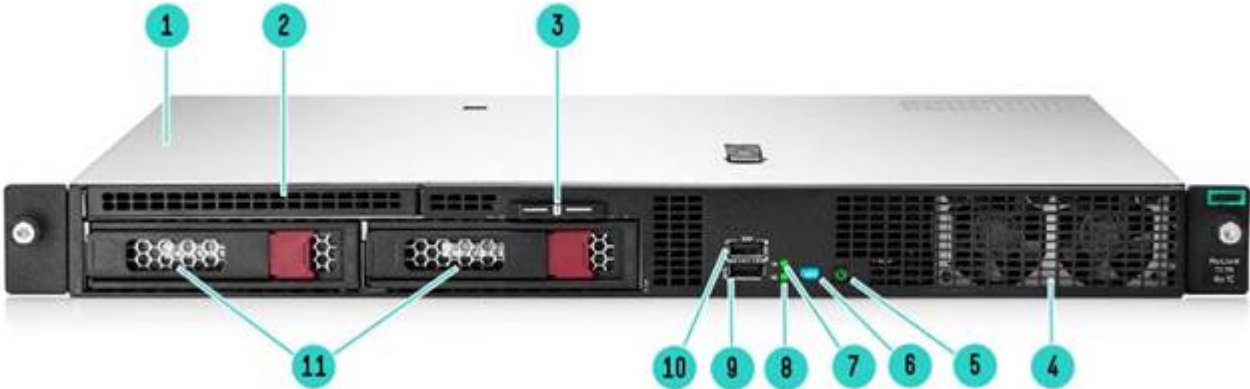


Overview

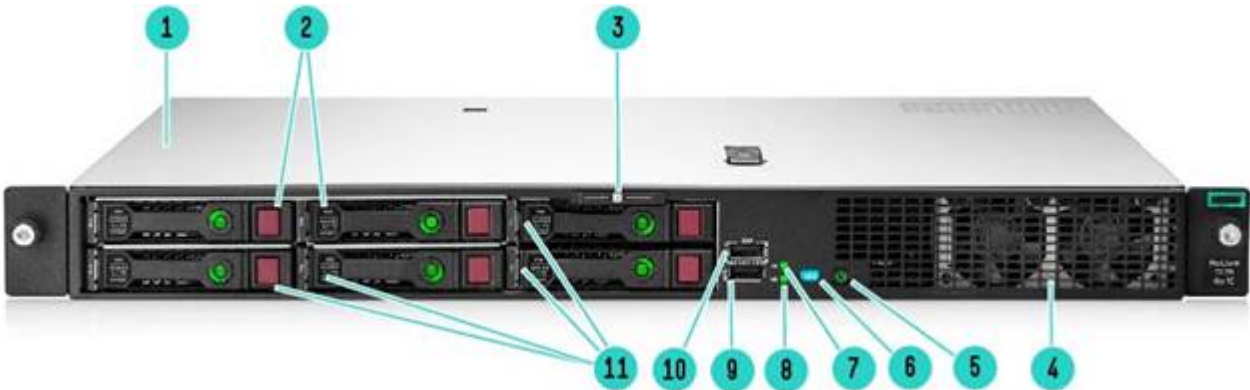
HPE ProLiant DL20 Gen10 Server

The dense and compact HPE ProLiant DL20 Gen10 Server powered by Intel® Xeon® E Processor, Pentium and Core i3 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. Deploy this dense platform for diverse workloads in space constrained environments and maintain it with ease by automating the most essential server lifecycle management tasks with HPE iLO 5.



2 LFF Front View

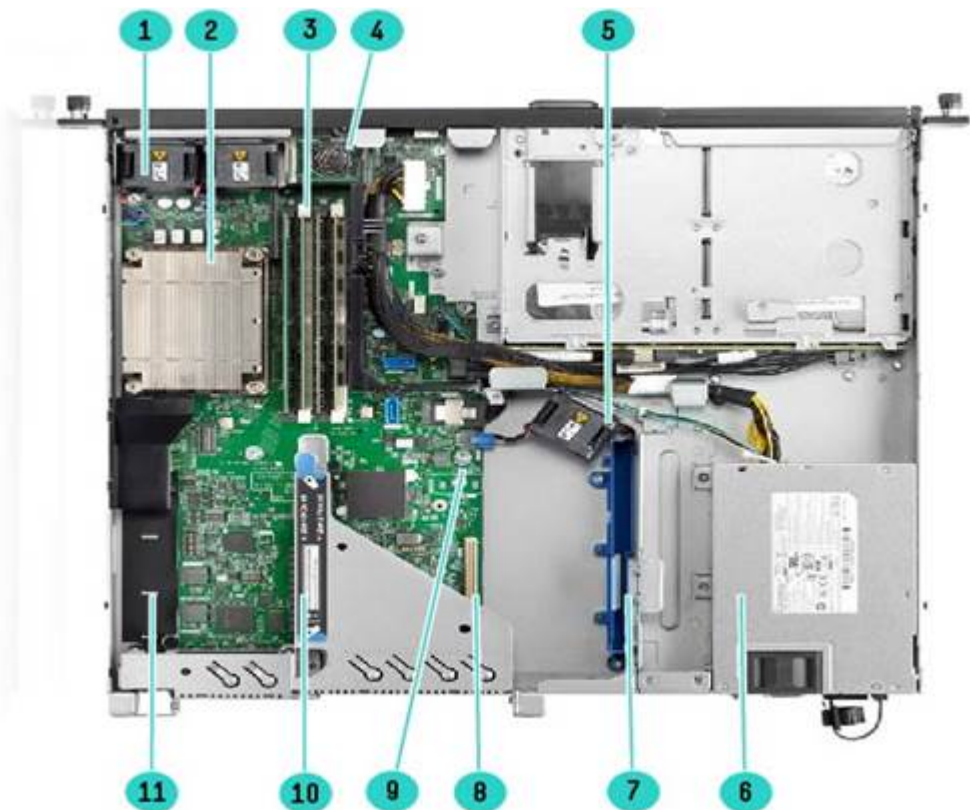
- | | | | |
|----|--|-----|---------------------------------|
| 1. | Access Panel | 7. | Health LED |
| 2. | Optical drive bay | 8. | NIC Status LED |
| 3. | Serial number/iLO information pull tab | 9. | USB 3.0 Port |
| 4. | Front Fan Assembly | 10. | iLO Service Port (USB) |
| 5. | System Power LED | 11. | Two-bay LFF hot-plug drive bays |
| 6. | UID LED | | |



4 (+2) SFF Front View

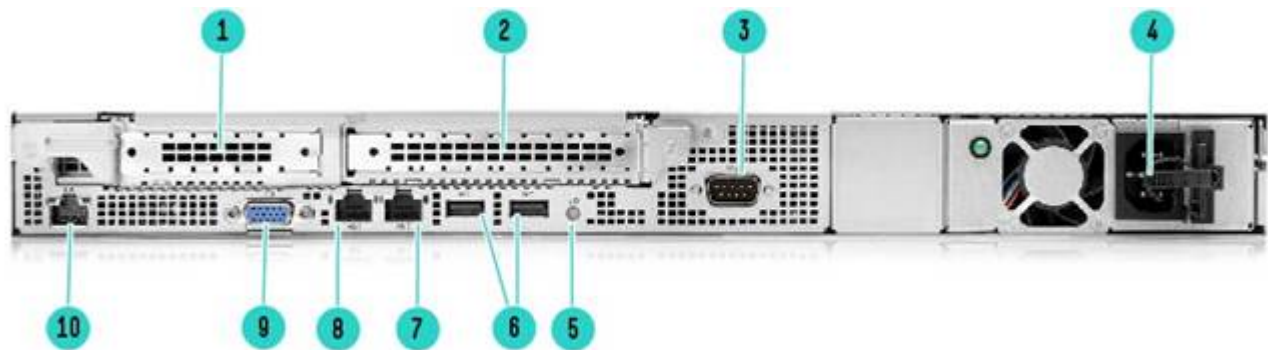
- | | | | |
|----|--|-----|---------------------------|
| 1. | Access Panel | 7. | Health LED |
| 2. | 2 SFF hot plug drive bays (optional) | 8. | NIC Status LED |
| 3. | Serial number/iLO information pull tab | 9. | USB 3.0 Port |
| 4. | Front Fan Assembly | 10. | iLO Service Port (USB) |
| 5. | System Power LED | 11. | 4 SFF hot plug drive bays |
| 6. | UID LED | | |

