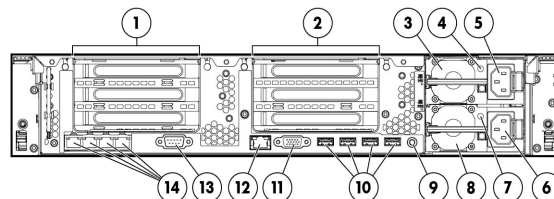
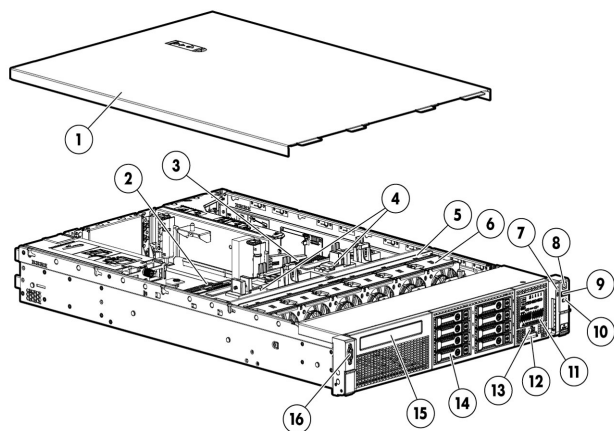


Overview

The HP ProLiant DL380p Gen8 sets the next generation standards of 2U 2-socket rack servers for the industry. With enhanced configuration flexibility, unmatched performance, and leading energy efficient design the DL380p Gen8 offers the perfect solution for the dynamic compute requirements of today's demanding datacenters.



Front View:

1. Quick removal access panel
2. Second Intel Processor
3. First Intel Processor
4. 24 DIMM slots: DDR3 Registered (RDIMM), Load Reduced (LRDIMM), or Unbuffered (UDIMM) memory
5. Air Baffle
6. Hot-plug fans, full N+1 redundancy
7. Health LED
8. Power On /Standby button and system power LED button
9. USB connector
10. Unit ID LED
11. Systems Insight Display
12. Asset Tag
13. USB connector
14. Drive Bays
15. Optional Slim Optical Bay (SATA DVD-RW /ROM Optical Drive)
16. Video connector

Rear View:

1. PCIe 3.0 Slots 1, 2, 3-PCIe 2.0 top to bottom
2. PCIe 3.0 Slots 4-6 top to bottom
3. Power supply 1
4. Power supply 1 Power LED
5. Power supply 1 Power connection (with Intelligent PDU communication)
6. Power supply 2 Power connection (with Intelligent PDU communication)
7. Power supply 2 Power LED
8. Power supply 2
9. Unit ID LED/Button
10. USB connectors (4)
11. Video connector
12. iLO connector
13. Serial connector
14. FlexibleLOM ports (Shown: 4 ports 1Gb each /Optional: 2 ports 10Gb each)

What's New

- Releasing the new 12LFF and 25SFF CTO Server

Standard Features

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

Processor

One of the following depending on Model

Entry Processors

NOTE: All support up to 1066MHz memory speeds.

Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/6.4GT-s QPI/80W)

Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W)

Base Processors

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

Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/8.0GT-s QPI/60W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Performance Processors

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

Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/8GT-s QPI/135W, DDR3-1600, HT, Turbo2- 4/4/4/5/5/7/7/9)

Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/8GT-s QPI/115W, DDR3-1600, HT, Turbo2- 4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2- 3/3/3/4/5/6)

Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/8GT-s QPI/115W, DDR3-1600, HT, Turbo2- 4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 5/5/6/6/7/7/8/8)

Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/8.0 GT-s QPI/70W, DDR3-1600, HT, Turbo2- 2/2/3/3/4/4/5/5)

Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2- 1/1/2/2)

Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/8.0GT-s QPI/80W, DDR3-1600, HT, Turbo2- 5/5)

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

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

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

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

NOTE: For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 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.

5MB (1x5MB) Level 3

NOTE: For Dual-core processors.

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

Chipset

Intel® C600 Series Chipset

Intel® E5-2600 Processor Family

NOTE: For more information regarding Intel chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>.

Upgradeability

Upgradeable to 2 processors (16 Cores)

Up to 24 DIMM slots available for higher Memory capacity

FlexibleLOM connector for 1 Gigabit or 10 Gigabit networking options

8SFF Hard drive bays (total of 16 with optional upgrade)

Optional 3 slot riser (x16, x8, x8), or 2 slot (x16, x16)

NOTE: To take advantage of the additional 3 PCI slot upgrade, the second processor must be installed.

Redundant Power Supply

Optical Drive (8SFF/8LFF only)

On System Management Chipset

HP iLO (Firmware: HP iLO 4)

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

Memory Protection

Advanced ECC

NOTE: Advanced ECC uses single device data correction (SDDC) to detect and correct single and all multi-bit error that occurs within a single DRAM chip. Both x4 and x8 SDDC are supported (x8 requires lockstep mode).

Online Spare

NOTE: Memory online spare mode (also known as rank spare mode) detects a rank that is degrading and switches operation to the spare rank.

Lock-step mode

NOTE: Memory Lockstep mode is used to correct a single x8 DRAM device failure on a DIMM. The DIMMs in each paired memory channel must have identical HP part numbers.

Standard Features

Memory One of the following depending on Model	Type	HP SmartMemory DDR3 Load Reduced (LRDIMM), Registered (RDIMM) or Unbuffered (UDIMM)
	DIMM Slots Available	24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel)
	Standard (Entry Model)	4GB (1x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS
	Standard (Base Models)	16GB (4x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS
	Standard (High Performance Models)	32GB (4x8GB) PC3-12800R (DDR3-1600) Registered DIMMS
	Maximum Capacity (LRDIMM)	768GB (24 x 32GB LRDIMM @1066MHz)
	Maximum Capacity (RDIMM)	384GB (24x 16GB RDIMM @1600MHz)
	Maximum Capacity (UDIMM)	128GB (16 x 8GB UDIMM @1333MHz)
	Maximum Capacity (HDIMM)	384GB (24 x 16GB UDIMM @1333MHz)

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

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

NOTE: If only one processor is installed, only half the DIMM slots are available

NOTE: UDIMM max DIMM population is 16

NOTE: 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: www.hp.com/go/ddr3memory-configurator.

Network Controller One of the following depending on Model	HP ProLiant Gen8 servers offer a new networking technology - Flexible Network Technology. The HP ProLiant DL380p Gen8 server offers the customer the choice of 1 Gigabit and/or 10 Gigabit networking solutions. For additional details see the Networking Section of this document.	
	Entry Models	HP Ethernet 1Gb 4-port 331FLR Adapter
	Base Models	HP Ethernet 1Gb 4-port 331FLR Adapter
	High Performance Models	HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter HP Ethernet 1Gb 4-port 331FLR Adapter
	Energy Star - Base Models	HP Ethernet 1Gb 4-port 331FLR Adapter

Expansion Slots

Primary Riser (Standard)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
	1	PCIe 3.0	X16	X16	7	Full Length, Full Height Slot	Proc 1

QuickSpecs

HP ProLiant DL380p Generation8 (Gen8)

Standard Features

2	PCIe 3.0	X8	X8	10	Half Length, Full Height Slot	Proc 1
3	PCIe 2.0	X4	X8	13	Half Length, Full Height Slot	Proc 1

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number

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

NOTE: When populating the second optional riser slot, the second processor must be installed.

