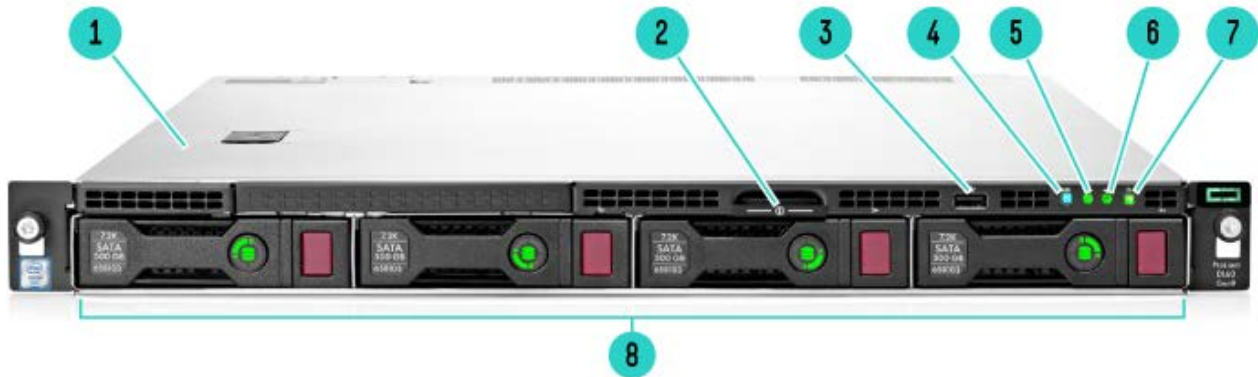


### Overview

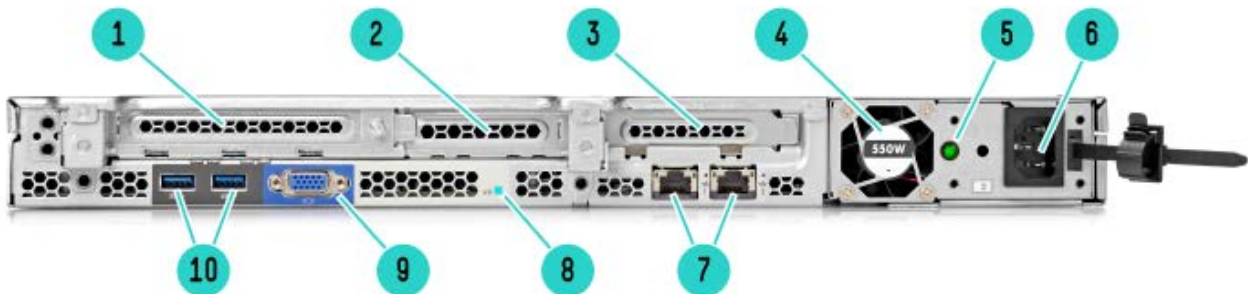
#### HPE ProLiant DL60 Generation9 (Gen9)

The HPE ProLiant DL60 Gen9 Server provides the right density, performance and manageability for file and print, messaging, collaboration workloads and cloud environments. All in a compact 1U chassis at an affordable price to meet the needs of cost conscious service providers and SMBs.



#### Front View

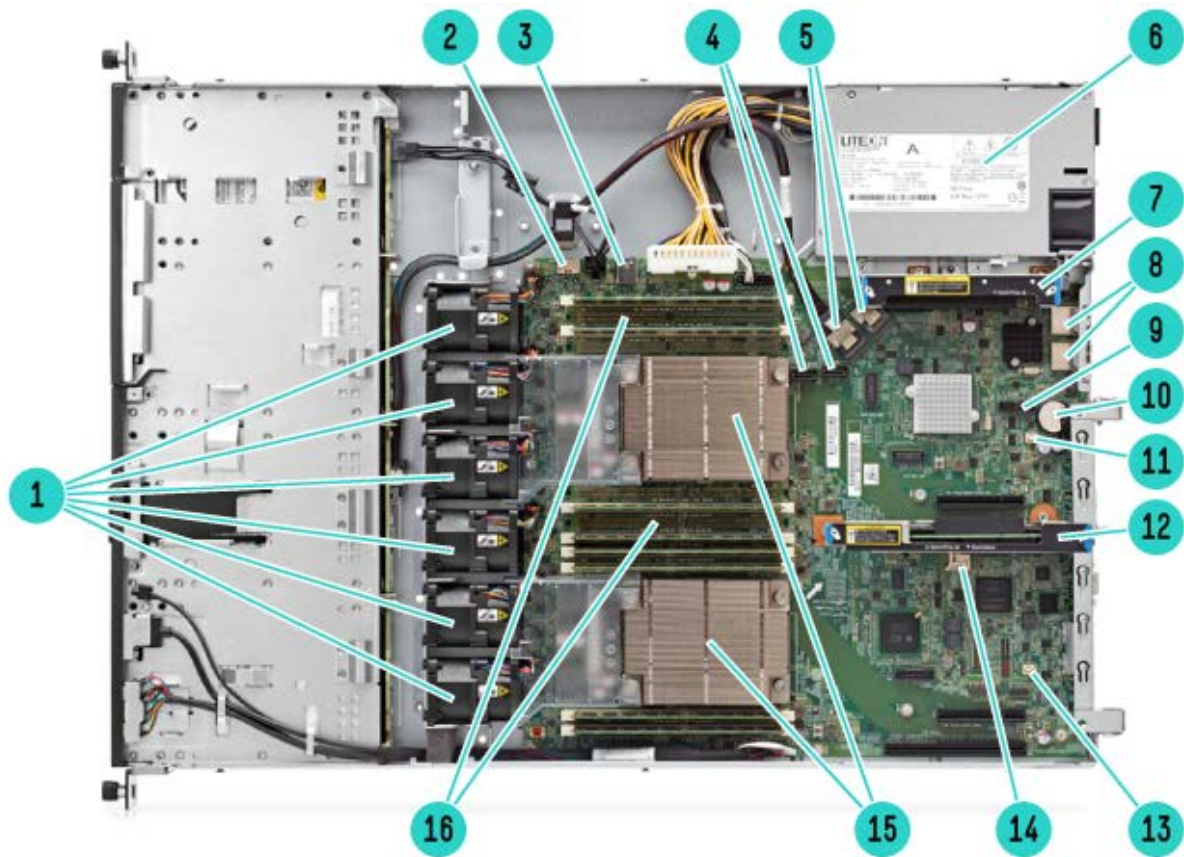
- |   |                          |
|---|--------------------------|
| 1. Access Panel                                 | 2. Serial label pull tab |
| 3. USB 2.0 connector                            | 4. UID button/LED        |
| 5. Health LED                                   | 6. NIC status LED        |
| 7. Power On/Standby button and system power LED | 8. 4LFF drive            |



#### Rear View

- |                                    |                                  |
|------------------------------------|----------------------------------|
| 1. Slot 3 PCIe3 x8 (8, 4, 1)       | 2. Slot 2 PCIe3 x8 (8, 4, 1)     |
| 3. Slot 1 PCIe3 x16 (16, 8, 4, 1)  | 4. Power supply bay (550w shown) |
| 5. Power supply power LED          | 6. Power supply power connection |
| 7. Embedded 2x1GbE network adapter | 8. UID LED                       |
| 9. Video connector                 | 10. USB3.0 connectors            |

## Overview



### Internal View

- |  |  |
|--|--|
| 1. Hot swappable fans (up to 6)  | 2. HPE Smart Storage Battery connector |
| 3. Internal USB 3.0  | 4. SATA connector                      |
| 5. Mini-SAS connectors   | 6. Power supply bay                    |
| 7. Primary PCIe riser board connector  | 8. Embedded 2x1GbE network adapter     |
| 9. TPM connector   | 10. System Battery                     |
| 11. Storage backup power connector for PCIe slots 1-2                              | 12. Secondary PCIe riser slot          |
| 13. Storage backup power connector for PCIe slot 3                                 | 14. MicroSD slot                       |
| 15. Processor heat sinks (processors with HPE Smart Socket placed below heat sink) | 16. DDR4 DIMM slots (up to 8)          |

### What's New

- Support for ClearOS – an easy to use OS with an application marketplace

## Standard Features

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

### Processor

One of the following depending on model

Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
E5-2660v3	2.6GHz	10	25MB	105W	9.6GT/s	2133
E5-2650v3	2.3GHz	10	25MB	105W	9.6GT/s	2133
E5-2650Lv3	1.8GHz	12	30MB	65W	9.6GT/s	2133
E5-2640v3	2.6GHz	8	20MB	90W	8.0GT/s	1866
E5-2630v3	2.4GHz	8	20MB	85W	8.0GT/s	1866
E5-2630Lv3	1.8GHz	8	20MB	55W	8.0GT/s	1866
E5-2623v3	3.0GHz	4	10MB	105W	8.0GT/s	1866
E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
E5-2609v3	1.9GHz	6	15MB	85W	6.4GT/s	1600
E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600
E5-2660v4	2.0GHz	14	35MB	105W	9.6GT/s	2400
E5-2650v4	2.2GHz	12	30MB	105W	9.6GT/s	2400
E5-2650Lv4	1.7GHz	14	35MB	65W	9.6GT/s	2400
E5-2640v4	2.4GHz	10	25MB	90W	8.0GT/s	2133
E5-2630v4	2.2GHz	10	25MB	85W	8.0GT/s	2133
E5-2630Lv4	1.8GHz	10	25MB	55W	8.0GT/s	2133
E5-2623v4	2.6GHz	4	10MB	85W	8.0GT/s	2133
E5-2620v4	2.1GHz	8	20MB	85W	8.0GT/s	2133
E5-2609v4	1.7GHz	8	20MB	85W	6.4GT/s	1866
E5-2603v4	1.7GHz	6	15MB	85W	6.4GT/s	1866

### Chipset

One of the following depending on model

Intel® C610 Series Chipset

Intel® E5-2600v3 Processor Family

Intel® E5-2600v4 Processor Family

**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 (Firmware HPE iLO4 2.0 or later) 2GB 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 8 (4 DIMM slots per processor, 4 channels per processor, 1 DIMMs per channel)

Maximum Capacity (LRDIMM) 256GB (8 x 32GB LRDIMM @2400MHz)

Maximum Capacity (RDIMM) 256GB (8 x 32GB LRDIMM @2400MHz)

### 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.

## Standard Features

One of the following depending on model	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.

