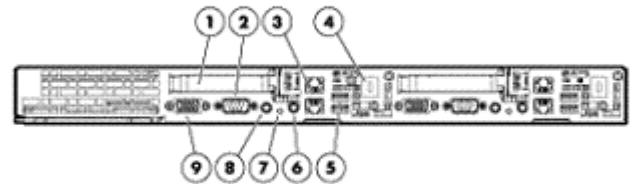
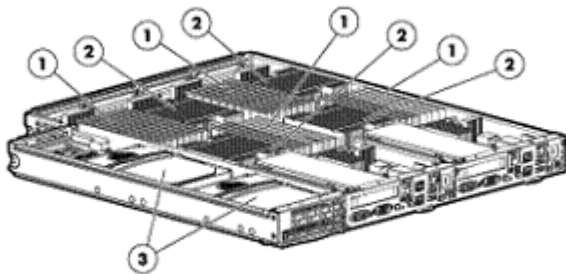


Overview

The HP ProLiant SL2x170z is part of a new family, HP ProLiant SL6000, of HP server solutions optimized for scale-out customers to greatly reduce costs, maximize power efficiency, and maintain total flexibility. The HP ProLiant SL2x170z G6 Server is designed for maximum compute density. Each SL2x170z system board is a two socket Intel server with 16 DDR3 DIMM sockets.

NOTE: The SL2x170 include two (2) SL170 system boards per tray. The following information is for each system board.



Open View:

1. 16 DDR3 DIMM slots
2. Up to two Intel® Quad-Core 5500 sequence processors
3. Two 3.5" (1 per server) or four 2.5" (2 per server) non-hot plug hard drives using a quick release drive carrier

Front View:

1. Optional low profile x16 PCI-e Gen 2
2. Serial Port
3. (2) 1Gbit NIC
4. Optional Dedicated Management port
5. (2) USB Ports
6. Power Button
7. Health LED
8. UID
9. Video Port

What's New

- Support for up to two Intel® 5600 sequence processors
- Support for Low-voltage memory

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 Processor

Intel® Xeon® Processor X5680 (3.33 GHz, 12MB L3 Cache, 130W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)

Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)

Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)

Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)

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 E5630 (2.53 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor L5640 (2.40 GHz, 12MB L3 Cache, 60W, DDR3-1066, HT, Turbo 2/2/3/3/4/4)

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

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)

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)

Dual Core Processors

Intel® Xeon® Processor E5503 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)

Intel® Xeon® Processor E5502 (1.86 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 5500 and 5600 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.

Cache Memory

One of the following depending on Model

12MB (1 x 12MB) Level 3 cache

NOTE: All 5600 sequence processor models.

8MB (1 x 8MB) Level 3 cache

NOTE: All processor models except for those identified below.

4MB (1 x 4MB) Level 3 cache

NOTE: For processors L5506, E5504, E5506, E5503 and E5502.

Standard Features

Chipset

Intel® 5520 Chipset

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

Upgradeability

Upgradeable to two processors

Memory Protection

Advanced memory protection

Memory

Type	DDR3 Registered (RDIMM) or Unbuffered (UDIMM)
Standard (per server tray)	6GB (3 x 2 GB) UDIMMs
Maximum (RDIMM) (per server tray)	192GB (12 x 16GB) for Registered Memory configurations using PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated in 12 slots
Maximum (UDIMM) (per server tray)	48GB (12 x 4GB) for Unbuffered Memory configurations using PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots

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

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.

Network Controller

HP NC362i Integrated Dual Port Gigabit Server Adapter

Expansion Slots

NOTE: One available PCI Express Gen 2.0 slots. Optional Slot 1: Low profile x16 PCI-Express 2.0.

Expansion Slots #	Technology	Bus Width**	Connector Width	Form Factor	Notes
1	PCI-Express 2.0	x16	x16	Low Profile	3.3 volts

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

Storage Controller

HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10) per server node

NOTE: To enable RAID on Embedded SATA, 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.

NOTE: Transfer rate: 3.0 Gb/s SATA.

NOTE: A HP Smart Array controller is required for SAS Hard Drives

NOTE: 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.

Standard Features

Storage	Diskette Drives	Via USB only
	Optical Drives	DVD / CD drives via USB only
	Hard Drives	None ship standard
	Drive Bays	Up to two 3.5" non-hot plug Serial ATA (SATA) or Serial Attached SCSI (SAS) hard drives using a quick release drive carrier (1 per server) Up to four 2.5" non-hot plug Serial ATA (SATA), Serial Attached SCSI (SAS), or Solid State Drive (SSD) hard drives using a quick release drive carrier and the SFF drive cage (2 per server)

Maximum Internal Storage	Non-Hot Plug SATA 3.5"	4.0TB	2 x 4TB (1 drive for each system board)
	Non-Hot Plug SAS 3.5"	4.0TB	2 x 2TB (1 drive for each system board)
	Non-Hot Plug SATA 2.5"	2TB	4 x 500GB (2 drives for each system board)
	Non-Hot Plug SAS 2.5"	1.2TB	4 x 300GB (2 drives for each system board)
	Non-Hot Plug SSD 2.5"	480GB	4 x 120GB (2 drives for each system board)

Interfaces	Serial	1
	Parallel	None
	Network RJ-45	2 10/100/1000 NIC ports (1 NIC shared for the HP ProLiant Lights Out 100i Remote Management)
	Graphics	1
	Management	1 Optional Dedicated LO100i Management Port
	Health LED	1 front per server node
	Power	1 front per server node
	UID	1 front per server node
	USB	3 (two front, one internal)
		NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html .