NOTE: All slots support up to 150w PCIe cards, but an additional Power Cord Option is required (PN 669777-B21). See Option Section below for offering.

PCIe Riser (Optional 3-slot)

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
4	PCIe 3.0	X16	X16	16	Full length, full height slot	Proc 2
5	PCIe 3.0	X8	X8	20	Half length, full height slot	Proc 2
6	PCIe 3.0	X8	X8	23	Half length, full height slot	Proc 2

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number

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

NOTE: When populating the second optional riser slot, the second processor must be installed.

NOTE: All slots support up to 150w PCIe cards, but an additional Power Cord Option is required (669777-B21). See Option Section below for offering

PCIe Riser (Optional 2-slot)

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
4	PCIe 3.0	X16	X16	16	Full length, Full height slot	Proc 2
5	PCIe 3.0	X16	X16	16	Half Length, Full Height	Proc 2

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number

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



Standard Features

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.

Storage Controller

One of the following depending on Model

Entry Models	HP Smart Array P420i/ZM (RAID 0/1/1+0)
Base Models	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0)
High Performance Models	HP Smart Array P420i/2GB with FBWC (RAID 0/1/1+0/5/5+0)
Energy Star - Base Models	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0)

Internal Storage Devices

Diskette Drive	None
Optical Drive	Ships standard in Performance Models *Optional: DVD-ROM, DVD-RW
Hard Drives	None ship standard
Drive Bays	Standard: 8SFF drive bays total with Optical Bay or 8 LFF drive bays total with Optical Bay Optional: +8SFF drive bay (total of 16SFF drive bays) NOTE: HP ProLiant DL380p series servers offer both LFF and SFF versions. The Optical Drive bay is not available with the optional +8SFF drive bay upgrade. NOTE: The Optical drive bay is not available with the +8SFF drive bay optional upgrade nor 12LFF and 25SFF server models NOTE: The 8LFF, 12LFF, and 25SFF drive cage versions are not field upgradeable options from the 8SFF model. NOTE: The optional +8SFF drive bay requires an additional internal storage controller be selected. HP recommends the HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller (P/N 631670-B21).

Standard Features

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. These part numbers for single HDD blanks below are also provided should the customer require replacement HDD blanks for their server.

Maximum Internal Storage	Hot Plug SFF SAS	25.0TB	25 x 1TB (with optional SFF drive cage)
	Hot Plug SFF SATA	25.0TB	25 x 1TB (with optional SFF drive cage)
	Hot Plug LFF SAS	36.0TB	12 x 3TB (with optional LFF drive cage)
	Hot Plug LFF SATA	36.0TB	12 x 3TB (with optional LFF drive cage)
	Hot Plug SFF SAS SSD	20.0TB	25 x 800GB (with optional SFF drive cage)
	Hot Plug LFF SATA SSD	4.8TB	12 x 400GB (with optional LFF drive cage)

Interfaces	Serial	1
	Video	2 (1 front, 1 back) not active simultaneously
	FlexibleLOM Network Ports	Some models come standard with 4 x 1GB ports while others come with 2 x 10GB ports (See HP Networking section below for more details and options).
	HP iLO Remote Management Network Port	1 Gb Dedicated
	SD slot	1 Internal Secure
	USB 2.0 Ports	Up to 7 total: up to 2 front, 4 back, 1 internal

Industry Standard Compliance	ACPI 2.0b Compliant
	PCIe 3.0 Compliant
	PXE Support
	WOL Support
	Microsoft® Logo certifications
	USB 2.0 Compliant

Server Power Cords	All Pre-configured 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 cord that connects to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to power distribution units (PDUs) in data center racks and now ship standard with a PDU 6-foot C-14 to C13 power cord (A0K02A). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the 6-foot NEMA 5-15 to C13 power cord must be ordered separately (AF556A). See Power Cords section for Worldwide Power Cord options.

Standard Features

Power Specifications

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

Common Slot Power Supply

NOTE: Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.

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 Intelligent Power Discovery (IPD) solution. IPD is the first technology to create 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 IPD solution, go to 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.

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

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

System Fans

One of the following depending on Model

2P Models have (6) (N+1 redundancy standard)

1P Models have (4) (N+1 redundancy standard)

Standard Features

Required Cabling

For required cabling information, refer to the HP Web site at: www.hp.com/servers/dl380p-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](#)
[Citrix XenServer](#)

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page: <http://www.hp.com/support/DL380pGen8>

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

2U Rack form factor, ships with ball bearing rails and cable management system

8 SFF Drive Bay Version:

3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 27.5" (69.85 cm) Length

8 LFF Drive Bay Version:

3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 29.5" (74.94cm) Length

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

Standard Features

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, 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. More information can be found: www.hp.com/go/spp and <http://www.hp.com/go/hpsum>

Standard Features

Security

Power-on password
Serial interface control
Administrator's password

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, 3-Year Labor, 3-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

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 HP Matrix Operating Environment, 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>

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. http://www.hp.com/go/clusters
HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
HP 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. http://www.hp.com/go/cmu
HP HPC Linux Value Pack	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported option to HP Insight CMU, 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. HP HPC Linux Value Pack

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

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, EVA7xxx, 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.

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>

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

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

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.

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

HP ProLiant DL380p Gen8 E5-2609 1P 4GB-R P420i SFF 460W PS Entry Server 642121-xx1	Processor(s)	(1) Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/6.4GT-s QPI/80W) Processor
	Cache Memory	10MB (1x10MB) Level 3
	Memory	4GB (1x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS NOTE: Total 24 DIMM slots available with processor upgrade (2P configuration)
	Network Controller	HP Ethernet 1Gb 4-port 331FLR Adapter
	Storage Controller	HP Smart Array P420i/ZM (RAID 0/1/1+0)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF SAS/SATA HDD Bays; includes 6 SFF hard drive blanks Optional: +8 SFF (total of 16) SFF SAS/SATA HDD Bays
	Optical Drive Bay	Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive)
	PCI-Express Slots	3 PCIe slots (+3 PCI slots available with upgrade option)
	Power Supply	(1) HP 460W Common Slot Gold Hot Plug Power Supply (92% Efficient)
	Fans	(4) (N+1 redundancy standard)
	Management	HP iLO Management Engine (standard) Optional: HP Insight Control
	Energy Star	Meets Energy Star requirements
	Form Factor	Rack (2U), HP Friction Rail Kit NOTE: The Friction Rail Kit is not compatible with the Cable Management Arm option.
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Pre-configured Models

Base Models

<p>Six-Core Models HP ProLiant DL380p Gen8 E5-2640 1P 16GB-R P420i SFF 460W PS Base Server 642107-xx1</p>	<p>Processor(s) One of the following depending on Model</p>	<p>(1) Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processor (1) Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processor (1) Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processor</p>
<p>HP ProLiant DL380p Gen8 E5-2630 1P 16GB-R P420i SFF 460W PS Base Server 642119-xx1</p>	<p>Cache Memory Memory</p>	<p>15MB (1x15MB) Level 3 16GB (4x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS NOTE: Total 24 DIMM slots available with processor upgrade (2P configuration)</p>
<p>HP ProLiant DL380p Gen8 E5-2620 1P 16GB-R P420i SFF 460W PS Base Server 642120-xx1</p>	<p>Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay PCI-Express Slots Power Supply Fans Management Energy Star Form Factor Warranty</p>	<p>HP Ethernet 1Gb 4-port 331FLR Adapter HP Smart Array P420i/1GB FBWC (RAID 0/1/1+0/5/5+0) None ship standard Standard: 8 SFF SAS/SATA HDD Bays; includes 6 SFF hard drive blanks Optional: +8 SFF (total of 16) SFF SAS/SATA HDD Bays Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive) 3 PCIe slots (+3 PCI slots available with upgrade option) (1) HP 460W CS Platinum Plus Hot Plug Power Supply (94% Efficient) (4) (N+1 redundancy standard) HP iLO Management Engine (standard) Optional: HP Insight Control Meets Energy Star requirements Rack (2U), HP Ball Bearing Rail Kit /Cable Management Arm standard Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.</p>

High Performance Models

NOTE: These Models are Energy Star Certified.

