Shape the Future of QuickSpecs - Your Input Matters

HPE ProLiant Compute DL345 Gen12

QuickSpecs

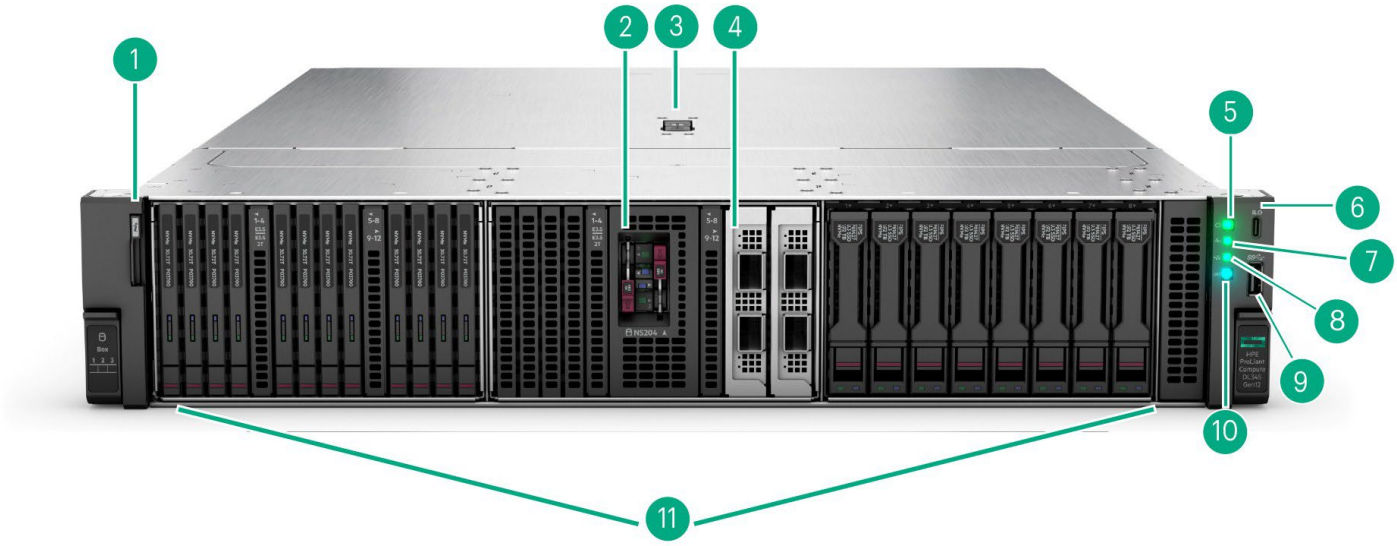
Are you looking for a single-socket scalable server solution to power your virtualized data-intensive, large-capacity memory workloads?

The HPE ProLiant DL345 Gen12 server is a scalable 2U 1P solution that delivers exceptional compute performance and large capacity storage options at 1P economics. This efficient and workload-optimized solution is ideal for Virtualization, SDS, and Data management.

Overview

HPE ProLiant Compute DL345 Gen12

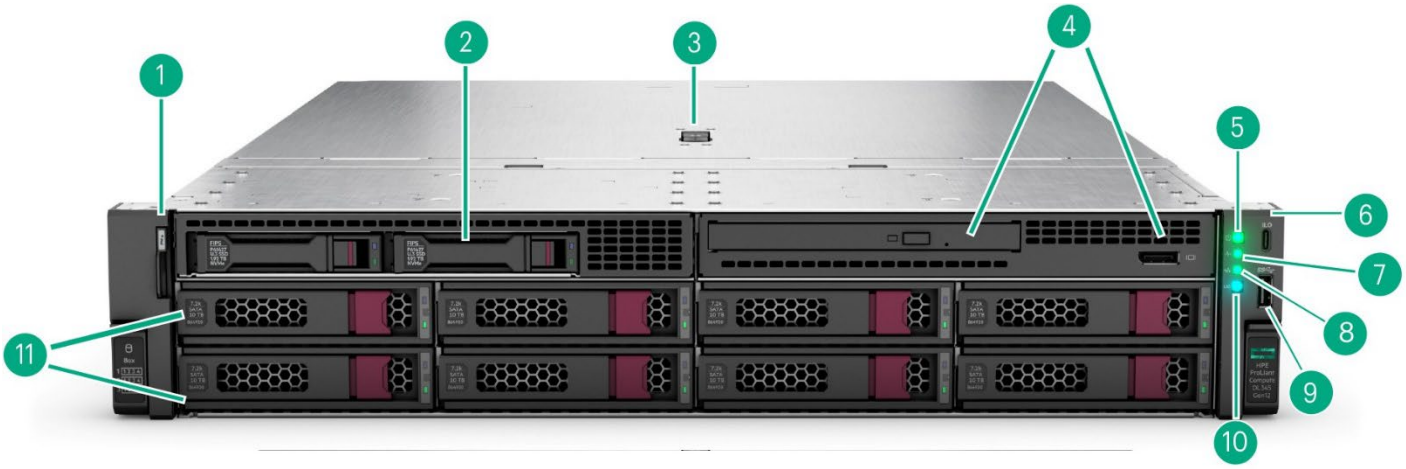
Powered by 5th Generation AMD EPYC™ Processors with up to 192 cores, increased memory bandwidth (up to 6 TB), high-speed PCIe Gen5 I/O, and EDSFF storage, up to 12 LFF / 24 SFF / 36 EDSFF, and up to 4 double-width GPUs at the front, this server is a superb single-socket 2U solution for your data-intensive workloads.



Front View - SFF/EDSFF CTO Server

Item	Description	Item	Description
1.	Serial number pull tab	7.	Health LED
2.	Optional NS204i-u hot-plug NVMe boot device	8.	NIC status LED
3.	Quick removal access panel	9.	USB 3.2 Gen 1 port
4.	Optional front OCP 3.0 slots	10.	Unit ID button/ LED
5.	Power On/Standby button and system power LED	11.	Front multi-purpose cage, Box 1 to 3
6.	iLO Service Port		

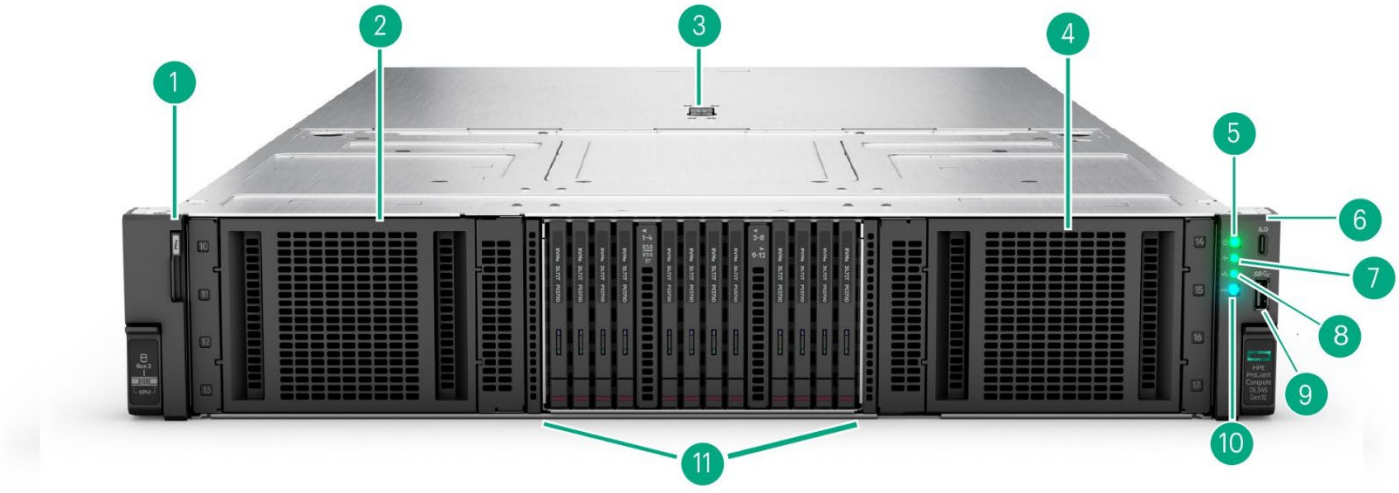
Overview



Front View - 8LFF CTO Server

Item	Description	Item	Description
1.	Serial number pull tab	7.	Health LED
2.	Optional 2SFF SAS/SATA/NVMe drive cage	8.	NIC status LED
3.	Quick removal access panel	9.	USB 3.2 Gen1 port
4.	Optional optical drive and DisplayPort	10.	Unit ID button/ LED
5.	Power On/Standby button and system power LED	11.	Default 8LFF SAS/SATA drive bay
6.	iLO Service Port		