Overview



Internal View - Standard for all DL20 Gen10

- | | | | |
|----|--|-----|--------------------------------|
| 1. | Fan cage shown with 2 fans | 7. | Optional Smart Storage Battery |
| 2. | Processor shown with heat sink | 8. | Modular Smart Array connector |
| 3. | Four DDR4 DIMM Slots | 9. | Optional TPM 2.0 |
| 4. | System Battery | 10. | PCIe Riser |
| 5. | Central fan assembly (3 rd fan) | 11. | Option: Dedicated iLO/M.2 SSD |
| 6. | Power Supply (1x290W) | | |



Rear View - Standard for all DL20 Gen10

- | | | | |
|----|-------------------------------|-----|---------------------------------------|
| 1. | Slot 1 PCIe 3.0 | 6. | Two USB 3.0 Ports |
| 2. | Slot 2 PCIe 3.0 | 7. | NIC Port (1Gb) |
| 3. | Option: Serial Port | 8. | NIC port (1Gb) /iLo port |
| 4. | 290W Non hotplug Power Supply | 9. | VGA port |
| 5. | UID LED | 10. | Option: Dedicated iLO Management Port |

What's New

Overview

- Supports latest Intel® Xeon® E-2200 processors up to 8 cores and 9th Gen Core™ i3 and Pentium® G processors and 2666MT/s UDIMM with support for Intel® Software Guard Extensions. Intel® SGX is an architecture extension designed to increase the security of application code and data.
- HPE 361i 1Gb 2-Port network adapter on models with Intel Xeon E-2200, i3-9300 and G5420.
- Storage enhancements in the form of increased capacity of up to 6 SFF drives & M.2 SSDs for boot
- Dedicated iLO Management Port as an option kit for faster and more secure data transmission
- New 480GB NVMe SSD support
- From 01 March 2020, European Union (EU) Lot 9 regulation will take effect. Complying with Lot 9 is a necessary part of acquiring the CE marking. For more information please visit [**HPE ERP Lot9**](#)

Declaration and HPE Lot 9 conformance

- 290W 92% power efficiency non-redundant power supply will continue to support Pre-Configured Models in regions where CE marking is NOT mandatorily required (rest of the globe, except EMEA).
- In EMEA, orders starting from from 01 March 2020, to be compliant with EU Lot 9, new 290W non-redundant Platinum power supply with 94% power efficiency will be introduced and to replace the original 92% power supply, in support of both Pre-Configured Models and Configured Factory Integrated Models (CTO/FIO).
- 290W 94% efficiency Platinum non-redundant power supply would also be available in rest of the globe, for orders starting from 01 Mar 2020, ONLY in Configured Factory Integrated Models (CTO/FIO). These models would be compliant with EU Lot 9 regulation.
- To be compliant with EU Lot 9, more choice of Power Supplies with 500W 94% efficiency and 800W 48VDC 96% efficiency Flex Slot Redundant Power Supplies are available.
- Warranty increased from 1yr to 3yrs (parts, labor & Onsite support)

Platform Information

Form Factor

- 1U rack

Chassis Types

- 4 SFF with options supporting: +2 SFF
- 2 LFF Hot Plug
- 2 LFF Non Hot Plug

System Fans

- Includes 3 standard single rotor non-hot plug and non-redundant fans

Notes: This applies for all three chassis: 2LFF NHP, 2LFF HP and 4SFF HP

Standard Features

Processors

Intel® Xeon® E Processors are 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.

Notes:

- For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/xeon>
- This table covers the public offering only
- Not applicable for Intel Processor Graphics

Intel Xeon E-2200 Family / 9 th Gen Core i3 and Pentium G						
Intel Models	CPU Frequency	Cores	L3 Cache	Power	DDR4	Intel® SGX
G5420	3.8GHz	2	4MB	54W	2400	No
i3-9100	3.6GHz	4	8MB	65W	2400	No
E-2224	3.4GHz	4	8MB	71W	2666	No
E-2234	3.6GHz	4	8MB	71W	2666	No
E-2236	3.4GHz	6	12MB	80W	2666	No
E-2226G	3.4GHz	6	12MB	80W	2666	No
E-2244G	3.8GHz	4	8MB	71W	2666	No
E-2274G	4.0GHz	4	8MB	83W	2666	Yes
E-2276G	3.8GHz	6	12MB	80W	2666	Yes
E-2286G	4.0GHz	6	12MB	95W	2666	Yes
E-2278G	3.4GHz	8	16MB	80W	2666	Yes

Chipset

Intel® C242 Chipset

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

On System Management Chipset

HPE iLO 5 ASIC

Notes: Read and learn more in the [iLO QuickSpecs](#).

Memory

- **Type**
HPE DDR4 Unbuffered Memory (UDIMM)
- **DIMM Slots Available**
4 (4 DIMM slots per processor, 2 channels per processor, 2 DIMMs per channel)
- **Maximum capacity (UDIMM)**
64 GB (4 x 16 GB UDIMM @ 2666 MT/s)

Notes:

- The maximum memory speed depends on processor model.
- For General Server Memory and DIMM Population Rules and Guidelines for Gen10 see details here: <http://www.hpe.com/docs/memory-population-rules>.

Standard Features

Memory Protection

- ECC

Internal Storage Devices

Optical Drive

- Available on 4 SFF and 2 LFF CTO Servers as an option (DVD-ROM or DVD-RW)

Hard Drives

- None ship standard

Network Controller

HPE Ethernet 1Gb 2-port 361i network Adapter (Intel i350)
The HPE ProLiant DL20 Gen10 server offers the customer a dual-port NIC standard with the option to upgrade with a variety of networking options.

Notes:

- ProLiant DL20 Gen10 with Intel Xeon E-2200, 9th Gen Core™ i3 and Pentium G processors comes with Intel i350 (LOM) on board.
- ProLiant DL20 Gen10 system do not support Networking SR-IOV.

Expansion Slots

Primary FIO LP Riser					
Expansion Slots #	Technology	Bus Width	Connector Width	Processor	Slot Form Factor
1	PCIe 3.0	X8	X8	CPU1	Low profile
2	PCIe 3.0	x8	X16	CPU1	Full height half length

Flexible LOM Riser					
Expansion Slots #	Technology	Bus Width	Connector Width	Processor	Slot Form Factor
1	PCIe 3.0	X8	X8	CPU 1	Flexible LOM
2	PCIe 3.0	X8	x16	CPU 1	Full height half length

Notes:

- This riser is mandatory for installing FlexibleLOMs.
- Bus Width indicates the number of physical electrical lanes running to the connector.

Storage Controllers

The Gen10 controller naming framework has been updated to simplify identification as depicted below. For a more detailed breakout of the available Gen10 Smart Array controllers visit the [HPE Smart Array Gen10 Controllers Data Sheet](#)

Software RAID

- HPE Smart Array S100i SR Gen10 SW RAID

Notes:

- HPE Smart Array S100i SR Gen10 SW RAID will operate in UEFI mode only. For legacy support an

Standard Features

- additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22.
- HPE Smart Array S100i SR Gen10 SW RAID is off by default and must be enabled by selecting 784308-B21.
- The S100i is a 14-port SATA controller, but only 12 ports are accessible as 2 are leveraged to support the 2 M.2 options on the Primary Riser.
- The S100i supports windows only.
- For Linux users, HPE offers a solution that uses in-distro open-source software to create a two-disk RAID 1 boot volume. For more information visit: <https://downloads.linux.hpe.com/SDR/project/lssrb/>

Essential RAID Controllers

- HPE Smart Array E208i-a SR G10 LH Controller
- HPE Smart Array E208e-p SR Gen10 Controller

Performance RAID Controllers

- HPE Smart Array P408i-a SR G10 LH Controller
- HPE Smart Array P408e-p SR Gen10 Controller

Notes: For additional details, please see [HPE Smart Array Gen10 Controllers Data Sheet](#).

