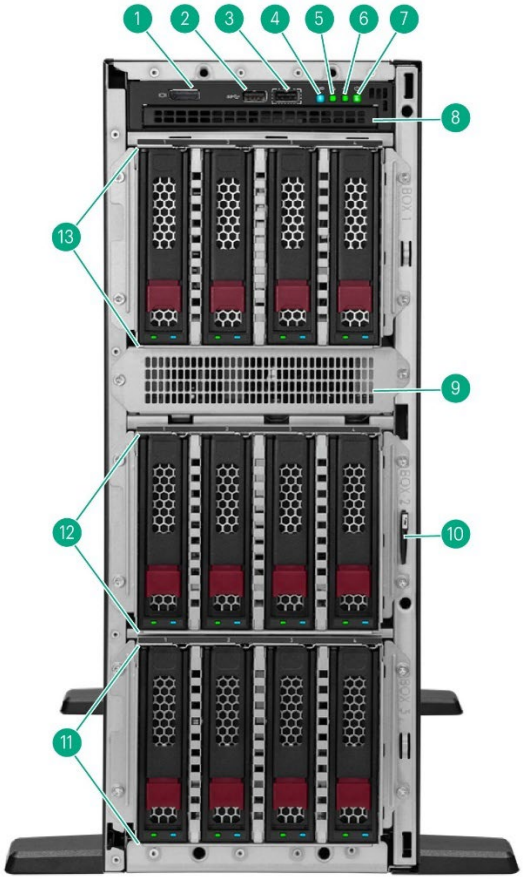
Have feedback on QuickSpecs? We're listening

HPE ProLiant ML350 Gen11 QuickSpecs

Offers the most powerful and flexible 2P tower server with a rackable chassis design for various environments, delivering exceptional compute performance, security, reliability, and expandability.

Designed to fulfill a wide range of workloads for small offices, remote and branch offices of large enterprises, growing SMBs, and data centers. HPE ProLiant ML350 Gen11 server is an excellent choice to accelerate your growing business.

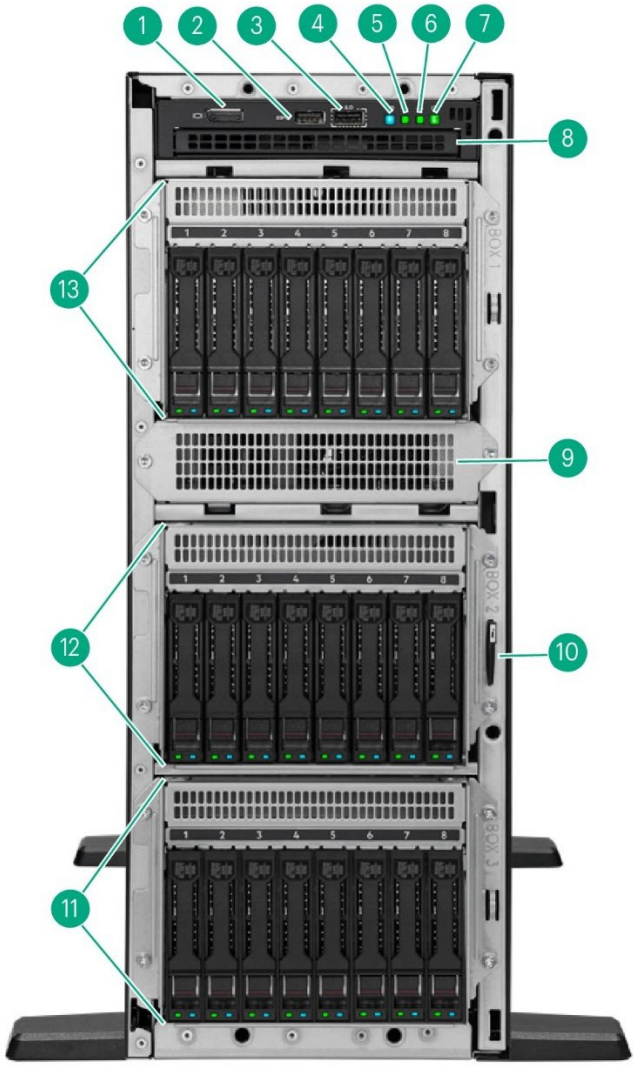
HPE ProLiant ML350 Gen11



Front View – LFF chassis with optional Gen11 4LFF HDD Cage Kits shown (Tower mode)

Item	Description	Item	Description
1.	DisplayPort 1.1a	8.	Optical drive bay
2.	USB 3.2 Gen1 port	9.	Media bay filler panel
3.	iLO service port	10.	Serial number/iLO information pull tab
4.	UID button/LED	11.	Box 3: Default drive cage for 4LFF
5.	NIC status LED[1]	12.	Box 2: Optional drive cage for 8SFF/4LFF
6.	Health LED	13.	Box 1: Optional drive cage for 8SFF/4LFF, or internal LTO tape drive
7.	Power on/Standby button and system power LED		

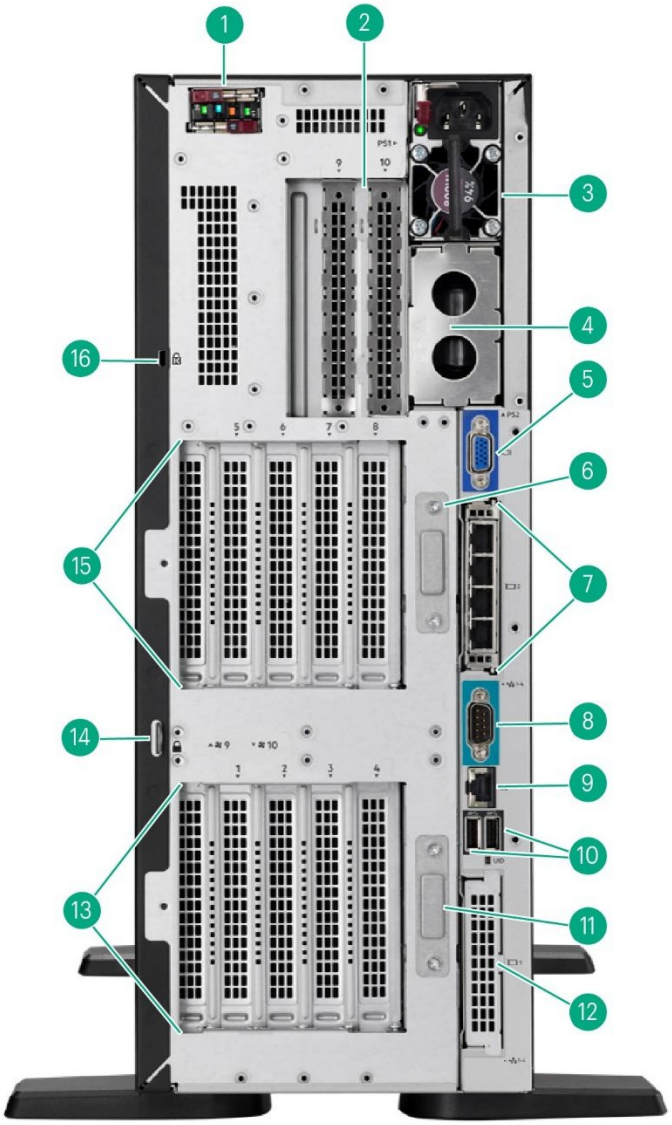
Notes:[1] Front NIC LED display does not support NIC LED ACT/LINK indication from ALOM/PCIE/FLOM NICs.



Front View – SFF chassis with optional Gen11 8SFF HDD Cage Kits shown (Tower mode)

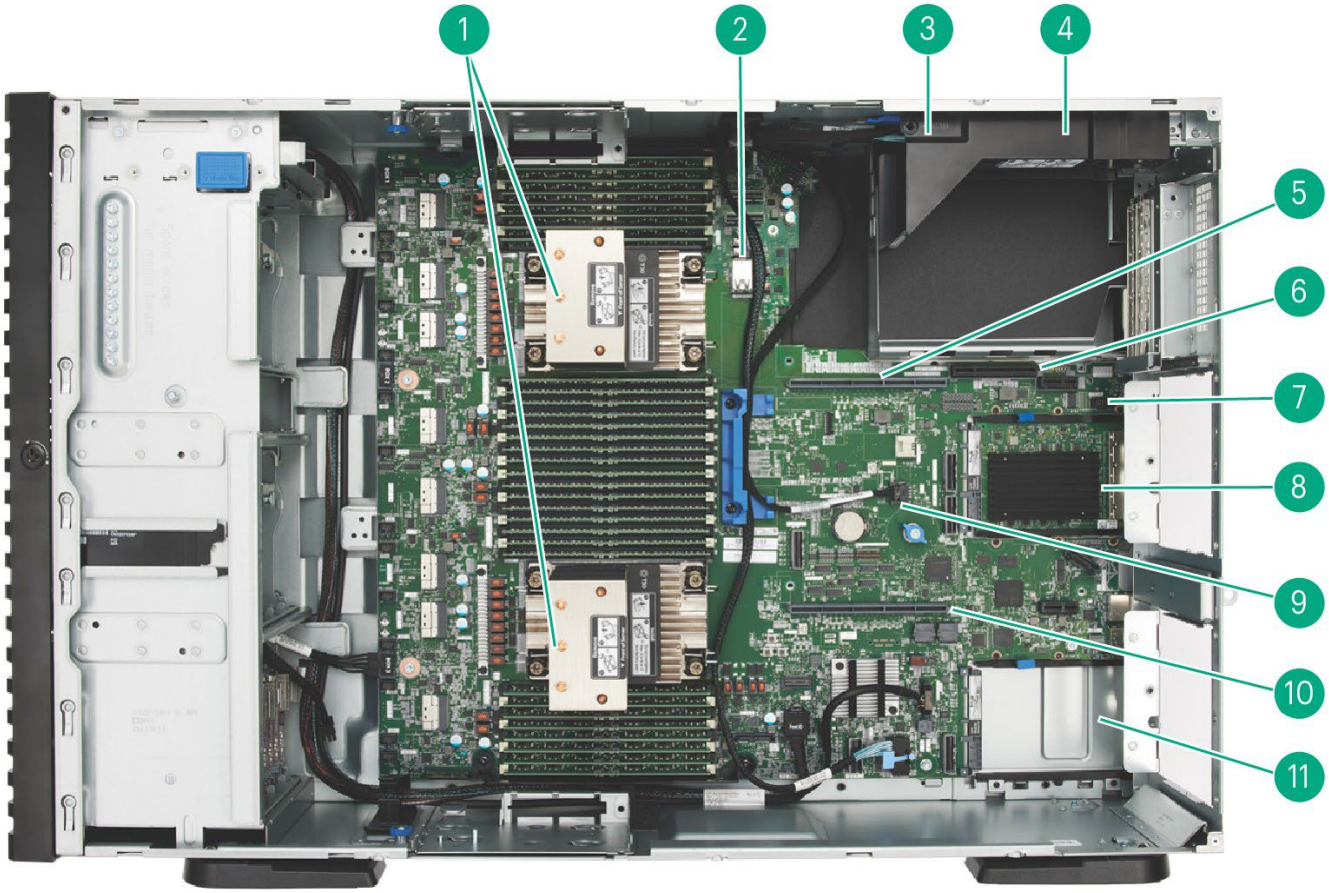
Item	Description	Item	Description
1.	DisplayPort 1.1a	8.	Optical drive bay
2.	USB 3.2 Gen1 port	9.	Media bay filler panel
3.	iLO service port	10.	Serial number/iLO information pull tab
4.	UID button/LED	11.	Box 3: Default drive cage for 8SFF*
5.	NIC status LED	12.	Box 2: Optional drive cage for 8SFF
6.	Health LED	13.	Box 1: Optional drive cage for 8SFF, or internal LTO tape drive
7.	Power on/Standby button and system power LED		

Notes: *Optional for 8SFF x4 U.3 drive kit or 12 EDSFF drive kit.



Rear View – With HPE Flex Slot RPS shown.

Item	Description	Item	Description
1.	HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device (Optional)	9.	iLO management port
2.	PCIe Slots 9-10 (Optional tertiary riser, 2nd processor required for expansion card installation)	10.	USB 3.2 Gen 1 ports x2
3.	Flexible Slot power supply 1	11.	External Fan connector 10
4.	Flexible Slot power supply 2 (Optional)	12.	Slot 14 OCP 1 (Optional for OROC/NIC adapter)
5.	VGA Port	13.	PCIe Slots 1-4 (Primary riser)
6.	External Fan connector 9	14.	Padlock eye
7.	Slot 15 OCP 2 (Optional for NIC adapter)	15.	PCIe Slots 5-8 (Secondary riser)
8.	Serial port (Optional)	16.	Kensington slot



Internal View – with optional 2nd CPU, OCP NIC adapter and NS204i-u shown

Item	Description	Item	Description
1.	CPU Socket 1[1] and 2[2]	7.	Serial port cable connector
2.	Dual USB port (Stacked, Top: USB 3.2 Gen 1 port, Bottom: USB 2.0 port)	8.	Slot 15 OCP 2 (Optional for NIC adapter)
3.	Megacell battery holder (Under)	9.	HPE NS204i-u power connector
4.	HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device (Optional)	10.	Primary riser connector
5.	Secondary riser connector	11.	Slot 14 OCP 1 (Optional for OROC/NIC adapter)
6.	Tertiary riser sideband connector		

Notes:

– [1] CPU1 (bottom) shown Standard Heatsink with fully memory populated in 16 slots (32 slots in total).

– [2] CPU2 (top) shown Standard Heatsink with fully memory populated in 16 slots (32 slots in total).

