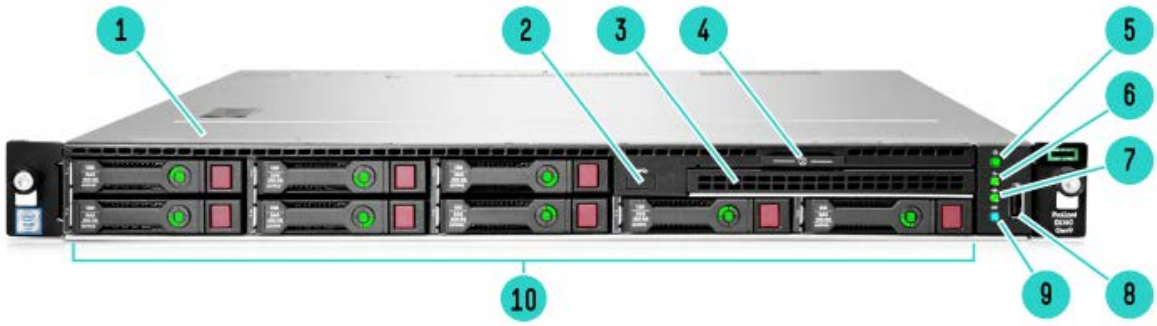
## Overview

## HPE ProLiant DL160 Generation9 (Gen9)

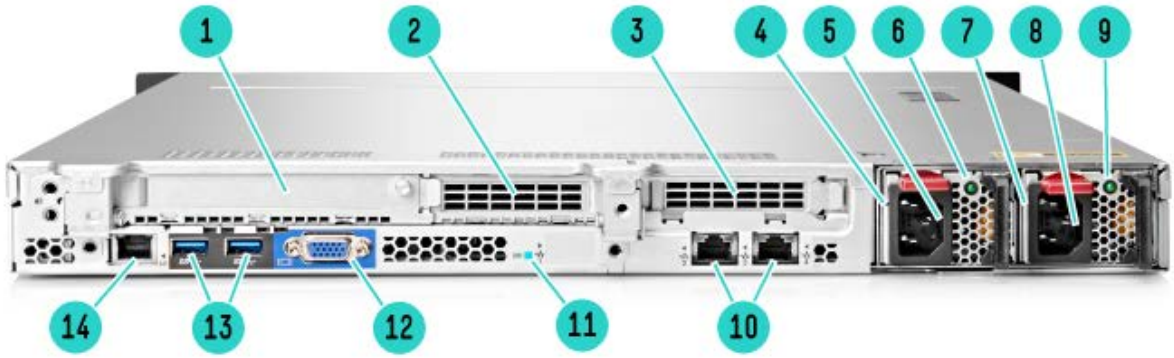
The HPE ProLiant DL160 Gen9 is the next generation 2P 1U value server replacing DL360e Gen8. It delivers the right balance of performance, storage, reliability, manageability and efficiency in a dense and compact chassis, to meet the needs of a diverse set of customers- from SMBs and service providers with a wide range of workloads - from general purpose IT to the New Style of IT, such as, Big Data and Cloud.




**Front View**

1. Access Panel
2. Optional USB3.0 (optional with 8SFF only)
3. Optical disk drive bay
4. Serial label pull tab
5. Power On/Standby button and system power LED
6. Health LED
7. NIC status LED
8. USB 2.0 connector
9. UID button/LED
10. 8SFF drive cage

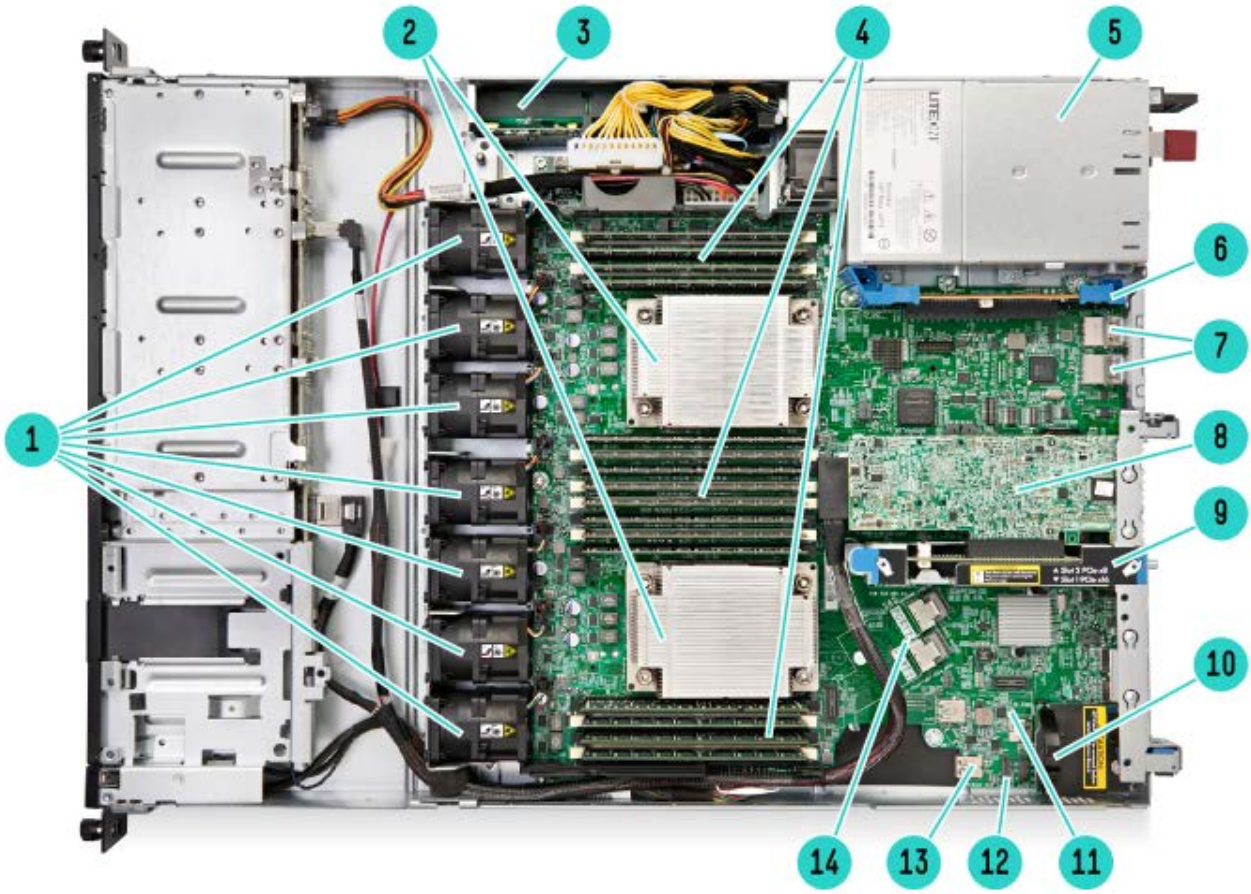
## Overview




### Rear View

1. PCIe3 slot 1 (primary, associated with processor 1)
2. PCIe3 slot 2 (primary, associated with processor 1)
3. PCIe3 slot 3 (secondary, associated with processor 2)
4. Power supply 1 bay
5. Power supply 1 Power Connector (Optional)
6. Power supply 1 LED (Optional)
7. Power supply 2 bay
8. Power supply 2 power connector
9. Power Supply 2 LED
10. Embedded 2x1GbE network adapter
11. Unit ID LED
12. Video Connector
13. USB3.0 connectors
14. Dedicated iLO connector (optional)

## Overview




**Internal View**

1. Hot Swappable fans (up to 7)
2. Processor heat sinks (processors with HPE Smart Sockets placed below heat sinks)
3. HPE Smart Storage Battery (optional)
4. DDR4 DIMM slots (up to 16). Shown fully populated in 16 Slots (8 per Processor)
5. Entry level power supply bay (1x900W shown)
   **NOTE:** RPS (with one module) shown in the picture above.
6. Connector for secondary PCIe riser (associated with CPU2)
8. HPE Smart Array P440 controller (optional)
7. Embedded 2x1GbE network adapter
10. Dedicated iLO module connector (optional)
9. Primary PCIe riser (2 PCIe3 slots associated with CPU1)
12. Internal SATA ports (one for ODD and another one reserved)
11. MicroSD card slot
14. Embedded B140i SATA controller (2x SATA ports for up to eight drives)
13. Internal USB 3.0 connector

## 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**
Up to two 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 |
| E5-2695v4 | 2.1GHz | 18 | 45MB | 120W | 9.6GT/s | 2400 |
| E5-2683v4 | 2.1GHz | 16 | 40MB | 120W | 9.6GT/s | 2400 |
| E5-2680v4 | 2.4GHz | 14 | 35MB | 120W | 9.6GT/s | 2400 |
| 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 | 16 | (8 DIMM slots per processor, 4 channels per processor, 2 DIMMs per channel) |
| Maximum Capacity (LRDIMM) | 1TB | (16 x 64GB LRDIMM @2400MHz) |
| Maximum Capacity (RDIMM) | 512GB | (16 x 32GB RDIMM @2400MHz) |

## Standard Features

**Memory Protection**
One of the following depending on model

| | |
|---|---|
| Advanced ECC | Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip. |
| Online Spare | Memory online spare mode detects a rank that is degrading and switches operation to the spare rank. |
| Mirroring mode | Memory mirroring inter-socket stores a copy of memory with dynamic failover in case of failure. Once a DIMM in a mirrored set is detected as failed, the mirror failover uses its mirrored DIMM. |

