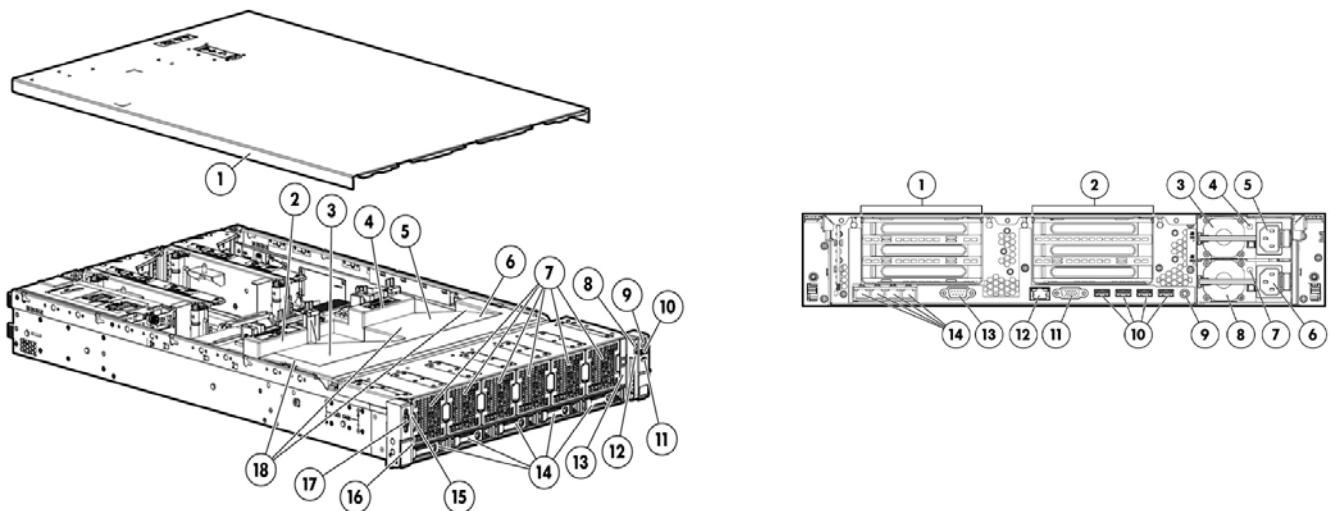## Overview

HPE ProLiant DL560 Gen8

The HPE ProLiant DL560 Gen8 redefines density-optimized 4-socket rack server technology without compromising on performance, scalability, and expandability. Supporting the new high-density and cost effective Intel® Xeon® E5-4600v2 processors, the DL560 Gen8 is ideal for virtualization, database, business processing, and general 4P data-intensive applications where optimization of data center space and price/performance is paramount.

The server is packed with the latest Hewlett Packard Enterprise innovative and intuitive hardware and software features. Hardware enhancements include the HPE SmartDrive carriers, HPE Smart Socket guide, HPE SmartMemory, FlexibleLOM technology, "3D Sea of Sensors", the new embedded Smart Array P420i RAID controller, and more. Software enhancements include HPE Integrated Lifecycle Automation, Dynamic Workload Acceleration, Automated Energy Optimization, Intelligent Provisioning, agentless hardware monitoring, and Active Health System.

Front View:

1. Quick removal access panel
2. First Processor
3. Second Processor
4. Third Processor
5. Fourth Processor
6. Air Baffle
7. Hot-plug fans, full N+1 redundancy
8. Health LED
9. Power On /Standby button and system power LED button
10. USB connector
11. Unit ID LED
12. Aggregate Network LED
13. Systems Insight Display
14. Drive Bays

Rear View:

1. PCIe 3.0 Slots 1, 2, PCIe 2.0 Slot 3-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)

Overview

15. Access Tag
16. USB connector
17. Video connector
18. 48 DIMM slots: DDR3 Registered (RDIMM) or Load Reduced (LRDIMM)

What's New

- New HDD offering.

Standard Features

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

Processor One or more of the following depending on model	**E5-4600 v2 series Processors** **Twelve-Core Processors** Intel® Xeon® E5-4657L v2 (2.4GHz/12-core/30MB/115W) Processor **Ten-Core Processors** Intel® Xeon® E5-4650 v2 (2.4GHz/10-core/25MB/95W) Processor Intel® Xeon® E5-4640 v2 (2.2GHz/10-core/20MB/95W) Processor **Eight-Core Processors** Intel® Xeon® E5-4627 v2 (3.3GHz/8-core/16MB/130W) Processor Intel® Xeon® E5-4620 v2 (2.6GHz/8-core/20MB/95W) Processor Intel® Xeon® E5-4610 v2 (2.3GHz/8-core/16MB/95W) Processor **Six-Core Processors** Intel® Xeon® E5-4607 v2 (2.6GHz/6-core/15MB/95W) Processor **Four-Core Processors** Intel® Xeon® E5-4603 v2 (2.2GHz/4-core/10MB/95W) Processor **E5-4600 series Processors** **Eight-Core Processors** Intel® Xeon® E5-4650 (2.7GHz/8-core/20MB/130W) Processor Intel® Xeon® E5-4650L (2.6GHz/8-core/20MB/115W) Processor Intel® Xeon® E5-4640 (2.4GHz/8-core/20MB/95W) Processor Intel® Xeon® E5-4620 (2.2GHz/8-core/16MB/95W) Processor **Six-Core Processors** Intel® Xeon® E5-4617 (2.9GHz/6-core/15MB/130W) Processor Intel® Xeon® E5-4610 (2.4GHz/6-core/15MB/95W) Processor Intel® Xeon® E5-4607 (2.2GHz/6-core/12MB/95W) Processor **Four-Core Processors** Intel® Xeon® E5-4603 (2.0GHz/4-core/10MB/95W) Processor
Cache Memory One of the following depending on model	30MB Level3 **NOTE:** E5-4657L v2 processor 25MB Level3 **NOTE:** E5-4650 v2 processor 20MB Level3 **NOTE:** E5-4650, E5-4650L, E5-4640, E5-4640 v2, E5-4620 v2 processors 16MB Level3 **NOTE:** E5-4620, E5-4610 v2, E5-4627 v2 processors 15MB Level3 **NOTE:** E5-4617, E5-4610, E5-4607 v2 processors 12MB Level3 **NOTE:** E5-4607 processor

Standard Features

	10MB Level3 **NOTE: E5-4603, E5-4603 v2 processors** **NOTE: All processor models above list the L3 Cache associated with that particular processor.**
Chipset	Intel® C600 Series Chipset Intel® E5-4600 and E5-4600v2 Processor Family **NOTE: For more information regarding Intel chipsets, please see the following URL:** **http://www.intel.com/products/server/chipsets/.**
Upgradeability	Upgradeable to 4 processors (32 Cores with E5-4600; 48 Cores with E5-4600v2) **NOTE: Processor upgrade available from Intel® Xeon® Processors E5-4600 to E5-4600 v2. Please contact HPE Technology Sales (http://www.hp.com/support), your local Hewlett Packard Enterprise Re-seller, or reference the following Customer Advisory: ProLiant Servers-Instructions for Upgrading an HPE ProLiant Gen8 Server from an Intel Xeon Processor E5-4600 to an Intel Xeon Processor E5-4600 v2, regarding critical details before upgrading. An explanation of requirements and limitations are provided.** Up to 48 DIMM slots available for higher Memory capacity FlexibleLOM connector for 1 Gigabit or 10 Gigabit, QDR and FDR InfiniBand networking options 5SFF Hard drive bays 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
On System Management Processor	HPE iLO (Firmware: HPE iLO 4) **NOTE: For more information, visit: http://www.hp.com/go/ilo**
Memory Protection	Data bus ECC Protection **NOTE: Data Bus ECC protection provides automatic correction from a single data bit error and detection of double data error bits. Often called single error correction/double error detection (SEC/DED).** Advanced ECC / SDDC **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** Hewlett Packard Enterprise **part numbers.** DIMM address/control bus parity protection **NOTE: Address parity protection available on RDIMMs and LRDIMMs detects address bit errors to improve service time and overall service availability.** Failed DIMM isolation **NOTE: Failed DIMM isolation improves the service time thus improving the overall system**

Standard Features

availability.

Demand and Patrol scrubbing
NOTE: Memory demand and patrol scrubbing prevent accumulation of correctable errors and reduces the likelihood of unplanned downtime.

Memory thermal control
NOTE: Memory thermal control is used to prevent DIMMs from overheating. Achieved by slowing down the memory access rate per the temperature monitored by DIMM sensor.

Memory mirroring inter-socket
NOTE: Memory mirroring inter-socket stores a copy of memory with dynamic failover in case of failure. Once a DIMM in a mirrored set is detected as failed, the mirror failover uses its mirrored DIMM.

Memory One of the following depending on model	Type	HPE SmartMemory DDR3 Load Reduced (LRDIMM), Registered (RDIMM)
	DIMM Slots Available	48 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel)
	Maximum Capacity	(RDIMM) 1.5TB (48x 32GB RDIMM @1600MHz) (LRDIMM) 1.5TB (48x 32GB LRDIMM @ 1866MHz)

NOTE: HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant Server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HPE SmartMemory QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html
NOTE: LRDIMM, RDIMM 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 a quarter the DIMM slots are available. If only two processors are installed, only half the DIMM slots are available.
NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1866MHz, 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: **http://www.hp.com/go/ddr3memory-configurator**

Network Controller One of the following depending on model	HPE ProLiant Gen8 servers offer a new networking technology - Flexible Network Technology. The HPE ProLiant DL560 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 HPE Ethernet 1Gb 4-port 331FLR Adapter
	Base Models HPE Ethernet 1Gb 4-port 331FLR Adapter
	High Performance Models HPE Ethernet 1Gb 4-port 331FLR Adapter HPE Ethernet 10Gb 2-port 530FLR-SFP+ 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
	2	PCIe 3.0	X8	X8	10	Half Length, Full Height Slot	Proc 1
	3	PCIe 2.0	X4	X8	13	Half Length,	Chipset

Standard Features

Full Height Slot

* 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: Up to two 150w PCIe cards are supported, 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: Up to two150w PCIe cards supported, 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	20	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.

