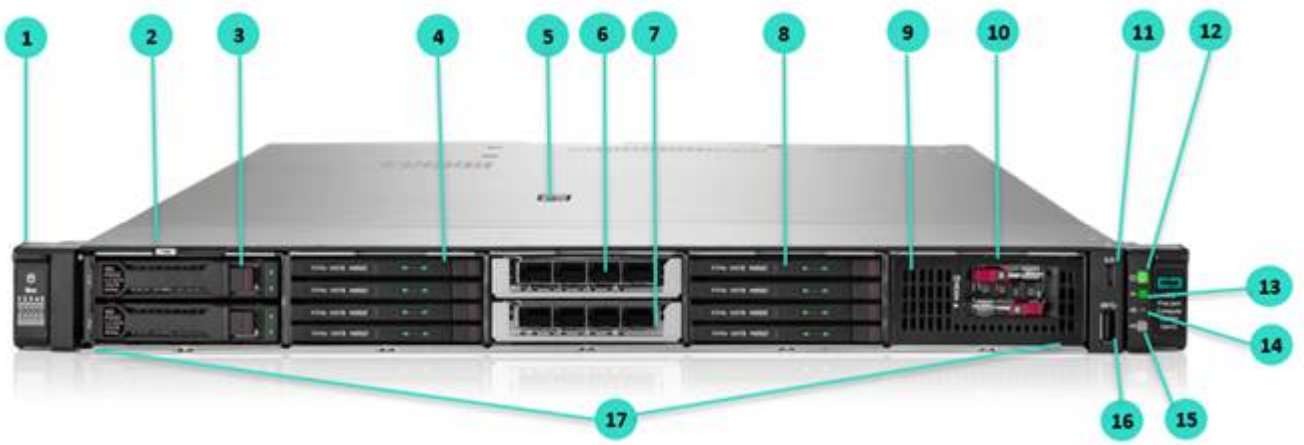
HPE ProLiant Compute DL360 Gen12

Are you looking for a compact, rack-optimized two-socket server that supports hybrid cloud workloads? The HPE ProLiant Compute DL360 Gen12 is a compact 1U 2P server that delivers exceptional compute performance, memory density with scalability and high-speed data transfer rate to run your most demanding applications. With the right balance of expandability and density. Designed for supreme versatility and resiliency while backed by a comprehensive warranty,

Powered by Intel® Xeon® 6 Processors with up to 144 cores, plus up to 8TB of DDR5 memory running at maximum 6400 MT/s. DL360 Gen12 can be scaled with a variety of front storage support, ranging from 3.5" 4x LFF, 2.5" 10x SFF as well as 20x E3.S NVMe drives.

The HPE ProLiant Compute DL360 Gen12 is an ideal hybrid cloud platform for enterprise applications and workloads. This is an intelligent sever in three pillars. First, the intelligent multiple-purpose front cage design delivers extreme scalability through hybrid front storage including SFF, E3.S, OS Boot device and front OCP NIC (post launch). Secondly, the intelligent leak detection feature provides easy maintenance of Closed-loop Liquid Cooling and Direct Liquid Cooling modulars. Lastly, the DL360 Gen12 Smart Chassis configuration tool designed in the One Configuration Advanced offers extended thermal capability associated with high power CPU and high-bandwidth networking cards for Compute Nodes and Networking Nodes.

The HPE ProLiant Compute DL360 Gen12 is engineered for your future, with next-level security, optimized performance and efficiencies, and automated, AI-driven productivity. DL360 Gen12 server is an excellent choice of daily business and workloads in General Compute, Database Management, Virtual Desktop Infrastructure, Content Delivery Network, EDA, CAD, Containers, Edge Acceleration and Intelligent Video Analytics.



Front View - 10SFF/20EDSFF Hybrid CTO Server - Multi-purpose Front Cages

Overview

1. Drive support label
2. Serial number/iLO information pull tab (optional- shown)
3. Box1 (must be selected, with two options)

   - 2 SFF 24G x4 TriMode U.3 BC backplane cage (shown)

4.. Box2 (optional, two options)

   - 4 E3.S 32G x4 NVMe backplane cage (shown)

5. Quick removal access panel
6. Box3 Bay1 (optional, three options)

   - Secondary front OCP NIC enablement kit (shown)

7. Box 3 Bay3 (optional, three options)

   - Primary front OCP NIC enablement kit (shown)

8. Box4 (optional, three options)
   - 4 E3.S 32G x4 NVMe backplane cage (shown)
9. Box5 - Airflow vent hole (optional- shown)
10. Box5 (optional, four options)

    - Front RAID1 OS Boot Enablement Kit (shown)

11. iLO Service port in USB Type C
12. Power On/Standby button and system power LED
13. Health LED
14. NIC status LED
15. Unit ID button/LED
16. USB 3.2 Gen1 port
17. Front multi-purpose cage, Box 1 to 5

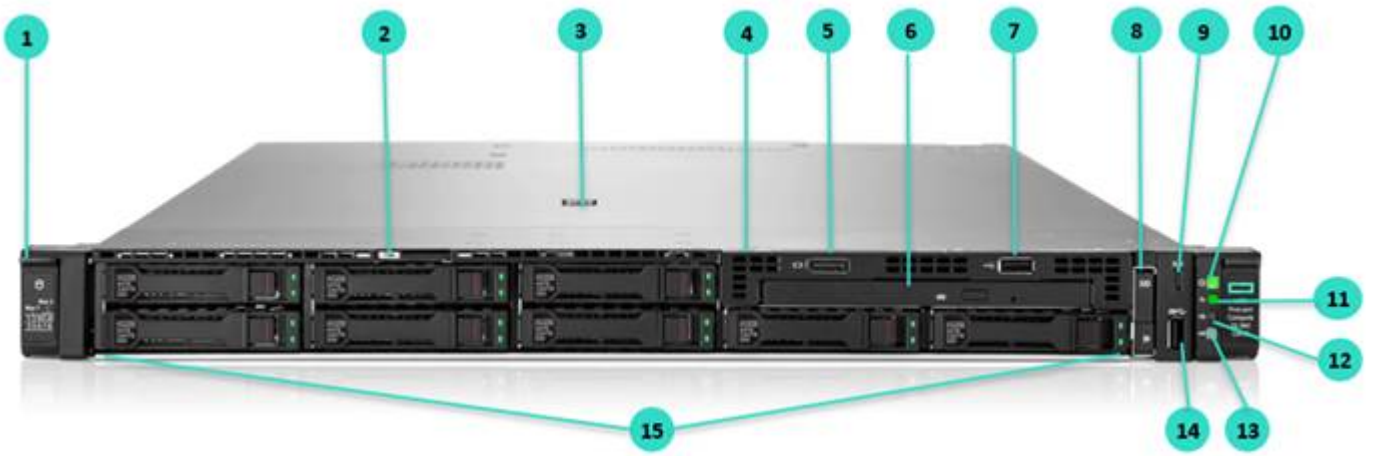
    -Choice of 2 SFF, 4 E3.S, front RAID1 OS Boot, or front

    OCP NIC enablement kits

Notes:

- The optional Systems Insight Display (SID) module is not available in the 10SFF/20EDSFF Hybrid CTO Server.
- Front OCP NIC enablement Kits will be available CQ2 2025, as post launch feature.
- Front NIC LED display doesn't support NIC LED ACT/LINK indication from: embedded/on-board LOM/ALOM/FLOM (not available in this system), OCP NIC cards designed without Scan Chain feature, and PCIe type NIC adapters.

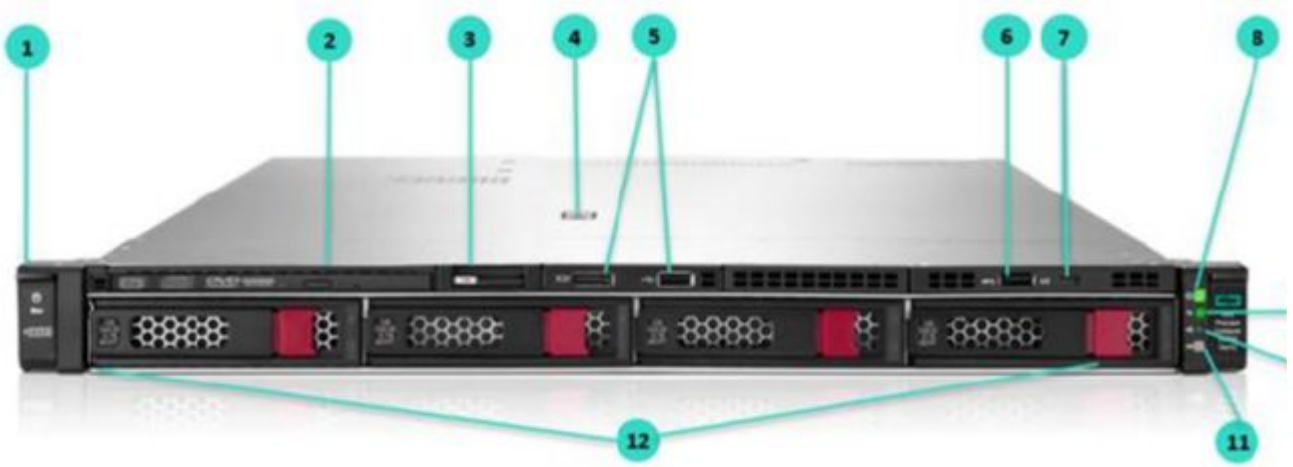
Overview



Front View - 8SFF CTO Server - 8SFF + optional Universal Media Bay (Optical drive, Display Port, USB 2.0)

1. Drive support label
2. Serial number/iLO information pull tab
3. Quick removal access panel
4. Universal Media Bay (optional, two options):
   - Optical drive bay + Display port & USB 2.0
   kit (shown), or
   - 2 SFF 24G x4 TriMode U.3 BC backplane cage
5. Display Port (optional- shown)
6. Optical Drive (optional- shown)
7. USB 2.0 port (optional- shown)
8. System Insight Display (SID) Module (optional- shown)
9. iLO Service port in USB Type C
10. Power On/Standby button and system power LED
11. Health LED
12. NIC status LED
13. Unit ID button/LED
14. USB 3.2 Gen1 port
15. Front Drive Cage (optional)
    - 8 SFF 24G x1 TriMode U.3 backplane cage (shown)

Notes: Front NIC LED display doesn't support NIC LED ACT/LINK indication from: embedded/on-board LOM/ALOM/FLOM (not available in this system), OCP NIC cards designed without Scan Chain feature, and PCIe type NIC adapters.



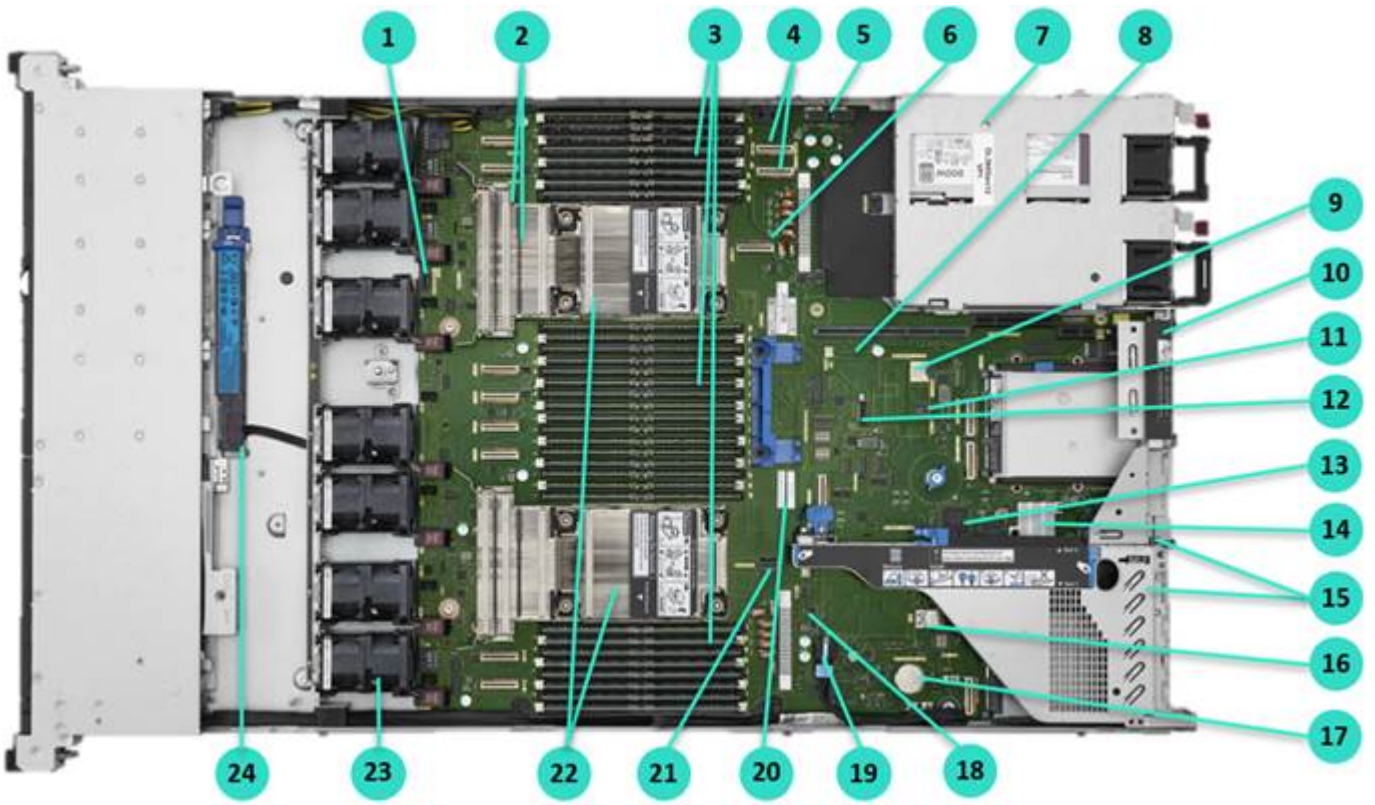
Front View - 4LFF CTO Server - 4 LFF + Optional optical drive, Display Port and USB2.0

Overview

1. Drive support label
2. Optical drive (optional- shown)
3. Serial number/iLO information pull tab (optional-shown)
4. Quick removal access panel
5. Display port & USB 2.0 port bundle kit (optional-shown)
6. USB 3.2 Gen1 port
7. iLO Service port in USB Type C
8. Power On/Standby button and system power LED
9. Health LED
10. NIC status LED
11. Unit ID button/LED
12. Front Drive Cage: 12G x1 SAS LP backplane cage - Connect to a hardware controller card is required

Notes:

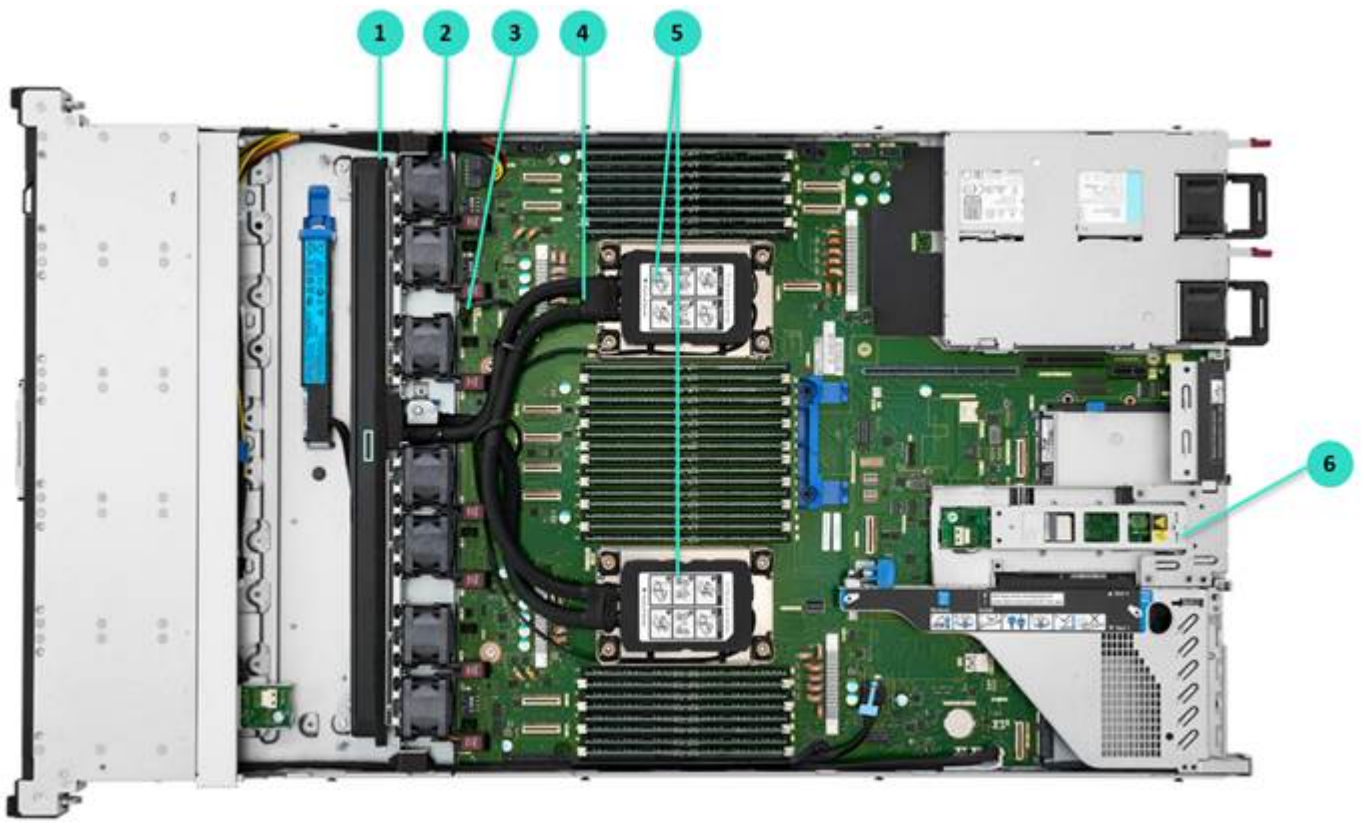
– The Systems Insight Display (SID) module is not available in the 4LFF CTO Server.
– Front NIC LED display doesn't support NIC LED ACT/LINK indication from embedded/on-board LOM/ALOM/FLOM (not available in this system), OCP NIC cards designed without Scan Chain feature, and PCIe type NIC adapters.