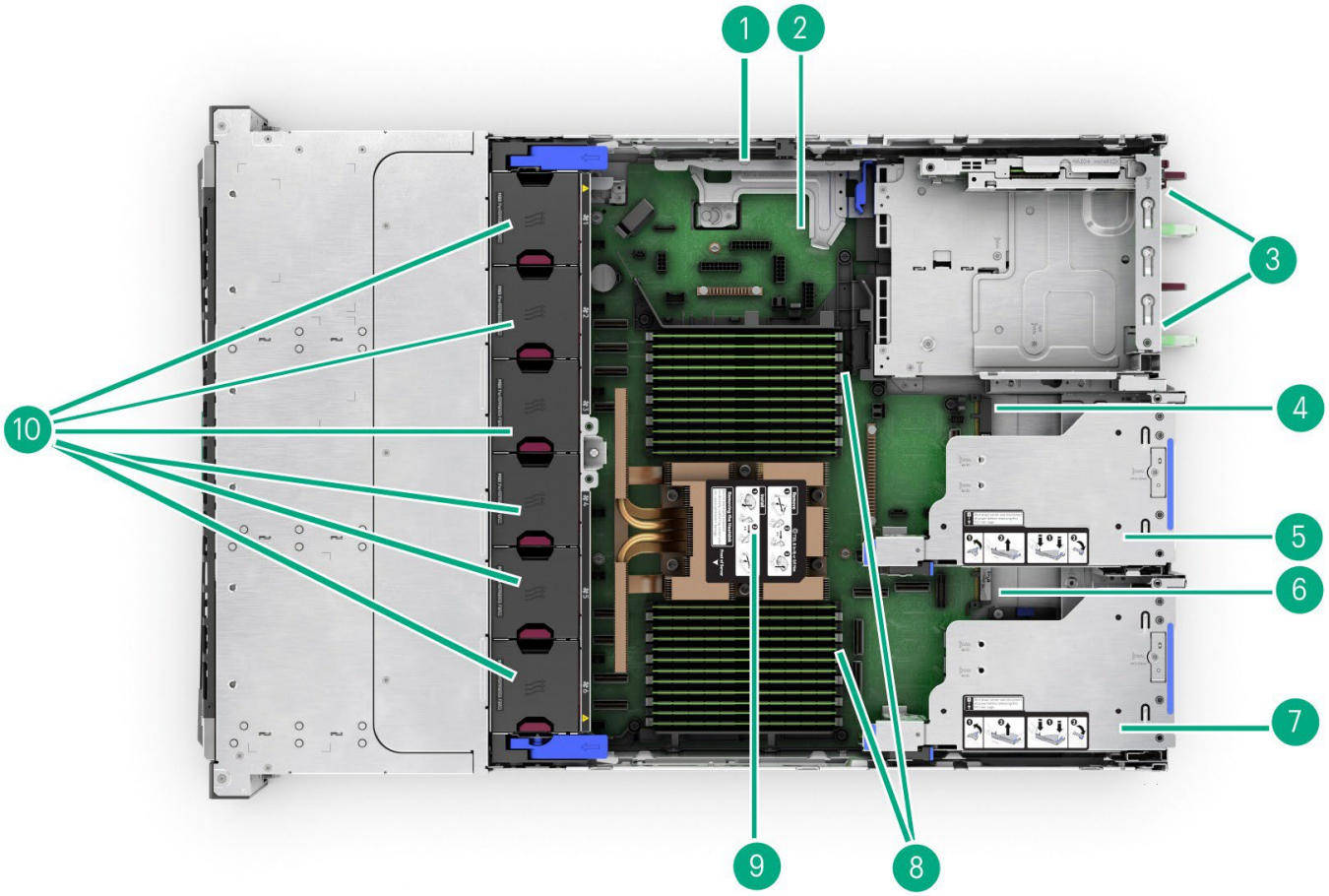
Overview



Front View – GPU CTO Server

Item	Description	Item	Description
1.	Serial number pull tab	7.	Health LED
2.	Default riser cage, slot 10 and 12	8.	NIC status LED
3.	Quick removal access panel	9.	USB 3.2 Gen 1 port
4.	Optional riser cage, slot 15 and 17	10.	Unit ID button/ LED
5.	Power On/Standby button and system power LED	11.	Front multi-purpose cage, Box 2
6.	iLO Service Port		

Overview



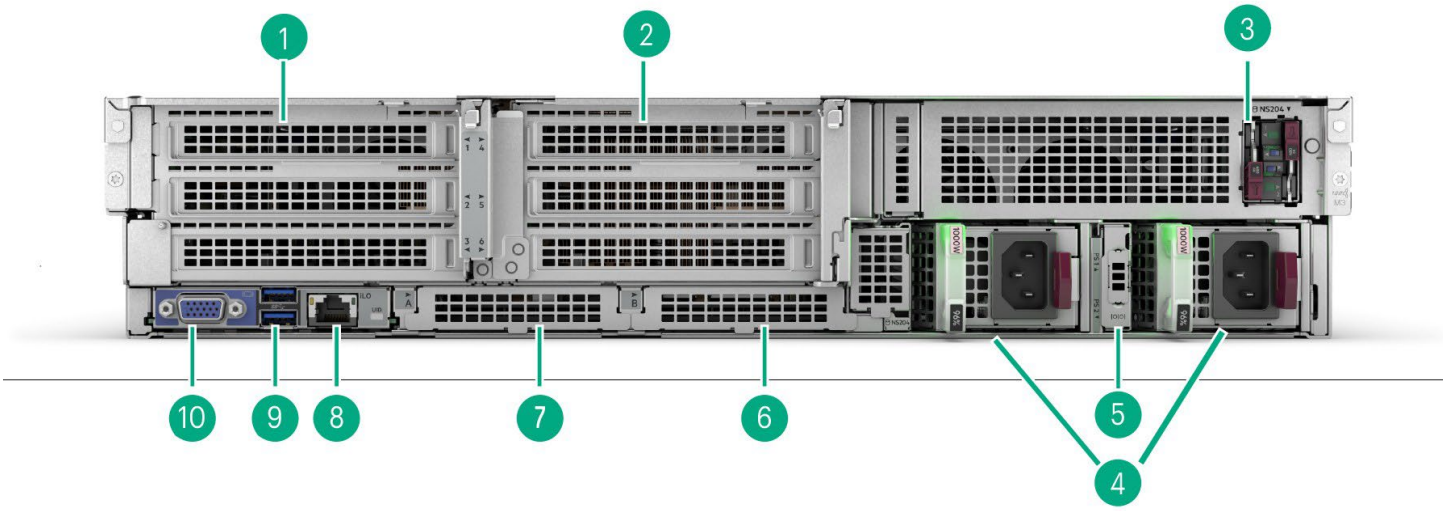
Internal View

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

Notes:

- [1] Fully populated 24 DIMMs shown
- [2] Performance heat sink shown. Optional: Standard heat sink and direct liquid cooling kit.
- [3] Six Performance fans shown. Optional: Standard fans

Overview



Rear View

Item	Description	Item	Description
1.	Primary PCIe 5.0 Risers[1]	6.	Optional OCP 3.0 Slot B
2.	Secondary PCIe 5.0 Risers[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[3]	9.	USB 3.1 Gen1 Ports (2)
5.	Optional Serial port	10.	Video (VGA) port

Notes:

- [1]PCIe Slots 1,2,3 top to bottom.
- [2]PCIe Slots 4,5,6 top to bottom.
- [3]Power Supply 2 is optional

What's New

- All new DL345 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, up to six (6) single-width 75W or four (4) double-width 400W GPUs.
- New direct liquid cooling options.

Overview

Platform Information

Form Factor

- 2U rack

Chassis Types

- 24 SFF Basic Carriers (BC) drive cages, or 36 E3.S 1T drive cages (support mixing configuration).
- 8 LFF with optional 4 LFF drive bay or optical drive.
- 4 Single-Width or 4 Double-Width GPUs with 8 E3.S 1T or 8 SFF drive bays.

System Fans

- Choice of Standard Fan and Performance Fan Kit.

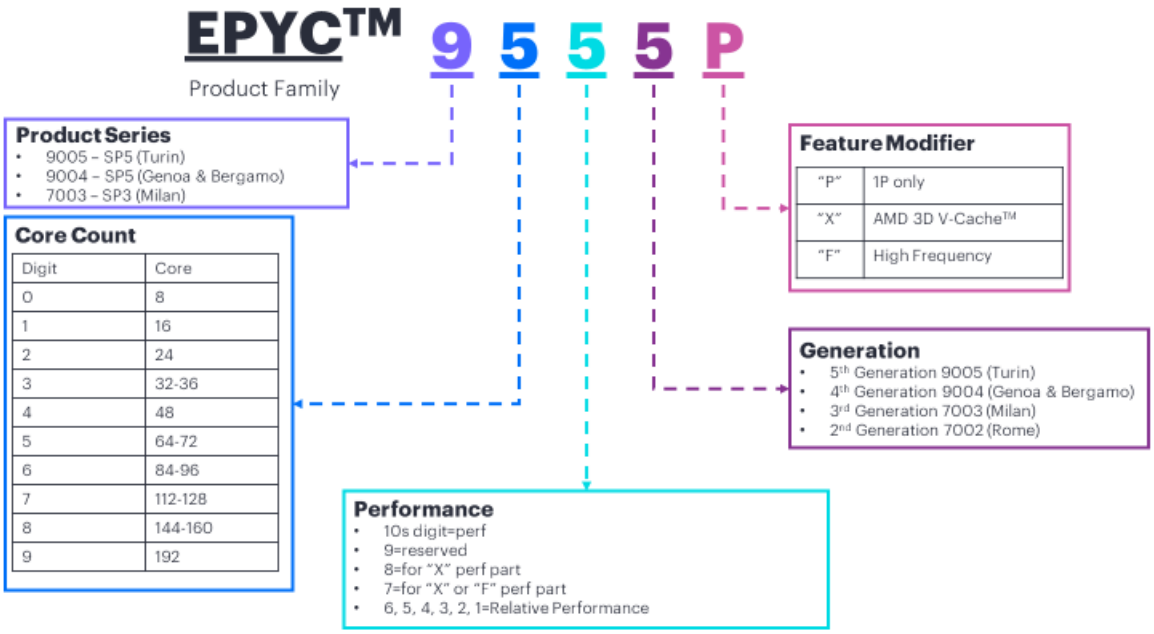
Notes:

- The HPE DL345 Gen12 supports up to 6 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



Standard Features

5th Gen AMD EPYC™ Processor	Cores	Base Frequency	Max Frequency	Max Memory	Wattage	L3 Cache (MB)	DIMMs 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 6TB of memory each under 2DPC, 12 channels per processor.
- The DL345 Gen12's maximum memory operating speed is 5200MT/s on 1DPC and 4400MT/s on 2DPC. Please refer to the memory of the core option 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

Standard Features

Memory

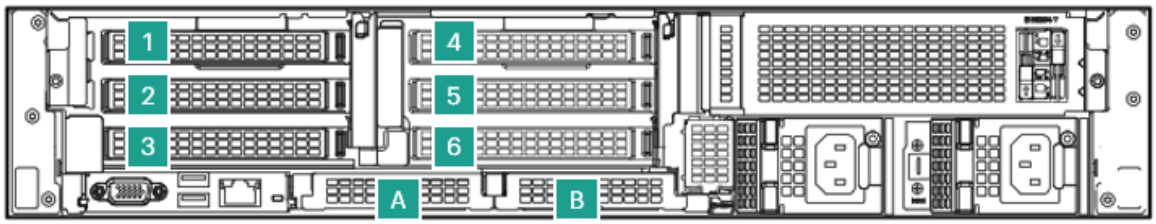
- 12 channels DDR5 per socket.
- 2 DIMMs per channel (2DPC), 24 DIMM slots in total.
- DDR5 – Up to 5200MT/s 1DPC or 4400MT/s 2DPC.
- 6 TB maximum memory per processor.
- VR-on-DIMM Architecture.
- RAS – Advanced ECC.