<p>Eight-Core Models HP ProLiant DL380p Gen8 E5-2690 2P 32GB-R P420i SATA SFF 750W PS High Perf Server 662257-xx1</p>	<p>Processor(s) One of the following depending on Model</p>	<p>(2) Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/8GT-s QPI/135W, DDR3-1600, HT, Turbo2- 4/4/4/5/5/7/7/9) Processor (2) Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/8GT-s QPI/115W, DDR3-1600, HT, Turbo2- 4/4/5/5/6/6/7/7) Processor (2) Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8) Processor</p>
<p>HP ProLiant DL380p Gen8 E5-2665 2P 32GB-R P420i SFF 750W PS High Perf Server 642105-xx1</p>	<p>Cache Memory Memory Network Controller One of the following depending on Model Storage Controller</p>	<p>20MB (1x20MB) Level 3 32GB (4x8GB) PC3-12800R (DDR3-1600) Registered DIMMS NOTE: Total 24 DIMM slots available. HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter (on E5-2690/E5-2665 Models) HP Ethernet 1Gb 4-port 331FLR Adapter (on E5-2650 Model) HP Smart Array P420i/2GB FBWC (RAID 0/1/1+0/5/5+0)</p>



Pre-configured Models

E5-2650 2P 32GB-R P420i SFF 750W PS High Perf Server 642106-xx1	Hard Drive Internal Storage Optical Drive Bay PCI-Express Slots Power Supply Fans Management Energy Star Form Factor Warranty	None ship standard Standard: 8 SFF SAS/SATA HDD Bays; includes 6 SFF hard drive blanks Optional: +8 SFF (total of 16) SFF SAS/SATA HDD Bays DVD-RW standard 6 PCIe slots (includes second riser slot upgrade option) (2) HP 750W CS Platinum Plus Hot Plug Power Supplies (94% Efficient) (6) (N+1 redundancy standard) HP iLO Management Engine (standard) HP Insight Control Standard Meets Energy Star requirements Rack (2U), HP Ball Bearing Rail Kit /Cable Management Arm standard Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.
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Energy Star - Base Models

NOTE: These Models are Energy Star Certified.

Six-Core Model HP ProLiant DL380p Gen8 E5-2630 2P 16GB-R P420i Hot Plug SFF 460W PS ES Server 677278-xx1	Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay PCI-Express Slots Power Supply Fans Management Energy Star Form Factor Warranty	(2) Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) 15MB (1x15MB) Level 3 16GB (4x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS NOTE: Total 24 DIMM slots. HP Ethernet 1Gb 4-port 331FLR Adapter HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0) None ship standard Standard: 8 SFF SAS/SATA HDD Bays; includes 6 SFF hard drive blanks Optional: +8 SFF (total of 16) SFF SAS/SATA HDD Bays Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive) 3 PCIe slots (+3 PCI slots available with upgrade option) (1) 460W HP CS Platinum Plus Hot Plug Power Supply (94% Efficient) (6) (N+1 redundancy standard) HP iLO Management Engine (standard) Optional: HP Insight Control Meets Energy Star requirements Rack (2U), HP Ball Bearing Rail Kit /Cable Management Arm standard Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.
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Pre-configured Models

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)

HP Models	HP ProLiant DL380p Gen8 8 LFF Configure-to-order Server	665553-B21
	Factory Integrated Model ships with: 2 x HP Smart Socket Guides for fast processor installation. 24 DIMM slots for RDIMM, LRDIMM and UDIMM Memory installation 1 FlexibleLOM connector: (see Step2: HP FlexibleNIC section below for NIC choices to populate the embedded connector) Smart Array P420i Controller w/ Zero Memory (ZM) I/O slots - 3 Slots come standard: <ul style="list-style-type: none">• Slot 1 - FL/FH x16 PCIe 3.0 (x16 connector)• Slot 2 - HL/FH x8 PCIe 3.0 (x8 connector)• Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)• Additional Slots may be added via selections from the PCI Information and Options subsection System Fans - 4 (2 additional fans included with second processor) Drive Cage - 8LFF (Optical media drive optional) USB - 4 Rear, 2 Front, 1 Internal, 1 SD slot HP iLO Management Engine (standard) NOTE: Power Supply not included - choose from Options section	
	HP ProLiant DL380p Gen8 8 SFF Configure-to-order Server	653200-B21
	Factory Integrated Model ships with: 1 FlexibleLOM connector: (see Step2: HP FlexibleLOM section below for NIC choices to populate the embedded connector) Smart Array P420i Controller w/ Zero Memory (ZM) I/O slots - 3 Slots come standard: <ul style="list-style-type: none">• Slot 1 - FL/FH x16 PCIe 3.0 (x16 connector)• Slot 2 - HL/FH x8 PCIe 3.0 (x8 connector)• Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)• Additional Slots may be added via selections from the PCI Information and Options subsection System Fans - 4 (2 additional fans included with second processor) Drive Cage - 8SFF (Optical media drive OR Second 8SFF drive cage optional) USB - 4 Rear, 2 Front, 1 Internal, 1 SD slot HP iLO Management Engine (standard) NOTE: Power Supply not included - choose from Step2 section below	
	HP ProLiant DL380p Gen8 12 LFF Configure-to-order Server	665552-B21

Configuration Information - Factory Integrated Models

Factory Integrated Model ships with:

1 FlexibleLOM connector: (see Step2: HP FlexibleLOM section below for NIC choices to populate the embedded connector)

Smart Array P420i Controller w/ Zero Memory (ZM)

I/O slots - 3 Slots come standard:

- Slot 1 - FL/FH x16 PCIe 3.0 (x16 connector)
- Slot 2 - HL/FH x8 PCIe 3.0 (x8 connector)
- Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)
- Additional Slots may be added via selections from the PCI Information and Options subsection

System Fans - 4 (2 additional fans included with second processor)

Drive Cage - 12LFF

USB - 4 Rear, 2 Front, 1 Internal, 1 SD slot

HP iLO Management Engine (standard)

NOTE: Power Supply not included - choose from Step2 section below

NOTE: Customer can only choose from 95W or lower E5-2600 processors.

NOTE: This chassis comes with a built-in expander. All drives can be driven off of the embedded P420i controller.

NOTE: Customers must add a minimum of a 512MB controller cache module when choosing this CTO server.

NOTE: If a P822 controller is required, it cannot be populated in slot 3.

NOTE: If a P421 controller is required, it cannot be populated in slot 1.

NOTE: HyperCloud DIMMs are not supported in this CTO server.

NOTE: Customer will not be able to get an optical drive, SID, second front USB, and ID label.

