

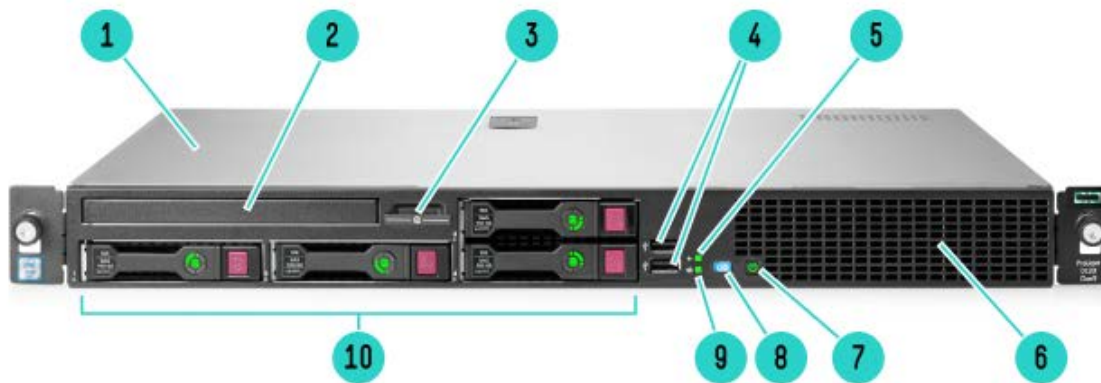
# QuickSpecs

## HPE ProLiant DL20 Gen9 Server

### Overview

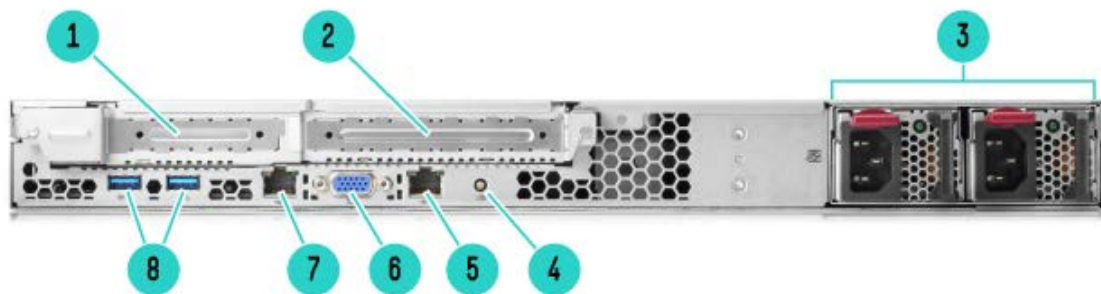
### HPE ProLiant DL20 Gen9 Server

The dense and compact HPE ProLiant DL20 Gen9 Server powered by Intel Pentium, Core i3 and E3-1200v5 processors provides a unique blend of enterprise class capabilities & value. It offers outstanding configuration flexibility to cater to a wide variety of business requirements at an affordable price point.



**Front View**

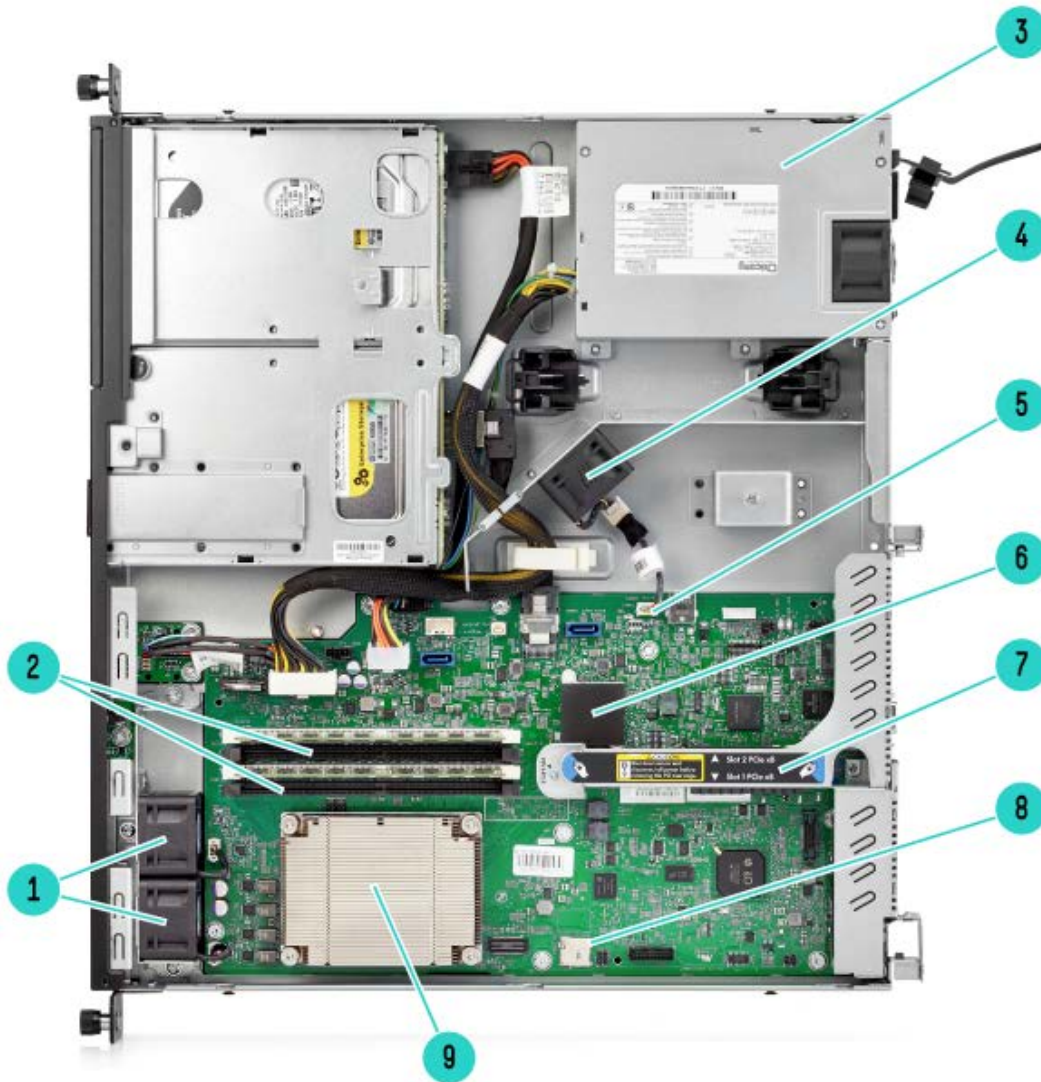
- |    |   |     |                      |
|----|---|-----|----------------------|
| 1. | Access Panel  | 2.  | Optical Drive        |
| 3. | Serial number/iLO information pull tab              | 4.  | 2 USB 2.0 connectors |
| 5. | Health LED  | 6.  | Front 2 Fan Assembly |
| 7. | Power On/Standby button and system power LED button | 8.  | UID LED              |
| 9. | NIC status LED                                      | 10. | Hard Drive Bays      |



**Rear View**

- |    |  |    |                             |
|----|--|----|-----------------------------|
| 1. | Expansion Slot 1, PCIe x 8                   | 2. | Expansion Slot 2, PCIe x 16 |
| 3. | Redundant Power Supply (only on SFF Chassis) | 4. | UID LED                     |
| 5. | NIC Connector 2                              | 6. | Video Connector             |
| 7. | NIC1/shared iLO connector                    | 8. | USB 3.0 Connector           |

## Overview



### Internal View

- |  |  |
|--|--|
| 1. Fan cage shown with 2 fans                                | 2. DDR4 DIMM slots. 4 slots                  |
| 3. (Under) Power supply (1x 290W power supply shown)         | 4. Central Fan Assembly                      |
| 5. Internal USB 3.0 connector                                | 6. Embedded HPE Smart Array B140i controller |
| 7. PCIe Riser  | 8. MicroSD card slot                         |
| 9. 1 Processor, heatsink showing, with HP Smart Socket Guide |  |

### What's New

- New SMB SKU Offerings.
- New SSD offering.

## Standard Features

**NOTE:** For more information regarding Intel Xeon processors, please see the following

<http://www.intel.com/xeon>.

