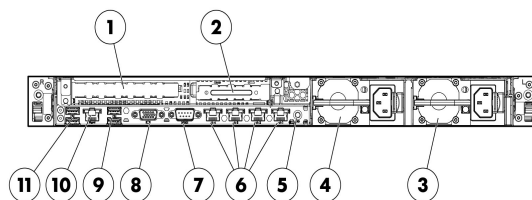
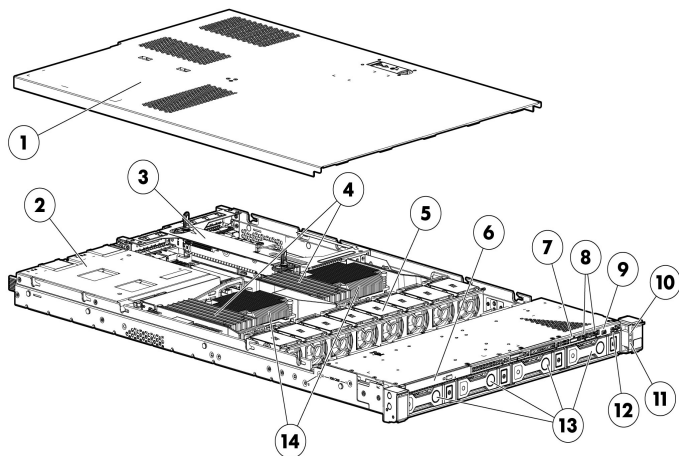


### Overview

Essential features packed in a 1U footprint to deliver the key elements for file and print and single application workloads. Value, performance, flexible storage, enhanced management and superior serviceability makes the DL360e the 2P system right-sized for both SMB and enterprise customers.



#### Front View:

1. Access Panel
2. Redundant Hot Plug Power Supplies (upgradeable option)
3. Removable Riser Cage assembly for 1 x PCIe 3.0 x16 + 1 x PCIe 2.0 x8
4. 12 DIMM slots: DDR3 Registered (RDIMM), Load Reduced (LRDIMM) or Unbuffered (UDIMM) memory
5. Removable hot-plug fan modules for easy serviceability
6. Optical Disk Drive Bay
7. Video connector
8. USB Connectors
9. Unit ID LED/button
10. Health LED
11. NIC activity LED
12. Power On/Standby button
13. Drive Bays
14. Up to two Intel® E5-2400 Series processors

#### Rear View:

1. PCIe 3.0 Full-height/half-length (250mm) x16 expansion slot
2. PCIe 2.0 Low Profile x8 expansion slot
3. Power supply bay 1 (Primary Power Supply)
4. Power supply bay 2 (Shown populated: Optional)
5. Unit ID LED/button
6. HP Ethernet 1Gb 4-port 366i Adapter
7. Serial connector
8. Video connector
9. USB connectors
10. iLO connector
11. USB connectors

### 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

#### Eight -Core Processors

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

Intel® Xeon® E5-2470 (2.3GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 5/5/6/6/7/7/8/8) Turbo+

Intel® Xeon® E5-2450 (2.1GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 5/5/6/6/7/7/8/8) Turbo+

Intel® Xeon® E5-2450L (1.8GHz/8-core/20MB/8GT-s QPI/70W, DDR3-1600, HT, Turbo2- 2/2/3/3/4/4/5/5) Turbo+

#### Six-Core Processors

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

Intel® Xeon® E5-2440 (2.4GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Turbo

Intel® Xeon® E5-2430 (2.2GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Turbo

Intel® Xeon® E5-2420 (1.9GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Turbo

Intel® Xeon® E5-2430L (2.0GHz/6-core/15MB/7.2GT-s QPI/60W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Turbo

#### Quad-Core Processors

**NOTE:** All support up to 1066MHz DDR3 memory speeds.

Intel® Xeon® E5-2407 (2.2GHz/4-core/10MB/6.4GT-s QPI/80W, DDR3-1066, HT)

Intel® Xeon® E5-2403 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W, DDR3-1066, HT)

**NOTE:** Up to 2 processors supported. Performance/Energy Star Model configurations include two processors with 8 fans.

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

**NOTE:** Turbo 2 indicates the maximum potential bin increments when using Intel® Turbo Boost Technology, with 8, 7, 6, 5, 4, 3, 2 and 1 cores active.

**NOTE:** DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed (options for 1600, 1333, 1066MHz).

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

**NOTE:** For the Intel® C600 Chipset E5-2400 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2400x v#, 2 = number of CPUs in a Node, 4 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v#(not yet designated) = version number.

### Standard Features

**Cache Memory**

One of the following  
depending on Model

20MB (1x20MB) Level 3

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

15MB (1x15MB) Level 3

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

10MB (1x10MB) Level 3

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

**NOTE:** All processor models above list the L3 Cache associated with that particular processor.

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**Chipset**

Intel® C600 Series Chipset

Intel® E5-2400 Processor Family

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

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**Upgradeability**

Upgradeable to two processors (16 Cores)

Up to 12 DIMM slots

**NOTE:** To take advantage of DIMMs 7-12, a second processor must be installed

10 Gigabit networking options via standup card

Up to 8 SFF Hard Drive Bays; Or 4 LFF Hard Drive Bays

Redundant Power Supply

Redundant Fan

Optical Drive Bay (8 SFF/4 LFF)

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**On System Management  
Processor**

HP iLO (Firmware: HP iLO 4)

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

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**Memory Protection**

Advanced ECC

Online Spare

Lock-step

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### Standard Features

<b>Memory</b> One of the following depending on Model	Type	HP SmartMemory DDR3 Load Reduced (LRDIMM), Registered (RDIMM) or Unbuffered (UDIMM)
	DIMM Slots Available	12 (6 DIMM slots per processor, 3 channels per processor, 2 DIMMs per channel)
	Standard (Entry Models - SAS)	4GB (1 x 4GB) Registered DIMMs PC3L-10600R (1333MHz)
	Standard (Entry Models - SATA)	4GB (1 x 4GB) Registered DIMMs PC3L-10600R (1333MHz)
	Standard (Base Models)	8GB (2 x 4GB) Registered DIMMs PC3L-10600R (1333MHz)
	Standard (Performance Models)	24GB (6 x 4GB) Registered DIMMs PC3L-10600R (1333MHz)
	Maximum Capacity (LRDIMM)	384GB (12 x 32GB LRDIMM @1333MHz)
	Maximum Capacity (RDIMM)	192GB (12 x 16GB RDIMM @1600MHz or 1333MHz)
	Maximum Capacity (UDIMM)	96GB (12 x 8GB UDIMM @1333MHz)
	<b>NOTE:</b> HP memory from previous generation servers are not fully compatible with the HP ProLiant DL360e Gen8 Server.	
	<b>NOTE:</b> To realize the performance memory capabilities listed in this document, HP SmartMemory is required. 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> If only one processor is installed, only 6 DIMM slots are available. When populating with two processors 12 DIMM slots are available	
	<b>NOTE:</b> Depending on the memory configuration and processor model, the memory speed may run at 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> .	

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**Network Controller** HP Ethernet 1Gb 4-port 366i Adapter

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Expansion Slots	Expansion Slots #	Technology	Bus Width*	Connector Width	Form Factor	Notes
	1	PCIe 3.0	x16	x16	Full-height, half-length slot	
	2	PCIe 2.0	x4	x8	Low profile slot	

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

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### Standard Features

#### HP Server ROM

HP ROM (Read Only Memory) is now digitally signed using HP's Corporate Signing Service. This signature is verified before the flash process starts, reducing accidental programming and preventing malicious efforts to corrupt system ROM.

HP ROM provides for essential initialization and validation of hardware components before control is passed to the customer-installed operating system. The ROM also provides the capability of booting from various fixed media (HDD, CD-ROM) and removable media (USB), to continue operation to the operating system.

HP ROM performs very early configuration of the video controller, to allow monitoring of initialization progress via an attached monitor. If configuration or hardware errors are discovered during this early phase of hardware initialization, suitable messages are now displayed on the connected monitor. Additionally, these configuration or hardware errors are logged to the Integrated Management Log (IML) to assist in diagnosis.

HP's ProLiant ROM is used to configure the following:

- Processor and chipset status registers
- System memory, memory map, and memory initialization
- System hardware configuration (Integrated PCI devices and optional PCIe cards).
- Customer-specific BIOS configuration (using the HP ROM-Based Setup Utility (RBSU).

**NOTE:** For further information, please refer to HP's RBSU (ROM based setup utility) user guide: [www.hp.com/support/rbsu](http://www.hp.com/support/rbsu).