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

Server Power Cords	One 6' Highline (IEC-IEC) power cord ships standard
	NOTE: HP ProLiant SL 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 SL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

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>.

Standard Features

Common Slot Power Supplies

HP has a new design for ProLiant power-supplies. The new Common Slot (CS) Power Supply 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 or are compatible with high-efficiency power without degrading performance of the ProLiant server. Power Supplies have efficiency ratings up to 94%. There are five right size power options to choose from 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/hppoweradvisor. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant.

It is highly recommended that you use the HP Power Calculator in defining the "Right-Size" power supply for your needs.

The HP ProLiant Common Slot Power supplies meet multiple Energy Efficiency Initiatives: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD for the 460w and 750w Power Supplies and Climate Savers Computing Initiative PLATINUM, ECOS Consulting 80PLUS PLATINUM for 1200w Power Supply. HP worked with the EPA on developing an ENERGY STAR Computer Server specification and we now offer models that meet the requirements. Please visit the ENERGY STAR website at: www.energystar.gov for a list of qualified platforms.

Optional power supplies can be purchased through power supply option kits (see Power Supply Options for part numbers).

System Fans

4 system fans ship standard in z6000 chassis - N+1 redundant

Required Cabling

For required cabling information, refer to the HP Web site at: www.hp.com/servers/s2x170z.

Operating Systems and Virtualization Software Support for ProLiant Servers

[Microsoft Windows Server](#)
[Microsoft Windows Server Hyper-V](#)
[Microsoft HPC Server 2008](#)
[Red Hat Enterprise Linux \(RHEL\)](#)
[SUSE Linux Enterprise Server \(SLES\)](#)
[Solaris](#)
[VMware ESX](#)
[Citrix Essentials for 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 including how to purchase from HP, please visit our OS Support Site at: <http://www.hp.com/go/ossupport> and our driver download page <http://www.hp.com/support/SL2x170zG6>.

Graphics

32MB shared supporting 1600x1200x16M resolution

Form Factor

HP ProLiant z6000 G6 Chassis - 2U Chassis can support up to two SL2x170z server trays in the 2U chassis. This equals a total of four (4) SL170 system boards
HP ProLiant SL2x170z G6 Server - 1U server tray with two (2) SL170 system boards

Standard Features

Embedded Manageability

HP LO100 Advanced

HP Lights-Out 100 with Optional LO100 Advanced Licenses for Virtual KVM and Virtual Media.

Standard Features:

- Embedded IPMI standard reporting
- System event log access
- Remote Serial console (serial redirection)
- Browser, Telnet access
- SMASH-CLP compliant
- IPMI 2.0 compliant
- DCMI 1.0 compliant
- Secure Socket Layer Encryption
- Secure Shell Encryption

Licensed Features

- Virtual media (Floppy, CD, USB 2.0) with Advanced License
- Virtual KVM with Advanced License

Security

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

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.

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>.

Optional Features

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.

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>

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.

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

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

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

Optional Features

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.
SmartStart Scripting Toolkit (SSSTK)	<p>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.</p> <p>The Toolkit is designed for IT experts with experience in scripting operating system installations and configuring ProLiant server hardware.</p> <p>For additional information, please see: http://h18004.www1.hp.com/products/servers/management/toolkit/index.html</p>
ROMPak, software and latest drivers	<p>The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options; downloaded from Software and Drivers download pages website at: http://www.hp.com/go/support and from www.hp.com/servers/easysetup. Contains the following:</p> <ul style="list-style-type: none"> • 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

High Performance Clusters

HP Cluster Platforms	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and Novell SLES, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters
HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
HP Cluster Management Utility	HP Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used to manage large-scale Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmu
HP HPC Linux Value Pack	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported specially priced software bundle for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform HPC Enterprise Edition suite of tools including the LSF workload scheduler, the HP-MPI parallelization library. Also included are the HP Unified Parallel C compiler and the HP Shmem library, as well as the execution environments for the libraries and compiler. HP HPC Linux Value Pack

Optional Features

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>

Service and Support

NOTE: HP Care Pack services are offered at enclosure level only.

Service and Support **HP Technology Services for Industry Standard Servers and BladeSystem**

Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

What HP ProLiant and BladeSystem Services can do for you

HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs.

