Overview

HPE Apollo 80

The HPE Apollo 80 is an Arm-based server that delivers density and scalability required for large HPC cluster deployments. Housed in a compact rackmount form factor, the system is powered by Fujitsu A64FX processor with maximum memory bandwidth and Scalable Vector Extension support. Together with HPE Cray Programming Environment and Mellanox InfiniBand options, the HPE Apollo 80 is a high performance system for HPC applications.

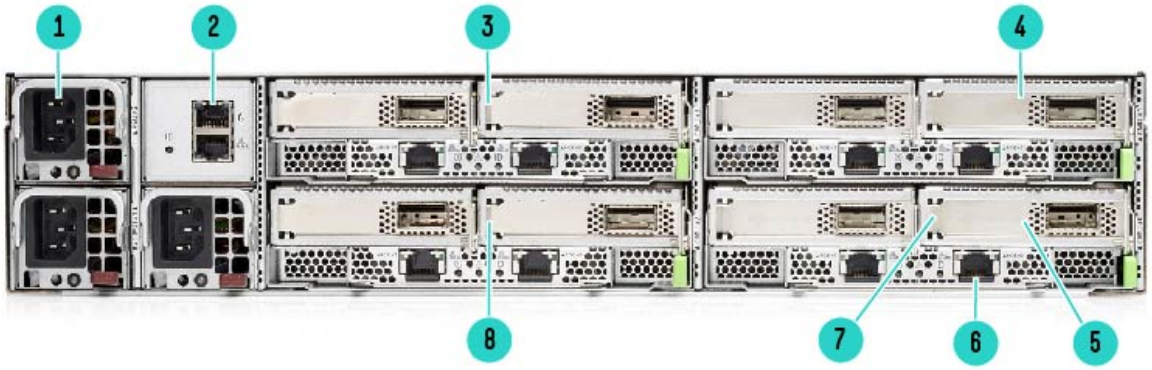
The HPE Apollo 80 System can be deployed cost-effectively starting with a single 2U chassis to meet the configuration needs of a wide variety of scale-out HPC workloads. The HPE Apollo 80 chassis is a density-optimized, 2U form-factor which supports 8 A64FX servers with all the standard data center attributes – 19" racks, cabling and rear-aisle serviceability access. A 42U rack fits up to 20 HPE Apollo 80 chassis and 80 A64FX servers per rack.

The Apollo 80 chassis is configured with up to 4 blades. Each blade contains 2 single-socket A64FX Arm servers. Each Arm server has 32GB of High Bandwidth memory (HBM). Each server's storage option consists of one optional 80mm M.2 PCIe SSD per server, and four capacity options are provided from 400GB to 960GB, in both read intensive and mixed use. Each server has one low-profile half-width PCIe x16 Gen3 slot, to which 100Gb/s Mellanox InfiniBand ConnectX-6 EDR and HDR100 are options. The HPE Apollo 80 platform provides cooling to the eight servers via four chassis-mounted fan modules, each a two-stage fans in series. Platform power is provided by three 80 Plus Platinum-certified power supplies in a 2+1 hot-swappable redundant configuration.

HPE Apollo 80 Chassis (shown with bezel)

Item	Description	Item	Description
1	Fan Modules	2.	HPE Apollo 80 server chassis

Overview

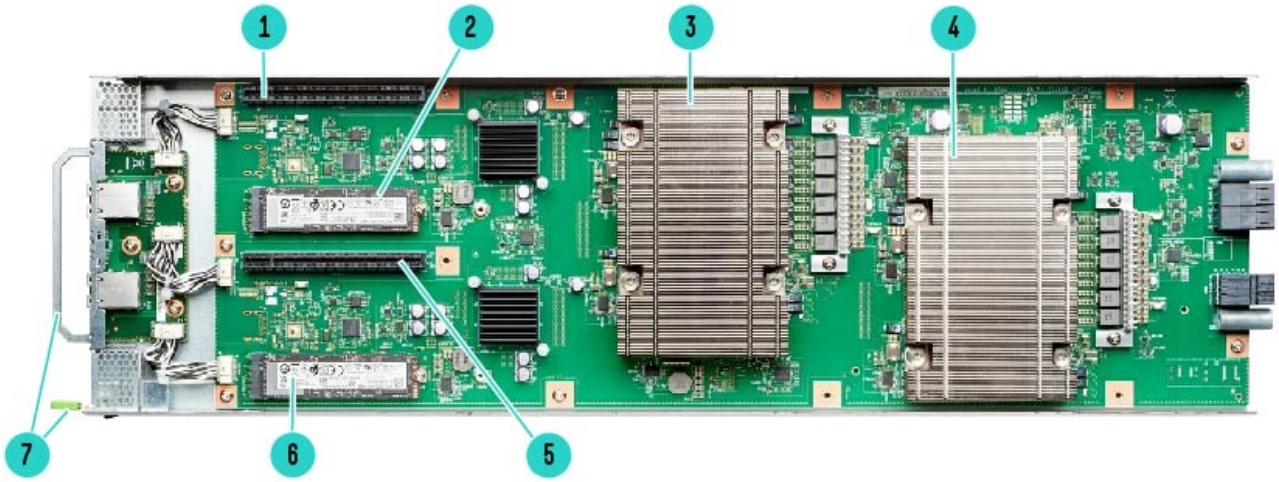


Chassis Rear View / Four Blades / Eight Servers

Item	Description
1	Power Supply (1 of 3)
2	Chassis Management Module
3	Compute Blade 4
4	Compute Blade 2