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

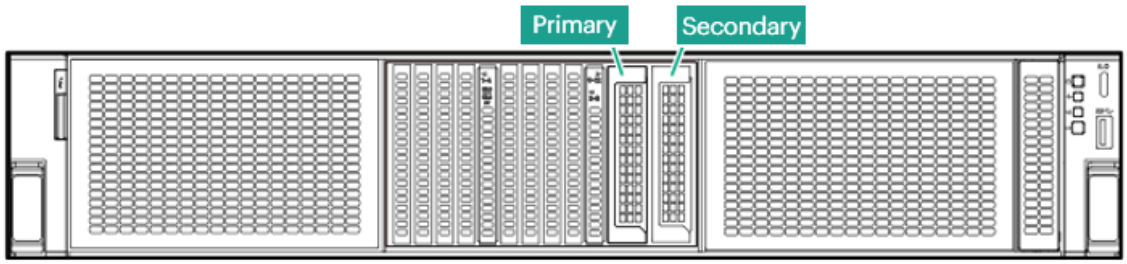
Notes:

- 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

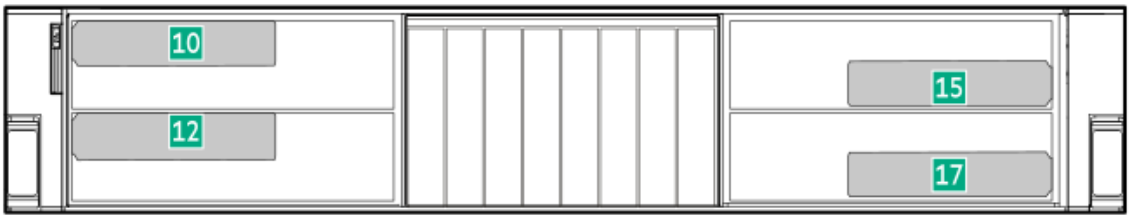


Rear slots – All CTO servers



Front OCP Slots – SFF/EDSFF & GPU CTO server

Standard Features



Front PCIe Slots – GPU CTO server

Slots #	Technology	Bus Width	Connector Width	Slot Form Factor
1 (Optional)	PCIe 5.0	X16	X16	Full-height, Half-length slot Applicable to all CTO servers
2 (Optional)	PCIe 5.0	X16	X16	
3 (Optional)	PCIe 5.0	X16	X16	
4 (Optional)	PCIe 5.0	X16	X16	
5 (Optional)	PCIe 5.0	X16	X16	
6 (Default)	PCIe 5.0	X16	X16	
10 (Default)	PCIe 5.0	X16	X16	Full-height, Full-length slot, only applicable to the GPU CTO server
12 (Default)	PCIe 5.0	X16	X16	
15 (Optional)	PCIe 5.0	X16	X16	
17 (Optional)	PCIe 5.0	X16	X16	
OCP A (Default)	PCIe 5.0	X16	X16	OCP 3.0 Applicable to all CTO servers
OCP B (Optional)	PCIe 5.0	X8 or X16	X16	
Front Primary OCP	PCIe 5.0	X16	X16	OCP 3.0, applicable to the SFF/EDSFF and GPU CTO server
Front Secondary OCP	PCIe 5.0	X16	X16	

Notes:

- Both rear OCP slots (slots A and B) and the front Primary OCP slot (Box 2 Bay 9) support shared-NIC and WOL (Wake on LAN) functions. Front Secondary OCP (Box2 Bay11) only supports WOL without the shared-NIC function.
- Bandwidth of the OCP B slot depends on the number of enablement kits selected.
- According to AMD's CPU limitation, a maximum of 112GB/s bandwidth can be supported for each of the following configurations.
  - Slot 5 / 12 and OCP A
  - Slot 4 / 10 and Slot 6
  - Slot 2 / 17 and Slot 3
  - Slot 1 / 15 and OCP B

Standard Features

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: 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

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

Internal Storage Devices

Optical Drive

- Available as an option.

Drives

- No ship standard

Maximum Internal Storage		
	Capacity	Configuration
Hot Plug LFF SAS HDD	288 TB	12 x 24 TB
Hot Plug LFF SATA HDD	288 TB	12 x 24 TB
Hot Plug SFF SAS SSD	368.64 TB	24 x 15.36 TB
Hot Plug SFF SATA SSD	184.32 TB	24 x 7.68 TB
Hot Plug SFF NVMe PCIe U.3 SSD	368.64 TB	24 x 15.36 TB
Hot Plug EDSFF E3.S 1T NVMe SSD	1105.92 TB	36 x 30.72 TB

Standard Features

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 Mgmt Port	1 1Gb Dedicated - rear
Front iLO Service Port	1 standard via USB Type-C port
USB 3.2 Gen1	4 standard 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

Power Supply

- 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
- HPE 3200W M-CRPS Titanium Hot Plug Power Supply Kit

HPE Modular Common Redundant (M-CRPS) Power Supplies are newly designed to comply with Open Compute Project (OCP) specifications. They feature new form factors, increased power output, and enhanced serviceability and manageability.

HPE M-CRPS Power Supplies are Titanium-rated, 96% efficient, and offer capacities up to 3200W, allowing users to right-size the power supplies for their specific server configurations. This flexibility helps reduce power waste, lower overall energy costs, and avoid trapped power capacity in the data center.

For more information, please visit HPE Modular Common Redundant Power Supplies QuickSpecs

Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, Ireland, Switzerland, or Turkey must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE M-CRPS supplies are 96% efficient, thus meeting the requirements.

For information regarding the European Union ErP Lot 9 Regulation, visit the Industry Standard Compliance section.

To review the power requirements for your selected system, please visit the HPE Power Advisor.

Standard Features

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 & 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).

Standard Features

Intelligent Provisioning
Hassle-free server and OS provisioning for 1 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 iLO6 Transfer of Ownership Process.
Learn more at OpenBMC enablement on HPE ProLiant servers | HPE

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 enable 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 on the DC-SCM and does not require additional option kit selection to enable this function.

Standard Features

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.

Standard Features

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 HPE GreenLake cloud (access via https://common.cloud.hpe.com) and leverages the HPE GreenLake architecture, security, and unified operations.

A 3-year subscription to HPE Compute Ops Management is added by default when ordering an HPE ProLiant 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

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Security

Experience unparalleled security benefits with HPE ProLiant 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 iLO7): 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 from the edge to the cloud.
- 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 Gen12 Embedded Security QuickSpecs document for more detailed information at http://psnow.ext.hpe.com/doc/a50009218enw

Standard Features

- 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 rollback 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.

Standard Features

Server Management

HPE iLO Advanced

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

Standard Features

Rack and Power Infrastructure

The story may end with servers, but it starts with the foundation that makes compute go – and business grow. We've reinvented our entire portfolio of rack and power products to make IT infrastructure more secure, more practical, and more efficient. In other words, we've created a stronger, smarter, and simpler infrastructure to help you get the most out of your IT equipment. As an industry leader, Hewlett Packard Enterprise is uniquely positioned to address the key concerns of power, cooling, cable management, and system access.
HPE G2 Advanced and Enterprise Racks are perfect for the server room or today's modern data center with 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

HPE Services

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

Consulting Services

No matter where you are on your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.
https://www.hpe.com/services/consulting

HPE Managed Services

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

Operational services

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

HPE Complete Care Service

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

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

https://www.hpe.com/services/completecare

HPE Tech Care Service

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

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

HPE Lifecycle Services

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

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

Notes: To review the list of Lifecycle Services available for your product, go to:
https://www.hpe.com/services/lifecycle
For a list of the most frequently purchased services using service credits, see the HPE Service Credits Menu

Other Related Services from HPE Services

HPE Education Services

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

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

Defective Media Retention

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

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

Parts and Materials

HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

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

How to Purchase Services

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

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

AI Powered and Digitally Enabled Support Experience

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

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

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

Service and Support

Consume IT On Your Terms

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

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

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

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

Pre-configured Models

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.

Configuration Information

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

CTO Server	HPE ProLiant Compute DL345 Gen12 SFF/EDSFF CTO Server	HPE ProLiant Compute DL345 Gen12 8LFF CTO Server	HPE ProLiant Compute DL345 Gen12 GPU CTO Server
SKU Number	P81948-B21	P81947-B21	P81949-B21
TAA SKU	P81948-B21#GTA	P81947-B21#GTA	P81949-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 24 SFF SAS/SATA/NVMe or 36 EDSFF E3.S NVMe	Up to 12 LFF SAS/SATA Up to 8LFF SAS/SATA + 2SFF SAS/SATA/NVMe	Up to 8 SFF SAS/SATA/NVMe or 8 EDSFF E3.S NVMe
Drive Cage	Not included Optional: – 8SFF x1 – 8SFF x4 – 4E3.S x4	8 LFF default Optional: – 4LFF – 2SFF x4	Not included Optional: – 8SFF x4 – 4E3.S x4
Storage Controller	Choice of HPE storage controllers		
PCIe Slots	Up to 6 PCIe 5.0 x16 slots, all in Full-height form factor. – Default: Slot 6 – Optional: Slot 1, 2, 3, 4, 5		Up to 6 PCIe 5.0 x16 slots, all in Full-height form factor. – Default: Slot 6, 10, 12. – Optional: Slot 1, 2, 3, 15, 17.
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 or Performance Heat Sink Choice of Standard or Performance Fan Kit Choice of Direct Liquid Cooling kits		
Management	HPE iLO7 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 Gen1 + iLO service port Rear: 2 USB 3.2 Gen1 Internal: 1 USB 3.2 Gen1		Front: 1 USB 3.2 Gen1 + iLO service port Rear: 2 USB 3.2 Gen1

Configuration Information

	Optional: Front USB 2.0 via Universal Media Bay	Internal: 1 USB 3.2 Gen1
Security	TPM2.0 (Trusted Platform Module) embedded.	
Rail Kit	Optional Easy Install rails and CMA.	
Form Factor	2U 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 in 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.

