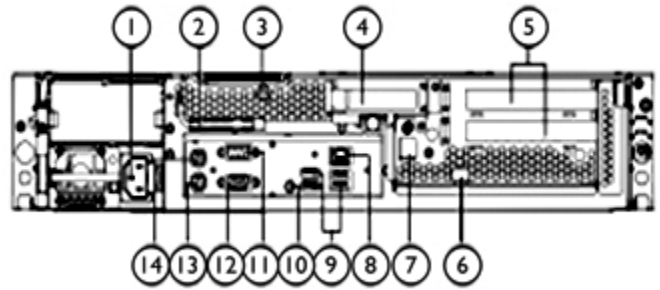


Front View:

1. Access panel
2. Front LED Indicators
3. Power on/off
4. Optional DVD-RW or DVD-ROM drive
5. Front USB Ports (2)
6. Non Hot plug Non redundant fans (4 fans)
7. Air Baffle
8. PCI Cage
9. System Board



Rear View:

1. Power Supply Cable Socket
2. T-15/T-10 Screwdriver
3. Thumbscrew For Top Cover
4. Low Profile Card Slot
5. PCI Expansion Card Slot
6. Thumbscrew For PCI Cage
7. HP LO100c Management Card Port (Optional)
8. LAN Port
9. 4 USB 2.0 Ports
10. UID LED Button
11. Serial Port
12. VGA Port
13. PS/2 Mouse Port (green)
14. PS/2 Keyboard Port (purple)

At A Glance

The HP ProLiant DL180 G5 is a low cost high capacity storage optimized 2-way server, that delivers on a history of design excellence and 2U density for a variety of rack deployments and applications.

- **Processors:**
 - Supports up to two Quad-Core Intel® Xeon® processors: 5400 sequence
 - Quad-Core Intel® Xeon® processors 5400 sequence with 12MB Level 2 cache
 - Intel® 5100 Chipset
- **Memory:**
 - Up to 16 GB of memory supported by six (6) PC2-5300 (667 MHz) DDR2 memory slots
- **Internal Drive Support:**
 - Supports up to twelve via CTO with controller or up to eight via BTO:
 - Hot Plug Serial ATA (SATA) 3.5"hard drives; or
 - Hot Plug Serial Attached SCSI (SAS) 3.5"hard drives

NOTE: Hot Plug and SAS functionality requires the addition of Smart Array or HBA controller.
 - Internal storage capacity of up to 9TB (12 x 750GB Hot Plug 3.5" SATA hard drives), 3.6TB (12 x 300GB Hot Plug 3.5" SAS hard drives)
- **Network Controller:**
 - One integrated NC105i PCI-e Gigabit NIC (embedded) (Wake on LAN and PXE capable)
- **Storage Controllers:**
 - HP Embedded SATA RAID Controller (up to 4 hard drive support on base Models:
 - HP Smart Array E200 Controller (optional)
 - HP Smart Array P400 Controller (optional)
 - HP Smart Array P800 Controller (optional)
 - HP SC11Xe Host Bus Adapter (optional)
 - HP SC44Ge Host Bus Adapter (optional)
- **Expansion Slots:**
 - One available Low Profile x8 PCI-Express slot using a Low profile Riser.
 - Two Full Height/ Full Length Riser options
 - Option1: 2 full-length/full-height PCI-Express x8 connector slots (x4 electrical - Standard)
 - Option2: full-length/full-height riser with 2 PCI-X Slots(Optional)
- **Management:**

- Optional HP Lights Out 100c Remote Management card with Virtual KVM and Virtual Media support (includes IPMI2.0 and SMASH support)
- **USB Ports:**
 - Seven USB ports (2) front, (4) rear, (1) internal
- **Optical Drive:**
 - Support for one (optional):Multi-bay DVD
 - Optional Floppy (USB only, USB key)
- **Power Supply:**
 - 750W Power Supply (Optional Redundancy Non-Hot Plug, Autoswitching) CSCI 2007/8
 - 1200W High Efficiency Power Supply (Optional Redundancy Non-Hot Plug, Autoswitching) (Optional) CSCI 2007/8
- **NOTE:** [Climate Savers Computing Initiative, 2007-2008 Compliant](#)
- **Form Factor:**
 - 2U rack models
- **Deployment/Serviceability:**
 - Tooled access to all system components for easy in rack serviceability
- **Warranty:**
 - Protected by HP Services and a worldwide network of HP Authorized Channel Partners, including a one-year, limited warranty, Next Business Day 1, year on-site limited Global warranty (3-1-1 warranty in AP and Brazil). Certain restrictions and exclusions apply. SATA hard drives have a one year warranty

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/4AA1-2747EEW.pdf>

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

Processor Quad-Core Intel® Xeon® processor E5440 (2.83 GHz, 80 W, 1333 MHz FSB)*
 One of the following Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB)
 depending on Model Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 80 W, 1333 MHz FSB)
 Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80 W, 1333 MHz FSB)
 Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 65 W, 1066 MHz FSB)*
 * Available through Configure To Order only. See Factory Integration Models section for more details.

