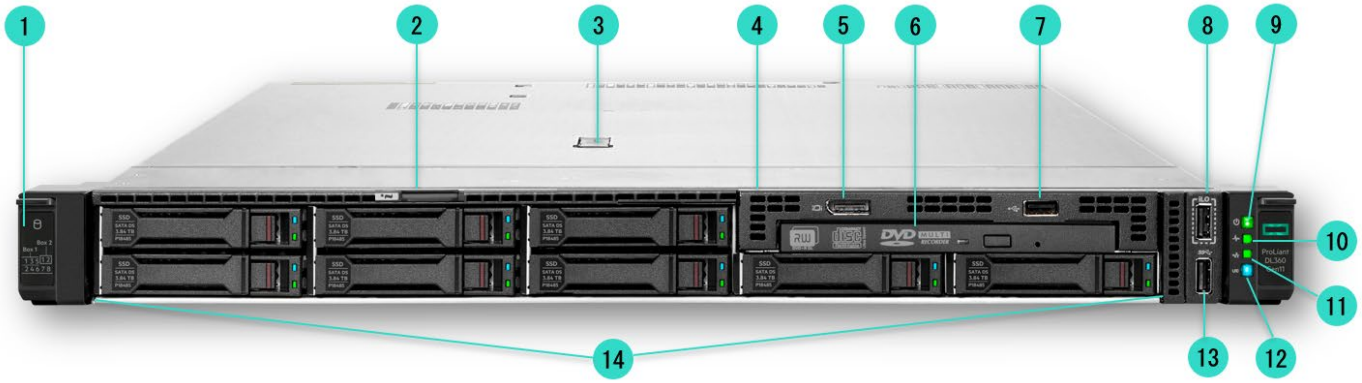
Overview

Shape the Future of QuickSpecs – Your Input Matters

HPE ProLiant DL360 Gen11

Do you need to efficiently expand or refresh your IT infrastructure to propel the business? Adaptable for diverse workloads and environments, the compact 1U HPE ProLiant DL360 Gen11 delivers enhanced performance with the right balance of expandability and density. Designed for supreme versatility and resiliency while backed by a comprehensive warranty, the HPE ProLiant DL360 Gen11 is ideal for IT infrastructure, either physical, virtual, or containerized.

The HPE ProLiant DL360 Gen11 supports the 4th & 5th Generation Intel® Xeon® Scalable Processors with up to 64 cores, plus 5600 MT/s HPE DDR5 Smart Memory up to 4.0 TB per socket. Introducing PCIe Gen5 and Intel® Software Guard Extensions (SGX) support on the dual-socket segment, the HPE ProLiant DL360 Gen11 complements Gen10 Plus reach by delivering premium compute, memory, networking communication, discrete graphic, I/O, and security capabilities for customers focused on performance at any cost. DL360 Gen11 server is an excellent choice of daily business and workloads in General Compute, Database Management, Virtual Desktop Infrastructure, Content Delivery Network, EDA, CAD, Edge Acceleration and Intelligent Video Analytics.



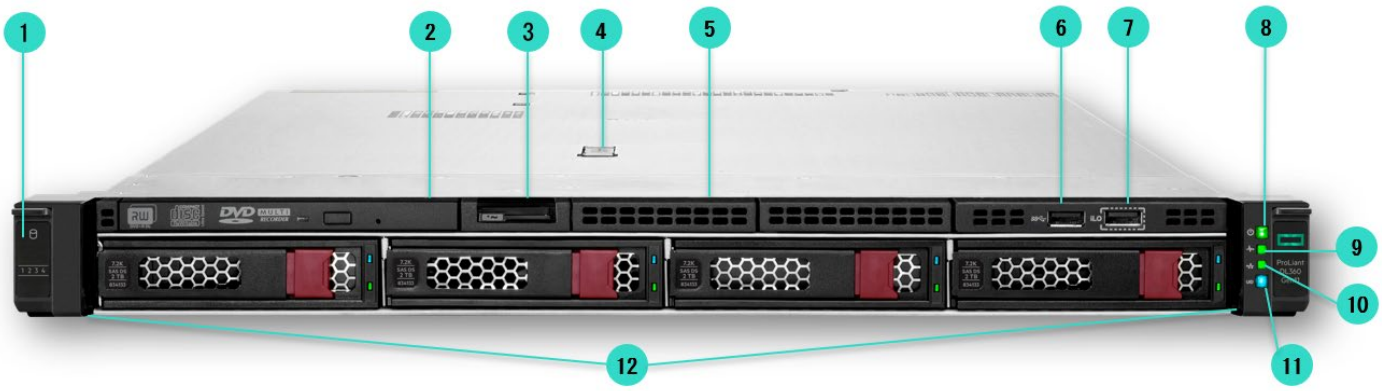
8 SFF Front View – 8 SFF + optional Universal Media Bay, optical drive, Display Port, USB2.0 and SAS drives shown

1. Drive support label
2. Serial number/iLO information pull tab
3. Quick removal access panel
4. Universal Media Bay (optional):
   - Option: Optical drive bay + Display port & USB 2.0 port kit (shown)
   - Option: 2 SFF 24G x4 NVMe/SAS (TriMode) U.3 BC Cage
5. Display Port (optional – shown)
6. Optical drive (optional – shown)
7. USB2.0 port (optional)
8. iLO Service port
9. Power On/Standby button and system power LED
10. Health LED
11. NIC status LED
12. Unit ID button/LED
13. USB 3.2 Gen1 port
14. Drive bays; optional backplanes:
    - Option: 8 SFF 24G x1 NVMe/SAS (TriMode) U.3 BC
    - Option: 8 SFF 24G x4 NVMe/SAS (TriMode) U.3 BC

Notes:

- Optional- Systems Insight Display (SID) module is available for 8 SFF CTO Server and will be installed at the left-hand side of iLO Service port and USB 3.2 Gen1 port.
- Front NIC LED display doesn't support NIC LED ACT/LINK indication from OCP NIC without Scan Chain and PCIe type NIC adapters.

Overview



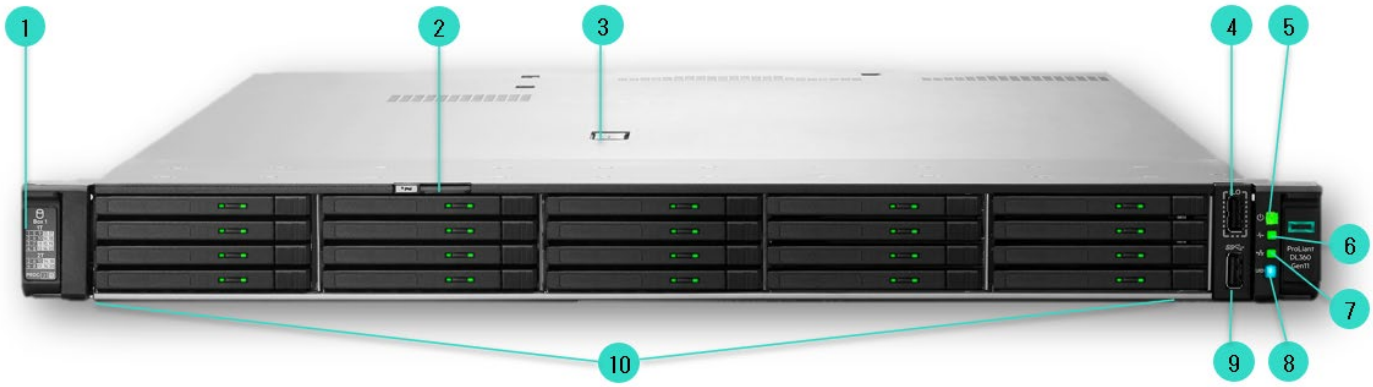
4 LFF Front View – 4 LFF + optional Optical drive, Display Port, USB2.0 and SAS drives shown

1. Drive support label
2. Optical drive (optional – shown)
3. Serial number/iLO information pull tab
4. Quick removal access panel
5. Option: Display port & USB 2.0 port bundle Kit (blank shown)
6. USB 3.2 Gen1 port
7. iLO Service Port
8. Power On/Standby button and system power LED
9. Health LED
10. NIC status LED
11. Unit ID button/LED
12. SAS/SATA drive bays (12G x1 SAS LP BP embedded)

Notes:

- The optional Systems Insight Display (SID) module is not available in 4 LFF CTO Server.
- Front NIC LED display doesn't support NIC LED ACT/LINK indication from OCP NIC without Scan Chain and PCIe type NIC adapters.

Overview



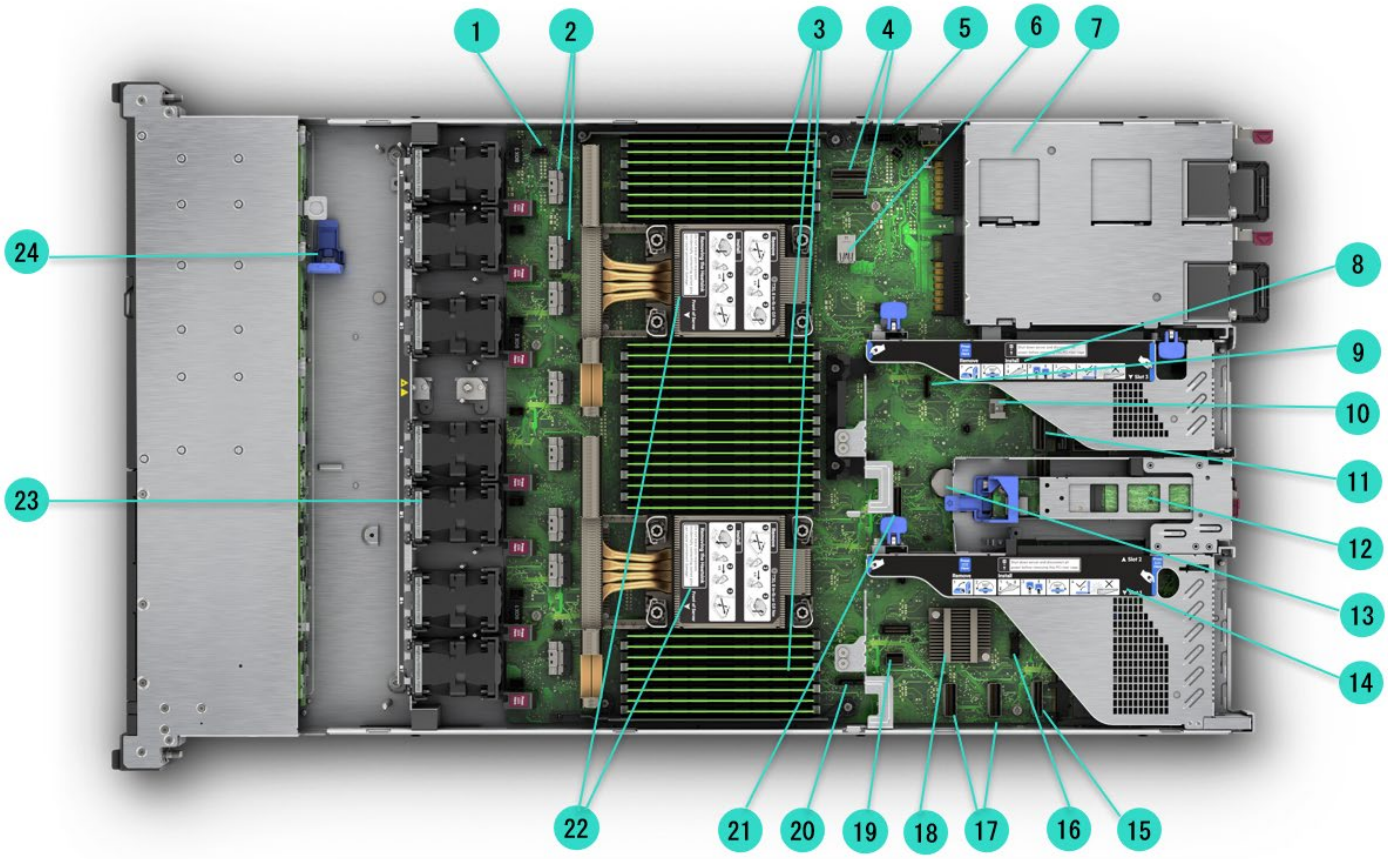
20 EDSFF Front View – 20 E3.s 1T NVMe drives shown

1. Drive support label
2. Serial number/iLO information pull tab
3. Quick removal access panel
4. iLO Service Port
5. Power On/Standby button and system power LED
6. Health LED
7. NIC status LED
8. Unit ID button/LED
9. USB 3.2 Gen1 port
10. EDSFF drive bays (32G x4 NVMe BP embedded)

Notes:

- The optional Systems Insight Display (SID) module is not available in 20EDSFF CTO Server.
- Front NIC LED display doesn't support NIC LED ACT/LINK indication from OCP NIC without Scan Chain and PCIe type NIC adapters.

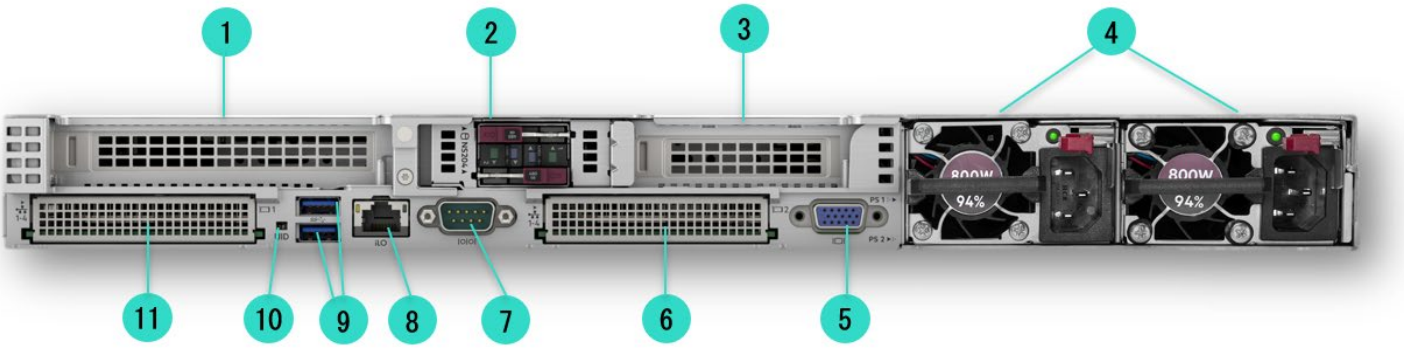
Overview



Internal View - Standard for all DL360 Gen11

1. Liquid Cooling Module connector
2. x8 SlimSAS ports (1A to 4A, 1B to 4B)
3. DDR5 DIMM Slots (fully populated 32 DIMMs shown)
4. Socket 2 MCIO ports (1 & 2)
5. Backplane Power connector
6. Internal USB port (top USB 3.2 Gen1 and bottom USB 2.0)
7. Redundant Power Supply (1 & 2 as shown)
8. Secondary (CPU 2) Riser PCIe 5.0
   - Option: Low Profile x16
   - Option: Full height x16 (lose Slot 2 on Primary Riser)
9. SID connector (optional feature, 8 SFF only)
10. Energy Pack connector
11. OCP Slot port
12. HPE NS204i-u NVMe Hot Plug Boot Optimized Storage Device (optional – shown)
13. System Battery
14. Primary (CPU1) Riser PCIe 5.0
    - 1x 16 FH and 1x16 LP slots
15. OCP Slot port
16. Front Display Port and USB 2.0 connector (optional feature)
17. LP SlimSAS ports (1 & 2)
18. Chipset
19. Front I/O and USB 3.2 Gen1 connector
20. SATA Optical port
21. Socket 1 MCIO connector
22. CPU 1 (bottom) and CPU 2 (top) (shown with High Performance Heatsink)
23. Hot plug (dual rotor) High Performance Fan Kit (7 fans)
    - Option: Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit
24. HPE Hybrid Capacitor or HPE Storage Battery holder

Overview



Rear View - Standard for all DL360 Gen11

1. Slot 1 x16 PCIe 5.0 – Full Height
2. Slot 2 x16 PCIe 5.0 – Low Profile*
   Notes: *Shown with optional hot-plug NS204i-u Boot Device (cabled, PCIe connection is not required)
3. Option: Slot 3 x16 PCIe 5.0 (Requires 2nd processor)
   - Low Profile and Full Height options
4. Redundant Power Supply (1 & 2 as shown)
5. Video (VGA) port
6. OCP 3.0 Slot 2: x16* PCIe 5.0[1,2] (Requires 2nd Processor) **Notes:** *x8 for 20EDSFF CTO Server (requires 2nd Processor)
7. Serial port (optional - shown)
8. iLO Management Port
9. USB 3.2 Gen1 Ports
10. Unit ID Indicator LED
11. OCP 3.0 Slot 1: x16* PCIe 5.0[2]
    Notes: *x8 for 20EDSFF CTO Server

Notes:

– [1] Supports various NICs, up to 200GbE

– [2] Or supports each slot with x8 PCIe 5.0 under one processor, with the selection of "P51911-B21, CPU1 to the "OCP2 x8 Enablement Kit".

What's New

- All new DL360 Gen11 server
- New 4th Generation Intel® Xeon® Scalable Processors (Extreme Core Count die/ XCC die; Medium Core Count/ MCC; High Bandwidth Memory/ HBM)
- New PCIe 5.0 support
- New HPE DDR5 Smart Memory – Registered (RDIMM), 4800MT/s
- New HPE Gen11 Storage Controllers
- New HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device
- New HPE Storage SSD and HDD support
- New HPE iLO6 support
- Nvidia A2 and L4 GPU support
- New Intel® Virtual RAID on CPU (Intel® VROC) Premium & Standard FIO Software for HPE
- New 4th Generation Intel® Xeon® Scalable Processors (Medium Core Count die/ MCC die)
- New DL360 Gen11 Standard Heatsink & Standard Fan Kit
- New DL360 Gen11 20EDSFF NC CTO Server
- New DL360 Gen11 Pre-Configured Models
- New HPE NVMe EDSFF E3.s 1T SSD
- New HPE Self-encrypting Drives

Overview

- HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
- HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
- HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit
- HPE ProLiant DL360 Gen11 Direct Liquid Cooling solution
- HPE ProLiant for vSAN
- HPE Azure Stack HCI
- OpenBMC Capable through iLO6 Transfer of Ownership Process
- HPE 96 GB Dual Rank x4 DDR5-4800 Registered Smart Memory Kit
- HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit
- HPE ProLiant DL3xx Gen11 Cache Mode for HBM Memory Mode setting from factory installation
- New 5th Generation Intel® Xeon® Scalable Processors (Extreme Core Count die/ XCC die; Medium Core Count/ MCC; Edge Enhanced Low Core Count die /EE LCC)
- New HPE DDR5 Smart Memory– Registered (RDIMM), 5600MT/s
- Energy Star 4.0 Compliance
- European Union Erp Lot 9 Regulation
- Intel Virtual RAID on CPU RAID 1 FIO Software for HPE
- HPE 256 GB (1x256 GB) Octal Rank x4 DDR5-5600 CAS-52-45-45 EC8 Registered 3DS Smart Memory Kit
- Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
- HPE 128 GB (1x128 GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit
- HPE 128 GB (1x128 GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit
- HPE NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD
- HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter
- RAID Controller SR932i-p support in DL360 Gen11 EDSFF CTO Server
- HPE 24TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD
- HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD
- Broadcom BCM57608 Ethernet 100Gb 2-port QSFP112 PCIe and OCP Adapter for HPE
- HPE NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD
- HPE NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD
- HPE 30.72TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD
- HPE ProLiant Compute DL360 Gen11/Gen12 x16 Primary Riser Kit
- Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
- Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
- HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter

Platform Information

Form Factor

- 1U rack

Chassis Types

- 20 EDSFF Carrier 1T (EC1) drive bays: 32G x4 NVMe (PCIe5.0 E3.s 1T)
- 8 SFF Basic Carrier (BC) drive bays:
  - 24G x1 NVMe/SAS (TriMode) U.3 (PCIe4.0) or
  - 24G x4 NVMe/SAS (TriMode) U.3 (PCIe4.0)
- With options for additional 2 SFF BC drive bays: 24G x4 NVMe/SAS (TriMode) U.3 (PCIe4.0)
- With options for additional optical drive, 1x USB3.2 Gen1 and 1x Display Port



Overview

- 4 LFF Low Profile (LP) drive bays: 12G x1 SAS/SATA
- With additional options for optical drive, 1x USB3.2 Gen1, and 1x Display Port

System Fans

- **For 4 LFF and 8+2 SFF chassis**
  - 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

- **For 20 EDSFF chassis**
  - 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

Standard Features

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

- The 2nd digit of the processor model number "x4xx" is used to denote the processor generation (i.e., 4 = New 4th Generation Intel® Xeon® Scalable Processors
- The required firmware for the 5th Generation Intel Xeon Processors is not compatible with the DL360 Gen11 system board shipped with the 4th Generation Intel Xeon Processors. A new server order (latest firmware system board) is required for the activation of the 5th Generation Intel Xeon Processors. Field upgrade from the 4th Generation Intel Xeon Processors to the 5th Generation is not supported.

Notes:

- All information provided here is subject to change without notice. Intel may make changes to specifications and product descriptions at any time, without notice. Please contact your Intel representative to obtain the latest Intel product specifications and roadmaps.
- For more information regarding Intel® Xeon® Scalable Processors, please see the following **http://www.intel.com/xeon**.

New 4th Generation Intel® Xeon® Scalable Processors numbering convention

Workload

New 4th Generation Intel® Xeon® Scalable Processors		
Processor Suffix	**Description**	**Offering**
H	DB and Analytics	Highest core counts. Database and Analytics usages benefit from DSA and IAA accelerators.
M	Media Transcode	Optimized around AVX frequencies to deliver better performance/watt around Media, AI, and HPC workloads.
N	Network/5G/Edge (Hight TPT/Low latency)	Designed for NFV and networking workloads, such as: L3 forwarding, 5G UPF, OVS DPDK, VPP FIB router, VPP IPsec, web server/NGINX, vEPC, vBNG, and vCMTS.
S	Storage and HCI	Optimized for Storage UMA use cases with increased UPI Bandwidth for vs Mainline SKUs.
P	Cloud - IaaS	Designed for cloud IaaS environments to deliver higher frequencies at constrained TDPs.
Q	Liquid Cooling	Liquid cooled processors with higher frequency and performance at same TDP.
U	One Socket Optimized	Optimized for targeted platforms adequately served by the cores, memory bandwidth and IO capacity. Available from a single processor configuration.
V	Cloud- SaaS	Optimized for orchestration efficiency that delivers higher core counts and VMs per rack.
Y	Speed Select[1]	Intel® SST-Performance Profile (PP) increases base frequency when fewer cores are enabled. Allows greater flexibility, deployment options and platform longevity.