Item	Description
5	InfiniBand card for Compute Blade 1-4 (optional)
6	Ethernet interface for Compute Blade 1-4
7	Compute Blade 1
8	Compute Blade 3

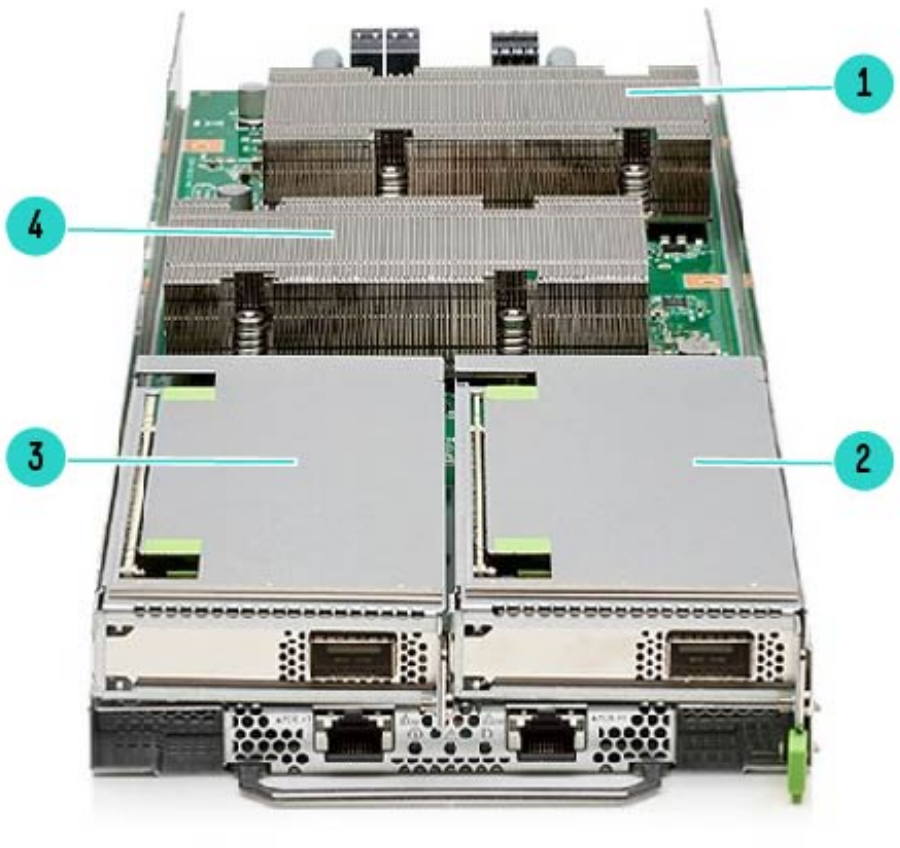
Overview



HPE Apollo 80 Blade Top View (Servers A & B)

Item	Description	Item	Description
1	PCIe Gen3 x16 slot for Server B	5	PCIe Gen3 x16 slot for Server A
2	M.2 slot for Server B (SSD optional)	6	M.2 slot for Server A (SSD optional)
3	Server B CPU & HBM under heatsink	7	Latch and handle
4	Server A CPU & HBM under heatsink		

Overview



HPE Apollo 80 Blade (Servers A & B)

Item	Description	Item	Description
1	CPU for Server A	3	PCIe riser cage for Server B
2	PCIe riser cage for Server A	4	CPU for Server B

Standard Features

Chassis

The HPE Apollo 80 chassis provides the following configuration:

- Three 2200W 2+1 hot-swappable power supplies
- Four fan modules
- One Chassis management module with one RJ45 Ethernet interface for remote management and one RJ45 Ethernet interface for a maintenance port

Server

The HPE Apollo 80 Blade provides the following:

- Two (discrete) single-socket A64FX Arm servers
- Single 10/100/1000 RJ45 Ethernet port

System Fans

The Chassis ships standard with 4 two-stage fan modules.

Server Tray Blank Kit

A chassis requires that four (4) server tray slots be populated. Partial populated chassis with less than four blades are supported. Server Node Blank Kit will be provided to maintain uniform air flow.

Rack Airflow Requirements

Apollo 80

The HPE Apollo 80 requires front-to-rear air cooling in the rack. Approximately 130 CFM is required per chassis, fully populated.

Notes:

- If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment.
- Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels will result in improper cooling that can lead to thermal damage.

Software Portfolio for HPE Apollo 80

Hewlett Packard Enterprise offers customers complete software stack so they can choose the right mix of software to fit their needs – from system software to application and software development tools

Operating systems

Red Hat Enterprise Linux 8

Fabric software

Mellanox UFM

System management

HPE Performance Cluster Manager – complete integrated cluster management software for all HPE HPC clusters offering: system setup, hardware monitoring and 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.