HP ProLiant DL380p Gen8 25 SFF Configure-to-order Server

665554-B21

Factory Integrated Model ships with:

1 FlexibleLOM connector: (see Step2: HP FlexibleLOM section below for NIC choices to populate the embedded connector)

Smart Array P420i Controller w/ Zero Memory (ZM)

I/O slots - 3 Slots come standard:

- Slot 1 - FL/FH x16 PCIe 3.0 (x16 connector)
- Slot 2 - HL/FH x8 PCIe 3.0 (x8 connector)
- Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)
- Additional Slots may be added via selections from the PCI Information and Options subsection

System Fans - 4 (2 additional fans included with second processor)

Drive Cage - 25SFF

USB - 4 Rear, 2 Front, 1 Internal, 1 SD slot

HP iLO Management Engine (standard)

NOTE: Power Supply not included - choose from Step2 section below

NOTE: Customer can only choose from 95W or lower E5-2600 processors.

NOTE: This chassis comes with a built-in expander. All drives can be driven off of the embedded P420i controller.

NOTE: Customers must add a minimum of a 512MB controller cache module when

Configuration Information - Factory Integrated Models

choosing this CTO server.

NOTE: If a P822 controller is required, it cannot be populated in slot 3.

NOTE: HyperCloud DIMMs are not supported in this CTO server.

NOTE: Customer will not be able to get an optical drive, SID, second front USB, and ID label.

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

Entry Processors

NOTE: All support up to 1066MHz memory speeds.

HP DL380p Gen8 Intel® Xeon® E5-2609 (2.40GHz/4-core/10MB/80W) FIO Processor Kit 662252-L21

HP DL380p Gen8 Intel® Xeon® E5-2603 (1.80GHz/4-core/10MB/80W) FIO Processor Kit 662254-L21

Base Processors

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

HP DL380p Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) FIO Processor Kit 662246-L21

HP DL380p Gen8 Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/95W) FIO Processor Kit 662248-L21

HP DL380p Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) FIO Processor Kit 662250-L21

HP DL380p Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) FIO Processor Kit 675092-L21

Performance Processors

NOTE: All support up to 1600MHz DDR3 memory speeds

HP DL380p Gen8 Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/135W) FIO Processor Kit 662226-L21

HP DL380p Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) FIO Processor Kit 662228-L21

HP DL380p Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) FIO Processor Kit 662240-L21

HP DL380p Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) FIO Processor Kit 662214-L21

HP DL380p Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) FIO Processor Kit 666509-L21

HP DL380p Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) FIO Processor Kit 662242-L21

HP DL380p Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) FIO Processor Kit 662244-L21

HP DL380p Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) FIO Processor Kit 662256-L21

HP DL380p Gen8 Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/130W) FIO Processor Kit 662216-L21

HP DL380p Gen8 Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/80W) FIO Processor Kit 662224-L21

HP Memory

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

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

Registered DIMMs (RDIMMs)

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

Configuration Information - Factory Integrated Models

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
HyperCloud DIMMs (HDIMM)	
HP 16GB (1x16GB) Dual Rank x4 PC3-10600H (DDR3-1333) HyperCloud CAS-9 FIO Memory Kit	678279-B21
NOTE: In order to use HyperCloud memory, 12 DIMMs per processor must be populated.	
NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator .	
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient	
NOTE: PC3L is a low voltage memory	
FlexibleLOM Adapters	
NOTE: The HP ProLiant DL380p Gen8 server requires one FlexibleLOM to be installed in the FlexibleLOM slot.	
HP Ethernet 1Gb 4-port 331FLR FIO Adapter	684208-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ FIO Adapter	684210-B21
HP FlexFabric 10Gb 2-port 554FLR-SFP+ FIO Adapter	684213-B21

HP Networking



Configuration Information - Factory Integrated Models

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.

HP InfiniBand

HP InfiniBand FDR/EN 10/40Gb Dual Port 544FLR-QSFP Adapter

649282-B21

HP InfiniBand QDR/EN 10Gb Dual Port 544FLR-QSFP Adapter

649283-B21

NOTE: Please see the QuickSpecs for additional information:

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

HP Power Supplies

NOTE: Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.

NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor.

HP 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.

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

636673-B21

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

Configuration Information - Factory Integrated Models

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

HP Rack Kits

NOTE: Gen8 rail kits have changed significantly from prior generation rail kits. Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen8 server.

NOTE: Rail kits are optional for DL380p Gen8 and are no longer included standard with the server. Customers have the option to purchase their server without a rail kit.

CAUTION: HP recommends that at least two people are used for all rack server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

NOTE: See HP Rack Options in Additional Options section of this QuickSpecs for more rack kit choices.

HP 2U Friction Gen8 Rail FIO Kit

663476-B21

NOTE: Kit contains non-telescoping friction rails which do not allow for in-rack serviceability. The HP Gen8 Cable Management Arm is not available when using Friction Rails.

HP Insight Software

HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License

582765-B21

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

TC203A

Step 4: Choose Additional Options for Factory Integration

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

Core Options

NOTE: Some options may not be integrated at the factory. Contact your local sales representative for additional information.

HP Unique Options	<p>HP 380p/385p Gen8 8-SFF Cage/Bkpln Kit 662883-B21</p> <p>NOTE: With upgrade of 8SFF Cage/Bkpln (662883-B21), there is no Optical Drive support.</p> <p>NOTE: With upgrade of 8SFF Cage/Bkpln (662883-B21), an additional storage controller is required. HP recommends the HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller (P/N 631670-B21).</p> <p>HP DL380p/385p Gen8 3 Slot PCI-E Riser Kit 653206-B21</p> <p>HP DL380p Gen8 2 Slot 2x16 PCI-E Riser Kit 653208-B21</p> <p>HP 150W PCI-E Power Cable Kit 669777-B21</p>
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HP Processors

Entry Processors

NOTE: All support up to 1066MHz memory speeds.

HP DL380p Gen8 Intel® Xeon® E5-2609 (2.40GHz/4-core/10MB/80W) Processor Kit	662252-B21
HP DL380p Gen8 Intel® Xeon® E5-2603 (1.80GHz/4-core/10MB/80W) Processor Kit	662254-B21

Base Processors

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

HP DL380p Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) Processor Kit	662246-B21
HP DL380p Gen8 Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/95W) Processor Kit	662248-B21
HP DL380p Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) Processor Kit	662250-B21
HP DL380p Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) Processor Kit	675092-B21

Performance Processors

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

HP DL380p Gen8 Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/135W) Processor Kit	662226-B21
HP DL380p Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) Processor Kit	662228-B21
HP DL380p Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) Processor Kit	662240-B21
HP DL380p Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) Processor Kit	662214-B21
HP DL380p Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) Processor Kit	666509-B21
HP DL380p Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) Processor Kit	662242-B21
HP DL380p Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) Processor Kit	662244-B21
HP DL380p Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) Processor Kit	662256-B21
HP DL380p Gen8 Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/130W) Processor Kit	662216-B21
HP DL380p Gen8 Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/80W) Processor Kit	662224-B21

NOTE: Up to 2 processors supported. Performance and Energy Star Model configurations include two processors.

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

NOTE: Turbo2: Intel® Turbo Boost Technology 2.0 provides more computing power when you need it with performance that adapts to spikes in your workload and delivers more performance upside than then previous generation turbo technology.

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory

Core Options

speed may depend on the quantity and type of DIMMs installed.

