## Overview

HPE Apollo 4500 System

With HPE Apollo 4500 Systems, Hewlett Packard Enterprise challenges the notion that one-size-fits-all for Big Data infrastructure by creating two purpose-built systems that specifically address storage and analytics workloads: the Apollo 4510 and Apollo 4530, respectively. For object storage, the ultra-dense Apollo 4510 includes 1 server and up to 68 Large Form Factor (LFF) in a 4U chassis. For Hadoop analytics, 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.	Health LED
4.	Logical array status
5.	UID LED
6.	Eject node button
7.	NIC Status LED
8.	SUV Connector - EGA and USB
9.	Health LED
10.	UID LED
11.	Power Indicator LED

Overview
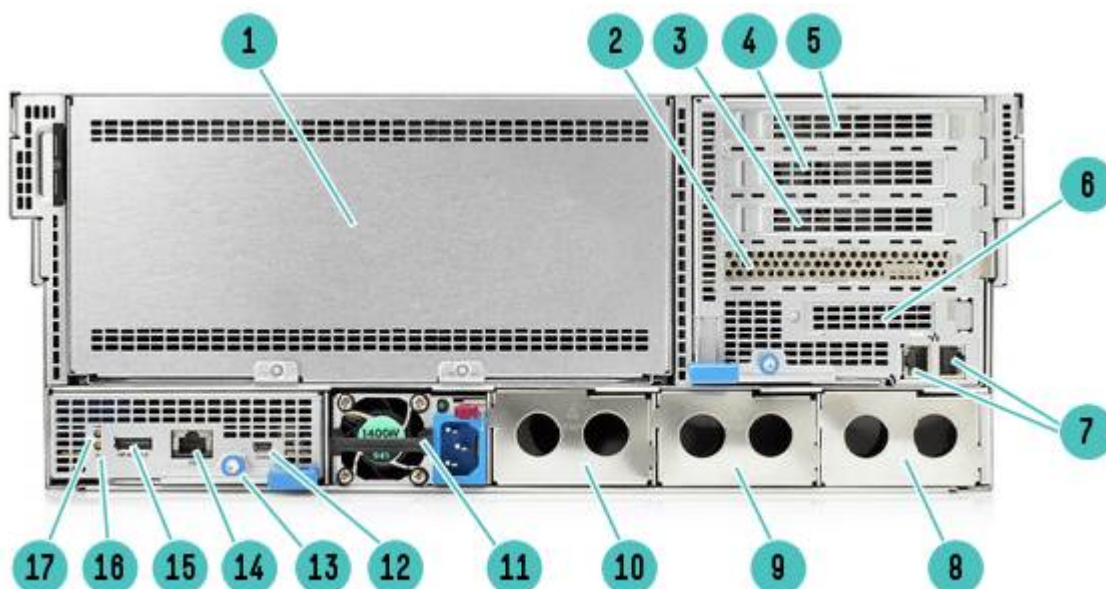
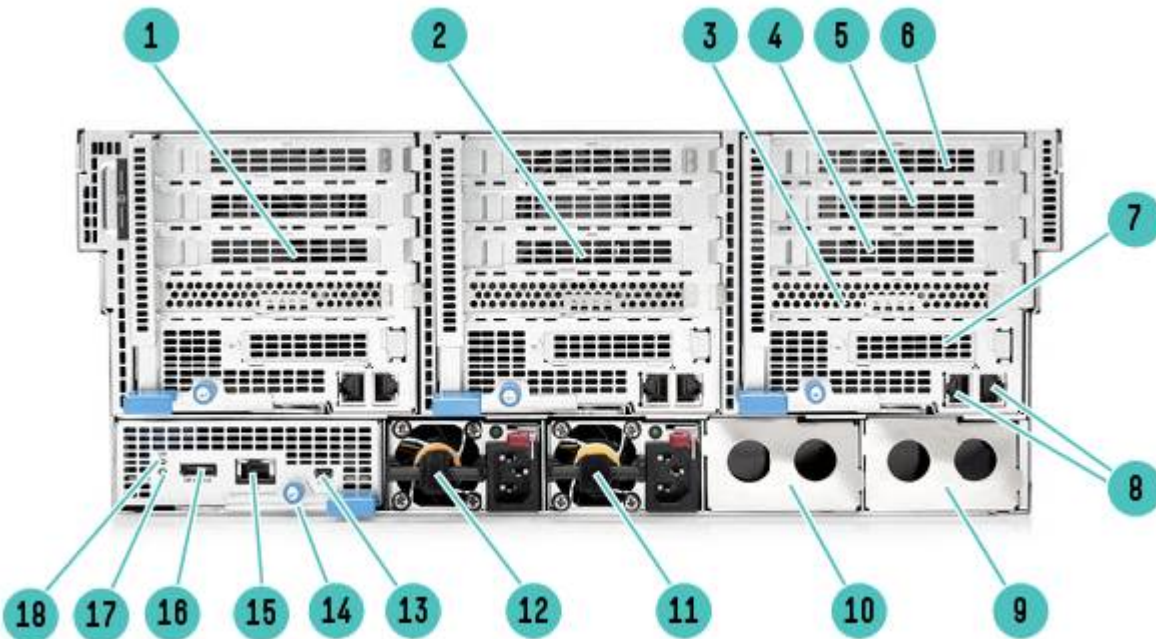|	HPE Apollo 4510 Model Rear View:
1.	Rear cage kit (blank) - Supports up to 8 LFF HDD/SSD
