. Non-Hot Plug models require the addition of the HP HBA SAS-SATA 4x1LN Cable Kit (P/N: 452130-B21) in order to connect a hardware RAID controller.

HP ProLiant DL160 G5 Non-Hot Plug SATA Rack CTO Chassis

445192-B21

Factory Integrated Model ships with:

Two embedded NC105i PCIe Gigabit Server Adapters (WOL & PXE-capable)

Two available PCI-Express 2 slots:

Slot 1: full-length/full-height

Slot 2: low-profile/half-height

650 Watt Power Supply

One Highline IEC Power Cord

6 Non-Hot Plug Fans

Rack (1U), (1.75 in / 4.45 cm)

Fixed Rails

Hot Plug Model

HP ProLiant DL160 G5 Hot Plug SAS/SATA Rack CTO Chassis

445193-B21

Factory Integrated Model ships with:

Two embedded NC105i PCIe Gigabit Server Adapters (WOL & PXE-capable)

Two available PCI-Express 2 slots:

Slot 1: full-length/full-height

Slot 2: low-profile/half-height

650 Watt Power Supply

One Highline IEC Power Cord

6 Non-Hot Plug Fans

Rack (1U), (1.75 in / 4.45 cm)

Fixed Rails

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

Processors

Quad-Core Processors

Quad-Core Intel® Xeon® processor X5482 (3.20 GHz, 120W, 1600MHz FSB), FIO

495614-L21

NOTE: If 2 processors are desired, select one 495614-L21 and one 495614-B21.

Configuration Information - Factory Integrated Models

Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600MHz FSB), FIO	462465-L21
NOTE: If 2 processors are desired, select one 462465-L21 and one 462465-B21.	
Quad-Core Intel® Xeon® processor X5470 (3.33 GHz, 120W, 1333MHz FSB), FIO	495612-L21
NOTE: If 2 processors are desired, select one 495612-L21 and one 495612-B21.	
Quad-Core Intel® Xeon® processor X5460 (3.16 GHz, 120W, 1333MHz FSB), FIO	446085-L21
NOTE: If 2 processors are desired, select one 446085-L21 and one 446085-B21.	
Quad-Core Intel® Xeon® processor L5430 (2.60 GHz, 50W, 1333MHz FSB), FIO	495616-L21
NOTE: If 2 processors are desired, select one 495616-L21 and one 495616-B21.	
Quad-Core Intel® Xeon® processor L5420 (2.50 GHz, 50W, 1333MHz FSB), FIO	495479-L21
NOTE: If 2 processors are desired, select one 495479-L21 and one 495479-B21.	
Quad-Core Intel® Xeon® processor L5410 (2.33 GHz, 50W, 1333MHz FSB), FIO	448369-L21
NOTE: If 2 processors are desired, select one 448369-L21 and one 448369-B21.	
Quad-Core Intel® Xeon® processor E5472 (3.00 GHz, 80W, 1600MHz FSB), FIO	448365-L21
NOTE: If 2 processors are desired, select one 448365-L21 and one 448365-B21.	
Quad-Core Intel® Xeon® processor E5462 (2.80 GHz, 80W, 1600MHz FSB), FIO	463076-L21
NOTE: If 2 processors are desired, select one 463076-L21 and one 463076-B21.	
Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB), FIO	446079-L21
NOTE: If 2 processors are desired, select one 446079-L21 and one 446079-B21.	
Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB), FIO	446077-L21
NOTE: If 2 processors are desired, select one 446077-L21 and one 446077-B21.	
Dual-Core Processors	
Dual-Core Intel® Xeon® processor X5272 (3.40 GHz, 80W, 1600MHz FSB)	448371-L21
NOTE: If 2 processors are desired, select one 448371-L21 and one 448371-B21.	
Dual-Core Intel® Xeon® processor L5240 (3.00 GHz, 40W, 1333MHz FSB), FIO	448373-L21
NOTE: If 2 processors are desired, select one 448373-L21 and one 448373-B21.	