Internal View - Air Cooling

Overview

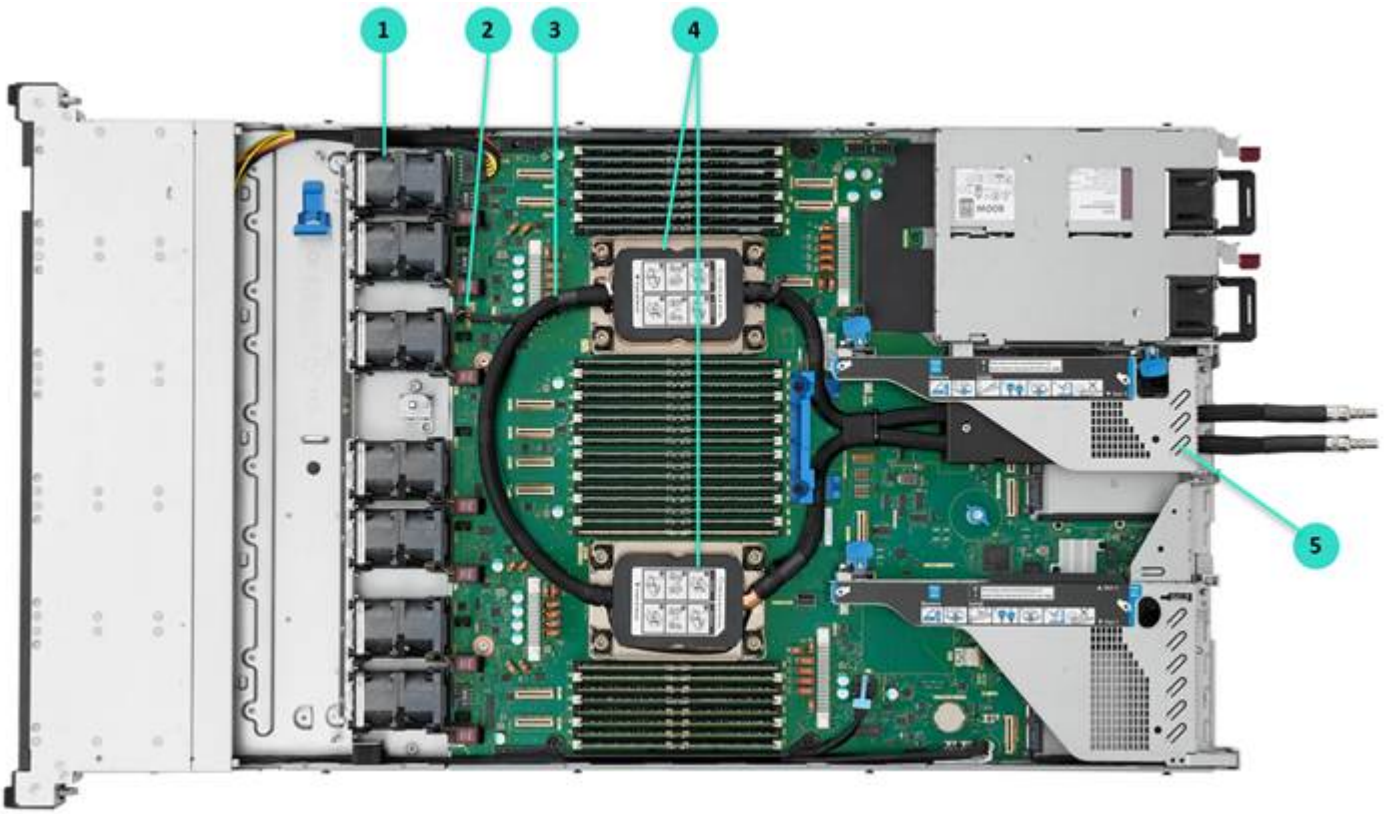
1. Liquid Cooling Module Power & Signal Connector
2. x8 lanes MCIO ports (#8 to #5 from CPU2, #4 to #1 from CPU1)
3. DDR5 DIMM Slots (fully populated 32 DIMMs shown)
4. x8 lanes MCIO ports (#9 & #10 from CPU2)
5. Rear Backplane Power connector (Not supported)
6. x8 lanes MCIO ports (#11 from CPU2)
7. Redundant Power Supply (1 & 2 as shown)
8. Voltage Backup Unit #2
9. Energy Pack (Megacell) Power Connector
10. Secondary (CPU2) Riser PCIe 5.0 (optional, shown as blank)
    - Low Profile x16, or
    - Full Height x16 (lost Slot 2 on Primary Riser)
11. OS Boot Device Power Connector
12. SID Power & Signal Connector (Optional, 8SFF CTO server)
13. CPLD
14. iLO7 ASIC & Heatsink
15. Primary (CPU 1) Riser PCIe 5.0
    - 1x16 FH at Slot1 and 1x16 LP at Slot2
16. Internal USB 3.2 Gen1 Ports (Qty 2, no HPE option kits)
17. System Battery
18. Voltage Backup Unit #1
19. Front I/O Connector (slimSAS)
20. x8 lanes MCIO Ports (#12 from CPU1)
21. OS Boot Device Signal Connector (slimSAS)
22. CPU2, CPU1 and Performance Heatsink Kit (top down)
23. Hot plug/dual rotor 4056 High Performance Fan Kit (7 Fans)
24. Energy Pack holder (for HPE Hybrid Capacitor or HPE Storage Battery)



Internal View - Closed Loop Liquid Cooling Heatsink & Fan Kit

Overview

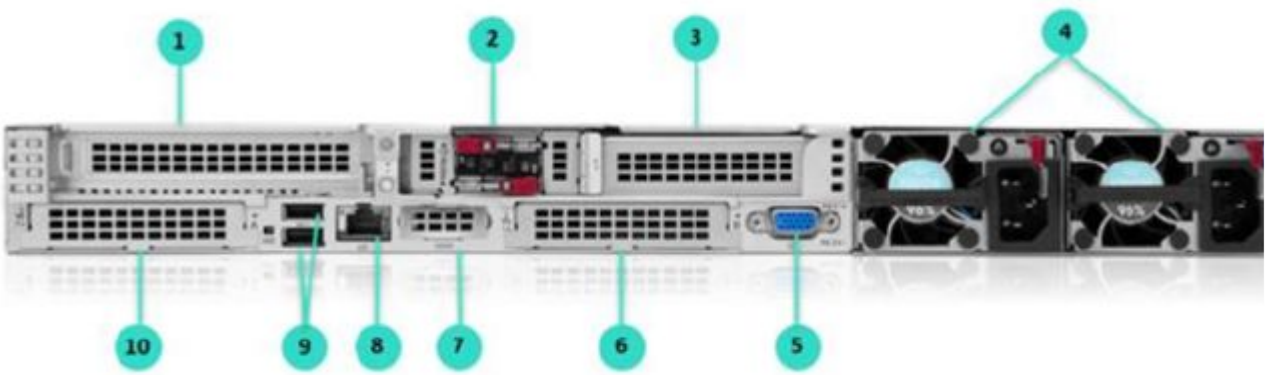
1. Closed-loop Liquid Cooling Radiator
2. Closed-loop Liquid Cooling Hot Plug Fan Kits (7x 4028 fans)
3. Liquid Cooling Module Power & Signal Connector
4. Closed-loop Liquid Cooling Tubes & Leak
5. Closed-loop Liquid Cooling Cold Plates an
6. Rear (Hot Plug) RAID1 OS Boot Device (a



Internal View - DL3XX Gen12 Cold Plate Module FIO Kit from PCIe

1. Hot plug (dual rotor) High Performance Fan Kit (7x 4056 Fans)
2. Liquid Cooling Module Power & Signal Connector
3. Direct Liquid Cooling Tubes & Leak Detection cables
4. Direct Liquid Cooling Cold Plates & Pumps (redundancy)
5. Direct Liquid Cooling Module from PCIe3

Notes: The Direct Liquid Cooling Module from PCIe2 will be available H2 2025, as post launch feature.



Overview

Rear View - Standard for all DL360 Gen12

1.	Slot 1: x16 PCIe 5.0 - Full Height	6.	Slot 15 OCP B: x16 PCIe 5.0 (Requi
2.	Slot 2: x16 PCIe 5.0 - Low Profile. OS Boot Device installed (optional - shown)	7.	Serial port (optional, blank shown)
3.	Optional: Slot 3 x16 PCIe 5.0 (Requires 2nd CPU) - Low Profile and Full Height riser cards	8.	iLO Management Port
4.	Redundant Power Supply (1 & 2 as shown)	9.	USB 3.2 Gen1 Ports
5.	Video (VGA) port	10.	Slot 14 OCP A: x16 PCIe 5.0

Notes:

- Both OCP Slots support OCP NIC 3.0 cards.
- CPU1 can support Slot 14 OCP A with x8 PCIe 5.0 as default, no cable connection is required.
- CPU1 can support Slot 14 OCP A with x16 PCIe 5.0 with selection of "P72201-B21, CPU1 to Rear OCP SlotA x16 (
- Or CPU1 can support supports Slot 15 OCP B with x8 PCIe 5.0 with selection of "P72203-B21, CPU1 to Rear OCP Kit".

What's New

- All new DL360 Gen12 server
- New DL360 Gen12 10SFF/20EDSFF Hybrid NC CTO Server, with mult-purpose front cage
- New Intel® Xeon® 6 Processors
- Full speed x4 PCIe 5.0 support
- New HPE ProLiant Compute DDR5 Smart Memory - 6400MT/s
- New HPE iLO ASIC and iLO7 support
- New DL360 Gen11/Gen12 x16 Primary Riser Kit
- New DL360 Gen12 High Performance Heat Sink Kit
- New HPE NS204i-u V2 480GB NVMe Hot Plug Boot Optimized Storage Device, at front, rear or internal
- Intel® Virtual RAID on CPU (Intel® VROC) for HPE ProLiant Servers
- HPE MR Gen11 Storage Controllers
- New HPE Storage SSD and HDD support
- Nvidia L4 GPU support

Overview

Platform Information

Form Factor

- 1U rack

Chassis Types

- 10SFF Basic Carriers (BC) drive cages or 20E3.S drive cage: 24G x2/x4 Trimode U.3 or 32G x2/x4 NVMe
- (8+2) SFF BC drive bays:
  - 8SFF 24G x1 TriMode U.3, and
  - Optional:
    - 2SFF BC drive cage: 24G x4 TriMode U.3
    - Universal Media Bay: Optical drive, 1x USB3.2 Gen1 and 1x Display Port
- 4 LFF Low Profile (LP) drive bays: 12G x1 TriMode U.3
  - Optional:
    - Optical drive
    - 1x USB3.2 Gen1 and 1x Display Port

System Fans

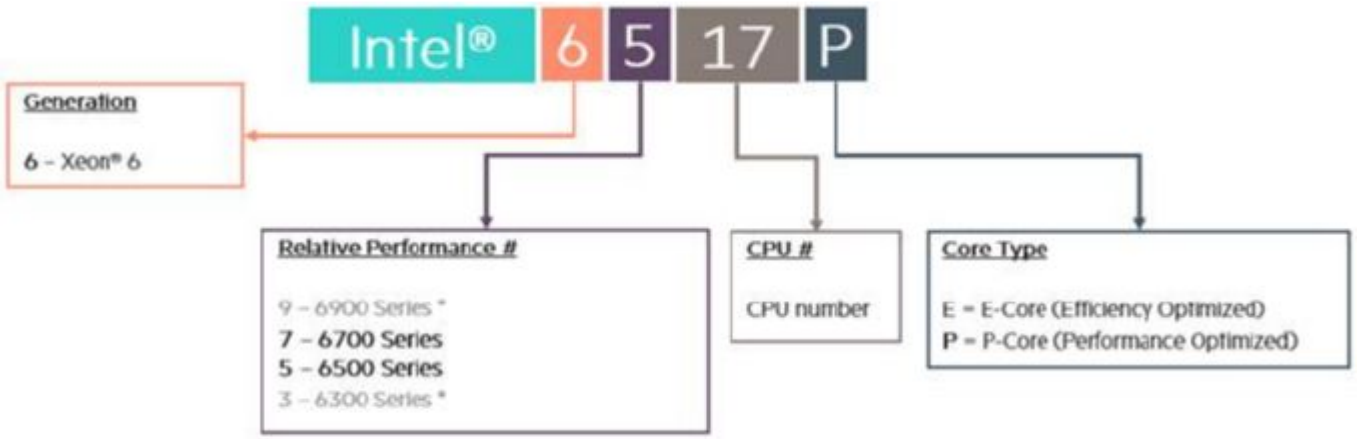
- Choice of 1P (one processor) Standard Fan Kit, 2P (two processors) Standard Fan Kit, Performance Fan Kits, and Closed-loop Liquid Cooling Heatsink Fan FIO Bundle Kit
- Choice of Performance Fan Kits and Closed-loop Liquid Cooling Heatsink Fan FIO Bundle Kit

Notes:

- Standard Fan Kit: Dual rotor hot plug Standard Fan kit (includes 5 fans) for processors below 185W TDP.
- Optional 2P standard Fan Kit: Dual rotor hot plug 2P Standard Fan Kit (includes 2 fans) for second processor.
- Performance Fan Kit: Dual rotor hot plug High Performance Fan Kit available (includes 7 fans), for one or two processors from 186W to 270W TDP. Or one processor with 300W TDP.
- The DL360 Gen11 will support up to 7 fans with fan redundancy built in. One fan rotor failure will place the server in degraded mode but fully functional. Two fan rotor failures could provide warning and imminent server shutdown.
- Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit supports one or two processors that go beyond 271W TDP, as factory installation kit only. Customer self-repair or self-field upgrade is not allowed.
- Direct Liquid Cooling Heatsink Fan FIO Bundle Kit supports two processors that go beyond 271W TDP, with enhanced thermal condition.

Processors

Overview



Intel® Xeon® 6 processor naming convention

Notes:

– * CPU Series not support on HPE ProLiant Compute Gen12 platforms.
– All information provided here is subject to change without notice. Intel may make changes to specifications and pro
at any time, without notice. Please contact your Intel representative to obtain the latest Intel product specifications
– For more information regarding Intel® Xeon® 6 processors, please see the following **http://www.intel.com/xeon**.

The HPE ProLiant DL360 Gen12 server supports Intel® Xeon 6® Processors

- Up to 2 of the following, depending on model.
- Efficient Core (E-Core) and Performance-Core (P-Core) processors.
- Public support SKUs as below.

Intel® Xeon 6® Processors with Efficient-Cores (E-Cores)								
Performance per Watt Processors								
Intel® Xeon® Models	**Base Speed (GHz)**	**Cores**	**L3 Cache (MB)**	**Power (W)**	**UPI**	**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	2.0	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
Performance Processors								
6780E	2.2	144	108	330	4	6400	512	HDCC

Overview

Intel® Xeon 6® Processors with Performance-Cores (P-Cores)								
Performance General Purpose Processors								
Intel® Xeon® Models	**Base Speed (GHz)**	**Cores**	**L3 Cache (MB)**	**Power (W)**	**UPI**	**DDR5 (MT/s)***	**SGX Enclave size (GB)**	**Die**
6507P	3.5	8	48	150	4	6400	512	LCC
6517P	3.2	16	72	190	4	6400	512	LCC
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
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

Mainline Processors								
Intel® Xeon® Models	**Base Speed (GHz)**	**Cores**	**L3 Cache (MB)**	**Power (W)**	**UPI**	**DDR5 (MT/s)***	**SGX Enclave size (GB)**	**Die**
6505P	2.2	12	48	150	4	6400	128	LCC
6515P	2.3	16	72	150	4	6400	128	LCC
6520P	2.4	24	144	210	4	6400	128	HCC
6730P	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

Cooling solution options Processor TDP

- Optional: Qty 1 or 2
- Thermal requirements.

CPU TDP (Wattage)	Heatsink (HS)	Fan Kit	Availability
<=185W	Standard HS	Standard Fan Kit (5/7ea)	At launch
186W- 270W	Performance HS	Performance Fan Kit	At launch
<=270W (1P only)	Closed-loop HS	Closed-loop Fan Kit	At launch
271W - 350W	Closed-loop HS	Closed-loop Fan Kit	At launch
=300W (1P only)	Performance HS	Performance Fan Kit	Post launch
<=350W	DLC CPM	DLC Fan kit (=Perf. Fan Kit)	At launch

Chipset

- No PCH for Intel® Xeon 6® Processors
- SATA signal is not available

Notes: For more information regarding Intel® chipsets, please see the following URL:
https://www.intel.com/content/www/us/en/products/chipsets/server-chipsets.html

Overview

System Management Chipset

- HPE iLO 7 ASIC

Notes: Read and learn more in the **iLO QuickSpecs**.

Graphics

Integrated video standard

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

Memory Controller

- 8 channels DDR5 per socket
- 2 DIMMs-per-channel (2DPC), 32 DIMMs in total
- DDR5 - Up to 6400MTs 1DPC, 5200 2DPC
- VR-on-DIMM Architecture
- System board supports registered DIMM (RDIMM) with ECC, and Multiplexed Rank DIMM/Monument Creek (MR up to 8000 1DPC (2 slots per channel). Yet MRDIMM/MCR kits are not publically available in Compute share op
- Supports single-rank (SR), dual-rank (DR), quad-rank (QR), and octal-rank (8R) DIMM modules
- 8TB max memory limit (4TB per processor)
- RAS - Advanced ECC, Mirroring, and ADDDC

Memory

Type	HPE DDR5 Smart Memory	Registered (RDIMM)
DIMM Slots Available	32	16 DIMM slots per processor, 8 channels per processor, 2 DIMMs per channel
Maximum capacity (RDIMM)	8.0 TB	32 x 256 GB RDIMM 6400 MT/s @ 1DPC and 5200MT/s @ 2DPC

Notes:

- All processors support up to 4TB memory per socket.
- 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.
- For additional information, please visit the **HPE Memory QuickSpecs and Technical White Papers** OR **HPE DD Memory QuickSpecs**.

PCIe Expansion Slots

Overview

Primary Riser (default in chassis)					
Slots #	**Technology**	**Bus Width**	**Connector Width**	**CPU**	**Slot Form Factor**
1	PCIe 5.0	x16	x16	CPU 1	Full-height, up to 9.5" length (or half-length card)
2	PCIe 5.0	x16	x16	CPU 1	Half-height (Low-profile), up to 9.5" length (or half-length card)

Notes: The specifications above correspond with the default primary butterfly riser, which comes with CTO chassis.

Secondary Riser*					
Slots #	**Technology**	**Bus Width**	**Connector Width**	**CPU**	**Slot Form Factor (two options)**
3	PCIe 5.0	x16	x16	CPU 2	Full-height, up to 9.5" length (or half-length card). Slot 2 will not be available.
					Half-height (Low-profile), up to 9.5" length (or up half-length card). Slot 2 is available.