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#### Storage Controller

One of the following depending on Model

Entry Model - SAS	HP Dynamic Smart Array B320i Controller <b>NOTE:</b> Provides support for up to 8 SAS or SATA drives and includes SAS license key.
Entry Model - SATA	HP Dynamic Smart Array B120i Controller <b>NOTE:</b> Provides data transmission speeds up to 3Gb/s.
Base Models	HP Dynamic Smart Array B320i/512MB FBWC Controller <b>NOTE:</b> Provides support for up to 8 SAS or SATA drives and includes SAS license key.
Performance Models	HP Smart Array P420/1GB FBWC Controller (RAID 0/1/1+0/5/5+0)

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### Standard Features

<b>Internal Storage Devices</b>	Diskette Drive	None
	Optical Drive	Optional DVD-ROM, DVD-RW <b>NOTE:</b> This option available with all 8SFF or 4LFF drive bay models.
	Hard Drives	None ship standard
	Hard Drive Bays	8 SFF drive bays total with Optical drive bay 4 LFF drive bays total with Optical drive bay. <b>NOTE:</b> HP ProLiant DL360e Gen8 server offers both SFF and LFF versions in CTO. The Optical Drive bay is available with both models. <b>NOTE:</b> Drive cage changes are not supported. <b>NOTE:</b> All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit. These part numbers for single HDD blanks below are also provided should the customer require replacement HDD blanks for their server.
	One of the following depending on Model	

<b>Maximum Internal Storage</b>	Hot Plug SFF SAS	8.0TB	8 x 1TB
	Hot Plug SFF SATA	8.0TB	8 x 1TB
	Hot Plug LFF SAS	12.0TB	4 x 3TB
	Hot Plug LFF SATA	12.0TB	4 x 3TB
	Hot Plug SFF SAS SSD	6.4TB	8 x 800GB
	Hot Plug SFF SATA SSD	3.2TB	8 x 400GB
	Hot Plug LFF SATA SSD	1.6TB	4 x 400GB (with optional LFF drive cage)

<b>Interfaces</b>	Serial	1
	Video	1 Front Mini-Video connector/ 1 Rear standard video (not active simultaneously) <b>NOTE:</b> Mini-video connector requires Front Video Adapter Kit (PN 655915-B21).
	HP iLO Remote Management Network Port	1Gb Dedicated
	SD slot	1 Internal secure
	USB 2.0 Ports	7 total: 4 rear, 2 front, 1 internal (secure)
	Network Ports	4x1GbE ports

### Standard Features

<b>Industry Standard Compliance</b>	ACPI 2.0b Compliant PCIe 3.0 PXE Support WOL Support Microsoft® Logo certifications USB 2.0 Compliant
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### Server Power Cords

All Pre-configured Models servers ship with a high voltage server to PDU power cord.  
**NOTE:** HP ProLiant DL servers no longer ship standard with a 12-foot NEMA 5-15P to C13 power cords (227099-001) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU 6-foot C-14 to C13 power cord (142258-001). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the 12-foot NEMA 5-15 to C13 power cord (227099-001). See Power Cords section for Worldwide Power Cord options.

### Power Specifications

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

**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)

### 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 ECOS 80 Plus power supply program. HP CS power supply options provide efficiency ratings of up to 94% (80 Plus Platinum) and are available in three power output options - 460W, 750W, and 1200W - allowing the customer to "right-size" a 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:** 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.

HP CS Platinum Plus power supplies are required when enabling HP's Power Discovery Services, a solution that creates an automated, energy-aware network between IT systems and facilities. This allows your company to reclaim millions of dollars in wasted power capacity and downtime costs across data centers. For more information on HP's Power Discovery Services, go to: [www.hp.com/go/ipd](http://www.hp.com/go/ipd).

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:** The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on [www.80Plus.org](http://www.80Plus.org).

### Standard Features

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)

#### System Fans

One of the following depending on Model

4 Hot-Plug Non-redundant Fans ship standard in 1P Models

- 1P: 4 fans - non-redundancy
- 1P: 5 fans - redundancy

8 Hot-Plug Redundant Fans ship standard in 2P Models

**NOTE:** Customers may separately purchase a redundant fan with the 661530-B21 option kit. Additional fans to support redundancy are also included in -B21 processor option kits when upgrading from a one processor to a two processor model.

#### Required Cabling

For required cabling information, refer to the Web site at: [www.hp.com/servers/DL360e-gen8](http://www.hp.com/servers/DL360e-gen8)

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

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

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from HP, please visit our OS Support Site at: <http://www.hp.com/go/ossupport> and our driver download page <http://www.hp.com/support/DL360eGen8>.

#### Graphics

Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)
- 1920 x 1200 (16 bpp)

#### Form Factor

One of the following depending on Model

1U Rack form factor

8 SFF Drive Bay Version:

1.7" (4.32cm) Height x 17.1" (43.46cm) Width x 27.5" (69.9cm) Length

4 LFF Drive Bay Version:

1.7" (4.32cm) Height x 17.1" (43.46cm) Width x 29.5" (75cm) Length



### Standard Features

#### On System Management HP iLO Management Engine

HP iLO Management Engine is a complete 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. HP iLO Management Engine portfolio includes:

- **HP iLO:** The HP iLO management processor is the core foundation for HP iLO Management Engine. HP iLO for HP ProLiant servers simplify server setup, engage health monitoring, power and thermal control, and promote remote administration for HP ProLiant ML, DL, BL and SL servers. Furthermore with the new HP iLO is the ability to access, deploy, and manage your server anytime from anywhere with your Smartphone device.
- **HP Agentless Management:** With HP iLO Management Engine in every HP ProLiant Gen8 server, the base hardware monitoring and alerting capability is built into the system (running on the HP iLO chipset) and starts working the moment that a power cord and an Ethernet cable is connected to the server.
- **HP Active Health System:** HP Active Health System is an essential component of the HP iLO Management Engine. It provides: Diagnostics tools/scanners wrapped into one; Always on, continuous monitoring for increased stability and shorter downtimes; Rich configuration history; Health and service alerts; Easy export and upload to Service and Support.
- **HP Intelligent Provisioning** (previously known as SmartStart): HP Intelligent Provisioning offers the ability for out-of-the box single-server deployment and configuration without the need for media.

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

#### HP Insight management software 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 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,

### Standard Features

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>

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### Security

Power-on password  
Serial interface control  
Administrator's password

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### Warranty

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

**NOTE:** Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

### Optional Features

#### HP Insight management software

HP Insight Control

HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See [www.hp.com/go/insightcontrol](http://www.hp.com/go/insightcontrol)

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

HP Matrix Operating Environment

The HP Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business.

The HP Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HP CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS).

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

HP iLO Advanced License for ProLiant Servers

HP iLO management processors for HP ProLiant Gen8 servers virtualizes system controls to help simplify server setup, engage health monitoring and power and thermal control, and promote remote administration. HP iLO functions out-of-the-box without additional software installation and functions regardless of the servers' state of operation. Basic system board management functions, diagnostics, and essential Lights-Out functionality ships standard across all HP ProLiant Gen8 rack, tower and blade servers. The HP iLO can be accessed from any location via a web browser and works hand-in-hand with HP Systems Insight Manager, Insight Control, and Insight Dynamics, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service to the business.

Advanced functionality, such as graphical remote console, multi-user collaboration, and video record/playback can be activated with the optional HP iLO Advanced or HP iLO Advanced for BladeSystem licenses. The Advanced licensed features offer sophisticated remote administration of servers in dynamic data center and remote locations and can help significantly reduce cost associated with IT-related travel and unplanned downtime.

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

HP Service Pack for ProLiant

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### Optional Features

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**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>

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### Optional Features

#### High Performance Clusters

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

#### HP Insight Online

HP Insight Online is a new addition to the HP Support Center for one stop, secure access to product and HP support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HP Insight Remote Support. With Insight Online's easy navigation you can efficiently track your IT support contracts and device status from anywhere and at anytime. [www.hp.com/go/insightonline](http://www.hp.com/go/insightonline)

#### Factory Express Portfolio for Servers and Storage

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

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

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

### Optional Features

#### **HP Enterprise Configurator**

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

### Service and Support

#### Service and Support

#### **HP Technology Services for Industry Standard Servers and BladeSystem**

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

#### **What HP ProLiant and BladeSystem Services can do for you**

HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for their business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help deliver high levels of application availability through proactive service management and advanced technical response

You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs.

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

All three service recommendations include support services from the broader portfolio of Foundation Care and Proactive Care services.

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#### Optimized Care

#### **Optimized Care: Supports maintaining servers at optimum performance availability**

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner  
<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

##### **HP Installation and Startup for Insight Control Software / HP SIM**

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

##### **3-Year HP 24x7 4 hour Response, Proactive Care**

Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your call and end to end until resolved, delivering a single point of contact for you. Helping you to resolve your hardware and software issues and minimizing downtime in your business critical environment.

**Additional Services:** Factory Express, Education Services, Proactive Select - 30 Credit Package

### Service and Support

#### Standard Care

**Standard Care: Service recommendation that maintains high level of server availability**

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner  
<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

##### **HP Installation and Startup for Insight Control Software / HP SIM**

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

##### **3-Year HP 24x7 4 hour Response, Collaborative Support**

Provides problem resolution support across the stack of HW, firmware, and HP and 3rd party SW. In case the issue is with 3rd party SW, HP does known issue resolution. If HP cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf.  
<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf>

**Additional Services:** Software support service with 24X7 availability with a 2 hour response, Training courses on Microsoft, Linux (Red Hat and SUSE), VMware, and HP Insight Software, 10 Proactive Select Credit package, Factory Express

<http://www8.hp.com/us/en/business-services/it-services.html?compURI=1078865>

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#### Basic Care

**Basic Care: delivers minimum recommended support service level**

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner  
<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

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

Provides you with rapid remote support and if required an HP authorized technical engineer will be on site 24X7 begin hardware maintenance service within 4 hours of the service request being logged  
<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf>

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

Provides remote 3-year software support service that delivers comprehensive software services, including access to HP technical resources and software updates  
<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf>

**Additional Services:** Factory Express, Education Services, Proactive Select - 10 Credits

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#### Insight Remote Support

Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more  
<http://www.hp.com/go/insightremotesupport>



### Service and Support

#### HP Support Center

Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more <http://www.hp.com/go/hpsc>

HP's Support Center Mobile App\* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

\*HP' Support Center Mobile App is subject to local availability

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#### Warranty / Service Coverage

For ProLiant servers and storage systems, the services cover HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

