Overview

Have feedback on QuickSpecs? We're listening

HPE ProLiant Compute DL325 Gen12

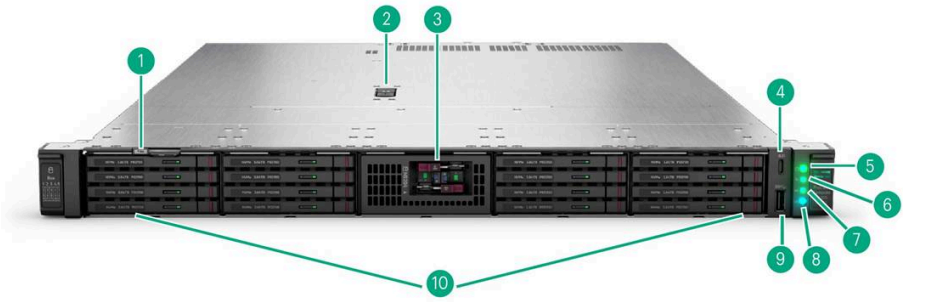
QuickSpecs

Do you need a 1U single-socket rack-mount server that maximizes rack utilization? This server mitigates virtualization risks in power-constrained environments.

The HPE ProLiant DL325 Gen12 maximizes your rack utilization while mitigating virtualization risks in power-constrained environments. Power your workloads with a server providing greater memory capacity compared to previous generations.

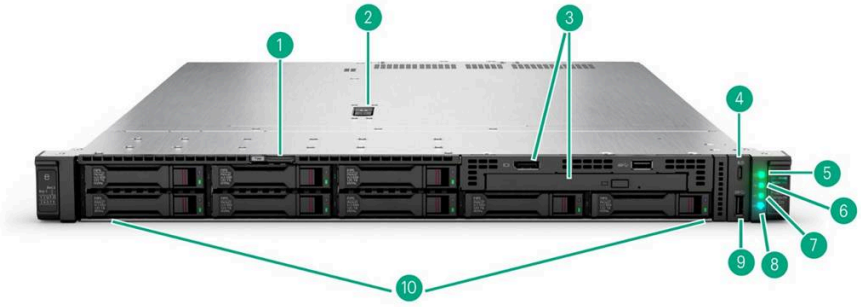
HPE ProLiant Compute DL325 Gen12

With 5th Gen AMD EPYC™ processors up to 192 cores, increased memory capability (up to 6 TB), and new iLO 7, this server helps provide a high-performance solution with better datacenter efficiency.



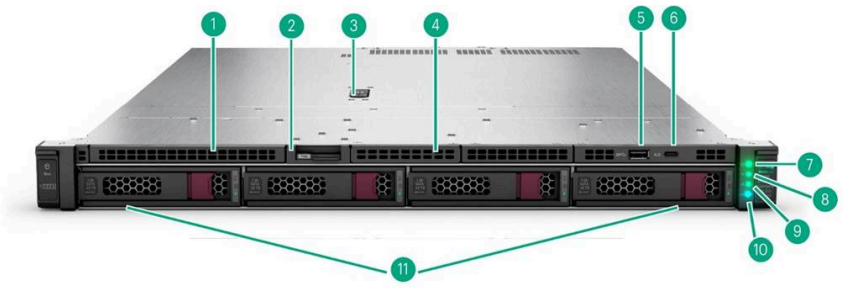
Front View - SFF/EDSFF CTO Server

Item	Description	Item	Description
1.	Serial number pull tab	6.	Health LED
2.	Quick removal access panel	7.	NIC status LED
3.	Optional NS204i-u hot-plug NVMe boot device	8.	Unit ID button/LED
4.	iLO Service port	9.	USB 3.2 Gen1 port
5.	Power On/Standby button and system power LED	10.	Front multi-purpose cage, Box 1 to 5



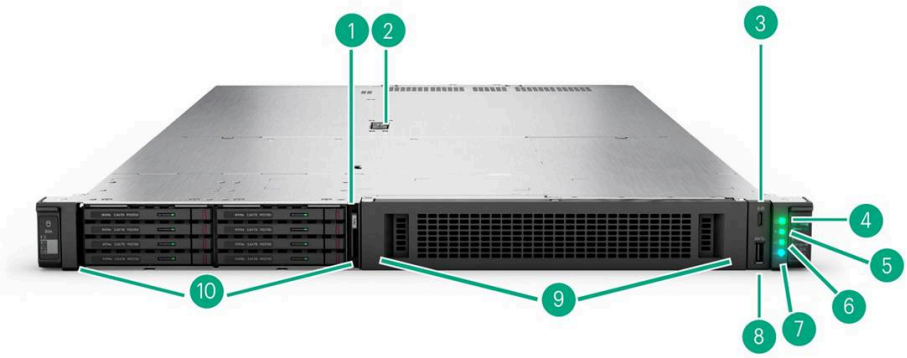
Front View - 8SFF CTO Server

Item	Description	Item	Description
1.	Serial number pull tab	6.	Health LED
2.	Quick removal access panel	7.	NIC status LED
3.	Optional optical drive and DisplayPort	8.	Unit ID button/ LED
4.	iLO Service port	9.	USB 3.2 Gen 1 port
5.	Power On/Standby button and system power LED	10.	8SFF SAS/SATA/NVMe drive bay



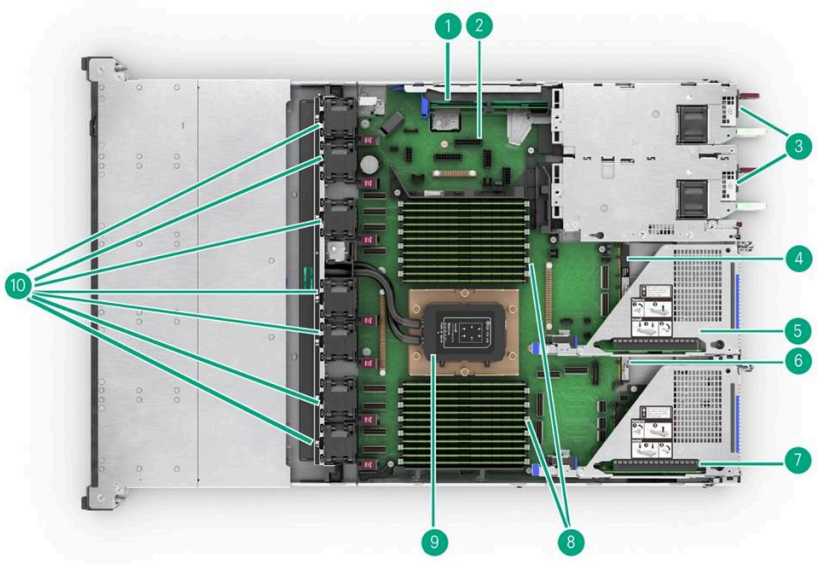
Front View - 4LFF CTO Server

Item	Description	Item	Description
1.	Optional optical drive (blank shown)	7.	Power On/Standby button and system power LED
2.	Serial number pull tab	8.	Health LED
3.	Quick removal access panel	9.	NIC status LED
4.	Optional DisplayPort and USB 2.0 (blank shown)	10.	Unit ID button/ LED
5.	USB 3.2 Gen 1 port	11.	Default 4LFF SAS/SATA drive bay
6.	iLO Service port		



Front View - GPU CTO Server

Item	Description	Item	Description
1.	Serial number pull tab	6.	NIC status LED
2.	Quick removal access panel	7.	Unit ID button/ LED
3.	iLO Service port	8.	USB 3.2 Gen 1 port
4.	Power On/Standby button and system power LED	9.	GPU Cage
5.	Health LED	10.	Front multi-purpose cage, Box 1 to 2



Internal View

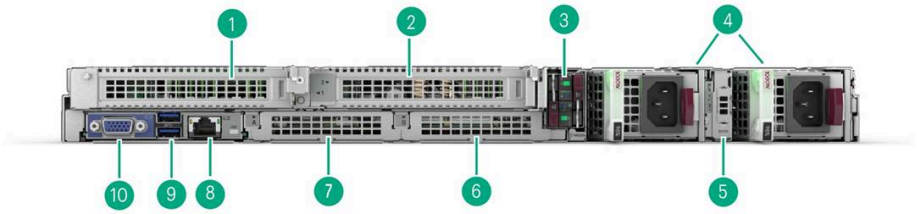
Item	Description	Item	Description
1.	Megacell battery holder	6.	OCP 3.0 Slot A (under)
2.	Storage backplane power connectors	7.	Optional PCIe 5.0 Riser Slot 1
3.	Up to two HPE M-CRPS Power Supplies	8.	24 DDR5 DIMM slots[1]
4.	OCP 3.0 Slot B (under)	9.	Processor and heat sink[2]
5.	Default PCIe 5.0 Riser Slot 2	10.	Hot-plug fans[3]

Notes:

– [1] Fully populated 24 DIMMs shown.

– [2] Closed-loop liquid cooling heat sink shown. Optional: Standard, Performance heat sink, and direct liquid cooling kit.

– [3] Seven liquid cooling fans shown. Optional: Standard or Performance fans.



Rear View

Item	Description	Item	Description
1.	Optional PCIe 5.0 Riser Slot 1[1]	6.	Optional OCP 3.0 Slot B
2.	Default PCIe 5.0 Riser Slot 2	7.	Default OCP 3.0 Slot A
3.	Optional NS204i-u hot-plug NVMe boot device	8.	Dedicated iLO management port
4.	HPE M-CRPS Power Supplies 1 and 2[2]	9.	USB 3.1 Gen 1 ports (2)
5.	Optional Serial port	10.	Video (VGA) port

Notes:

– [1]Low profile and full height options.

– [2]Power Supply 2 is optional.

What's New

– Introducing the all-new HPE ProLiant Compute DL325 Gen12 server.
– New 5th Generation AMD EPYC™ Processors, up to 192 cores, 500W, and 512MB of L3 Cache.
– New memory support: 24 DIMM slots, up to 6 TB.
– New HPE Integrated Lights-Out 7 (iLO 7) server management.
– New NS204i-u hot-pluggable NVMe boot device, at the front or rear of the chassis.
– New flexible drive cage design, supporting mixing between SFF and EDSFF drive bays.
– New front OCP 3.0 slots capability.
– New GPU support for up to four single-width or two double-width GPUs.
– New direct liquid cooling option.

Platform Information

Form Factor

– 1U rack.

Chassis Types

– 8 SFF with optional 2 SFF drive bay or optical drive.
– 4 LFF with an optional optical drive.
– 10 SFF Basic Carriers (BC) drive cages, or 20 E3.S 1T drive cages (support mixing configuration).
– 4 Single-Width or 2 Double-Width GPUs with 8 E3.S 1T or 4 SFF drive bay.

System Fans

– Choice of Standard Fan, Performance Fan, and Liquid Cooling Fan Kit.

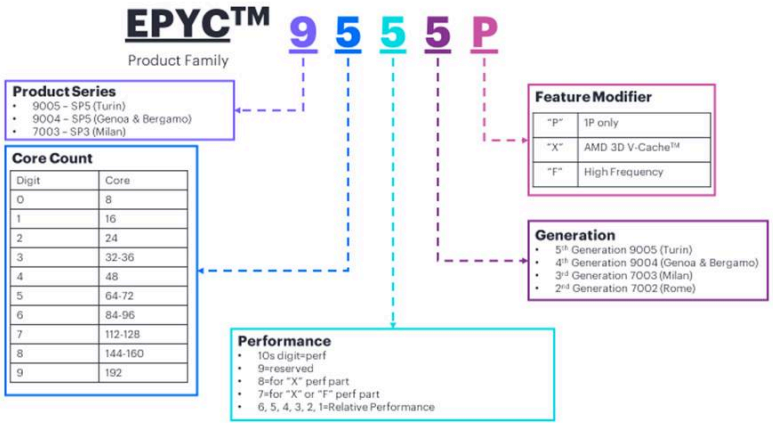
Notes:

– The HPE DL325 Gen12 supports up to 7 fans with fan redundancy. One fan rotor failure will place the server in degraded mode, but the server will remain fully operational. Two fan rotor failures could provide a warning of an imminent server shutdown.
– Each Fan kit is designed to operate in different configurations. For more information, please refer to the Power and Cooling options portion of the Core Options section.

Standard Features

Processors - One of the following, depending on the model.