HP Technology Services meets business challenges with services offered in three packages - **Optimized Care Package, Standard Care Package, and Basic Care Package** - available for each product group. Such packaged solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support packages for servers, storage, networking and software.

Optimized Care

Optimized Care Package: Supports maintaining servers at optimum performance availability

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

HP Installation and Startup for Insight Control Software

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

3-Year HP Critical Advantage

Provides end-to-end infrastructure support solution for business critical applications running on virtualized/x86 infrastructures, enabling the customers to cost effectively build, operate, and continuously improve their IT environment

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA3-1772ENW>

Additional Services: Data Center Transformation Service

Service and Support

Standard Care

Standard Care Package: Package that maintains high level of server availability

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

HP Installation and Startup for Insight Control Software

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service

Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN>

3-Year , HP 24x7 Software Support for Insight Control

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEEE.pdf>

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); Microsoft or Linux or VMware education courses; +60 Proactive Select Credits

Basic Care

Basic Care Package: delivers minimum recommended support service level

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

HP Installation and Startup for Insight Control Software

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

3-Year , HP 24x7 Software Support for Insight Control

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEEE.pdf>

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); +30 Proactive Select Credits, Factory Express

Service and Support

Insight Remote Support The packages include HP Insight Remote Support that uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. It is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers.

For more information To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: <http://www.hp.com/services/proliant>

Pre-configured Models

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

NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.

NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.

NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

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

Non-Hot Plug Serial ATA (SATA) Model

NOTE: Non-Hot Plug models are not upgradeable to Hot Plug.

NOTE: A rail kit is not included in model - this allows for the purchase of the right size rail kit.

NOTE: This Model includes two HP ProLiant SL2x170z Server trays. Each server tray includes two SL170 system boards. Specs below represent configuration of each system board.

<p>HP ProLiant SL2x170z G6 2 Trays 4xL5520 12x2GB Rack Server 539610-xx1</p>	<p>Processor(s)</p> <p>Cache Memory</p> <p>Memory</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Hard Drive</p> <p>Internal Storage</p> <p>Power Supply</p> <p>Fans</p> <p>Form Factor</p> <p>Warranty</p>	<p>(1) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)</p> <p>8MB shared L3 cache</p> <p>6GB (3 x 2GB) PC3-10600E (UDIMM)/Server tray</p> <p>HP NC362i Integrated Dual Port Gigabit Server Adapter</p> <p>Embedded Smart Array B110i SATA RAID 0, 1, 10</p> <p>Optional SATA</p> <p>Up to 1 large form factor Non-Hot Plug drives using quick release carrier</p> <p>750W</p> <p>4 system fans ship standard in z6000 chassis - N+1 redundant</p> <p>One HP ProLiant z6000 G6 Chassis Two HP ProLiant SL2x170z G6 Server</p> <p>Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response.</p>
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Country Code Key	<p>xx=00</p> <p>xx=29</p> <p>xx=37</p> <p>xx=42</p> <p>xx=AA</p>	<p>U.S.</p> <p>Japan</p> <p>AP</p> <p>Euro</p> <p>PRC</p>
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Configuration Information - Factory Integrated Models

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

NOTE: Configure-to-order (CTO) servers must start with a CTO Chassis.

NOTE: FIO indicates that this option is only available as a factory installable option.

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

HP Chassis	HP ProLiant z6000 G6 2U Configure-to-order Chassis NOTE: Ships with 2U chassis and 4 fans.	538080-B21
HP Server Nodes	HP ProLiant SL2x170z G6 Board 1 Configure-to-order Server HP ProLiant SL2x170z G6 Board 2 Configure-to-order Server NOTE: It is required that 2 server trays are purchased - The purchase of board 1 and 2 equals one server tray. NOTE: Must select quantity 2 of both Server Node part numbers.	570149-B21 570150-B21
HP Rail Kits	HP ProLiant z6000 G6 2U rail kit NOTE: 2U rail kit used for HP or 3rd part racks - allows addition of one z6000 chassis at a time. HP ProLiant z6000 G6 10U Bulk rail kit NOTE: 10U rail kit used for HP racks ONLY - allows addition of five z6000 chassis at a time.	570226-B21 570227-B21
HP Power Supplies	NOTE: 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: www.hp.com/go/hppoweradvisor HP 460W Common Slot Gold Hot Plug Power Supply Kit HP 460W Common Slot Platinum Hot Plug Power Supply Kit HP 750W Common Slot Platinum Hot Plug Power Supply Kit HP 750W Common Slot Gold Hot Plug Power Supply Kit HP 1200W Common Slot Silver Hot Plug Power Supply Kit HP 1200W Common Slot Platinum Hot Plug Power Supply Kit	503296-B21 593188-B21 593831-B21 512327-B21 500172-B21 578322-B21