Upgradeability Upgradeable to two processors

Chipset Intel® 5100 Chipset

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

Memory Protection Registered ECC memory

Memory

Type	PC2-5300 DIMMs (DDR2-667)		
Standard	1 GB		(1 x 1 GB)
Maximum	16 GB		(2 x 4 GB) + (4 X 2 GB)

Two 4 GB DIMMs should be populated in sockets 1 and 2 first (the right most sockets when looking from the front of the chassis) - sockets 4 through 6 should be populated with 2 GB DIMMs. (Refer to hood label for more information)

Network Controller One NC105i PCI-E Gigabit NIC (embedded) (Wake on LAN and PXE capable)

Expansion Slots	Slot Number	Bus Speed	Bus Number*	Device Number**	Hot Plug (Y/N)	PCI Voltage	Notes
	3	x8 PCI-Express	3	1	N	3.3 volts	Low Profile
	1	x4 PCI-Express	5	0	N	3.3 volts	Full Length Full Height
	2	x4 PCI-Express	6	0	N	3.3 volts	Full length Full Height
	1	PCI-X***	Dynamic	1	N	3.3 volts	Full Length Full Height
	2	PCI-X***	Dynamic	2	N	3.3 volts	Full Length Full Height

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 4HDD Models HP Embedded SATA RAID Controller (integrated into the south-bridge) supporting SW RAID 0,1

NOTE: A diskette drive is needed to install storage controller drivers during a Windows operating system installation from a CD.

NOTE: A diskette drive 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 RW 8x IDE (ATAPI) DVD-RW drive, slim (optional)

Diskette Drives Via USB only

Drive Bays:

Hot-Plug SAS/SATA Up to 12 hot plug SAS/SATA 3.5" drives (4 drive bays standard)

NOTE: 4 Drive Models are Non-Hot Pluggable. Smart Array Controller must be added for Hot Plug drive capability. 4 Drive Models can be upgraded with the addition of a Smart Array Controller and a SAS/SATA Multi-lane cable (464830-B21). 12 Drive Model available via CTO factory integration ONLY.

NOTE: The addition of a Smart Array Controller requires the addition of a SAS/SATA Multi-lane cable (464830-B21)

Maximum Internal Storage

SATA Maximum Internal 9TB 12 x 750GB

SAS Maximum Internal 3.6TB 12 x 300GB

Interfaces

Parallel None

Network RJ-45 (Ethernet) 1 10/100/1000 NIC port (plus 1 optional for the HP ProLiant Lights Out 100c Remote Management Card)

Serial 1

Pointing Device (Mouse) 1

Graphics 1

Keyboard 1

USB 7 total ports: (2) front, (4) rear, (1) internal

NOTE: Please see the following URL for additional information regarding USB support:

<http://h18004.www1.hp.com/products/servers/platforms/usb-support.html>.

Graphics

Integrated on the system board:
32MB shared supporting 1600 x 1200 x 16M resolution.

Form Factor

Rack Mount (2U), (3.5 in/8.89 cm)

Remote Management Lights-Out 100c

Lights Out LO100c is a Remote Management Card (RMC) for HP ProLiant 100 series servers that do not have embedded LO100i. The LO100c has all the features of the LO100i Advanced license and allows customers, or their service providers, to remotely manage ProLiant servers over a LAN or the Internet from anywhere, anytime regardless whether the server is located in the same building, across town, or around the globe.

With LO100c, users can acquire complete remote control with Virtual KVM (graphical hardware-based, remote console). Users can also access the server's serial console, control system power, update system firmware and software, as well as monitor system environmental conditions. The LO100c remote management card can be accessed from a web browser or command line interface. This virtual "at-the-server" functionality means administrators stay in control of remote HP ProLiant 100 series servers.

The HP Lights-Out100c consists of a management processor and firmware that provides cost-effective, entry-level lights-out functionality, basic system board management functions, and diagnostics.

NOTE: For more information, please refer to the [QuickSpecs for the LO100c](#) found at:

<http://h18004.www1.hp.com/products/servers/management/remotemgmt/lightsout100/index.html>

Server Management Stand Alone Software Product – ProLiant Essentials

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.