### Expansion Slots

CPU1 PCIe riser slots	<b>Expansion Slots #</b>	<b>Technology</b>	<b>Bus Width</b>	<b>Connector Width</b>	<b>Bus Number</b>	<b>Form Factor</b>	<b>Notes</b>
	1	PCIe 3.0	X16	X16		Low profile	CPU 1
CPU1 FlexibleLOM riser slots (Option 1)	<b>Expansion Slots #</b>	<b>Technology</b>	<b>Bus Width</b>	<b>Connector Width</b>	<b>Bus Number</b>	<b>Form Factor</b>	<b>Notes</b>
	2	PCIe 3.0	x8	x8		Low profile	CPU1
	3	Flexible LOM	x8	x8		Flexible LOM	CPU 1 (Can only be used for FlexibleLOMs)

**NOTE:** This riser is mandatory for installing FlexibleLOMs.

CPU1 riser PCIe slots (Option 2)	<b>Expansion Slots #</b>	<b>Technology</b>	<b>Bus Width</b>	<b>Connector Width</b>	<b>Bus Number</b>	<b>Form Factor</b>	<b>Notes</b>
	2	PCIe 3.0	x8	x8		Low profile slot	CPU1
	3	PCIe 3.0	x8	x8		Full-height, half-length slot	CPU1

**NOTE:** Only one of the CPU1 PCIe risers can be selected in any given configuration.

**NOTE:** One of the CPU1 risers is mandatory for all configurations.

<b>Storage Controller</b> One of the following depending on model	Entry Models	HPE Dynamic Smart Array B140i Controller
	Base Models	HPE Dynamic Smart Array B140i Controller
	<b>NOTE:</b> B140i provides support for up to 4 SATA drives on DL60 Gen9 and supports RAID 0, 1, 1 + 0 & 5.	

<b>Internal Storage Devices</b> One of the following depending on model	Optical Drive	Optional: DVD-ROM, DVD-RW
	Hard Drives	None ship standard
	Hard Drive Bays	4 LFF drive bays total with Optical bay

<b>Maximum Internal Storage</b>		<b>CAPACITY</b>	<b>CONFIGURATION</b>
One of the following depending on model	Hot Plug LFF SAS	32.0TB	4 x 8TB
	Hot Plug LFF SATA	32.0TB	4 x 8TB
	Non Hot Plug LFF SATA	16TB	4 x 4TB
	Hot Plug LFF SATA SSD	15.36TB	4 x 3.84TB

<b>Power Supply</b> One of the following depending on model	HPE 550W FIO Power Supply
	HPE 900W Redundant Power Supply
	Looking for high-efficiency power solutions at an entry-level price for your ProLiant Gen9 Essential Server? HPE Entry-Level Power Supplies offer an optimized set of features with options for both redundant and non-redundant power configurations.

## Standard Features

The HPE 550W FIO Power Supply offers Silver-certified 80 Plus power efficiency (up to 89%) with an optimized set of features for non-redundant power configurations.

The HPE 900W AC 240VDC Power Input Module with Power Backplane can be configured to support power redundancy in ProLiant servers that offer only a single power supply bay, providing additional protection against power loss. With an 80 Plus Gold power efficiency rating (up to 92%), this power option helps to reduce operating expenses while protecting against trapped power capacity in the data center. Hot-plug AC power input modules allow for better serviceability with fast and easy deployment and replacement.

System Fans		Non-redundant	Redundant
One of the following depending on model	1P model	3 fans	5 fans
	2P model	4 fans	6 fans

**NOTE:** Redundant fan option kit (PN: 765513-B21) can be bought separately if redundancy is required with 1P or 2P configurations.

**NOTE:** Additional fans required with 2P configurations are included in "-B21" processor option kits.

Interfaces		
	Video	1 (Vaux Support)
	LOM Network Ports	2 x 1GbE ports
	Micro SD Slot	1 Micro SD
	<b>NOTE:</b> The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.	
	USB	4 USB ports (standard); Front: 1xUSB 2.0 std; Rear: 2xUSB 3.0 Internal: 1x USB 3.0

Operating Systems and Virtualization Software Support for ProLiant Servers	<b>Microsoft Windows Server</b>
	<b>Red Hat Enterprise Linux (RHEL)</b>
	<b>SUSE Linux Enterprise Server (SLES)</b>
	<b>VMware</b>
	<b>ClearOS</b>

**NOTE:** ClearOS allows you to build a fully functional server that is just right for you at no upfront cost. It is available via CTO preload, Intelligent Provisioning or via download. For more information on ClearOS, please visit <http://www.hpe.com/servers/clearos>.

**NOTE:** For more information on the 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](#).

## Standard Features

### Upgradeability

One of the following depending on model

Upgradeable to 2 processors (28 cores)  
Up to 8 DIMM slots  
FlexibleLOM slot for 1GbE or 10GbE or QDR/FDR InfiniBand Networking Options  
Redundant Power Supply  
Redundant Fan

### Industry Standard Compliance

ACPI 2.0b Compliant  
PCIe 3.0 Compliant  
PXE Support  
WOL Support  
Microsoft® Logo certifications  
USB 3.0 Support  
ASHRAE A3

**NOTE:** Supports A3 extended ambient temperature.

**NOTE:** Refer to technical specifications section for more details.

### Graphics

Integrated Matrox G200eH2 video standard

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

### 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.

**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

1U Rack form factor



## Standard Features

One of the following depending on model 4LFF version:  
1.69" (4.29cm) Height x 17.11" (43.46cm) Width x 23.9" (60.70cm) Length

<b>Embedded Management</b>	<b>HPE Integrated Lights-Out (HPE iLO)</b>	Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO. Learn more at <a href="http://www.hpe.com/info/ilo">http://www.hpe.com/info/ilo</a> .
	<b>UEFI</b>	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <a href="http://www.hpe.com/servers/uefi">http://www.hpe.com/servers/uefi</a> .
	<b>RESTful API</b>	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 <a href="http://www.hpe.com/info/restfulapi">http://www.hpe.com/info/restfulapi</a> .
	<b>Intelligent Provisioning</b>	Hassle free server and OS provisioning for 1 or few servers with Intelligent Provisioning. Learn more at <a href="http://www.hpe.com/servers/intelligentprovisioning">http://www.hpe.com/servers/intelligentprovisioning</a> .
	<b>Embedded Remote Support</b>	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 <a href="http://www.hpe.com/info/insightonline/explore">http://www.hpe.com/info/insightonline/explore</a> .
<b>Server utilities</b>	<b>Smart Update</b>	Optimize firmware and driver updates with Smart Update solutions including Smart Update Manager (SUM) and Service Pack for ProLiant (SPP). Learn more at <a href="http://www.hpe.com/servers/smartupdatemanager">http://www.hpe.com/servers/smartupdatemanager</a> .
	<b>HPE Systems Insight Manager (HPE SIM)</b>	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 <a href="http://www.hpe.com/servers/hpsim">http://www.hpe.com/servers/hpsim</a> .
	<b>Scripting Tool Kit and Windows PowerShell</b>	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 <a href="http://www.hpe.com/servers/proliant/stk">http://www.hpe.com/servers/proliant/stk</a> or <a href="http://www.hpe.com/servers/powershell">http://www.hpe.com/servers/powershell</a> .
	<b>RESTful Interface Tool</b>	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 <a href="http://www.hpe.com/info/resttool">http://www.hpe.com/info/resttool</a> .
	<b>HPE iLO Mobile Application</b>	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: <a href="http://www.hpe.com/info/ilo/mobileapp">http://www.hpe.com/info/ilo/mobileapp</a> .
	<b>HPE Insight Online</b>	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 <a href="http://www.hpe.com/info/insightonline/explore">http://www.hpe.com/info/insightonline/explore</a> .

