Have feedback on QuickSpecs? We're listening

HPE ProLiant Compute DL320 Gen12

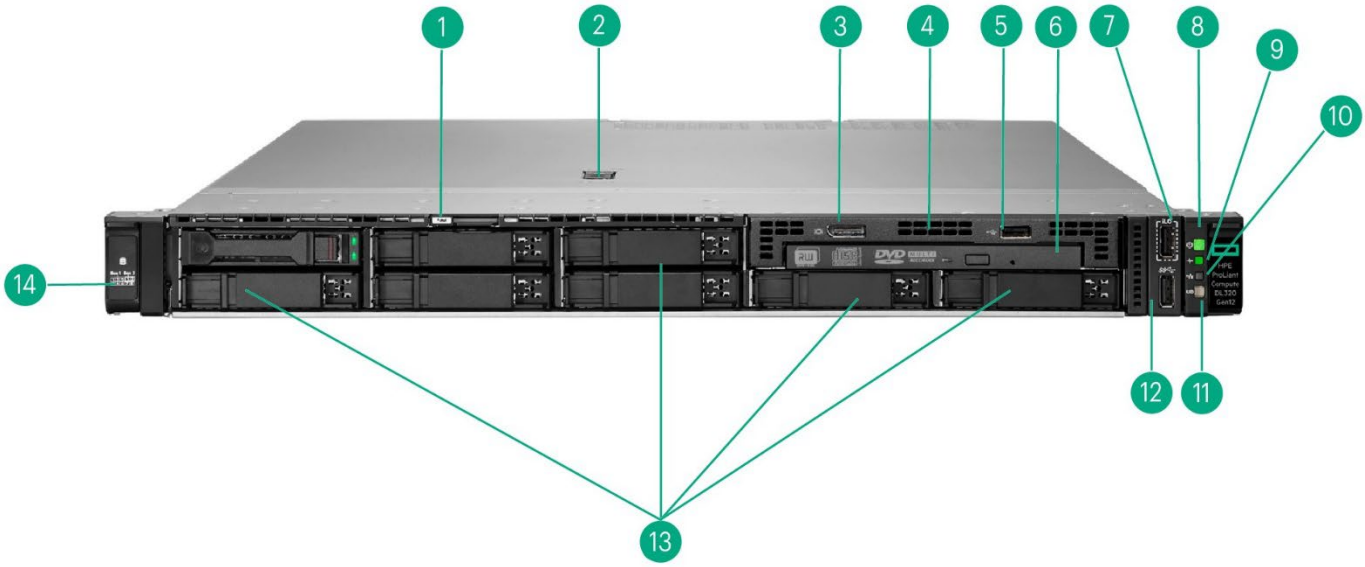
QuickSpecs

Based on industry-standard modular server design, the HPE ProLiant Compute DL320 Gen12 provides a right-sized, efficient compute solution.

It is a 1U 1P server that provides best-in-class performance, with maximum I/O capabilities for cloud-native, Infrastructure-as-a-Service (IaaS), and general-purpose workloads while consuming considerably less energy than 2P systems.

HPE ProLiant Compute DL320 Gen12

The HPE ProLiant Compute DL320 Gen12 is purpose-built for edge computing, delivering exceptional performance and optimized economics and is an excellent choice for both virtualized and containerized workloads.
The HPE ProLiant Compute DL320 Gen12 is powered by Intel® Xeon® 6 Processors with up to 144 cores – including Intel® Rich I/O options, increased memory capability (up to 4 TB 6400 MT/s), and high-speed PCIe Gen5. It supports up to four single-wide GPUs (or two double-wide) with front or rear-facing I/O, and capacity for up to 20 EDSFF drives. The HPE ProLiant Compute Gen12 servers are engineered to optimize IT at the edge with a cloud operating experience, built-in security, and optimized performance for workloads to drive your business forward.

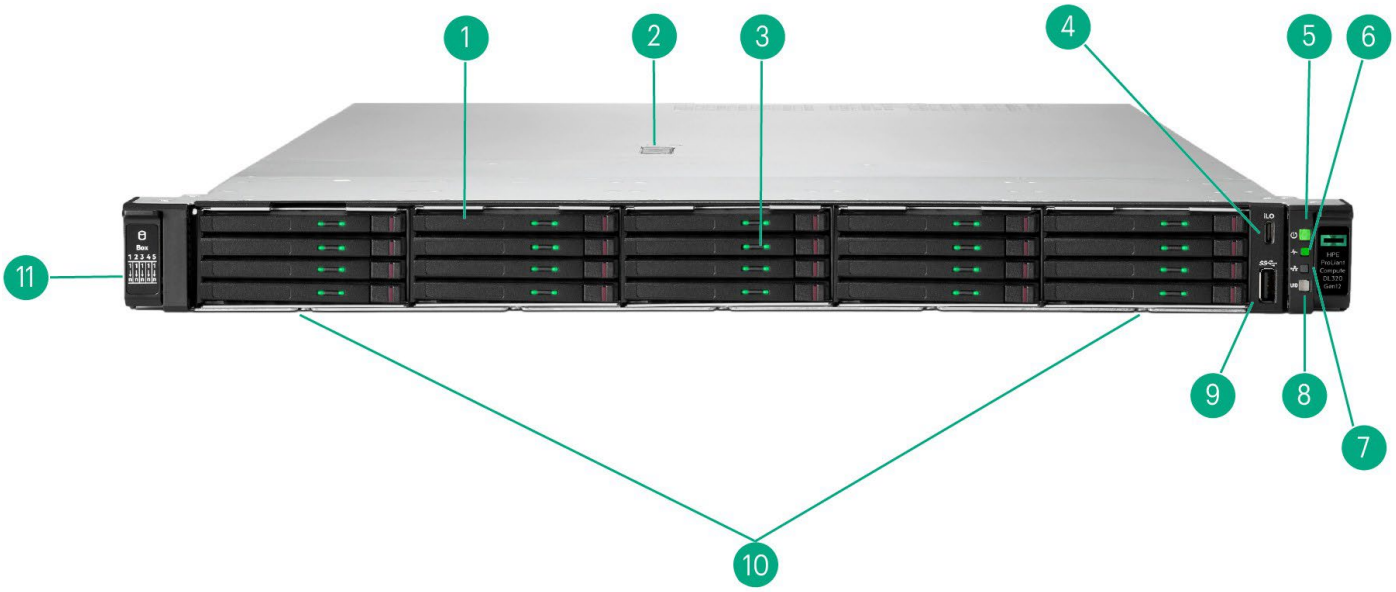


SFF Front View with optional Universal Media Bay, optical Drive, DisplayPort, USB 2.0

Item	Description	Item	Description
1.	Quick removal access panel	9.	Health LED
2.	Serial number/iLO information pull tab	10.	NIC Status[1]
3.	DisplayPort (optional – shown)	11.	UID Button/LED
4.	Universal Media Bay (optional):	12.	USB 3.2 Gen1 port
	– Option 1: Optical drive bay + DisplayPort & USB 2.0 port kit (shown)	13.	Drive bays; backplanes options
	– Option 2: 2 SFF x4 Tri-Mode 24G U.3 BC Drive Cage		– Option 1: 8SFF x1 Tri-Mode 24G U.3 BC Backplane
5.	USB 2.0 port (optional – shown)		– Option 2: 8SFF x4 Tri-Mode 24G U.3 BC Backplane
6.	Optical Drive (optional – shown)		
7.	iLO Service Port	14.	Drive support label
8.	Power On / Standby button and system power LED		

Notes: [1]Front NIC LED display does not support NIC LED ACT/LINK indication from OCP NICs.

Overview

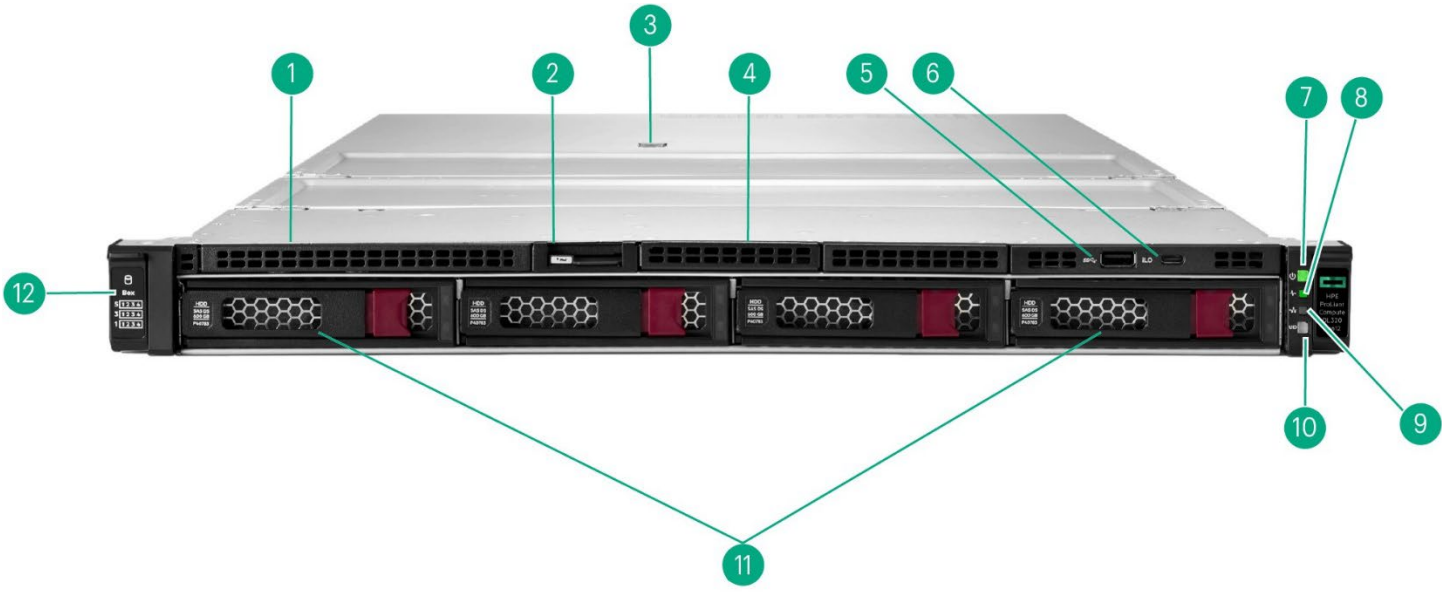


SFF/EDSFF Front View – 20 EDSFF Drives shown

Item	Description	Item	Description
1.	Serial number/iLO information pull tab	6.	Health LED
2.	Quick Removal Access Panel	7.	NIC Status
3.	Drive Cage 3: (EDSFF shown)	8.	UID Button/LED
	– Option 1: 2x Front OCP 3.0 – Option 2: NS204i Hot-Plug Boot Device	9.	USB 3.2 Gen1 port
4.	iLO Service Port	10.	Drive Cage 1-5: (EDSFF Shown)
5.	Power On/Standby Button and LED		– Option 1: 4x EDSFF per cage – Option 2: 2x 2SFF per cage – Option 3: Blank
		11.	Drive Cage Information label

Notes: [1]Front NIC LED display does not support NIC LED ACT/LINK indication from OCP NICs.

Overview

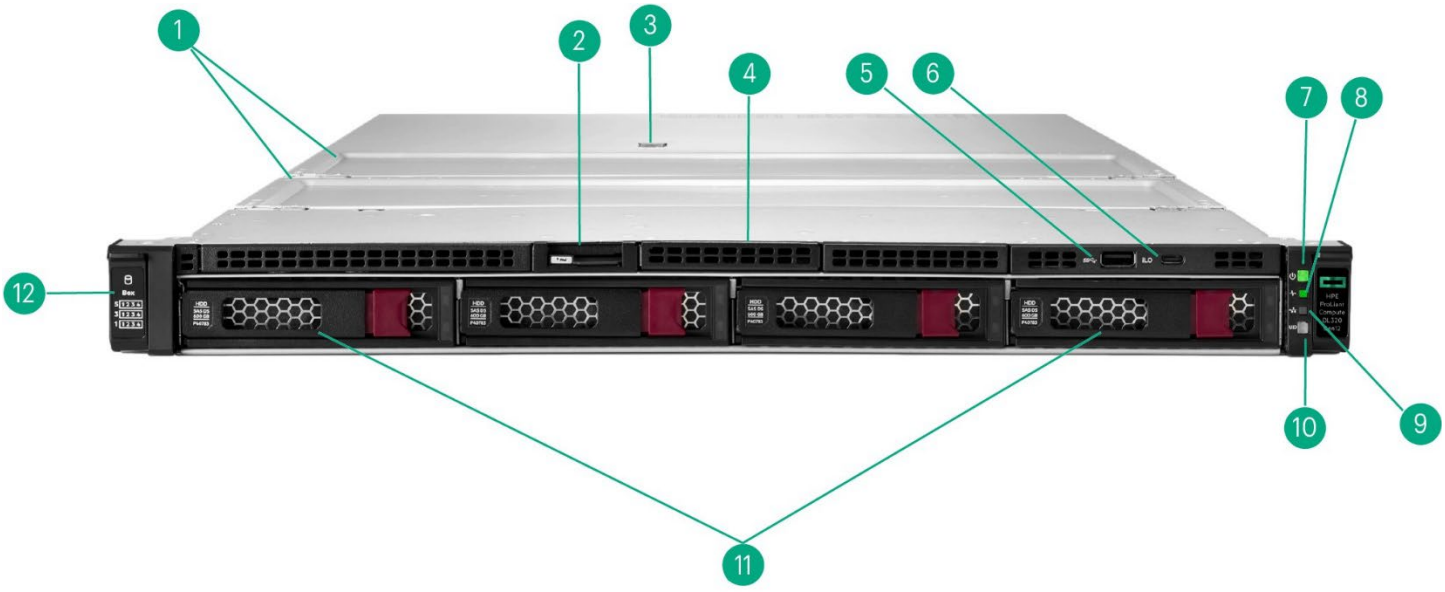


4 LFF Front View – 4 LFF drives shown

Item	Description	Item	Description
1.	Optical Drive Bay (optional – not shown)	7.	Power On/Standby button and system power LED
2.	Serial number/iLO information pull tab	8.	Health LED
3.	Quick removal access panel	9.	NIC Status[1]
4.	Optional DisplayPort & USB 2.0 port bundle kit	10.	UID Button/LED
5	USB 3.2 Gen1 port	11.	SAS/SATA drive bays (shown, populated)
6.	iLO Service Port	12.	Drive Support label

Notes: [1]Front NIC LED display does not support NIC LED ACT/LINK indication from OCP NICs.