Configuration Information

- 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 System Inlet Ambient Operating Temperature Configuration Tracking	P79552-B21
HPE ProLiant Compute 27C System Inlet Ambient Operating Temperature Configuration Tracking	P79555-B21
HPE ProLiant Compute 25C System Inlet Ambient Operating Temperature Configuration Tracking	P79558-B21
HPE ProLiant Compute 23C System Inlet Ambient Operating Temperature Configuration Tracking	P79561-B21
HPE ProLiant Compute 20C System Inlet Ambient Operating Temperature Configuration Tracking	P79564-B21
HPE ProLiant Compute 18C System Inlet Ambient Operating Temperature Configuration Tracking	P79567-B21

Notes:

- Quantity 1 is to be selected for maximum ambient temperature in the datacenter or user environment.
- Please select P79552-B21 for ambient temperature in the range of 30°C - 35°C.

Networking Adapter Cabling Options

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

Notes:

- Quantity 1 is to be selected for maximum ambient temperature in the datacenter 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 8LFF CTO Server (P81947-B21)

8LFF drive cage

HPE ProLiant Compute Gen12 4LFF Backplane Kit	P75760-B21
HPE ProLiant Compute Gen12 LFF ODD/Display Port Enablement Kit	P74752-B21
HPE ProLiant Compute DL3XX Gen12 Front LFF for 2SFF Enablement Side-by-Side U.3 HDD Front Cage Kit	P74744-B21

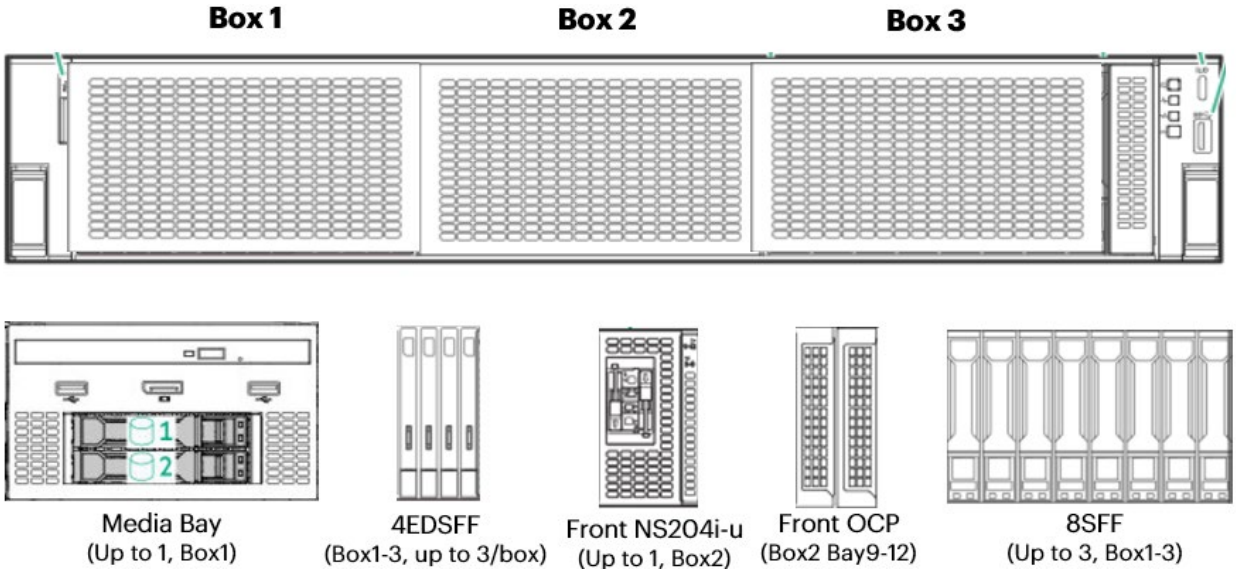
Notes:

- Two (2) 4LFF backplanes are included in the CTO server. No selection is required.
- P74752-B21 enables the Universal Media Bay at the front cage.

Available options of SFF/EDSFF CTO Server (P81948-B21)

HPE ProLiant Compute DL3XX Gen12 8SFF x1 U.3 Tri-Mode Drive Cage Kit	P75740-B21
HPE ProLiant Compute DL3XX Gen12 8SFF x4 U.3 Tri-Mode Drive Cage Kit	P75741-B21
HPE ProLiant Compute Gen12 4EDSFF Drive Cage Kit	P76450-B21
HPE ProLiant Compute DL3XX Gen12 SFF Universal Media Bay Kit	P74749-B21
HPE ProLiant Compute DL3XX Gen12 Front SFF for 2SFF Enablement U.3 HDD Front Cage Kit	P75807-B21
HPE ProLiant Compute DL3XX Gen12 Multipurpose Drive Cage Kit	P76449-B21
HPE ProLiant Compute Gen12 NS204i-u Front Enablement Kit	P74759-B21
HPE ProLiant Compute DL340 Gen12 Front GPU Primary Front OCP Enablement Kit	P77277-B21
HPE ProLiant Compute DL345 Gen12 Front OCP Enablement Kit	P81903-B21

Core Options



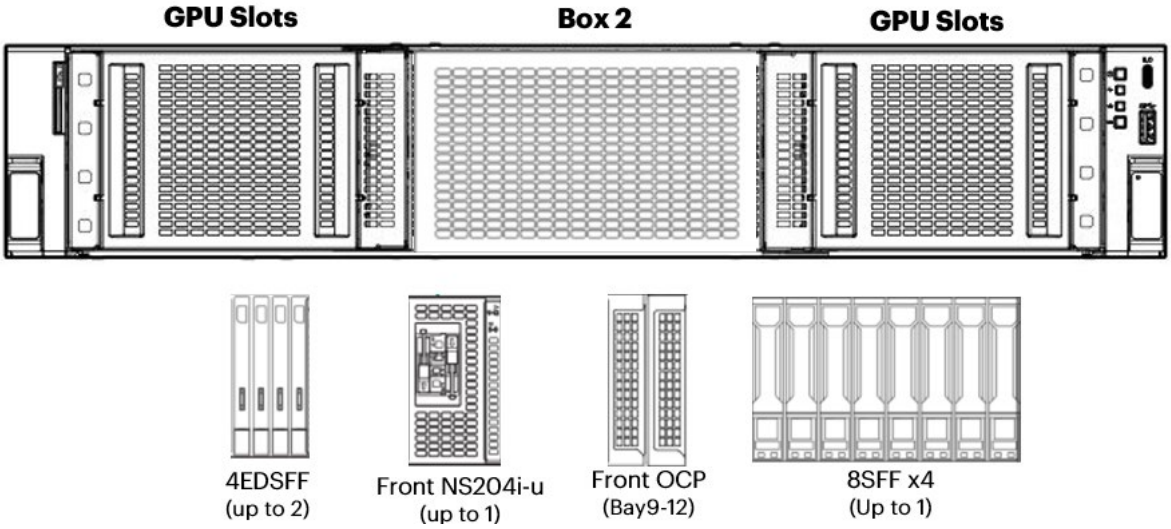
Notes:

- Drive-less configuration is allowed with a quantity of zero (0) backplanes.
- Supporting up to three (3) 8SFF Drive cages or nine (9) 4EDSFF Drive cages in this CTO server, illustrated above.
- Mixing SFF and EDSFF backplanes is supported. For more information, please refer to the storage configuration section.
- A multipurpose cage (P76449-B21) is required when the 4EDSFF drive cage, the Front NS024i-u enablement kit (P74759-B21), or the Front OCP enablement kits are selected. The number of cages depends on the number of boxes installed.
- The Front NS204i-u enablement kit (P74759-B21) and the Front OCP enablement kits can only be installed in Box 2.
- The Front Secondary OCP enablement kit (P81903-B21) can only be selected after selecting the Front Primary OCP enablement kit (P77277-B21).
- Of the two front OCP slots, only the Front Primary OCP slot (P77277-B21) provides the share-NIC function with Network Controller Sideband Interface (NCSI).
- The Universal Media Bay kit (P74749-B21) can only be installed in Box 1.

Available options of GPU CTO Server (P81949-B21)

HPE ProLiant Compute DL3XX Gen12 8SFF x4 U.3 Tri-Mode Drive Cage Kit	P75741-B21
HPE ProLiant Compute Gen12 4EDSFF Drive Cage Kit	P76450-B21
HPE ProLiant Compute DL3XX Gen12 Multipurpose Drive Cage Kit	P76449-B21
HPE ProLiant Compute Gen12 NS204i-u Front Enablement Kit	P74759-B21
HPE ProLiant Compute DL340 Gen12 Front GPU Primary Front OCP Enablement Kit	P77277-B21
HPE ProLiant Compute DL345 Gen12 Front OCP Enablement Kit	P81903-B21

Core Options



Notes:

- Supporting up to one (1) 8SFF x4 Drive cages or two (2) 4EDSFF Drive cages in this CTO server, illustrated above.
- A multipurpose cage (P76449-B21) is required when the 4EDSFF drive cage, the front NS024i-u enablement kit (P74759-B21), or the front OCP enablement kits are selected.
- The Front Secondary OCP enablement kit (P81903-B21) can only be selected after selecting the Front Primary OCP enablement kit (P77277-B21).
- Of the two front OCP slots, only the Front Primary OCP slot (P77277-B21) provides the share-NIC function with Network Controller Sideband Interface (NCSI).

