

### Overview

### HPE Apollo 4510 Gen10 System

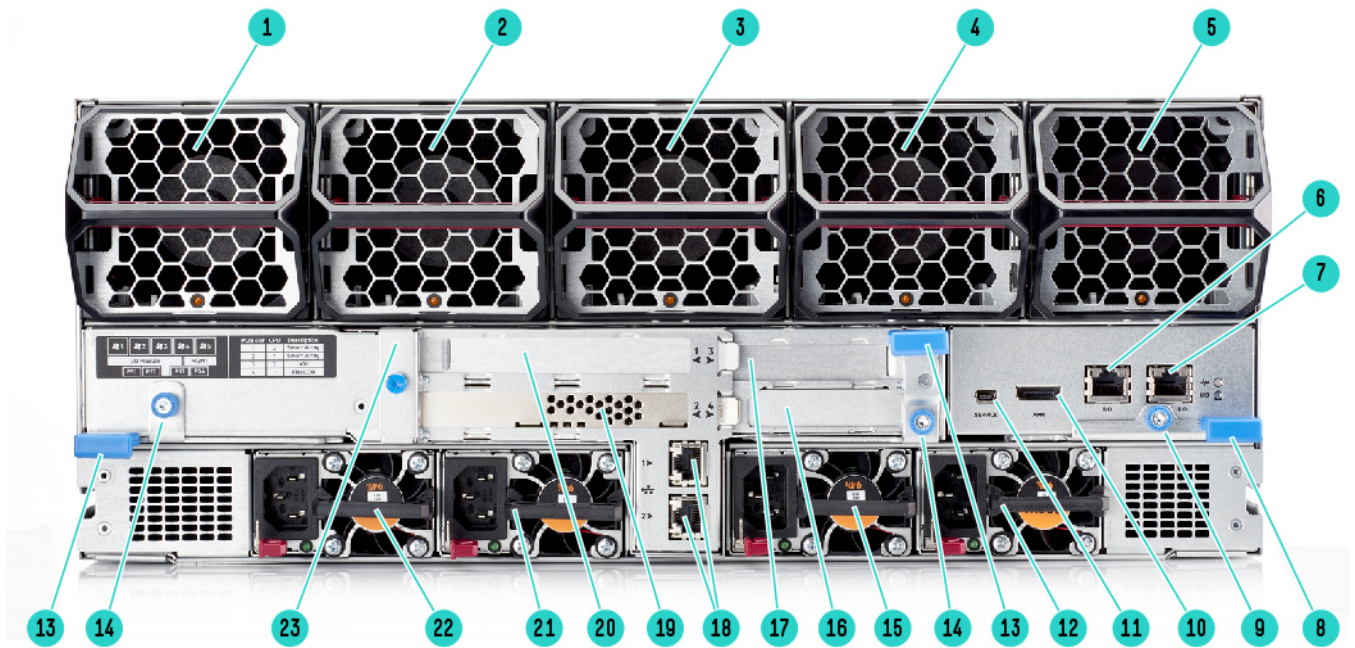
The HPE Apollo 4510 Gen10 System offers revolutionary storage density in a 4U form factor fitting in HPE Standard 1075 mm Racks, with one of the highest storage capacities in any 4U server with standard server depth. When you are running Big Data solutions, such as object storage, data analytics, content delivery, or other data-intensive workloads, the HPE Apollo 4510 Gen10 System allows you to save valuable data center space. Its unique, density-optimized 4U form factor holds up to 60 Large Form Factor (LFF) drives plus an additional 2 hot-plug small form factor (SFF) and/or internal M.2 drives. For configurability options, the LFF and SFF slots support SAS or SATA disk drives and SSDs, while the SFF and M.2 slots also support NVMe drives.



**HPE Apollo 4510 Gen10 System Front View**

- |                                   |  |
|-----------------------------------|--|
| 1. Bezel ear screws (2)           | 12. Backplane health LED                         |
| 2. Drive drawer LEDs              | 13. Drive health LED                             |
| 3. LFF drive drawer 1             | 14. UID LED                                      |
| 4. Drive drawer release button    | 15. Server release lever                         |
| 5. Drive drawer release levers    | 16. iLO Service Port                             |
| 6. Serial label pull tab          | 17. Server backup LED                            |
| 7. Server bay                     | 18. SUV cable connector                          |
| 8. Server node SFF drive bays (2) | 19. Server health LED                            |
| 9. Server ejector button          | 20. UID LED/button                               |
| 10. LFF drive drawer 2            | 21. Power On/Standby button and system power LED |
| 11. Quick-release levers (2)      |  |

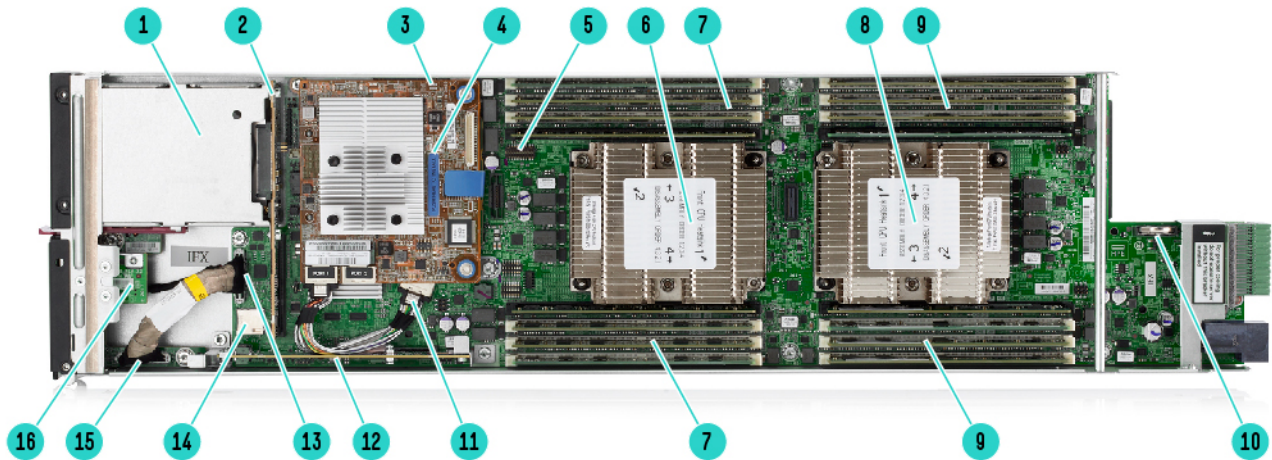
## Overview



HPE Apollo 4510 Gen10 System Rear View

- |                                    |  |
|------------------------------------|--|
| 1. System fan 1                    | 13. I/O module release levers (2)  |
| 2. System fan 2                    | 14. I/O module thumbscrews (2)   |
| 3. System fan 3                    | 15. Power Supply 3   |
| 4. System fan 4                    | 16. FlexLOM slot   |
| 5. System fan 5                    | 17. PCIe slot 3  |
| 6. iLO port 2 (RJ-45)              | 18. NIC ports (2)  |
| 7. iLO port 1 (RJ-45)              | 19. PCIe slot 2  |
| 8. Management module release lever | 20. PCIe slot 1  |
| 9. Management module thumbscrew    | 21. Power Supply 2   |
| 10. APM connector                  | 22. Power Supply 1   |
| 11. Reserved                       | 23. I/O Module (shown as HPE Apollo 4500 Gen10<br>CPU0 x2/CPU1 x2 FIO I/O Module 882020-B21) |
| 12. Power Supply 4                 |  |

## Overview



HPE Apollo 4510 Gen10 System Internal View

- |                              |   |
|------------------------------|---|
| 1. Drive cage                | 9. Processor 2 DIMMs (8)                  |
| 2. Drive backplane           | 10. System battery                        |
| 3. TPM 2.0 connector         | 11. SFF drive cage data cable connector   |
| 4. Controller connector      | 12. M.2 riser board                       |
| 5. System maintenance switch | 13. Front panel I/O board cable connector |
| 6. Processor 1               | 14. microSD card slot                     |
| 7. Processor 1 DIMMs (8)     | 15. Front panel I/O board                 |
| 8. Processor 2               | 16. iLO Service Port board                |



