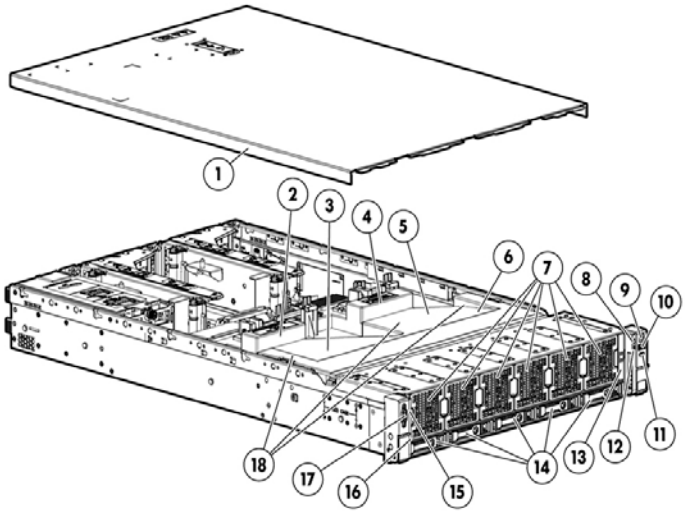
RETIRED: This document has been officially retired, and the base products listed herein are now considered obsolete and are no longer available for sale. Consequently, the information contained within may no longer be current. This document is provided exclusively for reference and informational purposes.

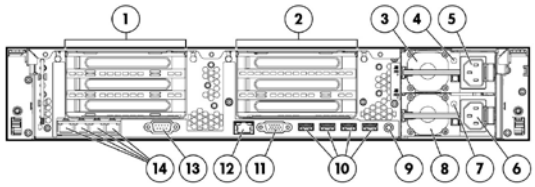
Overview

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
15. Access Tag
16. USB connector

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

17. Video connector
18. 48 DIMM slots: DDR3 Registered (RDIMM) or Load Reduced (LRDIMM)

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

10MB Level3
NOTE: E5-4603, E5-4603 v2 processors

Standard Features

	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 availability.** Demand and Patrol scrubbing **NOTE: Memory demand and patrol scrubbing prevent accumulation of correctable errors and**

Standard Features

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.

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, Full Height Slot	Chipset

*** 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

Standard Features

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
- 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

Standard Features

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	10.0TB	5 x 2.0TB
	Hot Plug SFF SAS SSD	19.2TB	5 x 3.84T
	Hot Plug SFF SATA	10.0TB	5 x 2.0TB
	Hot Plug SFF SATA SSD	19.2TB	5 x 3.84GB

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
	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.**

Standard Features

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: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111541**
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: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111541**
System Fans	6 fans (N+1 redundancy standard)
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**

Standard Features

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 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.
    - 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/intelligentprovisioning** for additional information and to view usage videos.

Standard Features

- 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 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

Standard Features

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
Trusted Platform Module
NOTE: The HP Trusted Platform Module Option (488069-B21) is the TPM 1.2 version, which is also available with Gen9 servers.

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 Pointnext operational 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 Management Utility	HPE Cluster Management Utility (CMU) is an HPE-licensed and HPE-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

Optional Features

	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 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

Optional Features

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 Pointnext operational services

HPE Pointnext operational 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 Pointnext operational 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.

https://www.hpe.com/h20195/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. **https://www.hpe.com/h20195/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 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:

Service and Support

	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 Pointnext operational 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 quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by 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.

Entry Models

HP ProLiant DL560 Gen8 E5-4603v2 2P 16GB-R Hot Plug SFF 1200W RPS Server
732024-001

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)
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 E5-4610v2 2P 32GB-R Hot Plug SFF 1200W RPS Server
732341-001

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 E5-4640v2 4P 128GB-R Hot Plug SFF 1200W RPS Server
732342-001

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
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.