Maximum Storage

Drive	Capacity	Configuration
Hot Plug SFF SAS HDD	14.4 TB	4 x 2.4 TB + 2 x 2.4 TB (with optional +2 drive option)
Hot Plug SFF SATA HDD	12 TB	4 x 2.0 TB +2 x 2.0 TB (with optional + 2 drive option)
Hot Plug SFF SAS SSD	92.16 TB	4 x 15.36 TB +2 x 15.36 TB (with optional + 2 drive option)
Hot Plug SFF SATA SSD	46.08 TB	4 x 7.68 TB +2 x 7.68 TB (with optional + 2 drive option)
Hot Plug LFF SAS HDD	32 TB	2 x 16 TB
Hot Plug LFF SATA HDD	32 TB	2 x 16 TB
Hot Plug LFF SAS SSD	3.2 TB	2 x 1.6 TB
Hot Plug LFF SATA SSD	15.36 TB	2 x 7.68 TB
M.2 NVM3 SSD	480 GB	1 x 480 GB

Power Supply

From 01 March 2020, European Union (EU) Lot 9 regulation will take effect. Complying with Lot 9 is a necessary part of acquiring the CE marking. For more information please visit [HPE Lot 9 conformance](#)

<https://www.hpe.com/us/en/about/environment/msds-specs-more.html>

- HPE 290W nun-redundant FIO Power Supply
 - **P06731-B21**, 290W 92% power efficiency, will continue to support Pre-Configured Models in regions where do not mandatory require CE mark (rest of the globe, except EMEA).
 - **P21649-B21**, 290W 94% efficiency Platinum power supply, would also be available in below models.

Starting from March 1, 2020 in EMEA, to be compliant with EU Lot 9, to support both Pre-Configured Models and Configured Factory Integrated Models (CTO/FIO).

For rest of the globe, ONLY in Configured Factory Integrated Models (CTO/FIO). These models would be

Standard Features

compliant with EU Lot 9 regulation.

- HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
Notes: Available in 94% efficiency.
- HPE 800W Flex Slot -48VDC Platinum Hot Plug Low Halogen Power Supply Kit
Notes: Flex Slot -48VDC power supplies support power efficiency of up to 94%.

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 Gen10 Server.

The HPE 290W Non-redundant Power Supply is the standard, non-redundant AC power supply with 80Plus Silver Certification, which feature with 92% power efficiency and the other one is Platinum 94% efficiency (EU Lot 9 compliant). Both are optimized for the DL20 Gen10 rack server.

The European Union (EU) eco-design regulations for server and storage products, known as ErP Lot 9, will go into effect on 01 March 2020. Among other requirements, for servers this directive establishes power thresholds for idle state, as well as efficiency and performance in active state which vary among configurations. HPE ProLiant Gen10 servers are compliant with Lot 9 requirements. For more information regarding EU Lot 9, please visit [HPE ERP Lot9 Declaration](#) and [HPE Lot 9 conformance](#)

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE ProLiant Gen10 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center. 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. To review the power requirements for your selected system, please use the [HPE Power Advisor Tool](#) For information on power specifications and technical content visit [HPE Server power supplies](#)

Interfaces

Serial	1 port - Optional
Video	1 Rear - VGA port (standard on all chassis types)
Network Ports	2x 1GbE embedded NIC (standard on all chassis types)
iLO Remote Mgmt Port	1 Gb Dedicated - Optional
USB 3.0	5 USB ports (standard) Front: 1xUSB 3.0, 1xUSB iLO Service Port Rear: 2xUSB 3.0 Internal: 1x USB 3.0

Operating Systems and Virtualization Software

Notes: For more information on Hewlett Packard Enterprise Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server <http://www.hpe.com/info/ossupport>

- Windows Server 2019

Standard Features

- **Windows Server 2016** (Most Recent Version)
- **VMware vSphere** 6.7, 6.5 U3 and 7.0
Notes: VMware supported only with Intel® Xeon® E processors, not supported with Intel® Core™ or Pentium® processors.
- **Red Hat Enterprise Linux (RHEL)** 8.0 and 7.6
- **SUSE Linux Enterprise Server (SLES)** 15 and 12 SP3
- **ClearOS/VM 7.5**
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.
Notes: ClearOS allows you to build a fully functional server that is just right for you at no upfront cost. For more information on ClearOS, please visit <http://www.hpe.com/servers/clearos>
- **CentOS**
Notes: CentOS not directly supported / Community Supported (Based on RHEL so RHEL testing and enablement applicable to CentOS) CentOS 7.5 and 8.0

Upgradeability

One of the following depending on model

- Flexible LOM connector for 1 or 10 or 25 Gigabit networking options
- Up to 4 DIMM slots available for higher memory capacity
- Up to 4SFF (+2SFF optional) Drive bays or 2LFF Drive bays
- HPE Smart Array or Smart HBA Controller
- Redundant Power Supply
- Dedicated iLO Management Port
- M.2 NVMe SSDs for boot

Graphic

Integrated Matrox G200 video standard

- Video modes up to 1920 x 1200 @ 60 Hz (32 bpp)
- 16 MB Video Memory

HPE iLO 5 on system management memory

- 32 MB Flash
- 4 Gbit DDR3 with ECC protection

Industry Standard Compliance

- ACPI 6.1 Compliant
- PCIe 3.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- PXE Support
- USB 3.0 Compliant
- USB 2.0 Compliant

Standard Features

- SMBIOS 3.1
- UEFI 2.6 (Unified Extensible Firmware Interface Forum)
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- TPM 1.2 and 2.0 support
- Advanced Encryption Standard (AES)
- Triple Data Encryption Standard (3DES)
- SNMP v3
- TLS 1.2
- DMTF Systems Management Architecture for Server Hardware Command Line (SMASH CLP)
- Active Directory v1.0
- ASHRAE A3/A4
- Energy Star

Notes: For additional technical thermal details regarding ambient temperatures, humidity and features support please visit: <http://www.hpe.com/servers/ashrae>.

- European Union (EU) Lot 9

Notes: Will go into effect on 01 March 2020. Among other requirements, for servers this directive establishes power thresholds for idle state, as well as efficiency and performance in active state which vary among configurations. HPE ProLiant Gen10 servers are compliant with Lot 9 requirements. For more information regarding HPE Lot 9 conformance, please visit:

<https://www.hpe.com/us/en/about/environment/msds-specs-more.html>

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 Gen10 servers have a UEFI Class 2 implementation and support both UEFI Mode (default) and Legacy BIOS Mode.

Notes: 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 and Secure Start enable for enhanced security
- 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 iLO RESTful API that is Redfish API Conformant
- PXE boot support for IPv6 networks
- Workload Profiles for simple performance optimization

UEFI Boot Mode only:

- TPM 2.0 Support
- iSCSI Software Initiator Support.
- HTTP/HTTPS Boot support as a PXE alternative.
- Boot support for option cards that only support an UEFI option ROM

Notes:

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

Standard Features

– Legacy FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your HPE ProLiant Gen10 Server

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>.

Intelligent Provisioning

Hassle free server and OS provisioning for one or more servers with Intelligent Provisioning.

Learn more at <http://www.hpe.com/servers/intelligentprovisioning>

iLO RESTful API

iLO RESTful API is Redfish API conformance and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at

<http://www.hpe.com/info/restfulapi>.

Server Utilities

Active Health System

The HPE Active Health System (AHS) is an essential component of the iLO management portfolio that provides continuous, proactive health monitoring of HPE servers. Learn more at

<http://www.hpe.com/servers/ahs>.

Active Health System Viewer

Use the Active Health System Viewer, a web-based portal, to easily read AHS logs and speed problem

resolution with HPE self-repair recommendations, to learn more visit: <http://www.hpe.com/servers/ahsv>.

Smart Update

Keep your servers up to date with the HPE Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP). Learn more at

<http://www.hpe.com/info/smartupdate>

iLO Amplifier Pack

Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9 and Gen10 HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities.

Learn more at <http://www.hpe.com/servers/iLOamplifierpack>.

Standard Features

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>

RESTful Interface Tool

RESTful Interface tool (iLOREST) is a single scripting tool to provision using iLO RESTful API to discover and deploy servers at scale. Learn more at <http://www.hpe.com/info/resttool>

Scripting Tools

Provision one to many servers using your own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at

<http://www.hpe.com/servers/powershell>

HPE OneView Standard

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. It can monitor multiple HPE server generations. The user interface is similar to the HPE OneView Advanced version, but the software-defined functionality is not available. Learn more at

<http://www.hpe.com/info/oneview>

HPE Systems Insight Manager (HPE SIM)

Ideal for environments already using HPE SIM, it allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers. 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/info/hpesim>

Security

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust
- FIPS 140-2 validation
- Common Criteria certification
- Configurable for PCI DSS compliance
- Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser
- Support for Commercial National Security Algorithms (CNSA)
- iLO Security Modes including a New iLO Advanced Premium Security License
- Granular control over iLO interfaces
- Smart card (PIV/CAC) and Kerberos based 2-factor Authentication
- Tamper-free updates - components digitally signed and verified
- Secure Recovery - recover critical firmware to known good state on detection of compromised FW
- Ability to rollback firmware
- Secure erase of NAND
- TPM (Trusted Platform Module) 1.2 option
- TPM (Trusted Platform Module) 2.0 option
- Bezel Locking Kit
- Chassis Intrusion detection option
- Intel® Software Guard Extensions (Intel® SGX)

Notes: Intel® SGX is supported in selective processors. Please refer to the Standard Features - Processor section.

