

FlashDisk® RAID

FX-2U24 Series

**Affordable 2U Unit Now Supports 8 TB HDD plus SSD & SED
Up to 16 Host Ports; 1.4 Million IOPS; 5,200 MB/sec.; 2,448 TB**

FlashDisk FX-2U24 offers enterprise capability at a fraction of the price of competitors. This 2U storage system support 24 internal 2.5" HDD, SED and SSD disks plus single or dual redundant failover and auto failback controllers. Each controller has four iSCSI 1GbE host ports plus modular plug-in Fibre Channel, SAS, iSCSI 10GbE or additional iSCSI 1GbE host ports that can be inserted and removed as needed. The FX-2U24 supports up to 16 host ports per system, the most in its class, and is a virtual "SAN-In-A-Box" that provides incredible flexibility for both primary storage and replication applications and can eliminate switch costs entirely. Any host port can be configured for either host I/O or remote replication. Also, the FX-2U24 supports two controller models - a standard high speed controller and a lower cost model that runs at 85% of full speed.



FX-2U24 affordably delivers 1,400,000 IOPS - 5,200 MB per sec. - 16 host ports - Hybrid SSD & HDD arrays - automated multi-tiering - 2,448 TB capacity - redundant failover controllers - snapshots & replication

High IOPS, flexible expansion, SED Support.

FX-2U24 provides exceptional flexibility and supports a mix of SSDs, SEDs and HDDs in 12, 16, 24 or 60-bay expansion shelves to optimize capacity, performance and price. It expands to 2,448 TB using 8 TB disk drives in five 60-bay 4U expansion shelves.

Optional auto-tiering enables automated, policy-driven data migration between two tiers of storage making it easy to create a "hybrid" array with SSDs for speed and HDDs for capacity and SEDs for encrypted data security at rest while automatically optimizing access and cost.

The FlashDisk Global Manager provides a centralized management pane and event notifications for all FlashDisk FX Series systems installed. This makes it very easy to manage a large, flexible virtual and tiered storage pool including primary storage, snapshot images, mirrored volumes and replicated volumes.

Redundant Controller Systems						
Host Interface	iSCSI 1GbE	iSCSI 1GbE	iSCSI 10GbE + 1GbE	SAS 6Gb + 1GbE	FC 8Gb + 1GbE	FC 16Gb + 1GbE
Number of Host Ports	8	16	4 + 8	4 + 8	8 + 8	4 + 8
RAID 5/6: IOPS (R/W)	614K / 398K	1,118K / 723K	1,091K / 461K	801K / 276K	1,404K / 540K	1,421K / 544K
RAID 5/6: MB/s (R/W)	688 / 507	1,250 / 922	4,398 / 1,952	4,430 / 1,972	5,106 / 2,089	5,291 / 2,778
Single Controller Systems						
Host Interface	iSCSI 1GbE	iSCSI 1GbE	iSCSI 10GbE + 1GbE	SAS 6Gb + 1GbE	FC 8Gb + 1GbE	FC 16Gb + 1GbE
Number of Host Ports	4	8	2 + 4	2 + 4	4 + 4	2 + 4
RAID 5/6: IOPS (R/W)	288K / 162K	525K / 295K	349K / 269K	348K / 216K	643K / 462K	649K / 467K
RAID 5/6: MB/s (R/W)	398 / 279	725 / 507	2,312 / 1,652	2,917 / 1,175	2,847 / 1,571	2,898 / 1,599
Total HDD/SED/SSDs	360 with 2U24 shelves; 248 with 3U16 shelves; 324 with 4U60 shelves					
3.5" SAS Disks	15K rpm: 450, 600 GB; 7.2K rpm: 2, 3, 4, 6, 8 TB - SEDs 7.2K rpm 2, 3, 4 TB					
2.5" SAS Disks	15K rpm: 146, 300 GB; 10K rpm: 600, 900 GB & 1.2 TB; 7.2K rpm: 1 TB - SEDs 10K rpm: 600, 900 GB; 7.2K rpm: 500 GB, 1 TB					
2.5" SSD Disks	SAS MLC: 200, 400, 800 GB, 2.0 TB					
Compatibility	Supports any open O/S; Supports VMware, Citrix, Hyper-V					
Reliability	RAID 0, 1, 3, 5, 6, 10, 15, 16, 30, 50, 60; Hot swap components; Hot spare drive; Automatic rebuild; Path failover					
Manageability	FlashDisk Global Manager manages multiple FlashDisk units over network; Automated alerts					

Storage Services

Virtual Storage Pools

Create, expand, and delete storage volumes as requirements change to maximize storage utilization.

Snapshots

Up to 256 snapshots per volume with 4,096 total and 256 volume copies. Mount and read snapshots, restore files and databases. Rollback to selected time. Application consistent snapshot agents are available for Windows and Linux applications.

Mirroring

Create mirror volumes, split mirrors, fast resync for data redundancy, backup, data mining and analysis.

Volume Copy

Reconstitute full volumes from snapshots, create multiple full versions to avoid overloading production.

Thin Provisioning

Create large virtual volumes and auto-allocate physical space as needed.

SEDs & Secure Erase: Self Encrypted Drives (AES-256) with FIPS 140-2 validation, Seagate Instant Secure Erase.

FlashD2D Backup

Scheduled zero-downtime tiered disk-to-disk backup or off-line to tape.

Global Management

Manage multiple FlashDisk systems from one GUI from any browser.

Storage Wizard

Wizard simplifies initial setup and enables advanced settings.

Visual Calendar Scheduler

Schedules all storage services including snapshots, volume copies, split mirrors, fast resync and replication easily and intuitively.