Smart Buy Models

HP ProLiant DL560 Gen8 E5-4657Lv2 64GB-R P420i/ZM SFF 1200W PS US Server/S-Buy 734613-S01	**Processor(s)**	(2) Intel® Xeon® E5-4657L v2 (2.4GHz/12-core/30MB/115W) Processors
	Cache Memory	30MB (1x30MB) Level 3
	Memory	64GB (8x8GB) PC3-14900R (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)
	Hard Drives	None ship standard
	Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks
	Optical Drive Bay	Optional USB DVD-RW Optical Drive
	PCI-Express Slots	Three (3) PCIe slots (+ 3 PCI slots with upgrade option)
	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 (optional)
	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 E5-4627v2 64GB-R P420i/ZM SFF 1200W PS US Server/S-Buy 734614-S01	**Processor(s)**	(2) Intel® Xeon® E5-4627 v2 (3.3GHz/8-core/20MB/130W) Processors
	Cache Memory	20MB (1x20MB) Level 3
	Memory	64GB (8x8GB) PC3-14900R (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)
	Hard Drives	None ship standard
	Internal Storage	Standard: 5 SFF SAS HDD Bays; includes 3 SFF hard drive blanks
	Optical Drive Bay	Optional USB DVD-RW Optical Drive
	PCI-Express Slots	Three (3) PCIe slots (+ 3 PCI slots with upgrade option)
	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 (optional)
	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.

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

Twelve-Core Processors

Configuration Information - Factory Integrated Models

	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	
	HPE 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.** **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	
	HPE 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21

Configuration Information - Factory Integrated Models

	HPE 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
	HPE 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
	HPE 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	
	HPE 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-10600 (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
	HPE 4GB (1x4GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	647897-B21
	HPE 8GB (1x8GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
	HPE 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	647901-B21
	HPE 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-10600 (DDR3-1333) LRDIMM CAS-9 LP 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	
	HPE Ethernet 1Gb 4-port 331FLR FIO Adapter	684208-B21
	HP Ethernet 10Gb 2-port 530FLR-SFP+ FIO Adapter	684210-B21

Configuration Information - Factory Integrated Models

	HP FlexFabric 10Gb 2-port 554FLR-SFP+ FIO Adapter	684213-B21
	HPE FlexFabric 10Gb 2-port 556FLR-SFP+ FIO Adapter	732456-B21
	HPE Ethernet 1Gb 4-port 366FLR FIO Adapter	684217-B21
	HPE 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
	HPE 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	**NOTE: For the following InfiniBand Adapter, only 1 FlexibleLOM can be added to the server, which is selected in Step 2 for the "Configuration Information - Factory Integrated Models" section. This option is for upgrade or change from original configuration.**	
	HP InfiniBand FDR/Ethernet 10/40Gb 2-port 544FLR-QSFP Adapter	649282-B21
	NOTE: Please see the QuickSpecs for additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440	
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.	
	HPE 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: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111541	

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

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

Configuration Information - Factory Integrated Models

Converged Infrastructure Management Software	**HPE OneView with iLO Advanced - Server hardware required on same purchase order**	
	HPE OneView for ProLiant DL Server including 3yr 24x7 Support FIO Bundle Physical 1-server LTU	E5Y43A
	HPE OneView without iLO Advanced - Server hardware required on same purchase order	
	HPE OneView w/o iLO including 3yr 24x7 Support 1-server FIO LTU	P8B31A

Step 4: Choose Additional Options for Factory Integration from Core and Additional Options sections 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. 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

HPE DL560 Gen8 Intel Xeon E5-4650v2 (2.4GHz/10-core/25MB/95W) Processor Kit	734180-B21
HPE DL560 Gen8 Intel Xeon E5-4640v2 (2.2GHz/10-core/20MB/95W) Processor Kit	734182-B21

Eight-Core Processors

HPE DL560p Gen8 Intel Xeon E5-4620v2 (2.6GHz/8-core/20MB/95W) Processor Kit	734185-B21
HPE DL560 Gen8 Intel Xeon E5-4610v2 (2.3GHz/8-core/16MB/95W) Processor Kit	734187-B21
HPE DL560 Gen8 Intel Xeon E5-4627v2 (3.3GHz/8-core/16MB/130W) Processor Kit	734195-B21

Six-Core Processors

HPE DL560 Gen8 Intel Xeon E5-4607v2 (2.6GHz/6-core/15MB/95W) Processor Kit	734189-B21
HPE 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

Core Options

	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 NOTE:NOTE: Up to 4 processors supported. Performance Model includes four processors.	686826-B21

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.