Notes:

- Covers the Intel public offering only.
- New Built-in Accelerators.
- 1 to 8 socket support
- Intel® Data Streaming Accelerator (DSA)
- Intel® Dynamic Load Balancer (DLB)
- Intel® Quick Assist Technology (QAT)
- Intel® In-Memory Analytics Accelerator (IAA)
- Increased memory bandwidth with 8 channels DDR5, up to 4800 MT/s, 4.0TB maximum RAM per socket.
- Increased I/O bandwidth up to 80 PCIe 5.0 lanes per socket, and new Compute Express Link (CXL).
- Built-in AI Acceleration: Intel® Advanced Matrix Extension (AMX)
- Hardware-enhanced Security: Enhanced Intel® Software Guard Extensions (SGX) – with new cryptographic memory integrity
- Increased Multi-Socket Bandwidth with new UPI2.0 (up to 16GT/s) with maximum 4 UPI Links
- New FlexBus I/O Interface PCIe5.0 + CXL

Standard Features

- [1] The 4th Generation Intel® Xeon® Scalable Processors are featured with Intel Speed Select Technology (SST) for Infrastructure as a Service, Networking and Virtualized environments workloads. The SST includes,
- SST- Performance Profile
- SST- Base Frequency
- SST- Core Power
- SST- Turo Frequency
- Default setting in ROM-Based Setup Utility (RBSU) as shown.

Intel® SST Features	RBSU Options	Granular Control over CPU Performance	Default Setting
SST- Performance Profile	Dynamic Intel® Speed Select Technology – Performance Profile	Allows the CPU to run in one of three performance profiles	CPU hardware-based. Enabled by default
SST-Base Frequency	Intel® Speed Select Technology – Base Frequency	Enables some CPU cores to run at a higher base frequency in return for other cores running at a lower base frequency	Disabled by default
SST-Core Power	Intel® Speed Select Technology – Core Power	Allows software to prioritize with cores will receive excess power after satisfying minimum requirements	Disabled by default
Intel SST Turbo Frequency	Intel® Turbo Boost Technology	Allows software-selected cores to achieve a higher max turbo frequency by reducing other cores' max turbo frequency	Enabled by default

5th Generation Intel® Xeon® Scalable Processor Family (Platinum)								
Intel® Xeon® Models	**Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**	**Die**
Platinum 8593Q Processor	2.2 GHz	64	320 MB	385W	4	5600 MT/s	512 GB	XCC
Platinum 8592+ Processor	1.9 GHz	64	320 MB	350W	4	5600 MT/s	512 GB	XCC
Platinum 8592V Processor	2.0 GHz	64	320 MB	330W	3	4800 MT/s	512 MB	XCC
Platinum 8581V[1] Processor	2.0 GHz	60	300 MB	270W	0	4800 MT/s	512 GB	XCC
Platinum 8580 Processor	2.0 GHz	60	300 MB	350W	4	5600 MT/s	512 GB	XCC
Platinum 8570 Processor	2.1 GHz	56	300 MB	350W	4	5600 MT/s	512 GB	XCC
Platinum 8568Y Processor	2.3 GHz	48	300 MB	350W	4	5600 MT/s	512 GB	XCC
Platinum 8562Y+ Processor	2.8 GHz	32	60.0MB	300W	3	5600 MT/s	512 GB	MCC
Platinum 8558P Processor	2.7 GHz	48	260 MB	350W	3	5600 MT/s	512 GB	XCC
Platinum 8558 Processor	2.1 GHz	48	260 MB	330W	4	5200 MT/s	512 GB	XCC
Platinum 8558U[1] Processor	2.0 GHz	48	260 MB	300W	0	4800 MT/s	512 GB	XCC

Notes:

- One or two processor(s) with TDP equal to or greater than 186W through 270W require High Performance Heatsink Kit (P48905-B21) and High-Performance Fan Kit (P48908-B21)
- Two processors with TDP equal or greater than 271W require Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21) or Direct Liquid Cooling solution.
- In 300W processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported. Field upgrade to two sockets is not supported with air cooling solution.
- [1] Single socket only, no dual socket support
- Intel® Speed Select enabled processors: Platinum 8593Q, 8592V, 8581V, 8568Y+, 8562Y+, 8558P, 8558 and 8558U.

Standard Features

5th Generation Intel® Xeon® Scalable Processor Family (Gold 6)								
Intel® Xeon® Models	**Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**	**Die**
Gold 6558Q Processor	3.2 GHz	32	60.0 MB	350W	3	5200 MT/s	128 GB	MCC
Gold 6554S Processor	2.2 GHz	36	180 MB	270W	4	5200 MT/s	128 GB	XCC
Gold 6548N Processor	2.8 GHz	32	60.0 MB	250W	3	5200 MT/s	128 GB	MCC
Gold 6548Y+ Processor	2.5 GHz	32	60.0 MB	250W	3	5200 MT/s	128 GB	MCC
Gold 6544Y Processor	3.6 GHz	16	45.0 MB	270W	3	5200 MT/s	128 GB	MCC
Gold 6542Y Processor	2.9 GHz	24	60.0 MB	250W	3	5200 MT/s	128 GB	MCC
Gold 6538N Processor	2.1 GHz	32	60.0 MB	205W	3	5200 MT/s	128 GB	MCC
Gold 6538Y+ Processor	2.2 GHz	32	60.0 MB	225W	3	5200 MT/s	128 GB	MCC
Gold 6534 Processor	3.9 GHz	8	22.5 MB	195W	3	4800 MT/s	128 GB	MCC
Gold 6530 Processor	2.1 GHz	32	160 MB	270W	3	4800 MT/s	128 GB	XCC
Gold 6526Y Processor	2.8 GHz	16	37.5 MB	195W	3	5200 MT/s	128 GB	MCC

Notes:

- One or two processor(s)
- One or two processor(s) with TDP equal to or greater than 186W through 270W or one processor with TDP equals 300W, require High Performance Heatsink Kit (P48905-B21) and High-Performance Fan Kit (P48908-B21) together.
- Two processors with TDP equal or greater than 271W require Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21) or Direct Liquid Cooling solution.
- In 300W processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported together. Field upgrade to two sockets is not supported with air cooling solution.
- Intel® Speed Select enabled processors: Gold 6558Q, 6554S, 6548N, 6548Y+, 6544Y, 6542Y, 6538N, 6538Y+ and 6526Y.

4th Generation Intel® Xeon® Scalable Processor Family (Gold 5)								
Intel® Xeon® Models	**Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**	**Die**
Gold 5420+ Processor	2.0 GHz	28	52. 5MB	205W	3	4400 MT/s	128 GB	MCC
Gold 5418Y Processor	2.0 GHz	24	45.0 MB	185W	3	4400 MT/s	128 GB	MCC
Gold 5418N Processor	1.8 GHz	24	45.0 MB	165W	3	4000 MT/s	128 GB	MCC
Gold 5416S Processor	2.0 GHz	16	30.0 MB	150W	3	4400 MT/s	128 GB	MCC
Gold 5415+Processor	2.9 GHz	8	22.5 MB	150W	3	4400 MT/s	128 GB	MCC
Gold 5411N[1] Processor	1.9 GHz	24	45.0 MB	165W	N/A	4400 MT/s	128 GB	MCC

Notes:

- One or two processor(s)
- [1]Single socket capable, no dual socket support
- 96 GB 4800 MT/s Memory cannot be selected if HBM dies.

4th Generation Intel® Xeon® Scalable Processor Family (Silver)								
Intel® Xeon® Models	**Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**	**Die**
Silver 4416+ Processor	2.0 GHz	20	37.5MB	165W	2	4000 MT/s	64 GB	MCC
Silver 4410Y Processor	2.0 GHz	12	30.0 MB	150W	2	4000 MT/s	64 GB	MCC

Notes:

- One or two processor(s)
- 96 GB 4800 MT/s Memory cannot be selected if HBM dies.

Standard Features

4th Generation Intel® Xeon® Scalable Processor Family (Bronze)								
Intel® Xeon® Models	**Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**	**Die**
Bronze 3408U Processor[1]	1.8 GHz	8	22.5 MB	125W	N/A	4000 MT/s	64 GB	MCC

Notes:
- [1]Single socket capable, no dual socket support
- PCIe4.0 only
- 96 GB 4800 MT/s Memory cannot be selected if HBM dies.

Chipset

Intel® C741 Chipset (Code Name: Product formerly Emmitsburg)

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

System Management Chipset

HPE iLO 6 ASIC

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

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 @ 5600 MT/s or 4800 MT/s

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 DDR5 Smart Memory QuickSpecs.**

Memory Protection

Advanced ECC

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

PCIe Expansion Slots

Primary Riser (default in chassis)					
Expansion Slots #	**Technology**	**Bus Width**	**Connector Width**	**Processor**	**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.

Standard Features

Secondary Riser*					
Expansion Slots #	**Technology**	**Bus Width**	**Connector Width**	**Processor**	**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 cards can be selected at Slot1 & Slot2. If secondary riser is not selected and "NS204i-u Rear Cable Kit" is selected, then maximum 1 quantity 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 be selected at Slot 1 & Slot3. If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can be selected at Slot1 & Slot3.
- If Secondary LP riser and "NS204i-u Rear Cable Kit" are selected, then maximum 2 quantity of PCIe cards can be selected at Slot 1 & Slot3. If Secondary LP riser is selected and "NS204i-u Rear Cable Kit" is not selected, then maximum 3 quantity of PCIe cards can be selected.
- 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.
- Field upgrade Primary riser cards after factory installation and shipment are now available, P75407-B21 (HPE ProLiant Compute DL360 Gen11/Gen12 x16 Primary Riser Kit).
- Slot 1 & slot 3 have the connector on the right side, while slot 2 on the left side. The NIC or HBA cards on slot 2 would have port numbering reversed compared to those on slot 1 & 3.

Standard Features

OCP Expansion Slots

OCP3.0 Slot Priority Support Matrix						
Rear wall		Selected OCP cards (Qty & type)				
		2	1	2	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 OCP Slot1. And there is no controller cable that can connect from 8 SFF Backplane to OCP Slot 2.
- [4] If 2 OROC cards are selected, by default the 8 SFF controller cable is connected to OCP Slot1 (the comparably higher-end OROC card to be selected by default) and the 2 SFF backplane is connected to OCP Slot2 with another OROC card selected (comparably less high-end one) with 2FF controller cable.
- In 4 LFF & 8 SFF CTO Server, each OCP slot is in design with up to x16 electrical PCIe5.0 lanes through OCP enablement kits.
- In 20EDSFF CTO Server. Each OCP slots are in design with up to x8 electrical PCIe5.0 lanes (OCP Slot2 through OCP enablement kit)

Internal Storage Devices

- **Optical Drive**
  Available on 8 SFF and 4 LFF CTO Servers as an option (DVD-ROM or DVD-RW)
- **Hard Drives**
  None ship standard

Storage Controllers

NVMe Boot Devices

- HPE NS204i-u NVMe Hot Plug Boot Optimized Storage Device (P48183-B21)[1]
- HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit (P54702-B21)
- HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit (P48920-B21)

DL360 Gen11 NS204i-u Enablement Kit Support Matrix				
Enablement Kit	Description	Field Inst.	NS204i-u Location	Hot-plug Capability
P54702-B21	HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit	Yes	PCIe Slot 2[2]	Yes
P48920-B21	HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit	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] Removing the original PCIe Slot 2 cage and re-install the dedicated DL360 Gen11 NS204i-u cage, latch, and cables in the P54702-B21. 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 available in the system with the selection of optional "HPE ProLiant DL360 Gen11 x16 LP Riser Kit (P48903-B21)".
- For additional information, please see the **HPE OS Boot Device QuickSpecs**

Standard Features

Hybrid RAID Controllers

The available Gen11 controllers are depicted below.

Hybrid RAID Controller

- **Intel® VROC SATA for HPE ProLiant Gen11**

  Notes:

  - Embedded Intel® VROC SATA for HPE ProLiant Gen11, with 14 SATA ports (10-ports accessible),
  - Intel® VROC for HPE ProLiant Gen11 is an enterprise, hybrid RAID solution specifically designed for SSDs.
  - 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.
  - iLO Redfish- Redfish Read.
  - Intel® VROC SATA for HPE ProLiant Gen11 will operate in UEFI mode only. For legacy support, an additional storage controller will be needed.
  - Intel® VROC SATA is off by default and must be enabled.

- **Intel® VROC NVMe for HPE ProLiant Gen11**

  - Intel® Virtual RAID on CPU (Intel® VROC) Premium FIO Software for HPE
  - Intel VROC RAID 1 FIO Software for HPE

  Notes:

  - All models feature 4 x8 PCIe 5.0 connectors per socket for NVMe connectivity, provides support for up to 8 direct attach x4 NVMe bays.
  - Only supported on SFF models.
  - Intel® VROC for HPE ProLiant Gen11 is an enterprise, hybrid RAID solution specifically designed for NVMe SSDs connected directly to the CPU. Intel® VROC is a software-based solution utilizing Intel® CPU to RAID or HBA direct connected drives.
  - Intel VROC RAID 1 FIO Software for HPE (S3Q19A) and Intel Virtual RAID on CPU RAID 1 E-RTU for HPE (S3Q39AAE).
  - 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 Gen11 will operate in UEFI mode only. For legacy support, an additional Tri-Mode controller will be needed.
  - For NVMe SSDs only, no PCIe card support.

In HPE ProLiant Gen11 servers, when secure boot is enabled, Intel® Virtual RAID on CPU (Intel® VROC) 8.0 Out-of-Band (OOB) management does not function with Linux kernel version 5.4 (or later). Intel® VROC OOB will not respond to any PLDM (over-MCTP-over-PCIe) requests from iLO (BMC). Intel® VROC Redfish resources will not function (e.g., Redfish actions); therefore, Intel® VROC over Redfish management is not available. This is due to a new security feature in Linux kernel version 5.4 (or later).
For more information, please visit **Customer Advisory Document ID: a00128934en_us**, at HPE Support Center.
Maximum physical drive per array varies with platform maximum storage specification. More technical details are available at
Intel VROC for HPE ProLiant QuickSpecs
RAID technologies | Intel Virtual RAID on CPU for HPE Gen11 User Guide

Standard Features

Essential RAID Controllers

- HPE Smart Array E208e-p SR Gen10 Controller

Performance RAID Controllers

- HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller
- HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller
- 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
- HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller[1,2]

Notes:

– PE80xx NVMe drives are not supported.

– [1]Requires x16 physical and electrical riser slot.

– [2]If a second controller is selected, you must select a secondary FH riser. For additional details, please see:

For more information, please visit

HPE Compute MR Gen11 Controllers QuickSpecs

HPE Compute SR Gen11 Controllers QuickSpecs

Maximum Storage

Storage	Capacity	Configuration
Hot Plug SFF SAS HDD	24.0 TB	8+2 x 2.4 TB (with optional 2 SFF cage on UMB)
Hot Plug SFF SAS SSD	153.6 TB	8+2 x 15.36 TB (with optional 2 SFF cage on UMB)
Hot Plug SFF SATA SSD	76.8 TB	8+2 x 7.68 TB (with optional 2 SFF cage on UMB)
Hot Plug SFF U.3 NVMe PCIe SSD	153.6 TB	8+2 x 15.36 TB (with optional 2 SFF cage on UMB)
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	614.4TB	20 x 30.72 TB

Graphics

Integrated video standard

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

HPE iLO 6 on system management memory

- 32 MB Flash
- 8 Gbit DDR4 with ECC protection

Power Supply

- HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 94% efficiency.
- HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 94%efficiency.
- HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 96% 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

Standard Features

- 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, tool-less installation into HPE ProLiant Gen11 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.

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

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

For information on power specifications and technical content visit **HPE Flexible Slot Power Supplies.**
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 are not active simultaneously.
Network Ports	None. Choice of OCP or stand-up card, supporting a wide range of NIC adapters. BTO models will come pre-selected with a primary networking card.
HPE iLO Remote Management Port at rear	1 GbE Dedicated
Front iLO Service Port	1 standard
MicroSD Slot	Optional via HPE 32 GB microSD RAID1 USB Boot Device **Notes:** – MicroSD cards are not hot-pluggable, server must be powered down before removal. – There is limited supply on MicroSD cards and may not be available in Gen11
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 • Rear: 2 USB 3.2 Gen1 • Internal: 1 USB 3.2 Gen1 + 1 USB 2.0 • Optional: 1 Front USB 2.0
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 collaborating closely with our partners, we ensure that their products are optimized, certified, and fully supported within your HPE server environment.
Access the certified and supported servers for each of the OS and Virtualization software: **HPE Servers Support & Certification Matrices**

Standard Features

Industry Standard Compliance

- ACPI 6.4 Compliant
- PCIe 5.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- PXE Support
- VGA
- Display Port
  Notes: This support is on the optional Universal Media Bay.
- 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 support as default.
- OCP 3.0 SFF NIC Support
- OCP 3.0 SFF Storage Support
- Embedded TPM Support
- Energy Star 4.0
- SMBIOS 3.4
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- Advanced Encryption Standard (AES)
- Triple Data Encryption Standard (3DES)
- 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 visit **http://www.hpe.com/servers/ashrae**
  Under Standard Operating Support conditions, there is no time limitation for operating the servers in ASHRAE Class A2 conditions, unless otherwise specified in the applicable product information.
  Intel Xeon Platinum 8470Q and 8593Q are not in scope.
- European Union ErP Lot 9 Regulation
  European Union (EU) eco-design regulations for server and storage products, known as Lot 9, establishes power thresholds for idle state, as well as efficiency and performance in active state which vary among configurations. HPE ProLiant Gen11 servers are compliant with Lot9 requirements.
  Please visit: **https://www.hpe.com/us/en/about/environment/msds-specs-more.html** for more information regarding HPE Lot 9 conformance.

  Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, Ireland, Switzerland or Turkey, must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, 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.

Standard Features

HPE Server UEFI

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen11 servers have a 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. For more information, please visit **http://www.hpe.com/servers/uefi**.

UEFI enables numerous new capabilities specific to HPE ProLiant 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 UEFI. Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature for global shipment. Can be manually disabled by user in BIOS setting.

HPE Compute Ops Management

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

HPE Compute Ops Management is cloud-native software that is continually updated with new services, features, patches, and firmware packs. The management application resides in HPE GreenLake cloud (access via **https://common.cloud.hpe.com**) and leverages the HPE GreenLake architecture, security, and unified operations.
For a complete list of software as-a-service subscription SKUs and more information, visit the HPE Compute Ops Management QuickSpecs: **https://www.hpe.com/psnow/doc/a50004263enw**
For information on supported HPE servers, the complete list can be found here:
https://www.hpe.com/info/com-supported-servers

Embedded Management

HPE Integrated Lights-Out (HPE iLO)

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

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

Standard Features

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 iLO6 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 configuration and 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 continuous, proactive health monitoring of HPE servers. Learn more at **http://www.hpe.com/servers/ahs**.

Active Health System Viewer
Use the Active Health System Viewer, a web-based portal, to easily read AHS logs and speed problem resolution with HPE self-repair recommendations, to learn more visit: **http://www.hpe.com/servers/ahsv**.

Smart Update
Keep your servers up to date with the HPE Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP).

Learn more at **https://www.hpe.com/us/en/servers/smart-update.html**.

iLO Amplifier Pack
Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9, Gen10 and Gen10 Plus HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities.

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

HPE iLO Mobile Application
Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: **http://www.hpe.com/info/ilo/mobileapp**.

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

Scripting Tools
Provision one to many servers using your own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell.

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

Standard Features

HPE OneView Standard

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. It can monitor multiple HPE server generations. The user interface is similar to the HPE OneView Advanced version, but the software-defined 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 HPE Integrity Servers. Also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at **http://www.hpe.com/info/hpesim**.

Security

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust
- FIPS 140-3 validation (iLO 6 certification in progress)
- Common Criteria certification (iLO 6 certification in progress)
- Configurable for PCI DSS compliance
- Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser
- Support for Commercial National Security Algorithms (CNSA)
- iLO Security Modes
- Granular control over iLO interfaces
- Smart card (PIV/CAC) and Kerberos based 2-factor Authentication
- 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/User Data
- TPM 2.0 (Trusted Platform Module 2.0)
  Notes: Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature for global shipment. End users can manual disable in BIOS setting.
- Bezel Locking Kit option
- Chassis Intrusion detection option

HPE Trusted Platform Module

Enabling HPE Trusted Platform Module (TPM) 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature across the world. 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 authenticate the server 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 Hewlett Packard Enterprise Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three-years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Services operational services or customized service agreements. Hard drives have either a one-year or three-year warranty; refer to the specific hard drive QuickSpecs for details.

Notes: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
https://www.hpe.com/support/ProLiantServers-Warranties

Optional Features

Server Management

HPE iLO Advanced

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

Service and Support

HPE Services

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

https://www.hpe.com/services

Consulting Services

No matter where you are 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

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

Service and Support

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 service options.

Parts and Materials

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

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

How to Purchase Services

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

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

Service and Support

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
http://www.hpe.com/services

Pre-Configured Models

HPE Smart Choice purchase program

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

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

Pre-Configured models ship with the configurations below.

- Pre-Configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
- Hewlett Packard Enterprise does not allow factory integration of options into pre-configured models. Any additional options purchased will not be shipped inside the server.
- Network Choice models do not include embedded LOM.

Network Choice Models			
SKU Number	P51930-B21 P51930-291 P51930-421	P51931-B21 P51931-291 P51931-421 P51931-AA1	P60734-B21 P60734-291 P60734-421
Model Name	HPE ProLiant DL360 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server	**P51931-B21, P51931-291 & P51931-421:** HPE ProLiant DL360 Gen11 5416S 2.0GHz 16-core 1P 32GB-R NC 8SFF 800W PS Server **P51931-AA1:** HPE ProLiant DL360 Gen11 5416S 2.0GHz 16-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server	HPE ProLiant DL360 Gen11 4416+ 2.0GHz 20-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server
Chassis	HPE ProLiant DL360 Gen11 8 SFF NC Configure-to-order Server		
Processor	4410Y (12 core, 2.0 GHz, 150W)	5416S (16 core, 2.0 GHz, 150W)	4416+ (20 core, 2.0 GHz, 165W)
Number of Processors	One with standard heatsink		
Memory	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4000 MT/s due to processor limitation.	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4400 MT/s due to processor limitation.	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4000 MT/s due to processor limitation.
Network Controller	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE **Notes:** No embedded networking
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	**P51931-B21, P51931-291 & P51931-421:** Embedded SATA controller (AHCI or Intel SATA Hybrid RAID controller)	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller

Pre-Configured Models

		P51931-AA1: HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	
Included Hard Drives	None ship standard, 8 SFF supported		
Optical Drive	Optional - HPE 9.5mm SATA DVD-RW Optical Drive, HPE Mobile USB DVD-RW Drive.		
Power Supply	**P51930-B21 & P51930-291:** 1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	**P51931-B21, P51931-291 & P51931-AA1:** 1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	**P60734-B21 & P60734-291:** 1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
	P51930-421: 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit	**P51931-421:** 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit	**P60734-421:** 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
Fans	5x Standard Fans		
Management	HPE iLO 6		
Rail Kit	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit **Notes:** Server does not support shelf mounted rail kits ("L" brackets).		
Security	TPM (Trusted Platform Module)		
Form Factor	1U Rack		
Warranty	Server warranty includes 3-year parts, 3-year labor, 3-year onsite support with next business day response.		