HPE Apollo 4510 Gen10 System

## Overview

### What's New

- Up to 60 hot-plug large form factor (LFF) drives support in the front drive drawers with side loaded design
  - 4U form factor fitting in HPE Standard 1075mm Racks
  - HPE Scalable Persistent Memory
  - Front 2 hot-plug small form factor (SFF) in the HPE ProLiant XL450 Gen10 Server supports SAS/SATA/NVMe/SSD drives with optional HPE Smart Array Gen10 Controllers
  - Additional boot/drive options: NVMe M.2; dual uFF SSD (2x M.2 cartridges)
  - Intel® Xeon® Processor Scalable Family from 4 - 26 Cores, 85 - 150W, and 1.8 - 3.6 GHz; now including Intel® Xeon® Scalable 6200/5200/4200 series
  - HPE DDR4 SmartMemory up to 2933/2666 MT/s
  - Security features: iLO 5 (Security Root of Trust); Chassis Intrusion Detection; TPM 2.0; digitally signed FW
  - HPE Flexible Slot Power Supplies, 800W and 1600W, options of AC/DC/277VAC up to 96% efficiency
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## Standard Features

### Standard Features

Processors – Up to 2 of the following

**NOTE:** For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/xeon>.

Intel Xeon Scalable Models	CPU Frequency	Cores	L3 Cache	Power	DDR4	Memory per socket
<b>Platinum 8100 series</b>						
Platinum 8164 Processor	2.0 GHz	26	35.75 MB	150W	2666 MT/s	768 GB
Platinum 8160 Processor	2.1 GHz	24	33.00 MB	150W	2666 MT/s	768 GB
Platinum 8158 Processor	3.0 GHz	12	24.75 MB	150W	2666 MT/s	768 GB
Platinum 8156 Processor	3.6 GHz	4	16.50 MB	105W	2666 MT/s	768 GB
Platinum 8153 Processor	2.0 GHz	16	22.00 MB	125W	2666 MT/s	768 GB
<b>Gold 6200 series</b>						
Gold 6252 Processor	2.1 GHz	24	35.75 MB	150W	2933 MT/s	768 GB
Gold 6248 Processor	2.5 GHz	20	27.50 MB	150W	2933 MT/s	768 GB
Gold 6242 Processor	2.8 GHz	16	22.00 MB	150W	2933 MT/s	768 GB
Gold 6240 Processor	2.6 GHz	18	24.75 MB	150W	2933 MT/s	768 GB
Gold 6234 Processor	3.3 GHz	8	24.75 MB	130W	2933 MT/s	768 GB
Gold 6230 Processor	2.1 GHz	20	27.50 MB	125W	2933 MT/s	768 GB
Gold 6226 Processor	2.7 GHz	12	19.25 MB	125W	2933 MT/s	768 GB
<b>Gold 6100 series</b>						
Gold 6152 Processor	2.0 GHz	22	35.75 MB	150W	2666 MT/s	768 GB
Gold 6148 Processor	2.4 GHz	20	27.50 MB	150W	2666 MT/s	768 GB
Gold 6142 Processor	2.6 GHz	16	22.00 MB	150W	2666 MT/s	768 GB
Gold 6140 Processor	2.3 GHz	18	24.75 MB	140W	2666 MT/s	768 GB
Gold 6138 Processor	2.0 GHz	20	27.50 MB	125W	2666 MT/s	768 GB
Gold 6136 Processor	3.0 GHz	12	24.75 MB	150W	2666 MT/s	768 GB
Gold 6134 Processor	3.2 GHz	8	24.75 MB	130W	2666 MT/s	768 GB
Gold 6132 Processor	2.6 GHz	14	19.25 MB	140W	2666 MT/s	768 GB
Gold 6130 Processor	2.1 GHz	16	22.00 MB	125W	2666 MT/s	768 GB
Gold 6128 Processor	3.4 GHz	6	19.25 MB	115W	2666 MT/s	768 GB
Gold 6126 Processor	2.6 GHz	12	19.25 MB	125W	2666 MT/s	768 GB
<b>Gold 5200 series</b>						
Gold 5220 Processor	2.2 GHz	18	24.75 MB	125W	2666 MT/s	768 GB
Gold 5218 Processor	2.3 GHz	16	22.00 MB	125W	2666 MT/s	768 GB
Gold 5215 Processor	2.5 GHz	10	13.75 MB	85W	2666 MT/s	768 GB
<b>Gold 5100 series</b>						
Gold 5122 Processor	3.6 GHz	4	16.50 MB	105W	2666 MT/s	768 GB
Gold 5120 Processor	2.2 GHz	14	19.25 MB	105W	2400 MT/s	768 GB
Gold 5118 Processor	2.3 GHz	12	16.50 MB	105W	2400 MT/s	768 GB
Gold 5115 Processor	2.4 GHz	10	13.75 MB	85W	2400 MT/s	768 GB

## Standard Features

### Silver 4200 series

Silver 4216 Processor	2.1 GHz	16	22.00 MB	100W	2400 MT/s	768 GB
Silver 4215 Processor	2.5 GHz	8	11.00 MB	85W	2400 MT/s	768 GB
Silver 4214 Processor	2.2 GHz	12	16.50 MB	85W	2400 MT/s	768 GB
Silver 4210 Processor	2.2 GHz	10	13.75 MB	85W	2400 MT/s	768 GB
Silver 4208 Processor	2.1 GHz	8	11.00 MB	85W	2400 MT/s	768 GB

### Silver 4100 series

Silver 4116 Processor	2.1 GHz	12	16.50 MB	85W	2400 MT/s	768 GB
Silver 4114 Processor	2.2 GHz	10	13.75 MB	85W	2400 MT/s	768 GB
Silver 4112 Processor	2.6 GHz	4	8.25 MB	85W	2400 MT/s	768 GB
Silver 4110 Processor	2.1 GHz	8	11.00 MB	85W	2400 MT/s	768 GB
Silver 4108 Processor	1.8 GHz	8	11.00 MB	85W	2400 MT/s	768 GB

**NOTE:** Up to 2 processors supported. Mixing different processor models is not supported.

### Chipset

Intel® C621 Chipset. For more information regarding Intel® chipsets, please see the following URL: <http://www.intel.com/products/server/chipsets/>

### On System Management Chipset

HPE iLO 5. ASIC Read and learn more in the [iLO QuickSpecs](#).

### Memory

Type	HPE DDR4 SmartMemory, Registered (RDIMM), Load Reduced (LRDIMM)
DIMM Slots Available	16 DIMM slots available with 2 processors, 6 channels per processor, Up to 2 DIMMs per channel
Maximum capacity (LRDIMM)	1024 GB (16 x 64GB LRDIMM)
Maximum capacity (RDIMM)	512 GB (16 x 32GB RDIMM)

**NOTE:** Mixing of RDIMM and LRDIMM memory is not supported.

**NOTE:** The maximum memory by socket is limited by the processor selection.

**NOTE:** Intel Xeon Platinum/Gold 82xx/62xx processors that support 2933 MT/s DIMMs will do so only at 1 DIMM per channel. Configuring 2 DIMMs per channel will drop memory speed back to 2666 MT/s.

### Memory Protection

For details on the HPE Server Memory Options RAS feature, visit: <http://www.hpe.com/docs/memory-ras-feature>.

## Standard Features

### Expansion Slots

#### HPE Apollo 4500 Gen10 CPU0 x2/CPU1 x2 FIO I/O Module

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor	Notes
1	PCIe 3.0	X16	X16	Full-height, half-length slot	Proc 2; SA
2	PCIe 3.0	X16	X16	Full-height, half-length slot	Proc 1; SA
3	PCIe 3.0	X16	X16	Low profile slot	Proc 2
4	PCIe 3.0	X8	N/A	FlexLOM	Proc 1

#### HPE Apollo 4500 Gen10 CPU0 x3/CPU1 x1 FIO I/O Module

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor	Notes
1	PCIe 3.0	X8	X8	Full-height, half-length slot	Proc 1; SA
2	PCIe 3.0	X8	X8	Full-height, half-length slot	Proc 1; SA
3	PCIe 3.0	X16	X16	Low profile slot	Proc 2
4	PCIe 3.0	X8	N/A	FlexLOM	Proc 1

**NOTE:** Indicates the number of physical electrical lanes running to the connector.

**NOTE:** The slots supported by Proc 2 will work when the second processor is installed.

### Storage Controllers

The Gen10 controller naming framework has been updated to simplify identification as depicted below. For a more detailed breakout of the available Gen10 Smart Array controllers visit the [HPE Smart Array Gen10 Controllers Data Sheet](#).