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 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

Core Options

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 (P58458-B21)	Standard (P58464-B21)
>240W	Performance (P81952-B21)	Performance (P58465-B21)

Core Options

Memory

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

HPE 16GB (1x16GB) Single Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P64984-B21
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

The memory kit operating speed matrix is as follows.

Part Number	Capacity	Rank	Operating Speed	
			1 DIMM per channel	2 DIMMs per channel
P64984-B21	16 GB	1R	5200 MT/s	4400 MT/s
P64985-B21	32 GB	2R		4000 MT/s
P64986-B21	64 GB	2R		
P64987-B21	96 GB	2R		
P64988-B21	128 GB	2R		
P73446-B21	256 GB	4R		

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.
- Not supporting 5600 MT/s or 4800 MT/s DIMMs with Turin processors.

Storage

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

Storage Configurations for each CTO server

Notes: Config ID = Smart Chassis config ID#; DA = Direct Attach; Ctrlr = 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.

Core Options

8LFF CTO server (P81947-B21)

Config ID	Drives				Backplanes		Lanes & Controllers		
	Max Qty	SAS	SATA	U.3 NVMe	Box1	Box2/3	Box1	Box2	Box3
2-1	8	0	8	0	-	Bundled in CTO	-	SATA DA	SATA DA
2-2	8	8	8	0	-	Bundled in CTO	-	OCP Ctrlr	
2-3	10	2	8	2	2SFF	Bundled in CTO	OCP Ctrlr	SATA DA	SATA DA
2-4	10	10	10	2	2SFF	Bundled in CTO	OCP Ctrlr	OCP Ctrlr	
2-5	12		12	0	4LFF	Bundled in CTO	SATA DA	SATA DA	SATA DA
2-6	12	12	12	0	4LFF	Bundled in CTO	OCP Ctrlr		

GPU CTO server (P81949-B21)

Config ID	Drives					Backplanes	Lanes & Controllers	# of GPU Risers
	Max Qty	SAS	SATA	U.3 NVMe	EDSFF	Box2	Box2	
3-1	4	0	0	4	0	8SFF x4	x4 NVMe DA	2
3-2	4	0	0	4	0	8SFF x4	x4 NVMe DA	4
3-3	8	0	0	8	0	8SFF x4	x4 NVMe DA	2
3-4	8	0	0	8	0	8SFF x4	x4 NVMe DA	4
3-5	8	8	8	8	0	8SFF x4	x2 OCP Ctrlr	2
3-6	8	8	8	8	0	8SFF x4	x2 OCP Ctrlr	4
3-7	8	8	8	8	0	8SFF x4	x4 PCIe Ctrlr	2
3-8	8	8	8	8	0	8SFF x4	x4 PCIe Ctrlr	4
3-9	4	0	0		4	4EDSFF	x4 NVMe DA	2
3-10	4	0	0		4	4EDSFF	x4 NVMe DA	4
3-11	8	0	0		8	8EDSFF	x4 NVMe DA	2
3-12	8	0	0		8	8EDSFF	x4 NVMe DA	4
3-13	4	0	0		4	4EDSFF	x4 PCIe Ctrlr	2
3-14	4	0	0		4	4EDSFF	x4 PCIe Ctrlr	4

Core Options

SFF/EDSFF CTO server (P81948-B21)

Config ID	Drives					Backplanes			Speed & Controllers		
	Max Qty	SAS	SATA	U.3 NVMe	EDSFF	Box1	Box2	Box3	Box1	Box2	Box3
1-0	0	0	0	0	0	-	-	-	-	-	-
1-1	8	0	8	0	0	-	-	8SFF x1	-	-	SATA DA
1-2	8	8	8	8	0	-	-	8SFF x1	-	-	OCP Ctrlr
1-3	8	8	8	8	0	-	-	8SFF x1	-	-	PCIe Ctrlr
1-4	10	2	8	2	0	2SFF	-	8SFF x1	OCP Ctrlr	-	SATA DA
1-5	10	10	10	10	0	2SFF	-	8SFF x1	OCP Ctrlr	-	PCIe Ctrlr
1-6	10	10	10	10	0	2SFF	-	8SFF x1	OCP Ctrlr	-	OCP Ctrlr
1-7	16	0	16	0	0	-	8SFF x1	8SFF x1	-	SATA DA	SATA DA
1-8	16	16	16	16	0	-	8SFF x1	8SFF x1	-	OCP Ctrlr	
1-9	16	16	16	16	0	-	8SFF x1	8SFF x1	-	PCIe Ctrlr	
1-10	18	2	18	2	0	2SFF	8SFF x1	8SFF x1	OCP Ctrlr	SATA DA	SATA DA
1-11	18	18	18	18	0	2SFF	8SFF x1	8SFF x1	OCP Ctrlr	PCIe Ctrlr	
1-12	18	18	18	18	0	2SFF	8SFF x1	8SFF x1	OCP Ctrlr	OCP Ctrlr	
1-13	16	16	16	16	0	8SFF x1	-	8SFF x1	OCP Ctrlr	-	OCP Ctrlr
1-14	16	16	16	16	0	8SFF x1	-	8SFF x1	PCIe Ctrlr	-	PCIe Ctrlr
1-15	24	24	24	24	0	8SFF x1	8SFF x1	8SFF x1	OCP Ctrlr	PCIe Ctrlr	
1-16	8	0	0	8	0	-	-	8SFF x4	-	-	x2 NVMe DA
1-17	8	0	0	8	0	-	-	8SFF x4	-	-	x4 NVMe DA
1-18	8	0	0	8	0	-	-	8SFF x4	-	-	x4 OCP Ctrlr
1-19	8	0	0	8	0	-	-	8SFF x4	-	-	x4 PCIe Ctrlr
1-20	10	2	2	10	0	2SFF	-	8SFF x4	OCP Ctrlr	-	x2 NVMe DA
1-21	10	2	2	10	0	2SFF	-	8SFF x4	OCP Ctrlr	-	x4 NVMe DA
1-22	10	10	10	10	0	2SFF	-	8SFF x4	OCP Ctrlr	-	OCP Ctrlr
1-23	16	0	0	16	0	-	8SFF x4	8SFF x4	-	x2 NVMe DA	x2 NVMe DA
1-24	16	0	0	16	0	8SFF x4	-	8SFF x4	x2 NVMe DA	-	x2 NVMe DA
1-25	16	0	0	16	0	8SFF x4	-	8SFF x4	x4 NVMe DA	-	x4 NVMe DA
1-26	18	2	2	18	0	2SFF	8SFF x4	8SFF x4	x4 OCP Ctrlr	x2 NVMe DA	x2 NVMe DA
1-27	20	0	0	20	0	8SFF x4	8SFF x4	8SFF x4	x4 NVMe DA	x4 NVMe DA	x4 NVMe DA
1-28	24	0	0	24	0	8SFF x4	8SFF x4	8SFF x4	x2 NVMe DA	x2 NVMe DA	x2 NVMe DA
1-29	24	0	0	24	0	8SFF x4	8SFF x4	8SFF x4	x4 NVMe DA	x4 NVMe DA	x4 NVMe DA
1-30	16	8	8	16	0	8SFF x1	-	8SFF x4	OCP Ctrlr	-	x2 NVMe DA
1-31	16	8	8	16	0	8SFF x1	-	8SFF x4	OCP Ctrlr	-	x4 NVMe DA
1-32	8	0	0	0	8	-	-	8EDSFF	-	-	x4 NVMe DA
1-33	8	0	0	0	8	-	-	8EDSFF	-	-	PCIe Ctrlr
1-34	10	0	0	2	8	2SFF	-	8EDSFF	x4 OCP Ctrlr	-	x4 NVMe DA
1-35	16	0	0	0	16	8EDSFF	-	8EDSFF	x4 NVMe DA	-	x4 NVMe DA
1-36	16	0	0	0	16	8EDSFF	-	8EDSFF	x2 PCIe Ctrlr	-	x2 PCIe Ctrlr
1-37	20	0	0	0	20	8EDSFF	4EDSFF	8EDSFF	x4 NVMe DA	x4 NVMe DA	x4 NVMe DA

Core Options

1-38	24	0	0	0	24	8EDSFF	8EDSFF	8EDSFF	x4 NVMe DA	x4 NVMe DA	x4 NVMe DA
1-39	36	0	0	0	36	12EDSFF	12EDSFF	12EDSFF	x2 NVMe DA	x2 NVMe DA	x2 NVMe DA
1-40	16	0	0	8	8	8EDSFF	-	8SFF x4	x4 NVMe DA	-	x2 OCP Ctrlr
1-41	16	0	0	8	8	8EDSFF	-	8SFF x4	x4 NVMe DA	-	x4 PCIe Ctrlr

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 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

Notes: A maximum of one (1) storage battery can be selected per server. If P01366-B21 is selected, then P02377-B21 cannot be chosen vice versa.