Intel® Xeon® processor E3-1200v5 quad core processor family is designed to deliver the best combination of performance, built-in capabilities, and cost-effectiveness. The product also supports Intel® Pentium® and Intel® Core-i3 dual core processors. Choose one of the following processors based on the model:

**Processor**

One of the following depending on model

Model	CPU frequency	Cores	L3 Cache	Power	DDR4 Hz
G4400	3.3GHz	2	3MB	54W	2133
G4500	3.5GHz	2	3MB	51W	2133
i3-6100	3.7GHz	2	3MB	51W	2133
E3-1220v5	3.0GHz	4	8MB	80W	2133
E3-1225v5	3.3GHz	4	8MB	80W	2133
E3-1230v5	3.4GHz	4	8MB	80W	2133
E3-1240v5	3.5GHz	4	8MB	80W	2133
E3-1270v5	3.6GHz	4	8MB	80W	2133
E3-1280v5	3.7GHz	4	8MB	80W	2133
G4560	3.5GHz	2	3MB	54W	2400
i3-7300	4.0GHz	2	3MB	51W	2400
E3-1220v6	3.0GHz	4	8MB	72W	2400
E3-1225v6	3.3GHz	4	8MB	73W	2400
E3-1230v6	3.5GHz	4	8MB	72W	2400
E3-1240v6	3.7GHz	4	8MB	72W	2400
E3-1270v6	3.8GHz	4	8MB	72W	2400
E3-1280v6	3.9GHz	4	8MB	72W	2400

**Chipset**

Intel® C232 Chipset

**NOTE:** For more information regarding Intel® chipsets, please see the following

URL: <http://www.intel.com/products/server/chipsets/>

**On System**

HPE iLO (Firmware HPE iLO4 2.3) 4GB NAND

**Management Chipset**

**NOTE:** 1GB USB user space configurable via UEFI and accessible via iLO. Read and learn more in the [iLO QuickSpecs](#).

**Memory**

One of the following depending on model

Type:

DDR4 Unbuffered (UDIMM)

Unbuffered (UDIMM)

DIMM Slots Available

4

4 DIMM slots per processor; 2 channels per processor, 2 DIMMs per channel

Maximum Capacity (UDIMM)

64GB

(4 x 16GB UDIMM @2400MHz)

**Memory Protection**

ECC

## Standard Features

**Network Controller** HPE Ethernet 1Gb 2-port 332i network Adapter or BCM5720.

The HPE ProLiant DL20 Gen9 server offers the customer a dual-port NIC standard with the option to upgrade with a variety of networking options.

### Expansion Slots

Dual side Low profile riser

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor
1	PCIe 3.0	X8	X8	Half length/half height
2	PCIe 3.0	X8	X8	Half length/full height

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

FlexibleLOM Riser

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor
1	Flexible LOM	x8	x8	Half length/half height
2	PCIe 3.0	x8	x8	Half length/full height

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

GPU Riser

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor
1	PCIe 3.0	x16	x16	Half length/full height

**NOTE:** It is mandatory to choose one of the above risers.

### Storage Controller

One of the following depending on model

Entry Models	HPE Dynamic Smart Array B140i Controller
Base Models	HPE Dynamic Smart Array B140i Controller
Performance Models	HPE H240 FIO Smart Host Bus Adapter

**NOTE:** B140i provides support for up to 4 SATA drives, data transmission speeds up to 6Gb/s and supports RAID 0, 1 & 5 on DL20 Gen9.

**NOTE:** H240 provides support for up to 4 SAS/SATA drives, data transmission speeds up to 12Gb/s and supports RAID 0, 1 & 5 on DL20 Gen9.

**NOTE:** DL20 Gen9 also supports other controller options like P440; read additional option to know more.

**Standard Features**

**Internal Storage Devices**

One of the following depending on model

Optical Drive	Ships standard in Performance Models Optional: DVD-ROM, DVD-RW
Optical Drives	Optional: DVD-ROM, DVD-RW
Hard Drives	None ship standard
Hard Drive Bays	4 SFF drive bays total with Optical Bay 2 LFF drive bays total with Optical Bay

**NOTE:** HPE ProLiant DL20 Gen9 server offers Hot plug LFF, Non hot plug LFF and SFF versions. The Optical Drive bay is available with both hot plug 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 HPE SFF Gen9 Hard Drive Blank Kit (654961-B21), HPE LFF Gen9 Hard Drive Blank Kit (689745-B21) or HPE LFF Gen9 Hard Drive Blank kit (654963-B21). These part numbers for single HDD blanks below are also provided should the customer require replacement HDD blanks for their server.

**Maximum Internal Storage**

	<b>CAPACITY</b>	<b>CONFIGURATION</b>
Hot Plug SFF SAS	8TB	4 x 2TB
Hot Plug SFF SATA	8TB	4 x 2TB
Hot Plug LFF SAS	20TB	2 x 10TB
Hot Plug LFF SATA	20TB	2 x 10TB
Hot Plug SFF SAS SSD	15.36TB	4 x 3.84TB
Hot Plug SFF SATA SSD	15.36TB	4 x 3.84TB
Hot Plug LFF SATA SSD	15.36TB	4 x 3.84TB
Non Hot Plug LFF SATA	8TB	2 x 4TB

## Standard Features

### Power Supply

One of the following depending on model

HPE 290W FIO Power Supply

HPE 900W AC 240V DC Redundant Power Supply

**NOTE:** HPE 900W Redundant Power Supply supports 100VAC to 240VAC and also supports 240VDC.

HPE Entry-Level Power Supplies provide lower-cost options for customers trying to balance their need for enterprise class efficiency and reliability while maintaining lowest possible hardware costs. The above mentioned Entry-Level power supply options have been designed specifically for HPE ProLiant DL20 Gen9 Server.

The HPE 290W FIO Power Supply is the standard, non-redundant AC power supply with 80Plus Silver Certification. It features 92% power efficiency with a set of features optimized for the DL20 Gen9 rack server.

The HPE 900W Gold (Redundant) AC/240V DC 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. The power backplane option can support up to two (2) hot-plug AC power input modules. This Redundant power supply option is only supported on DL20 Gen9 SFF chassis model.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit.

To review the power requirements for your selected system, please use the HPE Power Advisor Tool located at <http://www.hpe.com/info/hppoweradvisor>.

### System Fans

One of the following depending on model

1P model

#### Non-redundant

3 fans

#### Redundant

NA

**NOTE:** DL20 has 3 fans, 2 front fan assemblies and 1 center fan assembly which ship standard, non-redundant.

### Interfaces

Video

1 rear video connector

USB

5 USB ports (standard)

Front: 2xUSB 2.0

Rear: 2xUSB 3.0

Internal: 1x USB 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.

LOM Network Ports

2x1GbE ports

**NOTE:** Customers can upgrade to next generation network (10 GbE) by installing a FlexibleLOM riser.

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## Standard Features

**Operating Systems and Virtualization** [Microsoft Windows Server](#)  
[Red Hat Enterprise Linux \(RHEL\)](#)  
**Software Support for ProLiant Servers** [SUSE Linux Enterprise Server \(SLES\)](#)  
[VMware](#)  
[ClearOS](#)

**NOTE:** VMWare availability is dependent on General availability from the vendor. DL20 supports VMWare 5.5U3 and 6.0 U1.

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

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

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**Upgradeability** FlexibleLOM connector for 1 Gigabit or 10 Gigabit networking options  
One of the following depending on model Up to 4 DIMM slots available for higher memory capacity  
Up to 4-SFF Drive bays or 2LFF Drive bays  
HPE Smart Array or Smart HBA Controller  
Redundant Power Supply

**NOTE:** RPS is only compatible with DL20 SFF Chassis. Customer can upgrade from DL20 Gen9 on SFF chassis with 290W PSU to 900W redundant power supply.