Overview

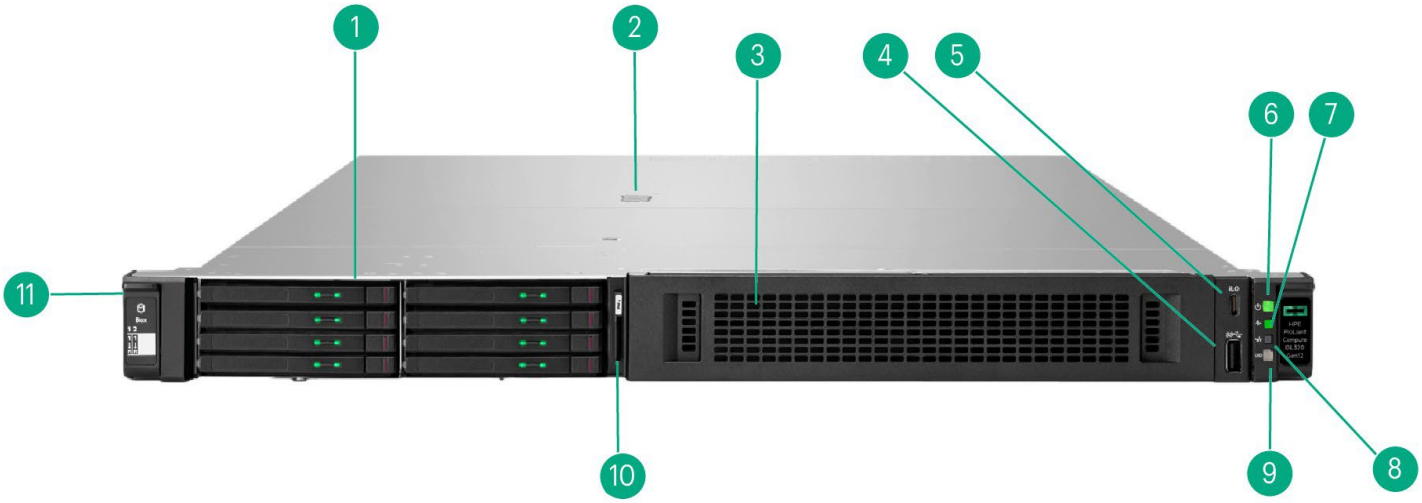


12 LFF Front View - 12 LFF + SAS drives shown

Item	Description	Item	Description
1.	Drive cage 2 & 3 access points	7.	Power On/Standby button and system power LED
2.	Serial number/iLO information pull tab	8.	Health LED
3.	Quick removal access panel	9.	NIC Status[1]
4.	Optional DisplayPort & USB 2.0 port bundle kit	10.	UID Button/LED
5	USB 3.2 Gen1 port.	11.	SAS/SATA drive bays (shown, populated)
6.	iLO Service Port	12.	Drive Support label

Notes: [1] Front NIC LED display does not support NIC LED ACT/LINK indication from OCP NICs.

Overview

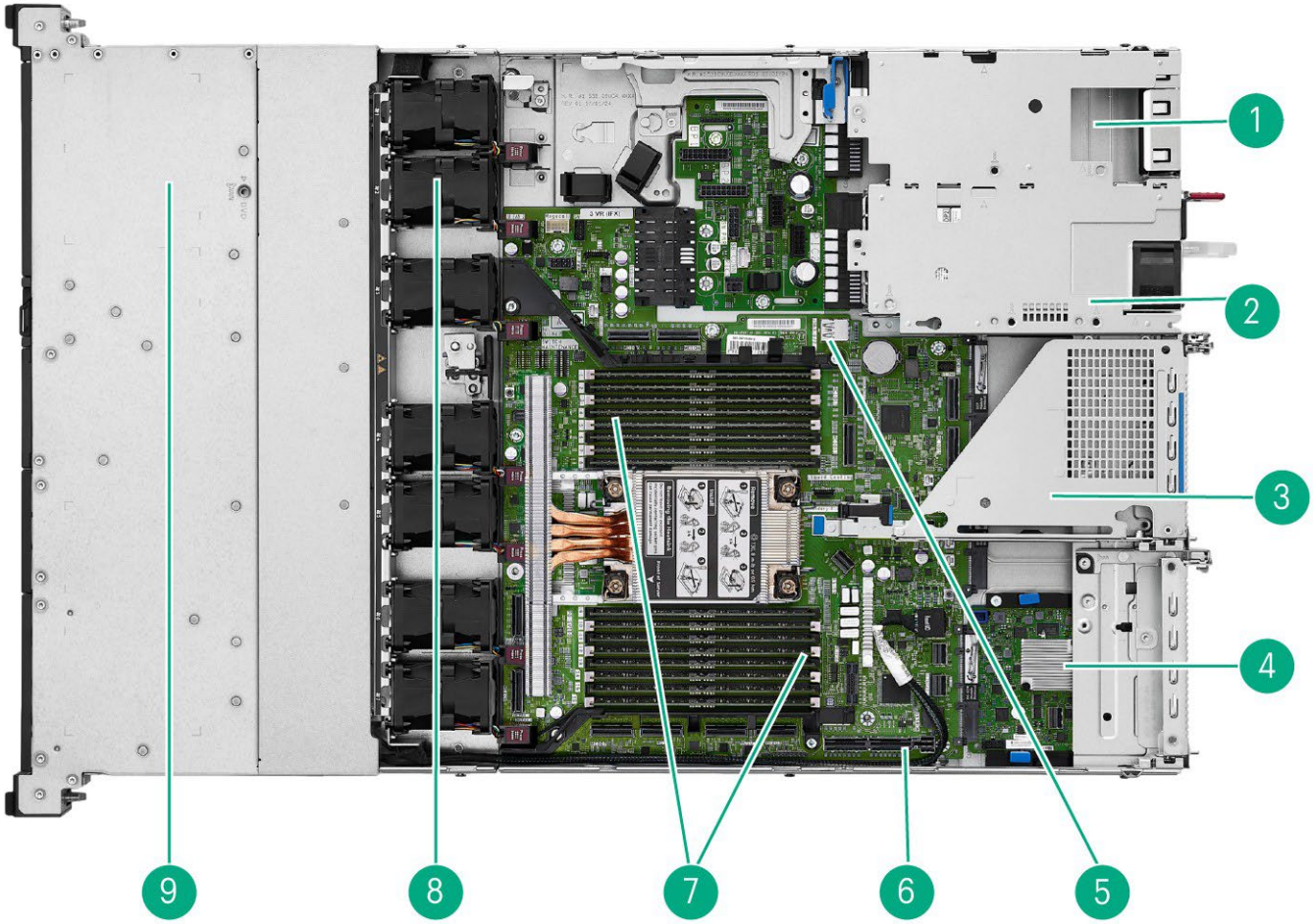


Front View – GPU CTO Server

Item	Description	Item	Description
1.	Two (2) Stacking Drive Cages	6.	UID Button/LED Power On/Standby button and LED
	– Option1: 2x 4EDSFF Drive Cage (shown)	7.	Health LED
	– Option2: 2x 2SFF Drive Cage	8.	NIC Status
2.	Quick removal access panel	9.	UID Button/LED
3	GPU Cage (PCIe Slots 3-6 shown, covered). Supports 2x DW GPU or 4x SW GPU.	10.	Serial number/iLO information pull tab
4.	USB 3.2 Gen1 port	11.	Drive cage information label
5.	iLO Service Port		

Notes: [1] Front NIC LED display does not support NIC LED ACT/LINK indication from OCP NICs.

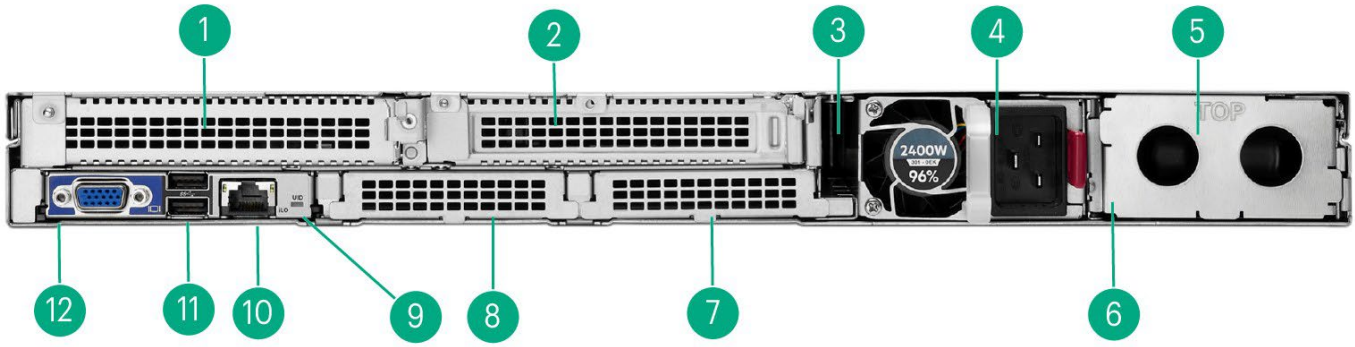
Overview



Internal View – Standard for all DL320 Gen12

Item	Description	Item	Description
1.	PSU Blank	6.	DIMM Slots
2.	PSU	7.	System Fans (7)
3	Secondary Riser	8.	Drive Bays
4	DC-SCM Module	9.	USB 3.0 port
5.	Primary Riser Slot		

Overview



Rear View – Standard for all DL320 Gen12

Item	Description	Item	Description
1.	PCIe Slot1 (Primary Riser, optional)	7.	Slot 21 OCP 3.0 Slot B (optional), shown covered
2.	PCIe Slot2 (Secondary Riser, optional)	8.	Slot 20 OCP 3.0 Slot A, shown covered
3.	NS204i-u Boot Device (Optional – not shown)	9.	UID Indicator LED on DC SCM
4,	60mm Power Supply Slot 2	10.	Dedicated iLO network port on DC SCM
5.	60mm Power Supply Slot 1 (unpopulated)	11.	Two (2) USB 3.2 ports on DC SCM
6.	Serial port location (optional – not shown)	12.	Video (VGA) port on DC SCM

What's New

- All-new DL320 Gen12 server.
- Intel® Xeon® 6 Processors with Rich I/O options.
- Data Center – Modular Hardware System (DC-MHS) design.
- Modular – Common Redundant Power Supply (M-CRPS) design.
- OCP 3.0 (Front or Rear).
- NS204i-u front or rear install option based on configuration.
- DDR5 6400 MT/s memory.
- iLO7 on DC-SCM module.
- Intel® Xeon® 6503P Processor.

Platform Information

Form Factor

- 1U rack.

Chassis Types

- SFF Server (P71437-B21) supports 8SFF drives (standard) and 10 SFF with optional:
  - 8+2 SFF cage.
  - Optical Drive Tray with Optical Drive, DisplayPort, USB 2.0.
  - System Insight Display.
- SFF/EDSFF Server(P75217-B21) supports up to 10 SFF or 20 EDSFF drives with optional:
  - Media Bay containing Optical Drive, DisplayPort, USB 2.0.

Overview

- 2 Front OCP3.0 slots or hot-plug M.2 boot device.

– 4 LFF Server (P75218-B21) with optional:
- Optical Drive.

– 12 LFF Server (P75219-B21).
– GPU Server (P75220-B21) supports up to two DW or 4 SW GPUs with optional:
- SFF and EDSFF drive options.

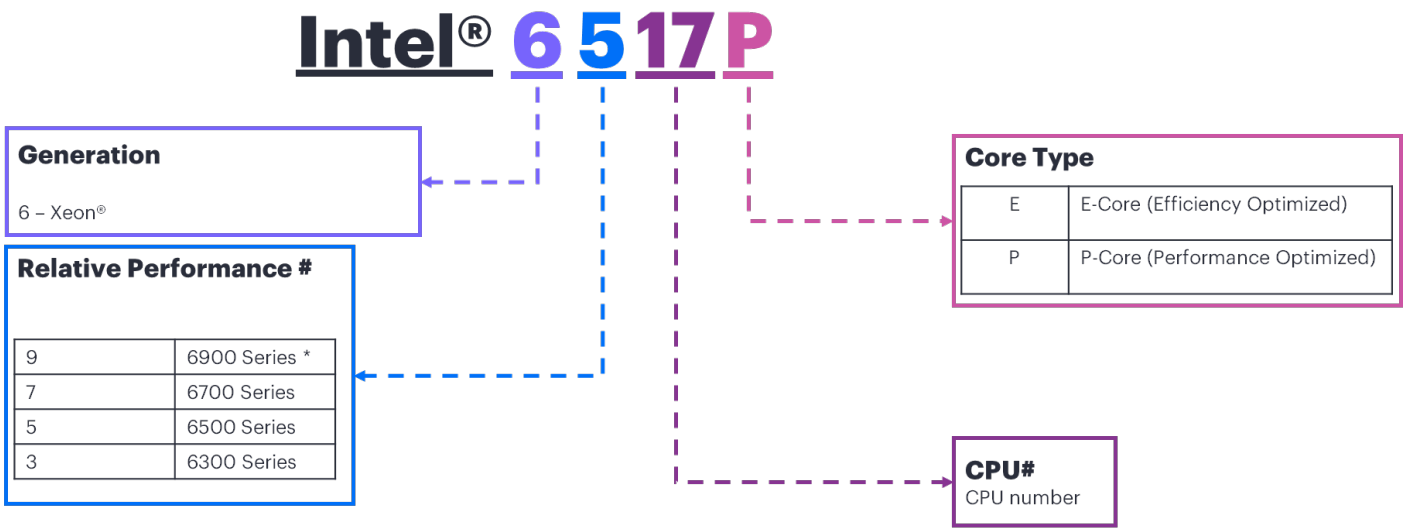
System Fans (7 fans required)

– HPE ProLiant Compute Gen12 1U Standard Fan Kit, includes one fan.
– HPE ProLiant Compute Gen12 1U High Performance Fan Kit, includes one fan.
– HPE ProLiant Compute DL320 Gen12 1U Closed-loop Liquid Cooling FIO Fan Kit, includes one fan.

Notes:

– High-Performance fan kits are required when >185W Processor SKUs, High-Performance NVMe drives, or certain backplanes are populated. See notes under each option category or each individual option for specifics.
– Closed-loop Liquid Cooling FIO Fan Kit required for > 270W Processor SKUs.
– Seven (7) fan kits are required for all CTO server models.

Processors



Intel® Xeon® 6 processor naming convention

* CPU Series not supported on HPE ProLiant Compute Gen12 platforms.

For more information regarding Intel® Xeon® 6 processors, refer to the following https://www.intel.com/content/www/us/en/now/xeon-6.html.