Configuration Information - Factory Integrated Models

Memory	1 GB FBD PC2-5300 2 X 512 MB Kit	397409-B21	
	2 GB FBD PC2-5300 2 X 1 GB Kit	397411-B21	
	4 GB FBD PC2-5300 2 X 2 GB Kit	397413-B21	
	8 GB FBD PC2-5300 2 X 4 GB Kit	397415-B21	
	Dual Rank		
	4 GB FBD PC2-6400 800MHz 2 x 2 GB Dual Rank Kit	484060-B21	
	8 GB FBD PC2-6400 2 x 4 GB Dual Rank Kit	484062-B21	
	16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21	
	64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21	
	Low Power		
	2 GB FBD PC2-5300 2 X 1 GB Low Power Kit	461826-B21	
	4 GB FBD PC2-5300 2 x 2 GB Low Power Kit	461828-B21	
	8 GB FBD PC2-5300 2 x 4 GB Low Power Kit	466440-B21	

Hard Drive

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

SATA Non-Hot Plug Midline (MDL) Drive

NOTE: A minimum of one hard drive is required when purchasing Non-Hot Plug CTO Chassis Model (P/N 445192-B21).

NOTE: SATA Non-Hot Plug Hard Drives ONLY required when purchasing Non-Hot Plug CTO Chassis Models (445192-B21) in Step 1.

HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
SATA Non-Hot Plug Entry (ETY) Drives	
HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21

Storage Controllers

NOTE: A minimum of one SAS Controller is required when purchasing Hot Plug CTO Chassis Model (P/N 445193-B21).

NOTE: The below storage controllers are intended for use with internal drives ONLY in the Hot Plug CTO Chassis Model (P/N 445193-B21).

HP SC44Ge Host Bus Adapter	416096-B21
NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.	
HP SC40Ge 4 Internal PCIe SAS RAID Half Height HBA, FIO	449363-B21
NOTE: Recommended HBA when purchasing Hot Plug CTO Chassis Model (P/N 445193-B21).	
NOTE: When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate 1.5 Gb/s SATA, 3 Gb/s SAS.	
HP Smart Array E500/256MB Controller with Battery, FIO	462105-B21
NOTE: Customers can only order one Smart Array E500/256MB Controller and one Battery-backed write cache upgrade (P/N 383280-B21) for the HP ProLiant DL160 G5 server based on battery space.	
HP Smart Array E200/128 BBWC Controller	411508-B21
HP HBA SAS-SATA 4x1LN Cable Kit	452130-B21

Configuration Information - Factory Integrated Models

NOTE: This option is required for any internal port HBA or controller that has a standard 4 port SAS/SATA connector.

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

Power Supply	HP High Efficiency Power Supply Kit, FIO NOTE: Selection of the HE Power Supply Unit will remove the 650 Watt standard power supply and requires the purchase of Power Supply Backplane (p/n 453652-B21).	453650-B21
	HP Power Supply Backplane, FIO NOTE: This backplane must be ordered with the High Efficiency Power Supply (P/N 453650-B2).	453652-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below. Some options may not be available for factory integration. Please contact an HP sales representative for additional information.

Options

Server Management Stand Alone Software Product and ProLiant Essentials

NOTE: Electronic licensing options are available for Insight Control suites and select ProLiant Essentials software products. Please see the appropriate Insight Control and ProLiant Essentials QuickSpecs for additional information.

Control

Lights-Out 100i Advanced Pack

HP Lights Out 100i Advanced Pack, No Media, 1-Server License

455342-B21

NOTE: Supports HP ProLiant DL 160 G5, DL165 G5 and DL185 G5 servers.

NOTE: Flexible and volume quantity (AKA) license kits are available for the Lights-Out 100i Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to each software products' QuickSpecs at this link for more information:

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

DEPLOY

Rapid Deployment Pack

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

452151-B21

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

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 and Update Service.

