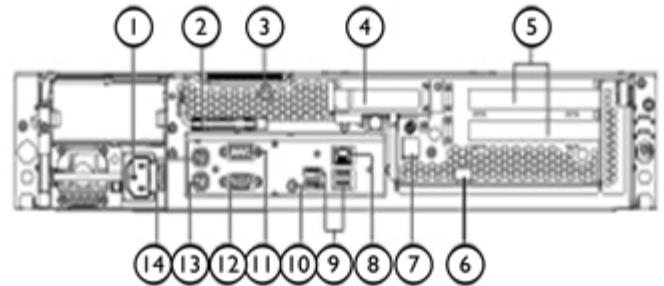
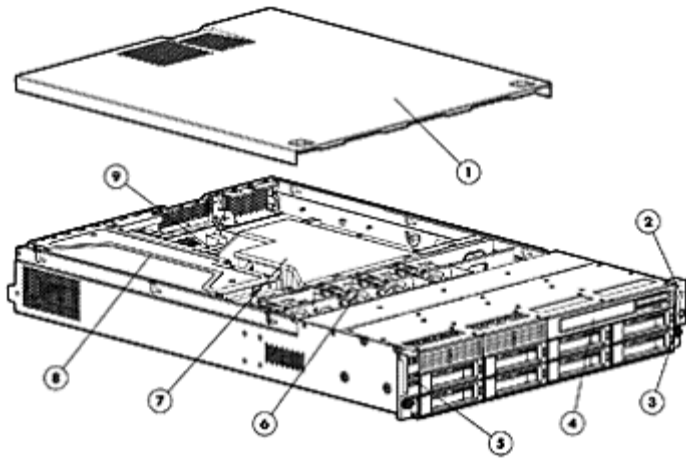


### Overview

### HP ProLiant DL180 Generation 5 (G5)



#### 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
- **Internal Drive Support:**
  - Supports up to twelve (with controller):
    - § 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 HBA controller.)

### Overview

- 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 NC7781 PCI-X Gigabit NIC (embedded) (Wake on LAN and PXE capable)
- **Storage Controllers:**
  - HP Embedded SATA RAID Controller on Non-Hot Plug SATA Models
  - HP 8 Internal Port SAS HBA with RAID 0,1 on Hot Plug SAS/SATA Models
  - HP Smart Array E200 Controller
  - HP Smart Array P400 Controller
  - HP Smart Array P800 Controller
  - HP SC11Xe Host Bus Adapter
  - HP SC44Ge Host Bus Adapter
- **Expansion Slots:**
  - One available Low Profile x8 PCI-Express slot with 8 lanes using a Low profile Riser.
  - Two Full Height/ Full Length Riser options
    - § Option1: full-length/full-height PCI-Express x8 connector slots (x4 electrical - Standard shipping option)
    - § 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) USB up front, (4) port rear, (1) port internal (optional)
- **Optical Drive:**
  - Support for one (optional):Multi-bay DVD
  - Optional Floppy (USB only, USB key)
- **Power Supply:**
  - 750W Power Supply (Redundant Non-Hot Plug, Autoswitching)
  - 1200W Power Supply (Redundant Non-Hot Plug, Autoswitching) (Optional)
- **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.

## 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/4AA1-2747EEW.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 depending on Model Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB)  
 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)\*  
**\*NOTE:** 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 box) - sockets 406 should be populated with 2 GB DIMMs. (Refer to hood label for more information)

**Network Controller** One NC7781 PCI-X 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
	1	x8 PCI-Express	5	1	N	3.3 volts	Low Profile
	2	x4 PCI-Express	5	3	N	3.3 volts	Full length Full Height
	3	PCI-X***	5	1	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).



## Standard Features

\*\*\* 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.