Standard Features

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Services 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.

Notes:

- Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <https://www.hpe.com/support/ProLiantServers-Warranties>
 - Warranty does not cover support for ClearOS. Support for ClearOS is provided by ClearCenter.
-

Optional Features

Server Management

HPE iLO Advanced

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality.

HPE iLO Advanced Premium Security Edition

HPE iLO Advanced Premium Security Edition for iLO 5 includes iLO Advanced License plus high-end security modes, unique security capabilities, like Automatic FW recovery; Runtime FW verification, and Secure erase. Learn more about HPE iLO Advanced Premium Security Edition at:

<http://www.hpe.com/servers/ilopremium>

HPE GreenLake for Compute Ops Management

HPE is intelligently transforming compute management with an intuitive cloud operating experience through HPE GreenLake cloud platform to streamline and secure operations from edge-to-cloud. Automated key lifecycle tasks, for onboarding, updating, managing, and monitoring HPE servers, brings agility and greater efficiencies to wherever compute devices reside via a unified single browser-based interface. Manage single locations or multiple, distributed sites. Keep tens to thousands of servers secure with batch policy controls and automated updates.

Compute Ops Management is cloud-native software that is continually updated with new services, features, patches, and fixes. The management application resides in the HPE GreenLake cloud platform (access via <https://console.greenlake.hpe.com>) and leverages the HPE GreenLake architecture, security, and unified operations.

For a complete list of software as-a-service subscription SKUs and more information, visit the HPE GreenLake for Compute Ops Management QuickSpecs:

<https://www.hpe.com/psnow/doc/a50004263enw>

For information on supported HPE servers, the complete list can be found here:

<https://www.hpe.com/info/com-supported-servers>

HPE OneView Advanced

HPE OneView brings a new level of automation to infrastructure management by taking a template driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It provides full-featured licenses which can be purchased for managing Gen8, Gen9 and Gen10 servers. To learn more visit <http://www.hpe.com/info/oneview>

HPE InfoSight for Servers

HPE InfoSight for Servers combines the cloud-based machine learning of InfoSight with the health and performance monitoring of Active Health System (AHS) and iLO to optimize performance and predict and prevent problems. The end result is an intelligent environment that modernizes IT operations and enhances the support experience by predicting and preventing the infrastructure issues that lead to application disruptions, wasted IT staff time and missed business opportunities.

Learn more at <https://www.hpe.com/servers/infosight>

Optional Features

HPE Insight Cluster Management Utility (CMU)

HPE Insight Cluster Management Utility is a HyperScale management framework that includes software for the centralized provisioning, management and monitoring of nodes and infrastructure. Learn more at <http://www.hpe.com/info/cmu>

Rack and Power Infrastructure

The story may end with servers, but it starts with the foundation that makes compute go - and business grow. We've reinvented our entire portfolio of rack and power products to make IT infrastructure more secure, more practical, and more efficient. In other words, we've created a stronger, smarter, and simpler infrastructure to help you get the most out of your IT equipment. As an industry leader, Hewlett Packard Enterprise is uniquely positioned to address the key concerns of power, cooling, cable management and system access.

HPE G2 Advanced and Enterprise Racks are perfect for the server room or today's modern data center with enhanced airflow and thermal management, flexible cable management, and a 10 year Warranty to support higher density computing.

HPE G2 PDUs offer reliable power in flexible form factors that operate at temperatures up to 60°, include color-coded outlets and load segments and a low-profile design for optimal access to the rack and support for dense rack environments.

HPE Uninterruptible Power Systems are cost-effective power protection for any type workload. Some UPSs include options for remote management and runtime modules so your critical dense data center is covered in power outages.

HPE KVM Solutions include a console and switches designed to work with your server and IT equipment reliably. We've got a cost-effective KVM switch for your first rack and multiple connection IP switches with remote management and security capabilities to keep your data center rack up and running.

Learn more about HPE Racks, KVM, PDUs and UPSs at [**HPE Rack and Power Infrastructure**](#)

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. [**https://h22174.www2.hpe.com/SimplifiedConfig/Welcome#**](https://h22174.www2.hpe.com/SimplifiedConfig/Welcome#)

Service and Support

HPE Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

<https://www.hpe.com/services>

Consulting Services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.

<https://www.hpe.com/services/consulting>

HPE Managed Services

HPE runs your IT operations, providing services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

[HPE Managed Services | HPE](#)

Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.

<https://www.hpe.com/services/operational>

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/complecare>

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>

Service and Support

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:

<https://www.hpe.com/services/lifecycle>

For a list of the most frequently purchased services using service credits, see the [HPE Service Credits Menu](#)

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.

<https://www.hpe.com/services/training>

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE 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.

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at <https://ssc.hpe.com/portal/site/ssc/>

Service and Support

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.

<https://support.hpe.com/hpesc/public/home/signin>

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are-the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE" <https://www.hpe.com/us/en/contact-hpe.html>

For more information

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

Pre-configured Models

- Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
- Hewlett Packard Enterprise does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
- If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
- Starting from 01 March 2020, only the 290W Platinum power supply (P21649-B21) , 500W and 800W Power Supply meet the EU Lot 9 regulation requirement for CE marking.
- For more information regarding EU Lot 9, please visit **HPE Lot 9 conformance**
<https://www.hpe.com/us/en/about/environment/msds-specs-more.html>
- For orders after 17 Feb 2020, the 290W pre-Config servers build from other regions of HPE (except EMEA), will keep the installation with P06731-B21 290W power supply, instead of 290W Platinum power supply (P21649-B21). These pre-configured servers would not be fully compliant with EU Lot 9, as CE marking are not mandatorily required in the regions. HPE DOES NOT responsible and recommend the transfer of DL20 Server unit from those non-CE marking mandatorily required regions to EMEA, after the purchase from HPE. Please contact your distributors if any special request.

	Entry Models		Performance Models	
SKU Number	P17077-B21	P17078-B21	P17079-B21	P17080-B21
Model Name	HPE DL20 Gen10 G5420 1P 8G NHP Svr	HPE DL20 Gen10 E-2224 1P 8G NHP Svr	HPE DL20 Gen10 E-2224 1P 16G Svr	HPE DL20 Gen10 E-2224 1P 16G Svr
Processor	Intel® Pentium® G5420	Intel® Xeon® E-2224	Intel® Xeon® E-2244	Intel® Xeon® E-2224
Number of Processors	One			
Memory	8GB (1x8GB UDIMM, 2666 MT/s)	8GB (1x8GB UDIMM, 2666 MT/s)	16GB (1x16GB UDIMM, 2666 MT/s)	16GB (1x16GB UDIMM, 2666 MT/s)
Network Controller	HPE embedded 1Gb 2-port 361i network Adapter			
Storage Controller	Embedded 14-port S100i Notes: SATA only			
Hard Drive	None ship standard		None ship standard; includes 1 LFF hard drive blanks	None ship standard; includes 3 SFF hard drive blanks
Internal Storage	2 LFF HDD Bays (Non Hot Plug)		2 LFF HDD Bays (Hot Plug)	4 SFF HDD Bays (Hot Plug)
Optical Drive Bay	1; (Optional: DVD-ROM, DVD-RW)			
Optical Drive	None			
PCI-Express Slots	2 PCIe 3.0 slots			
Power Supply	(1) 290W Non-redundant Power Supply Notes: – For orders after 01 Mar 2020 – Non-EMEA regions: System will populate with HPE DL20 Gen10 290W FIO Power Supply Kit Unit (92% efficiency) / P06731-B21 – EMEA region: System will populate with HPE DL20 Gen10			(1) HPE 500W Redundant Power Supply

Pre-configured Models

	Plat 290W FIO PSU Kit (94% efficiency) / P21649-B21 (EU Lot9 Compliance)	
Fans	3 non hot plug, non-redundant	
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Advanced (optional)	
Form Factor	Rack (1U), HPE Short Friction Rail Kit	
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response	

