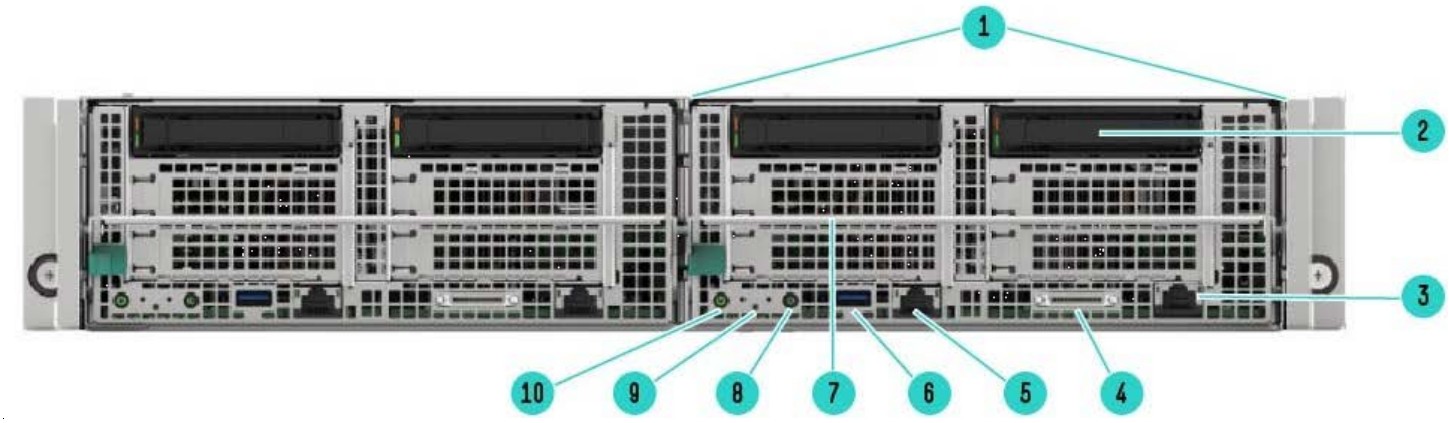
Overview

HPE Apollo 20 System

Are you searching for more performance in a denser package?

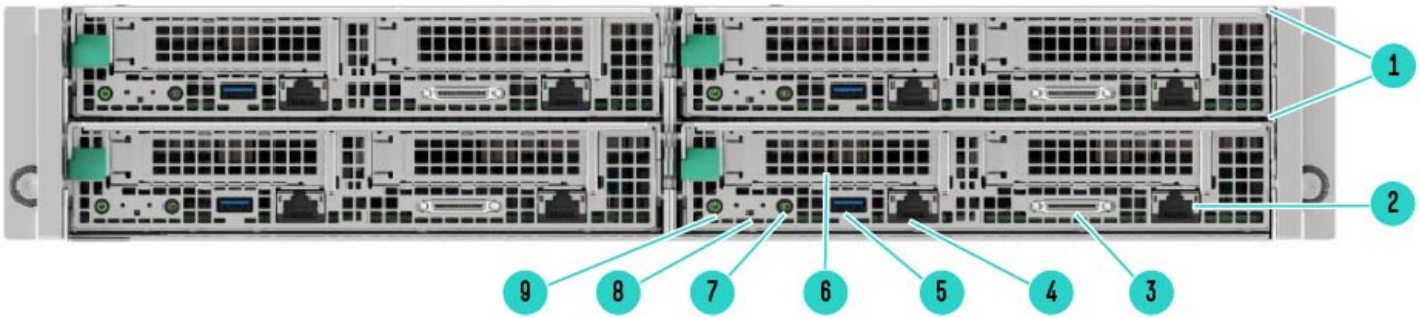
The newly released HPE Apollo 20 System is built on the 2nd Generation Intel® Xeon® 9200 family of processors which offer unmatched 2-socket performance leadership across popular workloads. Built to support both liquid-cooled and air-cooled options, the Apollo 20 System takes advantage of HPE's strong leadership in cooling technologies as workloads continue to push power and density. The Apollo 20 System offering up to 56 cores and 12 DIMMs per socket makes it ideal for use in data-intensive industries, including oil and gas, finance, AI, manufacturing, and life sciences.