<b>Storage Controller</b>	4HDD Models	HP Embedded SATA RAID Controller (integrated into the south-bridge) supporting SW RAID 0,1
	8HDD Models	E200 Smart Array Controller
	12HDD Models	P400 Smart Array Controller

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

<b>Storage</b>	<b>Optical Drives:</b>	
	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
	<b>Drive Bays:</b>	
	Hot-Plug SAS/SATA	Up to 12 hot plug SAS/SATA 3.5" drives (4 standard) <b>NOTE:</b> 4 Drive Models are Non-Hot Pluggable. Smart Array Controller must be added for Hot Plug drive capability

<b>Maximum Internal Storage</b>	SATA Maximum Internal	9TB	12 x 750GB
	SAS Maximum Internal	3.6TB	12 x 300GB

<b>Interfaces</b>	Parallel	None
	Network RJ-45 (Ethernet)	1 10/100/1000 NIC ports (plus 1 optional for the HP ProLiant Lights Out 100c Remote Management)
	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	USB	7 total ports: (2) USB up front, (4) port rear, (1) port internal (optional) <b>NOTE:</b> Please see the following URL for additional information regarding USB support: <a href="http://h18004.www1.hp.com/products/servers/platforms/usb-support.html">http://h18004.www1.hp.com/products/servers/platforms/usb-support.html</a> .

<b>Graphics</b>	Integrated on the system board:
	1280 x 1024 at 8bpp (bits per pixel) or 2 <sup>8</sup> = 256 colors or
	1024 x 768 at 16bpp (bits per pixel) or 2 <sup>16</sup> = 65536 or 64k colors

<b>Form Factor</b>	Rack Mount (2U), (3.5 in/8.89 cm)
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### Standard Features

<b>Server Management Stand Alone Software Product – ProLiant Essentials</b>	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: <a href="http://www.hp.com/servers/rdp">http://www.hp.com/servers/rdp</a> .
	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.
	Integrated Lights-Out Advanced Pack	Upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, and enterprise security (directory services and two-factor authentication).
	Integrated Lights-Out Select Pack	Upgrades the iLO 2 processor with enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication) for servers managed using remote consoles available in iLO 2 Standard and iLO 2 Standard Blade Edition
	Lights-Out 100i	HP Lights-Out 100i Remote Management delivers affordable, entry level remote management capabilities for ProLiant 100 Series servers with embedded LO100i. HP Lights-Out 100i allows customers or their service providers to remotely manage ProLiant DL100 Series servers remotely over a LAN or the Internet and is upgradable with Select licenses for virtual media and Advanced licenses for both virtual media and virtual KVM.
	Lights-Out 100c	Lights Out LO100c is a family of Remote Management Cards (RMC) for ProLiant 100 series servers that do not have embedded LO100i. The LO100c 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.

**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>.

<b>Core Infrastructure Management</b>	SmartStart	SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at: <a href="http://www.hp.com/servers/smartstart">http://www.hp.com/servers/smartstart</a> . SmartStart version supported (minimum): SmartStart 7.51
	Insight Management Agents	The Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a



### Standard Features

consolidated browser-based interface for managing individual servers.

Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack

For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at: <http://www.hp.com/servers/manage>.

#### 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.

#### ProLiant Support Packs and ROMPaq, software

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>.

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#### Industry Standard Compliance

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

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#### Manageability

The optional HP PL100 G5 Lights-Out 100c Kit ALL provides the following OS-independent remote control capabilities with a riser card:

- 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



### Standard Features

<b>Security</b>	Power-on password Setup password
<b>Server Power Cords</b>	One Highline IEC Power cord ships standard (for connection to a Power Distribution Unit) <b>NOTE:</b> Rack models ship standard with an IEC cable. Localized cables included with geographic specific models in other world regions.
<b>UPS and PDU Power Cord Matrix</b>	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: <a href="http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html">http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html</a> .
<b>Power Supply</b>	750Watts – Non-Hot-plug redundant (Optional) 1200Watts – Non-Hot-plug redundant (Optional)
<b>System Fans</b>	4 system fans ship standard; Non-hot plug, Non-redundant
<b>OS Support</b>	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) Red Hat Enterprise Linux SUSE Linux Enterprise Server <b>NOTE:</b> For an up-to-date listing of the latest OS support matrix, please see: <a href="http://www.hp.com/go/supportos">http://www.hp.com/go/supportos</a> <b>NOTE:</b> For an up-to-date listing of the latest drivers available for the HP ProLiant DL180 G5, please see: <a href="http://h18023.www1.hp.com/support/files/server/us/index.html">http://h18023.www1.hp.com/support/files/server/us/index.html</a> . <b>NOTE:</b> For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: <a href="http://h18004.www1.hp.com/products/servers/software/OEM.html">http://h18004.www1.hp.com/products/servers/software/OEM.html</a> <b>NOTE:</b> 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: <a href="http://h18023.www1.hp.com/support/files/server/us/index.html">http://h18023.www1.hp.com/support/files/server/us/index.html</a> <b>NOTE:</b> For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix: <a href="http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html">http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html</a>

### 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.



### Standard Features

**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.

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#### Rack Kit

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

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#### 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>.

