

Overview

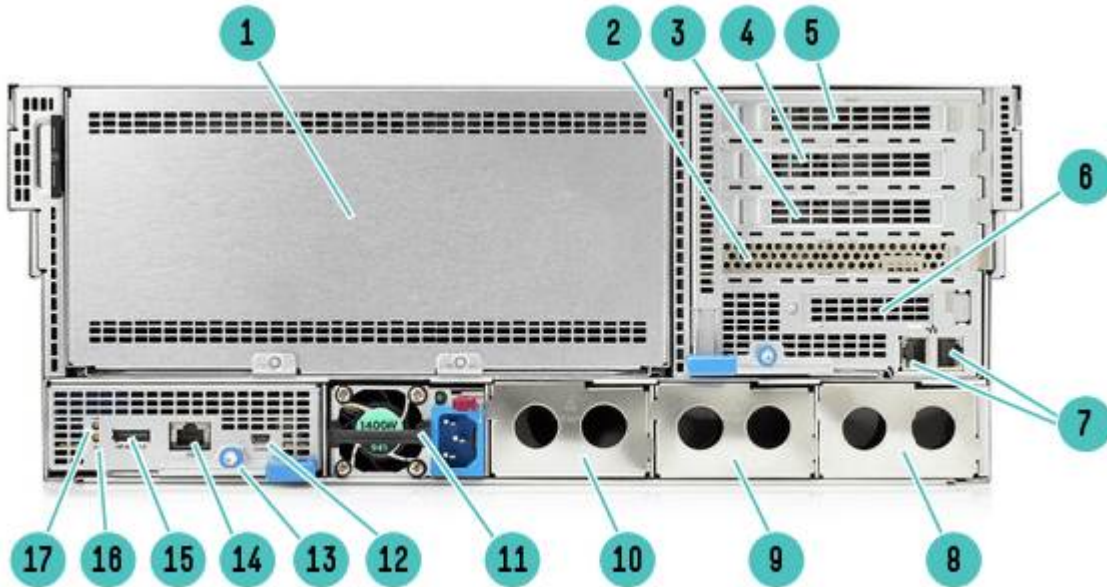
HPE Apollo 4500 System

With the HPE Apollo 4500 Systems, HPE challenges the notion that one-size-fits all for Big Data infrastructure by creating purpose-built systems that specifically address storage and analytics workloads. For object storage, the ultra-dense Apollo 4510 includes 1 server and up to 68 Large Form Factor (LFF) drives in a 4U chassis for a maximum of 544 TB per system. For clustered storage environments, the Apollo 4520 offers two servers with built-in failover capability. For Hadoop® and other Big Data solutions, the Apollo 4530 uniquely offers 3 servers per chassis, ideal for housing 3 copies of data in a single system.



HPE Apollo 4510 Model Front View:	
1.	SFF 2.5" hard drives on node
2.	Quick Reference Code
3.	HDD backplane Health LED
4.	Logical array status
5.	UID LED
6.	Eject node button
7.	Backup LED
8.	SUV Connector - VGA and USB
9.	Server Tray Health LED
10.	UID LED
11.	Power Indicator LED

Overview



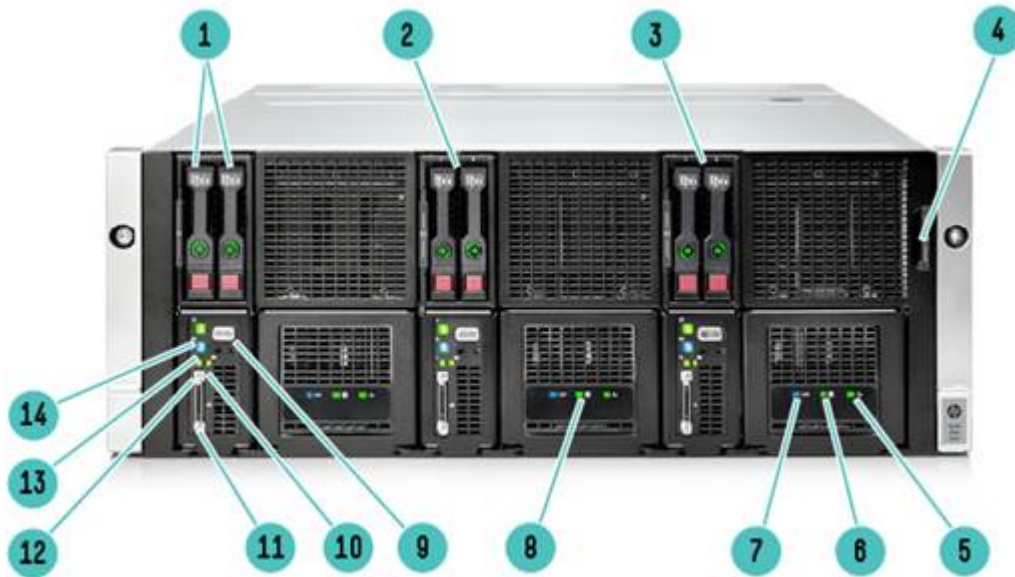
HPE Apollo 4510 Model Rear View:	
1.	Rear cage kit (blank) - Supports up to 8 LFF HDD/SSD
2.	PCIe Slot 1
3.	PCIe Slot 2
4.	PCIe Slot 3
5.	PCIe Slot 4
6.	FlexibleLOM
7.	2 X 1Gb Ethernet ports
8.	Power Supply 4 (blank)
9.	Power Supply 3 (blank)
10.	Power Supply 2 (blank)
11.	Power Supply 1
12.	HPE Tools Service port
13.	Module Removal Pin (non-hot-pluggable)
14.	Dedicated iLO4 Port
15.	HPE-APM 2.0 Interface Port (Rack management interface)
16.	Chassis management controlled health indicator
17.	Chassis management controller UID indicator



Overview

HPE Apollo 4520 Model Front View

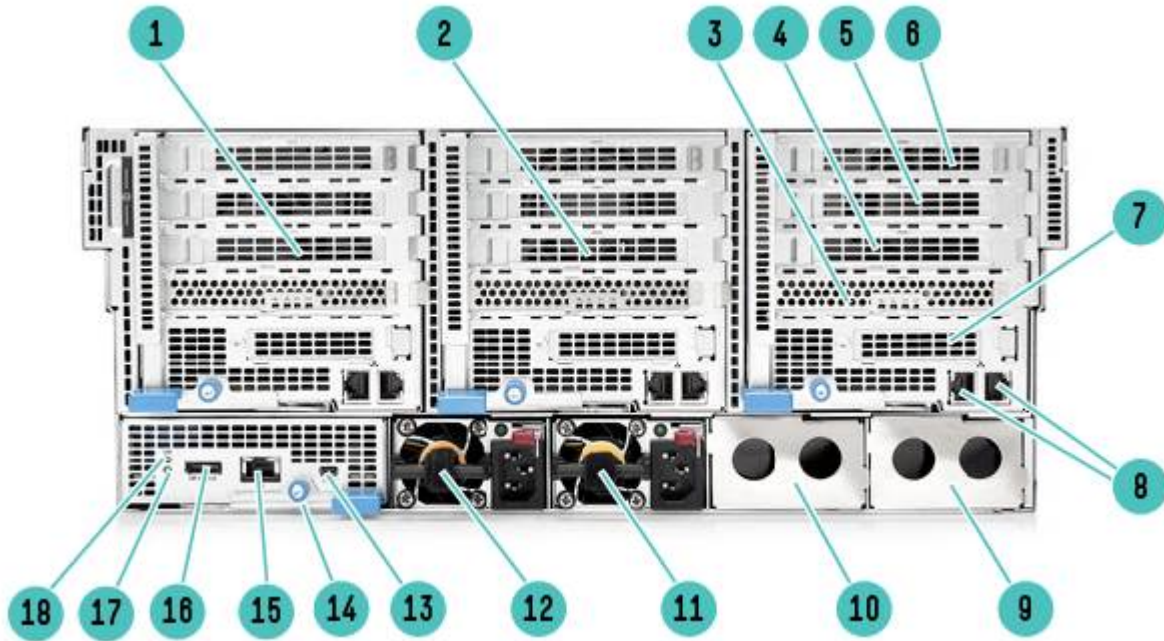
1.	SFF 2.5" hard drives on node (2)
2.	Server Node 2
3.	Quick Reference Code
4.	HDD backplane Health LED
5.	Logical array status
6.	UID LED
7.	LFF hard drives connected to Server Node 1
8.	Eject node button
9.	Backup LED
10.	SUV Connector - VGA and USB
11.	Server Tray Health LED
12.	UID LED
13.	Power Indicator LED



HPE Apollo 4530 Model Front View:

1.	SFF 2.5" hard drives on node (2)
2.	Storage Node 2
3.	Storage Node 3
4.	Quick Reference Code
5.	HDD backplane Health LED
6.	Logical array status
7.	UID LED
8.	LFF hard drives connected to Server Node 2
9.	Eject node button
10.	NIC Status
11.	SUV Connector - VGA and USB
12.	Backup LED
13.	Server Tray Health LED
14.	Power Indicator LED

Overview



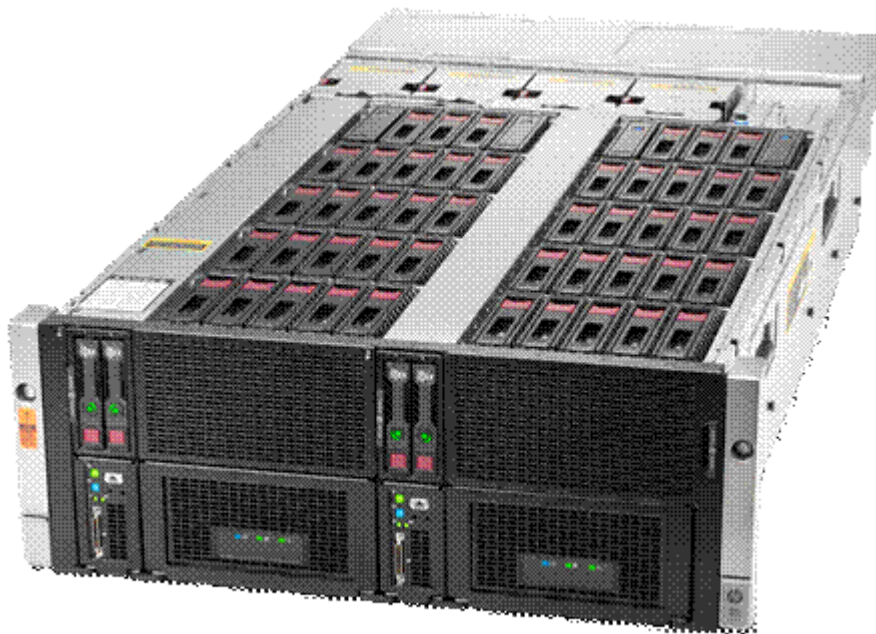
HPE Apollo 4530 Model Rear View:

1.	I/O Module Server Node 3
2.	I/O Module Server Node 2
3.	PCIe Slot 1 in Server Node 1
4.	PCIe Slot 2 in Server Node 1
5.	PCIe Slot 3 in Server Node 1
6.	PCIe Slot 4 in Server Node 1
7.	FlexibleLOM in Server Node 1
8.	2 X 1Gb Ethernet ports
9.	Power Supply 4 (blank)
10.	Power Supply 3 (blank)
11.	Power Supply 2
12.	Power Supply 1
13.	HPE Tools Service port
14.	Module Removal Pin
15.	Dedicated iLO4 Port
16.	HPE-APM 2.0 Interface Port (Rack management interface)
17.	Chassis management controlled health indicator
18.	Chassis management controller UID indicator

Overview



HPE Apollo 4510 System



HPE Apollo 4520 System

NOTE: Each server tray contains two expander modules for shared storage

Overview



HPE Apollo 4530 System

What's New

- Intel® Xeon® Processor E5-2600 v4 Series
- HPE DDR4-2400MHz Low Voltage Memory Kit
- 4U Form Factor
- Up to 4 PCIe Gen 3.0 Slots
- Up to 68 LFF drives in Apollo 4510 System
- M.2 support
- Smart Array and HBA support for boot SFF drives
- 16 DIMMs - DDR4 memory
- Gen9 Power supplies (800W and 1400W)
- Support for DC power supply
- 12G SAS

Standard Features

NOTE: For the Standard Features shipped in the Factory Integrated Models, please see the "Configuration Information - Factory Integrated Models" section

5-2600 v4 Series

Twenty Core Processors

Intel® Xeon E5 2698v4 (2.2GHz/20core/50MB/135W) Processor

Eighteen Core Processors

Intel® Xeon E5 2695v4 (2.1GHz/18core/45MB/120W) Processor

Sixteen Core Processors

Intel® Xeon E5 2683v4 (2.1GHz/16core/40MB/120W) Processor

Fourteen Core Processors

Intel® Xeon E5 2690v4 (2.6GHz/14core/35MB/135W) Processor

Intel® Xeon E5 2680v4 (2.4GHz/14core/35MB/120W) Processor

Intel® Xeon E5 2660v4 (2.0GHz/14core/35MB/105W) Processor

Intel® Xeon E5 2650Lv4 (1.7GHz/14core/35MB/65W) Processor

Twelve Core Processors

Intel® Xeon E5 2650v4 (2.2GHz/12-core/30MB/105W) Processor

Ten Core Processors

Intel® Xeon E5 2640v4 (2.4GHz/10-core/25MB/90W) Processor

Intel® Xeon E5 2640v4 (2.2GHz/10-core/20MB/85W) Processor

Intel® Xeon E5 2630Lv4 (1.8GHz/10-core/25MB/55W) Processor

Intel® Xeon E5 2630v4 (2.1GHz/8-core/20MB/85W) Processor

Eight Core Processors

Intel® Xeon E5 2620v4 (2.1GHz/8-core/20MB/85W) Processor

Six Core Processors

Intel® Xeon E5 2603v4 (1.7GHz/6-core/15MB/85W) Processor

E5-2600 v3 Series

Sixteen-Core Processors

Intel® Xeon® E5-2698v3 (2.3GHz/16core/40MB/135W) Processor

Fourteen-Core Processors

Intel® Xeon® E5-2695v3 (2.3GHz/14core/35MB/120W) Processor

Intel® Xeon® E5-2683v3 (2GHz/14core/35MB/120W) Processor

Twelve-Core Processors

Intel® Xeon® E5-2690v3 (2.6GHz/12core/30MB/135W) Processor

Intel® Xeon® E5-2680v3 (2.5GHz/12core/30MB/120W) Processor

Intel® Xeon® E5-2670v3 (2.3GHz/12core/30MB/120W) Processor

Intel® Xeon® E5-2650Lv3 (1.8GHz/12core/30MB/65W) Processor

Ten-Core Processors

Intel® Xeon® E5-2660v3 (2.6GHz/10core/25MB/105W) Processor

Intel® Xeon® E5-2650v3 (2.3GHz/10core/25MB/105W) Processor

Eight-Core Processors

Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor

Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor

Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) Processor

Six-Core Processors

Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor

Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor

NOTE: DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed (options for 2133 and 2400 MHz memory speed are available).

Standard Features

NOTE: Memory will run slower if a lower speed processor is used

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

NOTE: For the Intel® C610 Series Chipset E5-2600v3 Series and E5-2600v4 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number

Cache Memory
One of the following
depending on model

E5-2600v4 Processors

50MB (1x50MB) Level3

NOTE: For Twenty-core processors.

45MB (1x45MB) Level3

NOTE: For Eighteen-core processors

40MB (1x40MB) Level3

NOTE: For Sixteen-core processors.

35MB (1x35MB) Level3

NOTE: For Fourteen-core processors.

30MB (1x30MB) Level3

NOTE: For Twelve-core processors.

25MB (1x25MB) Level3

NOTE: For Ten-core processors.

20MB (1x20MB) Level3

NOTE: For Ten-core processors.

E5-2600v3 Processors

40MB (1x40MB) Level3

NOTE: For Sixteen-core processors.

35MB (1x35MB) Level3

NOTE: For Fourteen-core processors.

30MB (1x30MB) Level3

NOTE: For Twelve-core processors.

25MB (1x25MB) Level3

NOTE: For Ten-core processors.

20MB (1x20MB) Level3

NOTE: For Eight-core processors.

15MB (1x15MB) Level3

NOTE: For Six-core processors.

Chipset

Intel® C610 Series Chipset

Intel® E5-2600 v3 Processor Family

Intel® E5-2600 v4 Processor Family

NOTE: For more information regarding Intel® chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>.

Standard Features

Upgradeability

Upgradeable to two processors

NOTE: Processor upgrade available from Intel® Xeon® Processors E5-2600 v3 to E5-2400 v4. Please contact HPE Technology Sales (<http://www.hp.com/support>), your local HPE Re-seller

HPE Legacy Mode (FIO Only - P/N 758959-B22)

NOTE: UEFI is the default mode for CTO SKUs. Can change default to legacy via CTO.

On System Management Processor

HPE iLO (Firmware: HPE iLO 4)

NOTE: For more information, visit: <http://www.hp.com/go/ilo>.

Memory Protection

Advanced ECC (multi-bit error protection)

Online Spare

Lock Step Mode

Memory Dedicated to each server node

Type

HPE SmartMemory
DDR4 Registered (RDIMM and LRDIMM)

DIMM Slots Available

16 DIMM Slots available

Maximum (RDIMM or LRDIMMs) per server tray

1024GB (16 x 64GB) Registered memory configurations

NOTE: HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9. For additional information, please see the Hewlett Packard Enterprise SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: HPE certified SmartMemory must be used to guarantee full 2400 or 2133 MHz speeds.

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2400 MHz, 2133 MHz, 1866MHz, 1600MHz, or 1333MHz. Please see the Online Memory Configuration Tool at:

<http://h22195.www2.hp.com/DDR4memoryconfig/Home/Legal>.

Network Controller

HPE Ethernet 1Gb 2-port 361i Adapter

Standard Features

Expansion Slots

Dedicated to each server node	Expansion Slots #	Technology	Bus Width*	Connector Width	Form Factor	Notes
	0	PCIe 3.0	X8	X16	Low profile slot	CPU0; FlexibleLOM
	1	PCIe 3.0	X8	X16	Low profile slot	CPU0; SA/HBA
	2	PCIe 3.0	X8	X16	Low profile slot	CPU0; SA/HBA
	3	PCIe 3.0	X8	X16	Low profile slot	CPU1
	4	PCIe 3.0	X8	X16	Low profile slot	CPU1

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

HPE Server ROM

HPE ROM (Read Only Memory) is now digitally signed using HPE's Corporate Signing Service. This signature is verified before the flash process starts, reducing accidental programming and preventing malicious efforts to corrupt system ROM. HPE ROM provides for essential initialization and validation of hardware components before control is passed to the customer-installed operating system. The ROM also provides the capability of booting from various fixed media (HDD, CD-ROM) and removable media (USB), to continue operation to the operating system.

HPE ROM performs very early configuration of the video controller, to allow monitoring of initialization progress via an attached monitor. If configuration or hardware errors are discovered during this early phase of hardware initialization, suitable messages are now displayed on the connected monitor. Additionally, these configuration or hardware errors are logged to the Integrated Management Log (IML) to assist in diagnosis.

HPE's ProLiant ROM is used to configure the following:

- Processor and chipset status registers
- System memory, memory map, and memory initialization
- System hardware configuration (Integrated PCI devices and optional PCIe cards).
- Customer-specific BIOS configuration (using the HPE ROM-Based Setup Utility (RBSU)).

NOTE: For further information, please refer to HPE's RBSU (ROM based setup utility) user guide: <http://www.hp.com/support/rbs>

Standard Features

Storage Controllers
Dedicated to each server node

Software RAID
HPE Dynamic Smart Array B140i SATA RAID
NOTE: HPE Dynamic Smart Array B140i SATA RAID is located on the server node and controls the two small form factor (SFF/2.5") hard drives and M.2 drives in the server node itself.
HPE Smart Array P244br/1G FIO Controller
HPE H244br FIO Smart HBA
NOTE: The P244br and H244br may be used for hardware RAID/HBA of the 2 SFF drives per server node.
NOTE: If SAS drive is selected, P244br or H244br is required.
NOTE: P244br and H244br connect to the 2 SFF drives in the node and provide capability for up to 12G SAS or 6G SATA. If not installed, then the Intel 610 chipset SATA controls the drives.
NOTE: If you do not wish to use RAID/HBA using software or hardware RAID, then the Intel Chipset controls the RAID. The Intel Chipset is the default controller for the SFF drives.
For hardware RAID/HBA of bulk storage LFF drives, one of the following controlled is required:
SAS Controllers for Internal bulk drives
HPE Smart Array P440/4G Controller
HPE Smart Array P840/4G Controller
HPE H240 Smart HBA

Storage Controllers
Dedicated to Bulk LFF drives

SAS Controllers for External bulk drives
HPE H241 Smart HBA
HPE Smart Array P441/4G Controller
HPE Smart Array P841/4G Controller
NOTE: SA/HBA that end in 1 refer to external controllers for storage outside of the system. 0 refers to internal storage
NOTE: SAS controllers for internal bulk drives reside in I/O module(s) in each system.
NOTE: The Apollo 4510 contains one I/O module; Apollo 4520 has two I/O modules, and Apollo 4530 has three I/O modules

Internal Bulk Storage
Controller Options by Model

The following table shows supported controller choices for each model, per I/O module.