**Network Controller** HPE Ethernet 1Gb 2-Port 361i Adapter

**Expansion Slots**

CPU1 PCIe riser slots

| Expansion Slots # | Technology | Bus Width | Connector Width | Form Factor | Notes |
|---|---|---|---|---|---|
| 1 | PCIe 3.0 | x16 | x16 | Full-height, half-length slot | Processor 1 |
| 2 | PCIe 3.0 | x8 | x8 | Low profile slot | Processor 1 |

**NOTE:** Bus Width data indicates the number of physical electrical lanes running to the connector.

CPU 1 FlexibleLOM riser slots

| Expansion Slots # | Technology | Bus Width | Connector Width | Form Factor | Notes |
|---|---|---|---|---|---|
| 1 | Flexible LOM | x8 | x8 | Flexible LOM | Processor 1 (can only be used for FlexibleLOMs) |
| 2 | PCIe 3.0 | x8 | x8 | Low profile slot | Processor 1 |

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

CPU2 riser PCIe slots

| Expansion Slots # | Technology | Bus Width | Connector Width | Form Factor | Notes |
|---|---|---|---|---|---|
| 3 | PCIe 3.0 | x16 | x16 | Low profile slot | Processor 2 |

**NOTE:** When populating slots on CPU2 riser, second processor must be installed.
**NOTE:** Only one of the CPU1 PCIe risers can be selected in any given configuration.
**NOTE:** One of the CPU 1 risers is mandatory for all configurations.

**Storage Controller**
One of the following depending on model

| | |
|---|---|
| Entry Models | HPE Dynamic Smart Array B140i Controller |
| | HPE H240 FIO Smart Host Bus Adapter |
| Base Models | HPE H240 FIO Smart Host Bus Adapter |
| Performance Models | HPE Smart Array P440/4G Controller |

**NOTE:** B140i provides support for up to 8 SATA drives, data transmission speeds up to 6Gb/s and supports RAID 0, 1 & 5.
**NOTE:** H240 provides support for up to 8 SAS/SATA drives, data transmission speeds up to 12Gb/s and supports RAID 0, 1 & 5.
**NOTE:** P440 provides support for up to 8 SAS/SATA drives, data transmission speeds up to 12Gb/s.

**Internal Storage Devices**
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 |
| | 8 SFF drive bays total with Optical Bay |
| | **NOTE:** HPE ProLiant DL160 Gen9 server offers both SFF and LFF versions in |

## Standard Features

CTO. The Optical Drive bay is available with both models.
**NOTE:** Drive cage changes are not supported.
**NOTE:** All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HPE SFF Gen9 Hard Drive Blank Kit or P/N 666986-B21: HPE LFF Gen9 Hard Drive Blank Kit. These part numbers for single HDD blanks below are also provided should the customer require replacement HDD blanks for their server.

**Maximum Internal Storage**
One of the following depending on model

| | CAPACITY | CONFIGURATION |
|---|---|---|
| Hot Plug SFF SAS | 16.0TB | 8 x 2TB |
| Hot Plug SFF SATA | 16.0TB | 8 x 2TB |
| Hot Plug LFF SAS | 40.0TB | 4 x 10TB |
| Hot Plug LFF SATA | 40.0TB | 4 x 10TB |
| Hot Plug SFF SAS SSD | 30.72TB | 8 x 3.84TB |
| Hot Plug SFF SATA SSD | 30.72TB | 8 x 3.84TB |
| Hot Plug LFF SATA SSD | 15.36TB | 4 x 3.84TB |
| Non Hot Plug LFF SATA | 16TB | 4 x 4TB |

**Power Supply**
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.

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**
One of the following depending on model

| | Non-redundant | Redundant |
|---|---|---|
| 1P model | 3 fans | 4 fans |
| | **Non-redundant** | **Redundant** |
| 2P model | 6 fans | 7 fans |

**NOTE:** Redundant fan option kit (PN: 725587-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 | 2x1GbE network ports |
| HPE iLO Remote Management Network Port | 1 GbE (Optional) |
| USB | 4 USB ports (standard); 1 (optional)<br>Front: 1xUSB 2.0 std; 1xUSB3.0 optional (with 8SFF models only)<br>Rear: 2xUSB 3.0 |

## Standard Features

| | |
|---|---|
| | Internal: 1xUSB 3.0 |
| Micro SD Slot | 1 Micro SD |
| | **NOTE:** The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered. |
| **Operating Systems and Virtualization Software Support for ProLiant Servers** | **Microsoft Windows Server**<br>**Red Hat Enterprise Linux (RHEL)**<br>**SUSE Linux Enterprise Server (SLES)**<br>**VMware**<br>**ClearOS**<br>**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**<br>**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** |
| **Upgradeability**<br>One of the following depending on model | Upgradeable to 2 processors (36 Cores)<br>**NOTE:** Processor upgrade from E5-2600v3 to E5-2600v4 is supported for processors up to 105W.<br>Up to 16 DIMM slots available<br>**NOTE:** To take advantage of DIMMs 9-16, second processor must be installed.<br>FlexibleLOM slot for 1GbE or 10GbE or QDR/FDR InfiniBand Networking Options<br>Optional 2nd CPU riser slot (x16, low profile)<br>**NOTE:** 2nd CPU must be installed if this riser is configured.<br>Up to 8 SFF Hard Drive Bays; or 4 LFF Hard Drive Bays<br>Redundant Power Supply<br>Redundant Fan<br>Optical Drive Bay (8 SFF/4 LFF) |
| **Industry Standard Compliance** | ACPI 2.0b Compliant<br>PCIe 3.0 Compliant<br>PXE Support<br>WOL Support<br>Microsoft® Logo certifications<br>USB 3.0 Support<br>ASHRAE A3<br>**NOTE:** Supports A3 extended ambient temperature.<br>**NOTE:** Refer to technical specifications section for more details. |
| **Graphics** | Integrated Matrox G200eH2 video standard<br>• 1280 x 1024 (32 bpp)<br>• 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. |

## Standard Features

**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**<br>One of the following depending on model | 1U Rack form factor<br>8SFF and 4LFF version:<br>1.7" (4.3cm) Height x 17.1" (43.5cm) Width x 23.9" (60.8cm) Length | |
| **Embedded Management** | **HPE Integrated Lights-Out (HPE iLO)** | Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO. Learn more at **http://www.hpe.com/info/ilo**. |
| | **UEFI** | Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at **http://www.hpe.com/servers/uefi**. |
| | **RESTful API** | RESTful API for iLO 4 is Redfish 1.0 conformance for simplified server management such as configuration and maintenance tasks based on modern industry standards. Learn more at **http://www.hpe.com/info/restfulapi**. |

## Standard Features

| | | |
|---|---|---|
| | **Intelligent Provisioning** | Hassle free server and OS provisioning for 1 or few servers with Intelligent Provisioning. Learn more at **http://www.hpe.com/servers/intelligentprovisioning**. |
| | **Embedded Remote Support** | The Hewlett Packard Enterprise embedded remote support, when used with Insight Online direct connect or HPE Insight Remote Support, allows HPE ProLiant servers to transmit hardware events directly to Hewlett Packard Enterprise or a Hewlett Packard Enterprise Authorized Partner for automated phone home support. Learn more at **http://www.hpe.com/info/insightonline/explore**. |
| **Server utilities** | **Smart Update** | Optimize firmware and driver updates with Smart Update solutions including Smart Update Manager (SUM) and Service Pack for ProLiant (SPP). Learn more at **http://www.hpe.com/servers/smartupdatemanager**. |
| | **HPE Systems Insight Manager (HPE SIM)** | HPE SIM allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers, and also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at **http://www.hpe.com/servers/hpsim**. |
| | **Scripting Tool Kit and Windows PowerShell** | Provision 1 to many servers using your own scripts to discover and deploy them with Scripting Tool Kit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at **http://www.hpe.com/servers/proliant/stk** or **http://www.hpe.com/servers/powershell**. |
| | **RESTful Interface Tool** | RESTful Interface tool is a scripting tool to provision using RESTful API for iLO 4 to discover and deploy servers at scale. Learn more at **http://www.hpe.com/info/resttool**. |
| | **HPE iLO Mobile Application** | Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: **http://www.hpe.com/info/ilo/mobileapp**. |
| | **HPE Insight Online** | HPE Insight Online, available at no additional cost as part of your Hewlett Packard Enterprise warranty or contractual support agreement with Hewlett Packard Enterprise, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at **http://www.hpe.com/info/insightonline/explore**. |
| **Security** | Power-on password<br>Serial interface control<br>Administrator's password<br>TPM 2.0<br>TPM 2.0<br>**NOTE:** TPM 1.2 is not upgradable to TPM 2.0.<br>UEFI | |

## Standard Features

**Warranty**

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

**NOTE:** Server Warranty includes 3-Year Parts, 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: **http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/**.

