

Overview

HPE GreenLake for File Storage MP

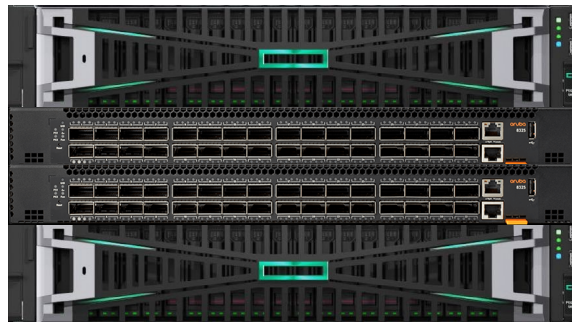
Data is the life-force of the modern enterprise—it powers the insights, innovation, and competitive advantage that move your business forward, faster. But to accelerate your data-first modernization, you need to eliminate the storage silos, scale-out limitations, application disruptions, and management complexity—across edge-to-cloud—that slow you down. HPE GreenLake for File Storage offers enterprise performance at scale to accelerate the most data-intensive applications with a resilient architecture designed to scale to exabyte capacities; a simpler, intuitive cloud operational experience with radically simple file data management and rich data services; more value from all your data with simple setup, a global namespace for collaboration, and faster time to Big Data and ML Insights for competitive advantage.

HPE GreenLake for File Storage solution consists of three major components,

- Disaggregated storage based on HPE Alletra Storage MP Common Storage Architecture - Compute, JBOF, and Switches
- Scale-out file services software running on HPE Alletra Storage MP platform
- HPE GreenLake Cloud Platform that allow the file service to be managed from a managed public cloud and services that provide call-home, remote support, and telemetry data collection services

What's new

- Performance-oriented, petabyte-scale unstructured data lakes
- Ultra-efficient all-NVME with inline similarity data reduction (de-deduplication and compression) even for previously compacted data
- Acceleration of Artificial Intelligence (AI), Machine Learning (ML) and Deep Learning (DL) training and inferencing in conjunction with the consolidation of other workloads
- End-to-end HPE GreenLake experience for unstructured file data management



(Includes HPE Alletra Storage MP Compute, HPE Alletra Storage MP JBOF, HPE Aruba Networking CX 8325 switches)

Standard Features

Enterprise performance at scale

- HPE GreenLake for File Storage is a next generation scale-out file storage system that is fast enough to meet the needs of the most demanding legacy and modern applications using a disaggregated-shared-everything (DASE) architecture.
 - The solution can scale to 100's of petabytes of effective capacity, without interrupting customer applications attached to the system. This eliminates the need to coordinate expansion around expensive maintenance windows.
 - The performance, and capacity can be scaled by adding modular compute, data, and storage fabric building blocks.
 - Highly resilient architecture designed for exabyte scale without degrading performance.
-

Built for Cloud

- HPE GreenLake for File Storage provides a superior cloud resident management for file share vending and lifecycle management via HPE GreenLake Cloud Platform
 - 100% cloud-managed infrastructure means you can globally monitor and manage your entire fleet of file storage from a single SaaS-based cloud console that's accessible from any location, on any device - so managing hundreds of systems across geographies is as simple as managing one.
 - A simplified common experience providing a single pane of glass across all HPE infrastructure.
 - Rich & granular metrics to monitor the Capacity usage & Performance at File share and File Server level.
 - Seamless upgrade experience through cloud-based software catalog
 - Remote telemetry and call home data management providing great pro-active support experience.
 - New data services instantly become available to you. Data plane software upgrades are non-disruptive and intelligently matched to a given system.
-

Productivity with faster time to insights

- HPE GreenLake for File Storage provides more granular insights across all the data in a single global namespace in real time providing competitive advantage to make business decisions faster.
 - Faster times to insights and discovery unlock more value from all your data for competitive advantage.
 - Increased productivity of data scientists and Line of Business (LOB) application owners with simple setup
 - Superior file data infrastructure delivers high ROI from capital investments by providing SMB and NFS multiprotocol support without performance penalties. In addition, new native SQL query language interface to the File system provides accelerated access to file meta-data which are an order of magnitude faster than a traditional NAS server.
-

Absolute Resiliency

- Consume HPE GreenLake for File Storage MP your way with a choice of capex/subscription or pay-per-use models.
 - N+4 erasure encoding allows for 4 simultaneous drive failures plus additional protection through intra-drive parity.
 - FIPS-certified encryption provides data at rest and over-the-wire protection. Secure data shredding is built in.
 - Native application-consistent snapshots and replication
 - Redundant, hot-swap components including controllers, power supplies, SSDs, and IO cards, that together deliver enterprise grade high-availability with 99.9999% (6-nines) of uptime.
-



