

### Overview

### HPE Flash Enclosures

Do your applications need the performance of NVMe® SSDs but your server infrastructure is limited?

The HPE J2000 Flash Enclosure is an all-flash storage system designed to deliver high performance with consistent, very low latencies for enterprise workloads such as Artificial Intelligence (AI), Big Data, High Performance Computing (HPC), Software Defined Storage (SDS), Oil & Gas, and Media & Entertainment. The HPE J2000 is an end-to-end NVMe® platform that supports up to 24 NVMe SSDs connected through either two or six 100GbE NVMe-over-Fabric (NVMe-oF™) Ethernet ports. Designed for shared environments, it provides a high availability (HA) architecture with its dual IO Modules in an active/active configuration, the use of dual port NVMe SSDs allowing each IO Module to access all the SSDs in the system, and with redundant, hot swap capabilities for major components including IOMs, power supplies and cooling fans.

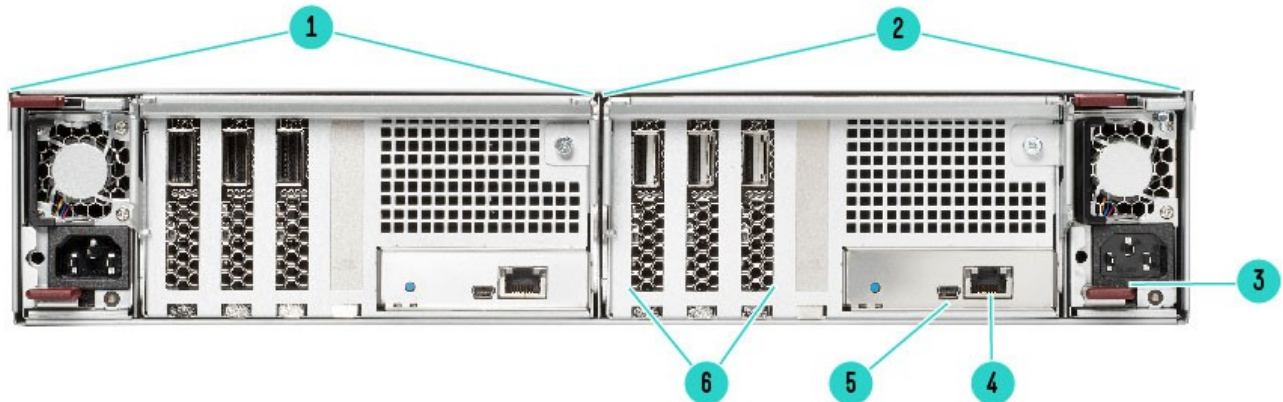
The storage market continues to evolve in many areas including the growing adoption of flash storage. The development of NVMe SSDs has unleashed the power of flash. NVMe-oF is the latest storage networking protocol designed for use with NVMe SSDs. It is at the beginning of a multi-year evolution that will reshape storage networking and storage solutions. NVMe-oF delivers nearly the same performance as internal NVMe SSDs, while providing the flexibility and shared efficiencies of being network attached. This allows the HPE J2000 Flash Enclosure to redefine direct attached storage (DAS) with greater performance and flexibility than traditional solutions (like JBODs), as well as providing an important building block for modern IT architectures such as Storage-as-a-Service (SaaS), Software Defined Storage (SDS), and Composable Infrastructure solutions.



**HPE J2000 Flash Enclosure**

1. SSD in carrier in bay 1
2. System status LEDs
3. SSD status LEDs

## Overview



### HPE J2000 Flash Enclosure Rear Panel components

- |                           |                                     |
|---------------------------|-------------------------------------|
| 1. IO Module 1            | 4. 1GbE management port             |
| 2. IO Module 2            | 5. Mini-USB serial port (CLI)       |
| 3. Redundant power module | 6. 100GbE bridge cards <sup>1</sup> |

**Notes:** <sup>1</sup> Model with 6x 100GbE ports shown.

## Models

### HPE J2000 Flash Enclosure

#### Description

HPE J2000 Dual IOM 2x100GbE NVMe-oF SFF TAA-compliant JBOF Storage  
 HPE J2000 Dual IOM 6x100GbE NVMe-oF SFF TAA-compliant JBOF Storage

