Have feedback on QuickSpecs? We're listening

HPE ProLiant DX360 Gen11 QuickSpecs

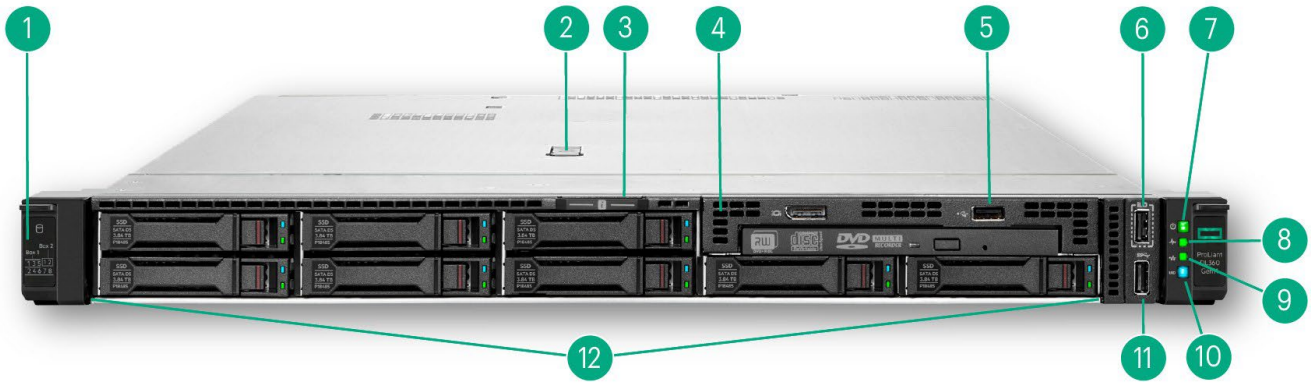
Adaptive infrastructure engineered for peak efficiency.

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 DX360 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 DX360 Gen11 is ideal for IT infrastructure, either physical, virtual, or containerized.

HPE ProLiant DX360 Gen11

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The HPE ProLiant DX360 Gen11 supports the 4th Generation Intel® Xeon® Scalable Processors with up to 56 cores, plus 4800 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 DX360 Gen11 complements Gen10 Plus reach by delivering premium compute, memory, networking communication, discrete graphics, I/O, and security capabilities for customers focused on performance at any cost. DX360 Gen11 server is an execellent choice for daily business and workloads in General Compute, Database Management, Virtual Desktop Infrastructure, Content Delivery Network, Edge Acceleration and Intelligent Video Analytics.

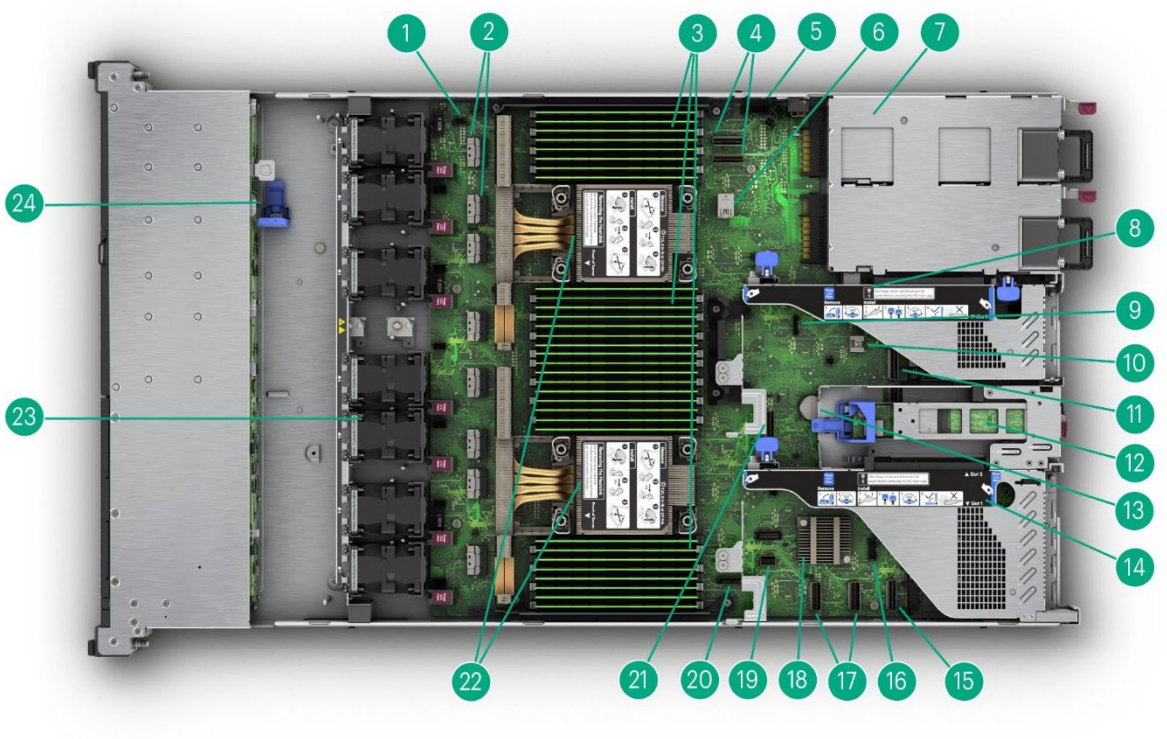


8 SFF Front View – 8 SFF + optional Universal Media Bay, optical drive, DisplayPort, USB2.0 and SAS drives shown

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

Notes: Optional- Systems Insight Display (SID) module is available for 8SFF CTO Server, and will be installed at the left-hand side of iLO Service port and USB 3.2 Gen1 port.