#### Storage Controllers Dedicated to XL450 Gen10 Server Node

##### Software RAID

- HPE Smart Array S100i SR Gen10 SW RAID

**NOTE:** HPE Smart Array S100i SR Gen10 SW RAID will operate in UEFI mode only. For legacy support an additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22.

- HPE Smart Array E208i-a SR Gen10 Controller
- HPE Smart Array P408i-a SR Gen10 Controller

**NOTE:** E208i-a and P408i-a connect to the 2 SFF drives in the server node and provide capability for (up to) 12G SAS or 6G SATA hardware RAID/HBA functionality.

**NOTE:** If SFF SAS drives are selected, E208i-a or P408i-a is required.

**NOTE:** If SFF NVMe SSDs are selected, an HPE Smart Array controller is not required.

**NOTE:** Performance RAID Controllers (P series) require purchase of one HPE Smart Storage Battery (P01366-B21) per chassis.

#### Storage Controllers Dedicated to 60 LFF Drawer Slots

For hardware RAID/HBA of bulk storage LFF drives, a minimum of one of the following controllers is required (and up to two like controllers are supported):

- HPE Smart Array E208i-p SR Gen10 Controller
- HPE Smart Array P408i-p SR Gen10 Controller
- HPE Smart Array P824i-p MR Gen10 Controller

**NOTE:** Performance RAID Controllers (P series) require purchase of one HPE Smart Storage Battery (P01366-B21) per chassis.

#### SAS Controllers for External bulk drives:

- HPE Smart Array E208e-p SR Gen10 Controller
- HPE Smart Array P408e-p SR Gen10 Controller

**NOTE:** Performance RAID Controllers (P series) require purchase of one HPE Smart Storage Battery (P01366-B21) per chassis.

**NOTE:** SAS controllers for internal bulk drives reside in I/O module in the system.

## Standard Features

### HPE Smart Storage Battery

HPE 96W Smart Storage Battery (up to 20 Devices) with 14.5mm Cable Kit (P01366-B21)

**NOTE:** One Smart Storage Battery per chassis is required if one of the following controllers has been selected on a server node:

- HPE Smart Array P408i-a SR Gen10 Controller
- HPE Smart Array P408i-p SR Gen10 Controller
- HPE Smart Array P408e-p SR Gen10 Controller
- HPE Smart Array P824i-p MR Gen10 Controller

Internal Storage Devices	
Hard Drives	None ship standard
Drive Bays	2 SFF drive bays total in the HPE ProLiant XL450 Gen10 Server 60 LFF drive bays total in the HPE Apollo 4510 Gen10 Chassis
M.2 Riser Board	2 M.2 22110 drive slots in the HPE ProLiant XL450 Gen10 Server

### Maximum Internal Storage

Apollo 4510 Gen10: 1x60 Model - 60 LFF Drives per node

**NOTE:** The default bulk drive support is 60 LFF drives.

Drives	Maximum Capacity (raw)	Configuration
Hot Plug LFF SAS HDD	840TB	60 x 14TB
Hot Plug LFF SATA HDD	840TB	60 x 14TB
Hot Plug LFF SAS SSD	230.4TB	60 x 3.84TB
Hot Plug LFF SATA SSD	115.2TB	60 x 1.92TB
Hot Plug SFF SAS HDD	4.8TB	2 x 2.4TB
Hot Plug SFF SATA HDD	4TB	2 x 2TB
Hot Plug SFF NVMe SSD	30.6TB	2 x 15.3TB
Hot Plug SFF SAS SSD	30.6TB	2 x 15.3TB
Hot Plug SFF SATA SSD	15.36TB	2 x 7.68TB
uFF Dual M.2	1.92TB	4 x 480TB
M.2 Riser Board	1.92TB	2 x 960GB

**NOTE:** The node consists of two SFF (2.5") hard drive bays on the front of the server node

### Power Supply

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

**NOTE:** Available in 94% and 96% efficiency.

**NOTE:** Also available in -48VDC and 227VAC/380VDC power inputs.

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

**NOTE:** Available in 94% efficiency.

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE ProLiant Gen10 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

To review the power requirements for your selected system, please use the [HPE Power Advisor Tool](#).

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



## Standard Features

Interfaces	
Network RJ-45	Two 1GbE NIC ports <b>NOTE:</b> Customers can elect to use a FlexibleLOM, which enables customers to increase I/O capacity
Network Controller	HPE 1Gb Ethernet 2-Port 331i Adapter
iLO Management Network Ports	Two 1GbE Dedicated <b>NOTE:</b> Management port is shared (located on management module)
Front iLO Service Port	1 front
Health LED	1 front
Power	1 front
UID for node	1 front
UID for storage	1 per display board
SUV	Serial + USB + video (all in one) <b>NOTE:</b> HPE 36pin SUV Dongle Cord Kit P/N is 676277-B21
Micro SD Slot	1 Micro SD <b>NOTE:</b> The Micro SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.

### System Fans

System ships standard with 5 hot-plug fan modules.

### Operating Systems and Virtualization Software Support for ProLiant Servers

- **Microsoft Windows Server**
- **Canonical Ubuntu**
- **Red Hat Enterprise Linux (RHEL)**
- **SUSE Linux Enterprise Server (SLES)**
- **VMware**

**NOTE:** Only 64-bit versions of these operating systems are supported.

**NOTE:** For more information on Hewlett Packard Enterprise's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from Hewlett Packard Enterprise, please visit our OS Support Site at:

<https://www.hpe.com/us/en/servers/server-operating-systems.html> and our [driver download page](#)

### Graphics

Integrated Video Standard

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

### Form Factor

- 4U form factor

### 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>

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## Standard Features

### UEFI

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

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### Intelligent Provisioning

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

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### iLO RESTful API

iLO RESTful API is Redfish API conformance 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>.

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#### 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>.

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#### 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>

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#### iLO Amplifier Pack

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

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#### 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>.

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#### 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>.

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#### Scripting Tools

Provision one to many servers using your own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at <http://www.hpe.com/servers/powershell>

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## Standard Features

### HPE Systems Insight Manager (HPE SIM)

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

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### Security

- UEFI Secure Boot and Secure Start support
  - Immutable Silicon Root of Trust
  - FIPS 140-2 validation (iLO 5 certification in progress)
  - Common Criteria certification (iLO 5 certification in progress)
  - Tamper-free updates – components digitally signed and verified
  - Secure Recovery – recover critical firmware to known good state on detection of compromised firmware
  - Ability to rollback firmware
  - Secure erase of NAND/User data
  - TPM (Trusted Platform Module) 2.0 option
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### Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Pointnext 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.

**NOTE:** 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:

<http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/>.

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## Optional Features

### Server Management

#### HPE iLO Advanced

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

<http://www.hpe.com/us/en/servers/integrated-lights-out-ilo.html>

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#### HPE iLO Advanced Premium Security Edition

HPE iLO Advanced Premium Security Edition for iLO 5 includes iLO Advanced License plus high-end security modes, unique security capabilities, like Automatic FW recovery; Runtime FW verification, and Secure erase. Learn more about HPE iLO Advanced Premium Security Edition at <http://www.hpe.com/us/en/servers/integrated-lights-out-ilo.html>.

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#### HPE OneView

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>.

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#### 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>.

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

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

HPE G2 PDUs offer reliable power in flexible form factors that operate at temperatures up to 60°C, 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 workload. Some UPSs include options for remote management and extended runtime modules so your critical dense data center is covered in power outages.

HPE KVM Solutions include a console and switches designed to work with your server and IT equipment reliably. We've 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 Pointnext - Service and Support

#### Protect your business beyond warranty with HPE Support Services

HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution. Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. Hewlett Packard Enterprise is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.

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#### Connect your devices

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Reduce down time and improve diagnostic accuracy with a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support.