What's New

- Powered by 4th Generation Intel® Xeon® Scalable processors that support up to 60 cores at 350 W, 112.5 MB of L3 Cache, and 32 DIMMs for DDR5 memory up to 4800 MT/s.
- Increased memory bandwidth, performance and lower power requirements with DDR5 memory that supports up to 8 TB memory capacity with 8 channels per processor.
- Advanced data transfer rates from the PCIe Gen5 serial expansion bus.
- Includes HPE Integrated Lights-Out 6 (iLO 6) server management software that enables you to securely configure, monitor, and update your HPE ProLiant Gen11 servers seamlessly from anywhere.
- Supports Tri-mode SFF backplane and hot-pluggable RAID1 protected NS204i-u M.2 NVMe boot option.
- New x4 U.3 NVMe drive cage and EDSFF drive cage to support up to 12 EDSFF PCIe Gen5 NVMe drives.
- Supports NVIDIA L40 48 GB PCIe Accelerator.
- Supports L4 and A16 NVIDIA Accelerators.
- Supports 1800W-2200W Flex Slot Titanium Hot Plug Power Supply.
- Supports 5th Generation Intel® Xeon® Scalable processors that support up to 64 cores at 350W/330W TDP, 320 MB Cache.
- Supports DDR5 5600 MT/s memory 16, 32, 64, 96, 128 GB DIMM modules with 5th Gen Intel® Xeon® Scalable processors.
- New pre-configured SKUs with 5th Generation Intel® Xeon® Scalable processors.
- Supports 24TB SAS/SATA 7.2K LFF LP HDDs.
- Supports internal LTO tape drive.
- Supports HPE MR408i-p Gen11 x8 Lanes 4 GB Cache PCI SPDM Plug-in Storage Controller
- Supports new HPE NS204i-u v2 960GB NVMe Hot Plug Boot Optimized Storage Device and HPE NS204i-u v2 960GB NVMe SED Hot Plug Boot Optimized Storage Device
- Supports NVIDIA L40S 48 GB PCIe Accelerator, new 15.36 TB NVMe drives.
- Supports new 26 TB 7.2K SAS and SATA LFF drives.

Platform Information

Form Factor

- 4U tower with rack conversion capability

Notes: When deployed as a Rack model, this system will take up 5U-height space in a standard data center rack facility.

Chassis Types

- 8 SFF chassis with optional Tri-mode SFF cage kit (s), x4 NVMe SFF cage kit, 12 EDSFF cage kit, internal LTO tape drive and 1 slim-line DVD bay kit options.
- 4 LFF chassis with optional LFF or SFF cage kit (s), internal LTO tape drive and 1 slim-line DVD bay kit options.

Notes:

- Mixed SFF and LFF drive cages are supported with the LFF chassis, up to three drive cages.
- internal LTO tape drive supported up to 1.
- U.3 x4 NVMe 8SFF and 12 EDSFF drive cage kit are supported with SFF CTO server only, up to one drive cage.

System Fans

- Standard – 3 fans included.

Notes:

- Base models typically ship with 3 standard fans as default with every ML350 Gen11 server operation.
- Performance models typically ship with 8 standard fans which provides N+1 redundant fan feature in most situations. For support details or restrictions, refer to ML350 Gen11 User Guide.
- Optional Redundant Fan Kit (P47219-B21), Second CPU Fan Kit (P47902-B21) and External GPU Fan Kit (P47220-B21) provide advanced cooling and redundancy functionality in heavier configurations. Configurations that require fan kit are provided in later sections.

Processors

Up to 2 of the following processors, depending on model.

Notes:

- For more information regarding Intel® Xeon® processors, refer to the following: https://www.intel.com/content/www/us/en/products/details/processors/xeon/scalable.html.
- Field upgrade from 4th generation processors (x4xx) to 5th generation processors (x5xx) is not supported.

Intel® Xeon® Scalable Processors – Naming Decoder		
Processor Suffix	**Description**	**Offering**
P	Cloud – IaaS	Processor specifications optimized for IaaS cloud environments such as orchestration efficiency in high-frequency VM environments.
V	Cloud – SaaS	Processors' specifications optimized for SaaS cloud environments.
M	Media Transcode	Processor specifications optimized for AI and media processing workloads.
H	DB and Analytics	Database and Analytics up to 4S and 8S depending on SKU
N	Network/5G/Edge (High TPT/Low Latency)	Network/5G/Edge. (High TPT /Low Latency) Processor specifications optimized for communications/networking/NFV (Network Function(s) Virtualization) workloads and operating environments.
S	Storage and HCI	Storage-optimized SKU with full accelerators enabled (DSA, QAT, DLB)
T	Long-life Use/High Tcase	Support for up to 10-year reliability and support for higher Tcase. These SKUs are often used in operating environments with long-life use requirements and require Network Equipment Building System (NEBS)–Thermal friendly specification support.
U	1-Socket Optimized*	Supported in one-socket configurations only.
Q	Liquid cooling	Lower Tcase SKUs, targeted towards liquid cooling
+	Feature +	Feature plus (+) SKU contains 1 of each accelerator enabled (DSA, DLB, QAT, IAA)

Intel® Fourth Generation Xeon® Scalable Processors							
Intel® Xeon® Models	**CPU Frequency**	**Cores**	**L3 Cache**	**TDP**	**UPI (16 GT/s)**	**DDR5**	**SGX Enclave size**
Platinum Processors							
Platinum 8490H Processor	1.9 GHz	60	112.5 MB	350W	4	4800 MT/s	512 GB
Platinum 8480+ Processor	2.0 GHz	56	105 MB	350W	4	4800 MT/s	512 GB
Platinum 8470N Processor	1.7 GHz	52	97.5 MB	300W	3	4800 MT/s	128 GB
Platinum 8470 Processor	2.0 GHz	52	105 MB	350W	4	4800 MT/s	512 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 8458P Processor	2.7 GHz	44	82.5 MB	350W	3	4800 MT/s	512 GB
Platinum 8460Y+ Processor	2.0 GHz	40	105 MB	300W	4	4800 MT/s	128 GB
Platinum 8452Y Processor	2.0 GHz	36	67.5 MB	300W	4	4800 MT/s	128 GB
Platinum 8444H Processor	2.9 GHz	16	45 MB	270W	4	4800 MT/s	512 GB
Gold Processors							
Gold 6448H Processor	2.4 GHz	32	60 MB	250W	3	4800 MT/s	512 GB
Gold 6454S Processor	2.2 GHz	32	60 MB	270W	4	4800 MT/s	128 GB
Gold 6448Y Processor	2.1 GHz	32	60 MB	225W	3	4800 MT/s	128 GB
Gold 6430 Processor	2.1 GHz	32	60 MB	270W	3	4400 MT/s	128 GB
Gold 6438N Processor	2.0 GHz	32	60 MB	205W	3	4800 MT/s	128 GB
Gold 6438Y+ Processor	2.0 GHz	32	60 MB	205W	3	4800 MT/s	128 GB
Gold 6414U Processor*	2.0 GHz	32	60 MB	250W	N/A	4800 MT/s	128 GB
Gold 6421N Processor*	1.8 GHz	32	60 MB	185W	N/A	4400 MT/s	128 GB
Gold 6442Y Processor	2.6 GHz	24	60 MB	225W	3	4800 MT/s	128 GB
Gold 6418H Processor	2.1 GHz	24	60 MB	185W	3	4800 MT/s	512 GB
Gold 6416H Processor	2.2 GHz	18	45 MB	165W	3	4800 MT/s	512 GB
Gold 6426Y Processor	2.5 GHz	16	37.5 MB	185W	3	4800 MT/s	128 GB
Gold 6434 Processor	3.7 GHz	8	22.5 MB	195W	3	4800 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 MB	165W	3	4000 MT/s	128 GB
Gold 5418Y Processor	2.0 GHz	24	45 MB	185W	3	4400 MT/s	128 GB
Gold 5411N Processor*	1.9 GHz	24	45 MB	165W	N/A	4400 MT/s	128 GB
Gold 5416S Processor	2.0 GHz	16	30 MB	150W	3	4400 MT/s	128 GB
Gold 5415+ Processor	2.9 GHz	8	22.5 MB	150W	3	4400 MT/s	128 GB
Silver Processors							
Silver 4416+ Processor	2.0 GHz	20	37.5 MB	165W	2	4000 MT/s	64 GB
Silver 4410Y Processor	2.0 GHz	12	30 MB	150W	2	4000 MT/s	64 GB
Bronze Processors							
Bronze 3408U Processor*	1.8 GHz	8	22.5 MB	125W	N/A	4000 MT/s	64 GB

Intel® Fifth Generation Xeon® Scalable Processors							
Intel® Xeon® Models	**CPU Frequency**	**Cores**	**L3 Cache**	**TDP**	**UPI (16 GT/s)**	**DDR5**	**SGX Enclave size**
Platinum Processors							
Platinum 8592+ Processor	1.9 GHz	64	320 MB	350W	4	5600 MT/s	512 GB
Platinum 8592V Processor	2.0 GHz	64	320 MB	330W	3	4800 MT/s	512 GB
Platinum 8580 Processor	2.0 GHz	60	300 MB	350W	4	5600 MT/s	512 GB
Platinum 8581V Processor*	2.0 GHz	60	300 MB	270W	N/A	4800 MT/s	512 GB
Platinum 8570 Processor	2.1 GHz	56	300 MB	350W	4	5600 MT/s	512 GB
Platinum 8568Y+ Processor	2.3 GHz	48	300 MB	350W	4	5600 MT/s	512 GB
Platinum 8558 Processor	2.1 GHz	48	260 MB	330W	4	5200 MT/s	512 GB
Platinum 8558U Processor*	2.0 GHz	48	260 MB	300W	N/A	4800 MT/s	512 GB
Platinum 8558P Processor	2.7 GHz	48	260 MB	350W	3	5600 MT/s	512 GB
Gold Processors							
Gold 6554S Processor	2.2 GHz	36	180 MB	270W	4	5200 MT/s	128 GB
Gold 6530 Processor	2.1 GHz	32	160 MB	270W	3	4800 MT/s	128 GB
Gold 6548Y+ Processor	2.5 GHz	32	60 MB	250W	3	5200 MT/s	128 GB
Gold 6548N Processor	2.8 GHz	32	60 MB	250W	3	5200 MT/s	128 GB
Gold 6538Y+ Processor	2.2 GHz	32	60 MB	225W	3	5200 MT/s	128 GB
Gold 6538N Processor	2.1 GHz	32	60 MB	205W	3	5200 MT/s	128 GB
Gold 6542Y Processor	2.9 GHz	24	60 MB	250W	3	5200 MT/s	128 GB
Gold 6526Y Processor	2.8 GHz	16	37.5 MB	195W	3	5200 MT/s	128 GB
Gold 6534 Processor	3.9 GHz	8	22.5 MB	195W	3	4800 MT/s	128 GB
Gold 5520+ Processor	2.2 GHz	28	52.5 MB	205W	3	4800 MT/s	128 GB
Gold 5515+ Processor	3.2 GHz	8	22.5 MB	165W	3	4800 MT/s	128 GB
Silver Processors							
Silver 4516Y+ Processor	2.2 GHz	24	45 MB	185W	2	4400 MT/s	64 GB
Silver 4514Y Processor	2.0 GHz	16	30 MB	150W	2	4400 MT/s	64 GB
Silver 4510 Processor	2.4 GHz	12	30 MB	150W	2	4400 MT/s	64 GB
Silver 4509Y Processor	2.6 GHz	8	22.5 MB	125W	2	4400 MT/s	64 GB
Bronze Processors							
Bronze 3508U Processor*	2.1 GHz	8	22.5 MB	125W	N/A	4400 MT/s	64 GB

Notes:

- 80 PCIe 5.0 lanes per processor.
- * "U" processors (i.e. 6414U, 3408U, 3508U), 6421N, 5411N, 8581V and 8558U are only supported in single socket configuration.
- Bronze Processors (3408U and 3508U) are supported up to PCIe Gen4.
- Processors with TDP equal to or greater than 195W require Performance Heatsink (P47224-B21).
- Processors with TDP equal to or greater than 300W require both Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- DDR5 memory speed is the maximum memory speed supported by the processor. Actual maximum memory speed is a function of the memory type, memory configuration, and processor model.
- Intel® VROC NVMe feature is not supported with 4510, 4509Y and 3508U processors.

Chipset

Intel® C741 Chipset

Notes: For more information regarding Intel® chipsets, refer to 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

One of the following depending on model.

Type	HPE DDR5 Smart Memory, Registered (RDIMM)
DIMM Slots Available	32 DIMM slots 16 DIMM slots per processor, 8 channels per processor, 2 DIMMs per channel
Maximum capacity (RDIMM)	8.0 TB 32 x 256 GB RDIMM @ 4400MT/s at 2 DPC with 4th Gen Intel® Processors and DDR5 4800 DIMMs 8.0 TB 32 x 256 GB RDIMM @ 4400 MT/s at 2 DPC with 5th Gen Intel® Processors and DDR5 5600 DIMMs

Notes:

- Actual maximum memory speed is a function of the memory type, memory configuration, and processor model.
- For additional information, refer to the HPE DDR5 Smart Memory QuickSpecs.
- For General Server Memory and Persistent Memory Population Rules and Guidelines for Gen11 see details here: http://www.hpe.com/docs/memory-population-rules

Memory Protection

Advanced ECC

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

Expansion Slots

Primary Riser

Notes:

- Bus width indicates the number of physical electrical lanes running to the connector.
- There are two Primary riser configurations:
  - Default with 4x8 Primary Riser Kit provides 4 slots with PCIe Gen5 x8 on Slot1-4.
  - Optional 2x16 Primary FIO Riser Kit provides 2 slots with PCIe Gen5 x16 on Slot2 and 4.