Notes:

- All PCIe Slots support Wake-on-LAN (WoL) feature.
- If secondary riser is selected, then 2 Processors must be selected.
- If secondary riser is not selected and "NS204i-u Rear Cable Kit" is not selected, then maximum 2 quantity of PCIe c selected at Slot1 & Slot2. If secondary riser is not selected and "NS204i-u Rear Cable Kit" is selected, then maxi of PCIe cards can be selected at Slot1.
- If secondary FH riser is installed, then primary PCIe Slot2 cannot be used, maximum 2 quantity of PCIe cards can b Slot 1 & Slot3. If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can be selected
- If Secondary LP riser and "NS204i-u Rear Cable Kit" are selected, then maximum 2 quantity of PCIe cards can be s & Slot3. If Secondary LP riser is selected and "NS204i-u Rear Cable Kit" is not selected, then maximum 3 quanti can be selected.
- Field upgrade kit for Primary riser cards setting (for Slot2) after factory installation and shipment is now available wi (HPE ProLiant Compute DL360 Gen11/Gen12 x16 Primary Riser Kit).

Overview

OCP Expansion Slots

Rear OCP3.0 Slot Priority Support Matrix						
Rear wall		Selected OCP cards (Qty & type)				
		2	1	2	1	2
Slots #	**Wake-on-LAN**	**1xOROC[1] + 1x NIC[2]**	**1xNIC**	**2xNICs**	**1xOROC**	**2x OROCs**
14 OCPA	Yes (incl. Share NIC)	OROC	NIC (Primary)	NIC (Primary)	OROC (Primary)	OROC[4] (Primary)
15 OCPB	Yes (Incl. Share NIC)	NIC	None	NIC	No support[3]	OROC[4]

Notes:

– [1] OCP form factor internal controller.
– [2] OCP Networking card.
– [3] If only 1 OROC card is selected in P72175-B21 (8SFF NC CTO Server), by default connected from 8 SFF backpl
And there is no controller cable that can connect from 8 SFF Backplane to OCPB.
– [4]If 2 OROC cards are selected in P72175-B21 (8SFF NC CTO Server), by default the 8 SFF controller cable is con
(the comparably higher-end OROC card to be selected by default) and the 2 SFF backplane is connected to OCI
OROC card selected (comparably less high-end one) with 2FF controller cable.
– In all three CTO Servers, each OCP slot is in design with up to x16 electrical PCIe5.0 lanes through OCP enableme
– The only exception will be when in q'ty 20 E3.S configuration, Slot 14 OCPA will be supported only with x8 lanes fro
changes from Slot 15 OCPB with x16 lanes.

Internal Storage Devices

- **Optical Drive**

Available as an option

- **Hard Drives**

None ship standard

Internal Network Controller

There is no embedded network controller included from system board. The HPE ProLiant Compute DL360 Gen12 s
customer a variety of networking options which are outlined in the Core Options selection in this document.

Storage Controllers options

Overview

HPE Boot Devices option

- HPE NS204i-u V2 480GB NVMe Hot Plug Boot Optimized Storage Device (P78279-B21) [1]
- HPE ProLiant Compute DL3XX Gen12 1U NS204i-u Front Enablement Kit (P77198-B21)
- HPE ProLiant Compute DL360 Gen12 NS204i-u Rear Enablement Kit (P72197-B21)
- HPE ProLiant Compute DL360 Gen12 NS204i-u Internal Enablement Kit (P72595-B21)

DL360 Gen12 Boot Device Enablement Kit options				
Enablement Kit	**CTO Server competibility**	**Field Inst.**	**Location**	**Hot-plug Capability**
P77198-B21	10SFF/20EDSFF Hybrid NC CTO Server	Yes	Front Cage Box5	Yes
P72197-B21	10SFF/20EDSFF Hybrid NC CTO Server 8SFF NC CTO Server 4LFF NC CTO Server	Yes	PCIe Slot 2[2]	Yes
P72595-B21	10SFF/20EDSFF Hybrid NC CTO Server 8SFF NC CTO Server 4LFF NC CTO Server	Yes	Internal	No support

Notes:

– [1]x4 PCIe Gen3.0 OS Boot device includes 2x 480GB M.2 NVMe SSDs, with preconfigured hardware RAID1.
– [2]For field update NS204i-u V2, removing the original PCIe Slot 2 cage and re-install the dedicated DL360 Gen12 NS latch, and cables in the P72197-B21.
– [2]The NS204i-u will take up PCIe Slot 2 space only. The PCIe Slot 1 (FHHL) and PCIe Slot 3 (to be Low Profile) are a system with the selection of optional "HPE ProLiant Compute DL360 Gen11 x16 LP Riser Kit (P48903-B21)".
– For additional information, please see the **HPE OS Boot Device Options QuickSpecs** or **HPE NS204i Boot Dev**

Intel® Virtual RAID on CPU (VROC)

Maximum physical drive per array varies with platform maximum storage specification. More technical details are ava

Intel VROC for HPE QuickSpecs

Intel Virtual RAID on CPU for HPE User Guide

- Intel® VROC SATA for HPE

Notes:

– Embedded Intel® VROC SATA for HPE ProLiant Gen12, with 14 SATA ports (10-ports accessible),
– Intel® VROC for HPE ProLiant Gen11 is an enterprise, hybrid Software RAID solution specifically designed for SSD
– Intel® VROC is a software-based solution utilizing Intel® CPU to RAID or HBA direct connected drives.
– RAID Support- 0/1/5/10.
– (for 8 SFF Backplane Cage, Bay 1-4 & Bay 5-8 are in different RAID groups)
– Windows and Linux OS support.
– Host Tools- Windows GUI/CLI, Linux CLI.
– UEFI Support- HII Utility, OBSE.
– iLO Support- IML, Alert, SNMP, AHS.

Overview

– iLO Redfish- Redfish Read.
– Intel® VROC SATA for HPE ProLiant Gen12 will operate in UEFI mode only. For legacy support, an additional stora will be needed.
– Intel® VROC SATA is off by default and must be enabled.

- Intel® Virtual RAID on CPU (VROC) for HPE ProLiant

– Intel® Virtual RAID on CPU Premium E-RTU for HPE

– Intel® Virtual RAID on CPU RAID 1 E-RTU for HPE

Notes:
– All models feature 4 x8 PCIe 5.0 connectors per socket for NVMe connectivity, provide support for up to 8 di NVMe bays.
– Only supported on SFF models.
– Intel® VROC for HPE ProLiant is an enterprise, hybrid RAID solution specifically designed for NVMe SSDs directly to the CPU. Intel® VROC is a software-based solution utilizing Intel® CPU to RAID or HBA direct drives.
– Host Tools- Windows GUI/CLI, Linux CLI.
– UEFI Support- HII Utility, OBSE.
– Active health monitoring of NVMe M.2 drives requires use of SMART tools.
– Intel® VROC NVMe for HPE ProLiant will operate in UEFI mode only. For legacy support, an additional Tri-M will be needed.
– For NVMe SSDs only, no PCIe cards support.

Hardware RAID Controller Options

- HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller
- HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller
- HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller
- HPE 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:
– PE80xx NVMe drives are not supported.
– For more information, please visit **HPE Compute MR Gen11 Controllers QuickSpecs**, **HPE MR Gen11 Contro HPE MR Storage Administrator User Guide** or **HPE StorCLI User Guide**.

Maximum Storage

Overview

Storage	Capacity	Configuration
Hot Plug SFF SAS HDD	24.0 TB	10 x 2.4 TB
Hot Plug SFF SAS SSD	153.6 TB	10 x 15.36 TB
Hot Plug SFF SATA SSD	76.8 TB	10 x 7.68 TB
Hot Plug SFF U.3 NVMe PCIe SSD	153.6 TB	10 x 15.36 TB
Hot Plug LFF SAS HDD	96.0 TB	4 x 24 TB
Hot Plug LFF SATA HDD	96.0 TB	4 x 24 TB
Hot Plug LFF SAS SSD	3.84 TB	4 x 960 GB (in LPC)
Hot Plug LFF SATA SSD	3.84 TB	4 x 960 GB (in LPC)
M.2 NVMe SSD	960 GB	2 x 480 GB (shipped with optional HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device): Available with external or internal version
EDSFF NVMe SSD	307.2TB	20 x 15.36 TB
Hot Plug SFF SAS HDD	24.0 TB	10 x 2.4 TB

Power Supply

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

Notes: Available in 94%efficiency.

- HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit

Notes: Available in 96% efficiency.

- HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit
- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit

Notes:

- Available in 94% efficiency.
- 1600W Platinum Power supplies only support high line voltage (200 VAC to 240 VAC).

- HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit

Notes:

- Available in 96% efficiency.
- 1800-2200W Titanium Power supply only supports high line voltage (200 VAC to 240 VAC).

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, installation into HPE ProLiant Compute DL360 Gen12 Performance Server. Flex Slot power supplies are certified for operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server co flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data ce

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is alsc each standard AC power supply option kit. If a different power cord is required, please check the **ProLiant Power Ca**

To review the power requirements for your selected system, please visit the HPE Power Advisor located at: **HPE Po**

For information on power specifications and technical content visit **HPE Flexible Slot Power Supplies.**

Overview

For information regarding European Union Erp Lot 9 Regulation visit **Industry Standard Compliance** section.

Interfaces

Serial	1 port - Optional
Video	1 Front - Display port (optional) 1 Rear - VGA port (standard on all models) **Notes:** Both ports can active simultaneously.
Network Ports	None. Choice of OCP or stand-up card, supporting a wide range of NIC adapters. DL360 Gen12 CTO Server in One Config Advanced will come with a pre-selected primary networking card, reselection is allowed.
HPE iLO Remote Mgmt Port at rear	1 GbE Dedicated
Front iLO Service Port	1 standard in USB Type C
USB	5 **standard** on all models: 1 front, 2 rear, 2 internal +1 optional at the front • Front: 1 USB 3.2 Gen1 + iLO service port in USB Type C • Rear: 2 USB 3.2 Gen1 • Internal: 2 USB 3.2 Gen1 (HPE share option kit Is not available) • Optional: 1 Front USB 2.0 (in 8SFF and 4LFF CTO servers)
Systems Insight Display (SID)	Optional for 8 SFF CTO Server model

Operating Systems and Virtualization Software Support for HPE Servers

HPE servers are designed for seamless integration with partner Operating Systems and Virtualization Software. By c closely with our partners, we ensure that their products are optimized, certified, and fully supported within your HPE s environment.

Access the certified and supported servers for each of the OS and Virtualization software: **HPE Servers Support & Matrices**

Industry Standard Compliance

- ACPI 6.5 Compliant
- PCIe 5.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- PXE Support
- VGA
- Display Port

Notes: Support from the optional Universal Media Bay.

Overview

- USB 3.2 Gen1 Compliant
- USB 2.0 Compliant (only on optional Universal Media Bay and embedded internal USB)
- USB NIC Driver in UEFI for Factory
- UEFI (Unified Extensible Firmware Interface Forum) Class 3 Support
- UEFI (Unified Extensible Firmware Interface Forum) 2.7 support

Notes: UEFI is the default for the DL360 Gen12.

- OCP 3.0 SFF NIC Support
- OCP 3.0 SFF Storage Support
- Embedded TPM Support
- Energy Star 4.0
- SMBIOS 3.7
- UEFI 2.10 (Unfified Extensible Firmware Interface Forum)
- UEFI Class 3
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- Advanced Encryption Standard (AES)
- SNMP v3
- TLS 1.2
- DMTF Systems Management Architecture for Server Hardware Command Line (SMASH CLP)
- Active Directory v1.0
- ASHRAE A3/A4

Notes:

For additional technical, thermal details regarding ambient temperature, humidity, and feature support, please
http://www.hpe.com/servers/ashrae
Under Standard Operating Support conditions, there is no time limitation for operating the servers in ASHRAE conditions, unless otherwise specified in the applicable product information.

- European Union Erp Lot 9 Regulation

European Union (EU) eco-design regulations for server and storage products, known as Lot 9, establishes power idle state, as well as efficiency and performance in active state which vary among configurations. HPE ProLia Gen12 servers are compliant with Lot9 requirements.

Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), th Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for **si** HPE Flexible Slot power supplies are single-output, and part numbers P03178-B21 and P44712-B21 are 96% meeting requirements.

Please visit: **https://www.hpe.com/us/en/about/environment/msds-specs-more.html** for more informatio Lot 9 conformance

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HPE Server UEFI

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more sec configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Compute Gen12 ser UEFI Class 2 implementation to support UEFI Mode.

Notes: The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. Fo

information, please visit **http://www.hpe.com/servers/uefi**.

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

- Secure Boot and Secure Start enable 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 3.2 Gen1 Stack
- Workload Profiles for simple performance optimization

UEFI Boot Mode only

- TPM 2.0 Support
- iSCSI Software Initiator Support.
- NVMe Boot Support
- HTTP/HTTPs Boot support as a PXE alternative.
- Platform Trust Technology (PTT) can be enabled.
- Boot support for option cards that only support a UEFI option ROM.

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

Enabling TPM 2.0 no longer requires TPM module option kit for Gen12. It is an embedded feature yet disabled for shi China.

HPE Compute Ops Management

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

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

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

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

Embedded Management

HPE Integrated Lights-Out (HPE iLO)

Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO.

Overview

Learn more at **http://www.hpe.com/info/ilo.**

UEFI

Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI).

Learn more at **http://www.hpe.com/servers/uefi**.

OpenBMC Support

OpenBMC Capable through iLO7 Transfer of Ownership Process.

Learn more at **OpenBMC Support**

Intelligent Provisioning

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

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

iLO RESTful API

iLO RESTful API is DMTF Redfish API information and offers simplified server management automation such as con
maintenance tasks based on modern industry standards. Learn more at **http://www.hpe.com/info/restfulapi**.

Server Utilities

Active Health System

The HPE Active Health System (AHS) is an essential component of the iLO management portfolio that provides cont
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 wit
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 optimiz
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
For additional information please visit: **http://www.hpe.com/info/ilo/mobileapp**.

Overview

RESTful Interface Tool

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

HPE OneView Standard

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. I multiple HPE server generations. The user interface is similar to the HPE OneView Advanced version, but the softwa functionality is not available. Learn more at **http://www.hpe.com/info/oneview**.

HPE Systems Insight Manager (HPE SIM)

Ideal for environments already using HPE SIM, it allows you to monitor the health of your HPE ProLiant Servers and H Servers. Also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Man quick and seamless firmware updates. Learn more at **http://www.hpe.com/info/hpesim**.

Security

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

HPE Integrated Lights-Out (HPE iLO7): This product offers advanced embedded security features for monitoring, ser reporting, and remote management.

Enhanced Server Data Security: Encryption and key management, iLO Managed Encryption, UEFI-managed encrypt 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 sanit the secure decommissioning of servers.

Expanded Industry Security Compliance: Adherence to standards such as FIPS 140-3, NIST SP 800-53, NIST SP 80 NIST SP 800-88.

HPE GreenLake for Compute Ops Management: Provides an intuitive cloud operating experience, ensuring streamlin secure operations from the edge to the cloud.

Physical Security Options: System maintenance switch, USB security, rack and power security, bezel lock, and cha detection switch.

Trusted Supply Chain: HPE Trusted Supply Chain offers enhanced security and compliance for organizations worldv built with this option undergo rigorous inspections and checkpoints to detect and mitigate malicious microcode and c throughout the server build and lifecycle

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

- UEFI Secure Boot and Secure Start support
- Secure Enclave - Silicon Root of Trust 2.0
- Quantum resistant (PQC) readiness for signing firmware - CNSA 2.0

Overview

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

HPE Trusted Platform Module

Enabling HPE Trusted Platform Module (TPM) 2.0 no longer requires TPM module option kit for Gen12. It is an embe global shipments. TPM2.0 can also be disabled from the BIOS setting.

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

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of Hev Enterprise Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three-year purchase. Support for software and initial setup is available for **90 days** from date of purchase. Enhancements to wa are available through HPE Services operational services or customized service agreements. Hard drives have either three-year warranty; refer to the specific hard drive QuickSpecs for details.

Notes: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day respons repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two catego Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decli Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complex may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information reg 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 functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality.

HPE 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 provides full-featured licenses which can be purchased for managing multiple HPE server generations.

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

HPE Insight Cluster Management Utility (CMU)

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

Accelerator and GPU Information

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

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, more practical, and more efficient. In other words, we have created a stronger, smarter, and simpler infrastructure to help you get the most out of your IT equipment. As an industry leader, Hewlett Packard Enterprise is uniquely positioned to address the key concerns of power, cooling, cable management and system access.

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

HPE G2 PDUs offer reliable power in flexible form factors that operate at temperatures up to 60°, include

Optional Features

color-coded outlets and load segments and a low-profile design for optimal access to the rack and support for dense rack environments.

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

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

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

One Config Simple (SCE)

SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact Hewlett Packard Enterprise Customer Business Center or an Authorized Partner for assistance **https://h22174.www2.hpe.com/SimplifiedConfig/Welcome#**

HPE Services

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

Consulting Services

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

HPE Managed Services

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

HPE Managed Services | HPE

Operational services

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

HPE Complete Care Service

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

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

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

Service and Support

HPE Tech Care Service

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

HPE Lifecycle Services

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

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

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

Other Related Services from HPE Services:

HPE Education Services

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

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.
Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Service and Support

Parts and Materials
HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.
Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

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

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

AI Powered and Digitally Enabled Support Experience
Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience.

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

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

Consume IT On Your Terms

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

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

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

HPE Smart Choice purchase program

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

For additional information on the HPE Smart Choice purchase program, please visit:
https://www.hpe.com/psnow/doc/a50009219enw

Configuration Information

Smart Templates from HPE

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

Workload Solutions Templates from HPE

The Workload Solutions Templates **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 meets the current and future market trends. HPE is committed to providing a more predictable and faster experience for these options. Mainstream SKUs enjoy higher safety stock levels and have higher fulfilment service levels than non-Mainstream SKUs. Mainstream orders are fulfilled +30% faster than non-Mainstream orders, have fewer shortages and better recovery dates. This platform has Mainstream SKUs in the options portfolio and is eligible for the 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 fulfilment experience. Check the Template section in our configurators for eligible Mainstream configurations.

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

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

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

CTO Server models do not include embedded LOM. To enable networking capability please select a validated alternative NIC -OCP or PCIe- from the Core Options section.

CTO Server	DL360 Gen12 10SFF/20EDSFF Hybrid NC CTO Server	HPE DL360 Gen12 8SFF NC CTO Server	HPE DL360 Gen12 4LFF NC CTO Server
SKU Number	P72176-B21	P72175-B21	P72174-B21
TAA SKU*	P72176-B21#GTA	P72175-B21#GTA	P72174-B21#GTA
HPE Trusted Supply Chain	Optional: HPE Trusted Supply Chain for HPE ProLiant (P36394-B21)		
Processor vs Cooling solution (Heatsink & Fan kit)	Not included. • Optional: Qty 1 or 2		

- Thermal requirements.

CPU TDP (Wattage)	Heatsink (HS)	Fan Kit	Availability
<=185W	Standard HS	Standard Fan Kit (5/7ea)	At launch
186W- 270W	Performance HS	Performance Fan Kit	At launch
<=270W (1P only)	Closed-loop HS	Closed-loop Fan Kit	At launch
271W - 350W	Closed-loop HS	Closed-loop Fan Kit	At launch
=300W (1P only)	Performance HS	Performance Fan Kit	Post launch
<=350W	DLC CPM	DLC Fan kit (=Perf. Fan Kit)	At launch

DIMM Slots

32-DIMM slots in total

DIMM Blanks

Not included.