#### SKU

R4T20A  
 R4T21A

## What's New

- Initial release of the HPE J2000 Flash Enclosure QuickSpecs

## At a Glance

- 2U, rack mount NVMe-over-Fabric (NVMe-oF) JBOF
- Supports twenty four (24) 2.5" SFF NVMe Solid State drives
- High Availability architecture for use in shared environments
- Utilizes NVMe®/RoCEv2 transport for high performance networking
- Direct connect to HPE ProLiant and Apollo Gen10 and Gen10+ using HPE 100Gb Ethernet adapters
- Network connect through HPE M-Series Ethernet switches for greater flexibility and scalability



## Standard Features

### End-to-End NVMe SSD Storage Platform

Innovative Just a Bunch of Flash (JBOF) platform provides the connectivity and performance of internal NVMe SSDs with the flexibility and shared efficiencies through a high availability, fabric attached enclosure.

- 2U rack mount form factor
- Supports up to twenty four (24) 2.5" SFF, dual port, NVMe Solid State drives
- Network attached using NVMe/RoCEv2 transport protocols
- Direct connect to HPE ProLiant and Apollo Gen10 and Gen10+ using existing HPE 100GbE Network Controllers (NICs).
- Network connect through HPE M-Series Ethernet switches for greater flexibility and scalability.
- Dedicated 1Gb Ethernet management port interfaces with server class, IPMI 2.1 compliant BMC in each IO Module
- Provides high performance direct access to NVMe drives and namespaces without the additional latency and overhead of storage services such as RAID, snapshots, deduplication and replication. If desired, these services can be provided by the operating systems or applications running on the hosts.

### High Performance, Low Latency

Achieved performance of the HPE J2000 Flash Enclosure is very dependent on the overall solution deployed including the performance and capabilities of the HPE servers and NICs, Operating Systems, networking architecture and configuration, performance of the NVMe SSDs, as well as the abilities of the host-based applications using the JBOF.

- 100GbE network connectivity enables a high data transfer rate with very low latencies
- Non-blocking architecture – 48 PCIe lanes (3x 16) into each IOM with 48 lanes (24x 2) to the SSDs for a total of 96 lanes into the J2000 and 96 lanes to the drives
- PCIe Gen4 dual port backplane
- Theoretical maximum performance of per 100GbE bridge card
  - 2.4M 4K Read IOPS
  - 1.1M 4K Write IOPS
  - 12.0 GB/s 128K Read bandwidth (1 job, 64 QD)
  - 8.5 GB/s 128K Write bandwidth (1 job, 364 QD)
- HPE Lab tests using HPE DL380 Gen10 servers with RHEL 8, two 100GbE NICs in each through a SN2100M 16-port switch to the 2-port and 6-port HPE J2000s with 3.2TB MU SSDs have demonstrated the following results:
  - 2x 100GbE J2000 JBOF:
    - o 3.33M 4K Random Read IOPS @ 229  $\mu$ s average latency
    - o 2.16M 4K Random Write IOPS @ 352  $\mu$ s average latency
    - o 23.78 GB/s 256K Sequential Read bandwidth @ 1057  $\mu$ s average latency
    - o 19.96 GB/s 256K Sequential Write bandwidth @ 1260  $\mu$ s average latency
  - 6x 100GbE J2000 JBOF:
    - o 10.08M 4K Random Read IOPS @ 302  $\mu$ s average latency
    - o 5.36M 4K Random Write IOPS @ 140  $\mu$ s average latency
    - o 71.31 GB/s 256K Sequential Read bandwidth @ 1410  $\mu$ s average latency
    - o 58.10 GB/s 256K Sequential Write bandwidth @ 865  $\mu$ s average latency

### NVMe-over-Fabric RDMA over Converged Ethernet (RoCE)

RDMA provides lower latency, reduced CPU load and higher bandwidth than other network interfaces which allows the HPE J2000 to provide shared efficiencies of a network connected device at higher performance than a tradition single server attached JBOD.