Primary Riser 4x8					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
1	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot
2	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot
3	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot
4	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot

Primary Riser 2x16					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
2	CPU 1	PCIe 5.0	X16	X16	Full-height, full-length slot
4	CPU 1	PCIe 5.0	X16	X16	Full-height, full-length slot

Secondary Riser

Notes:

- Bus width indicates the number of physical electrical lanes running to the connector.
- There are two Secondary riser configurations as options:
  - 4x8 Secondary Riser Kit provides 4 slots with PCIe Gen5 x8 on Slot5-8.
  - 2x16 Secondary Riser Kit provides 2 slots with PCIe Gen5 x16 on Slot6 & 8.

Secondary Riser 4x8					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
5	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot
6	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot
7	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot
8	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot

Secondary Riser 2x16					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
6	CPU 2	PCIe 5.0	X16	X16	Full-height, full-length slot
8	CPU 2	PCIe 5.0	X16	X16	Full-height, full-length slot

Tertiary Riser

Notes:

- Bus width indicates the number of physical electrical lanes running to the connector.
- Tertiary Riser Kit provides 2 slots with PCIe Gen5 x8 on Slot9 & 10.
- Two CPU 2 MCIO connectors will be occupied to support expansion card on the riser.
- 2x8 Tertiary Riser Kit provides 2 slots with PCIe Gen5 x8 on Slot9 & 10.

Tertiary Riser 2x8					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
9	CPU 2	PCIe 5.0	X8	X16	Half-height, Half-length slot
10	CPU 2	PCIe 5.0	X8	X16	Half-height, Half-length slot

Internal Storage Devices

- **Optical Drive**
  Available as an option (DVD-ROM or DVD-RW).
- **HDD/SSD**
  None shipped as standard.

Storage Controllers

NVMe Boot Devices

- HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device.

Hybrid RAID

Notes: Additional steps are required for OS installation with Intel® VROC, please refer to the link Intel Virtual RAID on CPU for HPE Gen11 User Guide - Installing OS on the Intel VROC RAID

Intel® VROC SATA for HPE ProLiant Gen11

Notes:

- All models feature embedded storage controllers that supports SATA RAID with up to 12 (4+4+4) LFF or 8SFF. Each LFF drive cages are separated drive groups, SFF drive cage also separates into two drive groups (Bay1-4 and Bay5-8).
- When NS204i-u is selected, embedded storage controller supports up to 8 (4+4) LFF or 8SFF drive bays.
- 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.
- 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

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.
- 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® Virtual RAID on CPU RAID 1 (S3Q19A/ S3Q39AAE) or Premium SKU for RAID 0/1/5/10 (R7J57A/ R7J59AAE) must be ordered to enable RAID support.
- Windows, Linux, VMware OS support.
- 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, there is no PCIe card support.
- Intel® VROC NVMe feature is not supported with 4510, 4509Y and 3508U processors.

Essential RAID Controllers

- HPE Smart Array E208e-p SR Gen10 Controller.

Tri-mode RAID Controllers

- HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller.
- HPE MR216i-p Gen11 x16 Lanes without Cache OCP SPDM Storage Controller.
- HPE MR408i-o Gen11 x8 Lanes 4 GB Cache OCP SPDM Storage Controller.
- HPE MR408i-p Gen11 x8 Lanes 4 GB Cache PCI SPDM Plug-in Storage Controller.
- HPE MR416i-o Gen11 x16 Lanes 8 GB Cache OCP SPDM Storage Controller.
- HPE MR416i-p Gen11 x16 Lanes 8 GB Cache OCP SPDM Storage Controller.
- HPE SR932i-p Gen11 x32 Lanes 8 GB Wide Cache PCI SPDM Plug-in Storage Controller.

Maximum Storage

Drive	Capacity	Configuration
Hot Plug LFF SAS HDD	312 TB	12 x26 TB
Hot Plug LFF SATA HDD	312 TB	12 x26 TB
Hot Plug LFF SAS SSD	11.52 TB	12 x960 GB
Hot Plug LFF SATA SSD	11.52 TB	12 x960 GB
Hot Plug SFF SAS HDD	57.6 TB	24 x2.4 TB
Hot Plug SFF SAS SSD	368.64 TB	24 x15.36 TB
Hot Plug SFF SATA SSD	184.32 TB	24 x7.68 TB
Hot Plug SFF NVMe SSD	368.64 TB	24 x15.36 TB
Hot Plug EDSFF NVMe SSD	183.6 TB	12 x15.3 TB
Hot Plug NVMe M.2 SSD	960 GB	2 x960 GB (With RAID1 protected NS204i-u boot options)

Graphics

Integrated Video Standard

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

HPE iLO 6 on system management memory

- 64 MB Flash.
- 8 Gbit DDR 4 with ECC protection.

Power Supply

- HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit.
  Notes: Available in 94%. Power Efficiency.
- HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit.
  Notes: Available in 94%. Power Efficiency.
- HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit.
  Notes: Available in 96%. Power Efficiency.
- HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit.
- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit.
  Notes:
  - Available in 94% Power Efficiency.
  - 200-240VAC power input only.
- HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply.
  Notes:
  - Available in 96% Power Efficiency.
  - 200-240VAC power input only.

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 use the HPE Power Advisor Tool.

For information on power specifications and technical content visit HPE Server power supplies

Interfaces	
Serial	Optional, rear
DisplayPort	1 standard, front
VGA Port	1 VGA Port standard, rear
Network Ports	None. Choice of OCP or stand-up card
HPE iLO Remote Management Network Port	1 Gb Dedicated, rear
Front iLO Service Port	1 standard, front
USB 3.2 Gen1	4 standard on all models: 1 front, 2 rear, 1 internal
USB 2.0	1 internal

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

HPE Server UEFI

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secure configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen11 servers have a UEFI Class 3 implementation.

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 enabled for enhanced security.
- Operating system specific functionality.
- Support for > 2.2 TB (using GPT) boot drives.
- USB 3.2 Gen1 Stack.
- Embedded UEFI Shell.
- Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant.
- PXE boot support for IPv6 networks.
- Workload Profiles for simple performance optimization.

UEFI Boot Mode only

- TPM 2.0 Support.
- NVMe Boot Support.
- iSCSI Software Initiator Support.
- HTTP/HTTPs Boot support as a PXE alternative.
- Boot support for option cards that only support a UEFI option ROM.

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

Industry Standard Compliance

- ACPI 6.1 Compliant.
- PCIe 5.0 Compliant.
- WOL Support.
- Microsoft® Logo certifications.
- Support for Microsoft Secure Code.
- PXE Support.
- VGA/DisplayPort.
- USB 3.2 Gen1 Compliant.
- USB 2.0 Compliant.
- OCP 3.0 SFF NIC Support.
- OCP 3.0 SFF Storage Support.
- Embedded TPM Support.
- ENERGY STAR®.
- SMBIOS 3.1.
- UEFI 2.7.
- UEFI Class 3 (Unified Extensible Firmware Interface Forum).
- Redfish API.
- IPMI 2.0.
- Advanced Encryption Standard (AES).
- Triple Data Encryption Standard (3DES).
- SNMP v3.
- TLS 1.2.
- DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP).
- DMTF Redfish support for SecureBoot Key Management.
- ACPI DSM Drive LED Management.
- Memory Page Retire Support.
- Retire old VMware Secure Boot Key.
- MCTP over PCIe multi-segment (EDKII for GenoaPI 0.0.9.0, HPE under verifying0).
- Synergy: I3C Engine.
- APML.
- Active Directory v1.0.
- ASHRAE A3/A4.

  Notes: For additional technical, thermal details regarding ambient temperature, humidity, and feature support, please visit https://www.hpe.com/support/ASHRAEGen11

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.

Intelligent Provisioning

Hassle-free server and OS provisioning for 1 or more servers with Intelligent Provisioning.
Learn more at http://www.hpe.com/servers/intelligentprovisioning

iLO RESTful API

iLO RESTful API is Redfish API conformant 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

HPE Compute Ops Management

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

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

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

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 Gen11 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
Notes: HPE iLO Amplifier Pack has been in EOS since November 1, 2024. For additional information, please visit https://hpe.seismic.com/Link/Content/DCdbDWRqG4RHWGmJDWbgcfHFF9hP

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

HPE OneView Standard

HPE OneView is an on premises, multi-generational server monitoring and management solution. HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. Customers can upgrade their management experience with an HPE OneView Advanced license, all provided by the same tool. Learn more at http://www.hpe.com/info/oneview.

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).
- Tamper-free updates – components digitally signed and verified.
- Secure Recovery – recover critical firmware to known good state on detection of compromised firmware.
- Ability to rollback firmware.
- Secure erase of NAND.
- TPM (Trusted Platform Module) 2.0.
- Front bezel key-lock feature – standard, available in both Tower and Rack models.
- Padlock slot, standard.
- Kensington Lock slot, standard.
- Chassis Intrusion detection option.

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE Authorized Channel Partners resellers. Hardware diagnostic support and repair 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 completed 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. 3) Non-CSR parts must be serviced by a trained authorized service engineer. Additional information regarding worldwide limited warranty and technical support is available at: https://www.hpe.com/support/ProLiantServers-Warranties

Server Management

HPE iLO Advanced

HPE iLO Advanced licenses offer smart remote 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 brings a new 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 Gen8, Gen9 and Gen10 servers. To learn more visit http://www.hpe.com/info/oneview.

Accelerator and GPGPU Information

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

Rack and Power Infrastructure

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

HPE G2 Advanced and Enterprise Racks are perfect for the server room or today's modern data center with 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 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 provides a portfolio of support, deployment, and lifecycle management services designed to help customers maximize the value, performance, and availability of their HPE infrastructure. HPE Complete Care Service provides a highly personalized support experience with proactive guidance and expert-led lifecycle management, while HPE Tech Care Service provides fast access to product specialists and flexible response options tailored to operational needs. Both HPE Complete Care Service and HPE Tech Care Service are available with defective media retention, comprehensive defective material retention, and GPU defective material recovery options.

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

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.

- 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.

Base Models		
SKU Number	P53564-AA1	P53566-291
Model Name	HPE ProLiant ML350 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R VROC 4LFF 800W RPS Server	HPE ProLiant ML350 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R MR408i-o 8SFF 800W RPS Server
Chassis	HPE ProLiant ML350 Gen11 LFF Configure-to-order Server	HPE ProLiant ML350 Gen11 SFF Configure-to-order Server
Backplane	4 LFF	8 SFF
Processor	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.	
Network Controller	Broadcom BCM5719 Ethernet 1 Gb 4-port BASE-T OCP3 Adapter for HPE **Notes:** Slot 15 OCP will be occupied along with CPU 1 MCIO port 1.	
Storage Controller	Embedded Intel® VROC SATA controller **Notes:** Embedded controller can only support SATA drive, additional storage controller is required to support SAS drive.	HPE MR408i-o Gen11 x8 Lanes 4 GB Cache OCP SPDM Storage Controller **Notes:** – Slot 14 OCP will be occupied, PCIe expansion slot is not required. – This controller supports up to 8 SAS/SATA/NVMe Drives with performance RAID. – Smart Storage battery included.

Pre-configured Models

Included Hard Drives	None shipped as standard, 4 LFF supported	None shipped as standard, 8 SFF supported
Internal Storage	Default with 4LFF SAS/SATA Drive Cage Kit (P47216- B21), up to two additional drive cages. **Notes:** Controller/cable kit may require for additional drive cage.	Default with 8 SFF SAS/SATA/NVMe x1 U.3 Drive Cage Kit (P47217-B21), up to two additional drive cages. **Notes:** Controller/cable kit is required for additional drive cage.
Optical Drive	Optional. None shipped as standard.	
Expansion Slots	Default with 4 x8 PCIe 5.0 slots with primary riser cage. Upgradable with additional riser kit. **Notes:** Dual processors are required to support expansion card on PCIe slots 5-10.	
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit **Notes:** Additional Power Supply Kit (P38995-B21) provides 1+1 power redundancy feature.	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit **Notes:** Additional Power Supply Kit (P38995-B21) provides 1+1 power redundancy feature.
Fans	Default with 3 standard fans, non-hot-plug. Optional Second CPU Fan Kit (P47902-B21) and Redundant Fan Kit (P47219-B21) provide advanced cooling and redundancy functionality in heavier configurations. **Notes:** Configurations that require fan kits are provided in later sections	
Management	HPE iLO Standard with Intelligent Provisioning (embedded), HPE OneView Standard (requires download); HPE iLO Advanced and HPE OneView Advanced (require licenses)	
Security	TPM (Trusted Platform Module)	TPM (Trusted Platform Module)
Form Factor	4U Tower, Optional Tower-to-Rack conversion kit (P47394-B21) to convert the unit to a 5U Rack-mount server.	
Warranty	Server warranty includes 3-year parts, 3-year labor, 3-year onsite support with next business day response.	

Country Code Key

- -001 = North America.
- -291 = Japan.
- -371 = Asia Pacific.
- -421 = Europe, the Middle East and Africa.
- -AA1 = China.

Notes: European Union ErP Lot 9 2024 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 fulfill 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.

Smart Templates from HPE

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

Workload Solutions Templates from HPE

The Workload Solutions Templates are built on the Smart Templates technology to easily develop working configurations of the most compelling Workload Solutions. The templates complement the Reference Builds developed by HPE. Workload Solutions templates preconfigure some of the key architecture decisions and make it easier for Sellers to get started and complete a differentiated server solution for your customer's specific workload.

Mainstream SKUs

HPE launched the Mainstream SKU initiative as a market-driven approach to Demand Steering. It is a simplified portfolio of our top selling options that meet the current and future market trends. HPE has committed to providing a more predictable and faster experience for these options. Mainstream SKUs enjoy higher safety stock levels and have higher 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 fulfillment experience. Check the Template section in our configurators for eligible Mainstream configurations.