	1xH240	2xH240	1xP440	2xP440	1xP840
Apollo 4510	X	X	X	X	X
Apollo 4520	X	X			
Apollo 4530	X		X		

Internal Storage
Devices

USB Drive Via USB port, external support only
Hard Drives None ship standard
Drive Bays 2 SFF drive bays total in each HPE ProLiant XL450 Server
68 LFF drive bays total in chassis for Apollo 4510
46 LFF drive bays total in chassis for Apollo 4520 (23 drives per server)
NOTE: The Apollo 4520 contains 2 expanders per server tray. These allow for shared storage across the two servers
45 LFF drive bays total in chassis for Apollo 4530 (15 drives per server)

Standard Features

Maximum Internal Storage

Apollo 4510: 1x68 Model - 68 LFF Drives per node

NOTE: To achieve 68 LFF drives, the optional 8 drive rear cage must be purchased

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

Hot Plug LFF SAS	544 TB	68 x 8TB
Hot Plug LFF SATA	544 TB	68 x 8TB
Hot Plug LFF SAS SSD	108.8 TB	68 x 1.6TB
Hot Plug LFF SATA SSD	65.3 TB	68 x 960 GB
Hot Plug SFF SATA SSD	3.84TB	2 x 1.92TB
Hot Plug SFF SAS SSD	3.2 TB	2 x 1.6TB
Hot Plug SFF SATA	2 TB	2 x 1TB
M.2 2280 SSD	680 GB	2 x 340GB

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

NOTE: M.2s were not previously available with the SL4500, but are available for the Apollo 4500 Gen9 Systems

NOTE: The main storage section in the chassis has 60 LFF (3.5") hard drive bays, with an optional rear drive cage (only available on the Apollo 4510) which fits 8 additional LFF drives and they can be populated with any combination of SAS, SATA, or SATA SSD drives to achieve desired performance.

Apollo 4520: 23 LFF Drives per node, 2 nodes total for a total of 46 LFF Drives per chassis

Hot Plug LFF SAS	368TB	46 x 8TB
Hot Plug LFF SATA	360TB	46 x 8TB
Hot Plug LFF SAS SSD	73.6TB	46 x 1.6TB
Hot Plug LFF SATA SSD	44.1 TB	46 x 960GB
Hot Plug SFF SATA SSD	7.68TB	4 x 1.92GB
Hot Plug SFF SAS SSD	6.4 TB	4 x 1.6TB
Hot Plug SFF SATA	4 TB	4 x 1TB
M.2 2280 SSD	1.02 TB	4 x 340GB

NOTE: Each node contains two SFF (2.5") hard drive bays on the front of the node.

NOTE: M.2s were not previously available with the SL4500, but are available for the Apollo 4500 Gen9 Systems

NOTE: The main storage section in the chassis has 46 LFF (3.5") hard drive bays, 23 bays per node, and they can be populated with any combination of SAS, SATA, or SATA SSD drives to achieve desired performance.

NOTE: There are also 2 SAS expanders per server tray which allow for server failover

Standard Features

Interfaces Dedicated to each server node	Network RJ-45	Two 1GbE NIC ports NOTE: Customers can elect to use a FlexibleLOM, which enables customers to increase I/O capacity
	Management Network Port	1GbE Dedicated NOTE: Management port is shared (located on management module)
	Health LED	1 front
	Power	1 front
	UID for node	1 front per node and 1 rear on management module
	UID for storage SUV	1 per display board Serial + USB + video (all in one) NOTE: HPE 36pin SUV Dongle Cord Kit P/N is 676277-B21

Industry Standard Compliance	ACPI 5.0 Compliant
	PCIe 3.0 Compliant
	WOL Support
	Microsoft® Logo certifications
	PXE Support
	USB 1.1 and 2.0 Compliant
SMBIOS 3.0.0	

Server Power Cords	6' Highline (IEC-IEC) power cord ships standard NOTE: HPE Apollo servers are primarily connected to PDU's in data center racks so they ship standard with only a PDU power cord (416151-B21). If a user wishes to power an Apollo system using a 120V receptacle (NEMA-15), the NEMA power cord must be ordered separately. NOTE: If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix .
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Power Specifications	To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at URL: http://www.hp.com/go/proliant-energy-efficient or http://www.hp.com/go/hppoweradvisor . NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html
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Standard Features

Common Slot Power Supply HPE's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HPE Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HPE CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. HPE CS power supply options provide efficiency ratings of up to 94% and are available in two power output options - 800W, and 1400W - allowing the user to "right-size" a power supply for their specific server configuration. All HPE Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations. It is highly recommended that you use the HPE Power Advisor in defining the "Right-Size" power supply for your needs. HPE Power Advisor can be accessed at: <http://www.hp.com/go/hppoweradvisor>.

NOTE: Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted you will get errors and operation will fail.

NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on <http://www.80Plus.org>.

NOTE: Redundant Power: Optional redundant power supplies can be purchased through power supply option kits (see Power Supplies for part numbers).

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: The Apollo 4520 supports Microsoft Windows Server, Red Hat Enterprise Linux, and SUSE Linux Enterprise Server.

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

NOTE: For more information on HPE'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: <http://www.hp.com/go/ossupport> and our driver download page: <http://www.hp.com/support/HPAPOLLO4500Gen9>

Graphics (per node) Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)
- 1920 x 1200 (16 bpp)

Form Factor 4U form factor

Standard Features

On System Management

HPE iLO Management Engine

HPE iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HPE iLO Management Engine comes standard on all HPE ProLiant Gen9 servers. The HPE iLO Management Engine portfolio includes:

- HPE iLO Mobile App: 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.hp.com/go/ilo/mobileapp>
- HPE iLO: The HPE iLO (Integrated Lights-Out) management processor is the core foundation for the HPE iLO Management Engine
- HPE Agentless Management: Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
- HPE Active Health System: Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
- HPE Intelligent Provisioning: Lets customers provision and configure a single server without any separate media. No more SmartStart CDs or Smart Update Firmware DVD are needed.

- To start Intelligent Provisioning:

- Press the F10 key during the ProLiant Gen9 server boot process (also known as power on self-test or POST).
- Press the F10 key during the ProLiant Gen9 server boot process (also known as power on self-test or POST).
- Please go to the Intelligent Provisioning website at <http://www.hp.com/go/intelligentprovisioning> for additional information and to view usage videos.
- Use the Service Pack for ProLiant (SPP) at <http://www.hp.com/go/spp> to get firmware and software updates.
- **NOTE:** For more information, visit: <http://www.hp.com/go/ilo> or HPE iLO Management Engine technologies whitepaper

Standard Features

HPE Insight
Management

HPE Service Pack
for ProLiant

HPE Service Pack for ProLiant (SPP) and HPE Smart Update Manager (HPE SUM) provide a comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new Hewlett Packard Enterprise server hardware launches. By enabling firmware to be updated online and integrating firmware and system software updates in one operation, HPE SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is the fact that Hewlett Packard Enterprise provides 12 months of support for each Service Pack for ProLiant release.

The user experience around HPE SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HPE SUM and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HPE SUM application provides a straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hpe.com, HPE SUM provides the tools to optimize stability and consistency throughout the company. While HPE SUM and the SPP recommend the combinations of firmware and system software that HPE has found to be the best practice, the application gives customers the flexibility to set their own specific baseline. The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HPE SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

NOTE: The Service Pack for ProLiant (which includes HPE SUM) can be downloaded from <http://www.hp.com/go/spp/download>. More information can be found: <http://www.hp.com/go/spp.hp.com/go/SmartUpdate>, and <http://www.hp.com/go/hpsum>

Standard Features

Security

Power-on password
QuickLock, Network Server Mode
Serial interface control
Administrator's password
iLO 4 (Integrated Lights-Out 4) has 12 customizable user accounts and SSL encryption
iLO 4 can be disabled via a Global Setting
iLO Advanced supports directory services integration

Warranty

This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise 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 Care Pack 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 1-Year Parts, 1-Year Labor, 1-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://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Optional Features

HPE Insight management	HPE Insight Control	<p>HPE Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see http://www.hp.com/go/insightcontrol.</p> <p>HPE Insight Control includes one year of 24 x 7 HPE Software Technical Support and Update Service ensuring rapid access to HPE support staff and proactive delivery of software updates. For more information about this service, see: http://www.hp.com/services/insight.</p>
	HPE iLO Advanced	<p>HPE Integrated Lights-Out Advanced License a product option, providing smart remote server management without compromise. iLO Advanced unlocks the full set of remote administration functionality for all HPE ProLiant servers by activating the full Virtual Keyboard Video and Mouse remote console, multi-user collaboration, console record and replay, GUI-based and scripted virtual media and virtual folders, and enhanced security and power management functionality. For more information, see: http://www.hp.com/go/ioloadvance</p>
	HPE Matrix Operating Environment	<p>The HPE Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business. The HPE Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HPE CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS).</p> <p>NOTE: For more information, visit: http://www.hp.com/go/matrixoe</p>
High Performance Clusters	HPE HPC Interconnects	<p>High Performance Computing (HPC) interconnect technologies are available for this server. These high-speed InfiniBand and 10 Gigabit interconnects are fully supported by HP. http://www.hp.com/techservers/clusters/ucp/index.html</p>
	HPE Insight Cluster Management Utility	<p>HPE Insight Cluster Management Utility (CMU) is an HPE-licensed and HPE-supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmu</p>
	HPE HPC Linux Value Pack	<p>HPE HPC Linux Value Pack (Value Pack) is an HPE-licensed and HPE-supported option to HPE Insight CMU, for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform LSF workload scheduler and Platform Application Center, as well as the HPE-MPI parallelization library.</p>

Optional Features

- HPE Insight Online** HPE Insight Online is a new addition to the HPE Support Center for one stop, secure access to product and HPE support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HPE Insight Remote Support. With Insight Online's easy navigation you can efficiently track your IT support contracts and device status from anywhere and at anytime.
<http://www.hp.com/go/insightonline>
- Factory Express Portfolio for Servers and Storage** HPE Factory Express offers configuration, customization, integration and deployment services for HPE servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.
- Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. Hewlett Packard Enterprise products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.
- For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>.
- HPE Simple Configurator** 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 HPE's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>

Service and Support

- Service and Support** HPE Technology Services for Apollo Servers
HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.
Protect your business beyond warranty with HPE Care Pack Services
HPE Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.
- Optimized Care** Supports maintaining servers at optimum performance availability
HPE Proactive Care with 24x7 coverage, three year Care Pack Service
HPE Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to Hewlett Packard Enterprise. This Care Pack Service combines three years' proactive reporting and advice with our 24x7 coverage and enhanced escalation management, four hour hardware response time and two hour call back for software questions on leading industry standard software running on your HPE ProLiant server. <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>
- Standard Care** Supports maintaining high level of server availability
Foundation Care 24x7, three-year Care Pack Service
HPE Foundation Care 24x7 connects you to HPE 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed; collaborative software included in this Care Pack service provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call for hardware or software questions.
<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>
- Related Services** Data Privacy - protect your data through better media management. HPE Data privacy services help manage and protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware. <http://www.hp.com/services/dataprivacy>
HPE Datacenter Care service
HPE Datacenter Care helps you improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services "building blocks." You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HPE Datacenter Care, you benefit from a personalized relationship with Hewlett Packard Enterprise via a single point of accountability for Hewlett Packard Enterprise and others' products. For more information, visit <http://www.hp.com/services/datacentercare>
Data Center Platform Consulting Services
Choose HPE Technology Services Consulting to modernize and migrate your key systems. These services help fine tune your data center to improve security, management and efficiency across IT infrastructure, operations, and facilities and prepare you for the new style of IT. Hewlett Packard Enterprise understands the needs of the data center of the future and will serve as your guide for the journey. <http://www.hp.com/services/consulting>
- Connect your devices** Unlock all of the benefits of your technology investment by connecting your products

Service and Support

to Hewlett Packard Enterprise

to Hewlett Packard Enterprise. Achieve up to 77% reduction in down time, near 100% diagnostic accuracy and 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.

