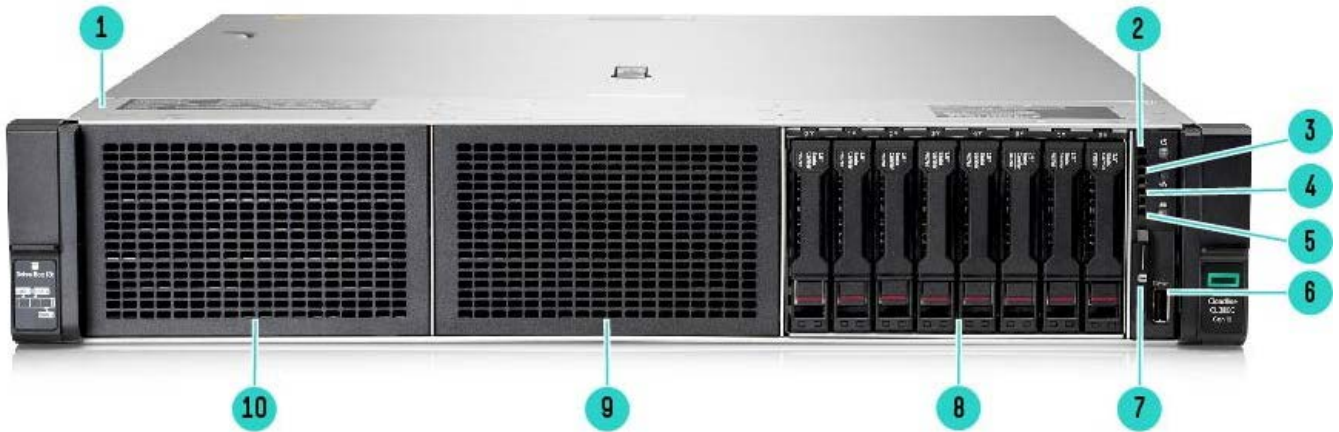


Overview

HPE Cloudline CL2800 Gen10 Server

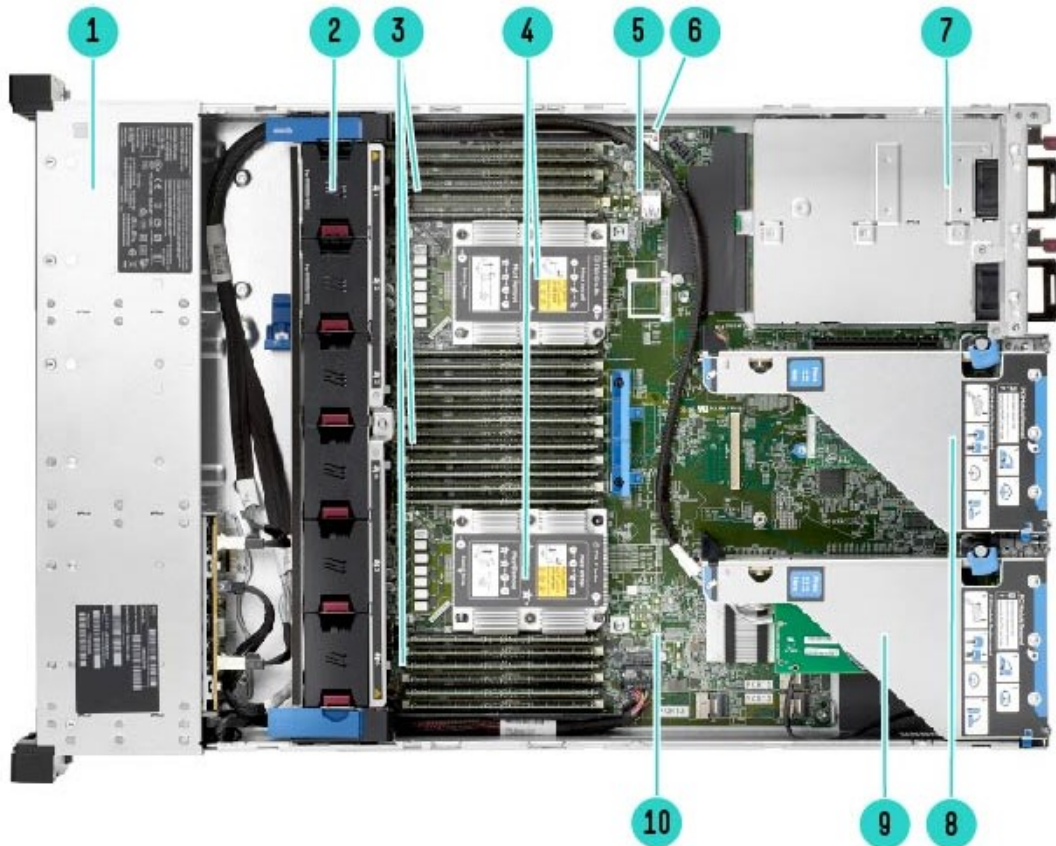
Adaptable for diverse workloads and environments, the secure 2P 2U HPE Cloudline 2800 Gen10 delivers world-class performance with the right balance of expandability and scalability. Designed for supreme versatility and resiliency while being backed by a comprehensive warranty make it ideal for multiple environments from Containers to Cloud to Big Data. Standardize on the industry's most trusted compute platform.



8 SFF chassis- Front View

Item	Description	Item	Description
1.	Quick removal access panel	6.	USB 3.0
2.	Power On/Standby button and system power LED button	7.	Serial label pull tag
3.	Health LED	8.	8 SFF Drive Cage Bay (Box 3)
4.	NIC status	9.	Box 2
5.	UID button	10.	Box 1

Overview

8SFF chassis – with optional 2nd CPU- Internal View

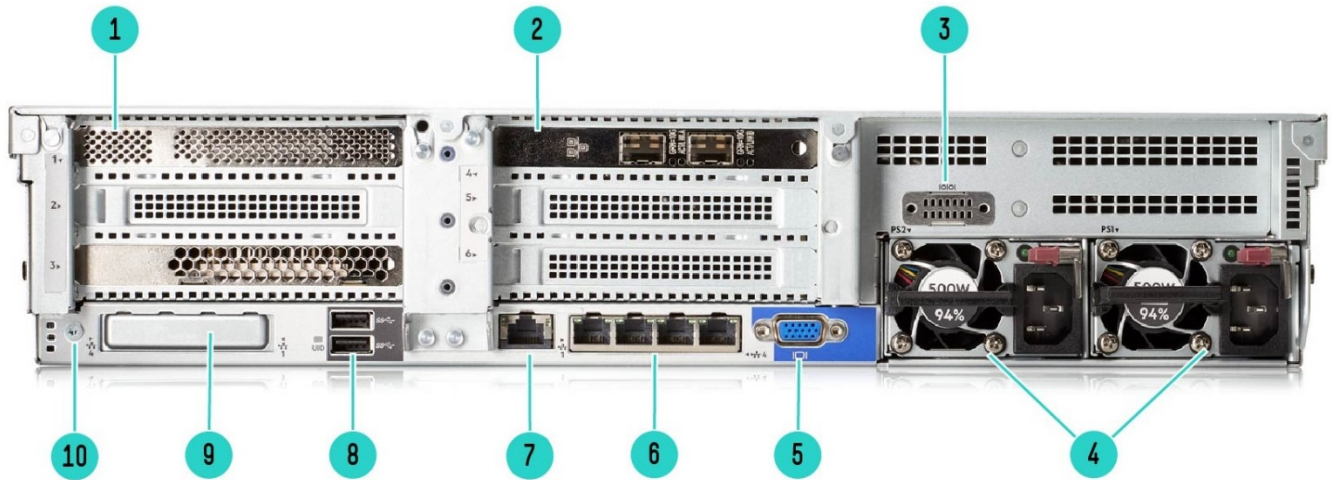
Item Description

1. Drive cage up to 24 SFF SAS/SATA, 16 SFF NVMe, or 12 LFF SATA
2. Hot-swappable fans
3. DDR4 DIMM slots. Shown fully populated in 24 slots (12 per processor)
4. Processors, heatsink showing
5. USB 3.0

Item Description

6. microSD card slot
7. Redundant HPE Flexible Slot Power supplies
8. Secondary PCIe 3.0 riser
9. Primary PCIe 3.0 riser
10. System board

Overview



Rear View

Item Description

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Primary Riser. PCI Slots (Slots 1-3 top to bottom, riser shipped standard, not shown) 2. Secondary Riser. PCI Slots (Slots 4-6 top to bottom, not shown, requires second riser card, and second processor). 3. Optional serial port 4. Power supply 5. VGA connector | <ol style="list-style-type: none"> 6.. Embedded 4 x 1GbEE Network Adapter (1st Generation Intel Xeon Processor Scalable Family chassis)¹ 7. BMC management port (1 GbE) 8. USB connectors 3.0 (2) 9. FlexLOM 4 x 1GbEE Network Adapter (2nd Generation Intel Xeon Processor Scalable Family chassis) 10. Unit ID LED |
|---|--|

NOTE: ¹ Networking Choice (NC) models do not include an embedded NIC

What's New:

- European Union (EU) Lot 9 regulation, please visit: <https://www.hpe.com/us/en/about/environment/msds-specs-more.html> for more information.
- Network Choice (NC) CTO models featuring no embedded LOM
- 2nd generation Intel® Xeon® Scalable Processor Family
- 16/32/64GB 2933 MT/s DIMMs
- Intel® VROC Software License
- 480/960GB & 2.4-TB Secure Encrypted Drives (SED)

Overview

Platform Information

Form Factor

2U rack

Chassis Types

- 8 SFF with optional Universal Media Bay, and optional SFF or NVMe drive bay options
- 12 LFF

NOTE: The 8 SFF can be upgraded with additional 8SFF drive box to total 16 or 24 SFF drives.

NOTE: The 8 LFF chassis cannot be upgraded to 12 LFF.

System Fans

Standard – fan types included

NOTE: 1P models typically ship with 4 standard fans.

NOTE: 2P models typically ship with 6 standard fans.