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

HP Processors	NOTE: If 2 processors are desired, select one xxxxx-L21 and one xxxxxx-B21. Six-Core Processors HP SL2x170z G6 Intel® Xeon® X5680 (3.33GHz/6-core/12MB/130W) FIO Processor Kit HP SL2x170z G6 Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W) FIO Processor Kit HP SL2x170z G6 Intel® Xeon® X5660 (2.80GHz/6-core/12MB/95W) FIO Processor Kit HP SL2x170z G6 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) FIO Processor Kit Quad-Core Processors HP SL2x170z G6 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) FIO Processor Kit HP SL2x170z G6 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) FIO Processor Kit HP SL2x170z G6 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) FIO Processor Kit HP SL2x170z G6 Intel® Xeon® L5640 (2.26GHz/6-core/12MB/60W) FIO Processor Kit	592168-L21 592172-L21 592174-L21 592176-L21 592308-L21 592304-L21 592306-L21 592325-L21
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Configuration Information - Factory Integrated Models

HP SL2x170z G6 Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W) FIO Processor Kit	592327-L21
HP SL2x170z G6 Intel® Xeon® X5570 (2.93GHz/4-core/8MB/95W) FIO Processor Kit	570454-L21
HP SL2x170z G6 Intel® Xeon® X5560 (2.80GHz/4-core/8MB/95W) FIO Processor Kit	588193-L21
HP SL2x170z G6 Intel® Xeon® X5550 (2.66GHz/4-core/8MB/95W) FIO Processor Kit	570456-L21
HP SL2x170z G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) FIO Processor Kit	592321-L21

Dual-Core Processors

HP SL2x170z G6 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) FIO Processor Kit	592323-L21
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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 5500 and 5600 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: Existing SL products cannot be upgraded with 130watt processors, new purchase only.

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

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

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

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
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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

Configuration Information - Factory Integrated Models

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: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

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

NOTE: PC3L is a low voltage memory.

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

1. Processor -> R-Dimm: Min 1 // Max 6 U-Dimm: Min 1 // Max 12
2. Processors -> R-Dimm: Min 2 // Max 6 U-Dimm: Min 2 // Max 12

Step 3: Choose Additional Factory Integratable Options

HP Storage Controllers HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller 491191-B21

NOTE: HP P212 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P212 controller (574001-B21)

NOTE: HP z6000 BBWC HDWR KIT is required when adding BBWC (582653-B21)

HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller 462860-B21

NOTE: HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)

HP Smart Array P410/256 2-ports Int PCIe x8 FIO SAS Controller 491195-B21

NOTE: HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)

NOTE: HP z6000 BBWC HDWR KIT is required when adding BBWC (582653-B21)

HP Smart Array P411/256 2-ports Ext PCIe x8 FIO SAS Controller 491193-B21

NOTE: HP z6000 BBWC HDWR KIT is required when adding BBWC (582653-B21)

HP Insight Software HP Insight Control for Linux including 1yr 24x7 Support ML/DL Bundle 1 Server FIO License TC203A

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 integrated. Please contact your local sales representative for additional information.

HP Unique Options	HP I/O Riser x16 SL160/170 G6 KIT	574806-B21
	HP z6000 P410 SAS 4 Hard Drive Power Cable Kit	583997-B21
	NOTE: This is required when adding SAS hard drives using the P410 controller.	
	HP SL160/170 G6 Power Cable Kit	574005-B21
	NOTE: This is needed when adding more than two 2.5" hard drives.	
	HP z6000 Battery Back Write Cache Hardware Kit	582653-B21
	NOTE: This is required when adding BBWC.	
	2 Drive SFF Drive Cage	582657-B21
	NOTE: This is required when adding SFF (2.5") SSD or hard drives.	

HP Processor

Six-Core Processors

HP SL2x170z G6 Intel® Xeon® X5680 (3.33GHz/6-core/12MB/130W) Processor Kit	592168-B21
HP SL2x170z G6 Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W) Processor Kit	592172-B21
HP SL2x170z G6 Intel® Xeon® X5660 (2.80GHz/6-core/12MB/95W) Processor Kit	592174-B21
Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)	592176BL21

Quad-Core Processors

HP SL2x170z G6 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) Processor Kit	592308-B21
HP SL2x170z G6 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) Processor Kit	592304-B21
HP SL2x170z G6 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) Processor Kit	592306-B21
HP SL2x170z G6 Intel® Xeon® L5640 (2.26GHz/6-core/12MB/60W) Processor Kit	592325-B21
HP SL2x170z G6 Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W) Processor Kit	592327-B21
HP SL2x170z G6 Intel® Xeon® X5570 (2.93GHz/4-core/8MB/95W) Processor Kit	570454-B21
HP SL2x170z G6 Intel® Xeon® X5560 (2.80GHz/4-core/8MB/95W) Processor Kit	588193-B21
HP SL2x170z G6 Intel® Xeon® X5550 (2.66GHz/4-core/8MB/95W) Processor Kit	570456-B21
HP SL2x170z G6 Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) Processor Kit	570458-B21
HP SL2x170z G6 Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) Processor Kit	570481-B21
HP SL2x170z G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) Processor Kit	592321-B21
HP SL2x170z G6 Intel® Xeon® E5504 (2.00GHz/4-core/4MB/80W) Processor Kit	570450-B21
HP SL2x170z G6 Intel® Xeon® L5530 (2.40GHz/4-core/8MB/60W) Processor Kit	586603-B21
HP SL2x170z G6 Intel® Xeon® L5520 (2.26GHz/4-core/8MB/60W) Processor Kit	570485-B21
HP SL2x170z G6 Intel® Xeon® L5506 (2.13GHz/4-core/4MB/60W) Processor Kit	570483-B21