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#### For more information

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

### Pre-configured Models

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

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

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

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

**NOTE:** All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.

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

### Entry Models - SAS

<b>Quad-Core SAS Model</b> <b>HP ProLiant DL360e Gen8</b> <b>E5-2403 1P 4GB-R Hot</b> <b>Plug 8 SFF 460W PS Entry</b> <b>Server</b> 668813-xx1	<b>Processor(s)</b>	(1) Intel® Xeon® E5-2403 (1.8GHz/4-core/10MB/80W, DDR3-1066, HT Turbo) Processor
	<b>Cache Memory</b>	10MB (1x10MB) Level 3
	<b>Memory</b>	4GB (1 x 4GB) Registered DIMMs PC3L-10600R (1333MHz) <b>NOTE:</b> Memory runs at 1066MHz speed due to processor.
	<b>Network Controller</b>	HP Ethernet 1Gb 4-port 366i Adapter
	<b>Storage Controller</b>	HP Dynamic Smart Array B320i Controller <b>NOTE:</b> Provides support for up to 8 SAS or SATA drives and includes SAS license key.
	<b>Hard Drive</b>	None ship standard; includes 7 SFF hard drive blanks
	<b>Internal Storage</b>	8 SFF HDD Bays
	<b>Optical Drive Bay</b>	1; (Optional: DVD-ROM, DVD-RW)
	<b>PCI-Express Slots</b>	2 standard (1-FH/HL, 1-LP)
	<b>Power Supply</b>	(1) HP 460W CS Gold Hot Plug Power Supply (92% Efficient)
	<b>Fans</b>	4 Hot-Plug Non-redundant Fans
	<b>Management</b>	HP iLO Management Engine (standard) Optional: HP Insight Control
	<b>Form Factor</b>	Rack (1U) <b>NOTE:</b> Includes Rack Mounting Gen8 non-telescoping Friction Rail Kit which does not allow for in rack serviceability. The HP 1U Gen8 Cable Management Arm is not available when using Friction Rails. Caution: HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.
	<b>Warranty</b>	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

### Pre-configured Models

#### Entry Models - SATA

<b>Quad-Core SATA Model</b> <b>HP ProLiant DL360e Gen8</b> <b>E5-2403 1P 4GB-R B320i</b> <b>Hot Plug 4 LFF 460W PS</b> <b>Entry Svr</b> 668812-xx1	<b>Processor(s)</b>  <b>Cache Memory</b> <b>Memory</b>  <b>Network Controller</b> <b>Storage Controller</b> <b>Hard Drive</b>  <b>Internal Storage</b> <b>Optical Drive Bay</b> <b>PCI-Express Slots</b> <b>Power Supply</b> <b>Fans</b> <b>Management</b>  <b>Form Factor</b>         <b>Warranty</b>	(1) Intel® Xeon® E5-2403 (1.8GHz/4-core/10MB/80W, DDR3-1066, HT Turbo) Processor 10MB (1x10MB) Level 3 4GB (1 x 4GB) Registered DIMMs PC3L-10600R (1333MHz) <b>NOTE: Memory runs at 1066MHz speed due to processor.</b> HP Ethernet 1Gb 4-port 366i Adapter HP Dynamic Smart Array B120i Controller None ship standard; includes 3 LFF hard drive blanks <b>NOTE: Provides data transmission speeds up to 3Gb/s.</b> 4 LFF HDD Bays 1; (Optional: DVD-ROM, DVD-RW) 2 standard (1-FH/HL, 1-LP) (1) HP 460W CS Gold Hot Plug Power Supply (92% Efficient) 4 Hot-Plug Non-redundant Fans HP iLO Management Engine (standard) Optional: HP Insight Control Rack (1U) <b>NOTE: Includes Rack Mounting Gen8 non-telescoping Friction Rail Kit which does not allow for in rack serviceability. The HP 1U Gen8 Cable Management Arm is not available when using Friction Rails. Caution: HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.</b> Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.
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#### Base Models

<b>Six-Core Models</b> <b>HP ProLiant DL360e Gen8</b> <b>E5-2407 1P 8GB-R Hot</b> <b>Plug 8 SFF 460W PS Base</b> <b>Server</b> 668814-xx1	<b>Processor(s)</b>  <b>Cache Memory</b> <b>Memory</b> <b>Network Controller</b> <b>Storage Controller</b>  <b>Hard Drive</b> <b>Internal Storage</b> <b>Optical Drive Bay</b> <b>PCI-Express Slots</b> <b>Power Supply</b>	(1) Intel® Xeon® E5-2407 (2.2GHz/6-core/15MB/95W, DDR3-1333, HT Turbo2) Processor 15MB (1x15MB) Level 3 8GB (2 x 4GB) Registered DIMMs PC3L-10600R (1333MHz) HP Ethernet 1Gb 4-port 366i Adapter HP Dynamic Smart Array B320i/512GB FBWC Controller <b>NOTE: Provides support for up to 8 SAS or SATA drives and includes SAS license key.</b> None ship standard; includes 7 SFF hard drive blanks Standard: 8 SFF HDD Bays 1; (Optional: DVD-ROM, DVD-RW) 2 standard(1-FH/HL, 1-LP) (1) HP 460W CS Gold Plus Hot Plug Power Supply (92% Efficient)
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### Pre-configured Models

<b>Fans</b>	4 Hot-Plug Non-redundant Fans
<b>Management</b>	HP iLO Management Engine (standard) Optional: HP Insight Control
<b>Form Factor</b>	Rack (1U) <b>NOTE:</b> Includes Rack Mounting Gen8 telescoping SFF Ball Bearing Rail Kit which does allow for in rack serviceability. Due to the size and weight of the server two people are required to install the server into the rack. The HP 1U Gen8 Cable Management Arm is optional. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative. Caution: HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.
<b>Warranty</b>	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

### Performance Models

**NOTE:** These Models are Energy Star Certified.

<b>Eight-Core Model</b>	<b>Processor(s)</b>	(2) Intel® Xeon® E5-2430 (2.2GHz/8-core/20MB/95W, DDR3-1600, HT Turbo2) Processors
<b>HP ProLiant DL360e Gen8</b>	<b>Cache Memory</b>	20MB (1x20MB) Level 3
<b>E5-2430 2P 24GB-R P420</b>	<b>Memory</b>	24GB (6 x 4GB) Registered DIMMs PC3L-10600R (1333MHz)
<b>Hot Plug 8 SFF 460W PS</b>	<b>Network Controller</b>	HP Ethernet 1Gb 4-port 366i Adapter
<b>Perf Svr</b>	<b>Storage Controller</b>	HP Smart Array P420i/1GB FBWC Controller (RAID 0/1/1+0/5/5+0)
668815-xx1	<b>Hard Drive</b>	None ship standard; includes 7 SFF hard drive blanks
	<b>Internal Storage</b>	Standard: 8 SFF HDD Bays
	<b>Optical Drive Bay</b>	1; (Optional: DVD-ROM, DVD-RW)
	<b>PCI-Express Slots</b>	2 standard(1-FH/HL (250mm), 1-LP)
	<b>Power Supply</b>	(2) HP 460W CS Gold Plus Hot Plug Power Supplies (92% Efficient)
	<b>Fans</b>	8 Hot-Plug Redundant Fans
	<b>Management</b>	HP iLO Management Engine (standard) HP Insight Control Standard
	<b>Energy Star</b>	Meets Energy Star requirements
	<b>Form Factor</b>	Rack (1U) <b>NOTE:</b> Includes Rack Mounting Gen8 telescoping SFF Ball Bearing Rail Kit which does allow for in rack serviceability. Due to the size and weight of the server two people are required to install the server into the rack. The HP 1U Gen8 Cable Management Arm is optional. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative. Caution: HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

### Pre-configured Models

**Warranty**

Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response

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**Country Code Key**

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

### Configuration Information - Factory Integrated Models

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

**NOTE:** Factory Integrated Models must start with a CTO Server.

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

**NOTE:** All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

#### Step 1: Base Configuration (choose one of the following configurable models)

**NOTE:** Rail kits and cable management solutions are optional in CTO. See "Step 3: Choose Additional Factory Integratable Options" for details on ordering.

**NOTE:** The DL360e ships standard with the HP Dynamic Smart Array B120i Controller which provides support for up to 6 SATA drives (greater than 4 drives requires additional cable, PN 675856-B21) and data transmission speeds up to 3Gb/s. Customers requiring SAS support or greater than 6 drives should select either a Smart Array family controller or the HP Dynamic Smart Array B320i Controller (PN 661387-B21, implemented via riser).

**NOTE:** Power Supply not included - choose from Power Options section

**HP Models** HP ProLiant DL360e Gen8 8 SFF Configure-to-order Server 661189-B21

**Factory Integrated Model ships with:**

2 x HP Smart Socket Guides for fast processor installation

Drive Cage - 8-Small Form Factor

12 DIMM slots for RDIMM, LRDIMM and UDIMM SmartMemory installation

HP Ethernet 1Gb 4-port 366i Adapter

HP Dynamic Smart Array B120i Controller (Cache connection for 512MB FBWC options)

I/O slots - 2 Slots come standard:

- Slot 1 - Full-Height/Half-Length (250mm) x 16 PCIe 3.0
- Slot 2 - Low Profile x 8 PCIe 2.0

System Fans - 4 (4 additional fans included with second processor kit)

USB - 4 Rear, 2 Front, 1 Internal

1 Internal SD slot

HP iLO Management Engine (standard)

**NOTE:** New options are available for Rack Rail Kits; these options are no longer standard on-board with this Model Part Number. Please see HP Rack Options below for optional required options.