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

http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.html

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

Processor

Quad-Core Processors

Quad-Core Intel® Xeon® processor X5482 (3.20 GHz, 120W, 1600MHz FSB) 495614-B21

Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600MHz FSB) 462465-B21

Quad-Core Intel® Xeon® processor X5470 (3.33 GHz, 120W, 1333MHz FSB) 495612-B21

Quad-Core Intel® Xeon® processor X5460 (3.16 GHz, 120W, 1333MHz FSB) 446085-B21

Quad-Core Intel® Xeon® processor L5430 (2.60 GHz, 50W, 1333MHz FSB) 495616-B21

Quad-Core Intel® Xeon® processor L5420 (2.50 GHz, 50W, 1333MHz FSB) 495479-B21

Quad-Core Intel® Xeon® processor L5410 (2.33 GHz, 50W, 1333MHz FSB) 448369-B21

Quad-Core Intel® Xeon® processor E5472 (3.00 GHz, 80W, 1600MHz FSB) 448365-B21

Quad-Core Intel® Xeon® processor E5462 (2.80 GHz, 80W, 1600MHz FSB) 463076-B21

Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB) 446079-B21

Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB) 446077-B21

Dual-Core Processors

Dual-Core Intel® Xeon® processor X5272 (3.40 GHz, 80W, 1600MHz FSB) 448371-B21

Dual-Core Intel® Xeon® processor L5240 (3.00 GHz, 40W, 1333MHz FSB) 448373-B21

Options

Memory

1 GB FBD PC2-5300 2 X 512 MB Kit	397409-B21
2 GB FBD PC2-5300 2 X 1 GB Kit	397411-B21
4 GB FBD PC2-5300 2 X 2 GB Kit	397413-B21
8 GB FBD PC2-5300 2 X 4 GB Kit	397415-B21
Dual Rank	
4 GB FBD PC2-6400 2 X 2 GB Dual Rank Kit	484060-B21
8 GB FBD PC2-6400 2 x 4 GB Dual Rank Kit	484062-B21
16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21
Low Power	
2 GB FBD PC2-5300 2 X 1 GB Low Power Kit	461826-B21
4 GB FBD PC2-5300 2 x 2 GB Low Power Kit	461828-B21
8 GB FBD PC2-5300 2 x 4 GB Low Power Kit	466440-B21

Hard Drives

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

SATA Non-Hot Plug Midline (MDL) Drives (Non-Hot Plug Models Only)

HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21

SATA Non-Hot Plug Entry (ETY) Drives

HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
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NOTE: When purchasing systems with the 500GB Non-Hot Plug SATA drives, please reference the Configuration Information Section of this QuickSpecs to order via Configuration to Order.

SATA Hot Plug Midline (MDL) Drives (SAS/SATA Hot Plug Models Only)

NOTE: A SAS HBA or Array Controller is required.

HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21
HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21
HP 500GB 3G SATA 7.2K 3.5" MDL HDD	458928-B21
HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21

NOTE: Server BIOS update is required to support 3G SATA drives when configured with embedded SATA controller. Please see communication for details: <http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?objectID=c01511475>

SATA SFF Hot Plug Entry (ETY) Drives

HP 160GB 3G SATA 7.2K 3.5" ETY HDD	458945-B21
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NOTE: Server BIOS update is required to support 3G SATA drives when configured with embedded SATA controller. Please see communication for details: <http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?objectID=c01511475>

Options

NOTE: SATA hard drives have a 1-year warranty. Please see QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html
(Worldwide)

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

SAS Hot Plug 3.5" Midline (MDL) Drives

HP 1TB 7.2K 3.5" DP SAS MDL HDD	461137-B21
HP 750GB 7.2K 3.5" DP SAS MDL HDD	461135-B21

SAS Hot Plug 3.5" Enterprise (ENT) Drives

HP 400GB 3G 10K 3.5" DP SAS HDD	459508-B21
HP 450GB 3G 15K 3.5" DP SAS ENT HDD	454232-B21
HP 300GB 3G SAS 15K 3.5" SP HDD	431944-B21
HP 300GB 3G SAS 15K 3.5" DP HDD	416127-B21
HP 146GB 3G SAS 15K 3.5" SP HDD	375872-B21
HP 146GB 3G SAS 15K 3.5" DP HDD	384854-B21
HP 72GB 3G SAS 15K 3.5" SP HDD	375870-B21
HP 72GB 3G SAS 15K 3.5" DP HDD	384852-B21

NOTE: The purchase of SAS HBA or array controller is required.

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)

Hot Plug HDD Backplane Option	Hot Plug HDD Backplane 1U 2S Kit	445985-B21
	NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.	