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**Industry Standard Compliance** UEFI (Unified Extensible Firmware Interface Forum)  
PCIe 3.0 Compliant  
PXE Support  
WOL Support  
Microsoft® Logo certifications  
USB 3.0 Support  
ASHRAE A3

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

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**Graphics** **Integrated Matrox G200 video standard**  
On board graphics: Integrated Matrox G200 video standard

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

**HP iLO 4 On System Management Memory**

- 16 MB Flash
  - 256 MB DDR 3 with ECC (112 MB after ECC and video)
- HPE NVIDIA Quadro M2000 GPU Module

**NOTE:** Install GPU riser option to support GPU card. A GPU enablement kit 811271-B21 is mandatory to support GPU.



## Standard Features

### HPE Server UEFI/Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen9 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode.

**NOTE:** The UEFI System Utilities function is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit <http://www.hpe.com/servers/uefi>.

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

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

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

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

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### Form Factor

One of the following depending on model

1U Rack form factor

4SFF and 2LFF version:

1.70" (4.32cm) Height x 15.05" (38.22cm) Depth x 17.11" (43.46cm) Length

**NOTE:** Depth of the chassis is measured from rear to ear at 15.05". Depth from rear to bezel is 15.5".

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### 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>.

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#### UEFI

Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <http://www.hpe.com/servers/uefi>.

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#### 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>.

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#### 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>.

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#### 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>.



## Standard Features

<b>Server utilities</b>	<b>Smart Update</b>	Optimize firmware and driver updates with Smart Update solutions including Smart Update Manager (SUM) and Service Pack for ProLiant (SPP). Learn more at <a href="http://www.hpe.com/servers/smartupdatemanager">http://www.hpe.com/servers/smartupdatemanager</a> .
	<b>HPE Systems Insight Manager (HPE SIM)</b>	HPE SIM allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers, and also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at <a href="http://www.hpe.com/servers/hpsim">http://www.hpe.com/servers/hpsim</a> .
	<b>Scripting Tool Kit and Windows PowerShell</b>	Provision 1 to many servers using your own scripts to discover and deploy them with Scripting Tool Kit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at <a href="http://www.hpe.com/servers/proliant/stk">http://www.hpe.com/servers/proliant/stk</a> or <a href="http://www.hpe.com/servers/powershell">http://www.hpe.com/servers/powershell</a> .
	<b>RESTful Interface Tool</b>	RESTful Interface tool is a scripting tool to provision using RESTful API for iLO 4 to discover and deploy servers at scale. Learn more at <a href="http://www.hpe.com/info/resttool">http://www.hpe.com/info/resttool</a> .
	<b>HPE iLO Mobile Application</b>	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: <a href="http://www.hpe.com/info/ilo/mobileapp">http://www.hpe.com/info/ilo/mobileapp</a> .
	<b>HPE Insight Online</b>	HPE Insight Online, available at no additional cost as part of your Hewlett Packard Enterprise warranty or contractual support agreement with Hewlett Packard Enterprise, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at <a href="http://www.hpe.com/info/insightonline/explore">http://www.hpe.com/info/insightonline/explore</a> .
<b>Security</b>	Power-on password Serial interface control Administrator's password UEFI TPM 1.2 TPM 2.0 APCI 2.0b	
<b>Warranty</b>	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. <b>NOTE:</b> Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <a href="http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/">http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/</a> .	

## 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/ioloadvanced>.

### 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'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.

## Optional Features

### ClearOS

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

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### One Config Simple (SCE)

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

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## Service and Support

### HPE Support Services

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

**Connect your devices** Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%<sup>1</sup> reduction in down time, near 100%<sup>2</sup> diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to Hewlett Packard Enterprise support.

[1- IDC](#) [2 – HPE 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 HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

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

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

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## Service and Support

### Related Services

#### HPE Server Hardware Installation

Provides for the basic hardware installation of Hewlett Packard Enterprise branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

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

#### HPE Installation and Startup Service

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

#### HPE Technology Services Support Credits

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

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### HPE Education Services

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment.

<http://www.hpe.com/ww/learn>

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### HPE Support Center

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

Learn more <http://www.hpe.com/support/hpesc>

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

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

For more information: <http://www.hpe.com/services>

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## Pre-configured Models

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

1. Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
2. Hewlett Packard Enterprise does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
3. If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

**NOTE:** All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either HPE SFF Hard Drive Blank Kit (666987-B21) or HPE LFF Hard Drive Blank Kit (666986-B21).

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

**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

	Entry Models		Base Models	
<b>[SKU Number]</b>	829889-B21	871428-B21	823556-B21	871429-B21
<b>Model Name</b>	HPE ProLiant DL20 Gen9 G4400 4GB-U Non-hot Plug 2LFF 290W PS Entry Server	HPE ProLiant DL20 Gen9 G4560 8GB-U Non-hot Plug 2LFF 290W PS Entry Server	HPE ProLiant DL20 Gen9 E3-1220v5 8GB-U B140i 2LFF 290W PS Base Server	HPE ProLiant DL20 Gen9 E3-1220v6 8GB-U B140i 2LFF 290W PS Base Server
<b>Processor</b>	Intel® Pentium® G4400	Intel® Pentium® G4560	Intel® Xeon® E3-1220v5	Intel® Xeon® E3-1220v6
<b>Number of Processors</b>	One			
<b>Memory</b>	4GB (1x4GB UDIMMs, 2133 MHz)	8GB (1x8GB UDIMM, 2400 MHz)	8GB (1x8GB UDIMMs, 2133 MHz)	8GB (1x8GB UDIMM, 2400 MHz)
<b>Network Controller</b>	HPE embedded 1Gb 2-port 332i network Adapter			
<b>Storage Controller</b>	HPE Dynamic Smart Array B140i			
<b>Hard Drive</b>	None ship standard; includes 2 LFF hard drive blanks		None ship standard	
<b>Internal Storage</b>	2 LFF HDD Bays (Non Hot Plug)		2 LFF HDD Bays (Hot Plug)	
<b>Optical Drive Bay</b>	1; (Optional: DVD-ROM, DVD-RW)			
<b>Optical Drive</b>	None			
<b>PCI-Express Slots</b>	2 PCIe 3.0 slots			
<b>Power Supply</b>	(1) 290W Non Hot Plug Power Supply			
<b>Fans</b>	3 non hot plug, non-redundant			
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional), iLO Scale-out (optional only for DL), iLO Advanced (optional)			
<b>Form Factor</b>	Rack (1U), HPE Short Friction Rail Kit			
<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response			

Pre-configured Models

	Performance Models			
[SKU Number]	823559-B21	823562-B21	871430-B21	871431-B21
<b>Model Name</b>	HPE ProLiant DL20 Gen9 E3-1240v5 8GB-U H240 4SFF 290W PS Performance Server	HPE ProLiant DL20 Gen9 E3-1240v5 8GB-U H240 4SFF 900W RPS Performance Server	HPE ProLiant DL20 Gen9 E3-1240v6 16GB-U H240 4SFF 290W PS Performance Server	HPE ProLiant DL20 Gen9 E3-1240v6 8GB-U H240 4SFF 900W RPS Performance Server
<b>Processor</b>	Intel® Xeon® E3-1240v5		Intel® Xeon® E3-1240v6	
<b>Number of Processors</b>	One			
<b>Memory</b>	8GB (1x8GB UDIMMs, 2133 MHz)		16GB (1x16GB UDIMMs, 2400 MHz)	
<b>Network Controller</b>	HPE embedded 1Gb 2-port 332i network Adapter			
<b>Storage Controller</b>	HPE H240 Smart Host Bus Adapter			
<b>Hard Drive</b>	None ship standard			
<b>Internal Storage</b>	4 SFF HDD Bays			
<b>Optical Drive Bay</b>	1; (Optional: DVD-ROM, DVD-RW)			
<b>Optical Drive</b>	None			
<b>PCI-Express Slots</b>	2 PCIe 3.0 slots			
<b>Power Supply</b>	(1) 290W Non Hot Plug Power Supply	(1) HPE 900W Redundant Power Supply and RPS Backplane kit	(1) 290W Non Hot Plug Power Supply	(1) HPE 900W Redundant Power Supply and RPS Backplane kit
<b>Fans</b>	3 non hot plug, non-redundant			
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional), iLO Scale-out (optional only for DL), iLO Advanced (optional)			
<b>Energy Star</b>		Meets Energy Star requirements		Meets Energy Star requirements
<b>Form Factor</b>	Rack (1U), HPE Short Friction Rail Kit			
<b>Warranty</b>	1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response			

**NOTE:** HPE ProLiant DL20 Gen9 E3-1240v5 8GB-U H240 4SFF 900W RPS Performance Server (823562-B21) requires additional 900W Redundant Power supply input module for redundancy. Backplane cable kit is included and need not be added.



