

# QuickSpecs

## HP SL2500 Scalable System

### Overview

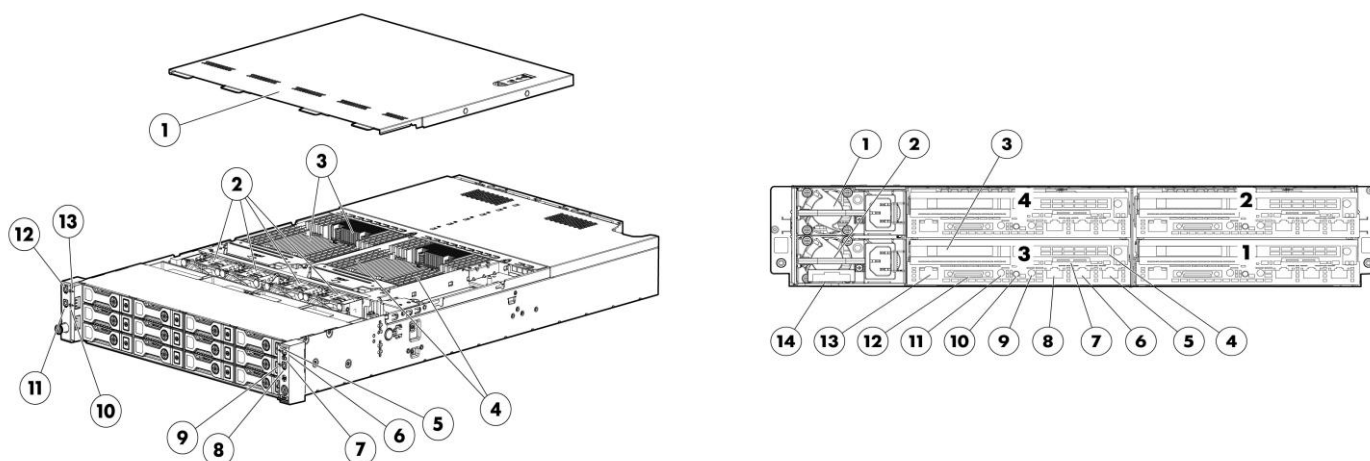
#### HP SL2500 Scalable System

Is server space becoming a problem in your data center?

The HP ProLiant SL2500 Scalable System offers a very dense solution with up to 4 independent HP ProLiant SL210t Gen8 hot-pluggable server nodes in a standard 2U chassis. Each SL210t Gen8 Server node can be serviced individually without impacting the operation of other nodes sharing the same chassis, to provide increased server uptime. Each server node harnesses the performance of 1866 MHz memory and dual Intel® Xeon® E5-2600 v2 processors in a very efficient package that shares both power and cooling.

The ProLiant SL2500 provides all the features expected in an enterprise server, with the added benefit of being optimized for efficiency, density and flexibility. The ProLiant SL2500 doubles the density, as compared to standard rack servers, to increase available data center floor space, improve performance while lowering energy consumption, and provide flexible configurations that fit into existing industry standard racks.

#### 4 Node 12 LFF HDD Model Illustrated



#### Front View:

1. Access panel
2. System Fans
3. Processor 1
4. DIMM Slots
5. Health LED for node 4
6. UID LED button
7. Power button/LED for node 4
8. Power button/LED for node 3
9. Health LED for node 3
10. Health LED for node 1
11. Power button/LED for node 1
12. Power button/LED for node 2
13. Health LED for node 2

#### Rear View:

1. Power supply 2
2. Power supply 1
3. PCI slot 1
4. Flexible LOM
5. NIC 2 port
6. NIC 1 port
7. Serial number pull tab
8. Dedicated management port
9. UID LED
10. Server health
11. Power LED
12. SUV connector (1 serial/2 USB 2.0/1 video)
13. Serial 2 connector (RJ45)
14. RCM module

### What's New

- Support for the SL210t Gen8 2U server

## 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

**E5-2600 v2 series Processors****Entry Processors**

**NOTE:** All support up to 1333MHz DDR3 memory speeds.

Intel® Xeon® E5-2609 v2 (2.5GHz/4-core/10MB/6.4GT-s QPI/80W)

**Base Processors**

**NOTE:** All support up to 1600MHz DDR3 memory speeds.

Intel® Xeon® E5-2640 v2 (2.0GHz/8-core/20MB/7.2GT-s QPI/95W, DDR3-1600, HT, Turbo2-3/3/3/3/3/3/4/5)

Intel® Xeon® E5-2630 v2 (2.6GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-3/3/3/3/4/5)

Intel® Xeon® E5-2620 v2 (2.1GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-3/3/3/3/4/5)

Intel® Xeon® E5-2650L v2 (1.7GHz/10-core/25MB/8.0GT-s QPI/70W, DDR3-1600, HT, Turbo2-2/2/2/2/2/2/2/3/4)

Intel® Xeon® E5-2630L v2 (2.4GHz/6-core/15MB/7.2GT-s QPI/60W, DDR3-1600, HT, Turbo2-2/2/2/2/3/4)

**Performance Processors**

**NOTE:** All support up to 1866MHz DDR3 memory speeds.

Intel® Xeon® E5-2697 v2 (2.7GHz/12-core/30MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/4/5/6/7/8)

Intel® Xeon® E5-2695 v2 (2.4GHz/12-core/30MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2690 v2 (3.0GHz/10-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/4/5/6)

Intel® Xeon® E5-2680 v2 (2.8GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-3/3/3/3/3/4/5/6/7/8)

Intel® Xeon® E5-2660 v2 (2.2GHz/10-core/25MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2650 v2 (2.6GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2-4/4/4/4/5/6/7/8)

**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 8, 7, 6, 5, 4, 3, 2 or 1 core(s) 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:** Up to 2 processors supported. Mixing different processor models is not supported.

**NOTE:** For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, and x = L for low power SKUs.

**Cache Memory**

30MB (1x30MB) Level 3

**NOTE:** For Twelve-core processors.

25MB (1x25MB) Level 3

**NOTE:** For Ten-core processors.

20MB (1x20MB) Level 3

**NOTE:** For Eight-core processors.

15MB (1x15MB) Level 3

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## HP SL2500 Scalable System

### Standard Features

**NOTE:** For Six-core processors.

10MB (1x10MB) Level 3

**NOTE:** For Quad-core processors.

<b>Chipset</b>	Patsburg C600 <b>NOTE:</b> For more information regarding Intel chipsets, please see the following URL: <a href="http://www.intel.com/products/server/chipsets/">http://www.intel.com/products/server/chipsets/</a>						
<b>Upgradeability</b>	Upgradeable to two processors (12 cores)						
<b>Memory Protection</b>	Advanced ECC (multi-bit error protection) Mirroring mode Lock-step mode						
<b>Memory</b>	Type	HP SmartMemory DDR3 Load Reduced (LRDIMM), Registered (RDIMM) or Unbuffered (UDIMM)					
	DIMM Slots Available	16					
	Maximum (RDIMM) (per server node)	256GB (16 x 16GB) PC3-14900R (DDR3-1866)					
	Maximum (UDIMM) (per server node)	128GB (16 x 8GB) PC3-14900E (DDR3-1866)					
	Maximum (LRDIMM) (per server node)	512GB (16 x 32GB) PC3-14900L (DDR3-1866)					
	<b>NOTE:</b> HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html">http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html</a>						
	<b>NOTE:</b> LRDIMM, RDIMM, and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.						
	<b>NOTE:</b> Depending on the memory configuration and processor model, the memory speed may run at 1866MHz, 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <a href="http://www.hp.com/go/ddr3memory-configurator">www.hp.com/go/ddr3memory-configurator</a> .						
<b>Network Controller</b>	HP NC361i Dual Port Gigabit Server Adapter						
<b>Expansion Slots</b>	Half Height Nodes (1U): One available PCI Express Gen 3.0 slots, one available for Flexible LOM PCI-Express 3.0						
	<ul style="list-style-type: none"> <li>Slot 1: Low profile PCI-Express 3.0 x24</li> <li>Slot 2: Flexible LOM PCI-Express 3.0 x16</li> </ul>						
<b>Flexible LOM</b> (Standard with half-height 1U nodes)	<b>Expansion Slots #</b>	<b>Technology</b>	<b>Bus Width**</b>	<b>Connector Width*</b>	<b>Bus Number</b>	<b>Form Factor</b>	<b>Notes</b>
	1	3.0	X16	X16	4	Flexible LOM	3.3 volts
<b>Half-height PCIe Riser</b> (Standard with half-height 1U nodes)	<b>Expansion Slots #</b>	<b>Technology</b>	<b>Bus Width**</b>	<b>Connector Width*</b>	<b>Bus Number</b>	<b>Form Factor</b>	<b>Notes</b>
	1	PCI-Express 3.0	x16	x16	4	Low Profile	3.3 volts

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## HP SL2500 Scalable System

### Standard Features

\* 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.

