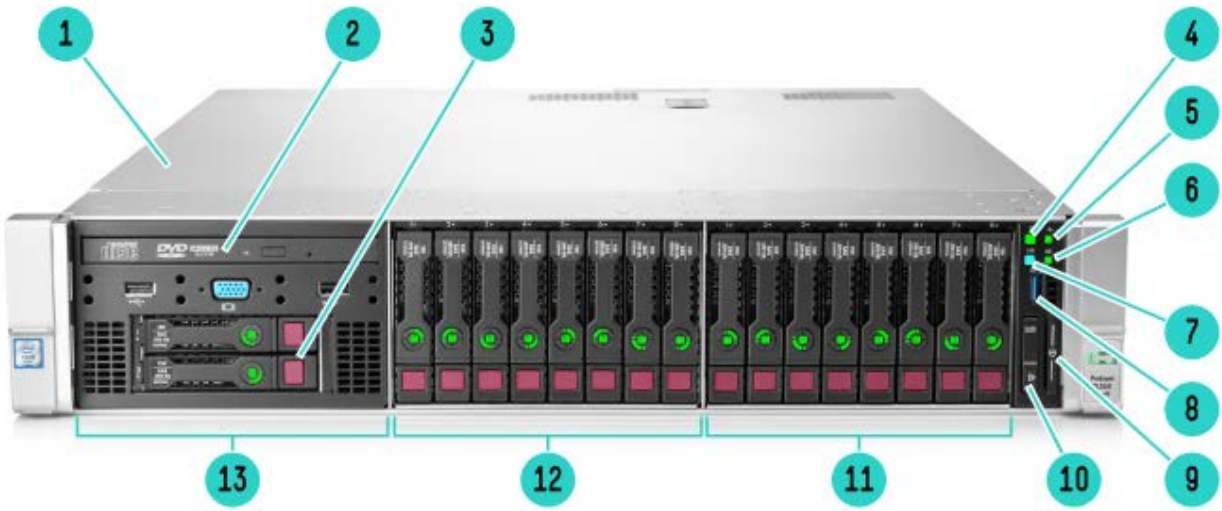
RETIRED: This document has been officially retired, and the base products listed herein are now considered obsolete and are no longer available for sale. Consequently, the information contained within may no longer be current. This document is provided exclusively for reference and informational purposes.

Overview

HPE ProLiant DL560 Generation9 (Gen9)

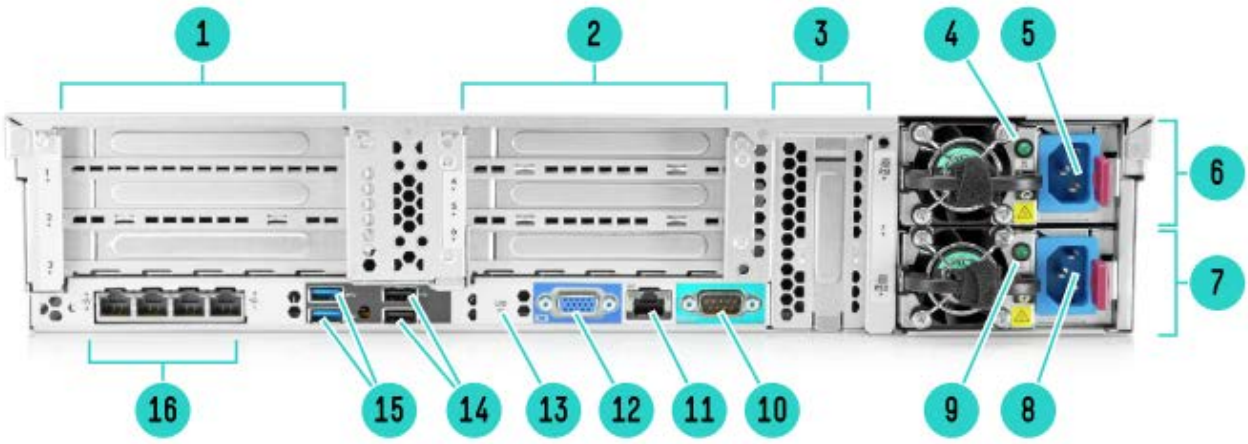
Business-critical workloads and virtualized environments require compact and powerful computing capacity. The HPE ProLiant DL560 Gen9 Server is designed for exactly that. To deliver performance, scalability, and expandability in a dense 2U footprint. Deploy the ideal high-density four-socket server for multi-workload compute with the latest technology. It's designed to help you achieve greater performance at the right price.



Front View

1. Quick removal access panel
2. Optional Optical drive. Requires Universal Media Bay
3. Optional 2 SFF HDDs. Requires Universal Media bay.
4. Power On/Standby button and system power LED button
5. Health Status LED
6. NIC Status LED
7. UID button
8. USB 3.0 connector
9. Serial label pull tag
10. Systems Insight Display (SID) (optional)
11. Bay 3 – fixed 8 SFF Drive Bay
12. Bay 2 – Optional 8 SFF Drive Bay
13. Bay 1 – Optional 8 SFF Drive Bay or Universal Media Bay

Overview



Rear View

1. PCIe Slots (Slots 1-3 top to bottom)
2. PCIe Slots (Slots 4-6 top to bottom)
3. PCIe Slot (Slot 7)
4. Power supply power LED
5. Power supply power connection
6. HPE Common Slot Power Supply bay 1
7. HPE Common Slot Power Supply bay 2
8. Power supply power connection
9. Power supply power LED
10. Serial connector
11. Dedicated iLO connector
12. VGA (video) connector
13. Unit ID LED
14. USB 2.0 connectors (2)
15. USB 3.0 connectors (3)
16. HPE FlexibleLOM ports (Shown:4x1GbE/Optional:2x10GbE);port1 on right side

What's New

- HPE 128GB LRDIMMs for dramatic increases in total system memory capacity without sacrificing speed
- HPE Dual 8GB microSD USB Kit for redundancy in boot environments
- New Fiber Channel HBA's up to 32GB
- New 100Gb Omnipath networking card
- New 10GB 4-port networking card
- New 3.84TB SATA 6G Mixed Use SFF DS SSD

Standard Features

NOTE: For more information regarding Intel Xeon processors, please see the following **http://www.intel.com/xeon**.

Processor
One, Two or Four of the following depending on the server model configuration chosen

Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
E5-4669v3	2.1GHz	18	45MB	135W	9.6GT/s	2133
E5-4667v3	2.0GHz	16	40MB	135W	9.6GT/s	2133
E5-4660v3	2.1GHz	14	35MB	120W	9.6GT/s	2133
E5-4655v3	2.9GHz	6	30MB	135W	9.6GT/s	2133
E5-4650v3	2.1GHz	12	30MB	105W	9.6GT/s	2133
E5-4640v3	1.9GHz	12	30MB	105W	8.0GT/s	1866
E5-4627v3	2.6GHz	10	25MB	135W	8.0GT/s	2133
E5-4620v3	2.0GHz	10	25MB	105W	8.0GT/s	1866
E5-4610v3	1.7GHz	10	25MB	105W	6.4GT/s	1600
E5-4669v4	2.2GHz	22	55MB	135W	9.6GT/s	2400
E5-4667v4	2.2GHz	18	45MB	135W	9.6GT/s	2400
E5-4660v4	2.2GHz	16	40MB	120W	9.6GT/s	2400
E5-4655v4	2.5GHz	8	30MB	135W	9.6GT/s	2400
E5-4650v4	2.2GHz	14	35MB	105W	9.6GT/s	2400
E5-4640v4	2.1GHz	12	30MB	105W	8.0GT/s	2133
E5-4627v4	2.6GHz	10	25MB	135W	8.0GT/s	2400
E5-4620v4	2.1GHz	10	25MB	105W	8.0GT/s	2133
E5-4610v4	1.8GHz	10	25MB	105W	6.4GT/s	1866

NOTE: Intel® Hyper Threading supported on all processors except E5-4627 v3 and E5-4627 v4.
NOTE: Intel® Turbo Boost Technology supported on all processors except E5-4610 v3 and E5-4610 v4.
NOTE: For the Standard Features shipped in the "Factory Integrated Models," please see the "Configuration Information - Factory Integrated Models" section.

Cache Memory
One of the following depending on model

55MB (1 x 55MB) Level 3 cache
NOTE: With the E5-4669v4 processor.
45MB (1 x 45MB) Level 3 cache
NOTE: With the E5-4667v4 and E5-4669v3 processors.
40MB (1 x 40MB) Level 3 cache
NOTE: With the E5-4660v4 and E5-4667v3 processors.
35MB (1 x 35MB) Level 3 cache
NOTE: With the E5-4650v4 and E5-4660v3 processors.
30MB (1 x 30MB) Level 3 cache
NOTE: With the E5-4640v4, E5-4655v4, E5-4650v3, E5-4640v3, and E5-4655v3 processors.
25MB (1 x 25MB) Level 3 cache
NOTE: With the E5-4610v4, E5-4620v4, E5-4627v4, E5-4620v3, E5-4627v3, and E5-4610v3 processors.

Chipset

Intel® C610 Series Chipset
Intel® Xeon® E5-4600v4 Processor Family
Intel® Xeon® E5-4600v3 Processor Family

Standard Features

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

On System Management Chipset	HPE iLO 4 (4GB NAND) **NOTE:** Read and learn more in the **iLO QuickSpecs**.

Memory
One of the following depending on model

Type:

HPE SmartMemory

DDR4 Registered (RDIMM) or Load Reduced (LRDIMM)

DIMM Slots Available	48	(12 DIMM slots per processor, 4 channels per processor, 3 DIMMs per channel)
Maximum Capacity (LRDIMM)	6TB	48 x 128GB LRDIMM @2400MHz
Maximum Capacity (RDIMM)	1.5TB	(48 x 32GB RDIMM @2400 MHz)

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 Gen9. For additional information, please see the **HPE SmartMemory QuickSpecs**.

NOTE: LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.

NOTE: Depending on the memory configuration (for instance: number of DIMMs and DIMMs per channel, type of memory) and processor model, the memory speed may run at 2400, 2133, 1866MHz, 1600MHz. Please see Memory Population Table below or the **Online Memory Configuration Tool**.

Memory Protection		
	Advanced ECC	Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.
	Online Spare	Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.
	Mirroring mode	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.
	Demand and Patrol Scrubbing	Memory demand and patrol scrubbing prevent accumulation of correctable errors and reduces the likelihood of unplanned downtime.
	Failed DIMM Isolation	Failed DIMM isolation improves the service time thus improving the overall system availability.
	Data Bus ECC Protection	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).
	Memory Thermal Control	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	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.

Standard Features

Network Controller

The HPE ProLiant DL560 Gen9 servers offer a flexible network technology - FlexibleLOMs, which offers customers a choice of 1Gb, 10Gb, or 10Gb base-T Ethernet or converged networking in their embedded adapter. A range of NIC cards are also available to enhance networking capabilities.

NOTE: For additional details see the Networking Section of this document.