Notes: For more information regarding AMD EPYC™ processors, refer to the following:
https://www.amd.com/en/products/processors/server/epyc/9005-series.html



5th Gen AMD EPYC™ Processor	Cores	Base Frequency	Max Frequency	Max Memory	Wattage	L3 Cache (MB)	DIMM Rated Speed
EPYC™ 9965	192	2.25 GHz	3.7 GHz	6 TB	500	384	6400 MT/s
EPYC™ 9845	160	2.1 GHz	3.7 GHz	6 TB	390	320	6400 MT/s
EPYC™ 9825	144	2.2 GHz	3.7 GHz	6 TB	390	384	6400 MT/s
EPYC™ 9755	128	2.7 GHz	4.1 GHz	6 TB	500	512	6400 MT/s
EPYC™ 9745	128	2.4 GHz	3.7 GHz	6 TB	400	256	6400 MT/s
EPYC™ 9645	96	2.3 GHz	3.7 GHz	6 TB	320	256	6400 MT/s
EPYC™ 9655P	96	2.6 GHz	4.5 GHz	6 TB	400	384	6400 MT/s
EPYC™ 9565	72	3.15 GHz	4.3 GHz	6 TB	400	384	6400 MT/s
EPYC™ 9535	64	2.4 GHz	4.3 GHz	6 TB	300	256	6400 MT/s
EPYC™ 9575F	64	3.3 GHz	5 GHz	6 TB	400	256	6400 MT/s
EPYC™ 9555P	64	3.2 GHz	4.4 GHz	6 TB	360	256	6400 MT/s
EPYC™ 9475F	48	3.65 GHz	4.8 GHz	6 TB	400	256	6400 MT/s
EPYC™ 9455P	48	3.15 GHz	4.4 GHz	6 TB	300	256	6400 MT/s
EPYC™ 9365	36	3.4 GHz	4.3 GHz	6 TB	300	192	6400 MT/s
EPYC™ 9335	32	3 GHz	4.4 GHz	6 TB	210	128	6400 MT/s
EPYC™ 9375F	32	3.8 GHz	4.8 GHz	6 TB	320	256	6400 MT/s
EPYC™ 9355P	32	3.55 GHz	4.4 GHz	6 TB	280	256	6400 MT/s
EPYC™ 9255	24	3.25 GHz	4.3 GHz	6 TB	200	128	6400 MT/s
EPYC™ 9275F	24	4.1 GHz	4.8 GHz	6 TB	320	256	6400 MT/s
EPYC™ 9135	16	3.65 GHz	4.3 GHz	6 TB	200	64	6400 MT/s
EPYC™ 9115	16	2.6 GHz	4.1 GHz	6 TB	125	64	6400 MT/s
EPYC™ 9175F	16	4.2 GHz	5 GHz	6 TB	320	512	6400 MT/s
EPYC™ 9015	8	3.6 GHz	4.1 GHz	6 TB	125	64	6400 MT/s

Notes:
– 6096-pin LGA SP5 socket type, 128 PCIe 5.0 Lanes per processor.
– All 5th-generation AMD EPYC™ processors can support up to 6 TB of memory each under 2DPC, 12 channels per processor.
– The DL325 Gen12's maximum memory operating speed is 5200 MT/s on 1DPC and 4400 MT/s on 2DPC. Please refer to the memory section of the Core Options section for more information.
– The wattage information indicates the processor's default cTDP (Configurable TDP).

Chipset
No chipset - System on Chip (SoC) design.

On System Management Chipset
HPE iLO 7 ASIC
Notes: Read and learn more in the iLO QuickSpecs.

Memory

– 12 channels DDR5 per socket.
– 2 DIMMs per channel (2DPC), 24 DIMM slots in total.
– DDR5 - Up to 5200 MT/s 1DPC or 4400 MT/s 2DPC.
– 6 TB maximum memory per processor.
– VR-on-DIMM Architecture.
– RAS - Advanced ECC.

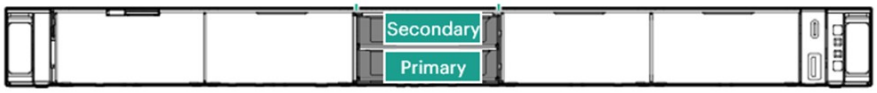
Type	HPE DDR5 Smart Memory Registered (RDIMM)
DIMM Slots Available	24 DIMM slots per processor, 12 channels per processor, 2 DIMMs per channel
Maximum capacity (RDIMM)	3.0 TB 12 x 256 GB RDIMM @ 5200 MT/s at 1DPC 6.0 TB 24 x 256 GB RDIMM @ 4000 MT/s at 2DPC

Notes:
All processors support up to 6 TB of memory per server.
LRDIMM and Persistent Memory are not supported.
For additional information, please refer to the HPE DDR5 Smart Memory QuickSpecs.
For the Memory Population Rules and Guidelines with AMD EPYC™ 9005 series processors, please refer to:
https://www.hpe.com/psnow/doc/a50012817enw

Expansion Slots



Rear slots - All CTO servers



Front OCP Slots - SFF/EDSFF CTO server



Front PCIe Slots - GPU CTO server

Slots #	Technology	Bus Width	Connector Width	Slot Form Factor
1 (Optional)	PCIe 5.0	X16	X16	Low Profile or Full-height, Half-length slot
2 (Default)	PCIe 5.0	X16	X16	Full-height, Half-length slot
3 (Default)	PCIe 5.0	X16	X16	Full-height, Full-length slot, only applicable to the GPU CTO server
4 (Default)	PCIe 5.0	X16	X16	
5 (Default)	PCIe 5.0	X16	X16	
6 (Default)	PCIe 5.0	X16	X16	
OCP A (Default)	PCIe 5.0	X16	X16	OCP 3.0
OCP B (Optional)	PCIe 5.0	X8 or X16	X16	OCP 3.0
Front Primary OCP	PCIe 5.0	X16	X16	OCP 3.0, Box 3 Bay 3
Front Secondary OCP	PCIe 5.0	X16	X16	OCP 3.0, Box 3 Bay 1

Notes:

– Both rear OCP slots (slot A and B) and Front Primary OCP (Box3 Bay3) support shared-NIC and WOL (Wake on LAN) functions. Front Secondary OCP (Box3 Bay1) only supports WOL without the shared-NIC function.
– Bandwidth of the OCP B slot depends on the number of enablement kits selected.
– If the NS204i-u Boot Device is selected and installed at the rear of the server, then the low-profile primary riser (P81927-B21) must be selected.
– According to AMD's CPU limitation, a maximum of 112GB/s bandwidth can be supported for each of the following configurations.

- Slot 3 and OCP A.
- Slot 4 and Slot 2.
- Slot 6 and Slot 1.
- Slot 5 and OCP B.

Storage Controllers

Boot Device Options
– HPE NS204i-u v2 NVMe Hot Plug Boot Optimized Storage Device.
– HPE NS204i-u v2 960GB NVMe Hot Plug Boot Optimized Storage Device.
– HPE NS204i-u v2 960GB NVMe SED Hot Plug Boot Optimized Storage Device.

Notes:

– x4 PCIe Gen3.0 OS Boot device includes 2x M.2 NVMe SSDs, with preconfigured hardware RAID1.
– For additional information, refer to the HPE OS Boot Device Options QuickSpecs or HPE NS204i Boot Device User Guide.

HPE Hardware RAID Controller Options
– HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller.
– HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller.

– HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller.
– HPE MR408i-p Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller.
– HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller.
– HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller.
– HPE MR932i-p x32 Lanes PCIe Gen5 SPDM Plug-in Storage Controller.

Notes: For additional details, please visit: HPE Compute MR Controllers QuickSpecs.

Internal Storage Devices

Optical Drive

– Available as an option.

Drives

– No standard drive shipped.

Maximum Storage		
	Capacity	Configuration
Hot Plug LFF SAS HDD	96 TB	4 x 24 TB
Hot Plug LFF SATA HDD	96 TB	4 x 24 TB
Hot Plug SFF SAS SSD	153.6 TB	10 x 15.36 TB
Hot Plug SFF SATA SSD	76.8 TB	10 x 7.68 TB
Hot Plug SFF NVMe PCIe U.3 SSD	153.6 TB	10 x 15.36 TB
Hot Plug EDSFF E3.S 1T NVMe SSD	614.4 TB	20 x 30.72 TB

Interfaces	
Serial	1 optional port - rear
Video Port	1 standard VGA Port - rear
Network Ports	None. Choice of OCP or stand-up card, supporting a wide range of NIC adapters
HPE iLO Remote Management Port	1 1Gb Dedicated - rear
Front iLO Service Port	1 standard via USB Type-C port
USB 3.2 Gen 1	4 standards on all models: 1 front, 2 rear, 1 internal

Graphics

Integrated Video Standard

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

Modular Common Redundant Power Supplies (M-CRPS)

HPE M-CRPS power supplies are certified for high-efficiency operation and offer multiple power output options-both high-line and low-line-enabling users to right-size the power supply for specific server configurations. In addition to more secure firmware upgrades, and ease of serviceability, their flexibility helps reduce power waste, lower overall energy costs, and prevent "trapped" power capacity in the data center. HPE M-CRPS power supplies are available in two physical design options (73.5mm and 60mm widths), allowing for hot-plug, tool-less installation into select HPE ProLiant Compute Gen12 Performance Servers. This server supports the following power supplies:

– HPE 800W M-CRPS Platinum Hot Plug Power Supply Kit.
– HPE 1000W M-CRPS Titanium Hot Plug Power Supply Kit.
– HPE 1500W M-CRPS Titanium Hot Plug Power Supply Kit.
– HPE 2400W M-CRPS Titanium Hot Plug Power Supply Kit.

Notes:All of the above power supplies, except the 800W M-CRPS kit, are rated for 96% efficiency.

For information on power specifications and technical content, visit HPE Server power supplies.
To determine the power requirements for your configuration, please use the HPE Power Advisor Tool. For information on power cords specifications visit the HPE Power Cords and Cables guide.

European Union ErP Lot 9 Regulation

Beginning January 1, 2024, units sold into the European Economic Area (EEA), the United Kingdom, Ireland, Switzerland, or Turkey must include higher-efficiency AC power supplies: 94% efficiency for multi-output and 96% for single-output. HPE M-CRPS power supplies are single-output, and part numbers P67240-B21, P67244-B21, P67248-B21, and P67252-B21 meet the 96% efficiency requirement.

Operating Systems and Virtualization Software Support for HPE Servers

HPE servers are designed for seamless integration with partner Operating Systems and Virtualization Software. By collaborating closely with our partners, we ensure their products are optimized, certified, and fully supported within your HPE server environment. Access the certified and supported servers for each of the OS and Virtualization software: HPE Servers Support and Certification Matrices

Notes: Minimum required version includes all future updates of the indicated release unless a maximum is listed in the Notes.

Industry Standard Compliance

– ACPI 6.1 Compliant.
– PCIe 5.0 Compliant.
– WOL Support.
– Microsoft® Logo certifications.

– PXE Support.
– VGA.
– DisplayPort.
Notes: Support from the optional Universal Media Bay.
– USB 3.2 Gen 1 Compliant.
– USB 2.0 Compliant.
– ENERGY STAR® 4.0.
– SMBIOS 3.1.
– UEFI 2.7.
– UEFI Class 3.
– Redfish API.
– IPMI 2.0.
– Secure Digital 2.0.
– Advanced Encryption Standard (AES).
– Triple Data Encryption Standard (3DES).
– SNMP v3.
– TLS 1.2.
– DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP).
– Active Directory v1.0.
– ASHRAE A3/A4.

Notes: For additional technical, thermal details regarding ambient temperature, humidity, and feature support, please visit Extended Ambient Temperature Guidelines.

– APML 1.0.

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 https://support.hpe.com/hpesc/public/docDisplay?docId=c04465280&docLocale=en_US

iLO RESTful API

iLO RESTful API is DMTF Redfish API implementation 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.

OpenBMC Support

OpenBMC Capable through iLO 7 Transfer of Ownership Process.
Learn more at OpenBMC Support

HPE Server UEFI

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secure configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Compute Gen12 servers have a UEFI Class 3 implementation.

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

– Secure Boot and Secure Start enabled for enhanced security
– Operating system specific functionality.
– Support for > 2.2 TB (using GPT) boot drives.
– USB 3.1 Gen1 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.
– Embedded TPM Support.

UEFI Boot Mode only

– NVMe Boot Support.
– iSCSI Software Initiator Support.
– HTTP/HTTPs Boot support as a PXE alternative.
– Boot support for option cards that only support a UEFI option ROM.

Notes:

– For UEFI Boot Mode, boot environment and OS image installation should be configured properly to support UEFI.
– TPM is embedded in the DC-SCM and does not require additional option kit selection to enable this function.

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 https://www.hpe.com/us/en/servers/smart-update.html

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.

HPE OneView Standard

HPE OneView is an on-premises, multi-generational server monitoring, and management solution. HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. Customers can upgrade their management experience with an HPE OneView Advanced license, all provided by the same tool. Learn more at https://www.hpe.com/us/en/software/oneview.html.