<b>Storage Controller</b>	Hot Plug SATA Models	HP Dynamic Smart Array B120i Controller (RAID 0, 1, 10) <b>NOTE:</b> Transfer rate: up to 6Gb/s SATA <b>NOTE:</b> The HP Dynamic Smart Array B120i Controller provides RAID 0, 1, and 10 support for up to 6 SATA drives (with Windows, Linux, and VMware) with a maximum of eight (8) logical drives. An optional Smart Array P-series controller is required for Ubuntu, Solaris, or Citrix XenServer installations. For additional details <a href="http://www.hp.com/go/smartarray">www.hp.com/go/smartarray</a> <b>NOTE:</b> The Embedded HP Dynamic Smart Array B120i controller provides SATA support and does not support SAS drives. An optional HP Smart Array P-series Controller is required when using SAS drives.
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<b>Internal Storage Devices</b>	Diskette Drives	Via USB only
	Optical Drives	DVD drive via USB only (External support only)
	Hard Drives	None ship standard
	Drive Bays	Up to 12 Hot plug SAS/SATA 3.5" drives
	One of the following depending on Model	Up to 24 Hot plug SAS/SATA 2.5" drives <b>NOTE:</b> Max Ambient Temperature supported for the product is 30C for all configurations up to 8 LFF or 24 SFF. For customers who requires >8 LFF support, the max ambient temperature supported will be 25C. <b>NOTE:</b> Support for 12 LFF hard drives is available for special large volume configurations. Please contact your HP representative for details.

<b>Maximum Internal Storage</b>	LFF 3.5" Hot Plug SATA	48.0TB	12 x 4TB
	LFF 3.5" Hot Plug SAS	48.0TB	12 x 4TB
	SFF 2.5" Hot Plug SATA	24.0TB	24 x 1TB
	SFF 2.5" Hot Plug SAS	24.0TB	24 x 1TB
<b>NOTE:</b> To support HP hard drives exceeding 2.2 TB, a HP Smart Array Controller is required. <b>NOTE:</b> Max Ambient Temperature supported for the product is 30C for all configurations up to 8 LFF or 24 SFF. For customers who requires >8 LFF support, the max ambient temperature supported will be 25C. <b>NOTE:</b> Support for 12 LFF hard drives is available for special large volume configurations. Please contact your HP representative for details.			

<b>Interfaces</b>	Serial	2
	Network RJ-45 (Ethernet)	2 10/100/1000 NIC ports (1 NIC shared for the HP ProLiant iLO4)
	Graphics	1
	Management	1 HP ProLiant iLO4
	Health LED	2 (1 front and 1 rear) per server node
	Power	2 (1 front and 1 rear) per server node
	UID	1 rear per server node and 1 upfront system UID
	USB	2 at rear

<b>Industry Standard Compliance</b>	ACPI V2.0 Compliant
	PCI 2.2 Compliant
	PXE Support

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## Standard Features

WOL Support  
 Microsoft® Logo certifications  
 IPMI 2.0, DCMI 1.0. SMASH CLP compliant

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### Graphics

Integrated Matrox Graphics G200e, 32MB Standard

- 16 bit color: maximum resolution of 1600 x 1200
  - 32 bit color: maximum resolution of 1280 x 1024
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### Server Power Cords

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

**NOTE:** The HP ProLiant SL2500 Scalable System server is primarily connected to PDU's in data center racks so they ship standard with only a PDU power cord (416151-B21).

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

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### Power Management Controller

The SL2500 chassis and SL210t server contain the embedded Power Management Controller (PMC) with SL Chassis Firmware which 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 command-line utility, called HP ProLiant Power Interface Control (PPIC) Utility, for reading and configuring the chassis power management modes.

The following Power Management modes are standard and are configurable in the controller

- Mode 0: Power control disabled. No power throttling will occur.
  - Mode-1: (DEFAULT) This mode allows all nodes to share both power supplies and run at maximum performance. Power control logic will only throttle the performance of each node when the power draw by the chassis attempts to exceed the load supported by the power supplies. In this mode, the box is expected to survive an unexpected AC Power loss to one of the power supplies.
  - Mode-2: AC/DC Redundancy N+1 - power control logic will maintain a power cap value for the chassis at the DC rating of a single power supply (750W, or 1200W), such that if one power supply experiences a DC or AC failure, the chassis should remain on-line and operational. Note: The SL PS redundancy is not appeared in HP iLO and SMH (System Manage Homepage) web page.
  - Mode-3: User Power Capping - User specifies the power envelope within the capabilities of the hardware installed. Users run SL-APM or PPIC 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. Power Capping is included with the iLO Advanced or Scale-Out license.
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### Common Slot Power Supply

HP's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HP Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HP CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the Ecova 80 Plus power supply program. HP CS power supply options provide efficiency ratings of up to 96% (80 Plus Titanium) and are available with multiple power input and output options allowing the customer to "right-size" a

## Standard Features

power supply for their specific server configuration. All HP Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations.

**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 at [www.80Plus.org](http://www.80Plus.org).

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP Power Advisor can be accessed at: [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor).

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

Redundant Power: Optional (1+ 1 or n+n redundant) power supplies can be purchased through power supply option kits (see Power Supplies for part numbers).

**NOTE:** Power Specification and Technical Content for supported power supplies can be found at: [http://h18000.www1.hp.com/products/quickspecs/14209\\_div/14209\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html)

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### System Fans

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

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### Operating Systems and Virtualization Software Support for ProLiant Servers

[Microsoft Windows Server](#)  
[Canonical Ubuntu](#)  
[Red Hat Enterprise Linux \(RHEL\)](#)  
[SUSE Linux Enterprise Server \(SLES\)](#)  
[VMware](#)

**NOTE:** The embedded HP Dynamic Smart Array B120i Controller supports Windows, Linux and VMware only. A HP Smart Array P-series controller is required to support Ubuntu, Solaris or Citrix XenServer. 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/SL2500Gen8>

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### Form Factor

HP ProLiant t2500 Gen8 Chassis - 2U Chassis can support up to four SL210t 1U server nodes or two SL210t 2U server nodes in the 2U chassis.

HP ProLiant SL210t Gen8 Server - Half-width system board. Half-height (1U) or Full-height (2U)

HP offers two different drive cages for the 2U HP ProLiant t2500 Gen8 Chassis

- 12 LFF HDD Cage
- 24 SFF HDD Cage

#### Server Node Blanks

If a server node is removed for a period, a blank must be installed to maintain the thermal environment in the chassis. It is okay to leave a node in the chassis powered off to be serviced in the future. But once a SL210t Gen8 node is removed for servicing, a HP SL2500 Server Node Blank Kit is required. The blank is a 1U blank.