Pre-configured Models

<b>SKU Number</b>	P06049-B21
<b>Model Name</b>	HPE ProLiant DL20 Gen9 E3-1230v6 3.5GHz 4-core 1P 8GB-U H240 4SFF 900W PS Solution Server
<b>Chassis</b>	4SFF
<b>Processor</b>	Intel® Xeon® E3-1230v6
<b>Number of Processors</b>	One processor
<b>Memory</b>	8GB (1x8GB UDIMMs, 2400 MHz)
<b>Network Controller</b>	HPE embedded 1Gb 2-port 332i network Adapter
<b>Storage Controller</b>	HPE H240 Smart Host Bus Adapter
<b>Hard Drive</b>	None ship standard
<b>Optical Drive</b>	None ship standard
<b>PCIe Slots</b>	2 PCIe 3.0 slots
<b>Power Supply</b>	(2) HPE 900W Redundant Power Supply and RPS Backplane kit
<b>Fans</b>	3 non hot plug, non-redundant
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional), iLO Scale-out (optional only for DL), iLO Advanced (optional)
<b>Energy Star</b>	Meets Energy Star requirements
<b>Form Factor</b>	Rack (1U), HPE Short Friction Rail Kit
<b>Operating System</b>	ClearOS/VM Installer (USB) <b>NOTE:</b> ClearOS, an easy to use OS with an application marketplace, allows you to build a fully functional server that is just right for you at no upfront cost. To learn more on what you can do, please visit <a href="http://www.hpe.com/servers/clearos">http://www.hpe.com/servers/clearos</a> .
<b>Warranty</b>	1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response

## Configuration Information - Factory Integrated Models

This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an HPE approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

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

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

<b>CTO Server</b>	HPE ProLiant DL20 Gen9 Non-hot Plug 2LFF Configure-to-order Server	HPE ProLiant DL20 Gen9 2LFF Configure-to-order Server	HPE ProLiant DL20 Gen9 4SFF Configure-to-order Server
<b>SKU Number</b>	819784-B21	819785-B21	819786-B21
<b>Processor</b>	1	1	1
<b>DIMM Slots</b>	4 DIMM slots for UDIMM DDR4 Memory		
<b>Storage Controller</b>	HPE Dynamic Smart Array B140i		
<b>PCIe</b>	2 PCIe 3.0 Slots		
<b>Drive Cage</b>	2LFF Non Hot Plug	2LFF Hot Plug	4SFF Hot Plug
<b>Network Controller</b>	HPE embedded 1Gb 2-port 332i network Adapter		
<b>Fans</b>	3 non hot plug, non-redundant		
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard)		
<b>USB</b>	2 front, 1 internal, 2 rear		
<b>Ears</b>	HPE Thumbscrew Ears		

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

#### HPE Processors E3-1200v6 series Processors

HPE DL20 Gen9 Intel Xeon E3-1220v6 (3.0GHz/4-core/8MB/72W) FIO Processor Kit	871049-L21
HPE DL20 Gen9 Intel Xeon E3-1230v6 (3.5GHz/4-core/8MB/72W) FIO Processor Kit	871051-L21
HPE DL20 Gen9 Intel Xeon E3-1240v6 (3.7GHz/4-core/8MB/72W) FIO Processor Kit	871053-L21
HPE DL20 Gen9 Intel Xeon E3-1225v6 (3.3GHz/4-core/8MB/73W) FIO Processor Kit	872140-L21

**NOTE:** On E3-1225v6 we do not support Intel's embedded graphics capability.

HPE DL20 Gen9 Intel Xeon E3-1270v6 (3.8GHz/4-core/8MB/72W) FIO Processor Kit	871055-L21
HPE DL20 Gen9 Intel Xeon E3-1280v6 (3.9GHz/4-core/8MB/72W) FIO Processor Kit	871057-L21

#### E3-1200v5 series Processors

HPE DL20 Gen9 E3-1220v5 (3.0GHz/4-core/8MB/80W) FIO Processor Kit	822425-L21
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#### Intel® Pentium® G4000 series Processors

HPE DL20 Gen9 Intel Pentium G4560 (3.5GHz/2-core/3MB/54W) FIO Processor Kit	871063-L21
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**NOTE:** DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

**NOTE:** For the Intel® C232 Chipset E3-1200 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 1200x v#, 1 is the number of the CPU, 2 is socket type/segment designation, 00=processor SKU, x=L for low power SKUs and v# (not yet designated) is the version number.

## Configuration Information - Factory Integrated Models

<b>HPE Memory</b>	<p><b>NOTE:</b> Select one or more memory.</p> <p><b>NOTE:</b> HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant Server</p> <p><b>NOTE:</b> HPE Standard Memory (UDIMM) is required to realize the memory performance improvements and enhanced functionality listed in this document for this HPE ProLiant Server.</p> <p><b>NOTE:</b> With one processor installed, four DIMMs slots are available</p> <p><b>NOTE:</b> For more information on ProLiant Energy Efficient Features, see: <a href="http://www.hpe.com/go/proliant-energy-efficient">http://www.hpe.com/go/proliant-energy-efficient</a></p> <p><b>NOTE:</b> Depending on the memory configuration and processor model, the memory speed would run at 2133MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <a href="http://www.hpe.com/go/ddr4config">http://www.hpe.com/go/ddr4config</a></p> <p><b>Unbuffered DIMMs (UDIMMs) – 2400MHz</b></p> <p><b>NOTE:</b> The following memory is supported by the E3-1200v6, i3-7000 and G4560 and G4600 processors only</p> <p>HPE 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Unbuffered Standard Memory Kit 862974-B21</p> <p>HPE 16GB (1x16GB) Dual Rank x8 DDR4-2400 CAS-17-17-17 Unbuffered Standard Memory Kit 862976-B21</p> <p><b>Unbuffered DIMMs (UDIMMs) – 2133 MHz</b></p> <p>HPE 16GB (1x16GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit 805671-B21</p> <p>HPE 8GB (1x8GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit 819880-B21</p> <p><b>NOTE:</b> Depending on the processor selected these memory will run at 2133MHz.</p>
<b>HPE I/O Expansion Options</b>	<p>HPE DL20 Gen9 PCIe Low Profile Riser FIO Kit 854846-B21</p> <p>HPE DL20 Gen9 Flexible LOM Riser Kit 811259-B21</p> <p>HPE DL20 Gen9 GPU Enablement Kit 811271-B21</p>
<b>HPE Power Supplies</b>	<p><b>NOTE:</b> Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HPE Power Advisor tool to determine the right size power supply for your server configuration. The HPE Power Advisor is located at: <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a></p> <p><b>NOTE:</b> On 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</p> <p><b>HPE Entry-Level Power Supplies</b></p> <p>HPE DL20 Gen9 290W FIO Power Supply Unit Kit 816283-B21</p> <p>HPE 900W AC 240VDC Power Input FIO Module 828734-B21</p> <p><b>NOTE:</b> HP Server RPS FIO Backplane Kit (828735-B21) is required for this power supply.</p> <p><b>NOTE:</b> Up to two of these option kits can be installed in one system.</p> <p>HPE 900W AC 240VDC Power Backplane FIO Kit 828735-B21</p> <p><b>NOTE:</b> One is required when one or two HPE 900W AC 240VDC Power Input FIO Modules (828734-B21) are ordered.</p> <p>HPE DL20 Gen9 Redundant Power Supply Cable Kit 820306-B21</p> <p><b>NOTE:</b> This RPS backplane Cable kit is mandatory to be chosen along with 900W RPS Input Module (828734-B21).</p>

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

**NOTE:** All CTO Server models include mini-SAS cables required to connect drives to the embedded B140i SATA controller or H240 Smart Host Bus Adapter.

