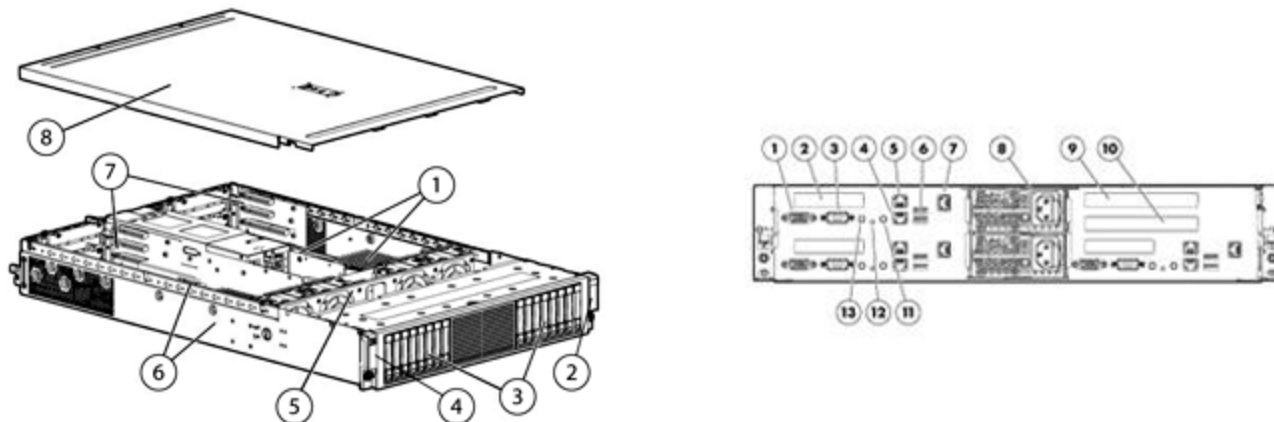


### Overview

3 Node 16SFF HDD Model Illustrated



#### Front View:

1. 16 DDR3 DIMM slots
2. Optional Right Power Buttons, Health LEDs and UID bezel
3. 16 2.5" SFF SAS/SATA hard drive bays (alternate configuration available with 8 3.5" LFF SAS/SATA hard drive bays)
4. Optional Left Power Buttons, Health LEDs bezel
5. 4 x 80mm system fans
6. Quad-Core Intel® Xeon® 5500 series processors (supports up to two per node)
7. Low Profile PCIe x16 Gen2 Slot
8. Access panel

#### Rear View:

1. Video Port
2. Low-Profile PCI Express x16 Gen2 slot
3. Serial Port
4. One GbE LAN port (RJ-45)
5. One GbE LAN port with shared management (RJ-45)
6. Two USB ports
7. Optional dedicated management port (RJ-45)
8. Power supply cable socket
9. Full height / full length PCIe Gen2 Slot
10. Full height / half length PCIe Gen2 Slot
11. Power Button
12. Health LED
13. UID Button

### What's New

- New high efficiency power supplies.
- New low voltage UDIMM

### At A Glance

The HP ProLiant DL1000 Multi Node Server is the first multi node DL server designed for higher density and increased power efficiency yet is flexible enough to be optimally configured for varying application requirements. The DL1000 supports up to four independent HP ProLiant DL170h G6 Servers in the 2U HP ProLiant h1000 G6 Chassis. The servers share power supplies and fans, providing greater power and cooling efficiencies. The HP ProLiant DL170h G6 Server is a two socket Intel server with 16 DDR3 DIMM slots.

- **Processors:**
  - Up to two Six-Core or Quad-Core Intel® Xeon processors 5600 or 5500 sequence
  - Intel® 5520 Chipset
- **Memory:**
  - Up to 192GB, using PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 2 DIMMs per Channel in 12 slots
  - Up to 48GB, using PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1333MHz when fully populated at 2 DIMMs per Channel in 12 slots
- **Network Controller:**
  - HP NC362i Integrated Dual Port Gigabit Server Adapter
- **Storage Controllers:**
  - Non-Hot Plug SATA Models: Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
    - NOTE:** Transfer rate: up to 3 Gb/s SATA
    - NOTE:** To enable RAID on Embedded SATA (Windows and Linux only), use the HP Smart Array B110i SATA Raid controller, To enable use of the B110i, enter the ROM based setup utility (RBSU). The option for enabling RAID can be found in the advanced section of the RBSU. For additional details [www.hp.com/go/SATARAID](http://www.hp.com/go/SATARAID) For RAID on Solaris, a Smart Array Controller must be purchased.
  - Hot Plug SATA Models: Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
    - NOTE:** Transfer rate: up to 3Gb/s SATA **NOTE:** The HP Smart Array B110i SATA Raid Hot Plug Advance Pack provides the hot-plug and RAID support for the embedded SATA controller. The Hot Plug Advance kit is a License to enable the RAID support on Hot Plug models. It supports up to six 3G SATA hard disk drives. It will support a maximum of two (2) logical drives. It supports Raid 0, 1 and 1+0. For additional details [www.hp.com/go/SATARAID](http://www.hp.com/go/SATARAID)
  - Hot Plug SAS/SATA Models: HP Smart Array Controller RAID 0,1,10, 5

## Overview

**NOTE:** Transfer rate: up to 6GB/s SAS, 3Gb/s SATA

- **Expansion Slots:**

- Half Height Nodes (1U): One available PCI Express Gen 2.0 slots: (standard on 4-node BTO model)
  - Slot 1: Low profile PCI-Express 2.0 x16
- Full Height Nodes (2U): three available riser options
  - Option 1: Up to three available PCI-Express Gen 2.0 slots:
    - Slot 1: full-length/full-height PCI-Express 2.0 x16
    - Slot 2: full-length/half-height PCI-Express 2.0 x4
    - Slot 3: low-profile PCI-Express 2.0 x4
  - Option 2: Up to three available PCI-Express Gen 2.0 slots:
    - Slot 1: full-length/full-height PCI-Express 2.0 x8
    - Slot 2: full-length/half-height PCI-Express 2.0 x8
    - Slot 3: low-profile PCI-Express 2.0 x8
  - Option 3: Up to two available PCI-Express Gen 2.0 slots: (standard on 2-node BTO model)
    - Slot 1: full-length/full-height PCI-Express 2.0 x16
    - Slot 2: low-profile PCI-Express 2.0 x8

- **Infrastructure Management:**

- HP ProLiant Onboard Administrator Powered by Lights-Out 100i simplifies server setup, health monitoring, control, and Lights-Out 100 remote administration. Can be upgraded with a Lights-Out 100i Advanced License for Virtual KVM (remote graphical console) and Virtual Media.
- HP Insight Control for Linux (IC-Linux), a product option, delivers essential lifecycle management that can help save time and money by integrating discovery, server deployment, firmware updates & provisioning, health & performance management, remote management, and virtualization. This makes it easy to optimize your IT infrastructure through a single, simple management console. The Insight Control for Linux suite supports Linux-based servers and management consoles.
- With G6, ProLiant 100-series server administrators are able to deploy and monitor their servers using methods similar to 300 series servers and above. Agents and the Easy Set-up CD are available that provide a user experiences consistent with 300 series and above.
  - With Easy Set-up CD, customers get SmartStart "like" deployment tools that reduce the time required for server setup and updates. Easy Set-up CDs and their ISO images are provided with each ProLiant G6 100-series server and are used to perform assisted installations for one or two servers. Users performing multi-server installations involving large numbers of servers may require the following deployment tools:
    - SmartStart Scripting Toolkit- Automated scalable deployment utility
    - Smart Components - a self-executable software consisting of driver and firmware
    - With agents and providers, ProLiant 100 series servers get environmental monitoring that is similar and consistent to that of ProLiant 300 series servers and above. This server now offers the HP Insight Management Agents and HP Insight Management WBEM Providers, two well established sets of management and Internet standards technologies that provide capabilities which provide integration to HP Systems Insight Manager (SIM).

- **Deployment/Serviceability:**

- ProLiant 100 series Server Set-up and Deployment software tools:
  - The HP ProLiant Easy Set-up CDs and ISO image downloads offer Assisted and Manual single server installation, setup, and deployment capability. Capabilities provided are:
    - AutoRun
    - Assisted Installation Microsoft Windows 2003 Server and Microsoft Windows 2008 Server
    - OS and SW available for Manual Installation are listed on each servers' QuickSpecs
  - Array Configuration Utility (ACU) and Array Diagnostics Utility (ADU)
  - HP Insight Diagnostics
  - Smart Components - self-executable software consisting of drivers
  - SmartStart Scripting Toolkit - an automated scalable deployment utility

- **Operating Systems and Virtualization Software Support for ProLiant:**

- Supports: Microsoft Windows, Red Hat, SLES, Solaris, Citrix, VMWare ESX

- **USB Ports:**

- Three USB ports / server node (two rear, one internal)

- **Optical Drive:**

- External support only

- **Chassis:**

- HP offers two different drive cages for the 2U HP ProLiant h1000 G6 Chassis
  - 8 LFF HDD Cage
  - 16 SFF HDD Cage
- The 2U chassis can support three server node configurations:
  - Two full height nodes
  - One full height node and two half-height nodes
  - Four half-height nodes

- **Power Supply:**

- The 2U chassis supports six power supply options:
  - Common Slot Power Supplies enable power capping and hot-pluggability
    - HP 1200W CS Platinum Power Supply (Hot Plug, Autoswitching)
    - HP 750W CS Platinum Power Supply (Hot Plug, Autoswitching)
    - HP 1200W CS HE Silver Power Supply (Hot Plug, Autoswitching) - standard on BTO models
    - HP 750W CS HE Gold Power Supply (Hot Plug, Autoswitching)
    - HP 460W CS HE Gold Power Supply (Hot Plug, Autoswitching)
  - Industry Standard Power Supply provides an efficient, low cost option
    - HP 1500W (2x750W) IS Power Supply

### Overview

- **NOTE:** this power supply is only supported in 4 node configurations. This power supply provides a low cost option, thus doesn't provide hot-plug, redundant or power capping functionality.