- Requires use of the NVMe/RoCEv2 transport protocols
- Two (2) or six (6) 100GbE ports per J2000
- Direct attach one or more servers (NIC port in server cabled directly to J2000 port)
- Switch attach one or more servers to one or more J2000s (NIC port in server cabled to M-Series switch port cabled to J2000 port)
- Direct Attach copper Cables (DACs) and Active Optical Cables (AOCs) are supported.

## Standard Features

### High Availability (HA) Architecture with Dual Data Paths

The HPE J2000 Flash Enclosure utilizes an HA design with no single points of failure and dual data paths to enhance data availability and performance as a shared network resource.

- Dual, hot swap IO Modules are configured in an active/active arrangement.
- Dual port NVMe SSDs allow each SSD to be accessed from either or both IOMs using two (2) PCIe lanes to each IOM (a total of four PCI lanes per SSD)
- Two configurations supported at launch
  - 2x 100GbE ports: All 24 SSDs are connected to the 100GbE port in the first slot of each IO Module.
  - 6x 100GbE ports: 8 SSDs are connected to the 100GbE port in each of the three slots of each IO Module. Drives 1–8 are connected to the first slot of each IOM, drives 9-16 to the second slot and drives 17-24 through the third slot
  - IO Modules are based on a programmable PCIe switch ASIC capable of supporting addition configuration in future releases
- Redundant, hot swap power supply modules and cooling fans
- One management port on each IOM with both active on different IP addresses. IOM to IOM communication allows control from either side of the JBOF with the same system view is presented from either management port.

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### Dual Port NVMe Solid State Drives (SSDs)

The HPE J2000 JBOF initially supports Mixed Use (MU) SSDs to provide a strong balance of read and write performance as well as SSD endurance characteristics for a random access, shared solution.

- Four (4) capacities of MU SSDs supported at launch – 1.6TB, 3.2TB, 6.4TB and 12.8TB.
- Maximum capacity of a J2000 is 307TB using all 12.8TB SSDs
- Dual port SSDs allow access from either or both IOMs.
- The J2000 supports up to four (4) namespaces per SSD at launch.
- Multiple SSD capacities can be deployed in one J2000, depending on the host application or OS software.
- NVMe/PCIe Hot Plug and surprise removal support

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### Redfish Based Management Interface

Redfish is an industry standard and a RESTful API design by the DTMF group for managing servers and storage. As a RESTful interface, the J2000 user interface is designed around existing internet standards and toolkits, making it easy to use and integrate.

- Native Redfish implementation provides industry standard approach to the J2000 system GUI and API
- A RESTful interface allows easy integration with other Redfish utilities
- Supported web browsers for the HPE J2000 at launch are Google Chrome and Microsoft Edge
- Management activities include the following categories:
  - Configure and manage the J2000 JBOF
  - Manage users and passwords as well as access control
  - Add and manage attached hosts
  - LDAP configuration and support
  - Create and manage NVMe namespaces and associated SSDs
  - Configure system alerts
  - View log files
  - Upgrade system firmware
- Each IOM includes a Mini-B serial console port for direct access



## Standard Features

### Redundant, Hot Swap Power Supplies

- Each 1600W power supply module is capable of supporting all 24 SSDs at their maximum of 25W plus both IO Modules with all six 100GbE ports.
- The power supply modules operate in a 1+1 configuration with active load sharing.
- Power supplies feature 80+ Platinum efficiency rating.
- Power supplies meet Lot9 2023 requirements.