Standard Features

Security	Power-on password Serial interface control Administrator's password TPM 2.0 UEFI
Warranty	<p>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.</p> <p><b>NOTE:</b> Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <a href="http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/">http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/</a>.</p>



## Optional Features

<b>Embedded Management</b>	<b>iLO Essentials</b>	HPE iLO Essentials is the preferred license for small and medium business that offers full remote server management capabilities for small and medium business via the Integrated Remote Console (IRC), virtual media, and e-mail based alerts. Learn more about HPE iLO Essentials at <a href="http://www.hpe.com/servers/iLO/essentials">http://www.hpe.com/servers/iLO/essentials</a> .
	<b>iLO Scale-Out</b>	HPE iLO Scale-Out is the preferred license built for web hosting, cloud service providers, and high performance computing data centers, managing massive scale out environments for the DL 100 and 10 series servers, not available for ML servers. This license offers sophisticated scripting tools that provides remote access through Text Console via SSH, Dynamic power capping, Email-based Alerting and proactive notifications. For more information, visit <a href="http://www.hpe.com/servers/iLO/scale-out">http://www.hpe.com/servers/iLO/scale-out</a> .
	<b>iLO Advanced</b>	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 <a href="http://www.hpe.com/servers/iloadvanced">http://www.hpe.com/servers/iloadvanced</a> .
<b>Server Management</b>	<b>HPE Insight Control</b>	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 <a href="http://www.hpe.com/info/insightcontrol">http://www.hpe.com/info/insightcontrol</a> .
<b>Rack and Power Infrastructure</b>	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 <a href="#">HPE Rack and Power Infrastructure</a> .	
<b>High Performance Clusters</b>	HPE Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPEC Server. A Cluster Platform Configurator simplifies ordering. <a href="https://www.hpe.com/us/en/solutions/hpc-high-performance-computing/hpc-software.html">https://www.hpe.com/us/en/solutions/hpc-high-performance-computing/hpc-software.html</a> .	
<b>HPC Interconnects</b>	<b>NOTE:</b> 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. Please visit the following URL to configure HPEC Clusters with InfiniBand Interconnects: <a href="https://www.hpe.com/info/hpc/solutions">https://www.hpe.com/info/hpc/solutions</a> .	
<b>Storage Software</b>	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:	
	<ul style="list-style-type: none"> <li>• <b>Data Protection and Recovery Software</b></li> </ul>	

## Optional Features

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>.

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### ClearOS

HPE and ClearCenter will help you lower the cost of building on-premise solutions without sacrificing security and ease of use. HPE ProLiant servers with ClearOS give you a simple, secure, and affordable operating system with an intuitive web based graphical user interface that provides a cloud-like experience on- premise, and an Application Marketplace with over 100 apps and growing. Whether you're starting out or scaling, you decide what applications you need and pay as you grow.

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### 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%<sup>1</sup> reduction in down time, near 100%<sup>2</sup> diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, 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

#### Basic: HPE Foundation Care NBD, three-year Support Service

HPE Foundation Care Next Business Day connects you to Hewlett Packard Enterprise during business hours for assistance on resolving issues – This service features need based next business day hardware onsite response and software call back within two hours. In addition, Collaborative software support and provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call to help resolve hardware or software problems.

<https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

#### Standard: HPE Foundation Care 24x7, three-year Support Service

HPE Foundation Care 24x7 gives you access to Hewlett Packard Enterprise 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call to help resolve hardware or software problems.

<https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

#### Optimized: 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.

### 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

## Service and Support

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>

### 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.

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### 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>

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### 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

	Entry Models	Base Models
<b>[SKU Number]</b>	830012-B21	833865-B21
<b>Model Name</b>	HPE ProLiant DL60 Gen9 E5-2603v4 8GB-R B140i 4LFF NHP SATA 550W PS Entry Server	HPE ProLiant DL60 Gen9 E5-2609v4 8GB-R B140i 4LFF SATA 550W PS Base Server
<b>Processor</b>	Intel® Xeon® E5-2603v4	Intel® Xeon® E5-2609v4
<b>Number of Processors</b>	One	
<b>Memory</b>	8GB (1x8GB Registered DIMMs STND, 2400 MHz)	8GB (1x8GB Registered DIMMs, 2400 MHz)
<b>Network Controller</b>	HPE Embedded Dual Port 361i Adapter Network Interface	
<b>Storage Controller</b>	HPE Dynamic Smart Array B140i	
<b>Hard Drive</b>	None ship standard	
<b>Internal Storage</b>	4 LFF HDD Bays (Non Hot Plug)	4 LFF HDD Bays
<b>Optical Drive Bay</b>	1; (Optional: DVD-ROM, DVD-RW)	
<b>PCI-Express Slots</b>	3 PCIe 3.0 slots	
<b>Power Supply</b>	(1) HPE 550W FIO Power Supply	
<b>Fans</b>	3 hot swap fans, non-redundant	
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional), iLO Scale-out (optional only for DL), iLO Advanced (optional)	
<b>Form Factor</b>	Rack (1U), HPE Easy Install Rails	
<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response	

<b>Country Code Key</b>	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)

<b>[Chassis]</b>	HP ProLiant DL60 Gen9 Non-hot Plug 4LFF Configure-to-order Server	HP ProLiant DL60 Gen9 4LFF Configure-to-order Server
<b>SKU Number</b>	777404-B21	777403-B21
<b>Processor</b>	2 (optional) x HPE Smart Socket Guide	
<b>DIMM Slots</b>	8 DIMM slots for RDIMM, LRDIMM DDR4 Memory	
<b>Storage Controller</b>	HPE Dynamic Smart Array B140i	
<b>PCIe</b>	3 PCIe 3.0 slots	
<b>Drive Cage</b>	4LFF Non Hot Plug	4LFF Hot Plug
<b>Network Controller</b>	HPE Embedded Dual Port 361i Adapter Network Interface	
<b>Fans</b>	3 hot swap fans, non-redundant	
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard)	
<b>USB</b>	1 front, 1 internal, 2 rear	
<b>Ears</b>	HPE Thumbscrew Ears	

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

#### HPE Processors

Select one or two 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.
- Up to 2 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 E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number.

#### 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 half of the total DIMM slots are available. When populating with two processors all DIMM slots are available.
- Depending on the memory configuration and processor model, the memory speed may run at

## Configuration Information - Factory Integrated Models

2400MHz, 2133MHz, 1866MHz or 1600MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://www.hpe.com/go/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/hppoweradvisor>.
- 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.
- 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) and Large Form Factor (LFF 3.5 in) hot plug carriers for HPE Qualified Hard Drives and Solid State Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove."

**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/go/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/go/ProLiantNICs>
- These options are upgradeable and can be changed from the original configuration after the server is shipped.



## Configuration Information - Factory Integrated Models

- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

**HPE Cooling Options** Select one or more Fan Kits from Core Options section below.

- This section may contain FIO options, please see HPE Cooling Options 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.

<b>HPE Unique Options</b>	HP DL60/120 Gen9 CPU1 Riser Kit	765508-B21
	HP DL60/120 Gen9 FlexibleLOM Riser Kit	765509-B21
	HP DL60/120 Gen9 Full Height Half Length PCIe Riser Kit	765510-B21
	HPE Legacy FIO Mode Setting	758959-B22
	<b>NOTE: UEFI is the default, this FIO part can be used for CTO to enable Legacy mode.</b>	
	HP AHCI-Enable FIO Setting	801845-B21
	<b>NOTE: This needs to be selected when Advanced Host Controller Interface mode is required on B140i controller.</b>	

<b>HPE Processors</b>	<b>E5-2600v4 series Processors</b>	
	HPE DL60 Gen9 Intel® Xeon® E5-2609v4 (1.7GHz/8-core/20MB/85W) Processor Kit	803055-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2609v4 (1.7GHz/8-core/20MB/85W) FIO Processor Kit	803055-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2603v4 (1.7GHz/6-core/15MB/85W) Processor Kit	803056-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2603v4 (1.7GHz/6-core/15MB/85W) FIO Processor Kit	803056-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2650Lv4 (1.7GHz/14-core/35MB/65W) Processor Kit	803057-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2650Lv4 (1.7GHz/14-core/35MB/65W) FIO Processor Kit	803057-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2630Lv4 (1.8GHz/10-core/25MB/55W) Processor Kit	803058-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2630Lv4 (1.8GHz/10-core/25MB/55W) FIO Processor Kit	803058-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2623v4 (2.6GHz/4-core/10MB/85W) Processor Kit	803053-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2623v4 (2.6GHz/4-core/10MB/85W) FIO Processor Kit	803053-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2620v4 (2.1GHz/8-core/20MB/85W) Processor Kit	803054-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2620v4 (2.1GHz/8-core/20MB/85W) FIO Processor Kit	803054-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2660v4 (2.0GHz/14-core/35MB/105W) Processor Kit	803049-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2660v4 (2.0GHz/14-core/35MB/105W) FIO Processor Kit	803049-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2650v4 (2.2GHz/12-core/30MB/105W) Processor Kit	803050-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2650v4 (2.2GHz/12-core/30MB/105W) FIO Processor Kit	803050-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2640v4 (2.4GHz/10-core/25MB/90W) Processor Kit	803051-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2640v4 (2.4GHz/10-core/25MB/90W) FIO Processor Kit	803051-L21
	HPE DL60 Gen9 Intel® Xeon® E5-2630v4 (2.2GHz/10-core/25MB/85W) Processor Kit	803052-B21
	HPE DL60 Gen9 Intel® Xeon® E5-2630v4 (2.2GHz/10-core/25MB/85W) FIO Processor Kit	803052-L21