- **<u>If memory selection is less than q'ty 32, DIMM Blanks are required, per thermal and memory population requirements.</u>**
- Configurator is defaulting P07818-B21 (HPE DDR-4 DIMM Blanks Kit) with only exception is when DIMM type is below 256GB in liquid cooling configuration.
- DIMM blank q'ty requirements:

  P07818-B21 contains 31 pcs DIMM blanks, and HPE factory will load adequate DIMM blanks per thermal rules and actual memory q'ty selected.

Cooling solutions/DIMM types	< 256GB DIMM	=256GB DIMM
Air Cooling	Yes	Yes
Liquid Cooling (Closed-loop LC or DLC)	No	Yes

DIMM (Blank) population	1P	2P
DIMM q'ty	Max 16 and min 1	Max 32 and min 2
DIMM Blank q'ty	Fill out empty DIMM slots. Min 0 and max 15.	Fill out empty DIMM slots. Min 0 and max 30.

Storage Controller

Not included.

Choice of

- Intel® Virtual RAID on CPU (VROC) for HPE ProLiant
- HPE Compute MR Gen11 Controllers
- HPE NS204i-u V2 480GB NVMe Hot Plug Boot Optimized Storage Device at Rear, internal or front cage (front cage is available in 10SFF/20EDSFF CTO

	Server only)
Rear PCIe Slots	Up to 3 Slots PCIe 5.0 (Slot 1, 2 & 3). All PCIe Slots are in design with up to 9.5" length. • Default: – One standard primary/butterfly riser (embedded) – Slot 1 & Slot 2 (1 x16 FH / 1 x16 LP) with 4 x8 front NVMe connectors • Optional: – Secondary riser Slot 3 with 1 x16, in FH – Secondary riser Slot 3 with 1 x16, in LP
Rear OCP3.0 Slots	Up to 2 Slots PCIe 5.0 (Slot 14 & 15). All OCP Slots are up to x16 PCIe5.0 • Default: Embedded x8 lanes Slot 14 OCPA from CPU1 • Optional (with selection of cable kits): – x16 lanes Slot 14 OCPA from CPU1 – x8 lanes Slot 15 OCPB from CPU1 – x8 lanes Slot 15 OCPB from CPU2 – x16 lanes Slot 16 OCPB from CPU2

Front Drive Cage	Box1 (must be selected). Box2/3/4/5 (optional). Box/Cage Choices: • 2 SFF 24G x4 TriMode U.3 BC backplane cage • 4 E3.S 32G x4 NVMe backplane cage • Front • NS204i-u Front Enablement Kit (Box5) • Front OCP NIC enablement kits (Box3) (post launch CQ2 2025) • Optical drive cage (Box 4&5)	8SFF cage (optional): • 12G x1 TriMode U.3 Front cage (optional): • 2SFF 24G x4 TriMode U.3 • Universal Media Bay with Optical Drive, Display Port and USB 2.0 port **Notes:** – A hardware controller must be selected for 8SFF. – 8SFF must be selected if 2SFF is selected. – A hardware controller must be selected for 2SFF if SAS/SATA drive	4LFF cage (default): • 12G x1 SAS with Low Profile (LP) carrier support **Notes:** A hardware controller must be selected.

	Notes: A hardware controller must be selected if SAS/ SATA drive.		
Network Controller	• There is no embedded network controller included from system board. • BCM 5719 1Gb 4p Base-T OCP Adapter to be defaulted in the configurator Default at rear Slot 14 OCPA if no H/W controller is selected. Or default at Slot15 OCPB if a Hardware controller is pre-selected, in Smart Chassis. Or a stand-up PCIe NIC adapter to be selected if there are two H/W controllers are pre-selected at both OCPA & OCPB, in Smart Chassis. • Customers are allowed to remove the NIC card default setting and re-select other cards (OCP3.0 or stand-up cards) from Networking & InfiniBand.		
Management	HPE iLO with Intelligent Provisioning (standard) HPE Compute Ops Management (a 3-year subscription included) Optional: iLO Advanced and OneView		
Video Output	Rear: 1 VGA Optional: • 1 Front Display Port (standalone in 8 SFF; USB2.0+ Display Port bundle kit in 4 LFF), • 1 Rear Serial Port		
USB	Front: 1 USB 3.2 Gen1 + iLO service port in USB Type C Rear: 2 USB 3.2 Gen1 Internal: 2 USB 3.2 Gen1 (HPE Share option kit is not available) Optional: 1 Front USB 2.0 in 8SFF and 4LFF CTO Server		
Security	Trusted Platform Module (TPM) 2.0. It is an embedded feature globally and can be disabled in the BIOS setting.		
Rail Kit	Optional Easy Install rails and CMA. • HPE Easy Install Rail 3 Kit (P52341-B21) is available for 8SFF CTO Server if Rack is selected • HPE Easy Install Rail 5 Kit (P52343-B21) is available for 4LFF & 10SFF/20EDSFF Hybrid CTO Server if Rail kit is selected • HPE Cable Management Arm 4 for Friction Rail Kit (P70741-B21) as optional. **Notes:** – Server does not support shelf mounted rail kits ("L" brackets).		

	– If CMA is selected, then Rail Kit must be selected.
Form Factor	1U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.

Notes:

– All DL360 Gen12 CTO Server models require the selection of Processor, Memory, and Power Supply. Backplane to be further selected in 10SFF/20EDSFF Hybrid CTO Server, and 8 SFF CTO Server.

– *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** in a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).

– All CTO servers are Energy Star 4.0 compliant, excluding configuration with GPU.

– Supported Rail kit to be defaulted for CTO Model in the configurator. But the customer can deselect the Rail kit if the CTO Model is selected without Rack (Standalone server).

Step 2: Choose Smart Chassis

Smart Chassis is a new automation tool in One Config Advanced building with intelligence running compatible storage backplane cable kit without manual selection process from configurator user. Manual selection of controller Cable Kits is not required. When Smart Chassis ID# is identified successfully, the configurator system will load the essential Cable Kits in later BOM section.

- Recommend following the sequence for key component upfront selection.
- The selection sequence: (each -B21 SKUs are listed in later section)

a. Datacenter operational Tracking SKU.

An extended thermal support capability will be provided based on the facts and preference selected from customers, include:

i. Max System Inlet Temperature Tracking SKUs: Facts of customer server environment ambient temperature setting. Choose the maximum temperature setting from datacenter/operation environment. The higher System Inlet Temperature has higher thermal and cooling requirements.

ii. Network Cable Tracking SKUs: Choose the networking card cable type going to be installed in the field.

b. Front cage/storage configuration.

Choices of front cage enablement kit, SKUs variates from CTO server.

i. Storage backplane(s)

ii. Optical Drive Enablement Kit

iii. RAID1 OS Boot Enablement Kit

iv. OCP(s) NIC Enablement Kit (available late CQ2 2025, post launch).

Configuration Information

c. Hardware/storage controller.

Choices of HPE Compute MR Gen11 Controllers.

- One or multiple set(s) of Smart Chassis Result will be presented with completion of the above selections. Confirm the final Smart Chassis selection with select q'ty 1 to the ideal Smart Chassis.
- With the completion of the above steps, the user will be able to enter the Share Option menu with selection.

Notes:

– If required, the pre-view of Share Option Menu will be available, with toggling "Default Setting Recommendation".
– Toggle again to unlock Smart Chassis default setting, and user can return to the beginning and start the selection
– AOC cabling for high-performance networking cards has higher power and cooling requirements. It is necessary to select AOC or DAC preferences correctly.
– Without selection of high-performance Network cards, and with only 1Gb or 10/25Gb card(s) installed, please select P79633-B21 (HPE DAC ACC CAT Base-T Networking Cable Operating Configuration Tracking), which do not generate additional power/cooling restrictions.
– It is not recommended to use Ad-Hoc function in Smart Chassis section/page.

Step 3: Choose Core Options

- Energy Star 4.0: No restriction from processors while server shipment starts, yet the Platinum Power Supply (in 94% power efficiency in 800W & 1600W are not compatible.
- Processor(s): Mixing of 2 different processor models is not supported.
- Processor(s): CTO server will populate necessary heatsink and fan kits per system thermal requirements and processor models
- Memory: DIMM Blanks are required to be selected as below thermal requirements as shown in previous CTO chassis (Base model) section.
- Storage Device: No selection is required for front storage controller/smart storage battery, storage backplane cage and controller/backplane cables. The front storage backplane cage and storage controller are pre-selected in the Smart Chassis section. The compatible controller/backplane cable kits will be automated from Smart Chassis tool and SKUs to be presented in later BOM section.
- Storage Device: Optical drive selection is required if the Optical drive Enablement kit is pre-selected in Smart Chassis section.
- Storage Device: Choice of storages in E3.S, 2.5" SFF and 3.5" LFF are presented. Hot-pluggable in this server.
- Factory Configuration Settings.
- Riser cards: P Choice of riser card for PCIe5.0 slots enablement. Primary/standard riser cards are default in CTO Chassis (Base model). Selection for one of the secondary riser kits (FH or LP) is required if expecting a stand-up card in PCIe Slot.
- OS Boot Device: Max one OS Boot device can be selected in a server. Selection of the OS Boot Device along with Enablement Cable Kit is required. Only front Enablement Kit will be presented as default if already been chosen in previous Smart Chassis section.
- Networking: Choice of high-performance NIC, 1GbE NIC, or 10/25GbE NIC, available in stand-up and OCP3.0.
- Power and Cooling: Choices of FlexSlot Power supply with redundancy, system fans, DLC extension tubes and power cords.
- Choice of Security Options.
- Graphic Options: Choice of compatible Single-wide GPU
- Accessories: Choice of Management Hardware incl. Serial Port and SID Power module kit.

Configuration Information

- Rack Options: Choice of Rail kit and Cable Management Arm.
- Software RAID
- Software as a Service Management: Choice of HPE GreenLake for Compute Ops Management and Choice of HPE OneView

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Step 4: Choose Additional Options

- Choice of Manufacturing Service
- Choice of Support Service

Smart Chassis Selection

- Recommend following the sequence for key component upfront selection.
- One or multiple set(s) of Smart Chassis Result will be presented with completion of the above selections.
- Confirm the final Smart Chassis selection with select q'ty 1 to the ideal Smart Chassis.

Datacenter Operational Tracking SKU

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

Notes:

– Qty 1
– The higher System Inlet Temperature has higher thermal and cooling requirements.

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

Notes:

– Qty 1
– AOC cabling for high-performance networking cards has higher power and cooling requirements. It is necessary to select AOC or DAC preferences correctly.
– Without selection of high-performance Network cards, and with only 1Gb or 10/25Gb card(s) installed, please select P79633-B21 which do not generate additional power/cooling restrictions.

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Core Options

Front Cage/Storage configuration

Compatible with 10SFF/20EDSFF Hybrid NC CTO Server

HPE ProLiant Compute DL3XX Gen12 1U 2SFF x4 Tri-Mode U.3 Stacking Backplane Kit	P72223-B21
HPE ProLiant Compute DL3XX Gen12 1U 4EDSFF NVMe Stacking Backplane Kit	P72221-B21
HPE ProLiant Compute DL3XX Gen12 1U SFF/EDSFF Hybrid Display Port/USB/Optical Drive Enablement Kit	P72227-B21
HPE ProLiant Compute DL3XX Gen12 1U NS204i-u Front Enablement Kit	P77198-B21

Notes:

- Total q'ty 1 - 5
- Box1 backplane needs to be selected, Box 2-5 are optional.
- P72227-B21 locates at Box4&5, P77198-B21 locates at Box5 with airflow vent hole.
- Front OCP NIC(s) Enablement Kit will be available late CQ2 2025 at Box3, max q'ty 2

Compatible with 8SFF NC CTO Server

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

Notes:

- Total q'ty 0-2
- Zero drive and zero backplane configuration is allowed with q'ty 0 backplane.
- P75086-B21 cannot be selected without the selection of P75084-B21 for power connection.
- If P75084-B21 is selected, q'ty 1 hardware controller must be selected for SAS/SATA/NVMe drives.
- If SAS/SATA drive(s) will be loaded at the cage P75086-B21, q'ty 1 hardware controller needs to be connected for Intel

latest non-SATA design. Only NVMe drive can be selected without a controller.

- P72225-B21 can be selected without P75084-B21.

Core Options

Compatible with 4LFF NC CTO Server

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

Notes:

- Total q'ty 0-1
- 4LFF 12G x1 SAS LP backplane cage is embedded in the 4LFF Base Model/CTO chassis
- P75086-B21 cannot be selected without the selection of P75084-B21 for power connection.
- Qty 1 hardware controller must be selected for SAS/SATA drives

Storage Controller configuration

HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21
HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller	P47785-B21
HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	P58335-B21
HPE 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:

- Q'ty 0-2 in total, and OCP Controller is limited to q'ty 1 as maximum
- MR408i-o supports up to 8 SAS/SATA/NVMe Drives. And requires 96W Smart Battery (P01366-B21) & Cable (P02377-B21).
- MR416i-o/p support up to 16 SAS/SATA/NVMe Drives. And require 96W Smart Battery (P01366-B21) & Cable (P02377-B21).

Processor

- Mixing of 2 different processor models is not supported.
- CTO server will populate necessary fan kits per system thermal requirements and processor models, minimum as 5 standard fans. Dual processor configurations require 7 fans, either standard or high performance.
- All SKUs listed below ship with processors only. Adequate fans and heatsinks must be selected.

Intel Xeon 6 Processors

Supports "HPE DDR5 Smart Memory - Registered (RDIMM), 6400MT/s".

Intel® Xeon 6® Processors with Efficient-Cores (E-Cores)

Intel® Xeon 6® Efficient - Performance per Watt

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

Core Options

Intel Xeon 6766E 1.9GHz 144-core 250W Processor for HPE	P71122-B21
Intel® Xeon 6® Efficient - Performance	
Intel Xeon 6780E 2.2GHz 144-core 330W Processor for HPE	P71124-B21
Intel® Xeon 6® Processors with Performance-Cores (P-Cores)	
Intel® Xeon 6® Performance - General Purpose	
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 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 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 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® Performance - Mainline	
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
Intel Xeon 6760P 2.2GHz 64-core 330W Processor for HPE	P73832-B21

Heatsinks (incl. Liquid Cooling module)

- Choices of air-cooling and liquid cooling solution(s) combing heatsink & fans to enable higher thermal capability under different CPU TDP. Default setting is available in configurator per general thermal requirements listed below.
- Higher thermal and cooling requirements will be triggered if high-performance NIC, drives, M.2 Boot Device, GPU or memory are selected.
- Thermal requirements from CPU TDP.

CPU TDP (Wattage)	Heatsink (HS)	Fan Kit	Availability
<=185W	Standard HS	Standard Fan Kit (5/7ea)	At launch
186W- 270W	Performance HS	Performance Fan Kit	At launch
<=270W (1P only)	Closed-loop HS	Closed-loop Fan Kit	At launch
271W - 350W	Closed-loop HS	Closed-loop Fan Kit	At launch
=300W (1P only)	Performance HS	Performance Fan Kit	Post launch
<=350W	DLC CPM	DLC Fan kit (=Perf. Fan Kit)	At launch

- Thermal requirements vs DIMM Blanks.

Cooling solutions/DIMM types	< 256GB DIMM	=256GB DIMM
Air Cooling	Yes	Yes
Liquid Cooling (Closed-loop LC or DLC)	No	Yes

Core Options

DIMM (Blank) population	1P	2P
DIMM q'ty	Max 16 and min 1	Max 32 and min 2
DIMM Blank q'ty	Fill out empty DIMM slots. Min 0 and max 15.	Fill out empty DIMM slots. Min 0 and max 30.

HPE ProLiant DL3X0 Gen11 1U Standard Heat Sink Kit	P4890
HPE ProLiant DL3XX Gen12 High Performance Heat Sink Kit	P7478
HPE ProLiant Compute DL360 Gen12 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit	P7480
HPE ProLiant Compute DL3XX Gen12 Cold Plate Module FIO Kit from PCIe	P7420
HPE ProLiant Direct Liquid Cooling 450mm Female-Male Connection Quick Disconnect Tube Set FIO Kit	P6204

Notes:

Configuration with thermal consideration

– With the below scenarios, the Performance Heatsink or Closed Loop Liquid Cooling (CL LC) Heatsink or DLC Module must be selected: NVMe/ SAS4 drives OR 100GbE or above Networking/ InfiniBand OR 256GB DIMM type OR Rear NS204i-u V2 OR Nvidia L4 GPU.

– If Closed Loop Liquid Cooling (Factory installation only) was shipped with 1 Processor from HPE factory, field upgrade the server with 2nd Processor or diffeent processor is not allowed due to the installation complexity.

– 7x 4028 Performance Fan are embedded in the P74800-B21 (CL LC modul kit). Fan kit selection is not require by user.

– 7x 4056 Performance Fan must be selected and be defaulted, if Performance Heatsink or DLC Module is selected.

– In the CL LC bundle Kit, with full speed the 4028 Fan Kit runs at 210W, which requires 42W additional power than DL360 Gen12 Performance 4056 Fan Kit.

– Max 1 of Liquid cooling can be selected from the below: "Closed Loop Liquid Cooling", or "DLC CPM module".

– The "PCIe DLC Module" contains 2 Cold Plate Modules and 1 Quick Disconnect Module.

– If DLC Module is selected, then "HPE ProLiant Direct Liquid Cooling 450mm Female-male Connection Quick Disconnect Tube Set FIO Kit (P62046-B21)" must be selected. (See Power and Cooling solutions).

HPE Gen12 DLC Infrastructure

- Build-in a new feature with Leak Detection alert from iLO7 is available. iLO7 will trigger system shut down if a le event is detected.
- HPE ProLiant DL3XX Gen12 Direct Liquid Cooling (DLC) solution requires at least one liquid cooling infrastructure item as follows: HPE Rack in 800mm x 1200mm (options listed below), Rack Manifold, CDU, Primary Hose Kit, and Secondary Hose Kit to function. Without above rack infrastructure to be selected, an unbuildable configuration will be triggered in this order.

Core Options

- DLC Rack options
  - Rack 42U **800mm** x **1200mm** Ent G2 (applicable for DL3XX Gen12 DLC)
  - Rack 48U **800mm** x **1200mm** Ent G2 (applicable for DL3XX Gen12 DLC)

- The DLC Rack Infrastructure setting is relatively complex and needs to be conducted by HPE Service with a complete enablement of DLC Rack solution. Major factors impacting the DLC Rack Infrastructure setting are listed below.
  - The connectivity of server to manifold
  - The DLC rack capability (liquid supply temperature, flow rate in each loop and CDU capability)
  - The CDU parameter setting (liquid type, server units in rack, and any mixing servers)

- If a customer has ordered from HPE previously and already has this basic infrastructure on site, please get unbuildable exception approval from ProLiant Product Management Team. A standalone unit can be shipped for filed upgrade as an exception, without this infrastructure the server DLC solution will not function.