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**Embedded Manageability** HP Integrated Lights-Out    HP Integrated Lights-Out - iLO 4

Standard Features:

- IPMI 2.0, DCMI 1.0, and SMASH CLP support

## Standard Features

- Configuration via ROM Setup Utility or LO100cfg utility
- USB 2.0 support for virtual media for much faster transfer speeds
- 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 iLO Advanced license

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

### On System Management HP iLO Management Engine

- HP iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HP iLO Management Engine comes standard on all HP ProLiant Gen8 servers. The HP iLO Management Engine portfolio includes:
  - **HP iLO:** The HP iLO (Integrated Lights-Out) management processor is the core foundation for the HP iLO Management Engine
  - **HP Agentless Management:** Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
  - **HP Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
  - **HP Intelligent Provisioning:** Lets customers provision and configure a single server without any separate media. No more SmartStart CDs or Smart Update Firmware DVD are needed.
    - To start Intelligent Provisioning:
      - Press the F10 key during the ProLiant Gen8 server boot process (also known as power on self test or POST).
      - Please go to the Intelligent Provisioning website at [www.hp.com/go/intelligentprovisioning](http://www.hp.com/go/intelligentprovisioning) for additional information and to view usage videos.
      - Use the Service Pack for ProLiant (SPP) at [www.hp.com/go/spp](http://www.hp.com/go/spp) to get firmware and software updates.
    - **HP iLO Mobile App:** Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: [www.hp.com/go/ilo/mobileapp](http://www.hp.com/go/ilo/mobileapp)

**NOTE:** For more information, visit: <http://www.hp.com/go/ilo> or HP iLO Management Engine technologies whitepaper

### HP Insight management HP Service Pack for ProLiant (SPP)

HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) version 5 provide a new, comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable

## Standard Features

cadence, typically coinciding with new HP server hardware launches. By enabling all firmware to be updated online and integrating firmware and system software updates in one operation HP SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is the fact that HP provides 12 months of support on each Service Pack for ProLiant.

The user experience around HP SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HP SUM version 5 and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HP SUM application has been re-written to provide a more straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HP SUM provides the tools to optimize stability and consistency throughout the company. While HP SUM and the SPP will recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives customers the flexibility to set their own specific baseline.

The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

**NOTE:** The Service Pack for ProLiant (which includes HP SUM 5) can be downloaded from [www.hp.com/go/spp/download](http://www.hp.com/go/spp/download). More information can be found: [www.hp.com/go/spp](http://www.hp.com/go/spp) and <http://www.hp.com/go/hpsum>

**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; refer to the specific hard drive QuickSpecs for details.

**NOTE:** For Americas, APJ, and EMEA, 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



## Standard Features

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

**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.

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

Easy Set-up

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

Easy Set-up is available for this platform as an ISO image web download. HP ProLiant Easy Set-up provides easy, step-by-step, single and multi-server server utilities to streamline server setup. The user experience is consistent with SmartStart and offers the following capabilities:

- Boot environment and GUI
- Assisted Installation: Windows 2008 Server drivers
- Manual installation:, 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
- HP Smart Storage Administrator (SSA) offers 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>

## 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: <a href="http://www.hp.com/go/subscriberschoice">http://www.hp.com/go/subscriberschoice</a> 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: <a href="http://www.hp.com/go/support">http://www.hp.com/go/support</a> and from <a href="http://www.hp.com/servers/easysetup">www.hp.com/servers/easysetup</a> . Contains the following: <ul style="list-style-type: none"> <li>• HP Insight Management Agents for Systems Insight Manager (SIM) Integration</li> <li>• HP Systems Management Homepage</li> <li>• HP Smart Storage Administrator (HP SSA)</li> <li>• HP Insight Diagnostics</li> </ul>

## Storage Software

Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than HP storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.

Storage software that gets the job done:

- **Data Protection and Recovery Software**  
Whether you're a large enterprise or a smaller business, HP data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.
- **Data Archive and Migration Software**  
HP's storage software enables you to comply with data retention and retrieval requirements, improve application performance, and reduce costs by efficiently migrating infrequently accessed or less valuable data to lower cost storage.
- **Storage Resource Management Software (SRM)**  
HP's storage resource management software reduces operational costs and provides the command and control foundation you need to efficiently manage and visualize your physical and virtual environments.
- **Data Replication Software**  
HP offers array-based and host-based replication software for use in disaster recovery, testing, application development and reporting.
- **Storage Device Management Software**  
Maximize your investment in HP storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.
- **HP StoreVirtual VSA**  
With HP StoreVirtual VSA you can use the power of virtualization to turn a set of heterogeneous and disconnected physical disk drives in your servers and storage devices into a single pool of logical storage capacity.

**NOTE:** For more information available Storage Software including QuickSpecs, please see: [www.hp.com/go/storage/software](http://www.hp.com/go/storage/software).

**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

### Optional Features

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>.

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#### **HP Simple Configurator**

SCE is a guided self service tool to help sales and non technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>

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#### **HP Computation and Graphics Accelerators**

Each SL210t server will accommodate up to one NVIDIA Quadro GPU PCIe card for high-end QUADRO® graphics.

## Service and Support

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

HP Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HP to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

**Protect your business beyond warranty with HP Care Pack Services**

HP Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

**Optimized Care**      **Supports maintaining servers at optimum performance availability****HP Proactive Care with 24x7 coverage, three year Care Pack Service**

HP Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to HP. This Care Pack Service combines three years' proactive reporting and advice with our 24x7 coverage and enhanced escalation management, four hour hardware response time and two hour call back for software questions on leading industry standard software running on your HP ProLiant server.  
<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

**Standard Care**      **Package that maintains high level of server availability****Foundation Care 24x7, three-year Care Pack Service**

HP Foundation Care 24x7 connects you to HP 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed; collaborative software included in this Care Pack service provides troubleshooting assistance on industry leading software running on your HP server. Simplify your support experience and make HP your first call for hardware or software questions.  
<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

**Basic Care**      **Delivers minimum recommended support service level****Foundation Care NBD, three-year Care Pack Service**

HP Foundation Care Next Business Day connects you to HP during business hours for assistance on resolving issues – features next business day hardware onsite response if needed and software call back within two hours. Collaborative software support is included and provides troubleshooting assistance on industry leading software running on your server. Simplify your support experience and make HP your first call for hardware or software questions.  
<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

**Related Services**      **HP Datacenter Care service**

HP Datacenter Care helps you improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services “building blocks.” You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HP Datacenter Care, you benefit from a personalized relationship with HP via a single point of accountability for HP and others' products. For more information, visit [www.hp.com/services/datacentercare](http://www.hp.com/services/datacentercare)

## Service and Support

**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.pdf>

**Factory Express 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. 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>.

**Data Privacy Services**

Protect your data through better media management. HP Data privacy services help manage and protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware.

[www.hp.com/services/dataprivacy](http://www.hp.com/services/dataprivacy)

Additional HP Care Pack services can be found at: <http://www.hp.com/go/cpc>

**Get connected to HP to improve your support experience**

Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit:

[www.hp.com/go/proactiveinsightexperience](http://www.hp.com/go/proactiveinsightexperience)

**Parts and Materials**

HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction.