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

- Factory Integrated Models must start with a CTO Server.
- FIO indicates that this option is only available as a factory integrable option.
- All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
- Some options may not be integrated at the factory. Contact your local sales representative for additional information.
- 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 fulfill 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.
- All CTO servers are ENERGY STAR® 3.0 compliant. After January 11, 2024, ENERGY STAR® 3.0 compliance is no longer valid. ENERGY STAR® 4.0 certification will be valid upon system configuration.

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

CTO Server	HPE ML350 Gen11 LFF CTO Server	HPE ML350 Gen11 SFF CTO Server
SKU Number	P48404-B21	P48405-B21
Processor Sockets	2 Sockets available	
Processor	Intel® Fourth or Fifth Generation Xeon® Scalable Processors	
DIMM Slots	32 DIMM slots available*	
Storage Controller	Embedded controller with 2 SlimSAS ports, Choice of HPE OCP-type RAID (OROC) and/or PCIe Standup controller card (s)	
PCIe	4 PCIe Gen5 slots (x8, x8, x8, x8) in primary riser as standard **Notes:** PCIe slots 5 – 10 require the second processor to enable.	
Drive Cage - included	4 LFF SAS/SATA Drive Cage	8 SFF SAS/SATA/x1 NVMe Drive Cage
Additional drive cages	Optional 4LFF SAS/SATA Drive Cage kit and 8SFF SAS/SATA/x1 NVMe Drive Cage kit. Up to 3 drive cages in total.	Optional 8 SFF SAS/SATA/x1 NVMe Drive Cage kit. Up to 3 drive cages in total.
8SFF U.3 x4 NVMe drive cage	Not available	Optional, Up to 1 **Notes:** Default 8 SFF drive cage will be removed.
12EDSFF x4 NVMe drive cage	Not available	Optional, Up to 1 **Notes:** Default 8 SFF drive cage will be removed.
Boot option	Optional, HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device	
ODD	Optional, Up to 1	
Half-Height LTO	Optional, Up to 1 for each	
Megacell Battery	Optional	
Network Controller	Choice of HPE OCP-type networking adapter and/or PCIe Standup controllers. Default selected with Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE (P51181-B21)	
Redundant Fan Kit	Optional, 3 fans as standard	
Power Supply	Optional HPE Flex Slot Hot Plug Power Supply Kit. Up to 2 PSU.	
Management	HPE iLO with Intelligent Provisioning (standard), iLO Advances and OneView (optional), HPE Compute Ops Management (subscription included)	
USB	5x 3.2 Gen1/2.0 USB ports, Plus front iLO Service Port	
Tower-to-Rack conversion kit	Optional, Tower to Rack kit is not factory integrable option and only can be shipped with standalone package.	

Notes:

- * 32 DIMM slots require selection of 2 processors.
- internal LTO tape can be selected 1 and Box1 space will be occupied.
- 8 SFF x4 NVMe or 12 EDSFF drive cage can only be selected with SFF chassis and default 8SFF drive cage will be removed.
- To get advanced cooling in richer configurations and/or under certain ambient environmental conditions, the additional Fan kits: Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) may require.

Configuration Information

- Second CPU Fan Kit (P47902-B21) is required when any following options are selected: Second processor, HPE NS204i-u Gen11 Hot Plug Boot Opt Dev, Tertiary riser kit (P49693-B21).
- Both Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) are required with the following conditions: Redundant Fan feature, 300W~350W TDP processor, 256 GB memory, EDSFF, SAS4 24G MU SSD drive or GPU is selected.
- Mixed LFF and SFF Drive cages can be supported in one system. Please select the LFF CTO Server (P48404-B21) as the base configuration to start with.
- Refer to HPE Power Advisor Tool to review the power requirement for your selected configuration and determine what power supply module(s) to select.

Step 2: Choose Required Options (only one of the following unless otherwise noted)

Please select one or two matching processors.

For example: for a single Xeon®-Platinum 8452Y processor configuration select 1x P49616-B21. If dual Xeon®-Platinum 8452Y

processor configuration, select 2x P49616-B21

Notes:

- Mixing two different processor models is not supported.
- Field upgrades from 4th generation processors (x4xx) to 5th generation processors (x5xx) is not supported.
- Bronze Processors (3408U and 3508U) are supported up to PCIe Gen4.
- Intel® VROC NVMe feature is not supported with 4510, 4509Y and 3508U processors.
- Processor kits don't include heat sink and fans.
- Processors with TDP equal to or greater than 195W require Performance Heatsink (P47224-B21).
- Processors with TDP equal to or greater than 300W require both Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- DDR5 memory speed is the maximum memory speed supported by the processor. Actual maximum memory speed is a function of the memory type, memory configuration, and processor model.
- CTO server includes 3 fans as standard. Second CPU Fan Kit (P47902-B21) is required for 2 processors configuration as 4th fan.

Step 2a: Choose Processors

Processor Option Kits – Intel® Fourth Generation Xeon® Scalable Processors

Notes:

- All SKUs ship with processor only. Adequate fan and heatsink kits (standard or performance) must be selected.
- 4800 MT/S maximum memory speed unless otherwise noted.
- 128 GB SGX Enclave unless otherwise noted.
- PCIe Gen5 supported unless otherwise noted.
- Performance Heatsink (P47224-B21) is required unless otherwise noted.

Intel® Xeon®-Platinum Processors

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.
- 96 GB Dual Rank x4 DDR5-4800 memory supported.

Core Options

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

Notes:
- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.
- 96 GB Dual Rank x4 DDR5-4800 memory supported.

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

Notes:
- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.
- 96 GB Dual Rank x4 DDR5-4800 memory supported.

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

Notes:
- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 96 GB Dual Rank x4 DDR5-4800 memory supported.

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

Notes:
- 512 GB SGX Enclave.
- 96 GB Dual Rank x4 DDR5-4800 memory supported.

Intel® Xeon®-Gold Processors

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

Notes: 512 GB SGX Enclave.

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

Notes:
- 4400 MT/s maximum memory speed.
- 96 GB Dual Rank x4 DDR5-4800 memory supported.

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

Notes:
- Only supported in single socket configuration.
- 96 GB Dual Rank x4 DDR5-4800 memory supported.

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

Notes:
- Requires Standard Heatsink (P47223-B21).
- 4400 MT/s maximum memory speed.
- Only supported in single socket configuration.

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

Notes:
- Requires Standard Heatsink (P47223-B21).
- 512 GB SGX Enclave.

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

Notes:
- Requires Standard Heatsink (P47223-B21).
- 512 GB SGX Enclave.

Core Options

Intel Xeon-Gold 6426Y 2.5GHz 16-core 185W Processor for HPE	P49598-B21
Notes: Requires Standard Heatsink (P47223-B21).	
Intel Xeon-Gold 6434 3.7GHz 8-core 195W Processor for HPE	P49601-B21
Intel Xeon-Gold 5418Y 2.0GHz 24-core 185W Processor for HPE	P49612-B21
Notes: – Requires Standard Heatsink (P47223-B21). – 4400 MT/s maximum memory speed.	
Intel Xeon-Gold 5411N 1.9GHz 24-core 165W Processor for HPE	P49639-B21
Notes: – Requires Standard Heatsink (P47223-B21). – 4400 MT/s maximum memory speed. – Only supported in single socket configuration.	
Intel Xeon-Gold 5416S 2.0GHz 16-core 150W Processor for HPE	P49653-B21
Notes: – Requires Standard Heatsink (P47223-B21). – 4400 MT/s maximum memory speed.	
Intel Xeon-Gold 5415+ 2.9GHz 8-core 150W Processor for HPE	P49597-B21
Notes: – Requires Standard Heatsink (P47223-B21). – 4400 MT/s maximum memory speed.	
Intel® Xeon®-Silver Processors	
Intel Xeon-Silver 4416+ 2.0GHz 20-core 165W Processor for HPE	P49611-B21
Notes: – Requires Standard Heatsink (P47223-B21). – 4000 MT/s maximum memory speed. – 64 GB SGX Enclave.	
Intel Xeon-Silver 4410Y 2.0GHz 12-core 150W Processor for HPE	P49610-B21
Notes: – Requires Standard Heatsink (P47223-B21). – 4000 MT/s maximum memory speed. – 64 GB SGX Enclave.	

Processor Option Kits – Intel® Fifth Generation Xeon® Scalable Processors

Notes:

- All SKUs ship with processor only. Adequate fan and heatsink kits (standard or performance) must be selected.
- 5600 MT/S maximum memory speed unless otherwise noted.
- 128 GB SGX Enclave unless otherwise noted.
- PCIe Gen5 supported unless otherwise noted.
- Performance Heatsink (P47224-B21) is required unless otherwise noted.

Intel® Xeon®-Platinum Processors

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 4800 MT/s maximum memory speed.
- 512 GB SGX Enclave.

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.

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

Notes:

- 4800 MT/s maximum memory speed.
- 512 GB SGX Enclave.
- Only supported in single socket configuration.

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 5200 MT/s maximum memory speed.
- 512 GB SGX Enclave.

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 4800 MT/s maximum memory speed.
- 512 GB SGX Enclave.
- Only supported in single socket configuration.

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

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512 GB SGX Enclave.

Intel® Xeon®-Gold Processors

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

Notes: 5200 MT/s maximum memory speed.

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

Notes: 4800 MT/s maximum memory speed.

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

Notes: 5200 MT/s maximum memory speed.

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

Notes: 5200 MT/s maximum memory speed.

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

Notes: 5200 MT/s maximum memory speed.

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

Notes: 5200 MT/s maximum memory speed.

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

Notes: 5200 MT/s maximum memory speed.

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

Notes: 5200 MT/s maximum memory speed.

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

Notes: 4800 MT/s maximum memory speed.

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

Notes:

- Requires Standard Heatsink (P47223-B21).
- 4800 MT/s maximum memory speed.

Intel® Xeon®-Silver Processors

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

Notes:

- Requires Standard Heatsink (P47223-B21).
- 4400 MT/s maximum memory speed.
- 64 GB SGX Enclave.

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

Notes:

- Requires Standard Heatsink (P47223-B21).
- 4400 MT/s maximum memory speed.
- 64 GB SGX Enclave.

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

Notes:

- Requires Standard Heatsink (P47223-B21).
- 4400 MT/s maximum memory speed.
- 64 GB SGX Enclave.
- Intel® VROC NVMe feature is not supported.
- 96 GB DDR5-5600 DIMM is not supported.

Core Options

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

Notes:

- Requires Standard Heatsink (P47223-B21).
- 4400 MT/s maximum memory speed.
- 64 GB SGX Enclave.
- Intel® VROC NVMe feature is not supported.
- 96 GB DDR5-5600 DIMM is not supported.

Intel® Xeon®-Bronze Processors

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

Notes:

- Requires Standard Heatsink (P47223-B21).
- 4400 MT/s maximum memory speed.
- 64 GB SGX Enclave.
- Only supported in single socket configuration.
- Up to PCIe Gen4 supported.
- Intel® VROC NVMe feature is not supported.
- 96 GB DDR5-5600 DIMM is not supported.

Step 2b: Choose Memory Options

Please select one or more memory from below.

For new Gen11 memory population rule whitepaper and optimal memory performance guidelines, please go to: https://www.hpe.com/docs/memory-population-rules

For Gen11 memory speed table, please go to: https://www.hpe.com/docs/memory-speed-table

For memory Reliability, Accessibility, Serviceability (RAS) features whitepaper like Fast Fault Tolerance and legacy mirrored memory feature etc. please go to: https://www.hpe.com/psnow/doc/a50007802enw

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.
- For additional information, refer to the HPE DDR5 Smart Memory QuickSpecs.
- For General Server Memory and Persistent Memory Population Rules and Guidelines, for details see: http://www.hpe.com/docs/memory-population-rules
- HPE Server Memory compatibility for a specific server platform may vary or be limited within a server platform depending upon the specific configuration being requested. Because each server environment and requirements can vary, memory compatibility is based not only upon the server family but may also be affected by the amount and type of additional hardware options installed within a specific server configuration. For this reason, some HPE memory DIMMs may be qualified for an HPE server model or family and yet occasionally not be supported with some configurations within that server family.
- The new 5600 DIMMs are for the Fifth generation Intel® Xeon® Scalable Processors, while the 4800 DIMMs are for the Fourth generation Intel® Xeon® Scalable Processors.
- 256 GB memory is limited to 25°C maximum inlet temperature with non-Redundant Fan configuration. 30°C maximum inlet temperature can be supported with Redundant Fan configuration.
- Note – The -B21 memory SKUs shown in this document are to be used when ordering stand-alone memory only. For each -B21 SKU, there is a corresponding -F21 SKU which is to be used when configuring servers with integrated memory DIMMs.

Memory – for the Fourth Generation Intel® Xeon® Scalable Processors

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

Notes:

- Only 8 or 16 DIMMs per CPU configurations are supported. DIMM quantity must be 8, 16 or 32 with 96G memory SKU.
- Platinum and selected Gold processors are supported as noted in “Choose Processors” section.
- Mixing different capacity memory DIMMs is NOT supported with this 96G memory SKU.

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

Memory – for the Fifth Generation Intel® Xeon® Scalable Processors

Description	
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: 96 GB DDR5-5600 DIMM is not supported with 4510, 4509Y and 3508U processors.

HPE 128GB (1x128GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit	P69976-B21

Step 2c: Choose Power Supplies

Notes:

- Mixing 2 different power supplies is NOT supported.
- Selection of two HPE Flex Slot power supplies provide 1+1 power redundancy.
- To review the power requirements for your selected configuration, please use the HPE Power Advisor Tool.

Power Supplies

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

Notes: Support limited to single 125W Processor.

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	P38995-B21
HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit	P03178-B21
HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit	P17023-B21
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: Only supports high line voltage (200 VAC to 240 VAC).

Step 3: Choose Additional Factory Integrable Options

One of the following from each list may be selected if desired at time of factory integration.

Drive Cage

HPE ProLiant ML350 Gen11 8SFF x1 U.3 Tri-Mode Drive Cage Kit P47217-B21

Notes: Support up to 24 SFF drives configuration (8+8+8).