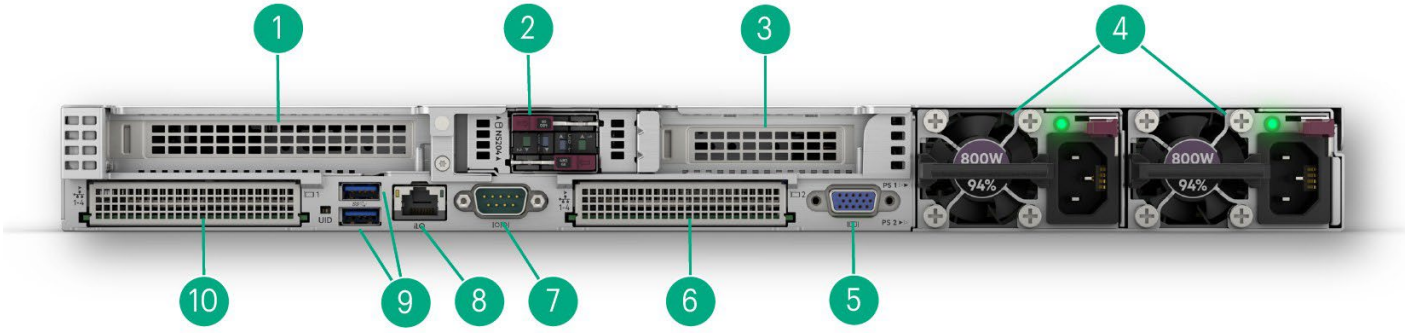
Overview



Internal View - Standard for all DX360 Gen11

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

Overview



Rear View - Standard for all DX360 Gen11

Item	Description	Item	Description
1.	Slot 1 PCIe 5.0 – Full Height	6.	OCP 3.0 Slot 2: x16 PCIe 5.0[1,2] (Requires 2nd Processor)
2.	Slot 2 PCIe 5.0 – Low Profile* **Notes:** *Shown with optional hot-plugNS204i-u Boot Device.	7.	Serial port (optional - shown)
3.	Option: Slot 3 PCIe 5.0 (Requires 2nd processor) Low Profile and Full Height options	8.	iLO Management Port
4.	Redundant Power Supply (1 & 2 as shown)	9.	USB 3.2 Gen1 Ports
5.	Video (VGA) port	10.	OCP 3.0 Slot 1: x16 PCIe 5.0[2]

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 DX360 Gen11 server
- Qualified platforms /configurations recognized by both HPE & Nutanix.
- Factory tuned & optimized HW settings for Nutanix environments.
- Factory pre-installed Nutanix AHV & AOS.
- New 4th Generation Intel® Xeon® Scalable Processors.
- New PCIe 5.0 support.
- New HPE DDR5 Smart Memeory – 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 support.
- New HPE iLO6 support.

Platform Information

Form Factor

- 1U rack

Chassis Types

- 8 SFF drive bays: SAS/SATA.
  - With options for additional 2 SFF drive bays: NVMe
- 10 SFF drive bays: NVMe.

System Fans

- Performance Fan Kit Standard.

Notes:

- Dual rotor hot plug High Performance Fan Kit available (includes 7 fans), for one or two processors from 186W to 270W TDP.
- The DX360 Gen11 will support up to 7 fans with fan redundancy built in. One fan rotor failure will place server in degraded mode but fully functional. Two fan rotor failures could provide warning and imminent server shutdown.

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.

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).

Standard Features

- 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.
- Increaed Multi-Socket Bandwidth with new UPI2.0 (up to 16GT/s) with maximum 4 UPI Links.
- New FlexBus I/O Interface PCIe5.0 + CXL.
- [1]The 4th Generation Intel® Xeon® Scalable Processors are featured with Intel Speed Select Technology (SST) for Infrastructure as as 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

Standard Features

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

Standard Features

5th Generation Intel® Xeon® Scalable Processor Family (Gold 6)							
Intel® Xeon® Models	**CPU Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**
Intel Xeon-Gold 6526Y Processor for HPE	2.8 GHz	16	37.5 MB	195W	3	5200 MT/s	128 GB
Intel Xeon-Gold 6542Y Processor for HPE	2.9 GHz	24	600 MB	250W	3	5200 MT/s	128 GB
Intel Xeon-Gold 6548Y+ Processor for HPE	2.5 GHz	32	600 MB	250W	3	5200 MT/s	128 GB
Intel Xeon-Gold 6534 Processor for HPE	3.9 GHz	8	22.5 MB	195W	3	4800 MT/s	128 GB
Intel Xeon-Gold 6544Y Processor for HPE	3.6 GHz	16	45.0 MB	270W	3	5200 MT/s	128 GB
Intel Xeon-Gold 6530 Processor for HPE	2.1 GHz	32	130 MB	270W	3	4800 MT/s	128 GB
Intel Xeon-Gold 6538Y+ Processor for HPE	2.2 GHz	32	60.0 MB	225W	3	5200 MT/s	128 GB
Intel Xeon-Gold 6538N Processor for HPE	2.1 GHz	32	60.0 MB	205W	3	5200 MT/s	128 GB
Intel Xeon-Gold 6548N Processor for HPE	2.8 GHz	32	60.0 MB	250W	3	5200 MT/s	128 GB
Intel Xeon-Gold 6554S Processor for HPE	2.2 GHz	36	180 MB	270W	4	5200 MT/s	128 GB

4th Generation Intel® Xeon® Scalable Processor Family (Platinum)							
Intel® Xeon® Models	**CPU Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**
Platinum 8480+ Processor	2.0 GHz	56	105 MB	350W	4	4800 MT/s	512 GB
Platinum 8470 Processor	2.0 GHz	52	105 MB	350W	4	4800 MT/s	512 GB
Platinum 8470Q Processor	2.1 GHz	52	105 MB	350W	4	4800 MT/s	512 GB
Platinum 8470N Processor	1.7 GHz	52	105 MB	300W	3	4800 MT/s	128 GB
Platinum 8468 Processor	2.1 GHz	48	105 MB	350W	4	4800 MT/s	512 GB
Platinum 8468V Processor	2.4 GHz	48	97.5 MB	330W	3	4800 MT/s	128 GB
Platinum 8462Y+ Processor	2.8 GHz	32	60.0 MB	300W	3	4800 MT/s	128 GB
Platinum 8460Y1+2 Processor	2.0 GHz	40	105 MB	300W	4	4800 MT/s	128 GB
Platinum 8458P Processor	2.7 GHz	44	82.5 MB	350W	3	4800 MT/s	512 GB
Platinum 8452Y1 Processor	2.0 GHz	36	67.5 MB	300W	4	4800 MT/s	128 GB
Platinum 8444H Processor	2.9GHz	16	45 MB	270W	4	4800 MT/s	512 GB
Platinum 8490H Processor	1.9GHz	60	112.5 MB	350W	3	4800 MT/s	512 GB

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).
- Intel® Speed Select enabled processors: Platinum 8468V, 8460Y+, 8458P, and 8452Y.