#### ● Power Management:

- In addition to the shared power and cooling infrastructure, the DL1000 contains advanced power metering and power capping technologies. The Power Interface Controller allows you to configure the system for full AC redundancy or AC redundancy with power throttling, depending on your configuration. With the optional Dynamic Power Capping mode, the DL1000 can boost the capacity of your data center by reclaiming trapped power and cooling capacity.

#### ● Additional Features:

- Support for:
  - NVIDIA Quadro FX5800 512MB PCIe x 16 graphics card
    - **NOTE:** For more information on the latest visualization and acceleration qualification status, please see <http://www.hp.com/go/accelerators>
    - **NOTE:** An HP DL170h Graphics Bracket/Cable Kit (P/N 536860-B21) is required when installing this NVIDIA card. The FX5800 can only be installed in the 2 slot full-height riser option: HP DL170h I/O Riser PCIe x16 x8 FIO option (P/N 512481-B21).

#### ● Form Factor:

- HP ProLiant h1000 G6 Chassis - 2U
- HP ProLiant DL170h Server - Half-width server node

#### ● Warranty:

- This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.  
**NOTE:** Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>.

### Standard Features

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

#### Processor

One of the following depending on Model

#### Six-Core Processors

Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3)

#### Quad-Core Processors

Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor L5630 (2.13 GHz, 12MB L3 Cache, 40W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo, 2/2/3/3)

Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor L5530 (2.40 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800)

Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800)

Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)

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

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

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

**NOTE:** For the Intel 5600 and 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream), and "L" denotes Lower Wattage.

**NOTE:** Up to 2 processors supported. Mixing different processor models is not supported.

#### Upgradeability

Upgradeable to two processors (12 cores)

**NOTE:** DL170h G6 servers purchased with Intel Xeon 5500 Series processors are not upgradeable to Intel Xeon 5600 series processors.

#### Chipset

Intel® 5520 Chipset

**NOTE:** For more information regarding Intel chipsets, please see the following URL:  
<http://www.intel.com/products/server/chipsets/>

#### Cache Memory

12MB (1 x 12MB) Level 3 cache

**NOTE:** All 5600 processor models.

8MB (1 x 8MB) Level 3 cache

**NOTE:** All 5500 series processor models except for those identified below.

4MB (1 x 4MB) Level 3 cache

**NOTE:** For processors L5506, E5506 and E5504.

#### Memory Protection

Advanced ECC (multi-bit error protection)

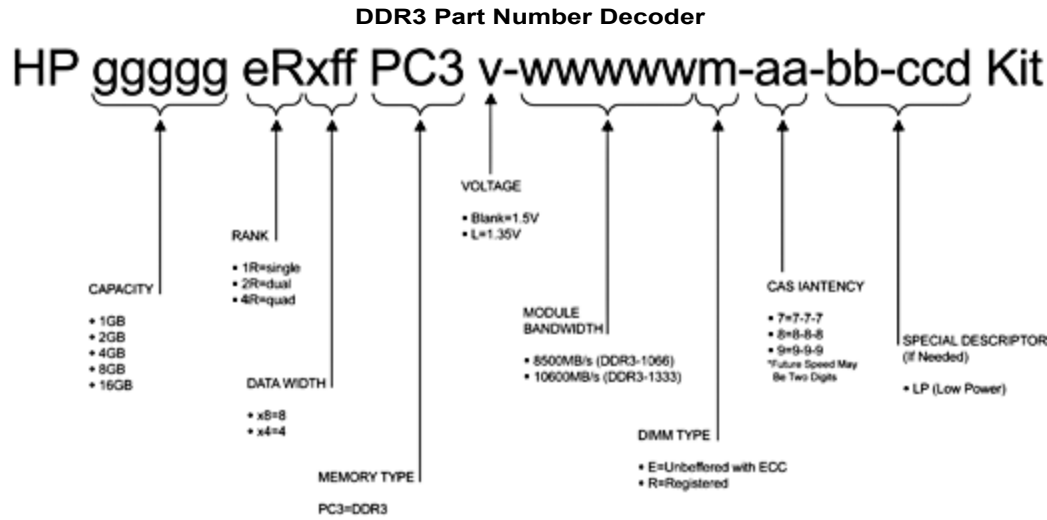
Mirroring mode

Lockstep mode

### Standard Features

<b>Memory</b>	Type	DDR3 Registered (RDIMM) and Unbuffered (UDIMM)
	Standard (UDIMM) (per server node)	6GB (3 x 2GB) PC3-10600E (DDR3-1333)
	Maximum (RDIMM) (per server node)	192GB (12 x 16GB) PC3-8500R (DDR3-800)
	Maximum (UDIMM) (per server node)	48GB (12 x 4GB) PC3-10600E (DDR3-1333)

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at <http://www.hp.com/go/ddr3memory-configurator>



**Network Controller** HP NC362i Integrated Dual Port Gigabit Server Adapter

### Expansion Slots

Full-height PCIe Riser Option	Expansion Slots #	Technology	Bus Width**	Connector Width*	Bus Number	Form Factor	Notes
	1	PCI-Express 2.0	x16	x16	4	Full length, full height	3.3 volts
	2	PCI-Express 2.0	x4	x4	6	Full length, half height	3.3 volts
	3	PCI-Express 2.0	x4	x4	7	Low Profile	3.3 volts
Full-height PCIe Riser Option	Expansion Slots #	Technology	Bus Width**	Connector Width*	Bus Number	Form Factor	Notes
	1	PCI-Express 2.0	x8	x8	4	Full length, full height	3.3 volts
	2	PCI-Express 2.0	x8	x8	5	Full length, half height	3.3 volts
	3	PCI-Express 2.0	x8	x8	7	Low Profile	3.3 volts
Full-height PCIe Riser Option	Expansion Slots #	Technology	Bus Width**	Connector Width*	Bus Number	Form Factor	Notes
(Standard in 2 Node BTO Models)	1	PCI-Express 2.0	x16	x16	4	Full length, full height	3.3 volts
	3	PCI-Express 2.0	x8	x8	6	Low Profile	3.3 volts
Half-height PCIe Riser Option	Expansion Slots #	Technology	Bus Width**	Connector Width*	Bus Number	Form Factor	Notes
(Standard in 4 Node BTO Models and with half-height nodes)	1	PCI-Express 2.0	x16	x16	4	Low Profile	3.3 volts

\* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

\*\* Indicates the number of physical electrical lanes running to the connector.

### Standard Features

<b>Storage Controller</b>	Non-Hot Plug SATA Models	<p>Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)</p> <p><b>NOTE:</b> Transfer rate: up to 3 Gb/s SATA</p> <p><b>NOTE:</b> To enable RAID on Embedded SATA (Windows and Linux only), use the HP Smart Array B110i SATA Raid controller, To enable use of the B110i, enter the ROM based setup utility(RBSU). The option for enabling RAID can be found in the advanced section of the RBSU. For additional details <a href="http://www.hp.com/go/SATARAID">www.hp.com/go/SATARAID</a>. For RAID on Solaris, a Smart Array Controller must be purchased.</p>
	Hot Plug SATA Models	<p>Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)</p> <p><b>NOTE:</b> Transfer rate: up to 3Gb/s SATA</p> <p><b>NOTE:</b> The HP Smart Array B110i SATA Raid Hot Plug Advance Pack provides the hot-plug and RAID support for the embedded SATA controller. The Hot Plug Advance kit is a License to enable the RAID support on Hot Plug models. It supports up to six 3G SATA hard disk drives. It will support a maximum of two (2) logical drives. It supports Raid 0, 1 and 1+0. For additional details <a href="http://www.hp.com/go/SATARAID">www.hp.com/go/SATARAID</a></p>
	Hot Plug SAS/SATA Models	<p>HP Smart Array Controller RAID 0,1,10, 5</p> <p><b>NOTE:</b> Transfer rate: up to 6GB/s SAS, 3Gb/s SATA</p> <p><b>NOTE:</b> SAS Upgrade: A HP Smart Array Controller is required for SAS HDD support. Transfer rate: 6.0 Gb/s SAS supported.</p> <p><b>NOTE:</b> When adding a Smart Array Controller to an 8 LFF SAS HDD configuration, a HP h1000 LFF SAS CONTROLLER CABLE OPTION KIT (P/N 519503-B21) must be ordered to connect the Smart Array Controller to the hard drive backplane. When a controller is added during a CTO buildup, the appropriate cables are included and this kit is not required. This cable kit is only needed for BTO configurations or if a CTO customer upgrades to a Smart Array Controller after initial purchase.</p> <p><b>NOTE:</b> When adding a Smart Array Controller to a 16SFF SAS HDD configuration, an HP h1000 SFF SAS CONTROLLER CABLE OPTION KIT (P/N 519507-B21) must be ordered to connect the Smart Array Controller to the hard drive backplane. When a controller is added during a CTO buildup, the appropriate cables are included and this kit is not required. This cable kit is only needed if a CTO customer upgrades to a Smart Array Controller after initial purchase.</p> <p><b>NOTE:</b> An external diskette drive, USB floppy drive key or virtual FDD using LO100 Advanced Pack is needed to install storage controller drivers during a Windows operating system installation from a CD.</p>