Model	Adapter
Entry Model	HPE Ethernet 1Gb 4-port 331FLR Adapter
Base Model	HPE FlexFabric 10Gb 2P 533FLR-T Adapter
Performance Model	HPE FlexFabric 10Gb 2P 533FLR-T Adapter

Expansion Slots

Primary Riser (Standard)

Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
1	PCIe 3.0	x8	x16	7	Half length/full height	Proc 1
2	PCIe 3.0	x8	x16	10	Half length/full height	Proc 1
3	PCIe 3.0	x8	x8	13	Half length/full height	Proc 1

NOTE: PCIe slot availability is dependent on the number of processors installed.

NOTE: Connector Width indicates default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

NOTE: Bus Width indicates the number of physical electrical lanes running to the connector. Inserting cards with PCI bridges may alter the actual bus assignment number.

Primary Riser (Optional) 793475-B21

Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
2	PCIe 3.0	x16	x16		Half length/full height	Proc 1
3	PCIe 3.0	x8	x8		Half length/full height	Proc 1

Secondary Riser (Optional) 793474-B21

Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
4	PCIe 3.0	x16	x16	16	Half length/full height	Proc 2
5	PCIe 3.0	x8	x16	20	Half length/full height	Proc 2
6	PCIe 3.0	x8	x8	23	Half length/full height	Proc 2

Expansion Slot 7

Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
7	PCIe 3.0	x8	x16	26	Low profile	Proc 2

Standard Features

Storage Controller
One of the following depending on model

Entry Models	HPE Dynamic Smart Array B140i Controller
Base Models	HPE Flexible Smart Array P440ar/2GB Controller

The P440ar Flexible Smart Array controller is in the Adaptive RAID on Chip slot, enables SAS drives and has 2GB Flash Backed Write Cache for data retention.

Performance Models	HPE Smart Array P840/4G Controller

The P840 Flexible Smart Array controller enables SAS drives and has 4GB Flash Backed Write Cache for enhanced data retention.

Internal Storage Devices
One of the following depending on model

Hard Drives	None ship standard
Hard Drive Bays	8 hot plug SFF SAS/SATA HDD Bays in Entry and Base Models
	16 hot plug SFF SAS/SATA HDD Bays in Performance Models
	NOTE: Upgradeable to a maximum of 24. If one of the two Optional Universal Media Bay Kits is chosen, a maximum of 18 SFF drives are available as versus 24. The standard Universal Media Bay Kit occupies an 8 SFF drive bay cage and includes an optional Optical Disk Drive; another version has an optional 2SFF drive bay as well.
Optional Optical Drive	Available via Universal Media Bay Kit
	NOTE: An optional optical drive can be added to either the Universal Media Bay Kit with 2SFF drive bay (793479-B21) or the Universal Media Bay Kit without 2SFF drive bay (795090-B21).

Maximum Internal Storage

	CAPACITY	CONFIGURATION
Hot Plug SFF SATA	48TB	24 x 2TB
Hot Plug SFF SAS	48TB	24 x 2TB
Hot Plug SFF SATA SSD	92TB	24 x 3.84TB
Hot Plug SFF SAS SSD	92TB	24 x 3.84TB

Power Supply
One of the following depending on model

HPE 1200W Common Slot Platinum Hot Plug Power Supply

NOTE: Entry Models have a single HPE 1200W Common Slot Platinum Hot Plug Power Supply.

2 HPE 1200W Common Slot Platinum Plus Hot Plug Power Supplies

NOTE: Base and Performance Models have redundant HP1200W Common Slot Platinum Plus Hot Plug Power Supplies.

Common Slot Power Supplies

One of the following depending on power requirements:

HPE 1500W Common Slot Platinum Plus Hot Plug Power Supply

HPE 1500W Common Slot 48VDC Hot Plug Power Supply

NOTE: 1500W power supply supports high line voltage only.

HPE 1200W Common Slot Platinum Plus Hot Plug Power Supply

HPE 1200W Common Slot Platinum Hot Plug Power Supply

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.hpe.com/info/hppoweradvisor**.

Hewlett Packard Enterprise 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

Standard Features

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 several power output options including - 1200W, 1500W - allowing the customer to "right-size" a power supply for their specific server configuration. All HPE Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations.

HPE CS Platinum Plus power supplies are required when enabling HPE's Intelligent Power Discovery (IPD) solution. IPD is the first technology to create an automated, energy-aware network between IT systems and facilities. This allows your company to reclaim millions of dollars in wasted power capacity and downtime costs across data centers. For more information on HPE's IPD solution, go to **https://www.hpe.com/servers/powerdiscovery**.

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

NOTE: All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the **ProLiant Power Cables** web page.

System Fans		**Non-redundant**	**Redundant**
	6 Hot Plug Fans (with N+1 redundancy)		

Interfaces	Serial	1 rear
	Video	1 front (optional with Universal Media Bay kit); 1 rear
	iLO 4 Remote Management	1
	Micro SD Dual Slot	1
	NOTE: Requires the optional HP Dual Micro SD 8GB USB kit.	
	USB 2.0 Ports	5 total: 2 front (optional); 2 rear; 1 internal
	USB 3.0 Ports	4 total: 1 front; 2 rear, 1 internal

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server

Red Hat Enterprise Linux (RHEL)

SUSE Linux Enterprise Server (SLES)

VMware

NOTE: For more information on Hewlett Packard Enterprise Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: **http://www.hpe.com/info/ossupport** and our **driver download page**.

Upgradeability

Upgradeable to 4 processors

Up to 48 DIMM slots

7 PCIe 3.0 I/O slots

NOTE: PCIe slot availability is dependent on the number of processors installed. Please refer to the "Expansion Slots" section for more details.

NOTE: The HPE ProLiant DL560 Gen9 server has a dedicated FlexibleLOM slot and an Adaptive Raid On Chip (AROC) slot for HPE Flexible Smart Array controllers in addition to the 7 PCI 3.0 I/O expansion slots.

Embedded 10-Port SATA, B140i as standard

HPE Flexible Smart Array, Smart Array or Smart HBA Controllers

Standard Features

FlexibleLOM slot for 1GbE or 10GbE or QDR/FDR InfiniBand Networking Options
Up to 24 SFF drives; or 18 SFF drives with optional Universal Media Bay
Optional System Insight Display
Redundant Power Supplies

Industry Standard Compliance

PCIe 3.0 Compliant
ACPI 2.0. Compliant
PXE Support
WOL Support
Microsoft® Logo certifications
USB 2.0 Support
USB 3.0 Support
Energy Star
ASHRAE A3/A4
NOTE: For additional technical thermal details regarding ambient temperatures, humidity and features support please visit: **http://www.hpe.com/servers/ashrae**.

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)

HPE Server UEFI/Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen9 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode.
NOTE: The UEFI System Utilities function is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **http://www.hpe.com/servers/uefi**.

UEFI enables numerous new capabilities specific to HPE ProLiant servers such as:

- Secure Boot
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.0 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using RESTful API for iLO 4
- PXE boot support for IPv6 networks
- Boot support for option cards that only support a UEFI option ROM
- Network Stack configurations

NOTE: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.

Standard Features

NOTE: UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your HPE ProLiant Gen9 Server.

Form Factor		2U Rack Form Factor Entry, Base and Performance pre-configured models ship with Gen9 Easy Install Rail Kits and Cable Management Assembly 3.44" (8.74 cm) Height x 17.54" (44.55 cm) Width x 29.5" (74.94 cm) Length
Embedded Management	**HPE Integrated Lights-Out (HPE iLO)**	Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO. Learn more at **http://www.hpe.com/info/ilo**.
	UEFI	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at **http://www.hpe.com/servers/uefi**.
	RESTful API	RESTful API for iLO 4 is Redfish 1.0 conformance for simplified server management such as configuration and maintenance tasks based on modern industry standards. Learn more at **http://www.hpe.com/info/restfulapi**.
	Intelligent Provisioning	Hassle free server and OS provisioning for 1 or few servers with Intelligent Provisioning. Learn more at **http://www.hpe.com/servers/intelligentprovisioning**.
	Embedded Remote Support	The Hewlett Packard Enterprise embedded remote support, when used with Insight Online direct connect or HPE Insight Remote Support, allows HPE ProLiant servers to transmit hardware events directly to Hewlett Packard Enterprise or a Hewlett Packard Enterprise Authorized Partner for automated phone home support. Learn more at **http://www.hpe.com/info/insightonline/explore**.
Server utilities	**Smart Update**	Optimize firmware and driver updates with Smart Update solutions including Smart Update Manager (SUM) and Service Pack for ProLiant (SPP). Learn more at **http://www.hpe.com/servers/smartupdatemanager**.
	iLO Amplifier Pack	Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9 and Gen10 HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities. Learn more at **http://www.hpe.com/servers/iLOamplifierpack**.
	HPE Systems Insight Manager (HPE SIM)	HPE SIM allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers, and also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at **http://www.hpe.com/servers/hpsim**.
	Scripting Tool Kit and Windows PowerShell	Provision 1 to many servers using your own scripts to discover and deploy them with Scripting Tool Kit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at **http://www.hpe.com/servers/proliant/stk** or **http://www.hpe.com/servers/powershell**.

Standard Features

RESTful Interface Tool	RESTful Interface tool is a scripting tool to provision using RESTful API for iLO 4 to discover and deploy servers at scale. Learn more at **http://www.hpe.com/info/resttool**.
HPE iLO Mobile Application	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: **http://www.hpe.com/info/ilo/mobileapp**.
HPE Insight Online	HPE Insight Online, available at no additional cost as part of your Hewlett Packard Enterprise warranty or contractual support agreement with Hewlett Packard Enterprise, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at **http://www.hpe.com/info/insightonline/explore**.

Security

Power-on password

Serial interface control

Administrator's password

Trusted Platform Module (TPM)

TPM 2.0

NOTE: HPE Trusted Platform Module 2.0 Option (745823-B21) works with Gen9 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants. HPE Gen9 servers purchased earlier may need the latest firmware update to be compatible with the TPM 2.0 Option.

The earlier HPE Trusted Platform Module Option (488069-B21) is the TPM 1.2 version, which is also available on the DL560 Gen9 platform, however TPM 2.0 has newer technology standards incorporated. The TPM 1.2 compatible server platforms include Gen8 and Gen9 servers.

HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE 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://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/**.