	Performance Model
[SKU Number]	P17081-B21
Model Name	HPE DL20 Gen10 E-2236 1P 16G Svr
Processor	Intel® Xeon® E-2236
Number of Processors	One
Memory	16GB (1x16GB UDIMMs, 2666 MT/s)
Network Controller	HPE embedded 1Gb 2-port 361i network Adapter
Storage Controller	Embedded 14-port S100i Notes: SATA only
Hard Drive	None ship standard; includes 3 SFF hard drive blanks
Internal Storage	4 SFF HDD Bays
Optical Drive Bay	1; (Optional: DVD-ROM, DVD-RW)
Optical Drive	None
PCI-Express Slots	2 PCIe 3.0 slots
Power Supply	(1) HPE 500W Redundant Power Supply
Fans	3 non hot plug, non-redundant
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Advanced (optional)
Energy Star	Meets Energy Star requirements
Form Factor	Rack (1U), HPE Short Friction Rail Kit
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

Country Code Key
XXX = B21 AMS, EMEA and APAC (P17077-B21, P17078-B21, P17079-B21, P17080-P21, P17081-B21)
XXX = 291 Japan (P17077-291, P17078-291, 17079-291, P17080-291, P17081-291)
XXX = AA1 PRC (P17077-AA1, P17078-AA1, P17079-AA1)
Notes: Not all models are available in all regions. Check with your local country Hewlett Packard Enterprise offices for availability.

Configuration Information

This section lists some of the steps required to configure a Factory Integrated Model.

To ensure 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.

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

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

Chassis	HPE ProLiant DL20 Gen10 Non-hot Plug 2LFF Configure-to-order Server		HPE ProLiant DL20 Gen10 2LFF Configure-to-order Server	HPE ProLiant DL20 Gen10 4SFF Configure-to-order Server
SKU Number	P06961-B21		P06962-B21	P06963-B21
Processor	1		1	1
DIMM Slots	4 DIMM slots for UDIMM DDR4 Memory			
Storage Controller	Embedded 14-port S100i			
PCIe	2 PCIe 3.0 Slots			
Drive Cage	2LFF Non Hot Plug	2LFF Hot Plug		4SFF Hot Plug
Network Controller	HPE embedded 1Gb 2-port network Adapter			
Fans	3 non hot plug, non-redundant			
Management	iLO Management (standard), Intelligent Provisioning (standard)			
USB	2 front, 1 internal, 2 rear			
Ears	HPE Thumbscrew Ears			

Step 2: Choose Required Options

Please select one -L21 processor required below.

Notes:

- Only one processor supported.
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
- DL20 Gen10 with new Intel Xeon E-2200 processors comes with HPE Ethernet 1Gb 2-port 361i network Adapter (Intel i350) on board.

Step 2a: Choose Processor Options

Processor Option Kits

Step 2b: Choose Memory Options

Please select one or more memory from below.

Notes:

- HPE memory from previous generation servers is not qualified or warranted with this HPE ProLiant Server.
- HPE Standard Memory (UDIMM) is required to realize the memory performance improvements and

Configuration Information

- enhanced functionality listed in this document for this HPE ProLiant Server.
- With one processor installed, four DIMMs slots are available.

Step 2c: Choose Power Supplies

Please select one or two power supplies from below.

Notes:

- Mixing of 2 different power supplies are NOT allowed.
- To review the power requirements for your selected configuration, please use the **HPE Power Advisor Tool**

HPE ProLiant Gen10 Essential Server Power Supplies - Non-Redundant

HPE DL20 Gen10 290W Platinum Power Supply Kit	P21649-B21
• (94% efficiency, Platinum).Available in order system in all regions after 01 Mar 2020	

Notes:

- This FIO option can only be bought integrated in the server. It cannot be ordered as a standalone option after server purchase.
- **The 290W Platinum power supply (P21649-B21), 500W and 800W Power Supply all meet the EU Lot 9 regulation, which is essential in countries which mandatorily require CE marking, effective from 01 March 2020.**
- Do NOT order the 290W Power Supply (P06731-B21) in countries which mandatorily require CE marking, especially the EU countries, after Feb 17 2020.
- For more information regarding EU Lot 9, please visit **HPE Lot 9 conformance** <https://www.hpe.com/us/en/about/environment/msds-specs-more.html>

HPE Flex Slot Power Supplies

HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	865408-B21
HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit	865434-B21

Step 3: Choose Additional (FIO) Factory Integratable Options

Each of the following may be selected if desired at time of factory integration

HPE Trusted Platform Module 2.0 Gen10 Option	864279-B21
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Notes:

- HPE Trusted Platform Module 2.0 option works with Gen10 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.
- HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

HPE Gen10 TPM 1.2 FIO Setting	872108-B21
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Notes: TPM 2.0 is set as default, for 1.2 TPM setting instead, please select this option.

HPE Legacy FIO Mode Setting	758959-B22
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Notes: UEFI is the default, this FIO part can be used for CTO to enable Legacy mode.

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

Core Options

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

HPE Unique Options

HPE iLO Common Password

HPE iLO Common Password FIO Setting P08040-B21

Notes:

- Replaces iLO default randomized password by an HPE defined common password. HPE highly recommends changing this password immediately after the initial onboarding process..
- Customers who want to choose their own custom iLO default password should use the HPE Factory Express Integration Services.

Optical Drive Options

HPE Mobile USB DVD-RW Optical Drive 701498-B21

Notes: This kit is only supported on USB 3.0 ports only.

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

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

HPE DL20 Gen10 LFF ODD Cable Kit P06681-B21

Notes: This option kit is required for Optical Drive option (LFF model only).

HPE DL20 Gen10 SFF ODD Enablement Kit P06677-B21

Notes: This option kit is required to support ODD on SFF chassis.

Notes: This option is required to upgrade 4SFF chassis to support additional 2SFF drives.

Dedicated iLO Port / M.2 NVMe SSD / COM Port Upgrade Kit

HPE DL20/ML30 Gen10 M.2/Dedicated iLO and Serial Port Kit P06687-B21

Notes:

- This option is required to support M.2 NVMe drives, Dedicated iLO Port or Serial/COM Port.
- This kit includes one dedicated iLO module and one serial port cable, with one M.2 slot on the module for M.2 SSD installation.
- When installing NVMe x4 M.2 480 GB SSD module, the supporting ambient temperature should be under 30°C (86°F).

Security

HPE Trusted Platform Module 2.0 Gen10 Option 864279-B21

HPE DL20 Latch Ear FIO Kit P06716-B21

Notes: This FIO option can only be bought integrated in the server. It cannot be ordered as a standalone option after server purchase. This Option is required either of the two options below.

HPE 1U Gen10 Bezel Kit 867998-B21

Core Options

HPE Bezel Lock Kit	875519-B21
Notes: HPE DL20 Gen10 Latch Ear FIO Kit (P06716-B21) is required to support both the Bezel Kits above.	

Cable Kits

HPE DL20 Gen10 M.2 SATA/LFF AROC Cbl Kit	P06683-B21
Notes: This cable kit has two cables, one is required to support M.2 SATA option kit and the other for AROC and LFF drives.	