Graphic Cards	HP Nvidia Quadro FX1700 512 MB PCI-E 16x Kit	490646-B21
	HP Nvidia FX3700 512 MB PCI-E 16x Kit	490062-B21

Optical Drives	DVD-ROM Drive (optional)	447889-B21
	DVD/CD RW Drive (optional)	447891-B21

Storage Controllers	NOTE: The addition of storage controllers for internal hard drive use is intended for use ONLY with the Hot Plug SATA/SAS Model Chassis (P/N 445148-B21).	
	SAS HBA	
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	NOTE: For use with Hot Plug SAS/SATA models.	
	NOTE: The selection HP 8 Internal Port SAS HBA with RAID requires the purchase of the LowProfile PCI-X Riser Option kit (P/N 452698-B21)	
	NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS	

Options

HP SC44Ge Host Bus Adapter	416096-B21
NOTE: PCI-Express SAS HBA.	
NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.	
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18004.www1.hp.com/products/quickspecs/12332_div/12332_div.html (8 Internal Port SAS HBA)	
http://h18004.www1.hp.com/products/quickspecs/12617_div/12617_div.html (SC44Ge HBA)	
SCSI HBA	
HP SC11Xe Host Bus Adapter	412911-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	
SAS Controllers	
Smart Array E200 Controller	
HP Smart Array E200/128 BBWC Controller	411508-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/12460_div/12460_div.html (Smart Array E200 Controller)	
Smart Array E500 Controller	
HP Smart Array E500/256MB Controller	435129-B21
NOTE: Standard RAID 0,1, 1+0.	
NOTE: Customers can only order one Smart Array E500/256MB Controller and one Battery-backed write cache upgrade (P/N 383280-B21) for the HP ProLiant DL160 G5 server based on battery space.	
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/12700_div/12700_div.html (Smart Array E500 Controller)	
Smart Array P400 Controller	
HP Smart Array P400/256 Controller	405132-B21
NOTE: Customers can only order one Smart Array P400/256MB Controller and one Battery-backed write cache upgrade (P/N 383280-B21) for the HP ProLiant DL160 G5 server based on battery space.	
HP Smart Array P400/512 Controller with BBWC	411064-B21
NOTE: Customers can only order one Smart Array P400/512MB BBWC Controllers for the HP ProLiant DL160 G5 server based on battery space.	
512MB Battery-backed write cache upgrade	405148-B21
NOTE: Contains batter and memory module. For Smart Array P400 Controller.	
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/12400_div/12400_div.html (Smart Array P400 Controller)	
Smart Array P800 Controller	
HP Smart Array P800/512 BBWC Controller	381513-B21

Options

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

http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html
(Smart Array P800 Controller)

Riser Board Kits

HP PCI-X Riser Board Kit 445986-B21

NOTE: Replaces the standard Full Height PCI Express slot with a Full Height PCI-X slot.

HP PCI-X L/P Riser Kit 452698-B21

NOTE: Replaces the standard Half Height (LP) PCI Express slot with a Half Height (LowProfile) PCI-X slot.

Communications

HP NC110T PCI Express Gigabit Server Adapter 434905-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 NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter 458492-B21

HP NC510C PCIe 10 Gigabit Server Adapter 414129-B21

NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.

HP NC510F PCIe 10 Gigabit Server Adapter 414126-B21

NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.

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

HPC Specific Options

HP IB 4X DDR PCI-e Dual Port 0 Memory HCA 483513-B21

HP IB 4X DDR Conn-X PCI-e G2 Dual Port HCA 483514-B21

HP IB 4X DDR PCI-e Dual Port HCA 409376-B21

HP IB 4X DDR PCI-e DUAL PORT HCA 448397-B21

NOTE: For HPC interconnect adapters please see the HPC Interconnect section of this QuickSpecs.

Options

Tape Drives

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

USB Rack-Mount Tape Drives

HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive AG703A
NOTE: Pre-configured with one DAT 160 USB tape drive.

SAS Rack-Mount Tape Drives

NOTE: HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760 EH946A
NOTE: Pre-configured with one LTO-4 Ultrium 1760 SAS tape drive.

HP StorageWorks 1U SAS Rack-Mount Kit AE459A
NOTE: Supports up to (2) half-height SAS tape drives.