HPE ProLiant Compute Gen12 Closed-loop LC Module

- Build-in a new feature with Leak Detection alert from iLO7 is available. iLO7 will trigger system shut down if a le event is detected and prevent the server from powering on until the leakage event is cleared, and REST API is performed for system recovery.
- The P74800-B21 contains paired (2) cold plates (1 per CPU) each with a pump, Tubes, (7) 4028 fans and a radiator. The entire module kit is designed to cool down the processor effectively using cooled inlet air. It would benefit the Processor temperature, yet the internal radiator may increase the flow resistance and reduce the airflow to downstream components inside the server.
- The P74800-B21 is designed as Factory Installation only & is not designated as a Customer Self-Repair (CSR) part to prevent damage to CPUs when customer is conducting the field upgrade on the Liquid Cooling modular itself or CPUs.
- To protect the system, HPE recommends replacing the module every five years.
- Offered with Standard (3/3/3) Warranty support along with the server. Reefer to HPE Warranty statement at **Document - HPE ProLiant and X86 Servers and Options | HPE Support**
- Support contract on the server includes coverage for this module.

Memory

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

- For more information, please see the **HPE DDR5 Smart Memory QuickSpecs**
- Server memory population rules for HPE Gen11 servers with Intel® Xeon 6® Processors
- Fan selection impact from memory capacity, please refer to the support matrix in Fan Kit section

DDR5-6400 (applies to the Intel® Xeon 6 Processors)

HPE 16GB (1x16GB) Single Rank x8 DDR5-6400 CAS-46-45-45 EC8 Registered Smart Memory Kit	P6972
HPE 32GB (1x32GB) Dual Rank x8 DDR5-6400 CAS-46-45-45 EC8 Registered Smart Memory Kit	P6972
HPE 64GB (1x64GB) Dual Rank x4 DDR5-6400 CAS-46-45-45 EC8 Registered Smart Memory Kit	P6972
HPE 96GB (1x96GB) Dual Rank x4 DDR5-6400 CAS-46-45-45 EC8 Registered Smart Memory Kit	P6972
HPE 128GB (1x128GB) Dual Rank x4 DDR5-6400 CAS-46-45-45 EC8 Registered Smart Memory Kit	P6973
HPE 256GB (1x256GB) Dual Rank x4 DDR5-6400 CAS-60-52-52 EC8 Registered Smart Memory Kit	P7347

Notes:

- The maximum memory speed and capacity is a function of the memory type, memory configuration, and processo model.
- All DIMMs must be DDR5.
- All DDR5 DIMM must be running the same speed per CPU socket.
- x8 and x4 cannot be mixed.
- 3DS and non-3DS Memory cannot be mixed.
- Mixing different Rank Memory is not allowed if less than q'ty 16 of Memory is selected for 1 CPU configuration.
- Mixing different Rank Memory is not allowed if less than q'ty 32 Memory is selected for 2 CPUs configuration.
- If different Rank Memory are mixed, then quantity of each Memory part number must be same.
- 16GB & 256GB are allowed with 6xxxP CPU only.
- In q'ty 1 Intel Xeon 6xxxP CPU configuration, then Maximum 8 quantity of 16GB Memory can be selected.
- In q'ty 2 Intel Xeon 6xxxP CPU configuration, then Maximum 16 quantity of 16GB Memory can be selected.
- If 256GB DIMM is selected, then a maximum q'ty 8 of Memory can be selected per CPU due to thermal requirement.
- 96GB Memory cannot be mixed with any other Memory.
- 128GB Memory cannot be mixed with any other Memory.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two CPUs.
- The maximum memory speed is a function of the memory type, memory configuration, and CPU model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, and the number and model of installed CPUs qualified on the platform.
- Q'ty of memory DIMMs selected per socket must be 1, 2, 4, 8, 12 or 16 for 6xxxP CPU
- Q'ty of memory DIMMs selected per socket must be 1, 2, 4, 8 or 16 for 67xxE CPU
- With Intel Xeon 67xxE CPU, DIMMs below are supported.
    - HPE 32GB 2Rx8 PC5-6400B-R Smart Kit
    - HPE 64GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 96GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 128GB 2Rx4 PC5-6400B-R Smart Kit
- With Intel Xeon 6xxxP CPU, DIMMs below are supported.
    - HPE 16GB 1Rx8 PC5-6400B-R Smart Kit
    - HPE 32GB 2Rx8 PC5-6400B-R Smart Kit
    - HPE 64GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 96GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 128GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 256GB 4Rx4 PC5-6400B-R 3DS Smart Kit

HPE DIMM blanks

Thermal requirements vs DIMM Blanks.

Cooling solutions/DIMM types	< 256GB DIMM	=256GB DIMM
Air Cooling	Yes	Yes
Liquid Cooling (Closed-loop LC or DLC)	No	Yes

DIMM (Blank) population	1P	2P
DIMM q'ty	Max 16 and min 1	Max 32 and min 2
DIMM Blank q'ty	Fill out empty DIMM slots. Min 0 and max 15.	Fill out empty DIMM slots. Min 0 and max 30.

HPE DDR4 DIMM Blank Kit P0781

Notes: Optional, need to be selected according to the thermal requirements below, to enhance thermal condition.

Storage Devices

Storage Controller

Please refer to the SKUs in the previous Smart Chassis section.

Storage Battery

HPE 96W Smart Storage Lithium-ion Battery with **145mm** Cable Kit P0136

HPE Smart Storage Hybrid Capacitor with **145mm** Cable Kit P0237

HPE ProLiant DL360 Gen11 Storage Controller Enablement Cable Kit P4891

Notes:

– If P01366-B21 or P02377-B21 is selected, then P48918-B21 must be selected. Vice versa.
– Max 1 of Storage Battery can be selected per server.

Front storage backplane cage kit

Please refer to the SKUs in the previous Smart Chassis section.

Internal storage controller/backplane cable kit

Smart Chassis is a new automation tool in One Config Advanced building with intelligence running compatible storag backplane cable kit without manual selection process from configurator user.

Adequate storage/controller cable kits are automatically populated in the BOM Session in OCA. Manual selection of controller Cable Kits is not required.

Compatible with 10SFF/20EDSFF Hybrid NC CTO Svr

HPE ProLiant Compute DL360 Gen12 10SFF/20EDSFF Hybrid Backplane Power Cable Kit P72209-B21

Core Options

HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 CPU2 Box1/CPU1 Box4 Signal Direct Attach Cable Kit	P72213-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 CPU2 Box2/CPU1 Box3/5 Signal DA Cable Kit	P72601-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 CPU2 Box1/CPU1 Box1/2 Signal DA Cable Kit	P72211-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 CPU1 Box 4/5 Signal Direct Attach Cable Kit	P72605-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x2 Box1 Box2 PCIe Slot1 Controller Cable Kit	P72604-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x2 Box4 Box5 PCIe Slot1 Controller Cable Kit	P77188-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 Box 1/2 PCIe 1/2 Box 3/4/5 PCIe1 Controller Cable Kit	P72602-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 Box 4/5 PCIe Slot1 Controller Cable Kit	P72599-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x2 Box1 Box2 Rear OCP SlotA Controller Cable Kit	P72600-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 Box 3/4/5 Rear OCP SlotA Controller Cable Kit	P72603-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x4 Box 3 Rear OCP SlotB Controller Cable Kit	P77200-B21
HPE ProLiant Compute DL360 Gen12 2SFF Stacking x2 Box4 Box5 Rear OCP SlotA Controller Cable Kit	P76500-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 CPU1 Box 1 Signal Direct Attach Cable Kit	P76501-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 CPU2 Box 1 Signal Direct Attach Cable Kit	P76502-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 CPU1 Box 2 Signal Direct Attach Cable Kit	P77190-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 CPU2 Box 2 Signal Direct Attach Cable Kit	P77191-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 CPU1 Box 3 Signal Direct Attach Cable Kit	P77192-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 CPU1 CPU2 Box 4 Signal Direct Attach Cable Kit	P76504-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 CPU1 Box 5 Signal Direct Attach Cable Kit	P76505-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 Box 1/2 PCIe Slot1/2 Controller Cable Kit	P76506-B21
HPE ProLiant Compute DL360 Gen12 4EDSFF x4 Box 5 PCIe Slot1 Controller Cable Kit	P76507-B21

Notes: When SAS or SATA storage is selected, connection to a hardware controller is required.

Compatible with 8SFF NC CTO Svr

HPE ProLiant Compute DL360 Gen12 8SFF x1 PCIe Slot1 Controller Power Cable Kit	P76514-B21
HPE ProLiant Compute DL360 Gen12 8SFF x1 Rear OCP SlotA Controller Power Cable Kit	P76513-B21
HPE ProLiant Compute DL360 Gen12 2SFF Side-by-Side x4 Direct Attach Power Cable Kit	P76512-B21

Core Options

HPE ProLiant Compute DL360 Gen12 2SFF Side-by-Side x4 PCIe Slot1 Controller Power Cable Kit	P77203-B21
HPE ProLiant Compute DL360 Gen12 2SFF Side-by-Side x4 Rear OCP SlotA Controller Power Cable Kit	P77202-B21

Notes: Max 1 of 8 SFF cable can be selected per server.

Compatible with 4LFF NC CTO Svr

HPE ProLiant Compute DL360 Gen12 4LFF x1 PCIe Slot1 Controller Cable Kit	P76508-B21
HPE ProLiant Compute DL360 Gen12 4LFF x1 Rear OCP SlotA Controller Cable Kit	P76511-B21

Notes:

- 4LFF 12G x1 SAS backplane cage is embedded in base model CTO server.
- Any SAS/SATA drive selection, the connection to hardware controller is required.
- For zero drive and zero hardware controller configuration in 4LFF CTO server, P78963-B21 (PE ProLiant Compute DL3XX Gen12 No Drive No RAID Controller FIO Trigger System Setting) will be picked automatically in OCA and the system would be shipped without backplane/storage cables.

Front Display Port (plus USB2.0)

For 10SFF/20EDSFF Hybrid and 8SFF CTO Server, please refer to the SKUs in the previous Smart Chassis section.

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

Notes: The front DP and USB port enablement kit in 4LFF CTO Model doesn't contain Optical Drive enablement kit. Separate SKU needs to be selected for Optical Drive enablement kit in Smart Chassis section.

Front Optical Drive Cable

Please refer to the SKUs in the previous Smart Chassis section.

Optical Drive

HPE Mobile USB DVD-RW Optical Drive	701498-B21

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

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

Notes: Requires an Optical Drive enablement kit to be pre-selected in Smart Chassis section for all three CTO Servers.

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

Notes: Requires an Optical Drive enablement kit to be pre-selected in Smart Chassis section for all three CTO Servers.

HDD Blank Kit

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

Storage

- Maximum limit for SAS/ SATA/ NVMe will vary depending upon the selected drive cage, controller, and

Core Options

cable combination.

- User may select any combination of SAS or SATA Hard Drives. However, if RAID is selected and both SAS and SATA Hard Drives have been selected, then only the SAS Drives will be used in the RAID set.
- User may select any combination of SAS or SATA or NVMe Drives on U.3 cage with Tri-Mode controller. However, if RAID is selected with SAS, SATA and NVMe Drives, then only the NVMe Drives will be used in the RAID set.
- Direct Attach supports only NVMe drives in below three types of drive backplan and cages. If SAS drive is selected, then Internal controller must be selected.
  - 8SFF NC CTO Server: 2SFF Side-by-side x4 TriMode U.3 backplane cage kit.
  - 10SFF/20EDSFF Server: 2SFF stacking x4 TriMode U.3 backplan cage kit; and 4EDSFF x4 NVMe backplan cage kit.
- If 8 SFFx1 drive cage is selected, an internal controller connection is required, for SAS/SATA/VVM drives.
- For SSD selection guidance, please visit: **http://ssd.hpe.com/**

NVMe Gen5 EDSFF (max 20)

Read Intensive - NVMe - EDSFF - Solid State Drives

HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70674-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61187-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61183-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61179-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57807-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77275-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57803-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57799-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70397-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70395-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77273-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70392-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69546-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69239-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69237-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77271-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69234-B21

Core Options

HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77269-B21

Mixed Use - NVMe - EDSFF - Solid State Drives

HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70672-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61195-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70669-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61191-B21
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70403-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 EDSFF SPDM PE1030 SSD	P77267-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70399-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77265-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69245-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69243-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69241-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77262-B21

NVMe Gen4 - EDSFF (max 20)

Very read Optimized - NVMe - EDSFF - Solid State Drives

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

NVMe Gen4 - SSD and AIC - Read Intensive & Mixed Used (max 10)

Read Intensive - NVMe - SFF - Solid State Drives

HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63841-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50224-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static SPDM Multi Vendor SSD	P69255-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61035-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63837-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50222-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64848-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61027-B21

Core Options

HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63833-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50219-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64846-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61019-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63829-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64844-B21
HPE 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64842-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70436-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70434-B21
Mixed Use - NVMe - SFF - Solid State Drives	
HPE 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P63871-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61059-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63853-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65023-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61051-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63849-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65015-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61043-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63845-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65007-B21
HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P64999-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70428-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70426-B21
SSD - Read Intensive (max 10)	
Read Intensive - 24G SAS - SFF - Self-encrypting Solid-State Drives	
HPE 3.84TB SAS Read Intensive SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P63875-B21
Read Intensive - 12G/24G SAS - SFF - Solid State Drives	
HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49045-B21
HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40509-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49041-B21

Core Options

HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40508-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49035-B21
HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40507-B21
HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49031-B21
HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40506-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21
Read Intensive - 6G SATA - SFF - Self-encrypting Solid-State Drives	
HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58236-B21
Read Intensive - 6G SATA - SFF - Solid State Drives	
HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40501-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40500-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40497-B21
HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40498-B21
HPE 240GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40496-B21
Read Intensive - 6G SATA - LFF - Solid State Drives	
HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21

SSD - Mixed Use (max 10)

Mixed Use - 24G SAS - SFF - Self-encrypting Solid-State Drives	
HPE 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P6387
Mixed Use - 12G/24G SAS - SFF - Solid State Drives	
HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P4905
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P4051
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P4905
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P4051
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P4904
HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P4051
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P4904
Mixed Use - 6G SATA - SFF - Self-Encrypting Solid-State Drives	
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P5824
Mixed Use - 6G SATA - SFF - Solid State Drives	
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P4050
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P4050
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P4050
HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P4050
Mixed Use - 12G SAS - LFF -Solid State Drives	
HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P3700

HDD- Enterprise 15K/10K -SFF (max 10)

Mission Critical - 12G SAS - SFF SED Drives

Core Options

HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Self-encrypting FIPS HDD	P2861
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Self-encrypting FIPS HDD	P2862
Enterprise - 12G SAS - SFF Drives	
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e HDD	P2835
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P5356
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty HDD	P2858
HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P5356
HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty HDD	P4043
HDD - Midline - 7.2K - LFF (max 4)	
Midline - 12G SAS - LFF Drives	
HPE 24TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P6858
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P5355
HPE 16TB SAS 12G Business Critical 7.2K LFF (3.5in) LP 1yr Wty 512e ISE HDD	P2360
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	88178
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	83403
HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	86174
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	83392
HPE 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	83392
Midline - 6G SATA - LFF Drives	
HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P6858
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P5355
HPE 16TB SATA 6G Business Critical 7.2K LFF (3.5in) LP 1yr Wty 512e ISE HDD	P2344
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	88178
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	83402
HPE 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	86174
HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	86168
HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	86168
HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	86168

Riser Cards

Standard/ Primary/ Butterfly Riser is embedded in all CTO Server. Additional selection is not required.

- Slot 1 - 1x PCIe 5.0 x16 Full-height, up to 9.5" length (or Half-length card)
- Slot 2 - 1x PCIe 5.0 x16 Low-profile, up to 9.5" length (or Half-length card)

Notes: If rear hot-plug NS204i-u V2 is installed, the Slot 2 cage needs to be removed

HPE ProLiant Compute DL360 Gen11/Gen12 x16 Primary Riser Kit	P7540

Core Options

Notes: This is a SKU for filed upgrade only. Order through Ad-hoc and will not be installed in the system but ship as stand-alone item. Each CTO server has the Primary riser embedded, a separate order for P75407-B21 is not require This kit is also compatible for DL360 Gen11 as a Primary riser upgrade kit.