Dual-Core Processors

HP SL2x170z G6 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) Processor Kit	592323-B21
HP SL2x170z G6 Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) Processor Kit	571707-B21

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 5500 and 5600 Series, the letter preceding the model number

Core Options

indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.

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

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

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

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit 500666-B21

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.

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.

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

NOTE: PC3L is a low voltage memory.

Core Options

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.

NOTE: The hard drives use a quick release carrier.

NOTE: One 2 Drive SFF Drive Cage (582657-B21) is required when installing 2 SFF drives.

NOTE: When adding SAS one of the following cable kits needs to be ordered depending on which SAS controller installing - HP P212 SAS 4HDD Cable Kit 574001-B21.

SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives - with quick-release (QR) carrier

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive 574758-B21

HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive 585980-B21

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives - with quick-release (QR) carrier

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive 574879-B21

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier

HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Quick-release Dual Port Midline 1yr Warranty Hard Drive 574761-B21

SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives - with quick-release (QR) carrier

HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Entry 1yr Warranty Hard Drive 574021-B21

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier

HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive 574755-B21

HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive 574025-B21

HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive 574023-B21

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier

HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Quick-release Midline 1yr Warranty Hard Drive 574953-B21

HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Quick-release Midline 1yr Warranty Hard Drive 574893-B21

SATA Hot Plug 3.5" Midline (MDL) Solid State Drives - with quick-release (QR)

HP 120GB 3G SATA SFF (2.5-inch) Quick-release Midline 1yr Warranty Solid State Drive 586587-B21

HP 60GB 3G SATA SFF (2.5-inch) Quick-release Midline 1yr Warranty Solid State Drive 586585-B21

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 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: A minimum of two Gigabytes (2 GB) of server memory is required per each NC522SFP 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 NC523SFP 10Gb 2-port Server Adapter	593717-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 .	
HP 10 GbE PCI-e G2 Dual Port NIC	516937-B21

HP InfiniBand

HP IB 4X DDR PCI-e Dual Port 0 Memory HCA	483513-B21
HP IB 4X DDR PCI-e DUAL PORT HCA	448397-B21
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
QLogic 4X QDR IB PCI-e G2 HCA	583211-B21

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html

HP I/O Expansion Options

HP I/O Riser x16 SL160/170 G6 KIT	574806-B21
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HP Power Supplies

NOTE: 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:

www.hp.com/go/hppoweradvisor

CAUTION: In ProLiant Servers that have more than one power slot (bay), only same size power supplies are recommended. If non-matched power supplies are inserted you will get errors and operation will fail.

HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
HP 460W Common Slot Platinum Hot Plug Power Supply Kit	593188-B21
HP 750W Common Slot Platinum Hot Plug Power Supply Kit	593831-B21
HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21
HP 1200W Common Slot Silver Hot Plug Power Supply Kit	500172-B21
HP 1200W Common Slot Platinum Hot Plug Power Supply Kit	578322-B21

NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.

Additional Options

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Insight Software	HP Insight Control for Linux	
	HP Insight Control for Linux including 1yr 24x7 Support Electronic License	TC213AAE
	HP Insight Control for Linux including 1yr 24x7 Support Single Server License	TC209A
	HP Insight Control for Linux Media Kit	TC208A
	NOTE: 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.	
	NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button).	
	NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.	
	NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.	
	NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	

High Performance Clusters	HP Cluster Management Utility	
	HP Cluster Management Utility Compute Node Flexible License	QL803A
	NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.	
	HP Cluster Management Utility License and Media	433257-B21
	NOTE: Order a minimum of one license per cluster to purchase media including software and documentation, which will be delivered to the customer, and also licenses CMU management. No license key is delivered or required.	
	NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html	
	HP HPC Linux Value Pack	
	HP High Performance Computing Linux Value Pack 1 Processor Flexible License	TC293B
	NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.	
	HP High Performance Computing Linux Value Pack Media Kit	TC294A
	NOTE: This part number can be used to purchase media including software and documentation, which will be delivered to the customer.	
	NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html	

HP Rail Options	HP SL Universal Switch Rail Kit	592774-B21
	NOTE: This kit allows you to install HP or 3rd party switch in the same rack as SL6000.	

Additional Options

HP Security - TPM

HP Trusted Platform Module Option Kit

488069-B21

NOTE: 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.

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.