## Configuration Information - Factory Integrated Models

<b>HPE Storage Controllers</b>	<b>SAS Controllers</b>	
	<b>HPE Smart Array Controllers</b>	
	HP Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller	761872-B21
	<b>NOTE:</b> Includes 96W Smart Storage Battery.	
	<b>NOTE:</b> P440 needs to be populated in slot 2 (Full Height).	
	<b>HPE Smart Host Bus Adapters</b>	
HP H240 12Gb 2-ports Int FIO Smart Host Bus Adapter	761873-B21	
<b>NOTE:</b> H240 needs to be populated in slot 2 (Full Height).		
<b>HPE Cable Options</b>		
HPE DL20 Gen9 2LFF Mini SAS P440 Cable Kit	811279-B21	
HPE DL20 Gen9 4SFF Mini SAS P440 Cable Kit	811282-B21	
<b>NOTE:</b> One of the above cables is required to be selected depending on the combination of the server and storage controller. Cable option kit descriptions include the right server and storage controller names.		
<b>BIOS Mode</b>	HP Legacy FIO Mode Setting	758959-B22
<b>NOTE:</b> If B140i is the only controller, then this option cannot be selected.		
<b>Controller State</b>	HP Mfg FIO Enable HBA Mode Setting	792962-B21
<b>NOTE:</b> If H240 is the primary controller with this option then RAID is not allowed.		
	HP AHCI-Enable FIO Setting	801845-B21
<b>NOTE:</b> If B140i is the primary controller with this option then RAID is not allowed.		
<b>HPE Insight Software</b>	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	C6N36A
<b>HPE Security Kit</b>	HPE DL20 Gen9 Quick Release Ear FIO Kit	811254-B21
<b>NOTE:</b> HPE ProLiant DL20 Gen9 ships with thumbscrew ear attachments as standard. The Quick Release Ear kit needs to be purchased if you want to have a security bezel installed.		

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

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

## Core Options

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

<b>HPE Unique Options</b>	HPE DL20 Gen9 2LFF Mini SAS P440 Cable Kit	811279-B21
	<b>NOTE:</b> This cable kit is required to support P440 controller on 2LFF model.	
	HPE DL20 Gen9 4SFF Mini SAS P440 Cable Kit	811282-B21
	<b>NOTE:</b> This cable kit is required to support P440 controller on 4SFF model.	
	HPE DL20 Gen9 Smart Storage Battery Holder	822451-B21
	<b>NOTE:</b> This holder is required to install the HPE Smart Storage battery (727258-B21) on P440 controller with FBWC (820834-B21, 726821-B21).	
	HPE DL20 Gen9 Redundant Power Supply Backplane Cable Kit	820306-B21
	<b>NOTE:</b> It is mandatory to choose this back plane cable kit to support 828734-B21 or 775595-B21 Redundant Power Supply Input Module. This cable kit is required in instances of single or double 900W PSU unit.	
HPE DL20 Gen9 M.2 RA and Optical Disk Drive Power Cable Kit	816284-B21	
<b>NOTE:</b> This cable kit is required to support M.2 and or ODD.		
HPE DL20 Gen9 Flexible LOM Riser Kit	811259-B21	
<b>NOTE:</b> This option is required to upgrade to next generation networking capabilities like 10GbE.		
HPE DL20 Gen9 GPU Enablement Kit	811271-B21	
<b>NOTE:</b> It is mandatory to choose the GPU enablement kit to support qualified GPU card.		

### HPE Memory

#### Unbuffered DIMMs (UDIMMs)

**NOTE:** The following memory is supported by the E3-1200v6, i3-7000 and G4560 and G4600 processors only

HPE 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Unbuffered Standard Memory Kit	862974-B21
HPE 8GB (1x8GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	819880-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2400 CAS-17-17-17 Unbuffered Standard Memory Kit	862976-B21

**NOTE:** The following memory is supported by the E3-1200v5, i3-6000 and G4500 and G4400 processors only

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	805671-B21
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**NOTE:** Depending on the processor selected these memory will run at 2133MHz.

### HPE Optical Drives

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

### HPE Drives

#### SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD	801882-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD	801888-B21

#### SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

HPE 1TB SATA 6G Entry 7.2K LFF (3.5in) RW 1yr Wty HDD	843266-B21
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Core Options

**NOTE:** These Entry drives will have lower performance and workload rating in comparison to HPE enterprise drives.

**SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives**

HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	861691-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872491-B21
HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD	861750-B21
HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	819203-B21

**SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives**

HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872489-B21
HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	857648-B21
HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	881785-B21

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

HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870753-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872475-B21
HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870757-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872477-B21
HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870759-B21
HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872479-B21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	872481-B21
HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	881457-B21

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

HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	870765-B21
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**SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives**

HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872485-B21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872487-B21
HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	819201-B21
HPE 1TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846524-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846514-B21
HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	857644-B21
HPE 12TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	881779-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
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**6G SATA Hot Plug SFF (2.5-inch) SC 512e Drives**

Core Options

HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD 765455-B21

**SSD Selection**

To streamline the configuration process for HPE ProLiant Gen9 servers and to provide the best product availability, HPE recommends SSDs from the list located here: <https://ssd.hpe.com/recommend>.

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

HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD 875483-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 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 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 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD 880295-B21  
 HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD 877776-B21  
 HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD 877788-B21  
 HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD P07922-B21  
 HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD P07926-B21  
 HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD P07930-B21

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

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD 832514-B21  
 HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD 765466-B21  
 HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD 765464-B21

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

HPE 480GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD 875311-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 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 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 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD P06584-B21  
 HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD P06586-B21  
 HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD P06588-B21  
 HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD P06590-B21



Core Options

HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06592-B21
<b>12G SAS Hot Plug SFF (2.5-inch) SC Write Intensive Solid State Drives</b>	
HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873351-B21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873355-B21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873357-B21
<b>12G SAS Hot Plug SFF (2.5-inch) SC Mixed Use Solid State Drives</b>	
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
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 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 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
<b>12G SAS Hot Plug SFF (3.5-inch) SC Mixed Use Solid State Drives</b>	
HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	872378-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Mixed Use SCC Solid State Drives</b>	
HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	872350-B21
HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	875480-B21
HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	872346-B21
HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P03691-B21
HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	877790-B21
HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P07924-B21
HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P07928-B21
HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P07932-B21
<b>Mixed Use - 6G SATA - M.2 - Solid State Drives</b>	
HPE 240GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875488-B21
HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875490-B21
HPE 960GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875492-B21
<b>6G SATA Hot Plug SFF (2.5-inch) SC Read Intensive Solid State Drives</b>	
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875503-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875509-B21

Core Options

HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875511-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875513-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877740-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877746-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868818-B21
HPE 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	877752-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868826-B21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	870144-B21

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

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

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

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

**M.2 SSD**

HPE Universal SATA HHHL 3yr Wty M.2 Kit	878783-B21
HPE DL20 Gen9 M.2 RA and Optical Disk Drive Power Cable Kit	816284-B21

**NOTE:** 816284-B21 cable kit is a mandatory option required to support M.2 SSDs.

**NOTE:** M.2 drives go in PCIe slot and use B140i SATA controller.

**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
<b>NOTE:</b> This networking card can NOT be selected with P440, H240, and P841. As an alternate solution the 4-port FlexibleLOM Adapter 629135-B21 can be chosen with P440, H240 or P841.	

HPE Ethernet 1Gb 4-port 366T Adapter	811546-B21
<b>NOTE:</b> This networking card can NOT be selected with P440, H240, and P841. As an alternate solution the 4-port FlexibleLOM Adapter 665240-B21 can be chosen with P440, H240 or P841.	

HPE PS1810-24G Switch	J9834A
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**1 Gigabit Ethernet adapters**

HPE Ethernet 1Gb 2-port 332T Adapter	615732-B21
HPE Ethernet 1Gb 2-port 361T Adapter	652497-B21

Core Options

**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

**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.**NOTE:** Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

**FlexibleLOM Adapters**

HPE Ethernet 1Gb 4-port 331FLR Adapter	629135-B22
HPE Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HPE FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HPE FlexFabric 10Gb 4-port 536FLR-T Adapter	764302-B21
HPE Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	779799-B21
HPE FlexFabric 10Gb 2-port 556FLR-SFP+ Adapter	727060-B21
HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
HPE Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21

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

**HPE I/O Expansion Options**

HPE DL20 Gen9 Flexible LOM Riser Kit	811259-B21
HPE DL20 Gen9 GPU Enablement Kit	811271-B21

**NOTE:** It is mandatory to choose any of the above riser kit for CTO configurations.

**HPE Power Supplies**

**Power Supplies - Redundant**

HPE DL20 Gen9 Redundant Power Supply Backplane Cable Kit	820306-B21
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**NOTE:** This RPS backplane Cable kit is mandatory to be chosen along with 900W backplane.