HPE ProLiant Compute DL360 Gen12 x16 Full Height Riser Kit P7259

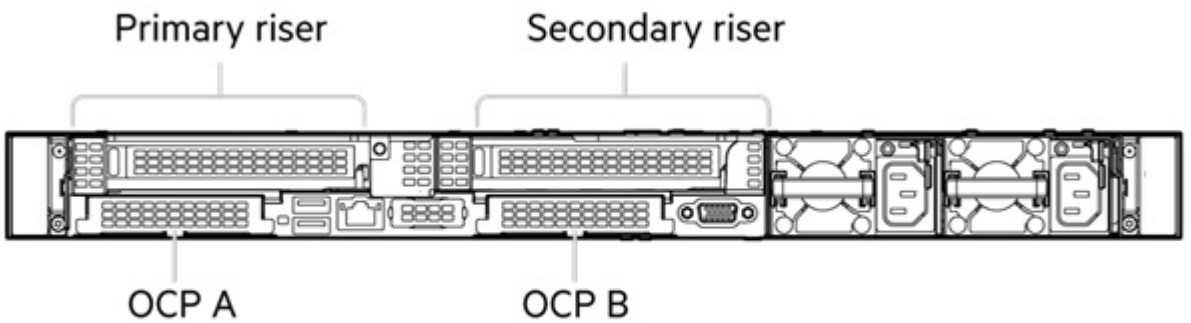
Notes:

- Referred as Secondary FH riser.
- 2nd Processor is required.
- Slot 3: 1x PCIe5.0 x 16 Full-length, up to 9.5' length (or Half-length card)

HPE ProLiant DL360 Gen11 x16 LP Riser Kit P4890

Notes:

- Referred as Secondary Low Profile (LP) riser.
- 2nd Processor is required.
- Slot 3: 1xPCIe5.0 x 16 Low-profile, up to 9.5" length (or Half-length card)



Riser Information

Riser Poistion	Part number & Description	Choices		Slot Bus width PCIe5			GPU	NVMe Connect	M.2 Connec.
		Prim.	Sec.	#1	#2	#3			
Priminary (chasssis default)	DL360 G12 x16/x16 Primary Riser	D	N/A	x16	x16	N/A	Y	N/A	N/A
Secondary	**P72598-B21:** DL360 G12 x16 Full Height Riser Kit[1]	N/A	O	N/A	N/A[1]	x16	Y	N/A	N/A
Secondary	**P48903-B21:** DL360 Gen11 x16 LP Riser Kit	N/A	O	N/A	N/A	x16	Y[2]	N/A	N/A

Core Options

Notes:

- Prim. = Primary; Sec = Secondary; D = Default on server; O = Optional; N/A = not supported or slot/connector not present.
- Quantity of Processor and Quantity of Heatsink must match.
- All DL360 Gen12 Riser cards are designed in x16 PCIe slot form factor (physical length) as well as in full x16 lanes of PCIe5.0 as electrical bandwidth.
- If Secondary riser is selected, then 2 Processors must be selected.
- [1]If secondary FH riser is selected, then maximum q'ty 2 of PCIe FH cards can be selected, as primary PCIe Slot 2 cannot be used.
- 4 ports base-T Low Profile NIC adapters are not allowed to be installed at Slot 2 (P51178-B21)
- [2]GPU max 75W

PCIe Slotting (Factory Installation Rule)

Configuration 1: Primary Riser only (default in chassis), no Secondary Riser installed		
Riser	**(Primary as default)**	
Slot Number	**Slot 1**	**Slot 2**
Bus Width	x16	x16
Form Factor	FHHL	HHHL (LP)
PCIe adapter types	**Slot Priority**	
-PCIe x16	1	2
-PCIe x8	1	2
-PCIe x4	1	2

Configuration 2: Primary Riser (default in chassis) & Secondary FH Riser, 2 CPUs			
Riser	**(Primary as default)**		**Secondary (P72598-B21)**
Slot Number	**Slot 1**	No support	**Slot 3**
Bus Width	x16		x16
Form Factor	FHHL		FHHL
PCIe adapter type	**Slot Priority**		
-PCIe x16	1	No support	2
-PCIe x8	1		2
-PCIe x4	1		2

Notes: For controller with x32 Lanes at Slot 3, will be consuming the location both Slot 2 & 3 (post launch feature)

Configuration 3: Primary Riser (default in chassis) & Secondary HH/LP Riser, 2 CPUs			
Riser	**(Primary riser as default)**		**Secondary (P48903-B21)**
Slot Number	**Slot 1**	**Slot 2**	**Slot 3**
Bus Width	x16	x16	x16
Form Factor	FHHL	HHHL (LP)	HHHL (LP)
PCIe adapter	**Slot Priority**		
-PCIe x16	1	3	2
-PCIe x8	1	3	2
-PCIe x4	1	3	2

Notes:

– If there is only one PCIe controller adapter (x8, x16, x32 lanes card), will be defaulting at PCIe Slot 1.
– If there are two PCIe controllers (x8, x16, x32 lanes card), will be defaulting at PCIe Slot 1 & 3.

PCIe Adapters Slotting Rules

General	
Priority	**Description & Rules**
1	32 lanes controller as a FH adapter, can only be slotted in PCIe Slot 1 (fixed cable length) -post launch
2	HPE ProLiant Compute DL360 Gen11 x16 LP Riser Kit (P48903-B21) can only be slotted in HHHL (LP) PCIe Slot3
3	If PCIe Standup Tri-Mode Controller adapter is ordered, **can** only be slotted in PCIe Slot 1 or Slot3. HHHL (LP) GPGPU card should be slotted in PCIe Slot2.
4	PCIe Slot 2 supports HHHL (LP) cards only.
5	4-Port Base-T NIC card is not available in Slot2 (Mechanical constraint from NIC bracket) 4-Port Base-T NIC card is defauting at Slot 1 or 3
6	If NS204i-u V2 Rear Cbl Kit (P72197-B21) is ordered, Slot 2 will be unavailable.

Installation Rules	
Priority	**Description & Rules**
1	x16 electrical bandwidth card to x16 electric slot – All Slots in DL360 Gen12 provides x16 electric slots
2	x8 electrical card to x16 electric slot

Priority from Card Types	
Priority	**Description & Rules**
1	x32 Lanes Storage Controller - Post launch
2	4-Port Networking PCIe Adapter (restricted from Slot 2 due to bracket interference)
3	HHHL (LP) Internal PCIe Controllers
4	Single-wide GPGPU Adapters
5	Others

Notes:

– All PCIe slots are featured with Wake-on-LAN (WoL)
– Prioritization list for Primary controller selection in HPE ProLiant Compute DL360 Gen12 8 SFF NC CTO Server & 10SFF/20EDSFF Hybrid NC CTO Server is as follows:
  - x32 lanes Storage controller (post launch)
  - HPE MR416i-o Gen11 12G Controller Kit
  - HPE MR416i-p Gen11 12G Controller Kit
  - HPE MR408i-o Gen11 SPDM Storage Controller
  - HPE MR216i-o Gen11 12G Controller Kit
  - HPE MR216i-p Gen11 12G Controller Kit
  - Intel VROC
  - Direct Attach

OS Boot Device

Please refer to the SKUs in the previous Smart Chassis section for Front OS Boot Device enablement Kit.

HPE ProLiant Compute DL3XX Gen12 1U NS204i-u Front Enablement Kit	P77198-B21
Notes: Pre-selection from Smart Chassis section if required.	
HPE NS204i-u v2 480GB NVMe Hot Plug Boot Optimized Storage Device	P78279-B21
HPE ProLiant Compute DL360 Gen12 NS204i-u Internal Enablement Kit	P72595-B21
HPE ProLiant Compute DL360 Gen12 NS204i-u Rear Enablement Kit	P72197-B21

DL360 Gen11 NS204i-u Enablement Kit Support Matrix

Enablement Kit	Description	Field Inst.	NS204i-u Location	Hot-plug Capability
P77198-B21	HPE ProLiant Compute DL3XX Gen12 1U NS204i-u Front Enablement Kit	Yes	Front Cage Box4/Hybrid CTO Server only	Yes
P72197-B21	HPE ProLiant Compute DL360 Gen12 NS204i-u Rear Enablement Kit	Yes	PCIe Slot 2[1]	Yes
P72595-B21	HPE ProLiant Compute DL360 Gen12 NS204i-u Internal Enablement Kit	Yes	Internal	No support

Notes:

- NS204i-u V2 is a x4 PCIe Gen3.0 OS Boot device includes 2x 480GB M.2 NVMe SSDs, with preconfigured hardware RAID1.
- [1]With removing the original PCIe Slot 2 cage and re-install the dedicated DL360 Gen11 NS204i-u cage, **latch** and cables in the P72197-B21. The NS204i-u v2 will take up PCIe Slot 2 space only.
- If a secondary FH riser is selected, then "NS204i-u Rear Cable Kit" cannot be selected.
- If NS204i-u v2 is selected, only one of the three enablement kits.
- There will be a left-port interference in a low-profile 4-port SFP NIC Adapter (no issue for 4-port Base-T) at Slot3, if the Slot 2 is loaded with Primary Riser cage (default in CTO Server) or NS204i-u Rear cable (Enablement) kit. Please take one of the below recommendations for building a valid configuration.
  - If Two quantity of 4-port SFP28 is selected, then Secondary FH riser must be selected.
  - If One FH card or 4-port Base-T card is selected with 4-port SFP 28, then Secondary FH riser must be selected.
    - Select an OCP type 4-port SFP card instead.
- For additional information, please see the **HPE OS Boot Device QuickSpecs**

Core Options

NS204i-u thermal matrix -4 LFF & 8+2 SFF CTO Svr						
Location	**Qty**	**Cooling**	**4 LFF (SAS/SATA)**	**8+2 SFF (x1 TriMode)**	**10SFF (x1 TriMode)**	**4SFF (x1 TriMode)**
Rear Hot-plug NS204i-u	1	High Perf. Fan	Up to 2x 270W, 32x 256[1]GB DIMM			
			30C	30C	30C	30C
	1	Closed-loop LC	Up to 2x 350W, 32x128 GB or 256[1]GB DIMM			
			30C or 25C	25C or 23	25 or 23 C	27 or 25C

NS204i-u thermal matrix - 10SFF/20EDSFF Hybrid CTO Svr								
Location	**Qty**	**Cooling**	**10SFF NVMe**	**4 SFF NVMe**	**20 E3.S**	**16 E3.S**	**8 E3.S**	**4 E3.S**
Rear Hot-plug NS204i-u	1	High Perf. Fan	Up to 2x 270W CPU, 32x 256GB DIMM					
			30C	30C	25C	30C	30C	30C
	1	Closed-loop LC	Up to 2x 350W CPU, 32x128 GB or 256[1]GB DIMM					
			25C or 23C	27C or 25	20 or NA	20C or NA	25C or 23C	27 or 23C

NS204i-u thermal matrix - 10SFF/20EDSFF Hybrid CTO Svr						
Location	**Qty**	**Cooling**	**20 E3.S**	**4 E3.S**	**4 E3.S**	**20 E3.S**
Rear Hot-plug NS204i-u	1	High Perf. Fan	Up to 2x 185W, 32x 256GB DIMM			
			30C			
	1	Liquid Cooling	Up to 2x 300W, 32x128 GB, CL LC		Up to 2x 300W, 32x 256[1] GB DIMM, CL LC	Up to 2x 350W, 32x 256[1] GB DIMM, DLC
			23C	30C	25C	30C

Notes: [1]If 32 DIMMs (1DPC) for 256GB, cannot reach 6400 MT/s at 2DPC

Networking

The thermal conditions vary as a combination of types of Networking PCIe OR OCP adapter in different DL360 Gen12 CTO Servers. In general:

- Ambient limitation will variate in the combination of Networking Adapter OR OCP bandwidth, DIMM capacity and cable type, incl. CAT, Direct Attach Copper (DAC) cable and Active Optical Cable (AOC).
- Network Cable Tracking SKU type needs to be pre-selected in Smart Chassis session to enable an extended thermal capability in the Configurator.
- Standard Fan Kit cannot be selected when above 100GbE.
- 256 GB DIMM is not allowed when above 100GbE.
- A detailed ambient temperature recommendation upon high-speed networking adapters is described in a later session.

Default settings in all NC CTO Server

"BCM5719 Ethernet 1Gb 4-port Base-T OCP3 Adapter" is defaulted in the configurator at rear Slot 14

Core Options

OCPA if no H/W controller is selected.

Or default at Slot15 OCPB if a Hardware controller is pre-selected, in Smart Chassis.

Or a stand-up PCIe NIC adapter to be selected if there are two H/W controllers are pre-selected at both OCPA & OCPB, in Smart Chassis.

Customers are allowed to remove the NIC card default setting and re-select other cards (OCP3.0 or stand-up cards) from Networking & InfiniBand.

Notes: Exception- Only x8 PCIe5.0 lanes each in the Slot14 OCPB in q'ty 20 E3.S drives configuration.

Networking with front drive thermal configuration

Given the System Inlet Temperature was pre-selected in the upfront Smart Chassis section in One Advance Config. The background automation tool can bring up the compatible PCIe/OCP Networking cards for the specific CTO Server being chosen. The CPU, cooling solution and front storage q'ty adjustment may impact the result for SKU & q'ty high performance/bandwidth networking cards compatibility.

Please refer to the allowed configuration and thermal tier of each qualified Networking adapter/cards as the selection guidance.

General guidance for DAC cable:

- In air cooling configuration or DLC configuration, all NIC and InfiniBand cards for DL360 Gen12 CTO servers can be operated up to 30C system inlet temperature. In Closed-loop Liquid Cooling configuration, all NIC and InfiniBand cards for DL360 Gen12 CTO servers can be operated up to 25C system inlet temperature.
- If the configuration includes GPU, 256GB DIMM or rear NS204i-u, it will lead to different drive q'ty and temperature requirement.

Thermal Tier for PCIe Networking adapater with AOC (CTO Server)

The backplane and cage design is different from the three CTO servers and delivers different airflow. The Thermal Tier from each Networking card varies from CTO server. In general, the 10SFF/20EDSFF Hybrid NC CTO Server delivers superior thermal performance in high performance Networking cards with modular/flexible backplanes. Reducing the PCIe NIC adapter q'ty would also benefit the cooling performance.

Core Options

CTO Server	E3.S in Hybrid NC CTO Server / P72176-B21					
CPU TDP	0 - 270W (Air cooling)			271 - 350W (CL LC)		
PCIe Slot#	1	2	3	1	2	3
Cooling Level	System inlet temperature & max drive q'ty					
1	30C, max 20	30C, max 20	30C, max 20	30C, max 20	30C, max 20	30C, max 20
2						
3				25C, max 20	25C, max 20	25C, max 20
4	25C, max 20	25C, max 20	25C, max 20			
5					23C, max 20	23C, max 20
6	25C, max 12 20C, max 20	25C, max 12 20C, max 20	25C, max 20		20C, max 8	20C, max 8
7	23C, max 12 18C, max 20	23C, max 12 18C, max 20	25C, max 20	23C, max 8	18C, max 4	18C, max 4

CTO Server	SFF in Hybrid NC CTO Server / P72176-B21					
CPU TDP	0 - 270W (Air cooling)			271 - 350W (CL LC)		
PCIe Slot#	1	2	3	1	2	3
Cooling Level	System inlet temperature & max drive q'ty					
1	30C, max 10	30C, max 10	30C, max 10	30C, max 10	30C, max 10	30C, max 10
2						
3						
4						
5				25C, max 10	25C, max 10	25C, max 10
6	25C, max 10	25C, max 10	25C, max 10		23C, max 4	23C, max 4
7	27C, max 4 23C, max 10	27C, max 4 23C, max 10			20C, max 4	20C, max 4

Core Options

CTO Server	(8+2) SFF NC CTO Server / P72175-B21					
CPU TDP	0 - 270W (Air cooling)			271 - 350W (CL LC)		
PCIe Slot#	1	2	3	1	2	3
Cooling Level	System inlet temperature & max drive q'ty					
1	30C, max 10	30C, max 10	30C, max 10	30C, max 10	30C, max 10	30C, max 10
2						
3						
4						
5				25C, max 10	25C, max 10	25C, max 10
6	25C, max 10	25C, max 10	25C, max 10		N/A	N/A
7	23C, max 10	23C, max 10			N/A	N/A

CTO Server	4 LFF NC CTO Server / P72174-B21					
CPU TDP	0 - 270W (Air cooling)			271 - 350W (CL LC)		
PCIe Slot#	1	2	3	1	2	3
Cooling Level	System inlet temperature & max drive q'ty					
1	30C, max 4	30C, max 4	30C, max 4	30C, max 4	30C, max 4	30C, max 4
2						
3						
4						
5				25C, max 4	25C, max 4	25C, max 4
6	25C, max 4	25C, max 4	25C, max 4		N/A	N/A
7	N/A	N/A			N/A	N/A

Thermal Tier for OCP Networking card with AOC (CTO Server)

The backplane and cage design is different from the three CTO servers and delivers different airflow. The Thermal Tier from each Networking card varies from CTO server. In general, the 10SFF/20EDSFF Hybrid NC CTO Server delivers superior thermal performance in high performance Networking cards with modular/flexible backplanes. The front OCP NIC enablement kit will be available late CQ2 2025 in the Hybrid CTO Server. Reducing the OCP NIC q'ty would also benefit the cooling performance.

CTO Server	E3.S in Hybrid NC CTO Server / P72176-B21					
CPU TDP	0 - 270W (Air cooling)			271 - 350W (CL LC)		
OCP Slot#	14 OCPA	15 OCPB	Font OCP	14 OCPA	15 OCPB	Front OCP
Cooling Level	System inlet temperature & max drive q'ty					
1	30C, max 20	30C, max 20	Post launch	25C, max 20	25C, max 20	Post launch
2						
3	25C, max 20				25C, max 16	
4		25C, max 20		25C, max 16		
5						
6	25C, max 16			25C, max 12	20C, max 12	
7	25C, max 12	25C, max 12		25C, max 8	25C, max 8	
8	25C, max 8			23C, max 8	23C, max 8	
9	23C, max 8 18C, max 20	23C, max 8 18C, max 20		20C, max 8	20C, max 8	
10	20C, max 8 15C, max 20C	20C, max 12 18C, max 20		18C, max 8	18C, max 4	

CTO Server	SFF in Hybrid NC CTO Server / P72176-B21					
CPU TDP	0 - 270W (Air cooling)			271 - 350W (CL LC)		
OCP Slot#	14 OCPA	15 OCPB		14 OCPA	15 OCPB	
Cooling Level	System inlet temperature & max drive q'ty					
1	30C, max 10	30C, max 10		25C, max 10	25C, max 10	
2						
3						
4						
5				25C, max 8	25C, max 8	
6	25C, max 10			25C, max 6	25C, max 6	
7		25C, max 10		25C, max 4	25C, max 4	
8	25C, max 4	25C, max 4		23C, max 4	23C, max 4	
9	23C, max 4	23C, max 4		20C, max 4	20C, max 4	

Core Options

10	20C, max 4	20C, max 2		18C, max 2	18C, max 2	

CTO Server	**(8 +2) SFF NC CTO Server / P72175-B21**					
CPU TDP	**0 - 270W (Air cooling)**			**271 - 350W (CL LC)**		
OCP Slot#	**14 OCPA**	**15 OCPB**		**14 OCPA**	**15 OCPB**	
Cooling Level	**System inlet temperature & max drive q'ty**					
1	30C, max 10	30C, max 10		25C, max 10	25C, max 10	
2						
3						
4						
5				N/A	N/A	
6	25C, max 10			N/A	N/A	
7	25C, max 10	25C, max 10		N/A	N/A	
8	23C, max 8	25C, max 4		N/A	N/A	
9	18C, max 8	23C, max 4		N/A	N/A	
10	20C, max 4	20C, max 2		N/A	N/A	

CTO Server	**4 LFF CTO NC Server / P72174-B21**					
CPU TDP	**0 - 270W (Air cooling)**			**271 - 350W (CL LC)**		
OCP Slot#	**14 OCPA**	**15 OCPB**		**14 OCPA**	**15 OCPB**	
Cooling Level	**System inlet temperature & max drive q'ty**					
1	30C, max 4	30C, max 4		25C, max 4	25C, max 4	
2						
3						
4						
5				N/A	N/A	
6	25C, max 4			N/A	N/A	
7		25C, max 4		N/A	N/A	
8	N/A	N/A		N/A	N/A	
9	N/A	N/A		N/A	N/A	
10	N/A	N/A		N/A	N/A	

Cooling level for PCIe NIC & cables with AOC

Type	SKU#	Description	Cooling Level
InfiniBand	P45641-B21	HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter	7
	P45642-B21	HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter	6
	P65333-B21	HPE InfiniBand NDR200/Ethernet 200GbE 2-port QSFP112 PCIe5 x16 MCX755106AC-HEAT Adapter	7
100G	P25960-B21	Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	7
	P21112-B21	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	7
	R8M41A	HPE NV60100M 100Gb 2-port Storage Offload Adapter	7
10/25G	P26264-B21	Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	6
	P26262-B21	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	5
	S2A69A	HPE Ethernet 10/25Gb 2-port Secure Network Adapter	5
	P08443-B21	Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	5
	P08458-B21	Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	7
	P21109-B21	Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	6
	P42044-B21	Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	5
10G	P26253-B21	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	4
	P26259-B21	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	3

Core Options

1G	P57118-B21	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE	1

Networking PCIe

- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If **above** 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

InfiniBand PCIe

HPE InfiniBand NDR 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter P45641-B21

HPE InfiniBand NDR200/Ethernet 200GbE 2-port QSFP112 PCIe5 x16 MCX755106AC-HEAT Adapter P65333-B21

Notes:

– The P45641-B21 & P45642-B21 support the transceivers: P49764-B21, HPE IB NDR/EN 400Gb OSFP MM 50m HCA XCVR

– The P65333-B21 supports the transceiver: P65334-B21, HPE IB NDR/EN 400G QSFP112 MM 50m XCVR

Ethernet PCIe 100Gb

Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE P25960-B21

Notes:

– The P25960-B21 supports the transceivers as below.
  - 845966-B21, HPE 100Gb QSFP28 MPO SR4 100m Transceiver
  - 845972-B21, HPE 100Gb QSFP28 Bidirectional Transceiver

Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE P21112-B21

HPE NV60100M 100Gb 2-port NVMe-oF Offload Adapter R8M41A

Notes:

– The R8M41A supports the transceivers as below.
  - Q2F19A - HPE 100GbE QSFP28 SR4 100m XCVR
  - Q8J73A - HPE 100GbE QSFP28 PSM4 500m XCVR
  - Q9S71A - HPE 100GbE QSFP28 to QSFP28 5m AOC

Ethernet PCIe 10/25Gb

Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE P26264-B21

Notes:

– PCIe 4.0 x16// HH/ HL/ LP

– The P21109-B21 supports the transceivers below.