HPE Compute Ops Management

Transform compute lifecycle management with a cloud experience that delivers greater simplicity, agility, and speed across your entire server environment, wherever it lives. This software-as-a-service tool provides a dashboard with global visibility and intuitive management of server health, security and compliance status to help you easily identify areas that need immediate attention. Users can update tens to thousands of servers faster through intelligent delta-based firmware downloads and on-demand HPE iLO firmware updates.

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

A 3-year subscription to HPE Compute Ops Management is added by default when ordering an HPE ProLiant Compute Gen12 rack, tower, or micro server.

For a complete list of software as-a-service subscription SKUs and more information, visit the HPE 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

---

Security

Experience unparalleled security benefits with HPE ProLiant Compute Gen12 servers, designed to enhance your infrastructure's security and performance. These servers come equipped with cutting-edge embedded security features, ensuring robust protection for your critical data and applications. Key features include:

- HPE Integrated Lights-Out (HPE iLO 7): This product offers advanced embedded security features for monitoring, service alerting, reporting, and remote management.
- Enhanced Server Data Security: Encryption and key management, iLO Managed Encryption, UEFI-managed encryption, and self-encrypting drives (SED) for enhanced data-at-rest protection.
- Sanitize Data with One-Button Secure Erase: This method complies with NIST SP 800-88 guidelines for media sanitization, ensuring the secure decommissioning of servers.
- Expanded Industry Security Compliance: Adherence to standards such as FIPS 140-3, NIST SP 800-53, NIST SP 800-171, and NIST SP 800-88.
- HPE Compute Ops Management: Provides an intuitive cloud operating experience, ensuring streamlined and highly secure operations.
- Physical Security Options: System maintenance switch, USB security, rack and power security, bezel lock, and chassis intrusion detection switch.
- Trusted Supply Chain: HPE Trusted Supply Chain offers enhanced security and compliance for organizations worldwide. Servers built with this option undergo rigorous inspections and checkpoints to detect and mitigate malicious microcode and counterfeit parts throughout the server build and lifecycle.

Please refer to the HPE ProLiant Compute Gen12 Embedded Security QuickSpecs document for more detailed information at http://psnow.ext.hpe.com/doc/a50009218enw

- UEFI Secure Boot and Secure Start support.
- Secure Enclave - Silicon Root of Trust 2.0.
- Quantum resistant (PQC) readiness for signing firmware - CNSA 2.0.
- FIPS 140-3 validation (Planned).
- Common Criteria certification (Planned).
- USGv6 ready (Section 508 - VPAT).
- Secure Standard Mode - default security mode (equivalent of higher security mode in Gen 11).
- Configurable for PCI DSS compliance.
- Advanced Encryption Standard (AES) on browser.
- Support for Commercial National Security Algorithms (CNSA).
- Tamper-free updates - components digitally signed and verified.
- Secure Recovery - recover critical firmware to known good state on detection of compromised firmware.
- Ability to roll back firmware.
- Secure erase of NAND.
- TPM (Trusted Platform Module) 2.0.
- Front bezel key-lock feature - standard, available in both Tower and Rack models.
- Padlock slot, standard.
- Kensington Lock slot, standard.
- Chassis Intrusion detection option.

HPE Trusted Platform Module

Enabling HPE Trusted Platform Module (TPM) 2.0 no longer requires TPM module option kit for Gen12. It is an embedded feature for global shipments. User may manually disable TPM2.0 from the BIOS setting.

Notes: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates, and encryption keys.

Server Management

HPE iLO Advanced

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the fully 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 OneView Advanced

HPE OneView Advanced offers a sophisticated level of automation to infrastructure management by taking a template driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It builds upon the base features of HPE OneView Standard and provides full-featured licenses which can be purchased for managing multiple HPE server generations. To learn more visit http://www.hpe.com/info/oneview.

Accelerator and GPU Information

Hewlett Packard Enterprise supports various accelerators on select HPE ProLiant servers to support different workloads. The accelerators enable seamless integration of GPU computing with HPE ProLiant servers for high-performance computing, large data center graphics, deep learning, and virtual desktop deployments. These accelerators deliver all the standard benefits of GPU computing while enabling maximum reliability and tight integration with system monitoring and management tools such as HPE Insight Cluster Management Utility.

Warranty

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

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 the 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 of 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.

One Config Simple (OCS/SCE)

OCS/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 it 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

Service and Support

For the most up-to-date information on HPE Services, please refer to the HPE Services - Supplemental QuickSpecs**,** which provides a comprehensive and regularly updated overview of available services.

Pre-Configured Models

HPE Smart Choice Purchase Program

The HPE Smart Choice Purchase Program features popular fully configured products that can be quoted in minutes and shipped quickly through HPE Authorized Partners. Products are configured and tested in an HPE factory and stocked at HPE Authorized Distributors and Partners. The products arrive in a single box, making onsite integration easier and more efficient for partners and customers. Additionally, there are aggressively priced HPE Tech Care Services available only through the HPE Smart Choice program when you purchase an HPE Smart Choice product.

For HPE Smart Choice configuration and product details, please visit the Smart Choice Supplemental QuickSpecs:
https://www.hpe.com/psnow/doc/a50009219enw

Configuration Information

Smart Templates from HPE

HPE is releasing new Smart Template technology in the One Config Advanced (OCA) configurator. These Templates represent the CTO equivalents of the top-selling BTO configurations. They are intended to provide simple starting points to assist you in easily creating and customizing your desired Server solutions. HPE Servers that have Platform Templates, developed by HPE Product Managers, will have a separate tab in the HPE OCA configurator.

Workload Solutions Templates from HPE

The Workload Solutions Templates are built on the Smart Templates technology to easily develop working configurations of the most compelling Workload Solutions. The templates complement the Reference Builds developed by HPE. Workload Solutions templates preconfigure some of the key architecture decisions and make it easier for Sellers to get started and complete a differentiated server solution for your customer's specific workload.

Mainstream SKUs

HPE launched the Mainstream SKU initiative as a market-driven approach to Demand Steering. It is a simplified portfolio of our top selling options that meet the current and future market trends. HPE has committed to providing a more predictable and faster experience for these options. Mainstream SKUs enjoy higher safety stock levels and have higher fulfillment service levels than non-Mainstream SKUs. Mainstream orders are fulfilled +30% faster than non-Mainstream orders, have fewer shortages, and better recovery dates. This platform has Mainstream SKUs in the options portfolio and is eligible for an improved Mainstream experience. Mainstream SKUs are designated with a Mainstream symbol in our configurators.

Mainstream Configurations

HPE is using the new Smart Templates technology to present Mainstream configurations. All the options in a Mainstream configuration are pre-selected Mainstream SKUs to optimize the performance, predictability, and fulfillment experience. Check the Template section in our configurators for eligible Mainstream configurations.

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

- Factory Integrated Models must start with a CTO Server.
- FIO indicates that this option is only available as a factory installable option.
- Some options may not be integrated at the factory. Contact your local sales representative for additional information.

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

CTO Server	HPE ProLiant Compute DL325 Gen12 8SFF CTO Server	HPE ProLiant Compute DL325 Gen12 4LFF CTO Server	HPE ProLiant Compute DL325 Gen12 SFF/EDSFF CTO Server	HPE ProLiant Compute DL325 Gen12 GPU CTO Server
SKU Number	P81967-B21	P81965-B21	P81966-B21	P84204-B21
TAA SKU	P81967-B21#GTA	P81965-B21#GTA	P81966-B21#GTA	P84204-B21#GTA
HPE Trusted Supply Chain	Optional: HPE Trusted Supply Chain for HPE ProLiant (P36394-B21)			
Processor	Not included.			
DIMM Slots	24 DIMM slots, up to 6 TB with 256 GB DIMMs.			
Number of Drives	Up to 10 SFF SAS/SATA/NVMe	Up to 4 LFF SAS/SATA	Up to 10 SFF SAS/SATA/NVMe or 20 EDSFF E3.S NVMe	Up to 4 SFF SAS/SATA/NVMe or 8 EDSFF E3.S NVMe
Drive Cage	Not included Optional: – 8SFF x1 – 8SFF x4 – 2SFF x4	4 LFF default	Not included Optional: – 2SFF x4 – 4E3.S x4	Not included Optional: – 2SFF x4 – 4E3.S x4
Storage Controller	Choice of HPE storage controllers			
PCIe Slots	Up to 2 PCIe 5.0 x16 slots – Default: Slot 2, Full-height. – Optional: Slot 1, in Full-height or Low-profile.			Up to 6 PCIe 5.0 x16 slots (Slot 1, 3, 4, 5 & 6 are default, slot 2 is optional)
OCP3.0 Slot	Up to 2 OCP 3.0 slots – Rear: Default Slot A (x16), optional slot B (x8 or x16) – Front: optional Primary (x16) and Secondary slot (x16)			
Network Controller	Choice of PCIe stand-up or OCP 3.0 network adapters			
Cooling	Choice of Standard, Performance, or Closed-Loop Liquid Cooling Heat Sink Choice of Standard, Performance, or Liquid Cooling Fan Kit Choice of Direct Liquid Cooling kits			
Management	HPE iLO 7 with Intelligent Provisioning (standard) HPE Compute Ops Management Optional: iLO Advanced and OneView			
Video	Rear: 1 VGA Optional – 1 Front DisplayPort – 1 Rear Serial Port			Rear: 1 VGA Optional 1 Rear Serial Port
USB	Front: 1 USB 3.2 Gen 1 + iLO service port Rear: 2 USB 3.2 Gen 1 Internal: 1 USB 3.2 Gen 1 Optional: Front USB 2.0 via Universal Media Bay			Front: 1 USB 3.2 Gen 1 + iLO service port Rear: 2 USB 3.2 Gen 1 Internal: 1 USB 3.2 Gen 1
Security	TPM2.0 (Trusted Platform Module) embedded			
Rail Kit	Optional Easy Install rails and CMA			
Form Factor	1U Rack			
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.			

Notes: HPE offers multiple Trade Agreement Act (TAA) compliant configurations to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed into a designated country. TAA compliance is only provided when HPE options are included as part of factory-integrated orders (CTO).

Step 2: Smart Chassis

Smart Chassis is a new automation tool in One Config Advanced that reduces the effort required to build a valid configuration. Three steps to get the right configuration from the Smart Chassis.

- Select the System inlet ambient temperature and the Type of networking adaptor:
  - 30 °C is the default ambient temperature. The lower the temperature, the higher the wattage processors or high-speed networking cards can be supported.
  - AOC (Active-Optical Cable) has higher cooling requirements than DAC (Direct-Attach Copper). Thus, a lower ambient temperature is required for AOC.
- Select the Front cage configuration:
  - Please start by selecting the backplanes based on the form factor, interface, and number of drives required.
  - If desired, please select the front NS204i-u, OCP, and media bay at this step, as these options are accessible in the front cage.
- Select the Type of storage connections (Direct attach or to Storage Controller):
  - After selecting the desired type of connection for each kind of backplane, please continue to pick the storage controller if required.
- After completing the above steps, Smart Chassis will present config IDs with an I/O description regarding how many PCIe and OCP slots can be supported. Please select ONE config ID that fits your requirement.

– Please proceed to the menu to choose options such as processors, memory, etc.

Step 3: Choose Core Options

– Choice of 1 Processor model and Heat Sink Kit:

- A heat sink is required for different processor wattages.

– Choice of DDR5 memory options.
– Choice of Storage options:

- Storage backplanes, controllers, and cables are covered in the smart chassis section.

– Choice of SSD, HDD, and Optical Drive.
– Choice of Riser Cards.
– Choice of Networking options.

- PCIe stand-up or OCP 3.0, including Ethernet and InfiniBand adapters and Fiber Channel HBAs.

– Choice of Graphic options.
– Choice of Power and Cooling options.
– Choice of Security options.
– Choice of Accessories.
– Choice of Rack options.
– Choice of HPE Compute Ops Management.

Step 4: Choose Additional Options

– Choice of Server Management Software.
– Choice of HPE Rack, PDU, and UPS options.
– Choice of Support Services.

Core Options

Ambient Temperature

HPE ProLiant Compute 30C Maximum Recommended Ambient Temperature Configuration Tracking	P79552-B21
HPE ProLiant Compute 27C Maximum Recommended Ambient Temperature Configuration Tracking	P79555-B21
HPE ProLiant Compute 25C Maximum Recommended Ambient Temperature Configuration Tracking	P79558-B21
HPE ProLiant Compute 23C Maximum Recommended Ambient Temperature Configuration Tracking	P79561-B21
HPE ProLiant Compute 20C Maximum Recommended Ambient Temperature Configuration Tracking	P79564-B21
HPE ProLiant Compute 18C Maximum Recommended Ambient Temperature Configuration Tracking	P79567-B21

Notes:
– Select one option for the maximum ambient temperature in the data center or user environment.
– Please select P79552-B21 for ambient temperature in the range of 30°C - 35°C.