HP Storage Controllers SAS Controllers

Smart Array P212 Controller

NOTE: HP P212 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P212 controller (574001-B21)

HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller

462828-B21

HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller

462834-B21

Smart Array P410 Controller

NOTE: HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)

HP Smart Array P410/256 2-ports Int PCIe x8 SAS Controller

462862-B21

HP Smart Array P410/512 BBWC 2-ports Int PCIe x8 SAS Controller

462864-B21

HP Smart Array P410/512 FBWC 2-ports Int PCIe x8 SAS Controller

578230-B21

HP Smart Array P410/1G FBWC 2-ports Int PCIe x8 SAS Controller

572532-B21

Smart Array P411 Controller

HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller

462830-B21

HP Smart Array P411/512 BBWC 2-ports Ext PCIe x8 SAS Controller

462832-B21

HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller

578229-B21

HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller

572531-B21

Optional Upgrades

NOTE: HP z6000 BBWC HDWR KIT is required when adding BBWC (582653-B21)

HP 2x170 P212 SAS 2 Hard Drive Power Cable Kit

589234-B21

HP SL160/170 G6 Power Cable Kit

574005-B21

HP 256MB P-series Cache Upgrade

462968-B21

NOTE: Supported on HP Smart Array P212 Controller only.

HP 512MB P-Series Battery Backed Write Cache Upgrade

462967-B21

NOTE: Supported on HP Smart Array P410 Controller and HP Smart Array P411 Controller only.

HP 650 mAh P-Series Battery

462969-B21

NOTE: To enable BBWC on the 256MB cache.

NOTE: Supported on HP Smart Array P212 Controller.

HP 1GB Flash Backed Cache

534562-B21

HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License

516471-B21

NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.

Additional Options

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

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

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
(Smart Array P410 Controller)

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

http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html
(Smart Array Advanced Pack)

http://h18000.www1.hp.com/products/quickspecs/13495_div/13495_div.html
(Smart Array Hot Plug Advance Pack for B110i)

SCSI HBA

HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter 412911-B21

NOTE: Recommended HBA for SCSI tape drive connect.

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

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

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 8Gb Single Port PCI-e Fibre Channel Host Bus Adapter AJ762A

HP StorageWorks 82E 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter AJ763A

HP StorageWorks FC2142SR 4Gb PCIe Host Bus Adapter A8002A

HP StorageWorks FC2242SR 4Gb PCIe DC Host Bus Adapter A8003A

QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e Fibre Channel Host Bus Adapter AK344A

HP StorageWorks 82Q 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter AJ764A

HP StorageWorks FC1142SR 4Gb PCIe Host Bus Adapter AE311A

HP StorageWorks FC1242SR 4Gb PCIe DC Host Bus Adapter AE312A

StorageWorks SCSI HBA

HP StorageWorks U320e SCSI Dual Channel Host Bus Adapter AH627A

NOTE: Recommended HBA for MSL SCSI Tape Library connect.

StorageWorks Converged Network Adapter

HP CN1000Q 2P Converged Network Adapter BS668A

HP Disk Storage Systems

Disk Enclosures

HP StorageWorks D2600 Disk Enclosure AJ940A

HP StorageWorks D2700 Disk Enclosure AJ941A

NOTE: Please see the QuickSpecs for additional options and configuration information at:

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

Additional Options

HP SL Advanced Power Manager **NOTE:** The SL Advanced Power Manager is an optional rack level solution for the HP ProLiant SL6000 which enables server-level DC (or hardware) power on and off and server-level monitoring. In addition, the SL APM will automatically discover SL hardware components which are connected into the SL APM solution.

NOTE: The SL APM does not replace rack PDUs, but is designed to enable the utilization of basic, low cost, rack PDUs while providing the functionality of 'switched' PDUs which provide hardware power on/off of individual servers by turning off the AC power to the power supplies of a given server. Because the SL servers share power supplies to optimize power efficiency, using 'switched' PDUs to turn off the power supplies in the chassis will result in the loss of all servers in that chassis. The SL APM solves this by allowing server-level hardware power on/off of the DC power to the individual server motherboards.

HP SL Advance Power Manager 538084-B21

HP SL APM Distribution Module 539264-B21

NOTE: Connects up to 10 chassis.

HP SL APM Cable Kit 580212-B21

NOTE: 1 per SL APM Distribution module.

NOTE: 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.

HP Rack Series

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)

HP 10642 G2 Pallet Universal Rack AF001A

HP 10642 G2 Shock Universal Rack AF002A

HP 10642 G2 1200mm deep Shock Rack AF092A

HP 10647 G2 1200mm deep Shock Rack AF094A

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

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

http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

- **NOTE:** HP ProLiant SL2x170z G6 models have two different rail kits to choose from:
- 10U bulk rail kit - Used to fit in HP 10000 series racks
 - One 10U bulk rail kit will hold up to five z6000 chassis, thus ten SL2x170z G6 server trays for a total of twenty system boards
- 2U rail kit - Used to fit in 3rd party racks or to sell one z6000 chassis at a time
 - One 2U rail kit will hold one z6000 chassis, thus two SL2x170z servers for a total of four system boards

For additional information, please visit: www.hp.com/go/rackandpower.