Learn more about getting connected at <http://www.hpe.com/services/getconnected>

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#### Other related Services

##### HPE Server Hardware Installation

Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

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##### HPE Education Services

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. <http://www.hpe.com/ww/learn>

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##### HPE Support Center

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more <http://www.hpe.com/support/hpesc>

The HPE Support Center Mobile App\* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.

**NOTE:**\*HPE Support Center Mobile App is subject to local availability. For more information: <http://www.hpe.com/services>

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##### Parts and Materials

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

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

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

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## Configuration Information

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

1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

**NOTE:** Rack chosen is required to have 1075mm to provide space for cable management arm at the rear of the chassis and host PDU in the rear of the rack.

### Step 1: Base Configuration / Chassis

#### HPE Apollo 4510 Gen10 Chassis

##### SKU Description

HPE Apollo 4510 Gen10 Configure-to-Order Chassis	SKU 864668-B21
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**NOTE:** Standard 5 hot-plug fan modules included in the chassis.

**NOTE:** Supports up to 60 LFF drives and one HPE ProLiant XL450 Gen10 server node

### Step 1A: Select required Chassis Options (only one of the following from each category unless otherwise noted)

#### HPE Power Supplies

A minimum of three power supplies per chassis is required when two processors are selected.

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 Tool](#).

#### HPE Flex Slot Titanium Power Supply Kits

The following power supplies offer up to 96% efficiency.

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

The following power supplies offer up to 94% efficiency.

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	830272-B21
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HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	865414-B21
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HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit	865434-B21
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HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply Kit	865428-B21
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**NOTE:** Kits contain optional power supply, an IEC power cable and PDU IEC cables.

#### HPE Rail Kits

HPE 4U Server Rail Kit	878571-B21
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**NOTE:** One Rail Kit is required for every chassis in a rack.

### Step 1B: Select Server Node (required)

#### HPE Server Node - Apollo 4510 Gen10

HPE ProLiant XL450 Gen10 Configure-to-order Server Node for Apollo 4510 Gen10 Chassis	864625-B21
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**NOTE:** Select quantity of one.



## Configuration Information

### Step 2: Choose Required Node Options (only one of the following from each list unless otherwise noted)

#### HPE Processor Option Kits

For two-processor configurations, first select one xxxxx-L21 SKU and then select the corresponding xxxxxx-B21 SKU. Mixing of different processor models are NOT allowed.

DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

#### SKU Description

#### SKU

##### Platinum 8100 series

HPE XL450 Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/150W) FIO Processor Kit	872561-L21
HPE XL450 Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/150W) FIO Processor Kit	872558-L21
HPE XL450 Gen10 Intel Xeon-Platinum 8158 (3.0GHz/12-core/150W) FIO Processor Kit	877035-L21
HPE XL450 Gen10 Intel Xeon-Platinum 8156 (3.6GHz/4-core/105W) FIO Processor Kit	872563-L21
HPE XL450 Gen10 Intel Xeon-Platinum 8153 (2.0GHz/16-core/125W) FIO Processor Kit	872554-L21

##### Gold 6200 series

HPE XL450 Gen10 Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) FIO Processor Kit	P10772-L21
HPE XL450 Gen10 Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) FIO Processor Kit	P10771-L21
HPE XL450 Gen10 Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) FIO Processor Kit	P10769-L21
HPE XL450 Gen10 Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) FIO Processor Kit	P10768-L21
HPE XL450 Gen10 Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) FIO Processor	P12718-L21
HPE XL450 Gen10 Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) FIO Processor Kit	P10767-L21
HPE XL450 Gen10 Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) FIO Processor Kit	P12717-L21

##### Gold 6100 series

HPE XL450 Gen10 Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) FIO Processor Kit	872564-L21
HPE XL450 Gen10 Intel Xeon-Gold 6148 (2.4GHz/20-core/150W) FIO Processor Kit	872562-L21
HPE XL450 Gen10 Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) FIO Processor Kit	872560-L21
HPE XL450 Gen10 Intel Xeon-Gold 6140 (2.3GHz/18-core/140W) FIO Processor Kit	872559-L21
HPE XL450 Gen10 Intel Xeon-Gold 6138 (2.0GHz/20-core/125W) FIO Processor Kit	872550-L21
HPE XL450 Gen10 Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) FIO Processor Kit	874656-L21
HPE XL450 Gen10 Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) FIO Processor Kit	874655-L21
HPE XL450 Gen10 Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) FIO Processor Kit	872546-L21
HPE XL450 Gen10 Intel Xeon-Gold 6130 (2.1GHz/16-core/120W) FIO Processor Kit	872557-L21
HPE XL450 Gen10 Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) FIO Processor Kit	872556-L21
HPE XL450 Gen10 Intel Xeon-Gold 6126 (2.6GHz/12-core/120W) FIO Processor Kit	872555-L21

##### Gold 5200 series

HPE XL450 Gen10 Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) FIO Processor Kit	P10766-L21
HPE XL450 Gen10 Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) FIO Processor Kit	P10765-L21
HPE XL450 Gen10 Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) FIO Processor Kit	P12716-L21

##### Gold 5100 series

HPE XL450 Gen10 Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) FIO Processor Kit	877033-L21
HPE XL450 Gen10 Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) FIO Processor Kit	872553-L21
HPE XL450 Gen10 Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) FIO Processor Kit	872552-L21
HPE XL450 Gen10 Intel Xeon-Gold 5115 (2.4GHz/10-core/85W) FIO Processor Kit	872551-L21

## Configuration Information

### SKU Description

SKU

#### Silver 4200 series

HPE XL450 Gen10 Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) FIO Processor Kit	P12715-L21
HPE XL450 Gen10 Intel Xeon-Silver 4215 (2.5GHz/8-core/85W) FIO Processor Kit	P12714-L21
HPE XL450 Gen10 Intel Xeon-Silver 4214 (2.2GHz/12-core/85W) FIO Processor Kit	P12713-L21
HPE XL450 Gen10 Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) FIO Processor Kit	P12712-L21
HPE XL450 Gen10 Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) FIO Processor Kit	P12711-L21

#### Silver 4100 series

HPE XL450 Gen10 Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) FIO Processor Kit	872545-L21
HPE XL450 Gen10 Intel Xeon-Silver 4114 (2.2GHz/10-core/85W) FIO Processor Kit	872549-L21
HPE XL450 Gen10 Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) FIO Processor Kit	877032-L21
HPE XL450 Gen10 Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) FIO Processor Kit	872547-L21
HPE XL450 Gen10 Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) FIO Processor Kit	872548-L21

### HPE Memory

Please select one or more memory from below.

For new Gen10 memory population rule whitepaper and optimal memory performance guidelines, please go to: <https://www.hpe.com/docs/memory-population-rules>

For memory Reliability, Accessibility, Serviceability (RAS) features whitepaper like Gen10 Fast Fault Tolerance and legacy mirrored memory feature etc. please go to:

<http://www.hpe.com/docs/memory-ras-feature>

Memory DIMM availability with a server platform is dependent upon completion of certification testing.

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

#### DDR4-2933 DIMMs

Intel Xeon Platinum/Gold 82xx/62xx processors that support 2933 MT/s DIMMs will do so only at 1 DIMM per channel. Configuring 2 DIMMs per channel will drop memory speed back to 2666 MT/s. For more information, please go to: <https://www.hpe.com/docs/memory-speed-table>

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00918-K21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00920-K21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00922-K21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00924-K21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P00926-K21

#### DDR4-2666 DIMMs

HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815097-K21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815098-K21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	835955-K21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815100-K21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-K21

## Configuration Information

### I/O Module

#### SKU Description

#### SKU

HPE Apollo 4500 Gen10 CPU0 x2/CPU1 x2 FIO I/O Module 882020-B21

**NOTE:** HPE Apollo 4500 Gen10 CPU0 x2/CPU1 x2 FIO I/O Module (882020-B21) contains one FlexLOM and one x16 PCIe slot from Proc 1 and two x16 PCIe slots from Proc 2.

HPE Apollo 4500 Gen10 CPU0 x3/CPU1 x1 I/O Module P00416-B21

**NOTE:** One I/O module is needed for each node.

**NOTE:** HPE Apollo 4500 Gen10 CPU0 x3/CPU1 x1 I/O Module (P00416-B21) contains one FlexLOM and two x8 PCIe slot from Proc 1 and one x16 PCIe slots from Proc 2.

