

# HPE Alletra Storage Server 4210 QuickSpecs

**Are you looking for a balanced storage server among exceptional performance, data capacity, and thermal optimization to your AI-driven workloads?**

The HPE Alletra Storage Server 4210 is specifically designed to run your most performance-demanding data storage-intensive workloads. Comes with configuration flexibility to optimize the thermal efficiency to power your data-driven initiatives to success.

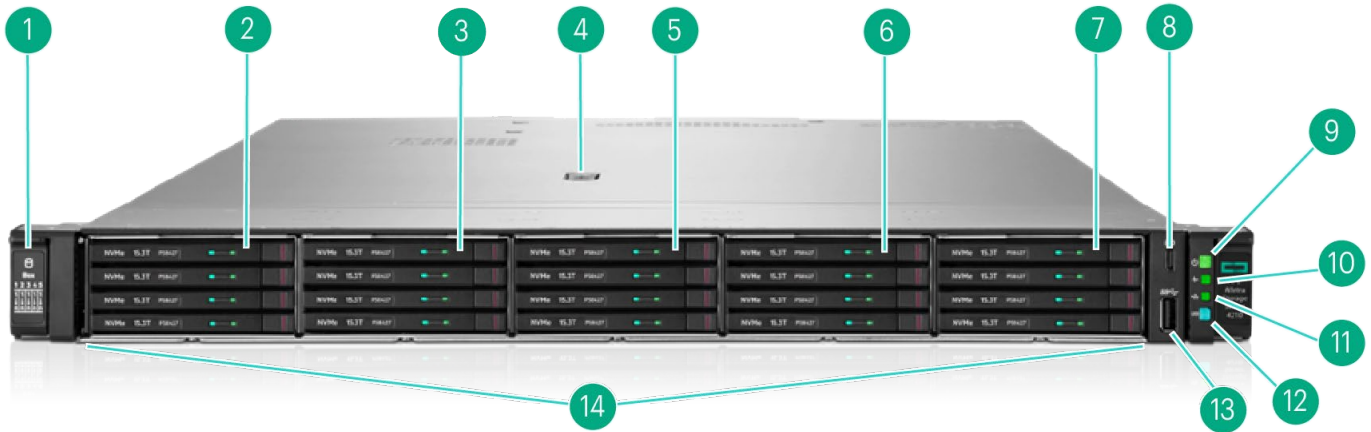
## Overview

The HPE Alletra Storage Server 4210 is specifically designed to run your most performance-demanding data storage-intensive workloads with configuration flexibility to optimize the thermal efficiency to power your data-driven initiatives to success. From data stores for real-time data analytics to distributed and NoSQL databases, performance sensitive Software-Defined Storage, and data-heavy hyperconverged infrastructure, it delivers the capabilities you need at ideal economics with trusted security and a cloud operating experience. This includes the option to consume as-a-service via HPE GreenLake enabling you to shift from owning and maintaining to simply utilizing it. HPE Alletra Storage Server 4000 systems provide the data infrastructure for any successful data driven organization.



**HPE Alletra Storage Server 4210**

Overview



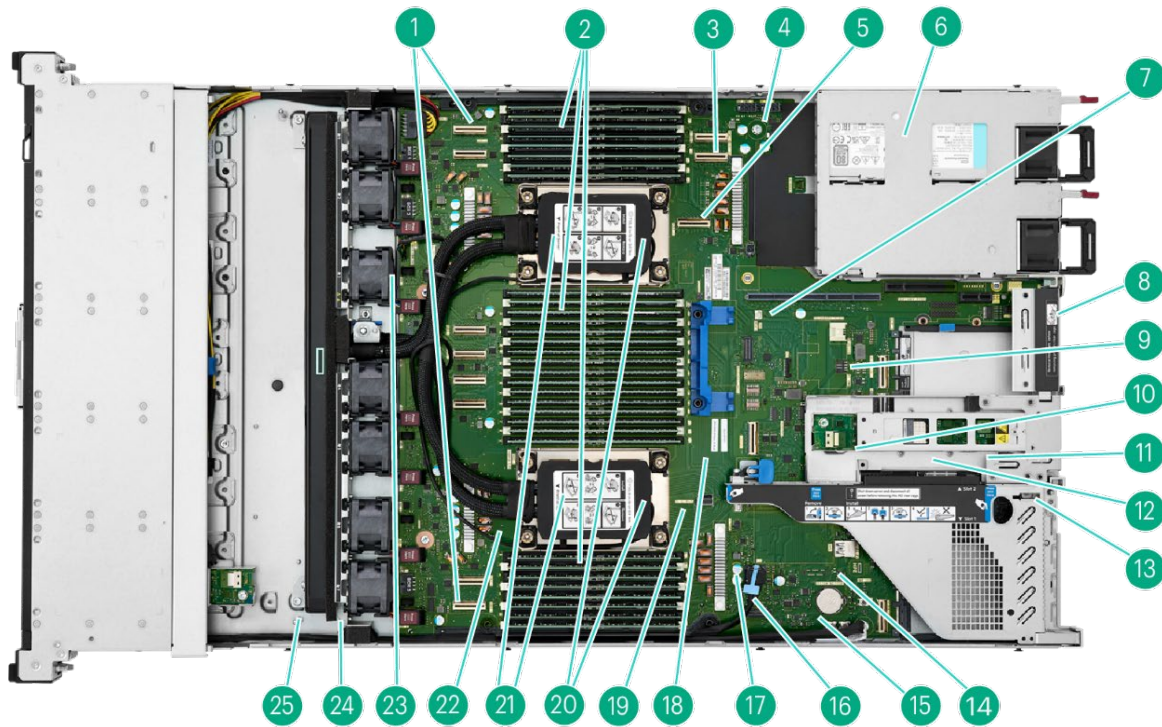
Front View – HPE Alletra Storage Server 4210 EDSFF Configure-to-order System

Item	Description	Item	Description
1.	Drive support label	8.	iLO Service port in USB Type C
2.	Box1 (must be selected) - 4 E3.S 32G x4 NVMe backplane cage (shown)	9.	Power On/Standby button and system power LED
3.	Box2 (optional) - 4 E3.S 32G x4 NVMe backplane cage (shown)	10.	Health LED
4.	Quick removal of access panel	11.	NIC status LED
5.	Box3 Bay1 (optional, two options) - 4 E3.S 32G x4 NVMe backplane cage (shown)	12.	Unit ID button/LED
6.	Box4 (optional) - 4 E3.S 32G x4 NVMe backplane cage (shown)	13.	USB 3.2 Gen1 port
7.	Box5 (optional, two options) - 4 E3.S 32G x4 NVMe backplane cage (shown)	14.	Front multi-purpose cage, Box 1 to 5 -Choice of 4 E3.S, front RAID1 OS Boot, or front OCP NIC enablement kits

Notes:

- Front OCP NIC enablement Kits will be available CQ2 2025, as post launch feature.
- Front NIC LED display doesn't support NIC LED ACT/LINK indication from: embedded/on-board LOM/ALOM/FLOM (not available in this system), OCP NIC cards designed without Scan Chain feature, and PCIe type NIC adapters.

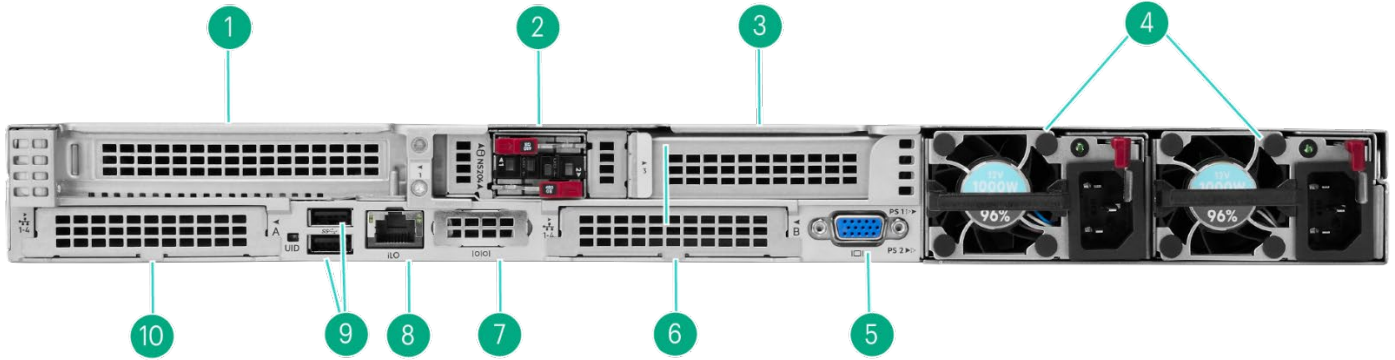
Overview



**Internal View - Closed Loop Liquid Cooling Heatsink & Fan Kit shown**

Item	Description	Item	Description
1.	x8 lanes MCI/O ports (8 to #5 from CPU2, #4 to #1 from CPU1)	14.	Internal USB 3.2 Gen1 Ports (Qty 2, no HPE option kits)
2.	DDR5 DIMM Slots (fully populated 32 DIMMs shown)	15.	System Battery
3.	x8 lanes MCI/O ports (9 & #10 from CPU2)	16.	Front I/O Connector (slim SAS)
4.	Rear Backplane Power connector (Not supported)	17.	Voltage Backup Unit #1
5.	x8 lanes MCI/O ports (11 from CPU2)	18.	x8 lanes MCI/O Ports (#12 from CPU1)
6.	Redundant Power Supply (1 & 2 as shown)	19.	OS Boot Device Signal Connector (slimSAS)
7.	Voltage Backup Unit #2	20.	CPU2 and CPU1
8.	Secondary (CPU2) Riser PCIe 5.0 (optional, shown as blank) - Low Profile x16, or - Full Height x16 (lost Slot 2 on Primary Riser)	21.	Closed-loop Liquid Cooling Cold Plates and Pumps
9.	OS Boot Device Power Connector	22.	Closed-loop Liquid Cooling Tubes & Leak-Detection cables
10.	CPLD (under the riser)	23.	Liquid Cooling Module Power & Signal Connector
11.	Add this "Rear (Hot Plug) RAID1 OS Boot Device (at PCIe Slot2)" to #15 above	24.	Closed-loop Liquid Cooling Hot Plug Fan Kits (7x 4028 fans)
12.	iLO7 ASIC & Heatsink (under the riser)	25.	Closed-loop Liquid Cooling Radiator
13.	Primary (CPU 1) Riser PCIe 5.0 - 1x16 FH at Slot1 and Rear (Hot Plug) RAID1 OS Boot Device (at PCIe Slot2)		

Overview



Rear View

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

Notes:

- Both OCP Slots support OCP NIC 3.0 cards.
- CPU1 can support Slot 14 OCP A with x8 PCIe 5.0 as default, no cable connection is required.
- CPU1 can support Slot 14 OCP A with x16 PCIe 5.0 with selection of “P78876-B21, HPE Alletra Storage Server 4210 CPU1 to Rear OCP SlotA x16 Cable Kit”.
- Or CPU1 can support Slot 15 OCP B with x8 PCIe 5.0 with selection of “P78877-B21, HPE Alletra Storage Server 4210 CPU1 to Rear OCP SlotB x8 Cable Kit”.
- Please refer to the “Rear OCP Slotting” section for the additional OCP slots configurations

## Overview

### What's New

- HPE NS204i-u v2 960 GB NVMe Hot Plug Boot Optimized Storage Device
  - HPE NS204i-u v2 960 GB NVMe SED Hot Plug Boot Optimized Storage Device
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## Platform Information