## Core Options

### E5-2600v3 series Processors

HP DL60 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit	765536-B21
HP DL60 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) Processor Kit	765538-B21
HP DL60 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit	765540-B21
HP DL60 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit	765541-B21
HP DL60 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit	765542-B21
HP DL60 Gen9 Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) Processor Kit	765545-B21
HP DL60 Gen9 Intel® Xeon® E5-2623v3 (3GHz/4-core/10MB/105W) Processor Kit	779928-B21
HP DL60 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) Processor Kit	765543-B21
HP DL60 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) Processor Kit	765544-B21
HP DL60 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit	765551-B21

## HPE Memory

### Registered DIMMs (RDIMMs) for E5-2600v3 Series

**NOTE:** The following memory is supported by the E5-2600v3 series Processors.

HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726717-B21
HPE 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803026-B21
HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726718-B21
HP 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	759934-B21
HPE 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803028-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) for E5-2600v3 Series

**NOTE:** The following memory is supported by the E5-2600v3 series Processors.

HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726720-B21
HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21

### Registered DIMMs (RDIMMs) for E5-2600v4 Series

**NOTE:** The following memory is supported by the E5-2600v4 series Processor only.

HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Memory Kit	805347-B21
HPE 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Standard Memory Kit	851353-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

### Load Reduced DIMMs (LRDIMMs) for E5-2600v4 Series

**NOTE:** The following memory is supported by the E5-2600v4 series Processor only.

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Load Reduced Memory Kit	805353-B21
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## HPE Optical Drives

HPE 9.5mm SATA DVD-ROM JackBlack Gen9 Optical Drive	726536-B21
HPE 9.5mm SATA DVD-RW JackBlack G9 Optical Drive	726537-B21

## HPE Drives

### SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

HPE 600GB SAS 12G Enterprise 15K LFF (3.5in) SC 3yr Wty HDD	765424-B21
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## Core Options

HPE 450GB SAS 12G Enterprise 15K LFF (3.5in) SCC 3yr Wty HDD	737394-B21
HPE 300GB SAS 12G Enterprise 15K LFF (3.5in) SCC 3yr Wty HDD	737261-B21
<b>SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872487-B21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	818367-B21
HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872485-B21
HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	818365-B21
<b>SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	881785-B21
HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	857648-B21
HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	861594-B21
HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	819203-B21
HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD	861750-B21
HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846510-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872491-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD	861752-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	861678-B21
HPE 3TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	861693-B21
HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872489-B21
HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	861676-B21
HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	861691-B21
<b>6G SATA SC Hot Plug LFF 7.2K (3.5-inch) Standard Drives</b>	
HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	858596-B21
HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	858594-B21
<b>12G SAS Hot Plug LFF (3.5-inch) SC 512e Midline Drives</b>	
HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	857644-B21
HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	819201-B21
HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	861590-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD	861754-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846514-B21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD	861756-B21
HPE 3TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846528-B21
HPE 1TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846524-B21
<b>SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD	801888-B21
HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD	801884-B21
HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD	801882-B21

## Core Options

### 6G SATA Hot Plug LFF (3.5-inch) Read Intensive Solid State Drives

HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	877760-B21
HPE 1.6TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	869388-B21
HPE 960GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	877754-B21
HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	877748-B21

### 6G SATA Hot Plug LFF (3.5-inch) Write Intensive Solid State Drives

HPE 1.6TB SATA 6G WI LFF SCC DS SSD	872365-B21
HPE 800GB SATA 6G WI LFF SCC DS SSD	872361-B21
HPE 400GB SATA 6G WI LFF SCC DS SSD	872357-B21

### 6G SATA Hot Plug LFF (3.5in) SC Mixed Use Solid State Drives

HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	877790-B21
HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	875480-B21
HPE 1.6TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	804634-B21
HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	877784-B21
HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	875476-B21
HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	872350-B21
HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	875472-B21
HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	872346-B21

### 12G SAS Hot Plug LFF (3.5in) SC Mixed Use Solid State Drives

HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	872378-B21
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### Hard Drive Blank Kits

HPE Large Form Factor Hard Drive Blank Kit	666986-B21
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### M.2 SSD

HP DL60/120 Gen9 M.2 Cable Kit	805283-B21
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**NOTE:** M.2 drives go in PCIe slot and use B140i SATA controller only.

## 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

HPE Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
HPE Ethernet 10Gb 2-port 530T Adapter	656596-B21

## Core Options

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. See cables/options below.

### 25 Gigabit Ethernet adapters

HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter	817762-B21
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### 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 FlexFabric 10Gb 4-port 536FLR-T Adapter	764302-B21
HPE Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	779799-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 562FLR-SFP+ Adapter	727054-B21

**NOTE:** FlexibleLOM riser kit (P/N: 765509-B21) is required when any FlexibleLOM is selected.

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hpe.com/servers/ProLiantNICs>.

<b>HPE InfiniBand</b>	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	764284-B21
	<b>NOTE:</b> Please see the <a href="#">HPE InfiniBand Options for HP ProLiant and Integrity Servers QuickSpecs</a> for additional information.	

<b>HPE I/O Expansion Options</b>	HP DL60/120 Gen9 Full Height Half Length PCIe Riser Kit	765510-B21
	HP DL60/120 Gen9 FlexibleLOM Riser Kit	765509-B21
	HP DL60/120 Gen9 CPU1 Riser Kit	765508-B21

<b>HPE Power Supplies</b>	<b>HPE Entry-Level Power Supplies</b>	
	HPE 550W Standard FIO Power Supply Kit	730941-B21
	<b>NOTE:</b> This is a Factory Installed Option (FIO) only.	
	<b>NOTE:</b> Supports Silver-level efficiency (89%) with a standard C14 inlet connector. No support for HPE Power Discovery Services. Only compatible with select HPE ProLiant Gen9 Essential servers.	
	HPE 900W Standard AC 240VDC Power Input Module FIO Kit	828734-B21
	<b>NOTE:</b> This is a Factory Installed Option (FIO) only.	
	<b>NOTE:</b> RPS Backplane is mandatory to be chosen with this power input module.	
	HPE 900W Standard AC 240VDC RPS Power Backplane FIO Kit	828735-B21
	<b>NOTE:</b> This is a Factory Installed Option (FIO) only.	
	<b>NOTE:</b> This RPS backplane is mandatory to be chosen along with 900W RPS input module.	
	HPE 900W Standard AC 240VDC Power Input Module	775595-B21

Core Options

<b>NOTE:</b> This part number can only be bought standalone and is for field integration only.		
<b>NOTE:</b> RPS Backplane is mandatorily needed with this power input module.		
HPE 900W Standard AC 240VDC RPS Power Backplane		814835-B21
<b>NOTE:</b> This part number can only be bought standalone and is for field integration only.		
<b>NOTE:</b> This RPS backplane is mandatorily needed with 900W RPS input module.		
HPE 900W Standard AC 240VDC Redundant Power Supply Kit		820792-B21
<b>NOTE:</b> This Redundant Power supply kit includes 2 power supply input module and 1 backplane kit.		
<b>NOTE:</b> This part number is both factory installed option and field integrable option.		
<b>NOTE:</b> This Power supply supports both 100-240V AC and 240V DC.		
<b>NOTE:</b> Supports Gold-level efficiency (92%) with a standard C14 inlet connector. No support for HPE Power Discovery Services. Only compatible with select HPE ProLiant Gen9 Essential servers.		
<b>NOTE:</b> HPE 900W Gold (Redundant) AC 240VDC Power Input Module (775595-B21/ 828734-B21) must be used with Power Backplane (814835-B21).		
<b>NOTE:</b> Each Redundant Power Supply Backplane can support up to two (2) power input modules.		
<b>NOTE:</b> Redundant AC Power Input Modules do not share power. Redundant AC Power Input Module #1 is the primary AC Power Input Module. Redundant AC Power Input Module #2 is the backup AC Power Input Module.		
<b>NOTE:</b> 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.		
<b>NOTE:</b> 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: <a href="http://www.hpe.com/info/hppoweradvisor">http://www.hpe.com/info/hppoweradvisor</a> .		

HPE Cooling Options

HP DL60/120 Gen9 Redundant Fan Kit		765513-B21
<b>NOTE:</b> Includes two fans and is required to move from non-redundant to redundant configurations.		