2U Chassis Front View (with 2U servers)

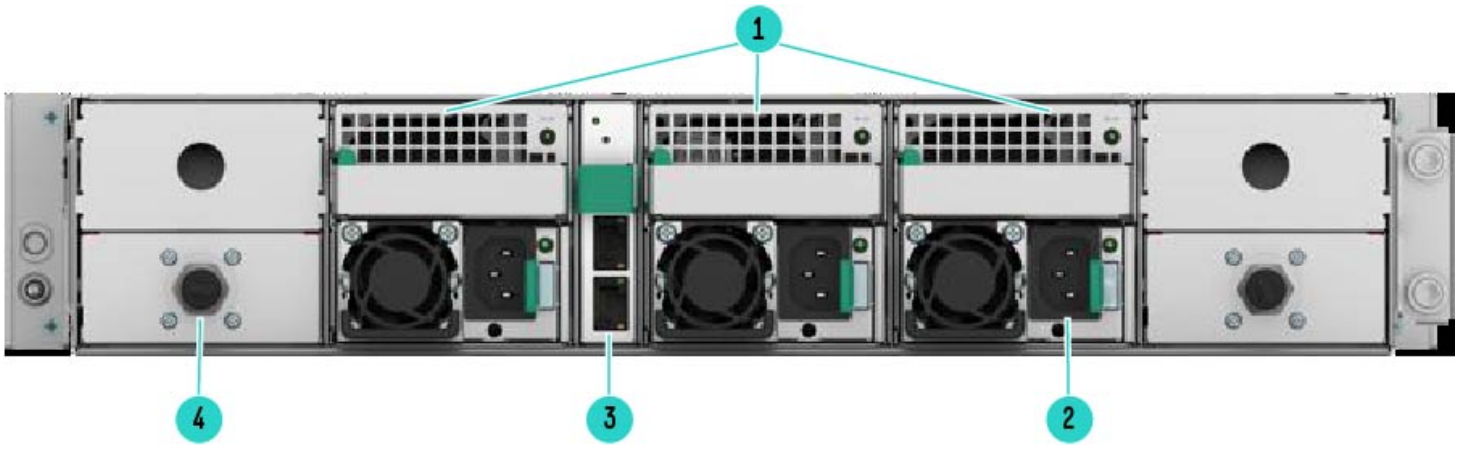
Item	Description	Item	Description
1	Hot-swap Servers	6	USB 3.0
2	Hot plug U.2 storage	7	Low profile HH/HL PCIe Gen3x16 slots per server
3	Dedicated management port	8	Unit Identification (UID) LED/button
4	Serial/USB/Video dongle	9	Status LED
5	1Gb Ethernet port	10	Power Button

Overview



2U Chassis Front View (with 1U servers)

Item	Description	Item	Description
1	Hot-swap servers	6	Low profile HH/HL PCIe Gen3x16 slots
2	Dedicated management port	7	Unit Identification (UID) LED/button
3	Serial/USB/Video dongle	8	Status LED
4	1Gb Ethernet port	9	Power button
5	USB 3.0		