### Form Factor

- 1U rack

### Chassis Types

- 20E3.S drive cage: 32G x4 NVMe

### System Fans

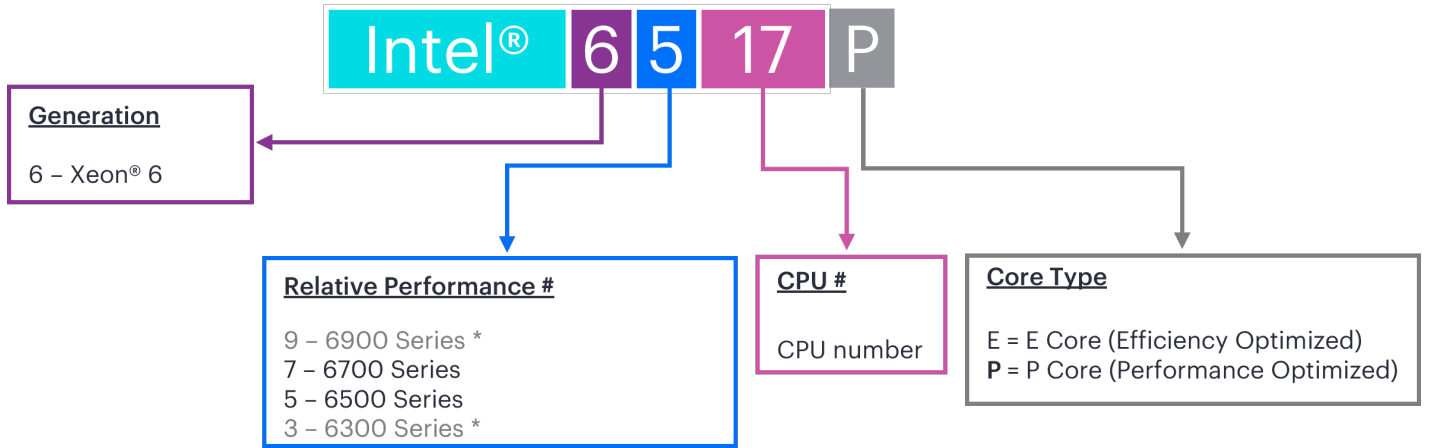
- Choice of Standard Fan Kit, Performance Fan Kits, and Closed-loop Liquid Cooling Heatsink Fan FIO Bundle Kit

### Notes:

- Optional 2P standard Fan Kit: Dual rotor hot plug 2P Standard Fan Kit (includes 2 fans) for second processor.
  - Performance Fan Kit: Dual rotor hot plug High Performance Fan Kit available (includes 7 fans), for one or two processors from 186 W to 270 W TDP. Or one processor with 300 W TDP.
  - The Alletra Storage Server 4210 will support up to 7 fans with fan redundancy built in. One fan rotor failure will place the server in degraded mode but fully functional. Two fan rotor failures could provide warning and imminent server shutdown.
  - Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit supports one or two processors that go beyond 271 W TDP, as factory installation kit only. Customer self-repair or self-field upgrade is not allowed.
  - Direct Liquid Cooling Heatsink Fan FIO Bundle Kit supports two processors that go beyond 271 W TDP, with enhanced thermal condition.
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Standard Features

Processors



Intel® Xeon® 6 Processor Naming Convention

Notes:

- \*CPU Series do not support on HPE Alletra Storage Server 42XX platforms.
- All information provided here is subject to change without notice. Intel may make changes to specifications and product descriptions at any time, without notice. Please contact your Intel representative to obtain the latest Intel product specifications and roadmaps.
- For more information regarding Intel® Xeon® 6 processors, please see the following <http://www.intel.com/xeon>.

The HPE Alletra Storage Server 4210 supports Intel® Xeon 6® Processors

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

Intel® Xeon 6® Processors with Efficient-Cores (E-Cores)								
Performance per Watt Processors								
Intel® Xeon® Models	Base Speed (GHz)	Cores	L3 Cache (MB)	Power (W)	UPI	DDR5 (MT/s)	SGX Enclave size (GB)	Die
6710E	2.4	64	96	205	4	5600	512	HDCC
6731E	2.2	96	96	250	0	5600	512	HDCC
6740E	2.4	96	96	250	4	6400	512	HDCC
6746E	2.0	112	96	250	4	5600	512	HDCC
6756E	1.8	128	96	225	4	6400	512	HDCC
6766E	1.9	144	108	250	4	6400	512	HDCC
Performance Processors								
6780E	2.2	144	108	330	4	6400	512	HDCC

## Standard Features

Intel® Xeon 6® Processors with Performance-Cores (P-Cores)								
Performance General Purpose Processors								
Intel® Xeon® Models	Base Speed (GHz)	Cores	L3 Cache (MB)	Power (W)	UPI	DDR5 (MT/s)*	SGX Enclave size (GB)	Die
6507P	3.5	8	48	150	4	6400	512	LCC
6517P	3.2	16	72	190	4	6400	512	LCC
6527P	3.0	24	144	255	4	6400	512	HCC
Intel® Xeon® Models	Base Speed (GHz)	Cores	L3 Cache (MB)	Power (W)	UPI	DDR5 (MT/s)*	SGX Enclave size (GB)	Die
6730P	2.5	32	288	250	4	6400	512	XCC
6736P	2.0	36	144	205	4	6400	512	HCC
6737P	2.9	32	144	270	4	6400	512	HCC
6747P	2.7	48	288	330	4	6400	512	XCC
6767P	2.4	64	336	350	4	6400	512	XCC
6787P	2.0	86	336	350	4	6400	512	XCC
Mainline Processors								
Intel® Xeon® Models	Base Speed (GHz)	Cores	L3 Cache (MB)	Power (W)	UPI	DDR5 (MT/s)*	SGX Enclave size (GB)	Die
6505P	2.2	12	48	150	4	6400	128	LCC
6515P	2.3	16	72	150	4	6400	128	LCC
6520P	2.4	24	144	210	4	6400	128	HCC
6730P	2.3	32	144	225	4	6400	128	HCC
6740P	2.1	48	288	270	4	6400	128	XCC
6760P	2.2	64	320	330	4	6400	128	XCC

## Cooling solution options Processor TDP

- Qty 2
- Thermal requirements.

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

## Chipset

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

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

## Standard Features

### System Management Chipset

- HPE iLO 7 ASIC

**Notes:** Read and learn more in the [iLO QuickSpecs](#).

### Graphics

#### Integrated video standard

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

### Memory Controller

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

### Memory

Type	HPE DDR5 Smart Memory	Registered (RDIMM)
DIMM Slots Available	32	16 DIMM slots per processor, 8 channels per processor, 2 DIMMs per channel
Maximum capacity (RDIMM)	4.0 TB	32 x 128 GB RDIMM 6400 MT/s @ 1DPC and 5200MT/s @ 2DPC

#### Notes:

- All processors support up to 4 TB memory per socket.
- The maximum memory speed is limited by the processor selection.
- To realize the performance memory capabilities listed in this document, HPE DDR5 Smart Memory is required.
- For additional information, please visit the [HPE Memory QuickSpecs and Technical White Papers](#) **OR** [HPE DDR5 Smart Memory QuickSpecs](#).

## Standard Features

## PCIe Expansion Slots

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

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

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

**Notes:**

- All PCIe Slots support Wake-on-LAN (WoL) feature.
- If secondary riser is selected, then 2 Processors must be selected.
- If secondary riser is not selected and "NS204i-u Rear Cable Kit" is not selected, then maximum 2 quantity of PCIe cards can be selected at Slot1 & Slot2. If secondary riser is not selected and "NS204i-u Rear Cable Kit" is selected, then maximum 1 quantity of PCIe cards can be selected at Slot1.
- If secondary FH riser is installed, then primary PCIe Slot2 cannot be used, maximum 2 quantity of PCIe cards can be selected at Slot 1 & Slot3. If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can be selected at Slot1 & Slot3.
- If Secondary LP riser and "NS204i-u Rear Cable Kit" are selected, then maximum 2 quantity of PCIe cards can be selected at Slot 1 & Slot3. If Secondary LP riser is selected and "NS204i-u Rear Cable Kit" is not selected, then maximum 3 quantity of PCIe cards can be selected.
- Field upgrade kit for Primary riser cards setting (for Slot2) after factory installation and shipment is now available with P78863-B21 (HPE Alletra Storage Server 4210 x16 Primary Riser Kit).

## Standard Features

## OCP Expansion Slots

Rear OCP3.0 Slot Priority Support Matrix				
Rear wall		Selected OCP cards (Qty & type)		
		1	2	
Slots #	Wake-on-LAN	1xNIC	2xNICs	
14 OCPA	Yes (incl. Share NIC)	NIC (Primary)	NIC (Primary)	
15 OCPB	Yes (Incl. Share NIC)	None	NIC	

**Notes:**

- Each OCP slot is in design with up to x16 electrical PCIe5.0 lanes through OCP enablement kits.
- The only exception will be when in q'ty 20 E3.S configuration, Slot 14 OCPA will be supported only with x8 lanes from MLB. No changes from Slot 15 OCPB with x16 lanes.

## Internal Network Controller

There is no embedded network controller included from system board. The HPE Alletra Storage Server 4210 server offers the customer a variety of networking options which are outlined in the Core Options selection in this document.

## Storage Controllers options

## HPE Boot Devices option

- HPE NS204i-u V2 480 GB NVMe Hot Plug Boot Optimized Storage Device (P78279-B21)<sup>1</sup>
- HPE Alletra Storage Server 4210 1U NS204i-u Front Enablement Kit (P78870-B21)
- HPE Alletra Storage Server 4210 NS204i-u Rear Enablement Kit (P78867-B21)
- HPE Alletra Storage Server 4210 NS204i-u Internal Enablement Kit (P78866-B21)

Alletra Storage Server 4210 Boot Device Enablement Kit options				
Enablement Kit	CTO Server compatibility	Field Inst.	Location	Hot-plug Capability
P78870-B21	HPE Alletra Storage Server 4210 EDSFF Configure-to-order System	Yes	Front Cage Box5	Yes
P78867-B21	HPE Alletra Storage Server 4210 EDSFF Configure-to-order System	Yes	PCIe Slot 2 <sup>2</sup>	Yes
P78866-B21	HPE Alletra Storage Server 4210 EDSFF Configure-to-order System	Yes	Internal	No support

**Notes:**

- <sup>1</sup>x4 PCIe Gen3.0 OS Boot device includes 2x 480 GB M.2 NVMe SSDs, with preconfigured hardware RAID1.
- <sup>2</sup>For field update NS204i-u V2, removing the original PCIe Slot 2 cage and re-install the dedicated Alletra Storage Server 4210 NS204i-u cage, latch, and cables in the P78867-B21.
- <sup>2</sup>The NS204i-u will take up PCIe Slot 2 space only. The PCIe Slot 1 (FHHL) and PCIe Slot 3 (to be Low Profile) are available in the system with the selection of optional "HPE Alletra Storage Server 4210 x16 LP Riser Kit (P78865-B21)".
- For additional information, please see the [HPE OS Boot Device Options QuickSpecs](#) or [HPE NS204i Boot Device User Guide](#)

## Standard Features

### Intel® Virtual RAID on CPU (VROC)

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

[Intel VROC for HPE QuickSpecs](#)

[Intel Virtual RAID on CPU for HPE User Guide](#)

- **Intel® Virtual RAID on CPU (VROC) for HPE**
  - Intel® Virtual RAID on CPU Premium E-RTU for HPE
  - Intel® Virtual RAID on CPU RAID 1 E-RTU for HPE

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## Maximum Storage

Storage	Capacity	Configuration
EDSFF NVMe SSD	307.2 TB	20 x 15.36 TB

## Power Supply

- HPE 800 W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit  
**Notes: Available in 94% efficiency.**
- HPE 1000 W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit  
**Notes: Available in 96% efficiency.**
- HPE 1600 W Flex Slot -48VDC Hot Plug Power Supply Kit
- HPE 1600 W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit  
**Notes:**
  - Available in 94% efficiency.
  - 1600 W Platinum Power supplies only support high line voltage (200 VAC to 240 VAC).
- HPE 1800 W -2200 W Flex Slot Titanium Hot Plug Power Supply Kit  
**Notes:**
  - Available in 96% efficiency.
  - 1800-2200 W Titanium Power supply only supports high line voltage (200 VAC to 240 VAC).

