Overview

HPE GreenLake for Block Storage MP

HPE GreenLake for Block Storage brings mission-critical storage to the mid-range – delivering enterprise-class resiliency, performance, and scalability at an affordable price. Powered by the new HPE Alletra Storage MP hardware platform, HPE GreenLake for Block Storage is the industry's first disaggregated, scale-out block storage with 100% availability guaranteed. Get an intuitive, AI-driven cloud experience on-prem that simplifies management and shifts operations from infrastructure-centric to app-centric. Empower line of business with intelligent, self-service provisioning while managing and protecting workloads across your hybrid cloud from a single cloud console. Scale performance and capacity independently — and without disruption — with disaggregated storage. Meet every SLA with mission-critical storage that delivers an unrivalled 100% data availability guarantee. Accelerate your most demanding apps with consistently fast performance and ultra-low latency — even at scale.



HPE GreenLake for Block Storage
(2-Node all NVMe Storage Base)

What is new

- Transform from LUN-centric to AI-driven, app centric storage provisioning. No storage expertise required, and no more guesswork.
- Unified cloud management enables you to globally manage and monitor your entire fleet of block storage from a single SaaS-based cloud console that's accessible from any location, on any device.
- Designed for extreme availability requirements with 100% availability guaranteed as a standard benefit without requiring a special contract.
- Accelerate mission-critical apps with all-NVMe mission-critical storage delivering predictable high-performance, and ultra-low latency.
- Say goodbye to endless firefighting thanks to industry-leading AI Ops for infrastructure that drives autonomous operations and helps ensure your apps are always on and always fast.

Standard Features

Hardware

- HPE GreenLake for Block Storage is powered by the new HPE Alletra Storage MP with Two-Node all NVMe storage controllers in a 2U chassis.

Simplify management with an intuitive cloud experience on prem

- **Simplify operations and move faster with a cloud operational experience:** Reduce on-premises storage complexity across the lifecycle— from install to upgrade — with an AI-driven cloud operational experience powered by the HPE GreenLake Edge to Cloud Platform.
- **Simplified deployment:** Get started in minutes with streamlined device deployment. Simply rack the infrastructure, plug in the power cords, and connect the network cables. With a few clicks, the new system is configured and available in your fleet, ready to serve data for application workloads.
- **Deploy apps faster:** Automate app deployment with intent-based provisioning. Select the storage tier, workload type, capacity, and protection policy, and let AI-driven intelligence automatically optimize your SLAs by recommending the best-suited system across your fleet for your new workload.
- **Unified storage management:** 100% cloud-managed infrastructure means you can manage, monitor, and protect your global storage environment from a single cloud console that's accessible from any location, on any device - so managing hundreds of systems across geographies is as simple as managing one.
- **Invisible upgrades:** Thanks to SaaS-based delivery, new data services instantly become available to you. Data plane software upgrades are non-disruptive and intelligently matched to a given system.

Run any app – without compromise with a 100% data availability guarantee

- **Get peace of mind with 100% data availability guaranteed:** Built on an AI-driven, disaggregated, no single point of failure platform to guarantee resilient 100% data availability for your mission-critical apps.
- **Advanced DR and HA**: Meet any recovery-point objective (RPO) and recovery-time objective (RTO) strategy with transparent business continuity and automatic fail-over across multiple sites, as well as getting simple and efficient hybrid cloud data protection for on-prem and cloud native workloads.
- **Accelerate your most demanding applications:** Built on a unique, massively parallel, multi-node, and all-active platform, HPE GreenLake for Block Storage MP consolidates traditional and next-generation mission-critical applications at scale with predictable performance and ultra-low latency.
- **Industry's most advanced AI-Ops:** Predict and prevent disruptions before they occur across the stack and pinpoint issues between storage and VMs and under-utilized resources. Take the guesswork out of managing data infrastructure with AI-driven recommendations that improves performance, drives higher availability, and optimizes resource utilization and planning.
- **Transformed support experience:** Eliminate time-consuming, frustrating escalations via predictive support automation and direct access to the experts and resources you need.