## Additional Options

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

### HPE Insight Software

#### HPE Insight Control

HPE Insight Control including 1yr 24x7 Technical Support and Updates 1-server LTU	C6N27A
HPE Insight Control including 1yr 24x7 TSU E-LTU	C6N28ABE
HPE Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO LTU	C6N36A
HPE Insight Control Upgrade from iLO Advanced including 1yr 24x7 Support E-LTU	C6N38ABE

**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 24x7 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](#).

### Embedded Management

#### HPE iLO Advanced

HPE iLO Advanced including 1yr 24x7 Technical Support and Updates 1-server LTU	512485-B21
HPE iLO Advanced including 3yr 24x7 Tech Support and Updates 1-server LTU	BD505A
HPE iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
HPE iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE

#### HPE iLO Essentials

HPE iLO Essentials including 3yr 24x7 Technical Support and Updates E-LTU	E6U61ABE
HPE iLO Essentials including 3yr 24x7 Tech Support and Updates 1-server LTU	BD774A
HPE iLO Essentials including 1yr 24x7 Tech Support and Updates 1-server LTU	BD775A
HPE iLO Essentials including 1yr 24x7 Technical Support and Updates E-LTU	E6U62ABE

#### HPE iLO Scale-out

HPE iLO Scale-Out 3yr 24x7 Tech Support and Updates Flexible Quantity LTU	BD776A
HPE iLO Scale-Out 1yr 24x7 Tech Support and Updates Flexible Quantity LTU	BD778A
HPE iLO Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD776AAE
HPE iLO Scale-Out including 3yr 24x7 Tech Support and Updates Tracking LTU	BD777A
HPE iLO Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD778AAE
HPE iLO Scale-Out including 1yr 24x7 Tech Support and Updates Tracking LTU	BD779A

### 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 1-server FIO LTU	P8B31A

## Additional Options

HPE OneView w/o iLO including 3yr 24x7 Support Track 1-server LTU	P8B25A
HPE OneView Physical Media Kit LTU	E5Y37A

**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.

<b>HPE Security</b>	HPE Trusted Platform Module 2.0 Kit	745823-B21
	<b>NOTE:</b> HPE Trusted Platform Module 2.0 Option works with Gen9 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.	
	<b>NOTE:</b> HPE Gen9 servers purchased earlier may need the latest firmware update to be compatible with the TPM 2.0 Option.	
	<b>NOTE:</b> HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.	
	HPE Trusted Platform Module Option	488069-B21
	<b>NOTE:</b> The HPE Trusted Platform Module Option (488069-B21) is the TPM 1.2 version. Compatible server platforms include Gen8 and Gen9 servers.	
	<b>NOTE:</b> HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.	
	HPE 1U Security Bezel Kit	664918-B21
	<b>NOTE:</b> Quick Release Ear option kit (P/N 777324-B21) is required for installing security bezel.	
	HP DL60 Gen9 Quick Release Ear FIO Kit	777324-B21
	HP DL60 Gen9 Thumbscrew Ear FIO Kit	787218-B21

## HPE Storage Controllers

### SAS Controllers

#### HPE Smart Array Controllers

HPE Smart Array P440/2GB FBWC 12Gb 1-port Int SAS Controller	820834-B21
<b>NOTE:</b> Includes the HPE Smart Storage Battery.	
HPE Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
HPE Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
HP Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller	761872-B21

**NOTE:** Includes the HPE Smart Storage Battery.

#### HPE Smart Host Bus Adapters

HPE H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
HP H240 12Gb 2-ports Int FIO Smart Host Bus Adapter	761873-B21
HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21

#### HPE Cable Options

HP DL60/120 Gen9 4LFF Smart HBA H240 SAS Cable Kit	777385-B21
HP DL60/120 Gen9 4LFF Smart Array P440 SAS Cable Kit	777382-B21
HPE DL60/80/120 Gen9 4LFF Cable FIO Kit	777331-B21

## Additional Options

**NOTE:** One of the above cables is required to be selected depending on the combination of chassis and storage controller. Cable option kit descriptions include the right chassis and storage controller names.

**NOTE:** FIO indicates that this option is only available as a factory installable option. Please select FIO option if you want the option to be factory installed.

**NOTE:** NHPE server chassis (Mod-x) includes SATA cables required to connect drives to embedded B140i SATA controller.

### Optional Software

HPE Smart Array SR SmartCache (Single Key/Single Server) LTU D7S26A

HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU D7S27A

HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU D7S27AAE

**NOTE:** HPE SmartCache is supported when one of the supported Smart Array Controllers is installed in the server.

**NOTE:** HPE SmartCache comes standard (no licensing is required) if the HPE Smart Array P840 Controller is installed in the server.

HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU Q2F26AAE

**NOTE:** This part number can only be bought standalone and is for field integration only.

### Optional Upgrades

HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers 727258-B21

**NOTE:** This option is mandatorily required with HPE Smart Array controllers. One server can accommodate only 1 Smart Storage Battery that would suffice the requirement of all HPE Smart Array controllers.

## 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 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.

### Tape Drives

HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive BB874A

HPE StoreEver LTO-6 Ultrium 6250 External Tape Drive EH970A

HPE StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive EH958B

HPE StoreEver LTO-4 Ultrium 1760 SAS External Tape Drive EH920B

### SAS Rack-Mount Tape Solutions

HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit N7P37A

HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit N7P36A

HPE StoreEver LTO-6 Ultrium 6250 Tape Drive in a 1U Rack Mount Kit COL99A

HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit COH27A

HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit COH28A

HPE StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in a 1U Rack Mount Kit EJ014B

HPE StoreEver MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit BL540B

HPE StoreEver LTO-4 Ultrium 1760 SAS (1) in a 1U Rack Mount Kit EH946C

HPE StoreEver 1U SAS Rack Mount Kit AE459B

### HPE DAT Autoloader

HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 SAS Tape Autoloader N7P35A

HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 FC Tape Autoloader N7P34A

## Additional Options

HPE StoreEver 1/8 G2 LTO-6 Ultrium 6250 Fibre Channel Tape Autoloader	COH19A
HPE StoreEver 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader	BL536B
<b>HPE MSL2024 Tape Library</b>	
HPE StoreEver MSL2024 0-drive Tape Library	AK379A
<b>HPE MSL4048 Tape Library</b>	
HPE StoreEver MSL4048 0-drive Tape Library	AK381A
<b>HPE StoreEver MSL6480</b>	
HPE StoreEver MSL6480 Scaleable Expansion Module	QU626A
HPE StoreEver MSL6480 Scalable Base Module	QU625A

### HPE Disk Backup

#### HPE RDX Removable Disk Backup System

HP RDX+ 1TB External Backup System	B7B69B
HP RDX+ 500GB External Backup System	B7B66B
HPE RDX 2TB USB3.0 External Disk Backup System	E7X53B
HPE RDX+ 3TB USB 3.0 External Disk Backup System	P9L72A
HPE RDX 3TB USB 3.0 Internal Disk Backup System	P9L71A
HPE RDX 4TB USB 3.0 External Disk Backup System	Q2R33A
HPE D3700 Enclosure	QW967A
HPE D3600 Enclosure	QW968A
HPE RDX+ External Docking System	C8S07B

**NOTE:** For the complete range of RDX drives and media see:

<http://www.hpe.com/storage/storeever>. For hardware and software compatibility of HPE disk backup products see: <http://www.hpe.com/storage/spock>.

**NOTE:** Please see the [HPE RDX Removable Disk Backup System QuickSpecs](#) for additional part numbers, technical specifications, and additional information.

#### HPE StoreOnce Backup systems

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

### HPE Storage Options

#### 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

#### 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

## Additional Options

### Converged Network Adapter

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

### HPE Data Center Racks

#### HPE Advanced Series Racks

HPE 48U 600mm x 1075mm Advanced Pallet Rack	H6J87A
HPE 48U 600mm x 1075mm Advanced Shock Rack	H6J88A
HPE 42U 600mm x 1075mm Advanced Pallet Rack	H6J65A
HPE 42U 600mm x 1075mm Advanced Shock Rack	H6J66A
HPE 42U 600mm x 1200mm Advanced Pallet Rack	H6J67A
HPE 42U 600mm x 1200mm Advanced Shock Rack	H6J68A
HPE 36U 600mm x 1075mm Advanced Pallet Rack	H6J77A
HPE 36U 600mm x 1075mm Advanced Shock Rack	H6J78A
HPE 22U 600mm x 1075mm Advanced Pallet Rack	H6J83A
HPE 22U 600mm x 1075mm Advanced Shock Rack	H6J84A
HPE 14U 600mm x 1075mm Advanced Shock Rack	H6J82A

**NOTE:** Please see the [HPE Advanced Series Racks QuickSpecs](#) for information on additional racks options and rack specifications.

#### HPE Enterprise Series Racks

HP 47U 600mm x 1075mm Enterprise Pallet Rack	BW911A
HP 47U 600mm x 1075mm Enterprise Shock Rack	BW912A
HP 47U 600mm x 1200mm Enterprise Pallet Rack	BW913A
HP 47U 600mm x 1200mm Enterprise Shock Rack	BW914A
HPE 42U 600mm x 1075mm Enterprise Pallet Rack	BW903A
HP 42U 600mm x 1075mm Enterprise Shock Rack	BW904A
HP 42U 600mm x 1200mm Enterprise Pallet Rack	BW907A
HP 42U 600mm x 1200mm Enterprise Shock Rack	BW908A
HP 42U 800mm x 1075mm Enterprise Pallet Rack	BW917A
HP 42U 800mm x 1075mm Enterprise Shock Rack	BW918A

**NOTE:** Please see the [HPE Enterprise Series Racks QuickSpecs](#) for information on additional racks options and rack specifications.

### HPE Power Distribution Units (PDUs)

#### HPE Basic Power Distribution Units (PDU)

HPE 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
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**NOTE:** Please see the [HPE Basic Power Distribution Units \(PDU\) QuickSpecs](#) for information on additional options and product specifications.