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE Alletra Storage Server 4210 Performance Server. 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 (AOK02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

To review the power requirements for your selected system, please visit the HPE Power Advisor located at: [HPE Power Advisor](#)

For information on power specifications and technical content visit [HPE Flexible Slot Power Supplies](#).  
For information regarding European Union Erp Lot 9 Regulation visit [Industry Standard Compliance](#) section.

## Standard Features

### Interfaces

<b>Serial</b>	1 port - Optional
<b>Video</b>	1 Rear - VGA port (standard on all models) <b>Notes:</b> <a href="#">VGA port can support active simultaneously.</a>
<b>Network Ports</b>	None. Choice of OCP or stand-up card, supporting a wide range of NIC adapters. Alletra Storage Server 4210 EDSFF CTO System in One Config Advanced will come with a pre-selected primary networking card, reselection is allowed.
<b>HPE iLO Remote Mgmt Port at rear</b>	1 GbE Dedicated
<b>Front iLO Service Port</b>	1 standard in USB Type C
<b>USB</b>	5 standard on all models: 1 front, 2 rear, 2 internal +1 optional at the front <ul style="list-style-type: none"> <li>– Front: 1 USB 3.2 Gen1 + iLO service port in USB Type C</li> <li>– Rear: 2 USB 3.2 Gen1</li> <li>– Internal: 2 USB 3.2 Gen1 (HPE share option kit is not available)</li> </ul>

### 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](#)

### Industry Standard Compliance

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

**Notes:** [Support from the optional Universal Media Bay.](#)

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

**Notes:** [UEFI is the default for the Alletra Storage Server 4210 System.](#)

- OCP 3.0 SFF NIC Support
- Embedded TPM Support
- Energy Star 4.0
- SMBIOS 3.7
- UEFI 2.10 (Unified Extensible Firmware Interface Forum)
- UEFI Class 3
- Redfish API

## Standard Features

- IPMI 2.0
  - Secure Digital 4.0
  - Advanced Encryption Standard (AES)
  - SNMP v3
  - TLS 1.2
  - DMTF Systems Management Architecture for Server Hardware Command Line (SMASH CLP)
  - Active Directory v1.0
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## 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 Alletra Storage Server 4210 has a UEFI Class 2 implementation to support UEFI Mode.

**Notes:** The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit <http://www.HPE.com/servers/uefi>.

### UEFI enables numerous new capabilities specific to HPE Alletra Storage Server 4210 such as:

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

### UEFI Boot Mode only

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

**Notes:** For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI. Enabling TPM 2.0 no longer requires TPM module option kit for Gen12. It is an embedded feature yet disabled for shipments to China.

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## Standard Features

### HPE Compute Ops Management

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

HPE Compute Ops Management is cloud-native software that is continually updated with new services, features, patches, and fixes. The management application resides in the HPE GreenLake cloud platform (access via <https://console.greenlake.HPE.com>) and leverages the HPE GreenLake architecture, security, and unified operations. A 5-year subscription to HPE Compute Ops Management is added by default when ordering an HPE Alletra Storage Server 4210 System.

For more information, visit the HPE Compute Ops Management QuickSpecs:

<https://www.HPE.com/psnow/doc/a50004263enw>

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### Embedded Management

#### HPE Integrated Lights-Out (HPE iLO)

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

Learn more at <http://www.HPE.com/info/ilo>.

#### UEFI

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

Learn more at <http://www.HPE.com/servers/uefi>.

#### OpenBMC Support

OpenBMC Capable through iLO7 Transfer of Ownership Process.

Learn more at [OpenBMC Support](#)

#### Intelligent Provisioning

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

Learn more at <http://www.HPE.com/servers/intelligentprovisioning>.

#### iLO RESTful API

iLO RESTful API is DMTF Redfish API information and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at

<http://www.HPE.com/info/restfulapi>.

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### 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>.

## Standard Features

### Active Health System Viewer

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

### Smart Update

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

Learn more at: <https://www.HPE.com/us/en/servers/smart-update.html>.

### HPE iLO Mobile Application

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

### RESTful Interface Tool

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

### HPE OneView Standard

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

### HPE Systems Insight Manager (HPE SIM)

Ideal for environments already using HPE SIM, it allows you to monitor the health of your HPE Alletra Storage Servers and HPE Integrity Servers. Also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates.

Learn more at: <http://www.HPE.com/info/hpesim>.

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## Security

Experience unparalleled security benefits with HPE Alletra Storage Servers 4210, designed to enhance your infrastructure's security and performance. These servers come equipped with cutting-edge embedded security features, ensuring robust protection for your critical data and applications. Key features include:

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

**Enhanced Server Data Security:** Encryption and key management, iLO Managed Encryption, UEFI-managed encryption, and self-encrypting drives (SED) for enhanced data-at-rest protection.

**Sanitize Data with One-Button Secure Erase:** This method complies with NIST SP 800-88 guidelines for media sanitization, ensuring the secure decommissioning of servers.

**Expanded Industry Security Compliance:** Adherence to standards such as FIPS 140-3, NIST SP 800-53, NIST SP 800-171, and NIST SP 800-88.

**HPE Compute Ops Management:** Provides an intuitive cloud operating experience, ensuring streamlined and highly secure operations from the edge to the cloud.

## Standard Features

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

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

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

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

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## HPE Trusted Platform Module

Enabling HPE Trusted Platform Module (TPM) 2.0 no longer requires TPM module option kit for HPE Alletra Storage Server 4210. It is an embedded feature for global shipments. TPM2.0 can also be disabled from the BIOS setting.

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

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## Standard Features

### Warranty

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

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

[HPE Storage Global Limited Warranty and Technical Support](#)

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## Optional Features

### Server Management

#### HPE iLO Advanced

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

#### HPE OneView Advanced

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

To learn more visit <http://www.HPE.com/info/oneview>.

#### HPE Insight Cluster Management Utility (CMU)

HPE Insight Cluster Management Utility is a HyperScale management framework that includes software for the centralized provisioning, management and monitoring of nodes and infrastructure. Learn more at

<http://www.HPE.com/info/cmu>.

#### Accelerator and GPU Information

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

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### Rack and Power Infrastructure

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

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

HPE G2 PDUs offer reliable power in flexible form factors that operate at temperatures up to 60°, include color-coded outlets and load segments and a low-profile design for optimal access to the rack and support for dense rack environments.

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

## Optional Features

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

Learn more about HPE Racks, KVM, PDUs and UPSs at [HPE Rack and Power Infrastructure](#).

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### **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#>

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## Service and Support

### HPE Services

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

<https://www.HPE.com/services>

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### Consulting Services

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

<https://www.HPE.com/services/consulting>

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### HPE Managed Services

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

[HPE Managed Services | HPE](#)

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### Operational services

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

<https://www.HPE.com/services/operational>

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### HPE Complete Care Service

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

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

<https://www.HPE.com/services/completecure>

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### HPE Tech Care Service

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

<https://www.HPE.com/services/techcare>

## Service and Support

### HPE Lifecycle Services

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

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

**Notes:** To review the list of Lifecycle Services available for your product go to:

<https://www.HPE.com/services/lifecycle>

For a list of the most frequently purchased services using service credits, see the [HPE Service Credits Menu](#)

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### Other Related Services from HPE Services:

#### HPE Education Services

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

<https://www.HPE.com/services/training>

#### Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

#### Parts and Materials

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

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

## Service and Support

### How to Purchase Services

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

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

### AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

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

<https://support.HPE.com/hpesc/public/home/signin>

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### Consume IT On Your Terms

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

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

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

For more information: <http://www.HPE.com/services>

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## Configuration Information

### Mainstream SKUs

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

This section lists some of the steps required to configure a Factory Integrated Model.

To ensure valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an HPE approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

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

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

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

CTO Server	HPE Alletra Storage Server 4210 EDSFF Configure-to-order System			
<b>SKU Number</b>	P78861-B21			
<b>TAA SKU*</b>	P78861-B21#GTA			
<b>Processor vs Cooling solution (Heatsink &amp; Fan kit)</b>	Not included. <ul style="list-style-type: none"> <li>– Optional: Qty 2</li> <li>– Thermal requirements.</li> </ul>			
	<b>CPU TDP (Wattage)</b>	<b>Heatsink (HS)</b>	<b>Fan Kit</b>	<b>Availability</b>
	<=185 W	Standard HS	Standard Fan Kit (5/7ea)	At launch
	186 W - 270 W	Performance HS	Performance Fan Kit	At launch
	271 W - 350 W	Closed-loop HS	Closed-loop Fan Kit	At launch
	<=350 W	DLC CPM	DLC Fan kit (=Perf. Fan Kit)	At launch
<b>DIMM Slots</b>	32-DIMM slots in total			

## Configuration Information

<b>DIMM Blanks</b>	<p>Not included.</p> <ul style="list-style-type: none"> <li>– If memory selection is less than q'ty 32, DIMM Blanks are required, per thermal and memory population requirements.</li> <li>– Configurator is defaulting P07818-B21 (HPE DDR-4 DIMM Blanks Kit).</li> <li>– DIMM blank q'ty requirements: P07818-B21 contains 31 pcs DIMM blanks, and HPE factory will load adequate DIMM blanks per thermal rules and actual memory q'ty selected.</li> </ul>												
<b>DIMM Blanks</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 5px;"><b>Cooling solutions/DIMM types</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Air Cooling</td> <td style="text-align: right; padding: 5px;">Yes</td> </tr> <tr> <td style="padding: 5px;">Liquid Cooling (Closed-loop LC or DLC)</td> <td style="text-align: right; padding: 5px;">No</td> </tr> <tr> <th colspan="2" style="text-align: left; padding: 5px;"><b>DIMM (Blank) population</b></th> </tr> <tr> <td style="padding: 5px;">DIMM q'ty</td> <td style="text-align: right; padding: 5px;">Max 32 and min 2</td> </tr> <tr> <td style="padding: 5px;">DIMM Blank q'ty</td> <td style="text-align: right; padding: 5px;">Fill out empty DIMM slots. Min 0 and max 30.</td> </tr> </tbody> </table>	<b>Cooling solutions/DIMM types</b>		Air Cooling	Yes	Liquid Cooling (Closed-loop LC or DLC)	No	<b>DIMM (Blank) population</b>		DIMM q'ty	Max 32 and min 2	DIMM Blank q'ty	Fill out empty DIMM slots. Min 0 and max 30.
<b>Cooling solutions/DIMM types</b>													
Air Cooling	Yes												
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DIMM q'ty	Max 32 and min 2												
DIMM Blank q'ty	Fill out empty DIMM slots. Min 0 and max 30.												
<b>Storage Controller</b>	<p>Not included. Choice of</p> <ul style="list-style-type: none"> <li>– Intel® Virtual RAID on CPU (VROC) for HPE</li> <li>– HPE NS204i-u V2 480 GB /960 GB /960 GB SED NVMe Hot Plug Boot Optimized Storage Device at Rear, internal or front cage</li> </ul>												
<b>Rear PCIe Slots</b>	<p>Up to 3 Slots PCIe 5.0 (Slot 1, 2 &amp; 3). All PCIe Slots are in design with up to 9.5" length.</p> <ul style="list-style-type: none"> <li>– Default: <ul style="list-style-type: none"> <li>• One standard primary/butterfly riser (embedded)</li> <li>• Slot 1 &amp; Slot 2 (1 x16 FH / 1 x16 LP) with 4 x8 front NVMe connectors</li> </ul> </li> <li>– Optional: <ul style="list-style-type: none"> <li>• Secondary riser Slot 3 with 1 x16, in FH</li> <li>• Secondary riser Slot 3 with 1 x16, in LP</li> </ul> </li> </ul>												
<b>Rear OCP3.0 Slots</b>	<p>Up to 2 Slots PCIe 5.0 (Slot 14 &amp; 15). All OCP Slots are up to x16 PCIe5.0</p> <ul style="list-style-type: none"> <li>– Default: Embedded x8 lanes Slot 14 OCPA from CPU1</li> <li>– Optional (with selection of cable kits): <ul style="list-style-type: none"> <li>• x16 lanes Slot 14 OCPA from CPU1</li> <li>• x8 lanes Slot 15 OCPB from CPU1</li> <li>• x8 lanes Slot 15 OCPB from CPU2</li> <li>• x16 lanes Slot 16 OCPB from CPU2</li> </ul> </li> </ul>												
<b>Front Drive Cage</b>	<p>Box1 (must be selected). Box2/3/4/5 (optional). Box/Cage Choices:</p> <ul style="list-style-type: none"> <li>– 4 E3.S 32G x4 NVMe backplane cage</li> </ul>												