Internal Storage Controller Cables

Available options of 8LFF CTO Server (P81947-B21)

HPE ProLiant Compute DL345 Gen12 LFF SATA Direct Attach Cable Kit	P81879-B21
HPE ProLiant Compute DL345 Gen12 LFF OROC OCP SlotA Cable Kit	P81880-B21
HPE ProLiant Compute DL345 Gen12 2SFF Side-by-Side x4 Box 1 OCP SlotB Cable Kit	P81886-B21

Available options of SFF/EDSFF CTO Server (P81948-B21)

HPE ProLiant Compute DL345 Gen12 8SFF x1 OROC Box 3 OCP SlotA Cable Kit	P81881-B21
HPE ProLiant Compute DL345 Gen12 8SFF x1 OROC Box 1/2 OCP SlotA Cable Kit	P81882-B21
HPE ProLiant Compute DL345 Gen12 16SFF x1 Secondary Tri-Mode PCIe Box 2/3 Cable Kit	P81883-B21
HPE ProLiant Compute DL345 Gen12 8SFF x1 Secondary Tri-Mode PCIe Box 1 Cable Kit	P81884-B21
HPE ProLiant Compute DL345 Gen12 2SFF x4 OROC Box 1 OCP SlotB Cable Kit	P81885-B21
HPE ProLiant Compute DL345 Gen12 16SFF x1 SATA Direct Attach Cable Kit	P81887-B21
HPE ProLiant Compute DL345 Gen12 8SFF x2 OROC Box 3 OCP SlotA Cable Kit	P81888-B21
HPE ProLiant Compute DL345 Gen12 8SFF x2 NVMe Box 3 Direct Attach Cable Kit	P81889-B21
HPE ProLiant Compute DL345 Gen12 8SFF x2 NVMe Box 1 Direct Attach Cable Kit	P81890-B21
HPE ProLiant Compute DL345 Gen12 8SFF x2 NVMe Box 2 Direct Attach Cable Kit	P81891-B21
HPE ProLiant Compute DL345 Gen12 8SFF x4 NVMe Box 3 Direct Attach Cable Kit	P81892-B21
HPE ProLiant Compute DL345 Gen12 8SFF x4 NVMe Direct Attach Box 1 Cable Kit	P81895-B21
HPE ProLiant Compute DL345 Gen12 4SFF x4 NVMe Direct Attach Box 2 Cable Kit	P81896-B21
HPE ProLiant Compute DL345 Gen12 8SFF x4 Tri-Mode PCIe SR932i-p Box 3 Cable Kit	P81894-B21
HPE ProLiant Compute DL345 Gen12 8EDSFF x4 NVMe Direct Attach Box 3 Cable Kit	P81897-B21
HPE ProLiant Compute DL345 Gen12 8EDSFF x4 NVMe Direct Attach Box 1 Cable Kit	P81898-B21
HPE ProLiant Compute DL345 Gen12 4EDSFF x4 NVMe Direct Attach Box 2 Cable Kit	P81899-B21

Core Options

HPE ProLiant Compute DL345 Gen12 36EDSFF x2 NVMe Direct Attach Cable Kit	P81900-B21
HPE ProLiant Compute DL345 Gen12 8EDSFF x4 Tri-Mode PCIe Box 3 Cable Kit	P81901-B21
HPE ProLiant Compute DL345 Gen12 16EDSFF x2 Tri-Mode PCIe Box 1/3 Cable Kit	P81902-B21
Available options of GPU CTO Server (P81949-B21)	
HPE ProLiant Compute DL345 Gen12 4SFF x4 NVMe Direct Attach Front GPU Box 1 Cable Kit	P84155-B21
HPE ProLiant Compute DL345 Gen12 8SFF x4 Front GPU Box 1 PCIe Tri-Mode Cable Kit	P84156-B21
HPE ProLiant Compute DL345 Gen12 8SFF x2 Front GPU Box 1 OCP SlotB Tri-Mode Cable Kit	P84157-B21
HPE ProLiant Compute DL345 Gen12 4EDSFF x4 NVMe Direct Attach Front GPU Box 1 Cable Kit	P84158-B21
HPE ProLiant Compute DL345 Gen12 4EDSFF x4 Front GPU Box 1 PCIe Tri-Mode Cable Kit	P84159-B21
HPE ProLiant Compute DL345 Gen12 Front 2x GPU 8SFF x4 NVMe Direct Attach Cable Kit	P84346-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 DL3XX Gen12 NS204i-u Rear Cable Kit	P71433-B21
HPE ProLiant Compute Gen12 NS204i-u Front Enablement Kit	P74759-B21

Notes: two (2) locations to support NS204i-u boot device, depending on configuration.

- Above M-CRPS power supply 1, a cable kit (P71433-B21) is required.
- At the front cage, Box 2 of the SFF/EDSFF or GPU CTO server. The front cable kit (P74759-B21) is required.

HPE Drives

SFF Solid State Drives

SATA Interface

Read Intensive Drives

HPE 240GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40496-B21
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 Drive (SED) Drives

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

Core Options

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 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P63871-B21
HPE 3.84TB SAS Read Intensive SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P63875-B21
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 PM1733a SSD	P50219-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50222-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50224-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63829-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 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64842-B21
HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64844-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

Core Options

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
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive BC U.3 Static V2 SPDM Multi Vendor SSD	P84236-B21
Mixed Use Drives	
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-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 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P64999-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65007-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65015-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
Self-Encrypting Drives (SED) and Federal Information 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 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57799-B21

Core Options

HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57803-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 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69237-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69239-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 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77273-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77275-B21
Mixed Use Drives	
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61191-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61195-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
Self-Encrypting Drives (SED) and Federal Information Processing Standards (FIPS) Drives	
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70669-B21
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

Core Options

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 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833926-B21
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861746-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

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 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861742-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

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

Core Options

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 DL345 Gen12 Slot 3 Riser Kit	P81904-B21
HPE ProLiant Compute DL345 Gen12 Slot 1/2 Riser Kit	P81905-B21
HPE ProLiant Compute DL345 Gen12 Slot 4/5 Riser Kit	P81906-B21

Notes:

- PCIe Slot 6 riser is the default in all CTO servers.
- The slot 1/2 riser kit (P81905-B21) can be selected after selecting the slot 3 riser kit (P81904-B21).

HPE ProLiant Compute DL3X5 Gen12 OCP SlotB x8 Enablement Kit	P81908-B21
HPE ProLiant Compute DL340 Gen12 Front GPU Primary Front OCP Enablement Kit	P77277-B21
HPE ProLiant Compute DL345 Gen12 Front OCP Enablement Kit	P81903-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 be supported on the SFF/EDSFF and GPU CTO servers.
- The Front Secondary OCP enablement Kit (P81903-B21) can only be selected after selecting the Front Primary OCP enablement Kit (P77277-B21).

HPE ProLiant Compute DL345 Gen12 Front 4xGPU Enablement Kit	P84160-B21

Notes: This kit enables slots 15 and 17 at the front cage of the GPU CTO server.

Networking

HPE Ethernet Adapters

PCIe Stand up

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

Core Options

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-B21
HPE InfiniBand NDR200/Ethernet 200GbE 2-port QSFP112 PCIe5 x16 MCX755106AC-HEAT Adapter	P65333-H21
HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter	P45642-B22
HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter	P45642-H22
HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter	P45641-B23
HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter	P45641-H23

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

Core Options

The thermal support matrix for the networking options with the AOC/transceiver is as follows:

PCIe Standup Ethernet and InfiniBand adapters

CTO Server	8LFF					
Front Storage	8LFF			12LFF		
CPU Wattage	<= 300W	320-400W	500W	<= 300W	320-400W	500W
P26262-B21 P08443-B21 P42044-B21 S2A69	30 °C	30 °C	25 °C: Slot 5/6	30 °C	30 °C	Not Support: Slot 6
P26264-B21 P73111-B21 P08458-B21 P45642-B22	30 °C	25 °C: Slot 2/3/5/6	25 °C: Slot 2/3 Not Support: Slot 5/6	25 °C: Slot 2/3/5/6	25 °C: Slot 1/2/3	25 °C: Slot 1 Not Support: Slot 2/3/5/6
P45641-B23 P25960-B21 R8M41A P21112-B21	25 °C: Slot 1/2/3/5/6	25 °C: Slot 1/4 Not Support: Slot 2/3/5/6	25 °C: Slot 1/4 Not Support: Slot 2/3/5/6	Not Support: Slot 1/2/3/5/6	25 °C: Slot 4 Not Support: Slot 1/2/3/5/6	Not Support

CTO Server	SFF/EDSFF					
Front Storage	8SFF or 12EDSFF		16SFF		24EDSFF	
CPU Wattage	<= 300W	>300W	<=400W	500W	<=400W	500W
P45641-B23 P25960-B21 R8M41A P21112-B21	25 °C: Slot 2	25 °C: Slot 2/3	25 °C: Slot 2/3/6	25 °C: Slot 2/3/5/6	25 °C: Slot 1/2/3	25 °C: Slot 1/2/3/6

CTO Server	SFF/EDSFF					
Front Storage	24SFF			36EDSFF		
CPU Wattage	<= 300W	320-400W	500W	<= 300W	320-400W	500W
P26262-B21 P08443-B21 P42044-B21 S2A69	30 °C	30 °C	25 °C: Slot 4/5/6	30 °C	30 °C	25 °C: Slot 5/6
P26264-B21 P73111-B21 P08458-B21 P45642-B22	30 °C	25 °C: Slot 3/5/6	25 °C: Slot 2/3 Not Support: Slot 4/5/6	25 °C: Slot 2/6	25 °C: Slot 3/5 Not Support: Slot 6	25 °C: Slot 3 Not Support: Slot 5/6
P45641-B23 P25960-B21 R8M41A P21112-B21	25 °C: Slot 1/2/3/5/6	25 °C: Slot 1/2/4 Not Support: Slot 3/5/6	25 °C: Slot 1 Not Support: Slot 2/3/4/5/6	25 °C: Slot 1/3/5 Not Support: Slot 2/6	25 °C: Slot 1/2/4 Not Support: Slot 3/5/6	25 °C: Slot 1/2/4 Not Support: Slot 3/5/6

Core Options

CTO Server	GPU			
GPU	2x L40S	4x L40S		
CPU Wattage	500W	<= 300W	320-400W	500W
P26264-B21	30 °C	30 °C	30 °C	25 °C: Slot 3/6
P73111-B21				
P08458-B21				
P45642-B22				
P45641-B23	25 °C: Slot 3/6	25 °C: Slot 6 23 °C: Slot 3	25 °C: Slot 6 20 °C: Slot 3	Not Support
P25960-B21				
R8M41A				
P21112-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).