Standard Features

4th Generation Intel® Xeon® Scalable Processor Family (Gold 6)							
Intel® Xeon® Models	**CPU Frequency**	**Cores**	**L3 Cache**	**Power**	**UPI**	**DDR5**	**SGX Enclave size**
Gold 6458Q Processor	3.1 GHz	32	60 MB	350W	3	4800 MT/s	128 GB
Gold 6454S Processor	2.2 GHz	32	60 MB	270W	4	4800 MT/s	128 GB
Gold 6430 Processor	2.1 GHz	32	60 MB	270W	3	4400 MT/s	128 GB
Gold 6414U Processor[1]	2.0 GHz	32	60 MB	250W	-	4800 MT/s	128 GB
Gold 6426Y Processor	2.5 GHz	16	37.5 MB	185W	3	4800 MT/s	128 GB
Gold 6421N Processor	1.8 GHz	32	60.0 MB	185W	-	-	-
Gold 6442Y Processor	2.6 GHz	24	60.0 MB	225W	3	4800 MT/s	128 GB
Gold 6448Y Processor	2.1 GHz	32	600 MB	225W	3	4800 MT/s	128 GB
Gold 6434 Processor	3.7 GHz	8	22.5 MB	195W	3	4800 MT/s	128 GB
Gold 6444Y Processor	3.6 GHz	16	45.0 MB	270W	3	4800 MT/s	128 GB
Gold 6438Y+ Processor	2.0 GHz	32	60.0 MB	205W	3	4800 MT/s	128 GB
Gold 6438N Processor	3.0 GHz	32	60.0 MB	205W	3	4800 MT/s	128 GB
Gold 6416H Processor	2.2GHz	18	45 MB	165W	3	4800 MT/s	512 GB
Gold 6418H Processor	2.1GHz	24	60 MB	185W	3	4800 MT/s	512 GB
Gold 6448H Processor	2.4GHz	32	60 MB	250W	3	4800 MT/s	512 GB

Standard Features

4th Generation Intel® Xeon® Scalable Processor Family (Gold 5)							
Gold 5415+Processor	2.9 GHz	8	22.5 MB	150W	3	4400 MT/s	128 GB
Gold 5418Y Processor	2.0 GHz	24	45.0 MB	185W	3	4400 MT/s	128 GB
Gold 5418N Processor	1.8 GHz	224	45.0 MB	165W	3	4000 MT/s	128 GB
Gold 5420+ Processor	2.0 GHz	28	52.5 MB	205W	3	4400 MT/s	128 GB
Gold 5418N Processor	1.8 GHz	24	45.0 MB	165W	3	4000 MT/s	128 GB
Gold 5411N Processor	1.9 GHz	24	45.0 MB	165W	-	4400 MT/s	128 GB

4th Generation Intel® Xeon® Scalable Processor Family (Silver)							
Silver 4410Y Processor	2.0 GHz	12	30.0 MB	150W	2	4000 MT/s	64 GB
Silver 4416+ Processor	3.0 GHz	20	37.5 MB	165W	2	4000 MT/s	64 GB

Notes:

- [1]Single socket capable, no dual socket support.
- 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).

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.

Standard Features

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 @ 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.
- The -B21 memory SKUs shown in this document are to be used when ordering stand-alone memory only. For each -B21 SKU, there is a corresponding -F21 SKU which is to be used when configuring servers with integrated memory DIMMs.
- For additional information, please visit the HPE Memory QuickSpecs and Technical White Papers **or** HPE DDR5 Smart Memory QuickSpecs.

Memory Protection

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

Online Spare
Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.
Notes: For more information see our Memory RAS feature technical whitepaper.

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, half-length, up to 9.5" length
2	PCIe 5.0	x16	x16	CPU 1	Half-height (Low-profile), up to 9.5" length

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	-Half-height (Low-profile), up to 9.5" or -Full-height, half-length, up to 9.5" length

Notes:

- If Secondary riser is selected, then 2 Processor must be selected.
- If secondary FH riser is installed, then primary PCIe Slot #2 cannot be used, maximum 2 quantity of PCIe cards can be selected.
- If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can 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 selected.
- If secondary riser is not selected and "NS204i-u Rear Cable Kit" is selected, then maximum 1 quantity of PCIe cards can selected.
- If Secondary LP riser and "NS204i-u Rear Cable Kit" are selected, then maximum 2 quantity of PCIe cards can selected.
- If Secondary LP riser is selected and "NS204i-u Rear Cable Kit" is not selected, then maximum 3 quantity of PCIe cards can selected.
- All PCIe Slots support Wake-on-Lane (WoL) feature.

OCP Expansion Slots

OCP3.0 Slot Priority Support Matrix						
Rear wall		**Selected OCP cards (Qty & type)**				
		2	**1**	**1**	**1**	**2**
OCP Slots #	**Share NIC Feature**	**1xOROC[1] + 1x NIC[2]**	**1xNIC**	**2xNICs**	**1xOROC**	**2x OROCs**
1	N/A	OROC	(Secondary)	NIC	OROC (Primary)	OROC[4] (Primary)
2	Available (Incl. Wake-on-Lane)	NIC	NIC (Primary)	NIC (Primary)	N/A[3]	OROC[4]

Notes:

- [1] OCP form factor internal controller.
- [2] OCP Networking card.
- [3]f only 1 OROC card is selected, by default connected from 8SFF backplane to OCP Slot1. And there is no controller cable can connect from 8SFF Backplane to OCP Slot 2.
- [4]If 2 OROC cards are selected, by default the 8SFF controller cable is connected to OCP Slot1 (the comparably higher-end OROC card to be selected by default) and the 2SFF backplane is connected to OCP Slot2 with another OROC card selected (comparably less high-end one) with 2FF controller cable.

Standard Features

Internal Storage Devices

– **Hard Drives**
None ship standard.

Storage Controllers

NVMe Boot Devices

– HPE DX NS204i-u NVMe Hot Plug Boot Optimized Storage Device (P60454-B21)[1].
– HPE ProLiant DX360 Gen11 NS204i-u Rear Cable Kit (P54702-B21).
– HPE ProLiant DX360 Gen11 NS204i-u Internal Cable Kit (P48920-B21).

DX360 Gen11 NS204i-u Enablement Kit Support Matrix				
Enablement Kit	**Description**	**Field Inst.**	**NS204i-u Location**	**Hot-plug Capability**
P54702-B21	HPE ProLiant DX360 Gen11 NS204i-u Rear Cable Kit	Yes	PCIe Slot 2	Yes
P48920-B21	HPE ProLiant DX360 Gen11 NS204i-u Internal Cable Kit	Yes	Internal	N/A

Performance RAID Controllers

– HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller.

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 U.3 NVMe PCIe SSD	153.6 TB	8+2 x 15.36 TB (with optional 2 SFF cage on UMB)
NVMe M.2 SSD - Standard	960 GB	2 x 480 GB (shipped with HPE DX NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device)

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 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit.
  Notes: Available in 94% and 96% efficiency.
- HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit.
  Notes: Available in 96% efficiency.
- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit.
  Notes:
  - Available in 94% efficiency.
  - 1600W Power supplies only support 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 Server power supplies.

