

F/C	SAS	iSCSI	SCSI
Host Type			

F/C	SATA	SAS	SCSI
Drive Type			

FlashDisk® SAS/SATA Expandable SX-3400 Series

Tiered SAS/SATA Storage to 224 TB with 8 Gb Fibre Channel Ports Supports Virtualization - Exceptional Speed - RAID 6 Data Protection

Now with 8 Gb Fibre Channel ports and 2 TB disks, FlashDisk SX-3400 tiered storage provides both performance and capacity in one disk array expandable to 224 TB for your current SAN, NAS or directly attached environment. It offers low cost per terabyte and high capacity per RAID system with up to 16 SAS or SATA disks in each 3U high shelf.

FlashDisk provides RAID 6 with dual parity, powered by high speed ASICs, to deliver vastly superior reliability while sustaining full performance for both SAS and SATA shelves.

Virtual servers and high performance databases require enterprise class performance and reliability. The FlashDisk SX-3400 offers SAS disks to 600 GB at 15k rpm for high performance and SAS disks to 2 TB at 7.2k rpm for reliable high capacity applications including imaging, data acquisition, video and surveillance. Storage intensive applications including backup, snapshot, archive, disaster recovery and virtual tape libraries require inexpensive secondary storage. The FlashDisk SX-3400 offers SATA disks to 2 TB at 7.2k rpm disks for bulk storage.

FlashDisk SX-3400 supports a base unit base unit with single or dual redundant controllers with mirrored cache and up to 6 expansion shelves for SAS, iSCSI or Fibre Channel hosts. The SX-3400 is a "SAN-In-A-Box" that attaches to 8 Fibre Channel or 4 SAS hosts without switches or redundant HBAs. RAID 6 provides dual parity for large arrays to protect against two drive failures and to ensure successful disk rebuilds.



SX-3400 models support virtual servers and database applications with 15k rpm SAS disks and supports backup, archiving, video with 7.2k rpm disks to 2 TB.

SAS and Fibre Channel hosted models offer "SAN-In-A-Box" connectivity and iSCSI models support LAN servers with vastly superior RAID 6 data protection.

FlashView embedded GUI simplifies storage management.

Model	SX-3402S	SX-3404R	SX-3484S	SX-3488R	SX-3414S	SX-3418R
Number of Controllers	Single	Dual Redundant	Single	Dual Redundant	Single	Dual Redundant
Host Interface	SAS 4x Wide	SAS 4x Wide	iSCSI	iSCSI	8 Gb Fibre Channel	8 Gb Fibre Channel
Number of Host Ports	2	4	4	8	4	8
Number of Expansion Shelves	4	3	4	3	6	6
Number of Total SAS/SATA Disks	80	64	80	64	112	112
RAID 5: IOPS (R/W)	39K / 29K	80K / 41K	58K / 34K	59K / 37K	75K / 53K	155K / 52K
RAID 6: IOPS (R/W)	39K / 29K	79K / 41K	58K / 34K	60K / 36K	76K / 53K	153K / 51K
RAID 5: Throughput MB/s. (R/W)	753 / 534	1,514 / 931	416 / 308	718 / 309	1,054 / 934	2,588 / 1,218
RAID 6: Throughput MB/s. (R/W)	764 / 470	1,506 / 833	416 / 297	720 / 290	1,053 / 806	2,582 / 1,053

FlashDisk SX-3400 Series

Compatibility

-Supports VMware, Citrix, Microsoft Virtual Servers and Applications

-Supports any open O/S
-No host software or drivers needed
-Cluster: Windows, Novell, UNIX, Linux . . .

Connectivity, Capacity & Scalability

-Supports up to 112 SAS and/or SATA disks
-Up to 8 F/C 8 Gb or 4 SAS 4x wide hosts
-2 GB of cache per controller, 4 GB optional
-Scales to 224 TB with 6 expansion shelves

Reliability & Serviceability

-RAID 6 dual parity data protection
-Hot-swappable drives, power supplies, fans, BBUs, AC inlets, optional controllers
-Hot spares with automatic drive rebuilds
-Supports drive path failover & load balancing
-No single point of failure configurations

Centralized & Remote Management

-FlashView embedded RAID management
-Managed out-of-band via Ethernet, Telnet, FlashConsole management appliance option
-Automatic event and alert notification
-FlashAlert 24-hour "call-home" service