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#### 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>.

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#### 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.

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#### 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.





### Standard Features

**NOTE:** Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>.

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>

## Models

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

HP DL180 G5, E5420 Processor Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80 W, 1333 MHz FSB)\*  
 2.50GHz,(QC) 1GB (1P) [One of the following](#)  
 456830-xx1 [depending on model](#) Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 80 W, 1333 MHz FSB)\*

HP DL180 G5, E5405  
 2.00 GHz,(QC) 1GB  
 (1P)  
 456831-xx1

**Cache Memory** 12MB (2 x 6MB) Level 2 cache (5400 sequence)  
[One of the following](#)  
[depending on model](#)

**Memory** 1GB (1 x 1GB) PC2-5300 DIMMs (DDR2-667)with ECC capabilities  
[One of the following](#)  
[depending on model](#)

**Network Controller** One HP NC7781 (embedded) (Wake on LAN and PXE capable)

**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** Internal storage capacity of up to 9TB (8 x 750GB Hot Plug 3.5" SATA hard drives), 3.2TB (12 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.

### Eight Drive Serial ATA (SATA)/Serial Attached SCSI (SAS) Models

HP DL180 G5, E5430 2.66 GHz,(QC) 2GB (1P) [Proce](#)  
 456832-xx1 [One](#)  
[Cach](#)  
[One](#)  
[Mem](#)  
[One](#)  
[Netw](#)  
[Stora](#)  
[Hard](#)  
[Intern](#)  
[Optic](#)  
[Form](#)  
**NOT**



## Models

Smart  
**NOT**  
you n  
B21).

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

## Configuration Information - Factory Integrated Models

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

**NOTE:** HP does not allow factory integration of options into standard models listed above.

Configure-to-order servers must start with a CTO Chassis.

**NOTE:** 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 NC7781 PCIe 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: full-length/full-height PCI-X 100; and Slot 2: low-profile/half-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

6 Non-Hot Plug Fans

Rack (2U), (1.75 in / 4.45 cm)

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

Processors	Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB) Kit, FIO	466106-L21
	<b>NOTE:</b> If 2 processors are desired, select one 466106-L21 and one 466106-B21.	458784-L21
	Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB) Kit, FIO	
	<b>NOTE:</b> 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
<b>NOTE:</b> 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	
<b>NOTE:</b> If 2 processors are desired, select one 458786-L21 and one 458786-B21.		



### Configuration Information - Factory Integrated Models

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.

<b>Memory</b>	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

<b>Hard Drive Cage</b>	HP DL180 8HDD Cage FIO Kit	451368-B21
	HP DL180 12HDD Cage FIO Kit	451369-B21

<b>Hard Drives</b>	<b>Serial-ATA (SATA) Hot Plug Hard Drives</b>	
	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
	<b>Serial-Attached SCSI (SAS) Hot Plug Hard Drives</b>	
	HP 36GB SAS 15K Hot Plug 3.5" HDD	375868-B21
	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
	<b>NOTE:</b> If selecting more than 4 hard drives a Smart Array controller and two SAS/SATA cables (P/N 453255-B21) are required.	

<b>Storage Controller</b>	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	453255-B21
	<b>NOTE:</b> If selecting more than 4 hard drives a Smart Array controller is required and two SAS/SATA cables.	
	HP Smart Array E500/256 Controller	435129-B21
	HP Smart Array E500/256 BBWC Controller	462105-B21
	HP Smart Array P400/256 Controller	405132-B21
HP Smart Array P400/512 Controller	411064-B21	



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## Configuration Information - Factory Integrated Models

HP Smart Array P800/512 BBWC Controller	381513-B21
HP SA P-Series 512MB BBWC Kit	405148-B21
HP SA P-Series Battery Kit	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](http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html)  
(Smart Array P800 Controller)

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<b>Power Supplies</b>	High Efficiency HP 1200W 12V Non Hot Plug AC Power Supply	437572-B21
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**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.)

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## 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.