HPE 900W Standard AC 240VDC Power Input Module	775595-B21
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**NOTE:** This part number can only be bought standalone and is for field integration only.

**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:** DL20 Gen9 Backplane cable kit is a mandatory option with the backplane for DL20 Gen9.

**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.

## 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.

<b>HPE Insight Software</b>	<p><b>HPE Insight Control</b></p> <p>HPE Insight Control including 1yr 24x7 Technical Support and Updates 1-server LTU C6N27A</p> <p><b>NOTE:</b> Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.</p> <p><b>NOTE:</b> Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7HPE Software Technical Support and Update Service</p> <p><b>NOTE:</b> Licenses ship without media. The HPE Insight Control Media Kit can be ordered separately, or can be downloaded at: <a href="https://www.hpe.com/info/insightmanagement">https://www.hpe.com/info/insightmanagement</a></p> <p><b>NOTE:</b> For additional license options please see the <a href="#">HPE Insight Control QuickSpecs</a>.</p>
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<b>Embedded Management</b>	<p><b>HPE iLO Advanced</b></p> <p>HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features 512485-B21</p> <p>HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features 512486-B21</p> <p>HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features 512487-B21</p> <p>HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features BD505A</p> <p>HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features BD506A</p> <p>HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features BD507A</p> <p>HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features E6U59ABE</p> <p>HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features E6U64ABE</p> <p><b>HPE iLO Essentials</b></p> <p>HPE iLO Essentials License with 3yr Support on iLO Licensed Features BD774A</p> <p>HPE iLO Essentials License with 1yr Support on iLO Licensed Features BD775A</p> <p>HPE iLO Essentials Electronic License with 3yr Support on iLO Licensed Features E6U61ABE</p> <p>HPE iLO Essentials Electronic License with 1yr Support on iLO Licensed Features E6U62ABE</p>
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<b>HPE Converged Infrastructure Management Software</b>	<p><b>HPE OneView Advanced (without HPE iLO Advanced)</b></p> <p>HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU P8B24A</p>
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<b>High Performance Clusters</b>	<p><b>HPE Cluster Management Utility</b></p> <p>HPE Insight Cluster Management Utility 1yr 24x7 Flexible LTU QL803B</p> <p>HPE Insight Cluster Management Utility 3yr 24x7 Flexible LTU BD476A</p> <p>HPE Insight Cluster Management Utility Media BD477A</p> <p><b>NOTE:</b> For additional license kits please see the <a href="#">HPE Insight Cluster Management Utility QuickSpecs</a>.</p>
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<b>HPE Security</b>	<p>HPE Trusted Platform Module 2.0 Kit 745823-B21</p> <p>HPE Trusted Platform Module Option 488069-B21</p>
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**Additional Options**

HPE 1U Security Bezel Kit 664918-B21

**NOTE:** Quick Release Ear option kit (811254-B21) is mandatory for installing security bezel but may only be selected during the Factory Integration process.

**HPE Storage Controllers**

**SAS Controllers**

**HPE Smart Array Controllers**

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

**NOTE:** The option above includes 96W Smart Storage Battery.

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

**NOTE:** The option above requires a 96W Smart Storage Battery (P01366-B21).

HPE Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller 726825-B21

HPE Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller 726903-B21

**NOTE:** P440 needs to be populated in slot 2 (Full Height).

**HPE Smart Host Bus Adapters**

HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter 726911-B21

HPE H240 12Gb 2-ports Int Smart Host Bus Adapter 726907-B21

**HPE Cable Options**

HPE DL20 Gen9 2LFF Mini SAS P440 Cable Kit 811279-B21

HPE DL20 Gen9 4SFF Mini SAS P440 Cable Kit 811282-B21

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

**NOTE:** All server models include mini-SAS cables required to connect drives to embedded B140i SATA controller or HBA240 controller (HBA240 is optional).

**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

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

**Optional Upgrades**

HPE 96W Smart Storage Battery (up to 20 Devices) with 145mm Cable Kit P01366-B21

**Battery Holder**

HPE DL20 Gen9 Smart Storage Battery Holder 822451-B21

**NOTE:** This holder is mandatorily required with Smart Storage Battery.

**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 Hewlett Packard Enterprise tape backup products <http://www.hpe.com/storage/BURACompatibility>.

**NOTE:** For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.

**Tape Drives**

**SAS Rack-Mount Tape Solutions**

HPE StoreEver LTO-8 Ultrium 30750 External Tape Drive BC023A

HPE StoreEver MSL LTO-8 Ultrium 30750 FC Drive Upgrade Kit Q6Q67A

## Additional Options

HPE StoreEver MSL LTO-8 Ultrium 30750 SAS Drive Upgrade Kit	Q6Q68A
HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive	BB874A
HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit	N7P37A
HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit	N7P36A
HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit	COH27A
HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit	COH28A
HPE StoreEver MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit	BL540B
<b>HPE DAT Autoloader</b>	
HPE StoreEver 1/8 G2 LTO-8 Ultrium 30750 FC Tape Autoloader	Q6Q65A
HPE StoreEver 1/8 G2 LTO-8 Ultrium 30750 SAS Tape Autoloader	Q6Q66A
HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 SAS Tape Autoloader	N7P35A
HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 FC Tape Autoloader	N7P34A
HPE StoreEver 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader	BL536B
<b>MSL3040</b>	
HPE StoreEver MSL3040 Scalable Library Base Module	Q6Q62A
HPE StoreEver MSL3040 Scalable Library Expansion Module	Q6Q63A
HPE StoreEver MSL3040 Scalable Library Base Module	Q6Q62B

### HPE Disk Backup

#### HPE RDX Removable Disk Backup System

HPE RDX 4TB External Disk Backup System	Q2R33A
HPE RDX 3TB External Disk Backup System	P9L72A
HPE RDX 3TB Internal Disk Backup System	P9L71A
HPE RDX 2TB External Disk Backup System	E7X53B
HPE RDX 1TB External Disk Backup System	B7B69B
HPE RDX External Docking Station	C8S07B

**NOTE:** For the complete range of RDX drives and media see: <https://www.hpe.com/us/en/product-catalog/storage/disk-based-backup-systems.html>. For hardware and software compatibility of Hewlett Packard Enterprise disk backup products see: <http://www.hpe.com/storage/spock>.

### HPE Storage Options

#### Emulex Fibre Channel HBAs

HPE 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ763B
HPE StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter	C8R39A

#### QLogic Fibre Channel HBAs

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

### HPE Power Distribution Units (PDUs)

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

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

## Additional Options

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

**NOTE:** To learn more, please visit the <https://www.hpe.com/us/en/product-catalog/servers/rack-console-switches.hits-12.html>.

#### HPE USB Keyboard and Mouse

HPE USB US Keyboard/Mouse Kit

631341-B21

#### Rail Kits

HPE 1U Short Friction Rail Kit

775612-B21

### HPE Uninterruptible Power System (UPS)

**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 Flash Memory Card

700139-B21

HPE 8GB microSD Flash Memory Card

726116-B21

HPE 8GB microSD Flash USB Drive

737953-B21

HPE 8GB Dual microSD Flash USB Drive

741279-B21

### HPE Support Services

#### Installation & Start-up Services

HPE Installation ML/DL Series 10 Service

U7WZ5E

HPE Startup ML/DL Series 10 Service

U7WZ7E

#### Foundation Care

HPE 3 year Foundation Care Next business day DL20 Gen9 Service

H1AH3E

HPE 3 year Foundation Care Next business day with DMR DL20 Gen9 Service

H1AH4E

HPE 3 year Foundation Care 24x7 DL20 Gen9 Service

H1AH9E

HPE 3 year Foundation Care 24x7 with DMR DL20 Gen9 Service

H1AJ0E

HPE 3 year Foundation Care 24x7 with CDMR DL20 Gen9 Service

H1AP0E

HPE 3 year Foundation Care Next business day with CDMR DL20 Gen9 Service

H1AN7E

#### Proactive Care

HPE 3 year Proactive Care 24x7 DL20 Gen9 Service

H1AJ1E

HPE 3 year Proactive Care 24x7 with DMR DL20 Gen9 Service

H1AJ2E

HPE 3 year Proactive Care 24x7 with CDMR DL20 Gen9 Service

H1AP1E



## Memory

HPE Standard Memory UDIMMs has passed the rigorous Hewlett Packard Enterprise qualification and testing processes. The memory subsystem in this server supports UDIMMs. The server supports single-rank and dual-rank DDR4 UDIMMs operating at up to 2133 MHz DIMM speeds.