NOTE: The 12 LFF and 24 SFF chassis ship with 6 High performance fans as standard.

NOTE: High performance fan kit is available to meet ambient temperature environments.

NOTE: High performance fan kits are required for NVMe configurations.

Standard Features

Standard Features

Processors – Up to 2 of the following depending on model.

NOTE: The 2nd digit of the processor model number “x1xx” and “x2xx” is used to denote the processor generation (i.e. 1=1st generation and 2=2nd generation)

NOTE: This table covers the public Intel offering only.

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

2nd Generation Intel® Xeon® Scalable Processor Family							
Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	UPI	DDR4	Memory per socket
Platinum 8280M Processor	2.7 GHz	28	38.50 MB	205W	3 @ 10.4 GT/s	2933 MT/s	2TB
Platinum 8276M Processor	2.2 GHz	28	38.50 MB	165W	3 @ 10.4 GT/s	2933 MT/s	2TB
Platinum 8276 Processor	2.2 GHz	28	38.50 MB	165W	3 @ 10.4 GT/s	2933 MT/s	1TB
Platinum 8270 Processor	2.7 GHz	26	35.75 MB	205W	3 @ 10.4 GT/s	2933 MT/s	1TB
Platinum 8268 Processor	2.9 GHz	24	35.75 MB	205W	3 @ 10.4 GT/s	2933 MT/s	1TB
Platinum 8260M Processor	2.4 GHz	24	35.75 MB	165W	3 @ 10.4 GT/s	2933 MT/s	2TB
Platinum 8260 Processor	2.4 GHz	24	35.75 MB	165W	3 @ 10.4 GT/s	2933 MT/s	1TB

NOTE: Platinum Processors:

2nd Generation:

- 6-Channel DDR4 @ 2933 MT/s.
- Support for: Vector Neural Network Instructions (VNNI) for inference acceleration.
- 2 and 4 socket capable, 2S - 2UPI, 2S - 3UPI, 4S - 3UPI @ 10.4 GT/s.
- Intel Turbo Boost Technology, Intel Hyper-Threading Technology Intel AVX-512 (2x 512-bit FMA).
- 48 lanes PCIe 3.0, advanced RAS

2nd Generation Intel® Xeon® Scalable Processor Family							
Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	UPI	DDR4	Memory per socket
Gold 6254 Processor	3.1 GHz	18	24.75 MB	200W	3 @ 10.4 GT/s	2933 MT/s	1TB
Gold 6248 Processor	2.5 GHz	20	27.5 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1TB
Gold 6242 Processor	2.8 GHz	16	22 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1TB
Gold 6240 Processor	2.6 GHz	18	24.75 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1TB
Gold 6230 Processor	2.1 GHz	20	27.5 MB	125W	3 @ 10.4 GT/s	2933 MT/s	1TB
Gold 5220 Processor	2.2 GHz	18	24.75 MB	125W	2 @ 10.4 GT/s	2666 MT/s	1TB
Gold 5218 Processor	2.3 GHz	16	22 MB	125W	2 @ 10.4 GT/s	2666 MT/s	1TB
Gold 5217 Processor	3.0 GHz	8	11 MB	115W	2 @ 10.4 GT/s	2666 MT/s	1TB
Gold 5215M Processor	2.5 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2666 MT/s	2TB
Gold 5215 Processor	2.5 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2666 MT/s	1TB

Standard Features

1st Generation Intel® Xeon® Scalable Processor Family							
Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	UPI	DDR4	Memory per socket
Gold 6152 Processor	2.1 GHz	22	30.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6148 Processor	2.4 GHz	20	27.50 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6144 Processor	3.5 GHz	8	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6142 Processor	2.6 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6140 Processor	2.3 GHz	18	24.75 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6138 Processor	2.0 GHz	20	27.50 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6136 Processor	3.0 GHz	12	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6134 Processor	3.2 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6130 Processor	2.1 GHz	16	22.00 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6128 Processor	3.4 GHz	6	19.25 MB	115W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 6126 Processor	2.6 GHz	12	19.25 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768GB
Gold 5122 Processor	3.6 GHz	4	16.50 MB	105W	2 @ 10.4 GT/s	2666 MT/s	768GB
Gold 5120 Processor	2.2 GHz	14	19.25 MB	105W	2 @ 10.4 GT/s	2400 MT/s	768GB
Gold 5118 Processor	2.3 GHz	12	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s	768GB
Gold 5115 Processor	2.4 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2400 MT/s	768GB

NOTE: Gold Processors:

2nd Generation:

6-Channel DDR4 @ 2933 MT/s (Gold 6200 skus only), 2666 MT/s on all Gold 5200 skus

Support for: Vector Neural Network Instructions (VNNI) for inference acceleration.

2 and 4 socket capable, 2S - 2UPI, 2S - 3UPI, 4S - 3UPI @ 10.4 GT/s.

Intel Turbo Boost Technology, Intel Hyper-Threading Technology Intel AVX-512 (2x 512-bit FMA).

48 lanes PCIe 3.0, advanced RAS

1st Generation:

6-Channel 1DPC DDR4 @ 2400 MT/s (SKU 5122 - supports 2666 MT/s).

768 GB max memory capacity (1.5 TB on select skus).

2 and 4 socket capable, 2S - 2UPI, 4S - 3UPI @ 10.4 GT/s.

Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512 (1x 512-bit FMA) (SKU 5122 - supports 2x 512 bit FMA).

48 lanes PCIe 3.0, advanced RAS.

2nd Generation Intel® Xeon® Scalable Processor Family							
Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	UPI	DDR4	Memory per socket
Silver 4216 Processor	2.1 GHz	16	22 MB	100W	2 @ 9.6 GT/s	2400 MT/s	1TB
Silver 4215 Processor	2.5 GHz	8	11 MB	85W	2 @ 9.6 GT/s	2400 MT/s	1TB
Silver 4214 Processor	2.2 GHz	12	16.5 MB	85W	2 @ 9.6 GT/s	2400 MT/s	1TB
Silver 4210 Processor	2.2 GHz	10	13.75 MB	85W	2 @ 9.6 GT/s	2400 MT/s	1TB
Silver 4208 Processor	2.1 GHz	8	11 MB	85W	2 @ 9.6 GT/s	2400 MT/s	1TB

Standard Features

1 st Generation Intel® Xeon® Scalable Processor Family							
Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	UPI	DDR4	Memory per socket
Silver 4116 Processor	2.1 GHz	12	16.50 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768GB
Silver 4114 Processor	2.2 GHz	10	13.75 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768GB
Silver 4112 Processor	2.6 GHz	4	8.25 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768GB
Silver 4110 Processor	2.1 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768GB
Silver 4108 Processor	1.8 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768GB

NOTE: Silver Processors:

2nd Generation:

6-Channel DDR4 @ 2400 MT/s.

2TB max RAM

Support for: Intel® Vector Neural Network Instructions (VNNI) for inference acceleration.

2 and 4 socket capable, 2S - 2UPI, 2S - 3UPI, 4S - 3UPI @ 9.6 GT/s.

Intel Turbo Boost Technology, Intel Hyper-Threading Technology Intel AVX-512 (2x 512-bit FMA).

48 lanes PCIe 3.0, standard RAS

1st Generation:

6-Channel DDR4 @ 2400 MT/s, 768 GB max memory capacity.

2 socket capable, 2S - 2UPI @ 9.6 GT/s.

Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512 (1x 512-bit FMA).

48 lanes PCIe 3.0, standard RAS.

1 st Generation Intel® Xeon® Scalable Processor Family							
Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	UPI	DDR4	Memory per socket
Bronze 3106 Processor	1.7 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2133 MT/s	768GB
Bronze 3104 Processor	1.7 GHz	6	8.25 MB	85W	2 @ 9.6 GT/s	2133 MT/s	768GB

NOTE: Bronze Processors:

1st Generation:

- 6-Channel DDR4 @ 2133 MT/s, 768 GB max memory capacity.
- 2 socket capable, 2S - 2UPI @ 9.6 GT/s.
- Intel AVX-512 (1x 512-bit FMA).
- 48 lanes PCIe 3.0, standard RAS.

Chipset

Intel C621 Chipset

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

<https://www.intel.com/content/www/us/en/products/chipsets/server-chipsets.html>

On System Management Chipset

HPE BMC – remote server management processor embedded on the system board of the server

Standard Features

Memory

Type:		Industry Standard DDR4 Registered (RDIMM) and Load Reduced (LRDIMM)
DIMM Slots Available	24	12 DIMM slots per processor, 6 channels per processor, 2 DIMMs per channel
Maximum capacity (LRDIMM)	1.5 TB	24 x 64 GB LRDIMM @ 2933 MHz
Maximum capacity (RDIMM)	1.5 TB	24 x 64 GB RDIMM @ 2933 MHz

NOTE: Maximum memory per socket is dependent on processor selection. For example, processors supporting 2 TB per CPU is indicated by the “M” in the processor model names (i.e. 6238M).

NOTE: Mixing of RDIMM and LRDIMM memory is not supported.

NOTE: For General Server Memory Population Rules and Guidelines for Gen10 see details here:

<http://www.hpe.com/docs/memory-population-rules>

Memory Protection

Advanced ECC

Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.

Online Spare

Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.

Expansion Slots

Slots #	Technology	Bus Width	Connector Width	Slot Form Factor	Notes
1	PCIe 3.0	X8	X8	Full-height, full-length slot	Proc 1
2	PCIe 3.0	X16	X16	Full-height, full-length slot	Proc 1
3	PCIe 3.0	X8	X8	Full-height, half-length slot	Proc 1

NOTE: Bus Width Indicates the number of physical electrical lanes running to the connector.

NOTE: This riser also supports dual m.2 cards.