Standard Features

Workload Management

- Altair® PBS Professional
- Slurm Workload Manager

Software Development Tools (Programming languages, debuggers, libraries)

- HPE Cray Programming Environment
- GNU compiler suite
- Arm Allinea Studio
- Arm Forge Professional
- Rogue Wave Software® TotalView®
- Mellanox HPC-X

Service and Support

HPE Pointnext – Service and Support

Protect your business beyond warranty with HPE Pointnext 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.

Recommended HPE Pointnext Services for your Apollo 80

Operational Support Services are sold separately for the HPE Apollo 80 chassis and the compute nodes. It is recommended that the attached support level be the same for the HPE Apollo 80 chassis and the compute nodes installed into the chassis. The support service for the HPE Apollo 80 chassis only covers the chassis and the included options.

Optimized Recommendation

Foundation Care 24x7, five-year Support Service

This Service combines three years 24x7 coverage, four-hour hardware onsite response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, SUSE, etc.) running on your HPE servers.

https://www.hpe.com/h20195/v2/getdocument.aspx?docname=4AA5-3259ENW

Standard Recommendation

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 Hardware onsite response within four hours if needed and response to software related questions within two hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on supported software running on your HPE server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems. **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 next business day hardware onsite response if needed and response to software questions within two hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on supported software running on your HPE server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.

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

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HPE Installation and Startup Service

Provides for the installation of your HPE hardware according to product specifications including options. Installation and startup services also includes the installation of one supported operating system type (Linux)

Service and Support

Factory Express for servers and storage

HPE Factory Express offers configuration, customization, integration and deployment services for Hewlett Packard Enterprise 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.

For more information on Factory Express services for your specific server model please contact your sales representative.

Data Privacy Services

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. hpe.com/services/lifecycle event Additional can be found at**: http://www.hpe.com/services**

HPE Support Credits

Offer flexible services and technical skills to meet your 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 Support Center

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

For More Information

To learn more on services for Hewlett Packard Enterprise Apollo please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit: **http://www.hpe.com/services**

Warranty

This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise Pointnext 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.

Notes: Server Warranty includes 1-year Parts, 0-year Labor, 0-year on-site support with next business day response.

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.

Configuration Information

Step 1: Choose a Chassis

HPE Apollo 80 2U Configure-to-order Chassis with Rack Mount Rail Kit R6T95A

Notes: Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

Step 2: Choose Base configuration- Server Trays and Options

Server Trays

HPE Apollo 80 1U 2-node Blade A64FX 1.8GHz 48-core 32GB HBM M.2 Configure-to-order Server R6T87A

HPE Apollo 80 1U 2-node Blade A64FX 2.0GHz 48-core 32GB HBM M.2 Configure-to-order Server R6T88A

Notes: Up to 4 half-width 1U high blade can be added to the HPE Apollo 80 chassis.

HPE M.2 Solid State Drive

Micron 7300 MAX 400GB NVMe x4 Lanes Mixed Use M.2 SSD for HPE Apollo 80 R6T89A

Micron 7300 MAX 800GB NVMe x4 Lanes Mixed Use M.2 SSD for HPE Apollo 80 R6T90A

Micron 7300 PRO 480GB NVMe x4 Lanes Read Intensive M.2 SSD for HPE Apollo 80 R6T91A

Micron 7300 PRO 960GB NVMe x4 Lanes Read Intensive M.2 SSD for HPE Apollo 80 R6T92A

Additional Options

Power Supply

HPE Apollo 80 2200W Platinum Hot Plug Power Supply Kit R6T94A

Notes: Each HPE Apollo 80 chassis will include 3 PSUs.

Power Specifications

To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at URL at: **http://www.hpe.com/info/poweradvisor**

Technical Specifications

HPE Apollo 80 Chassis

Dimensions	Height	3.40 in (8.65 cm)
	Width	17.48 in (44.4 cm)
	Depth	31.50 in (80cm)
Shipping Dimensions	Height	31.96 in (81.2 cm)
	Width	37.80 in (96.0 cm)
	Depth	47.55 in (120.8 cm)
Chassis Weight	Empty	30.86 lb (14 kg)
Max Enclosure Weight	Approximate	88.18 lb (40 kg)
System Input requirements	AC input rating:	200 VAC to 240 VAC
	Rated Input current:	13.8A at 200 VAC 11.5A at 240 VAC
	Rated Input frequency:	50 Hz to 60 Hz
System Inlet Temperature	Standard Operating support	5°C ~ 35°C (41°F to 95°F)
Relative Humidity	Operating	20% to 80% - Relative humidity (Rh), non-condensing.
	Non-operating	8%-80% relative humidity (RH), non-condensing
Altitude	Operating	0~3000m (9842.5 ft).
	Non-operating	0~12000m (39370 ft).
Temperature Range	Operating	41° to 95° F (5° to 35° C)
	Non-Operating	32° to 122° F (0° to 50° C)

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
18-Jan-2021	Version 2	Changed	Overview, Standard Features and Service and Support sections were updated.
03-Aug-2020	Version 1	New	New QuickSpecs

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