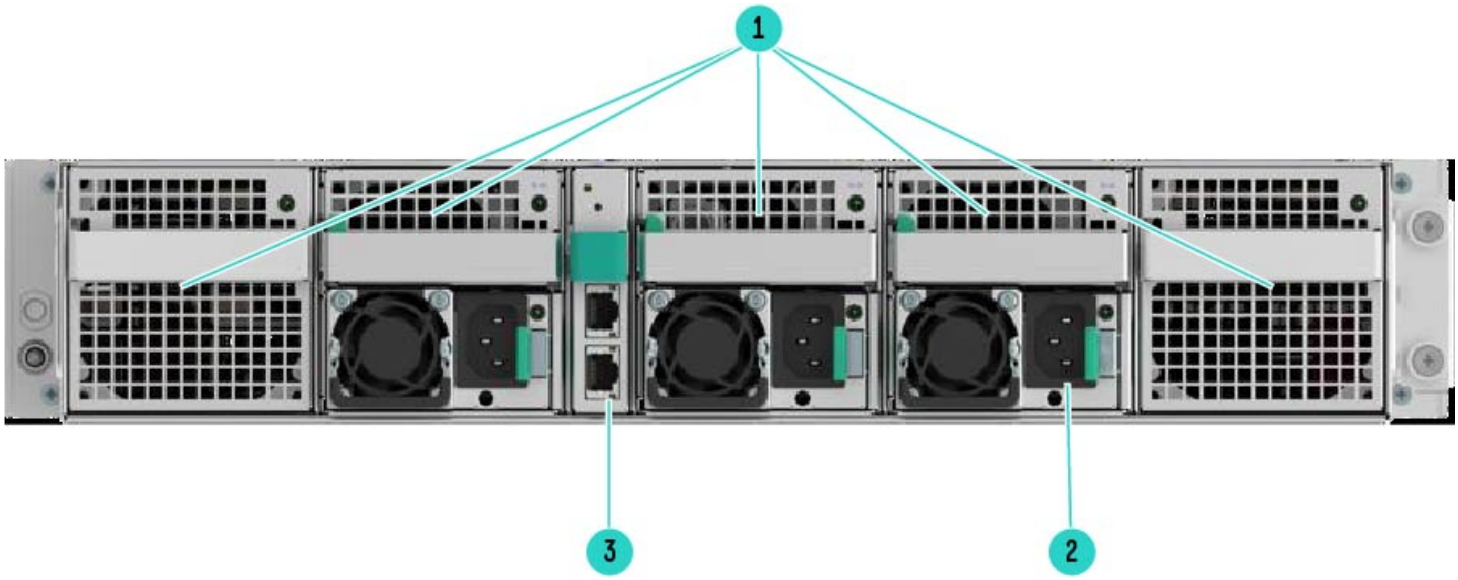


2U Chassis Rear View (with liquid option)

Item	Description	Item	Description
1	Hot plug Fans	3	Aggregated Management ports
2	3x 2100w power supplies for 2+1 redundancy	4	Liquid connections

