



Western Digital®

Product Brief



OpenFlex™ Data24 4000 Series NVMe-oF™ Storage Platform

The Performance of NVMe™ Flash in Shared Storage, now with TCP support

Western Digital's OpenFlex Data24 4000 series NVMe-oF storage platform extends the high performance of NVMe flash to shared storage. Similar to the original OpenFlex Data24 and the OpenFlex Data24 3200 series, it provides low-latency sharing of NVMe SSDs over a high-performance Ethernet fabric to deliver similar performance to locally attached NVMe SSDs. Unsurpassed connectivity in its class, using Western Digital RapidFlex™ NVMe-oF controllers, allows up to six hosts to be attached without a switch, like a traditional JBOF.

OpenFlex Data24 4000 series uses Western Digital's RapidFlex A2000 Fabric Bridge devices to provide 12-ports of 100GbE which can connect to RDMA and/or TCP configured host ports. While RoCE (RDMA over Converged Ethernet) connections have historically been preferred in data centers, TCP offers greater ease-of-use and is sometimes preferred. OpenFlex Data24 4000 series offers the flexibility of connecting to either RoCE or TCP host ports for optimum usage.

OpenFlex Data24 4000 series enables PCIe Gen4 performance throughout the chassis, bringing the full performance capability of each SSD to the Ethernet fabric. PCIe Gen4 SSDs from Western Digital and 3rd parties are supported.

NVMe-over-Fabrics, or NVMe-oF, is a networked storage protocol that allows storage to be disaggregated from compute to make that storage widely available to multiple applications and servers. By enabling applications to share a common pool of storage capacity, data can be easily shared between applications or needed capacity can be allocated to an application to respond to application needs.

OpenFlex Data24 4000 series NVMe-oF storage platform can also be used as a disaggregated storage resource in an open composable infrastructure environment using the Open Composable API³.

OpenFlex Data24 4000 series is built to deliver high availability and enterprise-class reliability. The entire platform, including SSDs, is backed with a 5-year limited warranty.

Features

- Up to 368TB¹ of low latency Dual Port SSDs in 2U 24-bay platform
- RDMA over Converged Ethernet (RoCE) or Transmission Control Protocol (TCP) connectivity
- Bandwidth match between PCIe Gen4 SSDs (Storage) and I/O (Network) – No oversubscription
- RESTful API support for simplified management
- Vertically integrated Western Digital design: PCIe SSDs, fabric adapters and platform
- N+2 fan redundancy eliminates the need for hot-swappable fan modules
- Connect directly to an Ethernet NIC in your host or through an Ethernet switch
- Industry-leading 5-year limited warranty

Benefits

- Enables multiple servers to share NVMe flash storage as if it were local
- Device Sharing optional configuration utilizes NVMe Non-Transparent Bridging to allow all Ethernet ports to access any SSD
- Leverages low latency fabric to fully utilize IOPS and capacity
- Provides more efficient use of large capacity SSDs at low latency
- Balances access to eliminate over-subscription and maintain NVMe performance
- Provides open composability thru mature NVMe-oF standard
- Ideal SAS replacement option

OpenFlex Data24 4000 Series NVMe-oF Storage Platform

Specifications

Hardware
24 Dual port high-performance SSDs
Wide range of NVMe SSD capacity and endurance options
—Ultrastar® DC SN655: 1DWPD: Up to 15360 GB
High availability with dual IOM
3 RapidFlex A2000 fabric bridge devices / IOM
Western Digital RapidFlex NVMe-oF fabric adapters
—12 100GbE ports with dual IOM for maximum performance
OpenFlex inspired composability in a mainstream 2U24
Chassis depth - fits most commonly used short depth racks

Performance for Data24

Specification	RoCE	TCP
Random Read (4kB)	27 M IOPs	21 M IOPs
Random Write (4kB)	3 M IOPs	3 M IOPs
Sequential Read (32kB)	135 GB/s	113 GB/s
Sequential Write (128kB)	92 GB/s	86 GB/s
Average Random Read Latency (4kB)	96.17 µs	101.9 µs
Average Random Write Latency (4kB)	25.16 µs	53.43 µs

Specifications	OpenFlex Data24 4000 Series
Form Factor	2U
Front Drive Bays	Up to 24 x U.2 NVMe SSDs
Power Supply	2x 800W Titanium 100-240VAC, CRPS, Hot Plug
Fabric Adapter Slots	12x 100 GbE ports
Fabric Adapter(s)	Western Digital RapidFlex A2000 NVMe-oF Fabric Bridge ASICs
Cabling	Passive (1 - 5m) and Active Optical (5m - 20m)
Platform Management	ARM Based BMC
Rear I/O	1G-BASE-T Management Port (RJ-45)
HA Redundancy	Dual IOMs
Environmental	10°C - 35°C
Chassis Dimensions	85.5mm x 491.1mm x 628.65mm
(Height x Width x Depth)	3.37in x 19.37in x 24.75in
Weight	Maximum 18.25kg / 40.2lbs
Warranty ²	5 Years Limited Warranty

¹ One terabyte (TB) is equal to one trillion byte. Actual user capacity may be less due to operating environment.
² Please see product warranty terms and conditions for details at: https://documents.westerndigital.com/content/dam/doc-library/en_us/assets/public/western-digital/collateral/warranty/warranty-western-digital-platform-products.pdf.
³ The Open Composable API documentation is located at: <https://www.opencompute.org/documents/open-composable-api-for-ocp-2019-06-24.pdf>.