HPE Alletra Storage MP				
	8-core	**16-core**	**32-core**	**JBOF**
Base Chassis	2U	2U	2U	2U
Number of Nodes	2	2	2	2
CPUs per Node	1	1	1	1
Memory per Node	256 GB	256 GB	512 GB	128 GB
Maximum Number of slots per Node[1]	4	4	4	2
Maximum Host Ports per Node	8-ports	8-ports	8-ports	N/A
Fibre Channel Host Ports per Node	0 - 8 ports	0 - 8 ports	0 - 8 ports	N/A
iSCSI Host Ports per Node	0-2 ports	0-2 ports	0-2 ports	N/A

Standard Features

Max Number of NVMe SSDs per Chassis	24	24	24	24
Max Raw Capacity per Chassis	368 TB / 328.5TiB	368 TB / 328.5 TiB	368 TB / 328.5 TiB	368 TB / 328.5 TiB
Max Effective Capacity[2] per Chassis	1099TB / 1000TiB	1099TB/1000TiB	1099TB/1000TiB	1099TB/1000TiB

Notes:

- [1] Slot 3 and Slot 4 can be used for host connectivity (at least one is required), and RCIP is optional; Slot 1 and Slot 2 are used for expansion
- [2] Effective capacity assumes 4:1 data compaction ratio (thin provisioning, deduplication, compression, and copy technologies) in a RAID 6 (10+2) configuration. Note TB vs TiB. Actual ratios will vary based on workload. See HPE Store More Guarantee for more information.

Host OS Support

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

Host OS support varies by connectivity protocol to host. For the latest information on supported operating systems 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 Block Storage has 1 year, parts only warranty. The warranty on all HPE GreenLake for Block 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

Achieve maximum return from your IT investment

Get the most from your HPE Products. Get the expertise you need at every step of your IT journey with **HPE Services.** We help you lower your risks and overall costs using automation and methodologies that have been assessed and refined by HPE experts through thousands of deployments globally. HPE **Advisory Services,** focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Services specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

Consume IT on your terms

HPE GreenLake 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 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

Recommended Services

HPE Tech Care

HPE Tech Care is the new operational service experience for HPE products. Tech Care 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 has been reimagined from the ground up to support a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. For HPE Greenlake for Block Storage, HPE Tech Care is available in three response levels. Basic which provides next-business-day parts exchange where available, Essential which provides 4-hour parts exchange where available, and Critical which includes a 6-hour Hardware-Call-to-Repair for severity 1 and severity 2 incidents where available and outage management response for severity 1 incidents. All levels of Tech Care enjoy 7x24 access to experienced technical engineers upon calling HPE for support.
https://www.hpe.com/psnow/doc/a50003571enw

HPE Complete Care

HPE Complete Care helps customers address the pressing needs of IT today and smoothly transform to a more agile cloud-like IT operations model. We help run and monitor your IT by offloading the day-to-day routine tasks, helping customers be more predictive and proactive, and saving time with one place to call with for all their IT.

Service and Support

Partner with an assigned account team backed by remote and global experts, access HPE enhanced call experience with priority access, use specialized support for complex, technologies, choose hardware and software support for your devices, implement proactive monitoring to stay ahead of issues, and access HPE IT best practices and guidance. HPE Complete Care advantage options are available to add to your agreement to give you specialized expertise for performance, security, back up analysis, and much more. Complete Care is available as both tailored statement of work and as a packaged service for 3, 4, and 5-year terms.

https://www.hpe.com/psnow/doc/a50004950enw

Other related services from HPE Services

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.

HPE Software Installation and Startup Service

Provides deployment of individual software features, helping to ensure proper installation in your storage environment as well as helping you increase the benefit from your storage investment.

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.