Pre-Configured Models

Network Choice Models			
SKU Number	P60735-B21 P60735-291 P60735-421	P51932-291 P51932-421	P54866-AA1
Model Name	HPE ProLiant DL360 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R NC 4LFF 800W PS Server	HPE ProLiant DL360 Gen11 5415+ 2.9GHz 8-core 1P 32GB-R NC 8SFF 800W PS Server	HPE ProLiant DL360 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server
Chassis	HPE ProLiant DL360 Gen11 4LFF NC Configure-to-order Server	HPE ProLiant DL360 Gen11 8SFF NC Configure-to-order Server	HPE ProLiant DL360 Gen11 8SFF NC Configure-to-order Server
Processor	4410Y (12 core, 2.0 GHz, 150W)	5415+ (8 core, 2.9 GHz, 150W)	4410Y (12 core, 2.0 GHz, 150W)
Number of Processors	One with standard heatsink		
Memory	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4000 MT/s due to processor limitation.	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4400 MT/s due to processor limitation.	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4000 MT/s due to processor limitation.
Network Controller	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE **Notes:** No embedded networking	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE **Notes:** No embedded networking
Storage Controller	Embedded SATA controller (AHCI or Intel SATA Hybrid RAID controller)	Embedded SATA controller (AHCI or Intel SATA Hybrid RAID controller)	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller
Included Hard Drives	None ship standard, 4 LFF supported	None ship standard, 8 SFF supported	None ship standard, 8 SFF supported
Optical Drive	Optional - HPE 9.5mm SATA DVD-RW Optical Drive, HPE Mobile USB DVD-RW Drive.		
Power Supply	**P60735-B21 & P60735-291:** 1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	**P51932-291:** 1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
	P60735-421: 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit	**P51932-421:** 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit	
Fans	5x Standard Fans		
Management	HPE iLO 6		
Rail Kit	HPE Easy Install Rail 5 Kit **Notes:** Server does not support shelf mounted rail kits ("L" brackets).	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit **Notes:** Server does not support shelf mounted rail kits ("L" brackets).	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit **Notes:** Server does not support shelf mounted rail kits ("L" brackets).
Security	TPM (Trusted Platform Module)	TPM (Trusted Platform Module)	TPM disabled for shipments to China
Form Factor	1U Rack		
Warranty	Server warranty includes 3-year parts, 3-year labor, 3-year onsite support with next business day response.		

Pre-Configured Models

Network Choice Models			
SKU Number	P70540-291 P70540-421	P70541-291 P70541-421	P70542-291 P70542-421
Model Name	HPE ProLiant DL360 Gen11 4509Y 2.6GHz 8-core 1P 32GB-R MR408i-o NC 8SFF 1000W PS Server	HPE ProLiant DL360 Gen11 5515+ 3.2GHz 8-core 1P 32GB-R MR408i-o NC 8SFF 1000W PS Server	HPE ProLiant DL360 Gen11 4514Y 2.0GHz 16-core 1P 32GB-R MR408i-o NC 8SFF 1000W PS Server
Chassis	HPE ProLiant DL360 Gen11 8 SFF NC Configure-to-order Server		
Processor	4509Y (8 core, 2.6 GHz, 125W)	5515+ (8 core, 3.2 GHz, 165W)	4514Y (16 core, 2.0 GHz, 150W)
Number of Processors	One with standard heatsink		
Memory	32 GB (1x32 GB, 5600 MT/s) **Notes:** Runs at 4400 MT/s due to processor limitation.	32 GB (1x32 GB, 5600 MT/s) **Notes:** Runs at 4800 MT/s due to processor limitation.	32 GB (1x32 GB, 5600 MT/s) **Notes:** Runs at 4400 MT/s due to processor limitation.
Network Controller	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE **Notes:** No embedded networking
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller		
Included Hard Drives	None ship standard, 8 SFF supported		
Internal Storage	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)		
Optical Drive	Optional - HPE 9.5mm SATA DVD-RW Optical Drive, HPE Mobile USB DVD-RW Drive.		
Power Supply	1x HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit		
Fans	5x Standard Fans		
Management	HPE iLO 6		
Rail Kit	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit **Notes:** Server does not support shelf mounted rail kits ("L" brackets).		
Security	TPM (Trusted Platform Module)		
Form Factor	1U Rack		
Warranty	Server warranty includes 3-year parts, 3-year labor, 3-year onsite support with next business day response.		

Pre-Configured Models

Network Choice Models		
SKU Number	P70577-D61	P70578-D61
Model Name	HPE ProLiant DL360 Gen11 6430 2.1GHz 32-core 1P 32GB-R NC 8SFF 800W PS Server	HPE ProLiant DL360 Gen11 6442Y 2.6GHz 24-core 1P 32GB-R NC 8SFF 800W PS Server
Chassis	HPE ProLiant DL360 Gen11 8 SFF NC Configure-to-order Server	
Processor	6430 (32 core, 2.1 GHz, 270W)	6442Y (24 core, 2.6 GHz, 225W)
Number of Processors	One with high performance heatsink	
Memory	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4400 MT/s due to processor limitation.	32 GB (1x32 GB, 4800 MT/s)
Network Controller	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE **Notes:** No embedded networking	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE **Notes:** No embedded networking
Storage Controller	Embedded SATA controller (AHCI or Intel SATA Hybrid RAID controller)	
Included Hard Drives	None ship standard, 8 SFF supported	
Internal Storage	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)	
Optical Drive	Optional - HPE 9.5mm SATA DVD-RW Optical Drive, HPE Mobile USB DVD-RW Drive.	
Power Supply	2x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	
Fans	7x High Performance Fans	
Management	HPE iLO 6	
Rail Kit	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit **Notes:** Server does not support shelf mounted rail kits ("L" brackets).	
Security	TPM (Trusted Platform Module)	
Form Factor	1U Rack	
Warranty	Server warranty includes 3-year parts, 3-year labor, 3-year onsite support with next business day response.	

Pre-Configured Models

SKU Number	P51932-B21
Model Name	HPE ProLiant DL360 Gen11 5415+ 2.9GHz 8-core 1P 32GB-R NC 8SFF 800W PS Server
Chassis	HPE ProLiant DL360 Gen11 8 SFF NC Configure-to-order Server
Processor	5415+ (8 core, 2.9 GHz, 150W)
Number of Processors	One with standard heatsink
Memory	32 GB (1x32 GB, 4800 MT/s) **Notes:** Runs at 4400 MT/s due to processor limitation.
Network Controller	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE **Notes:** No embedded networking
Storage Controller	Embedded SATA controller (AHCI or Intel SATA Hybrid RAID controller)
Included Hard Drives	None ship standard, 8 SFF supported
Optical Drive	Optional - HPE 9.5mm SATA DVD-RW Optical Drive, HPE Mobile USB DVD-RW Drive.
Expansion Slots	2-slots (x16 FH, x16 HH) as standard. Upgradeable to 3rd slot in HH (or remove Slot 2 bracket to be FH at Slot 3) in a 2nd processor configuration. All PCIe Slots are in design with up to 9.5" length.
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
Fans	5x Standard Fans
Management	HPE iLO 6
Rail Kit	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit **Notes:** Server does not support shelf mounted rail kits ("L" brackets).
Security	TPM (Trusted Platform Module)
Form Factor	1U Rack
Warranty	Server warranty includes 3-year parts, 3-year labor, 3-year onsite support with next business day response.

Pre-Configured Models

Country Code Key

- -B21 = Worldwide
- -291 = Japan
- -421 = Europe, the Middle East and Africa
- -AA1 = China
- -D61 = India

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	HPE DL360 Gen11 4 LFF NC CTO Server	HPE DL360 Gen11 8 SFF NC CTO Server	HPE DL360 Gen11 20EDSFF NC CTO Server
SKU Number	P52498-B21	P52499-B21	P52500-B21
TAA SKU*	P52498-B21#GTA	P52499-B21#GTA	P52500-B21#GTA
HPE Trusted Supply Chain	Optional: HPE Trusted Supply Chain for HPE ProLiant (P36394-B21)		
Processor	Not included as standard. Optional: Qty 1 or 2 (2 processors must be selected in 20EDSFF NC CTO Server)		
DIMM Slots	32-DIMM slots		
DIMM Blanks	DIMM Blanks are required, embedded, and shipped as default in all CTO Servers. **Notes:** – If Closed-loop Liquid Cooling or Direct (Open) Liquid Cooling modular is installed, and system memory is installed with any of the DIMM types among 16 GB, 32 GB, 96 GB or 128 GB, the DIMM Blanks must be removed. – If system memory is installed with 256 GB DIMM type, DIMM blanks will be installed as default, under both air cooling and Liquid Cooling configuration.		

Configuration Information

Storage Controller	Choice of Intel® VROC Hybrid RAID capable; Choice of HPE ProLiant external hardware controller Choice of HPE ProLiant Gen11 MR and SR PCIe and OCP plug-in Controller,		Choice of Intel® VROC Hybrid RAID capable Choice of HPE ProLiant external hardware controller. Choice of internal hardware controller supports up to qty 14 EDSFF with qty 2x SR932i-p), Factory Installation Only
PCIe Slots	Up to 3 Slots PCIe 5.0 (Slot 1, 2 &3) One standard primary/butterfly riser: 2 slots as Slot 1 & Slot 2 (1 x16 FH / 1 x16 LP) and 4 x8 front NVMe connectors Optional: Slot 3 in 1 x16 FH or LP slot All PCIe Slots are in design with up to 9.5" length		
OCP3.0 Slots	PCIe 5.0: 2 slots (1x16/ 1x16)[1]		PCIe 5.0: 2 slots (1x8/ 1x8)[2]
Drive Cage – included	4 LFF – default backplane. 12G x1 SAS with Low Profile (LP) carrier support.	8 SFF – Optional backplanes. in choice of: - 24G x1 NVMe/SAS U.3, or - 24G x4 NVMe/SAS U.3, TriMode supported, must be selected if internal drives needed. Basic carrier (BC) support. (PCIe4.0 storage)	20EDSFF – default backplane. 32G x4 NVMe, with E3.s 1T carrier (EC1) support. (PCIe5.0 storage)
Network Controller	"BCM 5719 1Gb 4p BASE-T OCP Adapter" to be defaulted in the configurator at OCP Slot 21. Customers are allowed to remove and select other cards (PCIe of OCP) from Networking, InfiniBand, Smart IO (HW) or Storage Offload category. Choice of OCP3.0 or stand-up cards for primary networking selection plus additional/optional stand-up networking adapters. **Notes:** – No embedded networking from motherboard. – [1]In 1 Processor configuration, "CPU1 to OCP2 x8 Enablement Kit" will be selected as default as OCP NIC is pre-selected at OCP Slot 2, to be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP NIC is not selected but needs to be replaced by a PCIe standup NIC. Meanwhile, the "CPU1 to OCP2 x8 Enablement Kit" will be removed. – [1]"CPU2 to OCP2 x8 Enablement Kit" or "CPU2 to OCP2 x16 Enablement Kit" must be selected if OCP NIC is selected in 2 Processors configuration. – "CPU2 to OCP2 x8 Enablement Kit" to be defaulted in the configurator if 2 Processors are selected. Users should be allowed to remove "CPU2 to OCP2 x8 Enablement Kit" and should be forced select "CPU2 to OCP2 x16 Enablement Kit" if OCP NIC is selected. Customers are allowed to remove if OCP NIC is not selected but needs to be replaced by a PCIe standup NIC. Meanwhile, the "CPU2 to OCP2 x8 Enablement Kit" will be removed. – [2] In 20EDSFF CTO model, either no OCP enablement kit or "CPU2 to OCP2 x8 Enablement Kit" can be selected from the limited PCIe5.0 electrical lanes from OCP Slot 1 (x8) and OCP Slot2 (x8).		
Fans	Choice of • 5 Standard Fans for one processor below 185W TDP • Additional 2 Standard Fans for 2nd Processor below 185W TDP • 7 High Performance Fan for processors 186W – 270W TDP • 7 High Performance Fan for processors 300W TDP in one socket configuration		

Configuration Information

	• Closed-loop Liquid Cooling (CL LC) Heat Sink Fan Bundle FIO Kit (7 fans included) for one or two processors above 271W TDP • Direct Liquid Cooling (DLC) Heatsink and High-Performance Fan FIO solution, for all processors in 2P Configuration **Notes:** If Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit is selected, there is default a FAN Kit bundled. Then any Fans (Standard Fan Kit or High-Performance Fan Kit) cannot be selected. In the CL LC bundle Kit, with full speed the Fan Kit runs at 210W, which requires 42W additional power than DL360 Gen11 Performance Fan Kit.
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 Rear: 2 USB 3.2 Gen1 Internal: 1 USB 3.2 Gen1 + 1 USB2.0 Optional: 1 Front USB 2.0
Security	Trusted Platform Module (TPM) 2.0. It is an embedded feature 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 & 20EDSFF CTO Server if Rail kit is selected • DL300 Gen10 Plus 1U CMA (P26489-B21) as optional. (If CMA is selected, then Rail Kit must be selected) **Notes:** Server does not support shelf mounted rail kits (“L” brackets).
Form Factor	1U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.

Notes:

- All DL360 Gen11 CTO Server models require the selection of Processor, Memory, and Power Supply. Backplane to be further selected in 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).
- If EDSFF CTO Model is selected, then Performance Heatsink or Closed Loop Liquid Cooling Heatsink Fan Bundle FIO Kit or Direct Liquid Cooling Module must be selected.

Configuration Information

Step 2: Choose Core Options

- Mixing of 2 different processor models is not supported.
- CTO server will populate necessary heatsink and fan kits per system thermal requirements and processor models
- DIMM Blanks are pre-selected as default, minimum Q'ty 1 of memory need to be selected in 1 Processor configuration, and minimum Q'ty 2 of memory need to be selected in 2 Processor configuration
- Choice of hardware storage controllers (internal hardware controllers are not available for EDSFF CTO Server) and OS Boot Device
- 4 LFF backplane and cage are pre-selected, in 4 LFF CTO Server; choice of backplanes in 8 SFF CTO server; 20EDSFF backplane and cage are pre-selected, in 20EDSFF CTO server.
- Choice of ODD drive (not available for 20EDSFF CTO server) and storage device
- Factory Configuration Settings
- Choice of riser card for PCIe5.0 slots enablement
- Choice of OS Boot Device
- Choice of Networking solutions
- Choice of Power and Cooling solution
- Choice of Security Options
- Software as a Service Management: Choice of HPE Compute Ops Management and Choice of HPE OneView

Step 3: Choose Additional Options

- Choice of Accessories
- Choice of Intel® Virtual RAID on CPU Premium & Standard FIO Software for HPE
- Choice of GPGPU
- Choice of Embedded Management
- Choice of Racks
- Choice of PDUs
- Choice of UPS
- Choice of USB and SD Options (if available)
- Choice of Enterprise Mainstream Flash Media Kits for Memory Cards

Additional Options

Choose Core Options

- 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.
- If Processor Wattage is less than or equal to 185W, then "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Heatsink (P48095-B21)" and "Performance Fan (P48908-B21)" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan Kit" upon Processor selection. But customers should be allowed to remove and select DLC Module and “Performance Fan” upon Processor selection.
- If Processor Wattage is more than 270W, then "Closed Loop Liquid Cooling” (P48906-B21) or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" and “Performance Fan”.
- In 300W processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported together. Field upgrade to two sockets is not supported with air cooling solution.
- If 350W Intel Open-loop Liquid Cooling CPU (6458Q/ 8470Q) Processor is selected with any backplanes or drives (excluding NS204i-u), then DLC Module must be selected.
- If 350W Processor (excluding Intel Open-loop Liquid Cooling CPU 6458Q/ 8470Q) is selected with Closed Loop Liquid cooling, then Maximum 10x SFF NVMe drive or 20x EDSFF can be selected. Or DLC module must be selected for SFF or EDSFF drive models.
- For Fan selection impact from memory capacity, please refer to the support matrix in Fan Kit section
- See Networking section for constrained high-speed networking adapter
- For GPU selection, please refer to the support matrix in GPU section
  - In 8 SFF CTO Model, if the Graphics Option is selected with the Processor that is more than 270W, then Maximum of 8 NVMe/ SAS/ SATA drives can be selected.
  - In EDSFF CTO Model, if the Graphics Option is selected with Processor Wattage is more than 270W, then DLC Module & Performance Fan Kit must be selected

Processor

- Please select one or two matching processors.
  For example: for a single Xeon-Platinum 8570 processor configuration select 1x P49606-B21. If dual Xeon-Platinum 8570 processor configuration, select 2x P49606-B21.
- The required firmware for the 5th Generation Intel Xeon Processors is not compatible with the DL360 Gen11 system board shipped with the 4th Generation Intel Xeon Processors. A new server order (latest firmware system board) is required for the activation of the 5th Generation Intel Xeon Processors. The filed upgrade from the 4th Generation Intel Xeon Processor to the 5th Generation is not supported.

5th Generation Intel Xeon Processors

All SKUs listed below ship with processors only. Adequate fans and heatsinks must be selected.
Supports “HPE DDR5 Smart Memory – Registered (RDIMM), 5600MT/s”.

5th Generation Intel Xeon-Platinum

Intel Xeon-Platinum 8593Q 2.2GHz 64-core 385W Processor for HPE P68449-B21

Notes:

- XCC die
- Max 2
- If two processors are selected, "DLC Module" must be selected, also as Configurator default.
- If one processor is selected with “Closed-loop Liquid Cooling” in max 4 LFF & 8 SFF CTO Servers, keeping datacenter at or below 25C ambient temperature is required.

Additional Options

Intel Xeon-Platinum 8592+ 1.9GHz 64-core 350W Processor for HPE P67089-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module" with “Performance Fan Kit”.
- If selected with “Closed Loop Liquid cooling”, then 10x SFF NVMe or 20xEDSFF drive can be selected.

Intel Xeon-Platinum 8592V 2.0GHz 64-core 330W Processor for HPE P67107-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module" with “Performance Fan Kit”.
- If selected with “Closed Loop Liquid cooling”, then 10x SFF NVMe or 20xEDSFF drive can be selected.

Intel Xeon-Platinum 8581V 2.0GHz 60-core 270W Processor for HPE P67109-B21

Notes:

- XCC die
- Max 1
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Platinum 8580 2.0GHz 60-core 350W Processor for HPE P67088-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module" with “Performance Fan Kit”.
- If selected with “Closed Loop Liquid cooling”, then Maximum 10x SFF NVMe or 20x EDSFF drive can be selected.

Intel Xeon-Platinum 8570 2.1GHz 56-core 350W Processor for HPE P67087-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module".
- If selected with “Closed Loop Liquid cooling”, then Maximum 10x SFF NVMe or 20x EDSFF drive can be selected.

Additional Options

Intel Xeon-Platinum 8568Y+ 2.3GHz 48-core 350W Processor for HPE P67086-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module".
- If selected with “Closed Loop Liquid cooling”, then Maximum 10x SFF NVMe or 20xEDSFF drive can be selected.

Intel Xeon-Platinum 8562Y+ 2.8GHz 32-core 300W Processor for HPE P67085-B21

Notes:

- MCC die
- Max 2
- For 2P configuration, "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module".
- And if selected with “Closed Loop Liquid cooling”,”, then Maximum 10x SFF NVMe or 20xEDSFF drive can be selected.
- For 1P configuration, "Closed Loop Liquid Cooling" or "Performance Heatsink" and "Performance Fan"" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection and allow to remove and select "Closed Loop Liquid Cooling".

Intel Xeon-Platinum 8558P 2.7GHz 48-core 350W Processor for HPE P67108-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module".
- If selected with “Closed Loop Liquid cooling”, then Maximum 10x SFF NVMe or 20xEDSFF drive can be selected.

Intel Xeon-Platinum 8558 2.1GHz 48-core 330W Processor for HPE P67097-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow to remove and select "DLC Module".
- If selected with “Closed Loop Liquid cooling”, then Maximum 10x SFF NVMe or 20xEDSFF drive can be selected.

Intel Xeon-Platinum 8558U 2.0GHz 48-core 300W Processor for HPE P67102-B21

Notes:

- XCC die
- Max 1
- "DLC Module" must be selected, also as Configurator default.
- Or “Closed-loop Liquid Cooling” in max 4xLFF, 8xSFF NVMe & 20xEDSFF CTO Servers, keeping datacenter at or below 25C ambient temperature is required.

Additional Options

5th Generation Intel Xeon-Gold 6

Intel Xeon-Gold 6558Q 3.2GHz 32-core 350W Processor for HPE P67098-B21

Notes:

- MCC die
- Max 2
- If two processors are selected, "DLC Module" must be selected, also as Configurator default. Or “Closed-loop Liquid Cooling” can be selected only if there is no drive cage and backplane in SFF CTO Server.
- If one processor is selected with Closed-loop Liquid Cooling in max 4xLFF, 8xSFF NVMe & 20xEDSFF CTO Servers, keeping datacenter at or below 25C ambient temperature is required.

Intel Xeon-Gold 6554S 2.2GHz 36-core 270W Processor for HPE P67110-B21

Notes:

- XCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6548N 2.8GHz 32-core 250W Processor for HPE P67105-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6548Y+ 2.5GHz 32-core 250W Processor for HPE P67082-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6544Y 3.6GHz 16-core 270W Processor for HPE P67084-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE P67081-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Additional Options

Intel Xeon-Gold 6538N 2.1GHz 32-core 205W Processor for HPE P67104-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6538Y+ 2.2GHz 32-core 225W Processor for HPE P67096-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6534 3.9GHz 8-core 195W Processor for HPE P67083-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6530 2.1GHz 32-core 270W Processor for HPE P67095-B21

Notes:

- XCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6526Y 2.8GHz 16-core 195W Processor for HPE P67080-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

5th Generation Intel Xeon-Gold 5

Intel Xeon-Gold 5520+ 2.2GHz 28-core 205W Processor for HPE P67094-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 5515+ 3.2GHz 8-core 165W Processor for HPE P67079-B21

Notes:

- MCC die

Additional Options

- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

5th Generation Intel Xeon-Silver

Intel Xeon-Silver 4516Y+ 2.2GHz 24-core 185W Processor for HPE P67093-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Silver 4514Y 2.0GHz 16-core 150W Processor for HPE P67092-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Silver 4510 2.4GHz 12-core 150W Processor for HPE P67091-B21

Notes:

- EE LCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If this Processor is selected, then 96 GB 5600 Memory cannot be selected.