Standard Features

| Key Specifications | |
|--|--|
| Base Chassis Shared between Compute and Data Enclosures | 2U |
| Number of IOMs per Chassis | 2 |
| Cores per IOM Compute/Data | 32 / 8 |
| Memory per IOM Compute/DATA | 256G / 64G |
| Host Ports per IOM (Compute) | 2 |
| Fabric Ports per IOM | 2 |
| NVMe SSDs per Chassis | 20 (w/ 4 slots dedicated to persistent SCM NVMe Drives) |
| Raw capacity | 2 switches: 307TB to 3388TB 10 switches: 15PB+ |
| Usable capacity | 2 switches: 220TB to 3007TB 10 switches: 13PB+ |
| Effective capacity | 2 switches 460TB to 6000+TB (Similarity reduction of 2:1 used for basic sizing) 10 switches 460TB to 26+PB (Similarity reduction of 2:1 used for basic sizing) |
| Max # of Enclosures (based on storage fabric configuration) | 2-switches – 14 10 switches, 4 leafs <ul style="list-style-type: none"> • 2 uplinks - 56 boxes, 7 Cboxes, 49 Dboxes • 4 uplinks - 52 boxes, 6 Cboxes, 46 Dboxes • 6 uplinks - 48 boxes, 6 Cboxes, 42 Dboxes • 8 Uplinks - 33 boxes, 7 Cboxes, 26 Dboxes |
| Drive | 7.68/15.36/30.72 TB NVMe SFF SSD |
| Host Connectivity | 10/25/40/100 Gb Ethernet |

Host Client Connectivity - NFS, SMB clients

Microsoft® Windows® Server and Microsoft® Hyper-V™ | VMware ESX and ESXi | Red Hat® Enterprise Linux® | SUSE® Linux Enterprise Server (SLES)

For the latest information refer to Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK):

<http://www.hpe.com/storage/spock>



Service and Support

Warranty

HPE GreenLake for File Storage has 1 year, parts only warranty. The warranty on all HPE GreenLake for File Storage Solid State Drives (SSD) is 1 year, parts only, and offers unconditional replacement in case of drive failure, media wear-out, or both. Hewlett Packard Enterprise warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery. For more information about Hewlett Packard Enterprise's Global Limited Warranty and Technical Support, visit:

<http://www.hpe.com/storage/warranty>

Notes:

- For hardware warranty claims, defective part must be received before replacement parts are shipped
- Warranty is provided by HPE GreenLake for File Storage MP
- Link to [HPE Global Limited Warranty and Technical Support](#)

Service and Support

Support is required for all HPE GreenLake for File Storage MP. Support SKUs provide up to five years of 24x7 telephone support for the arrays and hardware components (Including SSDs reaching the write wear limit).

HPE Services Tech Care is the operational service experience that goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance. HPE Services Tech Care has been reimagined from the ground up to support a customer-centric, AI-driven, and digitally enabled customer experience to move your business forward.

Additional recommended HPE Services to help you accelerate your business outcomes:

- HPE Edge-to-Cloud Transformation Maturity (workshop)
- HPE Service Credits
- HPE Storage Networking
- HPE Accelerated Migration
- HPE Asset Upcycling
- HPE Data Migration Services
- HPE Data Sanitization Service
- HPE Security Risk and Compliance

Notes: Support contract is mandatory for all HPE GreenLake for File Storage MP products

Data Services Support with HPE GreenLake for File Storage MP

A valid subscription enables the following enterprise-level support:

- 24x7 telephone support for all entitled services available through HPE Data Services
- Direct connection to expert-level support within minutes
- Guidance through troubleshooting and configuration of available services and interoperability within your cloud and/or on-premises environment.

For a summary of HPE GreenLake for File Storage MP service and support features, see the following Tech Care addendum:

<https://www.hpe.com/psnow/doc/a50003571enw>

Proactive Support Manager Services

For any organization with a sizeable deployment of HPE GreenLake for File Storage MP or business-critical use cases, the assigned HPE Proactive Support Manager (HPE PSM) Service can be enlisted to provide management and support services that are tailored to fit the exact needs of the organization. The world-class HPE PSM team includes some of the most experienced and reliable storage experts in the industry.

HPE PSM services are strongly recommended for your HPE GreenLake for File Storage MP product and experience. For a summary of the PSM benefits, see the following data sheet: <https://www.hpe.com/psnow/doc/a00030176enw>



Service and Support

HPE Services Tech Care

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward.

HPE Services Tech Care is available with the following service level options for HPE GreenLake for File Storage MP:

- Essential, which provides 24x7 onsite parts exchange

Regardless of the service level, customers have direct access to Level 3 HPE GreenLake for File Storage MP support engineers by telephone 24x7.