HP Memory

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

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

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.

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant

Core Options

Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient

NOTE: PC3L is a low voltage memory.

HP Optical Drives	HP 12.7mm Slim SATA DVD ROM JackBlack Optical Drive	652232-B21
	HP 12.7mm Slim SATA DVD RW JackBlack Optical Drive	652235-B21

HP Hard Drives

NOTE: The HP ProLiant DL380p 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
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652597-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
(Worldwide)

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

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

Core Options

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
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21

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

http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html
(Worldwide)

6G SAS MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

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

6G SAS SLC Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives

HP 400GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653082-B21
HP 200GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653078-B21

3G SATA MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

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

3G SATA MLC Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives

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

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

http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html
(Worldwide)

Hard Drive Kits

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.

NOTE: The part numbers for single HDD blanks below are provided should the customer require replacement HDD blanks for their server.

Core Options

HP SFF Gen8 Hard Drive Blank Kit	666987-B21
HP LFF Gen8 Hard Drive Blank Kit	666986-B21
HP 380p/385p Gen8 8-SFF Cage/Bkpln Kit	662883-B21
NOTE: With upgrade of 8SFF Cage/Bkpln (662883-B21), there is no Optical Drive support.	
NOTE: With upgrade of 8SFF Cage/Bkpln (662883-B21), an additional storage controller is required. HP recommends the HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller (P/N 631670-B21).	
Hard Drive Cables	
HP DL38x/DL360 Gen8 Embedded SATA Cable Kit	664009-B21

HP Networking

Gigabit Ethernet adapters

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

10 Gigabit Ethernet Adapters

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

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

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

FlexibleLOM Adapters

HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	647581-B21
HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs

SFP+

HP X132 10G SFP+ LC LR Transceiver	J9151A
HP X132 10G SFP+ LC SR Transceiver	J9150A

Core Options

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: For the following two InfiniBand Adapters, only 1 FlexibleLOM can be added to the server, which is selected in Step 2 for the "Configuration Information - Factory Integrated Models" section. These two options are for upgrade or change from original configuration.	
	HP InfiniBand FDR/EN 10/40Gb Dual Port 544FLR-QSFP Adapter	649282-B21
	HP InfiniBand QDR/EN 10Gb Dual Port 544FLR-QSFP Adapter	649283-B21
	NOTE: FLR Indicates new HP FlexibleLOM Adapter series.	
NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html		

HP I/O Expansion Options	HP DL380p/385p Gen8 3 Slot PCI-E Riser Kit	653206-B21
	HP DL380p Gen8 2 Slot 2x16 PCI-E Riser Kit	653208-B21

HP Power Supplies

NOTE: Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.

NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor.

HP 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.

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

Core Options

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

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

HP Graphic Options

HP 150W PCI-E Power Cable Kit

669777-B21

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

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

Additional Options

HP iLO Advanced License	HP Integrated Lights-Out (iLO) Advanced for ProLiant Remote Management	
	HP iLO Advanced Pack Electronic License with 3yr 24x7 Tech Support and Updates	BD506AAE
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	NOTE: For more information, visit: http://www.hp.com/go/ilo .	

High Performance Clusters

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

Additional Options

HP I/O Accelerator Options

Second Generation Accelerators

HP 365GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673642-B21
HP 785GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673644-B21
HP 1205GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673646-B21
HP 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo for ProLiant Servers	673648-B21

First Generation Accelerators

HP 160GB Single Level Cell PCIe ioDrive for ProLiant Servers	600278-B21
NOTE: A low-profile PCI bracket is included for use in low-profile slots.	
HP 320GB Multi Level Cell PCIe ioDrive for ProLiant Servers	600279-B21
NOTE: A low-profile PCI bracket is included for use in low-profile slots.	
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	641027-B21

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

http://h18000.www1.hp.com/products/quickspecs/13587_div/13587_div.html
(Worldwide)

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 .	
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 2U Security Bezel Kit	666988-B21

HP Storage Controllers

SAS Controllers

Smart Array P222 Controller

NOTE: P222 requires (1) HP Mini SAS Straight to Straight 37in Cable Assembly (P/N 662897-B21)

HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller	631667-B21
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Smart Array P420 Controller

NOTE: P420 requires (2) HP Mini SAS Straight to Straight 37in Cable Assemblies (P/N 662897-B21)

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

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 1GB P-series Smart Array Flash Backed Write Cache	631679-B21
HP 2GB P-series Smart Array Flash Backed Write Cache	631681-B21
HP 512MB P-series Smart Array Flash Backed Write Cache	661069-B21
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
HP Cable Options	
HP Mini SAS Straight to Straight 37in Cable Assembly	662897-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/14227_div/14227_div.html (Smart Array P222 Controller)	
http://h18000.www1.hp.com/products/quickspecs/14228_div/14228_div.html (Smart Array P420 Controller)	
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 (Smart Array P822 Controller)	
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
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 (HBA 220)	
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 (HBA 222)	
SCSI HBA	
HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
NOTE: Please see the following QuickSpecs for additional information:	
http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	

Additional Options

HP Power Cords

NOTE: HP ProLiant servers ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).

HP C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
HP C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
HP C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
HP C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
HP C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
HP C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
HP C13 - Nema 6-15P US 250V 15A JP 3.6m Power Cord	A0N33A
HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A

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 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP Smart Array P222 Controller (631667-B21) recommended.	
HP Ultrium 920 SAS Internal Tape Drive	EH847A
NOTE: For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP Smart Array P222 Controller (631667-B21) recommended.	
HP LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rackmount	EJ014A
NOTE: Connection using HP Smart Array P222 Controller (631667-B21) recommended.	
HP MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library	AK378A
NOTE: Connection using HP Smart Array P222 Controller (631667-B21) recommended.	
HP MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library	AK380A
NOTE: Connection using HP Smart Array P222 Controller (631667-B21) recommended.	

Additional Options

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	AJ766A
HP RDX320 External Removable Disk Backup System	AJ768A
HP RDX500 External Removable Disk Backup System	AJ935A
HP RDX1000 External Removable Disk Backup System	BV849A

HP RDX Removable Disk Backup Systems USB

HP RDX320 Internal Removable Disk Backup System	AJ767A
NOTE: 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	
HP RDX500 Internal Removable Disk Backup System	AJ934A
NOTE: 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.	
HP RDX1000 Internal Removable Disk Backup System	BV847A
NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 1 TB of disk capacity per data cartridge.	