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

HPE 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.

HPE 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.

The HPE ProLiant ROM is used to configure the following:

- Processor and chipset status registers

Standard Features

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

NOTE: For further information, please refer to the HPE RBSU (ROM based setup utility) user guide: **http://www.hp.com/support/rbsu**

Storage Controller One of the following depending on model	Entry Model	HPE Smart Array P420i/ZM (RAID 0/1/1+0)
	Base Model	HPE Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0/6/6+0)
	Performance Model	HPE Smart Array P420i/2GB with FBWC (RAID 0/1/1+0/5/5+0/6/6+0)

Internal Storage Devices	Diskette Drive	None
	Optical Drive	None ship standard
		*Optional: USB DVD-RW available
	Hard Drives	None ship standard
	Drive Bays	Standard: 5SFF drive bays total
		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 P/N 666987-B21: HPE SFF 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	6.0TB	5 x 1.2TB
	Hot Plug SFF SAS SSD	8.0TB	5 x 1.6T
	Hot Plug SFF SATA	5.0TB	5 x 1.0TB
	Hot Plug SFF SATA SSD	4.0TB	5 x 800GB

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 HPE Networking section below for more details and options).
	HPE iLO Remote Management Network Port	1 Gb Dedicated
	Micro SD slot	1 Internal Secure
		NOTE: The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.
	USB 2.0 Ports	7 total: 2 front, 4 back, 1 internal

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

Standard Features

	USB 2.0 Compliant

Server Power Cords All Pre-configured servers ship with a high voltage server-to-PDU power cord.
NOTE: HPE 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.

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

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

Common Slot Power Supply The HPE Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HPE Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HPE CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. HPE CS power supply options provide efficiency ratings of up to 94% (80 Plus Platinum) and are available in up to 1200W power output. All HPE 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.

HPE CS Platinum Plus power supplies are required when enabling the HPE 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 the HPE IPD solution, go to **http://www.hp.com/go/ipd**

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

NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on 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 6 fans (N+1 redundancy standard)

Standard Features

Required Cabling	For required cabling information, refer to the Hewlett Packard Enterprise Web site at: **http://www.hp.com/servers/dl560-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 the HPE 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/DL560Gen8**

Graphics	Integrated Matrox G200 video standard
	
	    • 1280 x 1024 (32 bpp)
	    • 1920 x 1200 (16 bpp)
	
	HPE iLO 4 On System Management Memory
	
	    • 16 MB Flash
	    • 256 MB DDR 3 with ECC (112 MB after ECC and video)

Form Factor	2U Rack form factor, ships with ball bearing rails and cable management system **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.** **CAUTION: Hewlett Packard Enterprise 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.** 3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 29.5" (74.94 cm) Length

On System Management	HPE iLO Management Engine	HPE iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HPE iLO Management Engine comes standard on all HPE ProLiant Gen8 servers. The HPE iLO Management Engine portfolio includes:
		
		    • **HPE iLO:** The HPE iLO (Integrated Lights-Out) management processor is the core foundation for the HPE iLO Management Engine
		    • **HPE Agentless Management:** Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
		    • **HPE Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration

Standard Features

history; Health and service alerts and easy export and upload to
Service and Support.

- **HPE Intelligent Provisioning:** Lets customers provision and
configure a single server without any separate media. No more
SmartStart CDs or Smart Update Firmware DVD are needed.
  - o   To start Intelligent Provisioning:
    - ▪ Press the F10 key during the ProLiant Gen8
      server boot process (also known as power on self
      test or POST).
    - ▪ Please go to the Intelligent Provisioning website
      at
      **http://www.hp.com/go/intelligentprovisionin
      g** for additional information and to view usage
      videos.
    - ▪ Use the Service Pack for ProLiant (SPP) at
      http://www.hp.com/go/spp to get firmware
      and software updates.
- **HPE iLO Mobile App:** Enables the ability to access, deploy, and
manage your server anytime from anywhere from select
smartphones and mobile devices. For additional information please
visit: www.hp.com/go/ilo/mobileapp

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

HPE Insight Management	HPE Service Pack for ProLiant	HPE Service Pack for ProLiant (SPP) and HPE Smart Update Manager (HPE 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 HPE server hardware launches. By enabling firmware to be updated online and integrating firmware and system software updates in one operation HPE 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 Hewlett Packard Enterprise provides 12 months of support on each Service Pack for ProLiant.

The user experience around HPE 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 HPE 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 HPE 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 hpe.com, HPE
SUM provides the tools to optimize stability and consistency throughout
the company. While HPE SUM and the SPP will recommend the
combinations of firmware and system software that Hewlett Packard

Standard Features

Enterprise 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 HPE 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 HPE SUM 5) can be downloaded from: **http://www.hp.com/go/spp/download**. More information can be found: **http://www.hp.com/go/spp** and **http://www.hp.com/go/hpsum**

HPE StoreVirtual VSA   HPE StoreVirtual VSA allows you to create fully featured shared storage on a VMware vSphere or Microsoft Hyper-V virtualized server. This server model starting November 2013, includes a limited license for HPE StoreVirtual VSA software with 1TB of capacity. To download the license key and StoreVirtual VSA software, visit **http://www.hp.com/go/unlockVSA**
NOTE: You will need your server serial number in order to complete the registration form.

Fully functional, capacity-based licenses are available in 4TB, 10TB, and 50TB sizes. For more information and access to the 60-day free trial, visit: **http://www.hp.com/go/tryVSA**

Security   Power-on password

Serial interface control

Administrator's password

Warranty   This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of Hewlett Packard Enterprise 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 HPE 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 Hewlett Packard Enterprise 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

HPE Insight management	HPE Insight Control	HPE 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. HPE Insight Control also supports Location and Power Discovery Services to automate many configuration, asset tracking, and power management tasks to speed implementation and prevent downtime. For more information, see **http://www.hp.com/go/insightcontrol**
		HPE Insight Control includes one year of 24 x 7 HPE Software Technical Support and Update Service ensuring rapid access to Hewlett Packard Enterprise support staff and proactive delivery of software updates. For more information about this service, see: **http://www.hp.com/services/insight**
	HPE iLO Advanced HPE Integrated Lights-Out	Advanced License a product option, providing smart remote server management without compromise. iLO Advanced unlocks the full set of remote administration functionality for all HPE ProLiant servers by activating the full Virtual Keyboard Video and Mouse remote console, multi-user collaboration, console record and replay, GUI-based and scripted virtual media and virtual folders, and enhanced security and power management functionality. For more information, see: **http://www.hp.com/go/iloadvance**
	HPE Matrix Operating Environment	The HPE 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 HPE Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HPE 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**
High Performance Clusters	HPE Cluster Platforms	HPE 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**
	HPE HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HPE Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by Hewlett Packard Enterprise when integrated within an HPE cluster. Flexible, validated solutions can be defined with the help of configuration tools. **http://www.hp.com/techservers/clusters/ucp/index.html**
	HPE Insight Cluster	HPE Cluster Management Utility (CMU) is an HPE-licensed and HPE-

Optional Features

	Management Utility	supported suite of tools that are used to manage large-scale Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. **http://www.hp.com/go/cmu**
	HPE HPC Linux Value Pack	HPE HPC Linux Value Pack (Value Pack) is an HPE-licensed and HPE-supported option to HPE 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 HPE-MPI parallelization library. **HPE HPC Linux Value Pack**

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

Storage software that gets the job done:

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

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

HPE Insight Online   HPE Insight Online is a new addition to the HPE Support Center for one stop, secure access to product and Hewlett Packard Enterprise support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HPE 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. **http://www.hp.com/go/insightonline**

HPE Proactive Insight experience   Prevent problems with innovative, automated monitoring tools and proactive services. The HPE Proactive Insight experience consist of using Insight Online, Insight Remote Support, and Proactive

Optional Features

Care Support Service as one integrated solution. The Proactive Insight experience provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: **http://www.hp.com/go/proactiveinsightexperience**

Factory Express Portfolio for Servers and Storage

HPE Factory Express offers configuration, customization, integration and deployment services for HPE 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. Hewlett Packard Enterprise products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

HPE Simple Configurator

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

Service and Support

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

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

Protect your business beyond warranty with HPE Care Pack Services

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

Recommended HPE Care Pack Services for your Hewlett Packard Enterprise product

Optimized Care
Supports maintaining servers at optimum performance availability

HPE Proactive Care with 6 hour call-to-repair commitment, three year Care Pack Service
HPE Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to Hewlett Packard Enterprise. This Care Pack Service combines three years' proactive reporting and advice with our highest level reactive coverage and enhanced escalation management, the Hewlett Packard Enterprise 24x7, six hour call-to-repair hardware commitment. Hewlett Packard Enterprise is the only leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable servers. Service includes 24x7 collaborative software support for leading industry standard software running on your HPE ProLiant server.

http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf

Standard Care
Service recommendation that maintains high level of server availability

HPE Proactive Care with 24x7 coverage, three year Care Pack Service

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

Related Services
HPE ProLiant Server Hardware Installation
Provides for the basic hardware installation of Hewlett Packard Enterprise branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.
http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf

Factory Express for Servers and storage
HPE Factory Express offers configuration, customization, integration and deployment services for

Service and Support

Hewlett Packard Enterprise servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. For more information on Factory Express services for your specific server model please contact your sales representative or go to: **http://www.hp.com/go/factory-express**.