Interfaces	
Serial	1 port - Optional
Video	1 Front - DisplayPort (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 arrange of NIC adapters. BTO models will come pre-selected with a primary networking card.
HPE iLO Remote Mgmt Port at rear	1 GbE Dedicated
Front iLO Service Port	1 standard
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

Standard Features

Operating Systems and Virtualization Software

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

- VMware ESXi: 7.0 U3, 8.0
- Nutanix AHV

Industry Standard Compliance

- ACPI 6.4 Compliant.
- PCIe 5.0 Compliant.
- WOL Support.
- Microsoft® Logo certifications.
- PXE Support.
- VGA.
- DisplayPort.

  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).
- SMBIOS 3.4.
- Redfish API.
- IPMI 2.0.
- Secure Digital 4.0.
- Embedded TPM 2.0 support.
- 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
  - At 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.
- EU Lot9.

  Notes: 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.
- UEFI (Unified Extensible Firmware Interface Forum) 2.7.

  Notes: UEFI is the default for the DX360 Gen11.

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

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.

Standard Features

Embedded Management

HPE Integrated Lights-Out (HPE iLO)

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

UEFI

Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at http://www.hpe.com/servers/uefi.

Security

- UEFI Secure Boot and Secure Start support.
- Immutable Silicon Root of Trust.
- FIPS 140-2 validation.
- Common Criteria certification.
- 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).
- Chassis Intrusion detection option.

HPE Trusted Platform Module

HPE Trusted Platform Module 2.0 is included on Pre-Configured models and can be enabled and disabled using the BIOS.

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

Server Management

HPE iLO Advanced: Standard

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.

Service and Support

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

Configuration Information

This section lists some of the steps required to configure a Factory Integrated Model.
To ensure valid configurations are ordered, Hewlett Packard Enterprise recommends 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 DX360 Gen11 8SFF CTO Server	HPE DX360 Gen11 10SFF NVMeCTO Server
SKU Number	P52498-B21	P52499-B21
HPE Trusted Supply Chain	Standard: P36394-B21	
Processor	Not included as standard	
DIMM Slots	32-DIMM slots	
DIMM Blanks	DIMM Blanks are required, embedded and shipped as default in all CTO Servers.	
Storage Controller	HPE ProLiant Gen11 MR216i-o controler	
PCIe Slots	PCIe 5.0. 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	
OCP3.0 Slots	PCIe 5.0: 2 slots (1x16/ 1x16)	
CTO Server	**HPE DX360 Gen11 8SFF CTO Server**	**HPE DX360 Gen11 10 SFF NVMe CTO Server**
Drive Cage – included	8SFF – x1 TriMode 24G SAS/SATA/U.3 NVMe	10SFF NVMe – default NVMe backplane
Network Controller	Customer is allowed to remove and select other cards (PCIe of OCP) from Networking 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 need to be replaced by a PCIe standup NIC. Meanwhile, the “CPU1 to OCP2 x8 Enablement Kit” will be removed.	

Configuration Information

	– [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. 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 need to be replaced by a PCIe standup NIC. Meanwhile, the "CPU2 to OCP2 x8 Enablement Kit" will be removed.
Fans	Choice of – High Performance Fan Kits Standard.
Management	HPE iLO Advanced (standard)
Video Output	Rear: 1 VGA Optional: – 1 Front DisplayPort (standalone in 8SFF; USB2.0+ DisplayPort bundle kit in 4LFF), – 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	TPM2.0 (Trusted Platform Module) embedded **Notes:** Disabled on shipments to China
Rail Kit	Optional Easy Install rails and CMA **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 DX360 Gen11 CTO Server models require a networking selection of a network adapters in the "HPE Networking" section.
- Minimum One card (PCIe or OCP) must be selected from Networking
- HPE DX ProLiant platforms are a Server Appliance: and Energy Star except.
  - Server Appliance: A computer server that is bundled with a pre-installed OS and application software that is used to perform a dedicated function or set of tightly coupled functions. Server appliances deliver services through one or more networks (e.g., IP or SAN), and are typically managed through a web or command line interface. Server appliance hardware and software configurations are customized by the vendor to perform a specific task (e.g., name services, firewall services, authentication services, encryption services, and voice-over-IP (VoIP) services), and are not intended to execute user-supplied software.

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.
- Factory Configuration Settings.
- Choice of riser card for PCIe5.0 slots enablement.
- Choice of Networking solution.

Step 3: Choose Additional Options

- Choice of Accessories.
- Choice of GPGPU.

Choose Core Options

Processor

Please select one or two matching processors.

For example: for a single Xeon-Platinum 8470 processor configuration select 1x P49606-B21. If dual Xeon-Platinum 8470 processor configuration, select 2x P49606-B21.

Notes:

- Mixing of 2 different processor models is not supported.
- CTO server will populate necessary fan kits per system thermal requirements and processor models, mnimum as 5 standard fans. Dual processor configurations require 7 fans, either standard or high performance.
- Processors with Wattage equal to or greater than 186W require High Performance Heatsink (P48905-B21).
- Processors with Wattage equal to or greater than 186W require High Performance Fan Kit (P48908-B21).
- If Processor Wattage is more than 271W, then Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21).
- If 8470Q Processor is selected, then SAS drive/ NVMe drive cannot be selected in the server. Only 8xSATA HDD can be selected.

4th Generation Intel Xeon-Platinum

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

Intel Xeon-Platinum 8480+ 2.0GHz 56-core 350W FIO Processor for HPE DX	P62396-B21
Intel Xeon-Platinum 8470 2.0GHz 52-core 350W FIO Processor for HPE DX	P62395-B21
Intel Xeon-Platinum 8470Q 2.1GHz 52-core 350W FIO Processor for HPE DX	P62399-B21
Intel Xeon-Platinum 8470N 1.7GHz 52-core 300W FIO Processor for HPE DX	P62401-B21
Intel Xeon-Platinum 8468 2.1GHz 48-core 350W FIO Processor for HPE DX	P62394-B21
Intel Xeon-Platinum 8468V 2.4GHz 48-core 330W FIO Processor for HPE DX	P62402-B21
Intel Xeon-Platinum 8462Y+ 2.8GHz 32-core 300W FIO Processor for HPE DX	P62411-B21
Intel Xeon-Platinum 8460Y+ 2.0GHz 40-core 300W FIO Processor for HPE DX	P62393-B21
Intel Xeon-Platinum 8458P 2.7GHz 44-core 350W FIO Processor for HPE DX	P62403-B21
Intel Xeon-Platinum 8452Y 2.0GHz 36-core 300W FIO Processor for HPE DX	P62398-B21
Intel Xeon-Platinum 8444H 2.9GHz 16-core 270W Processor for HPE	P49625-B21
Intel Xeon-Platinum 8490H 1.9GHz 60-core 350W Processor for HPE	P49630-B21