HP Storage Options

Storage Fibre Channel HBA

NOTE: For the complete listing of Fibre Channel Host Bus Adapters for Windows 2000, Windows Server 2003 and Linux, 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
HP SN1000E 16Gb 1-port PCIe Fibre Channel Host Bus Adapter	QR558A
HP SN1000E 16Gb 2-port PCIe Fibre Channel Host Bus Adapter	QR559A

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

Additional Options

HP Disk Storage Systems **Modular Smart Arrays**

HP P2000 G3 10GbE iSCSI MSA Dual Controller LFF Array System	AW596A
HP P2000 G3 10GbE iSCSI MSA Dual Controller SFF Array System	AW597A
HP P2000 G3 iSCSI MSA Dual Controller LFF Array System	BK830A
HP P2000 G3 iSCSI MSA Dual Controller SFF Array System	BK831A
HP P2000 G3 MSA FC Dual Controller LFF Modular Smart Array System	AP845A
HP P2000 G3 MSA FC Dual Controller SFF Modular Smart Array System	AP846A
HP P2000 G3 MSA FC/iSCSI Dual Combo Controller LFF Array	AW567A
HP P2000 G3 MSA FC/iSCSI Dual Combo Controller SFF Array	AW568A
HP P2000 G3 SAS MSA Dual Controller LFF Array System	AW593A
HP P2000 G3 SAS MSA Dual Controller SFF Array System	AW594A

NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13551_div/13551_div.html

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

HP Uninterruptible Power Systems **HP Rack-mountable UPS**

HP R1500 G3 Uninterruptible Power Supply (UPS)

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

NOTE: Please see the QuickSpecs for additional information:

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

HP R/T3000 G2 Uninterruptible Power System (UPS)

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

NOTE: Please see the QuickSpecs for additional information:

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

R5000 Uninterruptible Power System (UPS)

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

Additional Options

NOTE: Please see the QuickSpecs for additional information:

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

HP R5KVA and R7KVA 3U Extended Runtime Module AF464A

NOTE: Please see the QuickSpecs for additional information:

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

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

www.hp.com/servers/rackups.

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

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

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

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

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

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).

Additional Options

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: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu.

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.

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
(Worldwide)

HP Intelligent Power Distribution Units (iPDU)

iPDU Core Units

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

Additional Options

iPDU Kits with Standard Extension Bars

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

iPDU Extension Bars

HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar AF528A

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

http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html
(Worldwide)

HP Rack Series

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)

HP 10642 G2 Shock Universal Rack AF002A

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

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

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

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

NOTE: 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 server in the 7000 series racks. The DL380p 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.

Additional Options

HP Rack Options

HP USB Keyboard and Mouse

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

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

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

HP Server Console Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A

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

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

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

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

HP IP Console Switch G2 with Virtual Media & CAC

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

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
(Worldwide)

Rail Kits

NOTE: Gen8 rail kits have changed significantly from prior generation rail kits. Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen8 server.

NOTE: Rail kits are optional for DL380p Gen8 and are no longer included standard with the server. Customers have the option to purchase their server without a rail kit.

HP 2U Large Form Factor Ball Bearing Gen8 Rail Kit	663480-B21
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NOTE: Kit contains telescoping LFF ball bearing rails for LFF drive cage chassis which allow for in-rack serviceability. The HP Gen8 Cable Management Arm is included.

HP 2U Small Form Factor Ball Bearing Gen8 Rail Kit	663478-B21
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NOTE: Kit contains telescoping SFF ball bearing rails for SFF drive cage chassis which allow for in-rack serviceability. The HP Gen8 Cable Management Arm is included.

HP USB and SD options

HP USB 2-Button Optical Scroll Mouse	DC172B
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HP USB 04 Standard Keyboard	DT528A#ABA
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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.

Additional Options

HP Care Pack Services

HP 3 year 24x7 24 hour Call to Repair ProLiant DL38x(p) Hardware Support	UP717E
HP 3 year 4 hour 13x5 ProLiant DL38x(p) Hardware Support	U4544E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) Hardware Support	U4545E
HP 3 year 6 hour 24x7 Call to Repair ProLiant DL38x(p) Hardware Support	U4546E
HP 3 year Support Plus 24 Microsoft ProLiant DL38x(p) Service	U4557E
HP 3 year Support Plus 24 SuSE ProLiant DL38x(p) Service	U6312E
HP 4 year 24x7 24 hour Call to Repair ProLiant DL38x(p) Hardware Support	UP718E
HP 4 year 4 hour 13x5 ProLiant DL38x(p) Hardware Support	U8101E
HP 4 year 4 hour 24x7 ProLiant DL38x(p) Hardware Support	U8118E
HP 5 year 4 hour 13x5 ProLiant DL38x(p) Hardware Support	U8067E
HP 5 year 4 hour 24x7 ProLiant DL38x(p) Hardware Support	U8084E
HP 4 year 6 hour 24x7 Call to Repair ProLiant DL38x(p) Hardware Support	U9738E
HP 4 year Next business day ProLiant DL38x(p) Hardware Support	UA010E
HP 5 year 6 hour 24x7 Call to Repair ProLiant DL38x(p) Hardware Support	U9737E
HP 5 year Next business day ProLiant DL38x(p) Hardware Support	UA009E
HP Install ProLiant DL38x(p) Service	U4554E
HP Startup ProLiant DL38x(p) Service	U4555E
HP 5 year 24x7 24 hour Call to Repair ProLiant DL38x(p) Hardware Support	UP719E
HP Installation of ProLiant Add On/In Options Service	UH745E
HP Installation and Startup for Insight Control Server Deployment - previously Rapid Deployment Pack	U5683E
HP 3 year Next business day ProLiant DL38x(p) Proactive Care Service	U2Z44E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) Proactive Care Service	U2Z50E
HP 3 year Next business day ProLiant DL38x(p) Collaborative Support	U1J24E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) Collaborative Support	U1J30E
HP 3 year Next business day ProLiant DL38x(p) with Insight Control Proactive Care Service	U3N17E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) with Insight Control Proactive Care Service	U3N23E
HP 3 year Support Plus 24 Insight Control ProLiant DL38x(p) Service	UM812E

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

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

Memory

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

Memory Subsystem Architecture

Each Intel® Xeon® E5-2600 family processor socket contains four memory channels that support three DIMMs each for a total of twelve (12) DIMM per installed processor or a grand total of twenty-four (24) DIMMs for the server. Up to 32GB capacity DIMMs are supported for 768GB of memory (24 DIMM slots x 32GB per DIMM).

Memory population guidelines

DIMM configuration

NOTE: This information is only for Advanced EEC memory mode. See the user guide for other memory modes.

Key: Alpha - population order
 Numeric - DIMM slot ID for spare replacement

- Before installing DIMMs, review the population rules:
 - Do not install DIMMs if the corresponding processor is not installed.
 - When two processors are installed, balance the DIMMs across the two processors
 - DIMM slots that are white denote the first slot of a channel (Ch 1-A, Ch 2-B, Ch 3-C, Ch 4-D...).
 - Do not mix UDIMMs, RDIMMs, or LRDIMMs.
 - Do not install more than two UDIMMs per channel. UDIMMs should be installed in slots Ch 1-I, Ch 2-J, Ch 3-K, Ch 4-L.
- When two processors are installed, install DIMMs in dequential alphabetical order balanced between the two processors: P1-A, P2-A, P1-B, P2-B, P1-C, P2-C...
- For DIMM spare replacement, install the DIMMs per slot number as instructed by your system software.

For additional DIMM information, see the user guide at: hp.com > support & drivers > product support & troubleshooting > enter your product

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.
- 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.
- 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
- 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.
- Do not mix RDIMMs, LRDIMMs, and UDIMMs.
- LRDIMMs are supported up to 3 DIMMs per channel.
- Using the HP RBSU, 1.35V DIMMs can be changed to operate at 1.5V.
- 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.
- HP memory from previous generation servers is not qualified on the DL380p 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.
- For memory population rules and additional memory guidelines, please see the DL380p Gen8 user guide at <http://www.hp.com/support>.