OCP 3.0 Ethernet adapters

CTO Server	8LFF					
Front Storage	8LFF			12LFF		
CPU Wattage	<= 300W	320-400W	500W	<= 300W	320-400W	500W
P26269-B21	30 °C	25 °C: OCP B	30 °C	30 °C	30 °C	25 °C
P22767-B21						
P73114-B21		Not support: OCP B	25 °C: OCP A Not support: OCP B	Not Support	Not Support	Not Support
P41614-B21						

CTO Server	SFF/EDSFF			
Front Storage	16SFF		24EDSFF	
CPU Wattage	<=400W	500W	<=400W	500W
P26269-B21	30 °C	30 °C	30 °C	30 °C
P22767-B21				
P73114-B21		25 °C: OCP A	25 °C: OCP A	
P41614-B21				

Core Options

CTO Server	SFF/EDSFF					
Front Storage	24SFF			36EDSFF		
CPU Wattage	<= 300W	320-400W	500W	<= 300W	320-400W	500W
P26269-B21	30 °C	30 °C	25 °C	25 °C	Not Support: Slot A	25 °C: OCP B Not Support: OCP A
P22767-B21						
P73114-B21		25 °C: OCP B Not Support: OCP A	Not Support	Not Support	25 °C: OCP B Not Support: Slot A	Not Support
P41614-B21						

CTO Server	GPU	
GPU	4x L40S	
CPU Wattage	320-400W	500W
P26269-B21	30 °C	25 °C: OCP A
P22767-B21		
P73114-B21	25 °C: OCP A	Not Support: OCP A
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:

- L4 is a PCIe Gen4 x 16 single-width HHHL GPU card.
- Max = 6 at the rear of SFF/EDSFF and LFF CTO servers and subject to the recommended system ambient temperature.
- Max = 4 at the front of the GPU CTO server.

NVIDIA L40S 48GB PCIe Accelerator S2L70C

Core Options

HPE ProLiant Compute DL3XX Gen12 Front GPU L40S Power Cable Kit P75110-B21

Notes:

- L40S is a PCIe Gen4 x 16 double-width FHFL 350W GPU.
- Max = 4 at the front of GPU CTO servers.
- A power cable (P75110-B21) can support two (2) L40S GPUs.

The thermal support matrix for the graphic options is as follows.

CTO Server	8LFF		
Front Storage	8LFF		12LFF
CPU Wattage	<= 300W	>300W	ALL
S0K89C (L4)	25 °C: Slot 1/2/3/5/6	25 °C: Slot 1/4 Not Support: 2/3/5/6	Not Support

CTO Server	SFF/EDSFF					
Front Storage	8SFF or 12EDSFF		16SFF		24EDSFF	
CPU Wattage	<= 300W	>300W	<=400W	500W	<=400W	500W
S0K89C	25 °C: Slot 2	25 °C: Slot 2/3	25 °C: Slot 2/3/6	25 °C: Slot 2/3/5/6	25 °C: Slot 1/2/3	25 °C: Slot 1/2/3/6

CTO Server	SFF/EDSFF					
Front Storage	24SFF			36EDSFF		
CPU Wattage	<= 300W	320-400W	500W	<= 300W	320-400W	500W
S0K89C	25 °C: Slot 1/2/3/5/6	25 °C: Slot 1/2/4 Not Support: Slot 3/5/6	25 °C: Slot 1 Not Support: Slot 2/3/4/5/6	25 °C: Slot 1/3/5 Not Support: Slot 2/6	25 °C: Slot 1/2/4 Not Support: Slot 3/5/6	25 °C: Slot 1/2/4 Not Support: Slot 3/5/6

Notes: If the slot number is not identified in the matrix, then the ambient temperature applies to all available slots of that type.

Power and Cooling

Air Cooling Options

HPE ProLiant DL3X5 Gen11 2U Standard Heat Sink Kit	P58458-B21
HPE ProLiant Compute DL345 Gen12 Performance Heat Sink Kit	P81952-B21
HPE ProLiant DL3X5 Gen11 2U Standard Fan Kit	P58464-B21
HPE ProLiant DL3X5 Gen11 2U Performance Fan Kit	P58465-B21

Front Drive Bay	CPU cTDP	Heat Sink	Fan Kit
Up to 12LFF/ 24SFF	<=240W	Standard	Standard
	>240W	Performance	Performance
Up to 36EDSFF	<=240W	Standard	Performance
	>240W	Performance	Performance
GPU	All	Performance	Performance

Notes:

- Six (6) fan kits are required for all configurations.
- Require Performance Fan with <=240W CPU if any of the below options are selected
  - GPU CTO server.
  - EDSFF drive cages.
  - 128GB, or 256GB DIMM.
  - Graphic options.

Direct Liquid Cooling Options

HPE ProLiant Compute DL345 Gen12 Direct Liquid Cooling Cold Plate Module FIO Kit	P81123-B21
HPE ProLiant DL3XX Gen11 Direct Liquid Cooling 600mm FIO Hose Kit	P62038-B21
HPE ProLiant DL3X5 Gen11 2U Standard Fan Kit	P58464-B21

Notes:

- Six (6) 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	Quick Disconnect tube kit
SFF/EDSFF	P62038-B21
8LFF	P62038-B21
GPU	P58464-B21

Core Options

Power Supplies

HPE Modular Common Redundant (M-CRPS) Power Supplies are newly designed to comply with Open Compute Project (OCP) specifications. They feature new form factors, increased power output, and enhanced serviceability and manageability.

HPE M-CRPS Power Supplies are Titanium-rated, 96% efficient, and offer capacities up to 3200W, allowing users to right-size the power supplies for their specific server configurations. This flexibility helps reduce power waste, lower overall energy costs, and avoid trapped power capacity in the data center. For more information, please visit HPE M-CRPS

Prior to making a power supply selection it is highly recommended that the HPE Power Advisor be run to determine the right size power supply for your server configuration. For more information, please visit HPE Power Advisor.

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
HPE 3200W M-CRPS Titanium Hot Plug Power Supply Kit	P67248-B21

Notes:

- All power supplies in a server should match. Mixing power supplies is not supported.
- 800, 1000W and 1500W M-CRPS are 60mm wide with C14 input connector. 2400W M-CRPS and 3200W M-CRPS are 73.5mm wide with a C20 input connector.
- M-CRPS Titanium power supplies deliver efficiencies of up to 96%.
- Titanium power supplies are compliant with EU Lot 9 2024 minimum efficiency requirements.

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 needing enhanced security and compliance needs. Applying this option to a DL345 Gen12 CTO server ensures it is built in the USA in a secured 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 (P55713-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)

Core Options

- 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 DL385 Gen11 Intrusion Cable Kit P55713-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 Gen11 2U Bezel Kit P50400-B21

HPE Bezel Lock Kit 875519-B21

Notes: The Bezel lock kit (875519-B21) must be selected along with the bezel kit (P50400-B21).

Accessories

HPE ProLiant Compute Gen12 Optical Disk Drive USB to SATA Signal Cable Kit P72199-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 ProLiant Compute DL3XX Gen12 2U Cable Management Arm for Rail Kit P70744-B21

HPE Ball Bearing Rail 6 Kit P69769-B21

HPE Cable Management Arm 2 for Ball Bearing Rail Kit P69776-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
8LFF	P52351-B21	P70744-B21
SFF/EDSFF	P52351-B21	P70744-B21
GPU	P69769-B21	P69776-B21

Core Options

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.

Additional Options

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 Services

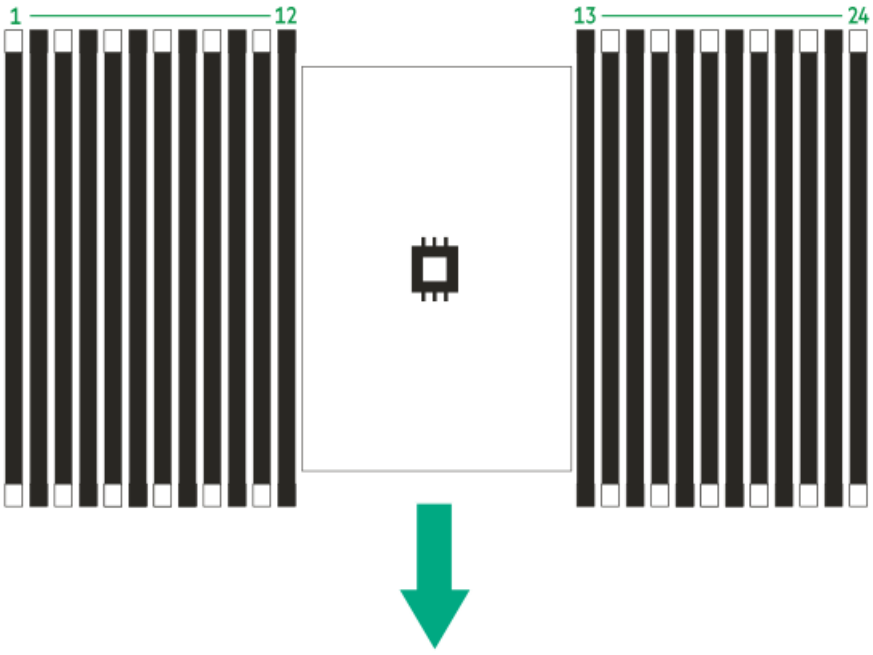
Installation & Start-up Services

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

Tech Care

HPE 3 Year Tech Care Essential ProLiant DL345 Gen12 Service	H52HV
HPE 3 Year Tech Care Essential wDMR ProLiant DL345 Gen12 Service	H52HW
HPE 3 Year Tech Care Essential wCDMR ProLiant DL345 Gen12 Service	H52HX
HPE 4 Year Tech Care Essential ProLiant DL345 Gen12 Service	H52JK
HPE 4 Year Tech Care Essential wDMR ProLiant DL345 Gen12 Service	H52JL
HPE 4 Year Tech Care Essential wCDMR ProLiant DL345 Gen12 Service	H52JM
HPE 5 Year Tech Care Essential ProLiant DL345 Gen12 Service	H52JZ
HPE 5 Year Tech Care Essential wDMR ProLiant DL345 Gen12 Service	H52KB
HPE 5 Year Tech Care Essential wCDMR ProLiant DL345 Gen12 Service	H52KC
HPE 6 Year Tech Care Essential ProLiant DL345 Gen12 Service	H52KN
HPE 6 Year Tech Care Essential wDMR ProLiant DL345 Gen12 Service	H52KQ
HPE 7 Year Tech Care Essential ProLiant DL345 Gen12 Service	H52KV
HPE 7 Year Tech Care Essential wDMR ProLiant DL345 Gen12 Service	H52KW