HPE Drives

Mission Critical (Enterprise) - 12G SAS - SFF Drives

HPE 2.4TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty 512e Multi Vendor HDD	881457-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty 512e Multi Vendor HDD	872481-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD	872479-B21
HPE 600GB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD	872477-B21
HPE 300GB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD	872475-B21
HPE 900GB SAS 12G Mission Critical 15K SFF SC 3-year Warranty Multi Vendor HDD	870759-B21
HPE 600GB SAS 12G Mission Critical 15K SFF SC 3-year Warranty Multi Vendor HDD	870757-B21
HPE 300GB SAS 12G Mission Critical 15K SFF SC 3-year Warranty Multi Vendor HDD	870753-B21

Business Critical (Midline) - 12G SAS - LFF Drives

HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 14TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	P09155-B21
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881781-B21
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834031-B21
HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861746-B21
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833926-B21

Business Critical (Midline) - 12G SAS - SFF Drives

HPE 2TB SAS 12G Business Critical 7.2K SFF SC 1-year Warranty 512e HDD	765466-B21
HPE 1TB SAS 12G Business Critical 7.2K SFF SC 1-year Warranty HDD	832514-B21

Business Critical (Midline) - 6G SATA - LFF Drives

HPE 18TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P37678-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881787-B21
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861742-B21

Core Options

HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861683-B21
HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861681-B21
HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21
Business Critical (Midline) 6G SATA - SFF Drives	
HPE 2TB SATA 6G Business Critical 7.2K SFF SC 1-year Warranty 512e HDD	765455-B21
HPE 1TB SATA 6G Business Critical 7.2K SFF SC 1-year Warranty HDD	655710-B21
Business Critical (Midline) 6G SATA - LFF NHP/Raw Drives	
HPE 4TB SATA 6G Business Critical 7.2K LFF RW 1-year Warranty Multi Vendor HDD	801888-B21
HPE 1TB SATA 6G Business Critical 7.2K LFF RW 1-year Warranty Multi Vendor HDD	801882-B21

SSD Selection

To streamline the configuration process for HPE ProLiant Gen10 servers and to provide the best product availability, HPE recommends SSDs from the list located here:

<http://www.hpe.com/products/recommend>

Read Intensive - 12G SAS - SFF - Solid State Drives

HPE 960GB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD	P36997-B21
HPE 1.92TB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD	P36999-B21
HPE 3.84TB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD	P37001-B21
HPE 7.68TB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD	P37003-B21

Mixed-Use - 12G SAS - SFF - Solid State Drives

HPE 3.84TB SAS 12G Mixed Use SFF SC Value SAS Multi Vendor SSD	P37017-B21
HPE 1.92TB SAS 12G Mixed Use SFF SC Value SAS Multi Vendor SSD	P37011-B21
HPE 960GB SAS 12G Mixed Use SFF SC Value SAS Multi Vendor SSD	P37005-B21

Read Intensive - 12G SAS - LFF - Solid State Drives

HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P37009-B21
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Read Intensive - 6G SATA - SFF - Solid State Drives

HPE 7.68TB SATA 6G Read Intensive SFF SC Multi Vendor SSD	P18430-B21
HPE 3.84TB SATA 6G Read Intensive SFF SC Multi Vendor SSD	P18428-B21
HPE 1.92TB SATA 6G Read Intensive SFF SC Multi Vendor SSD	P18426-B21
HPE 960GB SATA 6G Read Intensive SFF SC Multi Vendor SSD	P18424-B21
HPE 480GB SATA 6G Read Intensive SFF SC Multi Vendor SSD	P18422-B21
HPE 240GB SATA 6G Read Intensive SFF SC Multi Vendor SSD	P18420-B21

Read Intensive - 6G SATA - SFF - Solid State Drive

Mixed Use - 6G SATA - SFF - Solid State Drives

HPE 3.84TB SATA 6G Mixed Use SFF SC Multi Vendor SSD	P18438-B21
HPE 1.92TB SATA 6G Mixed Use SFF SC Multi Vendor SSD	P18436-B21
HPE 960GB SATA 6G Mixed Use SFF SC Multi Vendor SSD	P18434-B21
HPE 480GB SATA 6G Mixed Use SFF SC Multi Vendor SSD	P18432-B21

Read Intensive - 6G SATA - LFF - Solid State Drives

HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21
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Internal Dual M.2 Kit

Core Options

HPE Universal SATA 6G AIC HHHL M.2 SSD Enablement Kit	878783-B21
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Notes:

- The Universal SATA M.2 Kit above will require a PCIe slot and support up to two of the same M.2 cards below.
- M.2 SATA Cable kit (P06683-B21) is required to support this option.

Read Intensive - SATA - M.2.- Solid State Drives (2280 type)

HPE 480GB SATA 6G Read Intensive M.2 Multi Vendor SSD	P47818-B21
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Read Intensive - NVMe - M.2.- Solid State Drives (22110 type)

HPE 480GB NVMe Gen3 Mainstream Performance Read Intensive M.2 Multi Vendor SSD	P40513-B21
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Hard Drive Blank Kits

HPE Gen9 LFF HDD Spade Blank Kit	807878-B21
HPE Small Form Factor Hard Drive Blank Kit	666987-B21

HPE Networking

25 Gigabit Ethernet adapters

HPE Ethernet 10/25Gb 2-port FLR-SFP28 QL41401-A2G Converged Network Adapter	867334-B21
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Notes: Max of 1, either HPE 10/25GbE 2p SFP28 QL41401 Adptr (867328-B21) or HPE 10GbE 2p BASE-T QL41401 Adptr (867707-B21) can be selected.

<u>HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter</u>	817753-B21
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Notes: If Quantity 2 or more of 817753-B21 (HPE 10/25GbE 2p SFP28 MCX4121A Adptr) is selected along with 8GB DIMM then system memory must be 16GB or higher.

10 Gigabit Ethernet adapters

HPE Ethernet 10Gb 2-port BASE-T X550-AT2 Adapter	817738-B21
HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter	727055-B21
HPE Ethernet 10Gb 2-port BASE-T BCM57416 Adapter	813661-B21

Notes: Max of 1, either HPE 10/25GbE 2p SFP28 QL41401 Adptr (867328-B21) or HPE 10GbE 2p BASE-T QL41401 Adptr (867707-B21) can be selected. Due to design limitation of the Butterfly Riser it is not possible to populate a 4-port RJ45 PCIe card into slot1 of DL20 Gen10 as it will cause an interference between the 4-port RJ45 and the FH bkt of slot2. Therefore, a 4-port RJ45 PCIe card can only be accommodated in slot2 of DL20 Gen10 with a FH bracket.

1 Gigabit Ethernet adapters

HPE Ethernet 1Gb 4-port BASE-T I350-T4V2 Adapter	811546-B21
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Notes: Max of 1, HPE Ethernet 1Gb 4-port 366T Adapter can be selected.
Information: HPE Ethernet 1Gb 4-port 366T Adapter can only be populated in Slot2, consider this restriction towards total PCIe cards selection in the server. Due to design limitation of the Butterfly Riser it is not possible to populate a 4-port RJ45 PCIe card into slot1 of DL20 Gen10 as it will cause an interference between the 4-port RJ45 and the FH bkt of slot2. Therefore, a 4-port RJ45 PCIe card can only be accommodated in slot2 of DL20 Gen10 with a FH bracket.

HPE Ethernet 1Gb 4-port FLR-T BCM5719 Adapter	629135-B22
HPE Ethernet 1Gb 4-port BASE-T I350-T4V2 Adapter	811546-B21
HPE Ethernet 1Gb 4-port BASE-T BCM5719 Adapter	647594-B21
HPE Ethernet 1Gb 2-port BASE-T BCM5720 Adapter	615732-B21

Core Options

FlexibleLOM Adapters

HPE Ethernet 10/25Gb 2-port FLR-SFP28 MCX4121A-ACFT Adapter	817749-B21
HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter	817753-B21
HPE Ethernet 10/25Gb 2-port FLR-SFP28 QL41401-A2G Converged Network Adapter	867334-B21
HPE Ethernet 10Gb 2-port BASE-T BCM57416 Adapter	813661-B21
HPE Ethernet 10Gb 2-port FLR-SFP+ X710-DA2 Adapter	727054-B21
HPE Ethernet 10Gb 2-port BASE-T X550-AT2 Adapter	817738-B21
HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter	727055-B21
HPE Ethernet 10Gb 2-port FLR-T X550-AT2 Adapter	817745-B21
HPE Ethernet 10Gb 2-port FLR-T BCM57416 Adapter	817721-B21
HPE Ethernet 1Gb 4-port FLR-T I350-T4V2 Adapter	665240-B21

Notes:

- FlexibleLOM riser kit (P06667-B21) is required for above.
- When a FlexibleLOM adapter is installed on a server with default iLO settings, the port 1 of FlexibleLOM adapter will be configured as shared iLO port.

Additional Options

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.