5th Generation Intel Xeon-Platinum

Intel Xeon-Platinum 8562Y+ 2.8GHz 32-core 300W Processor for HPE	P67085-B21
Intel Xeon-Platinum 8568Y+ 2.3GHz 48-core 350W Processor for HPE	P67086-B21
Intel Xeon-Platinum 8570 2.1GHz 56-core 350W Processor for HPE	P67087-B21
Intel Xeon-Platinum 8580 2.0GHz 60-core 350W Processor for HPE	P67088-B21
Intel Xeon-Platinum 8592+ 1.9GHz 64-core 350W Processor for HPE	P67089-B21
Intel Xeon-Platinum 8558 2.1GHz 48-core 330W Processor for HPE	P67097-B21
Intel Xeon-Platinum 8558U 2.0GHz 48-core 300W Processor for HPE	P67102-B21
Intel Xeon-Platinum 8592V 2.0GHz 64-core 330W Processor for HPE	P67107-B21
Intel Xeon-Platinum 8558P 2.7GHz 48-core 350W Processor for HPE	P67108-B21
Intel Xeon-Platinum 8581V 2.0GHz 60-core 270W Processor for HPE	P67109-B21

Core Options

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 FIO Processor for HPE DX	P62417-B21
Intel Xeon-Gold 6454S 2.2GHz 32-core 270W FIO Processor for HPE DX	P62404-B21
Intel Xeon-Gold 6448Y 2.1GHz 32-core 225W FIO Processor for HPE DX	P62408-B21
Intel Xeon-Gold 6444Y 3.6GHz 16-core 270W FIO Processor for HPE DX	P62410-B21
Intel Xeon-Gold 6438Y+ 2.0GHz 32-core 205W FIO Processor for HPE DX	P62416-B21
Intel Xeon-Gold 6438N 2.0GHz 32-core 205W FIO Processor for HPE DX	P62420-B21
Intel Xeon-Gold 6434 3.7GHz 8-core 195W FIO Processor for HPE DX	P62409-B21
Intel Xeon-Gold 6430 2.1GHz 32-core 270W FIO Processor for HPE DX	P62397-B21
Intel Xeon-Gold 6421N 1.8GHz 32-core 185W FIO Processor for HPE DX	P62423-B21
Intel Xeon-Gold 6414U 2.0GHz 32-core 250W FIO Processor for HPE DX	P62400-B21
Intel Xeon-Gold 6426Y 2.5GHz 16-core 185W FIO Processor for HPE DX	P62406-B21
Intel Xeon-Gold 6442Y 2.6GHz 24-core 225W FIO Processor for HPE DX	P62407-B21
Intel Xeon-Gold 6416H 2.2GHz 18-core 165W Processor for HPE	P49620-B21
Intel Xeon-Gold 6418H 2.1GHz 24-core 185W Processor for HPE	P49621-B21
Intel Xeon-Gold 6448H 2.4GHz 32-core 250W Processor for HPE	P49622-B21
5th Generation Intel Xeon-Gold 6	
Intel Xeon-Gold 6526Y 2.8GHz 16-core 195W Processor for HPE	P67080-B21
Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE	P67081-B21
Intel Xeon-Gold 6548Y+ 2.5GHz 32-core 250W Processor for HPE	P67082-B21
Intel Xeon-Gold 6534 3.9GHz 8-core 195W Processor for HPE	P67083-B21
Intel Xeon-Gold 6544Y 3.6GHz 16-core 270W Processor for HPE	P67084-B21
Intel Xeon-Gold 6530 2.1GHz 32-core 270W Processor for HPE	P67095-B21
Intel Xeon-Gold 6538Y+ 2.2GHz 32-core 225W Processor for HPE	P67096-B21
Intel Xeon-Gold 6538N 2.1GHz 32-core 205W Processor for HPE	P67104-B21
Intel Xeon-Gold 6548N 2.8GHz 32-core 250W Processor for HPE	P67105-B21
Intel Xeon-Gold 6554S 2.2GHz 36-core 270W Processor for HPE	P67110-B21
4th Generation Intel Xeon-Gold 5	
Intel Xeon-Gold 5420+ 2.0GHz 28-core 205W FIO Processor for HPE DX	P62415-B21
Intel Xeon-Gold 5418Y 2.0GHz 24-core 185W FIO Processor for HPE DX	P62414-B21
Intel Xeon-Gold 5418N 1.8GHz 24-core 165W FIO Processor for HPE DX	P62422-B21
Intel Xeon-Gold 5416S 2.0GHz 16-core 150W Processor for HPE DX	P62426-B21
Intel Xeon-Gold 5415+ 2.9GHz 8-core 150W FIO Processor for HPE DX	P62405-B21
Intel Xeon-Gold 5411N 1.9GHz 24-core 165W FIO Processor for HPE DX	P62421-B21
5th Generation Intel Xeon-Gold 5	
Intel Xeon-Gold 5515+ 3.2GHz 8-core 165W Processor for HPE	P67079-B21
Intel Xeon-Gold 5520+ 2.2GHz 28-core 205W Processor for HPE	P67094-B21
4th Generation Intel Xeon-Silver	
Intel Xeon-Silver 4416+ 2.0GHz 20-core 165W FIO Processor for HPE DX	P62413-B21
Intel Xeon-Silver 4410Y 2.0GHz 12-core 150W FIO Processor for HPE DX	P62412-B21

Core Options

5th Generation Intel Xeon-Silver

Intel Xeon-Silver 4509Y 2.6GHz 8-core 125W Processor for HPE	P67090-B21
Intel Xeon-Silver 4510 2.4GHz 12-core 150W Processor for HPE	P67091-B21
Intel Xeon-Silver 4514Y 2.0GHz 16-core 150W Processor for HPE	P67092-B21
Intel Xeon-Silver 4516Y+ 2.2GHz 24-core 185W Processor for HPE	P67093-B21

Heatsinks

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

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

Notes:

- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Heatsink" and "Performance Fan" must be selected.
- Quantity of Processor and Quantity of Heatsink must match.