<b>Storage</b>	Optical Drives	DVD drive via USB only
	Diskette Drives	Via USB only
	Drive Bays	Up to 8 Hot plug SAS/SATA 3.5" drives
	One of the following depending on Model	Up to 16 Hot plug SAS/SATA 2.5" drives

<b>Maximum Internal Storage</b>	LFF 3.5" Hot Plug SATA	16.0TB	8 x 2TB
	LFF 3.5" Hot Plug SAS	16.0TB	8 x 2TB
	SFF 2.5" Hot Plug SATA	8.0TB	16 x 500GB
	SFF 2.5" Hot Plug SAS	4.8TB	16 x 300GB

<b>Interfaces</b>	Network RJ-45(Ethernet)	2 10/100/1000 NIC ports (1 NIC shared for the HP ProLiant Lights Out 100i Remote Management)
	Serial	1
	Graphics	1
	USB	3 (two rear, one internal)
		<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> .
	Management	1 Optional Dedicated LO100i Management Port
	Health LED	1 rear per server node (Optional front health LED per server node)
	Power	1 rear per server node (Optional front power button per server node)
	UID	1 rear per server node (Optional front UID per chassis)

### Standard Features

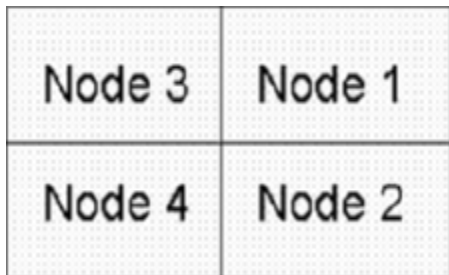
**Graphics** Integrated Matrix Graphics G200e, 32MB Standard

- 16 bit color: maximum resolution of 1600 x 1200
- 32 bit color: maximum resolution of 1280 x 1024

**Form Factor** HP ProLiant h1000 G6 Chassis - 2U Chassis can support up to four DL170h server nodes in the 2U chassis.

HP ProLiant DL170h G6 Server - Half-width system board. Half-height (1U) or full-height (2U) depending on riser option selected.

4 Node Configuration - Front View



**NOTE:** For 2 node configurations, Nodes 2 and 4 are ordered. For 3 node configurations, Nodes 1, 2 and 4 are ordered.

**NOTE:** Additional nodes cannot be added later to 2 or 3 node configurations.

### Embedded Manageability

**HP ProLiant Onboard Administrator Powered by LO100i** HP ProLiant Onboard Administrator Powered by Lights-Out 100i, simplifies server setup, control, and lights-out remote administration of ProLiant 100 Series servers and functions without additional software. It can be accessed from any location via LAN or Internet and works hand-in-hand with HP Systems Insight Manager (SIM), helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. Advanced Licenses are required for Virtual KVM and Virtual Media feature activation.

Key features of LO100i are:

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

For more information, see: [www.hp.com/go/lo100](http://www.hp.com/go/lo100).

### HP Insight Control management software

**HP Insight Control for Linux** HP Insight Control for Linux (IC-Linux), as a product option, delivers essential lifecycle management that can help save time and money by integrating discovery, server deployment, firmware updates & provisioning, health & performance management, remote management, and virtualization. This makes it easy to optimize your IT infrastructure through a single, simple management console. The IC-Linux suite installs and licenses software modules that are integrated into HP System Insight Manager (HP SIM).

HP Insight Control for Linux serves environments requiring Linux-based management consoles. See [www.hp.com/go/ic-linux](http://www.hp.com/go/ic-linux).

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

### HP Insight Control server deployment

HP Insight Control server deployment is a deployment solution for HP ProLiant and Integrity servers hosted on a Windows CMS. It automates the process of deploying and provisioning server software, enabling companies to quickly and easily adapt to changing business demands. Insight Control server deployment includes software optimizations for HP servers, including the HP scripting toolkits, configuration jobs for

### Standard Features

leading industry-standard operating systems, sample unattended files, and HP server support packs that include software drivers, management agents, and important documentation. Deploying servers can be accomplished either through imaging or through scripting.

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

Insight Control server deployment includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit:

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

#### Core Server Management

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

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

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

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

- Core Management: [www.hp.com/go/coremanagement](http://www.hp.com/go/coremanagement)
- HP ProLiant 100 series Easy Set-up CDs: [www.hp.com/servers/easysetup](http://www.hp.com/servers/easysetup)

#### Core Infrastructure Management

#### HP Systems Insight Manager

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

#### Insight Management Agents

HP Insight Management Agents and Insight Management Providers are available for HP Systems Insight Manager (SIM) Integration.

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

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

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

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

#### Easy Set-up CD

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

- Boot environment and GUI
- Assisted Installation: Windows 2003 Server and Windows 2008 Server drivers
-



### Standard Features

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

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

#### SmartStart Scripting Toolkit (SSSTK)

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

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

For additional information, please see:

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

#### Subscriber's Choice

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

#### ROMPaq, software and latest drivers

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

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

#### Industry Standard Compliance

ACPI V2.0 Compliant  
 PCI 2.2 Compliant  
 PXE Support  
 WOL Support  
 Microsoft® Logo certifications  
 IPMI 2.0, DCMI 1.0. SMASH CLP compliant

#### Security

Power-on password  
 Setup password  
 Diskette boot control  
 Secure Sockets Layer (SSL)  
 Secure Shell (SSH)

### Standard Features

#### Security - Trusted Platform Module

Trusted Platform Module option kit

The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: [www.hp.com/go/TPM](http://www.hp.com/go/TPM).

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

**NOTE:** The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

#### Server Power Cords

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

**NOTE:** HP ProLiant DL servers are primarily connected to PDU's in data center racks so they ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

**NOTE:** Japan BTO and CTO configurations get the 6' 4165151-291 power cord in addition. China BTO and CTO configurations get the 6' 416151-AA1 power cord in addition.

**NOTE:** If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix:

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

#### UPS and PDU Power Cord Matrix

Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link:

[www.hp.com/products/powercords](http://www.hp.com/products/powercords).

#### Power Supply

HP has a new design for ProLiant power- the new Common Slot Power Supply bay. This design provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with Common Slot, High Efficiency and Right-Size Power Supplies. The new HP Common Slot power supplies are designed for the highest power efficiency without degrading performance of the ProLiant server. Power Supplies have efficiency ratings up to 94%. There are multiple Right Size power options available depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, please use the HP Power Advisor at [www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient) or [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor). All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant.

There is a low cost, Industry Standard 1500W (2x750W) Power Supply option that does not support hot-pluggability, redundancy or power capping functionality.

### Standard Features

#### Common Slot Power Supply

**NOTE:** Mixing of power supplies in the same chassis is not supported. All power supplies must be of the same type, all 460W, all 750W 94%, all 750W 92%, all 1200W 94%, or all 1200W 90%. If non-matched power supplies are inserted you will get errors and operation will fail.

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP offers several Common Slot Power Supply Options for this platform. HP's ProLiant Common Slot Power supplies meet multiple Energy Efficiency Initiatives:

- 460W, 92%: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD
- 750W, 94%: Climate Savers Computing Initiative Platinum and ECOS Consulting 80PLUS Platinum
- 750W, 92%: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD
- 1200W, 94%: Climate Savers Computing Initiative Platinum and ECOS Consulting 80PLUS Platinum
- 1200W, 90%: Climate Savers Computing Initiative Silver and ECOS Consulting 80PLUS Silver

**NOTE:** The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on 80Plus.org. Optional power supplies can be purchased through power supply option kits (see Power Supply Options for part numbers).

#### Advanced Power Management: Power Interface Controller

In addition to the efficiencies gained by the shared power infrastructure, the DL1000 contains advanced power metering and capping capabilities. The embedded Power Interface Controller (PIC) is able to monitor power consumption and throttle the speed of the processors and memory in each node within the chassis in order to maintain a pre-set power budget. HP provides a simple command-line utility, called PIC, for reading and configuring the power control logic of the server nodes. Versions are available for MS Windows Server OS (2003 and 2008) and Linux OS with the requirement that the OS IPMI Driver be installed. The following Power Management modes for power redundancy are standard and are configurable in the controller:

- No Redundancy - power control disabled. No power throttling will occur.
- (DEFAULT) AC Redundancy with Throttling. This mode allows all nodes to share both power supplies and run at maximum performance with no power caps. Power control logic will only throttle the performance of each node in the case where the chassis only has one operational power-supply. In this mode, the box is expected to survive an unexpected AC Power loss to one of the power supplies.
- Full AC/DC Redundancy - power control logic will maintain a power cap value for the chassis at the DC rating of a single power supply (460W, 750W, or 1200W), such that if one power supply experiences a DC or AC failure, the chassis should remain on-line and operational.