3U RAID Base Unit

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

SX-3400 Series supports expansion shelves

Single/Dual redundant 64-bit RAID controller
0, 1, 3, 5, 6, 1+0, 15, 16, 30, 50, 60
SAS 4x wide or Fibre Channel host ports - SFP optical
SAS 4x wide
16 drives/32 TB in base - 224 TB total with expansion
Automatically adds new drives to existing array
2 GB per controller
Li-ION battery - minimum 72 hours
1024 total, 64 per host ID
4 SAS or 64 Fibre Channel
Configurable per logical partition - Fibre Channel only
PCI-X, PCI Express
Dual hot-swap redundant 530 W each; dual AC inlets

3U Expansion Shelf

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

SX-3400S/SX-3400R - JBOD expansion shelves

Single/Dual SAS (Serial Attach SCSI) bus
Multiplexed access to each drive within the shelf
16 SAS or 16 SATA disk drives only
16 TB SAS or 32 TB SATA per shelf
Hot swappable; individual drive locks
Dual hot-swappable; 530 Watts each
Dual hot-swappable fan modules
No active data path components on the midplane
Dual, hot-swappable SCSI Enclosure Services modules

SAS/SATA Disk Drives

SAS disk drives
SATA disk drives

Enterprise Class SAS/SATA Disk Drives

300/450/600 GB 15k; 1 TB/2 TB 7.2k rpm
1 TB/2 TB 7.2k rpm

**Virtual Servers
need the speed and
RAID 6 data protection
that FlashDisk
delivers.**

**SX-3400 Series base unit
shown with one SX-3400S
expansion shelf**



**The SX-3400 Series supports up
to 112 SAS and/or SATA disk
drives and scales to 224 TB with
six disk-only (JBOD) expansion
shelves and 2 TB disk drives.**

**SX-3400 systems are available
for SAS hosts, iSCSI hosts or
Fibre Channel hosts.**

**Rear view of Fibre Channel,
SAS and iSCSI Base
Systems and common SAS
Expansion Unit.**

Controls and Indicators

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

2 x 16 character display, push button controls.
LED power, battery, controller, and system status.
Audible and visual alerts.
Failure indication through LCD, RS-232C, and GUI.
View and 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
Platforms supported
Cluster support
Remote monitoring ports
Communication protocols

Supports 14 Operating Systems including Windows,
Linux, and UNIX
Intel, SUN, HP, IBM RS-6000, Apple, SGI
Supports 9 industry-standards including Windows,
Linux, and Veritas
RJ45 10/100 Ethernet, dual RS-232
TCP/IP, SNMP, SSH

Options

FlashNAS Appliance
XOsoft WANsync

High performance NAS filer with snapshots; supports
CIFS/NFS/AFP; NSPF option
Replication over IP for disaster recovery

Storage Management

FlashView and FlashConsole
FlashAlert call home service
Manage out of band
Centralized management

Automatic event and problem alert notification
24-hour call center available for immediate action
Ethernet, TELNET via FlashConsole
Manage from any LAN workstation with web browser
and no additional software

General

Uninterruptible power supply
Redundant AC power
Power Consumption
RAID unit dimensions
RAID unit weight
Operating temperature
Cooling System
Compliance

Required when using write-back cache
Dual 90-260 VAC Inlet, 47-63 Hz
100 VAC @ 9A; 240 VAC @ 4.5 A; 530 W with PFC
5.1" h x 17.5" w x 19.2" d
Approximately 77 lbs. fully loaded with drives
0° to 40° C
Two dual hot-swap, ball bearing blowers; <51 dB-A
FCC, UL, CE, CSA

Warranty & Service

Standard Warranty
Installation and service

One year, next day on-site and toll-free hotline
On-site installation; 24x7 service available



**SX-3418R base unit holds 16 drives and offers eight 8 Gb
F/C host connections to create a virtual "SAN-In-A-Box."**



**SX-3488R base unit holds 16 drives and offers 8 iSCSI
ports to provide storage for all servers on the LAN.**



**SX-3404R base unit holds 16 drives and offers 4 SAS 4x
wide host connections to create a virtual "SAN-In-A-Box."**



**All SX-3400 Series products use SAS expansion
shelves, each with 16 SAS or SATA disks.**

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