Intel Xeon-Silver 4509Y 2.6GHz 8-core 125W Processor for HPE P67090-B21

Notes:

- EE LCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If this Processor is selected, then 96 GB 5600 Memory cannot be selected.

5th Generation Intel Xeon-Bronze

Intel Xeon-Bronze 3508U 2.1GHz 8-core 125W Processor for HPE P67100-B21

Notes:

- EE LCC die
- Max 1
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If this Processor is selected, then 96 GB DDR5-5600 Memory cannot be selected.
- Supports PCIe4.0 only

4th Generation Intel Xeon Processors

All SKUs listed below ship with processor only. Adequate fans and heatsinks must be selected.
Supports “HPE DDR5 Smart Memory – Registered (RDIMM), 4800MT/s”.96 GB 4800 MT/s Memory cannot be selected if HBM die.

Additional Options

4th Generation Intel Xeon-Platinum

Intel Xeon-Platinum 9462 2.7GHz 32-core 350W Processor for HPE P49645-B21

Notes:

- HBM die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit”.
- Microsoft Windows Server is not supported. For the rest Operating System support for HBM processor, see **HPE Servers Support & Certification Matrices**
- HBM Memory Modes support (Three modes)
  - HBM Only (memory size equals HBM memory capacity. It only provides best performance when workloads fit into 64 GB of capacity):
    Exists when system memory is removed as Qty 0. HBM caches DDR (symmetric DDR population required). No support for Intel® SGX and MKTME. The BIOS setting can be refreshed as “HBM Only” after system reboot. In RBSU, the HBM Memory Mode is shown as “1LM”, meaning One Level Memory.
  - Flat Mode (memory size equals System Memory Plus HBM memory. DDR memory can be added for workloads needing capacity exceed 64 GB):
    Default setting from factory shipment if system memory to be minimum Qty 1. HBM and DDR exposed as separate regions. A higher performance can be achieved than Cache mode. Intel® SGX and MKTME are supported in DDR region. The HBM Memory Mode is shown as “1LM”, meaning One Level Memory.
  - Cache Mode (memory size equals System memory only, as HBM memory is hidden and is functioning as a cache. Cache mode provides improved performance when workloads need above 64 GB of capacity):
    No support for Intel® SGX and MKTME. In RBSU, the HBM Memory Mode is shown as “2LM”, meaning Two Level Memory. When the system memory is populated, Cache Mode can be selected when the configuration meets the below two requirements, incl. System Memory population requirement and the specific ratio of System Memory. Otherwise, it will be configured as Flat Mode instead.
    - To meet below system memory population requirement from Intel, one socket scenario.
      Also, with system DIMM Qty to be only a 4, 8 or 16.

	IMC3				IMC2					IMC0				IMC1				
	Channel1 (7/H)		Channel0 (6/G)		Channel1 (5/F)		Channel0 (4/E)			Channel0 (0/A)		Channel1 (1/B)		Channel0 (2/C)		Channel1 (3/D)		
DDR5+ CPS	Slot0	Slot1	Slot0	Slot1	Slot0	Slot1	Slot0	Slot1		Slot1	Slot0	Slot1	Slot0	Slot1	Slot0	Slot1	Slot0	HBM Mode
0+0 (HBM)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	HBM Only
1+0	-	-	-	-	-	-	-	-	CPU	-	DDR5	-	-	-	-	-	-	Flat
1+0	-	-	-	-	-	-	DDR5	-		-	-	-	-	-	-	-	-	Flat
2+0	-	-	DDR5	-	-	-	-	-		-	DDR5	-	-	-	-	-	-	Flat
2+0	-	-	-	-	-	-	DDR5	-		-	-	-	-	-	DDR5	-	-	Flat
4+0	-	-	DDR5	-	-	-	DDR5	-		-	DDR5	-	-	-	DDR5	-	-	Flat or Cache
8+0	DDR5	-	DDR5	-	DDR5	-	DDR5	-		-	DDR5	-	DDR5	-	DDR5	-	DDR5	Flat or Cache
16+0	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5		DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	Flat or Cache

Additional Options

- The Ratio of “System memory “
  HBM memory” is in 2:1 or 64:1. Meaning the memory population in “one socket” needs to be:
  1. DDR5 16 GB with min Qty 8 (System memory 16 GB x8: HBM memory 64 GB = 2:1), or
  2. DDR5 32 GB with min Qty 4 (System memory 32 GB x4: HBM memory 64 GB = 2:1). or
  3. DDR5 256 GB with Qty 16 (System memory 256 GB x 16: HBM memory 64 GB = 64:1)
  4. Duplication of DDR5 system memory is required in two sockets configuration

– HPE ProLiant DL3XX Gen11 Cache Mode for High-Bandwidth Memory FIO Trigger System Setting is available for customer self-configuration which allows Cache Mode to be default setting if the system memory population meets above requirement.

Intel Xeon-Platinum 8490H 1.9GHz 60-core 350W Processor for HPE P49630-B21

Notes:

– XCC die
– Max 2
– "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit.”
– If selected with Closed Loop Liquid cooling, then Maximum 10x SFF NVMe or 20xEDSFF drive can be selected.

Intel Xeon-Platinum 8480+ 2.0GHz 56-core 350W Processor for HPE P49607-B21

Notes:

– XCC die
– Max 2
– If Processor Wattage is more than 270W, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module".
– EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256 GB DIMM cannot be selected.

Intel Xeon-Platinum 8470 2.0GHz 52-core 350W Processor for HPE P49606-B21

Notes:

– XCC die
– Max 2
– "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit”.
– With Closed Loop Liquid cooling, then Maximum 8 quantity of SFF drive can be selected.
– EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256 GB DIMM cannot be selected.

Intel Xeon-Platinum 8470Q 2.1GHz 52-core 350W Processor for HPE P49609-B21

Notes:

– XCC die
– Max 2
– "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit.”
– If Open-loop Liquid Cooling processor 8470Q is selected with Closed-loop Liquid Cooling, then backplane and drive cannot be selected in the 8 SFF CTO server. Only NS204i-u can be selected.
– If 8470Q Processor is selected with Closed-loop Liquid Cooling, then 4 LFF and 20EDSFF CTO Server cannot be selected as backplane is embedded as default. Or DLC module with Performance Fan Kit must be selected.

Additional Options

- If selected with InfiniBand HDR/EN 200Gb 1p/2p QSFP56 OCP 3 Adapter, then NVMe drive cannot be selected.

Intel Xeon-Platinum 8470N 1.7GHz 52-core 300W Processor for HPE P49649-B21

Notes:

- XCC die
- Max 2
- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21) in two-socket configurations.
- In one socket configuration, Performance Heatsinks & Performance Fan Kits can be supported. Field upgrade to two sockets is not supported with air cooling solution.
- With two socket configuration, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit.”

Intel Xeon-Platinum 8468 2.1GHz 48-core 350W Processor for HPE P49605-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit.”
- With Closed Loop Liquid cooling, then Maximum 8 quantity of SFF drive can be selected.
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256 GB DIMM cannot be selected.

Intel Xeon-Platinum 8468V 2.4GHz 48-core 330W Processor for HPE P49631-B21

Notes:

- XCC die
- Max 2
- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21).
- “Closed Loop Liquid Cooling” or “DLC Module” must be selected. Configurator to default “Closed Loop Liquid Cooling” upon Processor selection and allow the customer to remove and select “DLC Module” with “Performance Fan Kit.”

Intel Xeon-Platinum 8462Y+ 2.8GHz 32-core 300W Processor for HPE P49603-B21

Notes:

- MCC die
- Max 2
- With two socket configuration, then “Closed Loop Liquid Cooling” or “DLC Module” must be selected in two-socket configuration. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit.”
- In one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported. Field upgrade to two sockets is not supported with air cooling solution.

Intel Xeon-Platinum 8460Y+ 2.0GHz 40-core 300W Processor for HPE P49604-B21

Notes:

- XCC die
- Max 2
- With two socket configuration, then “Closed Loop Liquid Cooling” or “DLC Module” must be selected in two-socket configuration. Configurator to default “Closed Loop Liquid Cooling” upon Processor selection and allow the customer to remove and select “DLC Module” with “Performance Fan Kit.”
- In one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported. Field upgrade to two sockets is not supported with air cooling solution.

Additional Options

Intel Xeon-Platinum 8458P 2.7GHz 44-core 350W Processor for HPE P49632-B21

Notes:

- XCC die
- Max 2
- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21).
- With Closed Loop Liquid cooling, then Maximum 8 quantity of SFF drive can be selected.
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit.”
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256 GB DIMM cannot be selected.

Intel Xeon-Platinum 8452Y 2.0GHz 36-core 300W Processor for HPE P49616-B21

Notes:

- XCC die
- Max 2
- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21) in two-socket configuration.
- With two socket configurations, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit”.
- In one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported. Field upgrade to two sockets is not supported with air cooling solution.

Intel Xeon-Platinum 8444H 2.9GHz 16-core 270W Processor for HPE P49625-B21

Notes:

- XCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

4th Generation Intel Xeon-Gold 6

Notes: All SKUs below ship with processor only. Adequate fans and heatsinks must be selected.

Intel Xeon-Gold 6458Q 3.1GHz 32-core 350W Processor for HPE P49608-B21

Notes:

- MCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with “Performance Fan Kit”.
- If Open-loop Liquid Cooling processor 6458Q is selected with Closed-loop Liquid Cooling, then backplane and drive cannot be selected in the 8 SFF CTO server. Only NS204i-u can be selected.
- With Closed-loop Liquid Cooling, then 4 LFF and 20 EDSFF CTO Server cannot be selected as backplane is embedded as default, or DLC Module with Performance Fan Kit must be selected.
- If selected with InfiniBand HDR/EN 200Gb 1p/2p QSFP56 OCP 3 Adapter, then NVMe drive cannot be selected.

Intel Xeon-Gold 6454S 2.2GHz 32-core 270W Processor for HPE P49654-B21

Notes:

- XCC die
- Max 2

Additional Options

- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6448Y 2.1GHz 32-core 225W Processor for HPE P49600-B21

Notes:

- MCC die
- Max 2.
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6448H 2.4GHz 32-core 250W Processor for HPE P49622-B21

Notes:

- MCC die
- Max 2.
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6444Y 3.6GHz 16-core 270W Processor for HPE P49602-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6442Y 2.6GHz 24-core 225W Processor for HPE P49599-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC and Module and Performance Heatsink.

Intel Xeon-Gold 6438Y+ 2.0GHz 32-core 205W Processor for HPE P49615-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6438N 2.0GHz 32-core 205W Processor for HPE P49638-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6434 3.7GHz 8-core 195W Processor for HPE P49601-B21

Notes:

- MCC die
- Max 2

Additional Options

– "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6430 2.1GHz 32-core 270W Processor for HPE P49614-B21

Notes:

– XCC die
– Max 2
– "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 6426Y 2.5GHz 16-core 185W Processor for HPE P49598-B21

Notes:

– MCC die
– Max 2
– "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6421N 1.8GHz 32-core 185W Processor for HPE P49641-B21

Notes:

– MCC die
– Max 1
– "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6418H 2.1GHz 24-core 185W Processor for HPE P49621-B21

Notes:

– MCC die
– Max 2
– "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6416H 2.2GHz 18-core 165W Processor for HPE P49620-B21

Notes:

– MCC die
– Max 2
– "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6414U 2.0GHz 32-core 250W Processor for HPE P49619-B21

Notes:

– XCC die
– Max 1
– "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Additional Options

4th Generation Intel Xeon-Gold 5

Intel Xeon-Gold 5420+ 2.0GHz 28-core 205W Processor for HPE P49613-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.

Intel Xeon-Gold 5418Y 2.0GHz 24-core 185W Processor for HPE P49612-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 5418N 1.8GHz 24-core 165W Processor for HPE P49640-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 5416S 2.0GHz 16-core 150W Processor for HPE P49653-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 5415+ 2.9GHz 8-core 150W Processor for HPE P49597-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 5411N 1.9GHz 24-core 165W Processor for HPE P49639-B21

Notes:

- MCC die
- Max 1
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

4th Generation Intel Xeon-Silver

Intel Xeon-Silver 4416+ 2.0GHz 20-core 165W Processor for HPE P49611-B21

Notes:

- MCC die
- Max 2

Additional Options

- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

Intel Xeon-Silver 4410Y 2.0GHz 12-core 150W Processor for HPE P49610-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.

4th Generation Intel Xeon-Bronze

Intel Xeon-Bronze 3408U 1.8GHz 8-core 125W Processor for HPE P49617-B21

Notes:

- MCC die
- Max 1
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If 500W Power supply is selected, then Processor Wattage that is equal to or less than 125W must be selected.
- Supports PCIe4.0 only

Heatsinks (incl. Liquid Cooling module)

For more details, please refer to the support matrix in Power and Cooling solutions (Additional Option section)

HPE ProLiant DL360 Gen11 Cold Plate Module FIO Kit from External NS204i-u P62026-B21

HPE ProLiant DL3XX Gen11 Cold Plate Module FIO Kit from PCIe P62029-B21

Notes:

Configuration with thermal consideration

- If Performance Heatsink or DLC Module is selected, then Performance Fan must be selected and vice versa.
- 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).
- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customers should be allowed to remove and select DLC Module and Performance Heatsink.
- If Processor Wattage is more than 270W, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module".
- For one socket processor only configuration at 300W, Performance Heatsink & Performance Fan Kit can be supported together.
- Only configuration at 300W, Performance Heatsink & Performance Fan Kit can be supported together.
- Max 1 of Liquid cooling can be selected from the below: “Closed Loop Liquid Cooling”, or “DLC CPM from external NS204i-u cage” or “DLC CPM from PCIe Slot”.
- If NVMe/ SAS4 is selected, then Performance Heatsink or Closed Loop Liquid Cooling Heatsink or DLC Module must be selected.
- If Networking/ InfiniBand that is 100G or more, then Performance Heatsink or Closed Loop Liquid Cooling Heatsink or DLC Module must be selected.
- If Closed-loop Liquid Cooling or Direct (Open) Liquid Cooling modular is installed, and system memory is installed with any of the DIMM types among 16 GB, 32 GB, 96 GB or 128 GB, the DIMM Blanks must be removed.
- If system memory is installed with 256 GB DIMM type, DIMM blanks will be installed as default, under both air cooling and Liquid Cooling configuration.
- If 256 GB DIMM is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.

Additional Options

- If external NS204i-u OS Boot Device is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.
- “NS204i-u Cage DLC Module” contains 2 Cold Plate Module and 1 Quick Disconnect Module.
- If “NS204i-u Cage DLC Module” is selected,
  - "HPE DL360 Gen11 NS204i-u Rear Cbl Kit" cannot be selected.
  - "Secondary FH Riser" cannot be selected.
- “PCIe DLC Module” contains 2 Cold Plate Module and 1 Quick Disconnect Module.
- If “PCIe DLC Module” is selected, then
  - Either "Secondary LP Riser" must be selected or “Secondary FH Riser” needs to be selected.
    PCIe Slot 2 is still available for external NS204i-u OS Boot device, or available for other HH PCIe adapters, when the “SecondaryLP Riser” is selected for the “PCIe DLC Module” installation. Yet PCIe slot# 3 cannot be used. This must be considered for all PCIe card selection.

HPE DLC Infrastructure

- HPE ProLiant DL3XX Gen11 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 in order to function. Without above rack infrastructure to be selected, an unbuildable configuration will be triggered in this order.
  - DLC Rack options
- Rack 42U 800mm x 1200mm Ent G2 (applicable for DL3XX Gen11 DLC)
- Rack 48U 800mm x 1200mm Ent G2 (applicable for DL3XX Gen11 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. We can ship a standalone unit as an upgrade as an exception, without this infrastructure the server DLC solution will not function.
- If customer selects “PCIe DLC Module” or “NS204i-u Cage DLC Module” which is a Direct Liquid Cooled solution (DLC), then
  - Either DLC Solution is supported with specific Racks only. (as mentioned above)
  - Or server is ordered as Standalone (without any HPE Rack), then “DL360 Gen11 DLC support requires liquid cooling infrastructure items as follows: HPE Rack, Rack Manifold, CDU, Primary Hose Kit, and Secondary Hose Kit in order to function. If a customer already has the infrastructure to support DLC on site, then server can be shipped as a standalone unit as an upgrade. Server will not function without the infrastructure for DLC

HPE ProLiant DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit P48906-B21

- **HPE ProLiant Gen11 Closed-Loop Liquid Cooling Heat Sink FAQs**
- **Document - HPE ProLiant and X86 Servers and Options | HPE Support**

Notes:

Usage

- Closed-Loop Liquid Cooling Heat Sink is subject to maximum usage limitation as 5 years of operation
- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit contains paired (2) cold plates (1 per CPU) each with a pump, Tubes, (7) 4028 fans and a radiator. The LC Heat Sink option is designed to cool down the processor effectively using cooled inlet air. It would benefit to the Processor temperature yet the internal radiator would increase the flow resistance and reduce the airflow to downstream components inside the server

Additional Options

- If Processor Wattage is more than 270W, then LC Heat Sink Kit must be selected. This applies to all processor SKUs for DL360 Gen11 including High Bandwidth Memory (HBM) processors.
- One processor configuration can be supported without filed upgrade to the 2nd processor, and support up to two processors
- If Closed-loop Liquid Cooling HeatSink Fan FIO Bundle Kit is selected, then any Fans (Standard Fan Kit or High-Performance Fan Kit) cannot be selected.
- If Liquid Cooling HeatSink Fan FIO Bundle Kit is selected, then “Standard heat Sink” or "High Perf Heat Sink" cannot be selected.
- Max 1 of Liquid cooling bundle kit can be selected from the below:
  - Closed Loop Liquid Cooling
  - DLC Module from NS204i-u Cage
  - DLC Module from PCIe slot

Configuration with thermal consideration

- | Liquid cooling is selected with specific high-speed Networking/ InfiniBand, then EDSFF or SFF NVMe drive cannot be selected.
- If Closed-loop Liquid Cooling or Direct (Open) Liquid Cooling modular is installed, and system memory is installed with any of the DIMM types among 16 GB, 32 GB, 96 GB or 128 GB, the DIMM Blanks must be removed.
- If system memory is installed with 256 GB DIMM type, DIMM blanks will be installed as default, under both air cooling or Liquid Cooling configuration.
- If Closed Loop Liquid Cooling is selected with 256 GB DIMM and Rear NS204i-u, then Maximum NVMe drive limit will be reduced from 10 to 4.
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256 GB DIMM cannot be selected.
- EDSFF Model: If 256 GB DIMM and Rear NS204i-u are selected, then DLC Module must be selected.
- For 8 SFF CTO Model: If “HPE IB NDR 1p OSFP MCX75310AAS Adptr” is selected with Closed Loop Liquid cooling, then Maximum of 8 NVMe can be selected.
- For EDSFF CTO Model: If “HPE IB NDR200 1p OSFP MCX75310AAS Adptr” is selected with Closed Loop Liquid cooling, then EDSFF drives cannot be selected.
- For 8 SFF CTO Model: If the Nvidia Graphics Option is selected with Closed Loop Liquid cooling, then Maximum 8 quantity of NVMe/ SAS/ SATA drives can be selected.
- EDSFF CTO Model: If the Nvidia Graphics Option is selected with Closed Loop Liquid cooling, then EDSFF drives cannot be selected.

Design details

- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit 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.
- The cooling liquid used in the liquid cooling heatsink is a mixture of purified water and ethylene with additional additives for corrosion resistance. The cooling liquid is not corrosive for the human body, but to avoid the risk of connection or damages in a longer term, it is recommended to use hand protection in the form of chemically resistant gloves and to wash hands with plenty of water after contact. Be sure to avoid any eye contact. If eye contact occurs accidentally, immediately flush eye with plenty of water or seek for medical attention of any discomfort persists.
- There is no leak detection capability, yet the pumps inside of the system are redundant. If a pump or any of the components inside the solution fail, the CPU temperature or internal server temperature may increase leading to an iLO alert message.

Additional Options

HPE Warranty

- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit is offered with Standard (3/3/3) Warranty support along with the server. Customers are able to purchase extended support for years (4) and (5).
- This Closed-loop Liquid Cooling Solution is subject to a maximum usage (operational) limitation not to exceed (5) years and required to be replaced when this time limit has been reached. Parts and components that Hewlett Packard Enterprise determines have surpassed the standard (3) years warranty will not be provided, repaired, or replaced under warranty coverage. Extended coverage, still subject to 5-year Max Usage Limitation, is available through support contracts; see section below. Contact your local HPE sales representative for additional information.

HPE Support Contract

Support Contract supersedes Warranty.

If server is under current support contract (Tech Care or Complete Care):

- If the CL LC Heat Sink fails before stated Max Usage Limitation of 5-years is reached, the replacement (service and part) is covered by HPE.
- If the CL LC Heat Sink works properly and the Max Usage Limitation of 5-years approaches within 6 months, a replacement (service and part) is covered by HPE. iLO message should alert customer to this approaching deadline, and customer should then call for HPE Service.
- If the Max Usage Limitation of 5-years is reached, HPE will not cover the cost of repair or replacement.

HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit P48905-B21

Notes:

- Quantity of Processor and Quantity of Heatsink must match.
- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Heatsink" and "Performance Fan" must be selected.
- In 300Watt processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported. Field upgrade to two sockets is not supported with air cooling solution. If Performance Heatsink is selected, then Standard fan cannot be selected, and Performance Fan Kit must be selected
- For processors below 185W TDP, customers are able to configure with High Performance Heatsinks & Performance Fan Kit in HPE One-Configuration-Advanced. First, deselect the Standard Heatsink and Standard Fan, then reselect High Performance Heatsink and Performance Fan Kit.
- If Closed-loop Liquid Cooling HeatSink or DLC module is selected, then "High Perf Heat Sink" cannot be selected.
- If Performance Heatsink or DLC Module is selected, then Performance Fan must be selected and vice versa.
- If NVMe/ SAS4 is selected, then Performance Heatsink or Closed Loop Liquid Cooling Heatsink or DLC Module must be selected.
- If Closed Loop Liquid Cooling is selected with 256 GB DIMM or Internal NS204i-u or rear NS204i-u, then Maximum EDSFF drive limit will be reduced from 20 to 10.
- If Networking/ InfiniBand that is 100G or more, then Performance Heatsink or Closed Loop Liquid Cooling Heatsink or DLC Module must be selected.
- If 256 GB DIMM is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.
- If NS204i-u is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.