Networking Adapter Cabling Option

HPE ProLiant Compute AOC Networking Cable Operating Configuration Tracking	P79630-B21
HPE ProLiant Compute DAC ACC Networking Cable Operating Configuration Tracking	P79633-B21

Notes:
– Select one option for the maximum ambient temperature in the data center or user environment.
– Please select P79633-B21 for 1/2.5/10 Gb BASE-T NIC adapters that apply RJ45 CAT cable.
– Transceivers cannot be configured if P79633-B21 is selected.

Front Cage Configuration
Available options of 8SFF CTO Server (P81967-B21)

HPE ProLiant Compute DL3XX Gen12 1U 8SFF x1 Tri-Mode U.3 L-Shaped Backplane Kit	P75084-B21
HPE ProLiant Compute DL320 Gen12 8SFF x4 NVMe U.3 Backplane Kit	P75085-B21
HPE ProLiant Compute DL3XX Gen12 1U 8SFF Front Display Port/USB/Optical Drive Enablement Kit	P72225-B21
HPE ProLiant Compute DL3XX Gen12 1U 2SFF x4 Tri-Mode U.3 Side-by-Side Backplane Kit	P75086-B21

Notes:
– Supporting drive less configuration with a quantity of zero (0) backplanes.
– The 2SFF x4 backplane kit (P75086-B21) cannot be selected without the selection of the 8SFF backplane kits for power connection.
– If the Universal Media Bay enablement kit (P72225-B21) is selected, then the 2SFF x4 backplane kit (P75086-B21) cannot be selected and vice versa.

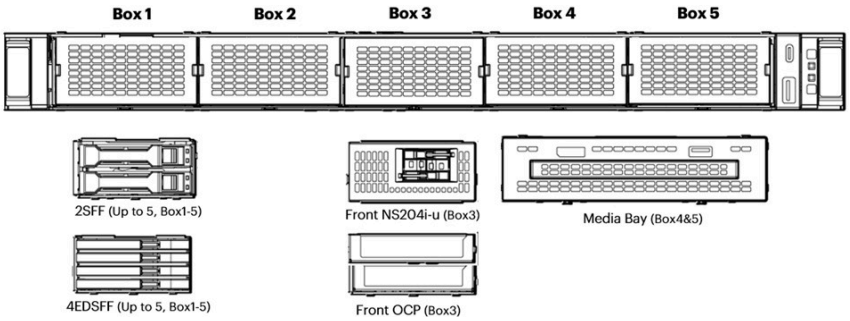
Available options of 4LFF CTO Server (P81965-B21)
4LFF SAS/SATA backplane

HPE ProLiant Compute Gen12 Optical Disk Drive USB to SATA Signal Cable Kit	P72199-B21

Notes:
– One (1) 4LFF backplane is included in the CTO server. No selection is required.
– P72199-B21 enables the optical drive in the front cage.

Available options of SFF/EDSFF CTO Server (P81967-B21)

HPE ProLiant Compute DL3XX Gen12 1U 2SFF x4 Tri-Mode U.3 Stacking Backplane Kit	P72223-B21
HPE ProLiant Compute DL3XX Gen12 1U 4EDSFF NVMe Stacking Backplane Kit	P72221-B21
HPE ProLiant Compute DL3XX Gen12 1U SFF/EDSFF Hybrid Display Port/USB/Optical Drive Enablement Kit	P72227-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u Front Cable Kit	P77186-B21
HPE ProLiant Compute DL325 Gen12 OCP Slot B to Front Primary OCP Enablement Kit	P82200-B21
HPE ProLiant Compute DL325 Gen12 OCP Slot A to Front Secondary OCP Enablement Kit	P82201-B21

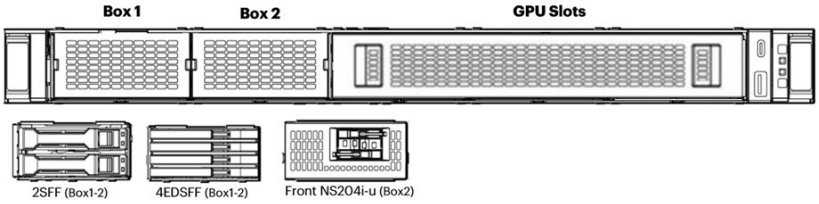


Notes:
– This CTO server supports up to five (5) backplanes or devices, illustrated above.

– Mixing SFF and EDSFF backplanes is supported. For more information, please refer to the storage configuration section.
– The Front OCP enablement kits (P72596-B21, P72597-B21) cannot be selected together with the Front NS204i-u enablement kits (P77186-B21), vice versa.
– If the Front OCP enablement kits (P72596-B21, P72597-B21) or the Front NS204i-u cable kits (P77186-B21) are selected, up to 4 backplanes can be supported, as those options occupy the Box3 position.
– The Front Secondary OCP enablement kit (P82201-B21) can only be selected after selecting the Front Primary OCP enablement kit (P82200-B21).
– Of the two front OCP slots, only the Front Primary OCP slot (P82200-B21) provides the shared-NIC function with Network Controller Sideband Interface (NCSI).
– If the Universal Media Bay enablement kit (P72227-B21) is selected, up to 3 backplanes can be supported, as the kit occupies the Box4 and Box5 positions.

Available options of GPU CTO Server (P84204-B21)

HPE ProLiant Compute DL3XX Gen12 1U 2SFF x4 Tri-Mode U.3 Stacking Backplane Kit	P72223-B21
HPE ProLiant Compute DL3XX Gen12 1U 4EDSFF NVMe Stacking Backplane Kit	P72221-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u Front Cable Kit	P77186-B21



Notes:
– This CTO server supports up to two (2) backplanes or devices.
– Both the front OCP enablement kit and universal media bay are not supported on this CTO server. The Front NS204i-u can only be installed at Box 2.
– The SATA AHCI mode is not supported on this CTO server.

Available options of Storage Controllers

HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21
HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller	P47785-B21
HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	P58335-B21
HPE MR408i-p Gen11 x8 Lanes 4GB Cache PCI SPDM Plug-in Storage Controller	P74775-B21
HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller	P47781-B21
HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller	P47777-B21
HPE MR932i-p x32 Lanes PCIe Gen5 SPDM Plug-in Storage Controller	P75697-B21
HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21

Processor

Please select ONE 5th Generation AMD EPYC™ Processor

AMD EPYC 9965 2.25GHz 192-core 500W Processor for HPE	P75019-B21
AMD EPYC 9845 2.1GHz 160-core 390W Processor for HPE	P72646-B21
AMD EPYC 9825 2.2GHz 144-core 390W Processor for HPE	P72647-B21
AMD EPYC 9755 2.7GHz 128-core 500W Processor for HPE	P75022-B21
AMD EPYC 9745 2.4GHz 128-core 400W Processor for HPE	P72648-B21
AMD EPYC 9645 2.3GHz 96-core 320W Processor for HPE	P72649-B21
AMD EPYC 9655P 2.6GHz 96-core 400W Processor for HPE	P72662-B21
AMD EPYC 9565 3.15GHz 72-core 400W Processor for HPE	P72651-B21
AMD EPYC 9535 2.4GHz 64-core 300W Processor for HPE	P72652-B21
AMD EPYC 9575F 3.3GHz 64-core 400W Processor for HPE	P72758-B21
AMD EPYC 9555P 3.2GHz 64-core 360W Processor for HPE	P72663-B21
AMD EPYC 9475F 3.65GHz 48-core 400W Processor for HPE	P72666-B21
AMD EPYC 9455P 3.15GHz 48-core 300W Processor for HPE	P72664-B21
AMD EPYC 9365 3.4GHz 36-core 300W Processor for HPE	P72655-B21
AMD EPYC 9335 3.0GHz 32-core 210W Processor for HPE	P72656-B21
AMD EPYC 9375F 3.80GHz 32-core 320W Processor for HPE	P72667-B21
AMD EPYC 9355P 3.55GHz 32-core 280W Processor for HPE	P72665-B21
AMD EPYC 9255 3.20GHz 24-core 200W Processor for HPE	P72658-B21
AMD EPYC 9275F 4.1GHz 24-core 320W Processor for HPE	P72668-B21
AMD EPYC 9135 3.65GHz 16-core 200W Processor for HPE	P72660-B21
AMD EPYC 9115 2.6GHz 16-core 125W Processor for HPE	P72659-B21
AMD EPYC 9175F 4.2GHz 16-core 320W Processor for HPE	P72669-B21
AMD EPYC 9015 3.6GHz 8-core 125W Processor for HPE	P72661-B21

The air-cooling solution matrix according to CPU wattage is as follows:

CPU Wattage	Heat Sink	Fan
<= 240W	Standard (P58456-B21)	Standard (P71954-B21)
260-300W	Performance (P81955-B21)	Performance (P71958-B21)
>= 320W	Closed-loop Liquid cooling (P81954-B21)	Liquid cooling (P81953-B21)

The air-cooling thermal support matrix for each processor is as follows:

CTO Server		4LFF	8SFF	SFF/EDSFF			GPU
Front Storage		4LFF	8/10SFF	5x 2SFF	5x 4EDSFF	2x Cages	All
Standard		30°C	30°C	30°C	25°C	30°C	30°C
P72658-B21	EPYC™ 9255	30°C	27°C	27°C	25°C	30°C	30°C
P72660-B21	EPYC™ 9135		27°C	27°C	25°C		30°C
P72665-B21	EPYC™ 9355P		27°C	27°C	20°C		20°C
P72652-B21	EPYC™ 9535		30°C	30°C	25°C		27°C
P72655-B21	EPYC™ 9365		27°C	27°C	20°C		23°C
P72664-B21	EPYC™ 9455P		30°C	30°C	25°C		27°C
P72668-B21	EPYC™ 9275F	23°C	23°C	23°C	20°C	23°C	N/A
P72666-B21	EPYC™ 9475F	30°C	25°C	25°C	23°C	30°C	N/A
P75022-B21	EPYC™ 9755		25°C	25°C	23°C		N/A

Notes:
– If a direct liquid cooling kit is selected, then 30°C is applied for every processor.
– >300W processors require a direct liquid cooling kit on the GPU CTO server.

Memory

Please select one or more memory kits from the list below.

HPE 32GB (1x32GB) Dual Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit P64985-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit P64986-B21
HPE 96GB (1x96GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit P64987-B21
HPE 128GB (1x128GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit P64988-B21
HPE 256GB (1x256GB) Quad Rank x4 DDR5-6400 CAS-60-52-52 EC8 Registered 3DS Smart Memory Kit P73446-B21

Part Number	Capacity	Rank	Operating Speed	
			1 DIMM per channel	2 DIMMs per channel
P64985-B21	32GB	2R	5200 MT/s	4000 MT/s
P64986-B21	64GB	2R		
P64987-B21	96GB	2R		
P64988-B21	128GB	2R		
P73446-B21	256GB	4R		

CTO Server	4LFF and 8SFF		SFF/EDSFF				GPU
Front Storage	All		5x 2SFF Cages		5x 4EDSFF Cages		All
CPU Wattage	<=300W	>300W	<=300W	>300W	<=300W	>300W	All
P64984-B21	30°C	30°C	30°C	30°C	30°C	25°C	30°C
P64985-B21							
P64986-B21							
P64987-B21		25°C		25°C		Not Supported	
P64988-B21		25°C		25°C		Not Supported	
P73446-B21		Not Supported		Not Supported	25°C	Not Supported	25°C

For more information about memory, please go to HPE DDR5 Smart Memory QuickSpecs.
For details on the Memory Population Rules and Guidelines with AMD EPYC™ 9005 series processors, please go to: https://www.hpe.com/psnow/doc/a50012817enw.

Notes:
– The quantity of DIMMs selected per socket must be 1, 2, 4, 6, 8, 10, 12, 16, 20, or 24.
– Mixing of x4 memory and x8 memory is not supported.
– Mixing of 3DS memory and non-3DS memory is not supported.
– 1DPC speed: Quantity of 1/2/4/6/8/10/12 DIMMs installed.
– 2DPC speed: Quantity of 16/20/24 DIMM installed.
– 5600 MT/s and 4800 MT/s DIMMs with Turin processors.
– The -B21 memory SKUs shown in this document are to be used when ordering standalone memory only. For each -B21 SKU, there is a corresponding -F21 SKU which is to be used when configuring servers with integrated memory DIMMs.

Storage

Please select the preferred storage configuration for each CTO server and choose the available controller and cable options.