Embedded Management

HPE iLO Advanced

HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features	512486-B21
HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21
HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features	BD506A
HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE

Software as a Service Management

HPE GreenLake for Compute Ops Management

HPE GreenLake for Compute Ops Management Enhanced 3-year Upfront ProLiant SaaS	R7A11AAE
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Additional Options

HPE GreenLake for Compute Ops Management Enhanced 1-year Upfront ProLiant SaaS	R7A10AAE
HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS	R7A12AAE

Notes: For customers purchasing HPE GreenLake for Compute Ops Management, without a hardware purchase or a BTO purchase, use this base SKU within ASQ order:

HPE GreenLake for Compute Ops Management Base SaaS	R6Z73AAE
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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 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
HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE

Notes:

- Licenses ship without media. The HPE OneView Media Kit can be ordered separately, or can be downloaded at: <https://www.hpe.com/us/en/integrated-systems/software.html>
- Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.
- Licenses ship without media. The HPE OneView Media Kit can be ordered separately, or can be downloaded at: <https://www.hpe.com/us/en/integrated-systems/software.html>

Additional Options

HPE Security

HPE 1U Gen10 Bezel Kit	867998-B21
HPE Bezel Lock Kit	875519-B21

Notes: HPE DL20 Gen10 Latch Ear FIO Kit (P06716-B21) is required to support both the Bezel Kits above.

HPE 1U Gen10 Chassis Intrusion Detection Kit	866473-B21
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Notes: This provides a physical connection from the chassis board and hood and detects any physical intrusion into the chassis, providing security during the entire supply chain process of shipping, receiving, distribution, and operation.

HPE Trusted Platform Module 2.0 Gen10 Option	864279-B21
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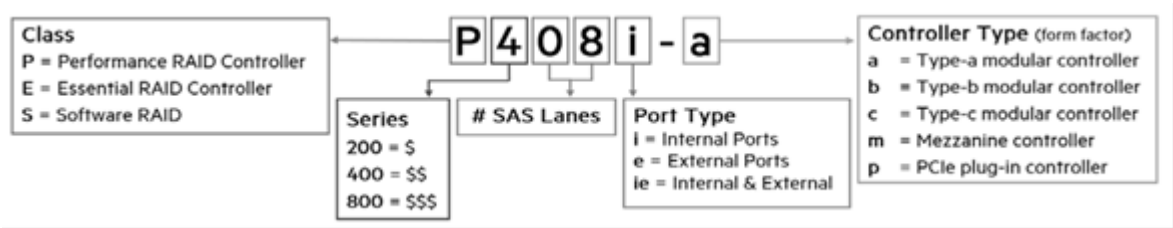
- Notes:**
- HPE Trusted Platform Module 2.0 option works with Gen10 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.
 - HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

HPE Gen10 TPM 1.2 FIO Setting	872108-B21
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Notes: This is a FIO setting to allows the TPM 2.0 module to operate in a TPM 1.2 mode

HPE Storage Controllers

For additional details, please see HPE Smart Array Gen10 Controllers Data Sheet at: <https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00017196ENW>



HPE Flexible Smart Array Controllers

HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular LH Controller	869081-B21
HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller	869079-B21

- Notes:**
- To connect 869081-B21 or 869079-B21 to the 4SFF HDD backplane, leverage the 4SFF BP MiniSAS cable shipped within DL20 Gen10 4SFF system.
(HPE internal cable p/n P06077-001: 4SFF BP MiniSAS to AROC)
 - To connect 869081-B21 or 869079-B21 to the 4+2SFF HDD backplane, leverage the 4SFF BP MiniSAS cable shipped within DL20 Gen10 4SFF system, and the 2SFF BP MiniSAS to AROC cable is bundled with HPE DL20 Gen10 2SFF HDD Enablement Kit (P06671-B21).
(HPE internal cable p/n P06077-001: 4SFF BP MiniSAS to AROC; HPE cable p/n P06069-B21: 2SFF BP MiniSAS to AROC)

Additional Options

HPE Smart Array Controllers

HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller	804405-B21
HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21
HPE 12W Smart Storage Lithium-ion Battery	782961-B21

NOTES: If P408e-p or P408i-a controller is selected then HPE 12W Smart Storage Battery (782961-B21) must be selected. (Max storage battery q'ty to be one per DL20 Gen10 server)

HPE Cable Options

HPE DL20 Gen10 M.2 SATA/LFF AROC Cbl Kit	P06683-B21
Notes: This cable kit has two cables, one is required to support M.2 SATA option kit and the other for AROC and LFF drives.	
HPE DL20 Gen10 LFF ODD Cable Kit	P06681-B21

Notes: This option kit is required for Optical Drive option (LFF model only).

Optional Software

HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU	Q2F26AAE
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Notes: SmartCache is offered on HPE Smart Array performance RAID controllers and comes standard (no licensing is required) if the HPE Smart Array P816i-a SR Gen10 Controller is installed in the server.

HPE Storage Options

Emulex Fibre Channel HBAs

HPE SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter	Q0L13A
HPE SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	Q0L14A
HPE SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	Q0L11A
HPE SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter	Q0L12A

QLogic Fibre Channel HBAs

HPE SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter	P9D93A
HPE SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	P9D94A
HPE SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter	P9M75A

Converged Network Adapters

HPE CN1200R 10GBASE-T Converged Network Adapter	Q0F26A
HPE CN1300R 10/25Gb Dual Port Converged Network Adapter	Q0F09A
HPE SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter	P9M76A

HPE Rack Options

Additional Options

Rail Kits

Notes: HPE rail kits are designed to work with HPE racks in compliance with industry standard EIA-310-E. In the event a customer elects to purchase a third-party rack for use with an HPE rail kit, any such use is at customer's own risk. HPE makes no express or implied warranties with respect to such third-party racks and specifically disclaims any implied warranties of merchantability and fitness for a particular purpose. Furthermore, HPE has no obligation and assumes no liability for the materials, design, specifications, installation, safety, and compatibility of any such third-party racks with any rail kits, including HPE rail kits.

HPE 1U Short Friction Rail Kit

775612-B21

HPE Racks

- Please see the HPE Advanced Series Racks QuickSpecs for information on additional racks options and rack specifications. [HPE G2 Advanced Series Racks](#)
- Please see the HPE Enterprise Series Racks QuickSpecs for information on additional racks options and rack specifications. [HPE G2 Enterprise Series Racks](#)

HPE Power Distribution Units (PDUs)

- Please see the [HPE Basic Power Distribution Units \(PDU\) QuickSpecs](#) for information on these products and their specifications.
- Please see the [HPE Metered Power Distribution Units \(PDU\) QuickSpecs](#) for information on these products and their specifications.
- Please see the [HPE Intelligent Power Distribution Unit \(PDU\) QuickSpecs](#) for information on these products and their specifications.
- Please see the [HPE Metered and Switched Power Distribution Units \(PDU\) QuickSpecs](#) for information on these products and their specifications.

HPE Uninterruptible Power Systems (UPS)

- To learn more, please visit the [HPE Uninterruptible Power Systems \(UPS\) web page](#).
- Please see the [HPE DirectFlow Three Phase Uninterruptible Power System QuickSpecs](#) for information on these products and their specifications.
- Please see the [HPE Line Interactive Single Phase UPS QuickSpecs](#) for information on these products and their specifications.

HPE USB and SD Options

HPE Enterprise Mainstream Flash Media Kits for Memory Cards

HPE 32GB microSD RAID 1 USB Boot Drive

P21868-B21

Notes: In vSphere 7.0, VMware made changes that impacted the usage of USB/SD Cards as standalone boot devices, and will be removing support for them with upcoming versions after 7.x.

SD Card/USB media can still be used as a standalone boot option through all 7.x releases via published Customer Advisory https://support.hpe.com/hpesc/public/docDisplay?docId=emr_na-a00118986en_us

For any major release beyond VMware ESXi 7.x, VMware will require M.2 or another local persistent device as the standalone boot option.

Additional Options

HPE Support Services

Tech Care

HPE 5 Year Tech Care Essential DL20 Gen10 Service	HV6Y0E
HPE 5 Year Tech Care Essential wDMR DL20 Gen10 Service	HV6Y3E
HPE 3 Year Tech Care Essential DL20 Gen10 Service	HV6X8E
HPE 3 Year Tech Care Essential wDMR DL20 Gen10 Service	HV6Y1E
HPE 3 Year Tech Care Basic DL20 Gen10 Service	HV6Y7E
HPE 3 Year Tech Care Basic wDMR DL20 Gen10 Service	HV6Z0E

Notes: For a full listing of support services available for this server, please visit <http://www.hpe.com/services>.

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 2666 MT/s 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 Gen10 Server.

General Memory Population Rules and Guidelines:

- Only UDIMMs are supported on DL20 Gen10. 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 2666MT/s.