Memory

DL380p Gen8 Supported Memory Bandwidth and Capacity

DIMM Type	Registered DIMMS (RDIMMs)							Load Reduced (LRDIMMs)	Unbuffered with ECC DIMMs (UDIMMs)						"HyperCI Memoi (HDIMM Dual Ra (2R)
	Single Rank (1R)			Dual Rank (2R)					Quad Rank (4R)	Single Rank (1R)		Dual Rank (2R)			
DIMM Capacity	4GB	4GB	8GB	8GB	8GB	16GB	16GB	32GB	2GB	2GB	4GB	4GB	8GB	8GB	16GB
DIMM Native Speed (MHz)	1333	1600	1600	1333	1600	1333	1600	1333	1333	1600	1333	1600	1333	1600	1333
Voltage	LV	Std	Std	LV	Std	LV	Std	LV	LV	Std	LV	Std	LV	Std	Std

SLOTS THAT CAN BE POPULATED

24 slot servers	24	24	24	24	24	24	24	24	16	16	16	16	16	16	24
-----------------	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

MAXIMUM CAPACITY (GB)

	96	96	192	192	192	384	384	768	32	32	64	64	128	128	384
--	----	----	-----	-----	-----	-----	-----	-----	----	----	----	----	-----	-----	-----

POPULATED DIMM SPEED (MHZ)

1 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***	1333	1600	1333	1600	1333	1600	n/a
2 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***	1333****	1600	1333****	1600	1333***	1600	n/a
3 DIMM Per Channel	1066**	1333##	1333##	1066**	1333##	1066**	1333##	1066	n/a	n/a	n/a	n/a	n/a	n/a	1333#

NOTE: Memory speed is a function of the processor QPI bus speed. To realize the performance memory capabilities listed above HP SmartMemory is required.

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

** For HP SmartMemory RDIMM supports up to 3DPC@1066 at 1.35V. Third party memory may only support up to 3DPC@1066 at 1.5V.

*** LRDIMMs enable 3 DIMMs per channel. HP SmartMemory will support up to 3DPC@1066 at 1.35V. Third party memory may only support up to 3DPC @1066 at 1.5V.

**** For HP SmartMemory, UDIMM is supported at 2DPC@1333 at 1.35V. Third party memory may only support up to 2DPC@1066 at 1.5V.

RBSU setting required

Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2690 E5-2680, E5-2670, E5-2667, E5-2665, E5-2660, E5-2650, E5-2650L, E5-2643	1600/1333/1066MHz
E5-2640, E5-2637, E5-2630, E5-2630L, E5-2620	1333/1066MHz
E5-2609, E5-2603	1066MHz

Memory

Standard and Maximum Memory Capacity (Pre-configured Models)

Pre Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
Intel Xeon E5-2690, E5-2665, E5-2650	32GB (4x 8GB)	352GB (20x16GB, 4x8GB)	768GB (24 x 32GB)
Intel Xeon E5-2640, E5-2630, E5-2620	16GB (4x 4GB)	336GB (20x16GB, 4x4GB)	768GB (24 x 32GB)
Intel Xeon E5-2609	4GB (1x 4GB)	372GB (23x16GB, 1x4GB)	768GB (24 x 32GB)

DIMM slot and configuration diagram

Population order; start with "A" first, "B" second, "C" third, etc.

When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F ...

When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A,CPU1-B,CPU2-B,CPU1-C, CP2-C

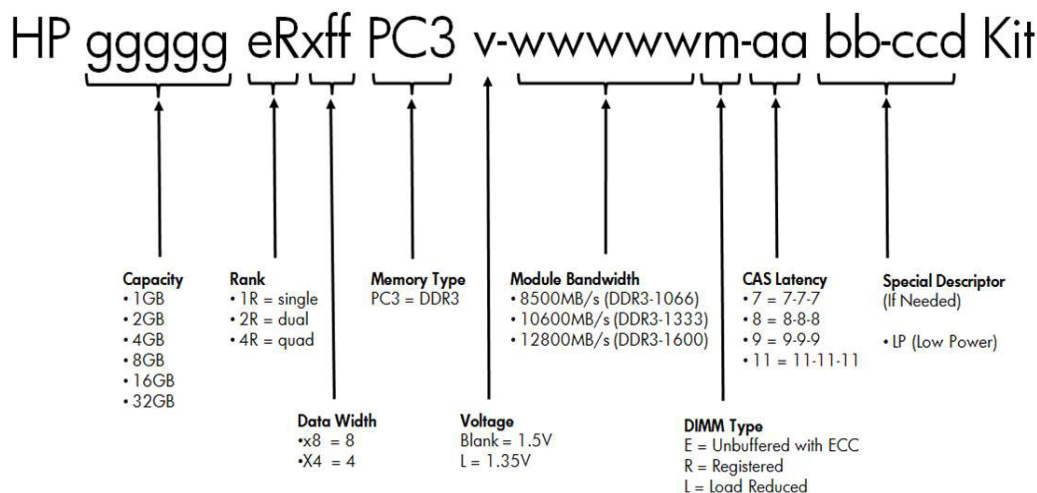
24 DIMM SLOTS (12 per CPU node)					
	slot #	population order	slot #	population order	
Chnl 3	1	C	1	C	Chnl 3
	2	G	2	G	
	3	K	3	K	
Chnl 4	4	D	4	D	Chnl 4
	5	H	5	H	
	6	L	6	L	
CPU1			CPU2		
Chnl 2	7	J	7	J	Chnl 2
	8	F	8	F	
	9	B	9	B	
Chnl 1	10	I	10	I	Chnl 1
	11	E	11	E	
	12	A	12	A	

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

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB
- 32GB = 32768MB

DDR3 memory options part number decoder

Memory



Following are memory options available from HP:

HP Memory

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

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

Registered DIMMs (RDIMMs)

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

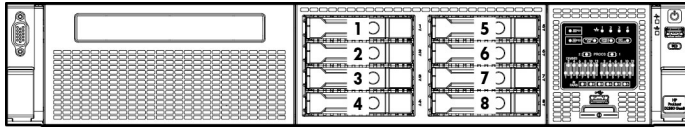
Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21

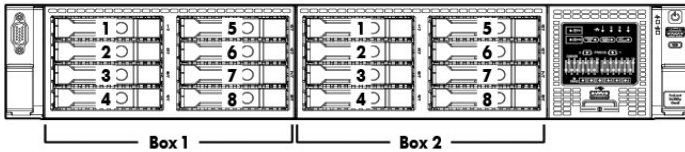
Memory

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 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-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 .	
NOTE: PC3L is a low voltage memory	

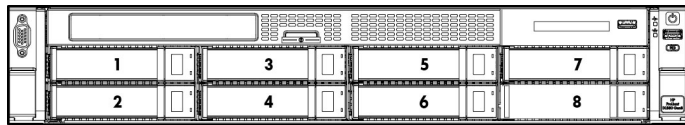
Storage



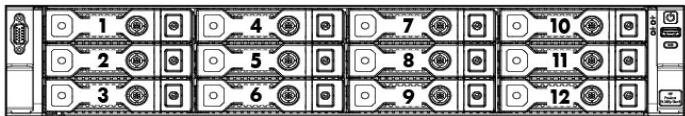
1-8 Eight SFF SAS hot plug drive bays



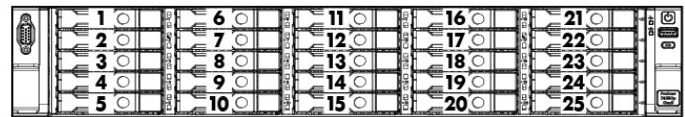
1-16 Sixteen SFF SAS hot plug drive bays
NOTE: This configuration does not support optical drive.