**Memory Population guidelines** The server supports two channels per processor with two DIMMs per channel for a total of four DIMMs per DL20 Gen9 Server.

**General Memory Population Rules and Guidelines:**

- . Only UDIMMs are supported on DL20 Gen9. No support for RDIMMs and LRDIMMs.
- . All the channels in a system run at the fastest common frequency.
- . Both single DIMM per channel and dual DIMMs per channel are supported at 2133MHz.

### Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E3-1200v5 Series Processor Family

Memory Bandwidth and Capacity				
[DIMM Type]	Unbuffered with ECC DIMMs (UDIMMs)			
HPE SKU P/N	805667-B21	819880-B21	805669-B21	805671-B21
DIMM Rank	Single Rank	Single Rank	Dual Rank	Dual Rank
DIMM Capacity	4GB	8GB	8GB	16GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V
DIMM Native Speed (MT/s)	2133	2133	2133	2133
SLOTS THAT CAN BE POPULATED				
4 slot servers	4	4	4	4
MAXIMUM CAPACITY (GB)				
	16	32	32	64
POPULATED DIMM SPEED (MT/s)				
1 DIMM Per Channel	2133	2133	2133	2133
2 DIMM Per Channel	2133	2133	2133	2133
3 DIMM Per Channel		n/a		

## Memory

### Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E3-1200v6 Series Processor Family

[DIMM Type]	Unbuffered with ECC DIMMs (UDIMMs)	
HPE SKU P/N	862974-B21	862976-B21
DIMM Rank	Single Rank	Dual Rank
DIMM Capacity	8GB	16GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V
DIMM Native Speed (MT/s)	2400	2400
<b>SLOTS THAT CAN BE POPULATED</b>		
4 slot servers	4	4
<b>MAXIMUM CAPACITY (GB)</b>		
	32	64
<b>POPULATED DIMM SPEED (MT/s)</b>		
1 DIMM Per Channel	2400	2400
2 DIMM Per Channel	2400	2400
3 DIMM Per Channel	n/a	n/a

#### DIMM slot and configuration diagram

#### UDIMM maximum configuration (1 CPU model)

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

CPU 1		
	Slot #	Population order
Chnl 2	1	B
	2	D
CPU 1		
	Slot #	Population order
Chnl 1	3	A
	4	C

## Memory

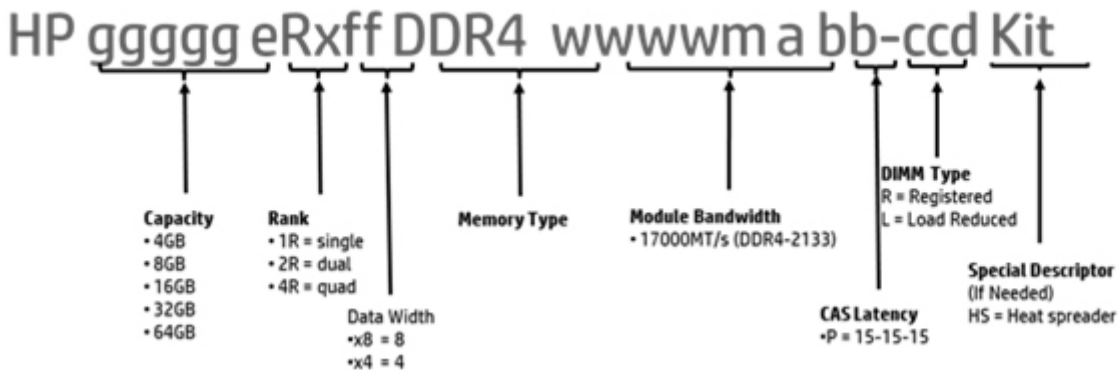
Memory Speed by Processor Model	Processor Models	Supported Memory Speeds
	E3-1220v5, E3-1225v5, E3-1230v5, E3-1240v5, E3-1270v5, E3-1280v5, E3-1260Lv5, E3-1240Lv5, i3-6100, i3-6300, G4500, G4400	2133MT/s
	E3-1220v6, E3-1225v6, E3-1230v6, E3-1240v6, E3-1270v6, E3-1280v6, i3-7100, i3-7300, G4560, G4600	2400MT/s

Standard and Maximum Memory Capacity (Pre-configured Models)	Pre-Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
	G4400	4GB (1x4GB)	52GB (3x16GB, 1x4GB)	64GB (4x16GB)
	E3-1240v5	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)
	E3-1220v5	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)
	G4560	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)
	E3-1220v6	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)
	E3-1240v6	16GB (1x16GB)	64GB (4x16GB)	64GB (4x16GB)

### DDR4 memory options part number decoder

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

- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB



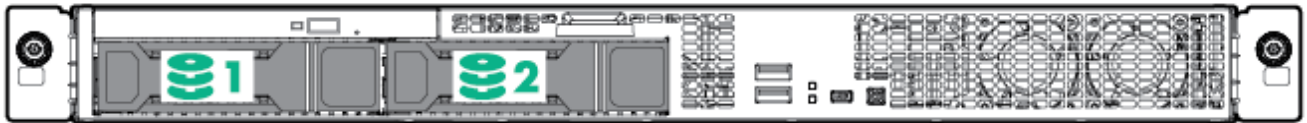
## Storage



1-4 4 x SFF SATA/SAS/SSD Hot Pluggable Hard Drive Bays



1-2 2 x LFF SATA/SAS/SSD Hot Pluggable and Non hot Pluggable Hard Drives Bays



1-2 2 x LFF SATA Non hot Pluggable Hard Drives Bays

## Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D)	4 SFF - 1.70 x 17.11 x 15.05 inches (4.32 x 43.46 x 38.22 cm) 2 LFF - 1.70 x 17.11 x 15.05 inches (4.32 x 43.46 x 38.22 cm)
	<b>Weight</b> (approximate)	Non hot Plug 2 LFF fully loaded 17.37lb (7.88kg) (all hard drives, power supplies, and processors installed)  Hot Plug 2LFF fully loaded 17.41lb (7.9kg) (one hard drive, power supply, and processor installed)
<b>290W Non-hot Plug Power Supply</b>		
<b>Input Requirements</b>	Range Input Voltage	100 to 240 VAC
	Rated Input Current	5.5 A max (at 100 VAC)
	Rated Input Frequency	50 to 60 Hz
	Rated Input Power	550 W (at 100 VAC)
	<b>BTU Rating</b>	Maximum
<b>Power Specifications</b>	To review typical system power ratings use the Power Advisor which is available via the online tool located at: <a href="http://www.hpe.com/info/hppoweradvisor">http://www.hpe.com/info/hppoweradvisor</a> -Click on the system of interest. Example: DL20 Gen9- Follow the instructions of the next screens.	
<b>Power Supply Output</b>	Rated Steady-State Power	290 W Max
	Maximum Peak Power	366 W within 10 seconds
<b>900W Redundant Power Supply</b>		
<b>Input Requirements</b>	Rated Input Voltage	100 to 127 VAC 200 to 240VAC
	Rated Input Frequency	50 to 60 Hz
	Rated Input Current	6.3 A at 100 V AC 4.9 A at 200 V AC
	Maximum rated input power	619 W at 100 VAC 976 W at 200 VAC
	BTUs per hour non redundant	2112 at 100 VAC 3329 at 200 VAC
	<b>Power Specifications</b>	To review typical system power ratings use the Power Advisor which is available via the online tool located at: <a href="http://www.hpe.com/info/hppoweradvisor">http://www.hpe.com/info/hppoweradvisor</a> - Click on the system of interest. Example: DL20 Gen9- Follow the instructions of the next screens.
<b>Power Supply Output</b>	Rated Steady-State Power	550 W at 100 VAC to 127 VAC input 900 W at 200 VAC to 240 VAC input
	Maximum Peak Power	550 W at 100 VAC to 127 VAC input 900 W at 200 VAC to 240 VAC input