Storage configurations of each CTO server

Notes: Config ID = Smart Chassis config ID#; DA = Direct Attach; Controller = HPE Storage Controllers; Lanes = number of lanes per drive. For example, x4 NVMe DA means that each NVMe drive has a direct PCIe 4-lane connection to the processor.

8SFF CTO server (P81967-B21)

Config ID	Drives				Backplanes		Lanes & Controllers	
	Max Qty	SAS	SATA	U.3 NVMe	Box1	Box2	Box1	Box2
1-1	0	0	0	0	-	-	-	-
1-2	8	0	8	0	8SFF x1	-	SATA DA	-
1-3	8	8	8	8	8SFF x1	-	OCP Controller	-
1-4	10	0	8	2	8SFF x1	2SFF	SATA DA	x4 NVMe DA
1-5	10	2	10	2	8SFF x1	2SFF	SATA DA	OCP Controller
1-6	10	8	8	10	8SFF x1	2SFF	OCP Controller	x4 NVMe DA
1-7	10	10	10	10	8SFF x1	2SFF	OCP Controller	
1-8	8	0	0	8	8SFF x4	-	x4 NVMe DA	-
1-9	8	8	8	8	8SFF x4	-	x4 PCIe Controller	-
1-10	10	0	0	10	8SFF x4	2SFF	x4 NVMe DA	x4 NVMe DA
1-11	10	2	2	10	8SFF x4	2SFF	x4 NVMe DA	OCP Controller
1-12	10	8	8	10	8SFF x4	2SFF	x4 PCIe Controller	x4 NVMe DA
1-13	10	10	10	10	8SFF x4	2SFF	x4 PCIe Controller	OCP Controller

SFF/EDSFF CTO server (P81966-B21)

Config ID	Drives					Drive Cages					Lanes and Controller				
	Max Qty	SAS	SATA	U.3 NVMe	EDSFF	Box1	Box2	Box3	Box4	Box5	Box1	Box2	Box3	Box4	Bo
2-1	4	4	4	4	0	2SFF	2SFF	-	-	-	x4 OCP Controller		-	-	-

2-2	4	4	4	4	0	-	-	-	2SFF	2SFF	-	-	-	x4 OCP Controlle
2-3	8	0	0	8	0	2SFF	2SFF	-	2SFF	2SFF	x4 NVMe DA		-	x2 NVMe DA
2-4	8	0	0	8	0	2SFF	2SFF	-	2SFF	2SFF	x4 NVMe DA		-	x4 NVMe DA
2-5	8	8	8	8	0	2SFF	2SFF	-	2SFF	2SFF	x2 OCP Controller		-	x2 OCP Controlle
2-6	8	8	8	8	0	2SFF	2SFF	-	2SFF	2SFF	x4 OCP Controller		-	x4 OCP Controlle
2-7	10	0	0	10	0	2SFF	2SFF	2SFF	2SFF	2SFF	x2 NVMe DA			
2-8	10	0	0	10	0	2SFF	2SFF	2SFF	2SFF	2SFF	x4 NVMe DA			
2-9	8	0	0	0	8	4EDSFF	4EDSFF	-	-	-	x4 NVMe DA		-	-
2-10	12	0	0	0	12	4EDSFF	4EDSFF	-	4EDSFF	-	x4 NVMe DA		-	x4 NVMe DA
2-11	16	0	0	0	16	4EDSFF	4EDSFF	-	4EDSFF	4EDSFF	x2 NVMe DA		-	x2 NVMe DA
2-12	16	0	0	0	16	4EDSFF	4EDSFF	-	4EDSFF	4EDSFF	x2 PCIe Controller		-	x2 PCIe Controlle
2-13	16	0	0	0	16	4EDSFF	4EDSFF	-	4EDSFF	4EDSFF	x4 NVMe DA		-	x4 NVMe DA
2-14	20	0	0	0	20	4EDSFF	4EDSFF	4EDSFF	4EDSFF	4EDSFF	x2 NVMe DA			
2-15	20	0	0	0	20	4EDSFF	4EDSFF	4EDSFF	4EDSFF	4EDSFF	x4 NVMe DA			
2-16	12	4	4	4	8	4EDSFF	4EDSFF	-	2SFF	2SFF	x4 NVMe DA		-	x4 OCP Controlle
2-17	16	4	4	4	12	4EDSFF	4EDSFF	4EDSFF	2SFF	2SFF	x4 NVMe DA			x4 OCP Controlle
2-18	8	8	8	8	0	2SFF	2SFF	-	2SFF	2SFF	x4 PCIe Controller		-	x4 PCIe Controlle
2-19	8	8	8	8	0	2SFF	2SFF	-	2SFF	2SFF	x2 MR932i-p		-	x2 MR932i-p
2-20	8	0	0	0	8	4EDSFF	4EDSFF	-	-	-	X4 MR932i-p		-	-
2-21	16	0	0	0	16	4EDSFF	4EDSFF	-	4EDSFF	4EDSFF	x2 MR932i-p		-	x2 MR932i-p
2-22	16	0	0	0	16	4EDSFF	4EDSFF	-	4EDSFF	4EDSFF	x2 OCP Controller		-	x2 OCP Controlle

GPU CTO server (P81966-B21)

Config ID	Drives					Drive Cages		Lanes and Controller	
	Max Qty	SAS	SATA	U.3 NVMe	EDSFF	Box1	Box2	Box1	Box2
4-1	2	0	0	2	0	2SFF	-	x4 NVMe DA	-
4-2	4	0	0	4	0	2SFF	2SFF	x4 NVMe DA	
4-3	4	4	4	4	0	2SFF	2SFF	x4 PCIe Controller	-
4-4	4	4	4	4	0	2SFF	2SFF	x4 OCP Controller	-
4-5	4	0	0	0	4	4EDSFF	-	x4 NVMe DA	-
4-6	4	0	0	0	4	4EDSFF	-	x4 PCIe Controller	-
4-7	4	0	0	0	4	4EDSFF	-	x4 OCP Controller	-
4-8	8	0	0	0	8	4EDSFF	4EDSFF	x4 NVMe DA	
4-9	8	0	0	0	8	4EDSFF	4EDSFF	x4 PCIe Controller	
4-10	8	0	0	0	8	4EDSFF	4EDSFF	x4 OCP Controller	
4-11	8	0	0	0	8	4EDSFF	4EDSFF	x4 MR932i-p	

4LFF CTO server (P81965-B21)

Config ID	Drives				Backplane	Lanes and Controller
	Max Qty	SAS	SATA	U.3 NVMe	Box1	Box1
3-1	4	0	4	0	Included in CTO	SATA DA
3-2	4	4	4	0	Included in CTO	OCP Controller

Storage Controller

HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21
HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller	P47785-B21
HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	P58335-B21
HPE MR408i-p Gen11 x8 Lanes 4GB Cache PCI SPDM Plug-in Storage Controller	P74775-B21
HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller	P47781-B21
HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller	P47777-B21
HPE MR932i-p x32 Lanes PCIe Gen5 SPDM Plug-in Storage Controller	P75697-B21
HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21

Battery and Hybrid Capacitor

HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit	P02377-B21
HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	P01366-B21
HPE 16W Smart Hybrid Capacitor with 145mm Cable	P65038-B21

Notes: Max one (1) of the Storage Batteries can be selected per server.

Internal Storage Controller Cables

Available options of 8SFF CTO Server (P81967-B21)

HPE ProLiant Compute DL325 Gen12 8SFF x4 NVMe Direct Attach Cable Kit	P81910-B21
HPE ProLiant Compute DL325 Gen12 2SFF x4 NVMe Direct Attach Cable Kit	P81911-B21
HPE ProLiant Compute DL325 Gen12 8SFF SATA Direct Attach Cable Kit	P81912-B21
HPE ProLiant Compute DL320 Gen12 8SFF x1 U.3 OROC Cable Kit	P75090-B21
HPE ProLiant Compute DL320 Gen12 2SFF OROC Cable Kit	P78558-B21

Available options of 4LFF CTO Server (P81965-B21)

HPE ProLiant Compute DL325 Gen12 4LFF SATA Direct Attach Cable Kit	P81909-B21
HPE ProLiant Compute DL320 Gen12 4LFF OROC Cable Kit	P75097-B21

Available options of SFF/EDSFF CTO Server (P81966-B21)

HPE ProLiant Compute DL325 Gen12 8EDSFF x4 NVMe Direct Attach Box 1/2 Cable Kit	P81913-B21
HPE ProLiant Compute DL325 Gen12 4EDSFF x4 NVMe Direct Attach Box 3/4 Cable Kit	P81914-B21
HPE ProLiant Compute DL325 Gen12 4EDSFF x4 NVMe Direct Attach Box 5 Cable Kit	P81915-B21
HPE ProLiant Compute DL325 Gen12 16EDSFF x2 NVMe Direct Attach Cable Kit	P81916-B21
HPE ProLiant Compute DL325 Gen12 4EDSFF x2 NVMe Direct Attach Cable Kit	P81917-B21

HPE ProLiant Compute DL325 Gen12 16EDSFF x2 Tri-Mode PCIe Cable Kit	P81918-B21
HPE ProLiant Compute DL325 Gen12 8SFF x4 NVMe Direct Attach Box 1/2/4/5 Cable Kit	P81919-B21
HPE ProLiant Compute DL325 Gen12 2SFF x4 NVMe Direct Attach Box 3 Cable Kit	P81920-B21
HPE ProLiant Compute DL325 Gen12 8SFF x2 NVMe Direct Attach Box 1/2/4/5 Cable Kit	P81921-B21
HPE ProLiant Compute DL325 Gen12 2SFF x2 NVMe Direct Attach Box 3 Cable Kit	P81922-B21
HPE ProLiant Compute DL325 Gen12 8SFF x2 OROC OCP SlotB Cable Kit	P81923-B21
HPE ProLiant Compute DL325 Gen12 8SFF x4 Tri-Mode PCIe Cable Kit	P81924-B21
HPE ProLiant Compute DL325 Gen12 4SFF x4 OROC Box 4/5 OCP SlotA Cable Kit	P81925-B21
HPE ProLiant Compute DL325 Gen12 4SFF x4 OROC Box 1/2 OCP SlotB Cable Kit	P81893-B21
HPE ProLiant Compute DL325 Gen12 16EDSFF x2 Box 1/2/4/5 OCP Controller Cable Kit	P84199-B21
HPE ProLiant Compute DL325 Gen12 16EDSFF x2 MR932i-p Cable Kit	P87896-B21
HPE ProLiant Compute DL325 Gen12 8SFF/EDSFF x4 MR932i-p Cable Kit	P87897-B21

Available options of GPU CTO Server (P84204-B21)

HPE ProLiant Compute DL325 Gen12 4SFF x4 Front GPU Box 1/2 PCIe Slot2 Controller Cable Kit	P84197-B21
HPE ProLiant Compute DL325 Gen12 4SFF x4 Front GPU Box 1/2 OCP SlotB Controller Cable Kit	P84198-B21
HPE ProLiant Compute DL325 Gen12 4EDSFF x4 Front GPU Box 1 PCIe Slot2 Controller Cable Kit	P84206-B21
HPE ProLiant Compute DL325 Gen12 8EDSFF x4 Front GPU Box 1/2 OCP Controller Cable Kit	P84203-B21
HPE ProLiant Compute DL325 Gen12 SFF/EDSFF x4 2NVMe Front GPU Box 1/2 Direct Attach Cable Kit	P84363-B21
HPE ProLiant Compute DL325 Gen12 GPU 8EDSFF x4 MR932i-p Cable Kit	P87894-B21

HPE OS Boot Device Options

HPE NS204i-u v2 480GB NVMe Hot Plug Boot Optimized Storage Device	P78279-B21
HPE NS204i-u v2 960GB NVMe Hot Plug Boot Optimized Storage Device	P81160-B21
HPE NS204i-u v2 960GB NVMe SED Hot Plug Boot Optimized Storage Device	P81162-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u Front Cable Kit	P77186-B21
HPE ProLiant Compute DL3XX Gen12 NS204i-u Rear Cable Kit	P71433-B21

Notes: Three (3) locations to support NS204i-u boot device, depending on configuration.
– At the position of primary riser (Slot1), the low-profile riser kit (P81926-B21) is required.
– Besides M-CRPS Power Supply 2, a cable kit (P71433-B21) is required and only compatible with 60mm wide M-CRPS.
– At the front cage, Box 3 of the SFF/EDSFF CTO server or Box 2 of the GPU CTO server. The front cable kit (P77186-B21) is required.