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	
HPE 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HPE 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HPE 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HPE 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	
HPE 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-10600 (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HPE 4GB (1x4GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	647897-B21
HPE 8GB (1x8GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HPE 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	647901-B21
HPE 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11	672631-B21

Core Options

	Memory Kit	
	Load Reduced DIMMs (LRDIMM) - E5-2xxx and E5-4xxx series Processors	
	HP 32GB (1x32GB) Quad Rank x4 PC3L-10600 (DDR3-1333) LRDIMM CAS-9 LP 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 Optical Drives	HPE Mobile USB Non Leaded System DVD RW Drive NOTE:NOTE: Included AC adapter not required for DL560 Gen8 functionality.	701498-B21
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	
	HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759212-B21
	HPE 450GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759210-B21
	HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	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	

Core Options

HPE 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652749-B21
HPE 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:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111744

6G SATA 2.5in WI-PLP SC SSD

HPE 1.2TB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD	804677-B21
HPE 800GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD	804671-B21
HPE 400GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD	804665-B21
HPE 200GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD	804639-B21

6G SATA 2.5in MU-PLP SC SSD

HPE 1.6TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	804631-B21
HPE 800GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	804625-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	832414-B21
HPE 200GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	804613-B21

6G SATA 2.5in RI-PLP SC SSD

HPE 1.6TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	804605-B21
HPE 800GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	804599-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	804593-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	804587-B21
HPE 120GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	804581-B21
HPE 80GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	804575-B21

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

HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739898-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

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

Core Options

HPE 120GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	764923-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	764925-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	764927-B21
HPE 800GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	764929-B21
6G SATA Hot Plug SFF (2.5-inch) SC MDL Hard Drives	
HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	655710-B21
HPE 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	
HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765455-B21
HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	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
6G SATA Hot Plug MU-3 SFF (2.5-inch) SC Solid State Drives	
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	817011-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	816995-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	816985-B21
HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	816975-B21
HPE 120GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	816965-B21
6G SATA Hot Plug RI-3 SFF (2.5-inch) SC Solid State Drives	
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816929-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816919-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816909-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816899-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816889-B21
HPE 120GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816879-B21
12G SAS ME Hot Plug (SFF (2.5-inch) Enterprise Mainstream Solid State Drives	
HPE 200GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	779164-B21

Core Options

HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	779168-B21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	779172-B21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	779176-B21
12G SAS SFF (2.5in) RI-3 SC Solid State Drives	
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816576-B21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816572-B21
HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816568-B21
HPE 480GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	816562-B21
12G SAS SFF (2.5in) MU-3 SC Solid State Drives	
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	822567-B21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	822563-B21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	822559-B21
HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	822555-B21
12G SAS SFF (2.5-inch) SC HDD	
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e HDD	791034-B21
HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	781518-B21
HPE 900GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	785069-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	781516-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	785067-B21
12G SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives	
HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	832514-B21
12G SAS SFF (2.5-inch) SC Solid State Drives	
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	802891-B21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	802586-B21
HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	802582-B21
HPE 200GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	802578-B21
12G SAS SFF (2.5-inch) SC HDD	

Core Options

	HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765466-B21
	HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765464-B21
	12G SAS 15K SFF (2.5-inch) SC HDD	
	HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e HDD	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
	HPE 800GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	762261-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154378	
	Hard Drive Kits	
	NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.	
	NOTE: The part numbers for single HDD blanks below are provided should the customer require replacement HDD blanks for their server.	
	HPE Small Form Factor Hard Drive Blank Kit	666987-B21
HPE Networking	**Gigabit Ethernet Adapters**	
	HPE NC365T 4-port Ethernet Server Adapter	593722-B21
	HPE Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HPE Ethernet 1Gb 2-port 361T Adapter	652497-B21
	HPE 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
	HPE Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
	HPE Ethernet 10Gb 2-port 530T Adapter	656596-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	HPE Ethernet 10Gb 2-port 561T Adapter	716591-B21
	HPE Ethernet 10Gb 2-port 570SFP+ Adapter	718904-B21