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### All Accessories Included with each HPE J2000

Each HPE J2000 Flash Enclosure part number includes the following standard components:

- HPE J2000 base enclosure with redundant, hot-swap power supplies and redundant, hot-swap fan modules
- Two (2) integrated Ethernet IO Modules with either one (1) 100GbE port or three (3) 100GbE ports per IO Module
- Twenty four (24) drive slots for HPE Base Carrier hot plug NVMe solid state drives (SSDs may ship separately)
- Twenty two (22) airflow management sleds for use in drive slots without SSDs
- HPE J2000 Front bezel
- Rack mounting hardware kit
- Cable management arm
- Two (2) C13/C14 4 foot PDU interconnect cords
- One (1) USB Mini-B cable

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### HPE Reliability

- Deploy with confidence. Hewlett Packard Enterprise offers a complete end-to-end storage solution including the J2000 Flash Enclosure, 100GbE NICs and Switches, and HPE Servers.
- Remove / replace / add components when system is running without service disruption with hot plug drives, power modules and cooling fans.
- Redundant power and cooling provides increased reliability as failure of a power supply or fans does not interrupt system functioning.
- Dual IO Modules create redundant pathways from servers to storage devices. The redundant paths created by these configurations reduce or eliminate single points of failure within the storage network. This provides increased levels of high availability with redundant paths from the controller to the drives.

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### Supported Operating Systems

For the initial launch of the J2000, supported operating systems for Gen10/Gen10+ HPE ProLiant and Apollo Servers include:

- RedHat Enterprise Linux (RHEL): 8
- SUSE Linux Enterprise Server (SLES): 15
- VMware vSphere 7
- Verify the latest Operating System support at: <http://www.hpe.com/storage/spock>

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### NVMe-oF Ethernet Connectivity

The HPE J2000 Flash Enclosure uses NVMe-oF – specifically RoCEv2 Ethernet – for connectivity to one or more hosts. The JBOF can be directly connected to a supported Ethernet NIC in each server or it can be connected through an HPE M-Series Ethernet switch. For the initial launch of the J2000, the recommendation is to use a dedicated storage fabric when using a switch. Details about the supported NICs and switches are included in the sections that follow.

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### HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter

The HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter for ProLiant servers are designed to provide high performance Ethernet connectivity, it is ideal for virtual server and cloud computing environments.

- Jumbo Frame
- Stand up
- HPE Sea of Sensors 3D
- Tunnel Offload (NVGRE and VxLAN)



## Standard Features

- Single-root input/output virtualization (SR-IOV)
- IPv6 Acceleration
- Preboot eXecution Environment (PXE)
- Checksum & Segmentation Offload
- VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)
- Precision Time Protocol (PTP)
- iSCSI Extensions over RDMA (iSER)
- Active Health Systems support
- Security features - digitally signed firmware components, secure firmware loading, secure firmware update, UEFI secure boot
- Authentication of digitally signed firmware through Chain of Trust on the NIC
- Additional Security features include: Device-level Firewall, Audit Logs and Sanitization.

For more information see: [HPE Ethernet 100Gb 1-port QSFP28 Adapter \(QuickSpecs\)](#)

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## HPE QSFP56 Adapters

HPE HDR100 InfiniBand and Ethernet 100Gb adapters are based on Mellanox ConnectX®-6 VPI technology. They support dual function InfiniBand and Ethernet for HPE ProLiant XL and DL Servers.

- Security features - digitally signed firmware components, secure firmware loading, secure firmware update, UEFI secure boot
- Low profile PCIe Gen3/Gen4 x16 or OCP 3.0
- HPE Standard warranty, support, service
- PXE boot over InfiniBand
- Improved thermal control with HPE ProLiant XL and DL servers
- Supports UEFI and legacy boot options (HPE UEFI driver with adapters for Gen10 servers, Mellanox UEFI driver with adapters for Gen10 Plus servers)
- Ethernet feature highlights
- 200/100/50/40/25G/10G Ethernet
- RoCE (RDMA over Converged Ethernet)
- Data Center Bridging (DCB)
- Stateless offloads for overlay networks and tunneling protocols
- SR-IOV: up to 256 Virtual Functions
- SR-IOV: up to 16 Physical Functions per port
- DPDK
- HPE iLO Shared Network Port with OCP 3.0 adapters

For more information see: [HPE HDR HPE HDR InfiniBand/Ethernet Adapters \(QuickSpecs\)](#)

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## HPE M-Series Ethernet Switches

With an increasing need to access data faster and accommodate growing workloads, rising levels of east-west traffic, and new storage arrays based on flash storage technologies, a high bandwidth, low-latency, zero packet loss network becomes paramount. HPE M-Series Ethernet switches gives the right network bandwidth with consistent performance for high-performance and storage workloads. Delivering the highest feature set at the right price allows you to get the most out of your Ethernet infrastructure to best support a variety of use cases, including media and entertainment; streaming video, financial services industry, virtualized data centers, and next generation storage, including software-defined storage and NVMe flash.