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

Additional HPE Care Pack services can be found at: **http://www.hp.com/go/cpc**

Get connected to Hewlett Packard Enterprise to improve your support experience	Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: **http://www.hp.com/go/proactiveinsightexperience**
HPE Support Center	Personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more **http://www.hp.com/go/hpsc** The HPE 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. HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Care Pack or Hewlett Packard Enterprise contractual support agreement. **NOTE:** HPE Support Center Mobile App is subject to local availability.
Parts and Materials	Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.
For more information	To learn more on HPE ProLiant servers and HPE BladeSystem servers, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized ServiceOne 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: Hewlett Packard Enterprise 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: HPE SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HPE LFF Gen8 Hard Drive Blank Kit.

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

Entry Models

HP ProLiant DL560 Gen8 E5-4603 2P 16GB-R Hot Plug SFF 1200W PS Server 686786-xx1	**Processor(s)**	(2) Intel® Xeon® E5-4603 (2.0GHz/4-core/10MB/6.4GT-s QPI/95W) Processors
	Cache Memory	10MB (1x10MB) Level 3
	Memory	16GB (2x8GB) PC3L-10600R (DDR3-1333) Registered DIMMS **NOTE: Total 48 DIMM slots available with processor upgrade (4P configuration)**
	Network Controller	HPE Ethernet 1Gb 4-port 331FLR Adapter
	Storage Controller	HPE Smart Array P420i/ZM (RAID 0/1/1+0)
	Hard Drives	None ship standard
	Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks
	Optical Drive Bay	Optional External USB Optical Drive (Mobile USB DVDRW Optical Drive)
	PCI-Express Slots	3 PCIe slots (Up to 3 additional PCIe slots available with optional riser)
	Power Supply	(1) HPE 1200W Common Slot Platinum Plus Hot Plug Power Supply (94% Efficient)
	Fans	(6) (N+1 redundancy standard)
	Management	HPE iLO Management Engine (standard) Optional: HPE iLO Advanced or HPE Insight Control
	Form Factor	Rack (2U), HPE Ball Bearing Rail Kit/Cable Management Arm Standard
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.
HP ProLiant DL560 Gen8 E5-4603v2 2P 16GB-R Hot Plug SFF 1200W RPS Server 732024-xx1	**Processor(s)**	(2) Intel® Xeon® E5-4603 v2 (2.2GHz/4-core/10MB/6.4GT-s QPI/95W) Processors
	Cache Memory	10MB (1x10MB) Level 3
	Memory	16GB (2x8GB) PC3L-12800R (DDR3-1600) Registered DIMMS **NOTE: Total 48 DIMM slots available with processor upgrade (4P configuration)**
	Network Controller	HPE Ethernet 1Gb 4-port 331FLR Adapter
	Storage Controller	HPE Smart Array P420i/ZM (RAID 0/1/1+0)

Pre-configured Models

	Hard Drives	None ship standard
	Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks
	Optical Drive Bay	Optional External USB Optical Drive (Mobile USB DVDRW Optical Drive)
	PCI-Express Slots	3 PCIe slots (Up to 3 additional PCIe slots available with optional riser)
	Power Supply	(1) HPE 1200W Common Slot Platinum Plus Hot Plug Power Supply (94% Efficient)
	Fans	(6) (N+1 redundancy standard)
	Management	HPE iLO Management Engine (standard) Optional: HPE iLO Advanced or HPE Insight Control
	Form Factor	Rack (2U), HPE Ball Bearing Rail Kit/Cable Management Arm Standard
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Base Models

HP ProLiant DL560 Gen8 E5-4610 2P 32GB-R Hot Plug SFF 1200W PS Server 686785-xx1	**Processor(s)**	(2) Intel® Xeon® E5-4610 (2.4GHz/6-core/15MB/7.2GT-s QPI/95W) Processors
	Cache Memory	15MB (1x15MB) Level 3
	Memory	32GB (4x8GB) PC3L-10600R (DDR3-1333) Registered DIMMS **NOTE: Total 48 DIMM slots available with processor upgrade (4P configuration)**
	Network Controller	HPE Ethernet 1Gb 4-port 331FLR Adapter
	Storage Controller	HPE Smart Array P420i/1GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0)
	Hard Drives	None ship standard
	Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks
	Optical Drive	Optional External USB Optical Drive (Mobile USB DVDRW Optical Drive)
	PCI-Express Slots	3 PCIe slots (Up to 3 additional PCIe slots available with optional riser)
	Power Supply	(2) HPE 1200W CS Platinum Plus Hot Plug Power Supply (94% Efficient)
	Fans	(6) (N+1 redundancy standard)
	Management	HPE iLO Management Engine (standard) Optional: HPE iLO Advanced or HPE Insight Control
	Form Factor	Rack (2U), HPE Ball Bearing Rail Kit /Cable Management Arm standard
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.
HP ProLiant DL560 Gen8 E5-4610v2 2P 32GB-R Hot Plug SFF 1200W RPS Server 732341-xx1	**Processor(s)**	(2) Intel® Xeon® E5-4610 v2 (2.3GHz/8-core/16MB/7.2GT-s QPI/95W) Processors
	Cache Memory	16MB (1x16MB) Level 3
	Memory	32GB (4x8GB) PC3L-12800R (DDR3-1600) Registered DIMMS **NOTE: Total 48 DIMM slots available with processor upgrade (4P configuration)**
	Network Controller	HPE Ethernet 1Gb 4-port 331FLR Adapter
	Storage Controller	HPE Smart Array P420i/1GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0)
	Hard Drives	None ship standard

Pre-configured Models

Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks	
Optical Drive	Optional External USB Optical Drive (Mobile USB DVDRW Optical Drive)	
PCI-Express Slots	3 PCIe slots (Up to 3 additional PCIe slots available with optional riser)	
Power Supply	(2) HPE 1200W CS Platinum Plus Hot Plug Power Supply (94% Efficient)	
Fans	(6) (N+1 redundancy standard)	
Management	HPE iLO Management Engine (standard) Optional: HPE iLO Advanced or HPE Insight Control	
Form Factor	Rack (2U), HPE Ball Bearing Rail Kit /Cable Management Arm standard	
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.	

Performance Models

NOTE: These Models are Energy Star Certified.

HP ProLiant DL560 Gen8 E5-4640 4P 64GB-R Hot Plug SFF 1200W PS Server 686784-xx1	**Processor(s)**	(4) Intel® Xeon® E5-4640 (2.4GHz/8-core/20MB/8.0GT-s QPI/95W) Processors
	Cache Memory	20MB (1x20MB) Level 3
	Memory	64GB (8x8GB) PC3-12800R (DDR3-1600) Registered DIMMS **NOTE: Total 48 DIMM slots available with processor upgrade (4P configuration)**
	Network Controller	HPE Ethernet 10Gb 2-port 530FLR-SFP+ Adapter
	Storage Controller	HPE Smart Array P420i/2GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0)
	Hard Drives	None ship standard
	Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks
	Optical Drive Bay	Optional External USB Optical Drive (Mobile USB DVDRW Optical Drive)
	PCI-Express Slots	6 PCIe slots (secondary riser included by default)
	Power Supply	(2) HPE 1200W CS Platinum Plus Hot Plug Power Supplies (94% Efficient)
	Fans	(6) (N+1 redundancy standard)
	Management	HPE iLO Management Engine (standard) HPE Insight Control Standard
	Energy Star	Meets Energy Star requirements
	Form Factor	Rack (2U), HPE Ball Bearing Rail Kit /Cable Management Arm standard
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.
HP ProLiant DL560 Gen8 E5-4640v2 4P 128GB-R Hot Plug SFF 1200W RPS Server 732342-xx1	**Processor(s)**	(4) Intel® Xeon® E5-4640 v2 (2.2GHz/10-core/20MB/8.0GT-s QPI/95W) Processors
	Cache Memory	20MB (1x20MB) Level 3
	Memory	128GB (16x8GB) PC3-14900R (DDR3-1866) Registered DIMMS **NOTE: Total 48 DIMM slots available with processor upgrade (4P configuration)**
	Network Controller	HPE FlexFabric 10Gb 2-port 533FLR-T Adapter
	Storage Controller	HPE Smart Array P420i/2GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0)
	Hard Drives	None ship standard

Pre-configured Models

Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks
Optical Drive Bay	Optional External USB Optical Drive (Mobile USB DVDRW Optical Drive)
PCI-Express Slots	6 PCIe slots (secondary riser included by default)
Power Supply	(2) HPE 1200W CS Platinum Plus Hot Plug Power Supplies (94% Efficient)
Fans	(6) (N+1 redundancy standard)
Management	HPE iLO Management Engine (standard) HPE Insight Control Standard
Energy Star	Meets Energy Star requirements
Form Factor	Rack (2U), HPE Ball Bearing Rail Kit /Cable Management Arm standard
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Country Code Key		
	xx = 00	US
	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, Hewlett Packard Enterprise recommends the use of a Hewlett Packard Enterprise 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)

HPE Models   HP ProLiant DL560 Gen8 Configure-to-order Server   686792-B21

Factory Integrated Models ship with:

4 x HPE Smart Socket Guides for fast processor installation.
48 DIMM slots for RDIMM and LRDIMM Memory installation
1 FlexibleLOM connector: (see Step2: HPE Flexible NIC 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

(1) HPE 1200W CS Platinum Plus Hot Plug Power Supply (94% Efficient)
System Fans - 6 (N + 1 redundancy standard)
Drive Cage - 5SFF (Optical media drive optional)
USB - 4 Rear, 2 Front, 1 Internal, 1 Micro SD slot
HPE iLO Management Engine (standard)
HPE Ball Bearing Rail Kit and Cable Management Arm
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.
CAUTION: Hewlett Packard Enterprise 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

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

HPE Processors   **NOTE:** All processors within the server must be identical.
NOTE: All processor kits contain one processor. If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21. If four processors are desired, select one xxxxxx-L21 and three xxxxxx-B21. 3P configurations are not supported.
NOTE: Intel® Hyper Threading supported on all processors except E5-4617 and E5-4627 v2.