  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver

Core Options

- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P26262-B21

Notes:

– PCIe 3.0 x8// HH/ HL/ LP
– The P26262-B21 supports the transceivers as below.

- 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
- 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

HPE Ethernet 10/25Gb 2-port Secure Network Adapter S2A69A

Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P08443-B21

Notes:

– PCIe 4.0 x8// HH or LP
– The P08443-B21 supports the transceivers as below

- 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE P08458-B21

Notes:

PCIe 4.0 x16// FH/ HL
Max 1 of 4 port cards can be selected if secondary riser is not selected. Cannot be installed in Slot# 2.
Max 2 of 4 port cards can be selected if secondary riser is selected. Cannot be installed in Slot# 2.
If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.

Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P21109-B21

Notes:

– PCIe 3.0 x8// HH/ HL
– The P21109-B21 supports the transceivers below.

- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver

Core Options

- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P42044-B21

Notes:

- PCIe 4.0 x8// HH/ HL/ LP
- The P42044-B21 supports the transceivers below.
  - 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Ethernet PCIe 10Gb

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE P26253-B21

Notes: PCIe 3.0 x8// HH/ HL/ LP

Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE P26259-B21

Notes:

- PCIe 3.0 x8// HH/ HL/ LP
- The P26259-B21 supports the transceivers as below.
  - 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver

Ethernet PCIe 1Gb

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE P57118-B21

Notes:

- PCIe 2.0 x4// HH/ HL/ LP
- Max 1 of 4 port cards can be selected if secondary riser is not selected. Cannot be installed in Slot# 2.
- Max 2 of 4 port cards can be selected if secondary riser is selected. Cannot be installed in Slot# 2.
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.

Cooling level for OCP NIC & cables with AOC

Core Options

Type	SKU#	Description	Cooling Level
100G	P22767-B21	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE	9
10/25G	P26269-B21	Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	9
	P10115-B21	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	6
	P41614-B21	Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	10
	P10106-B21	Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	7
	P42041-B21	Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	7
10G	P10097-B21	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	5
	P26256-B21	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	2
1G	P51181-B21	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	3

Networking OCP

- Default x8 PCIe5.0 lanes from CPU1 to Slot 14 OCPA from system board design. For x16 lanes upgrade or Slot15 OCPB extension, please refer to later "OCP Enablement" section.
- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

Ethernet OCP 100G

Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE P22767-B21

Notes: P22767-B21 provides x16 lanes and x16 lanes OCP enablement kit need to be selected.

Ethernet OCP 10/25G

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

Notes:

– P22769-B21 provides x16 lanes and x16 lanes OCP enablement kit need to be selected.
– The P26269-B21 supports the transceivers as below.

Core Options

- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

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

Notes:

– The P10105-B21 supports the transceivers as below.

- 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
- 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE P41614-B21

Notes:

– a x16 OCP enablement kit can be selected if customer wants to have OCP x16 connectivity.
– The P41614-B21 supports the transceivers as below.

- 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE P10106-B21

Notes:

– The P10106-B21 supports the transceivers as below.

- 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE P42041-B21

Notes:

– The P42041-B21 supports the transceivers as below.

Core Options

- 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
- 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
- 845398-B21 - HPE 25Gb SFP28 SR 100m Transceiver

Ethernet OCP 10G

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

Notes:

– The P26256-B21 supports the transceivers as below.

- 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
- 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
- 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
- 455886-B21 - HPE BLc 10G SFP+ LR Transceiver

Ethernet OCP 1G

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

Notes: The P51181-B21 is defaulted in the configurator at rear Slot 14 OCPA if no H/W controller is selected. Use can de-select and re-select desired Networking cards with OCP enablement kit if required.

Fibre Channel HBA

HPE SN1620E 32Gb 2-port Fibre Channel Host Bus Adapter	S4S01A
HPE SN1720E 64Gb 2-port Fibre Channel Host Bus Adapter	S4T09A

Notes: PCIe 4.0 x8// FH or LP for SN1620E/SN1720E

HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A

Notes: PCIe 3.0 x8// FH or LP for SN1610Q/1610E

HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	R7N86A
HPE SN1700Q 64Gb 2-port Fibre Channel Host Bus Adapter	R7N87A

Notes: PCIe 4.0 x8// FH or LP for SN1700QE 1-port and 2-port

OCP3.0 Enablement/ Upgrade Kit

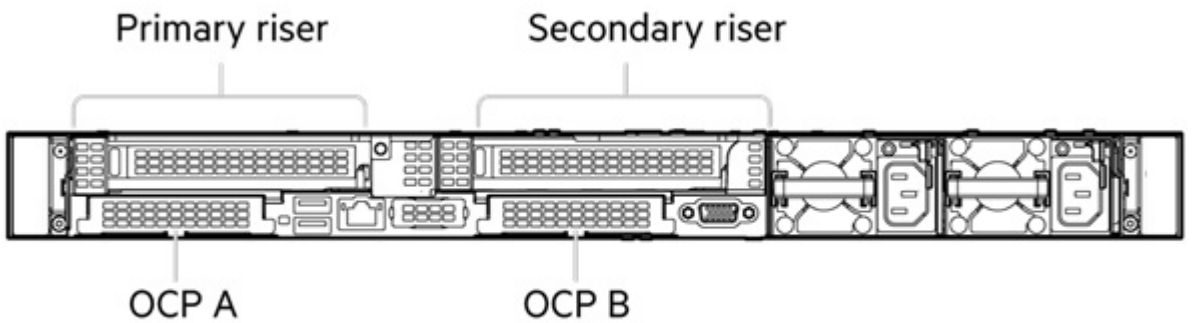
HPE ProLiant Compute DL3XX/ML350 Gen12 CPU1 to Rear OCP SlotA x16 Cable Kit	P72201-B21
HPE ProLiant Compute DL3XX/ML350 Gen12 CPU1 to Rear OCP SlotB x8 Cable Kit	P72203-B21
HPE ProLiant Compute DL3XX/ML350 Gen12 CPU2 to Rear OCP SlotB x8 Cable Kit	P72205-B21
HPE ProLiant Compute DL3XX/ML350 Gen12 CPU2 to Rear OCP SlotB x16 Cable Kit	P72207-B21

Notes:

– Both OCP Slots provide Wake-on-Lane feature.

Core Options

- There is x8 lanes PCIe5.0 embedded from system board for Slot 14 OCPA.
- In drive q'ty 20=E3.S configuration in 10SFF/20EDSFF Hybrid NC CTO Server, Slot 14 OCPA cannot connect to any optional OCP enablement kit (P72201-B21). Only x8 lanes are available as embedded from system board. No limitation to Slot 15 OCPB with optional OCP x16 enablement kit.
- Front OCP Enablement Kit(s) is a post launch feature, to be available late CQ2 2025.



OCP3.0 Slot Priority Support Matrix - 4 LFF, 8+2 SFF & 20EDSFF CTO Server						
DL360 Gen11 Rear wall		**Selected OCP cards (Qty & type)**				
		2	**1**	**1**	**1**	**2**
OCP Slots #	**Share NIC Feature**	**1xOROC[1] + 1x NIC[2]**	**1xNIC**	**2xNICs**	**1xOROC**	**2x OROCs**
1	N/A	OROC	(Secondary)	NIC	OROC (Primary)	OROC[4] (Primary)
2	Available (Incl. Wake-on-LAN)	NIC	NIC (Primary)	NIC (Primary)	No support[3]	OROC[4]

Notes:

- [1] OCP form factor internal controller
- [2] OCP Networking card
- [3] If only 1 OROC card is selected, by default connected from 8 SFF backplane to Slot 14 OCPA. And there is no controller cable that can connect from 8 SFF Backplane to Slot 15 OCPB.
- [4] If 2 OROC cards are selected, by default the 8 SFF controller cable is connected to Slot 14 OCPA (the comparably higher-end OROC card to be selected by default) and the 2 SFF backplane is connected to Slot 15 OCPB with another OROC card selected (comparably less high-end one) with 2 SFF controller cable.

Core Options

Rear OCP3.0 Enablement Kits				
	Enablement Cable Kits		PCIe5.0 lanes availability	
PCIe5.0	Orderable SKU	Description	Slot 14 OCPA	Slot 15 OCPB
CPU1	x8 PCIe5.0 embedded from MLB CPU1		(embedded x8)	No support
	P72203-B21	DL3XX/ML350 G12 CPU1 to Rear OCP SlotB x8 Cable Kit	(embedded x8)	x8
	P72201-B21[1]	DL3XX/ML350 G12 CPU1 to Rear OCP SlotA x16 Cable Kit	x16[1]	No support
CPU1 & CPU2	P72207-B21	DL3XX/ML350 G12 CPU2 to Rear OCP SlotB x16 Cable Kit	(embedded x8)	x16
	P72201-B21[1] & P72207-B21	DL3XX/ML350 G12 CPU1 to Rear OCP SlotA x16 Cable Kit & DL3XX/ML350 G12 CPU2 to Rear OCP SlotB x16 Cable Kit	x16[1]	x16
	P72205-B21	DL3XX/ML350 G12 CPU2 to Rear OCP SlotB x8 Cable Kit	(embedded x8)	x8
	P72203-B21	DL3XX/ML350 G12 CPU1 to Rear OCP SlotB x8 Cable Kit	(embedded x8)	x8
	P72201-B21[1] & P72205-B21	DL3XX/ML350 G12 CPU1 to Rear OCP SlotA x16 Cable Kit & DL3XX/ML350 G12 CPU2 to Rear OCPB x8 Cable Kit	x16[1]	x8

Notes:[1]In drive q'ty 20=E3.S configuration in 10SFF/20EDSFF Hybrid NC CTO Server, Slot 14 OCPA cannot connect to any optional OCP enablement kit (P72201-B21). Only x8 lanes are available as embedded from system board. No limitation to Slot 15 OCPB with optional OCP x16 enablement kit.

Rear OCP Slotting		
Configuration 1: No OCP enablement kit or only P72201-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A or P72201-B21	No support
Bus Width	x8 (default) or x16	No support
OCP adapter	**Slot Priority**	
-Controller	1	No support
-Networking	1	No support

Core Options

Configuration 2: Only P72203-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A	P72203-B21
Bus Width	x8 (default)	x8
OCP adapter	**Slot Priority**	
-Controller	1	2
-Networking	2	1

Configuration 3: Only P72205-B21 is selected, or both P72201-B21 & P72205-B21 are selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A or P72201-B21	P72205-B21
Bus Width	x8 (default) or x16	x8
OCP adapter	**Slot Priority**	
-Controller	1	2
-Networking	2	1

Configuration 4: Only P72207-B21 is selected, or both P72201-B21 & P72207-B21 are selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A or P72201-B21	P72207-B21
Bus Width	x8 (default) or x16	x16
OCP adapter	**Slot Priority**	
-Controller	1	2
-Networking	2	1

Rear OCP Cards Slotting Rules	
General	
Priority	**Description & Rules**
1	OCP Networking card to be installed in Slot 2 as priority, as the Slot 2 supports ShareNIC (incl. Wake-on-LAN).
2	2x OCP Controllers (OROC): Tri-Mode Controllers are in higher priority than SAS Controllers.
3	2x OCP Networking cards: High Speed NIC is in higher priority to be installed in Slot 2.
4	If no OCP Slot 2 Enablement Kit is selected, the OCP Slot 2 is occupied.
5	If no OCP Slot 1 Enablement Kit is selected, the OCP Slot 1 is default in x8 electrical lanes (embedded from MLB)

Core Options

Power and Cooling

Power Supplies

European Union Erp Lot 9 Regulation

Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for **single-output**. HPE Flexible Slot power supplies are single-output, and part numbers P03178-B21 and P44712-B21 are 96% efficient, thus meeting requirements.

HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.

Please select one or two power supplies from below in the system configuration.

Notes:

- Mixing 2 different power supplies is NOT supported.
- Please refer to "Factory Configuration Setting" section regarding "HPE CE Mark Removal FIO Enablement Kit (P35876-B21)" for non- EU Erp Lot 9 configuration.
- In order to select the right size power supply for your ProLiant Server it is highly recommended to use "HPE Power Advisor" located at **https://poweradvisorext.it.hpe.com/?Page=Index**

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P3899

HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit P0317

Notes: Power efficiency at 96% single output.

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P3899

HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit P1702

Notes: If 1600W DC Power supply is selected, then either "HPE 1600W DC PSU Power Cable Kit" or "HPE 1600W DC PSU Power Lug Option Kit" must be selected and quantity must match. vice versa

Notes: Only supports high line voltage (200 VAC to 240 VAC).

HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit P4471

Notes:

- Power efficiency at 96% single output.
- Supports high line voltage (200VAC to 240VAC)
- The highest rating would vary from 1800-2200W depending on input voltage of datacenter

Notes: According to The Bureau of Indian Standards Act, 2016, BIS certification is required by every manufacturer (Indian or foreign) of those who are manufacturing products under Compulsory Certification.

DL360 Gen11 CTO Servers manufactured in US, EMEA and Singapore with below Power Supplies are certified with BIS: 865408-B21, P38995-B21, P03178-B21, P17023-B21, P38997-B21 and P44712-B21.

For information on BIS Certification requirements visit **BIS Certification - BIS Certificate for Import (indianchemicalregulation.com)**

Accessory

HPE 1600W -48VDC Power Cable Lug Kit P3687

Notes: Both "HPE 1600W DC PSU Power Lug Option Kit" and "HPE 1600W DC PSU Power Cable Kit" cannot be selected together.

Power Cords

For more Power Cords options, please refer to "HPE One Config Advance".
If any of these "Optional" Power Cords are ordered, then quantity must be equal to total number of Power Supplies on the order.

- All Regions (Except Japan) - OCA/CLIC UNB
- For Japan - OCA/CLIC Warning"

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE ProLiant Gen12 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

Prior to making a power supply selection it is highly recommended that the HPE Power Advisor is run to determine th right size power supply for your server configuration. The HPE Power Advisor is located at: **HPE Power Advisor**

HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs) Visit **HPE power cords and cables** for a full list of optional power cords. The standard 6-foot IEC C-13/C-14 jumper cord (A0K02A) is included with each standard AC power supply option kit.

For information on power specifications and technical content visit **HPE Flexible Slot power supplies**

Power Cooling Options

Fan Kits

For the fan and heatsinks combination, please refer to the previous section: Heatsinks (incl. Liquid Cooling module) (incl. Liquid Cooling module).

HPE ProLiant DL3X0 Gen11 1U High Performance Fan Kit P4890

Notes:

– Dual rotor 4056 performance fans (q'ty 7)

o Two processors with a TDP equal or greater than 186W and below 270Watt

o For processors below 185Watt TDP, customers **are able to** configure with High Performance Heatsinks & Performance Fan Kit in HPE OCA. First, **deselect** the Standard Heatsink and Standard Fan, then **reselect** High Performance Heatsink and Performance Fan Kit.

HPE ProLiant DL3X0 Gen11 1U Standard Fan Kit P4890

Notes: Dual rotor 4056 standard fans (q'ty 5)

HPE ProLiant DL3X0 Gen11 1U 2P Standard Fan Kit P5469

Notes: Dual rotor 4056 standard fans (q'ty 2)

Core Options

Accessories

Management Hardware

Maximum 1 of each can be selected.

HPE ProLiant DL36X Gen11 Rear Serial Port Cable Kit P4892

HPE ProLiant Compute DL360 Gen12 8SFF System Insight Display Power Module Kit P7223

Notes: Supported with 8 SFF NC CTO Model only.

HPE ProLiant Compute DL3XX Gen12 1U 4LFF Front Display Port/USB Enablement Kit P7222

Notes: Supported with 4 LFF CTO Model only.

Rack Options

HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit P5234

HPE Easy Install Rail 5 Kit P5234

HPE Cable Management Arm 4 for Friction Rail Kit P7074

Notes:

- HPE rail kits contain telescoping rails which allow for in-rack serviceability.
- Rail Kit does not include Cable Management Arm.
- Hewlett Packard Enterprise recommends that a minimum of two people is required for all Rack Server installations
- Please refer to your installation instructions for proper tools and number of people to use for any installation.
- Maximum 1 of each can be selected.
- If CMA is selected, then Rail kit must be selected.
- P52341-B21 supports 8SFF CTO Model only.
- P52343-B21 supports 4LFF CTO & 10SFF/20EDSFF Hybrid CTO Models.
- HPE rail kits are designed to work with HPE racks in compliance with industry standard EIA-310-E. In the event a customer elects to purchase a third-party rack for use with an HPE rail kit, any such use is at the customer's own risk. HPE makes no express or implied warranties with respect to such third-party racks and specifically disclaim 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

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Serurity Hardware

HPE Bezel Lock Kit 87551

Notes:

- Maximum 1 of each can be selected.
- If Bezel lock is selected, then "HPE DL3XX Gen11 1U Bezel Kit" or "HPE OEM Gen11 1U Bezel KIT" must be selected.

HPE DL3XX Gen11 Intrusion Cable Kit P4892

Notes:

- Maximum 1 of each can be selected.
- If "HPE Trusted Supply Chain FIO Config" is selected then "Gen11 Intrusion Cbl Kit" must be

Core Options

selected.