Core Options

	HPE Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	FlexibleLOM Adapters	
	HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
	HPE Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
	HPE Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	647581-B21
	HP FlexFabric 10Gb 2-port 526FLR-SFP+ Adapter	629138-B21
	HPE FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
	HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
	HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21
	HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
	HPE Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21
	HPE 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	HPE InfiniBand FDR 2-port 545QSFP Adapter	702211-B21
	HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544QSFP Adapter	649281-B21
	NOTE: For the following InfiniBand Adapter, only 1 FlexibleLOM can be added to the server, which is selected in Step 2 for the "Configuration Information - Factory Integrated Models" section. This option is for upgrade or change from original configuration.	
	NOTE: FLR Indicates HPE FlexibleLOM Adapter series.	
	HP InfiniBand FDR/Ethernet 10/40Gb 2-port 544FLR-QSFP Adapter	649282-B21
	NOTE: Please see the QuickSpecs for additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440	
HPE I/O Expansion Option	HPE DL380p/560 Gen8 3 Slot PCI-E Riser Kit	653206-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	
	HPE 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit NOTE:NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.	656364-B21

Core Options

NOTE: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:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111541

HPE Graphic Options	HPE 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**	
	HPE Insight Control including 1yr 24x7 Technical Support and Updates 1-server LTU	C6N27A
	HPE Insight Control including 1yr 24x7 TSU E-LTU	C6N28ABE
	HPE 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: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123391**	
	HPE Integrated Lights-Out (iLO)	
	HPE Integrated Lights-Out (iLO) Advanced for ProLiant	
	HPE iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
	HPE iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE
	HPE iLO Advanced including 1yr 24x7 Technical Support and Updates 1-server LTU	512485-B21
	HPE iLO Advanced including 3yr 24x7 Tech Support and Updates 1-server LTU	BD505A
	NOTE: For additional license options please see the QuickSpecs at: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154343 **NOTE: For more information, visit: http://www.hp.com/go/ilo.**	
Converged Infrastructure Management Software	**HPE OneView**	
	HPE OneView with iLO Advanced	
	HPE OneView Physical Media Kit LTU	E5Y37A
	HPE OneView including 3yr 24x7 Support Physical 1-server LTU	E5Y34A
	HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE
	HPE Operations Analytics for HPE OneView LTU	K8G29A
	HPE Operations Analytics for HPE OneView E-LTU	K8G29AAE

Additional Options

	HPE OneView without iLO Advanced	
	HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU	P8B24A
	HPE OneView w/o iLO including 3yr 24x7 Support Track 1-server LTU	P8B25A
	HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111367	
High Performance Clusters	**HPE Cluster Management Utility**	
	HPE Insight Cluster Management Utility 1yr 24x7 Flexible LTU	QL803B
	HPE Insight Cluster Management Utility 3yr 24x7 Flexible LTU	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.	
	HPE Insight Cluster Management Utility Media	BD477A
	HPE Insight Cluster Management Utility for ConvergedSystem 3yr 24x7 Flexible LTU	G2E81A
	NOTE: For additional license kits please see the QuickSpecs at https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111735	
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: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111683	
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
	Light Endurance (LE) PCIe Workload Accelerators	
	HPE 1.0TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775666-B21
	HPE 1.3TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775668-B21
	HPE 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775670-B21

Additional Options

	HPE 5.2TB FH/HL Light Endurance (LE) PCIe Workload Accelerator	775672-B21
	Read Intensive (RI) PCIe Workload Accelerators	
	HPE 1.3TB Read Intensive-2 HH/HL PCIe Workload Accelerator	831733-B21
	HPE 1.6TB Read Intensive-2 HH/HL PCIe Workload Accelerator	831735-B21
	HPE 3.2TB Read Intensive-2 HH/HL PCIe Workload Accelerator	831737-B21
	HPE 6.4TB Read Intensive-2 FH/HL PCIe Workload Accelerator	831739-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123190	
HPE Security	HPE Trusted Platform Module Option NOTE: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. NOTE:NOTE: The HPE Trusted Platform Module Option (488069-B21) is the TPM 1.2 version. NOTE:NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: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.	488069-B21
	HPE 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)	
	HPE 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)	
	HPE Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller	631670-B21
	HPE 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
	Smart Array P430 Controller	
	HPE Smart Array P430/2GB FBWC 12Gb 1-port Int SAS Controller	698529-B21
	HPE Smart Array P430/4GB FBWC 12Gb 1-port Int SAS Controller	698530-B21