E5-4600 v2 series Processors

Configuration Information - Factory Integrated Models

Twelve-Core Processors	
HP DL560 Gen8 Intel® Xeon® E5-4657Lv2 (2.4GHz/12-core/30MB/115W) FIO Processor Kit	734193-L21
Ten-Core Processors	
HP DL560 Gen8 Intel® Xeon® E5-4650v2 (2.4GHz/10-core/25MB/95W) FIO Processor Kit	734180-L21
HP DL560 Gen8 Intel® Xeon® E5-4640v2 (2.2GHz/10-core/20MB/95W) FIO Processor Kit	734182-L21
Eight-Core Processors	
HP DL560 Gen8 Intel® Xeon® E5-4620v2 (2.6GHz/8-core/20MB/95W) FIO Processor Kit	734185-L21
HP DL560 Gen8 Intel® Xeon® E5-4610v2 (2.3GHz/8-core/16MB/95W) FIO Processor Kit	734187-L21
HP DL560 Gen8 Intel® Xeon® E5-4627v2 (3.3GHz/8-core/16MB/130W) FIO Processor Kit	734195-L21
Six-Core Processors	
HP DL560 Gen8 Intel® Xeon® E5-4607v2 (2.6GHz/6-core/15MB/95W) FIO Processor Kit	734189-L21
Four-Core Processors	
HP DL560 Gen8 Intel® Xeon® E5-4603v2 (2.2GHz/4-core/10MB/95W) FIO Processor Kit	734191-L21
E5-4600 series Processors	
Eight-Core Processors	
HP DL560 Gen8 Intel® Xeon® E5-4650L (2.6GHz/8-core/20MB/115W) FIO Processor Kit	686832-L21

HPE Memory

NOTE: HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant Server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HPE SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: LRDIMM and RDIMM 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) - E5-4600 v2 series Processors

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713981-B21
HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708637-B21
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713983-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708639-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory	708641-B21

Configuration Information - Factory Integrated Models

Kit

Load Reduced DIMMs (LRDIMM) - E5-4600 v2 series Processors

HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit	708643-B21

Registered DIMMs (RDIMMs) - E5-2xxx and E5-4xxx series Processors

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

Load Reduced DIMMs (LRDIMM) - E5 2xxx and E5-4xxx series Processors

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: **http://www.hp.com/go/ddr3memory-configurator**

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

NOTE: PC3L is a low voltage memory

HPE Networking

NOTE: The HPE ProLiant DL560 Gen8 server requires one FlexibleLOM to be installed in the FlexibleLOM slot.

FlexibleLOM Adapters

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 Ethernet 1Gb 4-port 366FLR FIO Adapter	684217-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ FIO Adapter	684218-B21
HP FlexFabric 10Gb 2-port 526FLR-SFP+ FIO Adapter	684219-B21
HP Ethernet 10Gb 2-port 561FLR-T FIO Adapter	700700-B21
HP FlexFabric 10Gb 2-port 534FLR-SFP+ FIO Adapter	700752-B21
HP FlexFabric 10Gb 2-port 533FLR-T FIO Adapter	700760-B21

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

HPE InfiniBand

HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP Adapter	649282-B21

Configuration Information - Factory Integrated Models

	HP Infiniband QDR/Ethernet 10Gb 2-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

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

HPE Common Slot Platinum Plus Power Supply Kits
NOTE: The following Power Supply offer 94% efficiency with support for Intelligent Power Discovery.

	HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21

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

NOTE: HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). For a full list of optional HPE power cords please go to **http://www.hp.com/products/powercords**

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

Step 3: Choose Additional Factory Integratable Options

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

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

Converged Infrastructure Management Software	**HPE OneView with iLO Advanced - Server hardware required on same purchase order**	
	HP OneView for ProLiant DL Server incl 3yr 24x7 Supp FIO Bundle Physical 1 Svr Lic	E5Y43A

Step 4: Choose Additional Options for Factory Integration

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

Core Options

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

HPE Processors	**NOTE:** All processors within the server must be identical.	
	NOTE: All processor kits contain one processor. If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21. If four processors are desired, select one xxxxxx-L21 and three xxxxxx-B21. 3P configurations are not supported.	
	NOTE: The processor model as well as the memory configuration determines the maximum speed memory can operate. Please see the see the "Memory" section later in this document.	
	NOTE: Intel® Hyper Threading supported on all processors except E5-4617 and E5-4627 v2.	
	E5-4600 v2 series Processors	
	Twelve-Core Processors	
	HP DL560 Gen8 Intel® Xeon® E5-4657Lv2 (2.4GHz/12-core/30MB/115W) Processor Kit	734193-B21
	Ten-Core Processors	
	HP DL560 Gen8 Intel® Xeon® E5-4650v2 (2.4GHz/10-core/25MB/95W) Processor Kit	734180-B21
	HP DL560 Gen8 Intel® Xeon® E5-4640v2 (2.2GHz/10-core/20MB/95W) Processor Kit	734182-B21
	Eight-Core Processors	
	HP DL560 Gen8 Intel® Xeon® E5-4620v2 (2.6GHz/8-core/20MB/95W) Processor Kit	734185-B21
	HP DL560 Gen8 Intel® Xeon® E5-4610v2 (2.3GHz/8-core/16MB/95W) Processor Kit	734187-B21
	HP DL560 Gen8 Intel® Xeon® E5-4627v2 (3.3GHz/8-core/16MB/130W) Processor Kit	734195-B21
	Six-Core Processors	
	HP DL560 Gen8 Intel® Xeon® E5-4607v2 (2.6GHz/6-core/15MB/95W) Processor Kit	734189-B21
	HP DL560 Gen8 Intel® Xeon® E5-4603v2 (2.2GHz/4-core/10MB/95W) Processor Kit	734191-B21
	Eight-Core Processors	
	HP DL560 Gen8 Intel® Xeon® E5-4650 (2.7GHz/8-core/20MB/130W) Processor Kit	686843-B21
	HP DL560 Gen8 Intel® Xeon® E5-4650L (2.6GHz/8-core/20MB/115W) Processor Kit	686832-B21
	HP DL560 Gen8 Intel® Xeon® E5-4640 (2.4GHz/8-core/20MB/95W) Processor Kit	686845-B21
	HP DL560 Gen8 Intel® Xeon® E5-4620 (2.2GHz/8-core/16MB/95W) Processor Kit	686847-B21
	Six-Core Processors	
	HP DL560 Gen8 Intel® Xeon® E5-4617 (2.9GHz/6-core/15MB/130W) Processor Kit	686834-B21
	HP DL560 Gen8 Intel® Xeon® E5-4610 (2.4GHz/6-core/15MB/95W) Processor Kit	686822-B21
	HP DL560 Gen8 Intel® Xeon® E5-4607 (2.2GHz/6-core/12MB/95W) Processor Kit	686824-B21
	Four-Core Processors	
	HP DL560 Gen8 Intel® Xeon® E5-4603 (2.0GHz/4-core/10MB/95W) Processor Kit	686826-B21
	NOTE: Up to 4 processors supported. Performance Model includes four processors.	
HPE Memory	**NOTE:** HPE memory from previous generation servers are not qualified or	

Core Options

warranted with this HPE ProLiant Server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HPE SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: LRDIMM and RDIMM 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) - E5-4600 v2 series Processors

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713981-B21
HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708637-B21
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713983-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708639-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21

Load Reduced DIMMs (LRDIMM) - E5-4600 v2 series Processors

HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit	708643-B21

Registered DIMMs (RDIMMs) - E5-2xxx and E5-4xxx series Processors

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

Load Reduced DIMMs (LRDIMM) - E5-2xxx and E5-4xxx series Processors

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

Core Options

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: **http://www.hp.com/go/ddr3memory-configurator**
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: **http://www.hp.com/go/proliant-energy-efficient**
NOTE: PC3L is a low voltage memory.

HPE Optical Drives	HP Mobile USB Non Leaded System DVD RW Drive	701498-B21
	NOTE: Included AC adapter not required for DL560 Gen8 functionality.	

HPE Hard Drives

NOTE: The HPE ProLiant DL560 Gen8 Smart Storage solutions are equipped with entirely re-designed Small Form Factor (SFF 2.5 in) hot plug carriers for HPE 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.