#### HPE Metered Power Distribution Units (PDU)

HPE Metered 4.9kVA/L6-30P 24A/208V Outlets (12) C13/Horizontal NA/JP PDU	D9N44A
HPE Metered 3.6kVA/60320 C20 Detachable 16A/230V Outlets (16) C13/Vertical WW PDU	D9N45A
HPE Metered 4.9kVA/L6-30P 24A/208V Outlets (20) C13 (4) C19/Vertical NA/JP PDU	D9N47A
HPE Metered 7.3kVA/60309 32A 3-wire/230V Outlets (20) C13 (4) C19/Vertical INTL PDU	D9N48A

## Additional Options

HPE Metered 3Ph 8.6kVA/L15-30P 24A/208V Outlets (18) C13 (3) C19/Vertical NA/JP PDU	D9N51A
HPE Metered 3Ph 8.6kVA/L21-30P 24A/120-208V Outlets (18) C13 (3) C19 (3) 5-20R/Vertical NA/JP PDU	D9N53A
HPE Metered 3Ph 11kVA/60309 5-wire 16A/230V Outlets (18) C13 (3) C19/Vertical INTL PDU	D9N55A
HPE Metered 7.3kVA/60309 32A 3-wire/230V Outlet (32) C13 (4) C19/Vertical INTL PDU	D9N50A
HPE Metered 3Ph 11kVA/60309 5-wire 16A/230V Outlets (30) C13 (3) C19/Vertical INTL PDU	D9N57A
HPE Metered 3Ph 14.4kVA/CS8365C 40A/208V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	D9N58A
HPE Metered 3Ph 16.6kVA/60309 32A-30A 5-wire 24A/230V Outlets (30) C13 (3) C19/Vertical NA/JP PDU	D9N61A
HPE Metered 3Ph 16.6kVA/60309 32A-30A 5-wire 24A/230V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	D9N62A
HPE Metered 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (24) C13 (3) C19/Vertical NA/JP PDU	D9N54A
HPE Metered 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	D9N59A
HPE Metered 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	G9Z07A
HPE Metered 3Ph 19.9kVA/L22-30P 24A/277V Outlets (30) RF-203P-HP/Vertical NA PDU	D9N63A
HPE Metered 3Ph 22kVA/60309 5-wire 32A/230V Outlet (30) C13 (3) C19/Vertical INTL PDU	D9N56A
HPE Metered 3Ph 22kVA/60309 5-wire 32A/230V Outlets (12) C13 (12) C19/Vertical INTL PDU	D9N60A
HPE Metered 3Ph 22kVA/60309 5-wire WT 32A/230V Outlets (12) C13 (12) C19/Vertical INTL PDU	G9Z08A
HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A

**NOTE:** Please see the [HPE Metered Power Distribution Units \(PDU\) QuickSpecs](#) for information on additional options and product specifications.

### 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 3Ph 17.3kVA/60309 30A 5-wire 24A/240V (6) C19/Horizontal NA/JP PDU	AF901A
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

## Additional Options

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 Metered and Switched Power Distribution Units (PDU)

HPE Metered Switched 2.8kVA/L5-30P 24A/120V Outlets (24) 5-20R /Vertical NA/JP PDU	H8B48A
HPE Metered Switched 3.6kVA/60320 C20 Detachable 16A/230V Outlets (7) C13 (1) C19/Vertical WW PDU	H8B49A
HPE Metered Switched 4.9kVA/L6-30P 24A/208V Outlets (20) C13 (4) C19/Vertical NA/JP PDU	H8B50A
HPE Metered Switched 7.3kVA/60309 3-wire 32A/230V Outlets (20) C13 (4) C19/Vertical INTL PDU	H8B51A
HPE Metered Switched 3Ph 8.6kVA/L15-30P 24A/208V Outlets (18) C13 (6) C19/Vertical NA/JP PDU	H8B52A
HPE Metered Switched 3Ph 8.6kVA/L21-30P 24A/208V Outlets (20)C13 (3)C19 (1)5-20R/Vertical NA/JP PDU	H8B53A
HPE Metered Switched 3Ph 11kVA/60309 5-wire 16A/230V Outlets (21) C13 (3) C19/Vertical INTL PDU	H8B54A
HPE Metered Switched 3Ph 14.4kVA/CS8365C 40A/208V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	H8B55A
HPE Metered Switched 3Ph 17.3kVA/60309 4-wire 48A/208V Outlets (12) C13 (12) C19/Vertical NA/JP PDU	H8B56A

**NOTE:** Please see the [HPE Metered and Switched Power Distribution Units \(PDU\) QuickSpecs](#) for information on additional options and product specifications.

**NOTE:** To learn more, please visit the [HPE Uninterruptible Power Systems \(UPS\) web page](#).

## HPE Rack Mount Consoles, KVM Switches, and Keyboards

### HPE Location Discovery Services

HPE Location Discovery Services LCD8500 Kit	TL052A
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**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
HP LCD8500 1U FR Rackmount Console Kit	AF633A



## Additional Options

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

### 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
HPE KVM Console USB/Display Port Interface Adapter	AF654A
HPE KVM Console USB 8-pack Interface Adapter	AF655A
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

**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

### Rail Kits

HP 1U Small Form Factor Easy Install Rail Kit	734807-B21
HPE 1U Cable Management Arm for Easy Install Rail Kit	734811-B21

### HPE Other Options

## Additional Options

HPE Rack LED Light Kit	BW939A
HP Kit LCD 1.83m Latch Display Port Cable	G7T29A
HP ConvergedSystem Door Branding Kit	TK815A
HP ConvergedSystem Rack Light Kit	TK816A
HP ConvergedSystem Rack Side Panel 1075mm Kit	TK817A

### HPE Uninterruptible Power Systems (UPS)

#### HPE DirectFlow Three Phase UPS Power Unit (1U UPS)

HPE R12000 DirectFlow - 1U Rackmount Uninterruptible Power System	G9Y75A
HPE R12000 DirectFlow - POD 1U Rackmount Uninterruptible Power System	AF478A
HPE RP12000/3 12000VA Three Phase INTL 6U Rackmount Uninterruptible Power System	AF437A

#### Input/Output Module Options for 1U UPS

HPE 32A 400-415 Volt Three Phase INTL R12000 DirectFlow UPS IEC309 Input/Output Module	AF488A
HPE 30A 400-415 Volt Three Phase NA R10000 DirectFlow UPS IEC309 Input/Output Module	AF489A
HPE 32A 380 Volt Three Phase China R12000 DirectFlow UPS Unterminated Input/Output Module	AF490A
HPE 30A 480 Volt Three Phase NA R12000 DirectFlow UPS L22-30 Input/Output Module	AF491A
HPE 30A 480 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module	AF492A
HPE 30A 400-415 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module	G9Y76A

#### Power Unit (2U UPS)

HPE R18000 DirectFlow - 2U Rackmount Uninterruptible Power System	AF479A
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#### Input/Output Module Options for 2U UPS

HPE 32A 400-415 Volt Three Phase INTL R18000 DirectFlow UPS IEC309 Input/Output Module	AF483A
HPE 30A 380 Volt Three Phase China R18000 DirectFlow UPS Unterminated Input/Output Module	AF485A
HPE 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF486A
HPE 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF487A
HPE 30A 400 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	D9Q02A
HPE 30A 400-415V Three Phase NA R18000 DirectFlow UPS 1:1 IEC309 Input/Output Module	AF484A

**NOTE:** All Input/Output Modules support dual output outlets except the AF484A.

HPE DirectFlow UPS Management Card	AF493A
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#### Battery Pack Options

HPE DirectFlow UPS - 1U Rackmount Lithium-ion Battery Pack	AF480A
HPE DirectFlow UPS - 3U Rackmount VRLA Battery Pack	AF482A
HPE WW DirectFlow Secondary Battery Cable	AF497A

**NOTE:** Please see the **HPE DirectFlow Three Phase Uninterruptible Power System QuickSpecs** for information on additional options and product specifications.

## Additional Options

### 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

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 USB and SD Options

### HPE Enterprise Mainstream Flash Media Kits for Memory Cards

HPE 32GB microSD Mainstream Flash Media Kit 700139-B21

HPE 8GB microSD Enterprise Mainstream Flash Media Kit 726116-B21

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

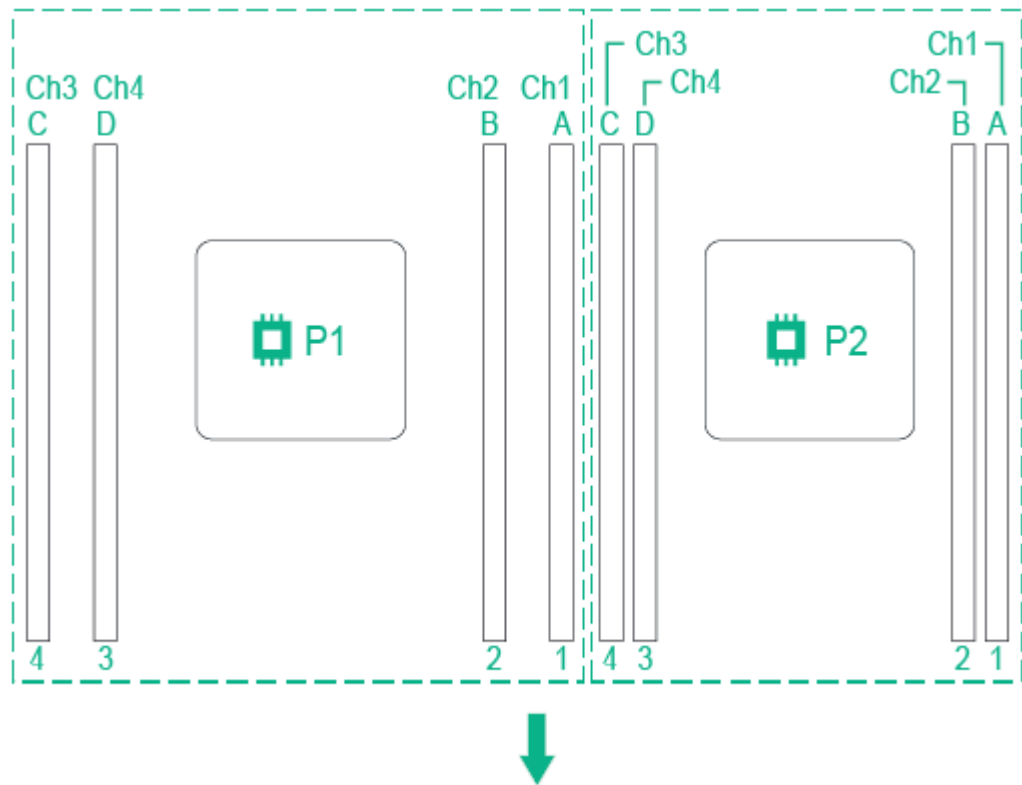
HPE Dual 8GB microSD Enterprise Midline USB Kit 741279-B21