Optional Features

Embedded Management	**iLO Advanced**	HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. Learn more about HPE iLO Advanced at **http://www.hpe.com/servers/iloadvanced**.
Server Management	**HPE Insight Control**	HPE Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see **http://www.hpe.com/info/insightcontrol**.
	HPE iLO Advanced	HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. Learn more about HPE iLO Advanced at **http://www.hpe.com/servers/iloadvanced**.
	HPE OneView Advanced	HPE OneView Advanced is converged management that eliminates infrastructure complexity with automation simplicity. This modern architecture is designed to accelerate your IT operations across servers, storage, and network resources using software-defined approaches and automation, see **http://www.hpe.com/info/oneview**.
Rack and Power Infrastructure	HPE Rack and Power Infrastructure products and services create highly efficient and intelligent solutions for existing or new IT data centers. HPE Rack and Power infrastructure solutions – rack infrastructure, power protection and management, performance optimized data centers (PODs) – are the foundation you are looking for to help secure your long-term IT success. These products are designed to help you react to changes in the industry. They deliver efficient, easy-to-use capabilities to manage, monitor, deploy and provision infrastructure from entry to enterprise. As an industry leader, Hewlett Packard Enterprise is uniquely positioned to address the key concerns of power, cooling, cable management and system access. Learn more at **HPE Rack and Power Infrastructure**.	
High Performance Clusters	**HPE Insight Cluster Management Utility (CMU)**	HPE Insight Cluster Management Utility is a Hyperscale management framework that includes software for the centralized provisioning, management and monitoring of nodes and infrastructure. Learn more at **http://www.hpe.com/info/cmu**.
HPC Interconnects	**NOTE:** High Performance Computing (HPC) interconnect technologies are available for this server under the HPE Cluster Platform product portfolio. These high-speed interconnects are fully supported by Hewlett Packard Enterprise when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. **https://www.hpe.com/info/hpc/solutions**.	
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 Hewlett Packard Enterprise 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:	

Optional Features

- **Data Protection and Recovery Software**
  Whether you're a large enterprise or a smaller business, Hewlett Packard Enterprise data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.
- **Data Archive and Migration Software**
  Hewlett Packard Enterprise 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)**
  Hewlett Packard Enterprise 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 Hewlett Packard Enterprise 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 create a virtual array within your host server. Manage it as a single pool of shared storage capacity, and scale it to match your evolving needs. HPE ProLiant Gen9 servers include a 3-year limited license for HPE StoreVirtual VSA software with 1TB of capacity at no extra cost. Simply select to install HPE StoreVirtual VSA software during server setup within Intelligent Provisioning. More information, instructional videos, and free console management software are available at **http://www.hpe.com/info/vsa1TB**.

NOTE: For more information about Storage Software including QuickSpecs, please see: **https://www.hpe.com/us/en/storage/software-defined.html**.

Solutions

Factory Express Portfolio 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.

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

For more information on Factory Express services for your specific server model please contact your sales representative or go to: **http://www.hpe.com/info/factoryexpress**.

One Config Simple (SCE)

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 Hewlett Packard Enterprise Customer Business Center or an Authorized Partner for assistance. **http://ocs.ext.hpe.com/**.

Service and Support

HPE Support Services

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. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support for need for your IT and business.

Connect your devices

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%[1] reduction in down time, near 100%[2] diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to Hewlett Packard Enterprise support.

1- IDC 2 – HP CSC reports 2014 - 2015

Recommended Support

Standard: HPE Proactive Care* with 24x7 coverage, three year Support Service

HPE Proactive Care gives customers an enhanced call experience. When your products are connected to Hewlett Packard Enterprise, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This service combines three years proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers.

https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf

Optimized HPE Proactive Care* with 6 hour call-to-repair commitment, three year Support Service

HPE Proactive Care gives customers an enhanced call experience. When your products are connected to Hewlett Packard Enterprise, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This service combines three years' proactive reporting and advice with our highest level of hardware support – Hewlett Packard Enterprise 24x7, six hour hardware call-to-repair. 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. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers.

https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf

Parts and Materials

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

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

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

Related Services

HPE 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.

https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf

Service and Support

HPE Installation and Startup Service
Provides for the installation and startup of Hewlett Packard Enterprise technology including BladeSystems, C-Class enclosure, HPE ProLiant c-Class and Integrity server blades, storage blades, SAN switch blades, HPE Virtual Connect modules (Ethernet and Fibre Channel), Ethernet network interconnects, and InfiniBand, as well as the installation of one supported operating system type (Windows® or Linux).

HPE Technology Services Support Credits
Offer flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

HPE Education Services

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. **http://www.hpe.com/ww/learn**

HPE Support Center

The HPE Support Center is a 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.hpe.com/support/hpesc**

The Hewlett Packard Enterprise 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 Support Service or Hewlett Packard Enterprise contractual support agreement.

*HPE Support Center Mobile App is subject to local availability.

For more information: **http://www.hpe.com/services**

Pre-configured Models

	Performance Models		Base Models	
[SKU Number]	830073-B21	741066-B21	830072-B21	741065-B21
Model Name	HPE ProLiant DL560 Gen9 E5-4640v4 4P 128GB-R P840/4GB 16SFF 2x1200W RPS Perf Server	HPE ProLiant DL560 Gen9 E5-4640v3 4P 128GB-R P840/4GB 16SFF 2x1200W RPS Perf Server	HPE ProLiant DL560 Gen9 E5-4620v4 2P 64GB-R P440ar/2GB 8SFF 2x1200W RPS Base Server	HPE ProLiant DL560 Gen9 E5-4620v3 2P 64GB-R P440ar/2GB 8SFF 2x1200W RPS Base Server
Processor	Intel® Xeon® E5-4640v4	Intel® Xeon® E5-4640v3	Intel® Xeon® E5-4620v4	Intel® Xeon® E5-4620v3
Number of Processors	Four		Two	
Memory	128GB (8x16GB Registered DIMMs, 2400 MHz)	128GB (8x16GB Registered DIMMs, 2133 MHz)	64GB (4x16GB Registered DIMMs, 2400 MHz) **NOTE:** 24 DIMM slots available with Base Model; 2 more processor slots and 24 more DIMMs available via optional HPE ProLiant DL560 Gen9 CPU Mezzanine Board Kit (795107-B21).	64GB (4x16GB Registered DIMMs, 2133 MHz) **NOTE:** 24 DIMM slots available with Base Model; 2 more processor slots and 24 more DIMMs available via optional HPE ProLiant DL560 Gen9 CPU Mezzanine Board Kit (795107-B21).
Network Controller	HPE FlexFabric 10Gb 2P 533FLR-T Adapter			
Storage Controller	HPE Flexible Smart Array P840/4G Controller **NOTE:** Additional stand up Storage controllers also available as options.		HPE Flexible Smart Array P440ar/2GB **NOTE:** Additional stand up Storage controllers with up to 4GB FBWC available as options.	
Hard Drive	None ship standard			
Internal Storage	16 SFF drive bays **NOTE:** Can be expanded up to a max of 24 SFF drives, with optional HPE ProLiant DL560 Gen9 Bay1 8SFF Cage/Backplane Kit (795085-B21). Alternatively, optional Universal Media Bay Kits may be chosen - with 2SFF drive bay (793479-B21) or without (795090-B21).	16 SFF HDD Bays **NOTE:** Can be expanded up to a max of 24 SFF drives, with optional HPE ProLiant DL560 Gen9 Bay1 8SFF Cage/Backplane Kit (795085-B21). Alternatively, optional Universal Media Bay Kits may be chosen - with 2SFF drive bay (793479-B21) or without (795090-B21).	8 SFF Drive Bays **NOTE:** Can be expanded up to a max of 24 SFF drives, with optional HPE ProLiant DL560 Gen9 Bay2 8SFF Cage/Backplane Kit (795084-B21) and HPE ProLiant DL560 Gen9 Bay1 8SFF Cage/Backplane Kit (795085-B21). Alternatively, optional Universal Media Bay Kits may also be chosen for Bay1 - with 2SFF drive bay (793479-B21) or without (795090-B21).	
Optical Drive Bay	Optional via Universal Media Bay			
Optical Drive	Optional DVD-ROM (726536-B21) or DVD-RW (726537-B21) via Universal Media Bay Kits (795090-B21 or 794379-B21)			
PCI-Express Slots	7 PCIe 3.0 slots available; Secondary riser kit (793474-B21) installed			
Power Supply	(2) HPE 1200W Common Slot Platinum Plus Hot Plug Power Supplies			
Fans	6 hot plug fans, redundant			

Pre-configured Models

Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Advanced (standard), HPE OneView Advanced (standard)	iLO Management (standard), Intelligent Provisioning (standard), iLO Advanced (optional), Insight Control (optional), HPE OneView (optional)
Energy Star	Meets Energy Star requirements	
Form Factor	Rack (2U), HPE Easy Install Rails with CMA	
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response	

Pre-configured Models

	Entry Models
[SKU Number]	830071-B21
Model Name	HPE ProLiant DL560 Gen9 E5-4610v4 2P 32GB-R B140i 8SFF SATA 1200W PS Entry Server
Processor	Intel® Xeon® E5-4610v4
Number of Processors	Two
Memory	32GB (2x16GB Registered DIMMs, 2400 MHz) **NOTE:** 24 DIMM slots available with Entry Model; 2 more processor slots and 24 more DIMMs available via optional HPE ProLiant DL560 Gen9 CPU Mezzanine Board Kit (795107-B21).
Network Controller	HPE Ethernet 1Gb 4P 331FLR Adapter
Storage Controller	HPE Dynamic Smart Array B140i **NOTE:** Additional Storage controllers including HPE Flexible Smart Array, HPE Smart Array and HPE Smart HBA also available as options, to enable both SAS capability as well as provide data retention with Flash Backed Write Cache (FBWC).
Hard Drive	None ship standard
Internal Storage	8 SFF Drive Bays **NOTE:** Can be expanded up to a max of 24 SFF drives, with optional HPE ProLiant DL560 Gen9 Bay2 8SFF Cage/Backplane Kit (795084-B21) and HPE ProLiant DL560 Gen9 Bay1 8SFF Cage/Backplane Kit (795085-B21). Alternatively, optional Universal Media Bay Kits may also be chosen for Bay1 - with 2SFF drive bay (793479-B21) or without (795090-B21).
Optical Drive Bay	Optional via Universal Media Bay
Optical Drive	Optional DVD-ROM (726536-B21) or DVD-RW (726537-B21) via Universal Media Bay Kits (795090-B21 or 794379-B21)
PCI-Express Slots	4 PCIe 3.0 slots (3 additional PCIe slots available if secondary riser kit is installed)
Power Supply	(1) HPE 1200W Common Slot Platinum Hot Plug Power Supply
Fans	6 hot plug fans, redundant
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Advanced (optional), Insight Control (optional), HPE OneView (optional)
Energy Star	Meets Energy Star requirements
Form Factor	Rack (2U), HPE Easy Install Rails with CMA
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

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

Country Code Key	xx1 = B21	Worldwide
	xx1 = 291	Japan
	xx1 = AA1	PRC

Configuration Information - Factory Integrated Models

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 an HPE approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

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

[Chassis]	HPE ProLiant DL560 Gen9 Configure-to-order Server
SKU Number	742657-B21
Processor	2U Server Chassis with 2 processor slots available; 4 processor configuration would require optional HPE ProLiant DL560 Gen9 CPU Mezzanine Board kit
DIMM Slots	24 DIMM slots for RDIMM, LRDIMM DDR4 Memory
Storage Controller	HPE Dynamic Smart Array B140i
PCIe	4 PCIe 3.0 slots (all 4 available if second processor is chosen, which also enables +3 PCI 3.0 slots with optional Secondary Riser Kit upgrade)
Drive Cage	8SFF Hot Plug (Upgrades possible with +16SFF optional or +10 optional with optional Universal Media Bay Kits)
Network Controller	FlexibleLOM slot (various options can be chosen for networking; NIC cards also available via expansion slots)
Fans	6 Hot Plug Fans (with N+1 redundancy)
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Advanced (optional), Insight Control (optional), HPE OneView (optional)
USB	8 USB 2.0 ports (2 front, 4 rear, 2 internal)

(Base Configuration Continued)
Intel® C610 Chipset
(2) video ports (1 front optional via the Universal Media Kit upgrade option, 1 rear)
(1) dual microSD card slot
(1) Trusted Platform Module (TPM) connector
BIOS Legacy mode (field configurable) or Unified Extensible Firmware Interface (UEFI) mode (default)
Easy Install rails and cable management arm are optional

NOTE: PCIe slot availability is dependent on the number of processors installed. Please refer to the "Expansion slots" section for more details.
NOTE: For the DL560 Gen9, the number of processors can be one, two or four installed. For four processors, the HPE ProLiant DL560 Gen9 CPU Mezzanine Board kit is required.