NOTE: Each liquid cooled Apollo 20 system includes 3x 2100w power supplies

Overview

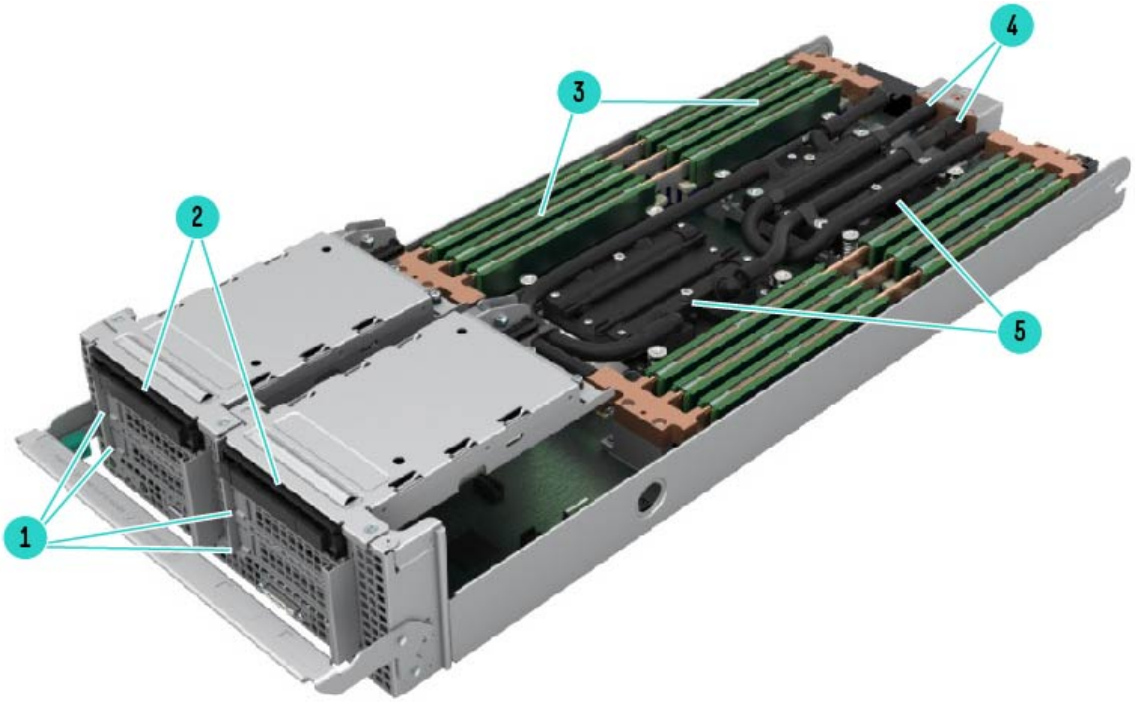


2U Chassis Rear View (Air Cooled)

Item	Description	Item	Description
1	Hot plug fans	3	Aggregated Management ports
2	3x 1600w power supplies for 2+1 redundancy		