Additional Options

Smart Array P431 Controller

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

Smart Array P830 Controller

HPE Smart Array P830/4GB FBWC 12Gb 2-ports Int SAS Controller	698533-B21

Optional Upgrades

HPE 1GB P-series Smart Array Flash Backed Write Cache	631679-B21
HPE 2GB P-series Smart Array Flash Backed Write Cache	631681-B21
HPE 512MB P-series Smart Array Flash Backed Write Cache	661069-B21
HP Secure Encryption per Svr Entitlement	C9A82AAE
HPE Smart Array SR SmartCache (Single Key/Single Server) LTU	D7S26A
HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU	D7S27A
HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU	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:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111474
(Smart Array P222 Controller)
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111382
(Smart Array P430 Controller)
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111365
(Smart Array P431 Controller)
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111534
(Smart Array P420 Controller)
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111533
(Smart Array P421 Controller)
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04227582
(Smart Array P830 Controller)
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123148
(SmartCache)
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04318075
(Secure Encryption)

Host Bus Adapter

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

Additional Options

	HPE H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111455 (HBA 220) https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111475 (HBA 221) https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111514 (HBA 222)	
HPE Power Cords	**NOTE: HPE ProLiant servers ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).**	
	HPE C13-NEMA 6-15P 10A/250V 3.6m Black Power Cord	A0N33A
	HPE C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
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	
	HPE RDX 2TB USB3.0 External Disk Backup System	E7X53B
	HP RDX+ 1TB External Backup System	B7B69B
	HP RDX+ 500GB External Backup System	B7B66B
	HPE RDX+ External Docking System	C8S07B
	NOTE: Please see the QuickSpecs for additional part numbers, Technical Specifications, and additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111633	
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: 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	
	HPE 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AJ762B
	HPE 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ763B
	HPE StoreFabric SN1100E 16Gb Single Port Fibre Channel Host Bus Adapter	C8R38A
	HPE StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter	C8R39A

Additional Options

QLogic Fibre Channel HBAs

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

Converged Network Adapter

HPE StoreFabric CN1200E 10Gb Converged Network Adapter	E7Y06A
HP CN1100E Dual Port Converged Network Adapter	BK835A
HPE CN1000Q Dual Port Converged Network Adapter	BS668A
HPE StoreFabric CN1100R Dual Port Converged Network Adapter	QW990A

HPE Uninterruptible Power Systems

HPE Rack-mountable UPS

R1000 Uninterruptible Power System (UPS)

HPE R1500 G4 NA Uninterruptible Power System	J2Q99A

NOTE: Please see the QuickSpecs for additional information:
http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c0428336

HPE R/T2000 Uninterruptible Power System (UPS)

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

HPE R/T3000 Uninterruptible Power System (UPS)

HPE R/T3000 G4 Extended Runtime Module	J2R10A
HPE R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System	J2R01A
HPE R/T3000 G4 High Voltage NA/JP Uninterruptible Power System	J2R02A

NOTE: Please see the QuickSpecs for additional information:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04155328

R5000 Uninterruptible Power System (UPS)

HPE R5000 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A

NOTE: Please see the QuickSpecs for additional information:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04155299

R7000 Uninterruptible Power System (UPS)