## Optional Features

| | | |
|---|---|---|
| **Embedded Management** | **iLO Essentials** | 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 **http://www.hpe.com/servers/iLO/essentials**. |
| | **iLO Scale-Out** | 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 **http://www.hpe.com/servers/iLO/scale-out**. |
| | **iLO Advanced** | HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. Learn more about HPE iLO Advanced at **http://www.hpe.com/servers/iloadvanced**. |
| **Server Management** | **HPE Insight Control** | HPE Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see **http://www.hpe.com/info/insightcontrol**. |
| **Rack and Power Infrastructure** | HPE Rack and Power Infrastructure products and services create highly efficient and intelligent solutions for existing or new IT data centers. HPE Rack and Power infrastructure solutions – rack infrastructure, power protection and management, performance optimized data centers (PODs) – are the foundation you are looking for to help secure your long-term IT success. These products are designed to help you react to changes in the industry. They deliver efficient, easy-to-use capabilities to manage, monitor, deploy and provision infrastructure from entry to enterprise. As an industry leader, Hewlett Packard Enterprise is uniquely positioned to address the key concerns of power, cooling, cable management and system access. Learn more at **HPE Rack and Power Infrastructure**. | |
| **High Performance Clusters** | HPE 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. **https://www.hpe.com/us/en/solutions/hpc-high-performance-computing/hpc-software.html**. | |
| **HPC Interconnects** | **NOTE:** High Performance Computing (HPC) interconnect technologies are available for this server under the HPE Cluster Platform product portfolio. These high-speed interconnects are fully supported by Hewlett Packard Enterprise when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPEC Clusters with InfiniBand Interconnects: **https://www.hpe.com/info/hpc/solutions**. | |
| **Storage Software** | Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than Hewlett Packard Enterprise storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.<br>Storage software that gets the job done:<br>• **Data Protection and Recovery Software** | |

## 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**.

| | |
|---|---|
| **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. |
| **One Config Simple (SCE)** | SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact Hewlett Packard Enterprise Customer Business Center or an Authorized Partner for assistance. **http://ocs.ext.hpe.com/**. |

## Service and Support

**HPE Support Services**

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support for need for your IT and business.

**Connect your devices**

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

**1- IDC 2 – HP CSC reports 2014 - 2015**

**Recommended Support**

**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.

**HPE Education Services**

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

**HPE Support Center**

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers.

Learn more **http://www.hpe.com/support/hpesc**

The Hewlett Packard Enterprise Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.
HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Support Service or Hewlett Packard Enterprise contractual support agreement.

**NOTE:** *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 |
|---|---|---|---|
| **[SKU Number]** | 830570-B21 | 830571-B21 | 830572-B21 |
| **Model Name** | HPE DL160 Gen9 E5-2603v4 1P 8GB-R B140i 4LFF 550W PS Entry Server | HPE DL160 Gen9 E5-2603v4 1P 8GB-R H240 8SFF 550W PS Entry Server | HPE DL160 Gen9 E5-2620v4 1P 16GB-R H240 8SFF 550W PS Base Server |
| **Processor** | Intel® Xeon® E5-2603v4 | | Intel® Xeon® E5-2620v4 |
| **Number of Processors** | One | | |
| **Memory** | 8GB (1x8GB Registered DIMMs, 2400 MHz) **NOTE:** Due to processor limitation, these DDR4 DIMMs will operate at 1866 MHz in this model. | | 16GB (1x16GB Registered DIMMs, 2400 MHz) **NOTE:** Due to processor limitation, these DDR4 DIMMs will operate at 2133 MHz in this model. |
| **Network Controller** | HPE Embedded Dual Port 361i Adapter Network Interface | | |
| **Storage Controller** | HPE Dynamic Smart Array B140i | HPE H240 FIO Smart Host Bus Adapter | HPE H240 FIO Smart Host Bus Adapter |
| **Hard Drive** | None ship standard | | |
| **Internal Storage** | 4 LFF HDD Bays | 8 SFF HDD Bays | 8 SFF HDD Bays |
| **Optical Drive Bay** | 1; (Optional: DVD-ROM, DVD-RW) | | |
| **Optical Drive** | Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive) | | |
| **PCI-Express Slots** | 2 Standard (1-FH/HL, 1-LP) PCIe 3.0 | | |
| **Power Supply** | (1) HPE 550W FIO Power Supply | | |
| **Fans** | 3 hot swap fans, non-redundant | | 4 hot swap fans, redundant |
| **Management** | iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional), iLO Scale-out (optional only for DL), iLO Advanced (optional) | | |
| **Form Factor** | Rack (1U), HPE Easy Install Rails | | |
| **Warranty** | Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. | | |

| | | |
|---|---|---|
| **Country Code Key** | xx1 = B21 | Worldwide |
| | xx1 = 291 | Japan |
| | xx1 = AA1 | PRC |

## Configuration Information - Factory Integrated Models

This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an HPE approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

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

| [Chassis] | HP ProLiant DL160 Gen9 Hot Plug 8SFF Configure-to-order Server | HP ProLiant DL160 Gen9 Hot Plug 4LFF Configure-to-order Server | HP ProLiant DL160 Gen9 Non-hot Plug 4LFF Configure-to-order Server |
|---|---|---|---|
| **SKU Number** | 754520-B21 | 754521-B21 | 754522-B21 |
| **Processor** | 2 (optional) x HPE Smart Socket Guide | | |
| **DIMM Slots** | 16 DIMM slots for RDIMM, LRDIMM DDR4 Memory | | |
| **Storage Controller** | HPE Dynamic Smart Array B140i | | |
| **PCIe** | Optional (None ship standard) | | |
| **Drive Cage** | 8SFF Hot Plug | 4LFF Hot Plug | 4LFF Non Hot Plug |
| **Network Controller** | HPE Embedded Dual Port 361i Adapter Network Interface | | |
| **Fans** | 3 hot swap fans, non-redundant | | |
| **Management** | iLO Management (standard), Intelligent Provisioning (standard) | | |
| **USB** | 1 front, 1 internal, 2 rear | | |
| **Ears** | 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

## Configuration Information - Factory Integrated Models

with two processors all DIMM slots are available.
- Depending on the memory configuration and processor model, the memory speed may run at 2400MHz, 2133MHz, 1866MHz or 1600MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: **http://www.hpe.com/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**.
- By RPS Enablement Kit power options, mixing of power supplies in the same RPS enablement kit 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 drives from Core Options-HPE Drives 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**.

## Configuration Information - Factory Integrated Models

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

**HPE Storage Controllers**

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

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

**HPE 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 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.

| | | |
|---|---|---|
| **HPE Unique Options** | HP DL180 Gen9 Dedicated iLO Management Port Kit | 725581-B21 |
| | HP DL160 Gen9 CPU1 Riser FIO Kit | 725585-B21 |
| | **NOTE:** This riser enables two PCIe3 slots. Either of this riser kit and FlexibleLOM riser kit (781844-B21) is mandatory for all configurations. | |
| | HPE DL160 Gen9 Low Profile PCIe CPU2 Riser Kit | 725586-B21 |
| | **NOTE:** CPU 2 is required if this riser is to be installed, enables one PCIe3 slot. | |
| | HP DL160 Gen9 Quick Release Ear FIO Kit | 774609-B21 |
| | **NOTE:** This option kit is required for Security Bezel. | |
| | HP DL160 Gen9 Front USB 3.0 Enablement Kit | 725594-B21 |
| | **NOTE:** This kit is required to enable a front USB3.0 port on SFF models only. | |
| | HP DL160 Gen9 FlexibleLOM Enablement Kit | 781844-B21 |
| | **NOTE:** This riser kit is required when FlexibleLOM is selected. | |
| | HPE Legacy FIO Mode Setting | 758959-B22 |
| | **NOTE:** UEFI is the default, this FIO part can be used for CTO to enable Legacy mode. | |
| | HP AHCI-Enable FIO Setting | 801845-B21 |
| | **NOTE:** This needs to be selected when Advanced Host Controller Interface mode is required on B140i controller. | |
| **HPE Processors** | **E5-2600v4 series Processors** | |
| | HPE DL160 Gen9 Intel® Xeon® E5-2609v4 (1.7GHz/8-core/20MB/85W) Processor Kit | 801288-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2609v4 (1.7GHz/8-core/20MB/85W) FIO Processor Kit | 801288-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2603v4 (1.7GHz/6-core/15MB/85W) Processor Kit | 801289-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2603v4 (1.7GHz/6-core/15MB/85W) FIO Processor Kit | 801289-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2650Lv4 (1.7GHz/14-core/35MB/65W) Processor Kit | 801290-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2650Lv4 (1.7GHz/14-core/35MB/65W) FIO Processor Kit | 801290-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2630Lv4 (1.8GHz/10-core/25MB/55W) Processor Kit | 801291-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2630Lv4 (1.8GHz/10-core/25MB/55W) FIO Processor Kit | 801291-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2620v4 (2.1GHz/8-core/20MB/85W) Processor Kit | 801287-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2620v4 (2.1GHz/8-core/20MB/85W) FIO Processor Kit | 801287-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2623v4 (2.6GHz/4-core/10MB/85W) Processor Kit | 801301-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2623v4 (2.6GHz/4-core/10MB/85W) FIO Processor Kit | 801301-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2660v4 (2.0GHz/14-core/35MB/105W) Processor Kit | 801283-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2660v4 (2.0GHz/14-core/35MB/105W) FIO Processor Kit | 801283-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2650v4 (2.2GHz/12-core/30MB/105W) Processor Kit | 801284-B21 |