NOTE: Each air cooled Apollo 20 system includes 3x 1600w power supplies

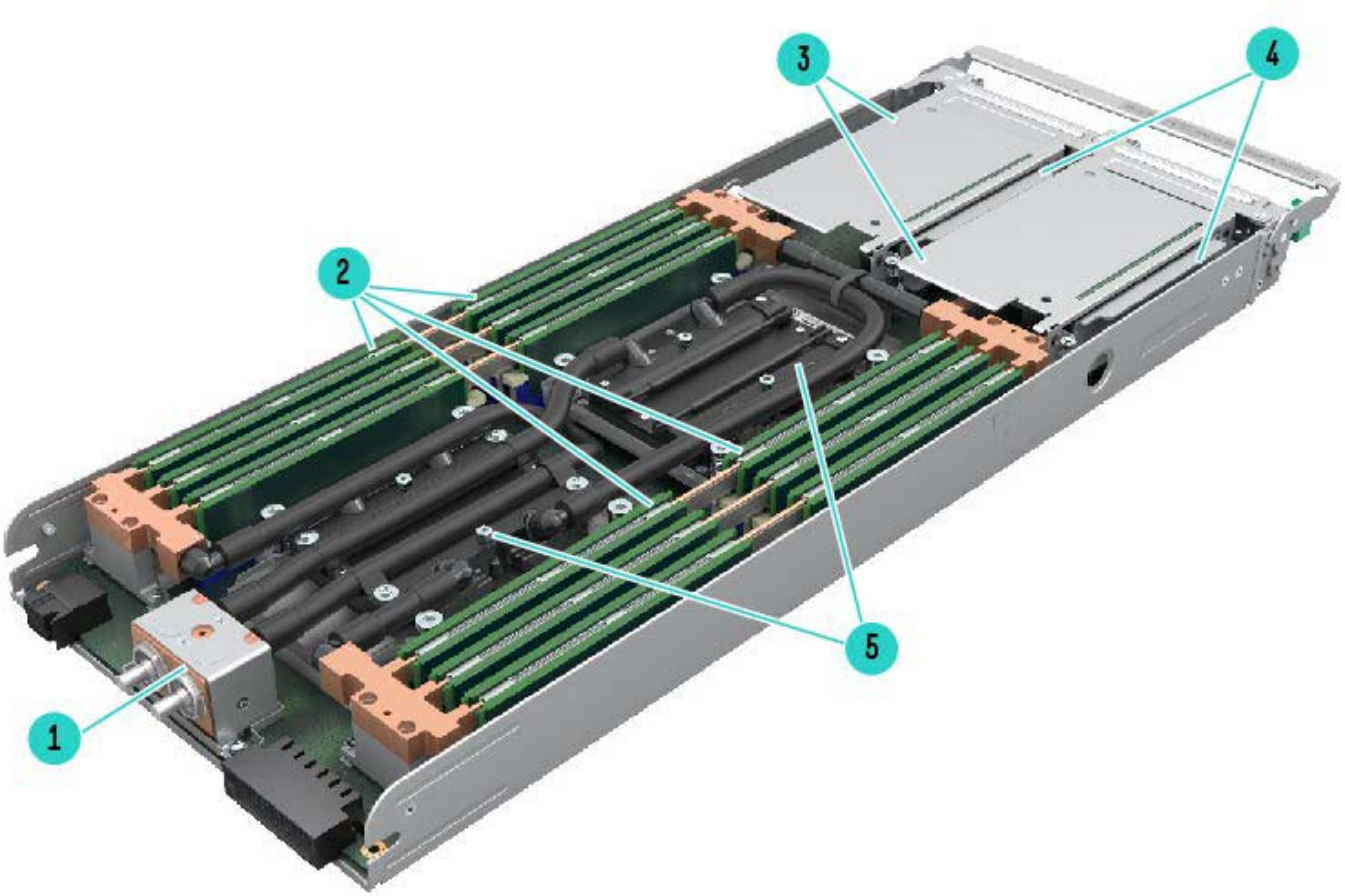
Overview



Internal View of 2U (Liquid cooled)

Item	Description	Item	Description
1	4 low profile HH/HL PCIe 3.0 x16 slots	4	CPU and memory cooling loop (if applicable)
2	2 hot plug SSD drives and/or 2 internal M.2 drives	5	CPU 1 & 2
3	12 Dimms per CPU		

Overview



Internal View of 1U (Liquid cooled)

Item	Description	Item	Description
1	CPU and memory cooling loop	4	Internal M.2 storage
2	12 Dimms per CPU	5	CPU 1 & 2
3	Two low profile HH/HL PCIe 3.0 x16 slots		

Standard Features

Supported Configurations

Processor

Intel® Xeon® Platinum 9200 Processor SKUs

Model	Base Clock Speed	Max Turbo Core Speed	AVX512 Max Core Turbo	Cores	L3 Cache	Default TDP / TDP	DDR4 Maximum Speed	1U Support	2U Support
9282	2.6GHz	3.4GHz	2.6GHz	56	77MB	400W	2933 MHz	Liquid only	Not Supported
9242	2.3GHz	3.1GHz	2.3GHz	48	71.5MB	350W	2933 MHz	Liquid only	Air/Liquid
9222	2.3GHz	3.0GHz	2.8GHz	32	71.5MB	250W	2933 MHz	Liquid only	Liquid only
9221	2.3GHz	3.0GHz	2.7GHz	32	71.5MB	250W	2933 MHz	Liquid/Air	Liquid/Air

Chipset

- Intel® C620 series Chipset (PCH)

Memory

- Industry Standard DDR4 Registered (RDIMM)
- DIMM Slots Available: 24 DIMM per server

Network Controllers

- Eth 10/25Gb 2P 640SFP28 Adpt (PCIe x16)
- Intel® Ethernet Controller I210 (LOM)

Management

- AST2500 BMC

InfiniBand Options

- HDR100/EN 100G 1P Adapter
- HDR100 2P 940QSFP56 Adapter
- HDR PCIe3 Auxiliary Card
- HDR/Ethernet 200Gb 1-port Adapter