Dynamic Power Capping is included with the LO100 Advanced Pack:

- Dynamic Power Capping - User specifies the power envelope for the 2U chassis, within the capabilities of the hardware installed. Users run a utility to calibrate the minimum and maximum power consumption envelope for the chassis. In order to avoid any impact to performance due to throttling, a User selectable Power Cap value should not be set below the minimum power value provided by the utility.

#### System Fans

4 x 80mm system fans ship standard; Non-hot plug, Non-redundant.

#### Operating Systems and Microsoft Windows Server

#### Virtualization Software Red Hat Enterprise Linux (RHEL)

#### Support for ProLiant Servers SUSE Linux Enterprise Server (SLES)

Solaris  
VMware ESX  
Citrix XenServer

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page [www.hp.com/support/DL170hG6](http://www.hp.com/support/DL170hG6)

### Standard Features

#### Rack Airflow Requirements

##### Rack 10000 G2 series Cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

**CAUTION:** If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 5,350 sq cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).

Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches)

**CAUTION:** Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

**NOTE:** For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: [www.hp.com/servers/proliantdl170h](http://www.hp.com/servers/proliantdl170h)

#### Rack Support

Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36".

#### Telco Rack Support

Support for all 2-post centered and 4 post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions at: <http://www.hp.com/go/rackandpower>

#### Factory Express Portfolio for Servers and Storage

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

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

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

#### HP Enterprise Configurator

The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.  
<http://www.hp.com/products/configurator>

#### HPC Interconnect

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

**InfiniBand**

PCI-Express adapters

### Standard Features

**Service and Support** HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs.

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

To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

**Recommended Service** – Simplify ProLiant solution implementation, maintenance and management.

- **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/services/carepack>

### Models

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

**NOTE:** Not all models are available in all regions. Check with your local country HP offices for availability.

### Eight Drive Non-Hot-Plug Serial ATA (SATA) 2 Node Models

**NOTE:** Only hot-plug form-factor HDDs are supported but are used in a cold-swap manner in the base configuration. Upgrading to 8 Hot Plug SATA requires the addition of the B110i Hot-Plug Advance Pack or storage controller. Upgrading to SAS hard drives requires the addition of a storage controller. Adding a storage controller (Smart Array P212/256MB recommended) requires one HP h1000 LFF SAS CTTLR CABLE OPT KIT per controller (P/N 519503-B21).

<b>HP DL2x170h E5504 3x2GB 8LFF SVR 503581-xx1</b>	<b>Processor(s)</b>	One Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) / server node
	<b>Cache Memory</b>	4MB shared L3 cache
	<b>Memory</b>	6GB (3 x 2GB) PC3-10600E (UDIMM) / server node
	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter
	<b>Storage Controller</b>	Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	16.0TB (8 x 2TB Hot Plug 3.5" SATA hard drives), Maximum 16.0TB (8 x 2TB Hot Plug 3.5" SAS hard drives), Maximum <b>NOTE:</b> SAS and/or hot-plug functionality requires the addition of a Smart Array controller.
	<b>Optical Drive</b>	External support only
	<b>Power Supply</b>	1 x 1200Watts, 90% Efficiency, Common Slot Power Supply Standard 2nd 1200W, 90% Efficiency, Power Supply Optional
	<b>Fans</b>	4 x 80mm system fans ship standard; Non-hot plug, Non-redundant
	<b>Form Factor</b>	HP ProLiant h1000 G6 Chassis - 2U HP ProLiant DL170h G6 Server - Half-width server node

### Eight Drive Non-Hot-Plug Serial ATA (SATA) 4 Node Models

**NOTE:** Only hot-plug form-factor HDDs are supported but are used in a cold-swap manner in the base configuration. Upgrading to 8 Hot Plug SATA requires the addition of the B110i Hot-Plug Advance Pack or storage controller. Upgrading to SAS hard drives requires the addition of a storage controller. Adding a storage controller (Smart Array P212/256MB recommended) requires one HP h1000 LFF SAS CTTLR CABLE OPT KIT per controller (P/N 519503-B21)

<b>HP DL4x170h E5504 3x2GB 8LFF SVR 503578-xx1</b>	<b>Processor(s)</b>	One Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) / server node
	<b>Cache Memory</b>	4MB shared L3 cache
	<b>Memory</b>	6GB (3 x 2GB) PC3-10600E (UDIMM) / server node
	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter
	<b>Storage Controller</b>	Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	16.0TB (8 x 2TB Hot Plug 3.5" SATA hard drives), Maximum 16.0TB (8 x 2TB Hot Plug 3.5" SAS hard drives), Maximum <b>NOTE:</b> SAS and/or hot-plug functionality requires the addition of a Smart Array controller and SAS Controller Cable Option Kit.
	<b>Optical Drive</b>	External support only
	<b>Power Supply</b>	1 x 1200Watts, 90% Efficiency, Common Slot Power Supply Standard 2nd 1200W, 90% Efficiency, Power Supply Optional
	<b>Fans</b>	4 x 80mm system fans ship standard; Non-hot plug, Non-redundant
	<b>Form Factor</b>	HP ProLiant h1000 G6 Chassis - 2U HP ProLiant DL170h G6 Server - Half-width server node

<b>Country Code Key</b>	xx = 00	U.S.
	xx = 29	Japan
	xx = 37	AP
	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 additional information.

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

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

#### Step 1: Base Configuration (choose one from each list unless otherwise noted)

<b>HP Chassis</b>	HP ProLiant h1000 G6 2U Chassis FIO	507653-B21
<b>HP Node Setting</b>	HP h1000 2 Node Side by Side FIO Kit	516030-B21
	HP h1000 3 Node FIO Kit	518028-B21
	HP h1000 4 Node FIO Kit	518029-B21
<b>HP Nodes</b>	HP ProLiant DL170h G6 Node1 CTO Server	507638-B21
	HP ProLiant DL170h G6 Node2 CTO Server	507639-B21
	HP ProLiant DL170h G6 Node3 CTO Server	507640-B21
	HP ProLiant DL170h G6 Node4 CTO Server	507641-B21
<b>NOTE:</b> A minimum of two nodes are required per 2U chassis. There are only three options for ordering DL170h G6 Nodes.		
1) 2 Node Config: user must order Nodes 2 and 4;		
2) 3 Node Config: user must order Nodes 1, 2 and 4; or		
3) 4 Node Config: user must order Nodes 1, 2, 3 and 4.		
<b>NOTE:</b> Additional nodes cannot be added later to 2 or 3 node configurations.		
<b>HP Drive Cage Options</b>	HP h1000 G6 8 LFF Drive Cage FIO Kit	507654-B21
	<b>NOTE:</b> This selection requires that only SATA drives can be selected and SAS Controller cannot be added to any node.	
	HP h1000 G6 8 LFF Drive SAS Ctlr Cage FIO Kit	538666-B21
	<b>NOTE:</b> With this selection, SAS and SATA drives can be selected but a SAS controller must be selected for each node.	
<b>HP Drive Cage Options</b>	HP h1000 G6 16 SFF Drive Cage FIO Kit	507655-B21
	<b>NOTE:</b> This selection requires that only SATA drives can be selected and SAS Controller cannot be added to any node.	
	HP h1000 G6 16 SFF Drive SAS Ctlr Cage FIO Kit	538667-B21
<b>NOTE:</b> With this selection, a SAS controller must be selected for each node.		
<b>HP Power Supplies</b>	<b>NOTE:</b> Refer to HP Power Advisor when selecting a power supply for your configuration, <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a> . Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: " <a href="http://www.hp.com/go/proliant-energy-efficient">www.hp.com/go/proliant-energy-efficient</a> " or <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a>	
	<b>NOTE:</b> Selection of a Common Slot High Efficiency or Platinum Power Supply requires the purchase of a Common Slot Power Supply Backplane FIO Kit (P/N: 516136-B21).	
	HP 460W CS HE Gold Power Supply 92% Efficiency	503296-B21
	HP 750W CS HE Gold Power Supply 92% Efficiency	512327-B21
	HP 750W CS HE Platinum Power Supply 94% Efficiency	593831-B21
	HP 1200W CS Platinum Power Supply 94% Efficiency	578322-B21
	HP 1200W 12V Hot Plug AC Power Supply	500172-B21
	HP h1000 750W IS PS FIO Kit	515997-B21
	<b>NOTE:</b> Selection of an Industry Standard Power Supply requires the purchase of a Fan Controller FIO Kit (P/N: 516000-B21).	
	<b>Power Supplies - Enablement Kits</b>	
	HP h1000 Common Slot PS BP FIO Kit	516136-B21
	<b>NOTE:</b> This backplane must be ordered with any Common Slot High Efficiency Power Supply.	
	HP h1000 IS PS Fan Controller FIO Kit	516000-B21
	<b>NOTE:</b> This fan controller kit must be ordered with the 750W Industry Standard Power Supply (P/N: 515997-B21).	

### Configuration Information - Factory Integrated Models

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

##### HP Processors

**NOTE:** DL170h G6 servers purchased with Intel Xeon 5500 Series processors are not upgradeable to Intel Xeon 5600 series processors.