**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>

## 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)**

<b>HP Chassis</b>	<b>NOTE:</b> Support for 12 LFF hard drives is available for special large volume configurations. Please contact your HP representative for details.	
	HP t2500 12 LFF Configure-to-order Chassis	718404-B21
	HP t2500 24 SFF Configure-to-order Chassis	737776-B21
<b>CTO Server</b>	HP ProLiant SL210t Gen8 1U Node Configure-to-order Server	718406-B21
	<b>NOTE:</b> If customer desires a 4 Node configuration, quantity 4 of P/N: 718406-B21 should be ordered.	
	HP ProLiant SL210t Gen8 2U Node Configure-to-order Server	718407-B21
	<b>NOTE:</b> If customer desires a 2 Node configuration, quantity 2 of P/N: 718407-B21 should be ordered.	
<b>HP Rail Kits</b>	HP DL2000 Hardware Rail Kit	611428-B21
<b>HP Power Supplies</b>	<b>NOTE:</b> Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted, you will get errors, and operation will fail.	
	<b>NOTE:</b> 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/hppoweradvisor">www.hp.com/go/hppoweradvisor</a>	
	<b>HP Common Slot Titanium Power Supply Kits</b>	
	<b>NOTE:</b> The following Power Supplies offer 96% efficient with support for Intelligent Power Discovery.	
	HP 750W Common Slot Titanium Hot Plug Power Supply Kit	697581-B21
	<b>HP Common Slot Platinum Plus Power Supply Kits</b>	
	<b>NOTE:</b> The following Power Supplies offer 94% Efficiency with support for Intelligent Power Discovery.	
	HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit	656363-B21
	HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21
	HP 1500W Common Slot Platinum Plus Hot Plug Power Supply Kit	684532-B21
	<b>NOTE:</b> The HP 1500W Ht Plg Pwr Supply Kit requires the removal of the back door on a 1000mm depth rack or the use of a 1200mm depth rack.	
	<b>HP Common Slot 380VDC Power Supplies</b>	
	<b>NOTE:</b> 94% efficiency.	
HP 1200W Common Slot 380VDC Hot Plug Power Supply Kit	684539-B21	
<b>HP Common Slot 277VAC Power Supplies</b>		
<b>NOTE:</b> 94% efficiency.		
HP 1200W Common Slot 277VAC Hot Plug Power Supply Kit	717359-B21	
<b>NOTE:</b> The 1200W Common Slot 277VAC and 380VDC Hot Plug Power Supply Kits do not include a power cord. Please refer to the HP Common Slot Power Supply QuickSpecs for details on cable options available for these and other HP power supplies.		
<b>HP Common Slot 380VDC Power Supplies</b>		
<b>NOTE:</b> 94% efficiency.		

## Configuration Information - Factory Integrated Models

HP 1200W Common Slot 380VDC Hot Plug Power Supply Kit	684539-B21
<b>NOTE:</b> Power Specification and Technical Content for supported power supplies can be found at: <a href="http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html">http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html</a>	
HP 1500W Common Slot Platinum Plus Hot Plug Power Supply Kit	684532-B21

**Step 2: Choose Required Node Options (only one of the following from each list unless otherwise noted)****HP Processors****NOTE:** If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21**Entry Processors - E5-2600 v2 series Processors****NOTE:** All support up to 1333MHz memory speeds.

HP SL210t Gen8 Intel® Xeon® E5-2609v2 (2.5GHz/4-core/10MB/80W) FIO Processor Kit 721413-L21

**Base Processors - E5-2600 v2 series Processors****NOTE:** All support up to 1600MHz DDR3 memory speeds.

HP SL210t Gen8 Intel® Xeon® E5-2640v2 (2.0GHz/8-core/20MB/95W) FIO Processor Kit 721407-L21

HP SL210t Gen8 Intel® Xeon® E5-2620v2 (2.1GHz/6-core/15MB/80W) FIO Processor Kit 721411-L21

HP SL210t Gen8 Intel® Xeon® E5-2650Lv2 (1.7GHz/10-core/25MB/70W) FIO Processor Kit 721422-L21

HP SL210t Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) FIO Processor Kit 721409-L21

HP SL210t Gen8 Intel® Xeon® E5-2630Lv2 (2.4GHz/6-core/15MB/60W) FIO Processor Kit 721424-L21

**Performance Processors - E5-2600 v2 series Processors****NOTE:** All support up to 1866MHz DDR3 memory speeds.

HP SL210t Gen8 Intel® Xeon® E5-2697v2 (2.7GHz/12-core/30MB/130W) FIO Processor Kit 721426-L21

HP SL210t Gen8 Intel® Xeon® E5-2695v2 (2.4GHz/12-core/30MB/115W) FIO Processor Kit 721428-L21

HP SL210t Gen8 Intel® Xeon® E5-2690v2 (3.0GHz/10-core/25MB/130W) FIO Processor Kit 721397-L21

HP SL210t Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) FIO Processor Kit 721399-L21

HP SL210t Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) FIO Processor Kit 721405-L21

HP SL210t Gen8 Intel® Xeon® E5-2660v2 (2.2GHz/10-core/25MB/95W) FIO Processor Kit 721403-L21

**HP Memory****NOTE:** HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at:  
[http://h18000.www1.hp.com/products/quickspecs/14225\\_div/14225\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html)**NOTE:** LRDIMM, RDIMM, and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support LRDIMM, RDIMM and UDIMMs.**NOTE:** If both xxxxxx-L21 and xxxxxx-B21 processors are selected per CTO Server above, a minimum of two memory kits must be selected.**Registered DIMMs (RDIMMs)****NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit 713981-B21

HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit 708637-B21

HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low 713983-B21



## Configuration Information - Factory Integrated Models

Voltage Memory Kit		
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit		731765-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit		708639-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit		731761-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit		713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit		708641-B21
<b>Registered DIMMs (RDIMMs)</b>		
<b>NOTE:</b> The following memory is supported by the E5-2600 series Processors.		
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit		647899-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit		672631-B21
<b>Unbuffered with ECC DIMMs (UDIMMs)</b>		
<b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.		
HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit		713975-B21
HP 2GB (1x2GB) Single Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit		708631-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit		713977-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit		708633-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit		713979-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit		708635-B21
<b>Load Reduced DIMMs (LRDIMMs)</b>		
<b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.		
HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit		708643-B21
<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> .		
<b>NOTE:</b> Kits described as LP 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>		
<b>NOTE:</b> PC3L is a low voltage memory		

<b>HP I/O Expansion Options</b>	HP SL210t Input/Output x16x8 FIO PCI-E Riser Kit	718419-B21
	HP SL210t Input/Output x8x8x8 FIO PCI-E Riser Kit	718420-B21
	HP SL210t Input/Output x16x8x8 FIO PCI-E Riser Kit	718421-B21
	HP SL210t Input/Output x16x8x8 FIO PCI-E Riser Kit	718421-B21
	<b>NOTE:</b> HP I/O Expansion Options are only required if 2U model (P/N: 718407-B21) is selected in Step 1.	
<b>HP Hard Drive Cable Kits</b>	HP SL2500 Gen8 Mini SAS Cable FIO Kit	739385-B21

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

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**Configuration Information - Factory Integrated Models**

<b>HP Insight Software</b>	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	C6N36A
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle FIO Electronic License	C6N36ABE

**NOTE:** The Electronic software license is available in EMEA only

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**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 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.

<b>HP Unique Options</b>	HP SL210t Server Node Blank Kit	718411-B21
<b>HP Processors</b>	<p><b>Entry Processors - E5-2600 v2 series Processors</b>  <b>NOTE:</b> All support up to 1333MHz memory speeds.</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2609v2 (2.5GHz/4-core/10MB/80W) Processor Kit</p> <p><b>Base Processors - E5-2600 v2 series Processors</b>  <b>NOTE:</b> All support up to 1600MHz DDR3 memory speeds.</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2640v2 (2.0GHz/8-core/20MB/95W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2620v2 (2.1GHz/6-core/15MB/80W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2650Lv2 (1.7GHz/10-core/25MB/70W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2630Lv2 (2.4GHz/6-core/15MB/60W) Processor Kit</p> <p><b>Performance Processors - E5-2600 v2 series Processors</b>  <b>NOTE:</b> All support up to 1866MHz DDR3 memory speeds.</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2697v2 (2.7GHz/12-core/30MB/130W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2695v2 (2.4GHz/12-core/30MB/115W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2690v2 (3.0GHz/10-core/25MB/130W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) Processor Kit</p> <p>HP SL210t Gen8 Intel® Xeon® E5-2660v2 (2.2GHz/10-core/25MB/95W) Processor Kit</p>	721413-B21 721407-B21 721411-B21 721422-B21 721409-B21 721424-B21 721426-B21 721428-B21 721397-B21 721399-B21 721405-B21 721403-B21

## HP Memory

**NOTE:** HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: [http://h18000.www1.hp.com/products/quickspecs/14225\\_div/14225\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html)