## Technical Specifications

<b>System Inlet Temperature</b>	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 configurations for this system are listed at the URL: <b><a href="http://www.hpe.com/servers/ashrae">http://www.hpe.com/servers/ashrae</a></b> System performance may be reduced if operating in the extended ambient operating range or with a fan fault. <b>NOTE: Supports A3 extended ambient.</b>
<b>Relative Humidity</b>	Non-operating	-30°C to 65°C (-22°F to 149°F)
	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.
<b>Altitude</b>	Operating	3050 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).
<b>Acoustic Noise</b>	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	<b>Idle</b>	
	LWAd	Entry 3.7 B Base 3.8 B Performance 3.4B
	LpAm	Entry 20.0 dBA Base 20.0 dBA

Technical Specifications

		Performance 18.0 dBA
	<b>Operating</b>	
	LWAd	Entry 3.7 B Base 4.7 B Performance 5.6 B
	LpAm	Entry 20.0 dBA Base 30.0 dBA Performance 34.0 dBA
<b>Emissions Classification (EMC)</b>	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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

**NOTE:** The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

**NOTE:** The above power supply also supports 240VDC.

<b>HPE Dynamic Smart Array B140i Controller</b>	<b>Number of PCI links</b>	Four
	<b>PCI link rate</b>	4Gb/s
	<b>Storage protocol support</b>	SATA
	<b>SAS/SATA peak data transfer rate</b>	6Gb/s
	<b>Number of SAS/SATA links</b>	10 links
	<b>SAS/SATA connectivity</b>	2x4 connectors; 2x1 connectors
	<b>Expander support</b>	No
	<b>Drives supported (max)</b>	Up to 10 Internal Drives
	<b>RAID support</b>	0, 1, 10, 5 SATA
	<b>Software management</b>	HPE SSA, SMH, SIM
	<b>Warranty</b>	Server warranty
	<b>HPE Secure Encryption license</b>	Not Supported
	<b>HPE SmartCache License</b>	Not Supported
	<b>HPE Smart Storage Administrator</b>	Supported

<b>HPE Ethernet 1Gb 2-port 332i Adapter</b>	<b>Network Interface</b>	10Base-T/100Base-TX/1000Base-TX
	<b>Compatibility</b>	IEEE 802.3 10Base-T
		IEEE 802.3ab 1000Base-T
		IEEE 802.3u 100Base-TX
		Energy Efficient Ethernet (EEE) compliant with IEEE Std 802.3az (default is disabled)



## Technical Specifications

<b>Data Transfer Method</b>	PCI Express, two lanes (x2)	
<b>Controller</b>	BCM5720	
<b>Network Transfer Rate</b>	10Base-T (Half-Duplex)	10 Mb/s per port, 20 Mb/s Combined
	10Base-T (Full-Duplex)	20 Mb/s per port, 40 Mb/s Combined
	100Base-TX (Half-Duplex)	100 Mb/s per port, 200 Mb/s Combined
	100Base-TX (Full-Duplex)	200 Mb/s per port, 400 Mb/s Combined
	1000Base-TX (Half-Duplex)	1000 Mb/s per port, 2000 Mb/s Combined
	1000Base-TX (Full-Duplex)	2000 Mb/s per port, 4000 Mb/s Combined
<b>Connector</b>	Four RJ-45	
<b>Cable Support</b>	10 Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
	10/100/1000 Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)

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

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

<http://www.hpe.com/recycle>

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard Enterprise web site. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment. <http://www.hpe.com/recycle>

## Summary of Changes

Date	Version History	Action	Description of Change
03-Dec-2018	Version 32	Changed	Core Option Section was updated
01-Oct-2018	Version 31	Changed	Core Options, Additional Options and Standard Features sections were updated.
06-Aug-2018	Version 30	Changed	Core Options and Additional Options were updated.
02-Jul-2018	Version 29	Changed	The Smart Buy models section was updated for the NA version.
07-May-2018	Version 28	Added	Added new SMB SKU Offering.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
02-Apr-2018	Version 27	Changed	SKU description were updated.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
04-Dec-2017	Version 26	Added	Added new HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD.
16-Oct-2017	Version 25	Changed	Smart Buy models section was revised (NA version only).
25-Sep-2017	Version 24	Added	New SSD offering was added to the HPE Drives section. Added new Storage options.
		Changed	Core Options and Additional Options were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
04-Sep-2017	Version 23	Changed	Product descriptions were updated throughout the QuickSpecs.
07-Aug-2017	Version 22	Added	Added new Solid State Drives to the HPE Drives section.
11-Jul-2017	Version 21	Changed	Operating Systems and Virtualization Software Support for ProLiant Servers section was revised.
05-Jun-2017	Version 20	Added	Added new Solid State Drives to the HPE Drives section.
08-May-2017	Version 19	Added	New Intel Pentium Core i3 and E3-1200v6 processors were added. Added new 2400 MT/s UDIMMs. Added support for ClearOS. Added new Pre-Configured Models.
		Changed	Processor, Memory, Operating Systems and Virtualization Software Support for ProLiant Servers, and Graphics under Standard Features were revised. HPE Processors, HPE Memory, HPE Drives, HPE Computation and Graphics Accelerators, HPE Data Center Racks, and Memory were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
03-Apr-2017	Version 18	Changed	HPE Processors section was revised.
27-Mar-2017	Version 17	Added	Added new Hard Drives.
17-Feb-2017	Version 16	Changed	HPE Memory section under Core Options was revised.
13-Feb-2017	Version 15	Added	Added new HDD ans SSD offering to the HPE Drives section.
09-Dec-2016	Version 14	Changed	Smart Buy models section in the NA version was revised.
28-Nov-2016	Version 13	Added	Added new Hard Drives offering. Added new M2000 GPU option.
		Changed	Maximum Internal Storage, Graphics, HPE Computation and Graphics Accelerators, and HPE Disk Backup were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
28-Oct-2016	Version 12	Removed	Obsolete Hard Drives were removed from the QuickSpecs.
26-Sep-2016	Version 11	Added	Added new LFF 10TB SATA drives offering.
		Changed	Maximum Internal Storage and Pre-configured Models were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
15-Aug-2016	Version 10	Changed	HPE Networking section was revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.

## Summary of Changes

10-Jun-2016	Version 9	Removed	HPE Dual 32GB microSD Enterprise Midline USB Kit was removed from the QuickSpecs.
06-Jun-2016	Version 8	Added	Added new HDD offering to the HPE Drives section.
		Changed	HPE Networking, HPE Converged Infrastructure Management Software, and HPE Disk Backup were revised.
06-May-2016	Version 7	Changed	Energy Star certification in Pre-Configured Models section was revised.
08-Apr-2016	Version 6	Changed	HPE Processors section was revised.
31-Mar-2016	Version 5	Added	Added new HPE Non-hot Plug Entry drives and Hot plug standard drives. Added new 8Gb and 16Gb Fiber Channel HBA support. Added new TPM 2.0 security module.
		Changed	Maximum Internal Storage, Graphics, Embedded Management, Security, Service and Support, Pre-configured Models, Power Supplies, and Storage Options sections were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
16-Feb-2016	Version 4	Added	New HDD offering was added to HPE Drives.
		Changed	HPE Data Center Racks, HPE Power Distribution Units (PDUs), and HPE Uninterruptible Power Systems (UPS) were revised.
12-Jan-2016	Version 3	Changed	Upgradeability and HPE Power Supplies were revised.
17-Dec-2015	Version 2	Added	Smart Buy models were added to the NA version.
		Changed	Power Supply, Upgradeability, and Technical Specifications were revised.
01-Dec-2015	Version 1	New	New QuickSpecs.



[hpe.com/qref/dl20gen9](http://hpe.com/qref/dl20gen9)



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