## Configuration Information

	<ul style="list-style-type: none"> <li>– NS204i-u Front Enablement Kit (Box5)</li> <li>– Front OCP NIC enablement kits (Box3) (post launch CQ2 2025)</li> </ul>
<b>Network Controller</b>	<ul style="list-style-type: none"> <li>– There is no embedded network controller included from system board.</li> <li>– BCM 5719 1 GB 4p Base-T OCP Adapter to be defaulted in the configurator</li> <li>– Customers are allowed to remove the NIC card default setting and re-select other cards (OCP3.0 or stand-up cards) from Networking &amp; InfiniBand.</li> </ul>
<b>Management</b>	HPE iLO with Intelligent Provisioning (standard) HPE Compute Ops Management (a 5-year subscription included) Optional: iLO Advanced and OneView
<b>Video Output</b>	Rear: 1 VGA Optional: <ul style="list-style-type: none"> <li>– 1 Rear Serial Port</li> </ul>
<b>USB</b>	Front: 1 USB 3.2 Gen1 + iLO service port in USB Type C Rear: 2 USB 3.2 Gen1 Internal: 2 USB 3.2 Gen1 (HPE Share option kit is not available)
<b>Security</b>	Trusted Platform Module (TPM) 2.0. It is an embedded feature globally and can be disabled in the BIOS setting.
<b>Rail Kit</b>	Optional Easy Install rails and CMA. <ul style="list-style-type: none"> <li>– HPE Easy Install Rail 5 Kit (P52343-B21) is available</li> <li>– HPE Cable Management Arm 4 for Friction Rail Kit (P70741-B21) as optional.</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>– Server does not support shelf mounted rail kits (“L” brackets).</li> <li>– If CMA is selected, then Rail Kit must be selected.</li> </ul>
<b>Form Factor</b>	1U Rack
<b>Warranty</b>	3-year parts, 3-year labor, 3-year onsite support with next business day response.

**Notes:**

- Alletra Storage Server 4210 requires the selection of Processor, Memory, and Power Supply. Backplane to be further selected.
- \*HPE offers multiple Trade Agreement Act (TAA) compliant configurations to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed in a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).
- All CTO servers are Energy Star 4.0 compliant, excluding configuration with GPU.
- Supported Rail kit to be defaulted for CTO Model in the configurator. But the customer can deselect the Rail kit if the CTO Model is selected without Rack (Standalone server).

## Configuration Information

### Step 2: Choose Datacenter operational Tracking SKU and Front cage/storage configuration

- Recommend following the sequence for key component upfront selection.
- The selection sequence: (each -B21 SKUs are listed in later section)
  - a. Datacenter operational Tracking SKU.**

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

    - i. Max System Inlet Temperature Tracking SKUs: Facts of customer server environment ambient temperature setting. Choose the maximum temperature setting from datacenter/operation environment. The higher System Inlet Temperature has higher thermal and cooling requirements.
    - ii. Network Cable Tracking SKUs: Choose the networking card cable type going to be installed in the field.
  - b. Front cage/storage configuration.**

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

    - i. Storage backplane(s)
    - ii. RAID1 OS Boot Enablement Kit
    - iii. OCP(s) NIC Enablement Kit (available late CQ2 2025, post launch).
- With the completion of the above steps, the user will be able to enter the Share Option menu with selection.

#### Notes

- AOC cabling for high-performance networking cards has higher power and cooling requirements. It is necessary to select AOC or DAC preferences correctly.
  - Without selection of high-performance Network cards, and with only 1 GB or 10/25 GB card(s) installed, please select P79633-B21 (HPE DAC ACC CAT Base-T Networking Cable Operating Configuration Tracking), which do not generate additional power/cooling restrictions.
-

## Configuration Information

### Step 3: Choose Core Options

- Energy Star 4.0: No restriction from processors while server shipment starts, yet the Platinum Power Supply (in 94% power efficiency in 800 W & 1600 W are not compatible.
- Processor(s): Mixing of 2 different processor models is not supported.
- Processor(s): CTO server will populate necessary heatsink and fan kits per system thermal requirements and processor models
- Memory: DIMM Blanks are required to be selected as below thermal requirements as shown in previous CTO chassis (Base model) section.
- Riser cards: Choice of riser card for PCIe5.0 slots enablement. Primary/standard riser cards are default in CTO Chassis (Base model). Selection for one of the secondary riser kits (FH or LP) is required if expecting a stand-up card in PCIe Slot.
- OS Boot Device: Max one OS Boot device can be selected in a server. Selection of the OS Boot Device along with Enablement Cable Kit is required.
- Networking: Choice of high-performance NIC, 1 GbE NIC, or 10/25 GbE NIC, available in stand-up and OCP3.0.
- Power and Cooling: Choices of FlexSlot Power supply with redundancy, system fans, DLC extension tubes and power cords.
- Choice of Security Options.
- Graphic Options: Choice of compatible Single-wide GPU
- Accessories: Choice of Management Hardware incl. Serial Port and SID Power module kit.
- Rack Options: Choice of Rail kit and Cable Management Arm.
- Software as a Service Management: Choice of HPE Compute Ops Management and Choice of HPE OneView

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### Step 4: Choose Additional Options

- Choice of Manufacturing Service
  - Choice of Support Service
-

## Core Options

**Datacenter Operational Tracking SKU****Description**

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

**Notes:**

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

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

**Notes:**

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

**Front Cage/Storage configuration****Description**

	<b>SKU</b>
HPE Alletra Storage Server 4210 1U 4EDSFF NVMe Stacking Backplane Kit	P78862-B21
HPE Alletra Storage Server 4210 1U NS204i-u Front Enablement Kit	P78870-B21

**Notes:**

- Total q'ty 1 – 5
- Box1 backplane needs to be selected, Box 2-5 are optional.
- Front OCP NIC(s) Enablement Kit will be available late CQ2 2025 at Box3, max q'ty 2

**Processor**

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

**Intel Xeon 6 Processors**

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

## Core Options

**Intel® Xeon 6® Processors with Efficient-Cores (E-Cores)****Intel® Xeon 6® Efficient – Performance per Watt****Description**

	<b>SKU</b>
Intel Xeon 6710E 2.4 GHz 64-core 205 W Processor for HPE Alletra Storage Server 42X0	P79217-B21
Intel Xeon 6731E 2.2 GHz 96-core 250 W Processor for HPE Alletra Storage Server 42X0	P79218-B21
Intel Xeon 6740E 2.4 GHz 96-core 250 W Processor for HPE Alletra Storage Server 42X0	P79219-B21
Intel Xeon 6746E 2.0 GHz 112-core 250 W Processor for HPE Alletra Storage Server 42X0	P79220-B21
Intel Xeon 6756E 1.8 GHz 128-core 225 W Processor for HPE Alletra Storage Server 42X0	P79221-B21
Intel Xeon 6766E 1.9 GHz 144-core 250 W Processor for HPE Alletra Storage Server 42X0	P79222-B21

**Intel® Xeon 6® Efficient – Performance**

Intel Xeon 6780E 2.2 GHz 144-core 330 W Processor for HPE Alletra Storage Server 42X0	P79223-B21
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**Intel® Xeon 6® Processors with Performance-Cores (P-Cores)****Intel® Xeon 6® Performance - General Purpose****Description**

	<b>SKU</b>
Intel Xeon 6507P 3.5 GHz 8-core 150 W Processor for HPE Alletra Storage Server 42X0	P79211-B21
Intel Xeon 6517P 3.2 GHz 16-core 190 W Processor for HPE Alletra Storage Server 42X0	P79214-B21
Intel Xeon 6527P 3.0 GHz 24-core 255 W Processor for HPE Alletra Storage Server 42X0	P79201-B21
Intel Xeon 6730P 2.5 GHz 32-core 250 W Processor for HPE Alletra Storage Server 42X0	P79198-B21
Intel Xeon 6736P 2.0 GHz 36-core 205 W Processor for HPE Alletra Storage Server 42X0	P79205-B21
Intel Xeon 6737P 2.9 GHz 32-core 270 W Processor for HPE Alletra Storage Server 42X0	P79206-B21
Intel Xeon 6747P 2.7 GHz 48-core 330 W Processor for HPE Alletra Storage Server 42X0	P79190-B21
Intel Xeon 6767P 2.4 GHz 64-core 350 W Processor for HPE Alletra Storage Server 42X0	P79193-B21
Intel Xeon 6787P 2.0 GHz 86-core 350 W Processor for HPE Alletra Storage Server 42X0	P79196-B21

**Intel® Xeon 6® Performance - Mainline****Description**

	<b>SKU</b>
Intel Xeon 6505P 2.2 GHz 12-core 150 W Processor for HPE Alletra Storage Server 42X0	P79210-B21
Intel Xeon 6515P 2.3 GHz 16-core 150 W Processor for HPE Alletra Storage Server 42X0	P79213-B21
Intel Xeon 6520P 2.4 GHz 24-core 210 W Processor for HPE Alletra Storage Server 42X0	P79199-B21
Intel Xeon 6530P 2.3 GHz 32-core 225 W Processor for HPE Alletra Storage Server 42X0	P79202-B21
Intel Xeon 6740P 2.1 GHz 48-core 270 W Processor for HPE Alletra Storage Server 42X0	P79188-B21
Intel Xeon 6760P 2.2 GHz 64-core 330 W Processor for HPE Alletra Storage Server 42X0	P79191-B21

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## Core Options

**Heatsinks (incl. Liquid Cooling module)**

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

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

- Thermal requirements vs DIMM Blanks.

Air Cooling	Yes
Liquid Cooling (Closed-loop LC or DLC)	No

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

**Description**

HPE Alletra Storage Server 4210 1U Standard Heat Sink Kit	P78873-B21
HPE Alletra Storage Server 4210 High Performance Heat Sink Kit	P78871-B21
HPE Alletra Storage Server 4210 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit	P78874-B21
HPE Alletra Storage Server 4210 Cold Plate Module FIO Kit from PCIe	P78872-B21
HPE ProLiant Direct Liquid Cooling 450 mm Female-Male Connection Quick Disconnect Tube Set FIO Kit	P62046-B21

**SKU****Notes:**

- Configuration with thermal consideration:
  - With the below scenarios, the Performance Heatsink or Closed Loop Liquid Cooling (CL LC) Heatsink or DLC Module must be selected: NVMe drives OR 100 GbE or above Networking/ InfiniBand OR Rear NS204i-u V2 OR NVIDIA® L4 GPU.
  - If Closed Loop Liquid Cooling (Factory installation only) was shipped with 1 Processor from HPE factory, field upgrade the server with 2nd Processor or different processor is not allowed due to the installation complexity.
  - 7x 4028 Performance Fan are embedded in the P78874-B21 (CL LC modul kit). Fan kit selection is not required by user.
  - 7x 4056 Performance Fan must be selected and be defaulted, if Performance Heatsink or DLC Module is selected.