12G SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives

HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759212-B21
HP 450GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759210-B21
HP 300GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759208-B21

6G SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive	718162-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21

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

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

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 2.5in WI-PLP SC SSD

HP 1.2TB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804677-B21
HP 800GB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804671-B21
HP 400GB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804665-B21
HP 200GB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804639-B21

Core Options

6G SATA 2.5in MU-PLP SC SSD

HP 1.6TB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804631-B21
HP 800GB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804625-B21
HP 480GB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	832414-B21
HP 200GB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804613-B21

6G SATA 2.5in RI-PLP SC SSD

HP 1.6TB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804605-B21
HP 800GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804599-B21
HP 480GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804593-B21
HP 240GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804587-B21
HP 120GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804581-B21
HP 80GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804575-B21

6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives

HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	717965-B21
HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734360-B21

6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives

HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717973-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717971-B21
HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739898-B21
HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739888-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717969-B21

6G SATA ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691868-B21
HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691866-B21
HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691864-B21
HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691862-B21

6G SATA VE Hot Plug SFF(2.5-inch) SC EV G1 Solid State Drives

HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756657-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756636-B21

Core Options

HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756621-B21

6G SATA VE Hot Plug SFF(2.5-inch) SC EV M1 Solid State Drives

HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764923-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764925-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764927-B21
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764929-B21

6G SATA LE Hot Plug SFF (2.5-inch) SC EL G1 Solid State Drives

HP 960GB 6G SATA Light Endurance SFF 2.5-in SC Enterprise Light 3yr Wty G1 Solid State Drive	756601-B21

6G SATA Hot Plug SFF (2.5-inch) SC MDL Hard 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

6G SATA Hot Plug SFF (2.5-inch) SC HDD

HP 2TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765455-B21
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765453-B21

6G SATA Hot Plug SFF (2.5-inch) RI SC Solid State Drives

HP 480GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789145-B21
HP 240GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789135-B21

6G SATA Hot Plug MU-3 SFF (2.5-inch) SC Solid State Drives

HP 1.92TB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	817011-B21
HP 960GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816995-B21
HP 480GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816985-B21
HP 240GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816975-B21
HP 120GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816965-B21

6G SATA Hot Plug RI-3 SFF (2.5-inch) SC Solid State Drives

HP 3.84TB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816929-B21
HP 1.92TB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816919-B21
HP 960GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816909-B21
HP 480GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816899-B21
HP 240GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816889-B21
HP 120GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816879-B21

12G SAS ME Hot Plug (SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779164-B21
HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779168-B21
HP 800GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779172-B21

Core Options

HP 1.6TB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779176-B21

12G SAS SFF (2.5in) RI-3 SC Solid State Drives

HPE 3.84TB 12G SAS Read Intensive-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	816576-B21
HPE 1.92TB 12G SAS Read Intensive-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	816572-B21
HPE 960GB 12G SAS Read Intensive-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	816568-B21
HPE 480GB 12G SAS Read Intensive-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	816562-B21

12G SAS SFF (2.5in) MU-3 SC Solid State Drives

HPE 3.2TB 12G SAS Mixed Use-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	822567-B21
HPE 1.6TB 12G SAS Mixed Use-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	822563-B21
HPE 800GB 12G SAS Mixed Use-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	822559-B21
HPE 400GB 12G SAS Mixed Use-3 SFF 2.5-in SC 3yr Wty FIO Solid State Drive	822555-B21

12G SAS SFF (2.5-inch) SC HDD

HP 1.8TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 512e 3yr Warranty Hard Drive	791034-B21
HP 1.2TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781518-B21
HP 900GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785069-B21
HP 600GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781516-B21
HP 300GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785067-B21

12G SAS SFF (2.5-inch) SC Solid State Drives

HP 1.92TB 12G SAS Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802891-B21
HP 800GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802586-B21
HP 400GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802582-B21
HP 200GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802578-B21

12G SAS SFF (2.5-inch) SC HDD

HP 2TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765466-B21
HP 1TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765464-B21

12G SAS 15K SFF (2.5-inch) SC HDD

HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC 512e Enterprise 3yr Warranty Hard Drive	748387-B21

12G SAS VE SFF (2.5-inch) SC EV Solid State Drives

HP 1.6TB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762263-B21
HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762261-B21
HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	757339-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html

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.

Core Options

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

HP Small Form Factor Hard Drive Blank Kit	666987-B21

HPE Networking	**Gigabit Ethernet Adapters**	
	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 Ethernet 10Gb 2-port 530T Adapter	656596-B21
HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
HP Ethernet 10Gb 2-port 561T Adapter	716591-B21
HP Ethernet 10Gb 2-port 570SFP+ Adapter	718904-B21
HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21

FlexibleLOM Adapters

HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	647581-B21
HP FlexFabric 10Gb 2-port 526FLR-SFP+ Adapter	629138-B21
HP FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
HP Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21
HP Ethernet 10Gb 2-port 570FLR-SFP+ Adapter	717491-B21

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

HPE InfiniBand	HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
	HP Infiniband FDR/Ethernet 10Gb/40Gb 2-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.

NOTE: FLR Indicates HPE FlexibleLOM Adapter series.

HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP Adapter	649282-B21
HP Infiniband QDR/Ethernet 10Gb 2-port 544FLR-QSFP Adapter	649283-B21

Core Options

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html

HPE I/O Expansion Options	HP DL380p/560 Gen8 3 Slot PCI-E Riser Kit	653206-B21
	HP DL380p/560 Gen8 2 Slot 2x16 PCI-E Riser Kit	653208-B21

HPE Power Supplies

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

HPE Common Slot Platinum Plus Power Supply Kits
NOTE: The following Power Supplies offer 94% efficiency with support for Intelligent Power Discovery

HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit   656364-B21
NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.
NOTE: HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). For a full list of optional HPE power cords please go to **http://www.hp.com/products/powercords**

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

HPE 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, Hewlett Packard Enterprise recommends the use of a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for additional information.

HPE Insight Software	**HPE Insight Control**	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License **NOTE: The Electronic software license is available in EMEA only.**	C6N28ABE
	HP Insight Control Server Provisioning Media Kit	BD883A
	HP Insight Management Media Kit	C6N31A
	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 HPE Software Technical Support and Update Service. **NOTE:** Licenses ship without media. The HPE Insight Control 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 QuickSpecs at: **http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html**	
	HPE Integrated Lights-Out (iLO)	
	HPE Integrated Lights-Out (iLO) Advanced for ProLiant	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU **NOTE: The Electronic software license is available in EMEA only.**	E6U59ABE
	HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU **NOTE: The Electronic software license is available in EMEA only.**	E6U64ABE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A

Converged Infrastructure Management Software	**HPE OneView**	
	HPE OneView with iLO Advanced	
	HP OneView Media Kit Phys No Lic	E5Y37A
	HP OneView incl 3yr 24x7 Supp Phys 1 Svr Lic	E5Y34A
	HP OneView incl 3yr 24x7 Supp Flex Qty E-LTU	E5Y35AAE
	HPE OneView without iLO Advanced	
	HP OneView w/o iLO including 3yr 24x7 Support 1 Server LTU	P8B24A
	HP OneView w/o iLO including 3yr 24x7 Support Flex Quantity E-LTU	P8B26AAE
	HP OneView w/o iLO including 3yr 24x7 Support FIO 1 Server LTU	P8B31A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: **http://h18000.www1.hp.com/products/quickspecs/14621_div/14621_div.html**	

Additional Options

(Worldwide)

High Performance Clusters	**HPE 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

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HPE I/O Accelerator Options

Second Generation Accelerators

HP 1205GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673646-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)

HPE PCIe Workload Accelerator Options

Value Endurance (HE) PCIe Workload Accelerators

HP 1.3TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763834-B21
HP 1.6TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763836-B21
HP 3.2TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763838-B21
HP 6.4TB FH/HL Value Endurance (VE) PCIe Workload Accelerator	763840-B21
HP 1.0TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775666-B21
HP 1.3TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775668-B21
HP 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775670-B21
HP 5.2TB FH/HL Light Endurance (LE) PCIe Workload Accelerator	775672-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14528_div/14528_div.html
(Worldwide)

HPE 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:
http://www.hp.com/go/TPM.

Additional Options

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

HPE Storage Controllers **SAS Controllers**

Smart Array P222 Controller
NOTE: P222 requires (1) HPE Mini SAS Straight to Straight Cable Assembly (P/N 696195-B21)

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

Smart Array P420 Controller
NOTE: P420 requires (1) HPE Mini SAS Straight to Straight Cable Assembly (P/N 696195-B21)

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

Smart Array P421 Controller

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

Smart Array P430 Controller

HP Smart Array P430/2GB FBWC 12Gb 1-port Int SAS Controller	698529-B21
HP Smart Array P430/4GB FBWC 12Gb 1-port Int SAS Controller	698530-B21

Smart Array P431 Controller

HP Smart Array P431/2GB FBWC 12Gb 2-ports Ext SAS Controller	698531-B21
HP Smart Array P431/4GB FBWC 12Gb 2-ports Ext SAS Controller	698532-B21

Smart Array P822 Controller

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

NOTE: P822 requires (1) HPE Mini SAS Straight to Straight Cable Assembly (P/N 696195-B21)

Smart Array P830 Controller

HP Smart Array P830/4GB FBWC 12Gb 2-ports Int SAS Controller	698533-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 SmartCache No Media 24x7 Technical Support 1 Svr License	D7S26A
HP SmartCache No Media 24x7 Technical Support Flexible License	D7S27A
HP SmartCache No Media 24x7 Technical Support Electronic License	D7S27AAE

HPE Cable Options

HP DL560 Mini SAS Straight to Straight Cable Assembly	696195-B21
HP DL38Xp Gen8 25 Small Form Factor (SFF) P430/830 Cable Kit	729274-B21