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

HPE Processors Select one or two or four processors from Core Options-Processor section below.

- If one processor is desired, select one xxxxxx-L21
- 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.

Configuration Information - Factory Integrated Models

- For four processors, the HP ProLiant DL560 Gen9 CPU Mezzanine Board kit is required.
- Up to 4 processors supported. Mixing different processor models is not supported.
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
- For the Intel® C600 Chipset E5-4600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2=4600x v#, 4 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number.

HPE Memory Select one or more memory from Core Options-Memory section below.

- UDIMM, RDIMM, and LRDIMM are all distinct memory technologies and cannot be mixed within a server.
- HPE memory options from previous generation servers are not qualified or warranted with Hewlett Packard Enterprise Gen9 systems. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9.
- If only one processor is installed, only a quarter of the total DIMM slots are available. When populating with four processors all DIMM slots are available.

Depending on the memory configuration and processor model, the memory speed may run at 2400MHz, 2133MHz, 1866MHz or 1600MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: **http://www.hpe.com/servers/ddr4config**.

HPE Power Supplies Select one or more power supplies from Core Options-Power Supplies section below.

- Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HPE Power Advisor tool to determine the right size power supply for your server configuration. The HPE Power Advisor is located at: **http://www.hpe.com/info/hpepoweradvisor**.

Mixing of power supplies in the same server is not supported. All power supplies must be of the same input voltage, output rating, and efficiency rating. If non-matching power supplies are installed, you may receive an error message and/or experience operational issues with your server.

Step 3: Choose Additional Factory Integratable Options

HPE Unique Options Select one or more Unique options from Core Options section below.

- This section may contain FIO options, please see the Unique options section below.
- FIO indicates that this option is only available as a factory installable option.

HPE I/O Expansion Options Select one or more Riser Kit options from Core Options section below.

- To take advantage of the additional PCI slot upgrade, the second processor must be installed.
- This section may contain FIO options, please see HPE I/O Expansion Options section below.
- FIO indicates that this option is only available as a factory installable option.

HPE Drives Select one or more drives from Core Options-HPE Drives section below.

- 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.

Configuration Information - Factory Integrated Models

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

The HPE ProLiant Gen9 Smart Storage solutions are equipped with re-designed Small Form Factor (SFF 2.5 in) Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove."

HPE FlexibleLOM

Select a FlexibleLOM from Core Options-Networking section below.

- Only one FlexibleLOM can be added to the server. These options are upgradeable and can be changed from the original configuration after the server is shipped.
- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
- Please see the QuickSpecs for Technical Specifications and additional information: **http://www.hpe.com/servers/ProLiantNICs**.

HPE Networking

Select a standup NIC adapter from Core Options-Networking section below.

- Please see the QuickSpecs for Technical Specifications and additional information: **http://www.hpe.com/servers/ProLiantNICs**.
- These options are upgradeable and can be changed from the original configuration after the server is shipped.
- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

HPE Storage Controllers

Select one or more Storage options from Additional Options section below.

- The embedded B140i controller will operate in UEFI only mode. For legacy support an additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22.
- This section may contain FIO options, please see HPE Storage Controllers section below.
- FIO indicates that this option is only available as a factory installable option.

HPE Rail Kits

Select one type of rail kit from Additional Options section below.

- Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen9 server.
- To assist in the installation of the server into the rack, an optional installation tool is available by contacting your local services representative (p/n 695539-001).
- See Hewlett Packard Enterprise Rack Options in Additional Options section of this QuickSpecs for more rack kit choices.

CAUTION: Hewlett Packard Enterprise recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

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 an HPE approved configurator. Contact your local sales representative for additional information.

HPE Unique Options	HPE ProLiant DL560 Gen9 CPU Mezzanine Board Kit	795107-B21
	NOTE: This kit is required if configured with 4 processors.	
	HPE ProLiant DL560 Gen9 Bay2 8SFF Cage/Backplane Kit	795084-B21
	NOTE: This optional kit adds 8SFF drives for Bay2.	
	HPE ProLiant DL560 Gen9 Bay1 8SFF Cage/Backplane Kit	795085-B21
	NOTE: This optional kit adds 8SFF drives for Bay2.	
	HPE ProLiant DL560 Gen9 Primary 2 Slot Riser Kit	793475-B21
	HPE ProLiant DL560 Gen9 Secondary 3 Slot Riser Kit	793474-B21
	NOTE: This is an optional kit which can be utilized when system is populated with at least two (2) processors.	
	HPE ProLiant DL560 Gen9 SAS Expander Card	804228-B21
	HPE Proliant DL560 Gen9 Mini SAS Y Cable Kit	797924-B21
	NOTE: Required for connecting Bay1 UMB 2SFF to a P840/P440 controller, or if using controller H240 in slot7 attached to Bay3. Also needed if using controller P840/P440 in riser1 attached to Bay3.	
	HPE ProLiant DL560 Gen9 Mini SAS Bay1 SAS Cable Kit	797945-B21
	NOTE: Required if controllers H240/P440ar/H240ar/B140i in riser1/AROC (Smart Array HBA Connector) need to be connected to Bay1, or if controllers P840/P440 in Riser2/slot7 need to be connected to Bay2/3. Also needed if controller P440 in slot7 needs to be connected to Bay2/3.	
	HPE ProLiant DL560 Gen9 Mini SAS Bay2 SAS Cable Kit	797946-B21
	NOTE: Required if using controllers H240/P440ar/H240ar/B140i in riser1/AROC (Smart Array HBA Connector) which need to be connected to Bay2, or if using controllers P840/P440 in Riser1/2 which need to be connected to Bay2/3.	
	HPE ProLiant DL560 Gen9 2SFF Universal Media Bay Kit	793479-B21
	NOTE: Universal Media Bay kit with a 2SFF drive bay; an optional Optical Disk Drive can be added, either DVD-ROM (726536-B21) or DVD-RW (72653-B21).	
	HPE ProLiant DL560 Gen9 Universal Media Bay Kit	795090-B21
	NOTE: An optional Optical Disk Drive can be added, either DVD-ROM (726536-B21) or DVD-RW (72653-B21).	
	HPE DL560 Gen9 NVMe 6 Solid State Drive Express Bay Enablement Kit	774743-B21
	HPE ProLiant DL560 Gen9 Power Module with System Insight Display Kit	795106-B21
	HPE Legacy FIO Mode Setting	758959-B22
	NOTE: UEFI is the default, this FIO part can be used for CTO to enable Legacy mode.	

Core Options

HPE Processors	**E5-4600v4 series Processors**	
	HPE DL560 Gen9 Intel Xeon E5-4610v4 (1.8GHz/10-core/25MB/105W) Processor Kit	830265-B21
	HPE DL560 Gen9 Intel Xeon E5-4610v4 (1.8GHz/10-core/25MB/105W) FIO Processor Kit	830265-L21
	HPE DL560 Gen9 Intel Xeon E5-4620v4 (2.1GHz/10-core/25MB/105W) Processor Kit	830267-B21
	HPE DL560 Gen9 Intel Xeon E5-4620v4 (2.1GHz/10-core/25MB/105W) FIO Processor Kit	830267-L21
	HPE DL560 Gen9 Intel Xeon E5-4655v4 (2.5GHz/8-core/30MB/135W) Processor Kit	830287-B21
	HPE DL560 Gen9 Intel Xeon E5-4655v4 (2.5GHz/8-core/30MB/135W) FIO Processor Kit	830287-L21
	HPE DL560 Gen9 Intel Xeon E5-4640v4 (2.1GHz/12-core/30MB/105W) Processor Kit	830269-B21
	HPE DL560 Gen9 Intel Xeon E5-4640v4 (2.1GHz/12-core/30MB/105W) FIO Processor Kit	830269-L21
	HPE DL560 Gen9 Intel Xeon E5-4650v4 (2.2GHz/14-core/35MB/105W) Processor Kit	830274-B21
	HPE DL560 Gen9 Intel Xeon E5-4650v4 (2.2GHz/14-core/35MB/105W) FIO Processor Kit	830274-L21
	HPE DL560 Gen9 Intel Xeon E5-4660v4 (2.2GHz/16-core/40MB/120W) Processor Kit	830276-B21
	HPE DL560 Gen9 Intel Xeon E5-4660v4 (2.2GHz/16-core/40MB/120W) FIO Processor Kit	830276-L21
	HPE DL560 Gen9 Intel Xeon E5-4627v4 (2.6GHz/10-core/25MB/135W) Processor Kit	830278-B21
	HPE DL560 Gen9 Intel Xeon E5-4627v4 (2.6GHz/10-core/25MB/135W) FIO Processor Kit	830278-L21
	HPE DL560 Gen9 Intel Xeon E5-4667v4 (2.2GHz/18-core/45MB/135W) Processor Kit	830289-B21
	HPE DL560 Gen9 Intel Xeon E5-4667v4 (2.2GHz/18-core/45MB/135W) FIO Processor Kit	830289-L21
	HPE DL560 Gen9 Intel Xeon E5-4669v4 (2.2GHz/22-core/55MB/135W) Processor Kit	830291-B21
	HPE DL560 Gen9 Intel Xeon E5-4669v4 (2.2GHz/22-core/55MB/135W) FIO Processor Kit	830291-L21
	E5-4600v3 series Processors	
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4610v3 (1.7GHz/10-core/25MB/105W) Processor Kit	742704-B21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4610v3 (1.7GHz/10-core/25MB/105W) FIO Processor Kit	742704-L21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4620v3 (2.0GHz/10-core/25MB/105W) Processor Kit	742702-B21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4660v3 (2.1GHz/14-core/35MB/120W) Processor Kit	742696-B21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4650v3 (2.1GHz/12-core/30MB/105W) Processor Kit	742698-B21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4640v3 (1.9GHz/12-core/30MB/105W) Processor Kit	742700-B21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4640v3 (1.9GHz/12-core/30MB/105W) FIO Processor Kit	742700-L21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4627v3 (2.6GHz/10-core/25MB/135W) Processor Kit	742706-B21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4627v3 (2.6GHz/10-core/25MB/135W) FIO Processor Kit	742706-L21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4669v3 (2.1GHz/18-core/45MB/135W) Processor Kit	742708-B21

Core Options

	HPE ProLiant DL560 Gen9 Intel Xeon E5-4655v3 (2.9GHz/6-core/30MB/135W) Processor Kit	742710-B21
	HPE ProLiant DL560 Gen9 Intel Xeon E5-4667v3 (2.0GHz/16-core/40MB/135W) Processor Kit	789024-B21

HPE Memory

NOTE: Hewlett Packard Enterprise memory from previous generation servers is 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 Gen9. For additional information, please see the **HPE SmartMemory QuickSpecs**.