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 256GB Memory is selected, will be limited to 1P1D, thus Maximum of 8 can be selected per Processor.
- If 256GB Memory is selected, then high speed Networking/InfiniBand card (PCIe and OCP), that is 100G or more, cannot be selected.
- 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.
- If 256GB Memory is selected, will be limited using 7x performance fan or CLC fan (not allow standard fan), and limit at 25C.

Core Options

Registered DIMMs DDR5 (RDIMMs)

HPE DX 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart FIO Memory Kit	P62601-B21
HPE DX 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart FIO Memory Kit	P62603-B21
HPE DX 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart FIO Memory Kit	P62604-B21
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
HPE 96GB (1x96GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit	P64708-B21

Notes: If 256GB DIMM is selected, then high speed Networking/InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.

HPE DIMM blanks

HPE DDR4 DIMM Blank Kit	P07818-B21

Notes: Required, embedded and shipped as default in all CTO Servers. Leverage the same from, DL360 Gen10 Plus DIMM Blank.

Storage Devices

Hardware Storage Controller

HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21

SSD – Read Intensive (max 8)

Read Intensive - 12G SAS - SFF - Solid State Drives

HPE DX 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor FIO SSD	P56767-B21
HPE DX 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor FIO SSD	P56763-B21
HPE DX 3.84TB SAS 24G Read Intensive SFF BC PM1653 FIO SSD	P56759-B21

Read Intensive - 24G SAS - SFF - Solid State Drives

HPE DX 3.84TB SAS Read Intensive SFF BC Multi Vendor FIO SSD	P75500-B21

Read Intensive - 6G SATA - SFF - Solid State Drives

HPE DX 3.84TB SATA 6G Read Intensive SFF BC S4520 FIO SSD	P60322-B21
HPE DX 3.84TB SATA 6G Read Intensive SFF BC PM893 FIO SSD	P56743-B21
HPE DX 1.92TB SATA 6G Read Intensive SFF BC S4520 FIO SSD	P56749-B21
HPE DX 1.92TB SATA 6G Read Intensive SFF BC PM893 FIO SSD	P56739-B21
HPE DX 1.92TB SATA Read Intensive SFF BC PM893a SSD	P75488-B21
HPE DX 3.84TB SATA Read Intensive SFF BC PM893a SSD	P75482-B21
HPE DX 1.92TB SATA Read Intensive SFF BC PM893a FIO SSD	P75486-B21
HPE DX 3.84TB SATA Read Intensive SFF BC PM893a FIO SSD	P75480-B21

SSD – Mixed Use (max 8)

Mixed Use - 24G SAS - SFF - Solid State Drives

HPE DX 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor FIO SSD	P57601-B21
HPE DX 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor FIO SSD	P57589-B21

Core Options

Mixed Use - 6G SATA - SFF - Solid State Drives

HPE DX 1.92TB SATA 6G Mixed Use SFF BC PM897 FIO SSD	P56731-B21
HPE DX 1.92TB SATA 6G Mixed Use SFF BC Samsung PM897a SSD	P75491-B21
HPE DX 1.92TB SATA 6G Mixed Use SFF BC Samsung PM897a FIO SSD	P75489-B21

NVMe – SSD – Read Intensive (max 10)

Read Intensive - NVMe - SFF - Solid State Drives

HPE DX 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a FIO SSD	P57771-B21
HPE DX 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a FIO SSD	P57769-B21
HPE DX 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor FIO SSD	P57759-B21
HPE DX 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a FIO SSD	P57767-B21
HPE DX 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor FIO SSD	P57758-B21
HPE DX 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a FIO SSD	P57765-B21
HPE DX 1.9TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor FIO SSD	P57757-B21

NVMe – SSD Mixed Use (max 10)

Mixed Use - NVMe - SFF - Solid State Drives

HPE DX 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a FIO SSD	P57764-B21
HPE DX 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a FIO SSD	P57762-B21

Factory Configuration Settings

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

iLO Common Password - Standard

HPE iLO Common Password FIO Setting	P08040-B21

Notes:

- It is advisable to match the order quantity of this SKU matching the quantity of servers being ordered.
- Below Warning message to be displayed in the configurators upon the selection of this SKU:
- "Use of iLO Common Password SKU sets the initial iLO password to be a well-known string rather than a random password. It is advisable to match the order quantity of this SKU matching the quantity of servers being ordered."
- HPE highly recommends changing this password immediately after the initial onboarding process.
- Customers who want to choose their own custom iLO default password should use the HPE Factory Express Integration Services.

Riser Cards

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

- Slot 1 - 1x PCIe 5.0 x16 FHHL.
- Slot 2 - 1x PCIe 5.0 x16 LP.

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

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 DX360 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 DX360 Gen11 x16 LP Riser Kit	N/A	O	N/A	N/A	x16	Y[2]	N/A	N/A	N/A

Notes:

- D = Default on server; O = Optional; N = not supported or slot/connector not present.
- Quantity of Processor and Quantity of Heatsink must match.
- [1]When secondary full height kit is installed, then primary PCIe Slot 2 cannot be used. Only 2 full height slots are supported.
- [2]GPU max 75W.
- If Secondary riser is selected, then 2 Processor must be selected.
- If secondary riser is not selected and "NS204i-u Rear Cbl Kit" is not selected, then maximum 2 quantity of PCIe cards can selected.
- If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can selected.
- If secondary riser is not selected and "NS204i-u Rear Cbl Kit" is selected, then maximum 1 quantity of PCIe cards can selected.
- If Secondary FH riser is selected, then maximum 2 quantity of PCIe cards can be selected.
- If Secondary LP riser is selected and "NS204i-u Rear Cbl Kit" is not selected, then maximum 3 quantity of PCIe cards can selected.
- If Secondary LP riser and "NS204i-u Rear Cbl Kit" are selected, then maximum 2 quantity of PCIe cards can selected.
- 4 ports base-T Low Profile NIC adpaters are not allowed to be installed at Slot 2 (P51178-B21, P21106-B21)
- All DX360 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.