Defective Media Retention

Is an optional feature where in the event of a hardware failure, for eligible products, allows you to retain replaced defective hard disk or eligible SSD/flash drive components that you do not want to relinquish due to sensitive data contained within the disk (disk or SSD/flash drive) covered under this service. All disk or eligible SSD/flash drives on a covered system must participate in Defective Media Retention.

Comprehensive Defective Material Retention

In addition to Defective Media Retention, in the event of a hardware failure, the Comprehensive Defective Material Retention service feature option allows you to retain additional replaced components that have been designated by HPE as having data retentive capabilities, such as memory modules. All eligible data retentive components on a covered system must participate in Comprehensive Defective Material Retention.

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 **http://www.hpe.com/support/hpesc**.

The HPE Support Center Mobile App* allows you to resolve issues yourself or 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 Support Service or HPE contractual support agreement.
Notes: *HPE Support Center Mobile App is subject to local availability.
For more information: **http://www.hpe.com/services**.

HPE Education Services

Provides comprehensive training designed to expand the skills of your IT staff and keep them up to speed with the latest technologies.

Service and Support

HPE Data Sanitization Services

Provides the skilled resources and tools to help your organization address the need to protect data when your organization is retiring systems, upgrading storage and servers, returning leased equipment, or redeploying data storing devices. The service helps ensure that data cannot be reconstructed or retrieved from hard disk media in your server and storage devices. These services offer you a smart alternative or augmentation to physical hardware destruction.

HPE Data Migration

Proven methodology, expertise, and tools to help you migrate data across your data center or around the globe.

For more information

- **http://www.hpe.com/services**
- **https://www.hpe.com/us/en/services/operational.html**

To learn more on HPE Storage 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**

HPE Support 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 HPE Support Services at **https://ssc.hpe.com/portal/site/ssc/**

Configuration Information

Step 1: Choose the Storage Chassis and Controller Nodes

HPE GreenLake for Block Storage configuration starts with the selection of the Storage Chassis and Controller Nodes. The Storage Chassis is a 2U 2-node chassis that includes 24 bays for small form factor NVMe drives. The Storage Chassis does not include any controller nodes or power supplies. Power Supplies are not included in the Storage Chassis or Controller Nodes.

HPE Alletra Storage MP Chassis

Description	SKU
HPE GreenLake for Block Storage MP Base Configuration	S0B84A
• One (1) S0B84A SKU must be ordered for each configuration	
HPE Alletra Storage MP 2U Chassis	R7C75A
HPE Alletra Storage MP 2U TAA-compliant Chassis	S0U32A

- One (1) Storage Chassis SKU must be ordered for each array.
- The Storage Chassis can host two controller nodes and up to 24 small form factor NVMe drives in 2U chassis.
- The Storage Chassis does not include any controller nodes or Power Supplies.

HPE GreenLake for Block Storage Controller Nodes

HPE Alletra Storage MP 256GB 8-core Block Controller Node	S0S38A
HPE Alletra Storage MP 256GB 8-core TAA-compliant Block Controller Node	S0S40A
HPE Alletra Storage MP 256GB 16-core Block Controller Node	S0R21A
HPE Alletra Storage MP 256GB 16-core TAA-compliant Block Controller Node	S0S41A
HPE Alletra Storage MP 512GB 32-core Block Controller Node	S0S39A
HPE Alletra Storage MP 512GB 32-core TAA-compliant Block Controller Node	S0S42A

- Each Controller Node SKU includes one controller node
- Two (2) Controller Node SKUs must be ordered per chassis.
- Both controller nodes need to be of the same type. Different controller node types cannot be mixed in the same chassis.
- Each Controller Node contains two (2) OCP slots for host adapters (Slot 3 and Slot 4), and Slot 1 and Slot 2 are used for expansion.
- Each 32-core Block Controller Node requires (1) 100GbE 2-port OCP HBA (S2A68A) in Slot 1 (see Adapters section)