HPE R7000 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A

Additional Options

	NOTE: Please see the QuickSpecs for additional information: **https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04155297**	
	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 (PDU)	**HPE Basic Power Distribution Unit: 1U/0U Version**	
	HPE Basic 1.9kVA/L5-20P 16A/120V Outlets (12) 5-20R/Horizontal NA/JP PDU	H5M54A
	HPE Basic 3.6kVA/60320 C20 Detachable 16A/230V Outlets (12) C13/Horizontal WW PDU	H5M56A
	HPE Basic Power Distribution Unit: Half Height Version	
	HPE Basic 2.8kVA/L5-30P 24A/120V Outlets (18) 5-20R/Vertical NA/JP PDU	H5M55A
	HPE Basic 4.9kVA/60320 C20 Detachable 16A/230V Outlets (20) C13/Vertical WW PDU	H5M57A
	HPE Basic 4.9kVA/L6-30P 24A/208V Outlets (20) C13/Vertical NA/JP PDU	H5M58A
	HPE Basic 3Ph 8.6kVA/L15-30P 24A/208V Outlets (18) C13/Vertical NA/JP PDU	H5M61A
	HPE Basic Power Distribution Unit: Mid Height Version	
	HPE Basic 4.9kVA/L6-30P 24A/208V Outlets (24) C13 (6) C19/Vertical NA/JP PDU	H5M59A
	HPE Basic 8.3kVA/CS8265C 40A/208V Outlets (30) C13 (6) C19/Vertical NA PDU	H5M60A
	HPE Basic 9.2kVA/50A Terminal Block 40A/230V Outlets (30) C13 (6) C19/Vertical WW PDU	H5M75A
	HPE Basic 3Ph 5.7kVA/ L21-20P 16A/120-208V Outlets (24) C13 (3) 5-20R/Vertical NA/JP PDU	H5M63A
	HPE Basic 3Ph 8.6kVA/L21-30P 24A/120-208V Outlets (24) C13 (3) C19 (3) 5-20R/Vertical NA/JP PDU	H5M64A
	HPE Basic 3Ph 8.6kVA/L15-30P 24A/208V Outlets (24) C13 (6) C19/Vertical NA/JP PDU	H5M62A
	HPE Basic Power Distribution Unit: Full Height Version	
	HPE Basic 3Ph 11kVA/60309 16A/240V Outlets (36) C13 (6) C19/Vertical NA PDU	H5M67A
	HPE Basic Power Distribution Unit: 480/277 Volt Version	
	HPE 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
	NOTE: Please see the QuickSpecs for additional information: **https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111250**	
	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 Metered Power Distribution Units (PDU)	**HPE Remote Monitored Power Distribution Unit: 1U Version**	
	HPE Metered 2.8kVA/L5-30P 24A/120V Outlets (12) 5-20R/Horizontal NA/JP PDU	D9N43A

Additional Options

	HPE Metered 3.6kVA/60320 C20 Detachable 16A/230V Outlets (12) C13/Horizontal WW PDU	D9N46A
	HPE Metered 4.9kVA/L6-30P 24A/208V Outlets (12) C13/Horizontal NA/JP PDU	D9N44A
	HPE Remote Monitored Power Distribution Unit: Half Height Version	
	HPE Metered 3.6kVA/60320 C20 Detachable 16A/230V Outlets (16) C13/Vertical WW PDU	D9N45A
	HPE Remote Monitored Power Distribution Unit: Mid Height Version	
	HPE Metered 4.9kVA/L6-30P 24A/208V Outlets (20) C13 (4) C19/Vertical NA/JP PDU	D9N47A
	HPE Metered 3Ph 8.6kVA/L15-30P 24A/208V Outlets (18) C13 (3) C19/Vertical NA/JP PDU	D9N51A
	HPE Metered 3Ph 5.7kVA/L21-20P 16A/120-208V Outlets (13) C13 (3)5-20R/Vertical NA/JP PDU	D9N52A
	HPE Metered 3Ph 8.6kVA/L21-30P 24A/120-208V Outlets (18) C13 (3) C19 (3) 5-20R/Vertical NA/JP PDU	D9N53A
	HPE Remote Monitored Power Distribution Unit: Full Height Version	
	HPE Metered 8.3kVA/CS8265C 40A/208V Outlets (30) C13 (3) C19/Vertical NA PDU	D9N49A
	HPE Metered 3Ph 14.4kVA/CS8365C 40A/208V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	D9N58A
	HPE Metered 3Ph 16.6kVA/60309 32A-30A 5-wire 24A/230V Outlets (30) C13 (3) C19/Vertical NA/JP PDU	D9N61A
	HPE Metered 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (24) C13 (3) C19/Vertical NA/JP PDU	D9N54A
	HPE Metered 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	D9N59A
	HPE Metered 3Ph 16.6kVA/60309 32A-30A 5-wire 24A/230V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	D9N62A
	HPE Metered 3Ph 19.9kVA/L22-30P 24A/277V Outlets (30) RF-203P-HP/Vertical NA PDU	D9N63A
	HPE Environmental Sensor for Remote Monitored PDUs	
	HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A
	NOTE: Please see the QuickSpecs for additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04229513	
HPE Intelligent Power Distribution Unit (PDU)	**iPDU Core Units**	
	HPE Intelligent Modular 4.9kVA/L6-30P 24A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF520A
	HPE Intelligent Modular 8.3kVA/CS8265C 40A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF521A
	HPE Intelligent Modular 3Ph 8.6kVA/L15-30P 24A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF522A
	HPE Intelligent Modular 3Ph 14.4kVA/CS8365C 40A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF533A
	HPE Intelligent Modular 3Ph 17.3kVA/60309 60A 4-wire 48A/208V (6) C19/Horizontal NA/JP PDU	AF523A
	HPE Intelligent Modular 3Ph 17.3kVA/IEC 60309 60A 4-wire 48A/208V (12) C19/Horizontal NA/JP PDU	AF535A
	HPE Intelligent Modular 3Ph 17.3kVA/IEC 60309 30A 5-wire 24A/240V (12) C19/Horizontal NA/JP PDU	AF537A