The DL320 Gen12 platform supports Intel® Xeon® 6 Efficient Core (E-Core) and Performance-Core (P-Core) processors. The below processors are supported on the DL320 Gen12 platform. Select one of the processors below.

Intel® Xeon® 6 Efficient-Core (E-Core) Performance per Watt Processors								
Intel® Xeon® Models	**Base Speed (GHz)**	**Cores**	**L3 Cache (MB)**	**Power (W)**	**UPI Links**	**DDR5 (MT/s)**	**SGX Enclave Size (GB)**	**Die**
6710E	2.4	64	96	205	4	5600	512	HDCC
6731E	2.2	96	96	250	0	5600	512	HDCC
6740E	2.4	96	96	250	4	6400	512	HDCC
6746E	2	112	96	250	4	5600	512	HDCC
6756E	1.8	128	96	225	4	6400	512	HDCC
6766E	1.9	144	108	250	4	6400	512	HDCC

Standard Features

Intel® Xeon® 6 Efficient-Core (E-Core) Performance Processor								
6780E	2.2	144	108	330	4	6400	512	HDCC

Intel® Xeon® 6 Performance-Core (P-Core) Processors								
Intel® Xeon® Models	**Base Speed (GHz)**	**Cores**	**L3 Cache (MB)**	**Power (W)**	**UPI Links**	**DDR5 (MT/s) ***	**SGX Enclave Size (GB)**	**Die****
6503P	2.8	8	48	135	3	6400	512	LCC
6507P	3.5	8	48	150	3	6400	512	LCC
6517P	3.2	16	72	190	3	6400	512	LCC
6725P[1]	3.7	16	192	235	4	6400	512	HCC
6527P	3.0	24	144	255	4	6400	512	HCC
6730P	2.5	32	288	250	4	6400	512	XCC
6736P	2.0	36	144	205	4	6400	512	HCC
6737P	2.9	32	144	270	4	6400	512	HCC
6745P	3.1	32	336	300	4	6400	512	XCC
6747P	2.7	48	288	330	4	6400	512	XCC
6767P	2.4	64	336	350	4	6400	512	XCC
6787P	2.0	86	336	350	4	6400	512	XCC

Notes:

- ** Intel® HCC & LCC die processors have delayed availability.
- * DDR5 MT/s is 6400 MT/s @ 1 DIMMs per channel (DPC) and 5200 MT/s @ 2DPC.

Notes: [1]Intel Xeon 6725P Processor Restriction: Requires Performance Heatsink and Performance Fan Kit. Maximum supported ambient operating temperature is 25°C (77°F). Additional chassis-specific restrictions apply as shown below.

Chassis Configuration	6725P Restriction
4LFF	No additional restriction
10SFF	Box 4 drive bays must remain unpopulated
20EDSFF	Box 4 drive bays must remain unpopulated
8+2SFF	Box 1 Bay 7 and Box 2 Bay 1 must remain unpopulated
12LFF	Not supported
GPU CTO	Not supported

Standard Features

Intel® Xeon® 6 Mainline Processors								
Intel® Xeon® Models	**Base Speed (GHz)**	**Cores**	**L3 Cache (MB)**	**Power (W)**	**UPI Links**	**DDR5 (MT/s) ***	**SGX Enclave Size (GB)**	**Die****
6505P	2.2	12	48	150	3	6400	128	LCC
6515P	2.4	16	72	150	3	6400	128	LCC
6520P	2.4	24	144	210	4	6400	128	HCC
6530P	2.3	32	144	225	4	6400	128	HCC
6740P	2.1	48	288	270	4	6400	128	XCC
6760P	2.2	64	320	330	4	6400	128	XCC

Notes:

- ** Intel® HCC & LCC die processors have delayed availability.
- * DDR5 MT/s is 6400 MT/s @ 1 DIMMs per channel (DPC) and 5200 MT/s @ 2DPC.

Intel® Xeon® 6 Single Socket Processors								
Intel® Xeon® Models	**Base Speed (GHz)**	**Cores**	**L3 Cache (MB)**	**Power (W)**	**UPI Links**	**DDR5 (MT/s) ***	**SGX Enclave Size (GB)**	**Die****
6511P	2.5	16	72	150	0	6400	128	LCC
6521P	2.6	24	144	225	0	6400	128	HCC
6731P	2.5	32	144	245	0	6400	128	HCC
6741P	2.5	48	288	300	0	6400	128	XCC
6761P	2.5	64	336	350	0	6400	128	XCC
6781P	2.0	80	336	350	0	6400	128	XCC

Notes:

- ** Intel® HCC & LCC die processors have delayed availability.
- * DDR5 MT/s is 6400 MT/s @ 1 DIMMs per channel (DPC) and 5200 MT/s @ 2DPC.

System Management Chipset

HPE iLO 7 ASIC on DC-SCM Module required, included.

Notes: Refer to the iLO QuickSpecs.

Standard Features

Memory	
Type	HPE DDR5 Smart Memory Registered (RDIMM)
DIMM Slots Available	16 DIMM Slots, 8 channels, 2 DIMMs per channel
Maximum capacity (RDIMM)	4 TB 16 x 256 GB RDIMM 6400 MT/s @ 1DPC and 5200 MT/s @ 2DPC

Notes:

All processors listed support up to 4 TB memory.

- The maximum memory speed is limited by the processor selection.
- To realize the performance memory capabilities listed in this document, HPE DDR5 Smart Memory is required.
- The -B21 memory SKUs shown in this document are to be used when ordering stand-alone memory only. For each -B21 SKU, there is a corresponding -F21 SKU which is to be used when configuring servers with integrated memory DIMMs.

For additional information, please visit the HPE Memory QuickSpecs and Technical White Papers or HPE DDR5 Smart Memory QuickSpecs.

Memory Protection Features

Advanced ECC

Advanced ECC uses device data correction to detect and correct single-bit and all multibit errors within a single DRAM chip.

Adaptive Double DRAM Device Correction (ADDDC)

Advanced Double DRAM Device Correction enables the server to dynamically map out a failing DRAM device. Enabling it can have some impact to system performance under certain workloads. This is set to enabled by default.

Network Controller

The HPE ProLiant Compute DL320 Gen12 server does not include a network controller but offers the customer a variety of networking options listed in the Core Options section.

PCIe Expansion Slots

Expansion Slots #	Technology	Bus Width	Connector Width	Slot Form Factor
1 (Primary Riser)	PCIe 5.0	x16	x16	FHHL
2 (Secondary Riser)	PCIe 5.0	x16	x16	FHHL

OCP Expansion Slots

Expansion Slots #	Technology	Bus Width	Connector Width
1 Rear OCP A (OCP 3.0) embedded 1 Rear OCP B (OCP 3.0) optional 2 Front (OCP3.0) optional (one w/NCSI)	PCIe 5.0	x16	x16

Standard Features

Internal Storage Devices

- **Optical Drive -** Available on SFF, SFF/EDSFF and LFF CTO Servers as an option (DVD-ROM or DVD-RW) .
- **Drives** - None shipped standard.

Graphics

Integrated Video Standard

- VGA port on DC-SCM module.
- DisplayPort with optional optical disk drive.
- Video modes up to 1920 x 1200@60Hz (32 bpp).
- 16MB Video Memory.

Maximum Storage

Chassis	Drive Type	Drive Capacity	Total Storage
HPE DL320 Gen12 SFF CTO Server	SFF SAS HDD	2.4 TB	24 TB (10x2.4 TB)
HPE DL320 Gen12 SFF CTO Server	SFF SATA SSD	3.84 TB	38.4 TB (10x3.84 TB)
HPE DL320 Gen12 SFF CTO Server	SFF SAS SSD	15.36 TB	153.6 TB (10x15.36 TB)
HPE DL320 Gen12 SFF/EDSFF CTO Server	SFF NVMe	15.36 TB	153.6 TB (10x15.36 TB)
HPE DL320 Gen12 SFF/EDSFF CTO Server	EDSFF NVMe	15.36 TB	307.2 TB (20x15.36 TB)
HPE DL320 Gen12 4LFF CTO Server	LFF HDD	24 TB	288 TB (4x24 TB)
HPE DL320 Gen12 12LFF CTO Server	LFF HDD	24 TB	288 TB (12x24 TB)
HPE DL320 Gen12 GPU CTO Server SFF Drive Cage	SFF SATA SSD	3.84 TB	15.36 TB (4x3.84 TB)
HPE DL320 Gen12 GPU CTO Server SFF Drive Cage	SFF SAS SSD	15.36 TB	61.44 TB (4x15.36 TB)
HPE DL320 Gen12 GPU CTO Server EDSFF Drive Cage	EDSFF NVMe	15.36 TB	122.88 TB (8x15.36 TB)

Standard Features

Storage Controllers

NVMe Boot Devices

- HPE NS204i-u v2 480GB NVMe Hot Plug Boot Optimized Storage Device.

Notes:

- NS204i-u Boot device includes 2x 480GB M.2 NVMe SSDs, with preconfigured hardware RAID1.
- Front Hot Plug, Rear Hot Plug or internal (non-Hot Plug) location options.
  Does not occupy a PCIe slot.
  For additional details refer to: HPE OS Boot Device QuickSpecs.

Software RAID Controller

Intel® Virtual RAID on CPU (Intel® VROC)

Notes:

- Supports up to 8 direct attach NVMe bays.
- Intel® VROC NVMe is disabled by default. Requires licensing.
- RAID support – 0/1/5/10, depending on licensing options.
- For additional details refer to: Intel VROC for HPE ProLiant QuickSpecs.

Essential RAID Controllers

- 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.

Performance RAID Controllers

- HPE MR408i-o 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, refer to HPE Compute MR Gen11 Controllers QuickSpecs.

Power Supply

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

Notes: All power supplies rated for 96% efficiency. Power supplies ship without power cords. For information on power specifications and technical content, visit HPE Server power supplies.

European Union ErP Lot 9 Regulation

Beginning on January 1st, 2024, units sold into the European Economic Area (EEA), the United Kingdom, Switzerland, or Turkey must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE M-CRPS power supplies are single-output, and part numbers P67240-B21, P67244-B21, P67248-B21, and P67252-B21 are 96% efficient, thus meeting requirements.

Standard Features

Interfaces	
Serial	Optional (rear), requires Serial Enablement Kit.
Video	DC-SCM VGA port (rear) Optional DisplayPort (front)
Network Ports	None standard. Choice of OCP or standup card required.
HPE iLO Remote Mgmt Port	1 GbE Dedicated (rear) on DC-SCM module.
Front iLO Service Port	1 standard (USB-C, front).
USB 3.2 Gen1 Ports	4 standard (1 front, 2 rear, 1 internal) Optional, additional USB 2.0 front in 4LFF, SFF, and SFF/EDSFF models.

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 that 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

Standard Features

HPE Server UEFI

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

Notes: The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=sd00005905en_us.

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

- Secure Boot and Secure Start enabled for enhanced security.
- Embedded UEFI Shell.
- Operating system-specific functionality
- Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant.
- Support for > 2.2 TB (using GPT) boot drives.
- PXE boot support for IPv6 networks.
- USB 3.0 Stack.
- Workload Profiles for simple performance optimization.
- Embedded TPM Support.

UEFI Boot Mode only:

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

Industry Standard Compliance

- ACPI 6.3 Compliant.
- Advanced Encryption Standard (AES).
- Active Directory v1.0.
- ASHRAE A3/A4.

  Notes: For additional technical, thermal details regarding ambient temperature, humidity, and feature support, please visit https://www.hpe.com/support/ASHRAEGen112
- DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP).
- Energy Star.
- EU Lot9 Compliant.
- IPMI 2.0.
- Microsoft® Logo certifications.
- PCIe 3.0 Compliant.
- PCIe 4.0 Compliant.
- PCIe 5.0 Compliant.
- PXE Support.
- Redfish API.
- Secure Digital 4.0.
- SMBIOS 3.2.
- SNMP v3.
- TLS 1.2.
- TPM 2.0 Support.
- Triple Data Encryption Standard (3DES).
- UEFI (Unified Extensible Firmware Interface Forum) 2.7.
- USB 2.0 Compliant.
- USB 3.0 Compliant.
- VGA Port.

Embedded Management

HPE Integrated Lights-Out (HPE iLO)
Monitor your servers for ongoing management, service alerting, reporting, and remote management with HPE iLO. Learn more at http://www.hpe.com/info/ilo.

UEFI
Configure and boot your servers securely with industry-standard Unified Extensible Firmware Interface (UEFI). Learn more at https://www.hpe.com/support/hpeuefisystemutilities-quicklinks.

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

Learn more at https://www.hpe.com/support/hpeintelligentprovisioning-quicklinks.

iLO RESTful API
iLO RESTful API is Redfish API conformance and offers simplified server management automation, such as configuration and maintenance tasks based on modern industry standards. Learn more at https://www.hpe.com/support/restfulinterface/docs.

OpenBMC Support
OpenBMC Capable through iLO6 Transfer of Ownership Process.
Learn more at OpenBMC Support

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.

Standard Features

Scripting Tools
Provision one too many servers, using your scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at http://www.hpe.com/servers/powershell.

HPE OneView Standard
HPE OneView 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 http://www.hpe.com/info/oneview.

HPE Compute Ops Management

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

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

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

For a complete list of software as-a-service subscription SKUs and more information, visit the HPE Compute Ops Management QuickSpecs: https://www.hpe.com/psnow/doc/a50004263enw

For information on supported HPE servers, the complete list can be found here: https://www.hpe.com/info/com-supported-servers

Security

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

- **HPE Integrated Lights-Out (HPE 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.
- **Physical Security Options:** System maintenance switch, USB security, rack and power security, bezel lock, and chassis intrusion detection switch.
- **HPE Trusted Supply Chain:** HPE Trusted Supply Chain offers enhanced security and compliance for organizations worldwide. Servers built with this option undergo rigorous inspections and checkpoints to detect and mitigate malicious microcode and counterfeit parts throughout the server build and lifecycle

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

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners resellers. Hardware diagnostic support and repair 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

Server Management

HPE iLO Advanced

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

HPE OneView Advanced

HPE OneView Advanced offers a sophisticated level of automation to infrastructure management by taking a template-driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It builds upon the base features of HPE OneView Standard and provides full-featured licenses which can be purchased for managing multiple HPE server generations.

To learn more, visit http://www.hpe.com/info/oneview.

Accelerator and GPU Information

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

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#

Rack and Power Infrastructure

The story may end with servers, but it starts with the foundation that makes compute go – and business grow. We have reinvented our entire portfolio of rack and power products to make IT infrastructure more secure, practical, and efficient. In other words, we have created a more robust, 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.