– If HPE Trusted Supply Chain FIO Config is selected, then Configurator should default "Gen11 Intrusion Cbl Kit".

HPE ProLiant Gen11 1U Common Bezel Kit P5045

Notes:

– Maximum 1 of each can be selected.
– If Bezel lock is selected, then "HPE DL3XX Gen11 1U Bezel Kit" or "HPE OEM Gen11 1U Bezel KIT" must be selected.
– Both "HPE DL3XX Gen11 1U Bezel Kit" and "HPE OEM Gen11 1U Bezel KIT" cannot be selected together.

Graphic options (GPU)

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

GPGPU Configuration									
		4LFF CTO	10SFF/20EDSFF Hybrid NC CTO Server						
SKU	**FAN**	**4LFF**	**0 drive**	**10 SFF NVMe**	**8 SFF NVMe**	**8 SAS/SATA**	**10 SAS/SATA**	**20 E3.S**	**12 E3.S**
Nvidia L4 (S0K89C), Q'ty 3	Perf. Fan	Up to 2x270W CPU, 32x 128 GB DIMMs						Up to 2x225W, 32x 128 GB	
		30C	30C	30C	30C	30C	28C	28C	30C
	CL LC	Up to 2x350W CPU, 32x 128 GB DIMM							
		25C	25C	20C	25C	25C	20C	N/A	23C

Notes:

– Support the GPU adapter with length up to 9.5" (full length adapters are not supported) at PCIe Slot 1, 2 and 3 (with 2nd CPU).
– Mixing of different Graphics Option is not allowed.
– Not compatible with Energy Star 4.0 under Graphic cards.
– Requires "Increased Cooling" to be selected in BIOS settings (default setting is "Optimal Cooling").
– If GPU is selected, it requires high performance fans if air-cooling.
– If GPU is selected for best performance across common workloads, HPE recommends system main memory at least twice the memory of all GPU.
– Max 2x350W CPU, 32x128 GB DIMM, and max 10SFF, will need to be **operated** at 20C. Will not be a feasible configuration to support.
– GPU support with 256GB DIMM will be limited to 1DPC and require special review and approval.

Software RAID

Intel Virtual RAID on CPU Premium FIO Software for HPE R7J57A

Core Options

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

Software as a Service Management

HPE Compute Ops Management

Base SKU

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

Upgrade SKU

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

FIO Setting SKU

HPE Compute Cloud Management Server FIO Enablement	S1A05A
HPE Compute Ops Management Standard with ProLiant Enablement	S2R34AAE

For more information, visit the HPE GreenLake for 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**

HPE Converged Infrastructure Management Software

HPE OneView Advanced (with HPE iLO Advanced)

HPE OneView including 3yr 24x7 Support Physical 1-server LTU	E5Y34A

HPE OneView Advanced (without HPE iLO Advanced)

HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU	P8B24A

Notes:

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

Choose Additional Options

HPE Racks

Core Options

- Please see the HPE Advanced Series Racks QuickSpecs for information on additional racks options and rack specifications. **HPE G2 Advanced Series Racks**
- Please see the HPE Enterprise Series Racks QuickSpecs for information on additional racks options and rack specifications. **HPE G2 Enterprise Series Racks**

HPE Power Distribution Units (PDUs)

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

HPE Uninterruptible Power Systems (UPS)

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

HPE Support Services

Installation & Start-up Services

HPE ProLiant DL/ML Install Service	U4
HPE ProLiant DL/ML Startup Service	U4

Tech Care Services

HPE 3 Year Tech Care Essential DL360 Gen12 HW Service	H4
HPE 3 Year Tech Care Essential wDMR DL360 Gen12 HW Service	H4
HPE 5 Year Tech Care Essential DL360 Gen12 HW Service	H4
HPE 5 Year Tech Care Essential wDMR DL360 Gen12 HW Service	H4

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

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

Memory

Memory Population guidelines

Front End - HPE ProLiant Compute DL360 Gen12

General Memory Population Rules and Guidelines

Listed below are general Memory Module Population Rules supported by the processor for reference.

- All DIMMs must be DDR5.
- All DDR5 DIMM must be running the same speed per CPU socket.
- x8 and x4 cannot be mixed.
- 3DS and non-3DS Memory cannot be mixed.
- Mixing different Rank Memory is not allowed if less than q'ty 16 of Memory is selected for 1 CPU configuration.
- Mixing different Rank Memory is not allowed if less than q'ty 32 Memory is selected for 2 CPUs configuration.
- If different Rank Memory are mixed, then quantity of each Memory part number must be same.
- 16GB & 256GB are allowed with 6xxxP CPU only.
- In q'ty 1 Intel Xeon 6xxxP CPU configuration, then Maximum 8 quantity of 16GB Memory can be selected.
- In q'ty 2 Intel Xeon 6xxxP CPU configuration, then Maximum 16 quantity of 16GB Memory can be selected.
- If 256GB DIMM is selected, then a maximum q'ty 16 of Memory can be selected per CPU but cannot reach 6400 MT/s.
- 96GB Memory cannot be mixed with any other Memory.
- 128GB Memory cannot be mixed with any other Memory.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two CPUs.
- The maximum memory speed is a function of the memory type, memory configuration, and CPU model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, and the number and model of installed CPUs qualified on

Memory

the platform.

- Q'ty of memory DIMMs selected per socket must be 1, 2, 4, 8, 12 or 16 for 6xxxP CPU
- Q'ty of memory DIMMs selected per socket must be 1, 2, 4, 8 or 16 for 67xxE CPU
- With Intel Xeon 67xxE CPU, DIMMs below are supported.
  - HPE 32GB 2Rx8 PC5-6400B-R Smart Kit
  - HPE 64GB 2Rx4 PC5-6400B-R Smart Kit
  - HPE 96GB 2Rx4 PC5-6400B-R Smart Kit
  - HPE 128GB 2Rx4 PC5-6400B-R Smart Kit

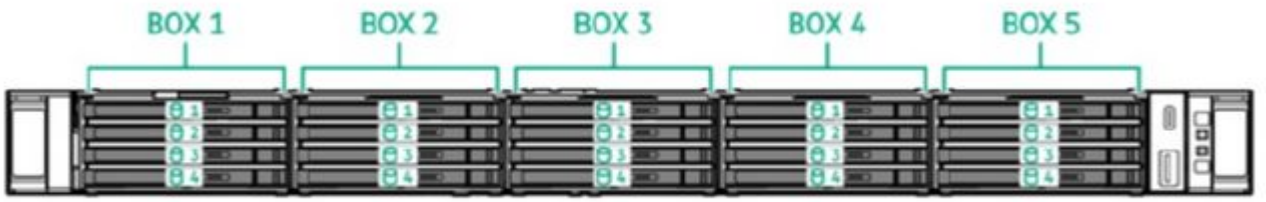
- With Intel Xeon 6xxxP CPU, DIMMs below are supported.
  - HPE 16GB 1Rx8 PC5-6400B-R Smart Kit
  - HPE 32GB 2Rx8 PC5-6400B-R Smart Kit
  - HPE 64GB 2Rx4 PC5-6400B-R Smart Kit
  - HPE 96GB 2Rx4 PC5-6400B-R Smart Kit
  - HPE 128GB 2Rx4 PC5-6400B-R Smart Kit
  - HPE 256GB 4Rx4 PC5-6400B-R 3DS Smart Kit

- Capacity references are rounded to the common gigabyte (GB) values.
  - 8 GB = 8,192 MB
  - 16 GB = 16,384 MB
  - 32 GB = 32,768 MB
  - 64 GB = 65,536 MB
  - 128 GB = 131,072 MB
  - 256 GB = 262,144 MB
  - 512 GB = 524,288 MB

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

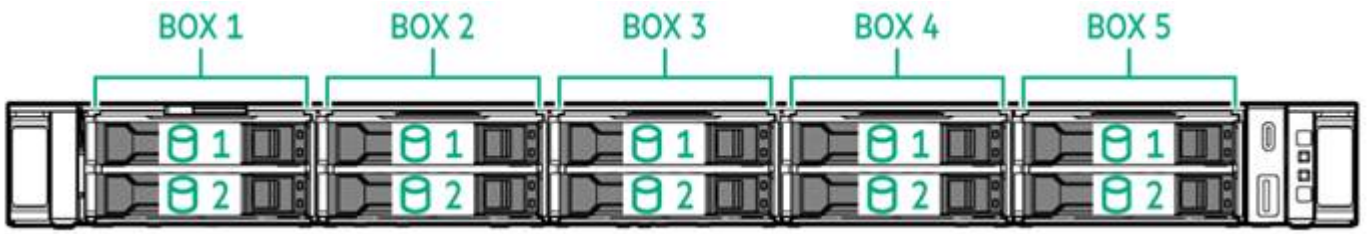
Storage

Front Storage Cage Numbering



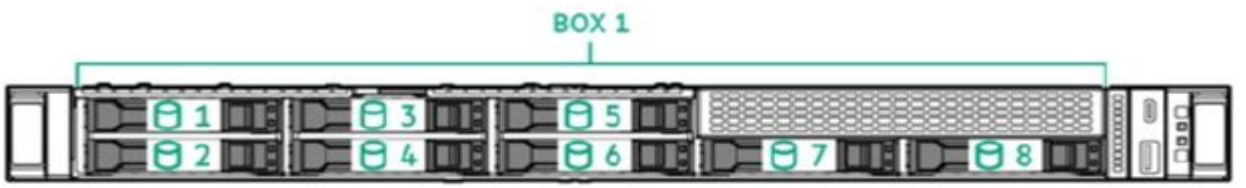
20 E3.S device box & bay numbering (P72176-B21)

Box	Description
1 - 5	Bays 1-4



10 SFF device bay numbering (P72176-B21)

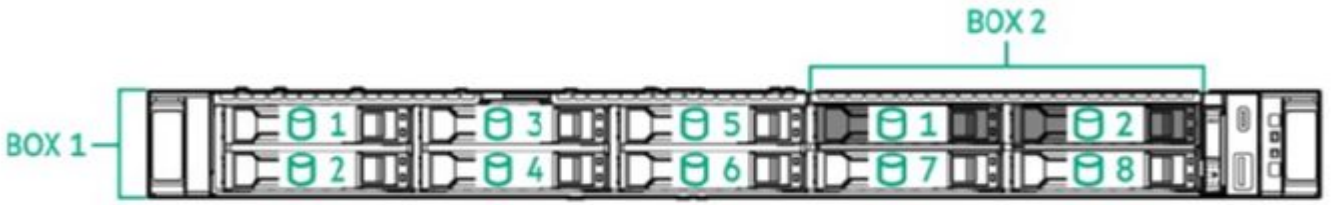
Box	Description
1 - 5	Bays 1 and 2



8 SFF device box & bay numbering (P72175-B21)

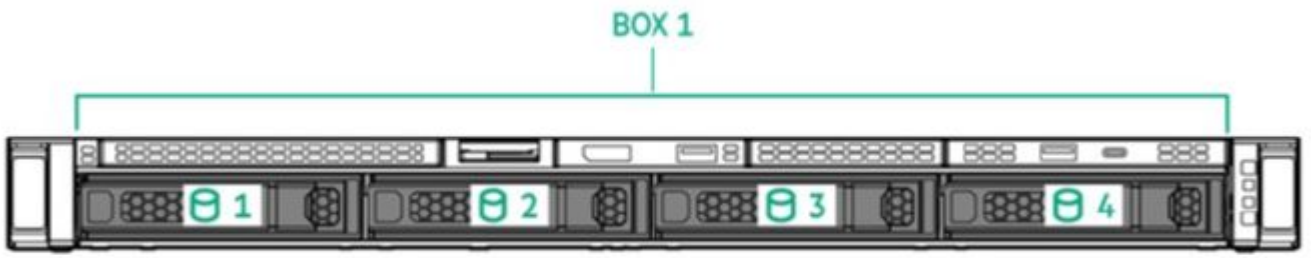
Box	Description
1	Bays 1 - 8

Storage



8 SFF device box & bay numbering + 2 SFF devive box & bay numbering optional (P72175-B21)

Box	Description
1	Bays 1 - 8
2	Bays 1 - 2



4 LFF device box & bay numbering (P72174-B21)

System Unit

Dimensions (Height x Width x Depth)

SFF Drives

- 4.29 x 43.46 x 75.31 cm
- 1.69 x 17.11 x 29.65 in

LFF Drives

- 4.29 x 43.46 x 77.31 cm
- 1.69 x 17.11 x 30.43 in

SFF/EDSFF Hybrid Drives

- 4.29 x 43.46 x 77.31 cm
- 1.69 x 17.11 x 30.43 in

Weight (approximate)

- **14.87 kg (32.71 lb.)**
  - **SFF minimum**: One drive, one processor, one power supply, two heatsinks, one Smart Array controller, and five fans.
- **19.94 kg (43.96 lb.)**
  - **SFF maximum:** Ten drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.
- **15.25 kg (33.55 lb.)**
  - **LFF minimum:** One drive, one processor, one power supply, two heatsinks, one Smart Array controller and five fans.
- **20.92 kg (46.02 lb.)**
  - **LFF maximum:** Four drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.
- **14.92kg (32.82b)**
  - **EDSFF minimum**: One drive, two processors, one power supply, two heatsinks, one Smart Array controller, and seven fans.
- **21.38kg (47.041lb)**
  - **EDSFF maximum**: Twenty drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.

Input Requirements (per power supply)

Rated Line Voltage

- For 1800-2200W (Titanium): 200 to 240 VAC
- For 1600W (Platinum): 200 to 240 VAC
- For 1000W (Titanium): 100 to240 VAC
- For 800W (Platinum): 100 to 240 VAC
- For 1600W (-48 VDC): -40 to -72 VdC

British Thermal Unit (BTU) Rating

Maximum

- For 1800-2400W (Titanium) Power Supply: 6497BTU/hr (at 200 VAC), 7230 BTU/hr (at 220 VAC), 7962 BTU/hr (at 240 VAC)
- For 1600W (Platinum) Power Supply: 5918 BTU/hr (at 200 VAC), 5888 BTU/**hr** (at 220 VAC), 5884 BTU/hr (at 240 VAC)
- For 1000W (Titanium) Power Supply: 3741 BTU/hr (at 100 VAC), 3596 BTU/hr (at 200 VAC), 3582 BTU/hr (at 240 VAC)
- For 800W (Platinum) Power Supply: 3067 BTU/hr (at 100 VAC), 2958 BTU/hr (at 200 VAC), 2949 BTU/hr (at 240 VAC)
- For 1600W (48VDC) Power Supply: 6026 BTU/hr (at -40 VDC), 6000 BTU/hr (at -48 VDC), 5989 BTU/hr (at -72 VDC)

Power Supply Output (per power supply)

Rated Steady-State Power

- For 1800W-2200W (Titanium) Power Supply: 1799W (at 200 VAC), 2000W (at 220 VAC), 2200W (at 240 VAC), 2200W (at 240 VDC) input for China only
- For 1600W (Platinum) Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) input for China only
- For 1000W (Titanium) Power Supply: 1000W (at 100 VAC), 1000W (at 240 VAC), 1000W (at 240 VDC) input for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 1600W (-48VDC) Power Supply: 1600W (at -40 Vdc), 1600W (at -72Vdc)

Maximum Peak Power

- For 1800W-2200W (Titanium) Power Supply: 2200W (at 240 VAC). 2200W (at 240 VDC) input for China only
- For 1600W (Platinum) Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) input for China only
- For 1000W (Titanium) Power Supply: 1000W (at 100 VAC), 1000W (at 240 VAC), 1000W (at 240 VDC) input for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 1600W (-48VDC) Power Supply: 1600W (at -40 Vdc), 1600W (at -72Vdc)

Notes: For more information, please visit **HPE Flexible Slot Power Supplies**

System Inlet Temperature

- **Standard Operating Support (Level 2 support)**

10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed.

System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F) or above 27°C (81°F) at 900M.

10° to 35°C (50° to 95°F) at 900M with an altitude**derating of** 1.0°C per every 305 m (1.8°F per every 1000 ft.) above sea level to a maximum of 3050 m (10,000 ft.), no direct sustained sunlight. Maximum rate of change is 20°C/hr. (36°F/hr.). The upper limit and rate of change may be limited by the type and number of options installed.

System performance during standard operating support may be reduced if operating with a fan fault or above 27°C (81°F) at 900M and 30°C (86°F) at sea level.

With Standard Operating Support, there shall be no processor performance drop. The approved hardware configurations for this system are listed at the URL**Extended Ambient Temperature Guidelines for HPE Gen11 servers**

- **Extended Ambient Operating Support (Level 3 & Level 4 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.).

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

With Extended Ambient Operating Support, Processor performance drop would be expected. The approved hardware configurations for this system require the High Performance Fan Kit (P26477-B21) and are listed at the URL: **http://www.hpe.com/servers/ashrae**

System performance may be reduced if operating in the extended ambient operating range or with a fan fault.

- **Non-operating**

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

Relative Humidity (non-condensing)

- **Operating**

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

- **Non-operating**

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

- **Operating**

-12°C DP and 8% Rh to 21°C DP 80% - Relative humidity (Rh), 21°C maximum wet bulb temperature, non-condensing.

Technical Specifications

- **Non-Operating**

-12°C DP and 8% Rh to 21°C DP 80% - Relative humidity (Rh), 21°C maximum wet bulb temperature, non-condensing.

Altitude

- **Operating**

3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

- **Non-operating**

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

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://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=c03471072
http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

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HPE Smart Array

For the latest information please refer to the QuickSpecs.

- **HPE Compute MR Gen11 Controllers QuickSpecs**
- **HPE Compute SR Gen11 Controllers QuickSpecs**

Technical Specifications

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.

Idle	
LWA,m	5.1 B Performance - SFF
LpAm	38 dBA Performance - SFF
Kv	0.4 B Performance - SFF
Operating	
LWA,m	5.9 B Performance - SFF
LpAm	47 dBA Performance - SFF
Kv	0.4 B Performance - SFF

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 and GPU TDP.
- 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.
  - Performance - SFF Configuration: 1x INTEL Xeon 6710E CPU, 8x SAS 10K SFF BC HDD, 8x 32GB DIMM, 1x 8000W PSU, 7x PFM Fan, 1x MR408i-o, 1x 1Gb 2p BASE-T Adptr.
- 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.
- System under abnormal conditions may increase the noise level, persons in the vicinity of the product [cabinet] for extended periods of time should consider wearing hearing protection or using other means to reduce noise exposure.

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

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

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site.** These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
24-Feb-2025	Version 1	New	New QuickSpecs.

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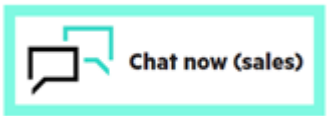

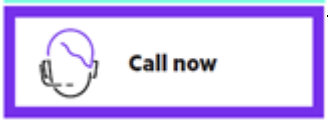

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