### Options

<b>Unique Options</b>	<p>HP ProLiant DL180 PCI/X Riser Kit <span style="float: right;">451285-B21</span></p> <p><b>NOTE:</b> This option kit replaces the three internal expansion slots listed in step 1 base configuration.</p> <p><b>NOTE:</b> 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>
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<b>Server Management Stand Alone Software Product – ProLiant Essentials</b>	<p><b>NOTE:</b> 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>
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#### 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
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**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](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>.

#### Control

**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.

##### Lights-Out 100c Kit

HP Lights Out 100c	445513-B21
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<b>Processor</b>	<p>Quad-Core Intel® Xeon® processor E5440 (2.83 GHz, 80 W, 1333 MHz FSB) Option Kit* <span style="float: right;">466106-B21</span></p> <p>Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB) Option Kit <span style="float: right;">458784-B21</span></p> <p>Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 80 W, 1333 MHz FSB) Option Kit <span style="float: right;">458785-B21</span></p> <p>Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333 MHz FSB) Option Kit <span style="float: right;">458786-B21</span></p>
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### Options

Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 65W, 1066 MHz FSB) 458787-B21  
Option Kit\*

**NOTE:** \* Available through Configure To Order only

<b>Memory</b>	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 36GB SAS 15K Hot Plug 3.5" HDD	375868-B21
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 a Smart Array controller and two SAS/SATA cables (P/N 453255-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 a Smart Array controller is required and two SAS/SATA cables.

HP Smart Array E500 Controller	435129-B21
HP Smart Array P400/256MB Controller	405132-B21





### Options

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

<b>Communications</b>	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	<b>NOTE:</b> 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
	<b>NOTE:</b> Does not support Windows 2000.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
<b>Remote Management</b>	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	<b>NOTE:</b> A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC510F PCIe 10 Gigabit Server Adapter	414126-B21

<b>Remote Management</b>	HP PL100 G5 Lights-Out Remote Management100c Kit	445513-B21
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<b>Rack Kits</b>	HP Rack Cable Management Velcro Clips	379820-B21
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<b>HP StorageWorks Modular Smart Array 20</b>	HP StorageWorks Modular Smart Array 20	335921-B21
	<b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, 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/11942\\_div/11942\\_div.html](http://h18000.www1.hp.com/products/quickspecs/11942_div/11942_div.html) (Worldwide)

<b>HP StorageWorks Modular Smart Array 30</b>	HP StorageWorks Modular Smart Array 30 SB	302969-B21
	<b>NOTE:</b> Rack-mountable 14 drive enclosure with single bus, 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/11738\\_div/11738\\_div.html](http://h18000.www1.hp.com/products/quickspecs/11738_div/11738_div.html) (Worldwide)

<b>HP StorageWorks Modular Smart Array 50</b>	HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21
	<b>NOTE:</b> Rack-mountable 10 SFF drive enclosure with single I/O module, redundant hot plug power	



## Options

supplies and hot plug fans.

**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/12245\\_div/12245\\_div.html](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](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 418800-B21  
**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](http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html) (Worldwide)

**HP StorageWorks Modular Smart Array 500** HP StorageWorks 500 Modular Smart Array 335880-B21  
**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](http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.html) (Worldwide)

**HP StorageWorks Modular Smart Array 1000** HP StorageWorks 1000 Modular Smart Array 201723-B22  
**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>

## 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



## Options

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

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](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](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



### Options

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

HP D2D Backup System	HP StorageWorks D2D110 Backup System	EH880A
	<b>NOTE:</b> 1TB of Disk Storage	
	HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit	EH923A
	<b>NOTE:</b> 1TB of Disk Storage	
	HP StorageWorks D2D120 Backup System	EH884A
	<b>NOTE:</b> 2TB of Disk Storage	
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit	EH924A
	<b>NOTE:</b> 2TB of Disk Storage	
HP StorageWorks D2D130 Backup System	EH950A	
<b>NOTE:</b> 3TB of Disk Storage.		
HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit	EH951A	
<b>NOTE:</b> 3TB of Disk Storage.		
HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive	EH952A	
<b>NOTE:</b> 3TB of Disk Storage.		
<b>NOTE:</b> Please see the HP D2D Backup Systems QuickSpecs for additional information:		
<a href="http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.html">http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.html</a> (Worldwide)		