HP StorageWorks DAT 160 SAS Internal Tape Drive Q1587A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A)

HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive DW085A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A)

HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive EH847A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A)

SCSI Rack-Mount Tape Solutions

NOTE: SCSI Controller required. HP recommends purchasing the HP SC11Xe HBA (412911-B21) for a dedicated SCSI HBA for tape.

HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite) DW028B
NOTE: Pre-configured with one LTO-2 Ultrium 448 SCSI tape drive.

HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920 EH903A
NOTE: Pre-configured with one LTO-3 Ultrium 920 SCSI tape drive.

HP StorageWorks 3U SCSI Rack-Mount with 1 LTO-4 Ultrium 1840 Tape Drive EH926A
NOTE: Pre-configured with one LTO-4 Ultrium 1840 SCSI tape drive.

For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: <http://www.hp.com/go/connect>

Disk-Based Backup

RDX Removable Disk Backup

HP StorageWorks RDX160 External Removable Disk Backup System AJ766A
NOTE: 160GB of Disk Storage

HP StorageWorks RDX320 External Removable Disk Backup System AJ768A
NOTE: 320GB of Disk Storage

HP StorageWorks RDX500 External Removable Disk Backup System AJ935A
NOTE: 500GB of Disk Storage

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html

D2D Backup

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

HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive EH952A
NOTE: 3TB of Disk Storage.

Options

HP StorageWorks D2D2503i Backup System	EH945A
NOTE: 3TB of Disk Storage.	
HP StorageWorks D2D4004i Backup System	EH938A
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.html (Worldwide)	

Tape Autoloaders

HP StorageWorks DAT Autoloader

HP StorageWorks DAT 72x10 tape autoloader	AE313B
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HP StorageWorks 1/8 G2 Tape Autoloader

HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
HP StorageWorks 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	AH164A
HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A

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

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/automation> needed to create a complete solution; reference current compatibility information at: <http://www.hp.com/go/ebs>.

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 Ultrium 920 SAS Drive Library	AH560A
HP StorageWorks MSL4048 1 Ultrium 960 SCSI Drive Library	AG322A
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/automation> needed to create a complete solution; reference current compatibility information at: <http://www.hp.com/go/ebs>.

Options

HP StorageWorks 50 Modular Smart Array	<p>HP StorageWorks 50 Modular Smart Array 364430-B21</p> <p>NOTE: Rack-mountable 10 SFF drive enclosure with single I/O module, redundant hot plug power supplies and hot plug fans.</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)</p>
HP StorageWorks 60 Modular Smart Array	<p>HP StorageWorks 60 Modular Smart Array 418408-B21</p> <p>NOTE: Rack-mountable 12-drive (3.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies.</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide)</p>
HP StorageWorks 70 Modular Smart Array	<p>HP StorageWorks 70 Modular Smart Array 418800-B21</p> <p>NOTE: Rack-mountable 25-drive (2.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies.</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)</p>
High Availability Cluster Options	<p>HP Serviceguard for Linux</p> <p>HP Serviceguard Linux for HP ProLiant/x86 Servers 463831-B21 Licensed per physical server Includes media and One Year 24x7 Software Support & Updates</p> <p>HP Serviceguard Linux Oracle Database Toolkit for HP ProLiant/x86 Servers 463833-B21 Licensed per cluster Includes media and One Year 24x7 Software Support & Updates</p> <p>HP Serviceguard Extension for SAP on Linux for HP ProLiant/x86 Servers 463834-B21 Licensed per physical server Includes media and One Year 24x7 Software Support & Updates</p> <p>HP Serviceguard Linux Extended Distance Cluster (XDC) for HP ProLiant/x86 Servers 463835-B21 Licensed per physical server Includes media and One Year 24x7 Software Support & Updates</p> <p>NOTE: The above is not a complete list of all HP Serviceguard for Linux product numbers For a detailed list of supported configuration/certification options for HP Serviceguard for Linux please refer to the HP Serviceguard for Linux Configuration & Ordering Guide available at: http://www.hp.com/go/sglx/info.</p> <p>NOTE: HP Serviceguard for Linux products running on x86 platforms now include one year of 24 x 7 Software Technical Support and Updates. Please see the Support Information section of the HP Serviceguard for Linux QuickSpecs for details.</p> <p>NOTE: For additional information including a complete list of Product Numbers for HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html</p>