HPE ProLiant ML350 Gen11 4LFF SAS/SATA Basic Drive Cage Kit P47216-B21

Notes: Support up to 12 LFF drives configuration (4+4+4).

HPE ProLiant ML350 Gen11 8SFF x4 U.3 Tri-Mode FIO Drive Cage Kit P47218-B21

Notes:

- When this drive cage is selected, default 8SFF Tri-Mode Drive Cage will be removed and no other drive cage can be selected.
- This drive cage kit supports two connections modes. Direct Attach and Tri-Mode controller modes.
- Direct Attach mode requires x4 NVMe Direct Attach FIO Cable Kit (P48399-B21).
- Controller mode requires HPE SR932i-p Gen11 Controller (P47184-B21) and x4 Tri-Mode FIO Cable Kit (P47234-B21).
- This drive cage doesn't allow field upgrade.
- Bronze Processors (3408U and 3508U) are supported up to PCIe Gen4.
- Intel® VROC NVMe feature is not supported with 4510, 4509Y and 3508U processors.

HPE ProLiant ML350 Gen11 12EDSFF FIO Drive Cage Kit P48401-B21

Notes:

- When this drive cage is selected, default 8SFF Tri-Mode Drive Cage will be removed and no other drive cage can be selected.
- This drive cage kit only supports Direct Attach mode and 12EDSFF x4 Direct Attach FIO Cable Kit (P48400-B21) is required.
- This drive cage kit requires dual processors configuration.
- Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) are required.
- External Fan kit is included in this drive cage kit and installed in rear of chassis on external fan connector 10. The primary riser cage will be covered by the fan kit and external connectivity is not allowed.
- Support limited to 25° C maximum inlet temperature and system fans may operate at higher speed and higher acoustic level to maintain optimum system cooling condition while EDSFF is installed.
- This drive cage kit doesn't allow field upgrade.
- Bronze Processors (3408U and 3508U) are supported up to PCIe Gen4.
- Intel® VROC NVMe feature is not supported with 4510, 4509Y and 3508U processors.

Risers

HPE ProLiant Compute ML350 Gen11/Gen12 2x16 Primary FIO Riser Kit P48406-B21

Notes: Identical to HPE ML350 G11/G12 2x16 Sec Riser Kit (P47238-B21), but only for factory integrable option (FIO). When this FIO riser kit is selected, default 4x8 Primary Riser will be replaced.

HPE ProLiant Compute ML350 Gen11/Gen12 4x8 Secondary Riser Kit P48407-B21

Notes: When this Riser Kit is selected, second processor is required.

HPE ProLiant Compute ML350 Gen11/Gen12 2x16 Secondary Riser Kit P47238-B21

Notes: When this Riser Kit is selected, second processor is required.

HPE ProLiant ML350 Gen11 2x8 Tertiary Riser Kit P49693-B21

Notes: When this Riser Kit is selected, second processor is required to support expansion card installation and 2 MCIO connectors from CPU2 will be used. Without Second processor, the PCIe slots from tertiary riser will not have function and only can provide power source for internal LTO tape drive.

Cooling Options

HPE ProLiant ML350 Gen11 Standard Heat Sink Kit P47223-B21

Notes: Processors with TDP less than 195W require Standard Heat Sink.

HPE ProLiant ML350 Gen11 Performance Heat Sink Kit P47224-B21

Notes: Processors with TDP equal to or greater than 195W require Performance Heat Sink.

HPE ProLiant Compute ML350 Gen11/Gen12 Second CPU Fan Kit P47902-B21

Notes: When either second processor, NS204i-u or Tertiary Riser is selected, this Fan Kit is required.

HPE ProLiant Compute ML350 Gen11/Gen12 Redundant Fan Kit P47219-B21

Notes:

- Processors with TDP equal to or greater than 300W require this Fan Kit.
- When either EDSFF, SAS4 24G MU SSD drive, 256G memory, GPU selected, this fan kit is required.
- When this Fan Kit is selected, the Second CPU Fan Kit (P47902-B21) needs be selected together.

HPE ProLiant Compute ML350 Gen11/Gen12 External GPU Fan Kit P47220-B21

Notes:

- With External GPU fan kit installed, rear side of riser cage will be covered, and no connectivity is allowed with Primary/Second riser cage.
- Up to 2 fan kits supported.
- External GPU fan kit provides advanced cooling in heavier configurations and allows system to run with higher inlet temperature.
- This fan kit has already included in 12EDSFF FIO Drive Cage Kit (P48401-B21) with quantity.

Step 4: Choose additional options for Factory Integration from Core and Additional Options sections below

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

Notes: The User Guide (UG) can help to explain the cable routing for each option.

Software as a Service Management

HPE Compute Ops Management

Base SKU

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

Upgrade SKU

HPE Compute Ops Management Standard 5-year Upfront ProLiant SaaS	R7A12AAE
HPE Compute Cloud Management Server FIO Enablement	S1A05A
HPE Compute Ops Management Advanced Flex with ProLiant Enablement	S6C28AAE
HPE Compute Ops Management Advanced 1-year Upfront ProLiant SaaS	S5E58AAE
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 OneView

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

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

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

HPE Computation and Graphics Accelerators

Notes:

- System memory is recommended to be 2 times larger than the memory with accelerator card.
- Mixing different accelerators is not supported.
- Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) are required for all GPU accelerators.
- System fans may operate at higher speed and higher acoustic levels to maintain optimum system cooling condition with accelerator card.
- GPU are all required x16 bandwidth unless otherwise noted. Therefore, 2x16 Primary FIO Riser Kit (P48406-B21) or 2x16 Secondary Riser Kit (P47238-B21) is required to support up to 2 GPUs with each riser kit.

NVIDIA L40 48GB PCIe Accelerator for HPE S0K90C

Notes:

- GPU Power Cable Kit (P47221-B21) is required and support up to 1 L40 GPU with each cable kit.
- External GPU Fan Kit (P47220-B21) is recommended to provide advanced cooling and results DisplayPorts can't be connected and covered by the fan kit.
- Without External GPU Fan Kit installed, maximum inlet temperature is limited to 23° C with limited configuration: Up to 2 GPUs, up to 64 GB memory, up to TDP 195W processor(s) and one Drive Cage (8SFF/4LFF) only.
- Refer to following GPU information table for limited support inlet temperature with External GPU Fan Kit and Redundant Fan Kit on various configurations.

NVIDIA L40S 48GB PCIe Accelerator S2L70C

Notes:

- Limited to support L40S to be installed on Slot 2 and/or Slot 6 with x16 Riser Cage.
- GPU Power Cable Kit (P47221-B21) is required and supports up to 1 L40S GPU with each cable kit.
- External GPU Fan Kit (P47220-B21) is recommended to provide advanced cooling and results DisplayPorts can't be connected and covered by the fan kit.
- Without External GPU Fan Kit installed, maximum inlet temperature is limited to 23°C with configuration: 2x Processor with TDP equal to or less than 190W, 1x GPU on Secondary Riser, up to 64GB memory, with only one Drive Cage.
- Refer to following GPU information table for limited support inlet temperature with External GPU Fan Kit and Redundant Fan Kit on various configurations.

HPE ProLiant ML350 12(8+4)-pin/16-pin Cable Kit for NVIDIA GPU P47221-B21

Notes:

- This power Cable Kit (P47221-B21) is required for RTX4000 Ada and L40/L40S Accelerator.
- Each power Cable Kit supports up to one accelerator.

NVIDIA A16 64GB PCIe Non-CEC Accelerator for HPE R8T26C

Notes:

- Power cable kit (P39102-B21) is required and support up to 3x A16 GPUs with each cable kit.
- External GPU Fan Kit (P47220-B21) is required to provide advanced cooling with this GPU.
- Refer to following GPU information table for limited support inlet temperature with External GPU Fan Kit and Redundant Fan Kit on various configurations.

Additional Options

HPE ProLiant DL300 Gen10 Plus GPU 8-pin Keyed Cable Kit P39102-B21

Notes:

- This power cable kit (P39102-B21) is required for A16 Accelerator.
- Each Power Cable Kit supports up to 3x A16 Accelerators.

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

Notes:

- External GPU Fan Kit (P47220-B21) is required to provides advanced cooling with this GPU.
- Refer to following GPU information table for limited support inlet temperature with External GPU Fan Kit and Redundant Fan Kit on various configurations.

NVIDIA RTX A1000 8GB PCIe Accelerator for HPE S5T74C

Notes:

- This GPU supports x8 bandwidth, x16 Riser Cage is not required.
- Support up to 8 GPU in 4x8 Primary and Secondary Riser cage.
- Refer to following GPU information table for limited support inlet temperature.

Accelerator configuration information

Part Number	Card	TDP	PCIe Speed	Quantity Support	ML350 Gen11 Drive Cage Configuration				
					1x 8SFF or 4LFF	2x 8SFF or 4LFF	3x 8SFF or 4LFF	X4 U.3 NVMe	12 EDSFF
S0K90C	NVIDIA L40 48 GB PCIe Accelerator for HPE	300W	Gen4 x16	4	27°C/ 30°C*	25°C/ 30°C*	23°C/ 30°C*	25°C/ 30°C*	25°C/ 30°C*
S2L70C	NVIDIA L40S 48 GB PCIe Accelerator for HPE***	350W	Gen4 x16	2	30°C	25°C/ 27°C(1P)	25°C	30°C	25°C
R8T26C	NVIDIA A16 64 GB PCIe Non-CEC Accelerator for HPE	250W	Gen4 x16	4	28°C/ 30°C*	25°C/ 30°C*	24°C/ 30°C*	25°C/ 30°C*	25°C/ 30°C*
S0K89C	NVIDIA L4 24GB PCIe Accelerator for HPE	72W	Gen4 x16	4	30°C	30°C	30°C	30°C	30°C
S5T74C	NVIDIA RTX A1000 8GB PCIe Accelerator for HPE	50W	Gen4 x8	8	30°C	30°C	30°C	30°C	30°C

Notes: Accelerator information table indicated the limited support inlet temperature with both External GPU Fan Kit and Redundant Fan Kit selected on various configurations.

* With limited configuration: 2 Processors, up to 2 GPUs installed on Secondary Riser Kit with External GPU Fan Kit on slot 9.

*** L40S required limitation configuration: Processor TDP is equal to or less than 190W.

HPE Boot Controllers

HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device	P48183-B21
HPE NS204i-u v2 960GB NVMe Hot Plug Boot Optimized Storage Device	P81160-B21
HPE NS204i-u v2 960GB NVMe SED Hot Plug Boot Optimized Storage Device	P81162-B21

Notes:

- When NS204i-u is selected, Second CPU Fan Kit (P47902-B21) and ML350 Gen11 NS204i-u Enablement Kit (P48403-B21) are required.
- When NS204i-u is selected, up to 8 SATA drives within LFF CTO Server can be supported with embedded controller.
- Support limited to 25°C maximum inlet temperature with 3 SFF/LFF Drive Cages selected without Redundant Fan Kit (P47219-B21).
- System fans may operate at higher speed and higher acoustic level to maintain optimum system cooling condition while NS204i-u is installed.

HPE ProLiant ML350 Gen11 NS204i-u Enablement Kit	P48403-B21

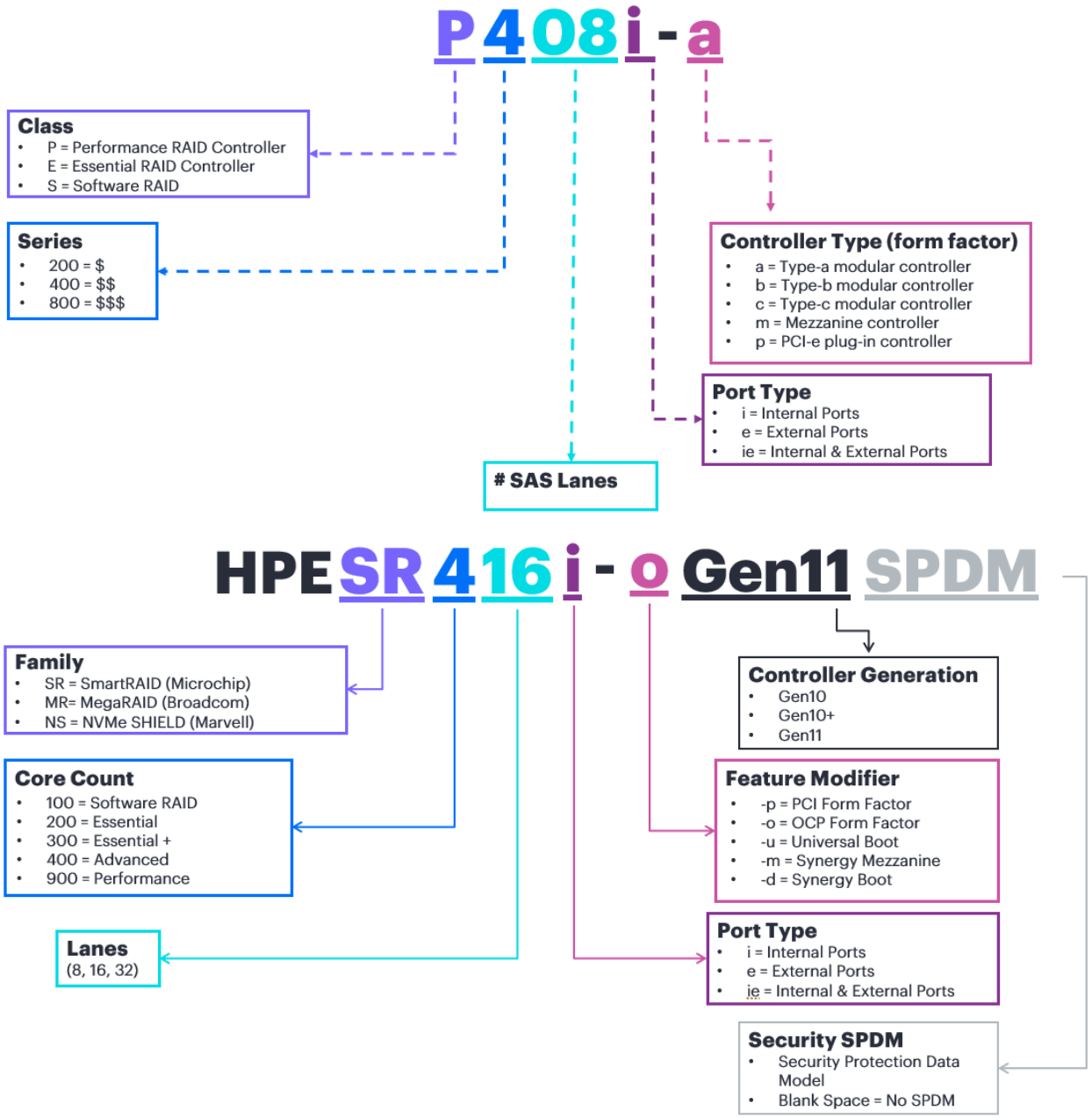
Notes: When NS204i-u is selected, this Enablement Kit is required.