## Core Options

- In the CL LC bundle Kit, with full speed the 4028 Fan Kit runs at 210 W , which requires 42 W additional power than Alletra Storage Server 4210 Performance 4056 Fan Kit.
- Max 1 of Liquid cooling can be selected from the below: “Closed Loop Liquid Cooling”, or “DLC CPM module”.
- The “PCIe DLC Module” contains 2 Cold Plate Modules and 1 Quick Disconnect Module.
- If DLC Module is selected, then "HPE ProLiant Direct Liquid Cooling 450 mm Female-male Connection Quick Disconnect Tube Set FIO Kit (P62046-B21)" must be selected. (See Power and Cooling solutions).

### HPE Gen12 DLC Infrastructure

- Build-in a new feature with Leak Detection alert from iLO7 is available. iLO7 will trigger system shut down if a leak event is detected.
- HPE Alletra Storage Server 4210 Direct Liquid Cooling (DLC) solution requires at least one liquid cooling infrastructure item as follows: HPE Rack in 800 mm x 1200 mm (options listed below), Rack Manifold, CDU, Primary Hose Kit, and Secondary Hose Kit to function. Without above rack infrastructure to be selected, an unbuildable configuration will be triggered in this order.
  - DLC Rack options
    - Rack 42U 800 mm x 1200 mm Ent G2 (applicable for Alletra Storage Server 42XX DLC)
    - Rack 48U 800 mm x 1200 mm Ent G2 (applicable for Alletra Storage Server 42XX DLC)
- The DLC Rack Infrastructure setting is relatively complex and needs to be conducted by HPE Service with a complete enablement of DLC Rack solution. Major factors impacting the DLC Rack Infrastructure setting are listed below.
  - The connectivity of server to manifold
  - The DLC rack capability (liquid supply temperature, flow rate in each loop and CDU capability)
  - The CDU parameter setting (liquid type, server units in rack, and any mixing servers)
- If a customer has ordered from HPE previously and already has this basic infrastructure on site, please get unbuildable exception approval from HPE Alletra Storage Server Product Management Team. A standalone unit can be shipped for field upgrade as an exception, without this infrastructure the server DLC solution will not function

### HPE Alletra Storage Server 4210 Closed-loop LC Module

- Build-in a new feature with Leak Detection alert from iLO7 is available. iLO7 will trigger system shut down if a leak event is detected and prevent the server from powering on until the leakage event is cleared, and REST API is performed for system recovery
- The P78874-B21 contains paired (2) cold plates (1 per CPU) each with a pump, Tubes, (7) 4028 fans and a radiator. The entire module kit is designed to cool down the processor effectively using cooled inlet air. It would benefit the Processor temperature, yet the internal radiator may increase the flow resistance and reduce the airflow to downstream components inside the server
- The P78874-B21 is designed as Factory Installation only & is not designated as a Customer Self-Repair (CSR) part to prevent damage to CPUs when customer is conducting the field upgrade on the Liquid Cooling modular itself or CPUs

## Core Options

- To protect the system, HPE recommends replacing the module every five years
- Offered with Standard (3/3/3) Warranty support along with the server. Refer to HPE Warranty statement at: [HPE Storage Global Limited Warranty and Technical Support](#)
- Support contract on the server includes coverage for this module

## Memory

- For new Gen12 memory population rule whitepaper and optimal memory performance guidelines, please go to: <http://www.HPE.com/docs/memory-population-rules>
- For more information, please see the [HPE DDR5 Smart Memory QuickSpecs](#)
- Server memory population rules for HPE Gen12 servers with Intel® Xeon 6® Processors
- Fan selection impact from memory capacity, please refer to the support matrix in Fan Kit section

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

#### Description

	<b>SKU</b>
HPE 16 GB (1x16GB) Single Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69726-K21
HPE 32 GB (1x32GB) Dual Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69727-K21
HPE 64 GB (1x64GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69728-K21
HPE 96 GB (1x96GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69729-K21
HPE 128 GB (1x128GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69730-K21

#### Notes:

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

## Core Options

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

## HPE DIMM blanks

Thermal requirements vs DIMM Blanks.

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

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

### Description

HPE DDR4 DIMM Blank Kit

### SKU

P07818-B21

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

## Storage Devices

### Description

HPE Alletra Storage Server 4210 EDSFF Backplane Power Cable Kit

HPE Alletra Storage Server 4210 4EDSFF x4 CPU1 Box 1 Signal Direct Attach Cable Kit

HPE Alletra Storage Server 4210 4EDSFF x4 CPU2 Box 1 Signal Direct Attach Cable Kit

HPE Alletra Storage Server 4210 4EDSFF x4 CPU1 Box 2 Signal Direct Attach Cable Kit

HPE Alletra Storage Server 4210 4EDSFF x4 CPU2 Box 2 Signal Direct Attach Cable Kit

HPE Alletra Storage Server 4210 4EDSFF x4 CPU1 Box 3 Signal Direct Attach Cable Kit

HPE Alletra Storage Server 4210 4EDSFF x4 CPU1 CPU2 Box 4 Signal Direct Attach Cable Kit

HPE Alletra Storage Server 4210 4EDSFF x4 CPU1 Box 5 Signal Direct Attach Cable Kit

HPE Alletra Storage Server 4210 Front Primary OCP NIC Box3 Bay3 Enablement Kit

HPE Alletra Storage Server 4210 Front Secondary OCP NIC Box3 Bay1 Enablement Kit

### SKU

P78880-B21

P78881-B21

P78882-B21

P78883-B21

P78884-B21

P78885-B21

P78886-B21

P78887-B21

P78868-B21

P78869-B21

## Core Options

## Storage

- Maximum limit for NVMe will vary depending upon the selected drive cage, controller, and cable combination.
- For SSD selection guidance, please visit: <http://ssd.HPE.com/>

**NVMe Gen5 EDSFF (max 20)****Read Intensive – NVMe – EDSFF - Solid State Drives**

<b>Description</b>	<b>SKU</b>
HPE 7.68 TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70674-K21
HPE 15.36 TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61187-K21
HPE 7.68 TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61183-K21
HPE 3.84 TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61179-K21
HPE 15.36 TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57807-K21
HPE 15.36 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77275-K21
HPE 7.68 TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57803-K21
HPE 3.84 TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57799-K21
HPE 15.36 TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70397-K21
HPE 7.68 TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70395-K21
HPE 7.68 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77273-K21
HPE 3.84 TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70392-K21
HPE 15.36 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69546-K21
HPE 7.68 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69239-K21
HPE 3.84 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69237-K21
HPE 3.84 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77271-K21
HPE 1.92 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69234-K21
HPE 1.92 TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77269-K21

**Mixed Use – NVMe – EDSFF - Solid State Drives**

<b>Description</b>	<b>SKU</b>
HPE 6.4 TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70672-K21
HPE 6.4 TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61195-K21
HPE 3.2 TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD	P70669-K21
HPE 3.2 TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61191-K21
HPE 12.8 TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70403-K21
HPE 6.4 TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70401-K21
HPE 6.4 TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77267-K21
HPE 3.2 TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70399-K21
HPE 3.2 TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77265-K21
HPE 6.4 TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69245-K21
HPE 3.2 TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69243-K21
HPE 1.6 TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69241-K21
HPE 1.6 TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77262-K21

## Core Options

**NVMe Gen4 – EDSFF (max 20)****Very read Optimized – NVMe – EDSFF - Solid State Drives**

Description	SKU
HPE 30.72 TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P79065-K21
HPE 15.36 TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63938-K21
HPE 7.68 TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63934-K21
HPE 3.84 TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD	P63930-K21

**Riser Cards**

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

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

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

Description	SKU
HPE Alletra Storage Server 4210 x16 Primary Riser Kit	P78863-B21

**Notes:** This is a SKU for field upgrade only. Order through Ad-hoc and will not be installed in the system but ship as a stand-alone item. Each CTO server has the Primary riser embedded, a separate order for P78863-B21 is not required.

HPE Alletra Storage Server 4210 x16 Full Height Riser Kit	P78864-B21
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**Notes:**

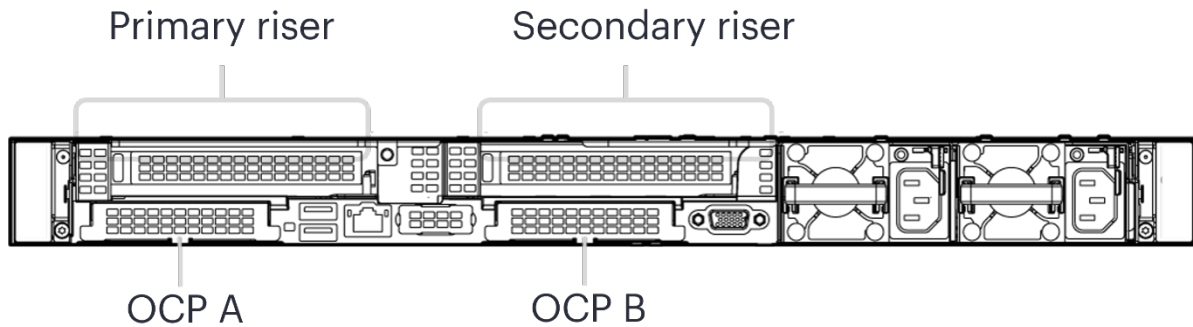
- Referred as Secondary FH riser.
- 2<sup>nd</sup> Processor is required.
- Slot 3: 1x PCIe5.0 x 16 Full-length, up to 9.5' length (or Half-length card)

HPE Alletra Storage Server 4210 x16 LP Riser Kit	P78865-B21
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**Notes:**

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

Core Options



Riser Information									
Riser Position	Part number & Description	Choices		Slot Bus width PCIe5			GPU	NVMe Connect	M.2 Connect.
		Prim.	Sec.	#1	#2	#3			
<b>Primary (chassis default)</b>	Alletra 4210 x16/x16 Primary Riser	D	N/A	x16	x16	N/A	Y	N/A	N/A
<b>Secondary</b>	<b>P78864-B21:</b> Alletra 4210 x16 Full Height Riser Kit <sup>1</sup>	N/A	O	N/A	N/A <sup>1</sup>	x16	Y	N/A	N/A
<b>Secondary</b>	<b>P78865-B21:</b> Alletra 4210 x16 LP Riser Kit	N/A	O	N/A	N/A	x16	Y <sup>2</sup>	N/A	N/A

Notes:

- Prim. = Primary; Sec = Secondary; D = Default on server; O = Optional; N/A = not supported or slot/connector not present.
- Quantity of Processor and Quantity of Heatsink must match.
- All Alletra Storage Server 4210 Riser cards are designed in x16 PCIe slot form factor (physical length) as well as in full x16 lanes of PCIe5.0 as electrical bandwidth.
- If Secondary riser is selected, then 2 Processors must be selected.
- <sup>1</sup>If secondary FH riser is selected, then maximum q'ty 2 of PCIe FH cards can be selected, as primary PCIe Slot 2 cannot be used.
- 4 ports base-T Low Profile NIC adapters are not allowed to be installed at Slot 2 (P51178-B21)
- <sup>2</sup>GPU max 75 W .