ProLiant Essentials Rapid Deployment Pack

Rapid Deployment Pack (RDP) is an automated deployment and provisioning solution for all ProLiant servers. RDP supports image capture and deployment on 100 series servers. Every RDP disc includes 10-node trial licenses for evaluation purposes. RDP requires a license for each server deployed and is available for purchase with HP servers. For more information, visit: <http://www.hp.com/servers/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.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL:

<http://www.hp.com/servers/proliantessentials>.

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 ProLiant Support Packs the ProLiant Essentials Rapid Deployment Pack, SmartStart or downloaded from Software and Drivers download pages website at:

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

Industry Standard Compliance	ACPI V2.0 Compliant PCI 2.2 Compliant PXE Support WOL Support Microsoft® Logo certifications IPMI 2.0 Compliant
Manageability	<p>The optional HP PL100 G5 Lights-Out 100c Kit ALL provides the following OS-independent remote control capabilities with a riser card:</p> <ul style="list-style-type: none"> ● Virtual power ● System event log access ● System health ● Remote Serial console (serial redirection) ● Browser, Telnet access ● SMASH-CLP compliant ● IPMI 2.0 compliant ● Virtual media (Floppy, CD, USB 2.0 (with release 3.0)) ● Secure Socket Layer Encryption ● Secure Shell Encryption ● Virtual KVM
Security	Power-on password Setup password
Server Power Cords	One Highline IEC Power cord ships standard (for connection to a Power Distribution Unit) NOTE: Rack models ship standard with an IEC cable. Localized cables included with geographic specific models in other world regions.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html .
Power Supply	750Watts - (Non-Hot Plug, Autoswitching) Ships Standard 1200Watts - High Efficiency 12V Non-Hot Plug AC Power Supply (Autoswitching) (Optional) 750Watts - Power Supply (Redundant Non-Hot Plug, Autoswitching) (Optional) 1200Watts - High Efficiency Power Supply (Redundant Non-Hot Plug, Autoswitching), CSCI 2007/2008 (Optional) NOTE: Climate Savers Computing Initiative, 2007-2008 Compliant NOTE: For additional information please see the Options section of this QuickSpecs.
System Fans	4 system fans ship standard; Non-hot plug, Non-redundant

OS Support

Microsoft Windows 2003 and Microsoft Windows 2003/R2 Standard Edition (32-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 Enterprise Edition (32-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 Web Edition (32-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 for Extended Systems Standard Edition (64-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 for Extended Systems Enterprise Edition (64-bit)
Microsoft Windows Server 2008
Red Hat Enterprise Linux
SUSE Linux Enterprise Server

NOTE: For an up-to-date listing of the latest OS support matrix, please see:

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

NOTE: For an up-to-date listing of the latest software and drivers available for your server, please select your server: <http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?lang=en&cc=us&taskId=135&prodTypeId=15351&prodCatId=241435>.

NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at:

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

NOTE: Drivers may also found on the base media for some Linux OS's. When configuring your server, please consult your base media driver base, or visit HP.com at:

<http://h18023.www1.hp.com/support/files/server/us/index.html>

NOTE: For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix:

<http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html>

Rack Airflow Requirements

Rack 10000 series Cabinets

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

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.

Rack Kit

HP ProLiant DL180 rack models have fixed rails which provide support for round or square mounting holes.

Telco and Threaded Hole Rack Support

Support for all 2-post Telco racks and threaded hole racks requires an additional option kit from Rack Solutions. The Rack Solutions brackets can be purchased at: <http://www.racksolutions.com/hp>.

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 MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

HP Enterprise Configurator

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

Service and Support

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. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

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

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.

- **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>

Four Drive Serial ATA (SATA)/Serial Attached SCSI (SAS) Models

HP DL180 G5, E5420 2.50GHz,(QC) 1GB (1P) 456830-xx1	Processor One of the following depending on model	Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 80 W, 1333 MHz FSB)* Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80 W, 1333 MHz FSB)*
HP DL180 G5, E5405 2.00 GHz,(QC) 1GB (1P) 456831-xx1	Cache Memory One of the following depending on model	12MB (2 x 6MB) Level 2 cache (5400 sequence)
	Memory One of the following depending on model	1GB (1 x 1GB) PC2-5300 DIMMs (DDR2-667)with ECC capabilities
	Network Controller	One HP NC105i PCI-E (embedded)
	Storage Controller	Embedded SATA Raid Standard
	Hard Drive	None ship standard (up to 8 Hot Plug SATA or SAS drives supported standard. 12 drive models supported via CTO only.)
	Internal Storage	BTO internal storage capacity of up to 6TB (8 x 750GB Hot Plug 3.5" SATA hard drives), 2.4TB (8 x 300GB Hot Plug 3.5" SAS hard drives)
	Optical Drive	DVD-ROM, DVD RW (Optional)
	Form Factor	Rack Mount (2U)

NOTE: Server models supporting 4 hard drives are Non-Hot Pluggable. Smart Array Controller must be added for Hot Plug drive capability

NOTE: To upgrade to server models supporting 8 or 12 hard drives; you must start with HP ProLiant DL180 CTO Chassis (P/N 457649-B21). Please see the Configuration To Order section below.