Learn more about HPE Racks, KVM, PDUs, and UPSs at HPE Rack and Power Infrastructure.

Service and Support

HPE provides a portfolio of support, deployment, and lifecycle management services designed to help customers maximize the value, performance, and availability of their HPE infrastructure. HPE Complete Care Service provides a highly personalized support experience with proactive guidance and expert-led lifecycle management, while HPE Tech Care Service provides fast access to product specialists and flexible response options tailored to operational needs. Both HPE Complete Care Service and HPE Tech Care Service are available with defective media retention, comprehensive defective material retention, and GPU defective material recovery options.

Beyond support, HPE Lifecycle Services help customers deploy and optimize their environments with confidence. From HPE Factory Express services that streamline system configuration and integration before delivery, to Installation and Startup Services that accelerate time to value. For the latest information on HPE Services, please refer to the HPE Services - Supplemental QuickSpecs | HPE, which provides a comprehensive and regularly updated overview of available services.

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 build 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 have 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.

Configuration Information

This section lists some of the steps required to configure a Factory Integrated Model. To ensure valid configurations are ordered, Hewlett Packard Enterprise recommends using 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.

Notes: This document is not intended to be used as a complete configuration guide. For validated configuration an HPE configuration tool must be used to create a valid configuration.

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

CTO Server	HPE ProLiant DL320 Gen12 SFF CTO Server	HPE ProLiant DL320 Gen12 SFF/EDSFF CTO Server	HPE ProLiant DL320 Gen12 4 LFF CTO Server	HPE ProLiant DL320 Gen12 12 LFF CTO Server	HPE ProLiant DL320 Gen12 GPU CTO Server
SKU Number	P71437-B21	P75217-B21	P75218-B21	P75219-B21	P75220-B21
TAA SKU[1]	P71437-B21#GTA	P75217-B21#GTA	P75218-B21#GTA	P75219-B21#GTA	P75220-B21#GTA
Processor	Not included as standard				
DIMM Slots	16 DIMM slots				
Storage Controller	Choice of HPE modular Smart Array and PCIe plug-in Controllers, and Intel® VROC RAID on CPU.				
PCIe Slots	PCIe 5.0: 2 slots (x 16 FHHL)				
OCP Slots	1x OCP 3.0 PCIe 5.0 (x16) + 1 optional OCP PCIe (x16)				
Drive Cage – included	8 SFF Drive Cage SAS/SATA/NVMe x1, or x4 based on configuration	None Included	4 SAS/SATA LFF	12 SAS/SATA LFF	None Included
Network Controller	None standard. Choice of OCP 3.0 or PCIe select standup network adapters.				
Fans	Support for (7) Standard, High-Performance, or Closed Loop Cooling Fans				
Management	HPE iLO7 on DC-SCM Module required, included. Features: Intelligent Provisioning (standard), iLO Advanced (optional), and OneView (optional)				
Video	One (1) VGA (rear)				
USB	Front: One (1) USB 3.2 Gen1 + iLO service port Rear: Two (2) USB 3.2 Gen1 ports Internal: One (1) USB 3.2 Gen1 port				
	Option: One (1) Front USB 2.0 port	Option: One (1) Front USB 2.0 port	Option: One (1) Front USB 2.0 port	Option: One (1) Front USB 2.0 port	
Security	Embedded TPM 2.0 (Trusted Platform Module)				
Rail Kit	Optional Easy Install rails and CMA				
Form Factor	1U Rack[2]				
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.				

Configuration Information

Notes:

- All DL320 Gen12 CTO Server models require the selection of Processor, Fans, Memory, and Power Supply. Backplane selections available for SFF, SFF/EDSFF and GPU CTO Server.
- [1]HPE offers multiple Trade Agreement Act (TAA) compliant configurations to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed into a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).
- [2]12 LFF CTO Server requires 1200mm depth rack for proper mounting.

Step 2: Choose Core Options

- Choice of 1 Processor model and Heat Sink Kit
  Requires necessary Heat Sink for rated processor wattage.
- Choice of DDR5 memory options.
  Requires necessary Fan Kits for different memory configurations subject to the recommended system ambient temperature.
- Choice of Backplane / Drive cage.
- Choice of Riser Cards.
- Choice of Storage Controllers, OS Boot Devices and VROC.
- Choice of Storage Controller Cables.
- Choice of SSD, HDD, and Optical Drives.
- Choice of Networking options: PCIe standup or OCP 3.0. May require necessary Fan Kits subject to recommended system ambient temperature.
- Choice of Accelerator options.
- Choice of Power and Cooling options.

Step 3: Choose Additional Options

- Choice of Security options.
- Choice of Optical Drives and Enablement Kits.
- Choice of Software as a Service Management - HPE Compute Ops Management and HPE OneView.
- Choice of Embedded Management.
- Choice of Rail Kits.
- Choice of Rack options.
- Choice of Support Services.

Choice of Core Options

Choose one (1) Processor

Intel® Xeon® 6 Efficient-Core (E-Core) Performance per Watt Processors

Intel Xeon 6710E 2.4GHz 64-core 205W Processor for HPE	P71117-B21
Intel Xeon 6731E 2.2GHz 96-core 250W Processor for HPE	P71118-B21
Intel Xeon 6740E 2.4GHz 96-core 250W Processor for HPE	P71119-B21
Intel Xeon 6746E 2.0GHz 112-core 250W Processor for HPE	P71120-B21
Intel Xeon 6756E 1.8GHz 128-core 225W Processor for HPE	P71121-B21
Intel Xeon 6766E 1.9GHz 144-core 250W Processor for HPE	P71122-B21
Intel Xeon 6780E 2.2GHz 144-core 330W Processor for HPE	P71124-B21

Intel® Xeon® 6 Performance-Core (P-Core) Processors

Intel Xeon 6503P 2.8GHz 8-core 135W Processor for HPE	P94926-B21
Intel Xeon 6507P 3.5GHz 8-core 150W Processor for HPE	P74504-B21
Intel Xeon 6517P 3.2GHz 16-core 190W Processor for HPE	P74507-B21
Intel Xeon 6725P 3.7GHz 16-core 235W Processor for HPE	P87302-B21

Notes: Intel Xeon 6725P Processor Restriction: Requires Performance Heatsink and Performance Fan Kit. Maximum supported ambient operating temperature is 25°C (77°F). Additional chassis-specific restrictions apply as shown below.

Chassis Configuration	6725P Restriction
4LFF	No additional restriction
10SFF	Box 4 drive bays must remain unpopulated
20EDSFF	Box 4 drive bays must remain unpopulated
8+2SFF	Box 1 Bay 7 and Box 2 Bay 1 must remain unpopulated
12LFF	Not supported
GPU CTO	Not supported

Intel Xeon 6527P 3.0GHz 24-core 255W Processor for HPE	P74570-B21
Intel Xeon 6730P 2.5GHz 32-core 250W Processor for HPE	P74573-B21
Intel Xeon 6732P 3.8GHz 32-core 350W Processor for HPE	P74578-B21
Intel Xeon 6736P 2.0GHz 36-core 205W Processor for HPE	P74575-B21
Intel Xeon 6737P 2.9GHz 32-core 270W Processor for HPE	P74576-B21
Intel Xeon 6745P 3.1GHz 32-core 300W Processor for HPE	P81591-B21
Intel Xeon 6747P 2.7GHz 48-core 330W Processor for HPE	P73831-B21
Intel Xeon 6767P 2.4GHz 64-core 350W Processor for HPE	P73834-B21
Intel Xeon 6787P 2.0GHz 86-core 350W Processor for HPE	P73837-B21

Intel® Xeon® 6 Mainline Processors

Intel Xeon 6505P 2.2GHz 12-core 150W Processor for HPE	P74503-B21
Intel Xeon 6515P 2.3GHz 16-core 150W Processor for HPE	P74506-B21
Intel Xeon 6520P 2.4GHz 24-core 210W Processor for HPE	P74568-B21
Intel Xeon 6530P 2.3GHz 32-core 225W Processor for HPE	P74571-B21
Intel Xeon 6740P 2.1GHz 48-core 270W Processor for HPE	P73829-B21

Core Options

Intel Xeon 6760P 2.2GHz 64-core 330W Processor for HPE	P73832-B21
Intel® Xeon® 6 Single Socket Processors (Rich I/O)	
Intel Xeon 6511P 2.3GHz 16-core 150W Processor for HPE	P74505-B21
Intel Xeon 6521P 2.6GHz 24-core 225W Processor for HPE	P74569-B21
Intel Xeon 6731P 2.5GHz 32-core 245W Processor for HPE	P74574-B21
Intel Xeon 6741P 2.5GHz 48-core 300W Processor for HPE	P73830-B21
Intel Xeon 6761P 2.5GHz 64-core 350W Processor for HPE	P73833-B21
Intel Xeon 6781P 2.0GHz 80-core 350W Processor for HPE	P73836-B21

Notes:

- Adequate fans and heatsinks must be selected.
- Processors with TDP > 185W require:
  High Performance Heatsink (P71956-B21) and 7x High-Performance Fan Kit (P71958-B21).
- Processors with TDP > 270W require:
  Closed-loop Liquid Cooling FIO Heat Sink Kit (P76605-B21) and 7x Closed-loop Liquid Cooling FIO Fan Kit (P76603-B21).

Choose Memory Options

Please select one or more memory DIMMs from below.

For the new Gen12 memory population rule whitepaper and optimal memory performance guidelines and memory speed table, please go to: http://www.hpe.com/docs/memory-population-rules

For memory Reliability, Accessibility, and Serviceability (RAS) features whitepaper like Fast Fault Tolerance and legacy mirrored memory feature, etc., please click here.

Registered DIMMs DDR5 (RDIMMs)

HPE 16GB (1x16GB) Single Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69726-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69727-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69728-B21
HPE 96GB (1x96GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69729-B21
HPE 128GB (1x128GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69730-B21
HPE 256GB (1x256GB) Quad Rank x4 DDR5-6400 CAS-60-52-52 EC8 Registered 3DS Smart Memory Kit	P73447-B21

Notes:

- Total memory selection must be in quantities of 1, 2, 4, 6, 8 or 16. For more detailed information regarding memory population rules, please refer to - https://www.hpe.com/docs/server-memory.
- Certain memory configurations may be restricted in the GPU CTO Server, based on ambient inlet temperature.
- 96 GB and higher DIMMs require high performance fan kits.
- For additional information, refer to the HPE DDR5 Smart Memory QuickSpecs
- The maximum memory speed is 6400 MT/s at 1 DPC and 5200 MT/s at 2 DPC.
- The -B21 memory SKUs shown in this document are to be used when ordering stand-alone memory only. For each -B21 SKU, there is a corresponding -F21 SKU which is to be used when configuring servers with integrated memory DIMMs.

Memory Blank Kit

HPE DDR4 DIMM Blank Kit	P07818-B21

Core Options

Choose backplane /drive cage

HPE ProLiant Compute DL320 Gen12 SFF Configure-to-order Server P71437-B21

Supported Drive Cages

HPE ProLiant Compute DL320 Gen12 SP 8SFF x4 NVMe U.2 Backplane Kit P71421-B21

HPE ProLiant Compute DL3XX Gen12 1U 8SFF x1 Tri-Mode U.3 L-Shaped Backplane Kit P75084-B21

HPE ProLiant Compute DL320 Gen12 8SFF x4 NVMe U.3 Backplane Kit P75085-B21

HPE ProLiant Compute DL3XX Gen12 1U 2SFF x4 Tri-Mode U.3 Side-by-Side Backplane Kit P75086-B21

HPE ProLiant Compute DL320 Gen12 2SFF x4 NVMe U.2 BC Backplane Kit P75087-B21

Notes:

- Direct Attach NVMe drive capability depends on PCIe lane availability.
- SATA SFF drives supported only with appropriate controller.

HPE ProLiant Compute DL320 Gen12 SFF/EDSFF Configure-to-order Server P75217-B21

Supported Drive Cages

HPE ProLiant Compute DL3XX Gen12 1U 4EDSFF NVMe Stacking Backplane Kit P72221-B21

HPE ProLiant Compute DL3XX Gen12 1U 2SFF x4 Tri-Mode U.3 Stacking Backplane Kit P72223-B21

Notes:

- Direct Attach NVMe drive capability depends on PCIe lane availability.
- SATA SFF drives supported only with appropriate controller.

HPE ProLiant Compute DL320 Gen12 GPU Configure-to-order Server P75220-B21

Supported Drive Cages

HPE ProLiant Compute DL3XX Gen12 1U 4EDSFF NVMe Stacking Backplane Kit P72221-B21

HPE ProLiant Compute DL3XX Gen12 1U 2SFF x4 Tri-Mode U.3 Stacking Backplane Kit P72223-B21

Notes:

- GPU Server requires Rich I/O CPU to support sufficient PCIe lanes for PCIe slots and drive cages.
- SATA SFF drives supported only with appropriate controller.

Front OCP Enablement kits

HPE ProLiant Compute DL320 Gen12 Primary Front OCP Enablement Kit P77261-B21

HPE ProLiant Compute DL320 Gen12 Secondary Front OCP Enablement Kit P76982-B21

Choose Risers

Please select one or more from below.