2.	PCIe Slot 1
3.	PCIe Slot 2
4.	PCIe Slot 3
5.	PCIe Slot 4
6.	FlexibleLOM
7.	2 X 1Gb Ethernet ports
8.	Power Supply 1 (blank)
9.	Power Supply 2 (blank)
10.	Power Supply 3 (blank)
11.	Power Supply 4
12.	HPE Tools 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
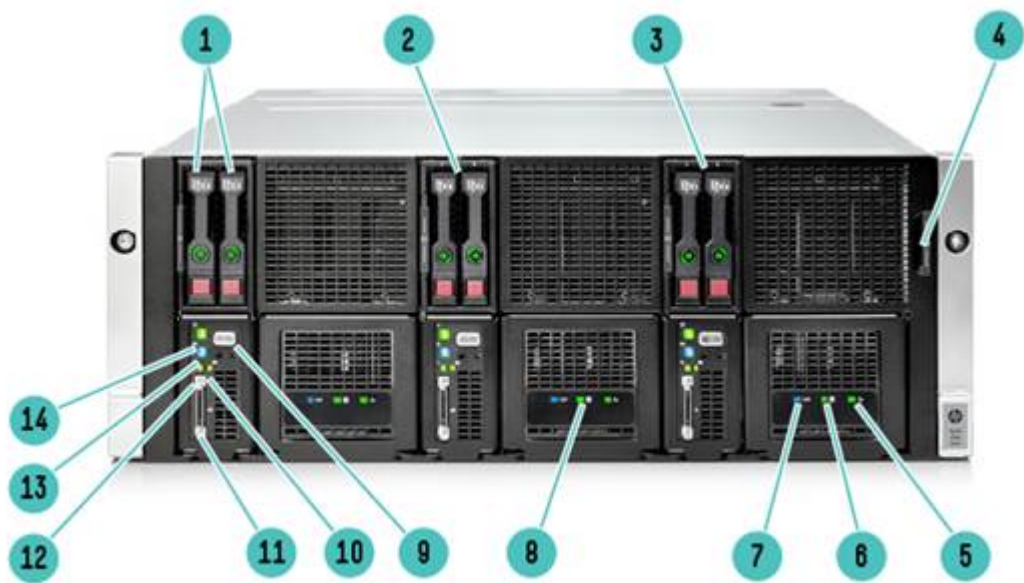
HPE Apollo 4530 Model Front View:	
1.	SFF 2.5" hard drives on node (2)
2.	Storage Node 2
3.	Storage Node 3
4.	Quick Reference Code
5.	Health LED
6.	Logical array status
7.	UID LED
8.	LFF hard drives connected to Server Node 2
9.	Eject node button
10.	NIC Status
11.	SUV Connector - EGA and USB
12.	Health LED
13.	UID 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 1 (blank)
10.	Power Supply 2 (blank)
11.	Power Supply 3
12.	Power Supply 4
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
19.	Chassis management controller power indicator