NOTE: LRDIMM, RDIMM, UDIMM, and HDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen9 servers support LRDIMM, RDIMM and UDIMMs.

Registered DIMMs (RDIMMs)

HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Memory Kit	805347-B21
HP 16GB (1x16GB) Single Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit	805349-B21
HPE 16GB (1x16GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit	836220-B21
HP 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit	805351-B21
HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726718-B21
HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726719-B21
HP 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	728629-B21

Load Reduced DIMMs (LRDIMMs)

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2400 CAS-17-17-17 Load Reduced Memory Kit	805358-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Load Reduced Memory Kit	805353-B21
HP 64GB (1x64GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726724-B21
HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21
HPE 128GB (1x128GB) Octal Rank x4 DDR4-2400 CAS-20-18-18 Load Reduced Memory Kit	809208-B21

HPE Optical Drives

HPE 9.5mm SATA DVD-ROM Optical Drive	726536-B21
NOTE: The optional Universal Media Bay Kits are required for this option. (HPE ProLiant DL560 Gen9 Universal Media Bay kit: 795090-B21 or HPE ProLiant DL560 Gen9 2SFF Universal Media Bay kit: 793479-B21).	
HPE 9.5mm SATA DVD-RW Optical Drive	726537-B21
NOTE: The optional Universal Media Bay Kits are required for this option. (HPE ProLiant DL560 Gen9 Universal Media Bay kit: 795090-B21 or HPE ProLiant DL560 Gen9 2SFF Universal Media Bay kit: 793479-B21).	
HPE Mobile USB DVD-RW Optical Drive	701498-B21
NOTE: External.	

HPE Drives

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.

Core Options

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870759-B21
HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870757-B21
HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870753-B21

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

HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872479-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872477-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872475-B21

12G SAS Hot Plug SFF (2.5-inch) Midline Drives

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	832514-B21

SSD Selection

To streamline the configuration process for HPE ProLiant Gen9 servers and to provide the best product availability, HPE recommends SSDs from the list located here: **http://www.hpe.com/products/recommend**

12G SAS Hot Plug SFF (2.5-inch) SC 512e Drives

HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	881457-B21
HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765466-B21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	872481-B21
HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765464-B21
HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	870765-B21

12G SAS Hot Plug SFF (2.5-inch) SC Write Intensive Solid State Drives

HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873357-B21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873355-B21
HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873351-B21

12G SAS Hot Plug SFF (2.5-inch) Read Intensive Solid State Drives

HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	870144-B21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872394-B21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875330-B21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872392-B21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875326-B21

Core Options

HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872390-B21
HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875313-B21
HPE 480GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875311-B21
12G SAS Hot Plug SFF (2.5-inch) SC Mixed Use Solid State Drives	
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873367-B21
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872386-B21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873365-B21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872382-B21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873363-B21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872376-B21
HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872374-B21
HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873359-B21
6G SATA Hot Plug SFF (2.5-inch) Write Intensive Solid State Drives	
HPE 400GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872355-B21
NOTE: Please see the **HPE SAS Hard Drives QuickSpecs** for Technical Specifications and additional information.	
6G SATA Hot Plug SFF (2.5 inch) SC Midline Hard Drives	
HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	655710-B21
6G SATA Hot Plug SFF (2.5-inch) SC 512e Drives	
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

Core Options

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

HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877764-B21
HPE 3.8TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868830-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877758-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868826-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875513-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877752-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868822-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875511-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877746-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868818-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875509-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877740-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868814-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875503-B21

Read Intensive - 6G SATA - M.2 - Solid State Drives

HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875500-B21
HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875319-B21
HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875498-B21
HPE 150GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875317-B21

NOTE: Please see the **HPE Solid State Drives QuickSpecs** for Technical Specifications and additional information.

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

HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P00896-B21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877788-B21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872352-B21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875478-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877782-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872348-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875474-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877776-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872344-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875470-B21
HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	880295-B21
HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875483-B21

Core Options

	Mixed Use - 6G SATA - M.2 - Solid State Drives	
	HPE 960GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875492-B21
	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875490-B21
	HPE 240GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875488-B21
	HPE NVMe PCIe Read Intensive SFF (2.5 inch) Solid State Drives	
	HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877986-B21
	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875591-B21
	HPE 1TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877984-B21
	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875589-B21
	HPE 480GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875587-B21
	HPE NVMe PCIe Mixed Use SFF(2.5-inch) Solid State Drives	
	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877998-B21
	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877994-B21
	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875597-B21
	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875595-B21
	HPE 400GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875593-B21
	M.2 SSD	
	HPE Universal SATA HHHL 3yr Wty M.2 Kit	878783-B21
	NOTE: M.2 drives go in PCIe slots and use the B140i SATA controller only.	
	Hard Drive Blank Kits	
	HPE Small Form Factor Hard Drive Blank Kit	666987-B21
	Hard Drive Kits	
	HPE ProLiant DL560 Gen9 Bay2 8SFF Cage/Backplane Kit	795084-B21
	HPE ProLiant DL560 Gen9 Bay1 8SFF Cage/Backplane Kit	795085-B21
	NVMe Kit	
	HPE DL560 Gen9 NVMe 6 Solid State Drive Express Bay Enablement Kit	774743-B21
	Media Bay Kits	
	HPE ProLiant DL560 Gen9 Universal Media Bay Kit	795090-B21
	HPE ProLiant DL560 Gen9 2SFF Universal Media Bay Kit	793479-B21
	NOTE: It includes a 2SFF Drive Bay.	
HPE Networking	**1 Gigabit Ethernet adapters**	
	HPE Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HPE Ethernet 1Gb 2-port 332T Adapter	615732-B21
	HPE Ethernet 1Gb 2-port 361T Adapter	652497-B21
	HPE Ethernet 1Gb 4-port 366T Adapter	811546-B21
	10 Gigabit Ethernet adapters	

Core Options

	HPE Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
	HPE Ethernet 10Gb 2-port 530T Adapter	656596-B21
	HPE Ethernet 10Gb 2-port 546SFP+ Adapter	779793-B21
	HPE Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	HPE Ethernet 10Gb 2-port 561T Adapter	716591-B21
	HPE Ethernet 10Gb 2-port 562SFP+ Adapter	727055-B21
	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. Please see the related NIC QuickSpecs for Technical Specifications and additional information: **http://www.hpe.com/servers/ProLiantNICs**.	
	25 Gigabit Ethernet adapters	
	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter	817749-B21
	HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	817753-B21
	HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter	817762-B21
	FlexibleLOM Adapters	
	HPE Ethernet 1Gb 4-port 331FLR Adapter	629135-B22
	HPE Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
	HPE FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
	HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-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 546FLR-SFP+ Adapter	779799-B21
	HPE FlexFabric 10Gb 2-port 556FLR-SFP+ Adapter	727060-B21
	HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter	727054-B21
	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter	817749-B21
	HPE Ethernet 1Gb 4-port 331FLR FIO Adapter	684208-B21
	HPE FlexFabric 10Gb 4-port 536FLR-T Adapter	764302-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: **http://www.hpe.com/servers/ProLiantNICs**.	
HPE InfiniBand	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	764284-B21
	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	764285-B21
	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+FLR-QSFP Adapter	764286-B21
	HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel Omni-Path Architecture Adapter	829335-B21
	HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	825110-B21
	HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	825111-B21
	NOTE: Please see the **HPE InfiniBand Options for HPE ProLiant and Integrity Servers QuickSpecs** for additional information.	
HPE I/O Expansion Options	HPE ProLiant DL560 Gen9 Secondary 3 Slot Riser Kit	793474-B21
	HPE ProLiant DL560 Gen9 Primary 2 Slot Riser Kit	793475-B21
	NOTE: This is an optional kit which can be utilized when system is populated with at least two (2) processors.	

Core Options

HPE Power Supplies	**HPE Common Slot Power Supply Kits**	
	HPE 1500W Common Slot Platinum Plus Power Supply Kit	684532-B21
	HPE 1200W Common Slot Platinum Hot Plug Power Supply Kit	748287-B21
	HPE 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21
	NOTE: 94% efficiency with support for HPE Power Discovery Services.	
	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.hpe.com/info/hppoweradvisor**.	
	NOTE: All power supplies in a server should match. Mixing Power Supplies is not supported.	
	NOTE: Option Kits contain the specified power supply and a PDU IEC cable.	
	NOTE: 1500W Power Supplies only support High Line Voltage.	
	NOTE: HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). please go to **HPE power cords** for a full list of optional.	
HPE Computation and Graphics Accelerators	HPE NVIDIA Quadro P2000 Graphics Accelerator	Q0V77A

Additional Options

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 Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO LTU	C6N36A
	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: **https://www.hpe.com/info/insightmanagement**. **NOTE:** For additional license options please see the **HPE Insight Control QuickSpecs**.	
HPE Converged Infrastructure Management Software	**HPE OneView Advanced (with HPE iLO Advanced)**	
	HPE OneView including 3yr 24x7 Support Physical 1-server LTU	E5Y34A
	HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE
	HPE OneView for ProLiant DL Server including 3yr 24x7 Support FIO Bundle Physical 1-server LTU	E5Y43A
	HPE OneView Advanced (without HPE iLO Advanced)	
	HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU	P8B24A
	HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE
	HPE OneView w/o iLO including 3yr 24x7 Support Track 1-server LTU	P8B25A
	HPE OneView w/o iLO including 3yr 24x7 Support 1-server FIO LTU	P8B31A
	NOTE: Full licenses of HPE OneView Advanced also provide the right-to-use HPE Insight Control without additional charge. **NOTE:** Server provisioning (via 'HPE Insight Control server provisioning') is licensed as part of HPE OneView Advanced and provides multi-server OS and driver provisioning. Media kit #BD883A can be ordered for a physical copy of this software (USB flash drive). **NOTE:** Licenses ship without media. The HPE OneView Media Kit can be ordered separately, or can be downloaded at: **http://www.hpe.com/info/hpeoneview**. **NOTE:** Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. **NOTE:** Please see the **HPE OneView QuickSpecs** for Technical Specifications and additional information.	
High Performance Clusters	SUSE Linux Enterprise Server HPC Compute Node 1-2 Sockets 3 Year Subscription Flx LTU	M6K35A
	SUSE Linux Enterprise Server HPC Compute Node 1-2 Sockets 3 Year Subscription E-LTU	M6K35AAE
	SUSE Linux Enterprise Server HPC Head Node 1-2 Sockets 3 Year Subscription 24x7 Support Flx LTU	M6K36A
	SUSE Linux Enterprise Server HPC Head Node 1-2 Sockets 3 Year Subscription 24x7 Support E-LTU	M6K36AAE