HP ProLiant DL360e Gen8 4 LFF Configure-to-order Server

661190-B21

**Factory Integrated Model ships with:**

2 x HP Smart Socket Guides for fast processor installation

Drive Cage - 4-Large Form Factor

12 DIMM slots for RDIMM, LRDIMM and UDIMM SmartMemory installation

HP Ethernet 1Gb 4-port 366i Adapter

HP Dynamic Smart Array B120i Controller (Cache connection for 512MB FBWC options)

I/O slots - 2 Slots come standard:

- Slot 1 - Full-Height/Half-Length (250mm) x 16 PCIe 3.0
- Slot 2 - Low Profile x 8 PCIe 2.0

System Fans - 4 (4 additional fans included with second processor)

### Configuration Information - Factory Integrated Models

USB - 4 Rear, 2 Front, 1 Internal  
1 Internal SD slot  
HP iLO Management Engine (standard)

**NOTE:** New options are available for Rack Rail Kits; these options are no longer standard on-board with this Model Part Number. Please see HP Rack Options below for optional required options.

### Step 2: Choose Required 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.

##### Quad- Core Processors

**NOTE:** All support up to 1066MHz DDR3 memory speeds.

HP DL360e Gen8 Intel® Xeon® E5-2407 (2.2GHz/4-core/10MB/80W) FIO Processor Kit 660664-L21

HP DL360e Gen8 Intel® Xeon® E5-2403 (1.8GHz/4-core/10MB/80W) FIO Processor Kit 660666-L21

##### Six-Core Processors

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

HP DL360e Gen8 Intel® Xeon® E5-2440 (2.4GHz/6-core/15MB/95W) FIO Processor Kit 660656-L21

HP DL360e Gen8 Intel® Xeon® E5-2430 (2.2GHz/6-core/15MB/95W) FIO Processor Kit 660658-L21

HP DL360e Gen8 Intel® Xeon® E5-2420 (1.9GHz/6-core/15MB/95W) FIO Processor Kit 660660-L21

HP DL360e Gen8 Intel® Xeon® E5-2430L (2.0GHz/6-core/15MB/60W) FIO Processor Kit 660670-L21

##### Eight -Core Processors

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

HP DL360e Gen8 Intel® Xeon® E5-2470 (2.3GHz/8-core/20MB/95W) FIO Processor Kit 660650-L21

HP DL360e Gen8 Intel® Xeon® E5-2450 (2.1GHz/8-core/20MB/95W) FIO Processor Kit 660652-L21

HP DL360e Gen8 Intel® Xeon® E5-2450L (1.8GHz/8-core/20MB/70W) FIO Processor Kit 660668-L21

**NOTE:** Up to 2 processors supported.

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

**NOTE:** Turbo 2 indicates the maximum potential bin increments when using Intel® Turbo Boost Technology, with 8, 7,6,5,4,3,2 and 1 cores active DDR3 speed is the maximum memory speed of the processor.

**NOTE:** DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed (options for 1600, 1333, 1066MHz)

**NOTE:** For the Intel® C600 Chipset E5-2400 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2400x v#, 2 = number of CPUs in a Node, 4 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v#(not yet designated) = version number.

#### HP Memory

**NOTE:** To realize the performance memory capabilities listed in this document, HP SmartMemory is required. 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)  
(Worldwide)

### Configuration Information - Factory Integrated Models

**NOTE:** HP memory from previous generation servers are not fully compatible with new Active Health features on the Gen8 Server.

#### Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	690802-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21

#### Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21

#### Load Reduced DIMMs (LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647903-B21
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**NOTE:** All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

**NOTE:** Depending on the memory configuration and processor model, 1600MHz and 1333MHz memory may operate at a lower speed. Please see the "Memory" section later in this document and the Online Memory Configuration Tool for details at [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

**NOTE:** For additional memory rules and guidelines, see the "Memory" section later in this document.

**NOTE:** For more information on ProLiant Energy Efficient Features, see: [www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient)

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

#### HP Power Supplies

**NOTE:** Prior to making a power supply selection it is highly recommended that the HP





### Configuration Information - Factory Integrated Models

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 460W Common Slot Platinum Plus Hot Plug Power Supply Kit	656362-B21
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 Common Slot Gold Power Supplies

**NOTE:** The following Power Supplies offer up to 92% efficiency.

HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21

#### HP Common Slot -48VDC Power Supplies

HP 750W Common Slot -48VDC Hot Plug Power Supply Kit	636673-B21
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**NOTE:** NOTE: The HP 750W Common Slot -48VDC power supply does not ship with a power cable. It has been designed with a terminal block connection allowing for custom design of power cords by the user.

**NOTE:** Option Kits for AC power supplies include the power supply and one PDU IEC cable.

**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)

### Step 3: Choose Additional Factory Integratable Options

<b>Rail Kits</b>	HP 1U Friction Gen8 FIO Rail Kit	663200-B21
	<b>NOTE:</b> Includes Rack Mounting Gen8 non-telescoping Friction Rail Kit which does not allow for in rack serviceability. The HP 1U Gen8 Cable Management Arm is not available when using Friction Rails. Caution: HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.	
<b>HP I/O Expansion Options</b>	HP DL360e Gen8 CPU1 with SAS Support FIO Riser Kit	661387-B21
	<b>NOTE:</b> Supports SAS/ SATA	
	HP DL360e Gen8 CPU1 with SATA Support FIO Riser Kit	661388-B21
	<b>NOTE:</b> Supports SATA only	

### 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.

#### HP Processors

**NOTE:** If two processors are desired, select the second from the xxxxxx-B21 below.

#### Eight-Core Processors

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

HP DL360e Gen8 Intel® Xeon® E5-2470 (2.3GHz/8-core/20MB/95W) Processor Kit	660650-B21
HP DL360e Gen8 Intel® Xeon® E5-2450 (2.1GHz/8-core/20MB/95W) Processor Kit	660652-B21
HP DL360e Gen8 Intel® Xeon® E5-2450L (1.8GHz/8-core/20MB/70W) Processor Kit	660668-B21

#### Six-Core Processors

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

HP DL360e Gen8 Intel® Xeon® E5-2440 (2.4GHz/6-core/15MB/95W) Processor Kit	660656-B21
HP DL360e Gen8 Intel® Xeon® E5-2430 (2.2GHz/6-core/15MB/95W) Processor Kit	660658-B21
HP DL360e Gen8 Intel® Xeon® E5-2420 (1.9GHz/6-core/15MB/95W) Processor Kit	660660-B21
HP DL360e Gen8 Intel® Xeon® E5-2430L (2.0GHz/6-core/15MB/60W) Processor Kit	660670-B21

#### Quad-Core Processors

**NOTE:** All support up to 1066MHz DDR3 memory speeds.

HP DL360e Gen8 Intel® Xeon® E5-2407 (2.2GHz/4-core/10MB/80W) Processor Kit	660664-B21
HP DL360e Gen8 Intel® Xeon® E5-2403 (1.8GHz/4-core/10MB/80W) Processor Kit	660666-B21

**NOTE:** Up to 2 processors supported.

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

**NOTE:** Turbo 2 indicates the maximum potential bin increments when using Intel® Turbo Boost Technology, with 8, 7, 6, 5, 4, 3, 2 and 1 cores active DDR3 speed is the maximum memory speed of the processor.

**NOTE:** DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed (options for 1600, 1333, 1066MHz)

**NOTE:** For the Intel® C600 Chipset E5-2400 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2400x v#, 2 = number of CPUs in a Node, 4 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v#(not yet designated) = version number.

### Core Options

#### HP Memory

**NOTE:** To realize the performance memory capabilities listed in this document, HP SmartMemory is required. 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)  
(Worldwide)

**NOTE:** HP memory from previous generation servers are not fully compatible with Smart Memory features in Gen8 Servers.

#### Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647893-B21

HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 647895-B21

HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647897-B21

HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 647899-B21

HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 690802-B21

HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647901-B21

HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 672631-B21

#### Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669320-B21

HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647905-B21

HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669322-B21

HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647907-B21

HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669324-B21

HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647909-B21

#### Load Reduced DIMMs (LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit 647903-B21

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

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

### Core Options

<b>HP Optical Drives</b>	HP 9.5mm SATA DVD ROM JackBlack Optical Drive	652238-B21
	HP 9.5mm SATA DVD RW JackBlack Optical Drive	652241-B21

### HP Hard Drives

**NOTE:** The HP ProLiant Gen8 Smart Storage solutions are equipped with entirely re-designed Small Form Factor (SFF 2.5 in) and Large Form Factor (LFF 3.5 in) hot plug carriers for HP Qualified Hard Drives and Solid State Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove".

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

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

#### **SAS Hot Plug 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**

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

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

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

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

[http://h18000.www1.hp.com/products/quickspecs/12244\\_div/12244\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html)  
(Worldwide)

#### **6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives**

HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21

#### **6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives**

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

### Core Options

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 SAS MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 800GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653109-B21
HP 400GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653105-B21
HP 200GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	658478-B21
<b>6G SAS SLC Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives</b>	
HP 200GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653078-B21
HP 400GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653082-B21
<b>3G SATA MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 400GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653120-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653118-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653112-B21
<b>3G SATA MLC Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 400GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653126-B21
HP 200GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653124-B21
HP 100GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653122-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)	

### Core Options

#### 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 2-port 361T Adapter	652497-B21
HP Ethernet 1Gb 4-port 331T Adapter	647594-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.

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

HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
HP Ethernet 10Gb 2-port 530SFP Adapter	652503-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

QLogic InfiniBand 4X QDR PCI-E G2 Dual Port HCA	583211-B21
HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
HP InfiniBand FDR/EN 10/40Gb Dual Port 544QSFP Adapter	649281-B21

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

[http://h18000.www1.hp.com/products/quickspecs/13078\\_div/13078\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html)

#### HP Power Supplies

**NOTE:** Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: [www.hp.com/go/hppoweradvisor](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 460W Common Slot Platinum Plus Hot Plug Power Supply Kit	656362-B21
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 Common Slot Gold Power Supplies

**NOTE:** The following Power Supplies offer 92% Efficiency.

HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21

##### HP Common Slot -48VDC Power Supplies

**NOTE:** The following Power Supplies offer 92% Efficiency.

### Core Options

HP 750W Common Slot -48VDC Hot Plug Power Supply Kit 636673-B21

**NOTE:** NOTE: The HP 750W Common Slot -48VDC power supply does not ship with a power cable. It has been designed with a terminal block connection allowing for custom design of power cords by the user.