Slots #	Technology	Bus Width	Connector Width	Slot Form Factor	Notes
1	PCIe 3.0	X8	X8	Full-height, full-length slot	Proc 2
2	PCIe 3.0	X16	X16	Full-height, full-length slot	Proc 2
3	PCIe 3.0	X8	X8	Full-height, half-length slot	Proc 2

Slots #	Technology	Bus Width	Connector Width	Slot Form Factor	Notes
1	PCIe 3.0	X8	X8	Full-height, full-length slot	Proc 2 required
2	PCIe 3.0	X8	X8	Full-height, full-length slot	Proc 2 required

Standard Features

Storage Controllers

- Embedded Software RAID
- Intel C621 AHCI SATA RAID with 14 SATA ports, 12 ports accessible (embedded)
- RAID Controllers
- Broadcom 9460-8i/16i RAID Controller
- LSI 9361-8i/16i RAID Controller
- Intel Virtual RAID on CPU (Intel VROC)
- HBA Controllers
- LSI 9300-8i SAS HBA Card
- LSI 9305-16i SAS HBA Card

Internal Storage Devices

Hard Drives None ship standard

Maximum Internal Storage

Storage	Capacity	Configuration
Hot Plug SFF SAS & Hot Plug SFF SAS Self Encrypting (SED)	57.6 TB	24 x 2.4TB
Hot Plug LFF SATA	168 TB	12 x 14 TB
Hot Plug SFF SAS SSD	184.32 TB	24 x 7.68 TB
Hot Plug SFF NVMe PCIe SSD	128 TB	16 x 8 TB NVMe

NOTE: 2x m.2 drives are supported on the Primary Riser.

Power Supply

HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit

NOTE: Available in 94% efficiency.

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit

NOTE: Available in 94% and 96% efficiency.

NOTE: Also available in -48VDC and 227VAC/380VDC power inputs.

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit

NOTE: Available in 94% efficiency.

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE Cloudline Gen10 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 [HPE 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](#).

Standard Features

Interfaces

Serial	1 port with cable optional, rear
Video	1 Rear – VGA port (standard on all chassis types)
Network Ports	4x 1GbE embedded NIC (if equipped/depending on model)
BMC Remote Management Network Port	1 GbE Dedicated
Micro SD Slot	1 Micro SD (internal)

NOTE: The Micro SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.

USB 3.0	Up to 5 total: 1 front, 2 rear, 2 internal (secure)
---------	---

Operating Systems and Virtualization Software Support for Cloudline Servers

2nd Generation Intel® Xeon® Scalable Processor Family

- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Red Hat Enterprise Linux 7.6 (64 bit) (includes KVM)
- SLES 12 SP3 (64 bit) w/ Xen and KVM
- SLES 15 (64 bit) w/ Xen and KVM
- VMware vSphere 6.5 U3, 6.7 U1
- CentOS 7.6
- Ubuntu LTS 18.04

1st Generation Intel® Xeon® Scalable Processor Family

- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Red Hat Enterprise Linux (64 bit) (includes KVM) 6.9, 6.10, 7.4, 7/5
- SLES 12 SP3 (64 bit) w/ Xen and KVM
- VMware vSphere 6.5 U1
- CentOS 7.5
- Ubuntu LTS 18.04

NOTE: For more information visit <http://www.hpe.com/info/ossupport>

Industry Compliance

- AMI Aptio 5.12
- UEFI 2.5 Support
- UEFI Shell 2.1 Support
- UEFI PI 1.4 Support
- ACPI 6.1 Compliant
- PCIe 3.0 Compliant
- SMBIOS 3.0
- PXE Support
- WOL Support
- USB 3.0 Compliant
- USB 2.0 Compliant
- Redfish® version 1.0
- IPMI 2.0
- DCMI (Data Center Management Interface), version 1.5
- SPS 3.0
- SMBUS 2.0

Standard Features

- European Union (EU) eco-design regulations for server and storage products, known as Lot 9, go into effect on March 1st, 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. The HPE Cloudline CL2800 Gen10 server is compliant with Lot9 requirements. For more information regarding HPE Lot 9 conformance, please visit: <https://www.hpe.com/us/en/about/environment/msds-specs-more.html>
-

Graphics

Integrated Video Standard

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

AMI UEFI BIOS

Unified Extensible Firmware Interface (UEFI) is an industry standard for better manageability and secured configuration than the legacy ROM at boot time. HPE Cloudline Gen10 servers have a UEFI Class 2 implementation and support both UEFI Mode (default) and Legacy BIOS Mode. Please reference the CL2800 User & Maintenance Guide.

- UEFI enables numerous new capabilities specific to HPE 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
- PXE boot support for IPv6 networks
- UEFI Boot Mode only:
- TPM 2.0 Support
- NVMe Boot Support
- iSCSI Software Initiator Support.
- HTTP Boot support
- Boot support for option cards that only support a UEFI option ROM

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

NOTE: Legacy FIO Setting (P11219-B22) can be selected to configure the system in Legacy mode in the factory for your HPE Cloudline Gen10 Server.

Embedded Management

Open Systems BMC

Industry standard baseboard management controller (BMC®) for effective remote management with IPMI / Redfish®, and DCMI/PXE boot standard interfaces allowing simple/scripted integration into an application infrastructure. A user can access the BMC firmware (FW), via a web browser, or scripting for server status configurations, user(s) privilege setup, FW updates, power control, event logging, BMC Network, serial port management, and SOL configuration.

Redfish® API

Redfish® API conformance and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards.

Security

- UEFI Secure Boot and Secure Start Support
- SECURE FLASH
- SSL (HTTPS) for secured sessions
- TPM (Trusted Platform Module) 2.0 option

NOTE: TPM 2.0 only works when UEFI is set to default

- Bezel Locking Kit
-

Standard Features

Warranty

Hardware support is available for 3 years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Hard drives have either a one year or three year warranty; refer to the HPE Cloudline Servers and Options Global Limited Warranty and Technical Support for details.

NOTE: Server Warranty includes 3 Years Parts with five (5) days response time, 0 Years Labor, and 0 Years Onsite Support. Additional information regarding worldwide limited warranty and technical support is available at http://www.hpe.com/support/cloudline_warranty_en.

Response time

Response times are based on local standard business days and working hours. Unless otherwise stated, all responses are measured from the time the customer calls until Hewlett Packard Enterprise has either established a mutually acceptable time for support to be performed, or Hewlett Packard Enterprise has begun to provide support or remote diagnostics. Response time is based on commercially reasonable effort. In some countries and under certain supplier constraints, response time may vary. If your location is outside the customary service zone, response time may be longer or there may be an additional charge. Contact your local Hewlett Packard Enterprise service organization for response time availability in your area.

Optional Features

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°C, 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 extended 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](#).

Service and Support

Protect your business beyond warranty with Foundation Care NBD and Cloudline Support Services

HPE Foundation Care Next Business Day and Cloudline Support Services provide remote diagnosis and support, scheduled onsite hardware repair/troubleshooting, and coverage for replacement components. Also available with defective media retention (DMR) or comprehensive defective media retention (CDMR) services.

Extended support duration for up to 5 years is available on Foundation Care NBD services.

- HPE Cloudline 3 Years Parts + Remote Technical Support + Defective Media Retention
- HPE Cloudline 3 Years Parts + Remote Technical Support + Comprehensive Defective Media Retention
- HPE Foundation Care Next Business Day (3, 4, and 5 years options)
- HPE Foundation Care Next Business Day + Defective Media Retention (3, 4, and 5 years options)
- HPE Foundation Care Next Business Day + Comprehensive Defective Media Retention (3, 4, and 5 years options)

More information on Foundation Care NBD available at: <https://h20195.www2.hpe.com/v2/getpdf.aspx/4aa4-8876enw.pdf>

More information on Cloudline Support Services available at:

<https://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA5-9207ENN.pdf>

Standard Support recommendation

Connect to Hewlett Packard Enterprise for faster problem resolution. Cloudline Carepack Services provides hardware onsite response. Simplify your support experience and make Hewlett Packard Enterprise your first call for hardware or software questions.

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 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.

Datacenter Care for Hyperscale

DC for Hyperscale is available for Service Providers and HPC customers who use a scale out approach to computing with a high-volume homogenous infrastructure and resilient architecture. Customers can take advantage of this environment support tailored to their operating model. More information at <https://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA6-3460ENW.pdf>.

Spares Management Service

Provides customers with spare parts inventory for onsite stocking, and access to the HPE Spares Management Tool – an automated inventory management tool that helps enable real-time inventory management. More information at

<https://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA1-3116ENW.pdf>.

Advisory & Professional Services

Design, strategy, road map, and other services to help enable the digital transformation journey, tuned to IT and business needs. Advisory Services helps customers on their journey to Hybrid IT, Big Data, and the Intelligent Edge. More information at <https://www.hpe.com/us/en/services/consulting.html>.

Operational offerings to improve performance and securely handle retirement of customers' IT environments.

Operate & Improve performance, minimize risk of downtime, and reduce security risks.

Retire & Sanitize to safely and securely dispose of retired IT and ensuring customer data cannot be compromised.

Integrate the new solution with project management, installation and startup, relocation services, and more. We help mitigate risk to the business so there is no interruption when new technology is being integrated in the existing IT environment. More information at

<https://www.hpe.com/us/en/services/professional.html>.