- Comprehensive range of products from 8-ports to 64-ports
- Configurable port connectivity (1-100 GbE)
- High Bandwidth, Ultra low latency
- Zero Packet loss
- Support for NVMe over Fabric
- Unique and traditional form factors



## Standard Features

- Front to Back and Back to Front airflows
- HPE Pointnext service and support

For more information see one or more of the following:

- HPE SN2100M Switch QuickSpecs:  
<https://h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00021858enw>
  - HPE SN2700M Switch QuickSpecs:  
<https://h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00021857enw>
  - HPE SN3700M Switch QuickSpecs:  
<https://h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00067749enw>
  - HPE SN4600M Switch QuickSpecs:  
<https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=a00094648enw>
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## Service and Support

### Warranty

Three-year limited parts only warranty, including hardware diagnostic support, pre-failure warranty (coverage of solid state drives). The warranty is fully supported by HPE Services and a worldwide network of resellers and service providers. In addition 90-day's getting started software telephone support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HPE Pointnext operational services.

**Notes:** The HPE J2000 has a limited 3 year parts only warranty. NVMe Solid State drives have 3 year warranty.

The HPE J2000 has been designed with customer self-repairable parts to minimize repair time and provide greater flexibility in performing defective parts replacement. Refer to HPE's limited warranty Statement and parts replacement instructions for further details. <http://h20564.www2.hp.com/hpsc/wc/public/home>

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### Services to accelerate time to results

HPE Storage Services bring you a rich portfolio of consulting and support services designed to add value to our core storage products and solutions. We have the know-how and experience to put storage technology to work for you. We work closely with you as your strategic partner, leveraging our full services portfolio to make sure that everything works to optimize your enterprise. Choose from services aligned to our storage product offerings and lifecycle. From mission-critical onsite services to innovative web-based remote support, you choose the precise level of attention and support your business demands.

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### Discover, plan, and design

Choose from a rich portfolio of services to make the most of the HPE J2000 Flash Enclosure so you can efficiently and affordably consolidate, manage, and extract value from network attached expansion storage and from disaggregated storage architectures.

HPE Services can help you discover needs and create a plan for simplifying the environment, reducing risk, and maximizing your storage investments

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### HPE Storage Efficiency Analysis

The HPE Storage Efficiency Analysis provides customers with a view of their storage infrastructure and operating environment; highlighting recommendations for improvements. The report provides extensive insight about the existing storage environment, opportunities for efficiency gains, asset aging and replacement through interaction with key decision makers.

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### HPE Storage Impact Analysis (SIA)

The HPE Storage Impact Analysis service provides a 2-4 week discovery engagement with executive summary presentation. The goal of this service is to help provide customers guidance on storage related issues and develop remediation plans.

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### HPE Storage Modernization Service

The HPE Storage Modernization service is a 4-6 week service that defines the customers envisioned target storage environment based on a proven solution design methodology. Hewlett Packard Enterprise architects will quickly perform tool-assisted automatic discovery and facilitate a two-day strategy workshop with all key stakeholders involved in the storage infrastructure initiative.

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### Deploy and integrate

We can help you configure, set up, and efficiently use your HPE J2000 Flash Enclosure as well as help migrate data, improve capacity utilization, and establish information management standards used across backup, replication, and archiving needs.

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## Service and Support

### HPE Storage Data Migration Services

End-to-end data migration service providing seamless discovery, assessment, planning, and design, completely customizable to your organization's storage area network or network attached storage environment and using innovative software to help you migrate to HPE storage quickly and efficiently.