## Core Options

## PCIe Slotting (Factory Installation Rule)

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

Configuration 2: Primary Riser (default in chassis) & Secondary FH Riser, 2 CPUs			
Riser	(Primary as default)		Secondary (P78864-B21)
Slot Number	Slot 1	No support	Slot 3
Bus Width	x16		x16
Form Factor	FHHL		FHHL
PCIe adapter type	Slot Priority		
-PCIe x16	1	No support	2
-PCIe x8	1		2
-PCIe x4	1		2

Configuration 3: Primary Riser (default in chassis) & Secondary HH/LP Riser, 2 CPUs			
Riser	(Primary riser as default)		Secondary (P78865-B21)
Slot Number	Slot 1	Slot 2	Slot 3
Bus Width	x16	x16	x16
Form Factor	FHHL	HHHL (LP)	HHHL (LP)
PCIe adapter	Slot Priority		
-PCIe x16	1	3	2
-PCIe x8	1	3	2
-PCIe x4	1	3	2

## PCIe Adapters Slotting Rules

General	
Priority	Description & Rules
1	HPE Alletra Storage Server 4210 x16 LP Riser Kit (P78865-B21) can only be slotted in HHHL (LP) PCIe Slot3
2	HHHL (LP) GPGPU card should be slotted in PCIe Slot2.
3	PCIe Slot 2 supports HHHL (LP) cards only.
4	4-Port Base-T NIC card is not available in Slot2 (Mechanical constraint from NIC bracket) 4-Port Base-T NIC card is defaulting at Slot 1 or 3
5	If NS204i-u V2 Rear Cbl Kit (P78867-B21) is ordered, Slot 2 will be unavailable.

## Core Options

Installation Rules	
Priority	Description & Rules
1	x16 electrical bandwidth card to x16 electric slot – All Slots in Alletra Storage Server 4210 provide x16 electric slots
2	x8 electrical card to x16 electric slot

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

**Notes:** All PCIe slots are featured with Wake-on-LAN (WoL)

## OS Boot Device

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

### Description

	SKU
HPE Alletra Storage Server 4210 1U NS204i-u Front Enablement Kit	P78870-B21
HPE NS204i-u v2 480 GB NVMe Hot Plug Boot Optimized Storage Device	P78279-B21
HPE NS204i-u v2 960 GB NVMe Hot Plug Boot Optimized Storage Device	P81160-B21
HPE NS204i-u v2 960 GB NVMe SED Hot Plug Boot Optimized Storage Device	P81162-B21
HPE Alletra Storage Server 4210 NS204i-u Internal Enablement Kit	P78866-B21
HPE Alletra Storage Server 4210 NS204i-u Rear Enablement Kit	P78867-B21

## Alletra Storage Server 4210 NS204i-u Enablement Kit Support Matrix

Enablement Kit	Description	Field Inst.	NS204i-u Location	Hot-plug Capability
P78870-B21	HPE Alletra Storage Server 4210 1U NS204i-u Front Enablement Kit	Yes	Front Cage Box5	Yes
P78867-B21	HPE Alletra Storage Server 4210 NS204i-u Rear Enablement Kit	Yes	PCIe Slot 2 <sup>1</sup>	Yes
P78866-B21	HPE Alletra Storage Server 4210 NS204i-u Internal Enablement Kit	Yes	Internal	No support

### Notes:

- NS204i-u V2 is a x4 PCIe Gen3.0 OS Boot device that includes 2x 480 GB or 960 GB or 960 GB SED M.2 NVMe SSDs, with preconfigured hardware RAID1.
- <sup>1</sup>With removing the original PCIe Slot 2 cage and re-install the dedicated Alletra Storage Server 4210 NS204i-u cage, latch and cables in the P78867-B21. The NS204i-u v2 will take up PCIe Slot 2 space only.
- If a secondary FH riser is selected, then "NS204i-u Rear Cable Kit" cannot be selected.
- If NS204i-u v2 is selected, only one of the three enablement kits.
- There will be a left-port interference in a low-profile 4-port SFP NIC Adapter (no issue for 4-port Base-T) at Slot3, if the Slot 2 is loaded with Primary Riser cage (default in CTO Server) or NS204i-u Rear cable (Enablement) kit. Please take one of the below recommendations for building a valid configuration.
  - If Two quantity of 4-port SFP28 is selected, then Secondary FH riser must be selected.

## Core Options

- If One FH card or 4-port Base-T card is selected with 4-port SFP 28, then Secondary FH riser must be selected.
  - Select an OCP type 4-port SFP card instead.
- For additional information, please see the [HPE OS Boot Device QuickSpecs](#)

NS204i-u thermal matrix						
Location	Qty	Cooling	20 E3.S	16 E3.S	8 E3.S	4 E3.S
Rear Hot-plug NS204i-u	1	High Perf. Fan	Up to 2x 270 W CPU, 32x 128 GB DIMM			
			25C	30C	30C	30C
	1	Closed-loop LC	Up to 2x 350 W CPU, 32x128 GB			
			20 or NA	20C or NA	25C or 23C	27 or 23C

NS204i-u thermal matrix						
Location	Qty	Cooling	20 E3.S	4 E3.S	4 E3.S	20 E3.S
Rear Hot-plug NS204i-u	1	High Perf. Fan	Up to 2x 185 W , 32x 128 GB DIMM			
			30C			
	1	Liquid Cooling	Up to 2x 300 W , 32x128 GB, CL LC		Up to 2x 300 W , 32x 128 <sup>1</sup> GB DIMM, CL LC	Up to 2x 350 W , 32x 128 <sup>1</sup> GB DIMM, DLC
			23C	30C	25C	30C

**Notes:** <sup>1</sup>If 32 DIMMs (1DPC) for 128 GB, cannot reach 6400 MT/s at 2DPC

## Networking

The thermal conditions vary as a combination of types of Networking PCIe OR OCP adapter in different Alletra Storage Server 4210 CTO Systems. In general:

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

### Default settings in all NC CTO Server

“BCM5719 Ethernet 1 GB 4-port Base-T OCP3 Adapter” is defaulted in the configurator at rear Slot 14 OCPA if no H/W controller is selected.

- Or default at Slot15 OCPB if a Hardware controller is pre-selected, in Smart Chassis.
- Or a stand-up PCIe NIC adapter to be selected if there are two H/W controllers are pre-selected at both OCPA & OCPB, in Smart Chassis.
- Customers are allowed to remove the NIC card default setting and re-select other cards (OCP3.0 or stand-up cards) from Networking & InfiniBand.

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

- If above 100 GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured

## Core Options

**InfiniBand PCIe****Description**

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

**SKU**

P65333-B21

**Notes:**

- The P45641-B21 & P45642-B21 support the transceivers: P49764-B21, HPE IB NDR/EN 400 GB OSFP MM 50 m HCA XCVR
- The P65333-B21 supports the transceiver: P65334-B21, HPE IB NDR/EN 400G QSFP112 MM 50 m XCVR

**Ethernet PCIe 100 GB****Description**

Mellanox MCX623106AS-CDAT Ethernet 100 GB 2-port QSFP56 Adapter for HPE

**SKU**

P25960-B21

**Notes:**

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

Intel E810-CQDA2 Ethernet 100 GB 2-port QSFP28 Adapter for HPE

P21112-B21

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

R8M41A

**Notes:**

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

**Ethernet PCIe 10/25 GB****Description**

Broadcom BCM57504 Ethernet 10/25 GB 4-port SFP28 Adapter for HPE

**SKU**

P26264-B21

**Notes:**

- PCIe 4.0 x16// HH/ HL/ LP
- The P21109-B21 supports the transceivers below.
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

Broadcom BCM57414 Ethernet 10/25 GB 2-port SFP28 Adapter for HPE

P26262-B21

**Notes:**

- PCIe 3.0 x8// HH/ HL/ LP
- The P26262-B21 supports the transceivers as below.
  - 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

## Core Options

**Description****SKU**

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

S2A69A

Intel E810-XXVDA2 Ethernet 10/25 GB 2-port SFP28 Adapter for HPE

P08443-B21

**Notes:**

- PCIe 4.0 x8// HH or LP
- The P08443-B21 supports the transceivers as below
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

Intel E810-XXVDA4 Ethernet 10/25 GB 4-port SFP28 Adapter for HPE

P08458-B21

**Notes:**

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

Xilinx X2522-25G-PLUS Ethernet 10/25 GB 2-port SFP28 Adapter for HPE

P21109-B21

**Notes:**

- PCIe 3.0 x8// HH/ HL
- The P21109-B21 supports the transceivers below.
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

Mellanox MCX631102AS-ADAT Ethernet 10/25 GB 2-port SFP28 Adapter for HPE

P42044-B21

**Notes:**

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

## Core Options

### Ethernet PCIe 10 GB

Broadcom BCM57416 Ethernet 10 GB 2-port BASE-T Adapter for HPE

P26253-B21

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

Broadcom BCM57412 Ethernet 10 GB 2-port SFP+ Adapter for HPE

P26259-B21

**Notes:**

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

### Ethernet PCIe 1 GB

Broadcom BCM5719 Ethernet 1 GB 4-port BASE-T Adapter for HPE

P51178-B21

**Notes:**

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

## Core Options

## Cooling level for OCP NIC &amp; cables with AOC

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

## Networking OCP

- Default x8 PCIe5.0 lanes from CPU1 to Slot 14 OCPA from system board design. For x16 lanes upgrade or Slot15 OCPB extension, please refer to later “OCP Enablement” section.
- If above 100 GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

## Ethernet OCP 100G

## Description

Intel E810-CQDA2 Ethernet 100 GB 2-port QSFP28 OCP3 Adapter for HPE

**SKU**

P22767-B21

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

## Ethernet OCP 10/25G

Broadcom BCM57504 Ethernet 10/25 GB 4-port SFP28 OCP3 Adapter for HPE

P26269-B21

## Notes:

- P22769-B21 provides x16 lanes and x16 lanes OCP enablement kit need to be selected.
- The P26269-B21 supports the transceivers as below.
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

## Core Options

**Description****SKU**

Broadcom BCM57414 Ethernet 10/25 GB 2-port SFP28 OCP3 Adapter for HPE

P10115-B21

**Notes:**

- The P10105-B21 supports the transceivers as below.
  - 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

Intel E810-XXVDA4 Ethernet 10/25 GB 4-port SFP28 OCP3 Adapter for HPE

P41614-B21

**Notes:**

- A x16 OCP enablement kit can be selected if customer wants to have OCP x16 connectivity.
- The P41614-B21 supports the transceivers as below.
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

Intel E810-XXVDA2 Ethernet 10/25 GB 2-port SFP28 OCP3 Adapter for HPE

P10106-B21

**Notes:**

- The P10106-B21 supports the transceivers as below.
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

Mellanox MCX631432AS-ADAI Ethernet 10/25 GB 2-port SFP28 OCP3 Adapter for HPE

P42041-B21

**Notes:**

- The P42041-B21 supports the transceivers as below.
  - 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver
  - 845398-B21 - HPE 25 GB SFP28 SR 100 m Transceiver

**Ethernet OCP 10G**

Broadcom BCM57416 Ethernet 10 GB 2-port BASE-T OCP3 Adapter for HPE

P10097-B21

Broadcom BCM57412 Ethernet 10 GB 2-port SFP+ OCP3 Adapter for HPE

P26256-B21

**Notes:**

- The P26256-B21 supports the transceivers as below.
  - 453151-B21 - HPE BLc VC 1G SFP SX Transceiver
  - 453154-B21 - HPE BLc VC 1G SFP RJ45 Transceiver
  - 455883-B21 - HPE BLc 10G SFP+ SR Transceiver
  - 455886-B21 - HPE BLc 10G SFP+ LR Transceiver