Maximum Internal Storage per server	
2U	
HPE Apollo 20 1.9TB NVMe x4 Lanes Mixed Use FIO SSD	2 x 1.9TB
HPE Apollo 20 3.2TB NVMe x4 Lanes Write Intensive FIO SSD	2 x 3.2TB
HPE Apollo 20 6.4TB NVMe x4 Lanes Write Intensive FIO SSD	2 x 6.4TB
HPE Apollo 20 2TB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	2 x 2TB
HPE Apollo 20 1TB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	2 x 1TB
HPE Apollo 20 128GB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	2 x 128GB
1U	
HPE Apollo 20 2TB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	2 x 2TB
HPE Apollo 20 1TB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	2 x 1TB
HPE Apollo 20 128GB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	2 x 128GB

Standard Features

Interfaces

- USB 3.0 Ports
- Dedicated management port
- Power
- UID
- Serial/USB/Video via dongle

Industry Standard Compliance

- ACPI 2.0b Compliant
- PCIe 3.0 Compliant
- PXE Support
- USB 1.1,2.0 and 3.0 Compliant

Operating Systems and Virtualization Software Support for HPE Apollo Servers

- Red Hat Enterprise Linux (RHEL 7)
- SUSE Linux Enterprise Server (SLES15 EM64T)

Graphics

Integrated ASPEED AST2500 BMC

Management

Integrated ASPEED AST2500 BMC

Form Factor

The Apollo 20 system is a 2U chassis with (4) 1U servers or (2) 2U server

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 (may vary by region). Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty.

NOTE: Server Warranty includes 3 year Parts, 3 year Labor, 3-year on-site 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: **https://support.hpe.com/**

System management

HPE Performance Cluster Manager – complete integrated cluster management software for all HPE HPC clusters offering: system setup, hardware monitoring and management, and network management and cluster health management, image management and software updates as well as power management. The software also integrates with leading HPC ISV and open source software solutions.

Service and Support

Service and Support

Protect your business beyond warranty with HPE Support Services

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

Optimized Recommendation

HPE Foundation Care 24x7, three-year Support Service

HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.

Learn more at **https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en**

Standard Recommendation

HPE Foundation Care 24x7, three-year Support Service

HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.

Learn more at **https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en**

Basic Recommendation

HPE Foundation Care NBD, three-year Support Service

HPE Foundation Care Next Business Day connects you to HPE during business hours for assistance on resolving issues – This service features need based next business day hardware onsite response and software call back within two hours. In addition, Collaborative software support and provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.

Learn more at **https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en**

Other Related Services

HPE Server Hardware Installation

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

HPE Installation and Startup Service

Provides for the installation of your HPE hardware according to product specifications including options. The HPE service delivery technician will connect the product to a LAN as appropriate and enable remote support to allow for automatic case creation for hardware failures. Installation and start up services also includes the installation of one supported operating system type (Windows® or Linux).

Service and Support

HPE Factory Express 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. HPE products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

HPE Technology Services Support Credits
Offers flexible services and technical skills to meet changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

HPE Datacenter Care service
HPE Datacenter Care helps 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 HPE via a single point of accountability for HPE and others' products. For more information, visit **http://www.hpe.com/services/datacentercare**

HPE Flexibly Capacity, With Flexible Capacity, you get the speed, scalability, and economics of the public cloud in the privacy of your data center. Gain the advantages of the public cloud—consumption-based payment, rapid scalability without worrying about capacity constraints. Reduce the "heavy lifting" needed to operate a data center. And retain the advantages that IT provides the business (i.e., control, security). Deliver the right user experience, choose the right technology for the business, manage privacy and compliance, and manage the cost of IT. And, you have the option to use the public cloud when needed.

DC for Hyperscale
Datacenter Care for Hyperscale is available for Service Providers and HPC customers who use a scale out approach to computing with a high volume homogenous infrastructure and resilient architecture can take advantage of this environment support tailored to their operating model.