**NOTE:** Option Kits for AC power supplies include the power supply and one PDU IEC cable.

**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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**HP Cooling Options** HP DL360eGen8 Redundant Fan Kit 661530-B21

**NOTE:** The kit contains one fan to be added to a server with one processor installed to make the fans redundant.

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**HP Graphic Options** HP DL360 Gen8 Front Video Adapter Kit 655915-B21

**NOTE:** Required to enable the front video port.

HP Graphic Card Power Adapter Kit 661389-B21

**NOTE:** NOTE: The adapter kit is used to provide power to high-wattage cards (example: graphics cards) that require up to 225W of power.

NVIDIA Quadro 4000 2GB PCI-E Adapter 655933-B21

**NOTE:** Only following OS types are supported: 64-bit Only: Red Hat Enterprise Linux 5.x, Red Hat Enterprise Linux 6.x, SUSE Linux Enterprise Server 11 SPx. 64-bit Only: Windows Server 2008 R2 SPx

### Additional Options

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

#### HP Insight Software

#### HP Insight Control

HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License T9074BAE

HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License 452148-B21

HP Insight Management Media Kit 436222-B21

**NOTE:** HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.

#### HP Insight Control Server Deployment

HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License T9082AAE

HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License 452151-B21

**NOTE:** Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

**NOTE:** 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.

**NOTE:** Licenses ship without media. The HP Insight Management Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/insightupdates>.

**NOTE:** For additional license options please see the Insight Control QuickSpecs at: [http://h18000.www1.hp.com/products/quickspecs/12631\\_div/12631\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html)

#### HP Insight Control for Linux

HP Insight Control for Linux including 1yr 24x7 Support Electronic License TC213AAE

HP Insight Control for Linux including 1yr 24x7 Support Single Server License TC209A

HP Insight Control for Linux Media Kit TC208A

**NOTE:** Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.

**NOTE:** Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: <http://www.hp.com/go/ic-linux> (click on Download button).

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

**NOTE:** For additional License Kits, including electronic licensing options, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/13019\\_div/13019\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html)



### Additional Options

<b>HP iLO Advanced License</b>	<b>HP Integrated Lights-Out (iLO) Advanced for ProLiant Remote Management</b> HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License <b>NOTE:</b> For more information, visit: <a href="http://www.hp.com/go/ilo">http://www.hp.com/go/ilo</a> .	512485-B21
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### High Performance Clusters

<b>HP Cluster Management Utility</b> HP Insight Cluster Management Utility 1yr 24x7 Flexible License HP Insight Cluster Management Utility 3yr 24x7 Flexible License <b>NOTE:</b> 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.	QL803B BD476A
HP Insight Cluster Management Utility Media <b>NOTE:</b> For additional license kits please see the QuickSpecs at: <a href="http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html">http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html</a> .	BD477A
<b>HP HPC Linux Value Pack</b> HP High Performance Computing Linux Value Pack 1 Processor Flexible License <b>NOTE:</b> This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. <b>NOTE:</b> For additional license kits please see the QuickSpecs at: <a href="http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html">http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html</a> .	TC293B
HP High Performance Computing Linux Value Pack Media Kit <b>NOTE:</b> This part number can be used to purchase media including software and documentation, which will be delivered to the customer.	TC294A

### HP I/O Accelerator Options

HP 160GB Single Level Cell PCIe ioDrive for ProLiant Servers <b>NOTE:</b> A low-profile PCI bracket is included for use in low-profile slots.	600278-B21
HP 320GB Multi Level Cell PCIe ioDrive for ProLiant Servers <b>NOTE:</b> A low-profile PCI bracket is included for use in low-profile slots.	600279-B21
HP 320GB Single Level Cell PCIe ioDrive Duo for ProLiant Servers	600281-B21
HP 640GB Multi Level Cell PCIe ioDrive Duo for ProLiant Servers	600282-B21
HP 1.28TB Multi Level Cell PCIe ioDrive Duo for ProLiant Servers <b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13587_div/13587_div.html">http://h18000.www1.hp.com/products/quickspecs/13587_div/13587_div.html</a> (Worldwide)	641027-B21

### Additional Options

#### HP Security

HP Trusted Platform Module Option 488069-B21

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

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

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

HP 1U Security Gen8 Bezel Kit 664918-B21

#### HP Storage Controllers

##### SAS Controllers

##### Smart Array P222 Controller

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

##### Smart Array P420 Controller

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

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

##### Smart Array P421 Controller

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

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

##### Smart Array P822 Controller

HP Smart Array P822/2GB FBWC 2-ports Int/4-ports Ext SAS Controller 615418-B21

##### Optional Upgrades

HP 2GB P-series Smart Array Flash Backed Write Cache 631681-B21

HP 512MB B-series 36 inch Dynamic Smart Array Flash Backed Write Cache for ML/DLs 631922-B21

**NOTE:** This kit includes a cable and cache module that is used in conjunction with the B320i controller.

HP 1U Gen8 Smart Array Cable Kit 672242-B21

**NOTE:** This cable kit is required when using the P222, P420, P822 Smart Array controllers, and H222, H220 HBAs.

HP Gen8 2-port SATA Cable Kit 675856-B21

**NOTE:** Required for 6SFF configurations with B120i

HP SAS License Key No Media 1 Svr 1yr 24x7 Support for B320i BC393A

HP Smart Array Advanced Pack 2.0 No Media 1 Server 1yr 24x7 Support Software BC377A

HP Smart Array Advanced Pack 2.0 No Media Electronic Lic 1yr 24x7 Support Software BC390AAE

**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)



### Additional Options

(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/14341\\_div/14341\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14341_div/14341_div.html)  
 (Smart Array P822 Controller)  
[http://h18000.www1.hp.com/products/quickspecs/14343\\_div/14343\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14343_div/14343_div.html)  
 (Dynamic Smart Array Controllers)  
[http://h18000.www1.hp.com/products/quickspecs/13200\\_div/13200\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html)  
 (Smart Array Advanced Pack)

#### Host Bus Adapter

HP H220 Host Bus Adapter 650933-B21

HP H221 Host Bus Adapter 650931-B21

**NOTE:** This is a 2 x4 External Port HBA.

HP H222 Host Bus Adapter 650926-B21

**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 Cable Options

HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HP B-series SFP+ to SFP+ Active Copper 1.0m Direct Attach Cable	AP818A
HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HP B-series SFP+ to SFP+ Active Copper 3.0m Direct Attach Cable	AP819A
HP C-Series SFP+ to SFP+ Copper 3.0m Direct Attach Cable	AP784A
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
HP B-series SFP+ to SFP+ Active Copper 5.0m Direct Attach Cable	AP820A
HP C-Series SFP+ to SFP+ Copper 5.0m Direct Attach Cable	AP785A
HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A
HP Premier Flex LC/LC Multi-mode OM4 5 fiber 1m Cable	QK734A

### Additional Options

#### HP Backup & Recovery Software

#### HP Data Protector Express

HP Basic Upgrade to Data Protector Express V6 for 1 Server E-LTU	TC333BAE
HP Data Protector Express V6.0 for 10 Server E-LTU	TC332BAE
HP Data Protector Express V6.0 for 1 Server E-LTU	TC330BAE
HP Data Protector Express V6.0 for 3 Server E-LTU	TC331BAE

**NOTE:** One of these Data Protector Express base products is required. To see available options: <http://www.hp.com/go/dataprotectorexpress>

#### HP Tape Backup

**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP tape backup products see: <http://www.hp.com/storage/SPOCK>.

HP LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rackmount	EJ014A
<b>NOTE:</b> Connection using HP Smart Array P222 Controller (631667-B21) recommended.	
HP LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit	EH946B
HP LTO-4 Ultrium 1760 SCSI External Tape Drive	EH922A
HP LTO-5 Ultrium 3000 SAS External Tape Drive	EH958A
HP LTO-5 Ultrium 3000 SAS Internal Tape Drive	EH957A
HP LTO-5 Ultrium 3280 SAS External Tape Drive	EH900A
HP LTO-5 Ultrium 3280 SAS Internal Tape Drive	EH899A
HP 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
<b>NOTE:</b> Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP Smart Array P222 Controller (631667-B21) recommended.	
HP 1/8 G2 LTO-5 Ultrium 3000 Fibre Channel Tape Autoloader	BL541A
HP 1/8 G2 Ultrium 920 SAS Autoloader	AH558A
HP 1/8 Ultrium 920 G2 Tape Autoloader	AH165A
HP MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library	AK378A
<b>NOTE:</b> Connection using HP Smart Array P222 Controller (631667-B21) recommended.	
HP MSL2024 1 LTO-4 Ultrium 1840 Tape Library	AJ033A
<b>NOTE:</b> Connection using HP Smart Array P222Controller (631667-B21) recommended.	
HP MSL2024 1 LTO-5 Ultrium 3000 Fibre Channel Tape Library	BL542A
HP MSL2024 1 LTO-5 Ultrium 3000 SAS Tape Library	BL537A
HP MSL2024 1 LTO-5 3280 FC Tape Library	BL531A
HP MSL2024 1 Ultrium 920 Drive Tape Library	AH169A
HP MSL2024 Ultrium 920 SAS Tape Library	AH559A
HP MSL4048 1 LTO-4 Ultrium 1840 Fibre Channel Tape Library	AJ036A
HP MSL4048 1 LTO-5 3280 FC Tape Library	BL532A
HP MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library	AK380A
HP MSL4048 2 LTO-4 Ultrium 1840 Fibre Channel Tape Library	AJ038A
HP MSL4048 2 LTO-5 Ultrium 3000 Fibre Channel Tape Library	BL543A
HP MSL8096 2 LTO-4 Ultrium 1760 SAS Tape Library	AK382A
HP MSL8096 2 LTO-5 Ultrium 3280 Fibre Channel Tape Library	BL533A

### Additional Options

HP MSL8096 4 LTO-5 Ultrium 3280 Fibre Channel Tape Library	BL534A
HP MSL2024/4048/8096 LTO-4 Ultrium 1840 Fibre Channel Tape Drive Upgrade Kit	AJ042A
HP LTO-4 Ultrium 1760 SAS External Tape Drive	EH920A
HP LTO-4 Ultrium 1840 SAS External WW Drive	EH861A
HP LTO-4 Ultrium 1840 (1) SCSI Tape Drive in 3U Rack-mount Kit	EH926A
HP LTO-4 Ultrium 1840 SCSI External WW Tape Drive	EH854A
HP LTO-5 Ultrium 3280 SAS Tape Drive in 3U Rackmount	EJ013A

### HP Disk Backup

**NOTE:** For the complete range of RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP disk backup products see: <http://www.hp.com/storage/SPOCK>.