Options

(Worldwide)

StorageWorks Options **StorageWorks Fibre Channel HBA**

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

HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
HP StorageWorks FC2143 4Gb PCI-X 2.0 - to Fibre Channel HBA	AD167A
HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
HP StorageWorks 81E 8Gb SP PCI-e FC HBA	AJ762A
HP 82E 8Gb Dual-port PCI-e FC HBA	AJ763A
HP 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A

StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter	AH627A
NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers	
HP StorageWorks FC2243 4Gb PCI-X 2.0 DC HBA	AD168A

Uninterruptible Power **HP UPS R1500 G2 UPS** Systems - Rack

HP, R1.5k VA 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 Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13130_div/13130_div.html
(Worldwide)

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html
(Worldwide)

USB Options

HP 1GB USB 2.0 Floppy Drive Key	442085-B21
USB 1.44-MB External Diskette Drive	DC141B
USB Floppy Drive	DC361B
HP USB-P/S2 Mouse	DC369A
HP Keyboard (USB) standard 2004	DT528A#xxx
HP USB Internal Cable Kit	451363-B21

Options

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A

NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.

NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

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 KVM Switch Options	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
	NOTE: Requires PS/2 and one USB port on server.	
	HP Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	HP Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack	AF613A

NOTE: required for supporting USB peripherals.

NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL:

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

HP Serial Console Server Options	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-D89 DCE Female, 1-pack	AF103A
	Serial Adapter, RJ45-D89 DCE Female, 8-pack	AF110A

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

Options

Service and Support Offerings (HP Care Pack Services)	Hardware Services 4-Hour On-site Service	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	U9509E
	24-Hour x 7 Day Coverage, 3 Years, Electronic	U9510E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U9508E
	Hardware Services 6-Hour Call to Repair On-Site Service	
	Hardware Installation, Electronic	U9520E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

Memory

HP ProLiant DL160 G5 (all models)

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

Standard Memory

1GB (2x512MB) or 2GB (2 x 1GB) depending on model, PC2-5300 Fully Buffered DIMM memory, with Advanced ECC.

Maximum Memory

Up to 32GB memory is available with the optional installation of PC2-5300 Fully Buffered DIMM memory kits.

NOTE: Memory should be installed in pairs and matched for optimum performance.

NOTE: Chart does not represent all possible memory configurations.

Memory	Slot							
	1	2	3	4	5	6	7	8
Standard (1 GB)	512 MB	Empty	512 MB	Empty	Empty	Empty	Empty	Empty
Standard (2 GB)	1 GB	Empty	1 GB	Empty	Empty	Empty	Empty	Empty
Maximum (64GB)	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB

Following are memory options available from HP:

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

Dual Rank

4 GB FBD PC2-6400 2 X 2 GB Dual Rank Kit	484060-B21
8 GB FBD PC2-6400 2 x 4 GB Dual Rank Kit	484062-B21
16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21

Low Power

2 GB FBD PC2-5300 2 X 1 GB Low Power Kit	461826-B21
4 GB FBD PC2-5300 2 x 2 GB Low Power Kit	461828-B21
8 GB FBD PC2-5300 2 x 4 GB Low Power Kit	466440-B21

Storage



- 1-4 Four Non-hot plug SATA or four 3.5" Hot-plug SAS/SATA hard drive bays
- A Optional DVD-ROM, or DVD/CD RW

Drive Support

Removable Media

	Quantity Supported	Position Supported	Controller
DVD-ROM	Up to 1	A	Integrated IDE (ATAPI) (optional)
DVD/CD RW	Up to 1	A	Integrated IDE (ATAPI) (optional)

Hard Drives

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

SATA Non-Hot Plug Midline (MDL) Drives 3.5"

	Quantity Supported	Position Supported	Controller
250GB 1.5G SATA 7.2K	Up to 4	1-4	HP Embedded SATA RAID Controller NOTE: Transfer rate: 1.5 Gb/s SATA
500GB 1.5G SATA 7.2K			
750GB 1.5G SATA 7.2K			

SATA Non-Hot Plug Entry (ETY) Drives 3.5"

	Quantity Supported	Position Supported	Controller
160GB 1.5G SATA 7.2K	Up to 4	1-4	HP Embedded SATA RAID Controller NOTE: Transfer rate: 1.5 Gb/s SATA

SATA Hot Plug Midline (MDL) Drives 3.5"

NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.