HPE ProLiant Compute DL3X0 Gen12 x16 PCIe Primary Riser Kit P71430-B21

HPE ProLiant Compute DL320 Gen12 SP x16 PCIe Secondary Riser Kit P72152-B21

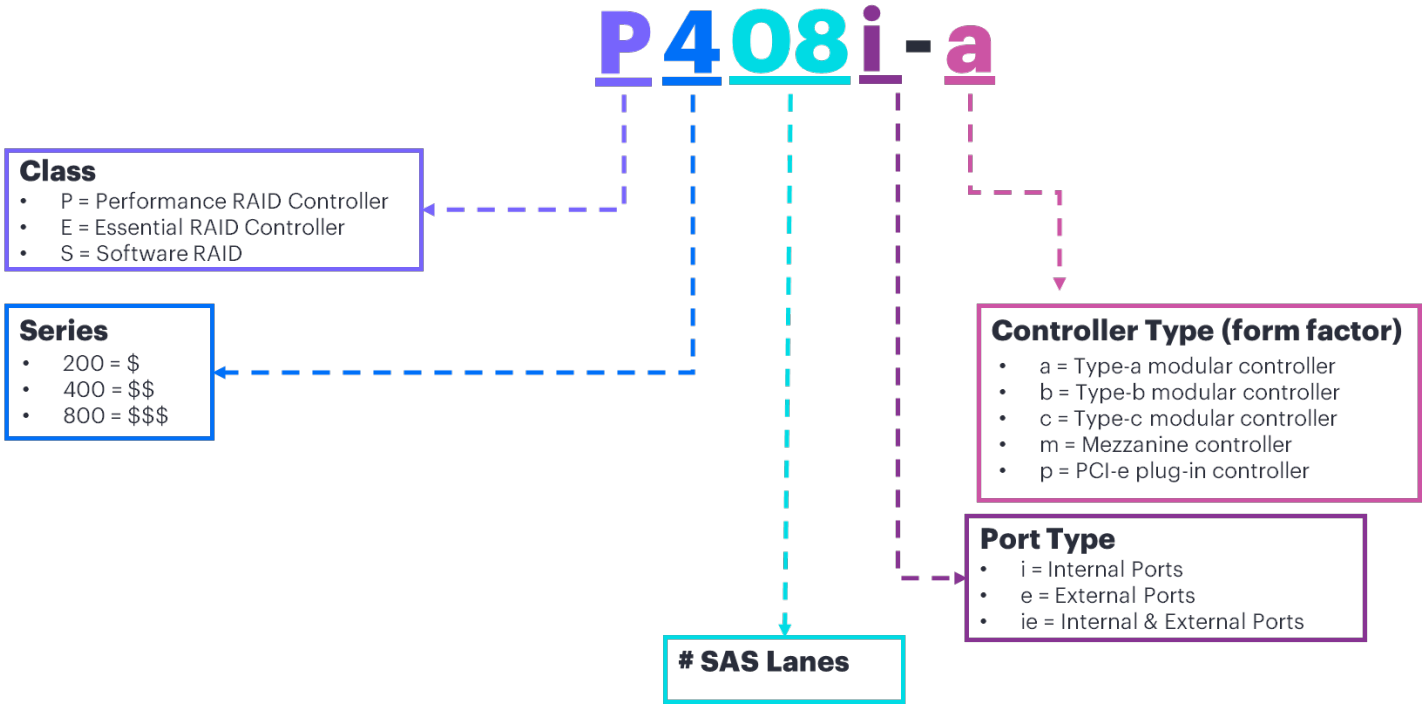
HPE ProLiant Compute DL320 Gen12 x16 Low Profile NS204i-t Boot Controller Riser Kit P77555-B21

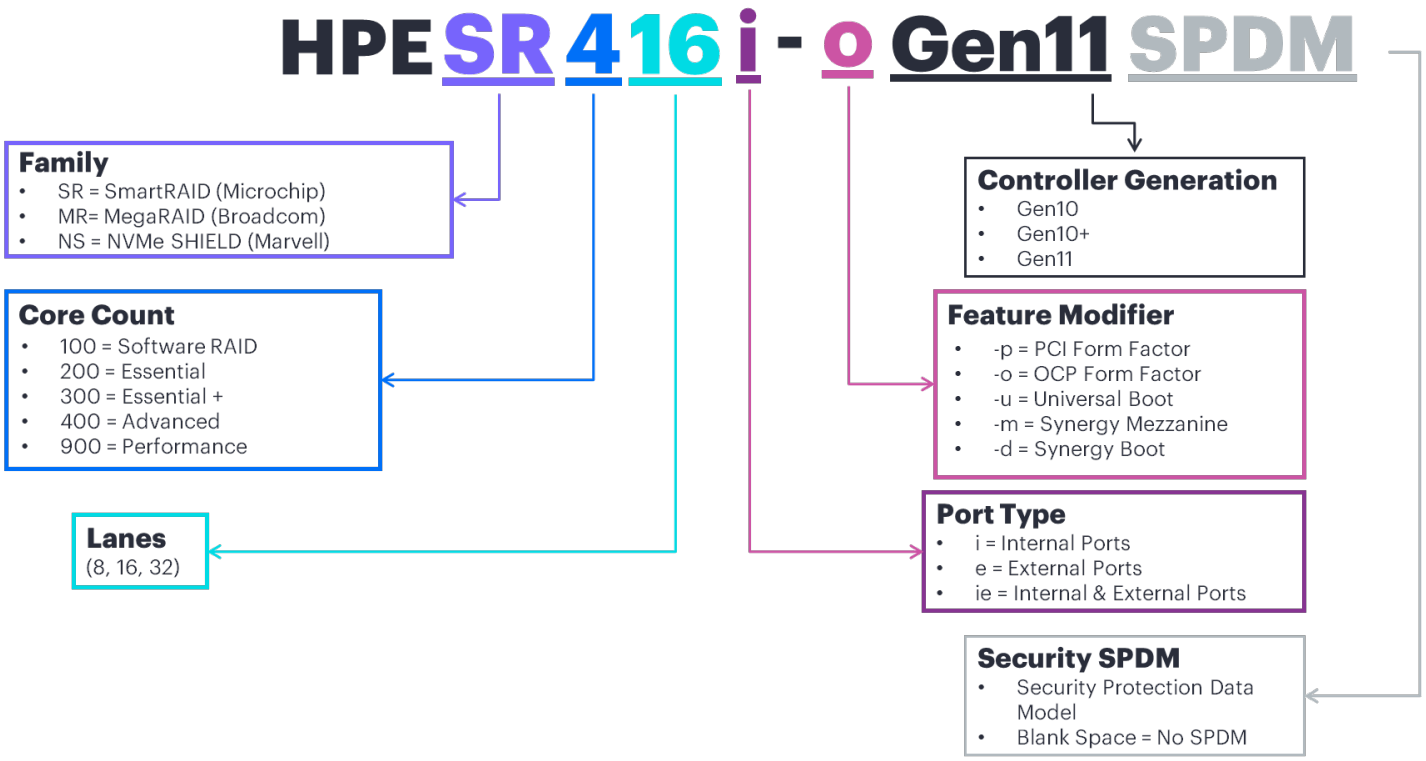
Notes: P77555-B21 required for rear hot plug NS204i support with P67252-B21 2400W 73.5mm PSU.

Core Options

Choose Storage Controller

Please select one or more from below.





Notes: For more information on the HPE Gen11 Storage Controller, please refer to the following: HPE Compute MR Gen11 Controllers QuickSpecs

Core Options

Essential RAID Controllers

HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller	P47785-B21
HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21
HPE MR932i-p x32 Lanes PCIe Gen5 SPDM Plug-in Storage Controller	P75697-B21

Performance RAID Controllers

HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	P58335-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

Notes:

- All Performance RAID Controllers require Li-ion battery or Smart Capacitor option (below).
- GPU Server requires Rich I/O CPU to support sufficient PCIe lanes for PCIe slots and drive cages.
- All HPE MRxxx RAID controllers support SAS, SATA, and NVMe drives.

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: If HPE 96W Smart Stg Li-ion Batt 145mm Kit is selected then HPE Smart Hybrid Capacitor 145mm kit cannot be selected and vice versa.

M.2 NVMe OS Boot Device

HPE NS204i-u v2 480GB NVMe Hot Plug Boot Optimized Storage Device	P78279-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u Internal Cable Kit	P76627-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u GPU Internal Cable Kit	P76628-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u Front Cable Kit	P77186-B21
HPE ProLiant Compute DL3XX Gen12 NS204i-u Rear Cable Kit	P71433-B21
HPE ProLiant Compute DL320 Gen12 x16 Low Profile NS204i-t Boot Controller Riser Kit	P77555-B21

Notes: P77555-B21 required for rear hot plug NS204i support with P67252-B21 2400W 73.5mm PSU.

CPU-Based RAID Controller (Intel® VROC)

Intel Virtual RAID on CPU RAID 1 FIO Software for HPE	S3Q19A
Intel Virtual RAID on CPU Premium FIO Software for HPE	R7J57A

Notes: VROC supports up to 8 NVMe direct attach drives. SATA drives not supported.

Storage Controller

HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21

Platform Compatible Cable Kits

Cables are listed by supported CTO model.

Notes:

- PCIe Cable Kits connect to PCIE RAID Controller.
- OROC Cable Kits connect to OCP RAID Controller.
- Direct Attach Cable Kits connect directly to MLB Riser connector.
- MCIO Direct Attach Cable Kits connect to MCIO connectors on MLB.

Core Options

HPE ProLiant Compute DL320 Gen12 Common Cable Kits	
HPE ProLiant Compute DL3X0 Gen12 OCP SlotB for R1S MCIO Cable Kit	P75154-B21
HPE ProLiant Compute DL3X0 Gen12 Direct Attach OCP SlotB MXIO Cable Kit	P77556-B21
HPE ProLiant DL320 Gen11 Intrusion Detection Cable Kit	P55417-B21
HPE ProLiant Compute DL320 Gen12 SFF Configure-to-order Server (P71437-B21)	
HPE ProLiant Compute DL320 Gen12 8SFF x1 U.3 PCIe Cable Kit	P75088-B21
HPE ProLiant Compute DL320 Gen12 8SFF x1 U.3 OROC Cable Kit	P75090-B21
HPE ProLiant Compute DL320 Gen12 2SFF Direct Attach Cable Kit	P75092-B21
HPE ProLiant Compute DL320 Gen12 2SFF MCIO Direct Attach Cable Kit	P79306-B21
HPE ProLiant Compute DL320 Gen12 2SFF PCIe Cable Kit	P75095-B21
HPE ProLiant Compute DL320 Gen12 2SFF OROC Cable Kit	P78558-B21
HPE ProLiant Compute DL320 Gen12 2SFF OROC Cable Kit	P78558-B21
HPE ProLiant Compute DL3X0 Gen12 OCP SlotB MCIO Cable Kit	P71426-B21
HPE ProLiant Compute DL320 Gen12 SFF/EDSFF Configure-to-order Server (P75217-B21)	
HPE ProLiant Compute DL320 Gen12 MR932i-p 12EDSFF Cable Kit	P75133-B21
HPE ProLiant Compute DL320 Gen12 4EDSFF Direct Attach Cable Kit	P75124-B21
HPE ProLiant Compute DL320 Gen12 GPU MR932i-p 8EDSFF Cable Kit	P76618-B21
HPE ProLiant Compute DL320 Gen12 8EDSFF Direct Attach Front OCP Cable Kit	P76619-B21
HPE ProLiant Compute DL320 Gen12 MR932i-p 8SFF Cable Kit	P87472-B21
HPE ProLiant Compute DL320 Gen12 12EDSFF Direct Attach Cable Kit	P75130-B21
HPE ProLiant Compute DL320 Gen12 16EDSFF Direct Attach Cable Kit	P75135-B21
HPE ProLiant Compute DL320 Gen12 MR932i-p 16EDSFF Cable Kit	P76621-B21
HPE ProLiant Compute DL320 Gen12 MR932i-p 16EDSFF x2 Front OCP Kit	P76623-B21
HPE ProLiant Compute DL320 Gen12 16EDSFF OCP Direct Attach Cable Kit	P76620-B21
HPE ProLiant Compute DL320 Gen12 20EDSFF Direct Attach Cable Kit	P75140-B21
HPE ProLiant Compute DL320 Gen12 MR932i-p 20EDSFF x2 Cable Kit	P76624-B21
HPE ProLiant Compute DL320 Gen12 10SFF Hybrid x4 Direct Attach Cable Kit	P75144-B21
HPE ProLiant Compute DL320 Gen12 8SFF Hybrid x4 Direct Attach Front OCP Cable Kit	P76625-B21
HPE ProLiant Compute DL320 Gen12 MR416i-o 8SFF Hybrid x4 Cable Kit	P75148-B21
HPE ProLiant Compute DL3X0 Gen12 OCP SlotB MCIO Cable Kit	P71426-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u Front Cable Kit	P77186-B21
HPE ProLiant Compute DL320 Gen12 4LFF Configure-to-order Server (P75218-B21)	
HPE ProLiant Compute DL320 Gen12 4LFF OROC Cable Kit	P75097-B21
HPE ProLiant Compute DL320 Gen12 4LFF PCIe Cable Kit	P75100-B21
HPE ProLiant Compute DL3X0 Gen12 OCP SlotB MCIO Cable Kit	P71426-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u Internal Cable Kit	P76627-B21
HPE ProLiant Compute DL320 Gen12 12LFF Configure-to-order Server (P75219-B21)	
HPE ProLiant Compute DL320 Gen12 12LFF OROC Cable Kit	P75102-B21
HPE ProLiant Compute DL320 Gen12 12LFF PCIe Cable Kit	P75105-B21
HPE ProLiant Compute DL3X0 Gen12 OCP SlotB MCIO Cable Kit	P71426-B21
HPE ProLiant Compute DL320 Gen12 GPU Configure-to-order Server (P75220-B21)	
HPE ProLiant Compute DL320 Gen12 4xGPU Enablement Kit	P75107-B21

Core Options

HPE ProLiant Compute DL320 Gen12 GPU 4SFF Direct Attach Cable Kit	P75114-B21
HPE ProLiant Compute DL320 Gen12 GPU 4SFF PCIe Cable Kit	P76617-B21
HPE ProLiant Compute DL320 Gen12 GPU 4SFF OROC Cable Kit	P75118-B21
HPE ProLiant Compute DL320 Gen12 GPU 8EDSFF Direct Attach Cable Kit	P75120-B21
HPE ProLiant Compute DL320 Gen12 GPU FF 8SFF Direct Attach Cable Kit	P75150-B21
HPE ProLiant Compute DL320 Gen12 GPU FF 6SFF Direct Attach Cable Kit	P75152-B21
HPE ProLiant Compute DL320 Gen12 NS204i-u GPU Internal Cable Kit	P76628-B21
HPE ProLiant Compute DL3XX Gen12 Front GPU L40S Power Cable Kit	P75110-B21

Choose Storage – SSD/NVMe/HDD Drives

Solid State Drives

For SSD selection guidance, please visit https://ssd.hpe.com/

Please refer to the HPE Solid State Disk Drives QuickSpecs for more detailed information:
HPE Solid State Disk Drives QuickSpecs

Read Intensive – 24G SAS - SFF

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 – 24G SAS - SFF

HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-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

Read Intensive – 12G SAS - SFF

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

Mixed Use – 12G SAS - SFF

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

Mixed Use – 12G SAS - LFF

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

Read Intensive - 6G SATA – SFF

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

Mixed Use - 6G SATA - SFF

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

Core Options

HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21
Read Intensive – 6G SATA – LFF	
HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21
Read Intensive - NVMe – SFF	
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
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70434-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70436-B21
Mixed Use - NVMe – SFF	
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 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65023-B21
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 PS1030 SSD	P70426-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 PS1030 SSD	P70428-B21
Read Intensive – NVMe - EDSFF E3.S 1T	
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77269-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69234-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87719-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85121-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77271-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 EDSFF SPDM PE1010 SSD	P77273-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 EDSFF SPDM PE1010 SSD	P77275-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69546-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85128-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61179-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 EDSFF SPDM CM7 SSD	P61183-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 EDSFF SPDM CM7 SSD	P61187-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70397-B21
Mixed Use - NVMe – EDSFF E3.S 1T	
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77262-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69241-B21

Core Options

HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87715-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85114-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77265-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69243-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87717-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85117-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61191-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70399-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87721-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85124-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77267-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69245-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61195-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70401-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85119-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87723-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85126-B21
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70403-B21
Very-Read-Optimized – NVMe – EDSFF E3.S 1T	
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
SED (Self-Encryption Drive) – SATA SFF	
HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58236-B21
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
SED (Self-Encryption Drive) – NVMe - SFF	
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
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 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70674-B21
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

Hard Disk Drives

Please refer to the HPE Hard Disk Drives QuickSpecs for more detailed information:
HPE Hard Disk Drives QuickSpecs

Mission Critical / Enterprise - 12G SAS - SFF Drives

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

Core Options

HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-B21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-B21
Business Critical / Midline - 12G SAS - LFF Drives	
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834031-B21
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881781-B21
HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53553-B21
HPE 24TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68583-B21
HPE 26TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P80577-B21
Business Critical / Midline - 6G SATA - LFF Drives	
HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21
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 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881787-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53554-B21
HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68585-B21
HPE 26TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P80578-B21
SED (Self-Encryption Drive)	
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3yr Wty FIPS 140-2 TAA-compliant HDD	P28622-B21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3yr Wty 512e FIPS 140-2 TAA-compliant HDD	P28618-B21

HPE Networking Options

Select one or more Networking Options.