Step 2: Choose Power Supplies

Description	SKU
HPE Alletra Storage MP C14 1600W AC Power Supply	R7C76A
HPE Alletra Storage MP C14 2200W AC Power Supply	R9Z97A
HPE Alletra Storage MP 1600W -48VDC Power Supply	R7C78A

- The Storage Chassis requires two (2) Power Supplies per chassis.
- Power Supplies are factory integrated in the Storage chassis for shipment.
- The C14 1600W AC Power Supply (R7C76A) is 80 PLUS Platinum certified
- The C14 1600W AC Power Supply (R7C76A) supports high-line; no low-line support
- The C14 2200W AC Power Supply (R9Z97A) is 80 PLUS Titanium certified and needed for EU Lot9 requirements
- The C14 2200W AC Power Supply (R9Z97A) supports high-line; no low-line support
- The DC Power Supply (R7C78A) not available for China, Taiwan, and India

HPE GreenLake for Block Storage Power Cord

HPE C13 - C14 250V 10Amp Black 1.4m WW Power Cord	R9R52A
HPE C13 - C14 250V 10Amp Gray 1.4m WW Power Cord	R9S00A

Configuration Information

Description	SKU
HPE C13 - C14 250V 10Amp Black 1.37m IN Power Cord	R9R53A
HPE C13 - C14 250V 10Amp Gray 1.37m IN Power Cord	R9S01A
HPE 1600W -48VDC 600V 3.5m Power Cable Kit	P22173-B21
HPE 1600W -48VDC Power Cable Lug Kit	P36877-B21

- R9R52A and R9S00A are for worldwide use except for India
- R9R53A and R9S01A are for India use only.

Step 3: Choose Adapters

Host adapters are used for connection to hosts. They can be ordered standalone to be installed in the field or they can be factory integrated into controller nodes. HPE GreenLake for Block Storage does not have any built-in host ports therefore any configuration needs to have at least one (1) host adapter per controller node. For RCIP remote copy, the Replication HBAs can be ordered as an option.

HPE GreenLake for Block Storage Host Adapters

Description	SKU
HPE Alletra Storage MP 32/64Gb 4-port Fibre Channel Host Bus Adapter	R7C90A
HPE Alletra Storage MP 10/25GbE 4-port Host Bus Adapter	R7C82A

HPE GreenLake for Block Storage Replication

HPE Alletra Storage MP 10/25GbE 4-port Host Bus Adapter	R7C82A

HPE GreenLake for Block Storage 32-core Controller Nodes

Each 32-core Controller Node (S0S39A/ S0S42A) requires one (1) 100GbE HBA (S2A68A) and one (1) 0.5m DAC cable (R8M59A)

HPE Alletra Storage MP 100GbE 2-port OCP Host Bus Adapter	S2A68A
HPE 100Gb QSFP28 to QSFP28 0.5m Direct Attach Copper Cable	R8M59A

Host Bus Adapter Transceiver Kit

HPE 10Gb SFP+ Short Wave 1-pack Pull Tab Optical Transceiver	Q2P65A
HPE 25Gb SFP28 Short Wave Extended Temperature 1-pack Pull Tab Optical Transceiver	Q2P64B
HPE 32Gb SFP28 Short Wave 1-pack Pull Tab Optical Transceiver	Q2P62A

- Each Controller Node (S0S38A, S0R21A) must have at least one Fibre Channel HBA (R7C90A), or one 10/25GbE HBA (R7C82A) for iSCSI host connectivity. A Controller Node without any host adapters is not a supported configuration.
- Maximum of two (2) Fibre Channel HBA (R7C90A) can be ordered per Controller Node.
- Maximum of one (1) 10/25GbE HBA (R7C82A) can be ordered per Controller Node.
- If Fibre Channel HBA (R7C90A) is configured for host connectivity, the 10/25GbE HBA (R7C82A) can be ordered as an option for RCIP replication.
- A mix of Fibre Channel and iSCSI connectivity to the host is not supported at this time.
- Refer to SPOCK and the *Alletra Storage MP iSCSI Best Practices* document on Seismic for iSCSI configuration details.
- The 32/64Gb Fibre Channel Adapter does not include any transceivers. The transceivers must be ordered in pairs separately.
- For each 32/64Gb Fibre Channel Adapter, the 32Gb SFP (Q2P62A) can be ordered with a minimum two (2), maximum four (4).
- The 10/25GbE Adapter does not include any transceivers, the transceivers must be ordered in pairs separately.
- For each 10/25GbE Adapter, the 10Gb SFPs or 25Gb SFPs can be ordered with a minimum two (2), and maximum four (4).