##### Six Core Processors

Intel® Xeon® processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3), FIO Base 600545-L21

**NOTE:** If 2 processors are desired, select one 600545-L21 and one 600545-B21.

##### Quad-Core Processors

Intel® Xeon® processor E5640 (2.66 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 600543-L21

**NOTE:** If 2 processors are desired, select one 600543-L21 and one 600543-B21.

Intel® Xeon® processor L5630 (2.13 GHz, 12MB L3 Cache, 40W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 600541-L21

**NOTE:** If 2 processors are desired, select one 600541-L21 and one 600541-B21.

Intel® Xeon® processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO Base 507889-L21

**NOTE:** If 2 processors are desired, select one 507889-L21 and one 507889-B21.

Intel® Xeon® processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO Base 538757-L21

**NOTE:** If 2 processors are desired, select one 538757-L21 and one 538757-B21.

Intel® Xeon® processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO Base 503582-L21

**NOTE:** If 2 processors are desired, select one 503582-L21 and one 503582-B21.

Intel® Xeon® processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 507890-L21

**NOTE:** If 2 processors are desired, select one 507890-L21 and one 507890-B21.

Intel® Xeon® processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 583381-L21

**NOTE:** If 2 processors are desired, select one 583381-L21 and one 583381-B21.

Intel® Xeon® processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 503583-L21

**NOTE:** If 2 processors are desired, select one 503583-L21 and one 503583-B21.

Intel® Xeon® processor L5530 (2.40 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 583133-L21

**NOTE:** If 2 processors are desired, select one 583133-L21 and one 583133-B21.

Intel® Xeon® processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 507891-L21

**NOTE:** If 2 processors are desired, select one 507891-L21 and one 507891-B21.

Intel® Xeon® processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800), FIO Base 503585-L21

**NOTE:** If 2 processors are desired, select one 503585-L21 and one 503585-B21.

Intel® Xeon® processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO Base 583383-L21

**NOTE:** If 2 processors are desired, select one 583383-L21 and one 583383-B21.

Intel® Xeon® processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO Base 503584-L21

**NOTE:** If 2 processors are desired, select one 503584-L21 and one 503584-B21.



### Configuration Information - Factory Integrated Models

<b>HP Memory</b>	<p><b>Registered DIMMs (RDIMMs)</b></p> <p>HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500656-B21</p> <p>HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500658-B21</p> <p>HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit 500660-B21</p> <p>HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 593339-B21</p> <p>HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit 604504-B21</p> <p><b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.</p> <p>HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit 516423-B21</p> <p>HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit 500666-B21</p> <p>HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500662-B21</p> <p>HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit 604506-B21</p> <p><b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.</p> <p><b>Unbuffered with ECC DIMMs (UDIMMs)</b></p> <p><b>NOTE:</b> Maximum 12 DIMMs supported per node.</p> <p>HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500668-B21</p> <p>HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500670-B21</p> <p>HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500672-B21</p> <p>HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit 619488-B21</p> <p><b>NOTE:</b> All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: <a href="http://www.hp.com/go/ddr3memory-configurator">www.hp.com/go/ddr3memory-configurator</a>.</p> <p><b>NOTE:</b> Kits described as LV include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: <a href="http://www.hp.com/go/proliant-energy-efficient">www.hp.com/go/proliant-energy-efficient</a></p> <p><b>NOTE:</b> PC3L is a low voltage memory.</p> <p><b>NOTE:</b> There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)</p> <p><b>NOTE:</b> Memory Min and Max depends on number of processors and type of memory:</p> <p>1 Processor -&gt; R-Dimm: Min 1 // Max 8 U-Dimm: Min 1 // Max 6</p> <p>2 Processors -&gt; R-Dimm: Min 2 // Max 16 U-Dimm: Min 2 // Max 12</p>
------------------	---

<b>HP I/O Expansion Options</b>	<p><b>Full-height (or 2U nodes)</b></p> <p>HP DL170h I/O Riser PCIe x16 x4 x4 FIO 514005-B21</p> <p>HP DL170h I/O Riser PCIe x8 x8 x8 FIO 503587-B21</p> <p>HP DL170h I/O Riser PCIe x16 x8 FIO 512481-B21</p> <p><b>NOTE:</b> The 2 slot riser (P/N: 512481-B21) is the only riser option that supports the NVIDIA FX5800 graphics card.</p> <p><b>Half-height (or 1U nodes)</b></p> <p>HP DL170h I/O Riser PCIe x16 FIO 503586-B21</p> <p><b>NOTE:</b> This is the only riser option for 4 Node configurations.</p>
---------------------------------	---

### Configuration Information - Factory Integrated Models

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

<b>HP Front Power option</b>	HP h1000 Front Power Right FIO Kit	516022-B21
	HP h1000 Front Power Left FIO Kit	516001-B21

**NOTE:** Each ProLiant DL170h Server comes with a rear UID, Power Button and Health LED. These options provide a front facing option that will power up to two nodes each. If a 3 or 4 Node Setting kit is selected in Step 1, then both power button kits must be ordered. If the 2 Node Setting kit is selected in Step 1, then only the Right Power Kit (P/N: 516022-B21) is needed.

**HP Storage Controllers** **NOTE:** Non-Hot-Plug SATA Models: The embedded HP Smart Array B110i SATA RAID supports RAID 0,1,10 and cold-plug capability with hot-plug form factor drives. Non-hot-plug form factor hard disk drives are not supported in the DL1000. **NOTE:** Hot-Plug SATA Models: A HP Smart Array B110i SATA RAID Hot-Plug Advanced Pack per server or virtual machine is required for hot-plug SATA using the embedded B110i SATA RAID controller.

**NOTE:** SAS Models: A minimum of one SAS Controller per server node is required when purchasing a SAS HDD Model (P/N 538666-B21 or 538667-B21).

**NOTE:** The P410 Controller is not supported in a Low Profile PCIe G2 slot. For all 8 LFF SAS HDD configurations, a P212 is required. For 16 SFF SAS HDD configurations with 4 nodes, a P212 is required. For 16 SFF SAS HDD configurations with 2 nodes, a P410 is required and the card must be populated in the FH/FL or FH/HL PCI slot. In a 16 SFF SAS HDD configuration with 3 nodes, a P212 is required for both half-height nodes, each supporting 4 HDDs, and a P410 is required for the full height node, supporting 8 HDDs and must be populated in the FH/FL or FH/HL PCI slot.

HP P410/ZM FIO Smart Array Controller	462860-B21
HP P411/256 FIO SA Cntrlr w/Battery	491193-B21
HP P410/256 FIO SA Cntrlr w/Battery	491195-B21
HP P212/256 FIO SA Cntrlr w/Battery	491191-B21

#### Optional Upgrades

HP Smart Array Hot Plug Advance Pack for B110i w/1yr 24x7 Supp Physical 1 Svr LTU	TC421A
---	--------

#### Step 4: Choose Additional Options for Factory Integration

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

### Core Options

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

<b>HP Unique Options</b>	<p>HP DL170h Dedicated Management Port OPT Kit <span style="float: right;">575498-B21</span>  <b>NOTE:</b> Each ProLiant DL170h G6 Server comes standard with sideband support for LO100i through the shared, system NIC. Order this option (P/N 575498-B21) if a dedicated management network is desired.</p> <p>HP h1000 G6 Large Form Factor SAS Cable Kit <span style="float: right;">519503-B21</span>  <b>NOTE:</b> When adding a Smart Array Controller to an 8LFF SAS HDD configuration, a HP h1000 LFF SAS CONTROLLER CABLE OPTION KIT (P/N 519503-B21) must be ordered to connect the Smart Array Controller to the hard drive backplane. When a controller is added during a CTO buildup, the appropriate cables are included and this kit is not required. This cable kit is only needed for BTO configurations or if a CTO customer upgrades to a Smart Array Controller after initial purchase.</p> <p>HP h1000 G6 Small Form Factor SAS Cable Kit <span style="float: right;">519507-B21</span>  <b>NOTE:</b> When adding a Smart Array Controller to a 16SFF SAS HDD configuration, a HP h1000 SFF SAS CONTROLLER CABLE OPTION KIT (P/N 519507-B21) must be ordered to connect the Smart Array Controller to the hard drive backplane. When a controller is added during a CTO buildup, the appropriate cables are included and this kit is not required. This cable kit is only needed if a CTO customer upgrades to a Smart Array Controller after initial purchase.</p> <p>HP DL170h Graphics Brkt/Cable Kit <span style="float: right;">536860-B21</span>  <b>NOTE:</b> This option must be ordered if an NVIDIA FX5800 is installed in a full-height 2 slot riser. The FX5800 can only be installed in the 2 slot riser option: HP DL170h I/O Riser PCIe x16 x8 FIO option, part number 512481-B21.</p>
--------------------------	--

### HP Processors

**NOTE:** DL170h G6 servers purchased with Intel Xeon 5500 Series processors are not upgradeable to Intel Xeon 5600 series processors.