Memory

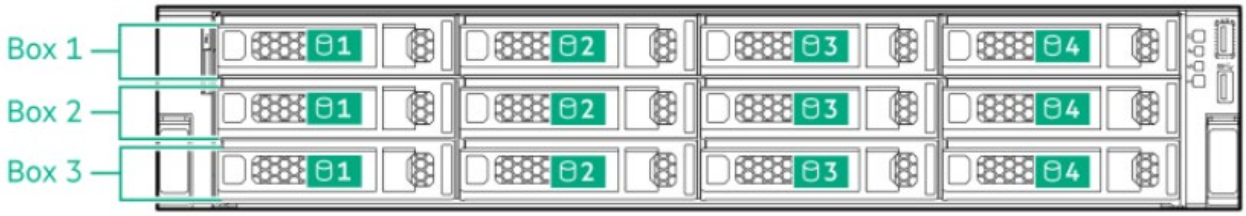


The arrow points to the front of the server

General Memory Population Rules and Guidelines:

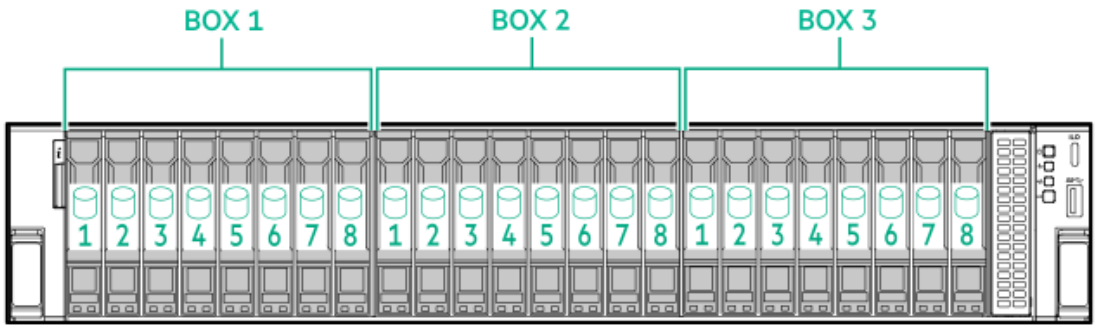
- Install DIMMs only after the corresponding processor is installed.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum 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, please see 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

Drive Bay Numbering

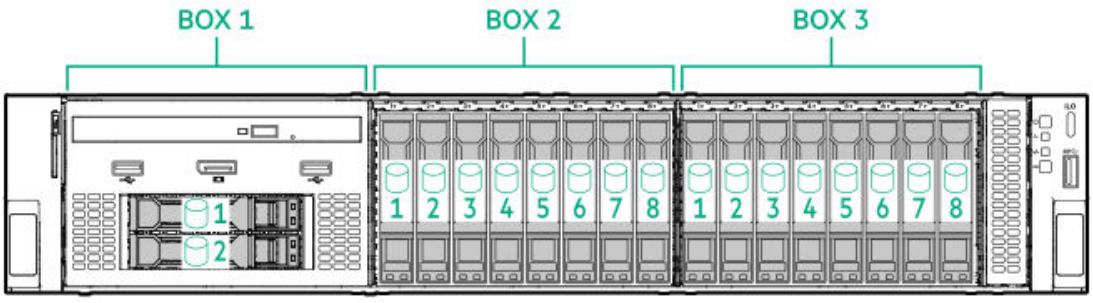


12LFF drive bay, 8LFF CTO server (P819457-B21)

8LFF + 2SFF drive bay, 8LFF CTO server (P819457-B21)

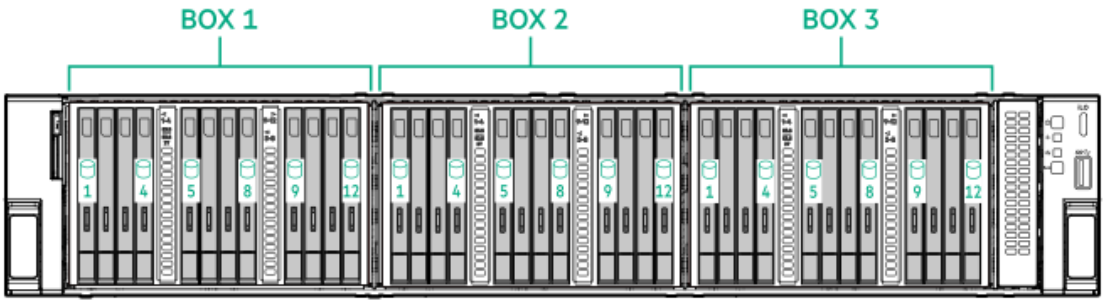


24SFF drive bay, SFF/EDSFF CTO server (P81948-B21)

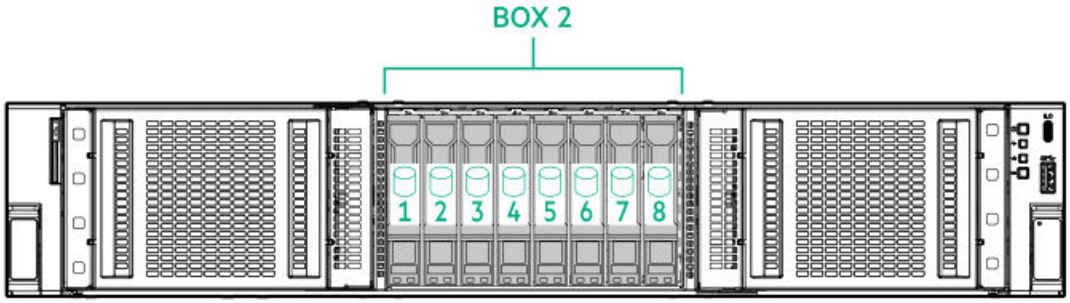


16SFF drive bay and Universal Media Bay, SFF/EDSFF CTO server (P81948-B21)

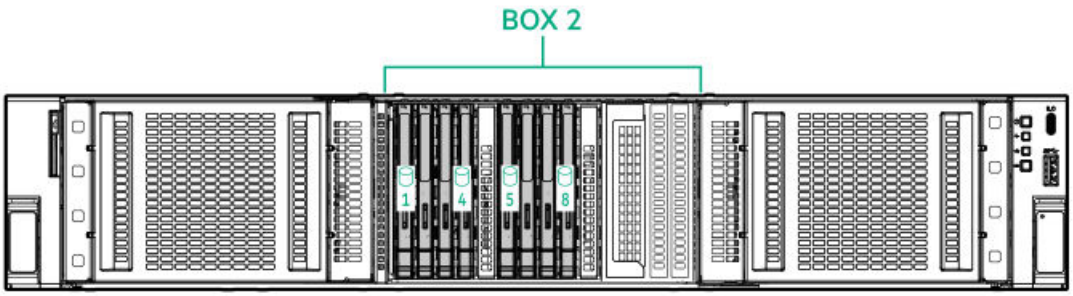
Storage



36EDSFF drive bay, SFF/EDSFF CTO server (P81948-B21)



8SFF drive bay, GPU CTO server (P81949-B21)



8EDSFF drive bay, GPU CTO server (P81949-B21)

System Unit

Dimension and Weight

CTO Server	Height x Width x Depth	System Configuration	Max Weight (approximate)
8LFF CTO server (P819457-B21)	8.75 x 44.8 x 65.61 (cm.) 3.45 x 17.64 x 25.83 (in.)	1 CPU, 24 DDR5 DIMMs, 12 LFF drives, 2 M-CRPS, 6 Fans	26.62 KG (58.68 lb.)
SFF/EDSFF CTO server (P81948-B21)	8.75 x 44.8 x 63.55 (cm.) 3.45 x 17.64 x 25.18 (in.)	1 CPU, 24 DDR5 DIMMs, 36 E3.S drives, 2 M-CRPS, 6 Fans	22.6 KG (49.82 lb.)
GPU CTO server (P81949-B21)	8.75 x 44.8 x 83.71 (cm.) 3.45 x 17.64 x 32.96 (in.)	1 CPU, 24 DDR5 DIMMs, 12 E3.S drives, 2 M-CRPS, 6 Fans, 4 DW FHFL GPUs.	29.59 KG (65.23 lb.)

Input Requirements (per power supply)

Rated Line Voltage

- 100 to 120 VAC
- 200 to 240 VAC

BTU Rating

Maximum

- For 3200W M-CRPS Power Supply: 5142 (at 100 VAC), 11699 (at 240 VAC)
- 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 3200W M-CRPS Power Supply: 1600W: (at 100-127 VAC), 3200W (at 200-240 VAC), 3200W (at 240 VDC) input for China only
  - 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 3200W M-CRPS Power Supply: 1600W: (at 100-127 VAC), 3200W (at 200-240 VAC), 3200W (at 240 VDC) input for China only
  - 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). 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 (non-condensing)**
  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.). 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: http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Acoustic Noise

Listed are the declared mean A-Weighted sound power levels (LwAm), 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	4.7 B	5.8 B
	LpAm	32 dBA	44 dBA
	Kv	0.4 B	0.4 B
Operating	LWA,m	4.7 B	5.8 B
	LpAm	32 dBA	44 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 DDR5 DIMM, 2x SFF SATA SSD, 1x 1000W PSU.
    - Performance Configuration: 1x AMD EPYC™ 9555P CPU, 12x 32GB DDR5 DIMM, 6x EEDSFF NVMe SSD, 2x 1500W 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
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.
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 Cables SKUs, HPE Drives SKUs, and Direct Liquid Cooling Options SKUs.
07-Jul-2025	Version 1	New	New QuickSpecs.

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