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### Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)

#### HPE Storage Controllers

The controllers below control the 2 SFF drives in the HPE ProLiant XL450 Gen10 Server. If SFF SAS drives are selected.

##### Essential RAID Controllers for 2 SFF boot drives

HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller 804326-B21

**NOTE:** This controller does not consume a PCIe slot.

##### Performance RAID Controllers for 2 SFF boot drives

HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller 804331-B21

**NOTE:** All performance RAID controllers require purchase of one HPE Smart Storage Battery (P01366-B21) per chassis.

**NOTE:** This controller does not consume a PCIe slot.

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#### BIOS Mode

HPE Legacy FIO Mode Setting 758959-B22

**NOTE:** Selecting this option will change the default UEFI BIOS setting into Legacy BIOS setting.

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#### Controller State

HPE FIO Enable Smart Array SW RAID 784308-B21

**NOTE:** If not selecting an HPE Storage Controller, this option may be selected to support RAID and Hot-plug capabilities for SATA hard drives. The S100i does not support SAS hard drives.

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## Core Options

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

### HPE Processors

#### Processor Option Kits

Up to two processors are supported; the xxxxxx-L21 SKU is the first processor shipped and the xxxxxx-B21 SKU is the second processor.

DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

Maximum memory capacity per socket depends on the processor selected.

#### SKU Description

#### SKU

##### Platinum 8100 series

HPE XL450 Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/150W) Processor Kit	872561-B21
HPE XL450 Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/150W) Processor Kit	872558-B21
HPE XL450 Gen10 Intel Xeon-Platinum 8158 (3.0GHz/12-core/150W) Processor Kit	877035-B21
HPE XL450 Gen10 Intel Xeon-Platinum 8156 (3.6GHz/4-core/105W) Processor Kit	872563-B21
HPE XL450 Gen10 Intel Xeon-Platinum 8153 (2.0GHz/16-core/125W) Processor Kit	872554-B21

##### Gold 6200 series

HPE XL450 Gen10 Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) Processor Kit	P10772-B21
HPE XL450 Gen10 Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) Processor Kit	P10771-B21
HPE XL450 Gen10 Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) Processor Kit	P10769-B21
HPE XL450 Gen10 Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) Processor Kit	P10768-B21
HPE XL450 Gen10 Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) Processor Kit	P12718-B21
HPE XL450 Gen10 Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) Processor Kit	P10767-B21
HPE XL450 Gen10 Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) Processor Kit	P12717-B21

##### Gold 6100 series

HPE XL450 Gen10 Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) Processor Kit	872564-B21
HPE XL450 Gen10 Intel Xeon-Gold 6148 (2.4GHz/20-core/150W) Processor Kit	872562-B21
HPE XL450 Gen10 Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) Processor Kit	872560-B21
HPE XL450 Gen10 Intel Xeon-Gold 6140 (2.3GHz/18-core/140W) Processor Kit	872559-B21
HPE XL450 Gen10 Intel Xeon-Gold 6138 (2.0GHz/20-core/125W) Processor Kit	872550-B21
HPE XL450 Gen10 Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) Processor Kit	874656-B21
HPE XL450 Gen10 Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) Processor Kit	874655-B21
HPE XL450 Gen10 Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) Processor Kit	872546-B21
HPE XL450 Gen10 Intel Xeon-Gold 6130 (2.1GHz/16-core/120W) Processor Kit	872557-B21
HPE XL450 Gen10 Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) Processor Kit	872556-B21
HPE XL450 Gen10 Intel Xeon-Gold 6126 (2.6GHz/12-core/120W) Processor Kit	872555-B21

##### Gold 5200 series

HPE XL450 Gen10 Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) Processor Kit	P10766-B21
HPE XL450 Gen10 Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) Processor Kit	P10765-B21
HPE XL450 Gen10 Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) Processor Kit	P12716-B21

## Core Options

SKU Description	SKU
<b>Gold 5100 series</b>	
HPE XL450 Gen10 Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) Processor Kit	877033-B21
HPE XL450 Gen10 Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) Processor Kit	872553-B21
HPE XL450 Gen10 Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) Processor Kit	872552-B21
HPE XL450 Gen10 Intel Xeon-Gold 5115 (2.4GHz/10-core/85W) Processor Kit	872551-B21
<b>Silver 4200 series</b>	
HPE XL450 Gen10 Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) Processor Kit	P12715-B21
HPE XL450 Gen10 Intel Xeon-Silver 4215 (2.5GHz/8-core/85W) Processor Kit	P12714-B21
HPE XL450 Gen10 Intel Xeon-Silver 4214 (2.2GHz/12-core/85W) Processor Kit	P12713-B21
HPE XL450 Gen10 Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) Processor Kit	P12712-B21
HPE XL450 Gen10 Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) Processor Kit	P12711-B21
<b>Silver 4100 series</b>	
HPE XL450 Gen10 Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) Processor Kit	872545-B21
HPE XL450 Gen10 Intel Xeon-Silver 4114 (2.2GHz/10-core/85W) Processor Kit	872549-B21
HPE XL450 Gen10 Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) Processor Kit	877032-B21
HPE XL450 Gen10 Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) Processor Kit	872547-B21
HPE XL450 Gen10 Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) Processor Kit	872548-B21

### HPE Memory

To streamline the configuration process for HPE ProLiant and Apollo Gen10 servers and to provide the best product availability, HPE recommends options highlighted here: <http://www.hpe.com/products/recommend>

For new Gen10 memory population rule whitepaper and optimal memory performance guidelines, please go to: <https://www.hpe.com/docs/memory-population-rules>

For memory Reliability, Accessibility, Serviceability (RAS) features whitepaper like Gen10 Fast Fault Tolerance and legacy mirrored memory feature etc. please go to:

<http://www.hpe.com/docs/memory-ras-feature>

Memory DIMM availability with a server platform is dependent upon completion of certification testing.

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

#### DDR4-2933 DIMMs

Intel Xeon Platinum/Gold 82xx/62xx processors that support 2933 MT/s DIMMs will do so only at 1 DIMM per channel. Configuring 2 DIMMs per channel will drop memory speed back to 2666 MT/s. For more information, please go to: <https://www.hpe.com/docs/memory-speed-table>

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00918-K21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00920-K21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00922-K21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00924-K21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P00926-K21

#### DDR4-2666 DIMMs

HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815097-K21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815098-K21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	835955-K21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815100-K21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-K21

## Core Options

### HPE Drives

To streamline the configuration process for HPE ProLiant and Apollo Gen10 servers and to provide the best product availability, HPE recommends options highlighted here: <http://www.hpe.com/products/recommend>

### HDD Selections

#### LFF Drives for 60-bay drawers

##### SKU Description

SKU

##### Enterprise - 12G SAS

HPE 900GB SAS 12G Enterprise 15K LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware HDD 870761-K21

##### Midline - 12G SAS

HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD 833926-K21

HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD 833928-K21

HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD 861746-K21

HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD 834031-K21

HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD P09149-K21

HPE 12TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD 881781-K21

HPE 14TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD P09155-K21

##### Midline - 6G SATA

HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD 861686-K21

HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD 861681-K21

HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD 861683-K21

HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD 861742-K21

HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD 834028-K21

HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD P09161-K21

HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD 881787-K21

HPE 14TB SATA 7.2K LFF LP 512e SPL HDD P21618-B21

HPE 14TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD P09165-K21

The following HPE Hard Drive bundles are Factory Integration Only options. They must be purchased at time of configuration and are not available for field integration.

#### 6-pack SATA Hot Plug LFF (3.5-inch) Low Profile Hard Drive Bundles

HPE 6TB 6G SATA 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle 867267-K21

HPE 8TB 6G SATA 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle 867261-K21

HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty He 512e DS 6-pack FIO HDD P09797-K21

#### 6-pack SAS Hot Plug LFF (3.5-inch) Low Profile Hard Drive Bundles

HPE 6TB 12G SAS 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle 867271-K21

HPE 8TB 12G SAS 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle 867263-K21

HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty He 512e DS 6-pack FIO HDD P09799-K21

#### SFF Drives for XL450 Gen10 Server Node

##### Enterprise - 12G SAS

HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD 870753-K21

HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD 872475-K21

HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD 870757-K21

HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD 872477-K21

HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD 870759-K21



## Core Options

### SKU Description

	<b>SKU</b>
HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872479-K21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	872481-K21
HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	881457-K21

### Midline - 12G SAS

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	832514-K21
HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765466-K21

### Midline - 6G SATA - SFF Drives

HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	655710-K21
HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765455-K21

### SSD Selections

To further assist with configuration, HPE also offers an SSD Selector Tool located here: <http://ssd.hpe.com>.