Overview

HPE Apollo 4510 System

HPE Apollo 4530 System

What's New

- Intel® Xeon® Processor E5-2600 v3 Series

Overview

- HPE DDR4-2133 Low Voltage Memory Kit
- 4U Form Factor
- Up to 4 PCIe Gen 3.0 Slots
- Up to 68 LFF drives
- M.2 support
- HBA support for node drives
- 16 DIMMs - DDR4 memory
- Gen9 Power supplies (800W and 1400W) - 48VDC
- 12G SAS
- VDC Power Supply Kit

Standard Features

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

Processor
One model of the following per server node

Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
E5-2698v3	2.3GHz	16	40MB	135W	9.6GT/s	2133
E5-2695v3	2.3GHz	14	35MB	120W	9.6GT/s	2133
E5-2690v3	2.6GHz	12	30MB	135W	9.6GT/s	2133
E5-2683v3	2.0GHz	14	35MB	120W	9.6GT/s	2133
E5-2670v3	2.3GHz	12	30MB	120W	9.6GT/s	2133
E5-2660v3	2.6GHz	10	25MB	105W	9.6GT/s	2133
E5-2650v3	2.3GHz	10	25MB	105W	9.6GT/s	2133
E5-2650Lv3	1.8GHz	12	30MB	65W	9.6GT/s	2133
E5-2640v3	2.6GHz	8	20MB	90W	8.0GT/s	1866
E5-2630v3	2.4Ghz	8	20MB	85W	8.0GT/s	1866
E5-2630Lv3	1.8GHz	8	20MB	55W	8.0GT/s	1866
E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600

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® E5-2670v3 (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 memory speed is 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, 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	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 **NOTE:** For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.
Upgradeability	Upgradeable to two processors **NOTE:** Processor upgrade available from Intel® Xeon® Processors E5-2600 to E5-2400 v3. 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.

Standard Features

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) (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 2133 MHz speeds.
NOTE: Depending on the memory configuration and processor model, the memory speed may run at 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

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.

Standard Features

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

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: 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 drives, one of the following controlled is required:
HPE Smart Array P440/4G Controller
HPE Smart Array P441/4G Controller
HPE Smart Array P840/4G Controller
HPE Smart Array P841/4G Controller
HPE H240 Smart HBA

Standard Features

NOTE: The above options control the large form factor (LFF/ 3.5") drives.
NOTE: SA/HBA that end in 1 refer to external controllers for storage outside of the system.
0 refers to internal storage

Internal Storage Devices	USB Drive	Via USB port, external support only
	Hard Drives	None ship standard
	Drive Bays	2 SFF drive bays total for each node
		68 LFF drive bays total in chassis for a Apollo 4510 model
		45 LFF drive bays total in chassis for a Apollo 4530 (15 drives per node)

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	1.6TB	2 x 800GB
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 4530: 15 LFF Drives per node, 3 nodes total for a total of 45 LFF Drives per chassis

Hot Plug LFF SAS	360TB	45x 8TB
Hot Plug LFF SATA	360TB	45 x 8TB
Hot Plug LFF SAS SSD	72 TB	45 x 1.6TB
Hot Plug LFF SATA SSD	43.2TB	45 x 960 GB
Hot Plug SFF SATA SSD	4.8TB	6 x 800GB
Hot Plug SFF SAS SSD	9.6 TB	6 x 1.6TB
Hot Plug SFF SATA	6TB	6 x 1TB
M.2 2280 SSD	2.04TB	6 x 340 GB

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

Standard Features

NOTE: The main storage section in the chassis has 45 LFF (3.5") hard drive bays, 15 bays per node, and they can be populated with any combination of SAS, SATA, or SATA SSD drives to achieve desired performance.