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

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the

Additional Options

required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

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

NOTE: Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.

HP USB and SD Options

HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)
 HP USB 04 Standard Keyboard

DC172B
 DT528A#ABA

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

HP 3y 4h 24x7 ProLiant DL14x/16x HW Supp

U9510E

Hardware Services Next Business Day On-Site Service

HP 3y Nbd ProLiant DL14x/16x HW Supp

U9508E

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

HP Install ProLiant DL14x/16x Service

U9520E

LO100i Advanced Pack

HP LO100i Advanced Pack 3year 24x7 Software Support

UM748E

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

Memory

HP ProLiant SL2x170z G6 Server

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

NOTE: Each server tray includes two SL170 system boards. Specs below represent configuration of each system board.

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

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 channels 1 and 2 consists of the six (6) DIMMs that are furthest from the processor
- Memory channel 3 consists of the two (2) DIMMs that are closest to 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
- 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 slot/capacity/populated speed table										
DIMM Type	Registered DIMMS (RDIMMs)							Unbuffered with ECC DIMMs (UDIMMs)		
DIMM Rank	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
SLOTS THAT CAN BE POPULATED										
18 slot servers	16	16	16	16	16	12	12	12	12	12
MAXIMUM CAPACITY (GB)										
	64	32	64	128	128	48	192	12	24	48
POPULATED DIMM SPEED (MHz)										
1 DIMM Per Channel	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
2 DIMM Per Channel	1333*	1333*	1333*	1066	1333*	800	800	1333	1333	1333*
3 DIMM Per Channel	800	800	800	800	800	n/a	n/a	n/a	n/a	n/a

*Supported at 1333 via setting in ROM based setup utility (RBSU)



Memory

NOTES:

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

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

Memory

	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 eight (6) 16GB dual-rank PC3-8500 RDIMMs

	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 twelve (12) 16GB 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

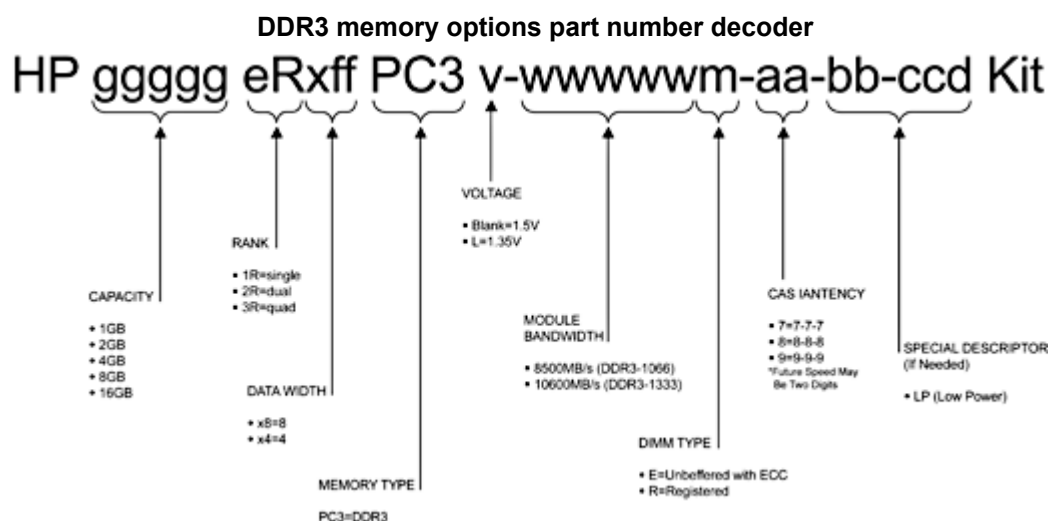
- 48GB, consisting of twelve (12) 4GB dual-rank PC3-10600 UDIMMs

Memory

	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



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

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

Memory

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

NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit 500666-B21

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.

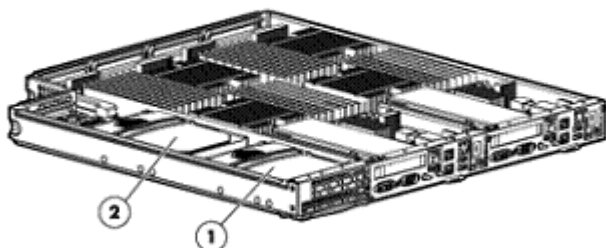
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.

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

NOTE: PC3L is a low voltage memory.

Storage

- 1-2 One 3.5" Non-hot plug hard drive bays - Using quick release carrier for each system board for a total of 2 drives



Drive Support

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.

SATA Entry (ETY) Drives - with Quick Release carrier

	Quantity Supported	Position Supported	Controller
160GB 3G SATA 7.2K 3.5in	Up to 2	1-2	HP Embedded SATA RAID Controller NOTE: Transfer rate: 3 Gb/s SATA.