## Core Options

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|---|---|---|
| | HPE DL160 Gen9 Intel® Xeon® E5-2650v4 (2.2GHz/12-core/30MB/105W) FIO Processor Kit | 801284-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2640v4 (2.4GHz/10-core/25MB/90W) Processor Kit | 801285-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2640v4 (2.4GHz/10-core/25MB/90W) FIO Processor Kit | 801285-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2680v4 (2.4GHz/14-core/35MB/120W) Processor Kit | 825494-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2680v4 (2.4GHz/14-core/35MB/120W) FIO Processor Kit | 825494-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2695v4 (2.1GHz/18-core/45MB/120W) Processor Kit | 825498-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2695v4 (2.1GHz/18-core/45MB/120W) FIO Processor Kit | 825498-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2683v4 (2.1GHz/16-core/40MB/120W) Processor Kit | 825500-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2683v4 (2.1GHz/16-core/40MB/120W) FIO Processor Kit | 825500-L21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2630v4 (2.2GHz/10-core/25MB/85W) Processor Kit | 801286-B21 |
| | HPE DL160 Gen9 Intel® Xeon® E5-2630v4 (2.2GHz/10-core/25MB/85W) FIO Processor Kit | 801286-L21 |
| | **E5-2600v3 series Processors** | |
| | HP DL160 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) Processor Kit | 733943-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit | 763235-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit | 733935-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit | 733937-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit | 733939-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) Processor Kit | 763241-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2623v3 (3GHz/4-core/10MB/105W) Processor Kit | 779836-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) Processor Kit | 733931-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) Processor Kit | 733933-B21 |
| | HP DL160 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit | 763237-B21 |
| | **NOTE:** Processor upgrade from E5-2600v3 to E5-2600v4 is supported for processors up to 105W. Please refer to DL160 Gen9 User Guide for more details. | |
| **HPE Memory** | **Registered DIMMs (RDIMMs) for E5-2600v4 Series** | |
| | HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Memory Kit | 805347-B21 |
| | HP 16GB (1x16GB) Single Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit | 805349-B21 |
| | HPE 16GB (1x16GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit | 836220-B21 |
| | HP 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit | 805351-B21 |
| | **NOTE:** These Memory DIMMs are supported only on E5-2600v4 processors. | |
| | **Registered DIMMs (RDIMMs) for E5-2600v3 Series** | |
| | HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit | 726717-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 |
| | 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 |
| | **NOTE:** These Memory DIMMs are supported only on E5-2600v3 processors. | |

## Core Options

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|---|---|---|
| | **Load Reduced DIMMs (LRDIMMs) for E5-2600v4 Series** | |
| | HPE 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Load Reduced Memory Kit | 805353-B21 |
| | HPE 64GB (1x64GB) Quad Rank x4 DDR4-2400 CAS-17-17-17 Load Reduced Memory Kit | 805358-B21 |
| | **NOTE:** These Memory DIMMs are supported only on E5-2600v4 processors. | |
| | **Load Reduced DIMMs (LRDIMMs) for E5-2600v3 Series** | |
| | 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 |
| | HP 64GB (1x64GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit | 726724-B21 |
| | **NOTE:** These Memory DIMMs are supported only on E5-2600v3 processors. | |
| | **HPE Standard Memory for E5-2600v4 Series** | |
| | HPE 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Standard Memory Kit | 851353-B21 |
| | **NOTE:** These Memory DIMMs are supported only on E5-2600v4 processors. | |
| | **HPE Standard Memory for E5-2600v3 Series** | |
| | HPE 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit | 803026-B21 |
| | HPE 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit | 803028-B21 |
| | **NOTE:** These Memory DIMMs are supported only on E5-2600v3 processors. | |
| **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 SFF (2.5-inch) Enterprise (ENT) Drives** | |
| | HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 872479-B21 |
| | HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD | 781518-B21 |
| | HPE 900GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD | 785069-B21 |
| | HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 872477-B21 |
| | HPE 600GB SAS 12G Enterprise 10K SFF (2.5in ) SC 3yr Wty HDD | 781516-B21 |
| | HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 872475-B21 |
| | HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD | 785067-B21 |
| | HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 870759-B21 |
| | HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 870757-B21 |
| | HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD | 759212-B21 |
| | HPE 450GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD | 759210-B21 |
| | HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 870753-B21 |
| | HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD | 759208-B21 |

## Core Options

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|---|---|
| **SAS Hot Plug SFF (2.5-inch) Enterprise 512e Drives** | |
| HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 881457-B21 |
| HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 872481-B21 |
| HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e HDD | 791034-B21 |
| HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 870765-B21 |
| HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 870763-B21 |
| HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e HDD | 748387-B21 |
| **SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives** | |
| HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD | 832514-B21 |
| **SAS Hot Plug SFF (2.5-inch) Midline 512e Drives** | |
| HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD | 765466-B21 |
| HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD | 765464-B21 |
| **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 |
| 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 |
| **SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives** | |
| 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 Digitally Signed Firmware HDD | 872487-B21 |
| HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD | 818367-B21 |
| HPE 3TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD | 846528-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 |
| HPE 1TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD | 846524-B21 |
| **SAS Hot Plug LFF (3.5-inch) Midline 512e Drives** | |
| HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD | 819201-B21 |
| HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD | 861754-B21 |
| **SAS Hot Plug LFF (3.5-inch) 512e Performance Drives** | |
| HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD | 861756-B21 |
| **SAS Hot Plug LFF (3.5-inch) Midline 512e Helium Drives** | |
| 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 Helium 512e Digitally Signed Firmware HDD | 861590-B21 |
| **SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives** | |
| HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD | 655710-B21 |
| **SATA Hot Plug SFF (2.5-inch) Midline 512e Drives** | |
| HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD | 765455-B21 |

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| HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD | 765453-B21 |
| **SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives** | |
| 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 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 |
| **SATA Hot Plug LFF (3.5-inch) Midline 512e Drives** | |
| 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 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD | 861752-B21 |
| **SATA Hot Plug LFF (3.5-inch) Midline 512e Helium Drives** | |
| 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 |
| **SATA Non-hot Plug LFF 7.2K (3.5-inch) Standard Drives** | |
| 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 |
| **SSD Selection**<br>To streamline the configuration process for HPE ProLiant Gen9 servers and to provide the best product availability, HPE recommends SSDs from the list located here: **http://www.hpe.com/products/recommend**. | |
| **12G SAS Hot Plug SFF (2.5-inch) Read Intensive Solid State Drives** | |
| HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 870144-B21 |
| HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872394-B21 |
| HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875330-B21 |
| HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872392-B21 |
| HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875326-B21 |
| HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872390-B21 |
| HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875313-B21 |
| HPE 480GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875311-B21 |

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| **12G SAS Hot Plug SFF (2.5-inch) Write Intensive Solid State Drives** | |
| HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873357-B21 |
| HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873355-B21 |
| HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873351-B21 |
| **12G SAS Mixed Use Hot Plug SFF (2.5-inch) Solid State Drives** | |
| HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873367-B21 |
| HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872386-B21 |
| HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873365-B21 |
| HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872382-B21 |
| HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873363-B21 |
| HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872376-B21 |
| HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873359-B21 |
| HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872374-B21 |
| **12G SAS Mixed Use Hot Plug LFF (3.5-inch) Solid State Drives** | |
| HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD | 872378-B21 |
| **6G SATA Hot Plug SFF (2.5-inch) Write Intensive Solid State Drives** | |
| HPE 1.6TB SATA 6G WI SFF SC DS SSD | 872363-B21 |
| HPE 800GB SATA 6G WI SFF SC DS SSD | 872359-B21 |
| HPE 400GB SATA 6G WI SFF SC DS SSD | 872355-B21 |
| **6G SATA Hot Plug SFF (2.5-inch) Read Intensive Solid State Drives** | |
| HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877764-B21 |
| HPE 3.8TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 868830-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877758-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 871770-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 868826-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875513-B21 |
| HPE 1.6TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 869386-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877752-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 869384-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD | 871768-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 868822-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875511-B21 |
| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877746-B21 |
| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 869378-B21 |

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| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 868818-B21 |
| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875509-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877740-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 869376-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 868814-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875503-B21 |
| HPE 150GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 869374-B21 |
| **Read Intensive - 6G SATA - M.2 - Solid State Drives** | |
| HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD | 875500-B21 |
| HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD | 875319-B21 |
| HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD | 875498-B21 |
| HPE 150GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD | 875317-B21 |
| **6G SATA Hot Plug SFF (2.5-inch) SC Mixed Use Solid State Drives** | |
| HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877788-B21 |
| HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872352-B21 |
| HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875478-B21 |
| HPE 1.6TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD | 804631-B21 |
| HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877782-B21 |
| HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872348-B21 |
| HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875474-B21 |
| HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877776-B21 |
| HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872344-B21 |
| HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875470-B21 |
| HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 880295-B21 |
| HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875483-B21 |
| **Mixed Use - 6G SATA - M.2 - Solid State Drives** | |
| HPE 960GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD | 875492-B21 |
| HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD | 875490-B21 |
| HPE 240GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD | 875488-B21 |
| **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 (3.5-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 |

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| | HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD | 877748-B21 |
| | HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD | 869380-B21 |
| | **6G SATA Hot Plug LFF (3.5-inch) 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 |
| | **M.2 SSD** | |
| | HPE 340GB SATA 6G Read Intensive 3yr Wty M.2 Kit | 835563-B21 |
| | HPE 340GB SATA 6G Read Intensive 3yr Wty Dual M.2 Kit | 835565-B21 |
| | HPE Universal SATA HHHL 3yr Wty M.2 Kit | 878783-B21 |
| | **NOTE:** M.2 drives go in PCIe slots and use B140i SATA controller only. | |
| | **Hard Drive Blank Kits** | |
| | HPE Large Form Factor Hard Drive Blank Kit | 666986-B21 |
| | HPE Small Form Factor Hard Drive Blank Kit | 666987-B21 |
| **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 |
| | 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.<br>**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 |
| | HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter | 817753-B21 |
| | **FlexibleLOM Adapters** | |
| | HPE Ethernet 1Gb 4-port 331FLR Adapter | 629135-B22 |
| | HPE Ethernet 1Gb 4-port 366FLR Adapter | 665240-B21 |
| | HPE FlexFabric 10Gb 2-port 533FLR-T Adapter | 700759-B21 |