Notes:

- Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. Refer to the related NIC QuickSpecs for Technical Specifications and additional information: https://h20195.www2.hpe.com/v2/getpdf.aspx/A00002507ENW.pdf
- 25 Gb or faster Ethernet adapter requires high performance fan selection.

HPE Networking

PCIe Adapters

1 Gigabit Ethernet adapters

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P51178-B21

10 Gigabit Ethernet adapters

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

10/25 Gigabit Ethernet adapters

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
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
AMD Solarflare X4522-PLUS 10/25GbE 2-port SFP56 Adapter for HPE	P87940-B21

Notes:

- Recommended ambient temperature with high performance fans installed.
- 25 Gb or faster Ethernet adapter requires high performance fan selection.
- If 1 or 2 Single Wide GPUs installed in front, it is advisable to install the GPUs in PCIe slots 4 and 6, with the Ethernet adapter installed in PCIe slot 1.
- If there's 1 Double Wide GPU in front, it is advisable to install the GPU in PCIe slots 5 and 6, with the Ethernet adapter installed in PCIe slot 2.
- *Conditional support, with DAC (direct attach copper) cable only.

	P26262-B21	P26264-B21	P08443-B21	P08458-B21
4 LFF (P75218-B21)	35 °C	35 °C	35 °C	25 °C
8 SFF (P71437-B21)	35 °C	35 °C	35 °C	25 °C
12 LFF (P75219-B21)	35 °C	35 °C	35 °C	25 °C
GPU (P75220-B21) with 1 Single Wide or 1 Double Wide GPU in front	35 °C	25 °C	35 °C	25 °C*
GPU (P75220-B21) with up to 2 Single Wide GPU in front	35 °C	25 °C	35 °C	25 °C*
GPU (P75220-B21) with 2 Double Wide or 4 Single Wide GPUs in the front	25 °C	25 °C*	25 °C	Not supported

Core Options

100/200/400 Gigabit Ethernet Adapters

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
HPE Slingshot SA210S Ethernet 200Gb 1-port PCIe NIC	R4K46A
NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE	R8M41A
HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Generic Adapter	P45641-H24

Notes:

- Recommended ambient temperature with high performance fans installed.
- 25 Gb or faster Ethernet adapter requires high performance fan selection.
- If 1 or 2 Single Wide GPU is installed in front, it is advisable to install the GPUs in PCIe slots 4 and 6, with the Ethernet adapter installed in PCIe slot 1.
- If 1 Double Wide GPU is installed in front, it is advisable to install the GPU in PCIe slots 5 and 6, with the Ethernet adapter installed in PCIe slot 2.
- *Conditional support, with DAC (direct attach copper) cable only.

	P25960-B21	P21112-B21	R4K46A
4 LFF (P75218-B21)	25°C	25°C	25°C
8 SFF (P71437-B21)	25°C	25°C	25°C
12 LFF (P75219-B21)	25°C	25°C	25°C
GPU (P75220-B21) with 1 Single Wide or 1 Double Wide GPU in front	25°C*	25°C*	25°C*
GPU (P75220-B21) with up to 2 Single Wide GPU in front	25°C*	25°C*	25°C*
GPU (P75220-B21) with 2 Double Wide or 4 Single Wide GPUs in the front	Not supported	Not supported	Not supported

OCP 3.0 Adapters

1 Gigabit Ethernet adapters

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P51181-B21

10 Gigabit Ethernet adapters

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10097-B21
Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	P26256-B21

10/25 Gigabit Ethernet adapters

Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P26269-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-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

Notes:

- Recommended ambient temperature with high performance fans installed.
- 25 Gb or faster Ethernet adapter requires high performance fan selection.
- If 1 or 2 Single Wide GPU is installed in front, it is advisable to install the GPUs in PCIe slots 4 and 6, with the Ethernet adapter installed in OCP slot A.
- If 1 Double Wide GPU is installed in front, it is advisable to install the GPU in PCIe slots 5 and 6, with the Ethernet adapter installed in OCP slot B.

	P26269-B21	P10115-B21	P10106-B21	P41614-B21
4 LFF (P75218-B21)	35°C	35°C	35°C	25°C
8 SFF (P71437-B21)	35°C	35°C	35°C	25°C
12 LFF (P75219-B21)	35°C	35°C	35°C	25°C
GPU (P75220-B21) with 1 Single Wide or 1 Double Wide GPU in front	25°C	35°C	35°C	Not supported
GPU (P75220-B21) with up to 2 Single Wide GPU in front	25°C	35°C	35°C	Not supported
GPU (P75220-B21) with 2 Double Wide or 4 Single Wide GPUs in the front	25°C	35°C	35°C	Not supported

Core Options

100 Gigabit Ethernet adapters

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

Notes:

- Recommended ambient temperature with high performance fans installed.
- 25 Gb or faster Ethernet adapter requires high performance fan selection.
- If 1 or 2 Single Wide GPU is installed in front, it is advisable to install the GPUs in PCIe slots 4 and 6, with the Ethernet adapter installed in OCP slot A.
- If 1 Double Wide GPU is installed in front, it is advisable to install the GPU in PCIe slots 5 and 6, with the Ethernet adapter installed in OCP slot B.

	P22767-B21	P73114-B21
4 LFF (P75218-B21)	35°C	25°C
8 SFF (P71437-B21)	35°C	Not supported
12 LFF (P75219-B21)	35°C	25°C
GPU (P75220-B21) with 1 Single Wide or 1 Double Wide GPU in front	25°C	Not supported
GPU (P75220-B21) with up to 2 Single Wide GPU in front	25°C	Not supported
GPU (P75220-B21) with 2 Double Wide or 4 Single Wide GPUs in the front	25°C	Not supported

Core Options

HPE InfiniBand

HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Generic Adapter P45642-H23

Notes:

- Recommended ambient temperature with high performance fans installed.
- If InfiniBand adapter is selected, high performance fans are required.
- If 1 or 2 Single Wide GPU is installed in front, it is advisable to install the GPUs in PCIe slots 4 and 6, with the InfiniBand adapter installed in PCIe slot 1.
- If 1 Double Wide GPU is installed in front, it is advisable to install the GPU in PCIe slots 5 and 6, with the InfiniBand adapter installed in PCIe slot 2.
- *Conditional support, with DAC (direct attach copper) cable only.

4 LFF (P75218-B21)	35°C
8 SFF (P71437-B21)	35°C
12 LFF (P75219-B21)	35°C
GPU (P75220-B21) with 1 Single Wide or 1 Double Wide GPU in front	25°C
GPU (P75220-B21) with up to 2 Single Wide GPU in front	25°C
GPU (P75220-B21) with 2 Double Wide or 4 Single Wide GPUs in the front	25°C*

HPE Storage Adapters

Fibre Channel HBA

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

Computational and Graphics Accelerators

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

Notes:

- Compatible with GPU CTO Server.
- Requires performance fans to be installed.

NVIDIA L40S 48GB PCIe Accelerator S2L70C

Notes:

- Compatible with GPU CTO Server.
- Requires performance fans to be installed.
- Requires HPE ProLiant Compute DL3XX Gen12 Front GPU L40S Power Cable Kit (P75110-B21).

Power and Cooling

Please select power supplies, fans, and heat sink options below.

Cooling Options

HPE ProLiant Compute Gen12 1U Standard Fan Kit	P71954-B21
HPE ProLiant Compute Gen12 1U High Performance Fan Kit	P71958-B21
HPE ProLiant Compute DL320 Gen12 1U Closed-loop Liquid Cooling FIO Fan Kit	P76603-B21

Notes:

- Fan Kit Includes one fan, seven (7) required per server.
- High Performance Fans required for processors with a TDP > 185W.
- Closed Loop Liquid Cooling Fans required for processors with a TDP > 270W.

HPE ProLiant DL3X0 Gen11 1U Standard Heat Sink Kit	P48904-B21
HPE ProLiant Compute DL320 Gen12 Performance Heat Sink Kit	P71956-B21
HPE ProLiant Compute DL320 Gen12 1U Closed-loop Liquid Cooling FIO Heat Sink Kit	P76605-B21

Notes:

- High Performance Heat Sink required for processors with a TDP > 185W.
- Closed Loop Liquid Cooling FIO Heat Sink required for processors with a TDP > 270W.

Direct Liquid Cooling (DLC)

HPE ProLiant Compute DL320 Gen12 Direct Liquid Cooling FIO Kit	P84312-B21
HPE ProLiant Compute Direct Liquid Cooling 0.65m Quick Disconnect Tube Set FIO Kit	P62038-B21
HPE ProLiant Direct Liquid Cooling 450mm Female-Male Connection Quick Disconnect Tube Set FIO Kit	P62046-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.

HPE M-CRPS Titanium Hot Plug Power Supply Kits

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 1300W M-CRPS -48VDC Hot Plug Power Supply Kit	P82412-B21
HPE 1500W M-CRPS Titanium Hot Plug Power Supply Kit	P67244-B21
HPE 2200W M-CRPS -48VDC Hot Plug Power Supply Kit	P73210-B21
HPE 2400W M-CRPS Titanium Hot Plug Power Supply Kit	P67252-B21

Notes:

- All power supplies rated for 96% efficiency.
- Mixing power supplies is not supported.
- Power supplies ship without jumper cords.

Core Options

HPE Power Options

HPE Hardwire -48VDC 3.5m 1000-1300W Power Cord	P79842-B21
HPE 1000-1300W -48VDC Power Lug Kit	P79845-B21
HPE Hardwire -48VDC 3.5m 2000-2200W Power Cord	P73874-B21
HPE 2000-2200W -48VDC Power Lug Kit	P79839-B21

Notes:

- P79842-B21 and P79845-B21 are to be used with HPE 1300W M-CRPS -48VDC Hot Plug Power Supply Kit.
- P73874-B21 and P79839-B21 are to be used with HPE 2200W M-CRPS -48VDC Hot Plug Power Supply Kit.
- Only one power cable kit or power cable lug kit needs to be selected with the power supply.

Step 3: Choose Additional Factory Integratable Options (FIO)

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 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 the selection of HPE DL320 Gen11 Intrusion Cable Kit.
- This option requires the selection of either HPE iLO Advanced 1-server License with 3-year Support on iLO Licensed Features (BD505A) or HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features (512485-B21).
- This option is limited to stand-alone CTO servers only. The HPE Trusted Supply Chain configuration will not be available if the server is ordered as factory integrated into a rack.
- 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 Gen11 1U Common Bezel Kit P50450-B21

HPE ProLiant DL320 Gen11 Intrusion Detection Cable Kit P55417-B21

HPE Bezel Lock Kit 875519-B21

Notes: Requires ProLiant Gen11 1U Common Bezel Kit.

Factory Configuration Settings

HPE iLO Common Password FIO Setting P08040-B21

Notes:

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

HPE ProLiant DL300 Gen10 Plus Platform RAS OS Control FIO Setting P27078-B21

Notes:

- Firmware first is ProLiant servers BIOS default selection. In this mode, monitoring functionality built into the design of the server is first on the scene of correctable problems to determine quickly and accurately what's wrong and how to fix it. Firmware first enables many platform-specific actions for errors, including predictive fault analysis. This technology functions independently of the operating system and does not depend on O/S-based tools.

Additional Options

– This SKU instructs factories to enable O/S first mode, a BIOS switch that allows experienced customers to have the operating system handle correctable hardware errors. More errors could be observed in this mode, including soft ones that do not necessarily indicate issues with the component or cause warranty replacement.

RAID Settings

HPE RAID 0 Drive 1 FIO Setting	339777-B21
HPE RAID 1 Drive 1 FIO Setting	339778-B21
HPE RAID 5 Drive 1 FIO Setting	339779-B21
HPE Raid 5 w/SP Drive 1 FIO Setting	339780-B21
HPE RAID FIO Advanced Data Guarding Option	339781-B21

Notes:

– General RAID rules:
  - Smart Array controller must be selected.
  - Matching (same part number) drives must be selected.
  - One RAID set will be offered and applied to all applicable drives installed in a server.
  - RAID must be selected if both Factory Installed OS and Smart Array controller are present.
– RAID level selection is limited by Storage controller selection.
– If RAID is selected in a configuration with VROC and internal controller, then Customer Defined RAID Setting (389692-B21) must be selected.

HPE Customer Defined RAID Setting Service	389692-B21

Notes:

– At least 1 hard drive must be on order.
– Preinstalled OS must be on order.
– A Customer Intent Document (CID) must be supplied if this part number is ordered.
– This Customer Intent Document should include all details about the desired RAID custom configuration (This includes Drive part numbers and quantities, RAID levels desired, which drives should be applied to each RAID level, and if a preinstalled OS has been ordered - which RAID set it should be installed on).

Optical Drives and Enablement Kits

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

Notes:

– SFF or SFF/EDSFF CTO server requires appropriate Optical Drive Enablement Kit.
– 4LFF CTO Server does not require enablement kit.
– Optical Drive not supported with 12LFF or GPU CTO Server.

HPE ProLiant Compute DL3XX Gen12 1U SFF/EDSFF Hybrid Display Port/USB/Optical Drive Enablement Kit	P72227-B21

Notes: Supported only with SFF/EDSFF CTO Server.