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

Additional Options

http://h18000.www1.hp.com/products/quickspecs/14227_div/14227_div.html
(Smart Array P222 Controller)
http://h18000.www1.hp.com/products/quickspecs/14624_div/14624_div.html
(Smart Array P430 Controller)
http://h18000.www1.hp.com/products/quickspecs/14625_div/14625_div.html
(Smart Array P431 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/xxxxx_div/xxxxx_div.html
(Smart Array P830 Controller)
http://h18000.www1.hp.com/products/quickspecs/14532_div/14532_div.html
(SmartCache)
http://h18000.www1.hp.com/products/quickspecs/14623_div/14623_div.html
(Secure Encryption)

Host Bus Adapter

HP H220 Host Bus Adapter	650933-B21
HP H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21
HP H222 Host Bus Adapter	650926-B21
HP H221 PCIe 3.0 SAS Host Bus Adapter	729552-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)

HPE Power Cords   **NOTE:** HPE 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

Additional Options

	HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A

HPE 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 HPE tape backup products see: **http://www.hp.com/storage/SPOCK** and **http://www.hp.com/go/ebs**	
	NOTE: For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.	
	HP StoreEver LTO-5 Ultrium 3280 SAS External Tape Drive	EH900B
	HP StoreEver LTO-4 Ultrium 1760 SAS External Tape Drive	EH920B
	HP StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B
	HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
	HP StoreEver LTO-6 Ultrium 6650 SAS Internal Tape Drive	EH963A
	HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive	EH964A
	HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
	HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
	HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A

HPE Tape Storage Systems	**HPE StoreEver MSL6480**	
	HP StoreEver MSL6480 Scalable Base Module	QU625A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: **http://h18000.www1.hp.com/products/quickspecs/14604_div/14604_div.html** (Worldwide)	

HPE 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 HPE disk backup products see: **http://www.hp.com/storage/SPOCK**	
	HPE RDX Removable Disk Backup System	
	HP RDX500 USB3.0 Internal Disk Backup System	B7B64A
	HP RDX1000 USB3.0 Internal Disk Backup System	B7B67A
	NOTE: Please see the QuickSpecs for additional part numbers, Technical Specifications, and additional information: **http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html** (Worldwide)	

HPE Disk Storage Systems	**Disk Enclosures**	
	HP D2600 w/12 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 48TB Bundle	E7W32A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: **http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html** (Worldwide)	

HPE 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:	

Additional Options

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

Brocade Fibre Channel HBAs

HP 81B 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AP769B
HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AP770B

Emulex Fibre Channel HBAs

HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AJ762B
HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ763B
HP StoreFabric SN1100E 16Gb Single Port Fibre Channel Host Bus Adapter	C8R38A
HP StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter	C8R39A

QLogic Fibre Channel HBAs

HP 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AK344A
HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ764A
HP StoreFabric SN1000Q 16GB 1-port PCIe Fibre Channel Host Bus Adapter	QW971A
HP StoreFabric SN1000Q 16GB 2-port PCIe Fibre Channel Host Bus Adapter	QW972A

Converged Network Adapter

HP CN1100E Dual Port Converged Network Adapter	BK835A
HP CN1000Q Dual Port Converged Network Adapter	BS668A
HP StoreFabric CN1100R Dual Port Converged Network Adapter	QW990A

HPE Uninterruptible Power Systems	**HPE Rack-mountable UPS**
	R1000 Uninterruptible Power System (UPS)

HP R1500 G4 NA Uninterruptible Power System	J2Q99A
HP R1500 G4 JP/TWN Uninterruptible Power System	J2R05A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html
(Worldwide)

HPE R/T2000 Uninterruptible Power System (UPS)

HP 2U Rack/Tower UPS Shipping Kit	L4Q11A
HP R/T2200 G4 NA/JP Uninterruptible Power System	J2R00A
HP R/T2200 G4 Extended Runtime Module	J2R09A

HPE R/T3000 Uninterruptible Power System (UPS)

HP R/T3000 G4 Extended Runtime Module	J2R10A
HP R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System	J2R01A
HP R/T3000 G4 High Voltage NA/JP Uninterruptible Power System	J2R02A
HP R1500 G4 INTL Uninterruptible Power System	J2R03A
HP R/T3000 G4 High Voltage INTL Uninterruptible Power System	J2R04A

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 R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
HP R5000 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 R7000 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
HP R7000 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html
(Worldwide)

NOTE: For additional information on HPE Uninterruptible Power Systems please
go to: **http://www.hp.com/servers/rackups**

NOTE: For additional information on sizing your server, please reference:
http://www.upssizer.com

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

HPE Basic Power Distribution Units (bPDU)		
	HPE Basic Power Distribution Unit: 1U/0U Version	
	HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Basic PDU	H5M56A
	HPE Basic Power Distribution Unit: Half Height Version	
	HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
	HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
	HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
	HPE Basic Power Distribution Unit: Mid Height Version	
	HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
	HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
	HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A
	HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
	HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
	HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
	HPE Basic Power Distribution Unit: Full Height Version	
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (36xC13/6xC19) INTL Basic PDU	H5M73A
	HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
	HPE Basic Power Distribution Unit: 480/277 Volt Version	

Additional Options

	HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14557_div/14557_div.html (Worldwide)

NOTE: Additional HPE Power Distribution Units are available. For a complete list of all HPE PDUs and additional information please visit **http://www.hp.com/go/rackandpower**

HPE Remote Monitoring Power Distribution Units (mPDU)	**HPE Remote Monitored Power Distribution Unit: 1U Version**	
	HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
	HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
	HPE Remote Monitored Power Distribution Unit: Half Height Version	
	HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
	HPE Remote Monitored Power Distribution Unit: Mid Height Version	
	HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
	HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
	HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
	HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
	HPE Remote Monitored Power Distribution Unit: Full Height Version	
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
	HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
	HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
	HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
	HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
	HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
	HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
	HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
	HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
	HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
	HPE Environmental Sensor for Remote Monitored PDUs	
	HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A

Additional Options

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14669_div/14669_div.html
(Worldwide)

HPE 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 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
	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 Intelligent PDU Extension Bar G2 Kit	AF547A
	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)
NOTE: Additional HPE Power Distribution Units are available. For a complete
list of all HPE PDUs and additional information please visit:
http://www.hp.com/go/rackandpower

HPE Rack Series	**HPE Intelligent Series Rack**	
	HP 36U 600mm x 1075mm Enterprise Pallet Rack	BW895A
	HP 36U 600mm x 1075mm Enterprise Shock Rack	BW896A
	HP 42U 600mm x 1075mm Enterprise Pallet Rack	BW903A
	HP 42U 600mm x 1075mm Enterprise Shock Rack	BW904A
	HP 47U 600mm x 1075mm Enterprise Pallet Rack	BW911A
	HP 47U 600mm x 1075mm Enterprise Shock Rack	BW912A

Additional Options

NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: **http://h18000.www1.hp.com/products/quickspecs/14223_div/14223_div.html** (Worldwide)
NOTE: For additional information regarding Rack Cabinets, please see the following URL: **http://www.hp.com/go/rackandpower**

HPE Rack Options	**HPE Location Discovery Services**	
	HP 36U Location Discovery Kit	BW945A
	HP 42U Location Discovery Kit	BW946A
	HP 47U Location Discovery Kit	BW947A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: **http://h18000.www1.hp.com/products/quickspecs/14429_div/14429_div.html** (Worldwide)

HPE USB Keyboard and Mouse

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

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: **http://h18000.www1.hp.com/products/quickspecs/13972_div/13972_div.html** (Worldwide)

HPE 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
KVM USB Cnsl Itfc Adapter 1PK ALL	336047-B21

Additional Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html
(Worldwide)

HPE IP Console Switch G2 with Virtual Media & CAC

HP 1x4 USB/PS2 KVM Console Switch	AF611A
HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html
(Worldwide)

HPE USB and SD Options **HPE Flash Media Kits for USB Drives**

NOTE: Hewlett Packard Enterprise qualified blank USB key for use with HPE ProLiant servers that support the VMware virtualization environment and other Hewlett Packard Enterprise value-add software. Hewlett Packard Enterprise 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 HPE VMware Getting Started Guide for installation instructions.

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

HPE Enterprise Mainstream Flash Media Kits for Memory Cards

HP 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
HP 32GB microSD Enterprise Mainstream Flash Media Kit	700139-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13971_div/13971_div.html

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HPE Care Pack Services **Proactive Care**

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

HP 3 year 4 hour 24x7 ProLiant DL560 Proactive Care Service	U6H10E
HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant DL560 Proactive Care Service	U6H11E
HP 3 year 6 hour Call To Repair 24x7 ProLiant DL560 Proactive Care Service	U6H16E
HP 3 year 6 hour Call To Repair 24x7 w/Defective Media Retention ProLiant DL560 Proactive Care Serv	U6H17E
HP 3 year 4 hour 24x7 ProLiant DL560 with Insight Control Proactive Care Service	U6H90E
HP 3 year 4 hour 24x7 w/Defective Media Retention DL560 with Insight Control	U6H91E

Additional Options

Proactive Care Service

HP 3 year 6 hour Call To Repair 24x7 ProLiant DL560 with Insight Control Proactive Care Service	U6H92E
HP 3 yr 6hr CallToRepair 24x7 w/Defective Media Retention DL560 w/Insight Control Proactive Care SVC	U6H93E

Installation Services

NOTE: Reduce the time required to get your system up and running and help minimize disruptions to your business.