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| | HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter | 700751-B21 |
| | HPE FlexFabric 10Gb 4-port 536FLR-T Adapter | 764302-B21 |
| | HPE FlexFabric 10Gb 2-port 556FLR-T Adapter | 794525-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 |
| | HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter | 817749-B21 |
| | **NOTE:** FlexibleLOM riser kit (P/N: 765509-B21) is required when any FlexibleLOM is selected.<br>**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: **http://www.hpe.com/servers/ProLiantNICs**. | |
| **HPE InfiniBand** | HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter | 764284-B21 |
| | HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter | 764285-B21 |
| | **NOTE:** Please see the **HPE InfiniBand Options for HP ProLiant and Integrity Servers QuickSpecs** for additional information. | |
| **HPE I/O Expansion Options** | HP DL160 Gen9 CPU1 Riser FIO Kit<br>**NOTE:** This riser enables two PCIe3 slots and either of FlexibleLOM riser kit (PN: 781844-B21) or CPU1 riser FIO kit is required in every configuration. | 725585-B21 |
| | HPE DL160 Gen9 Low Profile PCIe CPU2 Riser Kit<br>**NOTE:** CPU 2 is required if this riser is to be installed, enables one PCIe3 slot. | 725586-B21 |
| | HP DL160 Gen9 FlexibleLOM Enablement Kit<br>**NOTE:** This enablement kit is required when FlexibleLOM is selected. | 781844-B21 |
| **HPE Power Supplies** | **HPE Entry-Level Power Supplies** | |
| | HPE 550W Standard FIO Power Supply Kit<br>**NOTE:** This is a Factory Installed Option (FIO) only.<br>**NOTE:** 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. | 730941-B21 |
| | HPE 900W Standard AC 240VDC Power Input Module FIO Kit<br>**NOTE:** This is a Factory Installed Option (FIO) only.<br>**NOTE:** RPS Backplane is mandatory to be chosen with this power input module. | 828734-B21 |
| | HPE 900W Standard AC 240VDC RPS Power Backplane FIO Kit<br>**NOTE:** This is a Factory Installed Option (FIO) only.<br>**NOTE:** This RPS backplane is mandatory to be chosen along with 900W RPS input module. | 828735-B21 |
| | HPE 900W Standard AC 240VDC Power Input Module<br>**NOTE:** This part number can only be bought standalone and is for field integration only.<br>**NOTE:** RPS Backplane is mandatorily needed with this power input module. | 775595-B21 |
| | HPE 900W Standard AC 240VDC RPS Power Backplane<br>**NOTE:** This part number can only be bought standalone and is for field integration only.<br>**NOTE:** This RPS backplane is mandatorily needed with 900W RPS input module. | 814835-B21 |
| | HPE 900W Standard AC 240VDC Redundant Power Supply Kit<br>**NOTE:** This Redundant Power supply kit includes 2 power supply input module and 1 backplane kit. | 820792-B21 |

## Core Options

**NOTE:** This part number is both factory installed option and filed integrable option.
**NOTE:** This Power supply supports both 100-240V AC and 240V DC.
**NOTE:** 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.
**NOTE:** HPE 900W Gold (Redundant) AC 240VDC Power Input Module (775595-B21/ 828734-B21) must be used with Power Backplane (814835-B21/ 828735- B21).
**NOTE:** Each Redundant Power Supply Backplane can support up to two (2) power input modules.
**NOTE:** 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.
**NOTE:** 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.
**NOTE:** 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**.

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| **HPE Cooling Options** | HP DL160 Gen9 Redundant Fan Kit | 725587-B21 |
| | **NOTE:** This kit includes one fan and is required for enabling fan redundancy with 1P and 2P 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.

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| **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.<br>**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.<br>**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**.<br>**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 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 3yr 24x7 Technical Support and Updates E-LTU | E6U61ABE |
| | 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 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 1yr 24x7 Tech Support and Updates Flexible Quantity LTU | BD778A |
| | 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 Physical Media Kit LTU | E5Y37A |
| | **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 Track 1-server LTU | P8B25A |

## Additional Options

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|---|---|---|
| | 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 |
| | **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. | |
| **High Performance Clusters** | **HPE Cluster Management Utility** | |
| | HPE Insight Cluster Management Utility 1yr 24x7 Flexible LTU | QL803B |
| | HPE Insight Cluster Management Utility 3yr 24x7 Flexible LTU | BD476A |
| | HPE Insight Cluster Management Utility Media | BD477A |
| | **NOTE:** These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement. | |
| | **NOTE:** For additional license kits please see the **HPE Insight Cluster Management Utility QuickSpecs**. | |
| **HPE PCIe Workload Accelerator Options** | **HPE Read Intensive PCIe Workload Accelerator** | |
| | HPE 6.4TB Read Intensive-2 FH/HL PCIe Workload Accelerator | 831739-B21 |
| | HPE 3.2TB Read Intensive-2 HH/HL PCIe Workload Accelerator | 831737-B21 |
| | HPE 1.6TB Read Intensive-2 HH/HL PCIe Workload Accelerator | 831735-B21 |
| | HPE 1.3TB Read Intensive-2 HH/HL PCIe Workload Accelerator | 831733-B21 |
| | **Light Endurance (LE) PCIe Workload Accelerators** | |
| | HPE 5.2TB FH/HL Light Endurance (LE) PCIe Workload Accelerator | 775672-B21 |
| | **NOTE:** Please see the **HPE PCIe Workload Accelerators for ProLiant Servers QuickSpecs** for Technical Specifications and additional information. | |
| **HPE Security** | HPE 1U Security Bezel Kit | 664918-B21 |
| | **NOTE:** Quick Release Ear option kit (P/N 774609-B21) is required for installing security bezel. | |
| | HP DL160 Gen9 Quick Release Ear FIO Kit | 774609-B21 |
| | **NOTE:** Quick Release Ear option kit is required for installing security bezel. | |
| | HPE Trusted Platform Module 2.0 Kit | 745823-B21 |
| | **NOTE:** HPE Trusted Platform Module 2.0 Option works with Gen9 servers with UEFI Mode not Legacy Mode. It is not compatible with HP ProLiant Gen8 servers or earlier generation variants. **NOTE:** HPE Gen9 servers purchased earlier may need the latest firmware update to be compatible with the TPM 2.0 Option. **NOTE:** 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 |
| | **NOTE:** The HPE Trusted Platform Module Option (488069-B21) is the TPM 1.2 version. | |

## Additional Options

Compatible server platforms include Gen8 and Gen9 servers.
**NOTE:** HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

**HPE Storage Controllers**

**SAS Controllers**

**HPE Smart Array Controllers**

| | |
|---|---|
| HPE Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller | 726821-B21 |
| HPE Smart Array P440/2GB FBWC 12Gb 1-port Int SAS Controller | 820834-B21 |

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

| | |
|---|---|
| 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 DL160 Gen9 4LFF Smart HBA H240 SAS Cable Kit | 725590-B21 |
| HP DL160 Gen9 8SFF Smart HBA H240 SAS Cable Kit | 774621-B21 |
| HP DL160 Gen9 4LFF Smart Array P440 SAS Cable Kit | 725593-B21 |
| HP DL160 Gen9 8SFF Smart Array P440 SAS Cable Kit | 774619-B21 |
| HP DL160 Gen9 4LFF Smart Array B140i SATA Cable FIO Kit | 768775-B21 |
| HP DL160 Gen9 8SFF Smart Array B140i SATA Cable FIO Kit | 774611-B21 |

**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 controllers 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:** NHP 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.

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

**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

## Additional Options

products **http://www.hpe.com/storage/BURAcompatibility**.
**NOTE:** For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.

**Tape Drives**

**SAS Rack-Mount Tape Solutions**

| | |
|---|---|
| HPE StoreEver LTO-7 Ultrium 15000 Internal Tape Drive | BB873A |
| HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive | BB874A |
| HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit | N7P36A |
| HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit | N7P37A |
| HPE StoreEver LTO-6 Ultrium 6250 Tape Drive in a 1U Rack Mount Kit | C0L99A |
| HPE StoreEver LTO-6 Ultrium 6250 External Tape Drive | EH970A |
| HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit | C0H27A |
| HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit | C0H28A |
| HPE StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in a 1U Rack Mount Kit | EJ014B |
| HPE StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive | EH958B |
| 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 LTO-4 Ultrium 1760 SAS External Tape Drive | EH920B |
| HPE StoreEver 1U SAS Rack Mount Kit | AE459B |

**HPE DAT Autoloader**

| | |
|---|---|
| HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 FC Tape Autoloader | N7P34A |
| HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 SAS Tape Autoloader | N7P35A |
| HPE StoreEver 1/8 G2 LTO-6 Ultrium 6250 Fibre Channel Tape Autoloader | C0H19A |
| HPE StoreEver 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader | BL536B |