The thermal support matrix for the NS204i-u boot device is as follows:

CTO Server	4LFF		8SFF			
Front Storage	4LFF		8SFF		10SFF	
CPU Wattage	<= 300W	>300W	<= 300W	>300W	<= 300W	>300W
Rear Slot 1 Besides PSU 2	27°C	25°C	27°C	25°C	27°C	20°C

CTO Server	SFF/EDSFF				GPU		All (DLC)
Front Storage	5x 2SFF		5x 4EDSFF		All		All
CPU Wattage	<= 300W	>300W	<= 300W	>300W	<= 300W	>300W	All
Front Box3	30°C		30°C		30°C		30°C
Rear Slot 1	27°C	Not Supported	25°C	Not Supported	25°C	27°C	27°C
Besides PSU 2		20°C	27°C		27°C	27°C	30°C

HPE Drives

SFF Solid State Disk Drives

SATA Interface

Read Intensive Drives

HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40497-B21
HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40498-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40500-B21
HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40501-B21

Mixed Use Drives

HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-B21
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21

Self-Encryption Drives (SED)

HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58236-B21

SAS Interface

Read Intensive Drives

HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40506-B21
HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40507-B21
HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40508-B21
HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40509-B21
HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49031-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49035-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49041-B21
HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49045-B21

Mixed Use Drives

HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40510-B21
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40511-B21
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40512-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-B21
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-B21
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-B21

HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49057-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21

Self-Encrypting Drives (SED) and Federal Information Processing Standards (FIPS) Drives

HPE 3.84TB SAS Read Intensive SFF BC Self-encrypting FIPS 140-3 PM7 SSD	P83347-B21
HPE 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-3 PM7 SSD	P83344-B21

PCIe/NVMe Interface

Read Intensive Drives

HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Static PM1753 SSD	P78806-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Static PM1753 SSD	P78808-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Static PM1753 SSD	P78810-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63833-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63837-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63841-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64846-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64848-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70434-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70436-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 SPDM 7500 SSD	P84242-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 SPDM 7500 SSD	P84244-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 SPDM 7500b SSD	P84239-B21

Mixed Use Drives

HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63845-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63849-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63853-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65023-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70426-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70428-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Static PM1755 SSD	P78801-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Static PM1755 SSD	P78804-B21

Self-Encrypting Drives (SED) and Federal In Processing Standards (FIPS) Drives

HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61043-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61051-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61059-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61019-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61027-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61035-B21

EDSFF E3.S Solid State Disk Drives

PCIe/NVMe Interface

Very-Read-Optimized Drives

HPE 3.84TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63930-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63934-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63938-B21
HPE 30.72TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P79065-B21

Read Intensive Drives

HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87719-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87721-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87723-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85121-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85124-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85126-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85128-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57799-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57807-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61179-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61183-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61187-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69234-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69546-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70392-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70395-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70397-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77269-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77271-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77275-B21
HPE 30.72TB NVMe Gen5 High Performance Read Intensive E3.S EC1 EDSFF SPDM 9550 SSD	P79965-B21

Mixed Use Drives

HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87715-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87717-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85114-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85117-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85119-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61191-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69241-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69243-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69245-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70399-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70401-B21
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70403-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77262-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77265-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77267-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3.S EC1 PM1755 SSD	P78784-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3.S EC1 PM1755 SSD	P78787-B21

Self-Encrypting Drives (SED) and Federal Information Processing Standards (FIPS) Drives

HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70672-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70674-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P79122-B21

LFF Solid State Disk Drives

SATA Interface

HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21

SAS Interface

HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P37009-B21

LFF Hard Disk Drives

SAS Interface

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 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53553-B21
HPE 24TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68583-B21
HPE 26TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P80577-B21

SATA Interface

HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861681-B21
HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861683-B21
HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53554-B21
HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68585-B21
HPE 26TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P80578-B21

SFF Hard Disk Drive

SAS Interface

HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-B21
HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P40430-B21
HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P53561-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-B21

Self-Encrypting Drives (SED) and Federal Information Processing Standards (FIPS) Drives

HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3yr Wty 512e FIPS 140-2 TAA-compliant HDD	P28618-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3yr Wty FIPS 140-2 TAA-compliant HDD	P28622-B21

Optical Drives

HPE 9.5mm SATA DVD-ROM Optical Drive	726536-B21
HPE 9.5mm SATA DVD-RW Optical Drive	726537-B21
HPE Mobile USB DVD-RW Optical Drive	701498-B21

Riser Cards

HPE ProLiant Compute DL325 Gen12 x16 Low Profile Slot 1 Riser Kit	P81926-B21
HPE ProLiant Compute DL325 Gen12 x16 Full Height Slot 1 Riser Kit	P81927-B21

Notes:

PCIe Slot 2 riser is the default in all CTO servers. Both riser kits above are in PCIe Slot 1.

Low-profile riser kit can support NS204i-u boot device.

HPE ProLiant Compute DL3X5 Gen12 OCP SlotB x8 Enablement Kit	P81908-B21
HPE ProLiant Compute DL325 Gen12 OCP Slot B to Front Primary OCP Enablement Kit	P82200-B21
HPE ProLiant Compute DL325 Gen12 OCP Slot A to Front Secondary OCP Enablement Kit	P82201-B21

Notes:

OCP slot B is not hardwired to the processor. Any device installed on OCP B requires one or two OCP B enablement kits (P81908-B21), depending on the bandwidth required from the device.

Both Front OCP enablement kits can only be supported in the SFF/EDSFF CTO server.

The Front Secondary OCP enablement Kit (P82201-B21) can only be selected after selecting the Front Primary OCP enablement Kit (P82200-B21).

Networking

HPE Ethernet Adapters

PCIe Stand up

AMD Solarflare X4522-PLUS 10/25GbE 2-port SFP56 Adapter for HPE	P87940-B21
Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P51178-B21
Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	P26253-B21
Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	P26259-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P26262-B21
Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P26264-B21
Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P08443-B21
Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P42044-B21
Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P08458-B21
NVIDIA Ethernet 10/25Gb 2-port SFP28 NVMe-oF Crypto Adapter for HPE	S2A69A
Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	P25960-B21
Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	P21112-B21
NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE	R8M41A
Broadcom BCM57608 Ethernet 100Gb 2-port QSFP112 Adapter for HPE	P73111-B21

OCP 3.0

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P51181-B21
Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	P26256-B21
Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10097-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-B21
Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P26269-B21
Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10106-B21

Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P41614-B21
Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P42041-B21
Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE	P22767-B21
Broadcom BCM57608 Ethernet 100Gb 2-port QSFP112 OCP3 Adapter for HPE	P73114-B21
HPE InfiniBand Adapters	
PCIe Stand up	
HPE InfiniBand NDR200/Ethernet 200GbE 2-port QSFP112 PCIe5 x16 MCX755106AC-HEAT Adapter	P65333-H21
HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Generic Adapter	P45641-H24
HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Generic Adapter	P45642-H23
HPE InfiniBand XDR/Ethernet 2x400GbE 1-port OSFP PCIe6 x16 HHHL CX8 Crypto Adapter	P79114-H21
HPE InfiniBand XDR400/Ethernet 400GbE 2-port QSFP112 PCIe6 x16 HHHL CX8 Crypto Adapter	P79115-H21
HPE InfiniBand XDR PCIe Gen6 x16 Multi Host/Socket Direct Auxiliary Card with 250mm MCIO Cable Kit	P81264-H21
HPE Fibre Channel Host Bus Adapter	
HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A
HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	R7N86A
HPE SN1700Q 64Gb 2-port Fibre Channel Host Bus Adapter	R7N87A
HPE SN1620E 32Gb 2p FC SecureHBA	S4S01A
HPE SN1720E 64Gb 2p FC SecureHBA	S4T09A

The thermal support matrix for the networking options with the AOC (Active Optical Cables) is as follows:

	CTO Server	4LFF			8SFF		
	Front Storage	4LFF			8 or 10 SFF		
	CPU Wattage	<= 300W	>300W	All with DLC	<= 300W	>300W	All with DLC
PCIe Standup	P26262-B21 P08443-B21 P42044-B21 S2A69	30°C	27°C	30°C	30°C	27°C	30°C
	P26264-B21 P73111-B21 P08458-B21 P45642-H23	Slot1: 30°C Slot2: 25°C	20°C	30°C	Slot1: 30°C Slot2: 25°C	Slot1: Not Supported Slot2: 23°C	30°C
	P45641-B23/H23 P25960-B21 R8M41A P21112-B21 P65333-B21/H21 P79114-H21	Slot1: 27°C Slot2: 20°C	Not Supported	27°C	Slot1: 27°C Slot2: 20°C	Not Supported	27°C
	P79115-H21	Slot1: 20°C Slot2: Not Supported	Not Supported	20°C	Slot1: 20°C Slot2: Not Supported	Not Supported	20°C
OCP	P10115-B21	30°C	30°C	30°C	30°C	30°C	30°C
	P10106-B21 P42041-B21				OCP A: 27°C	27°C	
	P26269-B21 P22767-B21	27°C	25°C	27°C	27°C	OCP A: Not Supported OCP B: 23°C	27°C
	P73114-B21 P41614-B21	25°C	23°C	25°C	25°C		25°C

	CTO Server	SFF/EDSFF					
	Front Storage	5x 2SFF			5x 4EDSFF		
	CPU Wattage	<= 300W	>300W	All w DLC	<= 300W	>300W	All w DLC
PCIe Standup	P26262-B21 P08443-B21 P42044-B21 S2A69	30°C	Slot1: 25°C Slot2: 27°C	30°C	Slot1: 30°C Slot2: 25°C	Slot1: Not Supported Slot2: 25°C	30°C
	P26264-B21 P73111-B21 P08458-B21 P45642-H23	Slot1: 30°C Slot2: 25°C	20°C	30°C	Slot1: 25°C Slot2: Not Supported	Not Supported	25°C
	P45641-B23/H23 P25960-B21 R8M41A P21112-B21 P65333-B21/H21 P79114-H21	Slot1: 27°C Slot2: 20°C	Not Supported	27°C	Slot1: 20°C Slot2: Not Supported	Not Supported	20°C
	P79115-H21	Slot1: 20°C Slot2: Not Supported	Not Supported	20°C	Not Supported	Not Supported	Not Supported
OCP	P10115-B21	30°C	30°C	30°C	30°C	25°C	25°C
	P10106-B21 P42041-B21		OCP A: 27°C OCP B: 25°C		25°C	OCP A: 23°C OCP B: Not Supported	
	P26269-B21 P22767-B21	27°C	OCP A: 20°C OCP B: 23°C	27°C	25°C	Not Supported	
	P73114-B21 P41614-B21	25°C		25°C	20°C		20°C

Card	CTO Server	GPU	
	Front Storage	All	All
	CPU Wattage	<= 300W	>300W DLC
PCIe Standup	P26262-B21 P08443-B21 P42044-B21 S2A69	30°C	30°C

	P26264-B21	Slot1: 27°C Slot2: 23°C	27°C
	P73111-B21		
	P08458-B21		
	P45642-H23		
	P45641-B23/H23	Slot1: 20°C Slot2: Not Supported	20°C
	P25960-B21		
	R8M41A		
	P21112-B21		
	P65333-B21/H21		
	P79114-H21	Not Supported	Not Supported
	P79115-H21		
OCP	P10115-B21	30°C	30°C
	P10106-B21	25°C	
	P42041-B21		
	P26269-B21	25°C	27°C
	P22767-B21		
	P73114-B21	20°C	25°C
	P41614-B21		

Notes:
Options that are not on the list can be supported at 30 °C with AOC.
If the slot number is not identified in the matrix, then the ambient temperature applies to all available slots of that type (PCIe standup or OCP).

Graphics Options

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

Notes:
This is a PCIe Gen4 x 16 single-width HHHL GPU card.
Maximum of two GPUs supported at the rear of 8SFF, 4LFF, and SFF/EDSFF CTO servers. The thermal conditions are outlined below.
Maximum of four at the front of the GPU CTO server.