<https://www.hpe.com/us/en/services/tech-care.html>

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:

<https://www.hpe.com/services/lifecycle>

For a list of the most frequently purchased services using service credits, see the [HPE Service Credits Menu](#)

Installation Services

Installation Services are intended to guide you from start to finish and to help make your installation a success. This installation service is mandatory and the installation engagement includes:

- Inventory and verify HPE GreenLake for File Storage MP equipment against the sales order and site preparation survey conducted by the pre-sales team.
- Physically rack and cable all HPE GreenLake for File Storage MP equipment, including connecting network cables provided by the customer.
- Conduct power-on tests and verify operation.
- Add the storage and compute to an existing HPE GreenLake for File Storage MP
- Configure basic management, monitoring, & reporting capabilities
- Configure for additional data networks / SAN connectivity as needed
- Installation services are required for all components of HPE GreenLake for File Storage MP products.

HPE Alletra Storage MP Compute Chassis HW install svc - HA124A1#V1E

Provides hardware installation of a new HPE Alletra Storage MP Compute chassis. Quote this service when you want onsite assistance in setting up a new HPE Alletra Storage MP compute chassis for hardware racking into an approved rack.



Service and Support

HPE Alletra Storage MP JBOF HW install svc HA124A1#V1F

Provides on-site hardware installation only of a new HPE Alletra Storage MP JBOF shelf. This service should be quoted for customers who want assistance with the heavy lifting and hardware racking.

HPE Aruba Networking CX 8325 Install and startup svc – HA124A1#V1C

On-site installation and configuration of a HPE Aruba Networking CX 8325 switch. This service is designed specifically for the racking, cabling, and configuration of the HPE Aruba Networking switch when used as part of the HPE GreenLake File Storage MP solution.

HPE GreenLake for File Storage SW install svc – HA124A1#V1D

Provides the on-site software installation of the HPE GreenLake File Storage MP software stack and will deploy the software onto a HPE Alletra Storage MP Compute Chassis containing two IOMs or HPE Alletra Storage MP JBOF chassis.

Notes: All Installation services are required for all HPE GreenLake for File Storage MP products.

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.

<https://www.hpe.com/services/training>

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE 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 QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at <https://ssc.hpe.com/portal/site/ssc/>

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.

<https://support.hpe.com/hpesc/public/home/signin>



Service and Support

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"

<https://www.hpe.com/us/en/contact-hpe.html>

For more information

<http://www.hpe.com/services>



Configuration Information

Step 1 - Choose a Base/Upgrade configuration

HPE GreenLake for File Storage MP comes in a cluster configuration comprising of

- HPE Alletra Storage MP 2U Compute Chassis (1 or more)
- HPE Alletra Storage MP JBOF (1 or more)
- HPE Aruba Networking Switch (QTY: 2, R9F67A)

Only ONE of the following options can be selected:

| Description | SKU |
|---|--------|
| HPE GreenLake for File Storage MP Base Configuration | S1F24A |
| HPE GreenLake for File Storage MP Upgrade Configuration | S1F25A |

Step 2 – Choose Compute chassis

| Description | SKU |
|-----------------------------------|--------|
| HPE Alletra Storage MP 2U Chassis | R7C75A |

Following compute nodes will be dynamically added based on above chassis quantity selection.

| | |
|--|--------|
| HPE GreenLake for File Storage MP 32c 256GB Compute Node | S1F26A |
|--|--------|

Notes:

- By default, 2x compute nodes are included with QTY 1 x HPE Alletra Storage MP 2U Chassis (R7C75A)
- QTY 2 x power supplies are included for each chassis
- QTY 2 x 100GbE 2-port Host bus adapters (R7C84A) per Node (4 per chassis) are included.
- Change to InfiniBand adapter (S2H33A) if one wants to use InfiniBand connectivity at host side.

Step 3 – Choose Drive Enclosure

| Description | SKU |
|---|--------|
| HPE Alletra Storage MP NVMe Configure-to-order File Expansion Shelf | S1R27A |

Two IOM nodes will be dynamically added based on above expansion shelf quantity selection.

| | |
|--|--------|
| HPE Alletra Storage MP NVMe Expansion Shelf Node | R7C79A |
|--|--------|

Notes: QTY 2 x power supplies are included for each enclosure

Step 4 – Choose NVMe SFF Drives

Choose one of the following,

| Description | SKU |
|---|--------|
| HPE Alletra Storage MP 7.68TB NVMe SFF FIPS Encrypted SSD | R9H72A |
| HPE Alletra Storage MP 15.36TB NVMe SFF FIPS Encrypted SSD | R9H73A |
| HPE Alletra Storage MP 30.72TB NVMe SFF Self-encrypting SSD | S1Z68A |

The following persistent SCM drives are dynamically added based on above NVMe SFF type selection.

| | |
|--|--------|
| HPE Alletra Storage MP 800GB NVMe SFF Storage Class Memory SSD | S1E89A |
| HPE Alletra Storage MP 1.6TB NVMe SFF Storage Class Memory SSD | S1E90A |

Notes:

- Proper number of drives for the drive enclosure is automatically populated
- Proper type and number of persistent SCM drives are automatically populated (4 for 7.68, 15.36 TB and 6 for 30.72TB drives)



Configuration Information

Step 5 – Add Switch and Switching Cables

The length of the cables should be selected based on the how the system is racked at the customer site. The default cables are based on best practices and large systems deployed in adjacent racks.

| Description | SKU |
|--|--------|
| HPE Alletra Storage MP 32-port 100GbE Switch Bundle | S1R08A |
| HPE Aruba Networking 100G QSFP28 to QSFP28 2m Active Optical Cable | R9F76A |
| HPE Aruba Networking 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable | R9F77A |
| HPE Aruba Networking 100G QSFP28 to QSFP28 7m Active Optical Cable | R9F79A |
| HPE Aruba Networking 100G QSFP28 to QSFP28 15m Active Optical Cable | R9F80A |
| HPE Aruba Networking 100G QSFP28 to QSFP28 30m Active Optical Cable | R9F81A |

Notes:

- Be default, QTY 2 of the switch is included
- Required switch cables are defaulted, users can select between 2m (default), 7m, 15m and 30m AOC cables
- QTY 1 of Switch rail kit (SOA95A) is included

Step 6 –Verify Software Subscription

Software license for file comes with 3, 4 or 5 yr terms and can be renewed annually post the stipulated time. By default, 5-yrs is added and one can change this to 3-yrs or 4-yrs subscription.

| Description | SKU |
|---|----------|
| HPE GreenLake for File Storage MP per TB Software and Support 3-year SaaS | S1F47AAE |
| HPE GreenLake for File Storage MP per TB Software and Support 4-year SaaS | S2S65AAE |
| HPE GreenLake for File Storage MP per TB Software and Support 5-year SaaS | S1F48AAE |
| HPE GreenLake for File Storage MP Upgrade 3-year per TB Software and Support SaaS | S1P08AAE |
| HPE GreenLake for File Storage MP Upgrade per TB Software and Support 4-year SaaS | S2S68AAE |
| HPE GreenLake for File Storage MP Upgrade 5-year per TB Software and Support SaaS | S1P09AAE |
| HPE GreenLake for File Storage MP Renewal 1-year per TB Software and Support SaaS | S1P10AAE |

Notes: 1, 6, 7-year terms are available on need basis

Step 7 – Add/Remove Premium PSM Support

By default, a 1-yr Premium PSM subscription is included by the OCA Configurator which is optional and can be removed. This service provides the customer with a named service account manager.

| Description | SKU |
|--|---------|
| HPE Tier 1 Storage Arr 1Y PSM Tier A SVC | HT6Z6A1 |

Step 8 – Adjust Support

Support is required and will default to a 5yr subscription. This value can be overridden with a 3 year subscription. Currently the only options for support are 3 and 5 years any other selections will generate Unbuildable errors and cannot be quoted. A 1year subscription can be applied for renewals. Options exist for data media retention services (DMR) or comprehensive data media retention services (CDMR) that allow the customer to retain failed media drives.

| Description | SKU |
|--------------------------------------|-----------|
| HPE Tech Care Essential Exchange SVC | HU4A9A3/5 |



Configuration Information

Description

| | SKU |
|---|------------|
| HPE Tech Care Essential Exchange w/DMR SVC | HU4B0A3/5 |
| HPE Tech Care Essential Exchange w/CDMR SVC | HU4B1A3/5 |
| HPE Tech Care Essential SVC | HU4A6A3/5 |
| HPE Tech Care Essential w/DMR SVC | HU4A7A3/5 |
| HPE Tech Care Essential w/CDMR SVC | HU4A8A3/5 |
| HPE Complete Care Addon Essential SVC | HU4D5A3/5 |
| HPE Complete Care Addon Essential wDMR SVC | HU4D6A3/5 |
| HPE Complete Care Addon Essential wCDMR SV | HU4D7A3/5 |

Notes: Minimum support required 3-year HPE Tech Care Essentials

Step 9– Add Installation Service (Mandatory)

The GreenLake for File Storage requires Profession Installation Services. Removing these services will result in unbuildable errors. The quantity of each service is calculated automatically based on your configuration.

Description

| | SKU |
|---|-------------|
| HPE Alletra Storage MP Compute Chassis HW install svc | HA124A1#V1E |
| HPE Alletra Storage MP JBOF HW install svc | HA124A1#V1F |
| HPE Aruba 8325 Install and startup svc | HA124A1#V1C |
| HPE Greenlake for File Storage SW install svc | HA124A1#V1D |

Host Connectivity

Other than RJ45 Management cables how your File Storage system connects to the customers host network is not directly available in the OCA configure to order system. They can be added to an OCA order using the “Add Product” (ad-hoc or ad-hoc container) mechanism.