**HPE MSL2024 Tape Library**

| | |
|---|---|
| HPE StoreEver MSL2024 0-drive Tape Library | AK379A |

**HPE MSL4048 Tape Library**

| | |
|---|---|
| HPE StoreEver MSL4048 0-drive Tape Library | AK381A |

**HPE StoreEver MSL6480**

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

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

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**HPE Disk Backup**

**HPE RDX Removable Disk Backup System**

| | |
|---|---|
| HPE RDX 4TB USB 3.0 External Disk Backup System | Q2R33A |
| HPE RDX 3TB USB 3.0 Internal Disk Backup System | P9L71A |
| HPE RDX+ 3TB USB 3.0 External Disk Backup System | P9L72A |
| HPE RDX 2TB USB3.0 External Disk Backup System | E7X53B |
| HP RDX+ 1TB External Backup System | B7B69B |
| HP RDX+ 500GB External Backup System | B7B66B |
| HPE RDX+ External Docking System | C8S07B |
| HPE D3700 Enclosure | QW967A |
| HPE D3600 Enclosure | QW968A |
| HPE StoreOnce 5100 48TB System | BB915A |
| HPE StoreOnce 3540 24TB System | BB914A |

## Additional Options

| | | |
|---|---|---|
| | HPE StoreOnce 3520 12TB System | BB922A |
| | HPE StoreOnce 3100 8TB System | BB913A |
| | **NOTE:** For the complete range of RDX drives and media see: **https://www.hpe.com/us/en/product-catalog/storage/disk-based-backup-systems.html**. For hardware and software compatibility of 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 Storage Options** | **Emulex Fibre Channel HBAs** | |
| | HPE 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter | AJ763B |
| | HPE 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter | AJ762B |
| | HPE StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter | C8R39A |
| | HPE StoreFabric SN1100E 16Gb Single Port Fibre Channel Host Bus Adapter | C8R38A |
| | **QLogic Fibre Channel HBAs** | |
| | HPE 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter | AJ764A |
| | HPE 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter | AK344A |
| | HPE StoreFabric SN1000Q 16GB 1-port PCIe Fibre Channel Host Bus Adapter | QW971A |
| | HPE StoreFabric SN1000Q 16GB 2-port PCIe Fibre Channel Host Bus Adapter | QW972A |
| | HPE StoreFabric SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter | P9D93A |
| | HPE StoreFabric SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter | P9D94A |
| | **Converged Network Adapter** | |
| | HPE StoreFabric CN1200E 10Gb Converged Network Adapter | E7Y06A |
| | HPE StoreFabric CN1100R Dual Port Converged Network Adapter | QW990A |
| | HPE StoreFabric CN1200E 10GBASE-T Dual Port Converged Network Adapter | N3U51A |
| | HPE StoreFabric CN1100R 10GBASE-T Dual Port Converged Network Adapter | N3U52A |
| **HPE Data Center Racks** | **HPE Advanced Series Racks** | |
| | 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 14U 600mm x 1075mm Advanced Shock Rack | H6J82A |
| | HPE 22U 600mm x 1075mm Advanced Pallet Rack | H6J83A |
| | HPE 22U 600mm x 1075mm Advanced Shock Rack | H6J84A |
| | HPE 48U 600mm x 1075mm Advanced Pallet Rack | H6J87A |
| | HPE 48U 600mm x 1075mm Advanced Shock Rack | H6J88A |
| | **NOTE:** Please see the **HPE Advanced Series Racks QuickSpecs** for information on additional racks options and rack specifications. | |
| | **HPE Enterprise Series Racks** | |
| | 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 47U 600mm x 1075mm Enterprise Pallet Rack | BW911A |

## Additional Options

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|---|---|---|
| | 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 |
| | 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. | |
| | **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. | |
| **HPE Power Distribution Units (PDUs)** | **HPE Basic Power Distribution Units (PDU)** | |
| | HPE 800VA - 277V Input / 230V Output NA Rack Mount Transformer | H3X09A |
| | **NOTE:** Please see the **HPE Basic Power Distribution Units (PDU) QuickSpecs** for information on additional options and product specifications. | |
| | **HPE Metered Power Distribution Units (PDU)** | |
| | HPE Metered 2.8kVA/L5-30P 24A/120V Outlets (12) 5-20R/Horizontal NA/JP PDU | D9N43A |
| | HPE Metered 3.6kVA/60320 C20 Detachable 16A/230V Outlets (12) C13/Horizontal WW PDU | D9N46A |
| | HPE Metered 4.9kVA/L6-30P 24A/208V Outlets (12) C13/Horizontal NA/JP PDU | D9N44A |
| | HPE Metered 3.6kVA/60320 C20 Detachable 16A/230V Outlets (16) C13/Vertical WW PDU | D9N45A |
| | HPE Metered 4.9kVA/L6-30P 24A/208V Outlets (12) C13/Vertical NA/JP PDU | G9Z05A |
| | HPE Metered 7.3kVA/60309 3-wire 32A/230V Outlets (12) C13/Vertical INTL PDU | G9Z06A |
| | 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 |
| | 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 8.3kVA/CS8265C 40A/208V Outlets (30) C13 (3) C19/Vertical NA PDU | D9N49A |
| | 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) | G9Z07A |

## Additional Options

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|---|---|
| C19/Vertical NA/JP PDU | |
| 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 |
| 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.

## Additional Options

| | | |
|---|---|---|
| | **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 |
| | **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 |
| | 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 |
| | 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 |

## Additional Options

| | | |
|---|---|---|
| | 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 INTL Keyboard/Mouse Kit | 672097-B33 |
| | **Rail Kits** | |
| | HP 1U Small Form Factor Easy Install Rail Kit | 734807-B21 |
| | **NOTE:** This applies to both LFF and SFF models and it does not include cable management arm. | |
| | HPE 1U Cable Management Arm for Easy Install Rail Kit | 734811-B21 |
| | HP 1U Short Friction Rail Kit | 775612-B21 |
| | **HPE Other 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 |
| | HPE DirectFlow UPS Management Card | AF493A |
| | **Power Unit (2U UPS)** | |
| | HPE R18000 DirectFlow - 2U Rackmount Uninterruptible Power System | AF479A |
| | **Input/Output Module Options for 2U UPS** | |
| | HPE 32A 400-415 Volt Three Phase INTL R18000 DirectFlow UPS IEC309 Input/Output Module | AF483A |

## Additional Options

| | |
|---|---|
| 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.

**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.

**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/Tower 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 |

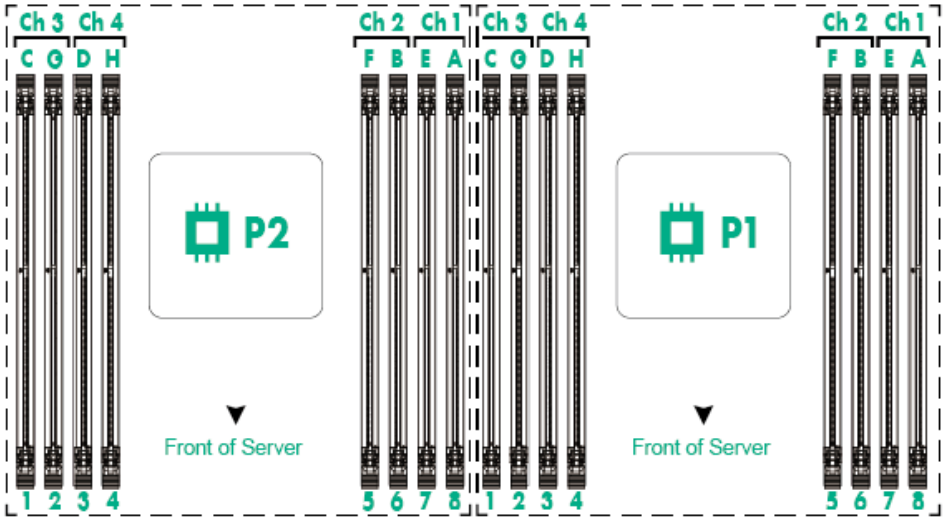
**NOTE:** Please see the **HPE Line Interactive Single Phase UPS QuickSpecs** for information on additional options and product specifications.

## Additional Options

| | | |
|---|---|---|
| | **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 Dual 8GB microSD Enterprise Midline USB Kit | 741279-B21 |
| | HPE 8GB microSD Enterprise Mainstream Flash Media Kit | 726116-B21 |
| | HPE 8GB USB Enterprise Mainstream Flash Media Drive Key Kit | 737953-B21 |
| **HPE Support Services** | **Foundation Care** | |
| | HPE 3 year Foundation Care 24x7 DL160 Gen9 Service | U7AZ7E |
| | HPE 3 year Foundation Care 24x7 wDMR DL160 Gen9 Service | U7AZ8E |
| | HPE 3 year Foundation Care 24x7 wCDMR DL160 Gen9 Service | U7AZ9E |
| | **Proactive Care** | |
| | HPE 3 year Proactive Care 24x7 DL160 Gen9 Service | U7BA0E |
| | HPE 3 year Proactive Care 24x7 with DMR DL160 Gen9 Service | U7BA1E |
| | HPE 3 year Proactive Care 24x7 with CDMR DL160 Gen9 Service | U7BA2E |
| | **Installation & Start-up Services** | |
| | HPE Installation ProLiant DL160/DL360e Service | U6E11E |
| | HPE Installation and Startup Entry ML DL Server Service | U6E13E |

# 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 load the channels similarly whenever possible.
- When two processors are installed, balance the DIMMs across the two processors.
- Place the DIMMs with the highest number of ranks in the white slot when mixing DIMMs of different ranks on the same channel.
- Do not mix RDIMMs or LRDIMMs.
- Quad rank RDIMMs are not supported in HPE ProLiant DL160 Gen9 servers.
- Quad rank LRDIMMs are capable of up to two DIMMs per channel.
- 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.