HPE Education Services
Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book a class today and learn how to get the most from your technology investment. For more information, visit **http://www.hpe.com/ww/learn**

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

The HPE Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalize IT support anywhere, anytime.
HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.
NOTE:*HPE Support Center Mobile App is subject to local availability

---

Service and Support

Parts and Materials

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

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

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

---

Options

NOTE: Included options are covered under the HPE Service Contract applied to the HPE Server. No separate HPE support services need to be purchased.

Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS batteries over 12KVA.

See the specific high value options that require additional support **here**
For more information, visit **http://www.hpe.com/services**

Configuration Information

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

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

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

HPE CTO Model

HPE Apollo 20 Liquid Cooled Configure-to-order Chassis	P24693-B21
HPE Apollo 20 Air Cooled Configure-to-order Chassis	P24694-B21

NOTE: Each CTO system includes 2U chassis, 4 x 1U or 2 x 2U server trays, aggregated management module and 3 x power supplies.

NOTE: Liquid Cooled Configure-to-order Chassis requires HPE 48U 800mmx1200mm G2 Enterprise Shock Rack (P9K58A).

Step 2: Choose Options

Chassis Options

HPE Apollo 20 Serial/USB/VGA Dongle	P25129-B21

NOTE: Dongle needed for initial bring up. Must have at least 1 dongle per deployment.

HPE servers

Intel Platinum 9200 Processor (Two per Server)

HPE Apollo 20 1U 9282 2.6GHz 56-core 2P Liquid Cooled FIO Server	P24746-B21
HPE Apollo 20 1U 9242 2.3GHz 48-core 2P Liquid Cooled FIO Server	P24712-B21
HPE Apollo 20 1U 9222 2.3GHz 32-core 2P Liquid Cooled FIO Server	P24713-B21
HPE Apollo 20 2U 9242 2.3GHz 48-core 2P Liquid Cooled FIO Server	P24714-B21
HPE Apollo 20 2U 9221 2.3GHz 32-core 2P Liquid Cooled FIO Server	P24715-B21
HPE Apollo 20 2U 9242 2.3GHz 48-core 2P Air Cooled FIO Server	P24716-B21
HPE Apollo 20 2U 9221 2.3GHz 32-core 2P Air Cooled FIO Server	P24717-B21
HPE Apollo 20 1U 9221 2.3GHz 32-core 2P Air Cooled FIO Server	P24718-B21

NOTE: Servers must be ordered in quantities of 4 for 1U configurations or 2 for 2U configurations
NOTE: Partially populated chassis not supported
NOTE: Mixing server types not supported

Remote KVM

HPE Apollo 20 Remote Management 4 Lite Key FIO Activation Module	P25131-B21

NOTE: Module required to enable remote keyboard, video, mouse and media redirection

HPE Memory

DDR4 2933MT/s (24 DIMMs per server)

HPE Apollo 20 16GB (1x16GB) Dual Rank x8 DDR4-2933 Registered FIO Memory Kit	P24695-B21
HPE Apollo 20 32GB (1x32GB) Dual Rank x4 DDR4-2933 Registered FIO Memory Kit	P24696-B21
HPE Apollo 20 64GB (1x64GB) Quad Rank x4 DDR4-2933 Registered FIO Memory Kit	P24697-B21

NOTE: 24 DIMMs must be ordered with each server.

Configuration Information

HPE NVMe – SFF-Sold State Drives

Hot Plug drives (2 drives per server)

HPE Apollo 20 3.2TB NVMe x4 Lanes Write Intensive SFF (2.5in) FIO SSD	P25133-B21
HPE Apollo 20 6.4TB NVMe x4 Lanes Write Intensive SFF (2.5in) FIO SSD	P25135-B21

NOTE: Supported 2U configuration only

HPE NVMe-M.2-Solid State Drive

HPE Apollo 20 2TB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	P24698-B21
HPE Apollo 20 128GB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	P24699-B21
HPE Apollo 20 1TB NVMe x4 Lanes Mixed Use M.2 2280 FIO SSD	P24700-B21
HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	P13693-H21
HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	P13691-H21
HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	P13689-H21
HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	P24188-H21