HPE Support Center

Personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more <http://www.hp.com/go/hpsc>
HPE's 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 personalize IT support anywhere, anytime.
HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Care Pack or HPE contractual support agreement.
*HPE' Support Center Mobile App is subject to local availability

Warranty / Service Coverage

For ProLiant servers and storage systems, the services cover HPE-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.
The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by Hewlett Packard Enterprise as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

For more information

To learn more on HPE ProLiant servers and HPE BladeSystem servers, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit: <http://www.hp.com/services/proliant>

Configuration Information - Factory Integrated Models

NOTE: 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 a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

NOTE: Factory Integrated Models must start with a CTO Server.

NOTE: FIO indicates that this option is only available as a factory installable option.

NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

NOTE: Rack chosen is required to have 1200mm 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 (choose one of the following configurable models)

HPE Chassis - Apollo 4510 Model	HP Apollo 4510 Gen9 Configure-to-order Chassis NOTE: Standard 5 hot-plug fan modules included in the chassis. NOTE: Supports up to 68 LFF drives (rear drive cage kit required). One node total	799581-B21
HPE Chassis - Apollo 4520 Model	HPE Apollo 4520 Gen9 Configure-to-order Chassis NOTE: Standard 5 hot-plug fan modules included in the chassis. NOTE: Supports up to 46 LFF drives Two nodes total	799581-B22
HPE Chassis - Apollo 4530 Model	HPE Apollo 4530 Gen9 Configure-to-order Chassis NOTE: Standard 5 hot-plug fan modules included in the chassis. NOTE: Supports 45 LFF drives with up to 15 per node. Three nodes total	799581-B23
I/O Module	HPE Apollo 4500 x8 FIO I/O Module NOTE: Only supported in the Apollo 4520 model. The Apollo 4530 and Apollo 4510 Chassis come with I/O modules by default	855129-B21
HPE Power Supplies	NOTE: 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: http://www.hp.com/go/hppoweradvisor HPE Flex Slot Titanium Power Supply Kits NOTE: The following power supplies offer up to 94% efficiency. HPE 800W FS Ti Ht Plg Pwr Supply Kit HPE Flex Slot Platinum Plus Power Supply Kits NOTE: The following power supplies offer up to 94% efficiency. HP 800W Flex Slot Platinum Hot Plug Power Supply Kit HP 1400W Flex Slot Platinum Plus Hot Plug Power Supply Kit HPE Flex Slot Slot Power Supplies NOTE: The following power supplies offer up to 94% efficiency. HP 800W Flex Slot -48VDC Hot Plug Power Supply Kit HP 800W Flex Slot Universal Hot Plug Power Supply Kit NOTE: Kits contain optional power supply, an IEC power cable and PDU IEC cables.	720482-B21 720479-B21 720620-B21
HPE Rail Kits	HP 4.3U Server Rail Kit NOTE: One Rail Kit is required for every chassis in a rack. NOTE: *This is the same rail kit that was used in the HPE ProLiant SL4540 Gen8 Server.	681254-B21

Configuration Information - Factory Integrated Models

Step 1A: Select Nodes

HPE Server Nodes - Apollo 4510 model	HPE ProLiant XL450 Gen9 Configure-to-order Server Node for Apollo 4510 Chassis NOTE: Select quantity of one	786593-B21
HPE Server Nodes - Apollo 4520 model	HPE ProLiant XL450 Gen9 Configure-to-order Server Node for Apollo 4520 Chassis NOTE: Select quantity of two	786594-B22
HPE Server Nodes - Apollo 4530 model	HPE ProLiant XL450 Gen9 Configure-to-order Server Node for Apollo 4530 Chassis NOTE: Select quantity of three	786595-B23

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

HPE Processors	NOTE: If 2 processor servers are desired, select one xxxxx-L21 and one xxxxxx-B21 for every processor option chosen per node	
	E5-2600 v4 Series Performance Processors	
	HPE XL450 Gen9 Intel Xeon E5-2698v4 (2.2GHz/20-core/50MB/135W) Processor Kit	843001-B21
	HPE XL450 Gen9 Intel Xeon E5-2698v4 (2.2GHz/20-core/50MB/135W) FIO Processor Kit	843001-L21
	HPE XL450 Gen9 Intel Xeon E5-2695v4 (2.1GHz/18-core/45MB/120W) Processor Kit	843003-B21
	HPE XL450 Gen9 Intel Xeon E5-2695v4 (2.1GHz/18-core/45MB/120W) FIO Processor Kit	843003-L21
	HPE XL450 Gen9 Intel Xeon E5-2683v4 (2.1GHz/16-core/40MB/120W) Processor Kit	843005-B21
	HPE XL450 Gen9 Intel Xeon E5-2683v4 (2.1GHz/16-core/40MB/120W) FIO Processor Kit	843005-L21
	HPE XL450 Gen9 Intel Xeon E5-2690v4 (2.6GHz/14-core/35MB/135W) Processor Kit	842991-B21
	HPE XL450 Gen9 Intel Xeon E5-2690v4 (2.6GHz/14-core/35MB/135W) FIO Processor Kit	842991-L21
	HPE XL450 Gen9 Intel Xeon E5-2680v4 (2.4GHz/14-core/35MB/120W) Processor Kit	842989-B21
	HPE XL450 Gen9 Intel Xeon E5-2680v4 (2.4GHz/14-core/35MB/120W) FIO Processor Kit	842989-L21
	HPE XL450 Gen9 Intel Xeon E5-2660v4 (2.0GHz/14-core/35MB/105W) Processor Kit	842982-B21
	HPE XL450 Gen9 Intel Xeon E5-2660v4 (2.0GHz/14-core/35MB/105W) FIO Processor Kit	842982-L21
	HPE XL450 Gen9 Intel Xeon E5-2650Lv4 (1.7GHz/14-core/35MB/65W) Processor Kit	842999-B21
	HPE XL450 Gen9 Intel Xeon E5-2650Lv4 (1.7GHz/14-core/35MB/65W) FIO Processor Kit	842999-L21
	HPE XL450 Gen9 Intel Xeon E5-2650v4 (2.2GHz/12-core/30MB/105W) Processor Kit	842980-B21

Configuration Information - Factory Integrated Models

HPE XL450 Gen9 Intel Xeon E5-2650v4 (2.2GHz/12-core/30MB/105W) Processor Kit	842980-L21
Base Processors	
HPE XL450 Gen9 Intel Xeon E5-2640v4 (2.4GHz/10-core/25MB/90W) Processor Kit	842978-B21
HPE XL450 Gen9 Intel Xeon E5-2640v4 (2.4GHz/10-core/25MB/90W) FIO Processor Kit	842978-L21
HPE XL450 Gen9 Intel Xeon E5-2630v4 (2.2GHz/10-core/20MB/85W) Processor Kit	842973-B21
HPE XL450 Gen9 Intel Xeon E5-2630v4 (2.2GHz/10-core/20MB/85W) FIO Processor Kit	842973-L21
HPE XL450 Gen9 Intel Xeon E5-2630Lv4 (1.8GHz/10-core/25MB/55W) Processor Kit	842993-B21
HPE XL450 Gen9 Intel Xeon E5-2630Lv4 (1.8GHz/10-core/25MB/55W) FIO Processor Kit	842993-L21
HPE XL450 Gen9 Intel Xeon E5-2620v4 (2.1GHz/8-core/20MB/85W) Processor Kit	842971-B21
HPE XL450 Gen9 Intel Xeon E5-2620v4 (2.1GHz/8-core/20MB/85W) FIO Processor Kit	842971-L21
Entry Processors	
HPE XL450 Gen9 Intel Xeon E5-2603v4 (1.7GHz/6-core/15MB/85W) Processor Kit	842969-B21
HPE XL450 Gen9 Intel Xeon E5-2603v4 (1.7GHz/6-core/15MB/85W) FIO Processor Kit	842969-L21
E5-2600 v3 Series	
Performance Processors	
HP XL450 Gen9 Intel® Xeon® E5-2698v3 (2.3GHz/16-core/40MB/135W) Processor Kit	797319-B21
HP XL450 Gen9 Intel® Xeon® E5-2695v3 (2.3GHz/14-core/35MB/120W) Processor Kit	797321-B21
HP XL450 Gen9 Intel® Xeon® E5-2683v3 (2GHz/14-core/35MB/120W) Processor Kit	797323-B21
HP XL450 Gen9 Intel® Xeon® E5-2690v3 (2.6GHz/12-core/30MB/135W) FIO Processor Kit	783936-L21
HP XL450 Gen9 Intel® Xeon® E5-2680v3 (2.5GHz/12-core/30MB/120W) Processor Kit	847444-B21
HP XL450 Gen9 Intel® Xeon® E5-2670v3 (2.3GHz/12-core/30MB/120W) FIO Processor Kit	783934-L21
HP XL450 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit	783940-B21
HPE XL450 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) FIO Processor Kit	841821-L21
HP XL450 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) FIO Processor Kit	783932-L21
Base Processors	
HP XL450 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit	783930-B21
HP XL450 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit	783901-L21