Remote Replication

Hardware-based synchronous and asynchronous replication of host LUNs between arrays, providing another layer of data protection.

Automated Tiered Storage

Automated, policy-driven migration of data blocks between storage tiers.

FX-2U24 Base Unit with Expansion Shelf



The FX-2U24 Series supports up to 720 TB with up to (14) 2U24 expansions or up to 2,448 TB with (5) 4U expansions.

FX-2U24 Redundant Controller Model Rear Views



FX-2U24 with 4 Fibre Channel 16Gb ports plus 8 iSCSI 1GbE ports.



FX-2U24 with 8 Fibre Channel 8Gb ports plus 8 iSCSI 1GbE ports.



FX-2U24 with 4 iSCSI 10GbE ports plus 8 iSCSI 1GbE ports.



FX-2U24 with 16 iSCSI 1GbE ports.



FX-2U24 with 4 SAS 6Gb ports plus 8 iSCSI 1GbE ports.



FX-2U24 base unit with 8 iSCSI 1GbE ports.



FX-2U24 expansion with 4 SAS 6Gb ports.

System Options

Advanced Storage Services

LUN Masking

FX-2U24 RAID Base Unit

RAID controller
RAID levels supported
Host interfaces
Expansion shelf interface
HDD/SED/SSDs - Total capacity
On-line capacity expansion
Cache memory capacity
Non-volatile cache
Maximum LUN size
Maximum number of LUNs
Maximum number of hosts
LUN mapping/filtering
Host adapters available for
Power supplies and AC inlets

EX-2U24 Expansion Shelves

Expansion architecture
Expansion shelf architecture
Maximum drives/capacity
Removable drive trays
Power supplies
Cooling system
Active components
S.E.S. monitoring controllers

EX-2U12 Expansion Shelves

Maximum drives/capacity

EX-3U16 Expansion Shelves

Maximum drives/capacity

EX-4U60 Expansion Shelves

Maximum drives/capacity

Controls and Indicators

LCD front operation panel
LED indicators
Alerting
Component failure
LCD front operating console

Compatibility

Operating systems
Platforms supported
Cluster support
Hypervisor support
Remote monitoring ports
Communication protocols

Storage Management

Event notification
FlashAlert call home service
Manage out of band
FlashDisk Global Manager GUI

General

Uninterruptible power supply
Redundant AC power
Power consumption
RAID unit dimensions
RAID unit weight
Operating temperature
Cooling system
Compliance

Warranty & Service

Standard warranty
Service contracts
Secure site
Installation and service

Increases snapshots from 64 to 256 per volume; from 128 to 4,096 total and increases volume copies from 64 to 256 total.
Enables volume protection needed in SAN environment.

Single/Dual redundant 64-bit, 13th generation controller
0, 1, 3, 5, 6, 1+0, 15, 16, 30, 50, 60
1GbE, 10GbE (copper or fiber), SAS 6Gb, FC 8Gb, FC 16Gb
SAS 6Gb, 4 lanes - 24Gb per port - up to 48Gb per array
24 (2.5") disks in 2U24 base; 720 TB max.; (14) 2U24 expansions
Automatically adds new drives to existing array - "on-the-fly"
16 GB per controller, included standard
Li-ION battery powered backup to flash memory
512 TB
1024 total, 64 per host ID
8 SAS or 64 Fibre Channel
Configurable per logical partition
PCI-X, PCI Express
Dual hot-swap redundant 530 W each; dual AC inlets

Dual/Quad SAS (Serial Attach SCSI) bus
Multiplexed access to each drive within the shelf
24 (2.5") disks per shelf to 48 TB each; up to 14 expansion shelves
Hot swappable; individual drive locks
Dual hot-swappable; 530 Watts each; 320 Watts typical draw
Dual hot-swappable fan modules
No active data path components on the midplane
Dual, hot-swappable SCSI Enclosure Services modules

12 disks (2.5"/3.5") per shelf to 96 TB each; up to 14 expansion shelves

16 disks (2.5"/3.5") per shelf to 128 TB each; up to 14 expansion shelves

60 disks (2.5"/3.5") per shelf to 480 TB each; up to 5 expansion shelves

2 x 16 character display, push button controls.
LED power, battery, controller, and system status
Audible and visual alerts
Failure indication through LCD and GUI
View/edit logical RAID/physical drives, setup hot-spare drives, map hosts, check parity, enable write-back cache, rebuild failed drive, view logs...

Supports Windows, Linux, MAC OS X, AIX and UNIX
Intel, SUN, HP, IBM RS-6000, Apple, SGI
Supports 9 industry-standards on Windows, Linux and UNIX
VMware ESX, Citrix XenServer, Windows Hyper-V, RHEL KVM
RJ45 10/100 Ethernet
TCP/IP, SNMP, SSH

Automatic event and problem alert notification
24-hour call center available for immediate action
Ethernet
Manage storage services of multiple FlashDisks from any web browser

Required when using write-back cache
Triple 90-260 VAC Inlet, 47-63 Hz
100 VAC @ 6/10A; 240 VAC @ 3/5 A; 530 W with PFC; 340 W draw
3.5" h x 17.5" w x 21" d
Approximately 60 lbs. fully loaded with drives
0° to 40° C operating; -40° to 60° C non-operating
Two dual hot-swap, ball bearing blowers; 60 dB-A
FCC, UL, CE, CSA

Three year factory warranty and toll free hotline during business hours
Optional on-site service, spare parts and advance parts replacement
Customizable service programs for classified sites
On-site installation; 24x7 service available

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