HPE ProLiant DL3X0 Gen11 1U Standard Heat Sink Kit P48904-B21

Notes:

- Quantity of Processor and Quantity of Heatsink must match.
- If Processor Wattage is less than or equal to 185W, then "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If Standard Heatsink is selected, then Performance fan cannot be selected.
- If Standard Heatsink is selected in 1 processor configuration, then “HPE DL3X0 Gen11 1U Stnd Fan Kit” must be selected.

Additional Options

– If Standard Heatsink is selected in 2 processor configuration, then both "HPE DL3X0 Gen11 1U Stnd Fan Kit" and "HPE DL3X0 Gen11 1U 2P Std Fan Kit" must be selected.

Memory

Please select one or more memory DIMMs from below.

For new Gen11 memory population rule whitepaper and optimal memory performance guidelines, please go to:
http://www.hpe.com/docs/memory-population-rules
Server memory population rules for HPE Gen11 servers with 4th Gen Intel Xeon Scalable processors

For more information, please see the **HPE DDR5 Smart Memory QuickSpecs**

Notes:
– The maximum memory speed and capacity is a function of the memory type, memory configuration, and processor model.
– Quantity of memory DIMMs selected per socket must be 1, 2, 4, 6, 8, 12 or 16.
– x8 and x4 cannot be mixed.
– 3DS and non-3DS Memory cannot be mixed.
– Mixing of different Rank Memory is not allowed if less than 16 quantity of Memory is selected for 1 Processor configuration.
– Mixing of different Rank Memory is not allowed if less than 32 quantity of Memory is selected for 2 Processor configuration.
– If different Rank Memory are mixed, then quantity of each Memory part number must be same.
– If Memory Fault Tolerance is selected, then only x4 memory options can be selected.
– 4800 MT/s memory SKUs offer a transfer rate of 4800 MT/s at 1 DIMM per channel and 4400 MT/s at 2 DIMMs per channel.
– The maximum memory speed is a function of the memory type, memory configuration, and processor model.
– Long boot time may be introduced because of DDR5 initialization takes much longer than last generation DDR4, as an industry impact. HPE ProLiant server boot times will go through multiple reboots during POST for default restore.
– A longer lead-time would be expected in high capacity DIMMs depending on vendor supply.

Registered DIMMs DDR5 (RDIMMs)

DDR5-5600 (applies to the 5th Generation Intel® Xeon® Scalable Processors)

HPE 16GB (1x16GB) Single Rank x8 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit P64705-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit P64706-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit P64707-B21
Notes: If Memory Fault Tolerance is selected, then only x4 memory options can be selected.
HPE 96GB (1x96GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit P64708-B21
Notes:
– 96 GB Memory cannot be mixed with any other Memory.
– 96 GB 5600 Memory cannot be selected with EE LCC (Edge Enhanced Low Core Count) die of the New 5th Generation Intel® Xeon® Scalable Processors.
– For 1 Processor, the allowed qty of 96 GB DDR5-5600 Memory is 1, 6, 8, 12,16 only.
– For 2 Processor, the allowed qty of 96 GB DDR5-5600 Memory is 2, 12, 16, 24, 32 only.
– If Memory Fault Tolerance is selected, then only x4 memory options can be selected.
HPE 128GB (1x128GB) Quad Rank x4 DDR5-5600 CAS-52-45-45 EC8 Registered 3DS Smart Memory Kit P64709-B21
Notes: If Memory Fault Tolerance is selected, then only x4 memory options can be selected.
HPE 128GB (1x128GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit P69976-B21
Notes:
– If Memory Fault Tolerance is selected, then only x4 memory options can be selected.
– If configured with Ship-To destination of China, then OCA and CLIC to fire warning with: "This SKU may contain components that have been deemed by the Cyberspace Administration of China (CAC) to pose a security concern."
– Non-3DS 128 GB DIMM cannot be selected with 4509Y, 4510, 3508U and 4510T processors.

Additional Options

HPE 256GB (1x256GB) Octal Rank x4 DDR5-5600 CAS-52-45-45 EC8 Registered 3DS Smart Memory Kit P64710-B21

Notes:
- If 256 GB Memory is selected, will be limited to 1P1D, thus Maximum of 8 can be selected per Processor.
- If 256 GB Memory is selected, will be limited to using 7x performance fan or CLC fan (not allow standard fan), and limit to 25C. Or DLC must be selected.
- If 256 GB Memory is selected without DLC Module, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If Closed Loop Liquid Cooling is selected with 256 GB DIMM and Rear NS204i-u, then Maximum NVMe drive limit will be reduced from 10 to 4.
- If Closed Loop Liquid Cooling is selected with 256 GB DIMM or Internal NS204i-u or rear NS204i-u, then Maximum EDSFF drive limit will be reduced from 20 to 10
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256 GB DIMM cannot be selected.
- EDSFF Model: If 256 GB DIMM and Rear NS204i-u are selected, then DLC Module must be selected.
- If Memory Fault Tolerance is selected, then only x4 memory options can be selected.

More detailed information about Memory population rules can be found in Server Memory SharePoint
https://www.hpe.com/docs/server-memory

DDR5-4800 (applies to the 4th Generation Intel® Xeon® Scalable Processors)

HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit P43322-B21

HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit P43328-B21

HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit P43331-B21

Notes: If Memory Fault Tolerance is selected then only x4 memory options can be selected.

HPE 96GB (1x96GB) Dual Rank x4 DDR5-4800 CAS-46-45-45 EC8 Registered Smart Memory Kit P66675-B21

Notes:
- 96 GB Memory cannot be mixed with any other Memory.
- 96 GB 4800 Memory can be selected only with XCC (Extreme Core Counts) & MCC (Medium Core Counts) of the 4th Generation Intel® Xeon® Scalable Processors. Not for HBM processors.
- If 96 GB memory is selected, either 8 or 16 memory quantity can be allowed “per “processor.
- If Memory Fault Tolerance is selected, then only x4 memory options can be selected.

HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit P43334-B21

Notes: If Memory Fault Tolerance is selected then only x4 memory options can be selected.

HPE 128GB (1x128GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit P69974-B21

Notes:
- If Memory Fault Tolerance is selected, then only x4 memory options can be selected.
- If configured with Ship-To destination of China, then OCA and CLIC to fire warning with: "This SKU may contain components that have been deemed by the Cyberspace Administration of China (CAC) to pose a security concern.”
- Non-3DS 128 GB DIMM cannot be selected with HBM Processor.

HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit[1] P43377-B21

Notes:
- If 256 GB Memory is selected, will be limited to 1P1D, thus Maximum of 8 can be selected per Processor.
- Configuration is limited while 265GB Memory in 2DPC, that is qty 16 per processor. Please refer to below thermal guidance or contact HPE Sales representative for sending configuration approval request before order generation.
  Qty 32 x 256GB DIMM would be allowed in DLC (full configuration), or air cooling only with below conditions:
  - CPU power <=250W
  - Front storage limit at max qty 8x SATA/ SAS drives
  - Performance Fan kits
  - Support datacenter (inlet) ambient temperature at or below 25C.

Additional Options

- Networking cards below 100Gb

- If 256 GB Memory is selected, will be limited to using 7x performance fan or CLC fan (not allow standard fan), and limit to 25C. Or DLC must be selected.
- If 256 GB Memory is selected without DLC Module, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If Closed Loop Liquid Cooling is selected with 256 GB DIMM and Rear NS204i-u, then Maximum NVMe drive limit will be reduced from 10 to 4.
- If Closed Loop Liquid Cooling is selected with 256 GB DIMM or Internal NS204i-u or rear NS204i-u, then Maximum EDSFF drive limit will be reduced from 20 to 10
- If Closed Loop Liquid Cooling is selected with 256 GB DIMM or Internal NS204i-u or rear NS204i-u, then Maximum EDSFF drive limit will be reduced from 20 to 10
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256 GB DIMM cannot be selected.
- EDSFF Model: If 256 GB DIMM and Rear NS204i-u are selected, then DLC Module must be selected.
- If Memory Fault Tolerance is selected, then only x4 memory options can be selected.

More detailed information about Memory population rules can be found in Server Memory SharePoint
https://www.hpe.com/docs/server-memory

HPE DIMM blanks

HPE DDR4 DIMM Blank Kit	P07818-B21

Notes: Embedded and shipped as default in all DL360 Gen11 CTO Servers, to enhance thermal condition. Leverage the same DIMM blanks from DL360 Gen10 Plus.

Storage Devices

Hardware Storage Controller

HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller	P47184-B21
HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller	P47777-B21
HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller	P47781-B21
HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller	P47785-B21
HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21
HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	P58335-B21
HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21

Notes:

- Max 1 of PCIe internal controller can be selected per server.
- Max 2 of PCIe and OROC internal controller can be selected per server.
- If any of this controller is selected, then "HPE 96W Smart Stg Li-ion Batt 145mm Kit" or "HPE Smart Hybrid Capacitor w/ 145mm Cable" must be selected. Vice versa.
- Internal MR-series and Internal SR-series controller cannot be selected together. Below message to be displayed in configurator: "MegaRAID Tools cannot be used to script and configure SmartRAID (formerly known as Smart Array) controllers used on HPE Gen9/10/10 Plus/11 servers".
- If Microchip external controller (E208e) is selected with MR Internal (MR216i/MR416i/MR408i) controllers in the configuration, please be aware these two products use different RAID configuration tools. Therefore, there will be a RAID configuration tool for the SR external controller and another for the MR internal controller.
- 24G SAS drives are available and can be configured in system. Please expect a performance limitation at max 12Gb/s in above MR216/408/416 & E208e-p controllers with SAS4 drives. No limitation from SR932 running at 24Gb/s with SAS4.
- For 8 SFF CTO Model: If MR408i-o is the only controller selected, then 8 SFF cable kit cannot be selected for 8 SFF x4 drive cages.
- Except MR408i-o, all internal controllers are supported with 8 SFF CTO Model only.

Additional Options

- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller (MR416i-p and MR216i-p) are selected, then Secondary FH riser cannot be selected.
- For 8 SFF x4 U.3 drive cage selection with 2 SFF Drive cage: If MR416i-p/ MR216i-p and MR416i-o/ MR216i-o/ MR408i-o are selected, then both "HPE DL360 Gen11 8 SFF PCIe Cable Ki/ P48909-B21 or HPE DL360 Gen11 OROC TM Cable Kit/ P52416-B21" and "HPE DL360 Gen11 2 SFF TM Cable Kit/ P48910-B21" must be selected.
- Prioritization list for Primary controller selection in HPE ProLiant DL360 Gen11 8 SFF NC CTO Server (P52499-B21) is as follows:
  - HPE SR932i-p Gen11 24G Controller Kit
  - 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
- For additional details, please visit:
  HPE Compute MR Gen11 Controllers QuickSpecs
  HPE Compute SR Gen11 Controllers QuickSpecs

Storage Battery

HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	P01366-B21
HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit	P02377-B21
HPE ProLiant DL360 Gen11 Storage Controller Enablement Cable Kit	P48918-B21

Notes:

- If "HPE 96W Smart Stg Li-ion Batt 145mm Kit" or "HPE Smart Hybrid Capacitor w/ 145mm Cable" is selected, then "HPE DL360 Gen11 Stg Controller Enable Cable Kit" must be selected. Vice versa.
- Max 1 of Storage Battery can be selected per server.

Internal Storage Controller Cables

HPE ProLiant DL360 Gen11 8SFF PCIe Controller Cable Kit	P48909-B21
HPE ProLiant DL360 Gen11 2SFF Tri-Mode Controller Cable Kit	P48910-B21
HPE ProLiant DL360 Gen11 LFF Internal Cable Kit	P48913-B21

Notes:

- When SAS or NVMe storage is selected.
- There are two independent cables that support PCIe RAID controller and OCP RAID controller in this LFF internal cable kit. If 4 LFF internal cable kit is selected, then at least one MR408i-o/ MR216i-o/ MR416i-o/ MR216i-p/ MR416i-p must be selected.
- If there is no Hardware controller selected, the DL360 Gen11 4 LFF SATA Signal Cable Kit (P51897-B21) must be selected in order to support embedded SATA (Direct attach) configuration.

HPE ProLiant DL360 Gen11 OROC Tri-Mode Cable Kit	P52416-B21

Notes:

- Max 1 of 8 SFF cable can be selected per server.
- Max 1 of 2 SFF cable can be selected per server.
- Max 1 LFF cable can be selected for 4 LFF CTO Model.
- If 8 SFF an 8 SFF PCIe cable is selected, then any one of 8 SFF Drive cage and PCIe form factor internal controller must be selected.
- If an 8 SFF OROC cable is selected, then any one of 8 SFF Drive cage and OCP form factor controller (OROC) must be selected.
- If a 2 SFF TM cable is selected, then any one of 2 SFF Drive cage and any controller (PCIe or OCP form factor) must be selected.

Additional Options

- For 8 SFF x4 U.3 drive cage selection with 2 SFF Drive cage: If MR416i-p/ MR216i-p and MR416i-o/ MR216i-o/ MR408i-o are selected, then both "HPE DL360 Gen11 8 SFF PCIe Cable Ki/ P48909-B21 or HPE DL360 Gen11 OROC TM Cable Kit/ P52416-B21" and "HPE DL360 Gen11 2 SFF TM Cable Kit/ P48910-B21" must be selected.

HPE ProLiant DL360 Gen11 4LFF SAS/SATA Signal Cable Kit P51897-B21

Notes:

- Max 1 cable can be selected for 4 LFF CTO Model in between P48913-B21 & P51897-B21.
- Supported with 4 LFF CTO Model only.
- If this 4 LFF SATA signal cable (P48913-B21) is selected, then no RAID controllers can be selected, MR408i-o/ MR216i-o/ MR416i-o/ MR216i-p/ MR416i-p. As the cable works for embedded SATA configuration.
- If LFF SATA drive is selected without MR408i-o/ MR216i-o/ MR416i-o/ MR216i-p/ MR416i-p controller, then this cable must be selected.

HPE ProLiant DL360 Gen11 2SFF SlimSAS to MLB Cable FIO Trigger System Setting P61535-B21

Notes:

- This is a virtual trigger part for instruction upon factory installation of SATA or SAS drive in the 2 SFF drive cage, not a physical part or component.
- Max 1 of 2 SFF cable can be selected per server.
- Supported with 8 SFF CTO Model only.
- If 2 SFF SlimSAS to MLB FIO is selected, then 2 SFF x4 U.3 drive cage must be selected.
- 8 SFF x1 U.3 or 8 SFF x4 U.3 drive cage is selected with 2 SFF U.3 and both are connected to Motherboard (without any internal controller) and SATA drive is selected in 2 SFF cage, then "HPE DL360 G11 2 SFF SlimSAS to MLB FIO" is required.
- If "HPE DL360 G11 2 SFF SlimSAS to MLB FIO" is selected, then NVMe drive cannot be installed in 2 SFF U.3 drive cage.
- If "HPE DL360 G11 2 SFF SlimSAS to MLB FIO" is selected, then NS204i-u cannot be selected.

HPE ProLiant DL360 Gen11 EDSFF Tri-Mode Controller Cable from PCIe Slot 2/3 with Drive Label FIO Kit P73001-B21

Notes:

- Max qty 1 can be selected & FIO Only
- Support EDSFF CTO Server only. This enablement kit supports Qty 1 of SR932i-p RAID Controllers to be installed at PCIe Slot 2/3.
- HPE ProLiant DL360 Gen11 x16 Full Height Riser Kit (P48901-B21) needs to be selected for the FH SR932i-p Adapter at PCIe Slot 2/3.
- Cannot mix with EDSFF Direct Attach in one server. Direct Attach cables will not be installed while this controller enablement FIO kit is selected.
- Connected to the SR932i-p (Port 2-4) at PCIe Slot 2&3 (with Secondary FH Riser Kit), for Drive Bay 1-6 (Max 6 E3.s 1T drives)
- Drive Bay 7-20 will be no function/connection if P73000-B21 is not selected at Factory Installation.
- Max 14 E3s. 1T can be supported together with P73000-B21 & P73001-B21 from factory Installation. And the Drive Bay 7-12 have no function/connection by default.

Drive cage and backplane (8 SFF CTO server only)

User Selection: Min 0 // Max 2. If front drives are needed in the 8 SFF server, please select one backplane from list below.

Notes: No optional backplanes available for LFF models, 4-bay 12G x1 SAS/SATA already included with server.

HPE DL360 Gen11 Basic Carrier (BC) drive cages and drive backplanes

Notes: For all backplanes below:

- Supports Basic Carrier Drives.
- Includes cabling.

HPE ProLiant DL360 Gen11 8SFF x1 U.3 Tri-Mode Backplane Kit P48895-B21

Notes:

- Supports SATA, SAS and NVMe Basic Carrier (BC) drives.
- NVMe SSDs must be U.3. If 8 SFF, the 8 SFF x1 drive cage is connected to Direct Attach (without internal controller and 8 SFF cable), then only SATA drive can be selected in this drive cage.

Additional Options

- No NVMe Direct Attach support.
- Not supported with SR932i-p Tri-Mode controller.
- Supports HPE Gen11 SAS/SATA controller if only SAS/SATA drives are installed

Cable Kit selection with controller(s) for P48895-B21 & P48899-B21

- Alone selection without 2 SFF Drive cage: If SR932i-p/ MR416i-p/ MR216i-p is selected, then "HPE DL360 Gen11 8 SFF PCIe Cable Kit" must be ordered.
- Selection with 2 SFF Drive cage:
  - If SR932i-p/ MR416i-p/ MR216i-p is alone selected, then both "HPE DL360 Gen11 8 SFF PCIe Cable Kit" and "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected.
  - If MR416i-o/ MR216i-o is alone selected, then both "HPE DL360 Gen11 OROC TM Cable Kit" and "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected.
  - If 1 quantity of MR408i-o is alone selected, then "HPE DL360 Gen11 OROC TM Cable Kit" must be selected. And then "HPE DL360 Gen11 2 SFF TM Cable Kit" cannot be selected.
  - If 2 quantity of MR408i-o is selected, then both "HPE DL360 Gen11 OROC TM Cable Kit" and "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected.
  - If SR932i-p, MR416i-p, MR216i-p, MR416i-o, MR216i-o controller is selected, then max 1 of the internal controllers can be selected per server.

HPE ProLiant DL360 Gen11 8SFF x4 U.3 Tri-Mode Backplane Kit	P48896-B21
HPE ProLiant DL360 Gen11 2SFF x4 U.3 BC Tri-Mode Enablement Kit	P48899-B21

Notes:

- Supports SATA, SAS and NVMe Basic Carrier (BC) drives.
- NVMe SSDs must be U.3.
- Supports NVMe Direct Access and slotted Tri-Mode controllers.
- Includes Direct Access cables and backplane power cables. Drive cages will be connected to Motherboard (Direct Attach) if no Internal controller is selected. Direct Attach is capable of supporting all the drives (SATA or NVMe).
- Mixing SR and MR internal controllers is not allowed.
- Requires 8 SFF cables (P48909-B21 HPE ProLiant DL360 Gen11 8 SFF PCIe Controller Cable Kit) for Tri-Mode PCIe standup controllers.
- Requires 8 SFF cables (P52416-B21 HPE ProLiant DL360 Gen11 OROC Tri-Mode Cable Kit) for OCP3.0 controllers.
- Requires 2 SFF cables (P48910-B21 HPE ProLiant DL360 Gen11 2 SFF Tri-Mode Controller Cable Kit) for Tri-Mode PCIe standup and OCP3.0 controllers.
- Max 1 of 8 SFF Drive cage can be selected per server.
- If 8 SFF drive cage is selected without 2 SFF Drive cage, then Max 1 of the internal controller can be selected.
- If 2 SFF drive cage is selected, then 8 SFF Drive cage must be selected.
- If 8 SFF x4 drive cage is connected to Direct Attach (without internal controller and 8 SFF cable), then only NVMe drive can be selected in this drive cage.
- If 2 SFF U.3 drive cage is connected to Direct Attach (without internal controller and 2 SFF cable), then either SATA or NVMe drive can be selected in this drive cage.
- For 2 SFF U.3 drive cage selection in 1 Processor configuration: If 2 SFF Drive cage is connected to Direct Attach (without Internal controller and 2 SFF cable) and NVMe drive is selected, then "CPU1 to OCP2 x8" and "OCP1 x16" OCP upgrade kit cannot be selected.

Cable Kit selection with controller(s) for P48896-B21 & P48899-B21

- Alone selection without 2 SFF Drive cage:
  - If SR932i-p/ MR416i-p/ MR216i-p is selected, then "HPE DL360 Gen11 8 SFF PCIe Cable Kit" must be selected.
  - If MR416i-o/ MR216i-o is selected, then "HPE DL360 Gen11 OROC TM Cable Kit" must be selected.
  - MR408i-o cannot be selected.

- Selection with 2 SFF Drive cage:

Additional Options

- If SR932i-p is alone selected, then "HPE DL360 Gen11 8 SFF PCIe Cable Kit" or both "HPE DL360 Gen11 8 SFF PCIe Cable Kit" and "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected.
- If 1 quantity of MR416i-p/ MR216i-p is alone selected, then either "HPE DL360 Gen11 8 SFF PCIe Cable Kit" or "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected. Both the cables cannot be selected.
- If 1 quantity of MR416i-o/ MR216i-o is selected, then either "HPE DL360 Gen11 OROC TM Cable Kit" or "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected. Both the cables cannot be selected at a time.
- If 2 quantities MR416i-o/ MR216i-o is selected, then both "HPE DL360 Gen11 OROC TM Cable Kit" and "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected.
- If MR408i-o is alone selected, then "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected, and 8 SFF cable kit cannot be selected.
- If MR416i-p/ MR216i-p and MR416i-o/ MR216i-o/ MR408i-o are selected, then both "HPE DL360 Gen11 8 SFF PCIe Cable Kit or HPE DL360 Gen11 OROC TM Cable Kit" and "HPE DL360 Gen11 2 SFF TM Cable Kit" must be selected.

– If 2 SFF U.3 drive cage is connected to Direct Attach (without internal controller & 2 SFF cable), then SATA drive cannot be selected in 2 SFF drive cage when "NS204i-u Gen11 Hot Plug Boot Opt Dev" is selected.

HPE ProLiant DL3X0 Gen11 1U 8SFF Display Port/USB/Optical Drive Blank Kit P48926-B21

Notes:

– Universal Media Bay.
– For 8 SFF CTO Server only.
– Max 1 of 2 SFF Drive cage or ODD cage can be selected per server.
– 8 SFF CTO Model: If Optical drive is selected, then ODD Cage " HPE ProLiant DL3X0 Gen11 1U 8 SFF Display Port/USB/Optical Drive Blank Kit " must be selected.

Display Port

HPE ProLiant DL3X0 Gen11 1U LFF Display Port/USB Kit P48928-B21

Notes: Supported with 4 LFF CTO Model only.