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### HPE Storage and Data Residency Service

Strategic augmentation of your current environment with HPE resources who become your trusted advisor to provide answers that are right for your storage and backup environment.

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### HPE Proactive Select

A flexible way to purchase services to fit your environment with an extensive menu of HPE Proactive Select event and technical services, such as onsite firmware upgrades, health checks, assessments, and education.

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## HPE Pointnext - Service and Support

**Get the most from your HPE Products.** Get the expertise you need at every step of your IT journey with **HPE Pointnext Services**. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Pointnext **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 **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext 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

### Managed services to run your IT operations

**HPE GreenLake Management Services** provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

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### Free up resources with Operational Services from HPE Pointnext

HPE delivers services for IT by using proven best practices as well as automation and methodologies that have been tested and refined by HPE experts and artificial intelligence through thousands of deployments globally. Choose from the recommended services for customers purchasing from Hewlett Packard Enterprise or an authorized reseller. Services are quoted using Hewlett Packard Enterprise order configuration tools.



## Service and Support

### Recommended Services

#### HPE Pointnext Tech Care.

HPE Pointnext 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 Pointnext 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. HPE Pointnext Tech Care is available in three response levels. Basic, which provides 9x5 business hour availability and a 2 hour response time. Essential which provides a 15 minute response time 24x7 for most enterprise level customers, and Critical which includes a 6 hour repair commitment where available and outage management response for severity 1 incidents.

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

#### HPE Pointnext Complete Care

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts. HPE Pointnext Complete Care provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

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

#### HPE Education Services

Comprehensive training for new, as well as experienced, storage administrators designed to expand your skills and keep you up to speed with the latest storage and virtualization technology from HPE Storage.

<https://education.hpe.com/us/en/training/index.html>

#### Remote Support Automation

HPE Automation provides 24x7 coverage, proactive problem prevention, accurate problem diagnosis and faster problem resolution, as well as interactive support portals and tools. This is an integral, and cost-free, part of your HPE support relationship and we are continually investing in additional cutting-edge capabilities to make it better.

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### 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/>



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## 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 QuickSpecs, 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.

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## Configuration Information

### Step 1: Base Configuration

#### Description

#### HPE J2000 NVMe-oF JBOF

	SKU
HPE J2000 Dual IOM 2x100GbE NVMe-oF SFF TAA-compliant JBOF Storage	R4T20A
HPE J2000 Dual IOM 6x100GbE NVMe-oF SFF TAA-compliant JBOF Storage	R4T21A

### Configure to Order Program Information

The HPE J2000 models and options may or may not be factory installed in a rack with solid state drives as well as servers, network interface cards and network switches. The HPE J2000 enclosures may be integrated with HPE ProLiant or Apollo servers or as standalone storage.

Model	Model Description	SKU
<b>HPE J2000 2x 100GbE</b>	HPE J2000 NVMe-oF JBOF Dual IOM Enclosure with 2x 100GbE ports	R4T20A-#0D1
<b>HPE J2000 6x 100GbE</b>	HPE J2000 NVMe-oF JBOF Dual IOM Enclosure with 6x 100GbE ports	R4T21A-#0D1

**Notes:** A minimum of two (2) SSDs are required for Configure to Order requests. All SSDs ordered will be installed from largest capacity to smallest capacity starting with slot one. Customers will have to reorganize the SSDs to their desired configuration.

### Step 2: Choose Solid State Drives

HPE J2000 1.6TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty SSD	R4T22A
HPE J2000 3.2TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty SSD	R4T23A
HPE J2000 6.4TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty SSD	R4T24A
HPE J2000 12.8TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty SSD	R4T25A
HPE J2000 1.6TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty TAA-compliant SSD	R4T30A
HPE J2000 3.2TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty TAA-compliant SSD	R4T31A
HPE J2000 6.4TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty TAA-compliant SSD	R4T32A
HPE J2000 12.8TB NVMe Dual Port Mixed Use SFF (2.5in) BC 3yr Wty TAA-compliant SSD	R4T33A