Host (Front-End) Data Network Switches

Generally, the Customer specifies the Host Network and should specify the type of switch as part of the site survey. In situations where the customer requires help on deploying a host network or top-of-rack switches to connect into the customers host network then professional services contract to design this solution is recommended. These components will require their own support agreements as they are not considered to be part of your File Storage solution but can be added to your OCA order using the “Add Product” feature within OCA. The following table enumerates HPE branded solutions that are compatible. A strong recommendation is made to use 100G switches to achieve the maximum performance from your File Storage Solution,

Description

| | SKU |
|--|------------|
| HPE Aruba Networking 8325-48Y8C Power-to-Port Airflow 6 Fans 2 Power Supply Units Bundle | R9F65A |
| HPE Aruba Networking 8325-32C Port-to-Power Airflow 6 Fans 2 Power Supply Units Bundle | R9F66A |
| HPE Aruba Networking 8325-32C Power-to-Port Airflow 6 Fans 2 Power Supply Units Bundle | R9F67A |
| HPE SN2010M 25GbE 18SFP28 4QSFP28 Power to Connector Airflow Half Width Switch | Q9E63A |
| HPE SN2100M 100GbE 8QSFP28 Power to Connector Airflow Half Width Switch | Q2F24A |
| HPE SN2100M 100GbE 16QSFP28 Power to Connector Airflow Half Width Switch | Q2F23A |
| HPE SN2410M 25GbE 24SFP28 4QSFP28 Power to Connector Airflow Switch | Q6M27A |
| HPE SN2410M 25GbE 48SFP28 8QSFP28 Power to Connector Airflow Switch | Q2F22A |

Configuration Information

Description

| | SKU |
|---|------------|
| HPE SN3700cM 100GbE 32QSFP28 Power to Connector Airflow Switch | R3B14A |
| HPE SN3700M 200GbE 32QSFP56 Power to Connector Airflow Switch | R5Z74A |
| HPE SN4600cM 100GbE 64QSFP28 Power to Connector Airflow Switch | R6R24A |
| Mellanox InfiniBand HDR 40-port QSFP56 Managed Back to Front Airflow Switch | P06249-B21 |
| Mellanox InfiniBand HDR 40-port QSFP56 Unmanaged Back to Front Airflow Switch | P10774-B21 |
| NVIDIA InfiniBand NDR 64-port OSFP Managed Power to Connector Airflow Switch | P45692-B21 |
| NVIDIA InfiniBand NDR 64-port OSFP Power to Connector Airflow Switch | P45691-B21 |

Notes:

- Each Compute Chassis has 4 ports for host network connectivity, generally these should be 100G links, but they can negotiate to 10/25/40G/50G.
- Performance information is based on 4-100G connections. Using less ports or lower bandwidth connections may impact availability during host network failures and/or maximum performance. The performance can be balanced by adding more Compute Chassis'. A 100G TOR Aggregation Switch is recommended over connecting to 10/25/40/50G host networks.

Host (Front-end) Management Switches (Optional)

List the Host Data Network the customer often specifies the management network, If necessary, HPE Aruba Networking 2930F is an ideal switch for TOR connectivity. Additionally, CAT5 RJ45 cables can be quoted.

Description

| | SKU |
|--|------------|
| HPE Aruba Networking 2930F 48G PoE+ 4SFP+ Switch | JL256A |
| HPE RJ45 to RJ45 Cat5e Black M/M 7.6ft 1-pack Data Cable | C7535A |
| HPE 4.3m/14ft CAT5 RJ45 M/M Ethernet Cable | C7536A |
| HPE 7.6m/25ft CAT5 RJ45 M/M Ethernet Cable | C7537A |
| HPE 15.2m/50ft CAT5 RJ45 M/M Ethernet Cable | C7542A |

Notes:

- Each Cbox (Enclosure) has 4-1Gb Management Ports (2-ILO ports)
- Each Dbox (JBOF) has 4-1Gb Management Ports (2-ILO Ports)
- Each 8325 Switch has 1-1Gb Management Port
- Please use ad-hoc or ad-hoc container options in OCA to configure front-end management switches and cables. Front-end connectivity section will be added in the config sooner.

Host (Front-end) Connectivity Options (Optional)

Your GreenLake File Storage server always connects to the Host Data Network via 1-4 data ports exposed on each compute chassis via a pair of Ethernet Adapters (R7C84A) or InfiniBand Adapters (S2H33A).

Ethernet:

There are three ways to connect Ethernet adapter (R7C84A) to host side ethernet connectivity,

1. Optical transceivers w/ LC OM4 cables
2. Direct Attach Copper (DAC) cables
3. Active Optical cables (AOC)

If connecting at 10Gb (SFP+) or 25Gb (SFP28) you will require QSFP adapter (845970-B21). This adapter is required whether you are connecting fiber optics or DAC or AOC cables.