Configuration Information - Factory Integrated Models

	HP XL450 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	783899-L21
	Entry Processors	
	HP XL450 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	783897-L21
HPE Memory	<p>NOTE: Please choose memory options for the first processor of each server node. Up to 8 DDR4 DIMM slots are dedicated per processor socket.</p> <p>NOTE: HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant Server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9. For additional information, please see the HPE SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html</p> <p>NOTE: HPE certified SmartMemory must be used to guarantee full 2133MHz speeds.</p> <p>NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2400, 2133, or 1866MHz, 1600MHz, or 1333MHz. Please see the Online Memory Configuration Tool at: http://www.hp.com/go/ddr4memory-configurator</p> <p>Registered DIMMs (RDIMM) - For E5-2600 v4 Series Processors</p> <p>NOTE: The following memory is supported by E5-2600 v4 series processors</p>	
	HPE 8GB 1Rx8 PC4-2400T-R Kit	805347-B21
	HPE 16GB 1Rx4 PC4-2400T-R Kit	805349-B21
	HPE 16GB 2Rx4 PC4-2400T-R Kit	836220-B21
	HPE 32GB 2Rx4 PC4-2400T-R Kit	805351-B21
	Load Reduced DIMMs (LRDIMMs) - For E5-2600 v4 Series Processors	
	NOTE: The following memory is supported by E5-2600 v4 series processors	
	HPE 32GB 2Rx4 PC4-2400T-L Kit	805353-B21
	HPE 64GB 4Rx4 PC4-2400T-L Kit	805358-B21
	NOTE: The Following memory is supported by E5-2600v3 series processors	
	NOTE: Apollo 4520 requires v4 series memory	
	Registered DIMMs (RDIMM) - For E5-2600 v3 Series Processors	
	NOTE: The Following memory is supported by E5-2600 v3 series processors	
	HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726717-B21
	HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726718-B21
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726719-B21
	HP 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	728629-B21
	Load Reduced DIMMs (LRDIMM) - For E5-2600 v3 Series Processors	
	NOTE: The Following memory is supported by E5-2600v3 series processors	
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726720-B21

Configuration Information - Factory Integrated Models

	HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21
	HP 64GB (1x64GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726724-B21
HPE Storage Controllers	NOTE: The controllers below control the 2 SFF drives in the HPE ProLiant XL450 Gen9 Server. If SFF SAS drives are selected, H244br or P244br is required.	
	FIO Host Bus Adapters for 2 SFF boot drives	
	HP H244br 12Gb 2-ports Int FIO Smart Host Bus Adapter	761878-B21
	HP H244br 12Gb 2-ports Int Smart Host Bus Adapter	726809-B21
	NOTE: The above H244br SKU is used in BTO model.	
	NOTE: This controller does not consume a PCIe slot.	
	NOTE: Maximum of one FIO "br" controller (H244br, P244br) is allowed to support SFF SAS drives.	
	FIO Smart Array Controllers for 2 SFF boot drives	
	HPE Smart Array P244br/1G FIO Controller	761871-B21
	NOTE: This controller does not consume a PCIe slot.	
	Host Bus Adapters for Internal LFF Bulk drives	
	HP H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
	Host Bus Adapters for External LFF Bulk drives	
	HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
	Smart Array Controller for Internal LFF Bulk drives	
	HP Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
	HP Smart Array P840/4GB FBWC 12Gb 2-ports Int SAS Controller	726897-B21
	NOTE: Megacell battery must be selected when P440/P441/P840/P841/P244br ordered, when used in RAID mode.	
	NOTE: Minimum of one PCIe stand-up internal controller (H240/P440) is required to support LFF drives, and maximum two PCIe stand-up internal controllers allowed.	
	Smart Array Controller for External LFF Bulk drives	
	HP Smart Array P441/4GB FBWC 12Gb 1-port Int SAS Controller	726825-B21
	HP Smart Array P841/4GB FBWC 12Gb 1-port Int SAS Controller	726903-B21
	Megacell Battery	
	HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers	727258-B21
	NOTE: One 96W Megacell Battery fits in the management assembly and is for the Smart Array cache during an AC power fault.	
	HPE Cable Options	
	HPE Apollo 4530 H240 Cable Kit	808961-B21
	NOTE: If one H240 Controller is ordered, then two cables are required	
	HPE Apollo 4510/4520 H240 Cable Kit	808963-B21
	NOTE: If one H240 controller is ordered, then one Apollo 4510/4520 is required	
	NOTE: If two H240 controllers are ordered, then 2 cables are required	
	HPE Apollo 4530 P440 Cable Kit	808965-B21
	NOTE: If one P440 Controller is ordered, then 1 cable is required	

Configuration Information - Factory Integrated Models

HPE Apollo 4510 P440 x2/P840 Cable Kit	808967-B21
NOTE: If two P440 Controllers are ordered, then 1 cable is required	
NOTE: If one P840 Controller is ordered, then 1 cable is required	
HPE Apollo 4510 P440 Cable Kit	808969-B21
NOTE: If one P440 Controller is ordered, then 1 cable is required	

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

HPE Insight Software	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	C6N28ABE
	HP Insight Control Server Provisioning Media Kit	BD883A
	HP Insight Management Media Kit	C6N31A

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HPE Software Technical Support and Update Service.

NOTE: Licenses ship without media. The HPE Insight Control Media Kit can be ordered separately, or can be downloaded at:
<http://www.hp.com/go/insightupdates>.

NOTE: For additional license options please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html.

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" section below.

NOTE: 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 Hard Drives	<p>NOTE: For the Apollo 4510 model, choose up to a total of 68 LFF 3.5" hard drives from the following options using any mix of SAS/SATA/SSD hard drives for desired performance, up to a total of 2 SFF 2.5" hard drives per server node from the following options for OS, boot or additional storage purposes, and up to 2 M.2 SSDs per node.</p> <p>NOTE: For the Apollo 4520 model, choose up to a total of 46 LFF 3.5" hard drives from the following options using any mix of SAS/SATA/SSD hard drives for desired performance, up to a total of 4 SFF 2.5" hard drives per server node from the following options for OS, boot or additional storage purposes, and up to 2 M.2 SSDs per node.</p> <p>NOTE: For the Apollo 4530 model, choose up to a total of 15 LFF 3.5" hard drives per server node from the following options using any mix of SAS/SATA/SSD hard drives for desired performance, up to a total of 2 SFF 2.5" hard drives per server node from the following options for OS, boot or additional storage purposes, and up to 2 M.2 SSDs per node.</p> <p>NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the</p>
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Configuration Information - Factory Integrated Models

system bandwidth will be negotiated down to an acceptable level for all components for the subsystem.

NOTE: Hard drives have either a one year or three year warranty.

NOTE: For the Apollo 4510 model, up to 8 additional LFF drives may be added in the rear of the system using "HPE Apollo 4510 8HDD Rear Cage Kit" (P/N: 799377-B21).

6G SATA Hot Plug SFF (2.5-inch) SC Midline (MDL) Drives

HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive 655710-B21

HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive 655708-B21

6G SAS Hot Plug SFF (2.5-inch) SC Midline (MDL) Drives

HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive 652745-B21

12G SAS Hot Plug SFF (2.5-inch) SC Enterprise Drives

HP 300GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 759208-B21

6G SAS Hot Plug SFF (2.5-inch) SC Enterprise Drives

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652564-B21

HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652583-B21

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652589-B21

6G SATA Read Intensive Hot Plug SFF (2.5-inch) Solid State Drives

HPE 120GB 6G SATA RI-1 SFF SC SSD 838404-B21

HPE 240GB 6G SATA RI-1 SFF SC SSD 838406-B21

HPE 480GB 6G SATA RI-1 SFF SC SSD 838408-B21

HPE 960GB 6G SATA RI-1 SFF SC SSD 838410-B21

HPE 1.92TB 6G SATA RI-1 SFF SC SSD 838412-B21

6G SATA Value Endurance Hot Plug SFF (2.5-inch) SC Enterprise Boot Solid State Drives

HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive 734360-B21

12G SAS Value Endurance Hot Plug LFF (2.5-inch) SC Enterprise Value Solid State Drives

HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 762261-B21

HP 1.6TB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 762263-B21

HPE 300GB 12G SAS 15K rpm LFF (3.5-inch) Low Profile C Enterprise 3yr Warranty Hard Drive 797285-B21

HPE 450GB 12G SAS 15K rpm LFF (3.5-inch) Low Profile C Enterprise 3yr Warranty Hard Drive 797287-B21

HP 600GB 12G SAS 15K rpm LFF (3.5-inch) Low Profile C Enterprise 3yr Warranty Hard Drive 797283-B21

Configuration Information - Factory Integrated Models

6G SAS Hot Plug with Low Profile LFF (3.5-inch) LP Midline (MDL) Drives

HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797263-B21
HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797267-B21
HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797277-B21
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797279-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797281-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html

12G SAS Hot Plug with Low Profile LFF (3.5-inch) LP Midline (MDL) Drives

HP 8TB 12G SAS 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	805337-B21
HPE 6TB 12G SAS 7.2K rpm LFF (3.5-inch) 512e Low Profile Midline 1yr Warranty Hard Drive	846998-B21
HPE 4TB 12G SAS 7.2K rpm LFF (3.5-inch) 512e Low Profile Midline 1yr Warranty Hard Drive	846996-B21

6G SATA Hot Plug with Low Profile LFF (3.5-inch) LP Midline (MDL) Drives

HPE 8TB 6G SATA 7.2K LFF 512e LP MDL HDD	834028-B21
HP 8TB 6G SATA 7.2K rpm LFF (3.5-inch) Low Profile Midline 512e 1yr Warranty Hard Drive	805334-B21
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797269-B21
HPE 6TB 6G SATA 7.2K rpm LFF (3.5-inch) 512e Low Profile Midline 1yr Warranty Hard Drive	846785-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797265-B21
HPE 4TB 6G SATA 7.2K rpm LFF (3.5-inch) 512e Low Profile Midline 1yr Warranty Hard Drive	846783-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797271-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797273-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797275-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html
(Worldwide)

6G SATA Value Endurance Hot Plug LFF (3.5-inch) LP Enterprise Value Solid State Drives

HP 480GB 6G SATA Value Endurance LFF 3.5-in LPC Enterprise Value 3yr Wty Solid State Drive	797303-B21
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Configuration Information - Factory Integrated Models

6G SATA Light Endurance Hot Plug LFF (3.5-inch) LP Solid State Drives 797305-B21
 HPE 960GB 6G SATA LE 3.5-in LP EL Solid State Drive

12G SAS ME Hot Plug LFF (3.5-inch) LP Enterprise Mainstream Solid State Drives

HP 400GB 12G SAS Mainstream Endurance LFF 3.5-in LPC Enterprise Midline 3yr Wty Solid State Drive 797289-B21

HP 800GB 12G SAS Mainstream Endurance LFF 3.5-in LP Enterprise Midline 3yr Wty Solid State Drive 797291-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html

12G SAS Value Endurance Hot Plug LFF (3.5-inch) LP Enterprise Performance Solid State Drives

HP 800GB 12G SAS Value Endurance LFF 3.5-in LPC Enterprise Performance 3yr Wty Solid State Drive 797299-B21

HP 1.6TB 12G SAS Value Endurance LFF 3.5-in LPC Enterprise Performance 3yr Wty Solid State Drive 797301-B21

NOTE: If SAS drive is selected, then one of the following SAS controllers is required: HPE H244br FIO Smart HBA or HPE Smart Array P244br/1G FIO Controller.