**NOTE:** LRDIMM, RDIMM, and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support LRDIMM, RDIMM and UDIMMs.

**Registered DIMMs (RDIMMs)**

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713981-B21
HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708637-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713983-B21
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory	708639-B21

## Core Options

Kit	
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21
<b>Registered DIMMs (RDIMMs)</b>	
<b>NOTE:</b> The following memory is supported by the E5-2600 series Processors.	
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21
<b>Unbuffered with ECC DIMMs (UDIMMs)</b>	
<b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.	
HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713975-B21
HP 2GB (1x2GB) Single Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708631-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708633-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708635-B21
<b>Load Reduced DIMMs (LRDIMMs)</b>	
<b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.	
HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit	708643-B21
<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> .	
<b>NOTE:</b> Kits described as LP 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>	
<b>NOTE:</b> PC3L is a low voltage memory	

## HP Hard Drives

**SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives**

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21

**SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives**

HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652749-B21
HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652745-B21

**SAS Hot Plug SmartDrive LFF (3.5-inch) Enterprise Drives**

## Core Options

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652620-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652615-B21
<b>SAS Hot Plug SmartDrive LFF (3.5-inch) Midline Drives</b>	
HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	695510-B21
HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652753-B21
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <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>6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives</b>	
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
<b>6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives</b>	
HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <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>6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives</b>	
HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734360-B21
<b>6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives</b>	
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717973-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717971-B21
HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739898-B21
HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739888-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717969-B21
<b>6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives</b>	
HP 600GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	739900-B21
HP 300GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	739890-B21
<b>6G SATA ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr	691868-B21

## Core Options

Wty Solid State Drive	
HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691866-B21
HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691864-B21
HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691862-B21
<b>6G SAS SLC Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives</b>	
HP 400GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653082-B21
HP 200GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653078-B21
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html">http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html</a> (Worldwide)	
<b>Hard Drive Kits</b>	
HP LFF Gen8 Hard Drive Blank Kit	666986-B21
HP SFF Gen8 Hard Drive Blank Kit	666987-B21

## HP Networking

**Gigabit Ethernet adapters**

HP NC112T PCI Express Gigabit Server Adapter	503746-B21
HP NC365T 4-port Ethernet Server Adapter	593722-B21
HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
HP Ethernet 1Gb 2-port 332T Adapter	615732-B21

**10 Gigabit Ethernet Adapters**

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

HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
HP Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
HP Ethernet 10Gb 2-port 530T Adapter	656596-B21
HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
HP Ethernet 10Gb 2-port 561T Adapter	716591-B21

**FlexibleLOM Adapters**

HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HP FlexFabric 10Gb 2-port 526FLR-SFP+ Adapter	629138-B21
HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
HP Ethernet 10Gb 2-port 570FLR-SFP+ Adapter	717491-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 Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544QSFP Adapter	649281-B21
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## Core Options

HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP Adapter	649282-B21
HP Infiniband QDR/Ethernet 10Gb 2-port 544FLR-QSFP Adapter	649283-B21
<b>NOTE:</b> Please see the QuickSpecs for additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html">http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html</a>	

## HP Power Supplies

**NOTE:** Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted, you will get errors, and operation will fail.

**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](http://www.hp.com/go/hppoweradvisor)

**HP Common Slot Platinum Plus Power Supply Kits**

**NOTE:** The following Power Supplies offer 94% Efficiency with support for Intelligent Power Discovery.

HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit	656363-B21
HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21
HP 1500W Common Slot Platinum Plus Hot Plug Power Supply Kit	684532-B21

**NOTE:** The HP 1500W Ht Plg Pwr Supply Kit requires the removal of the back door on a 1000mm depth rack or the use of a 1200mm depth rack.

**HP Common Slot Platinum Plus Power Supply Kits**

**NOTE:** The following Power Supplies offer 94% Efficiency with support for Intelligent Power Discovery.

HP 750W Common Slot Titanium Hot Plug Power Supply Kit	697581-B21
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**HP Common Slot 277VAC Power Supplies**

**NOTE:** 94% efficiency.

HP 1200W Common Slot 277VAC Hot Plug Power Supply Kit	717359-B21
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**NOTE:** The 1200W Common Slot 277VAC and 380VDC Hot Plug Power Supply Kits do not include a power cord. Please refer to the HP Common Slot Power Supply quickspec for details on cable options available for these and other HP power supplies.

**HP Common Slot 380VDC Power Supplies**

**NOTE:** 94% efficiency.

HP 1200W Common Slot 380VDC Hot Plug Power Supply Kit	684539-B21
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**NOTE:** Power Specification and Technical Content for supported power supplies can be found at:

[http://h18000.www1.hp.com/products/quickspecs/14209\\_div/14209\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html)

## 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.

<b>HP SL Advanced Power Manager</b>	<p>The SL Advanced Power Manager is an optional rack level solution for the SL210t 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.</p> <p>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 all the power supplies in the chassis will result in the loss of all server nodes in that chassis. The SL APM solves this by allowing server node-level hardware power on/off of the DC power to the individual server node motherboards.</p> <p>SL-APM support the SL Dynamic power capping feature for chassis and Rack levels</p>	
	HP SL Advanced Power Manager Kit	538084-B21
	HP SL Advanced Power Manager Distribution Module Kit	620002-B21
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<b>HP Insight Software</b>	<p><b>HP Insight Control</b></p> <p>HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License C6N27A</p> <p>HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License C6N28ABE</p> <p><b>NOTE:</b> The Electronic software license is available in EMEA only</p> <p>HP Insight Control Server Provisioning Media Kit BD883A</p> <p>HP Insight Management Media Kit C6N31A</p> <p><b>NOTE:</b> Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.</p> <p><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.</p> <p><b>NOTE:</b> Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: <a href="http://www.hp.com/go/insightupdates">http://www.hp.com/go/insightupdates</a>.</p> <p><b>NOTE:</b> For additional license options please see the 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></p> <p><b>HP Integrated Lights-Out (iLO)</b></p> <p><b>HP iLO Scale Out</b></p> <p>HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU BD776AAE</p> <p>HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License BD776A</p> <p>HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Tracking License BD777A</p> <p>HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU BD778AAE</p> <p>HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License BD778A</p> <p>HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates BD779A</p>	



## Additional Options

## Tracking License

**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 and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.

**HP Integrated Lights-Out (iLO) Advanced for ProLiant**

HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU E6U59ABE

**NOTE:** The Electronic software license is available in EMEA only

HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU E6U64ABE

**NOTE:** The Electronic software license is available in EMEA only

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License 512485-B21

HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates BD505A

**NOTE:** For additional license options please see the QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/14276\\_div/14276\\_div.html](http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html)

**NOTE:** For more information, visit: <http://www.hp.com/go/ilo>

**High Performance Clusters****HP Cluster Management Utility**

HP Insight Cluster Management Utility 3yr 24x7 Flexible License BD476A

HP Insight Cluster Management Utility 1yr 24x7 Flexible License QL803B

HP Insight Cluster Management Utility 1yr 24x7 Flexible Electronic License QL803BAE

**NOTE:** These part numbers can be used to purchase one certificate for multiple licenses and support 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. Customer also will receive a support agreement.

HP Insight Cluster Management Utility Media BD477A

**NOTE:** For additional license kits please see the QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/12612\\_div/12612\\_div.html](http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html)

**Moab® Family of Data Center, Cloud and HPC products**

Moab Value Unit Flex License TC221A

**NOTE:** For additional information, please see the QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/13481\\_div/13481\\_div.html](http://h18004.www1.hp.com/products/quickspecs/13481_div/13481_div.html)

**HP Computation and Graphics accelerators**

NVIDIA Quadro K4000 PCI-E Graphics Adapter 730870-B21

NVIDIA Quadro K5000 PCI-E Graphics Adapter 730872-B21

NVIDIA Quadro K6000 PCI-E Graphics Adapter 730874-B21

**NOTE:** Use of the NVIDIA Quadro K6000 PCI-E Graphic Adapter in the SL210t 2U node requires the HP SL210t GPU Adapter Kit (PN 718410-B21).