Configuration Information

QSFP to SFP Adapter

Description

HPE QSFP28 to SFP28 Adapter

SKU

845970-B21

Notes: QSFP28 to SFP28 adapters are required for connecting 10Gb SFP+ or 25Gb SFP28 transceivers to the CX6-DX HBA Adapter.

1. Optical Transceivers and Fiber Cables:

Short Range Transceivers with the combination of LC/LC or MPO/MPO or SMF cables can be used to connect the CX6-DX adapter to the host network. Additionally, QSFP28 to SF28 adapter (845970-B21) is required for connecting 10G/25G SFP (+, 28) to CX6-DX HBA adapter. Long Range Transceivers are used to connect to host networks that live in a remote data center. This is impractical due to number of these cables required.

Short Range Transceivers

Description

HPE 10GbE SFP+ SR Multi-mode 300m Transceiver

Q6M30A

HPE Aruba Networking 25G SFP28 LC SR 100m MMF Transceiver

JL484A

HPE Networking X140 40G QSFP+ MPO SR4 Transceiver

JG325B

HPE 100GbE QSFP28 SR4 100m Transceiver

Q2F19A

OM4 Cables

LC/LC cables are required for connecting 10Gb/25Gb transceivers, additionally QSFP28 to SF28 adapter (845970-B21) is required for connecting 10G/25G SFP (+, 28) to CX6-DX HBA adapter.

HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 1m Cable

QK732A

HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 2m Cable

QK733A

HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 5m Cable

QK734A

HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 15m Cable

QK735A

HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 30m Cable

QK736A

HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 50m Cable

QK737A

MPO Cables

MPO/MPO cables are required for connecting 40Gb/100Gb transceivers

HPE Premier Flex MPO/MPO OM4 100m Cable

H6Z30A

HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 1m Cable

Q1H63A

HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 2m Cable

Q1H64A

HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 5m Cable

Q1H65A

HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 15m Cable

Q1H66A

HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 30m Cable

Q1H67A

Long Range Transceivers

HPE Aruba Networking 10G SFP+ LC LR 10km SMF Transceiver

J9151E

HPE Aruba Networking 25G SFP28 LC LR 10km SMF Transceiver

JL486A

HPE Networking X142 40G QSFP+ LC LR4 SM Transceiver

JH232A

HPE Aruba Networking 100G QSFP28 LC LR4 10km SMF 2-strand Transceiver

JL310A



Configuration Information

SMF Cables

Single Mode cables are required for Long Range SMF transceivers

Description

HPE 5m Single-Mode LC/LC Fibre Channel Cable

SKU

AK346A

2. DAC Cables

Description

HPE Networking X240 10G SFP+ SFP+ 3m DAC Cable

JD097C

HPE Networking X240 10G SFP+ SFP+ 5m DAC Cable

JG081C

HPE Aruba Networking 10G SFP+ to SFP+ 3m Direct Attach Copper Cable

J9283D

HPE Aruba Networking 10G SFP+ to SFP+ 7m Direct Attach Copper Cable

J9285D

HPE 25Gb SFP28 to SFP28 3m Direct Attach Copper Cable

844477-B21

HPE 25Gb SFP28 to SFP28 5m Direct Attach Copper Cable

844480-B21

HPE Aruba Networking 40G QSFP+ to QSFP+ 3m Direct Attach Copper Cable

R9G00A

HPE Aruba Networking 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable

R9G01A

HPE Networking X240 100G QSFP28 3m DAC Cable

JL272A

HPE Networking X240 100G QSFP28 5m DAC Cable

JL273A

Notes: QSFP28 to SFP28 (845970-B21) adapters are required for connecting DAC cables to the CX6-DX HBA Adapter.

3. AOC Cables

Description

HPE Networking X2A0 10G SFP+ to SFP+ 7m Active Optical Cable

JL290A

HPE Networking X2A0 10G SFP+ to SFP+ 10m Active Optical Cable

JL291A

HPE Aruba Networking 25G SFP28 to SFP28 3m Active Optical Cable

R9F94A

HPE Aruba Networking 25G SFP28 to SFP28 7m Active Optical Cable

R9F95A

HPE Aruba Networking 25G SFP28 to SFP28 15m Active Optical Cable

R9F96A

HPE Aruba Networking 40G QSFP+ to QSFP+ 7m Active Optical Cable

R9G03A

HPE Aruba Networking 40G QSFP+ to QSFP+ 7m Active Optical Cable

R9G03A

HPE Aruba Networking 40G QSFP+ to QSFP+ 7m Active Optical Cable

R9G03A

HPE Aruba Networking 100G QSFP28 to QSFP28 2m Active Optical Cable

R9F76A

HPE Aruba Networking 100G QSFP28 to QSFP28 7m Active Optical Cable

R9F79A

HPE Aruba Networking 100G QSFP28 to QSFP28 15m Active Optical Cable

R9F80A

HPE Aruba Networking 100G QSFP28 to QSFP28 30m Active Optical Cable

R9F81A



Configuration Information

InfiniBand

Cables that are required to connect InfiniBand adapters (S2H33A) to host side IB connectivity are as follows:

| HDR | Description | SKU |
|-----|--|------------|
| | HPE InfiniBand HDR/Ethernet 200Gb QSFP56 to QSFP56 3m Active Optical Cable | P06153-B21 |
| | HPE InfiniBand HDR/Ethernet 200Gb QSFP56 to QSFP56 5m Active Optical Cable | P06153-B22 |
| | HPE InfiniBand HDR/Ethernet 200Gb QSFP56 to QSFP56 10m Active Optical Cable | P06153-B23 |
| | HPE InfiniBand HDR 200Gb to HDR100/Ethernet 2x100Gb QSFP56 to 2xQSFP56 3m AO Splitter Cable | P26659-B21 |
| | HPE InfiniBand HDR 200Gb to HDR100/Ethernet 2x100Gb QSFP56 to 2xQSFP56 5m AO Splitter Cable | P26659-B22 |
| | HPE InfiniBand HDR 200Gb to HDR100/Ethernet 2x100Gb QSFP56 to 2xQSFP56 10m AO Splitter Cable | P26659-B23 |
| | HPE InfiniBand HDR/Ethernet 200Gb QSFP56 to QSFP56 2m Direct Attach Copper Cable | P06149-B24 |
| | HPE InfiniBand HDR/Ethernet 200Gb QSFP56 to 2xQSFP56 2m Splitter Direct Attach Copper Cable | P06248-B23 |

NDR

| | |
|--|------------|
| HPE InfiniBand HDR/Ethernet OSFP to 2xQSFP56 10m Splitter Active Optical Cable | P45733-B21 |
|--|------------|

Notes:

- QSFP28 to SFP28 (845970-B21) adapters are required for connecting AOC cables to the CX6-DX HBA Adapter.
- Final selection for host connectivity options is downstream via formal site surveys between the solution architects and customers.
- Break-out cables are not supported by HBA adapters included with the solution
- Adapters included can autosense to 10, 25, 40, and 100G based on the transceivers and/or DAC and/or AOC cables that are connected
- All QSFP (+,28,56) can plug directly to the front end HBA. All SFP (+,28) will need the QSFP to SFP adapter. To ensure safe and reliable operation there are unique environmental requirements that restrict the maximum ambient inlet temperature to the Cboxes connected to the front-end InfiniBand Switches with optical cables. The maximum ambient restrictions vary depending on the AOC cables selected.
 - 200G QSFP56 AOC Cables (4.5W maximum): +25C maximum ambient inlet temperature
 - 100G QSFP Splitter Cables (3.5W maximum): +30C maximum ambient inlet temperature
- Performance information is based on 100G connections, if using lower speed connectivity, performance will be limited to port speed and count.
- Please use ad-hoc or ad-hoc container options in OCA to configure front-end management switches and cables. Front-end connectivity section will be added in the config sooner.



Technical Specifications

HPE Alletra Storage MP Specifications

| Component | Dimensions Height/Width/Depth | Weight | Packaged Weight | Max Power | Idle Power | Max Heat | Idle Heat |
|---|---|-----------------------|-----------------------|--------------|---------------|----------------|----------------|
| Compute (32c IOM, 256GB, Milan CPU) (Without drives) | 3.44"/19.13"/33.50" (87.5mm/486mm/851mm) | 71.0 Lbs (32.3 Kg) | 75.0 Lbs (34.1 Kg) | 1195W | 812W | 4077 BTU/Hr | 2770 BTU/Hr |
| JBOF (24 Drives, 20 NVME-7.68TB, 4 SCM-800) | 3.44"/19.13"/33.50" (87.5mm/486mm/851mm) | 85.0 Lbs (38.6 Kg) | 89.0 Lbs (40.5 Kg) | 1174W | 783W | 4005 BTU/Hr | 2671 BTU/Hr |
| JBOF (24 Drives, 20 NVME-15.36TB, 4 SCM-800) | 3.44"/19.13"/33.50" (87.5mm/486mm/851mm) | 85.0 Lbs (38.6 Kg) | 89.0 Lbs (40.5 Kg) | 1196W | 788W | 4080 BTU/Hr | 2688 BTU/Hr |
| JBOF (24 Drives, 18 NVME-30.72TB, 6 SCM-800) | 3.44"/19.13"/33.50" (87.5mm/486mm/851mm) | 85.0 Lbs (38.6 Kg) | 89.0 Lbs (40.5 Kg) | 1212W | 798W | 4135 BTU/Hr | 2722 BTU/Hr |
| HPE Aruba Networking CX 8325-32C | 1.73"/17.42"/18.62" (44.0mm/443mm/473mm) | 24.0 Lbs (10.9 Kg) | 27.0 Lbs (12.3 Kg) | 618W | 143W | 2108 BTU/Hr | 487 BTU/Hr |