#### HP RDX External Disk Backup Systems

HP RDX160 External Removable Disk Backup System <b>NOTE:</b> 160GB of disk capacity per data cartridge.	AJ766A
HP RDX320 External Removable Disk Backup System <b>NOTE:</b> 320GB of disk capacity per data cartridge.	AJ768A
HP RDX500 External Removable Disk Backup System <b>NOTE:</b> 500GB of disk capacity per data cartridge.	AJ935A
HP RDX1000 External Removable Disk Backup System <b>NOTE:</b> 1TB of disk capacity per data cartridge.	BV849A

#### HP RDX Removable Disk Backup Systems USB

HP RDX160 Internal Removable Disk Backup System <b>NOTE:</b> For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 160GB of disk capacity per data cartridge.	AJ765A
HP RDX320 Internal Removable Disk Backup System <b>NOTE:</b> For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 320GB of disk capacity per data cartridge.	AJ767A
HP RDX500 Internal Removable Disk Backup System <b>NOTE:</b> For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.	AJ934A
HP RDX1000 Internal Removable Disk Backup System <b>NOTE:</b> For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.	BV847A

### HP Modular Cooling System G2

HP Modular Cooling System G2 10642 G2 Expansion Rack	AF026A
HP Modular Cooling System G2 Rack	AF025A

### Additional Options

#### HP Storage Options

##### 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 AP769A

HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter AP770A

##### Emulex Fibre Channel HBAs

HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter AJ762A

HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter AJ763A

##### 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

##### Converged Network Adapter

HP CN1100E Dual Port Converged Network Adapter BK835A

HP CN1000Q Dual Port Converged Network Adapter BS668A

#### HP Disk Storage Systems

##### Disk Enclosures

##### HP D2000 Disk Enclosures

HP D2600 Disk Enclosure AJ940A

HP D2700 Disk Enclosure AJ941A

**NOTE:** Please see the QuickSpecs for additional options and configuration information at: [http://h18000.www1.hp.com/products/quickspecs/13404\\_div/13404\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html) (Worldwide)

#### HP Uninterruptible Power Systems

##### HP Rack-mountable UPS

##### HP R1500 G3 Uninterruptible Power Supply (UPS)

HP R1.5kVA G3 1U INTL Uninterruptible Power System AF471A

HP R1.5kVA G3 1U JP/TW Uninterruptible Power System AF470A

HP R1.5kVA G3 1U NA Uninterruptible Power System AF469A

**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 Detachable Cord High Voltage INTL Uninterruptible Power System AF468A

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

**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)



### Additional Options

#### 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)

HP R5KVA and R7KVA 3U Extended Runtime Module AF464A

#### HP UPS Network Module

HP UPS Network Module Mini-slot Kit AF465A

**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 HP UPS, 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 Power Distribution Units

#### Monitored PDUs

##### HP Monitored Power Distribution Unit: Full Rack Version

HP 17.3kVA 24A Dual Three Phase NA/JP Monitored Power Distribution Unit AF503A

HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit AF504A

HP 16.6kVA 40A Dual Input Single Phase NA/JP Monitored Power Distribution Unit AF505A

HP 8.3kVA 40A Single Input Single Phase NA/JP Monitored Power Distribution Unit AF506A

HP 22.1kVA 16A Dual Input Three Phase INTL Monitored Power Distribution Unit AF507A

HP 11kVA 16A Single Input Three Phase INTL Monitored Power Distribution Unit AF508A

HP 14.7kVA 32A Dual Input Single Phase INTL Monitored Power Distribution Unit AF509A

HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit AF510A

##### HP Monitored Power Distribution Unit: Half Rack Version

HP 4.9kVA 24A Single Input Single Phase NA/JP Monitored Power Distribution Unit AF914A

HP 7.3kVA 32A Single Input Three Phase INTL Intelligent Modular Power Distribution Unit AF536A

HP 17.3kVA 48A Single Input Three Phase NA/JP Monitored Power Distribution Unit AF916A

HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit AF915A

HP 22kVA 32A Single Input Three Phase INTL Monitored Power Distribution Unit AF917A

### Additional Options

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

[http://h18000.www1.hp.com/products/quickspecs/12118\\_div/12118\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html)

#### **Modular PDUs 1U/0U**

**NOTE:** 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).

HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
HP 3.6kVA 16A High Voltage INTL Modular Power Distribution Unit	252663-B24
HP 4.9kVA 24A High Voltage NA/JP Modular Power Distribution Unit	252663-D72
HP 8.3kVA 40A High Voltage INTL Modular Power Distribution Unit	252663-B21
HP 8.3kVA 40A High Voltage NA/JP Modular Power Distribution Unit	252663-D73
HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D75
HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D74
HP 7.3kVA 32A High Voltage INTL Modular Power Distribution Unit	252663-B31
HP 9.2kVA 40A High Voltage INTL Modular Power Distribution Unit	252663-B32
HP 9.2kVA 40A High Voltage INTL Core Modular Power Distribution Unit	252663-B34
HP 7.3kVA 32A High Voltage INTL Core Modular Power Distribution Unit	252663-B33
HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A

**NOTE:** This PDU has a detachable input power cord and allows for adaptability to country specific power requirements.

**NOTE:** Please see the following QuickSpecs for additional options including shorter jumper cables and country specific power cords:

[http://h18000.www1.hp.com/products/quickspecs/11041\\_div/11041\\_div.html](http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html)  
(Worldwide)

**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).



### Additional Options

<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 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
	HP 17.3kVA 24A 415V Three Phase L22-30 NA Core Intelligent Power Distribution Unit	AF902A
	HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
	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 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html">http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html</a> (Worldwide)	

<b>HP Rack Series</b>	<b>HP Rack 10000 G2 Series (Carbon/Graphite Metallic)</b>	
	HP 10622 G2 Pallet Universal Rack	AF021A
	HP 10622 G2 Shock Universal Rack	AF022A
	HP 10642 G2 Top Exhaust Rack	AF030A
	HP 10647 G2 Pallet Universal Rack	AF031A
	HP 10842 G2 Pallet Universal Rack	AF041A
	HP 10842 G2 Shock Universal Rack	AF042A
	HP 10636 G2 with Extension Shock Rack	AF014A
	HP 10642 G2 with Extension Shock Rack	AF004A
	HP 10636 G2 Crated Universal Rack	AF013A
	HP 10636 G2 Pallet Universal Rack	AF011A
	HP 10636 G2 Shock Universal Rack	AF012A

### Additional Options

HP 10642 G2 Crated Universal Rack AF003A

#### HP Value Series Racks

HP V142 1075mm deep Pallet 100 series Rack AF046A

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

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

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

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

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

**CAUTION:** If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

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

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

**NOTE:** High Airflow Inserts (High Air Flow Rack Door Insert for the 7142 Rack (single) - PN: 327281-B21; or High Air Flow Rack Door Insert for the 7142 Rack (6-pack) - PN: 327281-B22) are required to support the HP ProLiant DL380 in 7000 series racks. The DL380 Cable Management Arm is not supported on 7000 series racks.

**NOTE:** Cable management arm must be removed to access hot-plug power supplies when the cable management arm is mounted on the right.

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#### HP Rack Options

#### 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

### Additional Options

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 IN Keyboard/Mouse Kit	672097-D63
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

**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 TFT7600 G2 KVM Console Rackmount Keyboard Monitor**

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
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 Server Console Switches**

HP Server Console 0x2x8 Port Analog Switch	AF616A
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 1x4 USB/PS2 KVM Console Switch**

HP 1x4 USB/PS2 KVM Console Switch	AF611A
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### Additional Options

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)

#### Rail Kits

HP 1U Small Form Factor Ball Bearing Gen8 Rail Kit	663201-B21
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**NOTE:** For SFF models.

**NOTE:** Includes Rack Mounting Gen8 telescoping SFF Ball Bearing Rail Kit which does allow for in rack serviceability. Due to the size and weight of the server two people are required to install the server into the rack. The HP 1U Gen8 Cable Management Arm is optional. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative. **Caution:** HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

HP 1U Gen8 Cable Management Arm	663203-B21
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**NOTE:** Supports Ball Bearing rail kit only.

HP Rack Cable Management Velcro Clips	379820-B21
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HP 1U Large Form Factor Ball Bearing Gen8 Rail Kit	663202-B21
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**NOTE:** For LFF models.