Configuration Information

- A pair of 10Gb SFPs and a pair of 25Gb SFPs can be mixed in the same 10/25GbE Adapter.
- 10/25Gb SFPs are not required if DAC cables are selected

Step 4: Choose Drives

Drives are orderable at the time the array is purchased or can be added in the future when additional capacity is required. HPE GreenLake for Block Storage supports SSDs with NVMe interface and TLC NAND technology.

HPE GreenLake for Block Storage Encrypted Drives

Description	SKU
HPE Alletra Storage MP 1.92TB NVMe SFF FIPS Encrypted SSD	R9H70A
HPE Alletra Storage MP 3.84TB NVMe SFF FIPS Encrypted SSD	R9H71A
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 1.92TB NVMe SFF FIPS Encrypted TAA-compliant SSD	S0Q01A
HPE Alletra Storage MP 3.84TB NVMe SFF FIPS Encrypted TAA-compliant SSD	S0Q02A
HPE Alletra Storage MP 7.68TB NVMe SFF FIPS Encrypted TAA-compliant SSD	S0Q03A
HPE Alletra Storage MP 15.36TB NVMe SFF FIPS Encrypted TAA-compliant SSD	S0Q04A

Step 5: Optional NVMe Expansion Shelf (JBOF)

The HPE Alletra Storage MP NVMe all-flash expansion shelf (JBOF) is a 2U chassis to add additional system capacity. The expansion shelf supports 8-24 NVMe SSDs, in two-drive increments with up to two (2) Expansion Shelves per system. Each expansion shelf requires:

- Min 2/Max 2 of Expansion Shelf Nodes
- Min 2/Max 2 Power Supplies and power cords
- Min 8/Max 24 SSDs (see SSDs listed above)
- Min 1/Max 1 100GbE 2-port OCP HBA (S2A68A) per Expansion Shelf Node
- One (1) 100GbE 2-port OCP HBA (S2A68A) per Compute Node—NOTE: this rule applies regardless of if there are one or two Expansion Shelves configured
- Min 2/Max 2 100G cables (1 per Expansion Shelf Node), 100G 1m DAC Cable (R9F77A) recommended—NOTE: Active Optical Cables listed also supported

Description	SKU
HPE Alletra Storage MP NVMe Configure-to-order Block Expansion Shelf	S1J10A
HPE Alletra Storage MP Block Expansion Shelf Node	S1R28A
HPE Alletra Storage MP NVMe Configure-to-order TAA-compliant Block Expansion Shelf	S0S46A
HPE Alletra Storage MP Block Expansion Shelf TAA-compliant Node	S1R29A
HPE Alletra Storage MP 100GbE 2-port OCP Host Bus Adapter	S2A68A
Aruba 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable for HPE	R9F77A
Aruba 100G QSFP28 to QSFP28 2m Active Optical Cable for HPE	R9F76A
Aruba 100G QSFP28 to QSFP28 7m Active Optical Cable for HPE	R9F79A

Configuration Information

- The minimum supported quantity is eight (8) drives per chassis.
- Drives can be ordered in increments of two drives from 8 to 24 drives per chassis.
- HPE GreenLake for Block Storage only supports RAID 6.
- Within a system (base array plus any expansion shelves), all drives must be of the same capacity and type. Mixing drives of different capacities in the same system is not allowed.
- Drives must be loaded starting from the leftmost slot (slot 1) to the right and leaving no empty slots between drives.
- The 16-core and 32-core systems support up to two (2) expansion shelves
- The 8-core systems do not support expansion shelves
- When expansion shelves are used, drive quantities should be balanced across all shelves—base array shelf and expansion shelves