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

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: 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)

Hot Plug Models

HP ProLiant DL180 G5 Hot Plug SAS/SATA Rack CTO Chassis (North America) 457649-B21

Factory Integrated Model ships with:

One embedded NC105i PCI-E Gigabit Server Adapters (WOL & PXE-capable)

Three available PCI-Express slots:

Slot 1: x8 low-profile/half-height slot

Slot 2 & 3: x4 Full-Height/Full Length

NOTE: Optional PCI-X option kit includes: Slot 1 and 2: full-length/full-height PCI-X 100; PCI-X slots are 64 bits; 133 MHz capable if only one PCI-X card is installed in the server.

One HP SATA Embedded Cable Kit

750 Watt Power Supply

One Highline IEC Power Cord

4 Non-Hot Plug Fans

Rack Mount (2U), (3.5 in/8.89 cm)

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

Processors	Quad-Core Intel® Xeon® processor E5440 (2.83 GHz, 80 W, 1333 MHz FSB) Kit, FIO 466106-L21 NOTE: If 2 processors are desired, select one 466106-L21 and one 466106-B21.
	Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB) Kit, FIO 458784-L21 NOTE: If 2 processors are desired, select one 458784-L21 and one 458784-B21.
	Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 80 W, 1333 MHz FSB) Kit, FIO 458785-L21 NOTE: If 2 processors are desired, select one 458785-L21 and one 458785-B21.
	Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80 W, 1333 MHz FSB) Kit, FIO 458786-L21 NOTE: If 2 processors are desired, select one 458786-L21 and one 458786-B21.
	Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 65W, 1066MHz FSB) Kit, FIO 458787-L21 NOTE: If 2 processors are desired, select one 458787-L21 and one 458787-B21.

Memory	HP 1GB Registered PC2-5300 2x512M Kit, single rank 408850-B21
	HP 1GB Registered PC2-5300 1x1GB Kit 462483-B21
	HP 2GB Registered PC2-5300 2x1GB Kit, single rank 408851-B21
	HP 4GB Registered PC2-5300 2x2GB Kit, dual rank 408853-B21
	HP 8GB Registered PC2-5300 2x4GB Kit, dual ranks 408854-B21

Hard Drive Cage	HP DL180 8HDD Cage FIO Kit 451368-B21
	HP DL180 12HDD Cage FIO Kit 451369-B21

NOTE: The installation of a 12HDD Cage requires the addition of a Smart Array Controller, P400 or better.

NOTE: The addition of a Smart Array Controller requires the addition a SAS/SATA Multi-lane cable (464830-B21).

Step 3: 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.

Unique Options	<p>HP ProLiant DL180 PCI/X Riser Kit NOTE: This option kit replaces the three internal expansion slots listed in step 1 base configuration. NOTE: Optional PCI-X option kit includes: Slot 1: full-length/full-height PCI-X 100; Slot 2: Full length/Full-height PCI-X 100. PCI-X slots are 64 bits; 133 MHz capable if only one PCI-X card is installed in the server.</p>	451285-B21
Power Supplies	<p>750W Redundant Power Supply Kit High Efficiency HP 1200W 12V Non Hot Plug AC Power Supply NOTE: Redundant Power Supply configuration for 1200W power supply requires both power supplies to be 1200W. The 1200W and 750W power supplies cannot be mixed.)</p>	451366-B21 437572-B21
Remote Management	<p>Lights-Out 100c Remote Management Card HP Lights Out 100c Remote Management Card 100c Kit NOTE: For more information regarding Lights Out 100c Remote Management Card, please see the following URL: http://www.hp.com/servers/proliantessentials.</p>	445513-B21
Server Management Stand Alone Software Product – ProLiant Essentials	<p>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.</p> <p>Deploy Rapid Deployment Pack ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates 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 ProLiant Essentials Rapid Deployment Pack 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. NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.</p>	452151-B21
Processor	<p>Quad-Core Intel® Xeon® processor E5440 (2.83 GHz, 80 W, 1333 MHz FSB) Option Kit Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB) Option Kit Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 80 W, 1333 MHz FSB) Option Kit Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333 MHz FSB) Option Kit Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 65W, 1066 MHz FSB) Option Kit</p>	466106-B21 458784-B21 458785-B21 458786-B21 458787-B21