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
- European Union (EU) eco-design regulations for server and storage products, known as Lot 9, go into effect on March 1st, 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. The HPE Cloudline CL2800 Gen10 server is compliant with Lot9 requirements. For more information regarding HPE Lot 9 conformance, please visit: <https://www.hpe.com/us/en/about/environment/msds-specs-more.html>

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

Network Choice (NC) Models

Network Choice models do not include embedded LOM. To enable networking capability an HPE Ethernet 1Gb 4-port 366FLR Adapter will be auto-populated for primary NIC with customer choice of additional NICs (stand-up cards)

CTO Server	HPE CL2800 Gen10 8SFF NC CTO Server	HPE CL2800 Gen10 12LFF NC CTO Server
SKU Number	P20548-B21	P20549-B21
Processor	Not included as standard	Not included as standard
DIMM Slots	24-DIMM slots	24-DIMM slots
Storage Controller	Intel® C621 series chipset supporting 14 (12 accessible) Internal 6GbE AHCI/RAID SATA, Intel VROC or Optional SAS/SATA RAID or HBA via PCIe card	
PCIe	Three standard in primary riser (with dual M.2 support)	
Drive Cage - included	8 SFF	12 LFF
Network Controller	HPE Ethernet 1Gb 4-port 366FLR Adapter (sideband supported) plus optional PCIe stand up card(s)	
Fans	4 Standard (1P), 6 Standard (2P) or 6-High Performance (24SFF or NVMe)	6-High Performance
Management	Open Standards Based Management IPMI 2.0, Redfish® API, AMI MegaRAC BMC, AMI APTIO BIOS	
USB	(5) USB ports – 1 Front, 2 Rear, 2 Internal	(5) USB ports – 1 Front, 2 Rear, 2 Internal

CTO Models with embedded LOM

CTO Server	HPE CL2800 Gen10 8SFF CTO Server	HPE CL2800 Gen10 12LFF CTO Server
SKU Number	P04356-B21	P09682-B21
Processor	Not included as standard	Not included as standard
DIMM Slots	24-DIMM slots	24-DIMM slots
Storage Controller	Intel® C621 series chipset supporting 14 (12 accessible) Internal 6GbE AHCI/RAID SATA Optional SAS/SATA RAID or HBA via PCIe card	
PCIe	Three standard in primary riser (with dual M.2 support)	
Drive Cage - included	8 SFF	12 LFF
Network Controller	HPE 1GbE Ethernet 4-Port embedded or stand up card	
Fans	4 Standard (1P), 6 Standard (2P) or 6-High Performance (24SFF or NVMe)	6-High Performance
Management	Open Standards Based Management IPMI 2.0, Redfish® API, AMI MegaRAC BMC, AMI APTIO BIOS	
USB	(5) USB ports – 1 Front, 2 Rear, 2 Internal	(5) USB ports – 1 Front, 2 Rear, 2 Internal

NOTE: All CTO servers are Energy Star 2.1 compliant.

Configuration Information

CTO Server	8 SFF or 8SFF NC CTO Chassis	12 LFF or 12 LFF NC CTO Chassis
Included Drive Cage	8 SFF SAS/SATA	12 LFF Chassis
Additional drive cages	Up to 2 Optional	Not available
8 SFF Drive Cage	Up to 2 Optional	Not available
8 NVME/SAS Bay	Up to 3 Optional	Not available
8 NVME Cage	Up to 2 Optional	Not available

NOTE: This applies to CTO configurations, field upgrades may differ depending field configuration.

Step 2a: Choose Required Options - Processors

Please select a minimum of one or maximum of two –L21 processors below. The Premium 10SFF base server requires two –L21 processors be selected.

NOTE: Mixing of 2 different processor models is not supported.

NOTE: For first processor selection on the 8SFF chassis, it will include 4 fans; For second processor selection (if applicable), it will add 2 additional fans. For the 8SFF chassis, the high performance fan kit (P05480-B21) is an optional upgrade.

NOTE: Processors with 130W or higher will ship with a high-performance heatsink plus SKUs 6128, 5122 as noted below. All other processors will ship with the Standard heat sink.

NOTE: When 2nd Generation Intel Xeon Scalable Processor is selected, then only DDR4-2933 Memory Kit can be selected; When 1st Generation Intel Xeon Scalable Processor is selected, then only DDR4-2666 Memory Kit can be selected

Processor Option Kits

Required Processor

2nd Generation Intel Xeon-Platinum

HPE CL Gen10 Intel Xeon-Platinum 8280M (2.7GHz/28-core/205W) FIO Processor Kit P12097-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Platinum 8276M (2.2GHz/28-core/165W) FIO Processor Kit P12094-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Platinum 8276 (2.2GHz/28-core/165W) FIO Processor Kit P12093-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Platinum 8270 (2.7GHz/26-core/205W) FIO Processor Kit P12092-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Platinum 8268 (2.9GHz/24-core/205W) FIO Processor Kit P12091-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Platinum 8260M (2.4GHz/24-core/165W) FIO Processor Kit P12089-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Platinum 8260 (2.4GHz/24-core/165W) FIO Processor Kit P12087-L21

NOTE: Ships with High Performance Heatsink.

2nd Generation Intel Xeon-Gold

HPE CL Gen10 Intel Xeon-Gold 6254 (3.1GHz/18-core/200W) FIO Processor Kit P12086-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) FIO Processor Kit P12084-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) FIO Processor Kit P12082-L21

NOTE: Ships with High Performance Heatsink.

HPE CL Gen10 Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) FIO Processor Kit P12080-L21

NOTE: Ships with High Performance Heatsink.

Configuration Information

HPE CL Gen10 Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) FIO Processor Kit	P12078-L21
HPE CL Gen10 Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) FIO Processor Kit	P12077-L21
HPE CL Gen10 Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) FIO Processor Kit	P12075-L21
HPE CL Gen10 Intel Xeon-Gold 5217 (3.0GHz/8-core/115W) FIO Processor Kit	P12073-L21
HPE CL Gen10 Intel Xeon-Gold 5215M (2.5GHz/10-core/85W) FIO Processor Kit	P12072-L21
HPE CL Gen10 Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) FIO Processor Kit	P12071-L21
1st Generation Intel Xeon-Gold	
HPE CL Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) FIO Processor Kit	P01905-L21
NOTE: Ships with High Performance Heatsink.	
HPE CL Intel Xeon-Gold 6148 (2.4GHz/20-core/150W) FIO Processor Kit	P01747-L21
NOTE: Ships with High Performance Heatsink.	
HPE CL Intel Xeon-Gold 6144 (3.5GHz/8-core/150W) FIO Processor Kit	P01743-L21
NOTE: Ships with High Performance Heatsink.	
HPE CL Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) FIO Processor Kit	P01746-L21
NOTE: Ships with High Performance Heatsink.	
HPE CL Intel Xeon-Gold 6140 (2.3GHz/18-core/140W) FIO Processor Kit	P01904-L21
NOTE: Ships with High Performance Heatsink.	
HPE CL Intel Xeon-Gold 6138 (2.0GHz/20-core/125W) FIO Processor Kit	P01903-L21
HPE CL Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) FIO Processor Kit	P01745-L21
NOTE: Ships with High Performance Heatsink.	
HPE CL Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) FIO Processor Kit	P01906-L21
NOTE: Ships with High Performance Heatsink.	
HPE CL Intel Xeon-Gold 6130 (2.1GHz/16-core/125W) FIO Processor Kit	P01902-L21
HPE CL Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) FIO Processor Kit	P01742-L21
NOTE: Ships with High Performance Heatsink	
HPE CL Intel Xeon-Gold 6126 (2.6GHz/12-core/125W) FIO Processor Kit	P01744-L21
HPE CL Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) FIO Processor Kit	P01741-L21
NOTE: Ships with High Performance Heatsink	
HPE CL Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) FIO Processor Kit	P01901-L21
HPE CL Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) FIO Processor Kit	P01900-L21
HPE CL Intel Xeon-Gold 5115 (2.4GHz/10-core/105W) FIO Processor Kit	P01795-L21
2nd Generation Intel Xeon-Silver	
HPE CL Gen10 Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) FIO Processor Kit	P12070-L21
HPE CL Gen10 Intel Xeon-Silver 4215 (2.5GHz/8-core/85W) FIO Processor Kit	P12069-L21
HPE CL Gen10 Intel Xeon-Silver 4214 (2.2GHz/12-core/85W) FIO Processor Kit	P12067-L21
HPE CL Gen10 Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) FIO Processor Kit	P12066-L21
HPE CL Gen10 Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) FIO Processor Kit	P12064-L21
1st Generation Intel Xeon-Silver	
HPE CL Intel Xeon-Silver 4114 (2.2GHz/10-core/85W) FIO Processor Kit	P01898-L21
HPE CL Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) FIO Processor Kit	P01794-L21
HPE CL Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) FIO Processor Kit	P01897-L21
HPE CL Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) FIO Processor Kit	P01896-L21
HPE CL Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) FIO Processor Kit	P01899-L21

Configuration Information

1st Generation Intel Xeon-Bronze

HPE CL Intel Xeon-Bronze 3106 (1.7GHz/8-core/85W) FIO Processor Kit

P01895-L21

HPE CL Intel Xeon-Bronze 3104 (1.7GHz/6-core/85W) FIO Processor Kit

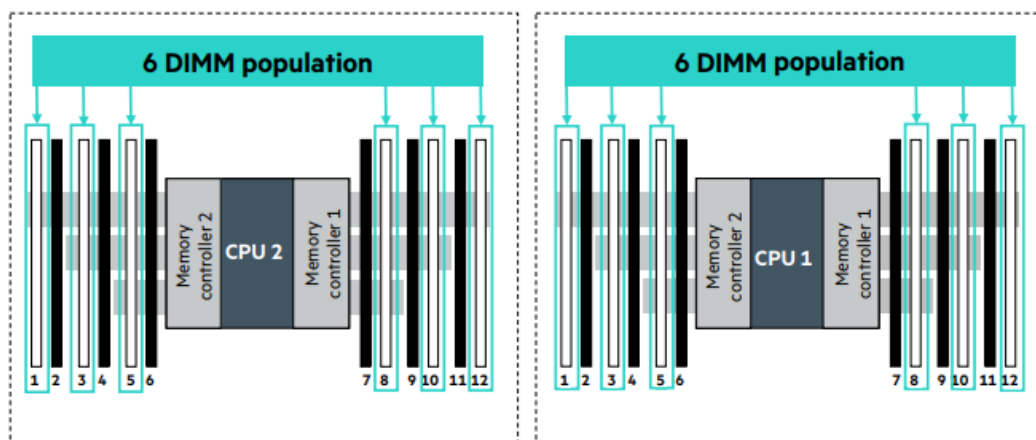
P01894-L21

Step 2b: Choose Memory Options

Please select one or more memory from below.

For new Gen10 memory population rule whitepaper and optimal memory performance guidelines, please go to:

<https://www.hpe.com/docs/memory-population-rules>



Balanced across two CPUs – 12 DIMMs

NOTE: Maximum memory capacity and speed per processor is dependent on processor model selection or limitation.