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	1 per display board
	SUV	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.

Standard Features

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

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.

Standard Features

Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Canonical Ubuntu Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) VMware **NOTE:** Only 64-bit versions of these operating systems are supported. **NOTE:** For more information on 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

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

Standard Features

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

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

Standard Features

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 interdepencies, 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/SmartUpdate, http://www.hp.com/go/spp and http://www.hp.com/go/hpsum

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	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. 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.
	HPE iLO Advanced	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/iloadvance
	HPE Matrix Operating Environment	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). **NOTE:** For more information, visit: http://www.hp.com/go/matrixoe

Optional Features

High Performance Clusters	HPE HPC Interconnects	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
	HPE Insight Cluster Management Utility	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
	HPE HPC Linux Value Pack	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.

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

Optional Features

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

Service and Support

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 to Hewlett Packard Enterprise	Unlock all of the benefits of your technology investment by connecting your products 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 24x7monitoring, 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 personalized 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 4530 Model	HPE Apollo 4530 Gen9 CTO 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
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.	720482-B21
	HP 800W Flex Slot Platinum Hot Plug Power Supply Kit	720479-B21
	HP 1400W Flex Slot Platinum Plus Hot Plug Power Supply Kit	720620-B21
	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	720480-B21
	HP 800W Flex Slot Universal Hot Plug Power Supply Kit	720484-B21
	NOTE: Kits contain optional power supply, an IEC power cable and PDU IEC cables.	
HPE Rail Kits	**NOTE:** One Rail Kit is required for every chassis in a rack.	
	HP 4.3U Server Rail Kit **NOTE:** *This is the same rail kit that was used in the HPE ProLiant SL4540 Gen8 Server.	681254-B21
HPE Rack Adapter Kits	HP 4.3U Rack Adapter Kit	744697-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 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-B21for every processor option chosen per node	
	E5-2600 v3 Series	
	Sixteen-Core Processors	
	HP XL450 Gen9 Intel® Xeon® E5-2698v3 (2.3GHz/16-core/40MB/135W) Processor Kit	797319-B21
	Fourteen-Core Processors	
	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
	Twelve-Core Processors	
	HP XL450 Gen9 Intel® Xeon® E5-2690v3 (2.6GHz/12-core/30MB/135W) FIO Processor Kit	783936-L21
	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
	Ten-Core Processors	
	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
	Eight-Core 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
	Six-Core Processors	
	HP XL450 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	783899-L21

Configuration Information - Factory Integrated Models

	HP XL450 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	783897-L21
HPE Memory	**NOTE:** Please choose memory options for the first processor of each server node. Up to 8 DDR4 DIMM slots are dedicated per processor socket. **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 **NOTE:** HPE certified SmartMemory must be used to guarantee full 2133MHz speeds. **NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 2133, or 1866MHz, 1600MHz, or 1333MHz. Please see the Online Memory Configuration Tool at: http://www.hp.com/go/ddr4memory-configurator	
	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
	Load Reduced DIMMs (LRDIMM) - For E5-2600 v3 Series Processors **NOTE:** The Following memory is supported by E5-2600 series processors	
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726720-B21
	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 Host Bus Adapters 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	
	HP H244br 12Gb 2-ports Int FIO Smart Host Bus Adapter **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.	761878-B21
	HPE Smart Array P244br/1G FIO Controller **NOTE:** This controller does not consume a PCIe slot. **NOTE:** Maximum of one FIO "br" controller (H244br, P244br) is allowed to support SFF drives.	761871-B21
	Host Bus Adapters	

Configuration Information - Factory Integrated Models

HP H244br 12Gb 2-ports Int Smart Host Bus Adapter	726809-B21

NOTE: H244br will be used in BTO SKU.

HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
HP H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21

NOTE: The I/O module associated with each server node can support up to two of the Gen9 storage controllers to manage the bulk LFF hard drives.
NOTE: Megacell battery must be selected per each P440/P441/P840/P841 ordered.