1-8 Eight LFF SAS hot plug drive bays.



1-12 Twelve LFF SAS hot plug drive bays.
NOTE: This configuration does not support optical drive.



1-25 Twenty-five SFF SAS hot plug drive bays.
NOTE: This configuration does not support optical drive.

Drive Support

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P222 Controller
	Up to 8	External	HP Smart Array P421 Controller
			HP Smart Array P822 Controller
D2700 Disk Enclosure	Up to 4	External	HP Smart Array P222 Controller
	Up to 8	External	HP Smart Array P421 Controller
			HP Smart Array P822 Controller

Maximum Storage Capacity - (with D2700, SAS/SATA HDD)

Internal	16TB (16 SFF HDs x 1TB SAS/SATA SFF with addition 8 SFF drive cage)
Internal	24TB (8 LFF HDs x3TB SAS/SATA LFF)
External	200TB (200 x 1TB SAS SFF)
Total	216TB

Technical Specifications

System Unit	Dimensions (H x W x D) (with bezel)	SFF Drives: 3.44 x 17.54 x 27.50 in (8.73 x 44.55 x 69.85 cm) LFF Drives: 3.44 x 17.54 x 29.50 in (8.73 x 44.55 x 74.93 cm)		
	Weight (approximate)	Maximum 61.00 lb (27.66 kg) (all LFF hard drives, power supply, and processor installed)		
		Minimum 41.0 lb (18.59 kg) (one SFF hard drive, power supply, and processor installed, ODD not installed)		
	Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC	
		Rated Input Current	For 1200 W Power Supply: 10 A (at 100 VAC), 4.9 A (at 200 VAC) For 750 W Power Supply: 8.9 A (at 100 VAC), 4.3 A (at 200 VAC) For 460 W Power Supply: 5.5 A (at 100 VAC), 2.6 A (at 200 VAC)	
		Rated Input Frequency	50 to 60 Hz	
		Rated Input Power	For 1200 W Power Supply: 930 W (at 100 VAC), 1348 W (at 200 VAC) For 750 W Power Supply: 857 W (at 100 VAC), 824 W (at 200 VAC) For 460 W Power Supply: 526 W (at 100 VAC), 505 W (at 200 VAC)	
		BTU Rating	Maximum	For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 BTU/hr (at 200 VAC) For 750 W Power Supply: 2925 BTU/hr (at 100 VAC), 2812 BTU/hr (at 200 VAC) For 460 W Power Supply: 1794 BTU/hr (at 100 VAC), 1725 BTU/hr (at 200 VAC)
	Power Supply Output (per power supply)	Rated Steady-State Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC),	

Technical Specifications

		750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)
	Maximum Peak Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)
System Inlet Temperature	Operating	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).
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
Relative Humidity (non-condensing)	Operating	10% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-operating	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	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 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	

Idle
Entry
Base
Performance

Technical Specifications

	LWAd	4.1 B	4.1 B	4.1 B
	LpAm	25 dBA	25 dBA	25 dBA
	Operating			
	LWAd	4.3 B	4.7 B	5.0 B
	LpAm	27 dBA	31 dBA	35 dBA
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.

NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

HP iLO 4 On System Management	Architecture	PCI Express based health and remote management ASIC
	Processor	Embedded ARM processor core operating at 400MHz
	Upgradeability	Firmware upgradeable via Flash ROM
	Video Support	1920 x 1200 (16 bpp) DVR max resolution
	Interfaces	HP iLO Dedicated* Network connection (10/100/1000 Mb/s) on rack, tower and SL systems *Optional Module on some servers 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
	Memory	16 MB Flash 256 MB DDR 3 with ECC (112 MB after ECC and video)
	Operating System Support	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: http://www.hp.com/go/ossupport
	Client System Support	For information on Client System Support, please visit the HP iLO Feature Comparison Site at: www.hp.com/go/compareilo
	Client Browser Support	Microsoft Internet Explorer 9 NOTE: For customers using Protected Mode, please use the Java based version of Integrated Remote Console. Microsoft Internet Explorer 8 NOTE: For customers using Protected Mode, please use the Java based version of Integrated Remote Console. Microsoft Internet Explorer 7 Firefox Extended Support Release (ESR) 10 (on supported Windows and Linux systems)

Technical Specifications

Command Line Support	Firefox 3.6 (on supported Windows and Linux systems) Secure Shell and serial port access Secure Socket Layer Secure Shell version 2
Security	Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface AES encryption of video RC4 encryption of video
Directory Support Services	Active Directory v1.0 (Windows 2003)
Driver Support	HP ProLiant iLO 4 Management Controller Driver Package
Management protocols supported	SNMP, IPMI 2.0 (system and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HP RIBCL XML

HP Smart Array P420i Controller

Dimensions	Embedded
Disk Drive and Enclosure Interface - Transfer Rate	6Gb/s SAS (Serial Attached SCSI) 6Gb/s SATA (Serial ATA)
SAS Connectors	2 internal 4X connectors
Cache Memory Speed	512MB FBWC - DDR3-1333MHz with 40-bit wide bus, 1GB or 2GB FBWC DDR3-1333MHz with 72-bit wide bus
Server Interface	x8 PCIe 3.0 provides 2GB/s maximum bandwidth
SAS Speed	(8) 6Gb/s SAS links provide 4.8GB/s maximum bandwidth
Cache Memory	Zero Memory RAID has no cache memory 40-bit 512MB ECC protected flash back write cache 72-bit 1GB FBWC or 72-bit 2GB FBWC
Logical Drives Supported	Zero Memory, Up to 2 logical volumes (8SFF or 4LFF physical drives) Up to 64 logical drives with cache
Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
RAID Support	RAID 6, 6+0 (Advanced Data Guarding) NOTE: RAID 6, 6+0 can be enabled with one of the following combinations: <ul style="list-style-type: none">• 512MB FBWC and Smart Array Advanced Pack License key option upgrades• 1GB or 2GB FBWC and Smart Array Advanced Pack License key option upgrades RAID 5, 5+0 (Distributed Data Guarding) NOTE: A minimum of 512MB cache is required to enable RAID 5, 5+0 support RAID 1+0 (Striping & Mirroring) RAID 0 (Striping), RAID 1 (Mirroring)

Technical Specifications

HP Ethernet 1Gb 4-port 331FLR Adapter	HP Flexible Network Technology	HP Flexible Network Technology consists of replaceable network solutions to meet the customers require now or in the future.	
	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 802.3ad 1000Base-TX IEEE 802.1p 100Base-TX IEEE 802.1q 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Chipset	BCM5719	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	Two RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)

HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	Network Interface	SFP+ for Direct Attach Cable copper or fibre	
	Compatibility	IEEE 802.3 SFP+ (SX, SR & LR) IEEE 802.3xx IEEE 802.3ad IEEE 802.1q IEEE 802.3x IEEE 802.1au IEEE 802.3ap	
	Data Transfer Method	PCI Express, eight lanes (x8)	
	Chipset	BCM57810S	
	Network Transfer Rate	10Base-T (Half-Duplex)	10Gbps
		10Base-T (Full-Duplex)	1Gbps
	Connector	Two SFP+	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)

Technical Specifications

100Base-TX Category 5 or higher UTP;
up to 328 ft (100 m)

1000BaseTX Category 5 or higher 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.