Tape Autoloaders	<b>HP StorageWorks DAT Autoloader</b>	
	HP StorageWorks DAT 72x10 tape autoloader	AE313B
	<b>HP StorageWorks 1/8 Tape Autoloader</b>	
	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
	<b>NOTE:</b> Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions	
<b>NOTE:</b> Please reference the Tape Autoloader QuickSpecs at: <a href="http://www.hp.com/go/automation">http://www.hp.com/go/automation</a> for additional information needed to create a complete solution; reference current compatibility information at: <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a> .		
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A	
HP StorageWorks MSL8096 2 LTO-4 Ultrium 1760 SAS Drive Library	AK382A	
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A	

### Tape Libraries



## Options

<b>StorageWorks Options</b>	<p><b>NOTE:</b> The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: <a href="http://h18006.www1.hp.com/storage/saninfrastructure/hba.html">http://h18006.www1.hp.com/storage/saninfrastructure/hba.html</a>.</p> <p>HP StorageWorks 4 Gb PCI-X 2.0-to-Fibre Channel HBA AB429A</p> <p>HP StorageWorks 4 Gb PCI-X 2.0 DC-to-Fibre Channel HBA AE369A</p> <p>HP StorageWorks FC2142SR 4Gb PCI-E HBA A8002A</p> <p>HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-E HBA A8003A</p> <p>HP StorageWorks FC1142SR 4Gb PCI-E HBA AE311A</p> <p>HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-E HBA AE312A</p> <p>HP StorageWorks FC2143 4Gb PCI-X 2.0 HBA AD167A</p> <p>HP StorageWorks FC2243 4Gb PCI-X 2.0 DC HBA AD168A</p>	
<b>USB Options</b>	<p>USB 1.44-MB External Diskette Drive DC141B</p> <p>HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) DC172B</p> <p>HP Keyboard (USB) standard 2004 DT528A#ABA</p> <p>HP 1GB USB 2.0 Floppy Drive Key 442085-B21</p> <p>HP 256MB USB 2.0 Floppy Drive Key 442084-B21</p> <p>HP USB Internal Cable Kit 451363-B21</p>	
<b>HP KVM Switch Options</b>	<p>2x1x16 IP Console Switch with Virtual Media AF601A</p> <p>4x1x16 IP Console Switch with Virtual Media AF602A</p> <p>2x16 Server Console Switch with Virtual Media AF600A</p> <p>PS/2 Virtual Media Interface Adapter, 1 pack AF604A</p> <p><b>NOTE:</b> Requires PS/2 and one USB port on server.</p> <p>HP Server Console Switch (KVM), 0 x 1 x 8 port 336044-B21</p> <p>HP Server Console Switch (KVM), 0 x 2 x 16 port 336045-B21</p> <p>PS/2 Interface Adapter, 1 pack 262588-B21</p> <p>PS/2 Interface Adapter, 8 pack 262587-B21</p> <p>USB Interface Adapter, 1 pack 336047-B21</p> <p>Serial Interface Adapter - 1 pack with power supply 373035-B21</p> <p>CAT5 KVM Expansion Module 262589-B21</p> <p>HP 1x4 Console Switch AF611A</p> <p>HP PS2 Server Console Cable, 6 foot, 2-Pack AF612A</p> <p>HP USB Server Console Cable, 6 foot, 2-Pack AF613A</p> <p><b>NOTE:</b> required for supporting USB peripherals.</p> <p><b>NOTE:</b> Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a>.</p>	
<b>HP Serial Console Server</b>	HP 16 Port Serial Console Server (worldwide)	AF101A



### Options

<b>Options</b>	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>.

## Memory

**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 Fully Buffered DIMM memory, with Advanced ECC Capabilities Memory installed.

### Maximum Memory

Up to 16GB 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.

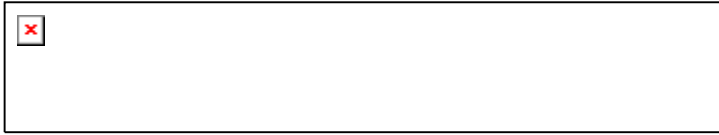
Memory	Slot					
	1*	2*	3	4	5	6
Standard (1 GB)	1 GB	Empty	Empty	Empty	Empty	Empty
Maximum (16 GB)	4 GB	4 GB	2 GB	2 GB	2 GB	2 GB