#### Six Core Processors

Intel® Xeon® processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) 600545-B21

#### Quad-Core Processors

Intel® Xeon® processor E5640 (2.66 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) 600543-B21

Intel® Xeon® processor L5630 (2.13 GHz, 12MB L3 Cache, 40W, DDR3-1066, HT, Turbo 1/1/2/2) 600541-B21

Intel® Xeon® processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) 507889-B21

Intel® Xeon® processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) 538757-B21

Intel® Xeon® processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) 503582-B21

Intel® Xeon® processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) 507890-B21

Intel® Xeon® processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) 583381-B21

Intel® Xeon® processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) 503583-B21

Intel® Xeon® processor L5530 (2.40 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) 583133-B21

Intel® Xeon® processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) 507891-B21

Intel® Xeon® processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800) 503585-B21

Intel® Xeon® processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) 583383-B21

Intel® Xeon® processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) 503584-B21

### Core Options

#### HP Memory

##### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21
<b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	516423-B21
HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
<b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	

##### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** Maximum 12 DIMMs supported per node.

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21

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

**NOTE:** Kits described as LV include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: [www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient)

**NOTE:** PC3L is a low voltage memory.

**NOTE:** There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)

**NOTE:** Memory Min and Max depends on number of processors and type of memory:

1 Processor -> R-Dimm: Min 1 // Max 8 U-Dimm: Min 1 // Max 6

2 Processors -> R-Dimm: Min 2 // Max 16 U-Dimm: Min 2 // Max 12

#### HP Optical Drives

HP External USB CD/DVD R/RW Optical Drive	FS943AA#ABA
---	-------------

#### HP Hard Drives

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

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

**NOTE:** If using SAS hard drives, a Smart Array controller is required. For BTO configurations only, and For 3.5" drive cable kit P/N 519503-B21 or for 2.5" cable kit P/N 519507-B21.

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

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

### Core Options

HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
HP 146GB 3G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418367-B21
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
HP 72GB 3G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418371-B21
<b>SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives</b>	
HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	454232-B21
HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21
HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	416127-B21
HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	384854-B21
<b>SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives</b>	
HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21
<b>SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507616-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507614-B21
HP 1TB 3G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461137-B21
HP 750GB 3G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461135-B21
<b>NOTE: Please see the QuickSpecs for Technical Specifications and additional information:</b>	
<a href="http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html">http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html</a> (Worldwide)	
<b>SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives</b>	
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21
<b>SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
<b>SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives</b>	
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	571230-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21
<b>NOTE: Please see the QuickSpecs for Technical Specifications and additional information:</b>	
<a href="http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html">http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html</a> (Worldwide)	
<b>SATA Hot Plug Midline (MDL) Solid State Drives</b>	
HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572071-B21
HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572073-B21
<b>SATA Hot Plug 3.5" Midline (MDL) Solid State Drives</b>	
HP 60GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570761-B21
HP 120GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570763-B21
<b>NOTE: Please see the QuickSpecs for Technical Specifications and additional information:</b>	
<a href="http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html">http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html</a> (Worldwide)	

### Core Options

#### HP Networking

##### Gigabit Ethernet adapters

HP NC112T PCIe Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
HP NC365T 4-port Ethernet Server Adapter	593722-B21
HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

##### 10 Gigabit Ethernet Adapters

**NOTE:** No more than two 10GbE I/O devices are supported in a single ProLiant server.

**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

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

HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: [www.hp.com/go/ProLiantNICs](http://www.hp.com/go/ProLiantNICs).

#### HP InfiniBand

HP IB 4X QDR CX-2 PCI-e G2 Dual Port HCA	592520-B21
HP IB 4X DDR CX-2 PCI-e G2 Dual Port HCA	592521-B21

**NOTE:** Please see the QuickSpecs for additional information: [http://h18000.www1.hp.com/products/quickspecs/13078\\_div/13078\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html)

### Additional Options

<b>HP Remote Management</b>	HP LO100i Advanced Pack, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates	530521-B21
<b>NOTE:</b> For additional information, please see the Lights-Out 100i QuickSpecs at <a href="http://www.hp.com/go/lo100">www.hp.com/go/lo100</a>		
<b>HP Insight Software</b>	<b>HP Insight Control for Linux</b>	
	HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic	TC213AAE
	HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates	TC209A
	HP Insight Control for Linux, Media pack (DVD) - No licenses included <b>NOTE:</b> Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.	TC208A
	<b>NOTE:</b> Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: <a href="http://www.hp.com/go/ic-linux">http://www.hp.com/go/ic-linux</a> (click on Download button).	
	<b>NOTE:</b> Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.	
	<b>NOTE:</b> Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.	
	<b>NOTE:</b> For additional License Kits, including electronic licensing options, please see the QuickSpecs at:	
	<a href="http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html">http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html</a>	
	<b>HP Insight Control server deployment</b>	
	HP Insight Control server deployment, Electronic License including 1 year of 24x7 Technical Support and Updates	T9082AAE
	<b>NOTE:</b> Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.	
	<b>NOTE:</b> Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.	
	<b>NOTE:</b> Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	
	<b>NOTE:</b> Licenses ship without media. The Insight Software Media Kit can be ordered separately, or can be downloaded at:	
	<a href="http://www.hp.com/go/insightcontrol">http://www.hp.com/go/insightcontrol</a> (click on Download button).	
	<b>NOTE:</b> For additional license options please see the Insight Control QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html">http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html</a>	
<b>HP Graphics Options</b>	HP DL170h Graphics Brkt/Cable Kit <b>NOTE:</b> This option must be ordered if an NVIDIA FX5800 is installed in a full-height 2 slot riser. The FX5800 can only be installed in the 2 slot riser option: HP DL170h I/O Riser PCIe x16 x8 FIO option, part number 512481-B21.	536860-B21
<b>HP Security - TPM</b>	HP Trusted Platform Module Option Kit	488069-B21

### Additional Options

#### HP Storage Controllers HP Smart Array P800 Controller

HP Smart Array P800/512 BBWC Controller 381513-B21

#### HP Smart Array P212 Controller

HP Smart Array P212/256MB Controller 462834-B21

HP Smart Array P212/Zero Memory Controller 462828-B21

#### HP Smart Array P410 Controller

HP Smart Array P410/256MB Controller 462862-B21

HP Smart Array P410/512MB with BBWC 462864-B21

HP Smart Array P410/512MB with FBWC 578230-B21

HP Smart Array P410/1G with FBWC 572532-B21

#### HP Smart Array P411 Controller

HP Smart Array P411/256MB Controller 462830-B21

HP Smart Array P411/512MB BBWC 462832-B21

HP Smart Array P411/512MB Flash Backed Write Cache 578229-B21

HP Smart Array P411/1G Flash Backed Write Cache 572531-B21

#### Smart Array P812 Controller

HP Smart Array P812/1G Flash Backed Cache Controller 487204-B21

#### Optional Upgrades

256 MB Cache Module 462968-B21

**NOTE:** Supported on HP Smart Array P212 Controller only.

512MB BBWC 462967-B21

HP 8484 to Mini SAS 33in Cable Assy 591734-B21

Battery Kit upgrade 462969-B21

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

**NOTE:** Requires 256 MB Cache Module. When used with the embedded HP Smart Array P410i controller, this battery module also requires a 24 inch SFP Battery Cable (496029-B21).

512MB Flash Backed Write Cache 534916-B21

1G Flash Backed Write Cache 534562-B21

HP Smart Array Hot Plug Advance Pack for B110i w/1yr 24x7 Supp Physical 1 Svr LTU TC421A

**NOTE:** Please see the QuickSpecs for Technical Specifications and 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)

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

[http://h18000.www1.hp.com/products/quickspecs/13201\\_div/13201\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html)  
(Smart Array P410 Controller)

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

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

#### SCSI HBA

HP SC11Xe Host Bus Adapter 412911-B21

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

[http://h18000.www1.hp.com/products/quickspecs/12566\\_div/12566\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html)  
(SCSI HBA)



### Additional Options

#### HP Disk Storage Systems

##### MSA SAN Storage Arrays

HP StorageWorks 60 Modular Smart Array 418408-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 QuickSpecs for Technical Specifications and additional information:

[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 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 QuickSpecs for Technical Specifications and additional information:

[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)

##### Disk Enclosures

HP StorageWorks D2700 Disk Enclosure AJ941A

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

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

#### HP StorageWorks Options

##### StorageWorks Fibre Channel HBA

**NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:

<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

##### Emulex Fibre Channel HBAs

HP StorageWorks 81E PCI-e FC HBA Single Port AJ762A

HP StorageWorks 82E PCI-e FC HBA Dual Port AJ763A

HP StorageWorks FC2142 4Gb PCI-e HBA A8002A

HP StorageWorks FC2242 Dual Channel 4Gb PCI-e HBA A8003A

##### QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e FC HBA Single Port AK344A

HP StorageWorks 82Q PCI-e FC HBA Dual Port AJ764A

HP StorageWorks FC1142 4Gb PCI-e HBA AE311A

HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA AE312A

##### StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter AH627A

**NOTE:** Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.

#### HP Uninterruptible Power Systems

##### HP Rack-mountable UPS

##### HP Rack-Mountable R5500 UPS

HP R5500 VA UPS, INTL AF416A

HP R5500 VA UPS, NA/JPN AF426A

##### HP R/T3000 Uninterruptible Power System (UPS)

HP R/T3000 UPS, High voltage, NA/JPN AF453A

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

**NOTE:** Additional HP Uninterruptible Power Systems (UPS) are available for this equipment. For information on all HP UPSs and accessories please go to:

[www.hp.com/products/ups](http://www.hp.com/products/ups) (Worldwide)

**NOTE:** For additional information on sizing your HP UPS, please reference:

<http://www.upssizer.com>

### Additional Options

<b>HP Power Distribution Units</b>	<b>HP Monitored Power Distribution Unit: Half Rack Version</b>	
	HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A (NA/JPN)	AF914A
	HP 7.3 kVA S132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF915A
	<b>HP Monitored Power Distribution Unit: Full Rack Version</b>	
	HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A (NA/JPN)	AF504A
	HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A (NA/JPN)	AF506A
	HP 11 kVA S1316 Monitored PDU- single input, 3Ø, 16A (INTL)	AF508A
	HP 7.3 kVA S1132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF510A
	<b>NOTE:</b> Please see the following QuickSpecs for additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html">http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html</a> (Worldwide)	
	<b>Modular Power Distribution Units 1U/0U (Up to 32 outlets)</b>	
<b>NOTE:</b> 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).		
HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan)	252663-D72	
8.3kVA Model - mPDU, 40A, High (power cord attached) (NA/JPN)	252663-D73	
HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l)	252663-B31	
HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW)	252663-B24	
<b>NOTE:</b> This PDU has a detachable input power cord and allows for adaptability to country specific power requirements.		
<b>NOTE:</b> Please see the following QuickSpecs for additional options including shorter jumper cables and country specific power cords: <a href="http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html">http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html</a> (Worldwide)		
<b>NOTE:</b> For additional information on HP Power Distribution Units including accessories please go to: <a href="http://www.hp.com/go/pdu">www.hp.com/go/pdu</a> .		

<b>HP Rack Series</b>	<b>HP Rack 10000 G2 Series</b> (Carbon/Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	<b>NOTE:</b> It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	<b>NOTE:</b> Please see the QuickSpecs for additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html">http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html</a> (Worldwide)	
<b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a> .		

<b>HP Rack Options</b>	<b>HP Server Console Switches</b>	
	HP Server console switch 0x2x8	AF616A
	HP Server console switch 0x2x16	AF617A
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html">http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html</a> (Worldwide)	
	<b>HP Server Console Switch G2 with Virtual Media &amp; CAC</b>	
	0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC	AF618A
	0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC	AF619A
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html">http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html</a> (Worldwide)	
	<b>HP IP Console Switch G2 with Virtual Media &amp; CAC</b>	
	1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC	AF620A
2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC	AF621A	
4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC	AF622A	
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html">http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html</a> (Worldwide)		

### Additional Options

---

#### HP USB and SD Options

HP USB-P/S2 Mouse	DC369A
HP USB 04 Standard Keyboard	DT528A#ABA
HP 2GB USB Flash Media Drive Key	608447-B21

**NOTE:** HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to [HP VMware Getting Started Guide](#) for installation instructions.

---

#### HP Care Pack Services Hardware Services 4-Hour On-site Service

13-Hour x 5-Day Coverage, 3 Years, Electronic	UM828E
24-Hour x 7 Day Coverage, 3 Years, Electronic	UM829E

#### Hardware Services Next Business Day On-Site Service

9-Hour x 5-Day Coverage, 3 Years, Electronic	UM827E
--	--------

#### Hardware Services 6-Hour Call to Repair On-Site Service

Hardware Installation, Electronic	UM857E
HP LO100i Advanced Pack 3 year 24x7 Software Support	UM748E

**NOTE:** For more information, customer/resellers can contact: <http://www.hp.com/services/carepack>

### Memory

#### HP ProLiant DL170h G6 Server

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

#### Standard Memory

6GB (3 x 2GB)/server node, PC3-10600E Unregistered DIMM memory, with ECC

#### Maximum Memory

Up to 192GB, using PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 2 DIMMs per Channel in 12 slots

Up to 48GB, using PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1333MHz when fully populated at 2 DIMMs per Channel in 12 slots

**NOTE:** RDIMMs and UDIMMs cannot be in the same system so the maximum RDIMM memory configuration can only be achieved with BTO models by replacing all of the UDIMMs.

**NOTE:** Chart does not represent all possible memory configurations.

#### DDR3 memory population guidelines

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

[www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator)

- Some DIMM installation guidelines are summarized below:
- For servers with sixteen (16) memory slots
- There are three (3) channels per processor; six (6) channels per server
- There are two (3) DIMM slots for two memory channels and one (2) DIMM slots for one memory channel; sixteen (16) total slots
- Memory channel 1 consists of the two (2) DIMM slots that are closest to the processor
- Memory channels 2 and 3 consist of the six (6) DIMM slots that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- You can only have up to eight (8) ranks installed per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3,6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- If mixing DIMM voltage is a requirement, please note that the DIMMs will run at 1.5V since all 1.35V are capable of supporting 1.5V operations.

DIMM Type ->	Registered DIMMs (RDIMMs)						Unbuffered with ECC DIMMs (UDIMMs)			
	Single Rank (1R)	Dual Rank (2R)			Quad Rank (4R)		Single Rank (1R)	Dual Rank (2R)		
DIMM Capacity ->	4GB	2GB	4GB	8GB	8GB	4GB	16GB	1GB	2GB	4GB
DIMM Native Speed (MHz) ->	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
Voltage	LV/Reg	Reg	Reg	Reg	LV/Reg	Reg	Reg	Reg	Reg	LV/Reg
<b>SLOTS THAT CAN BE POPULATED</b>										
16 slot servers	16	16	16	16	16	12	12	12	12	12
<b>MAXIMUM MEMORY CAPACITY (GB)</b>										
16 slot servers	64	32	64	128	128	48	192	12	24	48
<b>POPULATED DIMM SPEED (MHz)</b>										
1 DIMM Per Channel	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
2 DIMMs Per Channel	1333*	1333*	1333*	1066	1333*	800	800	1066	1066	1333*
3 DIMMs Per Channel (on 2 channels)	800	800	800	800	800	N/A	N/A	N/A	N/A	N/A

\*supported with ROM update via ROM Based Setup Utility (RBSU)

#### NOTES:

- PC3-10600 DIMMs have a maximum speed of 1333MHz. PC3-8500 DIMMs have a maximum speed of 1066MHz



### Memory

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

#### DIMM slot and configuration diagrams

##### Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc. Channel 1 is channel furthest away from the CPU and Channel 3 is channel closest to CPU.

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

##### Standard memory configuration (1 CPU model)

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

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

##### Standard memory plus optional memory (1 CPU model)

- 12GB, consisting of three (3) 2GB UDIMMs plus three (3) 2GB UDIMMs
  - 6x 2GB dual-rank PC3-10600E UDIMMs

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

##### Standard memory replaced with optional memory (1 CPU model)

##### RDIMM maximum configuration

- 96GB, consisting of six (6) 16GB quad-rank PC3-8500 RDIMMs

### Memory

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

### Standard memory replaced with optional memory (2 CPU model)

#### RDIMM maximum configuration

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

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

#### UDIMM maximum configuration

- 48GB, consisting of twelve (12) 2GB dual-rank PC3-10600 UDIMMs

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

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

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

### Memory

Following are memory options available from HP:

#### HP Memory

#### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21
<b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	516423-B21
HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
<b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	

#### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** Maximum 12 DIMMs supported per node.

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21

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

**NOTE:** Kits described as LV include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: [www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient)

**NOTE:** PC3L is a low voltage memory.

**NOTE:** There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)

**NOTE:** Memory Min and Max depends on number of processors and type of memory:

1 Processor -> R-Dimm: Min 1 // Max 8 U-Dimm: Min 1 // Max 6

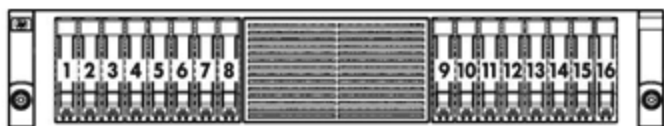
2 Processors -> R-Dimm: Min 2 // Max 16 U-Dimm: Min 2 // Max 12

### Storage

1-8 Eight 3.5" Hot-plug SAS/SATA hard drive bays



1-16 Sixteen 2.5" Hot-plug SAS/SATA hard drive bays



### Drive Support

#### Removable Media

	Quantity Supported	Position Supported	Controller
DVD-ROM	Up to 2 per node	External	USB
DVD/CD RW	Up to 2 per node	External	USB

#### Hard Drives

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

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

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

	Quantity Supported	Position Supported	Controller
300GB 3G SAS 10K DP	16	1-16	HP Smart Array P212/Zero Memory Controller
300GB 6G SAS 10K DP			HP Smart Array P212/256 MB Controller
146GB 6G SAS 15K DP			HP Smart Array P410/256 MB Controller
146GB 3G SAS 15K DP			HP Smart Array P410/512 MB BBWC Controller
146GB 6G SAS 10K DP			
146GB 3G SAS 10K DP			
72GB 6G SAS 15K DP			
72GB 3G SAS 15K DP			

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

	Quantity Supported	Position Supported	Controller
600GB 6G 15K	Up to 8	1-8	HP Smart Array P212/Zero Memory Controller
450GB 3G 15K			HP Smart Array P212/256 MB Controller
450GB 6G 15K			HP Smart Array P410/256 MB Controller
300GB 6G 15K			HP Smart Array P410/512 MB BBWC Controller
300GB 3G 15K			
146GB 3G 15K			