CTO Server	4LFF, 8SFF		SFF/EDSFF				Any
Front Storage	4LFF or 10SFF		5x 2SFF		5x 4EDSFF		Any
CPU Wattage	<= 300W	>300W	<= 300W	>300W	<= 300W	>300W	All, DLC
S0K89C	Slot1: 30°C Slot2: 27°C	Slot1: Not Supported Slot2: 20°C	Slot1: 30°C Slot2: 25°C	Slot1: Not Supported Slot2: 25°C	Slot1: 30°C Slot2: Not Supported	Not Supported	Slot1: 30°C

Power and Cooling

Air-Cooling Options

HPE ProLiant Compute Gen12 1U Standard Fan Kit	P71954-B21
HPE ProLiant Compute Gen12 1U High Performance Fan Kit	P71958-B21
HPE ProLiant Compute DL325 Gen12 Closed-loop Liquid Cooling Fan Kit	P81953-B21
HPE ProLiant DL3X5 Gen11 1U CPU Standard Heat Sink Kit	P58456-B21
HPE ProLiant Compute DL325 Gen12 Performance Heat Sink Kit	P81955-B21
HPE ProLiant Compute DL325 Gen12 Closed-loop Liquid Cooling Heat Sink Kit	P81954-B21
HPE ProLiant Compute DL325 Gen12 Air Baffle Kit	P81928-B21

CTO	Drive Cage	CPU	Heat Sink	Fan	Default Amb temp
8SFF	8SFF	<=240W	Standard	Standard*	30°C
	10SFF	<=240W	Standard	Performance	30°C
	10SFF	<=300W	Performance	Performance	30°C
	10SFF	>300W	Closed-loop Liquid	Closed-loop Liquid	30°C
4LFF	4LFF	<=240W	Standard	Standard*	30°C
	4LFF	<=300W	Performance	Performance	30°C
	4LFF	>300W	Closed-loop Liquid	Closed-loop Liquid	30°C
SFF/EDSFF	5x 2SFF	<=240W	Standard	Performance	30°C
	5x 2SFF	<=300W	Performance	Performance	30°C
	5x 2SFF	>300W	Closed-loop Liquid	Closed-loop Liquid	30°C
	2x 4EDSFF	<=240W	Standard	Performance	30°C
	2x 4EDSFF	<=300W	Performance	Performance	30°C
	2x 4EDSFF	>300W	Closed-loop Liquid	Closed-loop Liquid	30°C
	5x 4EDSFF	<=240W	Performance	Performance	30°C
	5x 4EDSFF	<=300W	Performance	Performance	25°C
	5x 4EDSFF	>300W	Closed-loop Liquid	Closed-loop Liquid	25°C
GPU	Any	<=240W	Standard	Performance	30°C
	Any	<=300W	Performance	Performance	30°C
	Any	>300W	Direct Liquid Cooling	Performance	30°C

Notes:
– Seven (7) fan kits are required for all configurations.
– Require Performance Fan with <=240W CPU if any of the below options are selected:

- SFF/EDSFF CTO server.
- 2SFF x4 U.3 backplane kit (P75086-B21) on 8SFF CTO server.
- 96GB, 128GB, or 256GB DIMM.
- NS204i-u boot drives.
- Graphic options.
- Direct liquid cooling kits.

– Liquid cooling fan (P81953-B21) can only be selected with liquid cooling heat sink (P81954-B21).
– Air baffle kit (P81928-B21) is required for both standard and performance heat sink.
– Closed-loop Liquid cooling heat sink cannot be selected with the GPU CTO server.

Direct Liquid Cooling Options

HPE ProLiant Compute DL325 Gen12 Direct Liquid Cooling Cold Plate Module FIO Kit	P80827-B21
HPE ProLiant Compute Direct Liquid Cooling 0.65m Quick Disconnect Tube Set FIO Kit	P62038-B21
HPE ProLiant DL3XX Gen11 Direct Liquid Cooling 55cm Quick Disconnect Tube Set FIO Kit	P62042-B21
HPE ProLiant Direct Liquid Cooling 450mm Female-Male Connection Quick Disconnect Tube Set FIO Kit	P62046-B21

Notes:

Seven (7) performance fan kits are required with the direct liquid cooling kit.

When configured as the direct liquid cooling system, the server can only be shipped to the customer as the whole rack. Racks below are allowed in the configuration:

- Rack 42U 800mm x 1200mm Ent G2.
- Rack 48U 800mm x 1200mm Ent G2.

Quick Disconnect (QD) tube kit must be selected according to the matrix that follows:

CTO Server	QD Tube Kit
HPE ProLiant DL3XX Gen11 Direct Liquid Cooling 600mm FIO Hose Kit	P62038-B21
HPE ProLiant DL3XX Gen11 Direct Liquid Cooling 55cm Quick Disconnect Tube Set FIO Kit	P62042-B21
HPE ProLiant DL3XX Gen11 Direct Liquid Cooling 55cm Quick Disconnect Tube Set FIO Kit	P62042-B21
HPE ProLiant Direct Liquid Cooling 450mm Female-Male Connection Quick Disconnect Tube Set FIO Kit	P62046-B21

HPE ProLiant Compute Gen12 Closed-loop Liquid Cooling Module

A new feature with leak detection alerts from iLO 7 is now built in. iLO 7 will trigger system shutdown if a leak event is detected and prevent the server from powering on until the leakage event is cleared. REST API is used for system recovery. P81954-B21 contains a cold plate, a pump, tubes, and a radiator. The module is designed to cool down the processor effectively using cooled inlet air. It would benefit the processor temperature, yet the internal radiator may increase the flow resistance and reduce the airflow to downstream components inside the server.

– The P81954-B21 is designed as field upgradable and can be self-repair. However, replacing coolant inside the module is not allowed.

– To protect the system, HPE recommends replacing the module every five years.

Power Supplies

HPE 800W M-CRPS Platinum Hot Plug Power Supply Kit	P73190-B21
HPE 1000W M-CRPS Titanium Hot Plug Power Supply Kit	P67240-B21
HPE 1500W M-CRPS Titanium Hot Plug Power Supply Kit	P67244-B21
HPE 2400W M-CRPS Titanium Hot Plug Power Supply Kit	P67252-B21

Notes:

– All of the above power supplies, except P73190-B21, are rated for 96% efficiency.

– Mixing different types of power supplies within a server domain is not supported.

– Factory-integrated power supplies include the configured power cord (1.83-2 meters by default).

HPE 2200W M-CRPS -48VDC Hot Plug Power Supply Kit	P73210-B21
HPE 2000-2200W -48VDC Power Lug Kit	P79839-B21
HPE 1000-1300W -48VDC Power Lug Kit	P79845-B21
HPE 1300W M-CRPS -48VDC Hot Plug Power Supply Kit	P82412-B21

Power Cords

For more Power Cords options, please refer to "HPE One Config Advance".

If any optional Power Cords are ordered, then quantity must be equal to total number of Power Supplies on the order. All pre-configured servers include a power cord. If a different power cord is required, please visit ProLiant Power Cables.

Security Options

HPE Trusted Supply Chain for HPE ProLiant	P36394-B21

Notes:

– HPE Trusted Supply Chain is an optional security upgrade intended for agencies and regulated industries with enhanced security and compliance needs. Applying this option to a DL325 Gen12 CTO server ensures it is built in the USA in a secure facility by vetted HPE personnel assigned to the manufacturing processes. A multitude of checkpoints/inspections for malicious microcode and counterfeit parts are performed throughout the server build, and additional safeguards are put in place against cyber-exploits throughout the server lifecycle. Learn more at http://www.hpe.com/security.

– This option requires Intrusion Detection Kit (P55417-B21).

– This option requires either HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features (BD505A) or HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features (512485-B21).

– One instance of the following Electronic License to Use is required per order (not per server): R6X85AAE (HPE Trusted Supply Chain E-LTU).

– This option cannot be selected with TAA instruction SKU or TAA CTO Models.

HPE ProLiant DL320 Gen11 Intrusion Detection Cable Kit	P55417-B21

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 ProLiant Gen11 1U Common Bezel Kit	P50450-B21
HPE Bezel Lock Kit	875519-B21

Notes: The Bezel lock kit (875519-B21) must be selected with the bezel kit (P50450-B21).

Accessories

HPE ProLiant Compute DL3XX Gen12 1U 4LFF Front Display Port/USB Enablement Kit	P72229-B21
HPE ProLiant Compute DL3X0 Gen12 SP MHS Serial Port Enablement Kit	P71432-B21

Notes: P71432-B21 supports an optional serial port at the rear of the server.

Rack Options

HPE DL3XX Gen11 Easy Install Rail 2 Kit	P52351-B21
HPE Easy Install Rail 1 Kit	P52349-B21
HPE Cable Management Arm 4 for Friction Rail Kit	P70741-B21
HPE ProLiant Compute Gen12 Easy Install Rail Kit	P68106-B21

HPE ProLiant Compute Cable Management Arm 6 for Friction Rail Kit P70747-B21

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 the 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.

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

If CMA is selected, then the Rail kit must be selected.

Support Matrix of rail kit and cable management arm (CMA) as follows:

CTO Server	Rail Kit	CMA
8SFF	P52349-B21	P70741-B21
4LFF	P52351-B21	P70741-B21
SFF/EDSFF	P52351-B21	P70741-B21
GPU	P68106-B21	P70747-B21

HPE Compute Ops Management

HPE Compute Ops Management Standard 3-year Upfront ProLiant SaaS	R7A11AAE
HPE Compute Ops Management Standard 5-year Upfront ProLiant SaaS	R7A12AAE
HPE Compute Cloud Management Server FIO Enablement	S1A05A
HPE Compute Ops Management Standard with ProLiant Enablement	S2R34AAE
HPE Compute Ops Management Advanced 3-year Upfront ProLiant SaaS	S5E59AAE
HPE Compute Ops Management Advanced 5-year Upfront ProLiant SaaS	S5E60AAE
HPE Compute Ops Management Advanced 7-year Upfront ProLiant SaaS	S5E61AAE
HPE Compute Ops Management Standard 7-year Upfront ProLiant SaaS	S2E10AAE
HPE Compute Ops Management Advanced Flex with ProLiant Enablement	S6C28AAE

For more information, visit the HPE Compute Ops Management QuickSpecs:
https://www.hpe.com/psnow/doc/a50004263enw

Supported Servers - CTO only. No OEM. - Complete list can be found here: Latest Supported Server List: https://www.hpe.com/info/com-supported-servers

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.

Server Management Software

iLO Advanced

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
HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21

OneView Management Software

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
HPE OneView w/o iLO including 3yr 24x7 Support 1-server FIO LTU	P8B31A
HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE
HPE OneView including 3yr 24x7 Support Track 1-server LTU	E5Y36A
HPE OneView for ProLiant DL Server including 3yr 24x7 Support FIO Bundle Physical 1-server LTU	E5Y43A
HPE OneView for ProLiant DL Server including 3yr 24x7 Support Bundle Track 1-server LTU	E5Y44A

HPE Racks

– Refer to the HPE Advanced Series Racks QuickSpecs for information on additional racks options and rack specifications. HPE G2 Advanced Series Racks.

– Refer to 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)

– Refer to the HPE Basic Power Distribution Units (PDU) QuickSpecs for information on these products and their specifications.

– Refer to the HPE Metered Power Distribution Units (PDU) QuickSpecs for information on these products and their specifications.

– Refer to the HPE Intelligent Power Distribution Unit (PDU) QuickSpecs for information on these products and their specifications.

– Refer to 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.

– Refer to the HPE DirectFlow Three Phase Uninterruptible Power System QuickSpecs for information on these products and their specifications.

– Refer to the HPE Line Interactive Single-Phase UPS QuickSpecs for information on these products and their specifications.

HPE Support Service

Installation and Start-up Services

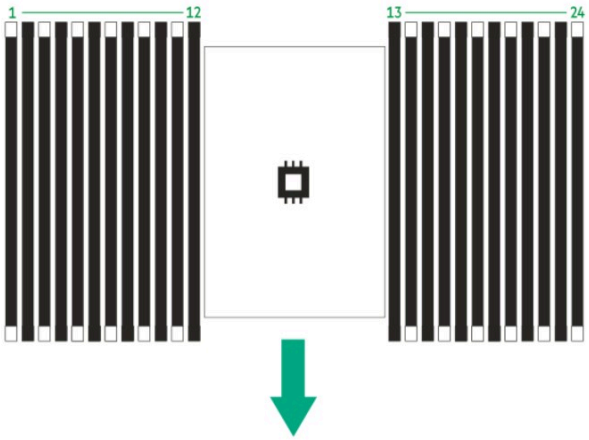
HPE ProLiant DL/ML Install Service	U4554E
HPE ProLiant DL/ML Ons Startup Service	U4555E

Tech Care

HPE 3 Year Tech Care Essential ProLiant DL325 Gen12 Service	H52FK
HPE 3 Year Tech Care Essential wDMR ProLiant DL325 Gen12 Service	H52FL
HPE 3 Year Tech Care Essential wCDMR ProLiant DL325 Gen12 Service	H52FM
HPE 4 Year Tech Care Essential ProLiant DL325 Gen12 Service	H52FZ
HPE 4 Year Tech Care Essential wDMR ProLiant DL325 Gen12 Service	H52GB

HPE 4 Year Tech Care Essential wCDMR ProLiant DL325 Gen12 Service	H52GC
HPE 5 Year Tech Care Essential ProLiant DL325 Gen12 Service	H52GQ
HPE 5 Year Tech Care Essential wDMR ProLiant DL325 Gen12 Service	H52GR
HPE 5 Year Tech Care Essential wCDMR ProLiant DL325 Gen12 Service	H52GS
HPE 6 Year Tech Care Essential ProLiant DL325 Gen12 Service	H52HD
HPE 6 Year Tech Care Essential wDMR ProLiant DL325 Gen12 Service	H52HF
HPE 7 Year Tech Care Essential ProLiant DL325 Gen12 Service	H52HK
HPE 7 Year Tech Care Essential wDMR ProLiant DL325 Gen12 Service	H52HL

Memory



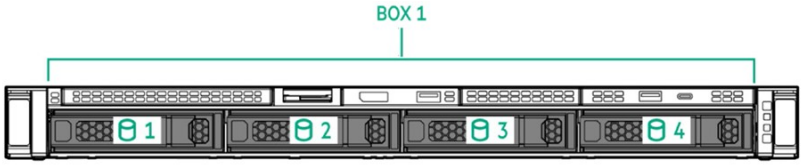
The arrow points to the front of the server

General Memory Population Rules and Guidelines:

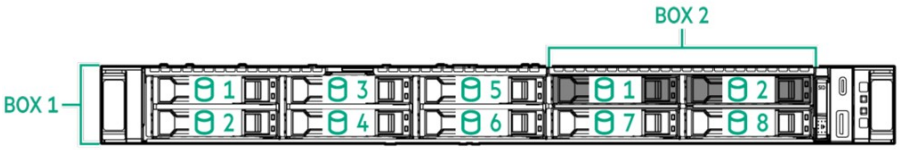
– Install DIMMs only after the corresponding processor is installed.
– To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
– The maximum memory speed is a function of the memory type, memory configuration, and processor model.
– The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, and the number and model of installed processors qualified on the platform.
– To realize the performance memory capabilities listed in this document, HPE DDR5 Smart Memory is required. For additional information, refer to the: HPE DDR5 Smart Memory QuickSpecs.
– For details on the Memory Population Rules and Guidelines with AMD EPYC™ 9005 series processors, please go to: https://www.hpe.com/psnow/doc/a50012817enw.