Smart Array Controller

HP Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
HP Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller	726903-B21
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: 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. However, one of the following configurations is supported: One H240 or One P440 or Two H240 or Two P440
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. If one processor is installed, 2 PCIe slots (Slots 1 and 2). If two processors are installed, 4 PCIe slots are available.

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.

Step 3: Choose Additional Factory Integratable 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:

Configuration Information - Factory Integrated Models

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 Processors		
	NOTE: Please choose Processor options for the second processor of each server node.	
	E5-2600 v3 Series	
	Sixteen-Core Processors	
	HP XL450 Gen9 Intel® Xeon® E5-2698v3 (2.3GHz/16-core/40MB/135W) Processor Kit	797319-B21
	Intel® Xeon® E5-2698v3 (2.3GHz/16core/40MB/135W) FIO Processor Kit	797319-L21
	Fourteen-Core Processors	
	HP XL450 Gen9 Intel® Xeon® E5-2695v3 (2.3GHz/14-core/35MB/120W) Processor Kit	797321-B21
	HP XL450 Gen9 Intel® Xeon® E5-2695v3 (2.3GHz/14-core/35MB/120W) FIO Processor Kit	797321-L21
	HP XL450 Gen9 Intel® Xeon® E5-2683v3 (2GHz/14-core/35MB/120W) Processor Kit	797323-B21
	Intel® Xeon® E5-2683v3 (2GHz/14core/35MB/120W) FIO Processor Kit	797323-L21
	Twelve-Core Processors	
	HP XL450 Gen9 Intel® Xeon® E5-2690v3 (2.6GHz/12-core/30MB/135W) Processor Kit	783936-B21
	Intel® Xeon® E5-2690v3 (2.6GHz/12core/30MB/135W) FIO Processor Kit	783936-L21
	HP XL450 Gen9 Intel® Xeon® E5-2670v3 (2.3GHz/12-core/30MB/120W) Processor Kit	783934-B21
	Intel® Xeon® E5-2670v3 (2.3GHz/12core/30MB/120W) FIO Processor Kit	783934-L21
	HP XL450 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit	783940-B21
	Intel® Xeon® E5-2650Lv3 (1.8GHz/12core/30MB/65W) FIO Processor Kit	783940-L21
	Ten-Core Processors	

Configuration Information - Factory Integrated Models

HPE XL450 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) FIO Processor Kit	841821-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) Processor Kit	783932-B21
Intel® Xeon® E5-2650v3 (2.3GHz/10core/25MB/105W) FIO Processor Kit	783932-L21
Eight-Core Processors	
HP XL450 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit	783930-B21
Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) FIO Processor Kit	783930-L21
HP XL450 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit	783901-B21
Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit	783901-L21
Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) Processor	783938-B21
Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) FIO Processor Kit	783938-L21
Six-Core Processors	
HP XL450 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit	783899-B21
Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	783899-L21
HP XL450 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit	783897-B21
Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	783897-L21

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

Configuration Information - Factory Integrated Models

HPE Memory	**NOTE:** Please choose memory options for the second processor of each node. Up to 8 DDR4 DIMM slots are dedicated per socket. **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 HPE 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 2133 MHz speeds. **NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 2133 or 1866MHz, 1600MHz, or 1333MHz1066MHz. Please see the Online Memory Configuration Tool at: http://www.hp.com/go/ddr4memory-configurator.	
	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
	Load Reduced DIMMs (LRDIMM) - For E5-2600 Series Processors **NOTE:** The Following memory is supported by E5-2600 v3 series processors	
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726720-B21
	HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21

HPE Hard Drives	**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. **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. **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 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

Configuration Information - Factory Integrated Models

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 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
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

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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

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

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
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) Low Profile Midline 1yr Warranty Hard Drive	797265-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
6G SATA Light Endurance Hot Plug LFF (3.5-inch) LP Solid State Drives 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	797305-B21
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

Configuration Information - Factory Integrated Models

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.