6G SATA Hot Plug LFF (3.5-inch) SC Mixed Use Solid State Drives

HPE 960GB 6G SATA Mixed Use-3 LFF 3.5-in LPC 3yr Wty Solid State Drives 832433-B21

HPE 1.6TB 6G SATA Mixed Use-2 LFF 3.5-in LPC 3yr Wty Solid State Drive 846788-B21

6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives

HPE 480GB 6G SATA Read Intensive-2 LFF 3.5-in LPC 3yr Wty Solid State Drive 840987-B21

HPE 800GB 6G SATA Read Intensive-2 LFF 3.5-in LPC 3yr Wty Solid State Drive 840990-B21

HPE 1.6TB 6G SATA Read Intensive-2 LFF 3.5-in LPC 3yr Wty Solid State Drive 840993-B21

M.2 Solid State Drives

HP 120GB 6G SATA Read Intensive M.2 2280 3yr Wty Solid State Drive 777262-B21

HPE 340GB 6G SATA VE M.2 2280 SSD 777264-B21

HPE Networking

1 Gigabit Ethernet Adapters

HP Ethernet 1Gb 4-port 331T Adapter 647594-B21

HP Ethernet 1Gb 2-port 361T Adapter 652497-B21

10 Gigabit Ethernet adapters

HPE Ethernet 10Gb 2-port 562SFP+ Adapter: 727055-B21

HP Ethernet 10Gb 2-port 560SFP+ Adapter 665249-B21

HP Ethernet 10Gb 2-port 561T Adapter 716591-B21

HP Ethernet 10Gb 2-port 546SFP+ Adapter 779793-B21

25 Gigabit Ethernet adapters

HPE Ethernet 25Gb 2-port 640SFP28 F Adapter 817750-B21

Configuration Information - Factory Integrated Models

HPE Ethernet 10/25Gb 2P 640SFP28 Adapter	817753-B21
HPE Ethernet 10/25Gb 4P 620QSFP28 Adapter	817762-B21

NOTE: Total number of PCIe slots available is 4. This is the total selection from any combination of PCIe options in the following categories: Infiniband, Networking, Controllers, PCIe Accelerators.

NOTE: Total PCIe slots available depends on the number of processors selected. One processor: 2 PCIe slots (slots 1 and 2); Two processors: 4 PCIe slots

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>

Infiniband

HP InfiniBand FDR 2-port 545QSFP Adapter	702211-B21
HP InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	764284-B21

NOTE: Total number of PCIe slots available is 4. This is the total selection from any combination of PCIe options in the following categories: Infiniband, Networking, Controllers, and PCIe Accelerators.

NOTE: Total PCIe slots available depends on the number of processors selected. If one processor is installed, 2 PCIe slots (Slots 1 and 2). If two processors are installed, 4 PCIe slots are available.

FlexibleLOM

HPE Flexfabric 10Gb 4P 536FLR-T Adapter	764302-B21
HPE Flexfabric 10Gb 4P 536FLR-T FIO Adapter	764303-B21
HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B22
HPE Flexfabric 10Gb 2P 556FLR-T Adapter	794525-B21
HPE Flexfabric 10Gb 2P 556FLR-T FIO Adapter	794526-B21
HPE Eth 10/25Gb 2P 640FLR-SFP28 Adptr	817749-B21
HP FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter	727054-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
HP Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21
HP InfiniBand FDR 2-port 545FLR-QSFP Adapter	702212-B21
HP Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	779799-B21
HP InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	764285-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

Configuration Information - Factory Integrated Models

HPE Power Supplies	<p>NOTE: 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: http://www.hp.com/go/hppoweradvisor.</p> <p>HPE Flex Slot Titanium Power Supply Kits</p> <p>NOTE: The following power supplies offer up to 94% efficiency.</p> <p>HP 800W Flex Slot Titanium Hot Plug Power Supply Kit 720482-B21</p> <p>NOTE: The following power supplies offer up to 94% efficiency.</p> <p>HPE Flex Slot Platinum Plus Power Supply Kits</p> <p>HPE 800W Flex Slot Platinum Plus Hot Plug Power Supply Kit 720479-B21</p> <p>NOTE: Kits contain optional power supply, an IEC power cable and PDU IEC cables</p> <p>HP 1400W Flex Slot Platinum Plus Hot Plug Power Supply Kit 720620-B21</p> <p>HPE Flex Slot Slot Power Supplies</p> <p>NOTE: The following power supplies offer up to 94% efficiency.</p> <p>HP 800W Flex Slot -48VDC Hot Plug Power Supply Kit 720480-B21</p> <p>HP 800W Flex Slot Universal Hot Plug Power Supply Kit 720484-B21</p> <p>NOTE: Kits contain optional power supply, an IEC power cable and PDU IEC cables</p>
HPE Rear Cage Kits	<p>HPE Apollo 4510 8HDD Rear Cage Kit 799377-B21</p> <p>NOTE: This kit is only available for the Apollo 4510 System.</p> <p>NOTE: This kit supports an additional 8 LFF SSD/HDD</p> <p>NOTE: This is an FIO option as well as a field-upgradable option after purchasing system.</p>
HPE Advanced Power Manager	<p>The Advanced Power Manager is an optional rack level solution for the HPE Apollo 4500 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.</p> <p>HP Advanced Power Manager Kit 741192-B21</p>

Configuration Information - Factory Integrated Models

HPE Insight Software	<p>HPE Insight Control</p> <p>HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License</p> <p>NOTE: The Electronic software license is available in EMEA only.</p> <p>HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License</p> <p>HP Insight Control Server Provisioning Media Kit</p> <p>HP Insight Management Media Kit</p> <p>NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.</p> <p>NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HPE Software Technical Support and Update Service.</p> <p>NOTE: Licenses ship without media. The HPE Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates.</p> <p>NOTE: For additional license options please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html</p> <p>HPE Integrated Lights-Out (iLO)</p> <p>HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU</p> <p>HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License</p> <p>HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Tracking License</p> <p>HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU</p> <p>HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License</p> <p>HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Tracking License</p> <p>NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.</p> <p>NOTE: For additional license options please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html</p> <p>HPE Integrated Lights-Out (iLO) Advanced for ProLiant</p> <p>HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU</p> <p>NOTE: The Electronic software license is available in EMEA only.</p> <p>HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU</p> <p>NOTE: The Electronic software license is available in EMEA only.</p> <p>HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License</p> <p>HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates</p> <p>NOTE: For additional license options please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html</p> <p>NOTE: For more information, visit: http://www.hp.com/go/ilo.</p>	<p>C6N28ABE</p> <p>C6N27A</p> <p>BD883A</p> <p>C6N31A</p> <p>BD776AAE</p> <p>BD776A</p> <p>BD777A</p> <p>BD778AAE</p> <p>BD778A</p> <p>BD779A</p> <p>E6U59ABE</p> <p>E6U64ABE</p> <p>512485-B21</p> <p>BD505A</p>
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Configuration Information - Factory Integrated Models

High Performance Clusters	<p>HPE Cluster Management Utility</p> <p>HP Insight Cluster Management Utility 1yr 24x7 Flexible License QL803B</p> <p>HP Insight Cluster Management Utility 3yr 24x7 Flexible License BD476A</p> <p>NOTE: These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.</p> <p>HP Insight Cluster Management Utility Media BD477A</p> <p>HP Insight Cluster Management Utility 3yr 24x7 Flexible Electronic License BD476AAE</p> <p>HP Insight Cluster Management Utility 1yr 24x7 Flexible Electronic License QL803BAE</p> <p>NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html</p>
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HPE PCIe Workload Accelerator Options	<p>Value Endurance (VE) PCIe Workload Accelerators</p> <p>HP 1.3TB HH/HL Value Endurance (VE) PCIe Workload Accelerator 763834-B21</p> <p>HP 1.6TB HH/HL Value Endurance (VE) PCIe Workload Accelerator 763836-B21</p> <p>HP 3.2TB HH/HL Value Endurance (VE) PCIe Workload Accelerator 763838-B21</p> <p>Light Endurance (LE) PCIe Workload Accelerators</p> <p>HP 1.0TB HH/HL Light Endurance (LE) PCIe Workload Accelerator 775666-B21</p> <p>HP 1.3TB HH/HL Light Endurance (LE) PCIe Workload Accelerator 775668-B21</p> <p>HP 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator 775670-B21</p>
HPE Security	<p>HP Trusted Platform Module Option 488069-B21</p> <p>NOTE: 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. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: http://www.hp.com/go/TPM.</p> <p>NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.</p> <p>NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.</p>

Optional Software	<p>HP SmartCache No Media 24x7 Technical Support 1 Svr License D7S26A</p> <p>HP SmartCache No Media 24x7 Technical Support Flexible License D7S27A</p> <p>HP SmartCache No Media 24x7 Technical Support Electronic License D7S27AAE</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14532_div/14532_div.html (SmartCache)</p>
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Configuration Information - Factory Integrated Models