Additional Options

HPE Support Services	<b>Installation &amp; Start-up Services</b>	
	HPE Installation ML/DL Series 10 Service	U7WZ5E
	HPE Startup ML/DL Series 10 Service	U7WZ7E
	<b>Foundation Care</b>	
	HPE 3 year Foundation Care Next business day DL60 Gen9 Service	U7VX4E
	HPE 3 year Foundation Care Next business day with DMR DL60 Gen9 Service	U7VX5E
	HPE 3 year Foundation Care Next business day with CDMR DL60 Gen9 Service	U7VX6E
	HPE 3 year Foundation Care 24x7 DL60 Gen9 Service	U7VX7E
	HPE 3 year Foundation Care 24x7 wDMR DL60 Gen9 Service	U7VX8E
	HPE 3 year Foundation Care 24x7 wCDMR DL60 Gen9 Service	U7VX9E
	<b>Proactive Care</b>	
	HPE 3 year Proactive Care 24x7 DL60 Gen9 Service	U7WA4E
	HPE 3 year Proactive Care 24x7 with DMR DL60 Gen9 Service	U7WA5E
	HPE 3 year Proactive Care 24x7 with CDMR DL60 Gen9 Service	U7WA6E

## Memory

### Memory Population guidelines



#### General Memory Population Rules and Guidelines:

- . Install DIMMs only if the corresponding processor is installed.
- . If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- . To maximize performance, it is recommended to balance the total memory capacity between all installed processors and to load the channels similarly whenever possible.
- . When two processors are installed, balance the DIMMs across the two processors.
- . White DIMM slots denote the first slot to be populated in a channel.
- . Do not mix RDIMMs or LRDIMMs.
- . Quad rank RDIMMs are not supported in HPE ProLiant DL60 Gen9 servers.
- . DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- . The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- . The maximum memory capacity is a function of the memory type and number of installed processors.
- . To realize the performance memory capabilities listed in this document, HPE SmartMemory is required.

## Memory

### Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E5-2600v3 Series Processor Family

Memory Bandwidth and Capacity							
[DIMM Type]	Registered DIMMs (RDIMMs)					Load Reduced (LRDIMMs)	
HPE SKU P/N	726717-B21	726718-B21	759934-B21	726719-B21	728629-B21	726720-B21	726722-B21
DIMM Rank	Single Rank	Single Rank	Dual Rank	Dual Rank	Dual Rank	Dual Rank	Quad Rank
DIMM Capacity	4GB	8GB	8GB	16GB	32GB	16GB	32GB
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]	512M	1G	512M	1G	1G	2G	2G
DRAM Width [bit]	x8	x4	x8	x4	x4	x4	x4
DRAM Density	4Gb	4Gb	4Gb	4Gb	4Gb	8Gb	8Gb
CAS Latency	15-15-15	15-15-15	15-15-15	15-15-15	15-15-15	15-15-15	15-15-15
DIMM Native Speed (MT/s)	2133	2133	2133	2133	2133	2133	2133
SLOTS THAT CAN BE POPULATED							
8 slot servers	8	8	8	8	8	8	8
MAXIMUM CAPACITY (GB)							
	32	64	64	128	256	128	256
POPULATED DIMM SPEED (MT/s)							
1 DIMM Per Channel	2133	2133	2133	2133	2133	2133	2133
2 DIMM Per Channel	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3 DIMM Per Channel	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**NOTE:** DL60 has 1 DIMM per channel and hence 2 DIMMs and 3 DIMMs per channel memory speeds are not applicable on DL60.

### Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E5-2600v4 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
DIMM Rank	Single Rank	Single Rank	Dual Rank	Dual Rank	Dual Rank
DIMM Capacity	8GB	16GB	16GB	32GB	32GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V

## Memory

DRAM Depth [bit]	1G	2G	1G	2G	2G
DRAM Width [bit]	x8	x4	x4	x4	x4
DRAM Density	8Gb	8Gb	4Gb	8Gb	8Gb
CAS Latency	17-17-17	17-17-17	17-17-17	17-17-17	17-17-17
DIMM Native Speed (MT/s)	2400	2400	2400	2400	2400
<b>SLOTS THAT CAN BE POPULATED</b>					
8 slot servers	8	8	8	8	8
<b>MAXIMUM CAPACITY (GB)</b>					
	64	128	128	256	256
<b>POPULATED DIMM SPEED (MT/s)</b>					
1 DIMM Per Channel	2400	2400	2400	2400	2400
2 DIMM Per Channel	n/a	n/a	n/a	n/a	n/a
3 DIMM Per Channel	n/a	n/a	n/a	n/a	n/a

**NOTE:** DL60 has 1 DIMM per channel and hence 2 DIMMs and 3 DIMMs per channel memory speeds are not applicable on DL60.

### DIMM slot and configuration diagram

#### DIMM slot and configuration diagrams

##### Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.
- When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F.
- When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A, CPU1-B, CPU2-B, CPU1-C, CPU2-C.

CPU #1 IS PROCESSOR ON RIGHT - LOOKING FROM FRONT OF SERVER

CPU 1			CPU 2	
	Slot #	Population order	Slot #	Population order
Chnl 1	1	A1	1	A1
CPU 1			CPU 2	
	Slot #	Population order	Slot #	Population order
Chnl 2	2	B2	2	B2
CPU 1			CPU 2	
	Slot #	Population order	Slot #	Population order
Chnl 4	3	D3	3	D3
CPU 1			CPU 2	
	Slot #	Population order	Slot #	Population order
Chnl 3	4	C4	4	C4



## Memory

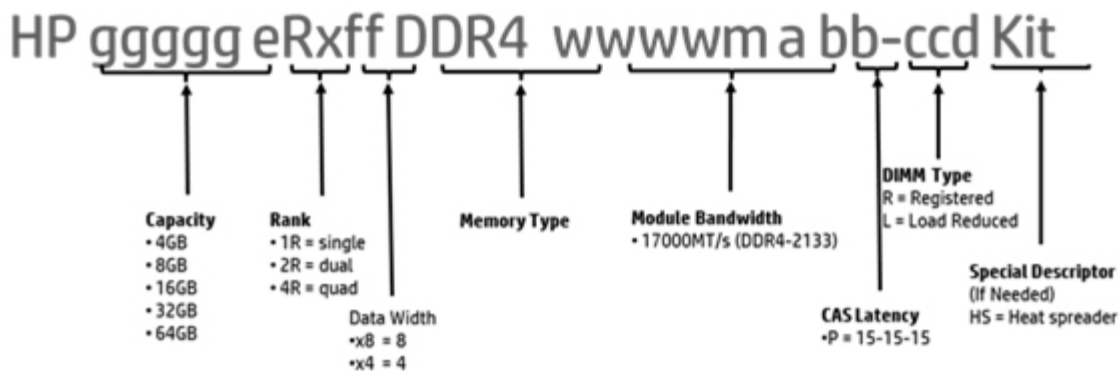
Memory Speed by Processor Model	Processor Models	Supported Memory Speeds
	E5-2603v3, E5-2609v3	1600MT/s
	E5-2620v3, E5-2630v3, E5-2640v3, E5-2630Lv3, E5-2623v3	1866MT/s
	E5-2650v3, E5-2660v3, E5-2650Lv3	2133MT/s
	E5-2609v4, E5-2603v4	1866MT/s
	E5-2630Lv4, E5-2623v4, E5-2620v4, E5-2640v4, E5-2630v4	2133MT/s
	E5-2650Lv4, E5-2660v4, E5-2650v4	2400MT/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
	E5-2609v4, E5-2609v3, E5-2603v4	8GB (1x8GB)	232GB (7x32GB, 1x8GB)	256GB (8x32GB)
	E5-2603v3	4GB (1x4GB)	228GB (7x32GB, 1x4GB)	256GB (8x32GB)

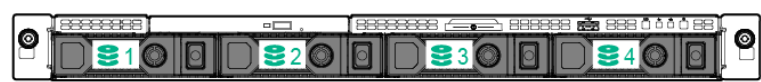
### DDR4 memory options part number decoder