NOTE: DDR4-2933 Memory Kits are only supported with 2nd Generation Intel Xeon Scalable Series Processors and DDR4-2666 Memory Kits are only supported with 1st Generation Intel Xeon Scalable Series Processors.

Registered DIMMs (RDIMMs) for 2nd Generation Intel Xeon Scalable Series

HPE DDR4 Special SmartMemory

P14492-B21

HPE CL 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Memory FIO Kit

P10660-B21

HPE DDR4 Special SmartMemory

P14119-B21

HPE DDR4 Special SmartMemory

P14117-B21

Registered DIMMs (RDIMMs) for 1st Generation Intel Xeon Scalable Series

HPE CL 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit

880841-B21

HPE CL 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit

P07029-B21

HPE CL 16GB (1x16GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit

881067-B21

Load Reduced DIMMs (LRDIMMs) for 2nd Generation Intel Xeon Scalable Series

HPE DDR4 Special SmartMemory

P14121-B21

Load Reduced DIMMs (LRDIMMs) for 1st Generation Intel Xeon Scalable Series

HPE CL 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Memory FIO Kit

880842-B21

Configuration Information

Step 2c: Choose Power Supplies

Select one or two power supplies from below.

NOTE: Mixing of 2 different power supplies is NOT allowed.

HPE Flex Slot Power Supplies

HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	865408-B21
HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit	865438-B21
HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	865414-B21
HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit	865434-B21
HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	830272-B21
HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply Kit	865428-B21

NOTE: 1600W Power supplies only support high line voltage (200 VAC to 240 VAC).

Step 3: Choose Additional Factory Integratable Options

One of the following from each list may be selected if desired at time of factory integration

HPE Security Options

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

NOTE: HPE Trusted Platform Module 2.0 option works with Gen10 servers with UEFI Mode not Legacy Mode.

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

HPE Gen10 2U Bezel Kit	867809-B21
HPE Bezel Lock Kit	875519-B21

HPE Unique Options

HPE CL2800 Gen10 x16 16 Riser FIO Kit	P05479-B21
---------------------------------------	------------

NOTE: Slot 1 or 2 in Primary location.

NOTE: Supports Full Height and Full length cards.

NOTE: Bus width x16, x16, Connector Width x16, x16.

HPE CL2800 Gen10 x16/x16 GPU FIO Riser Kit	P12134-B21
--	------------

NOTE: Slot 2 (Middle slot) and 3 (Bottom slot) available in Secondary riser location.

NOTE: Max Qty=1 Double-wide Accelerator/GPU can be populated

NOTE: Supports Full Height and Full length cards.

NOTE: Bus width x16, x16, Connector Width x16, x16

HPE CL2800 Gen10 x16 Tertiary GPU FIO Riser Kit	P12135-B21
---	------------

NOTE: Slot 1 (Top slot) available in Tertiary riser location.

NOTE: Supports Full Height and full-length card.

NOTE: Bus width x16; Connector Width x16.

HPE Cloudline Server Accessories	P10539-B21
----------------------------------	------------

NOTE: Riser supporting up to 8 NVMe drives in Primary location.

NOTE: This is a factory integrated only option.

NOTE: This can be connected to an 8SFF NVMe drive cage in box 3

HPE CL2800 Gen10 2U x8/x16/x8 2-port 4 NVMe Secondary FIO Riser Kit	P15479-B21
---	------------

NOTE: No M.2 support on this riser.

NOTE: Supports Full Height, Half-length cards; Full Height, Full-length cards and Full Height, Half-length cards.

NOTE: Bus width x8, x16, x8, Connector Width x8, x16, x8.

HPE Cloudline Server Accessories	P10540-B21
----------------------------------	------------

NOTE: Riser supporting up to 8 NVMe drives in Secondary location.

Configuration Information

HPE Cloudline Server Accessories	P10541-B21
NOTE: This is a factory integrated only option. NOTE: Supports 2 x8 slots in the Tertiary location.	
HPE CL2800 Gen10 2SFF Rear FIO Enablement Kit	P12060-B21
NOTE: High performance fan kits are required for rear drives.	
HPE CL2800 Gen10 2SFF Premium HDD Front NVMe/SAS/SATA FIO Kit	P12062-B21
NOTE: NVMe drives require the addition of the High Performance Fan kit (P05480-B21). NOTE: NVMe drives require the addition of an NVMe capable riser. NOTE: Drive cage can be used in the rear of the chassis, but will not support NVMe drives rear	
HPE CL Legacy FIO Mode Setting	P11219-B22
NOTE: 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 Options sections below

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. Note the <http://www.hpe.com/info/CablingMatrixGen10> can help to explain the cable routing for each option:

HPE Unique Options

HPE Cloudline Server Accessories	P09683-B21
NOTE: This option provides support for up to 8 NVMe drives, and can only be populated in Box 1, Box 2 and Box 3 of the SFF chassis. Maximum of 16 NVMe drives can be populated.	
NOTE: The HPE CL2800 Gen10 High Performance Fan Kit is required for NVMe support (P05480-B21).	
NOTE: The HPE CL2800 Gen10 4 port Primary SlimSAS Riser Kit (P10539-B21) and HPE CL2800 Gen10 4 port Secondary SlimSAS Riser Kit (P10540-B21) are required to support this.	
NOTE: There may be limitations on some PCIe adapters supported with the NVMe bay populated.	
HPE CL2800 Gen10 8SFF HDD Cage FIO Kit	P04353-B21
NOTE: This kit can be supported in Box 1, 2 or 3 and provides support for up to 8 SFF SAS/SATA or 6 SAS/SATA + 2 NVMe drives per Box.	
NOTE: When adding to Box 1 the addition of the High Performance Fan kit (P05480-B21) is required.	
HPE CL2800 Gen10 High Perf Fan FIO Kit	P05480-B21
NOTE: This kit is required for specific Ambient temperature environments .	
NOTE: This is required for NVMe configurations.	
NOTE: This kit provides maximum cooling for your Server.	
NOTE: This kit is required when Box 1, 2 and 3 are populated.	
HPE CL2600/2800Gen10 Rear Serial Cbl FIO	P07013-B21

HPE Drives

Enterprise - 12G SAS - SFF Drives

HPE CL 300GB SAS 12G Enterprise 15K SFF (2.5in) Seagate Self-encrypting FIO HDD	P01660-B21
HPE CL 600GB 12G SAS 10K rpm SFF (2.5in) Enterprise Hard Drive	848513-B21
HPE CL 1.2TB 12G SAS 10K rpm SFF (2.5in) Enterprise Hard Drive	848505-B21
HPE CL 2.4TB 12G SAS 10K rpm SFF (2.5in) Seagate Enterprise Hard Drive	880853-B21
HPE CL 2.4TB SAS 12G Enterprise 10K SFF (2.5in) Seagate SED FIO HDD	P10335-B21

Midline - 6G SATA - LFF Drives

HPE CL 6TB SATA 7.2K rpm LFF (3.5in) Seagate Midline Hard Drive	P01728-B21
HPE CL 6TB SATA 6G Enterprise 7.2K LFF (3.5in) Hitachi SE 512e FIO HDD	P08756-B21
HPE CL 8TB SATA 6G Enterprise 7.2K LFF (3.5in) Seagate 512e FIO HDD	848539-B21
HPE CL 10TB SATA 6G Enterprise 7.2K LFF (3.5in) Seagate 512e FIO HDD	P08762-B21
HPE CL 12TB SATA 6G Enterprise 7.2K LFF (3.5in) Seagate 512e FIO HDD	P08778-B21
HPE CL 12TB SATA 6G Enterprise 7.2K LFF (3.5in) Seagate 512e FIO HDD	P23939-B21
HPE CL 14TB SATA 6G Enterprise 7.2K LFF (3.5in) Hitachi ISE 512e FIO HDD	P08759-B21
HPE CL 14TB SATA 6G Enterprise 7.2K LFF (3.5in) Seagate 512e FIO HDD	P08781-B21

SSD Selection

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

HPE CL 240GB SATA 6G Mixed Use SFF (2.5in) Micron 5200 FIO SSD	P08787-B21
HPE CL 240GB SATA Mixed Use SFF(2.5in) Micron 5300 MAX FIO SSD	P23924-B21
HPE CL 960GB SATA 6G Mixed Use SFF (2.5in) Micron 5200 SED FIO SSD	P11734-B21
HPE CL 960GB SATA Mixed Use SFF(2.5in) Micron 5300 SED FIO SSD	P23927-B21
HPE CL 960GB SATA 6G Mixed Use SFF (2.5in) Intel S4610 FIO SSD	P08811-B21
HPE CL 1.92TB SATA 6G Mixed Use SFF (2.5in) Intel S4610 FIO SSD	P08814-B21
HPE CL 3.84TB SATA 6G Mixed Use SFF (2.5in) Intel S4610 FIO SSD	P04597-B21

Core Options

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

HPE CL 240GB SATA 6G Read Intensive SFF (2.5in) Intel S4510 FIO SSD	P08796-B21
HPE CL 480GB SATA RI SFF (2.5in) Micron 5300 SED FIO SSD	P23921-B21
HPE CL 480GB SATA 6G Read Intensive SFF (2.5in) Intel S4510 FIO SSD	P08799-B21
HPE CL 480GB SATA 6G Read Intensive SFF (2.5in) Micron 5200 SED FIO SSD	P11737-B21
HPE CL 960GB SATA 6G Read Intensive SFF (2.5in) Intel S4510 FIO SSD	P08802-B21
HPE CL 1.92TB SATA 6G Read Intensive SFF (2.5in) Intel S4510 FIO SSD	P08805-B21
HPE CL 1.92TB SATA 6G Read Intensive SFF (2.5in) Samsung PM883 FIO SSD	P01680-B21
HPE CL 1.92TB SATA RI SFF (2.5in) Micron 5300 PRO FIO SSD	P23919-B21
HPE CL 3.84TB SATA 6G Read Intensive SFF (2.5in) Samsung PM883 FIO SSD	879720-B21
HPE CL 7.68TB SATA 6G Read Intensive SFF (2.5in) Samsung PM883 FIO SSD	P01684-B21
HPE CL 3.84TB SATA 6G Read Intensive SFF (2.5in) Intel S4510 FIO SSD	P08808-B21
HPE CL 3.84TB SATA RI SFF (2.5in) Micron 5300 PRO FIO SSD	P23917-B21
HPE CL 7.6TB SATA RI SFF 5300PRO FIO SSD	P23915-B21