**NOTE:** Includes Rack Mounting Gen8 telescoping LFF Ball Bearing Rail Kit which does allow for in rack serviceability. Due to the size and weight of the server two people are required to install the server into the rack. The HP 1U Gen8 Cable Management Arm is optional. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative. **Caution:** HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

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<b>HP USB and SD Options</b>	HP 4GB Secure Digital High Capacity Flash Media Kit	580387-B21
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**NOTE:** Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at:

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

HP 2GB USB Flash Media Drive Key Kit	608447-B21
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**NOTE:** HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.

### Memory

#### HP SmartMemory

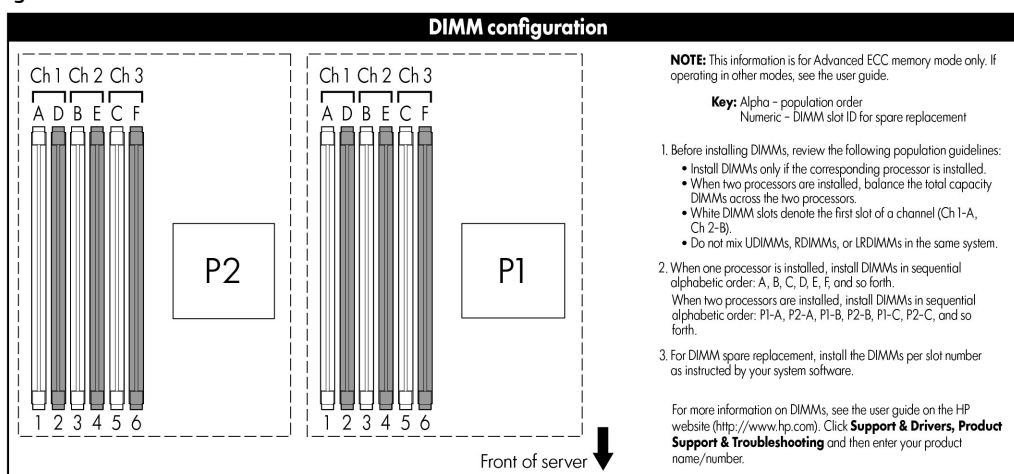
New HP SmartMemory now provides additional protection for your servers. With HP Authentication it can verify that you have true HP Qualified Memory in your HP ProLiant Gen8 server. With HP SmartMemory your new HP ProLiant server can take advantage of additional Gen8 enhancements in performance, durability and future manageability support through HP Active Health System

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)

#### Memory Subsystem Architecture

Each Intel® Xeon® E5-2400 family processor socket contains three memory channels that support two DIMMs each for a total of six (6) DIMM per installed processor or a grand total of twelve (12) DIMMs for the server. Up to 32GB capacity DIMMs are supported for 384GB of max memory .

#### Memory population guidelines



#### General Memory Population Rules and Guidelines:

- White DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate white slots only.
- A minimum of one DIMM is required per server
- Install DIMMs only if the corresponding processor is installed
- If only one processor is installed in a two processor system, only half of the DIMM slots are available
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and to load the channels similarly whenever possible
- When two processors are installed, balance the DIMMs across the two processors.
- 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 processor
- Do not mix UDIMMs, RDIMMs or LRDIMMs.
- RDIMMs operating at either 1.35V or 1.5V may be mixed in any order, but the system will power them at the higher voltage
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed
- The maximum memory speed is a function of the memory type, memory configuration, and processor model
- The maximum memory capacity is a function of the memory type and number of installed processors

### Memory

- HP memory from previous generation servers is not compatible with the DL360e Gen8 Server. Certain HP SmartMemory features such as memory authentication and enhanced performance may not be supported.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required. 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) (Worldwide)
- For memory population rules and additional memory guidelines, please see the DL360e Gen8 user guide at <http://www.hp.com/support>
- There are three (3) Memory channels per processor; six (6) channels per 2 processor server
- There are two (2) DIMM slots for each memory channel; twelve (12) total slots for 2 processor server

For Servers with 12 DIMM slots available (DL360e Gen8 Server)

Gen8 Supported Memory Bandwidth and Capacity										
DIMM Type	Registered DIMMS (RDIMMs)						Load Reduced (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	16GB	16GB	32GB	2GB	4GB	8GB
DIMM Native Speed (MHz)	1333	1600	1600	1333	1333	1600	1333	1333	1333	1333
Voltage	LV	Std	Std	LV	LV	Std	LV	LV	LV	LV

#### SLOTS THAT CAN BE POPULATED

12 slot servers	12	12	12	12	12	12	12	12	12	12
-----------------	----	----	----	----	----	----	----	----	----	----

#### MAXIMUM CAPACITY (GB)\*

12 slot servers	48	48	96	96	192	192	384	24	48	96
-----------------	----	----	----	----	-----	-----	-----	----	----	----

#### POPULATED DIMM SPEED (MHz)

1 DIMM Per Channel	1333	1600	1600	1333	1333	1600	1333**	1333	1333	1333
2 DIMM Per Channel	1333	1600	1600	1333	1333	1600	1333**	1333***	1333***	1333***

**NOTE: To realize the performance memory capabilities listed above HP SmartMemory is required.**

\*Maximum capacity will vary based on individual server platform qualification schedule

\*\*LRDIMM enables 2 DIMMs per channel. HP SmartMemory supports up to 2DPC@1333 at 1.35V. Third party memory may only support up to 2DPC@1066 at 1.5V.

\*\*\* For UDIMMs, HP SmartMemory supports 2DPC@1333 at 1.35V. Third party memory may only support up to 2DPC@1066 at 1.5V.

#### Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2470, E5-2450, E5-2450L	1600/1333/1066MHz
E5-2440, E5-2430, E5-2420, E5-2430L	1333/1066MHz
E5-2407, E5-2403	1066MHz

#### Standard and Maximum Memory Capacity (Pre-configured Models)



### Memory

Pre Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
Intel Xeon E5-2430	24GB (6x 4GB)	120GB (6x 16GB, 6x 4GB)	384GB (12x 32GB)
Intel Xeon E5-2407	8GB (2x 4GB)	168GB (10x 16GB, 2x 4GB)	384GB (12x 32GB)
Intel Xeon E5-2403	4GB (1x 4GB)	180GB (11x 16GB, 1x 4GB)	384GB (12x 32GB)

### DIMM slot and configuration diagrams

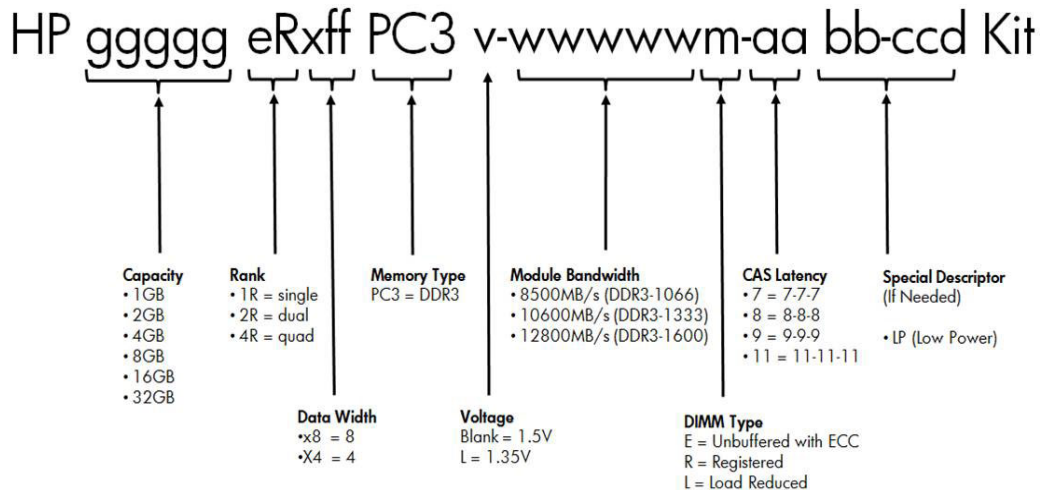
#### Basic memory slot & population diagram

- Population order; looking from the front of your server CPU#1 is on right side and CPU#2 is on the left. See the population order by alphabetic and numeric progression below.

CPU #1 IS PROCESSOR ON RIGHT - LOOKING FROM FRONT OF SERVER							CPU #1
	Channel 1		Channel 2		Channel 3		
slot #	1	2	3	4	5	6	
population order	A	D	B	E	C	F	
In Order	1	4	2	5	3	6	-

CPU #2 IS PROCESSOR ON LEFT - LOOKING FROM FRONT OF SERVER							CPU #2
	Channel 1		Channel 2		Channel 3		
slot #	1	2	3	4	5	6	
population order	A	D	B	E	C	F	
In Order	1	4	2	5	3	6	-

### DDR3 memory options part number decoder



### Memory

Following are memory options available from HP:

#### HP Memory

**NOTE:** To realize the performance memory capabilities listed in this document, HP SmartMemory is required. 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)  
(Worldwide)

**NOTE:** HP memory from previous generation servers are not fully compatible with the DL360e Gen8 Server.

#### Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647893-B21

HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 647895-B21

HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647897-B21

HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 647899-B21

HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 690802-B21

HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647901-B21

HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 672631-B21

#### Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669320-B21

HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647905-B21

HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669322-B21

HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647907-B21

HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669324-B21

HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647909-B21

#### Load Reduced DIMMs (LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit 647903-B21

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

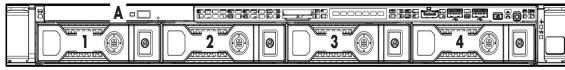
**NOTE:** PC3L is a low voltage memory.