Optical Cable

HPE ProLiant DL360 Gen11 LFF Optical Cable Kit P48914-B21

Optical Drive

HPE Mobile USB DVD-RW Optical Drive 701498-B21

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

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

Notes:

– Requires Universal Media Bay Kit (P48926-B21) to install on 8 SFF models.
– Requires cable for optical drive (P48914-B21) to install on 4 LFF models.

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

Notes:

– Requires Universal Media Bay Kit (P48926-B21) to install on 8 SFF models.
– Requires cable for optical drive (P48914-B21) to install on 4 LFF models.

HDD Blank Kit

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

Additional Options

Storage

- Maximum limit for SAS/ SATA/ NVMe will vary depending upon the selected drive cage, controller, and 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 SATA or NVMe drives. If SAS drive is selected, then Internal controller must be selected.
- If SAS drive is selected, then 8 SFF drive cage must be selected.
- If 8 SFFx1 drive cage is connected to Direct Attach (without internal controller and 8 SFF cable), then only SATA drive can be selected in this drive cage.
- 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 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 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 EDSFF SPDM PE1010 SSD	P77275-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 EDSFF SPDM PE1010 SSD	P77273-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 EDSFF SPDM PE1010 SSD	P77271-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69237-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77269-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69234-B21

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 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70399-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77267-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69245-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77265-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69243-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77262-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69241-B21

NVMe Gen4 – EDSFF (max 20)

Very read Optimized – NVMe – EDSFF - Solid State Drives

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

Additional Options

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

Notes:

- In 20EDSFF CTO server only.
- These drives cannot be used as boot drives with VMware software. Therefore, when these drives are selected with VMware OS, then the internal or external NS204i-u OS Boot device must be selected to run VMware.
- For detailed configuration limitation, please refer to the 20EDSFF CTO Server section, CPU selection, 256 GB memory section and Networking card above 100GbE section.

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 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 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 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733 SSD	P40567-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61027-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 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 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 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 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 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)

- For non-SED SAS4 drives: 24G SAS speeds require U.3 bakcplan/cage. Configuration with MR216/408/416 hardware controller will downclock to 12G SAS speed.
- For SED SAS4 drives: The SED capability requires choice of hardware controllers. SAS4 drives with MR216/408/416 will downclock to 12G SAS speed.

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

Additional 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	P63871-B21
Mixed Use - 12G/24G SAS - SFF - Solid State Drives	
HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49057-B21
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40512-B21
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-B21
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40511-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-B21
HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40510-B21
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-B21
Mixed Use – 6G SATA – SFF - Self-Encrypting Solid-State Drives	
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
Mixed Use - 6G SATA - SFF - Solid State Drives	
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-B21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-B21
HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
Mixed Use - 12G SAS - LFF –Solid State Drives	
HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P37009-B21
HDD- Enterprise 15K/10K -SFF (max 10)	
Mission Critical - 12G SAS – SFF SED Drives	
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3yr Wty 512e FIPS 140-2 TAA-compliant HDD	P28618-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3yr Wty FIPS 140-2 TAA-compliant HDD	P28622-B21
Enterprise - 12G SAS - SFF Drives	
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-B21
HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P53561-B21
HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P40430-B21

Additional Options

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	P68583-B21
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53553-B21
HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881781-B21
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834031-B21
HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861746-B21
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833926-B21

Midline - 6G SATA - LFF Drives

HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68585-B21
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53554-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881787-B21
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861742-B21
HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861683-B21
HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861681-B21
HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21

Factory Configuration Settings

Each of the following may be selected if desired at time of factory integration

Memory Setting

HPE ProLiant DL3XX Gen11 Cache Mode for High-Bandwidth Memory FIO Trigger System Setting	P65886-B21

Notes:

- Memory Fast Fault Tolerance and HBM Cache Mode cannot be selected together.
- HBM Cache mode requires selection of HBM Processor (94xx).
- If HBM Cache mode is selected, then Memory Qty must be 4/ 8/ 16 per HBM Processor.
- If 16 GB capacity Memory is selected with HBM Cache mode, then minimum Qty 8 per HBM Processor must be selected.
- If 32 GB or higher capacity Memory is selected with HBM Cache mode, then minimum Qty 4 per HBM Processor must be selected.
- If 256 GB is selected with HBM Cache mode, then the system memory Qty needs to be 16 per HBM processor.

Additional Options

Riser Cards

Standard Primary (Butterfly) Riser: (embedded in all CTO and BTO Server)

- 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)

After factory installation and shipment, field upgrade riser card settings are now available.

Notes: If Hot-plug NS204i-u is installed, the Slot 2 cage need to be removed

HPE ProLiant DL360 Gen11 x16 Full Height Riser Kit P48901-B21

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)
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.

HPE ProLiant DL360 Gen11 x16 LP Riser Kit P48903-B21

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[*,**]

Part number	Description	Riser position		Slot Bus width (Gen5 lanes)			GPU Support	NVMe Direct Connect		M.2 Connect.
		Prim.	Sec.	#1	#2	#3		Connectors	Max SSDs	
(default in chassis)	HPE DL360 Gen11 x16/x16 Primary Riser	D	N/A	x16	x16	N/A	Y	N/A	N/A	N/A
P48901-B21	HPE ProLiant DL360 Gen11 x16 Full Height Riser Kit[1]	N/A	O	N/A	N/A[1]	x16	Y	N/A	N/A	N/A
P48903-B21	HPE ProLiant DL360 Gen11 x16 LP Riser Kit	N/A	O	N/A	N/A	x16	Y[2]	N/A	N/A	N/A

HPE ProLiant Compute DL360 Gen11/Gen12 x16 Primary Riser Kit P75407-B21

Notes:

This is a SKU for filed upgrade only, not for Factory Installation purpose. Order through Ad-hoc and will not be installed in the system but ship as a stand-alone item. Each DL360 Gen11 and DL360 Gen12 CTO server has the Primary riser embedded as default, a separate order for P75407-B21 is not required. This kit is also compatible with DL360 Gen12 as a Primary riser upgrade kit.

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 Gen11 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.
- If secondary riser and "NS204i-u Rear Cable Kit" are not selected, then maximum 2 quantity of PCIe cards can be selected.
- If secondary riser is not selected and "NS204i-u Rear Cable Kit" is selected, then maximum 1 quantity of PCIe cards can be selected.
- [1]If secondary FH riser is selected, then maximum 2 quantity of PCIe FH cards can be selected, as primary PCIe Slot 2 cannot be used.
- 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 selected.

Additional Options

- If secondary LP riser is selected and "NS204i-u Rear Cable Kit" is not selected, then maximum 3 quantity of PCIe cards can be selected.
- 4 ports base-T Low Profile NIC adapters are not allowed to be installed at Slot 2 (P51178-B21 & P21106-B21)
- 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 recommendation 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.
- [2]GPU max 75W

PCIe Slotting

Configuration 1: Primary Riser only (default in chassis)		
Riser	**(Primary as default)**	
Slot Number	**Slot 1**	**Slot 2**
Bus Width	x16	x16
Form Factor	FHHL	HHHL (LP)
PCIe adapter	**Slot Priority**	
-PCIe x16	1	2
-PCIe x8	1	2
-PCIe x4	1	2
-PCIe x1	1	2

Configuration 2: Primary Riser (default in chassis) & Secondary FH Riser, 2 CPUs			
Riser	**(Primary as default)**		**Secondary (P48901-B21)**
Slot Number	**Slot 1**	No support	**Slot 3**
Bus Width	x16		x16
Form Factor	FHHL		FHHL
PCIe adapter	**Slot Priority**		
-PCIe x16	1	No support	2
-PCIe x8	1		2
-PCIe x4	1		2
-PCIe x1	1		2

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 (not available for EDSFF CTO Server)**	**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
-PCIe x1	1	3	2
-2xControllers	1	2	No support

Additional Options

PCIe Adapters Slotting Rules

General	
Priority	**Description & Rules**
1	SR932i-p (P47184-B21) as a FH adapter, can only be slotted in PCIe Slot 1 (fixed cable length)
2	HPE ProLiant DL360 Gen11 x16 LP Riser Kit (P48903-B21) can only be slotted in HHHL (LP) PCIe Slot
3	If PCIe Standup Tri-Mode Controller adapter is ordered, can only be slotted in PCIe Slot 1 or Slot2. HHHL (LP) GPGPU card should be slotted in PCIe Slot 3.
4	PCIe Slot 2 supports HHHL (LP) cards only.
5	4-Port Base-T NIC card is not available in Slot2 (Mechanical constraint)
6	If NS204i-u Rear Cbl Kit (P54702-B21) is ordered, Slot 2 will be unavailable.

Installation Rules	
Priority	**Description & Rules**
1	x16 electrical bandwidth card to x16 electric slot
2	x8 electrical card to x8 electric slot
3	x8 electrical card to x16 electric slot

Priority from Card Types	
Priority	**Description & Rules**
1	HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller (P47182-001)
2	4-Port Networking PCIe Adapter (restricted in Slot 2)
3	HHHl (LP) Internal PCIe Controllers
4	GPGPU Adapters
5	Others

Notes:

- All PCIe slots are featured with Wake-on-LAN (WoL)
- Prioritization list for Primary controller selection in HPE ProLiant DL360 Gen11 8 SFF NC CTO Server (P52499-B21) is as follows:
  - HPE SR932i-p Gen11 24G Controller Kit
  - 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

HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device	P48183-B21
HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit	P48920-B21
HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit	P54702-B21

Additional Options

DL360 Gen11 NS204i-u Enablement Kit Support Matrix				
Enablement Kit	**Description**	**Field Inst.**	**NS204i-u Location**	**Hot-plug Capability**
P54702-B21	HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit	Yes	PCIe Slot 2[2]	Yes
P48920-B21	HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit	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]With removing the original PCIe Slot 2 cage and re-install the dedicated DL360 Gen11 NS204i-u cage, latch and cables in the P54702-B21. 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 available in the system with the selection of optional “HPE ProLiant DL360 Gen11 x16 LP Riser Kit (P48903-B21)”.
- If NS204i-u is selected, then either NS204i-u Internal or Rear cable must be selected and vice versa.
- Both NS204i-u Internal and Rear cable cannot be selected together.
- If a secondary FH riser is selected, then "NS204i-u Rear Cable Kit" cannot be selected.
- If 2 SFF U.3 drive cage is connected to Direct Attach (without internal controller & 2 SFF controller cable), then SATA drive cannot be selected in 2 SFF drive cage when "NS204i-u Gen11 Hot Plug Boot Opt Dev" is selected.
- 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 recommendations below 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**

NS204i-u thermal Information -4 LFF & 8+2 SFF						
Location	**Qty**	**Cooling**	**4 LFF (14W SAS/SATA)**	**8+2 SFF (25W NVMe)**	**8+2 SFF (10W SAS/SATA)**	**8 SFF (25W NVMe)**
Internal NS204i-u	1	High Performance Fan Kit (P48908-B21)	Up to 2x270W CPU, 32x 128 GB[1] DIMMs			
			30C	30C	30C	30C
	1	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)	Up to 2x350W CPU, 32x 128[1]GB DIMMs			
			30C	30C	30C	30C
External Hot-plug NS204i-u (at rear)	1	High Performance Fan Kit (P48908-B21)	Up to 2x 270W CPU, 32x 128[1]GB DIMM			
			30C	30C	30C	30C
	1	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)	Up to 2x 350W CPU, 32x128[1]GB DIMM			
			30C	25C[2]	25C	30C

Notes:

- [1]If 256 GB DIMM is selected, will require limit of ambient at 25C
- [2] If 256 GB DIMM is selected with up to 10 SFF NVMe, will need to operate at 23C. Will not be a feasible configuration to support.
- If NS204i-u is selected, then either NS204i-u Internal or Rear cable must be selected and vice versa.
- Both NS204i-u Internal and Rear cable cannot be selected together.
- If secondary FH riser is selected, then "NS204i-u Rear Cable Kit" cannot be selected.

Additional Options

Networking

For transceiver, cables and NIC compatibility please refer to the **HPE Compute Transceiver and Cable Hardware Matrix PDF**
The thermal conditions vary as a combination of types of Networking PCIe OR OCP adapter in different DL360 Gen11 CTO Servers. In general:

- Standard Fan Kit cannot be selected when above 100GbE
- 256 GB DIMM is not allowed when above 100GbE
- Ambient limitation will variate in the combination of Networking Adapter OR OCP bandwidth, DIMM capacity and cable type, incl. Direct Attach Copper (DAC) cable and Active Optical Cable (AOC)

A detailed ambient temperature recommendation upon high-speed networking adapters is described in a later session.

Default settings in 8 SFF CTO Server and 4 LFF CTO Server

- In 1 Processor configuration, "CPU1 to OCP2 x8 Enablement Kit" will be selected as default as "BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter" is pre-selected at OCP Slot 2, to be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP NIC is not selected but needs to be replaced by a PCIe standup NIC. Meanwhile, the "CPU1 to OCP2 x8 Enablement Kit" will be removed.
- "CPU2 to OCP2 x8 Enablement Kit" or "CPU2 to OCP2 x16 Enablement Kit" must be selected if OCP NIC is selected in 2 Processors configuration. "CPU2 to OCP2 x8 Enablement Kit" to be defaulted in the configurator if 2 Processors are selected. User should be allowed to remove "CPU2 to OCP2 x8 Enablement Kit" and should be forced select "CPU2 to OCP2 x16 Enablement Kit" if OCP NIC is selected. Customer is allowed to remove if OCP NIC is not selected but needs to be replaced by a PCIe standup NIC. Meanwhile, the "CPU2 to OCP2 x8 Enablement Kit" will be removed.

Notes: Exception: Only x8 PCIe5.0 lanes each in the 2 OCP Slots from 20EDSFF CTO Server.

InfiniBand PCIe

HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter	P45641-B23
HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 MCX653105A-HDAT Adapter	P23664-B21
HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter	P31324-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P23664-B21 or P31324-B21 or P45641-B23**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: support 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not Supported. If 2x CPU TDP 271-350W: Not supported. (or special approval is required with DAC cable, 30C) / Closed-loop Liquid Cooling
20EDSFF	2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. If 2x CPU TDP 0-270W: it requires <20C (or special approval with DAC cable at 30C) / Air Cooling If 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions:

1. High Performance Fan Kit is required for above 100 GB NIC
2. 256 GB DIMMs are not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter	P23665-B21

Additional Options

HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter P23666-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P23665-B21 or P23666-B21**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
20EDSFF	2x CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling 2x CPU TDP 0-350W: 30C/ DLC solution
	Not supported. 2x CPU TDP 271-350W: N/A, requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions:

1. High Performance Fan Kit is required for above 100 GB NIC
2. 256 GB DIMMs are not supported if this adapter is selected. (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If 500W Power supply is selected, then x16 Networking/ InfiniBand cannot be selected.
- If configured for a Cray or Slingshot Solution, option to be used as the Slingshot 10 networking card.
- With 2xCPU in the range of 186-270 Watt and NVMe storages, Performance Fan Kit and DAC must be selected; if AOC is selected, can only work below 27C ambient temperature
- With 2xCPU go beyond 271 Watt and NVMe storages, Closed-loop Liquid Cooling Heatsink & Fan bundle kit and DAC must be selected; AOC cannot be supported.
- The InfiniBand HDR Adapters are in PCIe 4.0 x16// FH or LP
- InfiniBand NDR Adapter is in PCIe 5.0 x16// HL/ HH
- If the above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- If Closed Loop Liquid cooling is selected with specific high-speed Networking/ InfiniBand HDR 200Gb / InfiniBand NDR 1-port/InfiniBand NDR200 1-port, then SFF NVMe/ EDSFF drive cannot be selected.
- For InfiniBand NDR 1-port OSFP Adapter, in 8 SFF CTO Model: If this card is selected with Closed Loop Liquid cooling, then Maximum of 8 NVMe can be selected.
- For InfiniBand NDR200 1-port QSFP Adapter, in 20EDSFF CTO Model: If this card is selected with Closed Loop Liquid cooling, then EDSFF drives cannot be selected."
- "HPE InfiniBand NDR 1x400Gb OSFP Multi-mode 50m HCA-side Transceiver" is available for "InfiniBand NDR 1-port" & "InfiniBand NDR200 1-port".

Additional Options

Ethernet PCIe

Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P13188-B21

Notes: PCIe 3.0 x16// HL or HH

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

Notes: PCIe 4.0 x8// HH or LP

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

Notes:

- PCIe 4.0 x16// FH/ HL
- If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can be selected.
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.

Broadcom BCM57608 Ethernet 100Gb 2-port QSFP112 Adapter for HPE P73111-B21

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

HPE Slingshot SA210S Ethernet 200Gb 1-port PCIe NIC R4K46A

Recommended Ambient Temperature & Cooling Solution	
System Config	**P73111-B21 or P25960-B21 or R4K46A**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling
20EDSFF	2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 0-270W: It requires <20C (or special approval with DAC cable at 30C) / Air Cooling 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100 GB NIC
2. 256 GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

For P25960-B21:

- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If configured for a Cray or Slingshot Solution, option to be used as the Slingshot 10 networking card.
- PCIe 4.0 x16// HL/ HH/LP
- For R4K46A:
- If the above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- Can only be selected or configured for a Cray or Slingshot Solution. Not allowed for a Non-Cray or Non-Slingshot Solution
- Cannot have the following networking options configured within the same server: Slingshot 11 or Slingshot 22.
- PCIe 4.0 x16// LP
- If the above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

Additional Options

Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE P21106-B21

Notes:

- 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.
- PCIe 2.0 x4 // HH /HL/ LP

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

Recommended Ambient Temperature & Cooling Solution	
System Config	**P21112-B21**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
20EDSFF	2x CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 271-350W: It, requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100 GB NIC
2. 256 GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- PCIe 4.0 x16// HL/ HH
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

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

Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P26262-B21
Notes: PCIe 3.0 x8// HH/ HL/ LP

Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P21109-B21
Notes: PCIe 3.0 x8// HH/ HL

Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE P26264-B21
Notes: PCIe 4.0 x16// HH/ HL/ LP

Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P42044-B21
Notes: PCIe 4.0 x8// HH/ HL/ LP

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

Notes:

- 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.

Additional Options

– If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.
– PCIe 2.0 x4// HH/ HL/ LP

Ethernet OCP

2 OCP slots in Motherboard additionally. Does not consume PCIe slot.

Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P08449-B21
Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10097-B21
Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10112-B21
Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P41614-B21
Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10106-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-B21

Notes: INT E810 10/25GbE 4p SFP28 OCP3 Adapter (P41614-B21) provides x16 lanes and can be installed in a x8 lanes OCP3.0 Slot.

Recommended Ambient Temperature & Cooling Solution	
System Config	**P10115-B21**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution:
20EDSFF	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

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

Notes: INT E810 100GbE 2p QSFP28 OCP3 Adapter (P22767-B21) provides x16 lanes and can be installed in a x8 lanes OCP3.0 Slot.

Recommended Ambient Temperature & Cooling Solution	
System Config	**P22767-B21 or P41614-B21 or P10112-B21**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 271-350W: It requires 22C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling
10SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 271-350W: It requires 22C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling
20EDSFF	2x CPU TDP 0-270W: 25C (with DAC cable 30C) / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Additional Options

Other Restrictions

1. High Performance Fan Kit is required for above 100 GB NIC
2. 256 GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100 G or more cannot be selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- If selected with 350W Processor with low Tcase (6458Q/ 8470Q), Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit must be selected, only 8x SATA drive can be selected. And limit ambient temperature to 25C is required.
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE P26256-B21
Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE P26269-B21

Notes:

- BCM 57504 10/25GbE 4p SFP28 OCP3 Adapter (P26269-B21) provides x16 lanes and can be installed in a x8 lanes OCP3.0 Slot.
- Warning Message has to be displayed in the configurator any time this OCP card is selected: "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" OCP Upgrade kit can be selected with this OCP card if customer wants to have OCP x16 connectivity. With the restriction below:
  - OCP Slot 2 is the default OCP networking slot with the Share NIC & Wake-on-LAN features. The “CPU1 to OCP1 x16” will be available in only one OCP Networking card configuration, after April 2023.
  - Yet the “CPU2 to OCP2x16” OCP Upgrade kit will be only available in two processor configurations.

Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE P42041-B21
Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE P51181-B21

Notes: "BCM 5719 1Gb 4p BASE-T OCP Adapter" to be defaulted in the configurator. Customer is allowed to remove and select other cards (PCIe of OCP) from Networking OR InfiniBand OR Smart IO (HW) OR Storage Offload category.

Fibre Channel HBA

HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter R2E09A
HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter R2J62A
HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter R2J63A

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

HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter R7N77A
HPE SN1700E 64Gb 2-port Fibre Channel Host Bus Adapter R7N78A
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

Additional Options

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**	**2**	**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 OCP Slot1. And there is no controller cable that can connect from 8 SFF Backplane to OCP Slot 2.
- [4] If 2 OROC cards are selected, by default the 8 SFF controller cable is connected to OCP Slot1 (the comparably higher-end OROC card to be selected by default) and the 2 SFF backplane is connected to OCP Slot2 with another OROC card selected (comparably less high-end one) with 2 SFF controller cable.

OCP3.0 Enablement Kits – 4 LFF & 8+2 SFF CTO Server				
PCIe signal	**Upgrade Cable Kits**		**PCIe5.0 lanes availability**	
	Orderable SKU	**Description**	**OCP Slot #1**	**OCP Slot #2**
CPU1	(x8 PCIe5.0 embedded from MLB)		(default x8)	No support
	P51911-B21[1]	HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit	(default x8)	X8
	P48827-B21[2]	HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit	x16	No support
CPU1 & CPU2	P48828-B21	HPE ProLiant DL3XX Gen11 OCP2 x16 Enablement Kit	(default x8)	x16
	P48827-B21 & P48828-B21	HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit HPE ProLiant DL3XX Gen11 OCP2 x16 Enablement Kit	x16	x16
	P48830-B21	HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit	(default x8)	x8
	P51911-B21[3]	HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit	(default x8)	x8
	P48827-B21 & P48830-B21	HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit	x16	x8

Notes:

- [1] OCP Slot 2 is the primary slot for OCP NIC card for its Share NIC (incl. WoL) feature. When only 1 OCP NIC is selected, the P51911-B21 will be populated.
- [2] in 1 CPU configuration, to offer flexibility for customers to assign OCP NIC to Slot 1 (if Share NIC & WoL are not required), the P48827-B21 can be manually selected, and P51911-B21 will be removed when P48827-B21 is selected. (The 2 cables cannot co-exist in 1 CPU configuration)
- [3] in 2 CPUs Configuration, to connect all OCP Slots from CPU1, the P51911-B21 can be selected.