Read Intensive - NVMe - SFF - Solid State Drives

HPE CL 1.9TB NVMe x4 Lanes Read Intensive SFF (2.5in) Samsung PM983 SED FIO SSD	P06710-B21
HPE CL 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) Intel P4510 FIO SSD	P04600-B21
HPE CL 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) Samsung PM983 SED FIO SSD	P06713-B21
HPE CL 4TB NVMe x4 Lanes Read Intensive SFF (2.5in) Intel P4510 FIO SSD	P06663-B21
HPE CL 8TB NVMe x4 Lanes Read Intensive SFF (2.5in) Intel P4510 FIO SSD	P04599-B21

Write Intensive - NVMe - SFF - Solid State Drives

HPE CL 375GB NVMe x4 Lanes Write Intensive SFF (2.5in) Intel P4800X FIO SSD	P10984-B21
---	------------

Mixed Use - 6G SATA - M.2 - Solid State Drives

HPE CL 240GB SATA 6G Mixed Use M.2 - UFF to SFF Micron 5100 FIO SSD	P08784-B21
---	------------

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

HPE CL 240GB SATA RI M.2 5300BOT FIO SSD	P18854-B21
---	------------

Mixed Use - NVMe - SFF - Solid State Drives

HPE CL 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) Intel P4610 FIO SSD	P06660-B21
HPE CL 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) Samsung PM1725b FIO SSD	P06726-B21

NOTE: No hard drive blank kits are required.

HPE PCIe Accelerators

HPE CL 1.6TB NVMe x4 Lanes Mixed Use HHHH Samsung PM1725b FIO SSD	P01676-B21
---	------------

HPE Networking

100 Gigabit Ethernet Adapters

HPE CL Ethernet 100Gb 1-port QSFP28 Mellanox ConnectX-5 EN PCIe3 FIO Card	880150-B21
---	------------

50 Gigabit Ethernet adapters

HPE CL Ethernet 50Gb 2-port SFP28 Mellanox ConnectX-5 Single Host PCIe 3.0 Card	P01671-B21
---	------------

25 Gigabit Ethernet adapters

HPE CL Ethernet 25Gb 2-port SFP+ Mellanox ConnectX-4 PCIe 3.0 Card	P01670-B21
HPE CL Ethernet 25Gb 2-port SFP28 Q41212 PCIe 3.0 Card	P01669-B21
HPE CL Ethernet 25Gb 1-port SFP28 Intel XXV710 PCIe 3.0 Card	P01667-B21

Core Options

10 Gigabit Ethernet adapters

HPE CL Ethernet 10Gb 4-port Intel X710-DA4 PCIe3 FIO Adapter	P10664-B21
HPE CL Ethernet 10Gb 4-port Intel X710-T4 PCIe3 FIO Adapter	P10662-B21
HPE CL Ethernet 10Gb 4-port Intel X710-DA4 PCIe3 FIO Adapter	P10664-B21
HPE CL Ethernet 10GBASE-T 2-port Q41112 PCIe FIO Adapter	P08550-B21
HPE CL Ethernet 10Gb 2-port SFP+ QLogic Q41132 PCIe 3.0 Card	P01668-B21
HPE CL Ethernet 10GBASE-T 2-port Intel X550 PCIe 3.0 Card	P01665-B21
HPE CL Ethernet 10Gb 2-port SFP+ Intel X710 PCIe 3.0 Card	P01666-B21

NOTE: The CL2800 Gen10 ships with 4x 1 GbE Embedded.

NOTE: A minimum of two Gigabytes (2 GBE) of server memory is required per each adapter.

Additional Options

HPE I/O Expansion Options

NOTE: The Primary Riser shipping default in the chassis is a x8 FH, FL, x16 FH, FL and x8 FH, HL with m.2 support.

NOTE: For a Secondary/Tertiary riser the second processor is required.

HPE CL2800 Gen10 x16 16 Riser FIO Kit P05479-B21

NOTE: Slot 1 or 2 in Primary or Secondary location.

NOTE: Supports Full Height and Full length cards.

NOTE: Bus width x16, x16, Connector Width x16, x16.

HPE Cloudline Server Accessories P10539-B21

NOTE: Riser supporting up to 8 NVMe drives in Primary location.

NOTE: This is a factory integrated only option.

NOTE: This can be connected to an 8SFF NVMe drive cage in box 3.

HPE Cloudline Server Accessories P10540-B21

NOTE: Riser supporting up to 8 NVMe drives in Secondary location.

HPE Cloudline Server Accessories P10541-B21

NOTE: Supports 2 x8 slots in the Tertiary location.

HPE CL2800 Gen10 2U x8/x8/x8 1-port 4 NVMe Slimline Primary FIO Riser Kit P12061-B21

NOTE: Supports 3x 8 and 1-port for NVMe.

NOTE: Supports Full Height and half-length cards.

NOTE: Bus width x8, x8, x8 Connector Width x8, x8, x8.

HPE CL2800 Gen10 x16/x16 GPU Riser FIO Kit P12134-B21

NOTE: Slot 2 (Middle slot) and 3 (Bottom slot) available in Secondary riser location.

NOTE: Max Qty=1 Double-wide GPU can be populated

NOTE: Supports Full Height and Full length cards.

NOTE: Bus width x16, x16, Connector Width x16, x16

HPE CL2800Gen10 x16 Tertiary Riser FIO Kit P12135-B21

NOTE: Slot 1 (Top slot) available in Tertiary riser location.

NOTE: Supports Full Height and full-length card.

NOTE: Bus width x16; Connector Width x16.

Additional Options

Riser Information*									
Part number	Description	Riser position			Bus width (Gen3 lanes)			NVMe Direct Connect	
		Primary	Secondary	Tertiary	Top slot	Middle Slot	Bottom slot	Ports	Drive count
n/a	This is the default riser in the chassis	D	N	N	x8	x16	x8		
P15479-B21	HPE CL2800 Gen10 x8/x16/x8 Riser FIO Kit	O	O	N	X8	X16	X8		
P05479-B21	HPE CL2800 Gen10 x16/x16 FIO Kit	O	O	N	x16	x16	0		
P12061-B21	HPE CL2800 Gen10 x8/x8/x8 1-port 2 NVMe Slimline FIO Kit	O	O	N	X8	X8	X8	1	2
P10539-B21	HPE CL2800 Gen10 4p Prim SlimSAS FIO Kit	O	N	N	0	0	0	4	8
P10540-B21	HPE CL2800 Gen10 4p Sec SlimSAS FIO Kit	N	O	N	0	0	0	4	8
P10541-B21	HPE CL2800 Gen10 2 x8 Tertiary FIO Kit	N	N	O	X8	X8	0		
P12134-B21	HPE CL2800 Gen10 x16/x16 GPU Riser FIO Kit	N	O	N	0	X16	X16		
P12135-B21	HPE CL2800Gen10 x16 Tertiary Riser FIO Kit	N	N	O	X16	0	0		

NOTE: D = Default on chassis; O = Optional; N = not supported or slot/connector not present.

HPE Power Supplies

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

NOTE: Flex Slot Platinum power supplies support power efficiency of up to 94% and include a standard C-14 power inlet connector.

HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit 865438-B21

NOTE: Flex Slot Titanium power supplies support power efficiency of up to 96% and include a standard C-14 power inlet connector.

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit 865414-B21

NOTE: Flex Slot Platinum power supplies support power efficiency of up to 94% and include a standard C-14 power inlet connector.

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

NOTE: Flex Slot -48VDC power supplies support power efficiency of up to 94%.

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit 830272-B21

NOTE: Flex Slot Platinum Plus power supplies support power efficiency of up to 94% and include a C-14 power inlet connector that can support HPE Power Discovery Services (blue connector).

HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply Kit 865428-B21

NOTE: Flex Slot universal power supplies support power efficiency of up to 94% and support both 277VAC/380VDC power inputs.

Additional Options

HPE Computation and Graphics Accelerators

HPE NVIDIA Tesla V100 PCIe 32GB Computational Accelerator

Q9U36C

NOTE: 3 of these cards are supported with a processor 165W or below

NOTE: System Memory Restriction <128TB.

NOTE: No support on 12LFF chassis.

NOTE: V100 requires "Max Cooling" settings required in ROM.

NOTE: This requires the HPE GPU 8P Keyed Cable Kit – 871829-B21

Graphics Cable Kits

HPE DL38x Gen10 8-pin Keyed Cable Kit

871829-B21

HPE Cooling Options

HPE CL2800 Gen10 High Perf Fan FIO Kit

P05480-B21

NOTE: This kit is required for specific **Ambient temperature environments**.

NOTE: High Performance fan kit consists of 6 fans, these will need to replace all the standard fans in the unit, and fill all 6 fan cages.

NOTE: The 12 LFF and 24 SFF models (including field upgrades to 24 SFF) will already include 6 High Performance fan kits.

NOTE: For elevated ambient temperature support please see: <http://www.hpe.com/servers/ashrae>

HPE Security

HPE Gen10 2U Bezel Kit

867809-B21

HPE Bezel Lock Kit

875519-B21

HPE Trusted Platform Module 2.0 Gen10 Option

864279-B21

NOTE: HPE Trusted Platform Module 2.0 option works with Gen10 servers with UEFI Mode not Legacy Mode.