	Quantity Supported	Position Supported	Controller
160GB SATA 7.2K	Up to 4	1-4	HP SC40Ge 4-Port Internal SAS HBA with RAID 0, 1 NOTE: When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS
250GB SATA 7.2K			
500GB SATA 7.2K			
750GB SATA 7.2K			
1TB SATA 7.2K			

SATA Non-Hot Plug Enterprise (ENT) Drives 3.5"

	Quantity Supported	Position Supported	Controller
160GB 1.5G SATA 7.2K	Up to 4	1-4	HP Embedded SATA RAID Controller NOTE: Transfer rate: 1.5 Gb/s SATA

SAS Hot Plug 3.5" Midline (MDL) Drives

NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.

Storage

	Quantity Supported	Position Supported	Controller
1TB 3G 7.2K 750 3G 7.2K	Up to 4	1-4	Embedded SATA with integrated SATA RAID 0,1 HP Smart Array E200/128 BBWC Controller HP Smart Array P400 Controller HP Smart Array E500/256MB Controller HP Smart Array P800 Controller

SAS Hot Plug 3.5" Enterprise (ENT) Drives

NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.

	Quantity Supported	Position Supported	Controller
72GB 3G 15K 146GB 3G 15K 300GB 3G 15K 450GB 3G 15K 400GB 3G 10K	Up to 4	1-4	HP SC40Ge 4-Port Internal SAS HBA with RAID 0, 1 NOTE: When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS HP Smart Array P400 Controller HP Smart Array P800 Controller

External Storage

	Quantity Supported	Position Supported	Controller
20 Modular Smart Array	Up to 2 per SA-6402 Up to 4 per SA-6404	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
50 Modular Smart Array	Up to 2	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
60 HP StorageWorks Modular Smart Array	Up to 8	External	HP Smart Array P800/512 BBWC Controller
70 HP StorageWorks Modular Smart Array	Up to 8	External	HP Smart Array P800/512 BBWC Controller

Storage

Tape and Disk-Based Backup

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:

<http://h18000.www1.hp.com/products/quickspecs/division/10233.html> (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders and Tape Libraries listed below, please see the following:

<http://h18000.www1.hp.com/products/quickspecs/division/10809.html> (Worldwide)

NOTE: For complete listing of tape drive offerings see:

<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

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

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks SCSI Tape Drives, External 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	412911-B21
HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
HP StorageWorks SCSI Tape Automation,	External	HP SC11Xe Host Bus Adapter	412911-B21



Storage

<p>External DAT 72x10 Autoloader 1/8 G2 Autoloader MSL2024 MSL4048</p>		<p>HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.</p>	<p>AH627A</p>
<p>HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048</p>	<p>External</p>	<p>HP SC44Ge Host Bus Adapter NOTE: Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.</p>	<p>416096-B21</p>
<p>HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL8096 MSL6000</p>	<p>External</p>	<p>Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.</p>	<p>N/A</p>
<p>HP StorageWorks RDX Removable Disk Backup System, External RDX160 RDX320 RDX500</p>	<p>External</p>	<p>USB 2.0 port</p>	<p>N/A</p>
<p>HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2503i D2D4004i</p>	<p>External</p>	<p>Embedded Network Controller</p>	<p>N/A</p>

Power Specifications

Operational Input Voltage Range (Vrms)	90Vac to 264Vac full range					
Frequency Range (Nominal) (Hz)	47 Hz to 63 Hz					
Nominal Input Voltage (Vrms)	100	115	200	220	230	240
Max Rated Output Wattage Rating	653.10	653.19	653.08	652.96	653.08	652.96
Nominal Input Current (A rms)	8.55	7.31	4.12	3.77	3.6	3.46
Max Rated Input Wattage Rating (Watts)	855	840.72	824.12	827.5	806.3	805.71
Max. Rated VA (Volt-Amp)	990	990	990	990	990	990
Efficiency (%)	76.39	77.69	79.25	78.91	81	81.04
Power Factor	0.998	0.997	0.983	0.976	0.973	0.969
Leakage Current (mA)	<3.5mA	<3.5mA	<3.5mA	<3.5mA	<3.5mA	<3.5mA
Maximum Inrush Current (A peak)	60A	60A	60A	60A	60A	60A
Maximum Inrush Current Duration (mS)	1mS	1mS	1mS	1mS	1mS	1mS