HPE Power Cords	<p>NOTE: HPE ProLiant servers ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).</p>	
	HP C13 - C14 WW 250V 10A Gray 0.7m Jumper Cord	A0K03A
	HP C13 - C14 WW 250V 10A Gray 1.37m Jumper Cord	A0K04A
	HP C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
	HP C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
	HP C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
	HP C13 - SI-32 IL 250V 10Amp 1.83m Power Cord	AF564A
	HP C13 - NBR-14136 BR 250V 10Amp 1.83m Power Cord	AF591A
	HP C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
	HP C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
	HP C13 - C14 WW 250V 10Amp 2.0m Jumper Cord	A0K02A
	HP C13 - IS-1293 IN 250V 10Amp HV 2.5m Power Cord	SG579A
	HP C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord	AF569A
	HP C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
	HP C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
	HP C13 - C14 WW 250V 10A Gray 3.0m Jumper Cord	A0K06A
	HP C13 - Nema 6-15P US 250V 15A JP 3.6m Power Cord	A0N33A
	HP C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord	AF557A
	HP C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord	AF560A
	HP C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord	AF561A
	HP C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord	AF559A
	HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
	HP C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord	AF562A
	HP C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord	AF558A
	HP C13 - C14 WW 250V 10Amp Flint Gray 2.0m Jumper Cord	AF573A
HPE Uninterruptible Power Systems	<p>HPE Rack-mountable UPS</p> <p>HPE R1500 G3 Uninterruptible Power Supply (UPS)</p> <p>HP R1.5kVA G3 1U NA Uninterruptible Power System</p> <p>HP R1.5kVA G3 1U JP/TW Uninterruptible Power System</p> <p>HP R1.5kVA G3 1U INTL Uninterruptible Power System</p> <p>NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html (Worldwide)</p> <p>HPE R/T3000 G2 Uninterruptible Power System (UPS)</p> <p>HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System</p> <p>HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System</p> <p>HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System</p> <p>NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html (Worldwide)</p> <p>R5000 Uninterruptible Power System (UPS)</p> <p>HP R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System</p> <p>HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System</p>	<p>AF469A</p> <p>AF470A</p> <p>AF471A</p> <p>AF466A</p> <p>AF467A</p> <p>AF468A</p> <p>AF461A</p> <p>AF460A</p>

Configuration Information - Factory Integrated Models

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14109_div/14109_div.html
(Worldwide)

R7000 Uninterruptible Power System (UPS)

HP R7000 4U 50A High Voltage NA/JP Uninterruptible Power System AF462A

HP R7000 4U IEC-32A High Voltage INTL Uninterruptible Power System AF463A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html
(Worldwide)

NOTE: For additional information on HPE Uninterruptible Power Systems please go to: <http://www.hp.com/servers/rackups>.

NOTE: For additional information on sizing your server, please reference: <http://www.upssizer.com>.

NOTE: Please see the UPS and PDU cable matrix's on the HPE Power Protection and Management page. Under Power Cords, click on the "HPE Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: <http://www.hp.com/products/powercords>.

HPE Basic Power Distribution Units (bPDU)	HPE Basic Power Distribution Unit: 1U/0U Version	
	HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Basic PDU	H5M56A
	HPE Basic Power Distribution Unit: Half Height Version	
	HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
	HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
	HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
	HPE Basic Power Distribution Unit: Mid Height Version	
	HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
	HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
	HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A
	HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
	HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
	HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
	HPE Basic Power Distribution Unit: Full Height Version	
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (36xC13/6xC19) INTL Basic PDU	H5M73A
	HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
	HPE Basic Power Distribution Unit: 480/277 Volt Version	
HP 13.2kVA 480 Volt IEC309 30A 3-Phase Input (15 Outlet) NA Basic PDU	H3X07A	

Configuration Information - Factory Integrated Models

HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU H3X08A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/14557_div/14557_div.html
(Worldwide)

NOTE: Additional HPE Power Distribution Units are available. For a complete list of all HPE PDUs and additional information please visit:

<http://www.hp.com/go/rackandpower>

HPE Remote Monitoring Power Distribution Units (mPDU)	HPE Remote Monitored Power Distribution Unit: 1U Version	
	HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
	HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
	HPE Remote Monitored Power Distribution Unit: Half Height Version	
	HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
	HPE Remote Monitored Power Distribution Unit: Mid Height Version	
	HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
	HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
	HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
	HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
	HPE Remote Monitored Power Distribution Unit: Full Height Version	
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
	HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
	HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
	HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
	HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
	HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
	HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
	HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A	
HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A	
HPE Environmental Sensor for Remote Monitored PDUs		
HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A	

Configuration Information - Factory Integrated Models

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14669_div/14669_div.html

(Worldwide)

HPE Intelligent Power Distribution Units (iPDU)	iPDU Core Units	
	HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
	HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF521A
	HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
	HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
	HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
	HP 17.3kVA 24A 415V Three Phase L22-30 NA Core Intelligent Power Distribution Unit	AF902A
	HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
	HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
	HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
	HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
	HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
	HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
	iPDU Kits with Standard Extension Bars	
	HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit	AF531A
	HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit	AF532A
	HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
	iPDU Extension Bars	
	HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A	

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html

(Worldwide)

NOTE: Additional HPE Power Distribution Units are available. For a complete list of all HPE PDUs and additional information please visit:

<http://www.hp.com/go/rackandpower>.

HPE Rack Series	HPE Intelligent Rack Series	
	HP 36U 600mm x 1200mm Enterprise Pallet Rack	BW899A
	HP 36U 600mm x 1200mm Enterprise Shock Rack	BW900A
	HP 42U 600mm x 1200mm Enterprise Pallet Rack	BW907A

Configuration Information - Factory Integrated Models

HP 42U 600mm x 1200mm Enterprise Shock Rack	BW908A
HP 47U 600mm x 1200mm Enterprise Pallet Rack	BW913A
HP 47U 600mm x 1200mm Enterprise Shock Rack	BW914A

NOTE: Rack chosen is required to have a depth of 1200mm to provide space for cable management arm at the rear of the chassis and host PDU in the rear of the rack.

NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight and color:

http://h18000.www1.hp.com/products/quickspecs/14223_div/14223_div.html
(Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

HPE Rack Options

HPE TFT7600 G2 KVM Console and Monitor (TFT7600 G2)

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A
HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor	AZ874A
HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A
HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor	AZ884A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13731_div/13731_div.html

HPE Server Console Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A
HP TAA 0x2x16xKVM Server Console G2 Switch	AF626A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html
(Worldwide)

HPE Server Console Switch G2 with Virtual Media & CAC

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
KVM USB Cnsl Itfc Adapter 1PK ALL	336047-B21

Configuration Information - Factory Integrated Models

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html
(Worldwide)

HPE IP Console Switch G2 with Virtual Media & CAC

HP 1x4 USB/PS2 KVM Console Switch AF611A

HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software AF620A

HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software AF621A

HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software AF622A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html
(Worldwide)

USB and SD Options	<p>HP 32GB microSD Enterprise Mainstream Flash Media Kit 700139-B21</p> <p>NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack.</p>	
MS Exchange Reference Architecture SKU	<p>HPE RA for MS Exchange 13 Apollo 4000 P9B84A</p> <p>Scality RING Sgl Site 200TB Perp E-LTU P8Y89AAE</p> <p>Scality RING Sgl Site 200TB HW LT E-LTU P8Y90AAE</p> <p>Scality RING Geo 200TB Perp E-LTU P8Y91AAE</p> <p>Scality RING Geo 200TB HW LT E-LTU P8Y92AAE</p> <p>Scality RING Cnctr Email App200TB E-LTU P8Y93AAE</p> <p>Scality RING Eng Prof Svcs (PD) E-LTU P8Y94AAE</p> <p>Scality RING Install Pkg 3 GS E-LTU P8Y95AAE</p> <p>Scality RING CapEx Prof Svcs-perTB E-LTU P8Y96AAE</p> <p>Scality RING POC 5-10d Eng on Site E-LTU P8Y97AAE</p> <p>Scality RING Adv 3day Op Trng Eng E-LTU P8Y98AAE</p> <p>Scality RING Certif Course P/P E-LTU P8Y99AAE</p> <p>Scality RING Ddted Care Svc Yr Fee E-LTU P8Z00AAE</p> <p>Scality RING 24/7Maintenance 200TB E-LTU P8Z01AAE</p> <p>Cleversafe dsNet SW Lic Class F E-LTU P8Z19AAE</p> <p>Cleversafe dsNet SW Lic Class L E-LTU P8Z20AAE</p> <p>Cleversafe Yrly Supp24x7 SW Upg CF E-LTU P8Z21AAE</p> <p>Cleversafe Yrly Supp24x7 SW Upg CL E-LTU P8Z22AAE</p> <p>Cleversafe SW Install ProLiant Svc E-LTU P8Z23AAE</p>	
Software Solutions	<p>Intel EE Lustre SW L1-3 1yr E-LTU P9L65AAE</p> <p>Intel EE Lustre SW L1-3 2yr E-LTU P9L66AAE</p> <p>Intel EE Lustre SW L1-3 3yr E-LTU P9L67AAE</p> <p>Intel EE Lustre SW L1-3 5yr E-LTU P9L68AAE</p> <p>Intel EE Lustre SW EM L1-3 1yr E-LTU P9L69AAE</p> <p>Intel EE Lustre SW EM L1-3 3yr E-LTU P9L70AAE</p> <p>Hortonworks Data Platform (HDP) Enterprise Subscription 4 N/50TB Raw Strg 1yr 24x7 Supp E-LTU F5Z52AAE</p> <p>Cloudera Enterprise Basic Edition 1 Year Subscription per Node 24x7 Support Physical LTU G7M27A</p>	

Configuration Information - Factory Integrated Models

	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
	Hortonworks Data Platform (HDP) Enterprise Plus Subscription 4 N/50TB Raw Strg 1yr 24x7 Supp LTU	JP408A
	Hortonworks Data Platform (HDP) Enterprise Plus Subscription 4 N/50TB Raw Strg 1yr 24x7 Supp E-LTU	JP408AAE
	Cloudera Enterprise 1 year Subscription 24x7 Support Flex LTU	L4Z37A
	Cloudera Enterprise 1 Year Subscription 24x7 Support Flex E-LTU	L4Z37AAE
Carepacks	HPE 3 year Foundation Care 24x7 Apollo 4530 Service	U8LY6E
	HPE 3 year Foundation Care 24x7 wDMR Apollo 4530 Service	U8LY7E
	HPE 3y 24x7 w/CDMR Apollo 4530 FC SVC	U8LY8E
	HP 3 year 24x7 Apollo 4530 Proactive Care Service	U8LY9E
	HP 3 year 24x7 with Defective Media Retention Apollo 4530 Proactive Care Service	U8LZ0E
	HP 3 year 24x7 with Comprehensive Defective Material Retention Apollo 4530 Proactive Care Service	U8LZ1E
	HP Installation Apollo 45xx Service	UR285E
	HP Startup Apollo 45xx Service	UR286E

Memory

HPE Apollo 4530, Apollo 4520, and Apollo 4510 Systems

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

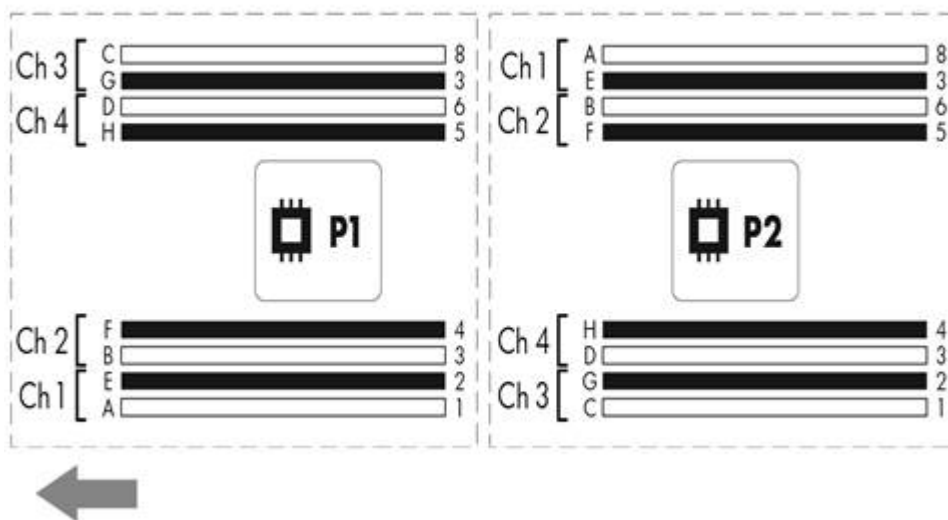
NOTE: Chart does not represent all possible memory configurations.