HPE Optical Drives

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

HPE Storage Controllers

Storage Controllers



Notes:

- When selecting SR RAID controllers for external storage (E208e-p, 804398-B21) and MR RAID controllers for internal storage (MR216i/MR416i/MR408i) in the order, please be aware these two products use different RAID configuration tools.
- Not supporting mixing of MR (MegaRAID) series internal controllers and SR (SmartRAID) series internal Controllers.
- OCP-type RAID (OROC) controller is only supported on Slot 14 OCP 1.
- OCP 1 enablement kit is not required for OROC controllers listed below.

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

Essential RAID Controllers

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

Notes: This controller supports up to 8 SAS/SATA Drives (external).

For more information on the HPE Smart Array E208e-p SR Gen10 Controller, please refer to the QuickSpecs

Tri-mode RAID Controllers

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

Notes:

– Does not occupy a PCIe expansion slot.
– This controller supports up to 16 SAS/SATA/NVMe Drives with RAID 0/1/10.

HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller P47785-B21

Notes: This controller supports up to 16 SAS/SATA/NVMe Drives with RAID 0/1/10.

HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller P58335-B21

Notes:

– Does not occupy a PCIe expansion slot.
– This controller supports up to 8 SAS/SATA/NVMe Drives.
– HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21 or P65042-B21) must be selected with this controller.

HPE MR408i-p Gen11 x8 Lanes 4GB Cache PCI SPDM Plug-in Storage Controller P74775-B21

Notes:

– This controller supports up to 8 SAS/SATA/NVMe Drives.
– HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21 or P65042-B21) must be selected with this controller.

HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller P47781-B21

Notes:

– Does not occupy a PCIe expansion slot.
– This controller supports up to 16 SAS/SATA/NVMe Drives.
– HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21 or P65042-B21) must be selected with this controller.

HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller P47777-B21

Notes:

– This controller supports up to 16 SAS/SATA/NVMe Drives.
– HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21 or P65042-B21) must be selected with this controller.

HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller P47184-B21

Notes:

– This controller supports up to 32 SAS/SATA/NVMe Drives.
– HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21 or P65042-B21) must be selected with this controller.

– This controller requires PCIe x16 bandwidth. 2x16 Primary FIO Riser Kit (P48406-B21) or 2x16 Secondary Riser Kit (P47238-B21) is required.

Controller Battery Cable Kits

HPE 96W Smart Storage Lithium-ion Battery with 260mm Cable Kit P01367-B21
HPE Smart Storage Hybrid Capacitor with 260mm Cable Kit P02381-B21
HPE 16W Smart Hybrid Capacitor with 260mm Cable P65042-B21

Notes: Above 260mm cable kits can't be selected together.

HPE ProLiant Compute ML350 Gen11/Gen12 Smart Storage Battery Cable Kit P58199-B21

Notes: This cable kit is required when one of battery kits (P02377-B21, P01366-B21) is selected.

Hybrid RAID

Notes:

– Intel® VROC NVMe feature is not supported with 4510, 4509Y and 3508U processors.
– Requires UEFI, not supported in Legacy Mode.
– For NVMe SSDs only, there is no PCIe card support.
Additional steps are required for OS installation with Intel® VROC, please refer to the link:
Virtual RAID on CPU for HPE Gen11 User Guide - Installing OS on the Intel VROC RAID

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

Notes: Support RAID 1.

Intel Virtual RAID on CPU RAID 1 E-RTU for HPE S3Q39AAE

Notes:

– Support RAID 1.
– Like Intel® Virtual RAID on CPU Standard FIO Software for HPE (S3Q19A), but intended for field deployments (BTO).

Intel Virtual RAID on CPU Premium FIO Software for HPE R7J57A

Notes: Support RAID 0/1/5/10.

Intel Virtual RAID on CPU Premium E-RTU for HPE R7J59AAE

Notes:

– Support RAID 0/1/5/10.
– Like Intel® Virtual RAID on CPU Premium FIO Software for HPE (R7J57A), but intended for field deployments (BTO).

HPE Drives

HPE Hard Disk Drives

Enterprise - 12G SAS - SFF Drives

HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD P40430-B21
HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD P53561-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD P28586-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD P53562-B21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD P28352-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3yr Wty FIPS 140-2 TAA-compliant HDD P28622-B21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3yr Wty 512e FIPS 140-2 TAA-compliant HDD P28618-B21

Business Critical - 12G SAS - LFF Drives

HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834031-B21
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881781-B21
HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53553-B21
HPE 24TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68583-B21
HPE 26TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P80577-B21

Business Critical - 6G SATA - LFF Drives

HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21
HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861681-B21
HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861683-B21
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881787-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53554-B21
HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68585-B21
HPE 26TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P80578-B21

Notes: Requirements for MR Tri-mode controller SED support.

- TPM is not required for Local Key Management as key is stored in controller.
- iLO Advanced is required for Remote Key Management. Key is stored in remote key manager. (Ex. ESKM)

SSD Selection

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

Notes:

- LFF backplane supports up to 12G SAS.
- When SAS4 24G MU SSD drive is selected, Redundant Fan Kit (P47219-B21) is required.

Read Intensive - 12G/24G SAS - SFF - Solid State Drives

HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40506-B21
HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40507-B21
HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40508-B21
HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40509-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21
HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49031-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49035-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49041-B21
HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49045-B21
HPE 3.84TB SAS Read Intensive SFF BC Self-encrypting FIPS 140-3 PM7 SSD	P83347-B21

Mixed Use - 12G/24G SAS - SFF - Solid State Drives

HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40510-B21
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40511-B21
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40512-B21
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-B21

Additional Options

HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-B21
HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49057-B21
HPE 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-3 PM7 SSD	P83344-B21
Mixed Use - LFF- Solid State Drives	
HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P37009-B21
Mixed Use - 6G SATA - SFF - Solid State Drives	
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-B21
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21
Read Intensive - 6G SATA - SFF - Solid State Drives	
HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58236-B21
HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40497-B21
HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40498-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40500-B21
HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40501-B21
Read Intensive – 6G SATA - LFF – Solid State Drives	
HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21
Mixed Use - NVMe - SFF - Solid State Drives	
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65023-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63845-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63849-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63853-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70426-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70428-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61043-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61051-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61059-B21
Read Intensive – NVMe - SFF - Solid State Drives	
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64846-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64848-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63833-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63837-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63841-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70434-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70436-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61019-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61027-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61035-B21

HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 SPDM 7500 SSD	P84244-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 SPDM 7500 SSD	P84242-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 SPDM 7500b SSD	P84239-B21

EDSFF

Mixed Use – NVMe - EDSFF - Solid State Drives

HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70399-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70401-B21
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70403-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin Multi Vendor SSD	P91098-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin Multi Vendor SSD	P91100-B21
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin Multi Vendor SSD	P91102-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Multi Vendor SSD	P91237-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Multi Vendor SSD	P91239-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Multi Vendor SSD	P91241-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 E3 Thin Multi Vendor SSD	P91084-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 E3 Thin Multi Vendor SSD	P91086-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 E3 Thin Multi Vendor SSD	P91088-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87715-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87717-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85114-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85117-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85119-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin PQC27 CM9 SSD	P85731-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin PQC27 CM9 SSD	P85733-B21
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin PQC27 CM9 SSD	P85735-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PQC27 CM9 SSD	P85662-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PQC27 CM9 SSD	P85664-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PQC27 CM9 SSD	P85666-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 PQC27 Self-encrypting CD9P SSD	P88535-B2
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 PQC27 Self-encrypting CD9P SSD	P88537-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 PQC27 CD9P SSD	P92309-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 PQC27 CD9P SSD	P92311-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 PQC27 CD9P SSD	P92313-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 E3 Thin PQC27 CD9P SSD	P86016-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 E3 Thin PQC27 CD9P SSD	P86018-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 E3 Thin PQC27 CD9P SSD	P86020-B21

Very-Read-Optimized – NVMe - EDSFF - Solid State Drives

HPE 3.84TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63930-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63934-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63938-B21
HPE 61.44TB NVMe Gen5 Mainstream Performance Very Read Optimized E3.S EC1 Self-encrypting 6600 SSD	P86746-B21

Read Intensive – NVMe - EDSFF - Solid State Drives

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 EDSFF SPDM PM1743 SSD	P57807-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70392-B21

Additional Options

HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70395-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70397-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin Multi Vendor SSD	P91229-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin Multi Vendor SSD	P91231-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin Multi Vendor SSD	P91233-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91243-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91245-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91247-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91249-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin Multi Vendor SSD	P91090-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin Multi Vendor SSD	P91092-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin Multi Vendor SSD	P91094-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin Multi Vendor SSD	P91096-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87719-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87721-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87723-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85121-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85124-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85126-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85128-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85739-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85741-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85743-B21
HPE 30.72TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85745-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85668-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85670-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85672-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85674-B21
HPE 30.72TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85676-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 PQC27 Self-encrypting CD9P SSD	P88539-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 PQC27 Self-encrypting CD9P SSD	P88541-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 PQC27 Self-encrypting CD9P SSD	P88543-B21
HPE 30.72TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 PQC27 CD9P SSD	P88533-B21
HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 PQC27 CD9P SSD	P92315-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 PQC27 CD9P SSD	P92317-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 PQC27 CD9P SSD	P92319-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 PQC27 CD9P SSD	P92321-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin PQC27 CD9P SSD	P86024-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin PQC27 CD9P SSD	P86026-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin PQC27 CD9P SSD	P86028-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin PQC27 CD9P SSD	P86030-B21
HPE 30.72TB NVMe Gen5 Mainstream Performance Read Intensive E3.S EC1 E3 Thin PQC27 CD9P SSD	P86032-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87719-B21

Notes:

- NVMe EDSFF drive can only be selected with 12EDSFF FIO Drive Cage Kit (P48401-B21).
- NVMe EDSFF drives are limited to 25°C maximum inlet temperature and system fans may operate at higher speed and higher acoustic level to maintain optimum system cooling condition while EDSFF is installed.
- HPE has qualified the NVMe drive portfolio using the Operating System inbox drivers, full detail on the HPE Solid State Drive QuickSpecs.

HPE Networking

Notes:

- Maximum of two OCP adapters are supported, the Networking OCP3 adapter uses Slot 15 (OCP 2 slot) by default.
- WOL and shared NIC function are only supported in Slot 15 OCP 2 slot.
- OCP2 Enablement Kit is required when installing OCP card in Slot 15 OCP 2 slot.
- Slot 14 OCP1 slot provides x8 PCIe 5.0 lanes from system board, additional OCP1 Enablement Kit for x16 OCP NIC to install on Slot 14 OCP1 is not required with following adapters unless otherwise notice.
- High performance networking card is equaled or greater than 100Gb that may cause the fans to operate at higher speed and higher acoustic level to maintain optimum system cooling when system at idle status.
- Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. Refer to the related NIC QuickSpecs for Technical Specifications and additional information: https://h20195.www2.hpe.com/v2/getpdf.aspx/A00002507ENW.

PCIe Adapters

1 Gigabit Ethernet adapters

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P51178-B21
Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P21106-B21

10 Gigabit Ethernet adapters

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	P26253-B21
Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	P26259-B21

10/25 Gigabit Ethernet adapters

Notes		
	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P26262-B21
*	Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P26264-B21
	Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P08443-B21
	Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P42044-B21
*	Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P08458-B21
	NVIDIA Ethernet 10/25Gb 2-port SFP28 NVMe-oF Crypto Adapter for HPE	S2A69A

100 Gigabit Ethernet adapters

*	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	P21112-B21
*	NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE	R8M41A

Notes: * The controllers require PCIe x16 bandwidth. 2x16 Primary FIO Riser Kit (P48406-B21) or 2x16 Secondary Riser Kit (P47238-B21) is required.

OCP Adapter

1 Gigabit Ethernet OCP adapters

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P51181-B21
Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P08449-B21

10 Gigabit Ethernet OCP Adapters

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

10/25 Gigabit Ethernet OCP adapters

Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10106-B21
Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P42041-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-B21
Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P26269-B21

Notes: OCP1 Enablement Kit is required for this adapter when installed in OCP1 slot.

100 Gigabit Ethernet adapters

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

Notes: OCP1 Enablement Kit is required for this adapter when installed in OCP1 slot.