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

RAID Array Controllers and Host Bus Adapters

RAID Array Controllers

HPE CL 9361-8i SAS3108 1GB 8-port SAS Broadcom FIO MegaRAID Adapter

859912-B21

HPE CL 9361-16i SAS3316 CacheVault CVPM02 Broadcom FIO MegaRAID Adapter

857143-B21

HPE CL Broadcom 9460-8i 2G with CVPM05 Tri-Mode RAID Controller

P01726-B21

HPE CL Broadcom 9460-16i 4G with CVPM05 Tri-Mode RAID Controller

P01727-B21

HPE CL2600/2800 Gen10 Intel VROC FIO Enablement Kit

P12568-B22

HPE CL SAS MegaRAID SafeStore Software License and Physical Key FIO Kit

P10017-B21

Host Bus Adapters

HPE CL 9300-8i SAS3008 8-port SAS Broadcom FIO Host Bus Adapter

859916-B21

HPE CL 9305-16i SAS3224 16-port SAS Broadcom FIO Host Bus Adapter

862627-B21

HPE Racks

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

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

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.

Additional Options

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.

Please see the [HPE KVM Switches web page](#) for information on these products and their specifications.

Rail Kits

Ball bearing and Easy Install rail kits contain telescoping rails which allow for in-rack serviceability.

To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative 695539-001.

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

HPE 2U Small Form Factor Easy Install Rail Kit 733660-B21

NOTE: Does not include CMA 733664-B21.

HPE 2U Large Form Factor Easy Install Rail Kit 733662-B21

NOTE: Does not include CMA 733664-B21.

HPE 2U Cable Management Arm for Easy Install Rail Kit 733664-B21

HPE 2U Small Form Factor Ball Bearing Rail Kit 720863-B21

NOTE: Does not include CMA 720865-B21

HPE 2U Large Form Factor Ball Bearing Rail Kit 720864-B21

NOTE: Does not include CMA 720865-B21.

HPE 2U Cable Management Arm for Ball Bearing Rail Kit 720865-B21

HPE Cloudline Support Services

HPE 3 year Cloudline Parts plus Remote Technical with DMR CL2800 Gen10 Supp HF8P5E

HPE 3 year Cloudline Parts plus Remote Technical with CDMR CL2800 Gen10 Supp HF8P6E

HPE Foundation Care 3 Years Next Business Day Services

HPE 3 Year Foundation Care Next Business Day Cloudline 2800 Gen10 Service HF8P7E

HPE 3 Year Foundation Care Next Business Day with DMR Cloudline 2800 Gen10 Service HF8P8E

HPE 3 Year Foundation Care Next Business Day with CDMR Cloudline 2800 Gen10 Service HF8P9E

HPE Foundation Care 4 Years Next Business Day Services

HPE 4 Year Foundation Care Next Business Day Cloudline 2800 Gen10 Service HF8Q0E

HPE 4 Year Foundation Care Next Business Day with DMR Cloudline 2800 Gen10 Service HF8Q1E

HPE 4 Year Foundation Care Next Business Day with CDMR Cloudline 2800 Gen10 Service HF8Q2E

HPE Foundation Care 5 Years Next Business Day Services

HPE 5 Year Foundation Care Next Business Day Cloudline 2800 Gen10 Service HF8Q3E

HPE 5 Year Foundation Care Next Business Day with DMR Cloudline 2800 Gen10 Service HF8Q4E

HPE 5 Year Foundation Care Next Business Day with CDMR Cloudline 2800 Gen10 Service HF8Q5E

Memory

Memory Population guidelines

DIMM Population Order											
1 DIMM							8				
2 DIMMs							8		10		
3 DIMMs							8		10		12
4 DIMMs			3		5		8		10		
5 DIMMs *			3		5		8		10		12
6 DIMMs	1		3		5		8		10		12
7 DIMMs *	1		3		5		7 8		10		12
8 DIMMs			3	4	5	6	7 8	9	10		
9 DIMMs *	1		3		5		7 8	9	10	11	12
10 DIMMs *	1		3	4	5	6	7 8	9	10		12
11 DIMMs *	1		3	4	5	6	7 8	9	10	11	12
12 DIMMs	1	2	3	4	5	6	7 8	9	10	11	12

HPE Gen10 12 Slot per CPU

NOTE:*Unbalanced Not Recommended

General Memory Population Rules and Guidelines:

- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two-processor system, only half of the DIMM slots are available.
- To maximize performance, it is to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Mixing of DIMM types (UDIMM, RDIMM, and LRDIMM) is not supported.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, the number and model of installed processors qualified on the platform.

2 nd Generation Memory				
DIMM Type	Register DIMM (RDIMM)			
HPE SKU P/N	P14117-B21	P14119-B21	P10660-B21	P14492-B21
SKU Description	HPE DDR4 Special SmartMemory	HPE DDR4 Special SmartMemory	HPE CL 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Memory FIO Kit	HPE DDR4 Special SmartMemory
DIMM Rank	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)	Dual Rank (4R)
DIMM Capacity	16GB	16GB	32GB	64GB
Voltage	1.2V	1.2V	1.2V	1.2V
DRAM depth [bit]	2G	1G	2G	4G
DRAM Width [bit]	x4	x8	x4	x4
DRAM Density	8Gb	8Gb	8Gb	16Gb
CAS Latency	21-21-21	21-21-21	21-21-21	21-21-21
DIMM Native Speed (MT/s)	2933 MT/s	2933 MT/s	2933 MT/s	2933 MT/s
Intel Xeon®Platinum/Gold 82xx/62xx Processors Officially Supported Memory Speed (MT/s)				
1 DIMM Per Channel	2933 MT/s	2933 MT/s	2933 MT/s	2933 MT/s

Memory

2 DIMM Per Channel	2666 MT/s	2666 MT/s	2666 MT/s	2666 MT/s
Intel Xeon®Gold 52xx Processors Officially Supported Memory Speed (MT/s)				
1 DIMM Per Channel	2666 MT/s	2666 MT/s	2666 MT/s	2666 MT/s
2 DIMM Per Channel	2666 MT/s	2666 MT/s	2666 MT/s	2666 MT/s
Intel Xeon®Silver 42xx Processors Officially Supported Memory Speed (MT/s)				
1 DIMM Per Channel	2400 MT/s	2400 MT/s	2400 MT/s	2400 MT/s
2 DIMM Per Channel	2400 MT/s	2400 MT/s	2400 MT/s	2400 MT/s
Intel Xeon®Bronze 32xx Processors				
1 DIMM Per Channel	2133 MT/s	2133 MT/s	2133 MT/s	2133 MT/s
2 DIMM Per Channel	2133 MT/s	2133 MT/s	2133 MT/s	2133 MT/s

NOTE: The maximum memory speed is a function of the memory type, memory configuration, and processor model.

For details on the HPE Server Memory speed, visit: <https://www.hpe.com/docs/memory-speed-table>

Memory

2nd Generation Memory	
DIMM Type	Load Reduced (LRDIMM)
HPE DDR4 Special SmartMemory	P14121-B21
SKU Description	HPE DDR4 Special SmartMemory
DIMM Rank	Quad rank (4R)
DIMM Capacity	64 GB
Voltage	1.2V
DRAM depth [bit]	2G
DRAM Width [bit]	X4
DRAM Density	8G
CAS Latency	21-21-21
DIMM Native Speed (MT/s)	2933
Intel Xeon® Platinum/Gold 82xx/62xx Processors Officially Supported Memory Speed (MT/s)	
1 DIMM Per Channel	2933 MT/s
2 DIMM Per Channel	2666 MT/s
Intel Xeon® Gold 52xx Processors Officially Supported Memory Speed (MT/s)	
1 DIMM Per Channel	2666 MT/s
2 DIMM Per Channel	2666 MT/s
Intel Xeon® Silver 42xx Processors Officially Supported Memory Speed (MT/s)	
1 DIMM Per Channel	2400 MT/s
2 DIMM Per Channel	2400 MT/s
Intel Xeon® Bronze 32xx Processors Officially Supported Memory Speed (MT/s)	
1 DIMM Per Channel	2133 MT/s
2 DIMM Per Channel	2133 MT/s

NOTE: The maximum memory speed is a function of the memory type, memory configuration, and processor model. For details on the HPE Server Memory speed, visit: <https://www.hpe.com/docs/memory-speed-table>

DDR4 memory options part number decoder

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

- 16GBE = 16,384 MB
- 32GBE = 32,768 MB
- 64GBE = 65,536 MB

Memory

1st Generation Memory			
DIMM Type	Register DIMM (RDIMM)		
HPE SKU P/N	881067-B21	P07029-B21	880841-B21
SKU Description	HPE CL 16GB (1x16GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit	HPE CL 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit	HPE CL 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit
DIMM Rank	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)
DIMM Capacity	16GB	16GB	32GB
Voltage	1.2V	1.2V	1.2V
DRAM depth [bit]	2G	1G	2G
DRAM Width [bit]	x4	x8	x4
DRAM Density	8Gb	8Gb	8Gb
CAS Latency	19-19-19	19-19-19	19-19-19
DIMM Native Speed (MT/s)	2666 MT/s	2666 MT/s	2666 MT/s
Intel Xeon®Platinum/Gold 81xx/61xx Processors Officially Supported Memory Speed (MT/s)			
1 DIMM Per Channel	2666 MT/s	2666 MT/s	2666 MT/s
2 DIMM Per Channel	2400 MT/s	2400 MT/s	2400 MT/s
Intel Xeon®Gold/Silver 51xx/41xx Processors Officially Supported Memory Speed (MT/s)			
1 DIMM Per Channel	2400 MT/s	2400 MT/s	2400 MT/s
2 DIMM Per Channel	2400 MT/s	2400 MT/s	2400 MT/s
Intel Xeon®Bronze 31xx Processors Officially Supported Memory Speed (MT/s)			
1 DIMM Per Channel	2133 MT/s	2133 MT/s	2133 MT/s
2 DIMM Per Channel	2133 MT/s	2133 MT/s	2133 MT/s

NOTE: The maximum memory speed is a function of the memory type, memory configuration, and processor model.