Additional Options

iPDU Kits with Standard Extension Bars

HPE Intelligent Modular 4.9kVA/L6-30P 24A/208V Outlets (20) C13 (6) C19/Horizontal NA/JP PDU	AF531A
HPE Intelligent Modular 3Ph 8.6kVA/L15-30P 24A/208V Outlets (20) C13 (6) C19/Horizontal NA/JP PDU	AF532A

iPDU Extension Bars

HPE 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HPE 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04128194
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
HPE 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

NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123237
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

HPE 36U Location Discovery Kit	BW945A
HPE 42U Location Discovery Kit	BW946A
HPE 47U Location Discovery Kit	BW947A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04123199

HPE USB Keyboard and Mouse

HPE USB US Keyboard/Mouse Kit	631341-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04168349

HPE Server Console Switch G2 with Virtual Media & CAC

Additional Options

	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
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04168373	
	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: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04230853	
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.	
	HPE 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
	HPE Enterprise Mainstream Flash Media Kits for Memory Cards	
	HPE 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
	HPE 32GB microSD Mainstream Flash Media Kit	700139-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123175	
HPE Pointnext operational 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.	
	HPE 3 year Proactive Care 24x7 ProLiant DL560 Service	U6H10E
	HPE 3 year Proactive Care 24x7 with DMR ProLiant DL560 Service	U6H11E
	HPE 3 year Proactive Care Call to Repair ProLiant DL560 Service	U6H16E
	HPE 3 year Proactive Care Call to Repair 24x7 with DMR ProLiant DL560 Service	U6H17E
	HPE 3 year Proactive Care 24x7 ProLiant DL560 with Insight Control Service	U6H90E

Additional Options

HPE 3 year Proactive Care 24x7 with DMR DL560 with Insight Control Service	U6H91E
HPE 3 year Proactive Care Call to Repair ProLiant DL560 with Insight Control Service	U6H92E
HPE 3 year Proactive Care Call to Repair 24x7 with DMR DL560 w/Insight Control Service	U6H93E

Installation Services

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

HPE Install ProLiant DL560 Service	U6H58E
HPE Startup ProLiant DL560 Service	U6H60E
HPE Installation and Startup Non Standard Hours DL560 Service	U6H61E
HPE Installation Non Standard Hours ProLiant DL560 Service	U6H59E
HPE Installation of ProLiant Add On/In Options Service	UH745E
HPE Insight Control Server Custom Deployment Service	U5683E

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

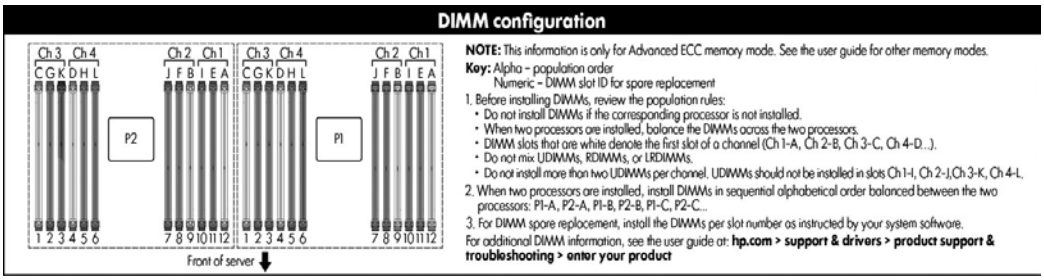
Memory

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:
  https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111535
- For memory population rules and additional memory guidelines, please see the DL560 Gen8 user guide at
  http://www.hpe.com/support

DL560 Gen8 Supported Memory Bandwidth and Capacity on Intel® Xeon® E5-4600 v2 series Processors			
DIMM Type	**Registered DIMMS (RDIMMs)**		**Load Reduced (LRDIMMs)**
DIMM Rank	**Single Rank (1R)**	**Dual Rank (2R)**	**Quad Rank**