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	
	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

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+FLR-QSFP Adapter	764285-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

HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B22
HP FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21

Configuration Information - Factory Integrated Models

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+QSFP Adapter	764284-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

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.	
	HP 800W Flex Slot Titanium Hot Plug Power Supply Kit **NOTE:** The following power supplies offer up to 94% efficiency.	720482-B21
	HPE Flex Slot Platinum Plus Power Supply Kits	
	HPE 800W Flex Slot Platinum Plus Hot Plug Power Supply Kit **NOTE:** Kits contain optional power supply, an IEC power cable and PDU IEC cables	720479-B21
	HP 1400W Flex Slot Platinum Plus Hot Plug Power Supply Kit	720620-B21
	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	720480-B21
	HP 800W Flex Slot Universal Hot Plug Power Supply Kit **NOTE:** Kits contain optional power supply, an IEC power cable and PDU IEC cables	720484-B21
HPE Rear Cage Kits	HPE Apollo 4510 8HDD Rear Cage Kit **NOTE:** This kit is only available for the Apollo 4510 System. **NOTE:** This kit supports an additional 8 LFF SSD/HDD **NOTE:** This is an FIO option as well as a field-upgradable option after purchasing system.	799377-B21

Configuration Information - Factory Integrated Models

HPE Advanced Power Manager	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.	
	HP Advanced Power Manager Kit	741192-B21

HPE Insight Software	**HPE Insight Control**	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	C6N28ABE
	NOTE: The Electronic software license is available in EMEA only.	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
	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	
	HPE Integrated Lights-Out (iLO)	
	HPE iLO Scale-Out	
	HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD776AAE
	HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License	BD776A
	HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Tracking License	BD777A
	HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD778AAE
	HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License	BD778A

Configuration Information - Factory Integrated Models

	HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Tracking License	BD779A
	NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.	
	NOTE: For additional license options please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	
	HPE Integrated Lights-Out (iLO) Advanced for ProLiant	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU **NOTE:** The Electronic software license is available in EMEA only.	E6U59ABE
	HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU **NOTE:** The Electronic software license is available in EMEA only.	E6U64ABE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	NOTE: For additional license options please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html **NOTE:** For more information, visit: http://www.hp.com/go/ilo.	
High Performance Clusters	HPE Cluster Management Utility	
	HP Insight Cluster Management Utility 1yr 24x7 Flexible License	QL803B
	HP Insight Cluster Management Utility 3yr 24x7 Flexible License	BD476A
	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.	
	HP Insight Cluster Management Utility Media	BD477A
	HP Insight Cluster Management Utility 3yr 24x7 Flexible Electronic License	BD476AAE
	HP Insight Cluster Management Utility 1yr 24x7 Flexible Electronic License	QL803BAE
	NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html	

Configuration Information - Factory Integrated Models

HPE PCIe Workload Accelerator Options	Value Endurance (VE) PCIe Workload Accelerators	
	HP 1.3TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763834-B21
	HP 1.6TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763836-B21
	HP 3.2TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763838-B21
	Light Endurance (LE) PCIe Workload Accelerators	
	HP 1.0TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775666-B21
	HP 1.3TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775668-B21
	HP 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775670-B21
HPE Security	HP Trusted Platform Module Option	488069-B21

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.

NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.

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.

HPE Storage Controllers	SAS Controllers	
	Smart Array P244br Controller	
	HP Smart Array P244br/1GB FBWC 12Gb 2-ports Int FIO SAS Controller	761871-B21
	Host Bus Adapters: Smart H240/241 HBA	
	HPE H240 Smart HBA	726907-B21
	HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
	Optional Upgrades	
	Smart Array P440/4G and P441/4G Controller	
	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**
	HP Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller	726903-B21
	HPE Cable Options	
	HPE Apollo 4500 Mini SAS H240 Cable Kit	808961-B21
	NOTE: If one H240 Controller is ordered, then two cables are required	
	HPE Apollo 4500 Mini SAS Dual H240 Cable Kit	808963-B21
	NOTE: If two H240 controllers are ordered, then 2 cables are required	
	HPE Apollo 4500 Mini SAS P440 Cable Kit	808965-B21
	NOTE: If one P440 Controller is ordered, then 1 cable is required	