Additional Options

OCP Slotting – 4 LFF & 8+2 SFF CTO Server		
Configuration 1: No OCP enablement kit or only P48827-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A or P48827-B21	No support
Bus Width	x8 (default) or x16	No support
OCP adapter	**Slot Priority**	
-Controller	1	No support
-Networking	1	No support

Configuration 2: Only P51911-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A	P51911-B21
Bus Width	x8 (default)	x8
OCP adapter	**Slot Priority**	
-Controller	1	2
-Networking	2	1

Configuration 3: Only P48830-B21 is selected, or both P48827-B21 & P48830-B21 are selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A or P48827-B21	P48830-B21
Bus Width	x8 (default) or x16	x8
OCP adapter	**Slot Priority**	
-Controller	1	2
-Networking	2	1

Configuration 4: Only P48828-B21 is selected, or both P48827-B21 & P48828-B21 are selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A or P48827-B21	P48828-B21
Bus Width	x8 (default) or x16	x16
OCP adapter	**Slot Priority**	
-Controller	1	2
-Networking	2	1

OCP3.0 Enablement Kits – 20EDSFF CTO Server				
PCIe signal	**Upgrade Cable Kit**		**PCIe5.0 lanes availability**	
	Orderable SKU	**Description**	**OCP Slot #1**	**OCP Slot #2**
CPU1 & CPU2	(x8 PCIe5.0 embedded from MLB)		(default x8)	No support
	P48830-B21	HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit	(default x8)	x8

Notes: "CPU1 to OCP1 x16" (P48827-B21)/ "CPU2 to OCP2 x16" (P48828-B21)/ "CPU1 to OCP2 x8" (P51911-B21) cannot be selected, as Port 9, 10, 11 are by default connected to front storages.

Additional Options

OCP Slotting - 20EDSFF CTO Server		
Configuration: No OCP enablement kit or P48830-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-LAN)**
OCP Enablement	N/A	NA or P48830-B21
Bus Width	x8 (default)	x8
OCP adapter	**Slot Priority**	
-Controller	1	2
-Networking	2	1

OCP Cards Slotting Rules – 4 LFF, 8+2 SFF & 20EDSFF CTO Server	
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)

OCP3.0 Enablement Kit details

- In 1 Processor configuration, “CPU1 to OCP2 x8 Enablement Kit” will be selected as default as “BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter” is pre-selected at OCP Slot 2, to be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP NIC is not selected but needs to be replaced by a PCIe standup NIC. Meanwhile, the “CPU1 to OCP2 x8 Enablement Kit” will be removed.
- “CPU2 to OCP2 x8 Enablement Kit” or “CPU2 to OCP2 x16 Enablement Kit” must be selected if OCP NIC is selected in 2 Processors configuration. “CPU2 to OCP2 x8 Enablement Kit” to be defaulted in the configurator if 2 Processors are selected. Users should be allowed to remove “CPU2 to OCP2 x8 Enablement Kit” and should be forced select “CPU2 to OCP2 x16 Enablement Kit” if OCP NIC is selected. Customer is allowed to remove if OCP NIC is not selected but needs to be replaced by a PCIe standup NIC. Meanwhile, the “CPU2 to OCP2 x8 Enablement Kit” will be removed.
- Exception: Only x8 PCIe5.0 lanes each in the 2 OCP Slots from 20EDSFF CTO Server.

HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit P48827-B21

Notes:

- For 2 SFF U.3 drive cage selection in 1 Processor configuration:
  If 2 SFF Drive cage is connected to Direct Attach (without Internal controller and 2 SFF cable) and NVMe drive is selected, then "CPU1 to OCP2 x8" and "OCP1 x16" OCP upgrade kit cannot be selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected. And max 1 of OCP/ OROC can be selected.
- "CPU1 to OCP2 x8" and "CPU1 to OCP1 x16" cannot be selected together.
- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- If 8 SFF x4 and 2 SFF Drive cages are selected without controller, then "CPU1 to OCP1 x16" and "CPU1 to OCP2 x8" cannot be selected.
- "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" OCP Upgrade kit can be selected with OCP card if customer wants to have OCP x16 connectivity.
- Not available for 20EDSFF CTO Server.

HPE ProLiant DL3XX Gen11 OCP2 x16 Enablement Kit P48828-B21

Notes:

- If no OCP enablement kit is selected, then Max 1 of OCP/ OROC can be selected, and x16 OCP cannot be selected.
- "CPU2 to OCP2 x16" and "CPU2 to OCP2 x8" cannot be selected together.

Additional Options

- If "CPU2 to OCP2 x16" or "CPU2 to OCP2 x8" is selected, then 2 Processors must be selected.
- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" OCP Upgrade kit can be selected with this OCP card if customers want to have OCP x16 connectivity.
- Not available for 20EDSFF CTO Server.

HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit P48830-B21

Notes:

- To be defaulted in the configurator if 2 Processor is selected. Customers are allowed to remove if OCP card is not selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
  And Max 1 of OCP/ OROC can be selected.
- "CPU2 to OCP2 x16" and "CPU2 to OCP2 x8" cannot be selected together.
- If "CPU2 to OCP2 x16" or "CPU2 to OCP2 x8" is selected, then 2 Processor must be selected.
- Available for 20EDSFF CTO Server.

HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit P51911-B21

Notes:

- For 2 SFF U.3 drive cage selection in 1 Processor configuration:
  - If 2 SFF Drive cage is connected to Direct Attach (without Internal controller and 2 SFF cable) and NVMe drive is selected, then "CPU1 to OCP2 x8" and "OCP1 x16" OCP upgrade kit cannot be selected.
- To be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP card is not selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- "CPU1 to OCP2 x8" and "CPU1 to OCP1 x16" cannot be selected together.
- "CPU1 to OCP2 x8" cannot be selected if 2 Processor is selected.
- If 8 SFF x4 and 2 SFF Drive cages are selected without controller, then "CPU1 to OCP1 x16" and "CPU1 to OCP2 x8" cannot be selected.
- Not available for 20EDSFF CTO Server.

OCP InfiniBand

Broadcom BCM57608 Ethernet 100Gb 2-port QSFP112 OCP3 Adapter for HPE P73114-B21
HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter P31348-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P73114-B21 or P31323-B21 or P31348-B21**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 25C (with DAC cable 30C) / Air Cooling 2x CPU TDP 0-350W: 25C / DLC solution
	Not supported. 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 25C) / Closed-loop Liquid Cooling
10SFF NVMe/SAS/SATA	2x CPU TDP 0-350W: 25C / DLC solution
	Not supported. 2x CPU TDP 0-270W: It requires <20C (or special approval with DAC cable at 30C) / Air Cooling 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable 30C) / Closed-loop Liquid Cooling
20EDSFF	2x CPU TDP 0-165W: 25C (or with DAC cable 30C) / Air Cooling 2x CPU TDP 0-350W: 25C / DLC solution
	Not supported. 2x CPU TDP 166W-270W: It requires 24C/Air cooling 2x CPU TDP 166W-270W: It requires <20 C/ with Closed-loop LC 2x CPU TDP 271-350W: It requires <20C / Closed-loop Liquid Cooling

Additional Options

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256 GB DIMMs are not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If configured for a Cray or Slingshot Solution, option to be used as the Slingshot 10 networking card.
- If selected with 350W Processor with low Tcase (6458Q/ 8470Q), Closed-loop Liquid Cooling Heatsink Fan FIO Bundle Kit must be chosen, and NVMe and SAS drive cannot be selected. Only max 8 SFF SATA drive can be supported.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- If the above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- If the selected processor(s) is/are in the range of 271W to 350W TDP, and AOC cable is also selected, the ambient temperature would be limited at 25C

Storage Offload

NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE R8M41A

Recommended Ambient Temperature & Cooling Solution	
System Config	**R8M41A**
4 LFF or 8 SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling 2x CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	2x CPU TDP 0-270W: 30C / Air Cooling 2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 271-350W: Not supported (or with DAC cable 30C) / Closed-loop Liquid Cooling
20EDSFF	2x CPU TDP 0-350W: 30C / DLC solution
	Not supported. 2x CPU TDP 0-270W: It requires <20C (or special approval with DAC cable 30C) / Air Cooling 2x CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Notes:

- PCIe 3.0 x16// HL/ HH
- P26477-B21 (High Perf. Fan Kit) & P48901-B2 (Secondary FH Riser Kit) must be selected.
- If 256 GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- Each storage offload card requires selection of 2 QTY (Min/Max=2 per card) of either Q8J73A (100GbE QSFP28 PSM4 500m XCVR) or Q2F19A (100GbE QSFP28 SR4 100m XCVR) transceivers, or Q9S71A (HPE 100GbE QSFP28 to QSFP28 5m AOC).
- Configurator behavior: OCx has default 2 QTY of Q2F19A (100GbE QSFP28 SR4 100m XCVR) per storage offload card selection. However, customers are allowed to deselect Q2F19A and must select". Q8J73A or Q9S71A.
- If 500W Power supply is selected, then x16 Networking/ InfiniBand cannot be selected.

Additional Options

- If above 100GbE Networking PCIe adapter or OCP adapter is selected, then Performance Heatsink or Closed Loop Liquid Cooling Heatsink or DLC Module must be selected.
- For EDSFF CTO Model:
  - If Closed Loop Liquid cooling is selected with specific high-speed Networking/ InfiniBand, then EDSFF drive cannot be selected.
  - If 256 GB DIMM is selected without DLC Module, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.

NVIDIA Ethernet 10/25Gb 2-port SFP28 NVMe-oF Crypto Adapter for HPE S2A69A

Thermal condition for High-Speed Networking Adapter

Networking PCIe adapter beyond 100GbE vs Maximum drive Qty						
Part number	**Qty**	**Cooling**	**4 LFF (14W SAS/SATA)**	**8+2 SFF (25W NVMe)**	**8+2 SFF (10W SAS/SATA)**	**8 SFF (25W NVMe)**
P25960-B21[1], P10180-B21[2], R8M41A[3], P31324-B21[4], P21112-B21[5], P23665-B21[6], P23666-B21[7], P23664-B21[10]	3	High Perf. Fan Kit, (P48908-B21)	Up to 2x270W CPU, 32x 128 GB DIMMs			
			30C	30C	30C	30C
	3	Closed-loop LC Heat Sink Fan FIO Bundle Kit, (P48906-B21)	Up to 2x350W CPU, 32x 128 GB DIMMs			
			30C with DAC[8]; 25C with AOC[9]	No support 30C with DAC[8]; 20C with AOC[9]	30C with DAC[8]; 25C with AOC[9]	30C, **30C with DAC, 25C with AOC[3,4]
	3	Direct LC + Perf. Fan Kit (P48908-B21)	Up to 2x350W CPU, 32x 128 GB or 16x 256 GB DIMMs (1DPC, 16DIMMs per socket)			
			30C	30C	30C	30C

Notes:

- [1] Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE
- [2] Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE
- [3] NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE
- [4] HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter
- [5] Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE
- [6] HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter
- [7] HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter
- [8] Direct Attach Copper cable
- [9] Active Optical Cable
- 256 GB DIMM cannot be selected if a 100GbE (or above) Networking Adapter or OCP Adapter is selected.
- [10] HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 MCX653105A-HDAT Adapter
- For 20EDSFF CTO Server thermal condition, please refer to the “Recommended Ambient Temperature” section under each part number.

Additional Options

Networking OCP adapter beyond 100GbE						
Part number	**Qty**	**Cooling**	**4 LFF (14W SAS/SATA)**	**8+2 SFF (25W NVMe)**	**8+2 SFF (10W SAS/SATA)**	**8 SFF (25W NVMe)**
P31348-B21[1]	2	High Performance Fan Kit, (P48908-B21)	Up to 2x270W CPU, 32x 128 GB DIMMs			
			30C with DAC; 25C with AOC	No support, <20C (30C with DAC)	No support, <20C (30C with DAC)	30C with DAC; 25C with AOC
	2	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)	Up to 2x350W CPU, 32x 128 GB DIMMs			
			No support, <20C (30C with DAC)	No support, <20C (25C with DAC)	No support, <20C; (30C with DAC)	No support, <20C (30C with DAC)

Notes:

- [1] HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter
- For 20EDSFF CTO Server thermal condition, please refer to the "Recommended Ambient Temperature" section under each part number.

Networking OCP adapter 10/25GbE						
Part number	**Qty**	**Cooling**	**4 LFF (14W SAS/SATA)**	**8+2 SFF (25W NVMe)**	**8+2 SFF (10W SAS/SATA)**	**8 SFF (25W NVMe)**
P10115-B21[1]	2	High Performance Fan Kit, (P48908-B21)	Up to 2x270W CPU, 32x 128 GB DIMMs			
			30C	30C	30C	30C
	2	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)	Up to 350W CPU, 32x 128 GB DIMMs			
			30C with DAC; 25C with AOC	30C with DAC; 25C with AOC	30C with DAC; 25C with AOC	30C with DAC; 25C with AOC

Notes:

- [1] Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
- For 20EDSFF CTO Server thermal condition, please refer to the "Recommended Ambient Temperature" section under each part number.

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, Ireland, Switzerland or Turkey, 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 865438-B21, 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.

Additional Options

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

Notes:

– Supported with 4 LFF CTO Model only.
– If 500W Power supply is selected, then Processor Wattage that is equal to or less than 125W must be selected.
– If 500W Power supply is selected, then 2 Processors cannot be selected.
– If 500W Power supply is selected, then "HPE DL3X0 Gen11 1U 2P Standard Fan Kit" cannot be selected.
– If 500W Power supply is selected, then Maximum of 2 Networking/ InfiniBand can be selected.
– If 500W Power supply is selected, then x16 Networking/ InfiniBand cannot be selected.
– If 500W Power supply is selected, then Maximum 8 Memory can be selected.

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38995-B21

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

Notes:

– Power efficiency at 96% single output.
– Only supports high line voltage (200 VAC to 240 VAC).
– Before April 17, 2023, OCA Error /CLIC Unbuildable when the non-certified PSU is selected along with the model if selected Country in OCA is India: Trigger OCA Error /CLIC Unbuildable with below message while selecting this Power Supply as Factory Integrated Option(0D1/FIO) for the Model-X and if the ship to Country is India: "This Power Supply is not compliant with India BIS Certification for selected Model -X and SHOULD NOT BE SELECTED. This is a regulatory compliance and hence the user cannot select this combination (Power Supply+ Model-X) if order is shipping to India. Please Select alternate PSU." Or contact the Product Management Team for approval after March 01, 2023.

HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit P03178-B21

Notes: Power efficiency at 96% single output.

HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit P17023-B21

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

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38997-B21

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

HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit P44712-B21

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 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 P36877-B21

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

Additional Options

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 Gen11 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 the 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

Heatsinks

HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit	P48905-B21
HPE ProLiant DL3X0 Gen11 1U Standard Heat Sink Kit	P48904-B21
HPE ProLiant DL360 Gen11 Cold Plate Module FIO Kit from External NS204i-u	P62026-B21
HPE ProLiant DL3XX Gen11 Cold Plate Module FIO Kit from PCIe	P62029-B21

Notes: For more detail information, refer to Heat Sink section above

DLC Enablement

HPE ProLiant Direct Liquid Cooling 450mm Female-Male Connection Quick Disconnect Tube Set FIO Kit P62046-B21

Notes:

- Min/ Max is not applicable. However Maximum One quantity of Tube set can be selected per server.
- If DLC Module is selected, then "HPE DLC Hose 450mm FtM FIO KIT" must be selected, as extension tube from rear wall of the server.

HPE ProLiant DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit P48906-B21

Notes:

- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit contains (2) cold plates (1 per CPU) each with a pump, Tubes, (7) 4028 fans and a radiator. The LC Heat Sink option is designed to cool down the processor effectively using cooled inlet air.
- Maximum quantity for Closed-loop Liquid Cooling (CL LC) Heat Sink Fan FIO Bundle Kit is one kit per system.
- The CL LC can be configured in a single socket DL360 Gen11 server as Factory Installation only. CPU Filed upgrade is not allowed. Please contact HPE Service regarding any request for upgrading CPU in the field.

Fan Kits

HPE ProLiant DL3X0 Gen11 1U High Performance Fan Kit P48908-B21

Notes:

- Dual rotor 4056 performance fans (Qty 7)
- Two processors with a TDP equal or greater than 186W and below 270Watt
- For processors below 185Watt TDP, customers are able to configure with High Performance Heatsinks & Performance Fan Kit in HPE One-Configuration-Advanced. 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 P48907-B21

Notes: Dual rotor 4056 standard fans (Qty 5)

Additional Options

HPE ProLiant DL3X0 Gen11 1U 2P Standard Fan Kit P54697-B21

Notes: Dual rotor 4056 standard fans (Qty 2)

Cooling Option selection in 8+2 SFF and 4 LFF CTO Servers						
CPU TDP (Watts)	**125W – 185W**		**186W – 270W**[1]	**271W – 350W**[1]	**350W (LC CPU)**[4]	
CPU Q'ty	1	2	2	2	2	2
Heatsink	Standard (P48904-B21)		High Performance[2] (P48905-B21)	Closed-loop LC Heatsink and Fan FIO Bundle Kit[3] (P48906-B21)		Direct Liquid Cooling (DLC) Heatsink and High-Performance Fan (P48908-B21) FIO solution
Fans	Standard Fan (P48907-B21)	Standard Fan (P48907-B21) & 2P Standard Fan (P54697-B21)	High Performance[2] (P48908-B21)			
Max DIMM	32x128 GB			32x128 GB or 16x256 GB[5]		16x256 GB[5]
Networking	10/25GbE PCIe adapter or OCP[6]					
Max Drive	4 LFF SAS or 8+2 NVMe				8 SFF CTO Server with 0 backplane & 0 drive, 25C No support for 4 LFF CTO Server	4 LFF SAS or 10NVMe
Internal OS Boot	Available for internal NS204i-u					
External OS Boot[6]	Available			30C (4 LFF SAS); 30C (8NVMe); No support, 23C (10 NVMe)	25C	Available
Alternatives	Direct Liquid Cooling (DLC) Heatsink and High-Performance Fan FIO solution, for all processors in 2P Configuration. Support up to 32x256 GB DIMM, Internal / external NS204i-u, 10x NVMe					
DIMM blanks	Required, embedded, and shipped as default in all CTO Servers					

Notes:

- [1]Both minimum and maximum limits included (e.g. greater or equal to, and up to including).
- [2]Option driven (incl. CPU TDP, DIMM and NIC bandwidth). Options listed below would require Performance Fan kit or Direct Liquid Cooling bundle kit to be implemented.
  - CPU TDP (as above matrix)
  - 256 GB DIMM
  - NIC and InfiniBand adapters and OCP cards that go beyond 100GbE/200GbE
  - NVMe storage (even Qty 1)
  - With GPU
  - With hot-plug (external) OS Boot Device NS204i-u
- [3]Recommended with
  A bundle kit supportssupports two processors configuration only. The kit incl. two processors heatsink, cold plates, closed-loop liquid cooling tubes, radiator and dedicated 4028 fan sets (7ea) as Factory Installation only kits.
- Below configuration are required to apply.
- [4]Intel Open-loop Liquid Cooling CPU (6458Q/ 8470Q) can be operated at or below 23C with Closed-loop Liquid cooling solution, yet only 8xSAS storage can be supported. Or operated at 25C with Closed-loop Liquid cooling solution with NS204i-u, without backplane and storage drives in 8 SFF CTO Server.
- DLC solution is required if Intel CPU (6458Q/ 8470Q) are operated at or below 25C without drive support constraint.
- [5]256 GB DIMM supports only 1DPC with up to 8 DIMMs per socket due to thermal condition from DIMMs. And 2DPC for 16 GB, 32 GB, 64 GB and 128 GB DIMM with up to 16 DIMMs per socket

Additional Options

– [6]For NIC and InfiniBand PCIe adapters and OCP cards that go beyond 100GbE/200GbE, there will be additional configuration limit or ambient temperature requirements. Please refer to the Networking section.

Cooling Option selection in 20EDSFF CTO Servers						
CPU TDP (Watts)	**125W – 185W**	**186W – 270W**	**271W – 350W**	**271W – 350W**	**350W (LC CPU)** [1]	
CPU Q'ty (2P only)	2	2	2	2	2	2
Heatsink	Standard (P48904-B21)	High Performance (P48905-B21)	Closed-loop LC Heatsink and Fan FIO Bundle Kit[3] (P48906-B21) **Incl. dual roto r 4028 fans (Qty 7)	Direct Liquid Cooling Heatsink FIO Kit	No support, if Closed-loop LC Heatsink and Fan FIO Bundle Kit (P48906-B21) [3]	Direct Liquid Cooling Heatsink FIO Kit
Fans	High Performance[2] (P48908-B21)	High Performance (P48908-B21)		High Performance (P48908-B21)		High Performance (P48908-B21)
Max DIMM	32x128 GB or 16x256 GB[4] /1DPC		32x 128 GB	32x 256 GB		32x256 GB
Networking	Up to 10/25GbE PCIe Adapter or OCP[5]					Up to 10/25 GbE
External NS204i-u	Available		25C (10 EDSFF+10 blanks); 28C (4 EDSFF + 16 blanks)	Available	No support, 20C (20 EDSFF);	Available
			Not support, 20C (20 EDSFF);			
Maximum Qty of E3.s 1T drive	20	20	10EDSFF +10blanks	20	No support, 0 drive	20
Support ambient	30C (no GPU); 25C (NVIDIA A2 or L4)	30C (no GPU); 25C (NVIDIA A2 or L4)	30C (up to 128 GB DIMM, no GPU);	30C (256 GB DIMM); 30C (Nvidia A2 or L4);	No support, < 20C	30C (256 GB DIMM); 30C (Nvidia A2 or L4);
			No support, require 18C (if any Nvidia A2 or L4 GPU),			
Limitation of EDSFF drive	Only P57807-B21 (HPE 15.36TB NVMe RI E3S EC1 PM1743 SSD) is limited at 25C					
Alternatives	Choice of Direct Liquid Cooling (DLC) Heatsink and Fan FIO solution for all processors in 2P Configuration					
DIMM Blanks	Required, embedded, and shipped as default in all CTO Servers					

Notes:

– [1]Intel Open-loop Liquid Cooling CPU (6458Q/ 8470Q)

– [2] Incl. dual rotor 4056 fans (Qty 7)

– [3] Incl. 4028 fans (Qty 7)

– [4]256 GB DIMM supports only 1DPC with up to 8 DIMMs per socket due to thermal condition

– [5]For NIC and InfiniBand PCIe adapters and OCP cards that go beyond 100GbE/200GbE, there will be additional configuration limit or ambient temperature requirements. Please refer to the Networking section

Additional Options

Software as a Service Management

HPE Compute Ops Management

Base SKU

HPE Compute Ops Management Advanced 1-year Upfront ProLiant SaaS	S5E58AAE
HPE Compute Ops Management Standard 3-year Upfront ProLiant SaaS	R7A11AAE

Upgrade SKUS

HPE Compute Ops Management Advanced 3-year Upfront ProLiant SaaS	S5E59AAE
HPE Compute Ops Management Advanced 5-year Upfront ProLiant SaaS	S5E60AAE
HPE Compute Ops Management Advanced 7-year Upfront ProLiant SaaS	S5E61AAE
HPE Compute Ops Management Standard 5-year Upfront ProLiant SaaS	R7A12AAE
HPE Compute Ops Management Advanced Flex with ProLiant Enablement	S6C28AAE

FIO Setting SKUs

HPE Compute Cloud Management Server FIO Enablement	S1A05A
HPE Compute Ops Management Base SaaS	R6Z73AAE

For more information, visit the HPE Compute Ops Management QuickSpecs: **https://www.hpe.com/psnow/doc/a50004263enw**
Supported Servers – CTO only. No OEM. – Complete list can be found here: Latest Supported Server List:
https://www.hpe.com/info/com-supported-servers

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.