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

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K	Up to 16	1-16	HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller

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



### Storage

	Quantity Supported	Position Supported	Controller
1TB 3G 7.2K	Up to 8	1-8	HP Smart Array P212/Zero Memory Controller
750 3G 7.2K			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller

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

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	16	1-16	Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
160GB 3G SATA 7.2K			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller

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

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K	Up to 8	1-8	Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
1TB 3G SATA 7.2K			HP Smart Array P212/Zero Memory Controller
500GB 3G SATA 7.2K			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
	HP Smart Array P410/512 MB BBWC Controller		

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

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K	Up to 8	1-8	Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
160GB 3G SATA 7.2K			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller

#### SATA Hot Plug Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
120GB 3.0G SATA SSD	16	1-16	Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
60GB 3.0G SATA SSD			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller

#### SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
120GB 3.0G SATA SSD	Up to 8	1-8	Embedded HP Smart Array Hot Plug Advanced Pack for B110i (RAID 0, 1, 10)
60GB 3.0G SATA SSD			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller

### Storage

#### External Storage

	<b>Quantity Supported</b>	<b>Position Supported</b>	<b>Controller</b>
60 Modular Smart Array	Up to 8	External	HP Smart Array P800/512 BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller
	Up to 4	External	HP Smart Array P212/ 256 MB Controller
70 Modular Smart Array	Up to 4	External	HP Smart Array P800/512 BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller
	Up to 2	External	HP Smart Array P212/ 256 MB Controller

### Power Specifications

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

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

HP 750W CS Platinum Power Supply Kit							
Part Number	593831-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	750	750	750	750	750	750	750
Nominal Input Current ( A rms )	8.6	7.1	4.2	4.0	3.8	3.6	3.4
Maximum Rated Input Wattage Rating ( Watts )	841	828	809	808	807	806	805
Maximum Rated VA ( Volt-Amp )	863	850	830	829	828	827	826
Efficiency ( % )	89.2	90.6	92.7	92.8	93	93.1	93.2
Power Factor	0.985						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	2868	2825	2761	2757	2753	2749	2747

### Power Specifications

HP 1200W CS Platinum Power Supply Kit							
Part Number	578322-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	800	900	1200	1200	1200	1200	1200
Nominal Input Current ( A rms )	9.3	8.6	6.7	6.5	6.1	5.8	5.6
Maximum Rated Input Wattage Rating ( Watts )	889	989	1290	1290	1290	1290	1290
Maximum Rated VA ( Volt-Amp )	927	1031	1345	1345	1345	1345	1345
Efficiency ( % )	90	91	93	93	93	93	93
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	10						
Maximum British Thermal Unit Rating ( BTU-Hr )	3033	3375	4403	4403	4403	4403	4403

HP 1200W CS HE Power Supply Kit							
Part Number	500172-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	800	900	1200	1200	1200	1200	1200
Nominal Input Current ( A rms )	9.7	9.0	7.0	6.8	6.4	6.1	5.9
Maximum Rated Input Wattage Rating ( Watts )	930	1034	1348	1348	1348	1348	1348
Maximum Rated VA ( Volt-Amp )	970	1079	1406	1406	1406	1406	1406
Efficiency ( % )	86	87	89	89	89	89	89
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	3174	3530	4600	4600	4600	4600	4600

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

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: HP ProLiant DL1000 G6
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

### System Specifications

Power		
ProLiant DL170h G6 Fully Configured	115V/60Hz	220V/50Hz
Fully Loaded System Input Wattage (W)	651	638
Fully Loaded System Input Current (A rms)	5.7	3.0
Fully Loaded System Thermal (BTU- Hr)	2218	2174
Fully Loaded System VA (Volt-Amp)	657	657
System Leakage with all power supplies loaded (mA)	1.58	3.03
System Inrush Current with all power supplies loaded (A)	19	37
Power cord requirements	Nema 5-15P to IEC320-C13	IEC320-C13 to IEC320-C14
<b>NOTE:</b> Power shown is for a fully configured system consisting of (2) CPUs, (16) DIMMs, (2) HDDs, and (1) PCI card per node.		
Power Cord		AF556A

#### Server Power Cords

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

**NOTE:** ProLiant DL servers are primarily connected to PDU's in data center racks so they ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

**NOTE:** Japan BTO and CTO configurations get the 6' 416151-291 power cord in addition. China BTO and CTO configurations get the 6' 416151-AA1 power cord in addition.

**NOTE:** If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix:

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

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D) 3.44 x 17.64 x 28.91 in (8.74 x 44.81 x 73.43 cm) (with bezel)							
	<b>Weight</b> (approximate)							
	<table border="0"> <tr> <td style="padding-right: 20px;">Maximum</td> <td>72.00 lb (32.7 kg)</td> </tr> <tr> <td colspan="2">(all hard drives, power supplies, and processors installed)</td> </tr> <tr> <td style="padding-right: 20px;">Minimum</td> <td>40.00 lb (18.2 kg)</td> </tr> <tr> <td colspan="2">(one hard drive, power supply, and processor installed)</td> </tr> </table>	Maximum	72.00 lb (32.7 kg)	(all hard drives, power supplies, and processors installed)		Minimum	40.00 lb (18.2 kg)	(one hard drive, power supply, and processor installed)
Maximum	72.00 lb (32.7 kg)							
(all hard drives, power supplies, and processors installed)								
Minimum	40.00 lb (18.2 kg)							
(one hard drive, power supply, and processor installed)								
	<b>Input Requirements</b> (per power supply)							
	Rated Line Voltage	90 to 140 VAC 180 to 264 VAC						
	Rated Input Current	7.31A at 115VAC 3.6A at 230VAC						
	Rated Input Frequency	47 to 63 Hz						
	Rated Input Power	855W (at 100 VAC), 840.72W (at 200 VAC)						
	<b>Power Specifications</b>	<b>NOTE:</b> To review typical system power ratings use the HP Power Advisor which is available online located at url: <a href="http://www.hp.com/go/proliant-energy-efficient">www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a>						
	<b>Power Supply Output</b> (per power supply)	Rated Steady-State Power 653.10W (at 100 VAC), 653.08W (at 200 VAC)						
	<b>System Inlet Temperature</b>	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 40° to 140° F (-40° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).						
	<b>Relative Humidity</b> (non-condensing)	Operating 10% to 85% relative humidity (Rh), 82.4°F (28°C) maximum wet bulb temperature, non-condensing. Non-operating 10% to 95% relative humidity (Rh), 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing.						
	<b>Altitude</b>	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).						
	<b>Acoustic Noise</b>	Listed are the declared A-Weighted sound power levels ( $L_{WA,d}$ ) and declared average bystander position A-Weighted sound pressure levels ( $L_{pA,m}$ ) 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> $L_{WA,d}$ 7.3 $L_{pA,m}$ 55dBA <b>Operating</b> $L_{WA,d}$ 7.3 $L_{pA,m}$ 55dBA						
	<b>Emissions Classification (EMC)</b>	FCC Rating Class A Normative Standards CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1						

### Technical Specifications

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

<b>HP Smart Array B110i SATA RAID Controller</b>	<b>Simultaneous drive transfer channels</b>	4 channels
	<b>Transfer rate synchronous</b> (maximum theoretical)	1.5 Gb/s
	<b>Data transfer method</b>	Intel® ICH10R
	<b>Drive support</b>	Serial ATA
	<b>Data transfer modes</b>	Legacy Mode Combined Mode
	<b>Protocol</b>	Serial ATA
	<b>Feature</b>	NCQ (Native Command Queuing); AHCI (Advanced Host Controller Interface)
	<b>RAID levels supported</b>	0, 1, 10
	<b>RAID Features</b>	Supports multiple logical volumes Setup through ROM based Array Configuration Utility Installation scripting support <b>NOTE:</b> Hot-Plug functions require the purchase of the HP Smart Array Hot Plug Advance Pack for B110i.
	<b>RAID OS Support</b>	Microsoft Windows Server 2003 x32 and x64 Editions Microsoft Windows Server 2008 x32 and x64 Editions. Red Hat Enterprise Linux 4 (x86) Red Hat Enterprise Linux 5 (x86) Red Hat Enterprise Linux 5 (AMD64/EM64T) SUSE Linux Enterprise Server 10 (x86) SUSE Linux Enterprise Server 10 (AMD64/EM64T) SUSE Linux Enterprise Server 11 (x86) SUSE Linux Enterprise Server 11 (AMD64/EM64T)

<b>Embedded NC362i PCIe Gigabit Server Adapter</b>	<b>Network Interface</b>	Integrated 10/100/1000BASE-T Transceiver Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
	<b>Data Transfer Method</b>	Compliant to x4 PCIe Specification	
	<b>Controller</b>	Intel® 82576	
	<b>Network Transfer Rate</b>	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
	1000Base-TX (Half and Full-Duplex)	2000Mb/s	
<b>Connector</b>	RJ-45 connector		
<b>Cable Support</b>	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UTP		

<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 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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> . These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

### *Technical Specifications*

© Copyright 2010 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice.

Microsoft and Windows NT are US registered trademarks of Microsoft Corporation. Intel, the Intel logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

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