HPE ProLiant Compute DL3XX Gen12 1U 8SFF Front Display Port/USB/Optical Drive Enablement Kit	P72225-B21

Notes: Supported only with SFF CTO Server.

Additional Options

HPE ProLiant Compute DL3XX Gen12 1U 4LFF Front Display Port/USB Enablement Kit P72229-B21

Notes: Supported only with 4LFF CTO Server.

HPE Converged Infrastructure Management Software

HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU P8B26AAE

HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU E5Y35AAE

Software as a Service Management

HPE Compute Ops Management

Base SKU

HPE Compute Ops Management Standard 3-year Upfront ProLiant SaaS R7A11AAE

Upgrade SKUs

HPE Compute Ops Management Standard 1-year Upfront ProLiant SaaS R7A10AAE

HPE Compute Ops Management Standard 5-year Upfront ProLiant SaaS R7A12AAE

HPE Compute Ops Management Advanced 7-year Upfront ProLiant SaaS S5E61AAE

HPE OneView

HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU E5Y35AAE

HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU P8B26AAE

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

HPE Compute Ops Management Base SaaS R6Z73AAE

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

Embedded Management

HPE iLO Common Password FIO Setting

HPE iLO Common Password FIO Setting P08040-B21

Notes:

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

HPE iLO Advanced

HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features E6U59ABE

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

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

Additional Options

HPE Converged Infrastructure Management Software

HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE
HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE

Notes: Licenses ship without media. The HPE OneView Media Kit can be ordered separately or downloaded.

HPE Tape Backup

For the complete range of tape drives, autoloaders, libraries, and media, see: https://www.hpe.com/us/en/storage/storeever-tape-storage.html For hardware and software compatibility of Hewlett Packard Enterprise tape backup products http://www.hpe.com/storage/BURAcompatibility

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.

Uninterruptible Power Systems (UPS)

- To learn more, please visit the HPE Uninterruptible Power Systems (UPS) web page.
- Refer to the HPE Direct Flow 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 Rack Options

Refer to the HPE KVM Switches web page for information on these products and their specifications.

Additional Options

Easy Install Rail Kits

Easy Install rail kits contain telescoping rails, which allow for in-rack serviceability.

To assist in installing the server into the rack, an optional installation tool is available by contacting your local services representative.

Notes:

- Hewlett Packard Enterprise recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and the number of people to use for any installation.
- HPE rail kits are designed to work with HPE racks in compliance with industry standard EIA-310-E. In the event a customer elects to purchase a third-party rack for use with an HPE rail kit, any such use is at customer's own risk. HPE makes no express or implied warranties with respect to such third-party racks and specifically disclaims any implied warranties of merchantability and fitness for a particular purpose. Furthermore, HPE has no obligation and assumes no liability for the materials, design, specifications, installation, safety, and compatibility of any such third-party racks with any rail kits, including HPE rail kits.

HPE ProLiant DL300 Gen10 Plus 1U Cable Management Arm for Rail Kit P26489-B21

Notes: Not supported with 12LFF CTO Server.

HPE Easy Install Rail 1 Kit P52349-B21

Notes: Supported only with 8SFF CTO Server.

HPE DL3XX Gen11 Easy Install Rail 2 Kit P52351-B21

Notes:

- Supported with 4LFF CTO Server.
- Supported with SFF/EDSFF CTO Server.

HPE Easy Install Rail 9 Kit P52353-B21

Notes: Supported only with 12LFF CTO Server.

HPE Support Service

Installation & Startup Services

HPE ProLiant DL/ML Install Service U4554E

HPE ProLiant DL/ML Ons Startup Service U4555E

Tech Care

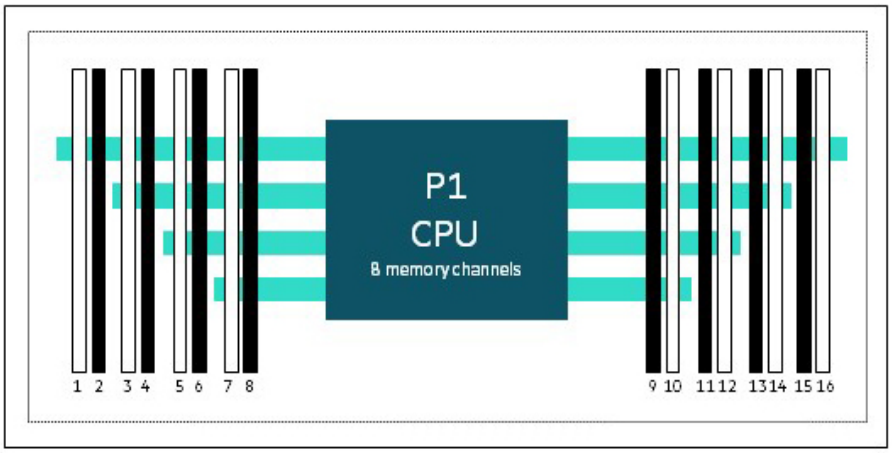
HPE 3 Year Tech Care Essential DL320 Gen12 SP HW Service H44SLE

HPE 3 Year Tech Care Essential wDMR DL320 Gen12 SP HW Service H44SME

HPE 5 Year Tech Care Essential DL320 Gen12 SP HW Service H44TRE

HPE 5 Year Tech Care Essential wDMR DL320 Gen12 SP HW Service H44TSE

Memory Population guidelines



HPE ProLiant DL320 Gen12

HPE ProLiant Compute Gen12 with Intel® Xeon® 6 Efficient Core (E-Core) processors															
DIMM population order															
DIMM slot	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1 DIMM										10						
2 DIMMs							7			10						
4 DIMMs[1,2,3]			3				7			10				14		
8 DIMMs[1,2,3,4]	1		3		5		7			10		12		14		16
16 DIMMs[1,2,3,4]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

HPE ProLiant Compute Gen12 with Intel® Xeon® 6 Performance Core (P-Core) processors															
DIMM population order															
DIMM slot	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1 DIMM										10						
2 DIMMs							7			10						
4 DIMMs[1,2,3,5,6]			3				7			10						
8 DIMMs[1,2,3,4,5,6]	1		3		5		7			10		12		14		16
16 DIMMs[1,2,3,4,5,6]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Notes:

- Cells without entries represent configurations not supported, and if populated, the server may result in non-optimal memory performance or other unexpected behavior.
- [1] Supports Hemi (hemisphere mode, HCC Only).
- [2] Supports Software Guard Extensions (SGX).
- [3]Supports Interleaving.
- [4]Supports Mirroring.
- [5]Supports Sub-NUMA clustering (SNC2, XCC Only).
- [6]Supports Quad-Channel Configuration (XCC Only).

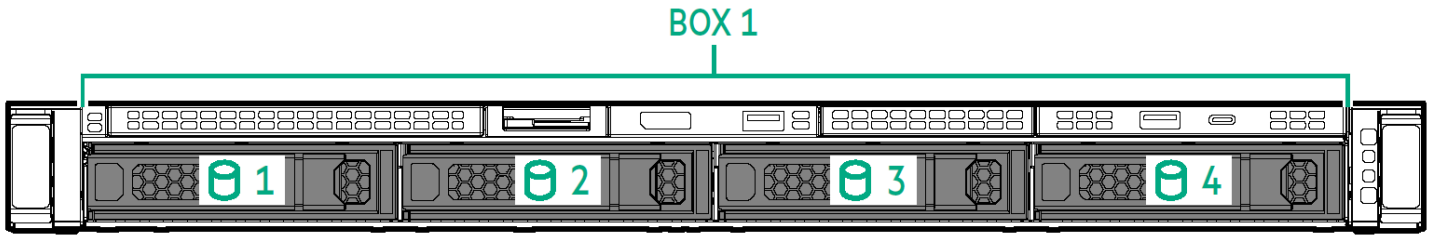
Memory

General Memory Population Rules and Guidelines:

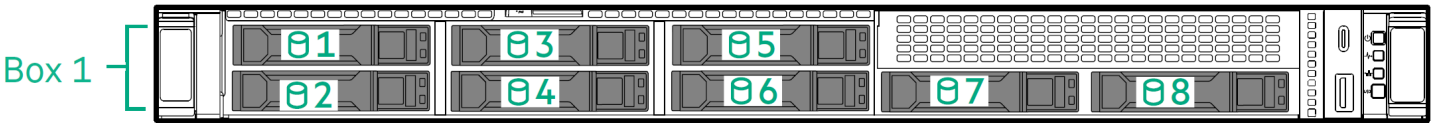
- Install DIMMs only after the corresponding processor is installed.
- All DIMMs must be DDR5.
- x4 and x8 DIMMs can be mixed in the same channel.
- Mixing of non-3DS and 3DS LRDIMMs is not allowed on the same channel.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity.
- qualified on the platform, the number and model of installed processors qualified on the platform.
- To realize the performance memory capabilities listed in this document, HPE DDR5 Smart Memory is required.
- Use of 256GB DIMMs requires high-performance fans.
  For additional information, please reference the HPE DDR5 Smart Memory QuickSpecs