**Notes:** TAA compliant SSDs are available worldwide and not just for TAA orders. They have different capabilities than the non-TAA SSDs and are compliant based on their country of origin

### Step 3: Choose HPE Servers

#### HPE ProLiant and Apollo Server Compatibility

For up to date compatibility, see the following URLs for complete 100GbE NIC compatibility and support information:

- [HPE Ethernet 100Gb 1-port QSFP28 Adapter \(QuickSpecs\)](#)
- [HPE 2p 100Gb 841QSFP28 Adapters \(QuickSpecs\)](#)

### Step 4: Choose Ethernet Adaptors and optional Ethernet Switches

#### HPE Ethernet Adaptors Supported

HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter	874253-B21
HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	872726-B21
HPE Ethernet 100Gb 1-port QSFP28 PCIe x16 MCX515A-CCAT Adapter	P31246-B21
HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter	P21927-B21
HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe3 x16 MCX653105A-ECAT Adapter	P06250-B21
HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe3 x16 MCX653106A-ECAT Adapter	P06251-B21



## Configuration Information

### Description

	<b>SKU</b>
HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter	P23665-B21
HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter	P23666-B21
Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	P25960-B21

**Notes:** Ethernet adapters to be purchased separately as Server Options. For Apollo server connectivity, use the -H21 versions of the adapter SKUs mentioned above

### HPE Ethernet Switches Supported

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 SN2700M 100GbE 16QSFP28 Power to Connector Airflow Switch	Q6M26A
HPE SN2700M 100GbE 32QSFP28 Power to Connector Airflow Switch	Q2F21A
HPE SN3700cM 100GbE 32QSFP28 Power to Connector Airflow Switch	R3B14A
HPE SN4600cM 100GbE 64QSFP28 Power to Connector Airflow Switch	R6R24A
HPE SN2100M 100GbE 16QSFP28 Power to Connector Airflow Half Width TAA-compliant Switch	R0P75A
HPE SN2100M 100GbE 16QSFP28 Connector to Power Airflow Half Width TAA-compliant Switch	R0P76A
HPE SN2700M 100GbE 32QSFP28 Power to Connector Airflow TAA-compliant Switch	R0P71A
HPE SN2700M 100GbE 32QSFP28 Connector to Power Airflow TAA-compliant Switch	R0P72A

**Notes:** One SN2100M 8-port switch is added to each configuration by default. Adjust as necessary to meet actual requirements.

## Step 5: Choose Ethernet Transceivers and Cables

### Ethernet Transceivers Options

HPE M-series 100GbE QSFP28 SR4 100m Transceiver	Q2F19A
HPE 100Gb QSFP28 LC SWDM4 Multi-mode 100m Transceiver	R0R40A
HPE X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A

#### Notes:

- Transceivers must be purchased separately
  - o BiDi XCVRs are not supported; use SWDM4 XCVRs for LC-LC connectivity

### Ethernet Cable Options

The choice of cables for connecting the HPE J2000 will depend on multiple factors including network topology (host connected directly or through a switch), type of cable desired (copper or optical) and distance needed.

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
HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 10m Cable	QK729A
HPE Premier Flex MPO/MPO Multi-mode OM4 8 Fiber 50m Cable	QK731A
HPE Premier Flex MPO/MPO OM4 100m Cable	H6Z30A
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

## Configuration Information

### Descriptions

	<b>SKU</b>
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

### Active Optical Cables (AOC)

HPE 100GbE QSFP28 to QSFP28 5m Active Optical Cable	Q9S71A
HPE 100Gb QSFP28 to QSFP28 7m Active Optical Cable	845410-B21
HPE 100Gb QSFP28 to QSFP28 15m Active Optical Cable	845414-B21

### Direct Attach Cables (DAC)

HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
Aruba 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	ROZ25A
Aruba 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL307A
HPE 100Gb QSFP28 to QSFP28 3m Direct Attach Copper Cable	845406-B21
HPE 100Gb QSFP28 to QSFP28 5m Direct Attach Copper Cable	845408-B21
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
Aruba 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	ROZ26A

## Step 6: Choose Rack Option

Refer to the HPE Infrastructure products page for more information on HPE racks and rack options:

<https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html>

### Power Cord Options

If customers require a power cord other than the included PDU style cords, they can check the power cord matrix for the appropriate SKU. See the following power cord matrix for details

<https://buy.hpe.com/b2c/us/en/options/power-cables-power-cords/power-connections/power-connections/hpe-power-cords/p/5326473>.