### LFF SSDs for 60-bay drawers

#### Mixed Use - 12G SAS

HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04531-K21
HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10452-K21
HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04535-K21
HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10458-K21
HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10462-K21

#### Mixed Use - 6G SATA

HPE 1.92TB SATA MU LFF LPC DS SPL SSD	P18882-B21
HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P07934-K21

#### Read Intensive - 6G SATA

HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04499-K21
HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04501-K21

### SFF SSDs for XL450 Gen10 Server Node

HPE has qualified the NVMe drive portfolio using the Operating System inbox drivers, full detail on the [HPE Solid State Drive QuickSpecs](#)

#### Write Intensive - NVMe

HPE 375GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	878014-K21
HPE 750GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P06952-K21

#### Write Intensive - 12G SAS

HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04541-K21
HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09098-K21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04543-K21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09100-K21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04545-K21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09102-K21
HPE 3.2TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04547-K21

## Core Options

### SKU Description

SKU

#### Mixed Use - NVMe

HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07179-K21
HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13668-K21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10222-K21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07181-K21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13699-K21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13670-K21
HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10224-K21
HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07183-K21
HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13701-K21
HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13672-K21
HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877998-B21
HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10226-K21
HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07185-K21
HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13703-K21
HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13674-K21

#### Mixed Use - 12G SAS

HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04525-K21
HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09088-K21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04527-K21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09090-K21
HPE 960GB SAS 12G Mixed Use SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10448-K21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04533-K21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09092-K21
HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10454-K21
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04537-K21
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09094-K21
HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10460-K21
HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04539-K21
HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09096-K21

#### Mixed Use - 6G SATA

HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P07922-K21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05976-K21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13658-K21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P07926-K21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05980-K21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13660-K21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P07930-K21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05986-K21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13662-K21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05994-K21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18438-K21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13664-K21

## Core Options

### SKU Description

	<b>SKU</b>
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P21517-K21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P00896-K21

### Read Intensive - NVMe

HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10208-K21
HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07190-K21
HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13676-K21
HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10210-K21
HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10214-K21
HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07192-K21
HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13678-K21
HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13695-K21
HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10212-K21
HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10216-K21
HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07194-K21
HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13680-K21
HPE 4TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13697-K21
HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10218-K21
HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07196-K21
HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13682-K21
HPE 15.36TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07198-K21

### Read Intensive - 12G SAS

HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04517-K21
HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06584-K21
HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10440-K21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04519-K21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06586-K21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10442-K21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04521-K21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06588-K21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10444-K21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04523-K21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06590-K21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10446-K21
HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06592-K21
HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	870148-K21

### Read Intensive - 6G SATA

HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05924-K21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04474-K21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05928-K21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06194-K21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04476-K21

## Core Options

### SKU Description

	<b>SKU</b>
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05932-K21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06196-K21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04478-K21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05938-K21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06198-K21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04480-K21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05946-K21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06200-K21
HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04482-K21
HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18430-K21

### HPE M.2 Enablement Kits for XL450 Gen10 Server Node SFF slots

An HPE M.2 Enablement Kit is a Small Form Factor (SFF) Flash Adapter that packages two 6G SATA M.2 Micro Form Factor (uFF) Sleds in a Dual Domain SFF Smart Drive bay which enables customers to install twice as many drives in an HPE server module when compared to standard SFF Smart Drive bays

#### Mixed Use - SATA

HPE Dual 240GB SATA 6G Mixed Use M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	P06607-K21
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#### Read Intensive - SATA

HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	P06609-K21
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## HPE Networking

### 1 Gigabit Ethernet Adapters

HPE Ethernet 1Gb 4-port 331T Adapter	647594-B21
HPE Ethernet 1Gb 2-port 332T Adapter	615732-B21
HPE Ethernet 1Gb 2-port 361T Adapter	652497-B21
HPE Ethernet 1Gb 4-port 366T Adapter	811546-B21

### 10 Gigabit Ethernet adapters

HPE Ethernet 10Gb 2-port 521T Adapter	867707-B21
HPE Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
HPE Ethernet 10Gb 2-port 530T Adapter	656596-B21
HPE Ethernet 10Gb 2-port 535T Adapter	813661-B21
HPE Ethernet 10Gb 2-port 562SFP+ Adapter	727055-B21
HPE Ethernet 10Gb 2-port 524SFP+ Adapter	P08446-B21
HPE Ethernet 10Gb 2-port 548SFP+ Adapter	P11338-B21

### 25 Gigabit Ethernet adapters

HPE Ethernet 10Gb 2-port 562T Adapter	817738-B21
HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter	867328-B21
HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	817718-B21
HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	817753-B21

## Core Options

Total number of PCIe slots available is 3 with 2 processors. This is the total selection from any combination of PCIe options in the following categories: Infiniband, Networking, Controllers, PCIe Accelerators.

The Apollo 4510 Gen10 ships with 2x 1 Gb Embedded.

A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. Please see the related NIC QuickSpecs for Technical Specifications and additional information:

<http://www.hpe.com/us/en/product-catalog/servers/server-adapters.hits-12.html>

### SKU Description

SKU

#### HPE InfiniBand

HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	764285-B21
HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	764284-B21
HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	825110-B21
HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	825111-B21
HPE InfiniBand EDR 100Gb 1-port 841QSFP28 Adapter	872725-B21
HPE InfiniBand HDR100/Ethernet 100Gb 1-port 940QSFP56 Adapter	P06250-B21
HPE InfiniBand HDR100/Ethernet 100Gb 2-port 940QSFP56 Adapter	P06251-B21

**NOTE:** Total number of PCIe slots available is 3 with 2 processors. This is the total selection from any combination of PCIe options in the following categories: Infiniband, Networking, Controllers, and PCIe Accelerators.

#### HPE Intel® Omni-Path Options

HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel Omni-Path Architecture Adapter	829335-B21
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#### FlexibleLOM

HPE Ethernet 1Gb 4-port 331FLR Adapter	629135-B22
HPE Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HPE FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HPE Ethernet 10Gb 2-port 535FLR-T Adapter	817721-B21
HPE FlexFabric 10Gb 4-port 536FLR-T Adapter	764302-B21
HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter	727054-B21
HPE Ethernet 10Gb 2-port 562FLR-T Adapter	817745-B21
HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter	867334-B21
HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	817709-B21
HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter	817749-B21

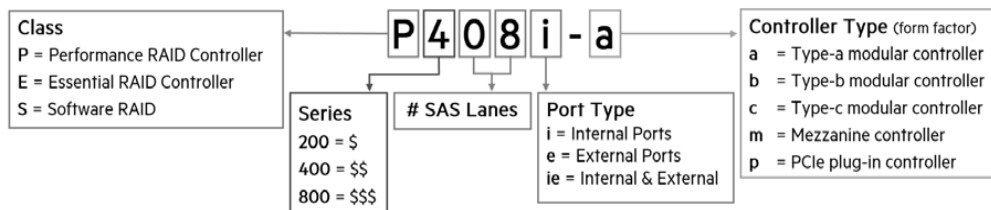
**NOTE:** Does not consume a PCIe slot.

**NOTE:** Total number of FlexibleLOM slots available is 1. This is the total selection from a combination of FlexibleLOM options in the following categories: Infiniband and Networking.

## Core Options

### HPE Smart Array Controllers

The Gen10 controller naming framework has been updated to simplify identification as depicted below. For a more detailed breakout of the available Gen10 Smart Array controllers visit the [HPE Smart Array Gen10 Controllers Data Sheet](#).



### Performance RAID Controllers

#### SKU Description

#### SKU

HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller 804331-B21

**NOTE:** Does not occupy a PCIe expansion slot.

**NOTE:** This controller controls the 2 SFF drives in the HPE ProLiant XL450 Gen10 Server, if SFF SAS drives are selected.

HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller 830824-B21

**NOTE:** This controller controls the internal bulk drives.

HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller 804405-B21

HPE Smart Array P824i-p MR Gen10 (24 Internal Lanes/4GB Cache/CacheCade) 12G SAS PCIe Controller 870658-B21

**NOTE:** This controller controls the internal bulk drives.

### Essential RAID Controllers

HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller 804326-B21

**NOTE:** Does not occupy a PCIe expansion slot.

**NOTE:** This controller controls the 2 SFF drives in the HPE ProLiant XL450 Gen10 Server, if SFF SAS drives are selected.

HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller 804394-B21

**NOTE:** This controller controls the internal bulk drives.

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

### HPE Cable Options

HPE Apollo 4500 Gen10 Smart Array E208i-a/P408i-a SAS Cable Kit 874779-B21

**NOTE:** The kit is needed if the HPE Smart Array for the ProLiant XL450 Gen10 Server is selected.

HPE Apollo 4500 Gen10 Smart Array E208i-p/P408i-p SAS Cable Kit 874777-B21

**NOTE:** The kit is needed if one HPE Smart Array for internal bulk drives is selected.

HPE Apollo 4500 Gen10 Dual Smart Array E208i-p/P408i-p SAS Cable Kit 874778-B21

**NOTE:** The kit is needed if second HPE Smart Array for internal bulk drives is selected.

HPE Apollo 4510 P824i-p Cable Kit P00638-B21

**NOTE:** The kit is needed if the HPE Smart Array P824i-p MR for the ProLiant XL450 Gen10 Server is selected.



## Core Options

### HPE Storage Options

#### Emulex Fibre Channel HBAs

SKU Description	SKU
HPE StoreFabric SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter	Q0L13A
HPE StoreFabric SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	Q0L14A
HPE StoreFabric SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	Q0L11A
HPE StoreFabric SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter	Q0L12A
HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	R2J62A
HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	R2J63A

#### QLogic Fibre Channel HBAs

HPE StoreFabric SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter	P9D93A
HPE StoreFabric SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	P9D94A
HPE StoreFabric SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter	P9M75A
HPE StoreFabric SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter	P9M76A
HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A

#### Converged Network Adapters

HPE StoreFabric CN1100R Dual Port Converged Network Adapter	QW990A
HPE StoreFabric CN1100R 10GBASE-T Dual Port Converged Network Adapter	N3U52A
HPE StoreFabric CN1200E 10Gb Converged Network Adapter	E7Y06A
HPE StoreFabric CN1200E 10GBASE-T Dual Port Converged Network Adapter	N3U51A

### HPE Power Supplies

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 Tool](#).

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

#### HPE Flexible Slot Titanium Power Supply Kits

**NOTE:** The following power supplies offer up to 96% efficiency.

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

**NOTE:** The following power supplies offer up to 94% efficiency.

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	830272-B21
HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	865414-B21
HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit	865434-B21
HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply Kit	865428-B21

## Core Options

### HPE Tape Options

SKU	Description	SKU
	HPE StoreEver LTO-8 Ultrium 30750 External Tape Drive	BC023A
	HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive	BB874A
	HPE StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
	HPE StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B
	HPE StoreEver MSL6480 Scalable Base Module	QU625A
	HPE StoreEver MSL2024 0-drive Tape Library	AK379A
	HPE StoreEver MSL LTO-8 Ultrium 30750 FC Drive Upgrade Kit	Q6Q67A
	HPE StoreEver MSL LTO-8 Ultrium 30750 SAS Drive Upgrade Kit	Q6Q68A
	HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit	N7P36A
	HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit	N7P37A
	HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit	COH27A
	HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit	COH28A
	HPE StoreEver MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit	BL540B
	HPE StoreEver MSL3040 Scalable Library Base Module	Q6Q62B
	HPE StoreFabric CN1200R 10GBASE-T Converged Network Adapter	Q0F26A
	HPE StoreFabric CN1300R 10/25Gb Dual Port Converged Network Adapter	Q0F09A

## Additional Options

### HPE Apollo Platform Manager

The Apollo Platform Manager is an optional rack level solution for the HPE Apollo 4510 Gen10 Systems which enable server-level DC (or hardware) power on and off and server-level monitoring. In addition, the APM will automatically discover hardware components which are connected into the APM solution.

The APM does not replace rack PDUs, but is designed to enable the utilization of basic, low cost, rack PDUs while providing the functionality of 'switched' PDUs (which provide hardware power on/off of individual servers by turning off the AC power to the power supplies of a given server). Because the servers share power supplies to optimize power efficiency, using 'switched' PDUs to turn off all the power supplies in the chassis will result in the loss of all server nodes in that chassis. The APM solves this by allowing server node-level hardware power on/off of the DC power to the individual server node motherboards.

#### SKU Description

#### SKU

HPE Advanced Power Manager Kit	741192-B21
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### Embedded Management

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

HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE
HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features	512486-B21
HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21
HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features	BD506A
HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Common Password FIO Setting	P08040-B21

### HPE PCIe Workload Accelerator Options

HPE 750GB PCIe x4 Lanes Write Intensive HHHH 3yr Wty Digitally Signed Firmware Card	878038-K21
HPE 1.6TB NVMe x8 Lanes Mixed Use HHHH 3yr Wty Digitally Signed Firmware Card	P10264-K21
HPE 3.2TB NVMe x8 Lanes Mixed Use HHHH 3yr Wty Digitally Signed Firmware Card	P10266-K21
HPE 6.4TB NVMe x8 Lanes Mixed Use HHHH 3yr Wty Digitally Signed Firmware Card	P10268-K21

### HPE Security

HPE Trusted Platform Module 2.0 Gen10 Option	864279-B21
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**NOTE:** HPE Trusted Platform Module 2.0 option works with Gen10 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.

**NOTE:** HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

## Additional Options

### Optional Software

#### SKU Description

#### SKU

HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU	Q2F26AAE
HPE Smart Array SR SmartCache (Single Key/Single Server) LTU	D7S26A
HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU	D7S27A
HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU	D7S27AAE

**NOTE:** SmartCache is offered on HPE Smart Array performance RAID controllers and comes standard (no licensing is required) if the HPE Smart Array P816i-a SR Gen10 Controller is installed in the server.

### HPE Racks

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

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

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

### 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.

### USB and SD Options

HPE 32GB microSD Flash Memory Card	700139-B21
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## Additional Options

### HPE Solutions Software

#### SKU Description

	<b>SKU</b>
Hortonworks Data Platform (HDP) Enterprise Subscription 4 N/50TB Raw Strg 1yr 24x7 Supp E-LTU	F5Z52AAE
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 24x7 Support Physical LTU	G7M27A
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 24x7 Support E-LTU	G7M27AAE
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 8x5 Support Physical LTU	G7M28A
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 8x5 Support E-LTU	G7M28AAE
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 24x7 Support Physical LTU	G7M29A
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 24x7 Support E-LTU	G7M29AAE
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 8x5 Support Physical LTU	G7M30A
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 8x5 Support E-LTU	G7M30AAE
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 24x7 Premium E-LTU	G7M31AAE
Cloudera Hortonworks Data Platform Enterprise Plus 4 Nodes/50TB Raw Storage 1yr 24x7 Support E-LTU	JP408AAE

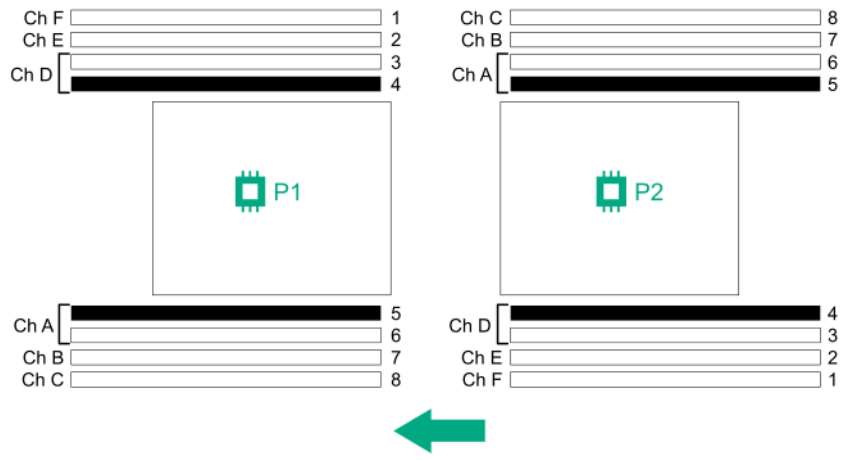
### HPE Support Services

HPE 3 year Foundation Care 24x7 Apollo 4510 Service	U8MS0E
HPE 3 year Proactive Care Next business day Apollo 4510 Service	U8MR4E
HPE 3 year Foundation Care Next business day Apollo 4510 Service	U8MR1E