For details on the HPE Server Memory speed, visit: <https://www.hpe.com/docs/memory-speed-table>

Memory

1st Generation Memory	
DIMM Type	Load Reduced (LRDIMM)
HPE CL 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Memory FIO Kit	880842-B21
SKU Description	HPE CL 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Memory FIO Kit
DIMM Rank	Quad Rank (4R)
DIMM Capacity	64GB
Voltage	1.2V
DRAM depth [bit]	2G
DRAM Width [bit]	x4
DRAM Density	8Gb
CAS Latency	19-19-19
DIMM Native Speed (MT/s)	2666 MT/s
Intel Xeon® Platinum/Gold 81xx/61xx Processors Officially Supported Memory Speed (MT/s)	
1 DIMM Per Channel	2666 MT/s
2 DIMM Per Channel	2400 MT/s
Intel Xeon® Gold/Silver 51xx/41xx Processors Officially Supported Memory Speed (MT/s)	
1 DIMM Per Channel	2400 MT/s
2 DIMM Per Channel	2400 MT/s
Intel Xeon® Bronze 31xx Processors Officially Supported Memory Speed (MT/s)	
1 DIMM Per Channel	2133 MT/s
2 DIMM Per Channel	2133 MT/s

NOTE: The maximum memory speed is a function of the memory type, memory configuration, and processor model. For details on the HPE Server Memory speed, visit: <https://www.hpe.com/docs/memory-speed-table>

Storage



8SFF and 8SFF NC chassis



12 LFF and 12 LFF NC chassis

Technical Specifications

System Unit

Dimensions	8.73 x 44.54 x 67.94 cm 3.44 x SFF Drives: 17.54 x 26.75 in 8.73 x 44.54 x 73.02 cm 3.44 x LFF Drives: 17.54 x 28.75 in												
Weight (approximate)	<table border="0"> <tr> <td style="vertical-align: top;">Maximum:</td> <td>19.5 kg 43.00 lbs</td> <td>Minimum: 8 SFF chassis with 1x SFF HDD and 7 HDD blanks, 2x Drive Bay blanks, 1x processor including standard heatsink, 1x power supply (plus blank), 1x Riser installed, cables for the above)</td> </tr> <tr> <td style="vertical-align: top;">Minimum:</td> <td>14.9 kg 32.75 lbs</td> <td></td> </tr> <tr> <td style="vertical-align: top;">Maximum:</td> <td>24.5 kg 54 lbs</td> <td>Maximum: 12 LFF hard drives (no rear drives), 2x processors, 2x power supplies, , 2x Risers installed)</td> </tr> <tr> <td style="vertical-align: top;">Minimum:</td> <td>17.1 kg 37.75 lbs</td> <td></td> </tr> </table>	Maximum:	19.5 kg 43.00 lbs	Minimum: 8 SFF chassis with 1x SFF HDD and 7 HDD blanks, 2x Drive Bay blanks, 1x processor including standard heatsink, 1x power supply (plus blank), 1x Riser installed, cables for the above)	Minimum:	14.9 kg 32.75 lbs		Maximum:	24.5 kg 54 lbs	Maximum: 12 LFF hard drives (no rear drives), 2x processors, 2x power supplies, , 2x Risers installed)	Minimum:	17.1 kg 37.75 lbs	
Maximum:	19.5 kg 43.00 lbs	Minimum: 8 SFF chassis with 1x SFF HDD and 7 HDD blanks, 2x Drive Bay blanks, 1x processor including standard heatsink, 1x power supply (plus blank), 1x Riser installed, cables for the above)											
Minimum:	14.9 kg 32.75 lbs												
Maximum:	24.5 kg 54 lbs	Maximum: 12 LFF hard drives (no rear drives), 2x processors, 2x power supplies, , 2x Risers installed)											
Minimum:	17.1 kg 37.75 lbs												
Input Requirements (per power supply)	<table border="0"> <tr> <td style="vertical-align: top;">Rated Line Voltage</td> <td>100 to 120 VAC 200 to 240 VAC</td> </tr> </table>	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC										
Rated Line Voltage	100 to 120 VAC 200 to 240 VAC												
BTU Rating	<table border="0"> <tr> <td style="vertical-align: top;">Maximum</td> <td>For 800W Power Supply: 3207 BTU/hr (at 100 VAC), 3071 BTU/hr (at 200 VAC), 3112 BTU/hr (at 240 VAC) for China Only For 500W Power Supply: 1979 BTU/hr (at 100 VAC), 1911 BTU/hr (at 200 VAC), 1965 BTU/hr (at 240 VAC) for China Only</td> </tr> </table>	Maximum	For 800W Power Supply: 3207 BTU/hr (at 100 VAC), 3071 BTU/hr (at 200 VAC), 3112 BTU/hr (at 240 VAC) for China Only For 500W Power Supply: 1979 BTU/hr (at 100 VAC), 1911 BTU/hr (at 200 VAC), 1965 BTU/hr (at 240 VAC) for China Only										
Maximum	For 800W Power Supply: 3207 BTU/hr (at 100 VAC), 3071 BTU/hr (at 200 VAC), 3112 BTU/hr (at 240 VAC) for China Only For 500W Power Supply: 1979 BTU/hr (at 100 VAC), 1911 BTU/hr (at 200 VAC), 1965 BTU/hr (at 240 VAC) for China Only												
Power Supply Output (per power supply)	<table border="0"> <tr> <td style="vertical-align: top;">Rated Steady-State Power</td> <td>For 1400W Power Supply: 1400W (at 240 VAC), 1400W (at 240 VAC) For 800W Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VAC) input for China only</td> </tr> <tr> <td style="vertical-align: top;">Maximum Peak Power</td> <td>For 1400W Power Supply: 1400W (at 200 to 240 1VAC), 1400W (at 240 VAC) input for China only For 800W Power Supply: 800W (at 100 to 127 VAC), 800W (at 200 to 240 1VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 to 127 VAC), 500W (at 200 to 240 VAC), 500W (at 240 VAC) input for China only</td> </tr> </table>	Rated Steady-State Power	For 1400W Power Supply: 1400W (at 240 VAC), 1400W (at 240 VAC) For 800W Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VAC) input for China only	Maximum Peak Power	For 1400W Power Supply: 1400W (at 200 to 240 1VAC), 1400W (at 240 VAC) input for China only For 800W Power Supply: 800W (at 100 to 127 VAC), 800W (at 200 to 240 1VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 to 127 VAC), 500W (at 200 to 240 VAC), 500W (at 240 VAC) input for China only								
Rated Steady-State Power	For 1400W Power Supply: 1400W (at 240 VAC), 1400W (at 240 VAC) For 800W Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VAC) input for China only												
Maximum Peak Power	For 1400W Power Supply: 1400W (at 200 to 240 1VAC), 1400W (at 240 VAC) input for China only For 800W Power Supply: 800W (at 100 to 127 VAC), 800W (at 200 to 240 1VAC), 800W (at 240 VAC) input for China only For 500W Power Supply: 500W (at 100 to 127 VAC), 500W (at 200 to 240 VAC), 500W (at 240 VAC) input for China only												
System Inlet Temperature	<table border="0"> <tr> <td style="vertical-align: top;">Standard Operating Temperature</td> <td>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).</td> </tr> <tr> <td style="vertical-align: top;">Extended Ambient Operating Temperature</td> <td>For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hpe.com/servers/ashrae For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hpe.com/servers/ashrae System performance may be reduced if operating in the extended ambient operating range or with a fan fault.</td> </tr> <tr> <td style="vertical-align: top;">Non-operating</td> <td>-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).</td> </tr> </table>	Standard Operating Temperature	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 Temperature	For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hpe.com/servers/ashrae For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hpe.com/servers/ashrae System performance may be reduced if operating in the extended ambient operating range or with a fan fault.	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).						
Standard Operating Temperature	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 Temperature	For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hpe.com/servers/ashrae For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hpe.com/servers/ashrae System performance may be reduced if operating in the extended ambient operating range or with a fan fault.												
Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).												

Technical Specifications

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

Acoustic Noise Listed are the declared A-Weighted sound power levels (L_{wAd}) 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.

Idle

LWAd	<ul style="list-style-type: none"> • 4.8 B Entry • 4.4 B Base • 4.6 B Perf
LpAm	<ul style="list-style-type: none"> • 37 dBA Entry • 31 dBA Base • 31 dBA Perf

Operating

LWAd	<ul style="list-style-type: none"> • 4.8 B Entry • 4.4 B Base • 4.6 B Perf
LpAm	<ul style="list-style-type: none"> • 37 dBA Entry • 31 dBA Base • 31 dBA Perf

NOTE: 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.

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.

Emissions Classification (EMC) – Regulatory Information

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:

[Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products](#)

Technical Specifications

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

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

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.

Summary of Changes

Date	Version History	Action	Description of Change
03-Feb-2020	Version 7	Changed	Overview, Standard Features and Configuration Information, sections were updated.
06-Jan-2020	Version 6	Changed	Overview, Standard Features, Configuration Information, Core Options, Additional Options, Memory and Storage sections were updated.
03-Sep-2019	Version 5	Changed	Overview, Standards Features, Core Options and Additional Options sections were updated
03-Jun-2019	Version 4	Changed	Overview, Standard features, Configuration Information, Core Options, Additional Options, Memory sections were updated Obsolete SKUs were removed
02-Apr-2019	Version 3	Changed	Overview and Configuration sections were updated. Ethernet SKU was added in Core Options section
04-Feb-2019	Version 2	Changed	Overview, Standard Features, Configuration Information, Core Options and Additional Options sections were updated
03-Dec-2018	Version 1	New	New QuickSpecs.



[Sign up for updates](#)

© Copyright 2020 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Intel® and Xeon® are registered trademarks of Intel Corporation in the U.S. and other countries.
Microsoft®, Windows®, and Windows Server® are U.S. registered trademarks of the Microsoft group of companies.
For hard drives, 1GBE = 1 billion bytes. Actual formatted capacity is less

a00056105enw - 16326 - Worldwide - V7 - 03-February-2020