## Core Options

**Ethernet OCP 1G****Description**

Broadcom BCM5719 Ethernet 1 GB 4-port BASE-T OCP3 Adapter for HPE

**SKU**

P51181-B21

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

**Fibre Channel HBA**

HPE SN1610Q 32 GB 1-port Fibre Channel Host Bus Adapter

R2E08A

HPE SN1610Q 32 GB 2-port Fibre Channel Host Bus Adapter

R2E09A

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

HPE SN1700Q 64 GB 1-port Fibre Channel Host Bus Adapter

R7N86A

HPE SN1700Q 64 GB 2-port Fibre Channel Host Bus Adapter

R7N87A

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

**OCP3.0 Enablement/ Upgrade Kit**

HPE Alletra Storage Server 4210 CPU1 to Rear OCP SlotA x16 Cable Kit

P78876-B21

HPE Alletra Storage Server 4210 CPU1 to Rear OCP SlotB x8 Cable Kit

P78877-B21

HPE Alletra Storage Server 4210 CPU2 to Rear OCP SlotB x8 Cable Kit

P78878-B21

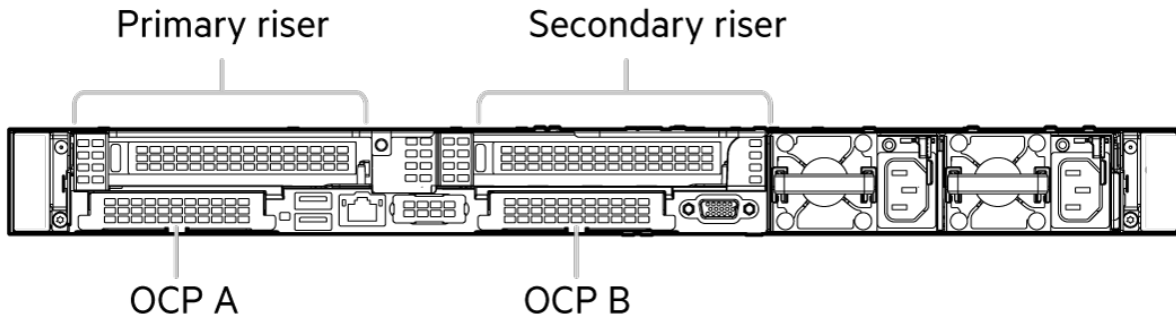
HPE Alletra Storage Server 4210 CPU2 to Rear OCP SlotB x16 Cable Kit

P78879-B21

**Notes:**

- Both OCP Slots provide Wake-on-Lane feature.
- There is x8 lanes PCIe5.0 embedded from system board for Slot 14 OCPA.
- In drive q'ty=20 E3.S configuration, Slot 14 OCPA cannot connect to any optional OCP enablement kit (P78876-B21). Only x8 lanes are available as embedded from system board. No limitation to Slot 15 OCPB with optional OCP x16 enablement kit.
- Front OCP Enablement Kit(s) is a post launch feature, to be available in CQ2 2025.

Core Options



**OCP3.0 Slot Priority Support Matrix**

Alletra Storage Server 4210 Rear		Selected OCP cards (Qty & type)	
OCP Slots #	Share NIC Feature	1 1xNIC	1 2xNICs
1	N/A	(Secondary)	NIC
2	Available (Incl. Wake-on-LAN)	NIC (Primary)	NIC (Primary)

**Notes:**

- Each OCP slot is in design with up to x16 electrical PCIe5.0 lanes through OCP enablement kits.
- The only exception will be when in q'ty 20 E3.S configuration, Slot 14 OCPA will be supported only with x8 lanes from MLB. No changes from Slot 15 OCPB with x16 lanes.

**Rear OCP3.0 Enablement Kits**

PCIe5.0	Enablement Cable Kits		PCIe5.0 lanes availability	
	Orderable SKU	Description	Slot 14 OCPA	Slot 15 OCPB
CPU1 & CPU2	P78879-B21	Alletra 4210 CPU2 to Rear OCP SlotB x16 Cable Kit	(embedded x8)	x16
	P78876-B21 <sup>1</sup> and P78879-B21	Alletra 4210 CPU1 to Rear OCP SlotA x16 Cable Kit and Alletra 4210 CPU2 to Rear OCP SlotB x16 Cable Kit	x16 <sup>1</sup>	x16
	P78878-B21	Alletra 4210 CPU2 to Rear OCP SlotB x8 Cable Kit	(embedded x8)	x8
	P78877-B21	Alletra 4210 CPU1 to Rear OCP SlotB x8 Cable Kit	(embedded x8)	x8
	P78876-B21 <sup>1</sup> and P78878-B21	Alletra 4210 CPU1 to Rear OCP SlotA x16 Cable Kit and Alletra 4210 CPU2 to Rear OCPB x8 Cable Kit	x16 <sup>1</sup>	x8

**Notes:** <sup>1</sup>In drive q'ty=20 E3.S configuration, Slot 14 OCPA cannot connect to any optional OCP enablement kit (P78876-B21). Only x8 lanes are available as embedded from system board. No limitation to Slot 15 OCPB with optional OCP x16 enablement kit.

## Core Options

## Rear OCP Slotting

## Configuration 1: No OCP enablement kit or only P78876-B21 is selected

Slot Number	Slot 1	Slot 2 (Share NIC, incl. Wake-on-LAN)
OCP Enablement	N/A or P78876-B21	No support
Bus Width	x8 (default) or x16	No support
OCP adapter		Slot Priority
-Controller	1	No support
-Networking	1	No support

## Configuration 2: Only P78877-B21 is selected

Slot Number	Slot 1	Slot 2 (Share NIC, incl. Wake-on-LAN)
OCP Enablement	N/A	P78877-B21
Bus Width	x8 (default)	x8
OCP adapter		Slot Priority
-Controller	1	2
-Networking	2	1

## Configuration 3: Only P78878-B21 is selected, or both P78876-B21 &amp; P78878-B21 are selected

Slot Number	Slot 1	Slot 2 (Share NIC, incl. Wake-on-LAN)
OCP Enablement	N/A or P78876-B21	P78878-B21
Bus Width	x8 (default) or x16	x8
OCP adapter		Slot Priority
-Controller	1	2
-Networking	2	1

## Configuration 4: Only P78879-B21 is selected, or both P78876-B21 &amp; P78879-B21 are selected

Slot Number	Slot 1	Slot 2 (Share NIC, incl. Wake-on-LAN)
OCP Enablement	N/A or P78876-B21	P78879-B21
Bus Width	x8 (default) or x16	x16
OCP adapter		Slot Priority
-Controller	1	2
-Networking	2	1

## Rear OCP Cards Slotting Rules

## General

Priority	Description & Rules
1	OCP Networking card to be installed in Slot 2 as priority, as the Slot 2 supports ShareNIC (incl. Wake-on-LAN).
2	2x OCP Networking cards: High Speed NIC is in higher priority to be installed in Slot 2.
3	If no OCP Slot 2 Enablement Kit is selected, the OCP Slot 2 is occupied.
4	If no OCP Slot 1 Enablement Kit is selected, the OCP Slot 1 is default in x8 electrical lanes (embedded from MLB)

## Core Options

## Power and Cooling

### Power Supplies

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

**Notes:**

- Mixing 2 different power supplies is NOT supported.
- In order to select the right size power supply for your HPE Alletra Storage Server, it is highly recommended to use "HPE Power Advisor" located at <https://poweradvisorex.it.HPE.com/?Page=Index>

**Description****SKU**

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

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

**Notes:** Power efficiency at 96% single output.

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

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

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

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

**Notes:**

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

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

Alletra Storage Server 4210 manufactured in US, EMEA and Singapore with below Power Supplies are certified with BIS: P38995-B21, P03178-B21, P17023-B21, P38997-B21 and P44712-B21.

For information on BIS Certification requirements visit:

[BIS Certification - BIS Certificate for Import \(indianchemicalregulation.com\)](http://BIS Certification - BIS Certificate for Import (indianchemicalregulation.com))

### Accessory

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

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

### Power Cords

For more Power Cords options, please refer to "HPE One Config Advance".

If any of these "Optional" Power Cords are ordered, then quantity must be equal to total number of Power Supplies on the order.

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

## Core Options

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE Alletra Storage Server 4210. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

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

HPE Alletra Storage Server 4210 is shipped with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). Visit [HPE power cords and cables](#) for a full list of optional power cords. The standard 6-foot IEC C-13/C-14 jumper cord (A0K02A) is included with each standard AC power supply option kit.

For information on power specifications and technical content visit [HPE Flexible Slot power supplies](#)

## Power Cooling Options

### Fan Kits

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

### Description

### SKU

HPE Alletra Storage Server 4210 1U High Performance Fan Kit P78890-B21

### Notes:

- Dual rotor 4056 performance fans (q'ty 7)
  - Two processors with a TDP equal or greater than 186 W and below 270Watt
  - For processors below 185Watt TDP, customers are able to configure with High Performance Heatsinks & Performance Fan Kit in HPE OCA. First, deselect the Standard Heatsink and Standard Fan, then reselect High Performance Heatsink and Performance Fan Kit.

HPE Alletra Storage Server 4210 1U Standard Fan Kit P78889-B21

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

HPE Alletra Storage Server 4210 1U 2P Standard Fan Kit P78888-B21

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

## Accessories

### Management Hardware

Maximum 1 of each can be selected.

HPE ProLiant DL36X Gen11 Rear Serial Port Cable Kit P48921-B21

## Rack Options

HPE Easy Install Rail 5 Kit P52343-B21

HPE Cable Management Arm 4 for Friction Rail Kit P70741-B21

### Notes:

- HPE rail kits contain telescoping rails which allow for in-rack serviceability.
- Rail Kit does not include Cable Management Arm.

## Core Options

- Hewlett Packard Enterprise recommends that a minimum of two people is required for all Rack Server installations.
- Please refer to your installation instructions for proper tools and number of people to use for any installation.
- Maximum 1 of each can be selected.
- If CMA is selected, then Rail kit must be selected.
- HPE rail kits are designed to work with HPE racks in compliance with industry standard EIA-310-E. In the event a customer elects to purchase a third-party rack for use with an HPE rail kit, any such use is at the customer's own risk. HPE makes no express or implied warranties with respect to such third-party racks and specifically disclaims any implied warranties of merchantability and fitness for a particular purpose. Furthermore, HPE has no obligation and assumes no liability for the materials, design, specifications, installation, safety, and compatibility of any such third-party racks with any rail kits, including HPE rail kits

## Security Hardware

### Description

HPE Bezel Lock Kit

SKU

875519-B21

### Notes:

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

HPE ProLiant DL3XX Gen11 Intrusion Cable Kit

P48922-B21

### Notes:

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

HPE Gen11 1U Storage Bezel Kit

P52247-B21

### Notes:

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

## Graphic options (GPU)

NVIDIA L4 24 GB PCIe Accelerator for HPE

S0K89C

GPGPU Configuration				
20EDSFF CTO Server				
SKU	FAN	O drive	20 E3.S	12 E3.S
NVIDIA® L4 (S0K89C), Q'ty 3	Perf. Fan	Up to 2x270W CPU, 32x 128 GB DIMMs	Up to 2x225W, 32x 128 GB	
		30C	28C	30C
	CL LC	Up to 2x350W CPU, 32x 128 GB DIMM		
		25C	N/A	23C

## Core Options

### Notes:

- Support the GPU adapter with length up to 9.5" (full length adapters are not supported) at PCIe Slot 1, 2 and 3 (with 2<sup>nd</sup> CPU).
- Mixing of different Graphics Option is not allowed.
- Not compatible with Energy Star 4.0 under Graphic cards.
- Requires "Increased Cooling" to be selected in BIOS settings (default setting is "Optimal Cooling").
- If GPU is selected, it requires high performance fans if air-cooling.
- If GPU is selected for best performance across common workloads, HPE recommends system main memory at least twice the memory of all GPU.