**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 | 805358-B21 |
| **DIMM Rank** | Single Rank | Single Rank | Dual Rank | Dual Rank | Dual Rank | Quad Rank |
| **DIMM Capacity** | 8GB | 16GB | 16GB | 32GB | 32GB | 64GB |
| **Voltage** | Std Voltage 1.2V | Std Voltage 1.2V | Std Voltage 1.2V | Std Voltage 1.2V | Std Voltage 1.2V | Std Voltage 1.2V |

## Memory

| | | | | | | |
|---|---|---|---|---|---|---|
| **DRAM Depth [bit]** | 1G | 2G | 1G | 2G | 2G | 2G |
| **DRAM Width [bit]** | x8 | x4 | x4 | x4 | x4 | x4 |
| **DRAM Density** | 8Gb | 8Gb | 4Gb | 8Gb | 8Gb | 8Gb |
| **CAS Latency** | 17-17-17 | 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 | 2400 |
| **SLOTS THAT CAN BE POPULATED** | | | | | | |
| 16 slot servers | 16 | 16 | 16 | 16 | 16 | 16 |
| **MAXIMUM CAPACITY (GB)** | | | | | | |
| | 128 | 256 | 256 | 512 | 512 | 1024 |
| **POPULATED DIMM SPEED (MT/s)** | | | | | | |
| **1 DIMM Per Channel** | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |
| **2 DIMM Per Channel** | 2133 | 2133 | 2133 | 2133 | 2400 | 2400 |
| **3 DIMM Per Channel** | n/a | n/a | n/a | n/a | n/a | n/a |

**NOTE:** DL160 has 2 DIMMs per channel and hence 3 DIMMs per channel memory speeds are not applicable on DL160.

**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 | 726724-B21 |
| **DIMM Rank** | Single Rank | Single Rank | Dual Rank | Dual Rank | Dual Rank | Dual Rank | Quad Rank | Quad Rank |
| **DIMM Capacity** | 4GB | 8GB | 8GB | 16GB | 32GB | 16GB | 32GB | 64GB |
| **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 | Std Voltage 1.2V |
| **DRAM Depth [bit]** | 512M | 1G | 512M | 1G | 1G | 2G | 2G | 2G |
| **DRAM Width [bit]** | x8 | x4 | x8 | x4 | x4 | x4 | x4 | x4 |
| **DRAM Density** | 4Gb | 4Gb | 4Gb | 4Gb | 4Gb | 8Gb | 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 | 15-15-15 |
| **DIMM Native Speed (MT/s)** | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 |
| **SLOTS THAT CAN BE POPULATED** | | | | | | | | |
| 16 slot servers | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| **MAXIMUM CAPACITY (GB)** | | | | | | | | |
| | 64 | 128 | 128 | 256 | 512 | 256 | 512 | 1024 |
| **POPULATED DIMM SPEED (MT/s)** | | | | | | | | |

## Memory

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1 DIMM Per Channel** | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 |
| **2 DIMM Per Channel** | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 | 2133 |
| **3 DIMM Per Channel** | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

**NOTE:** DL160 has 2 DIMMs per channel and hence 3 DIMMs per channel memory speeds are not applicable on DL160.

**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, CP2-C.

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

| | CPU 1 | | CPU 2 | | |
|---|---|---|---|---|---|
| | Slot # | Population order | Slot # | Population order | |
| Chnl 3 | 1 | C | 1 | C | Chnl3 |
| | 2 | G | 2 | G | |

| | CPU 1 | | CPU 2 | | |
|---|---|---|---|---|---|
| | Slot # | Population order | Slot # | Population order | |
| Chnl 4 | 3 | D | 4 | D | Chnl 4 |
| | 4 | H | 5 | H | |

| | CPU 1 | | CPU 2 | | |
|---|---|---|---|---|---|
| | Slot # | Population order | Slot # | Population order | |
| Chnl 2 | 5 | F | 7 | F | Chnl 2 |
| | 6 | B | 8 | B | |

| | CPU 1 | | CPU 2 | | |
|---|---|---|---|---|---|
| | Slot # | Population order | Slot # | Population order | |
| Chnl 1 | 7 | E | 10 | E | Chnl 1 |
| | 8 | A | 11 | A | |

**Memory Speed by Processor Model**

| Processor Models | Supported Memory Speeds |
|---|---|
| E5-2609v3, E5-2603v3 | 1600MT/s |
| E5-2640v3, E5-2630v3, E5-2620v3, E5-2630Lv3, E5-2623v3 | 1866MT/s |
| E5-2660v3, E5-2650v3, E5-2650Lv3 | 2133MT/s |
| E5-2609v4, E5-2603v4 | 1866MT/s |
| E5-2630Lv4, E5-2620v4, E5-2623v4, E5-2640v4, E5-2630v4 | 2133MT/s |
| E5-2650Lv4, E5-2660v4, E5-2650v4, E5-2680v4, E5-2695v4, E5-2683v4 | 2400MT/s |

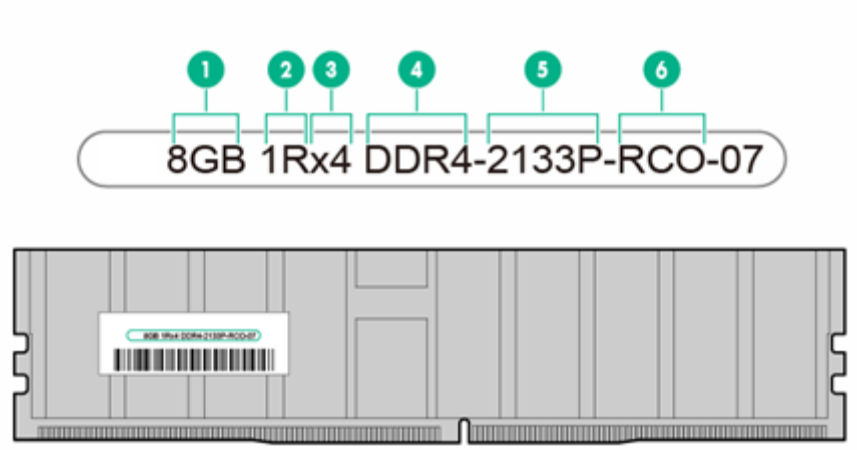
## Memory

| | Pre Configured Models | Standard Memory | Maximum Memory Plus Optional Memory | Standard Memory Replaced with Optional Memory |
|---|---|---|---|---|
| **Standard and Maximum Memory Capacity (Pre-configured Models)** | E5-2620v4 | 16GB (1x16GB) | 496GB (15x32GB, 1x16GB) | 1024GB (16x64GB) |
| | E5-2609v3 | 16GB (2x8GB) | 464GB (14x32GB, 2x8GB) | 1024GB (16x64GB) |
| | E5-2603v4, E5-2603v3 | 8GB (1x8GB) | 488GB (15x32GB, 1x8GB) | 1024GB (16x64GB) |

**DDR4 memory options part number decoder**

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

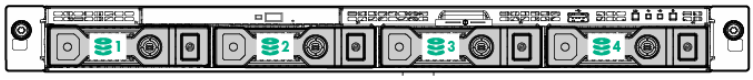
- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB
- 64GB = 65,536MB



## Storage



1-8 8 x SFF SATA/SAS/SSD Hot Pluggable Hard Drive Bays



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

## Technical Specifications

| | | | |
|---|---|---|---|
| **System Unit** | **Dimensions** (H x W x D) | 8 SFF - 1.7 x 17.1 x 23.9 inches (4.29 x 43.46 x 60.76 cm)<br>4 LFF - 1.7 x 17.1 x 23.9 inches (4.29 x 43.46 x 60.76 cm) | |
| | **Weight** (approximate) | Maximum: (all hard drives, power supply, and processor installed) | 33.04 lb (15kg) |
| | | Minimum: (one hard drive, power supply, and processor installed) | 22.03 lb (10kg) |
| | **Input Requirements** (per power supply) | Rated Line Voltage | 100 to 240 VAC |
| | | Rated Input Current | For 550W Power Supply:<br>6.7 A (at 100 VAC)<br>3.3 A (at 100 VAC) |
| | | Rated Input Frequency | 47 to 63 Hz |
| | | Rated Input Power | For 550 W Power Supply:<br>< 670 W (at 100 VAC)<br>< 660 W (at 200 VAC) |
| | **BTU Rating** | Maximum | For 550 W Power Supply:<br>2201 BTU/hr (at 100 VAC)<br>2153 BTU/hr (at 200 VAC) |
| | **Power Specifications** | To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: **http://www.hpe.com/info/hppoweradvisor** - Click on the system of interest. Example: DL160 Gen9- Follow the instructions of the next screens. | |
| | **Power Supply Output** | Rated Steady-State Power | For 550 W Power Supply:<br>550 W (at 100 VAC)<br>550 W (at 200 VAC) |
| | | Maximum Peak Power | For 550 W Power Supply:<br>550 W (at 100 VAC)<br>550 W (at 200 VAC) |
| | **System Inlet Temperature** | Standard Operating Support | 10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F). |
| | | Extended Ambient Operating Support | For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware |

## Technical Specifications

| | | |
|---|---|---|
| | | configurations for this system are listed at the URL: **http://www.hpe.com/servers/ashrae**.<br><br>For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: **http://www.hpe.com/servers/ashrae**.<br><br>System performance may be reduced if operating in the extended ambient operating range or with a fan fault.<br><br>**NOTE:** Supports A3 and A4 extended ambient. |
| | Non-operating | -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr). |
| **Relative Humidity** | 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. |
| **Altitude** | Operating | 3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min). |
| | Non-operating | 9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min). |
| **Acoustic Noise** | Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). | |
| | **Idle** | |
| | LWAd | Entry 5.1 B<br>Base 5.2 B<br>Performance 5.0 B |
| | LpAm | Entry 34.2 dBA<br>Base 35.9 dBA<br>Performance 34.9 dBA |
| | **Operating** | |
| | LWAd | Entry 5.3 B<br>Base 5.3 B<br>Performance 5.6 B |