Memory	HP 1GB Registered PC2-5300 2x512M Kit, single rank	408850-B21
	HP 1GB Registered PC2-5300 1x1GB Kit	462483-B21
	HP 2GB Registered PC2-5300 2x1GB Kit, single rank	408851-B21
	HP 4GB Registered PC2-5300 2x2GB Kit, dual rank	408853-B21
	HP 4GB Registered PC2-5300 2x2GB LP Kit, single rank kit	461840-B21
	HP 8GB Registered PC2-5300 2x4GB Kit, dual rank	408854-B21

Hard Drives

Serial-ATA (SATA) Hot Plug Hard Drives

HP 80GB SATA 7.2K Hot Plug 3.5" HDD	349237-B21
HP 160GB SATA 7.2K Hot Plug 3.5" HDD	349238-B21
HP 250GB SATA 7.2K Hot Plug 3.5" HDD	349239-B21
HP 500GB SATA 7.2K Hot Plug 3.5" HDD	395473-B21
HP 750GB SATA 7.2K Hot Plug 3.5" HDD	432341-B21

Serial-Attached SCSI (SAS) Hot Plug Hard Drives

HP 72GB 3G SAS 15K 3.5" DP HDD	384852-B21
HP 72GB SAS 15K Hot Plug 3.5" SP HDD	375870-B21
HP 146GB 3G SAS 15K 3.5" DP HDD	384854-B21
HP 146GB SAS 15K Hot Plug 3.5" SP HDD	375872-B21
HP 300GB 3G SAS 15K 3.5" DP HDD	416127-B21
HP 300GB SAS 15K Hot Plug 3.5 SP HDD	431944-B21

NOTE: If selecting more than 4 hard drives or if using SAS hard drives a Smart Array controller and two SAS/SATA cables (P/N 464830-B21) are required.

Optical Drives

DVD-ROM Drive	449991-B21
DVD-RW Drive	449998-B21

Storage Controllers

SAS Controllers

HP SC44Ge Host Bus Adapter	416096-B21
HP SC11Xe Host Bus Adapter	412911-B21
HP Smart Array E200/128 BBWC Controller	411508-B21
Internal SAS/SATA Cable	464830-B21

NOTE: If selecting more than 4 hard drives or if using SAS hard drives a Smart Array controller is required and two SAS/SATA cables.

NOTE: The addition of a Smart Array Controller requires the addition of a SAS/SATA Multi-lane cable.

HP Smart Array E500 Controller	435129-B21
HP Smart Array P400/256MB Controller	405132-B21
HP Smart Array P400/512MB Controller with BBWC	411064-B21
HP Smart Array P800/512 BBWC Controller	381513-B21
512MB Battery-backed write cache upgrade	405148-B21
Battery-backed write cache upgrade	383280-B21

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

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

Communications	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	NOTE: Does not support Windows 2000.	
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	NOTE: Does not support Windows 2000.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
Communications	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
Rack Kits	HP Rack Cable Management Velcro Clips	379820-B21
HP StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20	335921-B21
	NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. NOTE: Please see the Modular Smart Array 20 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11942_div/11942_div.html (Worldwide)	
HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB	302969-B21
	NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies. NOTE: Please see the Modular Smart Array 30 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11738_div/11738_div.html (Worldwide)	
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21
	NOTE: Rack-mountable 10 SFF drive enclosure with single I/O module, redundant hot plug power supplies and hot plug fans. NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)	
HP StorageWorks Modular Smart Array 60	HP StorageWorks 60 Modular Smart Array	364430-B21
	NOTE: Rack-mountable 12-drive (3.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies. NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide)	