Memory

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

Memory

3 DIMM Per Channel	1066**	1333##	1333##	1066**	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.
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	

Memory

	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	

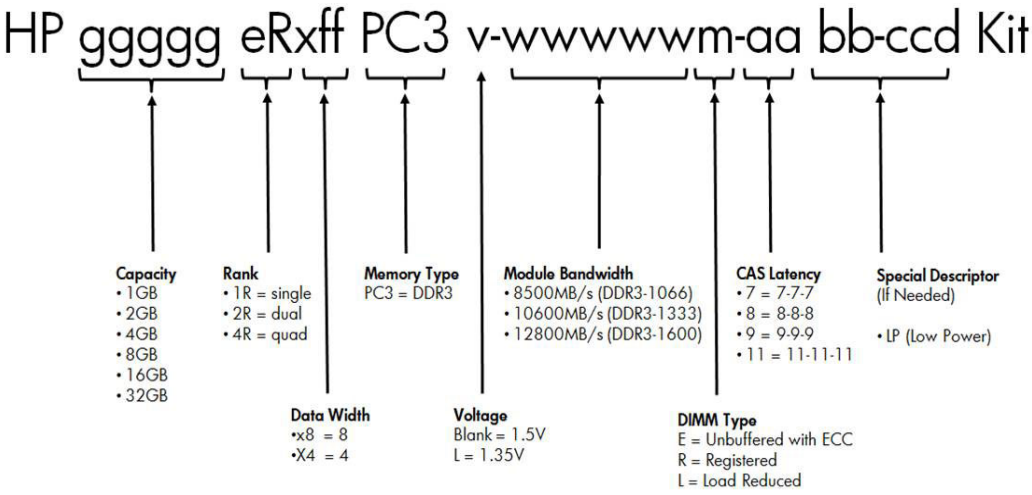
		population order	slot #	population order	
Chnl 3	1	C	1	C	Chnl 3
	2	G	2	G	
	3	K	3	K	
Chnl 4	4	D	4	D	Chnl 4
	5	H	5	H	
	6	L	6	L	
	CPU3		**CPU4**		
Chnl 2	7	J	7	J	Chnl 2
	8	F	8	F	
	9	B	9	B	
Chnl 1	10	I	10	I	Chnl 1
	11	E	11	E	
	12	A	12	A	

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

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

DDR3 memory options part number decoder

Memory



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:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111535

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

HPE 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HPE 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HPE 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HPE 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

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

Memory

HPE 8GB (1x8GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HPE 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	647901-B21
HPE 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

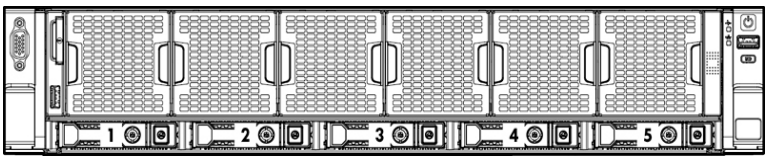
HP 32GB (1x32GB) Quad Rank x4 PC3L-10600 (DDR3-1333) LRDIMM CAS-9 LP Memory Kit	647903-B21

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).
	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

Technical Specifications

		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
	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

Technical Specifications

	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 2-port 530FLR-SFP+ Adapter	**Network Interface**	SFP+ for Direct Attach Cable copper or fibre
	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

Technical Specifications

	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
23-Oct-2017	From Version 37 to 38	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
31-Mar-2016	From Version 36 to 37	Changed	Maximum Internal Storage, Security, and Memory sections were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
16-Feb-2016	From Version 35 to 36	Added	Added HPE Infiniband options and HPE PCIe Workload Accelerator options.
		Changed	Additional Options section was revised.
		Removed	Obsolete model were removed from Pre-configured models. Obsolete SKUs were removed from HPE Tape Backup, HPE Disk Storage Systems, and throughout the QuickSpecs.
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.

Summary of Changes

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 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

Sign up for updates

★ Rate this document

© Copyright 2017 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Microsoft and Windows NT are US registered trademarks of Microsoft Corporation.
Unix is a registered trademark of The Open Group.
Intel, the Intel logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries.

Hewlett Packard Enterprise

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

c04128115 - 14395 - North America - V38 - 23-October-2017