**NOTE:** \* 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

## Storage



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
<b>3.5-inch</b>	Up to 8	1-8	HP Smart Array E200/128 BBWC Controller
80GB SATA 7,200 rpm			HP Smart Array P400/256MB Controller
160GB SATA 7,200 rpm			HP Smart Array E500/256MB Controller
250GB SATA 7,200 rpm			HP Smart Array P800/512 BBWC Controller
500GB SATA 7,200 rpm			HP SC44Ge Host Bus Adapter
750GB SATA 7,200 rpm			HP SC11Xe Host Bus Adapter
36GB SAS 15,000 rpm			
72GB SAS 15,000 rpm			
146GB SAS 15,000 rpm			
300GB SAS 15,000 rpm			

## External Storage

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

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





## Storage

**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
<b>HP StorageWorks SCSI Tape Drives, External</b>	External	HP SC11Xe Host Bus Adapter	412911-B21
LTO-1 Ultrium 232			
LTO-2 Ultrium 448			
LTO-2 Ultrium 460			
LTO-3 Ultrium 920			
LTO-3 Ultrium 960			
LTO-4 Ultrium 1840			
DAT 40			
DAT 72			
DAT 160			
DLT VS160			
SDLT 600			
1U Rack-Mount Kit			
3U Rack-Mount Kit			
<b>HP StorageWorks USB Tape Drives, External</b>	External	USB 2.0 Port	N/A
DAT 40 USB			
DAT 72 USB			
DAT 160 USB			
1U USB Rack-Mount Kit			
<b>HP StorageWorks SAS Tape Drives, External</b>	External	HP SC44Ge Host Bus Adapter *	416096-B21
DAT 160 SAS		HP Smart Array E500 Controller	435129-B21
LTO-2 Ultrium 448 SAS		HP Smart Array P800/512 BBWC Controller	381513-B21
LTO-3 Ultrium 920 SAS		<b>NOTE:</b> The following SAS Smart Array controllers require ROM Flash version 2.04 or higher for SAS tape support:	
LTO-4 Ultrium 1840 SAS		HP Smart Array P400/256MB Controller	405132-B21



### Storage

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

## Power Specifications

**750W Power Supply Spare Kit** 451366-B21, -021, -001, -011, -031

**Operational Input Voltage Range (Vrms)** 90Vac to 264Vac full range

**Frequency Range (Nominal) (Hz)** 47 Hz to 63 Hz

<b>Nominal Input Voltage (Vrms)</b>	100	115	200	220	230	240
<b>Max Rated Output Wattage Rating</b>	750	750	750	750	750	750
<b>Nominal Input Current (Arms)</b>	9.1	7.9	4.3	4.0	3.8	3.7
<b>Max Rated Input Wattage Rating (Watts)</b>	893	888	872	862	862	862
<b>Max. Rated VA (Volt-Amp)</b>	911	906	890	880	880	880
<b>Efficiency (%)</b>	84	84.5	86	87	87	87
<b>Power Factor</b>	0.98	0.98	0.98	0.98	0.98	0.98
<b>Leakage Current (mA)</b>	<0.43	<0.50	<.0.90	<0.96	<1.00	<1.04
<b>Maximum Inrush Current (A peak)</b>	30A	30A	30A	30A	30A	30A
<b>Maximum Inrush Current Duration (mS)</b>	5mS	5mS	5mS	5mS	5mS	5mS