HP Install ProLiant DL560 Service	U6H58E
HP Startup ProLiant DL560 Service	U6H60E
HP Startup non Standard Hours Proliant DL560 Service	U6H61E
HP Installation Non Standard Hours ProLiant DL560 Service	U6H59E
HP Installation of ProLiant Add On/In Options Service	UH745E
HP Installation and Startup for Insight Control Server Deployment - previously Rapid Deployment Pack	U5683E

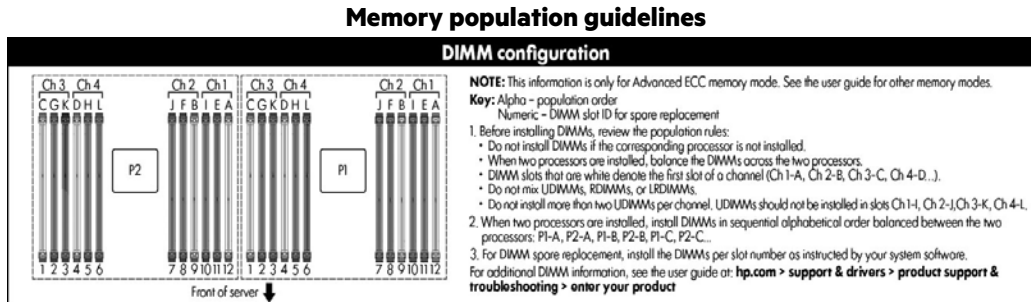**NOTE: For more information, customer/resellers can contact:**

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

Memory

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

Memory Subsystem Architecture

Each Intel® Xeon® E5-4600 family and E5-4600v2 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 forty-eight (48) DIMMs for the server. Up to 32GB capacity DIMMs are supported for 1.5TB of memory (48 DIMM slots x 32GB per DIMM).

Memory population guidelines

General Memory Population Rules and Guidelines:

- White DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate white slots only.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed, only a quarter of the DIMM slots (12) are available. If only two processors are installed, only half of the DIMM slots (24) 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 and LRDIMMs.
- LRDIMMs are supported up to 3 DIMMs per channel.
- Using the HPE 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.
- HPE memory from previous generation servers is not qualified on the DL560 Gen8 Server. Certain HPE SmartMemory features such as memory authentication and enhanced performance may not be supported.
- To realize the performance memory capabilities listed in this document, HPE SmartMemory is required. For additional information, please see the HPE 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 DL560 Gen8 user guide at
  http://www.hp.com/support

DL560 Gen8 Supported Memory Bandwidth and Capacity on Intel® Xeon® E5-4600 v2 series Processors		
DIMM Type	Registered DIMMS (RDIMMs)	Load Reduced

Memory

DIMM Rank	Single Rank (1R)				Dual Rank (2R)				(LRDIMMs) Quad Rank (4R)
DIMM Capacity	4GB	4GB	8GB	8GB	8GB	8GB	16GB	16GB	32GB
DIMM Native Speed (MHz)	1600	1866	1600	1866	1600	1866	1600	1866	1866
Voltage	LV	Std	LV	Std	LV	Std	LV	Std	Std
SLOTS THAT CAN BE POPULATED									
48 slot servers	48	48	48	48	48	48	48	48	48
MAXIMUM CAPACITY (GB)*									
48 slot servers	192	192	384	384	384	384	768	768	1536
POPULATED DIMM SPEED (MHz)									
1 DIMM Per Channel	1600	1866	1600	1866	1600	1866	1600	1866	1866
2 DIMM Per Channel	1600	1866	1600	1866	1600	1866	1600	1866	1866
3 DIMM Per Channel	800###	1333###	800###	1333###	800###	1333###	800###	1333###	1333

NOTES:
Memory speed is a function of the processor QPI bus speed. To realize the performance memory capabilities listed above HPE SmartMemory is required.
* Maximum capacity will vary based on individual server platform qualification schedule

*** LRDIMMs enable 3 DIMMs per channel. HPE SmartMemory will support up to 3DPC@1600 at 1.35V. Third party memory may only support 3DPC @1600 at 1.5V.

RBSU setting required
with IVB processor

DL560 Gen8 Supported Memory Bandwidth and Capacity on Intel® Xeon® E5-4600 series								
DIMM Type	Registered DIMMS (RDIMMs)							Load Reduced (LRDIMMs)
DIMM Rank	Single Rank (1R)			Dual Rank (2R)				Quad Rank (4R)
DIMM Capacity	4GB	4GB	8GB	8GB	8GB	16GB	16GB	32GB
DIMM Native Speed (MHz)	1333	1600	1600	1333	1600	1333	1600	1333
Voltage	LV	Std	Std	LV	Std	LV	Std	LV
SLOTS THAT CAN BE POPULATED								
48 slot servers	48	48	48	48	48	48	48	48
MAXIMUM CAPACITY (GB)*								

Memory

48 slot servers	192	192	384	384	384	768	768	1536

POPULATED DIMM SPEED (MHz)								
1 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***
2 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***
3 DIMM Per Channel	1066**	1333##	1333##	1066**	1333##	1066**	1333##	1066

NOTES:

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

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

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

RBSU setting required

Memory Speed by Processor Model

Intel® Xeon® E5-4600 series v2 Processor Models	Supported Memory Speeds
E5-4650v2, E5-4640v2,, E5-4657Lv2, E5-4627v2	1866/1600/1333/1066/800MHz
E5-4620v2,E5-4610v2	1600/1333/1066/800MHz
E5-4607v2, E5-4603v2	1333/1066/800MHz

Intel® Xeon® E5-4600 series Processor Models	Supported Memory Speeds
E5-4650, E5-4650L, E5-4640, E5-4617	1600/1333/1066/800MHz
E5-4620, E5-4610	1333/1066/800MHz
E5-4607, E5-4603	1066/800MHz

Standard and Maximum Memory Capacity (Pre-configured Models)
DL560 Gen8 with Intel® Xeon® E5-4600 v2 series Processors

Pre Configured Models	**Standard Memory**	**Maximum Memory Plus Optional Memory**	**Standard Memory Replaced with Optional Memory**
Intel Xeon E5-4640 v2	128GB (16x 8GB)	704GB (32x16GB, 2x8GB)	1.5TB (48 x 32GB)
Intel Xeon E5-4610 v2	32GB (4x 8GB)	736GB (44x16GB, 4x4GB)	1.5TB (48 x 32GB)
Intel Xeon E5-4603 v2	16GB (2x 8GB)	752GB (46x16GB, 1x4GB)	1.5TB (48 x 32GB)

Pre Configured Models	**Standard Memory**	**Maximum Memory Plus Optional Memory**	**Standard Memory Replaced with Optional Memory**
Intel Xeon E5-4640	64GB (8x 8GB)	704GB (40x16GB, 4x8GB)	1.5TB (48 x 32GB)
Intel Xeon E5-4610	32GB (4x 8GB)	736GB (44x16GB, 4x4GB)	1.5TB (48 x 32GB)
Intel Xeon E5-4603	16GB (2x 8GB)	752GB (46x16GB, 1x4GB)	1.5TB (48 x 32GB)

DIMM slot and configuration diagrams

Basic memory slot & population diagram

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

Memory

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
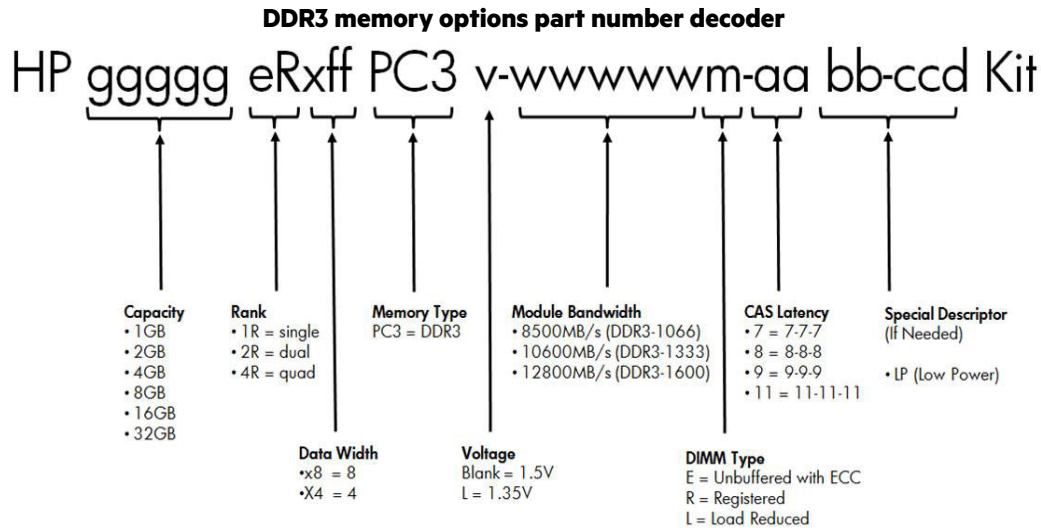alphabetic order: CPU1-A, CPU2-A,CPU1-B,CPU2-B,CPU1-C, CP2-C

48 DIMM SLOTS (12 per CPU node)					
		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	

		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	
	CPU3		**CPU4**		
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

Memory

DDR3 memory options part number decoder

HP ggggg eRxff PC3 v-wwwwwm-aa bb-ccd Kit

Capacity • 1GB • 2GB • 4GB • 8GB • 16GB • 32GB	**Rank** • 1R = single • 2R = dual • 4R = quad	**Memory Type** PC3 = DDR3	**Module Bandwidth** • 8500MB/s (DDR3-1066) • 10600MB/s (DDR3-1333) • 12800MB/s (DDR3-1600)	**CAS Latency** • 7 = 7-7-7 • 8 = 8-8-8 • 9 = 9-9-9 • 11 = 11-11-11	**Special Descriptor** (If Needed) • LP (Low Power)	

Data Width
•x8 = 8
•X4 = 4

Voltage
Blank = 1.5V
L = 1.35V

DIMM Type
E = Unbuffered with ECC
R = Registered
L = Load Reduced

Following are memory options available from HPE:

HPE Memory

NOTE: HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant Server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HPE SmartMemory QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html
NOTE: LRDIMM and RDIMM 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) - E5-4600 v2 series Processors

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713981-B21
HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708637-B21
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713983-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708639-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21

Load Reduced DIMMs (LRDIMM) - E5-4600 v2 series Processors

HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit	708643-B21

Registered DIMMs (RDIMM) - E5-2xxx and E5-4xxx series Processors

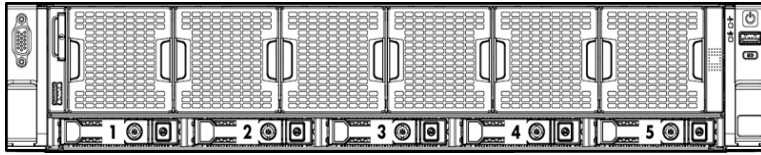|	
HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low	647893-B21

Memory

Voltage Memory Kit	
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
Load Reduced DIMMs (LRDIMM) - E5-2xxx and E5-4xxx series Processors	
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: **http://www.hp.com/go/ddr3memory-configurator**

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

NOTE: PC3L is a low voltage memory.