Configuration Information – Factory Integrated Models

HP Apollo 4510 Mini SAS 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 4500 Mini SAS P440 Cable Kit	808969-B21
HP SmartCache No Media 24x7 Technical Support 1 Svr License	D7S26A
HP SmartCache No Media 24x7 Technical Support Flexible License	D7S27A
HP SmartCache No Media 24x7 Technical Support Electronic License	D7S27AAE

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14229_div/14229_div.html
(Smart Array P421 Controller)
http://h18000.www1.hp.com/products/quickspecs/14532_div/14532_div.html
(SmartCache)

HPE Power Cords	**NOTE:** HPE ProLiant servers ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).	
	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

Configuration Information - Factory Integrated Models

HPE Uninterruptible Power Systems	HPE Rack-mountable UPS	
	HPE R1500 G3 Uninterruptible Power Supply (UPS)	
	HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
	HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
	HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html (Worldwide)	
	HPE R/T3000 G2 Uninterruptible Power System (UPS)	
	HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
	HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
	HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html (Worldwide)	
	R5000 Uninterruptible Power System (UPS)	
	HP R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
	HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
	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.	

Configuration Information – Factory Integrated Models

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
	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	

Configuration Information - Factory Integrated Models

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
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14669_div/14669_div.html (Worldwide)	

Configuration Information - Factory Integrated Models

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
	HP 42U 600mm x 1200mm Enterprise Shock Rack	BW908A

Configuration Information - Factory Integrated Models

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 (Worldwide)

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

Configuration Information - Factory Integrated Models

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

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	HP 32GB microSD Enterprise Mainstream Flash Media Kit	700139-B21

NOTE: For more information, customer/resellers can contact:
http://www.hp.com/services/carepack.

Solutions Software	
Hortonworks Data Platform (HDP) Enterprise Subscription 4 N/50TB Raw Strg 1yr 24x7 Supp E-LTU	F5Z52AAE
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 24x7 Support Physical LTU	G7M27A
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 24x7 Support E-LTU	G7M27AAE
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 8x5 Support Physical LTU	G7M28A
Cloudera Enterprise Basic Edition 1 Year Subscription per Node 8x5 Support E-LTU	G7M28AAE
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 24x7 Support Physical LTU	G7M29A
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 24x7 Support E-LTU	G7M29AAE
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 8x5 Support Physical LTU	G7M30A
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 8x5 Support E-LTU	G7M30AAE
Cloudera Enterprise Data Hub Edition 1 Year Subscription per Node 24x7 Premium E-LTU	G7M31AAE
Hortonworks Data Platform (HDP) Enterprise Plus Subscription 4 N/50TB Raw Strg 1yr 24x7 Supp LTU	JP408A

Configuration Information - Factory Integrated Models

	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

HPE Apollo 4530 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

Configuration Information - Factory Integrated Models
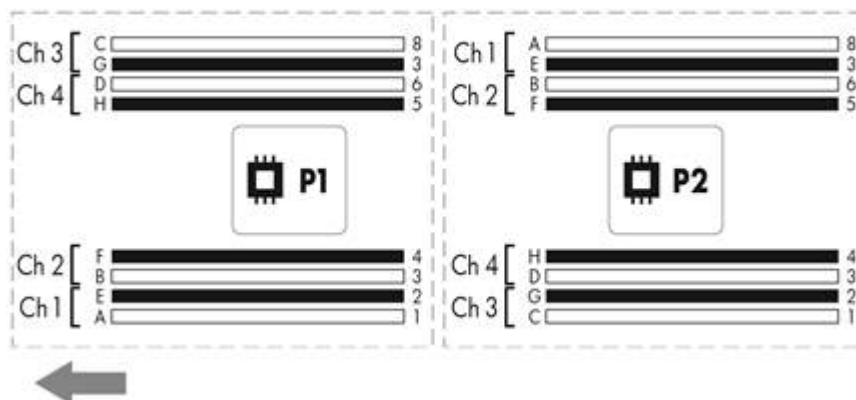
Memory population guidelines

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 and 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.