HPE InfiniBand

Notes:

- When AOC (Active Optical Cables) and processors TDP greater than 270W are selected, limited to 25°C maximum inlet temperature is supported with all drive cage combinations.
- When AOC (Active Optical Cables) and processors TDP equal or less than 270W are selected, limited to 25°C maximum inlet temperature is supported with 8SFF x4 U.3 Tri-Mode FIO Drive Cage Kit (P47218-B21), 12EDSFF FIO Drive Cage Kit (P48401-B21) or 3 SFF/LFF drive cages configuration.
- InfiniBand controllers require PCIe x16 bandwidth. 2x16 Primary FIO Riser Kit (P48406-B21) or 2x16 Secondary Riser Kit (P47238-B21) is required.

HPE Power Supplies

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 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.

Notes:

- Prior to making a power supply selection it is highly recommended that the HPE Power Advisor Tool is run to determine the right size power supply for your server configuration.
- Visit HPE Power Cords and Cables for a full list of optional power cords.
- Flex Slot Platinum power supplies support power efficiency of up to 94% and include a standard C-14 power inlet connector.
- Flex Slot Titanium power supplies support power efficiency of up to 96% and include a standard C-14 power inlet connector.

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

Notes: Support limited to single 125W TDP processor configuration.

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

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

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

Notes:

- Flex Slot universal power supplies support power efficiency of up to 94% and support both 277VAC/380VDC power inputs.
- HPE 1600W DC PSU Power Lug Option Kit (P36877-B21) must be selected along with this power supplies.

HPE 1600W -48VDC Power Cable Lug Kit P36877-B21

Notes: Must be selected along with HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit (P17023-B21).

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

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

Embedded Management

HPE iLO Advanced

HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE
HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21

HPE iLO Common Password Setting

HPE iLO Common Password FIO Setting P08040-B21

Notes:

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

HPE Security

HPE ProLiant Compute ML Gen11/Gen12 Intrusion Cable Kit P47226-B21

HPE Cable Options

Notes: For details on cabling options and cable routing instructions, refer to HPE ML350 Gen11 User Guide

HPE ProLiant ML350 Gen11 LFF Embedded SATA Cable Kit P47225-B21

Notes: This cable kit supports up to 3x 4LFF drive cages with embedded SATA controller.

HPE ProLiant ML350 Gen11 SFF Embedded SATA Cable Kit P47232-B21

Notes: This cable kit supports up to 1x 8SFF drive cage with embedded SATA controller.

HPE ProLiant ML350 Gen11 LFF OROC Cable Kit P47229-B21

Notes: This cable kit supports up to 3x 4LFF drive cages with HPE OCP-type RAID controller (OROC).

HPE ProLiant Compute ML350 Gen11/Gen12 8SFF x1 OROC Box 2/3 Cable Kit P47235-B21

Notes: This cable kit supports up to 2x 8SFF drive cages with HPE OCP-type RAID controller (OROC).

HPE ProLiant ML350 Gen11 LFF SAS/SATA PCIe Controller Cable Kit P47227-B21

Notes: This cable kit supports up to 3x 4LFF drive cages with HPE stand-up PCIe storage controller.

HPE ProLiant ML350 Gen11 SFF Tri-Mode PCIe Controller Cable Kit P47233-B21

Notes: This cable kit supports up to 3x 8SFF drive cages with HPE stand-up PCIe storage controller.

HPE ProLiant ML350 Gen11 8NVMe x4 Direct Attach FIO Cable Kit P48399-B21

Notes: This cable kit must be selected with 8SFF x4 U.3 Tri-Mode FIO Drive Cage Kit (P47218-B21) for direct attached.

HPE ProLiant ML350 Gen11 8SFF x4 U.3 Tri-Mode FIO Cable Kit P47234-B21

Notes: This cable kit must be selected with 8SFF x4 U.3 Tri-Mode FIO Drive Cage Kit (P47218-B21) and SR932i-p (P47184-B21) for controller attached mode.

HPE ProLiant ML350 Gen11 12EDSFF x4 Direct Attach FIO Cable Kit	P48400-B21

Notes: This cable kit must be selected with HPE ProLiant ML350 Gen11 12EDSFF FIO Drive Cage Kit (P48401-21).

HPE ProLiant ML350 Gen11 OCP1 Enablement Kit	P47230-B21

Notes: This cable kit must be selected to support x16 OCP NIC adapter on OCP 1 slot with 1P configuration. CPU 1 MCIO connector will be occupied.

HPE ProLiant ML350 Gen11 OCP2 Enablement Kit	P47231-B21

Notes: This cable kit must be selected when 2 OCP adapters are ordered. Depends on OCP adapter requirement (x8 or x16)
and 1P or 2P configuration, one or two MCIO connectors will be occupied.

HPE ProLiant Compute ML350 Gen11/Gen12 Serial Port Cable Kit	P55062-B21

HPE Tape Backup

For the complete range of tape drives, autoloaders, libraries, and media see:
LTO Ultrium tape QuickSpecs
For hardware and software compatibility of Hewlett Packard Enterprise tape backup products
https://www.hpe.com/Storage/TapeCompatibilityMatrix

Notes:

- When internal LTO tape drive is ordered, Tertiary Riser Kit (P49693-B21) and LTO cable kit (P62309-B21) are required. One available port from MR216i-o/p or MR408i-o storage controller is required to connect to LTO tape drive.
- Supports up to one internal LTO tape drive to be installed in Box 1 location.
- Required to change Thermal Configuration to Increased Cooling mode in BIOS/Platform Configuration (RBSU) menu and system fans may operate at higher speed and higher acoustic level.

HPE Tape Drives

HPE StoreEver LTO-8 Ultrium 30750 External Tape Drive	BC023A
HPE StoreEver LTO-9 Ultrium 45000 External Tape Drive	BC042A
HPE StoreEver LTO-9 Ultrium 45000 Internal Tape Drive	BC040A
HPE StoreEver LTO-8 Ultrium 30750 Internal Tape Drive	BC022A

Internal LTO Support Kit

HPE ProLiant ML350 Gen11 Internal LTO Support Kit	P62309-B21

Notes: Supporting cables to add additional internal LTO device for data backup or archiving.

HPE Tape Drives Cartridge

HPE LTO-6 Ultrium 6.25TB RW Data Cartridge	C7976A
HPE LTO-7 Ultrium 15TB RW Data Cartridge	C7977A
HPE LTO-8 Ultrium 30TB RW Data Cartridge	Q2078A
HPE LTO-9 Ultrium 45TB RW Data Cartridge	Q2079A

HPE Tape Backup Products

HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 2m Cable	K2R09A
HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 4m Cable	K2R10A

HPE Storage Options

Emulex Fibre Channel HBAs

HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	R2J62A
HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	R2J63A
HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter	R7N77A
HPE SN1700E 64Gb 2-port Fibre Channel Host Bus Adapter	R7N78A

QLogic Fibre Channel HBAs

HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A
HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	R7N86A
HPE SN1700Q 64Gb 2-port Fibre Channel Host Bus Adapter	R7N87A

Notes: For the complete listing of Fibre Channel Converged Network Adapters, refer to:
https://www.hpe.com/us/en/product-catalog/servers/adapters

HPE Racks

- Refer to the HPE Advanced Series Racks QuickSpecs for information on additional racks options and rack specifications. HPE G2 Advanced Series Racks
- Refer to the HPE Enterprise Series Racks QuickSpecs for information on additional racks options and rack specifications. HPE G2 Enterprise Series Racks

HPE Power Distribution Units (PDUs)

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

HPE Rack Options

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

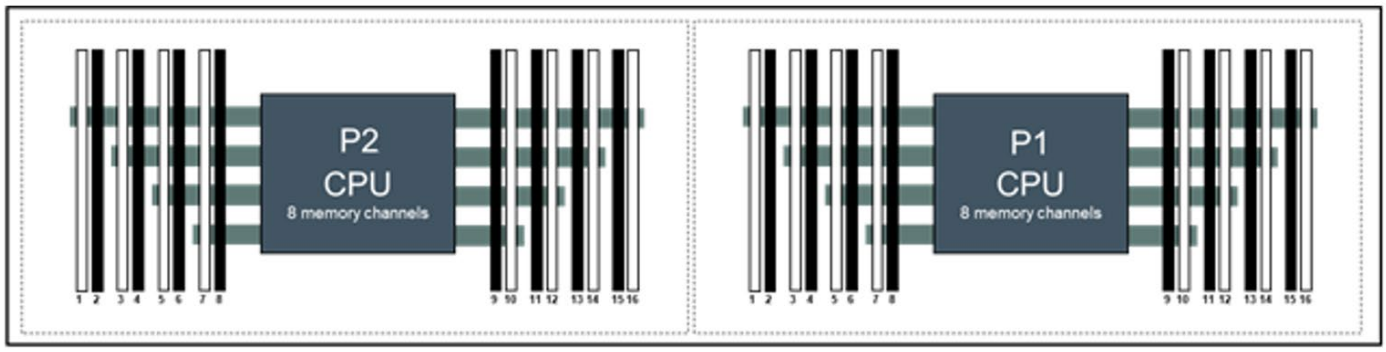
Rail Kits

HPE ProLiant Compute ML Gen11/Gen12 Tower to Rack Conversion Kit P47394-B21

Notes:

- Easy install rack rail tray which takes up 1U height in a standard rack facility.
- This kit is supported in both ML350 and ML110 Gen11 for tower to rack conversion.
- This kit includes CMA and is shipped as standard.
- This kit is not factory integrable option and only can be shipped with standalone package.
- 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.

Memory Population guidelines



HPE ML350 Gen11 Server (Front of server)

Notes: 2 Slots per channel

HPE ProLiant ML350 Gen11 Servers 16 slots per CPU DIMM population order																
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:

- [1] Support SGX (Software Guard Extensions).
- [2] Support Hemi (hemisphere mode).

General Memory Population Rules and Guidelines:

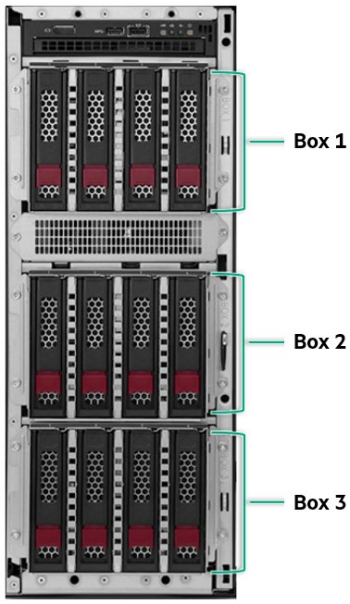
- Install DIMMs only if the corresponding processor is installed. If only one processor is installed in a 2-processor system, only half of the DIMM slots are available to populate.
- If a memory channel consists of more than one DIMM slot, the white DIMM slot is located furthest from the CPU. White DIMM slots denote the first slot to be populated in a channel. For one DIMM per channel (DPC), populate white DIMM slots only.
- Rank mixing is not allowed on a channel except for 1 rank + 2 rank combination when all 16 DIMMs for a Processor socket is populated. (2 rank in white slot, 1 rank in block slot),
- No x4 mixing with x8 across a socket.
- If multiple CPUs are populated, split the HPE Smart Memory DIMMs evenly across the CPUs and follow the corresponding CPU rules when populating DIMMs.

- To maximize performance, it is recommended to balance the total memory capacity across all installed processors and load the channels similarly whenever possible.
- If the number of DIMMs does not spread evenly across the CPUs, populate as close to evenly as possible.
- Avoid creating an unbalanced configuration for any CPU.
- 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 qualified processors installed on the platform.
- Do not mix HPE Smart Memory RDIMMs and HPE Smart Memory LRDIMMs in the same system.
- The 256 GB 8R 3DS RDIMM can be mixed with 128 GB 4R 3DS RDIMM ONLY in 16 DIMMs populated. 256 GB 8R 3DS RDIMM needs to be in white slot while 128 GB 4R 3DS RDIMM needs to be in black slot.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- DIMMs of different speeds may be mixed in any order; however, the server will select the lowest common speed among all of the DIMMs on all of the CPUs.
- HPE Smart Memory DIMMs and HPE NVDIMM-Ns from previous generation servers are not compatible with the current generation. Certain HPE Smart Memory features such as memory authentication and enhanced performance may not be supported.
- There are no performance implications for mixing sets of different capacity DIMMs at the same operating speed. For example, latency and throughput will not be negatively impacted by installing an equal number of 32 GB 1rank x4 DDR5-4800 DIMMs (in block slot) and 64 GB 2rank x4 DDR5-4800 DIMMs (in white slot).
- Take each DIMM type and create a configuration as if it were a homogeneous configuration.
- For details on the HPE Server Memory Options Population Rules, visit: http://www.hpe.com/docs/memory-population-rules.
- For additional information, refer to the HPE DDR5 Smart Memory QuickSpecs.

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

For details on the HPE Server Memory speed, visit: https://www.hpe.com/docs/server-memory.

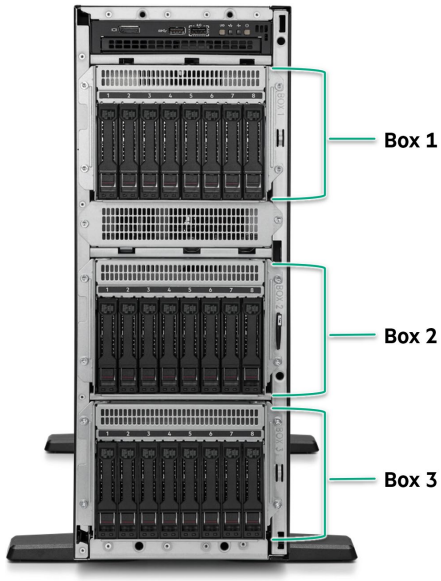
Storage



12 LFF hot-plug drive model:

Tower – shown without the tower feet.