HP SL210t Graphics Processing Unit Adapter Kit 718410-B21

NVIDIA Quadro K2000 PCIe Graphics Adapter 753959-B21

**NOTE:** For all Quadro cards, OS support is for 64-bit versions only; Red Hat Enterprise Linux Server Editions 5.x & 6.x, SUSE Linux Enterprise Server Edition SLES11 SPx, Windows Server 2012 R2

**HP Storage Controllers****HP Smart Array P222 Controller**

HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller 631667-B21

## Additional Options

**HP Smart Array P420 Controller**

HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller	631670-B21
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HP Smart Array P420/2GB FBWC 6Gb 2-ports Int SAS Controller	631671-B21
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**HP Smart Array P421 Controller**

HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller	631673-B21
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HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller	631674-B21
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**HP Smart Array P430 Controller**

HP Smart Array P430/2GB FBWC 6Gb 1-port Int SAS Controller	698529-B21
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**HP Smart Array P431 Controller**

HP Smart Array P431/2GB FBWC 6Gb 2-ports Ext SAS Controller	698531-B21
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**HP Smart Array P822 Controller**

HP Smart Array P822/2GB FBWC 6Gb 2-ports-Int/4-ports Ext SAS Controller	615418-B21
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**Optional Upgrades**

HP Mini SAS 24 SFF P420/P822/H220 Cable Kit	718408-B21
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HP Mini SAS P430/P830 Cable Kit	718409-B21
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HP Mini SAS P222/H222 Cable Kit	734847-B21
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HP Mini SAS 12 LFF P420/P822/H220 Cable Kit	736823-B21
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**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/14227\\_div/14227\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14227_div/14227_div.html)  
(Smart Array P222 Controller)

[http://h18000.www1.hp.com/products/quickspecs/14228\\_div/14228\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14228_div/14228_div.html)  
(Smart Array P420 Controller)

[http://h18000.www1.hp.com/products/quickspecs/14229\\_div/14229\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14229_div/14229_div.html)  
(Smart Array P421 Controller)

[http://h18000.www1.hp.com/products/quickspecs/14624\\_div/14624\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14624_div/14624_div.html)  
(Smart Array P430 Controller)

[http://h18000.www1.hp.com/products/quickspecs/14625\\_div/14625\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14625_div/14625_div.html)  
(Smart Array P431 Controller)

[http://h18000.www1.hp.com/products/quickspecs/14341\\_div/14341\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14341_div/14341_div.html)  
(Smart Array P822 Controller)

**Host Bus Adapter**

HP H220 Host Bus Adapter	650933-B21
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HP H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21
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HP H222 Host Bus Adapter	650926-B21
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**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18004.www1.hp.com/products/quickspecs/14336\\_div/14336\\_div.html](http://h18004.www1.hp.com/products/quickspecs/14336_div/14336_div.html)  
(HBA 220)

[http://h18004.www1.hp.com/products/quickspecs/14222\\_div/14222\\_div.html](http://h18004.www1.hp.com/products/quickspecs/14222_div/14222_div.html)  
(HBA 221)

[http://h18004.www1.hp.com/products/quickspecs/14337\\_div/14337\\_div.html](http://h18004.www1.hp.com/products/quickspecs/14337_div/14337_div.html)  
(HBA 222)

**HP Tape Backup**

**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. The HP Dynamic Smart Array B120i Controller does not support tape drives. For hardware and software compatibility of HP tape backup products see: <http://www.hp.com/storage/SPOCK>

**HP LTO Ultrium Half-Height Tape Drives**

## Additional Options

HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	COL99A
<b>HP StoreEver 1/8 G2 Tape Autoloader</b>	
HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	COH19A
<b>HP StoreEver MSL6480</b>	
HP StoreEver MSL6480 Scalable Base Module	QU625A

## HP Storage Options

**Storage 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>

**Brocade Fibre Channel HBAs**

HP 81B 8Gb 1-port PCIe Fibre Channel Host Bus Adapter AP769B

HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter AP770B

**Emulex Fibre Channel HBAs**

HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter AJ762B

HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter AJ763B

**QLogic Fibre Channel HBAs**

HP 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter AK344A

HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter AJ764A

HP Disk Storage Systems **Disk Enclosures**

HP D3600 Enclosure QW968A

**NOTE:** See the D3000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: [http://h18000.www1.hp.com/products/quickspecs/14866\\_div/14866\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14866_div/14866_div.html) (Worldwide)

HP D3700 Enclosure QW967A

**NOTE:** See the D3000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: [http://h18000.www1.hp.com/products/quickspecs/14866\\_div/14866\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14866_div/14866_div.html) (Worldwide)

HP D2600 Enclosure AJ940A

**NOTE:** See the D2000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: [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 D2700 Enclosure AJ941A

**NOTE:** See the D2000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: [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 D6000 Enclosure QQ695A

**NOTE:** See the D6000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: [http://h18000.www1.hp.com/products/quickspecs/14419\\_div/14419\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14419_div/14419_div.html) (Worldwide)

## HP Uninterruptible Power Systems

**HP Rack-mountable UPS****HP R1500 G3 Uninterruptible Power Supply (UPS)**

## Additional Options

HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14059\\_div/14059\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html)  
(Worldwide)

**HP R/T3000 G2 Uninterruptible Power System (UPS)**

HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14058\\_div/14058\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html)  
(Worldwide)

**R5000 Uninterruptible Power System (UPS)**

HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14109\\_div/14109\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14109_div/14109_div.html)  
(Worldwide)

**R7000 Uninterruptible Power System (UPS)**

HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
HP R7KVA 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14110\\_div/14110\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html)  
(Worldwide)

**NOTE:** For additional information on HP Uninterruptible Power Systems please go to:

[www.hp.com/servers/rackups](http://www.hp.com/servers/rackups).

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

<http://www.upssizer.com>.

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

**HP Basic Power****Distribution Units (bPDU)****HP Basic Power Distribution Unit: 1U/0U Version**

HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Basic PDU	H5M56A

**HP Basic Power Distribution Unit: Half Height Version**

HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A

**HP Basic Power Distribution Unit: Mid Height Version**

HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A

## Additional Options

HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
<b>HP Basic Power Distribution Unit: Full Height Version</b>	
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (36xC13/6xC19) INTL Basic PDU	H5M73A
HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
<b>HP Basic Power Distribution Unit: 480/277 Volt Version</b>	
HP 13.2kVA 480 Volt IEC309 30A 3-Phase Input (15 Outlet) NA Basic PDU	H3X07A
HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU	H3X08A
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/14557_div/14557_div.html">http://h18000.www1.hp.com/products/quickspecs/14557_div/14557_div.html</a> (Worldwide)	
<b>NOTE:</b> Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit <a href="http://www.hp.com/go/rackandpower">www.hp.com/go/rackandpower</a> .	