Additional Options

HPE PCIe Workload Accelerator Options	**NVME PCIe Workload Accelerators**	
	HPE 4TB PCIe x4 Lanes Read Intensive HHHL 3yr Wty Digitally Signed Firmware Card	877831-B21
	HPE 6.4TB PCIe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	877829-B21
	HPE 3.2TB PCIe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	877827-B21
	HPE 1.6TB PCIe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	877825-B21
	NOTE: Both Legacy and UEFI BIOS modes are supported. Please see the **HPE PCIe Workload Accelerators for ProLiant Servers QuickSpecs** for Technical Specifications and additional information.	
HPE Security	HPE Trusted Platform Module 2.0 Kit	745823-B21
	NOTE: HPE Trusted Platform Module 2.0 Option (745823-B21) works with Gen9 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants. HPE Gen9 servers purchased earlier may need the latest firmware update to be compatible with the TPM 2.0 Option. The earlier HPE Trusted Platform Module Option (488069-B21) is the TPM 1.2 version, which is also available however TPM 2.0 has newer technology standards incorporated. The TPM 1.2 compatible server platforms include Gen8 and Gen9 servers. HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.	
HPE Storage Controllers	**SAS Controllers**	
	HPE Smart Array Controllers	
	HPE Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
	HPE Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller	761872-B21
	HPE Smart Array P840/4GB FBWC 12Gb 2-ports Int SAS Controller	726897-B21
	HPE Smart Array P840/4GB FBWC 12Gb 2-ports Int FIO SAS Controller	761874-B21
	HPE Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
	HPE Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller	726903-B21
	HPE Flexible Smart Array Controllers	
	HPE Smart Array P440ar/2GB FBWC 12Gb 2-ports Int SAS Controller	726736-B21
	HPE Smart Array P440ar/2GB FBWC 12Gb 2-ports Int FIO SAS Controller	749974-B21
	HPE Smart Host Bus Adapters	
	HPE H240ar 12Gb 2-ports Int Smart Host Bus Adapter	726757-B21
	HPE H240ar 12Gb 2-ports Int FIO Smart Host Bus Adapter	749976-B21
	HPE H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
	HPE H240 12Gb 2-ports Int FIO Smart Host Bus Adapter	761873-B21
	HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
	Optional Upgrades	
	HPE 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers	727258-B21
	HPE ProLiant DL560 Gen9 SAS Expander Card	804228-B21
	HPE Proliant DL560 Gen9 Mini SAS Y Cable Kit	797924-B21
	HPE ProLiant DL560 Gen9 Mini SAS Bay1 SAS Cable Kit	797945-B21
	HPE ProLiant DL560 Gen9 Mini SAS Bay2 SAS Cable Kit	797946-B21
	Optional Software	
	HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU	Q2F26AAE

Additional Options

HPE Tape Backup

NOTE: For the complete range of tape drives, autoloaders, libraries and media see: **http://www.hpe.com/storage/storeever**. For hardware and software compatibility of HPE tape backup products **http://www.hpe.com/storage/BURAcompatibility**.
NOTE: For Internal drives to be connected to DL servers please make sure that you order rack mount kits as well.

Tape Autoloaders

HPE 1/8 G2 Tape Autoloader

HPE StoreEver 1/8 G2 LTO-6 Ultrium 6250 Fibre Channel Tape Autoloader	C0H19A
HPE StoreEver 1U SAS Rack Mount Kit	AE459B
HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 FC Tape Autoloader	N7P34A
HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 SAS Tape Autoloader	N7P35A

HPE MSL2024 Tape Library

HPE StoreEver MSL2024 0-drive Tape Library	AK379A

HPE MSL4048 Tape Library

HPE StoreEver MSL4048 0-drive Tape Library	AK381A

HPE StoreEver MSL6480

HPE StoreEver MSL6480 Scalable Base Module	QU625A
HPE StoreEver MSL6480 Scaleable Expansion Module	QU626A

NOTE: Please see the **HPE StoreEver MSL6480 Tape Library QuickSpecs** for Technical Specifications and additional information.

Tape Drives

HPE StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B
HPE StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in a 1U Rack Mount Kit	EJ014B
HPE StoreEver LTO-6 Ultrium 6250 Tape Drive in a 1U Rack Mount Kit	C0L99A
HPE StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
HPE StoreEver LTO-7 Ultrium 15000 Internal Tape Drive	BB873A
HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive	BB874A

HPE Disk Backup

HPE RDX Removable Disk Backup System

HPE D3700 Enclosure	QW967A
HPE D3600 Enclosure	QW968A
HPE RDX 3TB USB 3.0 Internal Disk Backup System	P9L71A
HPE RDX+ 3TB USB 3.0 External Disk Backup System	P9L72A
HPE RDX 4TB USB 3.0 External Disk Backup System	Q2R33A

HPE StoreOnce Backup systems

HPE StoreOnce 5100 48TB System	BB915A
HPE StoreOnce 3540 24TB System	BB914A
HPE StoreOnce 3520 12TB System	BB922A
HPE StoreOnce 3100 8TB System	BB913A

NOTE: For the complete range of RDX drives and media see: **https://www.hpe.com/us/en/product-catalog/storage/disk-based-backup-systems.html**. For hardware and software compatibility of Hewlett Packard Enterprise disk backup products see: **http://www.hpe.com/storage/spock**.
NOTE: For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.

Additional Options

HPE Storage 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
	HPE StoreFabric SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter	P9M75A
	HPE StoreFabric SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter	P9D93A
	HPE StoreFabric SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	P9D94A
	HPE StoreFabric 84Q 4-port 8Gb Fibre Channel Host Bus Adapter	P9D91A
	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
	HPE StoreFabric 84E 4-port 8Gb Fibre Channel Host Bus Adapter	E7Y63A
	HPE StoreFabric SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	Q0L11A
	HPE StoreFabric SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter	Q0L12A
	HPE StoreFabric SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter	Q0L13A
	HPE StoreFabric SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	Q0L14A
	HPE Converged Network Adapters	
	HPE StoreFabric CN1100R Dual Port Converged Network Adapter	QW990A
	HPE StoreFabric CN1100R 10GBASE-T Dual Port Converged Network Adapter	N3U52A
	HPE StoreFabric CN1200E 10Gb Converged Network Adapter	E7Y06A
	HPE StoreFabric CN1200E 10GBASE-T Dual Port Converged Network Adapter	N3U51A

Additional Options

HPE Power Distribution Units (PDUs)

HPE Basic Power Distribution Units (PDU)

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

NOTE: Please see the **HPE Basic Power Distribution Units (PDU) QuickSpecs** for information on additional options and product specifications.

NOTE: To learn more about HPE Basic Power Distribution Units (PDU), please visit the HPE website at **http://www.hpe.com/servers/pdu**.

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

HPE Intelligent Power Distribution Unit (PDU)

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 17.3kVA/60309 60A 4-wire 48A/208V (6) C19/Horizontal NA/JP PDU	AF523A
HPE Intelligent Modular 7.3kVA/60309 3-wire 32A/230V Outlets (6) C19/Horizontal INTL PDU	AF525A
HPE Intelligent Modular 3Ph 11kVA/60309 5-wire 16A/230V Outlets (6) C19/Horizontal INTL PDU	AF526A
HPE Intelligent Modular 3Ph 22kVA/60309 5-wire 32A/230V Outlets (6) C19/Horizontal INTL PDU	AF527A
HPE Intelligent Modular 3Ph 17.3kVA/IEC 60309 60A 4-wire 48A/208V (12) C19/Horizontal NA/JP PDU	AF535A
HPE Intelligent Modular 3Ph 22kVA/60309 5-wire 32A/230V Outlets (12) C19/Horizontal INTL PDU	AF538A
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
HPE Intelligent Modular 3Ph 14.4kVA/CS8365C 40A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF533A
HPE Intelligent Modular 7.3kVA/60309 3-wire 32A/230V Outlets (6) C19/Horizontal INTL PDU Kit	AF534A
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 **HPE Intelligent Power Distribution Unit (PDU) QuickSpecs** for information on additional options and product specifications.

HPE Rack Mount Consoles, KVM Switches, and Keyboards

HPE Location Discovery Services

NOTE: Please see the **HPE Location Discovery Services QuickSpecs** for information on additional options and product specifications.

HPE Rack Mount Consoles

HP LCD8500 1U US Rackmount Console Kit	AF630A
HP LCD8500 1U UK Rackmount Console Kit	AF631A
HP LCD8500 1U DE Rackmount Console Kit	AF632A

Additional Options

HP LCD8500 1U FR Rackmount Console Kit	AF633A
HP LCD8500 1U JP Rackmount Console Kit	AF642A
HP LCD8500 1U RU Rackmount Console Kit	AF643A
HP LCD8500 1U INTL Rackmount Console Kit	AF644A
HP LCD8500 1U US TAA Rackmount Console Kit	AF645A

NOTE: Please see the **HPE LCD8500 Console Kit QuickSpecs** for information on additional options and product specifications.

HPE KVM Switches

HP 0x1x8 G3 KVM Console Switch	AF651A
HP 0x2x16 G3 KVM Console Switch	AF652A
HP TAA 0x2x16 G3 KVM Console Switch	AF653A
HP USB Remote Access Key for G3 KVM Console Switches	AF650A
HP KVM Console USB Interface Adapter	AF628A
HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HP KVM Console USB 2.0 Virtual Media CAC Interface Adapter	AF629A
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
HPE KVM Console USB/Display Port Interface Adapter	AF654A
HPE KVM Console USB 8-pack Interface Adapter	AF655A

NOTE: To learn more, please visit the **HPE KVM Switches web page**.

HPE USB Keyboard and Mouse

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

Additional Options

NOTE: Please see the **HPE USB Keyboard and Mouse QuickSpecs** for information on additional options and product specifications.