**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



Storage



1-4      4 x LFF SATA/SAS/SSD Hot Pluggable Hard Drives Bays

## Technical Specifications

System Unit	Dimensions (H x W x D)	4 LFF - 1.69 x 17.11 x 23.9 inches (4.29 x 43.46 x 60.70 cm)		
	Weight (approximate)	Maximum:	37.44 lb (17kg)	
		(all hard drives, power supplies, and processors installed)		
		Minimum:	19.82 lb (9kg)	
		(one hard drive, power supply, and processor installed)		
	Input Requirements (for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies)	Rated Line Voltage	100 to 240 VAC	
		Rated Input Current	For 550W Power Supply:	
			6.7 A (at 100 VAC)	
			3.3 A (at 100 VAC)	
		Rated Input Frequency	47 to 63 Hz	
			Rated Input Power	For 550 W Power Supply:
BTU Rating	Maximum	< 670 W (at 100 VAC)		
		< 660 W (at 200 VAC)		
		For 550 W Power Supply:		
Power Specifications		2201 BTU/hr (at 100 VAC)		
		2153 BTU/hr (at 200 VAC)		
		To review typical system power ratings use the Power Advisor which is available via the online tool located at: <a href="http://www.hpe.com/info/hppoweradvisor">http://www.hpe.com/info/hppoweradvisor</a> - Click on the system of interest. Example: DL60 Gen9- Follow the instructions of the next screens.		
Power Supply Output	Rated Steady-State Power	For 550 W Power Supply:		
		550 W (at 100 VAC)		
		550 W (at 200 VAC)		
	Maximum Peak Power	For 550 W Power Supply:		
550 W (at 100 VAC)				
System Inlet Temperature	Standard Operating Support	550 W (at 200 VAC)		
		10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change 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 3048 m (10,000 ft). The approved hardware		

## Technical Specifications

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.

**NOTE:** Supports A3 extended ambient.

<b>Relative Humidity</b>	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.
(non-condensing)	Non-operating	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
<b>Altitude</b>	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 457.2 m/min (1500 ft/min).
<b>Acoustic Noise</b>	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).	
	<b>Idle</b>	
	LWAd	Entry 5.7 B Base 5.0 B
	LpAm	Entry 33 dBA Base 37 dBA
	<b>Operating</b>	
	LWAd	Entry 5.8 B Base 5.5 B
	LpAm	Entry 38 dBA Base 40 dBA
<b>Emissions Classification (EMC)</b>	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

**NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

## Technical Specifications

<b>HPE Dynamic Smart Array B140i Controller</b>	<b>Number of PCI links</b>	Four
	<b>PCI link rate</b>	4Gb/s
	<b>Storage protocol support</b>	SATA
	<b>SAS/SATA peak data transfer rate</b>	6Gb/s
	<b>Number of SAS/SATA links</b>	10 links
	<b>SAS/SATA connectivity</b>	2x4 connectors; 2x1 connectors
	<b>Expander support</b>	No
	<b>Drives supported (max)</b>	Up to 10 Internal Drives
	<b>RAID support</b>	0, 1, 10, 5 SATA
	<b>Software management</b>	HPE SSA, SMH, SIM
	<b>Warranty</b>	Server warranty
	<b>HPE Secure Encryption license</b>	Not Supported
	<b>HPE SmartCache License</b>	Not Supported
	<b>HPE Smart Storage Administrator</b>	Supported
<b>HPE Embedded Dual Port 361i Adapter</b>	<b>Network Interface</b>	10Base-T/100Base-TX/1000Base-TX
	<b>Compatibility</b>	IEEE 802.3 10Base-T
		IEEE 802.3ab 1000Base-T
		IEEE 802.3u 100Base-TX
		IEEE 1588, IEEE 802.1AS
		IEEE 802.3az - Energy Efficient Ethernet (EEE)
	<b>Data Transfer Method</b>	PCI Express v 2.0, 5.0 GT/s, two lanes (x2)
	<b>Controller</b>	Intel I350 Powerville
	<b>Network Transfer Rate</b>	10Base-T (Half-Duplex) 10 Mb/s per port, 40 Mb/s combined
		10Base-T (Full-Duplex) 20 Mb/s per port, 80 Mb/s combined
		100Base-TX (Half-Duplex) 100 Mb/s per port, 400 Mb/s combined
		100Base-TX (Full-Duplex) 200 Mb/s per port, 800 Mb/s combined
		1000Base-TX (Half and Full-Duplex) 1000 Mb/s per port, 4000 Mb/s combined
	<b>Connector</b>	Two RJ-45
	<b>Cable Support</b>	10 Base-T Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000 Base-TX Category 5 or higher UTP; up to 328 ft (100 m)
<b>Environment-friendly Products and Approach</b>	<b>End-of-life Management and Recycling</b>	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

## Technical Specifications

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
4-Dec-2017	From Version 24 to 25	Added	Added new HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD.
25-Sep-2017	From Version 23 to 24	Added	Added new SSD options. Added new Storage options.
		Changed	Core Options and Additional Options were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
11-Jul-2017	From Version 22 to 23	Changed	Operating Systems and Virtualization Software Support for ProLiant Servers section was revised.
5-Jun-2017	From Version 21 to 22	Added	Added new Solid State Drives options.
8-May-2017	From Version 20 to 21	Added	Added support for ClearOS.
		Changed	Operating Systems and Virtualization Software Support for ProLiant Servers and HPE Drives were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
27-Mar-2017	From Version 19 to 20	Added	Added new Hard Drives.
17-Feb-2017	From Version 18 to 19	Changed	HPE Storage Options section was revised.
13-Feb-2017	From Version 17 to 18	Added	Added new HDD and SSD offering to the HPE Drives section.
		Changed	HPE Processors, HPE Drives, and HPE InfiniBand were revised.
		Removed	SKUs 777394-B21 and 785836-B21 were removed from the Pre-configured Models section.
28-Nov-2016	From Version 16 to 17	Added	Added new Hard Drives offering.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
28-Oct-2016	From Version 15 to 16	Removed	Obsolete Hard Drives were removed from the QuickSpecs.
26-Sep-2016	From Version 14 to 15	Added	Added new 10TB SATA Hot Plug LFF Drives offering.
		Changed	HPE Power Supplies and Memory were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
20-Jun-2016	From Version 13 to 14	Changed	The HPE I/O Expansion Options section was revised.
6-Jun-2016	From Version 12 to 13	Added	Added new HDD offering to the HPE Drives section. New options added to the HPE Disk Backup and HPE Storage Options.
		Changed	Memory section was revised.
8-Apr-2016	From Version 11 to 12	Changed	HPE Processors section was revised.
31-Mar-2016	From Version 10 to 11	Added	Added new HPE Smart Memory 2400 MHz memory, support for Intel Xeon E5-2600v4 processor, new HPE Trusted Platform Module (TPM) 2.0, and new 900W AC/ 240VDC power supply.
		Changed	Memory, Maximum Internal Storage, Power Supply, Upgradeability, HPE Server UEFI/Legacy ROM, Embedded Management, HPE Security, Service and Support, Pre-configured Models, HPE Memory, and

## Summary of Changes

			HPE Power Supplies sections were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
16-Feb-2016	From Version 9 to 10	Added	New HDD offering was added to HPE Drives.
		Changed	HPE Power Supplies, HPE Data Center Racks, and HPE Power Distribution Units (PDUs) were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
1-Dec-2015	From Version 8 to 9	Added	New options added to HPE Tape Backup, HPE Disk Backup, HPE Rack Mount Consoles, and KVM Switches, and Keyboards.
		Changed	On System Management Chipset, Memory, Maximum Internal Storage, Embedded Management, and Server utilities were revised.  Product images were updated.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
23-Oct-2015	From Version 7 to 8	Changed	Memory and HPE Security were revised.
28-Sep-2015	From Version 6 to 7	Added	Added new 6Gb SATA Solid State Drives.  Added new HPE OneView management software.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
17-Aug-2015	From Version 5 to 6	Added	New Solid State Drives offering was added to Core Options.
		Changed	Maximum Internal Storage was revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
1-Jun-2015	From Version 4 to 5	Added	New Hard Drives were added to Core Options.  New options added to HPE Power Supplies.  New HPE OneView LTUs added to HPE Converged Infrastructure Management Software.  New RDX+ external backup options were added.
		Changed	Core Options and Additional Options were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
24-Apr-2015	From Version 3 to 4	Added	Added 813534-B21 and 813535-B21 to HPE Power Supplies.
30-Mar-2015	From Version 2 to 3	Added	New Hard Drives offering.  Optional Software added to HPE Storage Controllers.
		Changed	HPE Memory, HPE Disk Storage Systems, HPE USB and SD Options, HPE Storage Controllers, and HPE Disk Storage Systems were updated.
9-Feb-2015	From Version 1 to 2	Added	Added HPE Insight Software, HPE Disk Backup.  Added new HPE Drives and new G4 UPS models.
		Changed	HPE Memory, HPE Drives, HPE Tape Backup, HPE Rack Mount Consoles, KVM Switches, and Keyboards, and HPE Uninterruptible Power Systems (UPS) sections were revised.



## Summary of Changes



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

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