Storage

1-5   Five SFF SAS hot plug drive bays

Drive Support

External Storage

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

Maximum Storage Capacity - (with D2700, SAS HDD)

Internal	6TB (5 SFF HDs x 1.2TB SAS SFF)
External	240TB (200 x 1.2TB SAS SFF)
Total	246TB

Technical Specifications

System Unit	**Dimensions** (H x W x D) (with bezel)		SFF Drives: 3.44 x 17.54 x 29.50 in (8.73 x 44.55 x 74.93 cm)
	Weight (approximate)	Maximum (all SFF hard drives, power supply, and processor installed)	61.00 lb (27.66 kg)
	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)
		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)
	BTU Rating	Maximum	For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 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)
		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).

Technical Specifications

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.

	Entry	**Base**	**Performance**
Idle			
L WAd	4.1 B	4.1 B	4.1 B
L pAm	25 dBA	25 dBA	25 dBA
Operating			
L WAd	4.3 B	4.7 B	5.0 B
L pAm	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.

HPE 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

Technical Specifications

	Cache Memory	Zero Memory RAID has no cache memory 40-bit 512MB FBWC 72-bit 1GB FBWC or 72-bit 2GB FBWC
	Logical Drives Supported	Zero Memory, Up to 2 logical volumes (5SFF 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, 60 (Advanced Data Guarding)
		RAID 5, 50 (Distributed Data Guarding)
		NOTE: A minimum of 512 MB cache is required to enable RAID 5, 50, 6, 60
		NOTE: HPE Smart Array Advanced Pack (SAAP 2.0) is no longer required to enable RAID 6 & 60 (Advanced Data Guarding). However, controller must be in firmware version 4.68 (or later).
		RAID 1+0 (Striping & Mirroring)
		RAID 0 (Striping), RAID 1 (Mirroring)

HPE Ethernet 1Gb 4-port 331FLR Adapter	**HPE Flexible Network Technology**	HPE 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	EEE 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	Four 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)

HPE Ethernet 10Gb	**Network Interface**	SFP+ for Direct Attach Cable copper or fibre

Technical Specifications

2-port 530FLR-SFP+ Adapter	Compatibility	EEE 802.3 SFP+ (SX, SR & LR)	
		IEEE 802.3x	
		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)
		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 Enterprise offers end-of-life HPE 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 Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise 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 Enterprise web site at: **http://www.hp.com/go/green**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
17-Dec-2015	From Version 34 to 35	Added	Smart Buy models were added to the NA version.
01-Dec-2015	From Version 33 to 34	Added	New Hard Drives offering was added to HPE Hard Drives section.
		Changed	What's New was updated.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
28-Sep-2015	From Version 32 to 33	Added	Added new 6Gb SATA Solid State Drives. Added new HPE OneView management software.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
17-Aug-2015	From Version 31 to 32	Added	New Solid State Drives offering was added to HPE Hard Drives section.
18-Jun-2015	From Version 30 to 31	Changed	Fixed editing faults in the NA version.
01-Jun-2015	From Version 29 to 30	Added	New Hard Drives were added to Core Options.
		Removed	Obsolete SKUs were removed from Configuration Information - Factory Integrated Models, Core Options, and Additional Options.
09-Feb-2015	From Version 28 to 29	Changed	Core Options, Additional Options and Memory sections were updated
		Added	Skus added on HPE Uninterruptible Power Systems: J2Q99A, J2R00A, J2R01A, J2R02A, J2R03A, J2R04A, J2R05A, J2R09A, J2R10A, and L4Q11A.Skus Added on HPE Hard Drives: 779164-B21, 779168-B21, 779172-B21, 779176-B21, 764923-B21, 764925-B21, 764927-B21, and 764929-B21.
		Removed	Obsolete sku deleted: 653078-B21
01-Dec-2014	From Version 27 to 28	Added	Sku added on Hard Drives: 757339-B21.
01-Nov-2014	From Version 26 to 27	Changed	Service and Support section was updated
29-Sep-2014	From Version 25 to 26	Changed	Core Option section was updated
		Added	Skus Added on HPE Hard Drives: 756657-B21, 756636-B21, 756621-B21, 756601-B21, 655710-B21, and 655708-B21.
		Removed	Obsolete skus removed: AF902A.
18-Aug-2014	From Version 24 to 25	Changed	Overview, Standard Features section were updated
		Added	Skus Added on Hard Drives: 759212-B21, 759210-B21, and 759208-B21.
		Removed	Obsolete skus Deleted from Core Options section: 690829-B21, 690827-B21, 690825-B21, and 653082-B2.
10-Jun-2014	From Version 21 to 24	Changed	Standard Features, Service and Support, Configuration Information, Core Options, Additional Options and Memory sections were updated
11-Apr-2014	From Version 20 to 21	Changed	Changes were made in the North America and Canada versions only.
31-Mar-2014	From Version 19 to 20	Changed	Processors, Memory, Hard Drives, HPE Insight Software, HPE Tape Backup and HPE Disk Backup were revised
19-Feb-2014	From Version 17 to 19	Changed	Changes made throughout the QuickSpec.
13-Dec-2013	From Version 16 to 17	Changed	HPE Insight Control including 1yr 24x7 Support ProLiant Ml/DL/BL-bundle FIO Electronic License was added to Step 3 in Configuration Information HPE SmartCache and HPE H221 PCIe 3.0 SAS Host Bus Adapter were added to Storage Controllers HPE Tape and Disk Storage Systems were added to Additional

Summary of Changes

			Options HPE 1.2TB 6G SAS 10k rpm SFF SC Dual Port Enterprise 3yr Warranty Hard Drive was added and 3G SATA MLC Hot Plug SFF and LFF Enterprise Mainstream Solid State Drives were removed from Hard Drives HPE Basic Power Distribution Units and HPE Remote Monitoring Power Distribution Units were revised in Additional Options HPE Power Distribution Units was removed from Additional Options
11-Oct-2013	From Version 15 to 16	Added	Converged Infrastructure Management Software was added HPE 300GB and 600GB SATA Value Endurance SFF SC Enterprise Boot Solid State Drive were added to Hard Drives Mainstream Endurance (ME) PCIe Workload Accelerators were added to HPE PCIe Workload Accelerator Options HPE Disk Backup and HPE Remote Monitoring Power Distribution Units were added to Additional Options HPE 32GB SD Enterprise Mainstream Flash Media Kit was added to HPE USB and SD Options
10-Sep-2013	From Version 14 to 15	Changed	Memory, Networking, InfiniBand Options, Hard Drives, HPE PCIe Workload Accelerator Options, Storage Controllers, Storage Options, and Power Distribution Units were revised.
30-Jul-2013	From Version 13 to 14	Added	Note was added to Optical Drives in Core Options
13-May-2013	From Version 12 to 13	Changed	Changes made in the following sections: Configuration Information - Networking Core Options - HPE Hard Drives Additional Options - HPE Insight Software, HPE Storage Controllers, HPE Power Cords, HPE Tape Backup, HPE Storage Options Added HPE PCIe Workload Accelerator Options and HPE Basic Power Distribution Units
25-Mar-2013	From Version 11 to 12	Added	Configuration Information: Added a NOTE to the HPE Power Supplies section. Core Options: Added a NOTE to the HPE Power Supplies section.
27-Feb-2013	From Version 10 to 11	Added	Added two new skus to the HPE Networking section within Core Options.
22-Feb-2013	From Version 9 to 10	Added	Added the HPE Proactive Insight experience section to Optional Features.
21-Feb-2013	From Version 8 to 9	Changed	Change made in Standard Features, Optional Features, Options and Technical Specifications sections.
10-Dec-2012	From Version 7 to 8	Removed	Removed HPE Disk Storage Systems
		Changed	Change made in Standard Features, Optional Features, Options and Technical Specifications sections.
24-Sep-2012	From Version 6 to 7	Changed	Change made in Standard Features, Optional Features and Technical Specifications sections.
28-Aug-2012	From Version 5 to 6	Changed	Changes made in the North America and Canada versions only.
24-Aug-2012	From Version 4 to 5	Changed	Changes made in throughout the QuickSpec.
22-Aug-2012	From Version 3 to 4	Changed	Changes made in the North America and Canada versions only.
20-Aug-2012	From Version 2 to 3	Changed	Fixed the size of Models section image.
14-Aug-2012	From Version 1 to 2	Added	Added note to Standard Features section.

Summary of Changes

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