HP StorageWorks Modular Smart Array 70	HP StorageWorks 70 Modular Smart Array NOTE: Rack-mountable 25-drive (2.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies. NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)	418800-B21
HP StorageWorks Modular Smart Array 500	HP StorageWorks 500 Modular Smart Array NOTE: Please see the Modular Smart Array 500 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.html (Worldwide)	335880-B21
HP StorageWorks Modular Smart Array 1000	HP StorageWorks 1000 Modular Smart Array NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://hp.com/go/msa1000	201723-B22
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 Tape Drives	
	HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive	AG703A
	SAS Tape Drives	
	NOTE: For the DL180 G5, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape. HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A
	NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
	NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	
	HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A
	NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	
	HP StorageWorks LTO-4 Ultrium 1760 SAS Internal Tape Drive	EH919A
	HP StorageWorks 1U SAS Rack-mount kit with one LTO-4 Ultrium 1760	EH946A
	HP StorageWorks LTO-4 Ultrium 1840 SAS Internal Tape Drive	EH860A
	NOTE: HP recommends combining this tape drive with the 3U SAS Rack-Mount kit (AG576A) for a complete rack-mount solution.	
	NOTE: Please refer to the "Tape Drives, Tape Autoloaders & Tape Libraries" table in the Storage section of this document for a list of SAS controllers with tape support.	
	Ultrium Tape Drives	
	HP StorageWorks LTO-1 Ultrium 232 Internal Tape Drive (Carbonite)	DW064A
	NOTE: HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.	
	HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite)	DW028B
	HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920	EH903A
	HP StorageWorks 3U SCSI Rack-mount kit with one LTO-3 Ultrium 960 (Carbonite)	Q1595B
	HP StorageWorks 3U SCSI Rack-Mount with 1 LTO-4 Ultrium 1840 Tape Drive	EH926A

NOTE: Please see the HP StorageWorks LTO Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:

http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html
(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html
(Worldwide)

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>.

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit A7445B

NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 40, DAT 72, DAT 160, DLT VS160, LTO-1 Ultrium 232, LTO-2 Ultrium 448 and LTO-3 Ultrium 920 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit A8007A

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

HP StorageWorks 1U SAS Rack-Mount Kit AE459A

NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the LTO-2 Ultrium 448 SAS and LTO-3 Ultrium 920 SAS tape drives.

HP StorageWorks 3U SCSI Rack-mount kit 274338-B22

NOTE: The 3U SCSI Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and is compatible with multiple LVD SCSI tape drives including DAT 40, DAT 72, DLT VS160, SDLT 600, LTO-1 Ultrium 232, LTO-2 Ultrium 460, LTO-2 Ultrium 448, LTO-3 Ultrium 920, LTO-3 Ultrium 960 and LTO-4 Ultrium 1840 tape drives.

HP StorageWorks 3U SAS Rack-mount Kit AG576A

NOTE: The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple SAS tape drives including DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS, and LTO-4 Ultrium 1840 SAS tape drives.

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

http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.html
(Worldwide)

HP D2D Backup System

HP StorageWorks D2D110 Backup System EH880A

NOTE: 1TB of Disk Storage

HP StorageWorks D2D110 Backup System with Data Protector Express EH923A

Software Kit

NOTE: 1TB of Disk Storage

HP StorageWorks D2D120 Backup System EH884A

NOTE: 2TB of Disk Storage

HP StorageWorks D2D120 Backup System with Data Protector Express EH924A

Software Kit

NOTE: 2TB of Disk Storage

HP StorageWorks D2D130 Backup System EH950A

NOTE: 3TB of Disk Storage.

HP StorageWorks D2D130 Backup System with Data Protector Express EH951A

Software Kit

NOTE: 3TB of Disk Storage.

HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive EH952A

NOTE: 3TB of Disk Storage.

NOTE: Please see the HP D2D Backup Systems QuickSpecs for 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
	HP StorageWorks 1/8 Tape Autoloader	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
		HP StorageWorks 1/8 LTO-3 Ultrium 920 G2 Tape Autoloader	AH165A
		HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
		HP StorageWorks 1/8 LTO-2 Ultrium 448 G2 Tape Autoloader	AH164A
		HP StorageWorks 1/8 LTO-1 Ultrium 232 G2 Tape Autoloader	AH163A
		HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A
		NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions	
		NOTE: Please reference the Tape Autoloader QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs .	

Tape Libraries	HP StorageWorks MSL2024 Tape Library	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
		HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ034A
		HP StorageWorks MSL2024 1 LTO-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 960 4GB FC Library	AG326B
		HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
		HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
		HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
	HP StorageWorks MSL4048 Tape Library	HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A
		HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
		HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
		HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library	AG322A
		HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 4GB FC Library	AG324B
		HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
		HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Drive Library	AH171A
		HP StorageWorks MSL4048 1 LTO-2 Ultrium 448 SCSI Drive Library	AG320A
	HP StorageWorks MSL8096 Tape Library	HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ039A
		HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 4GB FC Library	AJ040A
		HP StorageWorks MSL8096 2 LTO-4 Ultrium 1760 SAS Drive Library	AK382A
		HP StorageWorks MSL8096 2 LTO-3 Ultrium 920 SAS Drive Library	AH561A
		HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 4GB FC Library	AH218A
		HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 Drive Library	AH219A
	HP StorageWorks MSL6000 Tape Library		
	LTO-4 Ultrium 1840 technology	HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ029A
		HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 4GB FC Library	AJ030A
		HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ031A
		HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 4GB FC Library	AJ032A
	LTO-3 Ultrium 960 technology	HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library	AD606B
		HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library	AD608B
		HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library	AD607B
		HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library	AD609B

NOTE: Please reference the MSL2024, MSL4048, MSL8096 and MSL6000 Tape Library QuickSpecs at: <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at: <http://www.hp.com/go/ebs>.