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D) (with bezel)	3.44x 17.64 x 27.50 in (8.75 x 44.80 x 69.88cm)								
	<b>Weight</b> (approximate)	<table border="0"> <tr> <td><b>Maximum</b></td> <td>51.5 lb (19.22 kg)</td> </tr> <tr> <td colspan="2">(all hard drives, power supplies and processors installed)</td> </tr> <tr> <td><b>Minimum</b></td> <td>35.0 lb (13.06 kg)</td> </tr> <tr> <td colspan="2">(one hard drive, power supply and processor installed)</td> </tr> </table>	<b>Maximum</b>	51.5 lb (19.22 kg)	(all hard drives, power supplies and processors installed)		<b>Minimum</b>	35.0 lb (13.06 kg)	(one hard drive, power supply and processor installed)	
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	<b>Input Requirements</b> (per power supply)	<table border="0"> <tr> <td>Rated Line Voltage</td> <td>100 - 240 VAC</td> </tr> <tr> <td>Rated Input Current</td> <td>9.10 A (at 100 VAC), 4.5 A (at 200 VAC)</td> </tr> <tr> <td>Rated Input Frequency</td> <td>50 to 60 Hz</td> </tr> <tr> <td>Rated Input Power</td> <td>910 W (at 100 VAC), 900 W (at 200 VAC)</td> </tr> </table>	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)
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	<b>BTU Rating</b>	<table border="0"> <tr> <td>Maximum</td> <td>3107.82 BTU/hr (at 100 VAC), 3073.67 BTU/hr (at 200 VAC)</td> </tr> </table>	Maximum	3107.82 BTU/hr (at 100 VAC), 3073.67 BTU/hr (at 200 VAC)						
Maximum	3107.82 BTU/hr (at 100 VAC), 3073.67 BTU/hr (at 200 VAC)									
	<b>Power Specifications</b>	<p>To review typical system power ratings use the Power Calculator which is available via the online tool located at URL:  <a href="http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls">http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls</a></p> <ul style="list-style-type: none"> <li>• Click on the system of interest. Example: DL180 G5</li> <li>• Follow the instructions of the next screens.</li> </ul>								
	<b>Power Supply Output</b> (per power supply)	<table border="0"> <tr> <td>Rated Steady-State Power</td> <td>750 W (at 100 VAC), 750 W (at 200 VAC)</td> </tr> <tr> <td>Maximum Peak Power</td> <td>750 W (at 100 VAC), 750W (at 200 VAC)</td> </tr> </table>	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)				
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	<b>System Inlet Temperature</b>	<table border="0"> <tr> <td><b>Operating</b></td> <td>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).</td> </tr> <tr> <td><b>Non-operating</b></td> <td>-22° to 140° F (-30° to 60° C). Maximum rate of change is 36° F/hr (20° C/hr).</td> </tr> </table>	<b>Operating</b>	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).	<b>Non-operating</b>	-22° to 140° F (-30° to 60° C). Maximum rate of change is 36° F/hr (20° C/hr).				
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	<b>Relative Humidity</b> (non-condensing)	<table border="0"> <tr> <td><b>Operating</b></td> <td>10 to 90% relative humidity (Rh), 82.4° F (28° C) maximum wet bulb temperature, non-condensing.</td> </tr> </table>	<b>Operating</b>	10 to 90% relative humidity (Rh), 82.4° F (28° C) maximum wet bulb temperature, non-condensing.						
<b>Operating</b>	10 to 90% relative humidity (Rh), 82.4° F (28° C) maximum wet bulb temperature, non-condensing.									



### Technical Specifications

	<b>Non-operating</b>	5 to 95% relative humidity (Rh), 101.7° F (38.7° C) maximum wet bulb temperature, non-condensing.
<b>Altitude</b>	<b>Operating</b>	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).
	<b>Non-operating</b>	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
<b>Acoustic Noise</b>	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	<b>Idle</b>	
	$L_{WAd}$	6.7 B
	$L_{pAm}$	51 dBA
	<b>Operating</b>	
$L_{WAd}$	6.7 B	
$L_{pAm}$	51 dBA	

<b>One NC7781 PCI-X Gigabit NIC</b>	<b>Network Interface</b>	10Base-T/100Base-TX/1000Base-TX		
	<b>Compatibility</b>	IEEE 802.3 10Base-T		
		IEEE 802.3 1000Base-T		
		IEEE 802.3 100Base-TX		
	<b>Data Transfer Method</b>	64-bit, 133MHz PCI(X)1.0		
	<b>Network Transfer Rate</b>	<b>10Base-T (Half-Duplex)</b>	10 Mb/s	
		<b>10Base-T (Full-Duplex)</b>	20 Mb/s	
		<b>100Base-TX (Half-Duplex)</b>	100 Mb/s	
		<b>100Base-TX (Full-Duplex)</b>	200 Mb/s	
		<b>1000Base-TX (Half and Full-Duplex)</b>	2000 Mb/s	
<b>Connector</b>	RJ-45			
<b>Cable Support</b>	<b>10Base-T</b>	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)		
	<b>10/100/1000Base-TX</b>	Category 5 UTP (2 Pair); up to 328 ft (100 m)		

<b>Environment-friendly Products and Approach</b>	<b>End-of-life Management and Recycling</b>	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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> . To recycle your product, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of
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## Technical Specifications

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.