SATA Midline (MDL) Drives with Quick Release carrier

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K 3.5in	Up to 2	1-2	HP Embedded SATA RAID Controller NOTE: Transfer rate: 3 Gb/s SATA.
1TB 3G SATA 7.2K 3.5in			
500GB 3G SATA 7.2K 3.5in			
500GB 3G SATA 7.2K 2.5in			
160GB 3G SATA 7.2K 2.5in			

SAS Enterprise (ENT) Drives - with quick-release carrier

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K 3.5in	Up to 2	1-2	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller NOTE: HP P212 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P212 controller.
300GB 6G SAS 15K 3.5in			
	Up to 4	1-4	HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller NOTE: HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller.
300GB 6G SAS 10K 2.5in			

Storage

SAS hard drives using the P212 controller.
HP Smart Array P410/256 MB Controller
HP Smart Array P410/512 MB BBWC Controller
NOTE: HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller.

SATA Midline (MDL) Solid State Drives - with quick-release carrier

	Quantity Supported	Position Supported	Controller
120GB 3G SATA 2.5in	Up to 4	1-4	HP Embedded SATA RAID Controller for up to 6 NOTE: Transfer rate: 3 Gb/s SATA.
60GB 3G SATA 2.5in			

External Storage

	Quantity Supported	Position Supported	Controller
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/256 MB Controller
	Up to 4	External	HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB Controller

Power Specifications

HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	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
Max Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Max. Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

HP 460W Common Slot Platinum Hot Plug Power Supply Kit	593188-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.3	4.3	2.5	2.4	2.3	2.2	2.1
Max Rated Input Wattage Rating (Watts)	512	505	493	493	492	492	491
Max. Rated VA (Volt-Amp)	526	518	506	506	505	505	504
Efficiency (%) at Max. Rated Output Wattage	89.8	91.2	93.2	93.3	93.5	93.6	93.6
Power Factor	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	1747	1722	1683	1682	1679	1678	1677

Power Specifications

HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	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
Max Rated Input Wattage Rating (Watts)	857	847	824	825	820	820	820
Max. Rated VA (Volt-Amp)	894	884	859	859	854	854	854
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	2925	2892	2812	2812	2797	2797	2797

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

Power Specifications

HP 1200W Common Slot Platinum Hot Plug Power Supply Kit	578322-B21						
Operational Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	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
Max Rated Input Wattage Rating (Watts)	889	989	1290	1290	1290	1290	1290
Max. Rated VA (Volt-Amp)	927	1031	1345	1345	1345	1345	1345
Efficiency (%) at Max. Rated Output Wattage	90	91	93	93	93	93	93
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	10	10	10	10	10	10	10
Maximum British Thermal Unit Rating (BTU-Hr)	3033	3375	4403	4403	4403	4403	4403

HP 1200W Common Slot Silver Hot Plug Power Supply Kit	500172-B21						
Operational Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.7	9.0	7.0	6.8	6.4	9.1	5.9
Max Rated Input Wattage Rating (Watts)	930	1034	1348	1348	1348	1348	1348
Max. Rated VA (Volt-Amp)	970	1079	1406	1406	1406	1406	1406
Efficiency (%) at Max. Rated Output Wattage	86	87	89	89	89	89	89
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	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 or www.hp.com/go/hppoweradvisor

Technical Specifications

System Unit	Dimensions (H x W x D) 3.46 x 17.64 x 28.1 in (8.79 x 44.81 x 731.37 cm) (with bezel)	
	Weight (approximate)	Maximum 65.7 lb (29.8 kg) (all hard drives, power supplies, and processors installed)
	Input Requirements (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)
	Power Specifications	To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient
	Power Supply Output (per power supply)	Rated Steady-State Power 653.10W (at 100 VAC), 653.08W (at 200 VAC)
	System Inlet Temperature	Operating 50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 305 m) above sea level to a maximum of 10,000 ft (3050 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C). Non-operating 40° to 140° F (-40° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).
	Relative Humidity (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.
	Altitude	Operating 10,000 ft (3050 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min). Non-operating 30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). Idle LWAd 6.86 LpAm 52.36dBA Operating LWAd 6.89

Technical Specifications

Emissions Classification (EMC)	L_{pAm}	52.60dBA
	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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

Embedded NC362i PCIe Network Interface Gigabit Server Adapter

Integrated 10/100/1000BASE-T Transceiver
Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.

Data Transfer Method Compliant to x4 PCIe Specification

Controller Intel® 82576

Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
	10Base-T (Full-Duplex)	20 Mb/s
	100Base-TX (Half-Duplex)	100 Mb/s
	100Base-TX (Full-Duplex)	200 Mb/s
	1000Base-TX (Half and Full-Duplex)	2000Mb/s

Connector RJ-45 connector

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

Environment-friendly Products and Approach

End-of-life Management and Recycling

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

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

Technical Specifications

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