NOTE: Supported in 1U and 2U configurations

InfiniBand Options

HPE InfiniBand HDR100/Ethernet 100Gb 1-port 940QSFP56 Adapter	P06250-B21
HPE InfiniBand HDR100/Ethernet 100Gb 2-port 940QSFP56 Adapter	P06251-B21
HPE InfiniBand HDR/Ethernet 200Gb 1-port 940QSFP56 Adapter	P06154-B21
HPE InfiniBand HDR PCIe3 Auxiliary Card with 150mm Cable Kit	P06154-B22

NOTE: Each Adapter consumes 1 slot

NOTE: P06154-B21 and P06154-B22 must be ordered together

Ethernet Options (Two PCIe x16 cards per 1U server and four PCIe x16 cards per 2U server)

HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	817753-B21

Cooling Distribution Unit and rack manifolds

HPE Apollo CHx750 CDU	P24777-B21

NOTE: CDU is a liquid-to-liquid heat exchanger that removes heat from processors, memories, and voltage regulators through cold sinks. CDU uses a secondary feed to circulate treated distilled water to the cold sinks. Heat captured in secondary feed is transferred to the facilities primary loop. CDU is designed to circulate and control the heat transfer fluid to the manifold that get installed with each rack. Minimum of 1 CDU (per 8 racks) is needed to support liquid cooled solutions.

HPE Apollo 20 48U Rack Manifold FIO Kit	P24774-B21

NOTE: Each liquid cooled rack requires 1 kit.

NOTE: Liquid Cooled Configure-to-order Chassis requires HPE 48U 800mmx1200mm G2 Enterprise Shock Rack (P9K58A).

Plumbing and Commissioning Options

HPE Apollo 20 Secondary Water Feed 2-rack Commissioning Service	P24778-B21
HPE Apollo 20 Secondary Water Feed 12-rack Commissioning Service	P24854-B21
HPE Apollo 20 Secondary Water Feed 6-rack Commissioning Service	P24855-B21

NOTE: Commissioning service required for all liquid cooled installations. Service includes installation of secondary water feed using Aquatherm plumbing, flushing the system and commissioning the CDU(s) and rack manifolds. Select 6-rack Service for rack sizes 3-6 and 12-rack Service for rack sizes 7-12.

Technical Specifications

System Unit		
Dimensions (H x W x D)	3.42 x 17.39 x 34.06 in (86.8 x 441.8 x 865 mm)	
Weight (approximate)	Maximum: (all hard drives, power supplies, and processors installed	135lbs (61.24kg)
System Input Requirements	Highline AC input rating : 180-264Vac, 47-63Hz Low Line AC input rating: 90-140Vac, 47-63Hz	
System Inlet Temperature	Standard Operating Support	ASHRAE Class A2- 10°C ~ 35°C (50°F ~ 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (50°F/hr). The upper limit and rate of change may be limited by the type and number of options installed.
	Non-operating	-40°C to 70°C (-40°F to 158°F)
Relative Humidity	Operating	8% to 90% (non-condensing)
	Non-operating (non-condensing)	8% to 95% (non-condensing)
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

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

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

The EU WEEE Directive (2012/19/EU) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site.**

These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
02-Mar-2020	Version 3	Changed	Configuration Information section was updated.
03-Feb-2020	Version 2	Changed	Overview section was updated
02-Dec-2019	Version 1	New	New QuickSpecs



Sign up for updates

© Copyright 2020 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Intel® and Xeon® are registered trademarks of Intel Corporation in the U.S. and other countries.

Microsoft®, Windows®, and Windows Server® are U.S. registered trademarks of the Microsoft group of companies.



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

a00073552enw - 16500 - WorldWide - V3 - 02-March-2020