### Storage



- A Optional DVD-ROM/DVD-RW
- 1-8 8 x SFF SATA/SAS/SSD Hot Pluggable Hard Drive Bays



- A Optional DVD-ROM/DVD-RW
- 1-4 4 x LFF SATA/SAS/SSD Hot Pluggable Hard Drives Bays

### External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P222/512MB FBWC Controller
	Up to 8	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P222/512MB FBWC Controller
	Up to 4	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller

### Technical Specifications

<b>System Unit</b>	<b>Dimensions (H x W x D)</b>	8 SFF	1.7 x 17.1 x 27.5 inches (4.32 x 43.46 x 69.9 cm)
		4 LFF	1.7 x 17.1 x 29.5 inches (4.32 x 43.46 x 75.0 cm)
<b>Weight (approximate)</b>	<b>Maximum</b> (all hard drives, power supply, and processor installed)	8 SFF	17.14 kg
		4 LFF	17.40 kg
	<b>Minimum</b> (one hard drive, power supply, and processor installed)	8 SFF	13.20 kg
		4 LFF	13.65 kg
<b>Input Requirements</b> (for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies)	<b>Rated Line Voltage</b>		100 to 120 VAC
	<b>Rated Input Current</b>		4.5 Amps (at 120VAC) to 2.2 Amps (at 240 VAC)
	<b>Rated Input Frequency</b>		50 to 60 Hz
<b>BTU Rating</b>	<b>Maximum</b>		1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC)
<b>Power Supply Output</b> (per power supply)	<b>Rated Steady-State Power</b>		460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)
			750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC)
	<b>Maximum Peak Power</b>		460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)
			750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC)
<b>System Inlet Temperature</b>	<b>Operating</b>		10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/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 30°C (86°F).
	<b>Non-operating</b>		-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
<b>Relative Humidity</b> (non-condensing)	<b>Operating</b>		10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	<b>Non-operating</b>		5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
<b>Altitude</b>	<b>Operating</b>		3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457

### Technical Specifications

#### Acoustic Noise

Non-operating m/min (1500 ft/min).  
9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).

##### Idle (1P non-redundant)

LWAd 4.7 B Average Bystander  
LpAm 33dBA

##### Operating

LWAd 4.7 B Average Bystander  
LpAm 33 dBA

##### Idle (2P redundant)

LWAd 5.0B Average Bystander  
LpAm 35 dBA

##### Operating

LWAd 5.0 B Average Bystander  
LpAm 35 dBA

**NOTE:** Values are subject to change without notification and are for reference only.

**NOTE:** Performance of system, options, and ancillary equipment will vary depending on the system configuration.

**NOTE:** Levels presented do not account for non-Hewlett-Packard installed hardware.

#### Emissions Classification (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.

### Technical Specifications

<b>HP iLO 4 On System Management</b>	<b>Architecture</b>	PCI Express based health and remote management ASIC
	<b>Processor</b>	Embedded ARM processor core operating at 400MHz
	<b>Upgradeability</b>	Firmware upgradeable via Flash ROM
	<b>Video Support</b>	1920 x 1200 (16 bpp) DVR max resolution
	<b>Interfaces</b>	HP iLO Dedicated* Network connection (10/100/1000 Mb/s) on rack, tower and SL systems
		<a href="#">*Optional Module on some servers</a> HP iLO Shared Network connection (10/100/1000 Mb/s) on rack, tower and SL systems
		HP iLO network connection to blades (100 Mb/s) to Onboard Administrator (with 10/100/1000 Mb/s uplink) on blade systems
	<b>Memory</b>	16 MB Flash 256 MB DDR 3 with ECC (112 MB after ECC and video)
	<b>Operating System Support</b>	For 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: <a href="http://www.hp.com/go/ossupport">http://www.hp.com/go/ossupport</a>
	<b>Client System Support</b>	For information on Client System Support, please visit the HP iLO Feature Comparison Site at: <a href="http://www.hp.com/go/compareilo">www.hp.com/go/compareilo</a>
	<b>Client Browser Support</b>	Microsoft Internet Explorer 9 <b>NOTE: For customers using Protected Mode, please use the Java based version of Integrated Remote Console.</b>
Microsoft Internet Explorer 8 <b>NOTE: For customers using Protected Mode, please use the Java based version of Integrated Remote Console.</b>		
Microsoft Internet Explorer 7		
<b>Command Line Support</b>	Firefox Extended Support Release (ESR) 10 (on supported Windows and Linux systems)	
	Firefox 3.6 (on supported Windows and Linux systems)	
	Secure Shell and serial port access	
<b>Security</b>	Secure Socket Layer	
	Secure Shell version 2	
	Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface	
<b>Directory Support Services</b>	AES encryption of video	
	RC4 encryption of video	
<b>Driver Support</b>	Active Directory v1.0 (Windows 2003)	
<b>Management protocols supported</b>	HP ProLiant iLO 4 Management Controller Driver Package SNMP, IPMI 2.0 (system and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HP RIBCL XML	

### Technical Specifications

<b>HP Dynamic Smart Array B120i Controller</b>	<b>Dimensions</b>	Embedded
	<b>Disk Drive Interface - Transfer rate</b>	3Gb/s SATA (Serial Attached SCSI)
	<b>SATA Connectors</b>	6 internal connectors w/hot plug support
	<b>Server Interface</b>	Intel® C600 Series Chipset integrated SATA controller
	<b>SATA Speed</b>	3Gb/s SATA links
	<b>Cache Memory</b>	optional 40-bit 512MB ECC protected Flash Backed Write Cache (FBWC)
	<b>Logical Drives Supported</b>	Zero Memory, Up to 2 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) RAID 5 with optional 512MB FBWC
		<b>NOTE:</b> 512 MB cache is required to enable RAID 5 support

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<b>HP Dynamic Smart Array B320i Controller</b>	<b>Dimensions</b>	Embedded
	<b>Disk Drive Interface - Transfer rate</b>	Up to 6Gb/s SAS (Serial Attached SCSI) Up to 6Gb/s SATA (Serial ATA)
	<b>Connectors</b>	2 internal 4X connectors
	<b>Server Interface</b>	x4 PCIe 2.0 provides 4GB/s maximum bandwidth
	<b>Speed</b>	8 x 6Gb/s SAS links provide 4.8GB/s maximum bandwidth
	<b>Cache Memory</b>	Zero Memory RAID has no cache memory optional 40-bit 512MB ECC protected Flash Backed Write Cache (FBWC)
	<b>Logical Drives Supported</b>	Zero Memory, Up to 2 logical volumes (8 physical drives) Up to 64 logical drives with cache
	<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) RAID 5 with optional 512MB FBWC
		<b>NOTE:</b> 512 MB cache is required to enable RAID 5 support

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### Technical Specifications

<b>HP Smart Array P420i Controller</b>	<b>Dimensions</b>	Embedded		
	<b>Disk Drive and Enclosure Interface - transfer rate</b>	6Gb/s SAS (Serial Attached SCSI)		
		3Gb/s SATA (Serial ATA)		
	<b>SAS Connectors</b>	2 internal 4X connectors		
	<b>Cache Memory Speed</b>	DDR2-800MHz with 40 or 72-bit wide bus		
	<b>Server Interface</b>	x4 PCIe 2.0 provides 2GB/s maximum bandwidth		
	<b>SAS Speed</b>	8 6Gb/s SAS links provide 4.8GB/s maximum bandwidth		
	<b>Cache Memory</b>	Zero Memory RAID has no cache memory 40-bit 256MB ECC protected cache (battery upgrade available) 72-bit 512MB BBWC or 72-bit 512MB and 1G FBWC Zero Memory, Up to 2 logical volumes (8 physical drives)		
	<b>Logical Drives Supported</b>	Up to 64 logical drives with cache		
	<b>Host Memory Addressing</b>	64-bit, supporting greater than 4GB server memory space		
	<b>RAID Support</b>	RAID 6, 6+0 (Advanced Data Guarding) <b>NOTE:</b> RAID 6, 6+0 can be enabled with one of the following combinations: <ul style="list-style-type: none"> <li>● 256 MB cache, Battery kit and Smart Array Advanced Pack License key option upgrades</li> <li>● 512 MB BBWC/FBWC and Smart Array Advanced Pack License key option upgrades</li> <li>● 1G FBWC and Smart Array Advanced Pack License key option upgrades</li> </ul> RAID 5, 5+0 (Distributed Data Guarding) <b>NOTE:</b> A minimum of 256 MB cache is required to enable RAID 5, 5+0 support RAID 1+0 (Striping & Mirroring) RAID 0 (Striping), RAID 1 (Mirroring)		
	<hr/>			
	<b>HP Ethernet 1Gb 4-port 366i Adapter</b>	<b>Network Interface Compatibility</b>	10Base-T/100Base-TX/1000Base-TX IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 1588, IEEE 802.1AS IEEE 802.3az - Energy Efficient Ethernet (EEE)	
<b>Data Transfer Method Controller</b>		PCI Express v 2.0, 5.0 GT/s with x4 links widths (Lanes) Intel I350 Powerville		
<b>Number of Ports</b>		4		
<b>Network Transfer Rate</b>		10Base-T (Half-Duplex)	10 Mb/s per port, 40 Mb/s Combined	
		10Base-T (Full-Duplex)	20 Mb/s per port, 80 Mb/s Combined	
		100Base-TX (Half-Duplex)	100 Mb/s per port, 400 Mb/s Combined	
		100Base-TX (Full-Duplex)	200 Mb/s per port, 800 Mb/s Combined	
	1000Base-TX (Half and Full-Duplex)	1000Mb/s per port, 4000 Mb/s Combined		

### Technical Specifications

<b>Connector</b>	RJ-45	
<b>Cable Support</b>	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
	10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

#### Environment-friendly Products and Approach

#### End-of-life Management and Recycling

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

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

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