Choose Additional Options

Accessories

Management Hardware

Maximum 1 of each can be selected.

HPE ProLiant DL36X Gen11 Rear Serial Port Cable Kit	P48921-B21
HPE ProLiant DL360 Gen11 SFF System Insight Display Power Module Kit	P48927-B21

Notes: Supported with 8 SFF CTO Model only.

HPE ProLiant DL3X0 Gen11 1U LFF Display Port/USB Kit	P48928-B21

Notes: Supported with 4 LFF CTO Model only.

HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit	P52341-B21
HPE Easy Install Rail 5 Kit	P52343-B21
HPE ProLiant DL300 Gen10 Plus 1U Cable Management Arm for Rail Kit	P26489-B21

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.
- [1]Supported with 8SFF CTO Model only.
- [2]Supported with 4LFF CTO & 20EDSFF 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 disclaims any implied warranties of merchantability and fitness for a particular purpose. Furthermore, HPE has no obligation and assumes no liability for the materials, design, specifications, installation, safety, and compatibility of any such third-party racks with any rail kits, including HPE rail kits

Additional Options

Software RAID

- Requires selection of NVMe Drives (SFF/ EDSFF) through Direct Attach in 8SFF or EDSFF CTO server
- If RAID is being selected in a configuration with VROC and internal controller, then Customer Defined RAID Setting (389692-B21) must be selected.
- RAID is allowed on EDSFF drives only if Premium VROC or Standard VROC or VROC RAID1 is selected as Primary controller

Intel Virtual RAID on CPU Premium FIO Software for HPE R7J57A

Notes:

- Intel® VROC Premium
- The Intel® VROC Premium is available for RAID support 0, 1, 5, 10 in the field.
- If Intel® VROC Premium is the primary controller, then the following RAID levels are allowed: 0, 1, 5 (available from RAID FIO settings at HPE factory). Requires selection of NVMe Drives through Direct Attach

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

Notes: If Intel VROC RAID1 is the primary controller, then the following RAID levels are allowed: 1

GPGPU

Notes:

- Mixing of different Graphics Option is not allowed.
- Requires “Increased Cooling” to be selected in BIOS settings (default setting is “Optimal Cooling”).
- There is no Energy Star 4.0 certification with Graphic cards.
- If GPU is selected, standard heatsink & standard fan kits are not supported. Requires high performance fans.
- If GPU is selected for best performance across common workloads, HPE recommends system main memory at least twice the memory of all GPU.

NVIDIA A2 16GB PCIe Non-CEC Accelerator for HPE R9H23C

Notes: PCIe 4.0

GPGPU Configuration							
Part number	**Qty**	**Cooling**	**4 LFF (14W SAS/SATA)**	**8+2 SFF (25W NVMe)**	**8+2 SFF (10W SAS/SATA)**	**8 SFF (25W NVMe)**	**20EDSFF**
Nvidia A2 (R9H23C) [1]	2	High Performance Fan Kit (P48908-B21)	Up to 2x270W CPU, 32x 128 GB DIMMs				Up to 2x205W CPU, 32x 128 GB DIMMs
			30C	30C	30C	30C	25C
	2	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21)	Up to 2x350W CPU, 32x 128 GB DIMMs				Up to 2x350W CPU, 32x 128 GB DIMMs,
			25C	No support[3]	No support[3]	25C[4]	No support[5]

Notes:

- Can support the GPU adapter with Max. length up to 9.5" (full length adapters are not supported) at PCIe Slot 1 and Slot 3. There is mechanical interference from the GPU bracket when installing A2 at Slot2.
- Nvidia GPU A2 will be available in all 3 slots (incl. Slot 2) expected in Q4 2023 with a new low-profile bracket in the A2 kit.
- [1] Requires high performance fans
- [2] Can be installed at Slot 1 and Slot 3 (if 2nd processor is selected).
- [3] Max 2x350W CPU, 32x128 GB DIMM, and max 10 SFF, will need to be operated at 20C. Will not be a feasible configuration to support.

Additional Options

– [4] In 8 SFF CTO Model, if the Graphics Option is selected with the Processor that is more than 270W, then Maximum of 8 NVMe/ SAS/ SATA drives can be selected.
– [5]In EDSFF CTO Model, if the Graphics Option is selected with Processor Wattage is more than 270W, then DLC Module must be selected.

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

GPGPU Configuration							
Part number	**Qty**	**Cooling**	**4 LFF (14W SAS/SATA)**	**8+2 SFF (25W NVMe)**	**8+2 SFF (10W SAS/SATA)**	**8 SFF (25W NVMe)**	**20EDSFF**
Nvidia L4 (S0K89C) [1,2]	3	High Performance Fan Kit (P48908-B21)	Up to 2x270W CPU, 32x 128 GB DIMMs				Up to 2x225W CPU, 32x 128 GB DIMMs
			30C	30C	30C	30C	28C
	3	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21)	Up to 2x350W CPU, 32x 128 GB DIMMs				Up to 2x350W CPU, 32x 128 GB DIMMs,
			25C	No support[3]	No support[3]	25C[4]	No support[5]

Notes:
– Can support the GPU adapter with Max. length up to 9.5" (full length adapters are not supported) at PCIe Slot 1, 2 and 3. Nvidia GPU L4 will be available in all 3 slots.
– [1] Requires high performance fans
– [2] Can be installed at Slot 1, Slot2 and Slot 3 (if 2nd processor is selected).
– [3] Max 2x350W CPU, 32x128 GB DIMM, and max 10SFF, will need to be operated at 20C. Will not be a feasible configuration to support.
– [4] In 8 SFF CTO Model, if the Graphics Option is selected with the Processor that is more than 270W, then Maximum of 8 NVMe/ SAS/SATA drives can be selected.
– [5]In EDSFF CTO Model, if the Graphics Option is selected with Processor Wattage is more than 270W, then DLC Module must be selected.

HPE Racks

- 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.

Additional Options

HPE Uninterruptible Power Systems (UPS)

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

HPE Support Services

Installation & Start-up Services

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

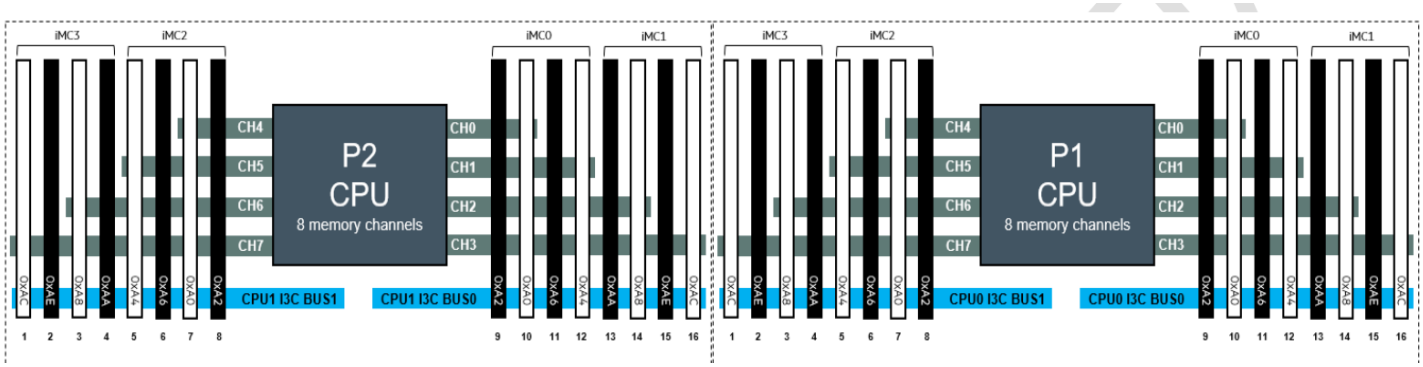
Tech Care Services

HPE 3 Year Tech Care Essential DL360 Gen11 HW Service	H93B6E
HPE 3 Year Tech Care Essential wDMR DL360 Gen11 HW Service	H93B7E
HPE 5 Year Tech Care Essential DL360 Gen11 HW Service	H93E0E
HPE 5 Year Tech Care Essential wDMR DL360 Gen11 HW Service	H93E1E

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

Memory

Memory Population guidelines



Front End / HPE ProLiant DL360 Gen11

Notes:

- Listed below are general Memory Module Population Rules supported by the processor for reference.
- There is no longer a need to install DIMMs in pairs in non-RAS modes.
- The same information is displayed alternatively by rank, by speed, or by qty. That is, when viewing by rank, selecting a particular rank will then show the DIMM qty vs DIMM speed tradeoff/combinations. All DIMMs must be either all DDR5 DIMMs or DDR5 and Crow Pass DIMMs.
- There should be at least one DDR5 DIMM per socket.
- When one DIMM is used in a channel, it must be populated in DIMM slot farthest away from the CPU (DIMM slot 0) of a given channel.
- For 16 + 0 configuration with 1R + 2R mixed rank population, on each channel always populated the higher electrical load (2R) in DIMM0 followed by single rank DIMM in DIMM1.
- A maximum of 8 logical ranks (ranks seen by the host) per channel is allowed.
- For a DDR5 DIMM and Crow Pass DIMM in a channel, the DDR5 DIMM must be populated in the farthest DIMM slot (0), while CPS has to be in the nearest slot (1).
- All DIMMs in a Processor socket must have the same number of ranks (unless explicitly specified otherwise).
- x8 DIMMs and x4 DIMMs cannot be mixed in the same channel or same Processor socket.
- Mixing of non-3DS and 3DS RDIMMs is not allowed in the same channel, across different channels, and across different sockets.
- 9x4 RDIMMs cannot be mixed with another DIMM types (Crow Pass 10x4RDIMMs or Non 9x4 RDIMMs).
- All DDR5 DIMMs must operate at the same speed per Processor socket.
- Rank mixing is not allowed on a channel except for Standard RDIMM 1 Rank + 2 Rank combination, when all 16 DIMMs for a Processor socket is populated.
- Mixing vendor is allowed for RDIMMs, but it is not allowed for 3DS RDIMMS

Memory

HPE ProLiant Gen11 16 slot per CPU DIMM population order																
DIMM population order																
DIMM slot	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1 DIMM										10						
2 DIMMs[2]			3							10						
4 DIMMs[2]			3				7			10				14		
6 DIMMs			3		5		7			10				14		16
8 DIMMs[1,2]	1		3		5		7			10		12		14		16
12 DIMMs	1	2	3		5	6	7			10	11	12		14	15	16
16 DIMMs[1,2]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Notes :

- Omitted DIMM counts/socket not qualified by Intel.
- [1] Supports SGX (Software Guard Extensions)
- [2] Support Hemi (hemisphere mode).

General Memory Population Rules and Guidelines

- DIMMs should be installed in quantities of even numbers.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two-processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Mixing of DIMM types (UDIMM, RDIMM, and LRDIMM) is not supported.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, and the number and model of installed processors qualified on the platform.
- For details on the HPE Server Memory Options Population Rules, visit:
  Server memory populations rules for HPE Gen11 servers with 4th Gen Intel Xeon Scalable processors

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

HPE SKU P/N	P43322-B21	P43328-B21	P43331-B21
SKU Description	HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit
DIMM Capacity	16 GB	32 GB	64 GB
DIMM Rank	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)
Voltage	1.1 V	1.1 V	1.1 V
DRAM Depth [bit]	2G	2G	4G
DRAM Width [bit]	x8	x8	x4
DRAM Density	16 GB	16 GB	16 GB
CAS Latency	40-39-39	40-39-39	40-39-39
DIMM Native Speed	4800 MT/s	4800 MT/s	4800 MT/s

Memory

HPE SKU P/N	P43334-B21	P43337-B21
SKU Description	HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit
DIMM Capacity	128 GB	256 GB
DIMM Rank	Quad Rank (4R)	Octal Rank (8R)
Voltage	1.1 V	1.1 V
DRAM Depth [bit]	4G	4G
DRAM Width [bit]	x4	x4
DRAM Density	16 GB	16 GB
CAS Latency	40-39-39	40-39-39
DIMM Native Speed	4800 MT/s	4800 MT/s

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

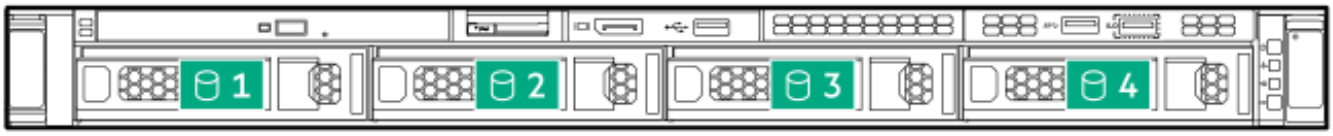
DDR5 memory options part number decoder

Notes:

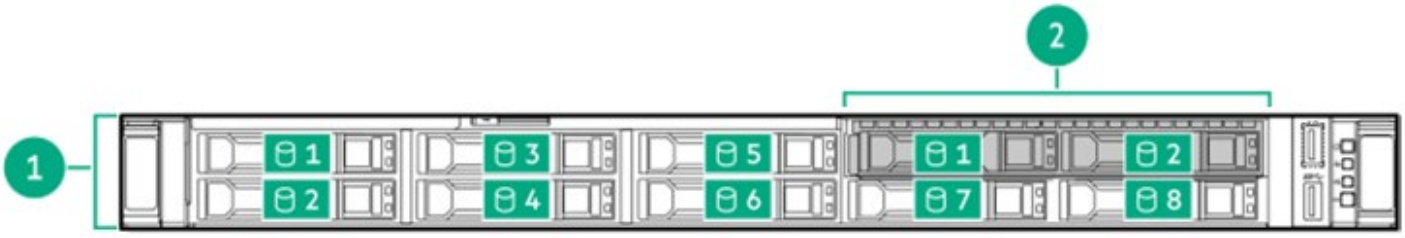
- Capacity references are rounded to the common gigabyte (GB) values.
  - 8 GB = 8,192 MB
  - 16 GB = 16,384 MB
  - 32 GB = 32,768 MB
  - 64 GB = 65,536 MB
  - 128 GB = 131,072 MB
  - 256 GB = 262,144 MB
  - 512 GB = 524,288 MB

For more information on memory, please see the Memory QuickSpecs: **HPE DDR5 Smart Memory**

Storage



4 LFF device bay numbering



8 SFF + 2 SFF (optional) device bay numbering



8 SFF+ ODD device bay (optional through Media Bay)

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



20 EDSFF device bay numbering

Technical Specifications

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

EDSFF Drives

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

Weight (approximate)

- **14.56 kg (32.1 lb.)**
  - **SFF minimum**: One drive, one processor, one power supply, two heatsinks, one Smart Array controller, and five fans.
- **20.44 kg (45.07 lb.)**
  - **SFF maximum:** Ten drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.
- **14.95 kg (32.96 lb.)**
  - **LFF minimum:** One drive, one processor, one power supply, two heatsinks, one Smart Array controller and five fans.
- **21.58 kg (47.58 lb.)**
  - **LFF maximum:** Four drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.
- **14.75kg (32.51lb)**
  - **EDSFF minimum:** One drive, two processors, one power supply, two heatsinks, one Smart Array controller, and seven fans.
- **21.19kg (46.71lb)**
  - **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 800W (Titanium): 100 to 240 VAC
- For 500W (Platinum): 100 to 240 VAC
- For 1600W (-48 VDC): -40 to -72 VdC

Technical Specifications

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)
- For 500W (Platinum) Power Supply: 1999 BTU/hr (at 100 VAC), 1912 BTU/hr (at 200 VAC), 1904 BTU/hr (at 240 VAC)

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 800W (Titanium) Power Supply: 800W (at 200 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)
- For 500W (Platinum) Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VDC) input for China only

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 800W (Titanium) Power Supply: 800W (at 200 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)
- For 500W (Platinum) Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VDC) input for China only

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.

Technical Specifications

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.
- **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=c03471072http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

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°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.

Test case	1	2	3	4	5	6	7	8
Idle								
LWA,m	5.1 B	4.7 B	4.7 B	5.0 B	4.7 B	4.7 B	4.7 B	5.2 B
LpAm	37 dBA	35 dBA	36 dBA	37 dBA	36 dBA	36 dBA	36 dBA	38 dBA
Kv	0.4 B	0.4 B	0.4 B	04 B	0.4 B	0.4 B	0.4 B	0.4 B
Operating								
LW,m	5.3 B	5.0 B	5.2 B	5.3 B	5.1 B	5.4 B	5.5 B	6.0 B
LpAm	40 dBA	37 dBA	39 dBA	41 dBA	37 dBA	41 dBA	41 dBA	49 dBA
Kv	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B

Notes:

- Acoustics levels presented here are generated by the test configuration only. Acoustics levels will vary depending on system configuration. Values are subject to change without notification and are for reference only.
- 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.
- All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109.
- B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 dB.
- The results in this declaration apply only to the model numbers listed above 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.
- 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
28-Jul-2025	**Version 36**	Changed	Core Options section was updated. Changed: Naming convention on two SKUs were updated: S2A69A and R8M41A.
07-Jul-2025	**Version 35**	Changed	Overview and Additional Options sections were updated. Added: Ethernet OCP SKU Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE Removed: Optical Drive OBS SKU.
16-Jun-2025	**Version 34**	Changed	QuickSpecs survey URL was updated.
02-Jun-2025	**Version 33**	Changed	Overview and Additional Options sections were updated. Added: Very read Optimized – NVMe – EDSFF - Solid State Drives SKU. Removed: Mixed Use - NVMe - SFF - Solid State Drives OBS SKUs.
05-May-2025	**Version 32**	Changed	Standard Features and Additional Options sections were updated. Added: OCP Expansion Slots, COM Advanced Enablement SKU and European Union ErP Lot 9 Regulation section to include Turkey and Ireland. Removed: Read Intensive - NVMe - SFF - Solid State Drives SKU and HPE Converged Infrastructure Management Software SKUs.
07-Apr-2025	**Version 31**	Changed	Overview, Standard Features, and Additional Options sections were updated. Added: Industry Standard Compliance verbiage, Mixed Use – NVMe – EDSFF - Solid State Drives SKUs, Read Intensive – NVMe – EDSFF - Solid State Drives SKUs, COM Advanced SKUs and QuickSpecs Survey.
03-Mar-2025	**Version 30**	Changed	Overview and Additional Options sections were updated.
03-Feb-2025	**Version 29**	Changed	Additional Options section was updated. Intel VROC Software RAID naming changed to Hybrid RAID.
02-Dec-2024	**Version 28**	Changed	Standard Features and Additional Option sections were updated.
04-Nov-2024	**Version 27**	Changed	Standard Features, Additional Option section was updated.
07-Oct-2024	**Version 26**	Changed	Standard Features and Additional Options sections were updated.
03-Sep-2024	**Version 25**	Changed	Overview, Standard Features (Operating Systems and Virtualization Software Support for HPE Servers) and Additional Options sections were updated.
05-Aug-2024	**Version 24**	Changed	Overview, Optional Features, Core Options and Additional Options sections were updated.
15-Jul-2024	**Version 23**	Changed	Pre-Configured Models section was updated.
01-Jul-2024	**Version 22**	Changed	Optional Features, Pre-Configured Models and Core Options sections were updated.
17-Jun-2024	**Version 21**	Changed	Pre-Configured Models section was updated.
03-Jun-2024	**Version 20**	Changed	Overview and Optional Features and Core Options sections were updated.
06-May-2024	**Version 19**	Changed	Overview, Optional Features and Core Options sections were updated.
29-Apr-2024	**Version 18**	Changed	Core Option section was updated.
15-Apr-2024	**Version 17**	Changed	Pre-Configured Models section was updated.
01-Apr-2024	**Version 16**	Changed	Overview, Pre-configured Models, Core Option and Additional Options sections were updated.
18-Mar-2024	**Version 15**	Changed	Pre-configured Models section was updated.
04-Mar-2024	**Version 14**	Changed	Optional Features, Core option and Additional Options sections were updated.
05-Feb-2024	**Version 13**	Changed	Core Option section was updated.
14-Dec-2023	**Version 12**	Changed	Overview, Standard Features, Optional Features, Core Options and Additional Options were updated.
06-Nov-2023	**Version 11**	Changed	Optional Features, Core Options and Additional Options sections were updated.
05-Sep-2023	**Version 10**	Changed	Overview, Standard Features, Optional Features, Core Options, Additional Options and Technical Specification sections were updated.
07-Aug-2023	**Version 9**	Changed	Overview, Standard Features and Core Options sections were updated.

Summary of Changes

Date	Version History	Action	Description of Change
24-Jul-2023	**Version 8**	Changed	Overview, configuration Information and Core Options sections were updated.
05-Jun-2023	**Version 7**	Changed	Overview, Pre-configured Models, Additional Options, Storage and Technical Specification sections were updated.
01-May-2023	**Version 6**	Changed	Overview, Standard Features and Core Options sections were updated.
17-Apr-2023	**Version 5**	Changed	Overview, Standard features, Pre-configured Models, Core Options
03-Apr-2023	**Version 4**	Changed	Overview, Standard features, Pre-configured Models, Optional Features, Core Options, Storage, Technical Specifications
06-Mar-2023	**Version 3**	Changed	Standard features, Configuration Information and Core Options were updated.
06-Feb-2023	**Version 2**	Changed	Overview, Standard Features, Optional Features, Service Supports, Configuration Information, Core Options, Additional Options and Technical Specifications were updated.
10-Jan-2023	**Version 1**	New	New QuickSpecs.

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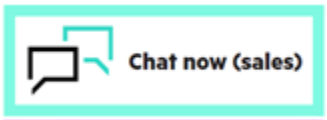

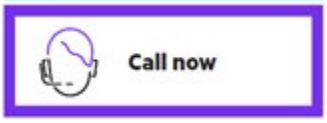



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