**HP Remote Monitoring Power Distribution Units (mPDU)**

<b>HP Remote Monitored Power Distribution Unit: 1U Version</b>	
HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
<b>HP Remote Monitored Power Distribution Unit: Half Height Version</b>	
HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
<b>HP Remote Monitored Power Distribution Unit: Mid Height Version</b>	
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
<b>HP Remote Monitored Power Distribution Unit: Full Height Version</b>	
HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A

## Additional Options

HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
<b>HP Environmental Sensor for Remote Monitored PDUs</b>	
HP Environmental Sensor for Remote Monitored PDUs	E2D53A
<b>NOTE:</b> Please see the QuickSpecs for additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/14669_div/14669_div.html">http://h18000.www1.hp.com/products/quickspecs/14669_div/14669_div.html</a> (Worldwide)	

<b>HP Intelligent Power Distribution Units (iPDU)</b>	<b>iPDU Core Units</b>	
	HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
	HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF521A
	HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
	HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
	HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
	HP 17.3kVA 24A 415V Three Phase L22-30 NA Core Intelligent Power Distribution Unit	AF902A
	HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
	HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
	HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
	HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
	HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
	HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
	<b>iPDU Kits with Standard Extension Bars</b>	
	HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit	AF531A
	HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit	AF532A
	HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
	<b>iPDU Extension Bars</b>	
	HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
	<b>NOTE:</b> Intelligent Extensions Bars have individually monitored outlets that are also individually switchable for power cycling attached equipment. Each individual C13 outlet has Power Line Communications to support Intelligent Power Discovery when connected to PLC enabled common slot power supplies.	
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A	
<b>NOTE:</b> Standard (non-intelligent) Extension Bars are monitored as a single load segment and do not support Intelligent Power Discovery.		
<b>NOTE:</b> Extension Bars can be mixed on a PDU core to create custom configurations. Up to 6 extension bars may be added to each Intelligent PDU Core unit.		
<b>NOTE:</b> For additional information on the HP Intelligent PDU please go to: <a href="http://www.hp.com/go/ipdu">www.hp.com/go/ipdu</a>		
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html">http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html</a> (Worldwide)		

## HP Rack Options

<b>HP TFT7600 G2 KVM Console and Monitor (TFT7600 G2)</b>	
HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A



## Additional Options

HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A
HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor	AZ874A
HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A
HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor	AZ884A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A

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

[http://h18000.www1.hp.com/products/quickspecs/13731\\_div/13731\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13731_div/13731_div.html)  
(Worldwide)

**HP USB Keyboard and Mouse**

HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63

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

[http://h18000.www1.hp.com/products/quickspecs/13972\\_div/13972\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13972_div/13972_div.html)  
(Worldwide)

**HP Server Console Switches**

HP Server Console 0x2x8 Port Analog Switch	AF616A
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## Additional Options

HP Server Console 0x2x16 Port Analog Switch AF617A

HP TAA 0x2x16xKVM Server Console G2 Switch AF626A

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

[http://h18000.www1.hp.com/products/quickspecs/11834\\_div/11834\\_div.html](http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html)  
(Worldwide)

**HP Server Console Switch G2 with Virtual Media & CAC**

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software AF618A

HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software AF619A

HP KVM CAT5 1-pack USB Interface Adapter 336047-B21

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

[http://h18000.www1.hp.com/products/quickspecs/13475\\_div/13475\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html)  
(Worldwide)

**HP IP Console Switch G2 with Virtual Media & CAC**

HP 1x4 USB/PS2 KVM Console Switch AF611A

HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software AF620A

HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software AF621A

HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software AF622A

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

[http://h18000.www1.hp.com/products/quickspecs/13474\\_div/13474\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html)  
(Worldwide)

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**HP Rail Kits** HP DL2000 Hardware Rail Kit 611428-B21

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**HP USB and SD options** **HP Flash Media Kits for USB Drives**

HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit 737953-B21

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

[http://h18000.www1.hp.com/products/quickspecs/13971\\_div/13971\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13971_div/13971_div.html)

**Other USB and SD Options**

HP 36pin Serial/USB/VGA Dongle Cord Kit 676277-B21

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**HP Care Pack Services** **Proactive Care**

**NOTE:** Collaborative Support plus Proactive services delivered by the onshore, local language Advanced Solution Center (ASC), end-to-end case ownership from a Technical Solution Specialists and Technical Account Manager who remotely delivers firmware/software revision management, proactive scans and incident trend reports. Recommended for customers running a virtualized infrastructure and/or customers who desire an enhanced call support experience

HP 3 year Next business day with Defective Media Retention SL2500 Proactive Care Service U0RG7E

HP 3 year 4h 24x7 with Defective Media Retention SL2500 Proactive Care Service U0RH9E

**Foundation Care**

HP 3 year Next business day SL2500 Collaborative Support U0RG3E

**NOTE:** For more information, customer/resellers can contact:

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



## Memory

**HP ProLiant SL210t Gen8 Server**

**NOTE:** Memory configurations show Maximum Memory population.

**Maximum Memory**

Up to 256GB, using PC3-14900R DDR3 Registered (RDIMM) memory, operating at 1866MHz when fully populated at 1 DIMMs per Channel in 16 slots

Up to 128GB, using PC3-14900E DDR3 Unbuffered (UDIMM) memory, operating at 1866MHz when fully populated at 1 DIMMs per Channel in 16 slots

Up to 512GB, using PC3-14900L DDR3 Load Reduced Low (LRDIMM) memory, operating at 1866MHz when fully populated at 1 DIMMs per Channel in 16 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:
- Memory DIMM blanks are required in any empty DIMM slots for proper cooling. If DIMMs are removed or the memory configuration is changed, all DIMM slots must be populated with either a blank or a DIMM.
- For servers with sixteen (16) memory slots
- There are four (4) channels per processor; eight (8) channels per server
- There are four (4) DIMM slots for two memory channels and one (2) DIMM slots for one memory channel; sixteen (16) total slots
- Memory channel 2 and 4 consists of the four (4) DIMM slots that are closest to the processor
- Memory channels 1 and 3 consist of the four(4) 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 one UDIMMs per channel; if available, the second 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 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.

# QuickSpecs

## HP SL2500 Scalable System

### Memory

DIMM Type	Registered DIMMS (RDIMMs)											Low Reduced DIMMs (LRDIMMs)	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	4GB	8GB	8GB	8GB	8GB	8GB	8GB	16GB	16GB	16GB	32GB	2GB	2GB	4GB	4GB	8GB	8GB
DIMM Native Speed (MHz)	1600	1866	1600	1866	1600	1600	1600	1866	1600	1600	1866	1866	1600	1866	1600	1866	1600	1866
Voltage	LV	Std	Std	Std	LV	LV	Std	Std	LV	Std	Std	Std	LV	Std	LV	Std	LV	Std
<b>SLOTS THAT CAN BE POPULATED</b>																		
16 slot servers	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
<b>MAXIMUM CAPACITY (GB)</b>																		
Capacity	64	64	128	128	128	128	128	256	256	256	512	32	32	64	64	128	128	
<b>POPULATED DIMM SPEED (MHz)</b>																		
1 DIMM Per Channel	1600	1866	1600	1866	1600	1600	1866	1600	1600	1866	1866	1600	1866	1600	1866	1600	1866	
2 DIMM Per Channel	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
<b>NOTES:</b>																		
<ul style="list-style-type: none"> <li>Depending on the memory configuration and processor model, the memory speed may run at 1866MHz, 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <a href="http://www.hp.com/go/ddr3memory-configurator">www.hp.com/go/ddr3memory-configurator</a></li> <li>PC3 14900 DIMMs have a maximum speed of 1866MHz.</li> <li>Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities</li> <li>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</li> <li>If you install 1x 1600MHz DIMM in channel 1 and 1x 1866MHz DIMM in channel 2, the maximum speed will be 1600MHz. If you install 1x 1066MHz DIMM in channel 1 and 5x 1866MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, the maximum speed will be 1600MHz</li> <li>If you install 2DPC in one channel (if applicable) and 1DPC in all other channels, you run at 1866MHz</li> <li>Maximum memory speed will also depend on the processor installed</li> <li>References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.</li> </ul>																		