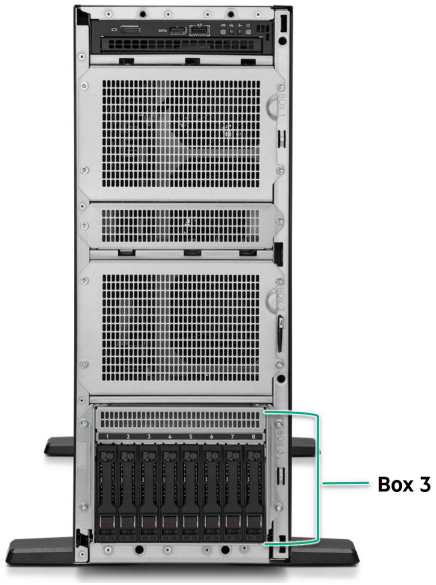
- 3 x 4LFF SAS/SATA hot-pluggable HDD/SSD Cage Kit in Box 1/2/3.



24 SFF hot-plug drive model:

Tower – shown with the tower feet.

- 3 x 8SFF SAS/SATA/NVMe hot- pluggable HDD/SSD Cage Kit in Box 1/2/3.



8 SFF hot-plug drive model:

Tower – shown with the tower feet.

- 1 x 8SFF SAS/SATA/NVMe or x4 NVMe U.3 hot-pluggable Cage Kit in Box 3.

System Unit

Dimensions

- **Tower**
  46.2 (H) x 71.2 (D) x 17.4 (W) cm.
  18.2 (H) x 28 (D) x 6.85 (W) in.
- **Rack – System only**
  17.4 (H/4U) x 64.8 (D) x 44.5 (W) cm.
  6.85 (H) x 25.51 (D) x 17.52 (W) in.
- **Tower-to-Rack Conversion Kit (1U)**
  4.445 (H/1U) x 69.2 (D/without CMA. Depth with CMA: 83.5) x 45.2 (W) cm.
  1.75 (H/1U) x 27.23 (D/without CMA. Depth with CMA: 32.89) x 17.795 (W) in.

Weight (approximate)

- **24.73 kg (54.52 lb.)**
  SFF Minimum:
  8SFF chassis with 1x SFF HDD and 7x SFF HDD blanks, 1x HDD Drive Cage blank, 2x Media Bay blanks, 1x DVD bay blank, 1x processor including standard heatsink, 1x DIMM, 1x power supply (plus blank), 1x Primary Riser, 1x Riser Cage blank, 2x OCP blanks, Cables for the above.
- **37.18 kg (81.97 lb.)**
  SFF Maximum:
  8SFF chassis with 24x SFF HDDs with 3x HDD Drive Cage, 1x DVD device, 2x processor including standard heatsink, 24x DIMMs, 2x power supply, 2x Primary Riser, 1x Tertiary Riser, 1x Megacell, 2x OCP, 8x Single Width GPU card, 2x x8 HHHL card (Max. 166g), Cables for the above.
- **27.42 kg (60.45 lb.)**
  LFF Minimum:
  4LFF chassis with 1x LFF HDD and 3x HDD blanks, 1x HDD Drive Cage blank, 2x Media Bay blanks, 1x DVD bay blank, 1x processor including standard heatsink, 1x DIMM, 1x power supply (plus blank), 2x Primary Riser, 1x Tertiary Riser, 1x Megacell, 2x OCP blanks, 2x SR932i-p card, Cables for the above.
- **43.05 kg (94.91 lb.)**
  LFF Maximum:
  4LFF chassis with 12x LFF HDDs with 3x HDD Drive Cage, 1x DVD device, 2x processor including performance heatsink, 24x DIMMs, 2x power supply, 2x Primary Riser, 1x Tertiary Riser, 1x Megacell, 2x OCP, 4x Double Width x16 GPU card, 2x FHHL card, 1x NS204i-u, Cables for the above.

Input Requirements (per power supply)

Rated Line Voltage

- 100 to 120 VAC.
- 200 to 240 VAC.
- 40 to 72 VDC.

BTU Rating

Maximum

- For 500W Power Supply: 1902 BTU/hr. (at 100 VAC), 1840 BTU/hr. (at 200 VAC), 1832 BTU/hr. (at 240 VAC).
- For 800W Power Supply: 3067 BTU/hr. (at 100 VAC), 2958 BTU/hr. (at 200 VAC), 2949 BTU/hr. (at 240 VAC).
- For 1000W Power Supply: 3741 BTU/hr. (at 100 VAC), 3596 BTU/hr. (at 200 VAC), 3582 BTU/hr. (at 240 VAC).
- For 1600W Power Supply: 5918 BTU/hr. (at 200 VAC), 5884 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 1800W-2200W Power Supply: 6497 BTU/hr. (at 200 VAC), 7962 BTU/hr. (at 240 VAC).

Power Supply Output (per power supply)

Maximum Rated Output Wattage Rating

- For 1800W-2200W (Titanium) Power Supply: 1799W (at 200 VAC), 2200W (at 240 VAC).
- For 1600W (Platinum) Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only.
- For 1600W -48VDC Power Supply: 1600W (at 40 VDC), 1600W (at 48 VDC), 1600W (at 72 VDC).
- For 1000W (Titanium) Power Supply: 1000W (at 100 VAC), 1000W (at 240 VAC).
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only.
- For 500W (Platinum) Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VDC) input for China only.

System Inlet Temperature

- **Standard Operating Temperature**
  10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft.) above sea level to a maximum of 3050 m (10,000 ft.), no direct sustained sunlight. Maximum rate of change is 20°C/hr. (36°F/hr.). The upper limit and rate of change may be limited by the type and number of options installed.
  System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).
- **Extended Ambient Operating Temperature**
  For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft.) above 900 m (2953 ft.) to a maximum of 3050 m (10,000 ft.). The approved hardware configurations for this system are listed at the URL:
  https://support.hpe.com/hpesc/public/docDisplay?docId=sd00002260en_us&docLocale=en_US

  For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft.) above 900 m (2953 ft.) to a maximum of 3050 m (10,000 ft.). The approved hardware configurations for this system are listed at the URL:
  https://support.hpe.com/hpesc/public/docDisplay?docId=sd00002260en_us&docLocale=en_US

  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.

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).

Emission Classification (EMC) Regulatory Information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center: https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=c03471072

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

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

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type 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.

Acoustic Noise

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

Test Case	Base LFF	Base SFF	Perf SFF 1	Perf SFF 2	Perf SFF 3
Idle					
LwA,m	4.0 B	3.9 B	4.0 B	4.0 B	4.1 B
LpAm	26 dBA	25 dBA	25 dBA	25 dBA	25 dBA
Kv	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B
Operating					
LwA,m	4.1 B	4.1 B	4.1 B	4.2 B	4.2 B
LpAm	26 dBA	26 dBA	26 dBA	26 dBA	26 dBA
Kv	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B

Notes:

- 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 LwA,m), 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.

Summary of Changes

Date	Version History	Action	Description of Change
05-Oct-2026	Version 48	Changed	Service and Support and Core Options sections were updated.
		Added	Mixed Use – NVMe - EDSFF - Solid State Drives Read Intensive – NVMe - EDSFF - Solid State Drives
		Removed	Read Intensive – NVMe - EDSFF - Solid State Drives obsolete SKUs.
08-Sep-2026	Version 47	Changed	Additional Options section was updated.
		Added	KVM Switches website.
03-Aug-2026	Version 46	Changed	Core Options section was updated.
		Removed	Obsolete SKUs: Read Intensive – NVMe - SFF - Solid State Drives HPE Tape Drives
06-Jul-2026	Version 45	Changed	Core Options section was updated.
		Added	Mixed Use – NVMe - EDSFF - Solid State Drives Very-Read-Optimized – NVMe - EDSFF - Solid State Drives
01-Jun-2026	Version 44	Changed	Additional Options section was updated.
		Added	Mixed Use – NVMe - EDSFF - Solid State Drives Read Intensive – NVMe - EDSFF - Solid State Drives
		Removed	Pre-Configured Models obsolete SKUs. Read Intensive - 6G SATA - SFF - Solid State Drives
04-May-2026	Version 43	Changed	Additional Options section
		Added	NVIDIA RTX A1000 8GB PCIe Accelerator for HPE.
		Removed	Mixed Use - 12G/24G SAS - SFF - Solid State Drives and Read Intensive - 12G/24G SAS - SFF - Solid State Drives obsolete SKUs.
06-Apr-2026	Version 42	Changed	Additional Options section was updated.
		Added	HPE 16W Smart Hybrid Capacitor SKU.
02-Mar-2026	Version 41	Changed	Service and Support, Pre-Configured Models, and Configuration Information sections were updated.
		Added	Updated GreenLake statement.
		Removed	Intel® Xeon® obsolete SKUs.
02-Feb-2026	Version 40	Changed	Overview, Pre-Configured Models, Configuration Information and Additional Options sections were updated.
		Added	Business Critical - 12G SAS - LFF Drives and Business Critical - 6G SATA - LFF Drives SKUs.
		Removed	Intel® Xeon®-Gold Processors, Intel® Xeon®-Bronze Processors, Business Critical - 12G SAS - LFF Drives, and Business Critical - 6G SATA - LFF Drives obsolete SKUs.
05-Jan-2026	Version 39	Changed	Additional Options section was updated
		Added	Read Intensive - 12G/24G SAS - SFF - Solid State Drives SKUs.
		Removed	Intel® Xeon®-Platinum Processors, Intel® Xeon®-Gold Processors, and HPE InfiniBand obsolete SKUs.
01-Dec-2025	Version 38	Changed	Core Options section was updated.

Summary of Changes

Date	Version History	Action	Description of Change
03-Nov-2025	Version 37	Changed	Overview, Pre-Configured Models (Performance Models), and Additional Options sections were updated.
		Added	NVIDIA L40S 48GB PCIe Accelerator and Read Intensive – NVMe - SFF - Solid State Drives SKUs.
		Removed	Pre-Configured Performance Models that were OBS.
06-Oct-2025	Version 36	Changed	Additional Options section was updated.
		Added	NS204i-u and NVMe SFF drives.
		Removed	Six Processor SKUs.
18-Aug-2025	Version 35	Changed	Standard Features section was updated.
28-Jul-2025	Version 34	Changed	Updated survey link.
02-Jun-2025	Version 33	Changed	Configuration Information and Additional Options sections were updated. Added: Cooling Options rules and SSD rules.
05-May-2025	Version 32	Changed	Additional Options section was updated. Added: Software as a Service Management Enablement SKU (COM), and European Union ErP Lot 9 Regulation section to include Turkey and Ireland Removed: HPE Uninterruptible Power Systems (UPS) SKUs.
07-Apr-2025	Version 31	Changed	Overview, Standard Features, Configuration Information, Additional Options and Storage sections were updated. Added: COM Advanced SKUs, SSD SKUs and QuickSpecs Survey. Removed: HPE RDX SKUs, OBS SSD SKUs.
03-Mar-2025	Version 30	Changed	Additional Options section was updated.
03-Feb-2025	Version 29	Changed	Standard Features, Pre-Configured Models, Configuration Information, and Additional Options sections were updated. OBS SKUs were removed. Intel® VROC Software RAID naming changed to Hybrid RAID.
06-Jan-2025	Version 28	Changed	Standard Features and Optional Features sections were updated.
02-Dec-2024	Version 27	Changed	Additional Options section was updated.
04-Nov-2024	Version 26	Changed	Overview, Configuration Information and Additional Options sections were updated. (Internal LTO tape drive)
07-Oct-2024	Version 25	Changed	Additional Options section was updated.
03-Sep-2024	Version 24	Changed	Overview, Standard Features (Operating Systems and Virtualization Software Support for HPE Servers), Pre-Configured Models and Additional Options sections were updated.
05-Aug-2024	Version 23	Changed	Additional Options section was updated.
15-Jul-2024	Version 22	Changed	Pre-Configured Models section was updated.
01-Jul-2024	Version 21	Changed	Overview, Standard Features and Additional Options sections were updated. New RTX 4000 Ada GPU and NVMe drives were updated.
17-Jun-2024	Version 20	Changed	Pre-Configured Models section was updated.
03-Jun-2024	Version 19	Changed	Configuration Information and drive options were updated.
06-May-2024	Version 18	Changed	Configuration Information and Additional Options sections were updated.

Summary of Changes

Date	Version History	Action	Description of Change
01-Apr-2024	Version 17	Changed	Overview, Standard Features, Pre-Configured Models, Configuration Information and Additional Options sections were updated.
18-Mar-2024	Version 16	Changed	Pre-Configured section was updated.
04-Mar-2024	Version 15	Changed	Pre-configured SKUs, Networking and UPS options were updated.
05-Feb-2024	Version 14	Changed	Drive options were updated.
08-Jan-2024	Version 13	Changed	New NVMe drive options were updated. ENERGY STAR® 4.0 information and 96 GB 5600 memory support limitation were updated.
14-Dec-2023	Version 12	Changed	Intel® 5th Gen processors and 5600 memory options were updated.
13-Nov-2023	Version 11	Changed	New Pre-Configured SKUs were updated.
06-Nov-2023	Version 10	Changed	Service and Support section was updated.
05-Sep-2023	Version 9	Changed	Add new Lot 9 required statements and options. Optimized BTO/CTO SKUs content.
07-Aug-2023	Version 8	Changed	Overview and additional Options sections were updated.
10-Jul-2023	Version 7	Changed	Standard Features and Additional Options sections were updated.
05-Jun-2023	Version 6	Changed	Overview, Standard Features, Core Options, and Technical Specification sections were updated.
01-May-2023	Version 5	Changed	Standard Features and Core Options sections were updated.
03-Apr-2023	Version 4	Changed	Overview, Standard Features, Core Options, and Technical Specification sections were updated.
06-Mar-2023	Version 3	Changed	Overview, Standard Features, Core Options, and Technical Specification sections were updated.
06-Feb-2023	Version 2	Changed	Standard Features, Core Options, Additional Options and Technical Specification sections were updated.
10-Jan-2023	Version 1	New	New QuickSpecs.

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