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**		**Slot 3**
Bus Width	x16	N/A	x16
Form Factor	FHHL		FHHL
PCIe adapter	**Slot Priority**		
-PCIe x16	1		2
-PCIe x8	1	N/A	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**	**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	N/A

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

Core Options

Priority from Card Types	
Priority	**Description & Rules**
2	4-Port Networking PCIe Adapter (restricted in Slot 2)
4	GPGPU Adapters
5	Others

OS Boot Device - Standard

HPE DX NS204i-u Gen11 NVMe Hot Plug Boot Optimized FIO Storage Device	P60454-B21
HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit	P48920-B21
HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit	P54702-B21

DX360 Gen11 NS204i-u Enablement Kit Support Matrix				
Enablement Kit	**Description**	**Field Inst.**	**NS204i-u Location**	**Hot-plug Capability**
P54702-B21	HPE ProLiant DX360 Gen11 NS204i-u Rear Cable Kit	Yes	PCIe Slot 2[2]	Yes
P48920-B21	HPE ProLiant DX360 Gen11 NS204i-u Internal Cable Kit	Yes	Internal	N/A

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 DX360 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 DX360 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 Secondary FH riser is selected, then "NS204i-u Rear Cbl Kit" cannot be selected.
- If 2SFF U.3 drive cage is connected to Direct Attach (without internal controller & 2SFF controller cable), then SATA drive cannot be selected in 2SFF drive cage when "NS204i-u Gen11 Hot Plug Boot Opt Dev" is selected.
- For additional information, please see the HPE OS Boot Device QuickSpecs

Networking

The thermal conditions variate as a combination of types of Networking PCIe OR OCP adapter in different DX360 Gen11 CTO Servers. In general:

- Standard Fan Kit cannot be selected when above 100GbE.
- 256GB 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 (AOC) cable and Active Optical Cable (DAC).

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

Default settings in 8SFF 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 need 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. Customers are allowed to remove if OCP NIC is not selected but need to be replaced by a PCIe standup NIC. Meanwhile, the “CPU2 to OCP2 x8 Enablement Kit” will be removed.

Ethernet PCIe

Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 FIO Adapter for HPE DX P43273-B21

Notes:

- If 256GB 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/ LP
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- Minimum "1" capacity is not applicable when MLX MCX623106A 100G 2p QSFP56 FIO Adp DX Networking card is in the configuration. Minimum OCP can be 0 in this scenario.

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T FIO Adapter for HPE DX P43271-B21

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

DX BCM 57414 10/25GbE 2p SFP28 FIO Adapter P53862-B21

Notes: PCIe 4.0 x16// HH/ HL/ LP.

Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 FIO Adapter for HPE DX P60340-B21

Notes: PCIe 4.0 x8// HH/ HL/ LP.

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

Notes: PCIe 4.0 x8// HH/ HL/ LP.

Ethernet OCP

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 FIO Adapter for HPE DX P43272-B21

Notes: Minimum "1" capacity is not applicable when MLX MCX623106A 100G 2p QSFP56 FIO Adp DX Networking card is in the configuration. Minimum OCP can be 0 in this scenario.

Core Options

DXBCM 57414 10/25G 2p SFP28 OCP3 FIO Adp P53861-B21

Notes: Minimum "1" capacity is not applicable when MLX MCX623106A 100G 2p QSFP56 FIO Adp DX Networking card is in the configuration. Minimum OCP can be 0 in this scenario.

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

Notes:

– 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 below restrictions:
  - OCP Slot 2 is the default OCP networking slot with the Share NIC & Wake-on-Lane 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 FIO Adapter for HPE DX P60339-B21

Notes: Minimum "1" capacity is not applicable when MLX MCX623106A 100G 2p QSFP56 FIO Adp DX Networking card is in the configuration. Minimum OCP can be 0 in this scenario.

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

Notes: Minimum "1" capacity is not applicable when MLX MCX623106A 100G 2p QSFP56 FIO Adp DX Networking card is in the configuration. Minimum OCP can be 0 in this scenario.

OCP 3.0 Adapters

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

Notes: Minimum "1" capacity is not applicable when MLX MCX623106A 100G 2p QSFP56 FIO Adp DX Networking card is in the configuration. Minimum OCP can be 0 in this scenario.

Power and Cooling

Power Supplies

Please select one or two power supplies from below.

Notes: Mixing of 2 different power supplies is NOT supported.

HPE DX 1600W Flex Slot Platinum Hot Plug Low Halogen FIO Power Supply Kit P18222-B21

HPE DX 800W Flex Slot Platinum Hot Plug Low Halogen FIO Power Supply Kit P18223-B21

HPE DX 800W Flex Slot Titanium Hot Plug Low Halogen FIO Power Supply Kit P18224-B21

HPE DX 1000W Flex Slot Titanium Hot Plug FIO Power Supply Kit P44807-B21

HPE DX 1800-2200W FS Ti HtPlg FIO PS Kit P56724-B21

HPE DX 1600W Flex Slot -48VDC Hot Plug FIO Power Supply Kit P60246-B21

Notes:

For EMEA Region: Commission Regulation (EU) 2019/424 laying down ecodesign requirements for servers and data-storage products applies from 1 March 2020. A more stringent (compared to the currently applicable values) value for the minimum power efficiency at 96% of PSUs will apply latest from, 1 January 2024, after defferal. For more details, please refer to Lot9 enforcement deferral notice “European Union law Document 52022XC1209 (01)”
Only supports high line voltage (200 VAC to 240 VAC).

Core Options

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 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. If a different power cord is required, please check the HPE ProLiant Power Cables web page.

For information on power specifications and technical content visit HPE Power Supplies page.

Power Cooling Options

Heatsinks

HPE ProLiant DX360 Gen11 High Performance FIO Heat Sink Kit P62372-B21

Notes:

- If Processor Wattage is eaqual to or greater than 186W and less than or equal to 270W, then "Performance Heatsink" and "Performance Fan" must be selected.
- Quantity of Processor and Quantity of Heatsink must match.
- If Liquid Cooling HeatSink is selected, then "High Perf Heat Sink" cannot be selected.

Fan Kits - Standard

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

Notes: Includes 7 fans, required by Two processors with a TDP equal or greater than 186W and below 270Watt.

Security Options

Serurity Hardware

HPE Bezel Lock Kit 875519-B21

Notes:

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

HPE ProLiant DL3XX Gen11 Intrusion Cable Kit P48922-B21

Notes:

- Maximum 1 of each can be selected.
- If "HPE Trusted Supply Chain FIO Config" is selected then "Gen11 Intrusion Cable Kit" must be selected.
- If HPE Trusted Supply Chain FIO Config is selected, then Configurator should default "Gen11 Intrusion Cable Kit".

Core Options

HPE ProLiant Gen11 1U Common Bezel Kit P50450-B21

Notes:

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

Software as a Service Management

Accessories

HPE Remove Standard Power Cords 469774-409

Notes: If "Remove Standard IEC-IEC Power Cords" is selected, then the following Warning message should be displayed: By selecting this option, you will not receive standard power cords with this server. Please verify that no power cords are needed for this server prior to proceeding with your order. If “Remove Standard Power Cords” is selected by mistake, then please make sure to de-select it.