**NOTE:** For more information, customer/resellers can contact: <http://www.hpe.com/services/carepack>

# Memory

## HPE Apollo 4510 Gen10 Systems



DIMM slot and configuration diagrams

1 DIMM			3					
2 DIMMs		2	3					
3 DIMMs	1	2	3					
4 DIMMs		2	3			6	7	
5 DIMMs*	1	2	3			6	7	
6 DIMMs	1	2	3			6	7	8
7 DIMMs*	1	2	3	4		6	7	8
8 DIMMs*	1	2	3	4	5	6	7	8

HPE ProLiant Gen10 8 slot per CPU DIMM population order

\*Unbalanced, not recommended

## Memory

### Memory population guidelines

- General Memory Population Rules and Guidelines:
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two-processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Mixing of DIMM types (UDIMM, RDIMM, and LRDIMM) is not supported.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, the number and model of installed processors qualified on the platform.
- For details on the HPE Server Memory Options Population Rules, visit:
- <http://www.hpe.com/docs/memory-population-rules>
- To realize the performance memory capabilities listed in this document, HPE DDR4 SmartMemory is required. For additional information, please see the [HPE DDR4 SmartMemory QuickSpecs](#).

**NOTE:** The maximum memory speed is a function of the memory type, memory configuration, and processor model. Intel Xeon Platinum/Gold 82xx/62xx processors that support 2933 MT/s DIMMs will do so only at 1 DIMM per channel. Configuring 2 DIMMs per channel will drop memory speed back to 2666 MT/s.

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

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### DDR4 memory options part number decoder

**NOTE:** Capacity references are rounded to the common Gigabyte (GB) Values:

- 4GB = 4096 MB
- 8GB = 8192 MB
- 16GB = 16384 MB
- 32GB = 32768 MB

For more information on memory, please see the Memory QuickSpecs: [HPE DDR4 SmartMemory](#)

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## Technical Specifications

### System Unit

<b>Chassis Dimensions (H x W x D) (not including the fan, which sticks out past the chassis)</b>	6.92 x 17.64 x 35.60in (17.58 x 44.80 x 90.43cm)						
	<b>NOTE: Rack chosen is required to have 1075mm depth to provide space at the rear of the chassis and host PDU in the rear of the rack.</b>						
<b>Weight (approximate)</b>	<table border="0"> <tr> <td>Minimum (empty)</td> <td>135 lbs (61kg)</td> </tr> <tr> <td>Maximum (full loaded)</td> <td>225lb (102kg)</td> </tr> </table>	Minimum (empty)	135 lbs (61kg)	Maximum (full loaded)	225lb (102kg)		
Minimum (empty)	135 lbs (61kg)						
Maximum (full loaded)	225lb (102kg)						
<b>Input Requirements (per power supply)</b>	<table border="0"> <tr> <td>Rated Line Voltage</td> <td>100 to 127 VAC 200 to 240 VAC</td> </tr> <tr> <td>Rated Input Current</td> <td>For 1600 W Power Supply: 8.7 A (at 200 VAC), 7.2 A (at 240 VAC) For 800 W Power Supply: 9.4 A (at 100 VAC), 4.5 A (at 240 VAC)</td> </tr> <tr> <td>Rated Input Frequency</td> <td>50 Hz to 60 Hz</td> </tr> </table>	Rated Line Voltage	100 to 127 VAC 200 to 240 VAC	Rated Input Current	For 1600 W Power Supply: 8.7 A (at 200 VAC), 7.2 A (at 240 VAC) For 800 W Power Supply: 9.4 A (at 100 VAC), 4.5 A (at 240 VAC)	Rated Input Frequency	50 Hz to 60 Hz
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Rated Input Frequency	50 Hz to 60 Hz						
<b>Power Supply Output (per power supply)</b>	<table border="0"> <tr> <td>Maximum Power</td> <td>For 1600 W Power Supply: 2200 W (at 200 to 240 VAC) For 800W Power Supply: 800W (at 100-240VAC)</td> </tr> </table>	Maximum Power	For 1600 W Power Supply: 2200 W (at 200 to 240 VAC) For 800W Power Supply: 800W (at 100-240VAC)				
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<b>Power Supply Output (per power supply)</b>	<table border="0"> <tr> <td>Rated Steady-State Power</td> <td>For 1600 W Power Supply: 1600 W (at 200 to 240 VAC) For 800W Power Supply: 800W (at 100-240VAC)</td> </tr> </table>	Rated Steady-State Power	For 1600 W Power Supply: 1600 W (at 200 to 240 VAC) For 800W Power Supply: 800W (at 100-240VAC)				
Rated Steady-State Power	For 1600 W Power Supply: 1600 W (at 200 to 240 VAC) For 800W Power Supply: 800W (at 100-240VAC)						
<b>System Inlet Temperature</b>	<table border="0"> <tr> <td>Operating</td> <td>50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 304.8 m) above sea level to a maximum of 10,000 ft (3048 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).</td> </tr> <tr> <td>Shipping</td> <td>-40° to 158° F (-40° to 70° C) Maximum rate of change is 36°F/hr (20°C/hr).</td> </tr> </table>	Operating	50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 304.8 m) above sea level to a maximum of 10,000 ft (3048 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).	Shipping	-40° to 158° F (-40° to 70° C) Maximum rate of change is 36°F/hr (20°C/hr).		
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Shipping	-40° to 158° F (-40° to 70° C) Maximum rate of change is 36°F/hr (20°C/hr).						
<b>Relative Humidity (non-condensing)</b>	<table border="0"> <tr> <td>Operating</td> <td>10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.</td> </tr> <tr> <td>Non-operating</td> <td>5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.</td> </tr> </table>	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) 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.		
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<b>Altitude</b>	<table border="0"> <tr> <td>Operating</td> <td>10,000 ft (3048 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).</td> </tr> <tr> <td>Non-operating</td> <td>30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).</td> </tr> </table>	Operating	10,000 ft (3048 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).	Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).		
Operating	10,000 ft (3048 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).						
Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).						
<b>Emissions Classification (EMC) – Regulatory Information</b>	<p>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:</p> <p><b><a href="http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts">http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts</a></b></p>						



## Technical Specifications

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

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
03-Feb-2020	Version 13	Changed	Overview, Core Options and Additional Options sections were updated.
02-Dec-2019	Version 12	Changed	Configuration Information, Core Options and Additional Options sections were updated.
07-Oct-2019	Version 11	Changed	Standard Features and Core Options sections were updated.
05-Aug-2019	Version 10	Changed	Overview, Standard Features, Configuration Information and Core Options sections were updated.
03-Jun-2019	Version 9	Changed	Overview, Core Options and Additional Options sections were updated
06-May-2019	Version 8	Changed	Standard Features and Core Options sections were updated.
02-Apr-2019	Version 7	Changed	Overview, Standard Features, Configuration Information, Core Options and Additional Options sections were updated.
04-Feb-2019	Version 6	Added	SKUs were added in Core Options Section
03-Dec-2018	Version 5	Added	SKUs were added in Core Options Section
01-Oct-2018	Version 4	Changed	Service and Support, Configuration Information, Core Options and Additional Options sections were updated. SKU descriptions were updated. Obsolete SKUs were removed.
04-Jun-2018	Version 3	Changed	Expansion Slots, Maximum Internal Storage, Configuration Information - Factory Integrated Models, Core Options, and Additional Options were updated. Obsolete SKUs were removed from the QuickSpecs.
05-Feb-2018	Version 2	Changed	Processors, Configuration Information – Factory Integrated Models, Core Options and Additional Options were revised.
25-Sep-2017	Version 1	Created	Create QuickSpecs for HPE Apollo 4510 Gen10 System



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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.

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