### DIMM slot and configuration diagrams Basic memory slot & population diagram



# QuickSpecs

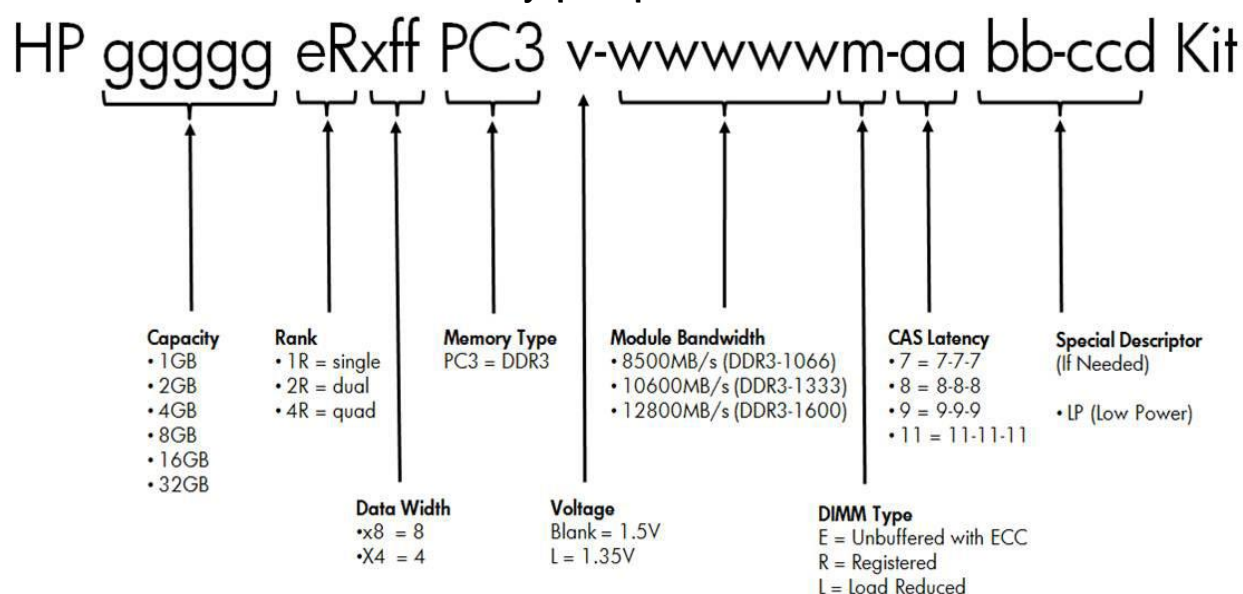
## HP SL2500 Scalable System

### Memory

Population order; start with "A" first, "B" second, "C" third, etc. DIMM 8 is DIMM furthest away from the CPU and DIMM 1 is DIMM closest to CPU.

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

#### DDR3 memory options part number decoder



#### Following are memory options available from HP:

##### HP Memory

**NOTE:** HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: [http://h18000.www1.hp.com/products/quickspecs/14225\\_div/14225\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html)

**NOTE:** LRDIMM, RDIMM, and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support LRDIMM, RDIMM and UDIMMs.

##### Registered DIMMs (RDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit 713981-B21

HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit 708637-B21

HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit 713983-B21

## Memory

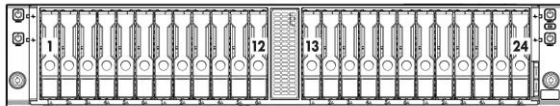
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708639-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21
<b>Registered DIMMs (RDIMMs)</b>	
<b>NOTE:</b> The following memory is supported by the E5-2600 series Processors.	
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21
<b>Unbuffered with ECC DIMMs (UDIMMs)</b>	
<b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.	
HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713975-B21
HP 2GB (1x2GB) Single Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708631-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708633-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708635-B21
<b>Load Reduced DIMMs (LRDIMMs)</b>	
<b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.	
HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit	708643-B21
<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> .	
<b>NOTE:</b> Kits described as LP 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>	
<b>NOTE:</b> PC3L is a low voltage memory	

# QuickSpecs

## HP SL2500 Scalable System

### Storage

1-24 Twenty-four 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

# QuickSpecs

## HP SL2500 Scalable System

### System Specifications

<b>Power</b>		
<b>ProLiant SL210tGen8 Fully Configured</b>	115V/60Hz	220V/50Hz
<b>Fully Loaded System Input Wattage (W)</b>	651	638
<b>Fully Loaded System Input Current (A rms)</b>	5.7	3.0
<b>Fully Loaded System Thermal (BTU- Hr)</b>	2218	2174
<b>Fully Loaded System VA (Volt-Amp)</b>	657	657
<b>System Leakage with all power supplies loaded (mA)</b>	1.58	3.03
<b>System Inrush Current with all power supplies loaded (A)</b>	19	37
<b>Power cord requirements</b>	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 SL servers are primarily connected to PDU's in data center racks so they ship standard with only a PDU power cord (416151-B21).

**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>.

## Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D) (with bezel)	3.44 x 17.64 x 32.28 in (8.74 x 44.81 x 82 cm)
	<b>Weight</b> (approximate)	1U LFF full loading system(12 HDDs, power supply, and processor installed):37.50kg 1U SFF full loading system(24 HDDs, power supply, and processor installed):35.52kg 2U LFF full loading system(12 HDDs, power supply, and processor installed):33.395kg 2U SFF full loading system(24 HDDs, power supply, and processor installed):31.345kg
	<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 304.8 m) above sea level to a maximum of 10,000 ft (3048 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 (3048 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 (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). The listed sound levels apply to minimally populated shipping configurations. Additional options may result in increased

## Technical Specifications

	sound levels.		
	<b>Node type</b>	<b>1U</b>	<b>2U</b>
	<b>Idle</b>		
	<i>LWAd</i>	6.4 B	6.5 B
	<i>LpAm</i>	47 dBA	48 dBA
	<b>Operating</b>		
	<i>LWAd</i>	6.4 B	6.5 B
	<i>LpAm</i>	47 dBA	48 dBA
<b>Emissions Classification</b> (EMC)	FCC Rating	Class A	
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1	

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

<b>HP Dynamic Smart Array B120i Controller</b>	<b>Dimensions</b>	Embedded
	<b>Disk Drive Interface - Transfer rate</b>	Up to 6Gb/s SATA (Serial ATA)
	<b>Connectors</b>	6 internal SATA connectors
	<b>Server Interface</b>	x4 PCIe 2.0
	<b>SATA Speed</b>	6Gb/s SATA links
	<b>Cache Memory</b>	Zero Memory RAID has no cache memory
	<b>Logical Drives Supported</b>	Up to 8 logical volumes (6 physical drives)
	<b>Host Memory Addressing</b>	64-bit, supporting greater than 4GB server memory space
	<b>Hot Plug Support</b>	Yes
	<b>RAID Support</b>	RAID 0 (Striping), RAID 1 (Mirroring) RAID 1+0 (Striping & Mirroring)

<b>Embedded NC361i 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 Theme 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,
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## Technical Specifications

please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

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

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# QuickSpecs

## HP SL2500 Scalable System

### Summary of Changes

Date	Version History	Action	Description of Change:
5-Dec-2014	From Version 12 to 13	Changed	Update DIMMs slot and configuration diagrams
1-Nov-2014	From Version 11 to 12	Changed	Changes made in Service and Support sections.
11-Jul-2014	From Version 10 to 11	Changed	Changes were made in North America and Canada only.
09-Jun-2014	From Version 9 to 10	Changed	Basic Care, Hard Drives, Insight Software, Storage Controllers, Storage Options, Rail Kits, USB and SD Options, and Care Pack Services were revised.
31-Mar-2014	From Version 7 to 9	Changed	HP Computation and Graphics Accelerators was added / Hard Drives and HP Insight Software were revised / HP Basic and Remote Monitoring Power Distribution Unit product descriptions were revised
18-Feb-2014	From Version 6 to 7	Changed	Changed What's New to read:  Support for the SL210t Gen8 2U server
09-Dec-2013	From Version 5 to 6	Changed	Changes were made throughout Configuration Information, Core Options, and Additional Options.
11-Oct-2013	From Version 4 to 5	Changed	Changes were made throughout Configuration Information, Core Options, and Additional Options.
02-Oct-2013	From Version 3 to 4	Changed	Changes made to Standard Features - Storage Controller
20-Sep-2013	From Version 2 to 3	Changed	HP Dynamic Smart Array B120i Controller in Technical Specifications was revised.
13-Sep-2013	From Version 1 to 2	Changed	Mentions of G8 were changed to Gen8  Memory, Hard Drives, Networking, Storage Controllers, Storage Options, HP Power Distribution Units, Intelligent Power Distribution Units, and Rack Options were revised  HP Care Pack Services was removed from Additional Options

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