Power Requirements

Input Voltage - AC Power Supply

- HPE Alletra Storage MP Base: 200 to 240 VAC (50 to 60 Hz)

Notes: Refer to the [HPE Power Advisor online tool](#) for power consumption, heat loading, and circuit sizing information: [HPE Power Advisor utility](#)

Environmental Specifications

| | | |
|---------------------------------------|---|----------------------|
| Operating Temperature | 41° to 95° F (5° to 35° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m) Maximum ambient inlet temperature to the Cboxes connected to the front-end InfiniBand Switches with optical cables <ul style="list-style-type: none"> 200G QSFP56 AOC Cables (4.5W maximum): +25C maximum ambient inlet temperature 100G QSFP Splitter Cables (3.5W maximum): +30C maximum ambient inlet temperature | |
| Shipping Temperature | -30° to 60°C (-22 to 140°F). Maximum rate of change is 20°C/hr (36°F/hr) | |
| Operating Altitude (ft/m) max. | 10,000 ft / 3,048 m | |
| Shipping Altitude (ft/m) max. | 40,000ft / 12,192 m | |
| Humidity | 10% to 90% non-condensing | |
| Shipping Humidity | 10% to 90% non-condensing | |
| Operating Vibration | 0.25 G, Sine, 5-500 Hz; 0.25 GRMS, Random 5-500 Hz | |
| Non-operating Vibration | 0.75 G, Sine, 5-500 Hz | |
| Operating Shock | 5G, 11ms, half-sine | |
| Non-operating Shock | 10 G, 11ms, half-sine | |
| Maximum Exhaust Air Flow | HPE Alletra Storage MP Base: 267 CFM | |
| Acoustic Sound Pressure Level* | Typical 60% Duty Cycle Fans | 100% Duty Cycle Fans |
| HPE Alletra Storage MP Base | 95.8 dB | 105.6 dB |

*Acoustics Sound pressure level measured per ISO 7779 specifications



Technical Specifications

Electromagnetic Compatibility

- CISPR 32:2015/ EN 55032: 2015 +A11:2020 Class A
- BS EN 55032:2015 +A11:2020
- CISPR 35:2016/ EN 55035:2017 +A11:2020
- BS EN 55035:2017 +A11:2020
- IEN 61000-3-2: 2019 +A1:2021
- EN 61000-3-3: 2013 +A2:2021
- AS/NZS CISPR 32:2015 +A1:2020 Class A
- CNS 13438:2006 Class A
- 47 CFR Part 15 Subpart b Class A
- ICES-003 Issue 7 Class A
- VCCI-CISPR 32: 2016 Class A
- RRA Notice No. 2021-3 (2021.02.08) Class A
- RRA Notice No. 2021-10 (2021.02.08)

Safety

- IEC 60950-1:2005 (2nd Edition); +A1:2009 +A2:2013
- EN 62479:2010
- IEC 62368-1: 2014/ IEC 62368-1:2018
- EN 62368-1:2014+A11:2017/ EN 62368-1:2020 +A11:2020
- CNS 14336-1
- ANSI/UL 62368-1:2021
- CAN/CSA-C22.2 No. 62368-1:19 Update No. 1-2021

Certifications/Markings

- BIS
- BSMI
- cCSAus
- CE
- FCC Class A
- IC Class A
- KCC
- Morocco
- RCM
- VCCI
- WEEE
- China RoHS
- EU RoHS
- UKCA



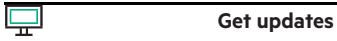
Summary of Changes

| Date | Version History | Action | Description of Change |
|-------------|-----------------|---------|--|
| 19-Feb-2024 | Version 10 | Changed | Services and Support, Configuration Information and Technical Specifications sections were updated. Added InfiniBand cables and updated environmental specifications. |
| 08-Jan-2024 | Version 9 | Changed | Configuration Information section was updated. Added InfiniBand adapter and host connectivity options |
| 13-Nov-2023 | Version 8 | Changed | HPE Services Rebranding |
| 06-Nov-2023 | Version 7 | Changed | Configuration Information section was updated |
| 02-Oct-2023 | Version 6 | Changed | Standard Features and Configuration Information sections were updated |
| 07-Aug-2023 | Version 5 | Changed | Configuration Information and Technical Specifications sections were updated Updated Switch SKU and certifications |
| 19-Jun-2023 | Version 4 | Changed | Configuration Information and Technical Specifications sections were updated Updated front end connectivity options |
| 05-Jun-2023 | Version 3 | Changed | Standard Features, Configuration Information and Technical Specifications sections were updated Added front end connectivity options |
| 17-Apr-2023 | Version 2 | Changed | Standard Features, Service and Support, Configuration Information and Technical Specifications sections were updated |
| 04-03-2023 | Version 1 | New | New QuickSpecs |



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