HPE Encryption License

Description	SKU
HPE Storage FIPS Data Encryption LTU	S0A99A
HPE Data Encryption E-LTU	S0A99AEE

- A data encryption license (LTU) is required to enable encryption on HPE GreenLake for Block Storage. One encryption license is required for each encrypted storage solution. Once encryption is enabled on the storage solution, it cannot be disabled.
- Encryption can be turned on, non-disruptively, at any time, even after data has been written to the system.
- Supports Utimaco® Enterprise Secure Key Manager (ESKM) 4.0, 5.0 and Gemalto® SafeNet KeySecure k460 centralized key management
- The local key manager is included in the HPE GreenLake for Block Storage OS. There is not a separately orderable part number for the local key manager

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Step 6: Choose Cables for Host Connectivity

HPE GreenLake for Block Storage requires cables for host connectivity, and replication. The OM4 fiber cables are used for host connectivity and Peer Motion.

OM4 Cables

Description	SKU
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

Direct Attach Copper Cables (10GbE) - HPE FlexFabric

HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A

Direct Attach Copper Cables (10GbE) - Aruba Networks

Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D
Aruba 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285D

Configuration Information

Direct Attach Copper Cables (10GbE) – Cisco

Description	SKU
HPE C-series 3M Passive Copper SFP+ Cable	K2Q21A
HPE C-series 5M Passive Copper SFP+ Cable	K2Q22A
HPE C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable	QK701A

Direct Attach Copper Cables (10GbE) - HPE BladeSystem

HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 3m Direct Attach Copper Cable	487655-B21
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 5m Direct Attach Copper Cable	537963-B21

Direct Attach Copper Cables (25GbE) - HPE

HPE 25GbE SFP28 to SFP28 3m Smart Active Optical Cable	Q9S67A
HPE 25GbE SFP28 to SFP28 5m Smart Active Optical Cable	Q9S68A

Direct Attach Copper Cables (25GbE) – HPE

HPE 25Gb SFP28 to SFP28 3m Direct Attach Copper Cable	844477-B21
HPE 25Gb SFP28 to SFP28 7m Active Optical Cable	844483-B21
HPE 100Gb QSFP28 to 4x25Gb SFP28 3m Direct Attach Copper Cable	845416-B21

Ethernet Cables (Management)

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: For the latest information refer to Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK): **http://www.hpe.com/storage/spock.**

Step 7: Choose Bluetooth Connectivity Kit Option

HPE Alletra Storage MP supports a Chassis Discovery Module (CDM) which enables the chassis connecting to Data Services Cloud Console (DSCC) without a controller node presents. There is an optional Bluetooth setup and configuration of the chassis.

Description	SKU
HPE Alletra Storage MP CDM Bluetooth Connect Kit	S0U79A

Step 8: Choose Racking Options

HPE GreenLake for Block Storage is compatible with most industry standard 4-post EIA 19-inch racks with square mounting holes. HPE GreenLake for Block Storage can be factory configured and shipped in a rack or shipped without a rack for field integration into an existing rack. The racks used for factory integration are the HPE G2 Advanced Series Racks or the HPE G2 Enterprise Series Racks.

Factory Integration

A factory integrated HPE GreenLake for Block Storage is configured into the HPE Intelligent Series Rack with the appropriate power distribution units (PDUs). Other products such as servers or back-up products can be factory integrated in the rack and different PDUs can be added or selected (if needed) only via HPE Factory Express Services. Multiple HPE GreenLake for Block Storage arrays can be factory integrated in the same rack.