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

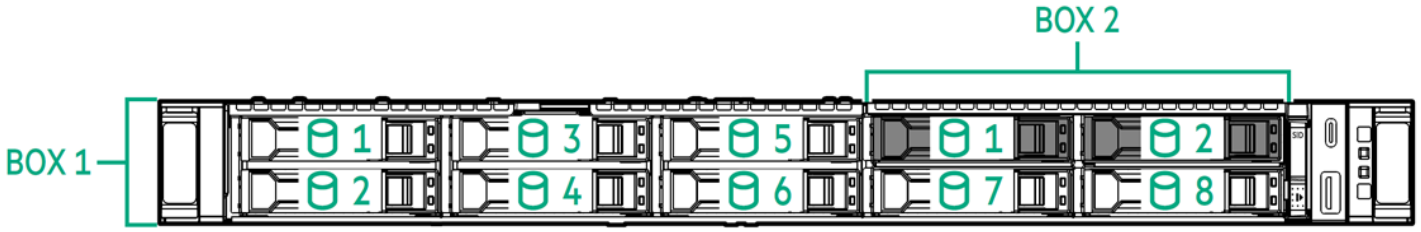
Storage



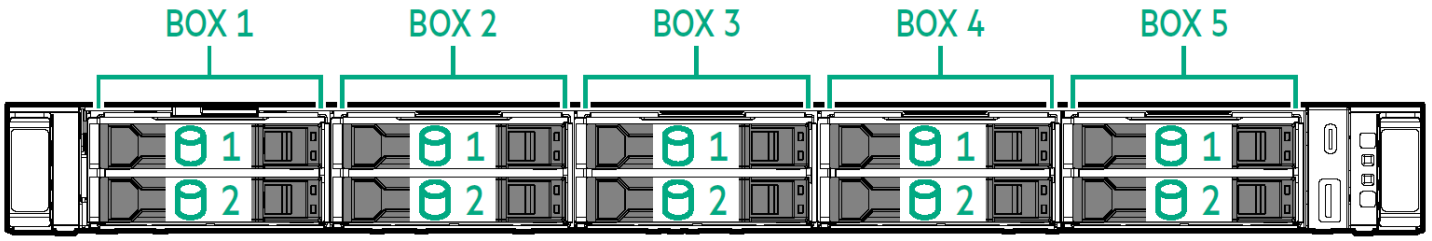
4 LFF device bay numbering



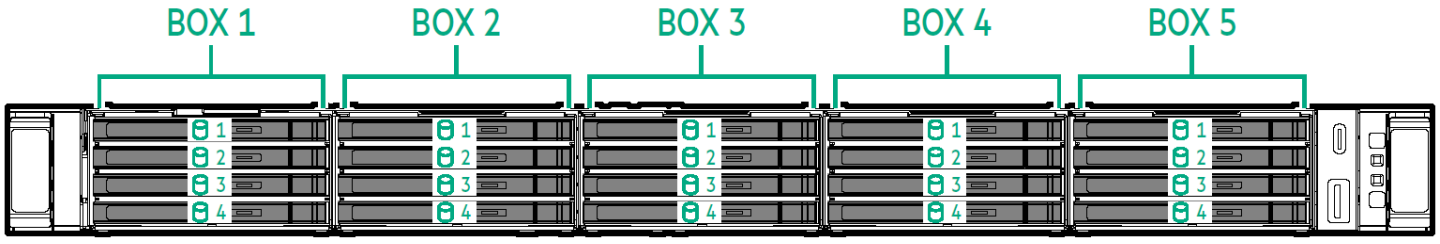
8 SFF drive bay numbering



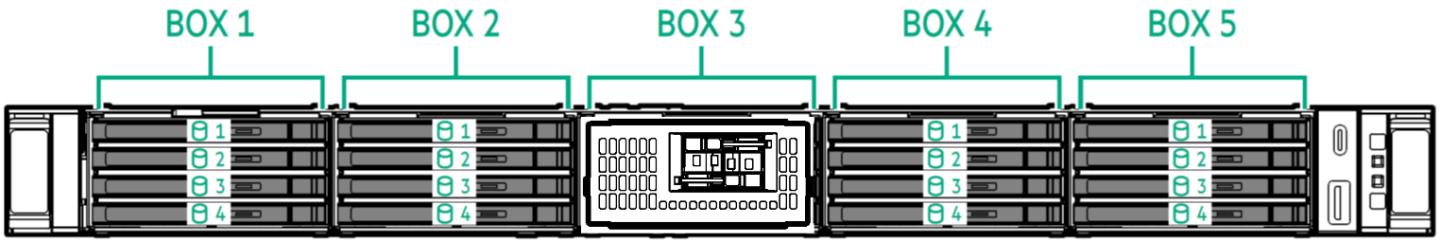
8 SFF + 2 SFF drive bay numbering



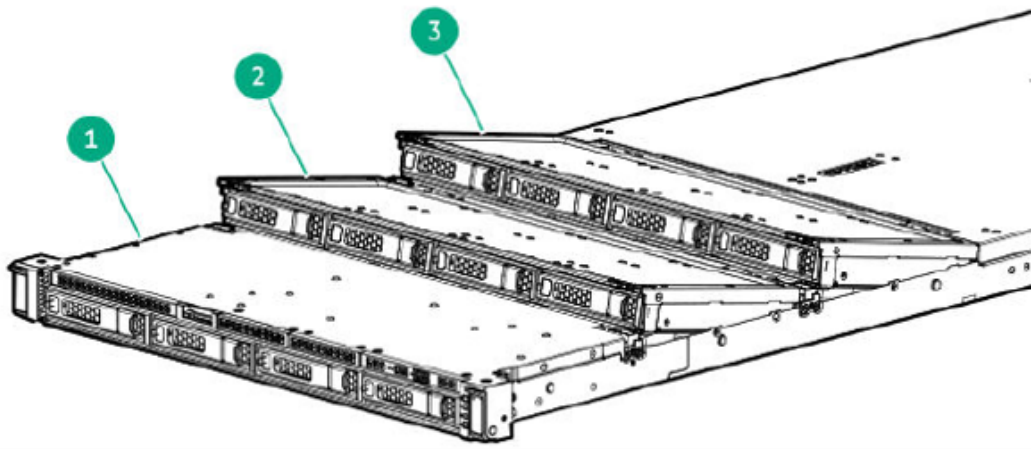
SFF/EDSFF – SFF drive positioning



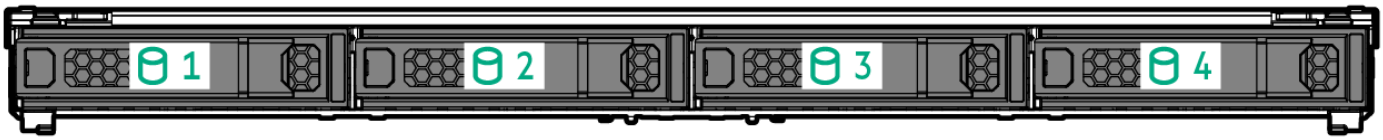
SFF/EDSFF – EDSFF drive positioning



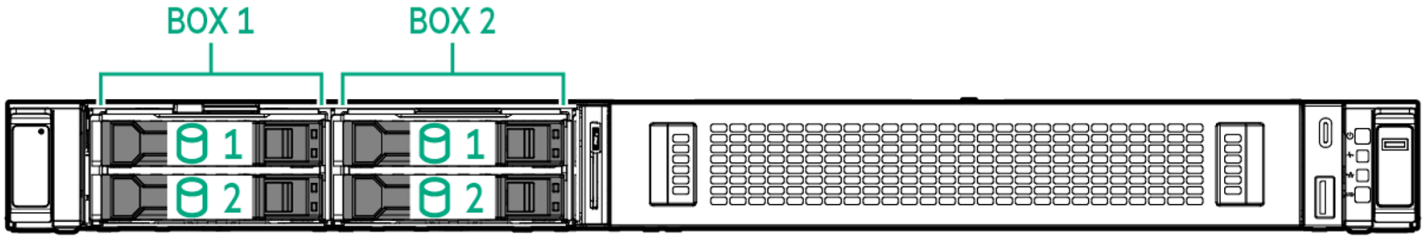
SFF/EDSFF – EDSFF with front NS204i drive positioning



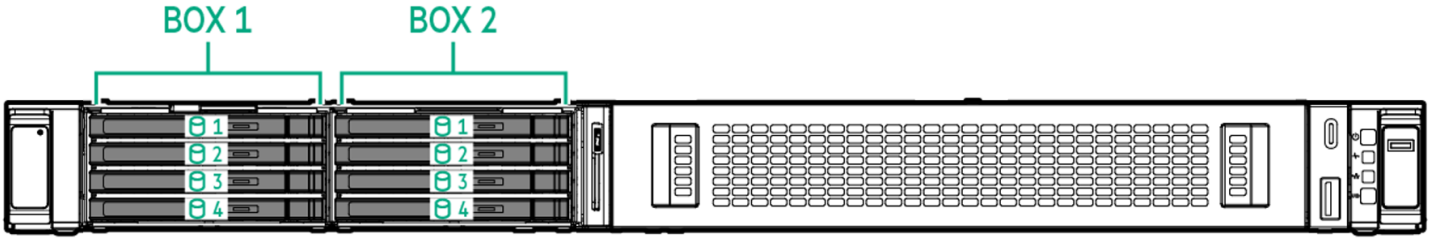
12 LFF drive box Drive Positioning



12 LFF drive bay – All box Drive Positioning



GPU Model - SFF Drive Positioning



GPU Model - EDSFF Drive Positioning

System Unit

Dimensions (Height x Width x Depth) Server size – chassis only (HxWxD)

SFF

– 4.29 x 43.46 x 60.75 cm.
1.69 x 17.11 x 23.92 in.

SFF/EDSFF

– 4.29 x 43.46 x 66.70 cm.
1.69 x 17.11 x 26.26 in.

4 LFF CTO Server

– 4.29 x 43.46 x 66.70 cm.
1.69 x 17.11 x 26.26 in.

12 LFF CTO Server

– 4.29 x 43.46 x 99.74 cm.
1.69 x 17.11 x 39.27 in.

GPU Dense CTO

– 4.29 x 43.46 x 82.16 cm.
1.69 x 17.11 x 32.35 in.

Notes: 12 LFF CTO Server requires 1200mm depth rack for proper mounting.

Weight (approximate)

– **SFF light load**
- **11.5 kg (25.35 lb)**: One Drive, one DIMM, one PCIe card, one riser, one DC-SCM module, one processor, one heatsink, one power supply, seven fans.

– **SFF maximum**
- **17.25 kg (38.0 lb)**: Ten drives, sixteen DIMMs, two OCP cards, two PCIe risers, two PCIe cards, one DC-SCM module, one processor, one heatsink, two power supplies, and seven fans.

– **SFF/EDSFF light load**
- **11.6 kg (25.57 lb)**: One Drive, one DIMM, one PCIe card, one riser, one DC-SCM module, one processor, one heatsink, one power supply, seven fans.

– **SFF/EDSFF maximum**
- **18.71 kg (41.25 lb)**: Twenty drives, sixteen DIMMs, two OCP cards, two PCIe risers, two PCIe cards, one DC-SCM module, one processor, one heatsink, two power supplies, and seven fans.

– **4 LFF light load**
- **12.5 kg (27.15 lb)**: One Drive, one DIMM, one PCIe card, one riser, one DC-SCM module, one processor, one heatsink, one power supply, seven fans.

– **4 LFF maximum**
- **18.34 kg (40.35 lb)**: Four drives, sixteen DIMMs, two OCP cards, two PCIe risers, two PCIe cards, one DC-SCM module, one processor, one heatsink, two power supplies, optical drive, and seven fans.

– **12 LFF light load**
- **17.6 kg (38.8 lb)**: One Drive, one DIMM, one PCIe card, one riser, one DC-SCM module, one processor, one heatsink, one power supply, seven fans.

– **12 LFF maximum**
- **28.93 kg (63.65 lb)**: Twelve drives, sixteen DIMMs, two OCP cards, two PCIe risers, two PCIe cards, one DC-SCM module, one processor, one heatsink, two power supplies, optical drive, and seven fans.

- **GPU light load**
  - **15.5 kg (34.17 lb)**: One Drive, one DIMM, two single width GPUs, one PCIe card, one riser, one DC-SCM module, one processor, one heatsink, one power supply, seven fans.
- **GPU Dense maximum**
  - **21.53 kg (47.47 lb)**: Eight drives, sixteen DIMMs, two double width GPUs, two PCIe cards, two risers, two OCP cards, one DC-SCM module, one processor, one heatsink, two power supplies, seven fans.

Input Requirements (per power supply)

Rated Line Voltage

- Low-line input voltage: 100 VAC to 120 VAC.
- High-line input voltage: 200 VAC to 240 VAC.
- 240 VDC for China.

BTU Rating

Maximum

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

Power Supply Output (per power supply)

Rated Steady-State Power

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

Maximum Peak Power

- For 2400W M-CRPS Power Supply: 2400W (at 100 to 127 VAC), 2400W (at 200 to 240 VAC), 2400W (at 240 VDC) input for China only.
- For 1500W M-CRPS Power Supply: 1000W: (at 100 VAC), 1100W (at 110-120VAC), 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 more information on power specifications and technical content, reference the HPE M-CRPS QuickSpecs.

System Inlet Temperature

- **Standard Operating Support**
  10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. 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 Support**
  For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at Support ASHRAEGen12.
  For approved hardware configurations, the supported system inlet range is extended to be: 40°C to 45°C (104°F 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 Support ASHRAEGen12.
  System performance may be reduced if operating in the extended ambient operating range or with a fan fault.
- **Non-operating**
  -30° to 60°C (-22° to 140°F). The maximum rate of change is 20°C/hr (36°F/hr).

Relative humidity (non-condensing)

- **Operating**
  8% to 90% - Relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
- **Non-operating**
  5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

Altitude

- **Operating**
  3050 m (10,000 ft). This value may be limited by the type and number of options installed. The maximum allowable altitude change rate is 457 m/min (1500 ft/min).
- **Non-operating**
  9144 m (30,000 ft). The maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Emissions Classification (EMC)

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center: https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Acoustic Noise

Listed are the declared mean A-Weighted sound power levels (LWA,m), declared average bystander position A-Weighted sound pressure levels (LpAm) and the statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LWA,m when the product is operating in a 23 ± 2°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.

Test case	Entry 1 4LFF	Entry 2 SFF	Mid Range SFF	Performance SFF
Idle				
LWA,m	4.9 B	5.1 B	5.0 B	5.0 B
LpAm	35 dBA	37 dBA	37 dBA	37 dBA
Kv	0.4 B	0.4 B	0.4 B	0.4 B
Operating				
LWA,m	5.9 B	6.1 B	6.2 B	5.0 B
LpAm	44 dBA	45 dBA	48 dBA	37 dBA
Kv	0.4 B	0.4 B	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-4LFF Configuration: 1x Xeon® 6505P CPU, 3x SATA 7.2K LFF HDD, 1x 16GB DIMM, 1x 1000W PSU, 7x STD Fan, 1x MR408i-o OCP.
  - Entry-SFF Configuration: 1x Xeon® 6505P CPU, 1x SAS 10K SFF BC HDD, 1x 16GB DIMM, 1x 1000W PSU, 7x STD Fan, 1x MR408i-o OCP.
  - Medium Configuration: 1x Xeon® 6515P CPU, 8x SAS RI SFF BC VS MV SSD, 2x 32GB DIMM, 1x 1000W PSU, 7x STD Fan, 1x MR408i-o OCP, 1x 10/25G PCIe.
  - Performance Configuration: 1x Xeon® 6710E CPU, 8x NVMe RI BC U.3 SSD, 4x 32GB DIMM, 1x 1000W PSU, 7x Perf Fan, 1x 10GbE 2p OCP, 1x 10/25G PCIe.
- 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.

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

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

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type used 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
02-Nov-2026	Version 22	Changed	Standard Features and Core Options sections were updated.
		Added	Intel Xeon 6725P Processor Restriction
		Removed	Obsolete SKUs: Read Intensive - NVMe – SFF Mixed Use - NVMe – SFF Read Intensive – NVMe - EDSFF E3.S 1T
05-Oct-2026	Version 21	Changed	Service and Support section was updated.
08-Sep-2026	Version 20	Changed	Core Options section was updated.
		Added	Intel Xeon 6503P processor.
03-Aug-2026	Version 19	Changed	Core Options section was updated.
		Added	Intel Xeon 6745P processor.
		Removed	Read Intensive - NVMe – SFF obsolete SKUs.
06-Jul-2026	Version 18	Changed	Core Options section was updated.
		Added	Mixed Use - NVMe – EDSFF E3.S 1T Read Intensive – NVMe - EDSFF E3.S 1T
01-Jun-2026	Version 17	Changed	Standard Features and Core Options sections were updated.
		Added	HPE DDR5 Smart Memory QuickSpecs URL. Direct Liquid Cooling SKUs.
		Removed	Read Intensive - NVMe – SFF obsolete SKUs. Mixed Use - NVMe – SFF obsolete SKUs.
04-May-2026	Version 16	Changed	Core Options section was updated.
		Added	Read Intensive - NVMe – SFF, Mixed Use - NVMe – SFF, AMD Solarflare X4522 ethernet adapter, HPE InfiniBand ethernet adapter, HPE M-CRPS Titanium Hot Plug Power Supply Kits, and HPE Power Options SKUs.
		Removed	Intel® Xeon® 6 Performance-Core (P-Core) Processors and SED (Self-Encryption Drive) – SAS SFF obsolete SKUs.
06-Apr-2026	Version 15	Changed	Standard Features and Configuration Information sections were updated.
		Added	Memory F21 rules and Front OCP Enablement kits SKUs.
02-Mar-2026	Version 14	Changed	Configuration Information
		Added	Intel® Xeon® 6 Performance-Core (P-Core) Processor and HPE Power Options SKUs. Updated GreenLake statement.
		Removed	HPE InfiniBand obsolete SKU.
02-Feb-2026	Version 13	Changed	Core Options section was updated
		Added	Business Critical / Midline - 12G SAS - LFF Drives, Business Critical / Midline - 6G SATA - LFF Drives, HPE InfiniBand, HPE Power Options, and MR932i Storage Controllers SKUs.
		Removed	Business Critical / Midline - 12G SAS - LFF Drives and Business Critical / Midline - 6G SATA - LFF Drives obsolete SKUs.
05-Jan-2026	Version 12	Changed	Configuration Information and Additional Options sections were updated.
		Added	Intel® Xeon® 6 Performance-Core (P-Core) Processors SKUs.
		Removed	Factory Configuration Settings obsolete SKU.

Summary of Changes

Date	Version History	Action	Description of Change
01-Dec-2025	Version 11	Changed	Configuration Information section was updated.
		Removed	Read Intensive - NVMe – SFF and HPE InfiniBand obsolete SKUs.
03-Nov-2025	Version 10	Changed	Memory section was updated. Memory population guide matrix was created.
04-Aug-2025	Version 9	Changed	Standard Features and Core Options sections were updated.
		Added	NVIDIA Ethernet Adapters, EU Lot9 regulations.
		Removed	Intel® Xeon® 6 Socket Scalable (4S, 8S) SKUs.
07-Jul-2025	Version 8	Changed	Summary of Changes section was updated. Added: Version History URLs.
16-Jun-2025	Version 7	Changed	QuickSpecs survey URL was updated.
11-Jun-2025	Version 6	Changed	Core Options section was updated.
02-Jun-2025	Version 5	Changed	Core Options section was updated. Added: Intel® Xeon® 6 Socket Scalable (4S, 8S) SKUs.
05-May-2025	Version 4	Changed	Additional Options section was updated. Added: Software as a Service Management Enablement SKU (COM), European Union ErP Lot 9 Regulation section to include Turkey and Ireland.
14-Apr-2025	Version 3	Changed	Core Options section was updated. Removed: Cable Kit SKU.
24-Mar-2025	Version 2	Changed	Core Options section was updated. Added: 2SFF MCIO Direct Attach Cable Kit SKU and QuickSpecs Survey.
24-Feb-2025	Version 1	New	New QuickSpecs.

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