StorageWorks Options	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 4 Gb PCI-X 2.0-to-Fibre Channel HBA	AB429A
	HP StorageWorks 4 Gb PCI-X 2.0 DC-to-Fibre Channel HBA	AE369A
	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 HBA	AD167A
	HP StorageWorks FC2243 4Gb PCI-X 2.0 DC HBA	AD168A

USB Options	USB 1.44-MB External Diskette Drive	DC141B
	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP Keyboard (USB) standard 2004	DT528A#ABA
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21
	HP USB Internal Cable Kit	451363-B21

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
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface Adapter - 1 pack with power supply	373035-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 .	

Service and Support Offerings (HP Care Pack Services)	Hardware Services 4-Hour On-site Service	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	UH271E
	24-Hour x 7-Day Coverage, 3 Years, Electronic	UH272E
	13-Hour x 5-Day Coverage, 1 Years, Electronic	UH267E
	24-Hour x 7-Day Coverage, 1 Years, Electronic	UH268E
	13-Hour x 5-Day Coverage, 4 Years, Electronic	UH275E
	24-Hour x 7-Day Coverage, 4 Years, Electronic	UH276E
	13-Hour x 5-Day Coverage, 5 Years, Electronic	UH278E
	24-Hour x 7-Day Coverage, 5 Years, Electronic	UH279E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	UH270E
	9-Hour x 5-Day Coverage, 4 Years, Electronic	UH274E
	9-Hour x 5-Day Coverage, 5 Years, Electronic	UH277E
	Hardware Services 6-Hour Call to Repair On-Site Service	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UH273E
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 1 Years, Electronic	UH269E
Hardware Installation, Electronic	UH301E	
NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack .		

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

HP ProLiant DL180 G5 (all models)

Standard Memory

1 GB (1 x 1GB) PC2-5300 Registered DIMM memory, with Advanced ECC Capabilities Memory installed.

Maximum Memory

Up to 16GB memory is available with the optional installation of PC2-5300 Registered DIMM memory kits.

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

NOTE: Chart does not represent all possible memory configurations.

NOTE: Only 1 dual rank 8GB kit can be populated.

Memory	Slot					
	1*	2*	3	4	5	6
Standard (1 GB)	1 GB	Empty	Empty	Empty	Empty	Empty
Maximum (16 GB)	4 GB	4 GB	2 GB	2 GB	2 GB	2 GB

* Indicates the right most DIMM slots when looking from the front.

Following are memory options available from HP:

HP 1GB Registered PC2-5300 2x512M Kit, single rank	408850-B21
HP 1GB Registered PC2-5300 1x1GB Kit	462483-B21
HP 2GB Registered PC2-5300 2x1GB Kit, single ranks	408851-B21
HP 4GB Registered PC2-5300 2x2GB Kit, dual rank	408853-B21
HP 4GB Registered PC2-5300 2x2GB Kit, Low Power, single rank kit	461840-B21
HP 8GB Registered PC2-5300 2x4GB Kit, dual rank	408854-B21



1.-8. Eight 3.5" Hot Plug SAS/SATA Hard Drive Bays
 DVD-ROM, DVD RW
 Power On/Off

Drive Support

Removable Media

	Quantity Supported	Position Supported	Controller
DVD-ROM	Up to 1	3	Integrated IDE (ATAPI) (optional)
DVD RW	Up to 1	3	Integrated IDE (ATAPI) (optional)

Hard Drives

SAS/SATA Hot Plug

	Quantity Supported	Position Supported	Controller
3.5-inch 80GB SATA 7,200 rpm 160GB SATA 7,200 rpm 250GB SATA 7,200 rpm 500GB SATA 7,200 rpm 750GB SATA 7,200 rpm 72GB SAS 15,000 rpm 146GB SAS 15,000 rpm 300GB SAS 15,000 rpm	Up to 8	1-8	HP Smart Array E200/128 BBWC Controller HP Smart Array P400/256MB Controller HP Smart Array E500/256MB Controller HP Smart Array P800/512 BBWC Controller HP SC44Ge Host Bus Adapter HP SC11Xe Host Bus Adapter

