FlashDisk® RAID 2U12 FX-2300 Series

Simple, Affordable Storage Scalable to 432 TB
Moves Data at 5,000 MB/sec. - Features TrueRAID6™

FX-2300 high performance storage offers a convenient 2U RAID unit with (12) 3.5" disks that provides low initial cost and low expansion cost - yet still expands to 432 TB with 4 TB disk drives. Expansion shelves support either (12) 3.5" disk drives for higher capacity or (24) 2.5" disk drives for higher speed. It supports both traditional hard disk (HDD) drives and solid state disk (SSD) drives for maximum flexibility to match application performance and storage requirements.

FX-2300 RAID systems feature a 2U RAID unit with (12) 3.5" disks and expansion shelves with either 2.5" or 3.5" disks to 432 TB & 5 GB/s.

The FX-2300 provides performance, reliability, advanced storage services and features FlashD2D - a unique scheduled, zero-downtime disk-to-disk backup. Its FlashDisk Global Manager provides a centralized management pane for all FlashDisk FX Series systems installed and centralized event notifications. This makes it very easy to manage a large, flexible virtual and tiered storage pool including primary storage, snapshot images and mirror volumes.

FX-2300 supports single or dual redundant controllers with mirrored cache for Fibre Channel or iSCSI hosts. The FX-2300 is a "SAN-In-A-Box" that can attach to multiple hosts without switches. FlashDisk delivers exceptional performance with nearly 5,300 MB per second data throughput using SAS 6 Gb disk drives and 48 Gb SAS backend expansion buses. High performance *TrueRAID6* for high speed dual *distributed* parity protects against two simultaneous drive failures and ensures fast and successful disk rebuilds.

Redundant Controller Systems		
Host Interface	**iSCSI 10Gb**	**Fibre Channel 8Gb**	**Fibre Channel 16Gb**
Models	*FX-2364R*	*FX-2318R*	*FX-2374R*
Number of Host Ports	4	8	4
RAID 5/6: IOPS (R/W)	369K Read IOPS / 275K Write IOPS	847K Read IOPS / 275K Write IOPS	850K Read IOPS / 526K Write IOPS
RAID 5/6: MB/s (R/W)	3,481 MB/s / 2,439 MB/s	5,106 MB/s / 2,089 MB/s	5,291 MB/s / 2,778 MB/s

Single Controller Systems		
Host Interface	**iSCSI 10Gb**	**Fibre Channel 8Gb**	**Fibre Channel 16Gb**
Models	*FX-2362S*	*FX-2314S*	*FX-2372S*
Number of Host Ports	2	4	2
RAID 5/6: IOPS (R/W)	198K Read IOPS / 158K Write IOPS	406K Read IOPS / 268K Write IOPS	407K Read IOPS / 267K Write IOPS
RAID 5/6: MB/s (R/W)	2,241 MB/s / 2,327 MB/s	2,847 MB/s / 1,571 MB/s	2,898 MB/s / 1,599 MB/s

Number of Total SAS/SSD Disks	108 with 3.5" disks in 8 expansion shelves; 156 with 2.5" disks in 6 expansion shelves
3.5" SAS Disks	SAS: 15K rpm: 450, 600 GB; 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
2.5" SSD Disks	SAS SLC: 100, 200, 400 GB - 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
Warranty and Service	One year warranty; On-site service; 24x7 automated "call home" to US call center; Live technical phone support

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 snapshots and 256 volume copies. Mount and read snapshots, restore files and databases. Rollback to selected time. Host flush agents are available for Windows 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.

FlashD2D Backup
Scheduled zero-downtime tiered primary to secondary disk-to-disk backup. Enables off-line copy to tape.

Global Management
Manage multiple FlashDisk systems from a single, easy to use GUI from any browser on the web.

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.

*The FX-2300 Series supports up to 432 TB
with optional expansion shelves.*

FX-2318R with 8 Fibre Channel 8Gb ports.

FX-2374R with 4 Fibre Channel 16Gb ports.

FX-2364R with 4 iSCSI 10Gb ports.

FX-2310R expansion with 4 SAS 6Gb ports.

System Options

Advanced Storage Services	Increases snapshots from 64 to 256 per volume; from 1,024 to 4,096 total and increases volume copies from 64 to 256 total.
LUN Masking	Enables volume protection needed in SAN environment.

External Options

FlashNAS Appliance	High performance NAS filer with snapshots; CIFS/NFS/AFP; NSPF

2U RAID Base Unit

RAID controller	Single/Dual redundant 64-bit, 12th generation controller
RAID levels supported	0, 1, 3, 5, 6, 1+0, 15, 16, 30, 50, 60
Host interfaces	iSCSI 10Gb, Fibre Channel 8Gb, Fibre Channel 16Gb
Expansion shelf interface	SAS 6Gb, 4 lanes - 24Gb per port - up to 48Gb per array
Number of drives - Total capacity	(12) 3.5" disks per base unit - 432 TB maximum with expansion
On-line capacity expansion	Automatically adds new drives to existing array - "on-the-fly"
Cache memory capacity	Max. 8 GB per controller included standard
Non-volatile cache	Li-ION battery powered backup to flash memory
Maximum LUNs	1024 total, 64 per host ID
Maximum number of hosts	8 SAS or 64 Fibre Channel
LUN mapping/filtering	Configurable per logical partition
Host adapters available for	PCI-X, PCI Express
Power supplies and AC inlets	Dual hot-swap redundant 530 W each; dual AC inlets

2U Expansion Shelves

Expansion architecture	Single/Dual SAS (Serial Attach SCSI) bus
Expansion shelf architecture	Multiplexed access to each drive within the shelf
Maximum drives/capacity	(12) 3.5" or (24) 2.5" disks per expansion shelf - 48 TB per shelf max.
Removable drive trays	Hot swappable; individual drive locks
Power supplies	Dual hot-swappable; 530 Watts each; 320 Watts typical draw
Cooling system	Dual hot-swappable fan modules
Active components	No active data path components on the midplane
S.E.S. monitoring controllers	Dual, hot-swappable SCSI Enclosure Services modules

Controls and Indicators

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

Compatibility

Operating systems	Supports 14 O/S including Windows, Linux, AIX and UNIX
Platforms supported	Intel, SUN, HP, IBM RS-6000, Apple, SGI
Cluster support	Supports 9 industry-standards including Windows, Linux, and Veritas
Hypervisor support	VMware ESX, Citrix XenServer, Windows Hyper-V, RHEL KVM
Remote monitoring ports	RJ45 10/100 Ethernet
Communication protocols	TCP/IP, SNMP, SSH

Storage Management

Event notification	Automatic event and problem alert notification
FlashAlert call home service	24-hour call center available for immediate action
Manage out of band	Ethernet
FlashDisk Global Manager GUI	Manage storage services of multiple FlashDisks from any web browser

General

Uninterruptible power supply	Required when using write-back cache
Redundant AC power	Dual 90-260 VAC Inlet, 47-63 Hz
Power consumption	100 VAC @ 6/10A; 240 VAC @ 3/5 A; 530 W with PFC; 340 W draw
RAID unit dimensions	3.5"h x 17.5"w x 21"d
RAID unit weight	Approximately 63 lbs. fully loaded with drives
Temperature	0° to 40° C operating; -40° to 60° C non-operating
Cooling system	Two dual hot-swap, ball bearing blowers; 60 dB-A
Compliance	FCC, UL, CE, CSA

Warranty & Service

Standard warranty	One year, next day on-site and toll-free hotline; Options up to 24x7 on-site
Installation and service	On-site installation; 24x7 service available

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