Rail Kits

NOTE: Gen9 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 Gen9 server.
NOTE: Rail kits are optional for DL560 Gen9 and are no longer included standard with the server. Customers have the option to purchase their server without a rail kit.
NOTE: Ball bearing and Easy Install rail kits contain telescoping rails which allow for in-rack serviceability.
NOTE: To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative (p/n 695539-001).
CAUTION: Hewlett Packard Enterprise recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

HP 2U Large Form Factor Easy Install Rail Kit	733662-B21
NOTE: Does not include CMA (733664-B21).	
HP 2U Cable Management Arm for Easy Install Rail Kit	733664-B21
HPE 2U Large Form Factor Ball Bearing Rail Kit	720864-B21
NOTE: Does not include CMA (720865-B21).	
HPE 2U Cable Management Arm for Ball Bearing Rail Kit	720865-B21

HPE Uninterruptible Power Systems (UPS)

HPE DirectFlow Three Phase UPS

Power Unit (1U UPS)

HPE RP12000/3 12000VA Three Phase INTL 6U Rackmount Uninterruptible Power System	AF437A

HPE Tower UPS

HPE T750 G4 UPS Models

HPE T750 G4 NA/JP Uninterruptible Power System	J2P85A
HPE T750 G4 INTL Uninterruptible Power System	J2P88A

HPE T1000 G4 UPS Models

HPE T1000 G4 NA/JP Uninterruptible Power System	J2P86A
HPE T1000 G4 INTL Uninterruptible Power System	J2P89A

HPE T1500 G4 UPS Models

HPE T1500 G4 NA/JP Uninterruptible Power System	J2P87A
HPE T1500 G4 INTL Uninterruptible Power System	J2P90A

HPE Rack-mountable UPS

HPE R/T2200 G4 UPS Models

HPE R/T2200 G4 NA/JP Uninterruptible Power System	J2R00A

HPE R/T3000 G4 UPS Models

HPE R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System	J2R01A
HPE R/T3000 G4 High Voltage NA/JP Uninterruptible Power System	J2R02A
HPE R/T3000 G4 High Voltage INTL Uninterruptible Power System	J2R04A

R1500 G4 Models

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

Additional Options

	HPE R1500 G4 INTL Uninterruptible Power System	J2R03A
	R7000 Uninterruptible Power System (UPS)	
	HPE R7000 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
	HPE R7000 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A
	R5000 Uninterruptible Power System (UPS)	
	HPE R5000 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
	HPE R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
	NOTE: Please see the **HPE Line Interactive Single Phase UPS QuickSpecs** for information on additional options and product specifications.	
	HPE UPS Options	
	HPE R/T2200 G4 Extended Runtime Module	J2R09A
	HPE R/T3000 G4 Extended Runtime Module	J2R10A
	HPE 2U Rack/Tower UPS Shipping Kit	L4Q11A
	NOTE: To learn more, please visit the **HPE Uninterruptible Power Systems (UPS) web page**.	
HPE Power Cords	HPE C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
	HPE C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
	HPE C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
	HPE C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
	HPE C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
	HPE C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
	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
	HP 8AWG W/Ground Lug 48V DC 3.0m Power Cord	J6X42A
HPE USB and SD Options	**HPE Enterprise Mainstream Flash Media Kits for Memory Cards**	
	HPE 32GB microSD Flash Memory Card	700139-B21
	HPE 8GB microSD Flash Memory Card	726116-B21
	HPE 8GB Dual microSD Flash USB Drive	741279-B21
	NOTE: Please see the **HPE Flash Media Kits QuickSpecs** for additional information.	
HPE Support Services	**Proactive Care**	
	HPE 3 year Proactive Care 24x7 DL560 Gen9 Service	U8QM3E
	HPE 3 year Proactive Care 24x7 with DMR DL560 Gen9 Service	U8QM4E
	HPE 3 year Proactive Care Call to Repair DL560 Gen9 Service	U8QM9E
	HPE 3 year Proactive Care Call to Repair 24x7 with DMR DL560 Gen9 Service	U8QN0E
	HPE 3 year Proactive Care 24x7 with CDMR DL560 Gen9 Service	U8QS3E
	HPE 3 year Proactive Care Call to Repair with CDMR DL560 Gen9 Service	U8QS6E
	HPE 3 year Proactive Care 24x7 DL560 Gen9 with OneView Service	U8QW0E
	HPE 3 year Proactive Care 24x7 with DMR DL560 Gen9 with OneView Service	U8QW1E
	HPE 3 year Proactive Care Call to Repair DL560 Gen9 with OneView Service	U8QW6E
	HPE 3 year Proactive Care Call to Repair 24x7 with DMR DL560 Gen9 with OneView Service	U8QW7E
	HPE 3 year Proactive Care 24x7 with CDMR DL560 Gen9 w/OneView Service	U8RB0E
	HPE 3 year Proactive Care Call to Repair with CDMR DL560 Gen9 w OV Service	U8RB3E

Additional Options

Installation & Start-up Services

HPE Install ProLiant DL560 Service	U6H58E
HPE Startup ProLiant DL560 Service	U6H60E

NOTE: Reduce the time required to get your system up and running and help minimize disruptions to your business.
NOTE: For more information, customer/resellers can contact: **http://www.hpe.com/services**.

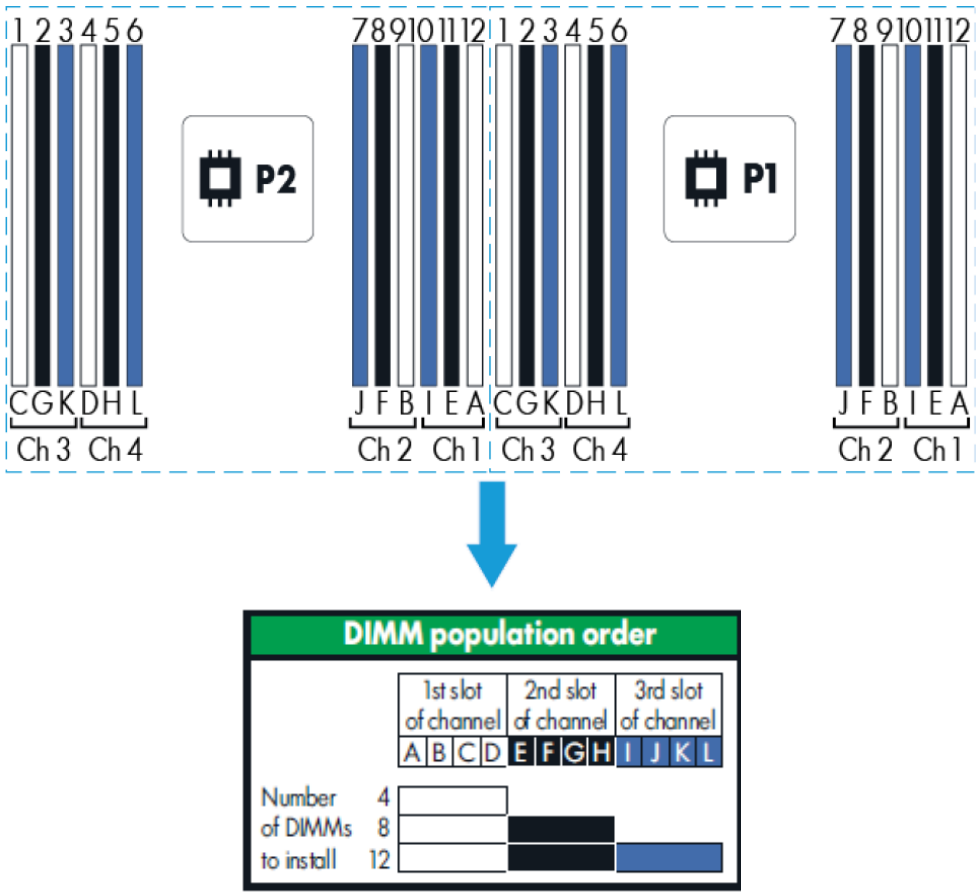
Memory

HPE SmartMemory

New HPE SmartMemory now provides additional protection for your servers. With Hewlett Packard Enterprise Authentication it can verify that you have true HPE Qualified Memory in your HPE ProLiant Gen9 server. With HPE SmartMemory your new HPE ProLiant server can take advantage of additional Gen9 enhancements in performance, durability and future manageability support through HPE Active Health System.

For detailed memory configuration rules and guidelines, please use the **Online DDR4 Memory Configuration Tool**.

Memory Population guidelines



General Memory Population Rules and Guidelines:

- To maximize performance, install two memory cartridges per processor and balance the total memory capacity between all installed processors.
- When multiple processors are installed, HPE recommends installing the DIMMs in sequential alphabetical order: 4A, 9B, 1C, 12D, and so on.
- LRDIMMs support higher densities than single- and dual-rank RDIMMs, and higher speeds than quad-rank RDIMMs. This support enables you to install more high capacity DIMMs, resulting in higher system capacities and higher bandwidth.
- Do not mix LRDIMMs with any other DIMM type (RDIMM, LVDIMM).
- RDIMM population is limited to a maximum of eight logical ranks per channel. Therefore, only two quad rank RDIMMs are supported per channel. If there are more than eight physical ranks per channel, LRDIMMs rank multiplication provides support for three DIMMs per channel.

Memory

. Lockstep mode requires specific population requirements. See lock-step configuration below for more information.

NOTE: UDIMMs are not supported. This server does not support mixing LRDIMMs, RDIMMs, or UDIMMs. Attempting to mix any combination of these DIMMs can cause the server to halt during BIOS initialization. For detailed memory configuration rules and guidelines, use the Online DDR4 Memory Configuration Tool on the HPE website (**http://www.hpe.com/servers/ddr4memoryconfig**).

Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E5-4600v3 Series Processor Family

Memory Bandwidth and Capacity					
[DIMM Type]	**Registered DIMMs (RDIMMs)**			**Load Reduced (LRDIMMs)**	
HPE SKU P/N	726718-B21	726719-B21	728629-B21	726722-B21	726724-B21
DIMM Rank	Single Rank	Dual Rank	Dual Rank	Quad Rank	Quad Rank
DIMM Capacity	8GB	16GB	32GB	32GB	64GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V
DIMM Native Speed (MT/s)	2133	2133	2133	2133	2133
SLOTS THAT CAN BE POPULATED					
48 slot servers	48	48	48	48	48
MAXIMUM CAPACITY (GB)					
	384	768	1536	1536	3072
POPULATED DIMM SPEED (MT/s)					
1 DIMM Per Channel	2133	2133	2133	2133	2133
2 DIMM Per Channel	2133	2133	2133	2133	2133
3 DIMM Per Channel	1600	1600	1600	1866	1866

Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E5-4600v4 Series Processor Family

Memory Bandwidth and Capacity							
[DIMM Type]	**Registered DIMMs (RDIMMs)**				**Load Reduced (LRDIMMs)**		
HPE SKU P/N	805347-B21	805349-B21	836220-B21	805351-B21	805353-B21	805358-B21	809208-B21
DIMM Rank	Single Rank	Single Rank	Dual Rank	Dual Rank	Dual Rank	Quad Rank	Octal Rank
DIMM Capacity	8GB	16GB	16GB	32GB	32GB	64GB	128GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V
DRAM Depth [bit]	1G	2G	1G	2G	2G	2G	2G
DRAM Width [bit]	x8	x4	x4	x4	x4	x4	x4
DRAM Density	8Gb	8Gb	8Gb	8Gb	8Gb	8Gb	8Gb
CAS Latency	17-17-17	17-17-17	17-17-17	17-17-17	17-17-17	17-17-17	20-18-18
DIMM Native Speed (MT/s)	2400	2400	2400	2400	2400	2400	2400

Memory

SLOTS THAT CAN BE POPULATED							
48 slot servers	48	48	48	48	48	48	48
MAXIMUM CAPACITY (GB)							
	384	768	768	1536	1536	3072	6144
POPULATED DIMM SPEED (MT/s)							
1 DIMM Per Channel	2400	2400	2400	2400	2400	2400	2400
2 DIMM Per Channel	2133	2133	2400	2400	2400	2400	2400
3 DIMM Per Channel	1866	1866	1600	1600	2133	2133	1866

Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-4660v3, E5-4650v3, E5-4627v3, E5-4669v3, E5-4655v3, E5-4667v3	2133/1866/1600MT/s
E5-4620v3, E5-4640v3	1866/1600MT/s
E5-4610v3	1600MT/s
E5-4655v4, E5-4650v4, E5-4660v4, E5-4627v4, E5-4667v4, E5-4669v4	2400/2133/1866MT/s
E5-4620v4, E5-4640v4	2133/1866MT/s
E5-4610v4	1866MT/s