## Technical Specifications

<b>LED Indicators for SSDs</b>	Blue for identify command Green for SSD online	
<b>LED Indicators on Front Panel</b>	Blue for chassis identify command Yellow for chassis fault Green for chassis power Yellow for IOM fault Green for IOM operating correctly Yellow for fan module fault Green for fan modules operating correctly Yellow for power module fault Green for power modules operating correctly	
<b>LED Indicators on Rear Panel</b>	Bicolor (green/amber) for power module status (2) Green IOM status for IOM power and status (2) Blue IOM status for IOM identify command (2) Yellow IOM status for IOM fault (2) Green management port for link and speed (2) Yellow management port for link activity (2)	
<b>Host Interface</b>	2x or 6x 100GbE ports depending on the HPE J2000 model	
<b>Maximum Number of Drives</b>	Up to 24 2.5 inch SFF Solid State Drives	
<b>Acoustics Noise</b>	The HPE J2000 produces ~78 dB levels of sound power at 60% of power during normal operation. The acoustic sound power increases to ~86 dB at 100% power under fault conditions. Prolonged periods of high sound levels may be potentially harmful. Use of hearing protection is recommended.	
<b>Temperature Range</b>	<b>Operating</b>	41° to 113° F (5° to 35° C)
	<b>Shipping</b>	-40° to 140° F (-40° to 60° C)
		<b>Notes:</b> Rated at sea level and de-rate 2 percent per 1000 feet of elevation.
<b>Relative Humidity</b>	<b>Operating</b>	20% to 80% non-condensing
	<b>Non-operating</b>	10% to 90% non-condensing
<b>Input Power Requirements</b>	<b>Rated Input Voltage</b>	100 to 240 VAC
	<b>Rated Input Frequency</b>	50 to 60 Hz
	<b>Rated Input Current</b>	40A AC in rush max current
	<b>Input Power max</b>	1600W
<b>Heat Dissipation</b> (maximum)	2010 Btu/hr with system at 35C, fans at 100% and highest power IO load <b>Notes:</b> Standard conversion from Watts to Btu/hr = 3.413 Btu/hr per Watt.	
<b>Upgradeable Firmware</b>	Yes. Firmware updates available through hpe.com	
<b>Disk Drives and Enclosure Protocol Support</b>	HPE 2.5 inch SFF NVMe in HPE Base Carrier (BC)	
<b>I/O Module</b>	<b>Connector Type</b>	QSFP28
	<b>Number of Ports</b>	One or three per IO Module
	<b>Bandwidth</b>	100Gb Ethernet
	<b>Protocols supported</b>	RoCEv1 and v2

## Technical Specifications

### J2000 Enclosure

<b>Dimensions (HxWxD)</b>	3.4" x 17.94" x 28.4" in (8.7 x 44.2 x 68.2 cm)
<b>Weight (base unit)</b>	30.3 lb (13.9 kg)
<b>Weight (with all SSDs)</b>	56.0 lb (25.5 kg)
<b>Shipping package dimensions</b>	- 13" x 23" x 39" (33.0 x 58.4 x 99.1 cm)
<b>Shipping weight (Gross)</b>	64lbs (29.0kg)



## Summary of Changes

<b>Date</b>	<b>Version History</b>	<b>Action</b>	<b>Description of Change</b>
06-Dec-2021	Version 5	Changed	Standard Features and Configuration Information sections were updated.
01-Nov-2021	Version 4	Changed	Service and Support section was updated.
14-Jun-2021	Version 3	Changed	Corrected SKU descriptions
06-Apr-2021	Version 2	Changed	Corrected SKU descriptions and added some details
01-Mar-2021	Version 1	New	New QuickSpecs



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

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