Configuration Information

HPE Intelligent Series Racks

Description	SKU
HPE 42U 600mmx1200mm G2 Enterprise Shock Rack	P9K40A
HPE G2 Rack 42U 1200mm Side Panel Kit	P9L16A
HPE 42U 600mmx1200mm G2 Kitted Advanced Shock Rack with Side Panels and Baying	P9K10A
HPE 42U 600mmx1075mm G2 Enterprise Shock Rack	P9K38A
HPE G2 Rack 42U 1075mm Side Panel Kit	P9L15A
HPE 42U 600mmx1075mm G2 Kitted Advanced Shock Rack with Side Panels and Baying	P9K08A

- HPE recommends using HPE GreenLake for Block Storage in 1200mm deep racks with 3-phase power because this combination provides the best rack density.

Notes:

- For more information on rack options: **http://www.hpe.com/products/rackoptions**.
- For more information on PDUs: **https://www.hpe.com/us/en/product-catalog/servers/power-distribution-units.html**

Step 9: Choose Software

Hewlett Packard Enterprise provides an extensive selection of features in the HPE GreenLake for Block Storage OS software, including Virtual Copy, Remote Copy, Priority Optimization, Peer Motion, and Peer Persistence, etc. Data Encryption is offered separately with a LTU (see the Drive section for more information).

HPE Alletra Software and Support SaaS

HPE GreenLake for Block Storage include a subscription to HPE GreenLake for Block Storage Software and Support SaaS that includes all-inclusive software features for the specified raw capacity and term, and it enables cloud-based management of the array from the HPE Data Services Cloud Console and access to data services., and related supports.

- One (1) HPE GreenLake for Block Storage Software and Support SaaS SKU must be selected per Storage solution.
- The Storage capacity tiers are defined as follow:

Tier	Capacity (TB)
Tier 1	0-16
Tier 2	17-25
Tier 3	26-50
Tier 4	51-100
Tier 5	101-200
Tier 6	201-400
Tier 7	401-800
Tier 8	801+

Subscribe to the HPE Backup and Recovery Service

The HPE Backup and Recovery Service is an optional subscription service available from the HPE GreenLake Cloud Portal. It is the modern way to protect VMware virtual machines that use storage from HPE GreenLake for Block Storage systems. The subscription enables automated, Array Optimized, cloud managed protection of the virtual machine. The HPE Backup and Recovery Service is available with a subscription to meet your needs. Working with your HPE account representative you can define whether you want total flexibility to pay for the service as you use it or if you want to lock in lower prices by reserving the service for 1, 2, 3, 4 or 5 years. When you reserve the service, you choose the number of virtual machines you want to protect and, if you want to protect your virtual machines with backup to the cloud, the capacity of the Cloud Protection Store you will need. For more information, please refer to the HPE Backup and Recovery Service QuickSpecs:
https://www.hpe.com/psnow/doc/a50004269enw

Configuration Information

Step 10: Choose Support

Choose HPE Services Tech Care to experience the new operational service for HPE products. For HPE GreenLake for Block Storage, HPE Services Tech Care is available in three response levels: Basic which provides next-business-day parts exchange where available, Essential which provides 4-hour parts exchange where available, and Critical which includes a 6-hour Hardware-Call-to-Repair for severity 1 and severity 2 incidents where available and outage management response for severity 1 incidents.

All levels of Tech Care enjoy 7x24 access to experienced technical engineers upon calling HPE for support.
https://www.hpe.com/psnow/doc/a50003571enw

Step 11 – Choose Installation options

Storage Installation and Startup Service

HPE GreenLake for Block Storage Installation and Startup Service provides deployment of your HPE GreenLake for Block Storage, helping to ensure proper installation in your storage environment as well as helping you increase the benefit from your storage investment. The service provides activities required to help you deploy your HPE GreenLake for Block Storage into operation.

Self-Installation

Customers and partners also have the option to self-install HPE GreenLake for Block Storage. The self-installation option can be selected in the configurator tool (OCA) and will remove the Storage Installation and Startup Service from the quote. All HPE GreenLake for Block Storage models and configurations are eligible for self-installation.