Standard and Maximum Memory Capacity (Pre-configured Models)

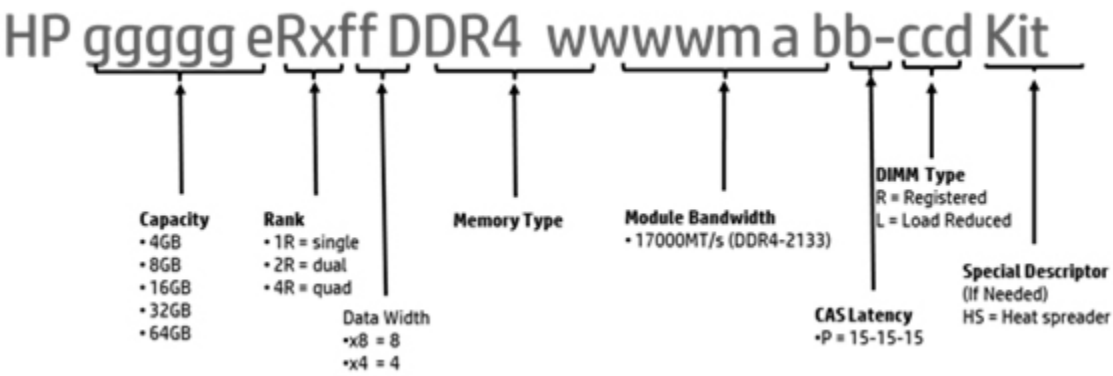
Pre Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
E5-4640v4, E5-4640v3	128GB (8x16GB)	1408GB (40x32GB, 8x16GB)	3072GB (48x64GB)
E5-4620v4, E5-4620v3	64GB (4x16GB)	1472GB (44x32GB, 4x16GB)	3072GB (48x64GB)
E5-4610v4, E5-4610v3	32GB (2x16GB)	1504GB (46x32GB, 2x16GB)	3072GB (48x64GB)

Memory

DDR4 memory options part number decoder

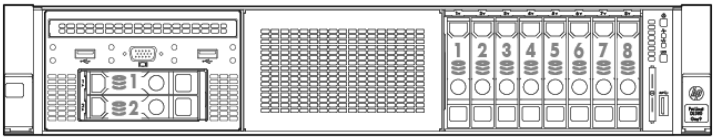
NOTE: Capacity references are rounded to the common gigabyte (GB) values.

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB
- 64GB = 65,536MB
- 128 GB = 131,072MB



Storage

8 SFF (+2 SFF) hot-plug drive model with Universal Media Bay

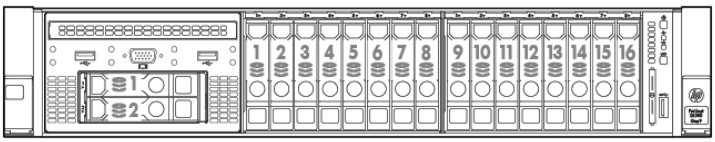


1-8 8 x SFF SATA/SAS/SDD Hot Pluggable Hard drive bays

1-2 2 x SFF SATA/SAS/SSD Hot Pluggable Hard Drive Bays

Universal Media Bay Kit with 2xSFF drives

16 SFF (+2 SFF) hot-plug drive model with Universal Media Bay



1-16 16 x SFF SATA/SAS/SDD Hot Pluggable Hard drive bays

NOTE: If Universal Media Bay Kit is not chosen, even Bay 1 can be populated with 8xSFF drives to give a maximum of 24xSFF drives.

1-2 2 x SFF SATA/SAS/SSD Hot Pluggable Hard Drive Bays

Universal Media Bay Kit with 2xSFF drives

Technical Specifications

System Unit	**Dimensions** (H x W x D) (with bezel)	3.44" x 17.54" x 29.50" (8.73cm x 44.54cm x 74.93cm)	
	Weight (approximate)	Maximum: (all hard drives, power supplies, DIMMs and processors installed)	69 lb (31.30 kg)
		Minimum: (one hard drive, two power supplies, four DIMMs, and two processors installed)	39lb (17.69 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 - 120 VAC (1200W PS only) 200 - 240 VAC (1200W & 1500W PS)
		Rated Input Current	9.2A (100 VAC), 6.6A (200 VAC) - 1200W PS8.3A (200 VAC) - 1500W PS
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	1000 W (120 VAC), 1320 W (230VAC)- 1200W PS 1652 W (at 230 VAC) - 1500W PS
	BTU Rating	Maximum	3408 BTU/hr (120 VAC), 4500 BTU/hr (at 230 VAC) - 1200W PS5637 BTU/hr (230 VAC) - 1500W PSVAC), 3112 BTU/hr (at 240 VAC) for China Only
	Power Supply Output (per power supply)	Rated Steady-State Power	For 1400W Power Supply: 1400W (at 100 VAC), 1400W (at 240 VAC), 1400W (at 240 VAC) For 800W Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VAC) input for China only
		Maximum Peak Power	For 1400W Power Supply: 1400W (at 100 to 127 VAC), 1400W (at 200 to 240 1VAC), 1400W (at 240 VAC) input for China only For 800W Power Supply: 800W (at 100 to 127 VAC), 800W (at 200 to 240 1VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 to 127 VAC), 500W (at 200 to 240 VAC), 500W (at 240 VAC) input for China only **NOTE:** To review typical system power ratings use the HPE Power Advisor which is available online located at url: **http://www.hpe.com/info/hppoweradvisor**.
	System Inlet Temperature	Standard Operating Support	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change

Technical Specifications

		may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).
	Extended Ambient Operating Support	For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: **http://www.hpe.com/servers/ashrae** For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: **http://www.hpe.com/servers/ashrae** System performance may be reduced if operating in the extended ambient operating range or with a fan fault.
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
Relative Humidity	Operating	10% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
(non-condensing)	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle	
	LWAd	6.8 B
	LpAm	51.2
	Operating	
	LWAd	6.9 B
	LpAm	51.2
	FCC Rating	Class A

Technical Specifications

	Emissions Classification (EMC)	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.
HPE Dynamic Smart Array B140i Controller	**Number of PCI links**	Four
	PCI link rate	4Gb/s
	Storage protocol support	SATA
	SAS/SATA peak data transfer rate	6Gb/s
	Number of SAS/SATA links	10 links
	SAS/SATA connectivity	2x4 connectors; 2x1 connectors
	Expander support	No
	Drives supported (max)	Up to 10 Internal Drives
	RAID support	0, 1, 10, 5 SATA
	Software management	HPE SSA, SMH, SIM
	Warranty	Server warranty
	HPE Secure Encryption license	Not Supported
	HPE SmartCache License	Not Supported
	HPE Smart Storage Administrator	Supported
HPE Ethernet 1Gb 4-port 331FLR Adapter	**Network Interface Compatibility**	10Base-T/100Base-TX/1000Base-TX IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 802.3x IEEE 802.3ad 1000Base-TX IEEE 802.3az IEEE 1588 IEEE 802.1as
	Data Transfer Method	PCI-Express 2.0 x4

Technical Specifications

Environment-friendly Products and Approach - End-of-life Management and Recycling

Hewlett Packard Enterprise offers end-of-life product return, trade-in, and recycling programs, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

http://www.hpe.com/recycle

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. 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.

http://www.hpe.com/recycle

Summary of Changes

Date	Version History	Action	Description of Change
2-Apr-2018	Version 22	Changed	SKU description from Core Options and Additional Options were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
5-Mar-2018	Version 21	Removed	Obsolete SKUs were removed from the QuickSpecs.
25-Sep-2017	Version 20	Added	Added new Solid State Drives offering to the HPE Drives section.
		Changed	Core Options and Additional Options were removed.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
7-Aug-2017	Version 19	Added	Added new Solid State Drives offering to the HPE Drives section.
11-Jul-2017	Version 18	Added	Added new GPU option. Added description for iLO Amplifier Pack.
		Changed	On System Management Chipset, Server utilities, Configuration Information – Factory Integrated Models, HPE Computation and Graphics Accelerators, HPE Rack Mount Consoles, and KVM Switches and Keyboards Technical Specifications were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
5-Jun-2017	Version 17	Added	Added new Solid State Drives offering to the HPE Drives section.
		Changed	HPE Insight Software and HPE PCIe Workload Accelerator Options were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
27-Mar-2017	Version 16	Changed	HPE Storage Controllers and HPE Storage Options were revised.
17-Feb-2017	Version 15	Changed	HPE Memory section under Core Options was revised.
13-Feb-2017	Version 14	Added	Added new HDD and SSD offering to the HPE Drives section.
28-Nov-2016	Version 13	Added	Added new Hard Drives. Added new HPE Storage Controllers and HPE Tape Backup options.
		Changed	Memory section was revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
28-Oct-2016	Version 12	Removed	Obsolete Hard Drives were removed from the QuickSpecs.
26-Sep-2016	Version 11	Added	Added new HPE Storage Controllers options.
		Changed	Additional Options was revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
20-Jun-2016	Version 10	Added	Added new Intel® Xeon® E5-2600v4 processor family and new HPE DDR4 2400 MHz Memory modules. Added new options to the HPE Unique Options, HPE Memory, and HPE Converged Infrastructure Management Software sections.
		Changed	Cache Memory, Chipset, Memory, Internal Storage Devices, Security, Pre-configured Models, and Technical Specifications were revised.
6-Jun-2016	Version 9	Added	New options added to the HPE Storage Controllers, HPE Disk Backup, and HPE Storage Options.
		Changed	Memory, Expansion Slots, and HPE Unique Options were revised.
8-Apr-2016	Version 8	Changed	HPE Processors section was revised.
31-Mar-2016	Version 7	Added	New Security TPM option and new HDD offering were added.
		Changed	Embedded Management, Security, Service and Support, and Pre-configured Models sections were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
16-Feb-2016	Version 6	Added	New HDD offering was added to HPE Drives. New options were added to the HPE PCIe Workload Accelerator Options and HPE Disk Backup sections.

Summary of Changes

		Changed	Memory, Expansion Slots, Maximum Internal Storage, Interfaces, HPE Data Center Racks, and HPE Power Distribution Units (PDUs).
		Removed	Obsolete SKUs were removed from the QuickSpecs.
1-Dec-2015	Version 5	Added	New HDD offering was added to HPE Drives. New option added to HPE Disk Storage Systems.
		Changed	On System Management Chipset, Maximum Internal Storage, Embedded Management, and Server utilities were revised. Product images were updated.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
28-Sep-2015	Version 4	Added	Added new 6Gb SATA Solid State Drives. Added new HPE OneView management software.
		Changed	Maximum Internal Storage, Interfaces, and HP Memory were revised.
17-Aug-2015	Version 3	Added	New Hard Drives offering was added to Core Options. HPE Computation and Graphics Accelerators was added to Core Options.
		Changed	Memory and Expansion Slots under Standard Features section were revised. Core Options, Memory, and Storage sections were revised.
26-Jun-2015	Version 2	Changed	Interfaces entry under Standard Features section was revised. Base configuration under Configuration Information - Factory Integrated Models section (Step 1) was revised.
1-Jun-2015	Version 1	New	New QuickSpecs

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

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