External Storage

	Quantity Supported	Position Supported	Controller
HP Storageworks MSA20 Enclosure	Up to 2 per SA 6402 Up to 4 per SA 6404	External	Smart Array 6402 Controller Smart Array 6404 Controller
HP Storageworks MSA30 D-B Enclosure	Up to 2 per SA 6402 Up to 4 per SA 6404	External	Smart Array 6402 Controller Smart Array 6404 Controller
HP Storageworks MSA50 Enclosure	Up to 2	External	HP Smart Array E500/256MB controller
HP Storageworks MSA60 Enclosure	Up to 8 per SA P800	External	HP Smart Array E500/256MB controller
HP Storageworks MSA70 Enclosure	Up to 8 per SA P800	External	HP Smart Array E500/256MB controller

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

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 & 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 Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-2 Ultrium 460 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 DLT VS160 SDLT 600 1U Rack-Mount Kit 3U Rack-Mount Kit	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	External	HP SC44Ge Host Bus Adapter * HP Smart Array E500 Controller HP Smart Array P800/512 BBWC Controller NOTE: The following SAS Smart Array controllers require ROM Flash version 2.04 or higher for SAS tape support: HP Smart Array P400/256MB Controller HP Smart Array P400/512MB Controller * Recommended	416096-B21 435129-B21 381513-B21 405132-B21 411064-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 Tape Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC11Xe Host Bus Adapter HP U320e SCSI Host Bus Adapter NOTE: Only valid for MSL tape libraries.	412911-B21 AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	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.	416096-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.	N/A

**HP StorageWorks D2D
Backup Systems**

External

Embedded Network Controller

N/A

D2D110

D2D120

D2D130

750W Power Supply Spare Kit 451366-291, AA1, B21
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	750	750	750	750	750	750
Nominal Input Current (A rms)	9.1	7.9	4.3	4.0	3.8	3.7
Max Rated Input Wattage Rating (Watts)	893	888	872	862	862	862
Max. Rated VA (Volt-Amp)	911	906	890	880	880	880
Efficiency (%)	84	84.5	86	87	87	87
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	<0.43	<0.50	<.0.90	<0.96	<1.00	<1.04
Maximum Inrush Current (A peak)	30A	30A	30A	30A	30A	30A
Maximum Inrush Current Duration (mS)	5mS	5mS	5mS	5mS	5mS	5mS

System Unit**Dimensions** (H x W x D) 3.44x 17.64 x 27.50 in (8.75 x 44.80 x 69.88cm)
(with bezel)**Weight**
(approximate) **Maximum** 51.5 lb (19.22 kg)
(all hard drives, power supplies and processors installed)**Minimum** 35.0 lb (13.06 kg)
(one hard drive, power supply and processor installed)**Input Requirements**
(per power supply) Rated Line Voltage 100 - 240 VAC
Rated Input Current 9.10 A (at 100 VAC),
4.5 A (at 200 VAC)
Rated Input Frequency 50 to 60 Hz
Rated Input Power 910 W (at 100 VAC),
900 W (at 200 VAC)**BTU Rating** Maximum 3107.82 BTU/hr (at 100 VAC),
3073.67 BTU/hr (at 200 VAC)**Power Specifications** 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>

- Click on the system of interest. Example: DL180 G5
- Follow the instructions of the next screens.

Power Supply Output
(per power supply) Rated Steady-State Power 750 W (at 100 VAC),
750 W (at 200 VAC)
Maximum Peak Power 750 W (at 100 VAC),
750W (at 200 VAC)**System Inlet Temperature** **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.
System performance may be reduced if operating with a fan fault or above 86°F (30°C).**Non-operating** -22° to 140° F (-30° to 60° C). Maximum rate of change is 36° F/hr (20° C/hr).**Relative Humidity**
(non-condensing) **Operating** 10 to 90% relative humidity (Rh), 82.4° F (28° C) maximum wet bulb temperature, non-condensing.**Non-operating** 5 to 95% relative humidity (Rh), 101.7° F (38.7° C) maximum wet bulb temperature, non-condensing.**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).**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 (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).**Idle** L_{WAd}

6.7 B

<i>L_{pAm}</i>	51 dBA
Operating	
<i>L_{WAd}</i>	6.7 B
<i>L_{pAm}</i>	51 dBA

**Embedded NC105i PCIe Network Interface
Gigabit Server Adapter Compatibility**
(Embedded)

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) 2000 Mb/s

Connector RJ-45

Cable Support Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UT

**Environment-friendly
Products and
Approach**

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

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

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

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