## Software RAID

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

## Software as a Service Management

### HPE Compute Ops Management

Default SKU	SKU
HPE Compute Ops Management Standard 5-year Upfront Alletra 4000 SaaS	S1E13AAE
Alternative SKUs	SKU
HPE Compute Ops Management Standard 3-year Upfront Alletra 4000 SaaS	S1E12AAE
HPE Compute Ops Management Advanced 3-year Upfront Alletra 4000 SaaS	S5E63AAE
HPE Compute Ops Management Advanced 5-year Upfront Alletra 4000 SaaS	S5E64AAE

**Notes:** HPE Compute Ops Management Advanced SKUs (S5E63AAE, S5E64AAE) include entitlement and support to both Compute Ops Management and iLO Advanced. Do not order iLO Advanced standalone with this option. At this time, these are not supported on GreenLake Flex orders.

### Tracking SKU for GreenLake orders – applies to "Enhanced" licenses only

HPE Compute Ops Management Standard with Alletra 4000 Enablement	S4P39AAE
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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>

## Core Options

### HPE Converged Infrastructure Management Software

#### HPE OneView Advanced (with HPE iLO Advanced)

#### HPE OneView Advanced (without HPE iLO Advanced)

##### Notes:

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

### Choose Additional Options

#### HPE Racks

- Please see the HPE Advanced Series Racks QuickSpecs for information on additional racks options and rack specifications. [HPE G2 Advanced Series Racks](#)
- Please see the HPE Enterprise Series Racks QuickSpecs for information on additional racks options and rack specifications. [HPE G2 Enterprise Series Racks](#)

#### HPE Power Distribution Units (PDUs)

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

#### HPE Uninterruptible Power Systems (UPS)

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

## Core Options

**HPE Support Services****Installation & Start-up Services****Description****SKU**

HPE Installation Service

HA113A1

HPE Installation and Startup Service

HA114A1

**Tech Care Services****SKU**

HPE 5Y Tech Care Essential Service

HU4A6A5

HPE 5Y Tech Care Essential with Defective Media Retention Service

HU4A7A5

HPE 3Y Tech Care Essential Service

HU4A6A3

HPE 3Y Tech Care Essential with Defective Media Retention Service

HU4A7A3

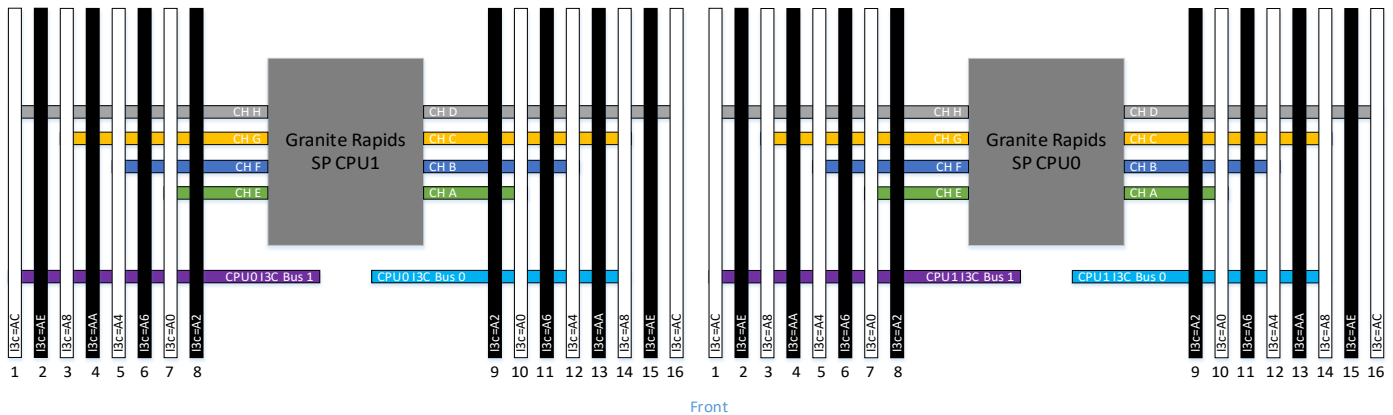
**Notes:** For a full listing of support services available for this server, please visit <http://www.HPE.com/services>.

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

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## Memory

## Memory Population guidelines



## Front End - HPE Alletra Storage Server 4210

## General Memory Population Rules and Guidelines

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

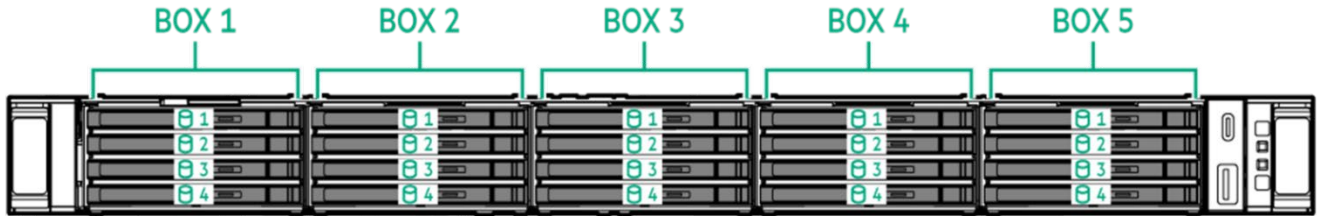
- All DIMMs must be DDR5.
- All DDR5 DIMM must be running the same speed per CPU socket.
- x8 and x4 cannot be mixed.
- 3DS and non-3DS Memory cannot be mixed.
- Mixing different Rank Memory is not allowed if less than q'ty 16 of Memory is selected for 1 CPU configuration.
- Mixing different Rank Memory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

## Memory

- With Intel Xeon 67xxE CPU, DIMMs below are supported.
    - HPE 32 GB 2Rx8 PC5-6400B-R Smart Kit
    - HPE 64 GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 96 GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 128 GB 2Rx4 PC5-6400B-R Smart Kit
  - With Intel Xeon 6xxxP CPU, DIMMs below are supported.
    - HPE 16 GB 1Rx8 PC5-6400B-R Smart Kit
    - HPE 32 GB 2Rx8 PC5-6400B-R Smart Kit
    - HPE 64 GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 96 GB 2Rx4 PC5-6400B-R Smart Kit
    - HPE 128 GB 2Rx4 PC5-6400B-R Smart Kit
  - Capacity references are rounded to the common gigabyte (GB) values.
    - 8 GB = 8,192 MB
    - 16 GB = 16,384 MB
    - 32 GB = 32,768 MB
    - 64 GB = 65,536 MB
    - 128 GB = 131,072 MB
  - For additional information, please visit the [HPE Memory QuickSpecs and Technical White Papers](#) or [HPE DDR5 Smart Memory QuickSpecs](#).
-

Storage

### Front Storage Cage Numbering



20 E3.S device box & bay numbering

Box	Description
1 - 5	Bays 1-4

## Technical Specifications

### System Unit

#### Dimensions (Height x Width x Depth)

##### EDSFF Model

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

#### Weight (approximate)

- **14.92 kg (32.82b)**
    - **EDSFF minimum:** One drive, two processors, one power supply, two heatsinks, one Smart Array controller, and seven fans
  - **21.38 kg (47.041lb)**
    - **EDSFF maximum:** Twenty drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans
- 

#### Input Requirements (per power supply)

##### Rated Line Voltage

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

#### British Thermal Unit (BTU) Rating

##### Maximum

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

## Technical Specifications

### Power Supply Output (per power supply)

#### Rated Steady-State Power

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

#### Maximum Peak Power

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

**Notes:** For more information, please visit [HPE Flexible Slot Power Supplies](#)

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### System Inlet Temperature

#### – Standard Operating Support (Level 2 support)

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

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

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

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

With Standard Operating Support, there shall be no processor performance drop. The approved hardware configurations for this system are listed at the URL:

[Extended Ambient Temperature Guidelines for HPE Gen11 servers](#)

## Technical Specifications

### – **Extended Ambient Operating Support (Level 3 & Level 4 support)**

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

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

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

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

### – **Non-operating**

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

## Relative Humidity (non-condensing)

### – **Operating**

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

### – **Non-operating**

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

### – **Operating**

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

### – **Non-Operating**

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

## Altitude

### – **Operating**

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

### – **Non-operating**

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

## Emissions Classification (EMC)

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

[https://support.HPE.com/hpesc/public/docDisplay?docLocale=en\\_US&docId=c03471072](https://support.HPE.com/hpesc/public/docDisplay?docLocale=en_US&docId=c03471072)

<http://www.HPE.com/support/Safety-Compliance-EnterpriseProducts>

## Technical Specifications

### Acoustic Noise

Listed are the declared mean A-Weighted sound power levels ( $L_{WA,m}$ ), declared average bystander position A-Weighted sound pressure levels ( $L_{pAm}$ ) and the statistical adder for verification,  $K_v$ , is a quantity to be added to the declared mean A-weighted sound power

level,  $L_{WA,m}$  when the product is operating in a  $23 \pm 2^\circ\text{C}$  ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.

Idle	
$L_{WA,m}$	6.1 B Performance
$L_{pAm}$	48 dBA Performance
$K_v$	0.4 B Performance

Operating	
$L_{WA,m}$	6.8 B Performance
$L_{pAm}$	54 dBA Performance
$K_v$	0.4 B Performance

#### Notes:

- All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109. Operating mode is represented by 50% of CPU and GPU TDP.
- The results in this declaration apply only to the specific configuration listed below when operating and tested according to the indicated modes and standards. A system with additional configuration components or increased operating functionality may increase the noise emission values.
  - Performance - EDSFF Configuration: 2x INTEL Xeon 6747P CPU, 16x NVMe RI E3S EC1 SSD, 16x 64 GB DIMM, 2x 1000 W PSU, 2x Liquid Cooling, 7x Fans, 2x INT E810 10/25 GbE 2p SFP28 OCP3 Adptr, 1x NS204i-u Gen12 960 GB Spl Boot Dev.
- The declared mean A-weighted sound power level,  $L_{WA,m}$ , 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,  $L_{pA,m}$ , 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,  $K_v$ , is a quantity to be added to the declared mean A-weighted sound power level,  $L_{WA,m}$ , 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 ( $L_{WA,m} + K_v$ ).
- The quantity,  $L_{WA,c}$  (formerly called  $L_{WAd}$ ), can be computed from the sum of  $L_{WA,m}$  and  $K_v$ .

## Technical Specifications

- B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 dB.
- System under abnormal conditions may increase the noise level, persons in the vicinity of the product [cabinet] for extended periods of time should consider wearing hearing protection or using other means to reduce noise exposure.

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

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

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

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## Summary of Changes

Date	Version History	Action	Description of Change
05-Jan-2026	<a href="#">Version 4</a>	Removed	Deleted duplicate or obsolete entries in sections such as Chipset, Embedded Management, and Consulting Services for clarity.
13-Oct-2025	<a href="#">Version 3</a>	Changed	Overview section was updated – Two new Boot optimize storage devices were added. Core options section was updated – New Storage devices, and Mixed Use – NVMe – EDSFF - Solid State Drives were added.
		Added	P78868-B21, P78869-B21, P79065-K21, P81160-B21, P81162-B21
28-Jul-2025	<a href="#">Version 2</a>	Changed	SKUs Descriptions have been updated - R8M41A, S2A69A, S1E13AAE, S1E12AAE, P79213-B21, P69726-K21, P69727-K21, P69728-K21, P69729-K21, P69730-K21
5-May-2025	<a href="#">Version 1</a>	New	New QuickSpecs.

[Shape the Future of QuickSpecs - Your Input Matters](#)

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