Storage

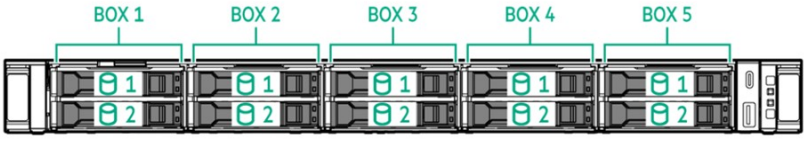
Drive Bay Numbering



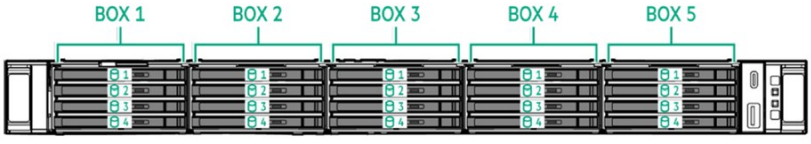
4LFF drive bay, 4LFF CTO server (P81965-B21)



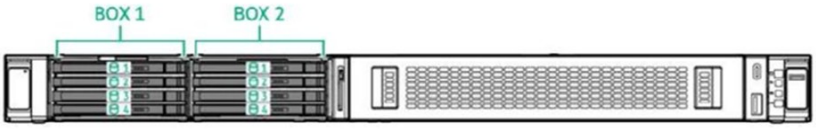
8+2 SFF drive bay, 8SFF CTO server (P81967-B21)



10 SFF drive bay, SFF/EDSFF CTO server (P81966-B21)



20 E3.S drive bay, SFF/EDSFF CTO server (P81966-B21)



8 E3.S drive bay, GPU CTO server (P84204-B21)

Technical Specifications

System Unit

Dimension and Weight

CTO Server	Height x Width x Depth	System Configuration	Max Weight (approximate)
4LFF CTO server (P81965-B21)	4.29 X 43.46 X 66.7 (cm) 1.69 X 17.11 X 26.25 (in)	1 CPU, 24 DDR5 DIMMs, 4 LFF drives, 2 M-CRPS, 7 Fans	19.82 KG (43.7 lb.)
SFF/EDSFF CTO server (P81966-B21)	4.29 X 43.46 X 66.7 (cm) 1.69 X 17.11 X 26.25 (in)	1 CPU, 24 DDR5 DIMMs, 20 E3.S drives, 2 M-CRPS, 7 Fans	19.91 KG (43.9 lb.)
8SFF CTO server (P81967-B21)	4.29 X 43.46 X 60.94 (cm) 1.69 X 17.11 X 23.92 (in)	1 CPU, 24 DDR5 DIMMs, 10 SFF drives, 2 M-CRPS, 7 Fans	18.55 KG (40.91 lb.)
GPU CTO server (P84204-B21)	4.29 X 43.46 X 82.18 (cm) 1.69 X 17.11 X 32.25 (in)	1 CPU, 24 DDR5 DIMMs, 8 E3.S drives, 2 M-CRPS, 7 Fans, 2 GPUs	22.86 KG (50.4 lb.)

Input Requirements (per power supply)

Rated Line Voltage:

– 100 to 120 VAC.
– 200 to 240 VAC.

BTU Rating

Maximum

– For 2400W M-CRPS Power Supply: 4268 (at 100 VAC), 8532 (at 240 VAC).
– For 1500W M-CRPS Power Supply: 3792 (at 100 VAC), 5560 (at 200 VAC).
– For 1000W M-CRPS Power Supply: 3044 (at 100 VAC), 3680 (at 200 VAC).
– For 800W M-CRPS Power Supply: 2458 (at 100 VAC), 2919 (at 240 VAC).

Power Supply Output (per power supply)

– Rated Steady-State Power:

- For 2400W M-CRPS Power Supply: 1200W: (at 100-127 VAC), 2400W (at 200-240 VAC), 2400W (at 240 VDC) input for China only.
- For 1500W M-CRPS Power Supply: 1000W: (at 100 VAC), 1100W (at 110-120 VAC), 1500W (at 200-240 VAC), 1500W (at 240 VDC) input for China only.
- For 1000W M-CRPS Power Supply: 800W: (at 100-120 VAC), 1000W (at 200-240 VAC), 1000W (at 240 VDC) input for China only.
- For 800W M-CRPS Power Supply: 650W: (at 100-120 VAC), 800W (at 200-240 VAC).

– Maximum Peak Power:

- For 2400W M-CRPS Power Supply: 2400W (at 100 to 127 VAC), 2400W (at 200 to 240 VAC), 2400W (at 240 VDC) input for China only.
- For 1500W M-CRPS Power Supply: 1000W: (at 100 VAC), 1100W (at 110-120 VAC), 1500W (at 200-240 VAC), 1500W (at 240 VDC) input for China only.
- For 1000W M-CRPS Power Supply: 800W: (at 100-120 VAC), 1000W (at 200-240 VAC), 1000W (at 240 VDC) input for China only.
- For 800W M-CRPS Power Supply: 650W: (at 100-120 VAC), 800W (at 200-240 VAC).

For more information on power specifications and technical content, reference the HPE M-CRPS QuickSpecs.

System Inlet Temperature

– 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. The 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). The 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. The maximum allowable altitude change rate is 457 m/min (1500 ft/min).
– Non-operating
9144 m (30,000 ft). The maximum allowable altitude change rate is 457 m/min (1500 ft/min).

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:

https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=c03471072

Acoustic Noise

Listed are the declared mean A-Weighted sound power levels (LWA,m), declared average bystander position A-Weighted sound pressure levels (LpAm) and the statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LWA,m 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.

		Entry Configuration	Performance Configuration
Idle	LWA,m	4.9 B	5.4 B
	LpAm	35 dBA	40 dBA
	Kv	0.4 B	0.4 B
Operating	LWA,m	5.0 B	6.2 B
	LpAm	36 dBA	50 dBA
	Kv	0.4 B	0.4 B

Notes:
– All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109. Operating mode is represented by 50% of CPU.
– The results in this declaration apply only to the specific configuration listed below when operating and tested according to the indicated modes and standards. A system with additional configuration components or increased operating functionality may increase the noise emission values.

- Entry Configuration: 1x AMD EPYC™ 9015 CPU, 2x 16GB DIMM, 2x SATA RI SFF SSD, , 1x 1000W PSU..
- Performance Configuration: 1x AMD EPYC™ 9555P CPU, 12x 32GB DIMM, 6x NVMe RI E3S SSD, 2x 1000W PSU.

– The declared mean A-weighted sound power level, LWA,m, is computed as the arithmetic average of the measured.
– A-weighted sound power levels for a randomly selected sample, rounded to the nearest 0,1 B.
– The declared mean A-weighted emission sound pressure level, LpA,m, is computed as the arithmetic average of the measured A-weighted emission sound pressure levels at the bystander positions for a randomly selected sample, rounded to the nearest 1 dB.
– The statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LWA,m, such that there will be a 95% probability of acceptance, when using the verification procedures of ISO 9296, if no more than 6,5 % of the batch of new equipment, has A-weighted sound power levels greater than (LWA,m + Kv).
– The quantity, LWA,c (formerly called LWAd), can be computed from the sum of LWA,m and Kv.
– B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 dB.
– Systems under abnormal conditions may increase the noise level, people in the vicinity of the product [cabinet] for extended periods of time should consider wearing hearing protection or using other means to reduce noise exposure.

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 European Union Waste Electrical and Electronic Equipment Directive [EU WEEE] (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 website. 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-Aug-2026	Version 12	Changed	Core Options section was updated.
		Removed	PCIe/NVMe Interface Read Intensive Drives OBS SKUs.
06-Jul-2026	Version 11	Changed	Core Options section was updated.
		Removed	Self-Encrypting Drives (SED) and Federal Information Processing Standards (FIPS) Drives obsolete SKUs.
01-Jun-2026	Version 10	Changed	Core Options section was updated.
		Added	Read Intensive Drives Mixed Use Drives
		Removed	Read Intensive Drives obsolete SKUs.
04-May-2026	Version 9	Changed	Core Options section was updated.
		Added	EDSFF E3.S Solid State Disk Drives: Read Intensive Drives and Mixed Use Drives SKUs.

			AMD Solarflare X4522-PLUS 10/25GbE 2-port SFP56 Adapter for HPE
06-Apr-2026	Version 8	Changed	Standard Features and Core Options sections were updated.
		Added	HPE MR932i-p x32 Lanes PCIe Gen5 SPDM Plug-in Storage Controller, Available options of Storage Controllers, Available options of SFF/EDSFF CTO Server (P81966-B21), Available options of GPU CTO Server (P84204-B21), Read Intensive Drives, and Mixed Use Drives.
		Removed	Memory obsolete SKUs.
02-Mar-2026	Version 7	Changed	Service and Support and Core Options sections were updated.
		Added	HPE Power Supplies. Updated GreenLake statement.
		Removed	HPE InfiniBand obsolete SKUs.
02-Feb-2026	Version 6	Changed	Core Options section was updated.
		Added	Self-Encrypting Drives (SED) and Federal Information Processing Standards (FIPS) Drives, Read Intensive Drives, SAS Interface, and HPE InfiniBand SKUs. .
		Removed	LFF Hard Disk Drives SAS Interface, and LFF Hard Disk Drives SATA Interface obsolete SKUs.
05-Jan-2025	Version 5	Changed	Standard Features section was updated.
		Added	Modular Common Redundant Power Supplies (M-CRPS)
		Removed	Read Intensive Drives and HPE InfiniBand obsolete SKUs.
01-Dec-2025	Version 4	Changed	Core Options section was updated.
		Added	Self-Encrypting Drives (SED) and Federal Information Processing Standards (FIPS) Drives SKUs.
		Removed	Read Intensive Drive obsolete SKU.
03-Nov-2025	Version 3	Changed	Core Options section was updated.
		Added	Storage Matrices and HPE InfiniBand Adapters SKUs.

Date	Version History	Action	Description of Change
06-Oct-2025	Version 2	Changed	Standard Features and Configuration Information sections were updated.
		Added	Processors, Expansion Slots, and Power Supply rules. CTO Server SKUs, Front Cage Configuration rules, Air Cooling Solution Matrices, Storage Configurations, Storage Controller SKUs, Internal Storage Controller Cable SKUs, HPE Drives SKUs, and Direct Liquid Cooling Options SKUs.
07-Jul-2025	Version 1	New	New QuickSpecs.

Copyright

Have feedback on QuickSpecs? We're listening

Chat now

© Copyright 2026 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.

AMD® and EPYC™ are registered trademarks of Advanced Micro Devices Corporation in the U.S. and other countries.

Microsoft®, Windows®, and Windows Server® are U.S. registered trademarks of the Microsoft group of companies.

a50009232enw - 17264 - Worldwide - V12 - 03-August-2026
HEWLETT PACKARD ENTERPRISE
HPE.com