To successfully install the HPE GreenLake for Block Storage, the installer should:

- Have a good understanding and knowledge of Storage Area Networks, Fibre Channel fundamentals and a basic understanding of TCP/IP and other networking protocols (DNS/NTP).
- Have experience creating Storage LUNs, presenting/exporting LUNs to a server and formatting the LUNs to make them usable for applications.
- Be able to troubleshoot hardware and software issues using logs and documentation.

If the installer does not meet the profile or is not comfortable with the self-installation process, Hewlett Packard Enterprise recommends engaging the Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Channel Partner to purchase HPE Deployment Services.

Customer responsibilities

- Ensure that the host and SAN environment is supported and compliant with HPE recommendations and best practices. Host and SAN Implementation Guides are available at **https://support.hpe.com/hpesc/public/home**. Support Matrix are available on SPOCK (HPE Storage Single Point of Connectivity Knowledge) **http://www.hpe.com/storage/spock**.
- Resolve any problems with their SAN and host environment prior to installing the HPE GreenLake for Block Storage.

Notes: Customers performing a self-install (according to rules identified above) will not void their warranties and will be fully supported.

Technical Specifications

HPE Alletra Storage MP Specifications				
Physical Dimensions	**Width in/mm**	**Depth in/mm**	**Height in/mm/U**	**Weight lb/kg**
HPE 42U 1075mm G2 Advanced Series Rack	23.50 / 597	43.78 / 1111	78.99 / 2006	281 / 127
HPE 42U 1075mm G2 Enterprise Series Rack	23.54 / 598	44.30 / 1125	78.98 / 2007	230 / 105
HPE 42U 1200mm G2 Advanced Series Rack	23.50 / 597	50.65 / 1286	78.99 / 2006	311 / 141
HPE 42U 1200mm G2 Enterprise Series Rack	23.54 / 598	51.19 / 1300	78.98 / 2007	251 / 114
HPE Alletra Storage MP Base Enclosure (Enclosure, two Controller IOMs, two PS, one CDM, no drives, no HBAs)	19.00 / 483	33.11 / 841	3.44 / 87.5 / 2	74.0 / 33.6
HPE Alletra Storage MP Base Enclosure Packaging Pallet	23.00/584 24.00/610	38.75/984 40.00/1016	11.50/292	
HPE Alletra Storage MP NVMe SSD with carrier	3.11 / 79	6.57 / 167	0.59 / 15.0	0.63 / 0.28
HPE 32Gb 4-port FC Host Bus Adapter	3.33 / 84.6	5.20 / 132	0.59 / 15.0	0.50 / 0.23
HPE 10/25Gb 4-port Ethernet Host Bus Adapter	3.33 / 84.6	5.20 / 132	0.59 / 15.0	0.50 / 0.23

Power Requirements

Input Voltage - AC PCM option

- 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)	
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	65.7 dB	74.5 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

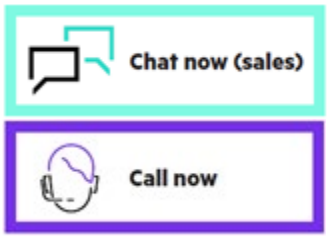
- BIS
- BSMI
- cCSAus
- CE
- FCC Class A
- IC Class A
- KCC
- Morocco
- RCM
- VCCI
- WEEE
- China RoHS
- EU RoHS
- UKCA

Summary of Changes

Date	Version History	Action	Description of Change
02-Oct-2023	Version 5	Changed	Standard Features and Configuration Information sections were updated
07-Aug-2023	Version 4	Changed	Configuration Information and Technical Specifications sections were updated
10-Jul-2023	Version 3	Changed	Configuration Information and Technical Specifications sections were updated
15-May-2023	Version 2	Changed	Configuration Information section was updated
03-April-2023	Version 1	New	New QuickSpecs.

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