Configuration Information - Factory Integrated Models

| DIMM Type	Registered DIMMS for E5-2600 v3 Series Processors (RDIMMs)				
DIMM Rank	Single Rank (1R)		Dual Rank (2R)	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

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
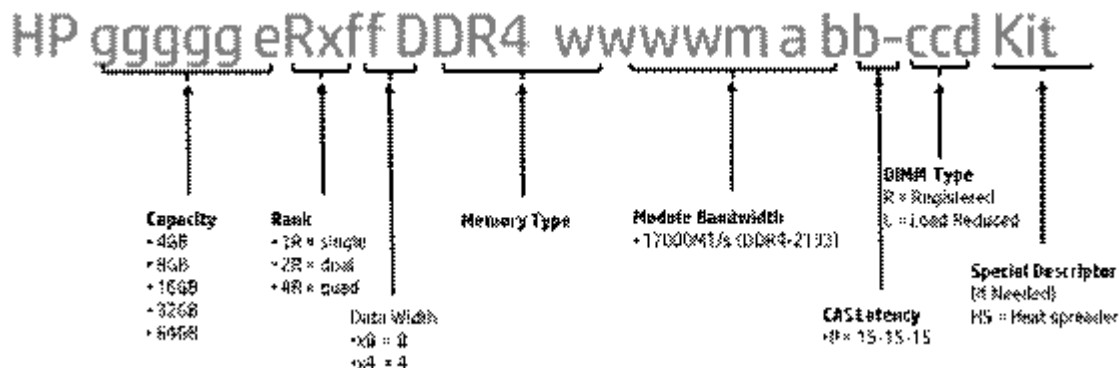
Configuration Information - Factory Integrated Models

Following are memory options available from HP:

HPE Memory   **NOTE:** Please choose memory options for socket 2 of each server node. Up to 8 DDR4 DIMM slots dedicated per socket.

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 HPE 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 2133MHz speeds.

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2133MHz, 1866MHz or 1600MHz. Please see the Online Memory Configuration Tool at: http://www.hp.com/go/ddr4memory-configurator.

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

Load Reduced DIMMs (LRDIMM) - For E5-2600v3 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
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

Storage

Apollo 4510 Model Drive Zoning
1x68*:
If two storage controllers installed:

- Controller 1, communicates with drives 1-30 and 61-64 through port 1A/1B
- Controller 2,communicates with drives 31-60 and 65-68 through port 2A/2B
- If one controller installed:
- Controller 1, communicates with drives 1-30 and 61-64 through ports 1A and/or 1B
- Controller 1,communicates with drives 31-60 and 65-68 through port 2A and/or 2B

*NOTE: Drives 61-98 only apply if 8 HDD Option Cage is installed

		61	62	63	64	65	66	67	68		
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
25	26	27	28	29	30	55	56	57	58	59	60

Front of Chassis

NOTE: This is simple drive zoning

Maximum Storage Capacity - Apollo 4510 Model

Internal (2 SFF Drive Cage)	3.2TB (2 x 1.6TB SFF SAS SSD)
Internal (68 LFF Drive Cage) M.2	544TB (68 x 8TB SAS/SATA LFF) 680GB (2 x 340GB M.2 SSD)
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) **NOTE:** Rack chosen is required to have 1200mm depth to provide space for cable management arm at the rear of the chassis and host PDU in the rear of the rack.)	
	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).

Technical Specifications

Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
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)

Technical Specifications

| 10/100/1000Base-TX | Category 5 UTP; up to 328 ft (100 m) |

| Environment-friendly Poduts and Approach | End-of-life Management and Recycling | 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
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

hp.com/qref/apollo4530gen9

hp.com/qref/apollo4510gen9

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