## Technical Specifications

| | | | |
|---|---|---|---|
| | | LpAm | Entry 36.3 dBA<br>Base 36.2 dBA<br>Performance 39.7 dBA |
| | **Emissions Classification (EMC)** | FCC Rating | Class A |
| | | Normative Standards | CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22; K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1 |
| | | **NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements. | |
| **HPE Dynamic Smart Array B140i Controller** | **Number of PCI links** | Four | |
| | **PCI link rate** | 4Gb/s | |
| | **Storage protocol support** | SATA | |
| | **SAS/SATA peak data transfer rate** | 6Gb/s | |
| | **Number of SAS/SATA links** | 10 links | |
| | **SAS/SATA connectivity** | 2x4 connectors; 2x1 connectors | |
| | **Expander support** | No | |
| | **Drives supported (max)** | Up to 10 Internal Drives | |
| | **RAID support** | 0, 1, 10, 5 SATA | |
| | **Software management** | HPE SSA, SMH, SIM | |
| | **Warranty** | Server warranty | |
| | **HPE Secure Encryption license** | Not Supported | |
| | **HPE SmartCache License** | Not Supported | |
| | **HPE Smart Storage Administrator** | Supported | |
| **HPE Embedded Dual Port 361i Adapter** | **Network Interface** | 10Base-T/100Base-TX/1000Base-TX | |
| | **Compatibility** | IEEE 802.3 10Base-T<br>IEEE 802.3ab 1000Base-T<br>IEEE 802.3u 100Base-TX<br>IEEE 1588, IEEE 802.1AS<br>IEEE 802.3az - Energy Efficient Ethernet (EEE) | |
| | **Data Transfer Method** | PCI Express v 2.0, 5.0 GT/s, two lanes (x2) | |
| | **Controller** | Intel I350 Powerville | |
| | **Network Transfer Rate** | 10Base-T (Half-Duplex)<br>10Base-T (Full-Duplex)<br>100Base-TX (Half-Duplex)<br>100Base-TX (Full-Duplex)<br>1000Base-TX (Half and Full-Duplex) | 10 Mb/s per port, 40 Mb/s combined<br>20 Mb/s per port, 80 Mb/s combined<br>100 Mb/s per port, 400 Mb/s combined<br>200 Mb/s per port, 800 Mb/s combined<br>1000 Mb/s per port, 4000 Mb/s combined |
| | **Connector** | Two RJ-45 | |

## Technical Specifications

| | | | |
|---|---|---|---|
| | **Cable Support** | 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) |
| **Environment-friendly Products and Approach** | **End-of-life Management and Recycling** | Hewlett Packard Enterprise offers end-of-life product return, trade-in, and recycling programs, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.<br><br>**http://www.hpe.com/recycle**<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard Enterprise web site. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.<br><br>**http://www.hpe.com/recycle** | |

## Summary of Changes

| Date | Version History | Action | Description of Change |
|---|---|---|---|
| 25-Sep-2017 | From Version 27 to 28 | Added | Added new Solid State Drives offering to the HPE Drives section. |
| | | Changed | Core Options and Additional Options were revised. |
| | | Removed | Obsolete SKUs were removed from the QuickSpecs. |
| 7-Aug-2017 | From Version 26 to 27 | Added | Added new Solid State Drives offering to the HPE Drives section. |
| 11-Jul-2017 | From Version 25 to 26 | Changed | Operating Systems and Virtualization Software Support for ProLiant Servers section was revised. |
| 5-Jun-2017 | From Version 24 to 25 | Added | Added new Solid State Drives offering to the HPE Drives section.<br>New HPE Networking options were added. |
| 8-May-2017 | From Version 23 to 24 | Added | Added support for ClearOS in Operating Systems and Virtualization Software Support for ProLiant Servers and Optional Features sections. |
| | | Changed | HPE Drives was revised. |
| | | Removed | Obsolete SKUs were removed from the QuickSpecs. |
| 27-Mar-2017 | From Version 22 to 23 | Added | Added new Hard Drives. |
| 17-Feb-2017 | From Version 21 to 22 | Changed | HPE Memory section under Core Options was revised. |
| 13-Feb-2017 | From Version 20 to 21 | Added | Added new HDD and SSD offering to the HPE Drives section. |
| | | Changed | HPE InfiniBand, HPE Converged Infrastructure Management Software, and HPE USB and SD Options were revised. |
| | | Removed | SKUs 769503-B21, 769504-B21, and 769505-B21 were removed from the Pre-configured Models section.<br><br>Obsolete SKUs were removed from the HPE Processors section. |
| 28-Nov-2016 | From Version 19 to 20 | Added | Added new Hard Drives offering. |
| | | Changed | Maximum Internal Storage and HPE Tape Backup were revised. |
| | | Removed | Obsolete SKUs were removed from the QuickSpecs. |
| 28-Oct-2016 | From Version 18 to 19 | Removed | Obsolete Hard Drives were removed. |
| 26-Sep-2016 | From Version 17 to 18 | Added | Added new 10TB SATA LFF hard drives offering. |
| | | Changed | Maximum Internal Storage, HPE Storage Options, and HPE Disk Storage Systems were revised. |
| | | Removed | Obsolete SKUs were removed from the QuickSpecs. |
| 10-Jun-2016 | From Version 16 to 17 | Removed | HPE Dual 32GB microSD Enterprise Midline USB Kit was removed from the QuickSpecs. |
| 6-Jun-2016 | From Version 15 to 16 | Added | Added new HDD offering to the HPE Drives section.<br>Added new options to the HPE PCIe Workload Accelerator Options, HPE Disk Backup, and HPE Disk Storage Systems. |
| | | Changed | Memory, Memory Protection, Interfaces, and HPE Converged Infrastructure Management Software were revised. |
| 6-May-2016 | From Version 14 to 15 | Changed | Maximum Internal Storage, Upgradeability, Memory, and Technical Specifications sections were revised. |
| 8-Apr-2016 | From Version 13 to 14 | Changed | HPE Processors section was revised. |
| 31-Mar-2016 | From Version 12 to 13 | Added | Added new HPE Smart Memory 2400 MHz memory,<br>Intel Xeon E5-2600v4 processor support, new HPE Trusted Platform Module (TPM) 2.0, new 900W AC/ 240VDC power supply, and new HDD offerings. |
| | | Changed | Maximum Internal Storage, Power Supplies, Upgradeability, Embedded Management, Security, Service and Support, Pre-configured Models, and Memory sections were revised. |

## Summary of Changes

| | | | |
|---|---|---|---|
| | | Removed | Obsolete SKUs were removed from the QuickSpecs. |
| 16-Feb-2016 | From Version 11 to 12 | 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. |
| 17-Dec-2015 | From Version 10 to 11 | Added | Smart Buy models were added to the NA version. |
| 1-Dec-2015 | From Version 9 to 10 | Added | New HDD offering was added to HPE Drives.<br><br>New options added to HPE PCIe Workload Accelerator Options, HPE Disk Backup, and HPE Disk Storage Systems. |
| | | Changed | On System Management Chipset, Maximum Internal Storage, Embedded Management, and Server utilities were revised.<br><br>Product images were updated. |
| | | Removed | Obsolete SKUs were removed from the QuickSpecs. |
| 28-Sep-2015 | From Version 8 to 9 | Added | Added new 6Gb SATA Solid State Drives.<br>Added new HP OneView management software. |
| | | Removed | Obsolete SKUs were removed from the QuickSpecs. |
| 17-Aug-2015 | From Version 7 to 8 | Added | New Solid Stated Drives offering was added to Core Options. |
| | | Removed | Obsolete SKUs were removed from QuickSpecs. |
| 1-Jun-2015 | From Version 6 to 7 | Added | New Hard Drives were added to Core Options.<br>HP OneView LTUs were added to HP Converged Infrastructure Management Software.<br>New RDX+ external backup options were added. |
| | | Changed | Maximum Internal Storage was revised. |
| | | Removed | Obsolete SKUs were removed from QuickSpecs. |
| 30-Mar-2015 | From Version 5 to 6 | Added | New Hard Drives offering.<br>Optional Software added to HP Storage Controllers. |
| | | Changed | HP Memory, HP Power Supplies, HP Storage Controllers, and HP Disk Storage Systems were revised. |
| 9-Feb-2015 | From Version 4 to 5 | Added | Added Network controller, new HP Drives, and new G4 UPS models. |
| | | Changed | HP Drives, HP Tape Backup, HP Disk Backup, HP Rack Mount Consoles, KVM Switches, and Keyboards, HP Uninterruptible Power Systems (UPS), HP Networking, and HP Power Distribution Units (PDUs) sections were revised. |
| 1-Dec-2014 | From Version 3 to 4 | Changed | Changes made throughout the entire QuickSpecs. |
| 13-Oct-2014 | From Version 2 to 3 | Added | 6G SATA Enterprise Value G1 Solid State Drives were added to the Core Option section.<br><br>HPE PCIe Workload Accelerator Options and HPE USB and SD options were added to the Additional Options section. |
| | | Changed | Standard Features and Optional Features sections were revised. |
| 19-Sep-2014 | From Version 1 to 2 | Changed | Changes made throughout the entire QuickSpecs. |

## Summary of Changes

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

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