System Specifications

Power		
ProLiant DL160 G5 Fully Configured	115V/60Hz	220V/50Hz
Fully Loaded System Input Wattage (W)	651	638
Fully Loaded System Input Current (A rms)	5.7	3.0
Fully Loaded System Thermal (BTU- Hr)	2218	2174
Fully Loaded System VA (Volt-Amp)	657	657
System Leakage with all power supplies loaded (mA)	1.58	3.03
System Inrush Current with all power supplies loaded (A)	19	37
Power cord requirements	Nema 5-15P to IEC320-C13	IEC320-C13 to IEC320-C14
NOTE: Power shown is for a fully configured system consisting of (2) CPU, (8) double-sided DIMMs, (2) HDDs, (1) CD-ROM, and (2) PCI cards.		
Power Cord		AF556A

Server Power Cords

One 6' Highline (IEC-IEC) power cord ships standard

NOTE: HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: <http://www.hp.com/go/powercordmatrix>.

Technical Specifications

System Unit	Dimensions (H x W x D) 1.70 x 17.64 x 26.85 in (4.32 x 44.80 x 68.20 cm) (with bezel)	
	Weight (approximate)	<p>Maximum 37.00 lb (16.78 kg) (all hard drives, power supplies, and processors installed)</p> <p>Minimum 30.00 lb (13.69 kg) (one hard drive, power supply, and processor installed)</p>
	Input Requirements (per power supply)	<p>Rated Line Voltage 90 to 140 VAC 180 to 264 VAC</p> <p>Rated Input Current 7.31A at 115VAC 3.6A at 230VAC</p> <p>Rated Input Frequency 47 to 63 Hz</p> <p>Rated Input Power 855W (at 100 VAC), 840.72W (at 200 VAC)</p>
	Power Specifications	<p>To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls</p> <ul style="list-style-type: none"> - Click on the system of interest. Example: DL160 G5 - Follow the instructions of the next screens.
	Power Supply Output (per power supply)	Rated Steady-State Power 653.10W (at 100 VAC), 653.08W (at 200 VAC)
	System Inlet Temperature	<p>Operating 50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 305 m) above sea level to a maximum of 10,000 ft (3050 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed.</p> <p>System performance may be reduced if operating with a fan fault or above 86°F (30°C).</p> <p>Non-operating 40° to 140° F (-40° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).</p>
	Relative Humidity (non-condensing)	<p>Operating 10% to 85% relative humidity (Rh), 82.4°F (28°C) maximum wet bulb temperature, non-condensing.</p> <p>Non-operating 10% to 95% relative humidity (Rh), 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing.</p>
	Altitude	Operating 10,000 ft (3050 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).

Technical Specifications

	Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
Acoustic Noise		Listed are the declared A-Weighted sound power levels (L_{WA_d}) and declared average bystander position A-Weighted sound pressure levels (L_{pAm}) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).
	Idle	
	L_{WA_d}	6.86
	L_{pAm}	52.36dBA
	Operating	
	L_{WA_d}	6.89
	L_{pAm}	52.60dBA
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

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.

Non-Hot Plug SATA Hard Drives	160-GB 7.2K	Capacity	160,041 MB	
	458947-B21	Height	1.028 in (2.61 cm)	
		Width	4.0 in (10.16 cm)	
		Depth	5.787 in (147.0 mm)	
		Interface	SATA ATA	
		Transfer Rate Synchronous (Maximum)	1.5Gb/s	
		Seek Time (typical reads, including settling)	Single Track	0.9 ms
			Average	9.0 ms
			Full-Stroke	17.8 ms
			Rotational Speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	312,581,808
		Operating Temperature	41° to 131° F (5° to 55° C)	

Technical Specifications

Embedded NC105i PCIe Network Interface Gigabit Server Adapter	Integrated 10/100/1000BASE-T Transceiver
	Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.
Data Transfer Method	Compliant to x1 PCIe Specification
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	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UTP

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green . To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
		The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green . These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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