Intel Gen10 Supported Memory Bandwidth for HPE ProLiant Gen10 Intel® Xeon® E Processor Family		
DIMM Type	Unbuffered with ECC DIMMs (UDIMMs)	
HPE SKU P/N	879505-B21	879507-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)	2666	2666
Slots That Can Be Populated	4	4
Maximum Capacity (Gb)	32	64
Populated Dimm Speed (MT/S)		
1 DIMM Per Channel	2666	2666
2 DIMM Per Channel	2666	2666
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
Chnl 1	3	A
	4	C

Memory

Memory Speed by Processor Model	
Processor Models	Supported Memory Speeds
E-2224, E-2234, E-2236, E-2226G, E-2244G, E-2274G, E-2276G, E-2286G, E-2278G	2666MT/s
i3-9100, G5420	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
P06476-B21	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)
P08335-B21	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)

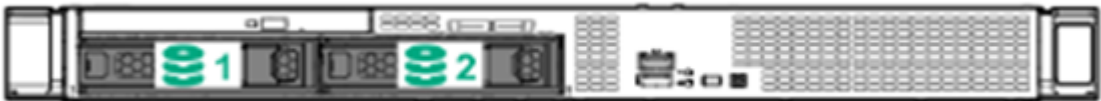
Storage



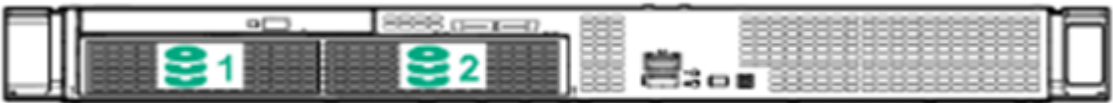
4 SFF device bay numbering



4 SFF + 2SFF device bay numbering



2LFF Hot Plug device bay numbering



2LFF Non Hot Plug device bay numbering



Technical Specifications

System Unit

Dimensions (Height x Width x Depth)

- SFF Drives

4.32 x 43.46 x 38.22 cm

1.70 x 17.11 x 15.05 in

- LFF Drives

4.32 x 43.46 x 38.22 cm

1.70 x 17.11 x 15.05 in

Weight (approximate)

- Non hot Plug 2 LFF fully loaded (all hard drives, power supplies, and processors installed)

7.88 kg

17.37 lb

- Hot Plug 2LFF fully loaded (one hard drive, power supply, and processor installed)
- Hot Plug 4SFF fully loaded (two hard drives, power supply, and processor installed)

7.9 kg

17.41 lb

290W Non-hot Plug Power Supply
Input Requirements

- Rated Line Voltage

100 to 120 VAC

200 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)

BTU Rating

Technical Specifications

- **Maximum**

1130 BTU per hr (at 115 VAC)

1126 BTU per hr (at 230 VAC)

Power Specifications

To review typical system power ratings use the Power Advisor which is available via the online tool located at: <http://www.hpe.com/info/hppoweradvisor>

Click on the system of interest. Example: DL20 Gen10 - Follow the instructions of the next screens.

Power Supply Output (per power supply)

- **Rated Steady-State Power**

290 W Max

- **Maximum Peak Power**

366 W within 10 seconds

500W/800W Redundant Power Supply

Input Requirements (per power supply)

Rated Line Voltage

- 100 to 120 VAC
- 200 to 240 VAC

BTU Rating

Maximum

- For 800W Power Supply: 3207 BTU/hr (at 100 VAC), 3071 BTU/hr (at 200 VAC), 3112 BTU/hr (at 240 VDC) for China Only
- For 500W Power Supply: 1979 BTU/hr (at 100 VAC), 1911 BTU/hr (at 200 VAC), 1965 BTU/hr (at 240 VDC) for China Only

Power Supply Output (per power supply)

Rated Steady-State Power

- For 800W Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 500W Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VDC) input for China only

Maximum Peak Power

- For 800W Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 500W Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VDC) input for China only
- For 800W Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only

Technical Specifications

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 above 30°C (86°F).

- **Extended Ambient Operating Support**

For approved hardware configurations, the supported system inlet range is to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: <http://www.hpe.com/servers/ashrae>

For approved hardware configurations, the supported system inlet range is to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft).

The approved hardware configurations for this system are listed at the URL: <http://www.hpe.com/servers/ashrae>

System performance may be reduced if operating in the ambient operating range.

- **Non-operating**

-30°C to 60°C (-22°F to 140°F) Maximum rate of change is 20°C/hr (36°F/hr).

Relative Humidity (non-condensing)

- **Operating**

8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing.

- **Non-operating**

5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

Altitude

- **Operating**

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**

Technical Specifications

9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Emissions Classification (EMC)

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

<http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts>
For information on the HPE Smart Array Controller please refer to their [QuickSpecs](#)

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.
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.

Acoustic Noise

Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.

Configuration SKU	P17077-B21	P17078-B21	P17079-B21	P17080-B21	P17081-B21	P06476-B21	P08335-B21
Idle							
LWAd	3.8 B	3.8 B	3.7 B	3.8 B	3.8 B	3.8 B	3.8 B
LpAm	20 dBA	21 dBA	21 dBA	21 dBA	20 dBA	21 dBA	20 dBA
Operating							
LWAd	3.8 B	4.5 B	4.5 B	4.7 B	4.8 B	4.3 B	4.5 B
LpAm	21 dBA	29 dBA	29 dBA	29 dBA	30 dBA	26 dBA	28 dBA

Notes: Acoustics levels presented here are generated by the test configuration only. Acoustics levels will vary depending on system configuration. Values are subject to change without notification and are for reference only.

Summary of Changes

Date	Version History	Action	Description of Change
18-Mar-2024	Version 25	Changed	Standard Features and Additional Options sections were updated.
20-Nov-2023	Version 24	Changed	HPE Services Rebranding
01-May-2023	Version 23	Changed	Optional Features and Additional Options sections were updated.
12-Dec-2022	Version 22	Changed	Optional features and Additional Options sections were updated. Obsolete SKUs were removed.
06-Dec-2021	Version 21	Changed	Additional Options section was updated. Obsolete SKUs were removed.
01-Nov-2021	Version 20	Changed	Core Options section was updated. Obsolete SKUs were removed.
04-Oct-2021	Version 19	Changed	Service and Support and Additional Options sections were updated.
07-Sep-2021	Version 18	Changed	Pre-configured Models and Core Options sections were updated. Obsolete SKUs were removed.
02-Aug-2021	Version 17	Changed	Overview, Core Options and Memory sections were updated. Obsolete SKUs were removed.
06-Apr-2021	Version 16	Changed	Core Options, Service and Support and Additional Options sections were updated. Obsolete SKUs were removed.
01-Feb-2021	Version 15	Changed	Core Options section was updated. Obsolete SKUs were removed.
07-Dec-2020	Version 14	Changed	Standard Features and Core Options sections were updated. Obsolete SKUs were removed.
09-Nov-2020	Version 13	Changed	Pre-configured Models section was updated. Obsolete SKUs were removed.
03-Aug-2020	Version 12	Changed	Standard Features, Pre-configured Models, Core Options, Memory and Additional Options sections were updated. Obsolete SKUs were removed.
01-Jun-2020	Version 11	Changed	Standard features, Configuration Information, Core Options and Memory sections were updated. Obsolete SKUs were removed.
06-Apr-2020	Version 10	Changed	Overview, Standard Features, Pre-Configured Models, Configuration Information, Core Options and Memory sections were updated. Obsolete SKUs were removed.
24-Feb-2020	Version 9	Changed	Overview, Standard Features, Service and Support, Pre-configured Models, Configuration Information and Core Options sections were updated. Obsolete SKUs were removed
06-Jan-2020	Version 8	Changed	Service and Support, Configuration Information, Core Options and Additional Options sections were updated.
02-Dec-2019	Version 7	Changed	Standard Features, Configuration Information, Core Options and Additional Options sections were updated. Obsolete SKUs were removed

Summary of Changes

18-Nov-2019	Version 6	Changed	Overview, Standard Features, Optional Features, Pre-configured Models, Configuration Information, Core Options, Memory and Technical Specifications sections were updated.
07-Oct-2019	Version 5	Changed	Core Options section was updated
05-Aug-2019	Version 4	Changed	Configuration Information - Factory Integrated Models section was modified. Obsoletes SKUs were removed. The U.S. version of QuickSpecs is no longer being updated, please reference the Worldwide QuickSpecs for latest information.
02-Apr-2019	Version 3	Changed	Core Option section was updated
04-Feb-2019	Version 2	Changed	Optional Features section was updated.
05-Nov-2018	Version 1	New	New QuickSpecs.

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