Rack Options

HPE ProLiant DX Gen11 Easy Install FIO Rail 3 Kit P62374-B21

HPE ProLiant DX3XX Gen11 1U FIO Cable Management Arm for Rail Kit P60633-B21

Notes:

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

Additional Options

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

Embedded Management

Software Skus

Nutanix AOS FIO SW for HPE	R6T15A

HPE Support Services

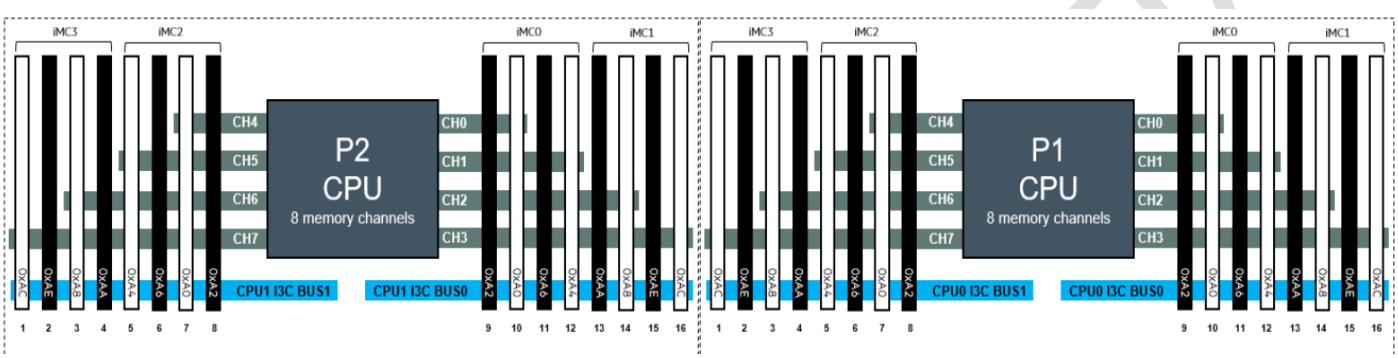
Installation & Start-up Services

Tech Care

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 Population guidelines



Front End / HPE ProLiant DX360 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 can not 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 can not 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.

General Memory Population Rules and Guidelines

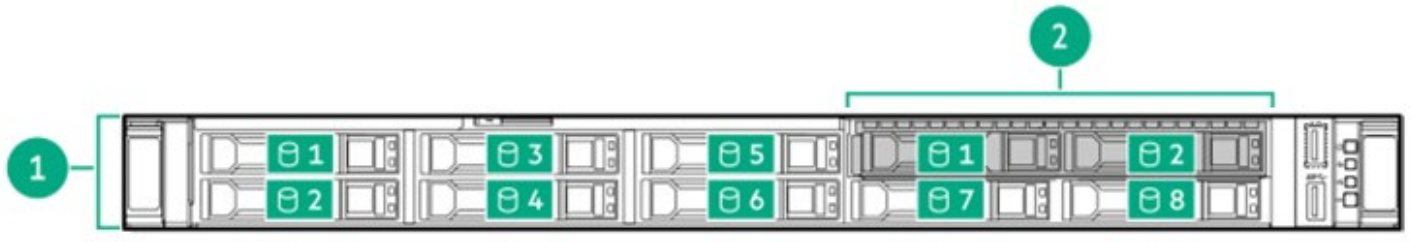
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two-processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors 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, the number and model of installed processors qualified on the platform.

Memory

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

Notes: The maximum memory speed is a function of the memory type, memory configuration, and processor model.

Storage



8 SFF + 2 SFF (optional) device bay numbering

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.

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:** 10 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.

Input Requirements (per power supply)

Rated Line Voltage

- For 1600W (Platinum): 200-240 VAC.
- For 1000W (Titanium): 100-240 VAC.
- 800W (Platinum): 100-240 VAC.

British Thermal Unit (BTU) Rating

Maximum

- 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).

Power Supply Output (per power supply)

Rated Steady-State Power

- 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.

Maximum Peak Power

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

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

System Inlet Temperature

- **Standard Operating Support**

  10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. 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.

  The approved hardware configurations for this system are listed at the URL:
  http://www.hpe.com/servers/ashrae

- **Extended Ambient Operating Support**

  For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft).

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

The approved hardware configurations for this system 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.

Notes: Configuration with Nvidia A2 GPU would be addressed specifically as below.

- **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=c03471072

Acoustic Noise

Listed are the declared mean A-Weighted sound power levels (LWA,m), declared average bystander position A-Weighted sound pressure levels (LpAm), and the statistical adder for verification (Kv) is a quantity to be added to the declared mean A-weighted sound power level. LWA,m when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.

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 European Union Waste Electrical and Electronic Equipment Directive [EU WEEE] (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard Enterprise 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
21-Sep-2026	Version 13	Changed	Service and Support section was updated.
13-Jul-2026	Version 12	Changed	Core Options section was updated.
		Removed	Read Intensive - 24G SAS - SFF - Solid State Drives obsolete SKUs.
06-Apr-2026	Version 11	Changed	Service and Support and Configuration Information sections were updated.
		Added	Updated GreenLake statement.
		Removed	Registered DIMMs DDR5 (RDIMMs) obsolete SKUs.
09-Feb-2026	Version 10	Changed	Configuration Information section was updated.
27-May-2025	Version 9	Changed	Standard Features, Core Options and Additional Options sections were updated. Added: 5th Generation Intel® Xeon® Scalable Processor Family (Platinum), 5th Generation Intel® Xeon® Scalable Processor Family (Gold 6), Ethernet PCIe SKUs. Removed: OBS HPE iLO Advanced - Standard SKU.
02-Dec-2024	Version 8	Changed	Core Options section was updated. (HDD SUKs were removed from storage devices).
21-Oct-2024	Version 7	Changed	Core Options section was updated. (New SKUs for memories, procesors and SSDs were added)
16-Sep-2024	Version 6	Changed	Standard Features (Operating Systems and Virtualization Software Support for HPE Servers) section was updated.
03-Sep-2024	Version 5	Changed	Core Options Section was updated. (New capacity configuration for adps)
15-Jul-2024	Version 4	Changed	Overview and Standard Features sections were updated.
01-Jul-2024	Version 3	Changed	Standard Features and Core Options sections were updated.
11-Mar-2024	Version 2	Changed	Overview, Standard Features, Configuration Information, and Core Options sections were updated.
05-Jun-2023	Version 1	New	New QuickSpecs.

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