For detailed memory configuration rules and guidelines, please use the Online DDR4 Memory Configuration Tool: <http://www.hp.com/go/ddr4memory-configurator>

Memory Subsystem Architecture

Each Intel® Xeon® E5-2600 family processor socket contains four memory channels that support two DIMMs each for a total of eight (8) DIMM per installed processor or a grand total of sixteen (16) DIMMs for the server. Up to 32GB capacity DIMMs are supported for 512GB of memory (16 DIMM slots x 32GB per DIMM).

DIMM slot and configuration diagrams



Memory population guidelines

General Memory Population Rules and Guidelines:

- Light DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate light slots only.
- 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 and to load the channels similarly whenever possible.
- Populate DIMMs from heaviest load (dual-rank) to lightest load (single-rank) within a channel. Heaviest load (DIMM with most ranks) within a channel goes furthest from the processor
- 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 memory type and number of installed processors.
- HPE memory from previous generation servers is not qualified on the HPE Apollo 4530, Apollo 4520, Apollo 4510 Gen9 Systems. Certain HPE SmartMemory features such as memory authentication and enhanced performance may not be supported.
- To realize the performance memory capabilities listed in this document, HPE SmartMemory is required. For additional information, please see the HPE SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html.

Memory

DIMM Type	Registered DIMMS for E5-2600 v3 Series Processors (RDIMMs)				
DIMM Rank	Single Rank (1R)		Dual Rank (2R)		Quad Rank (4R)
DIMM Capacity	4GB	8GB	16GB	16GB	32GB
DIMM Native Speed (MHz)	2133	2133	2133	2133	2133
Voltage	LV	LV	LV	LV	LV
SLOTS THAT CAN BE POPULATED					
16 slots server nodes	16	16	16	16	16
MAXIMUM CAPACITY (GB)*	64	128	256	256	512
1 DIMM Per Channel	2133	2133	2133	2133	2133
2 DIMM Per Channel	2133	2133	2133	2133	2133

Memory Speed by Processor Model	E5-2600 v3 Processor Models	Supported Memory Speed
	E5-2603	1600MHz
	E5-2640v3, E5-2630v3, E5-2620v3, E5-2630Lv3	1866MHz
	E5-2690v3, E5-2670v3, E5-2650v3, E5-2683v3, E5-2650Lv3, E5-2695v3, E5-2660v3, E5-2680v3, E5-2698v3	2133MHz

DIMM Type	Registered DIMMs for E5-2600 v4 Series Processors (RDIMMs)				
DIMM Rank	Single Rank (1R)		Dual Rank (2R)		Quad Rank (4R)
DIMM Capacity	8GB	16GB	32GB	32GB	64GB
DIMM Native Speed (MHz)	2400	2400	2400	2400	2400
Voltage	LV	LV	LV	LV	LV
SLOTS THAT CAN BE POPULATED					
16 slots server nodes	16	16	16	16	16
MAXIMUM CAPACITY (GB)*	128	256	512	512	1024
1 DIMM Per Channel	2400	2400	2400	2400	2400
2 DIMM Per Channel	2133	2133	2133	2133	2133

Memory

Memory Speed by Processor Model	E5-2600 v4 Processor Models	Supported Memory Speed
	E5-2603	1866MHz
	E5-2640v3, E5-2630v3, E5-2620v3, E5-2630Lv3	2133MHz
	E5-2690v3, E5-2670v3, E5-2650v3, E5-2683v3, E5-2650Lv3, E5-2695v3, E5-2660v3, E5-2680v3, E5-2698v3	2400MHz

NOTE: Memory Speed is a function of the processor QBI bus speed.

*Maximum capacity will vary based on individual server platform qualification schedule.

NOTE: Capacity references are rounded to the common Gigabyte Values:

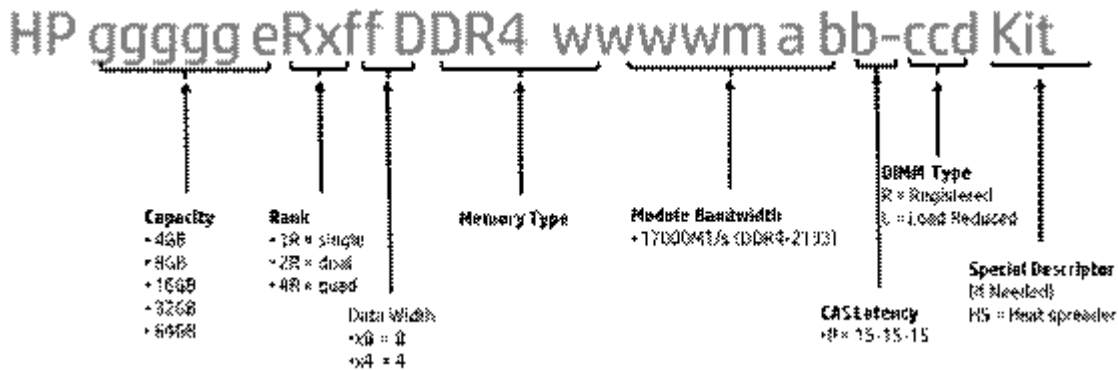
4GB = 4096 MB

8GB = 8192 MB

16GB = 16384 MB

32GB = 32768 MB

DDR4 memory options part number decoder



Storage

Apollo 4510 Model Drive IO SAS Port Map for Bulk LFF Storage Area
1x68*:

- Backplane 1 corresponds to drives 1-30 through ports 1A/1B
- If HPE Apollo 4510 8HDD Rear Cage Kit is installed, backplane 1 also corresponds to HDD 65-68
- Backplane 2 corresponds to drives 31-60 through ports 2A/2B
- If HPE Apollo 4510 8HDD Rear Cage Kit is installed, backplane 2 also corresponds to HDD 61-64

***NOTE:** Drives 61-68 only apply if 8 HDD Option Cage is installed

		68	67	66	65	64	63	62	61		
25	26	27	28	29	30	55	56	57	58	59	60
19	20	21	22	23	24	49	50	51	52	53	54
13	14	15	16	17	18	43	44	45	46	47	48
7	8	9	10	11	12	37	38	39	40	41	42
1	2	3	4	5	6	31	32	33	34	35	36

Front of Chassis

NOTE: This is simple drive zoning

Maximum Storage Capacity - Apollo 4510 Model

Internal 3.2TB (2 x 1.6TB SFF SAS SSD)
(2 SFF Drive Cage)

Internal 544TB (68 x 8TB SAS/SATA LFF)
(68 LFF Drive Cage) 680GB (2 x 340GB M.2 SSD)

M.2

Total 547.9TB

NOTE: This configuration requires a rear cage kit to support 8 additional LFF drives.

Technical Specifications

System Unit	Chassis Dimensions (H x W x D) Add fan extension kit (with bezel)	6.88 x 17.45 x 35in (17.48 x 44.33 x 88.9cm)	
	Weight (approximate)	Minimum (empty chassis with all pluggable modules removed, including fans)	60 lbs (27.22kg)
		Maximum (all hard drives, power supply, and processor installed)	220lb (99.8kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC
		Rated Input Current	For 1400 W Power Supply: 8 A (at 200 VAC), 6.7 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 to 60
	Power Supply Output (per power supply)	Maximum Power	For 1400 W Power Supply: 1400 W (at 200 to 240 VAC) For 800W Power Supply: 800W (at 100-240VAC)
	Power Specifications	To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at URL: http://www.hp.com/go/proliant-energy-efficient or http://www.hp.com/go/hppoweradvisor .	
	Power Supply Output (per power supply)	Rated Steady-State Power	
	System Inlet Temperature	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).
Non-operating		-22° to 140° F (-30° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).	
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.	

Technical Specifications

	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	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).
Emissions Classification (EMC)	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

HPE Ethernet 1Gb 2-port 361i Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX		
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 1588, IEEE 802.1AS IEEE 802.3az - Energy Efficient Ethernet (EEE)		
	Data Transfer Method	PCI Express v 3.0, 8.0 GT/s, 5.0 GT/s and 2.5 GT/s bus speeds for a x1 link.		
	Controller	I350 Powerville		
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s per port, 20 Mb/s Combined	
		10Base-T (Full-Duplex)	20 Mb/s per port, 40 Mb/S Combined	
		100Base-TX (Half-Duplex)	100 Mb/s per port, 200 Mb/s Combined	
		100Base-TX (Full-Duplex)	200 Mb/s per port, 400 Mb/s Combined	
		1000Base-TX (Half and Full-Duplex)	1000Mb/s per port, 2000 Mb/s Combined	
	Connector	RJ-45		
Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)		
	10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)		

Technical Specifications

Environment-friendly Products and Approach	End-of-life Management and Recycling
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Hewlett-Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest Hewlett Packard Enterprise sales office. 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 at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
31-Mar-2016	From version 8 to 9	Changed	Change formatting and update the configuration, technical specification and other sections on the document, remove obsoletes
16-Feb-2016	From version 7 to 8	Updated	Update the SDD, SATA and processors information.
1-Dec-2015	From version 6 to 7	Updated	Update the memory section of the QuickSpecs
2-Oct-2015	From version 5 to 6	Updated	Update the technical Configuration Information - Factory Integrated Models
28-Aug-2015	From version 4 to 5	Updated	Update images from Apollo 4510 and 4530.
17-Aug-2015	From version 3 to 4	Updated	Updates throughout the QuickSpecs
17-Jun-2015	From version 2 to 3	Changed	Remove non supported items and add carepacks info.
12-June-2015	From version 1 to 2	Changed	Changes in Technical specifications
1-June-2015	Version 1	Created	Create QuickSpecs for HPE Apollo 4500 System

Summary of Changes



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



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