FlashDisk®   SATA Expandable   SX-2300 Series

SAS Hosted - High capacity SATA storage solution - Expandable to 60 TB
With 2nd Generation RAID 6 for vastly superior data protection

FlashDisk SX-2300 Series disk arrays provide high capacity SATA storage solutions in an expandable SAS (Serial Attach SCSI) architecture that provides 60 TB of high performance coupled with extraordinary RAID 6 data protection at low cost.

The base unit contains single or dual redundant controllers and supports up to 4 expansion shelves and up to 60 total enterprise class SATA II disks with up to 1 TB capacity, for the most storage intensive applications including backup, snapshot, archive, disaster recovery, virtual tape library, data acquisition, imaging, video and audio. With 21 easy to service 2U units, 252 TB fits in a single 42U cabinet.

FlashDisk SX-2300 also delivers 1,150 MB per second sustained throughput and 78,000 disk IO operations per second - while maintaining mirrored cache for controller failover.

The FlashDisk SX-2300 Series also provides a unique "SAN-in-a-Box" design so you can directly attach up to 4 SAS hosts with simple and inexpensive yet high performance host adapters - multi-host connectivity without fibre channel costs.

RAID 6 provides dual parity to protect against two drive failures and to help ensure that critical disk rebuilds after a drive failure are successful - especially important with today's large arrays. RAID 6 dual parity offers 500 to 30,000 *times* longer MTDL (Mean Time To Data Loss) than RAID 5.

Up to 252 TB in 42U Cabinet

Connect directly to up to 4 SAS hosts a "SAN-In-A-Box" with inexpensive yet high performance SAS host adapters.

The SX-2300 Series offers up to 60 TB of enterprise SATA storage with up to 4 expansion shelves with up to 12 TB each at low cost - and offers vastly superior RAID 6 data protection. FlashView embedded GUI simplifies storage management.

Up to 4 SAS Host Ports

FlashDisk SX-2300 Series

Connectivity, Capacity & Scalability
-Up to 4 SAS 4x wide ports
-Supports up to 60 SATA II, 3 Gbps disks
-Scales to 60 TB
-4 expansion shelves with 12 drives each
-512 MB to 2 GB of cache per controller

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

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

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

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Model	SX-2302S	SX-2304R
Number of Controllers	Single	Dual Redundant
Host Interface	2 SAS 4x wide	4 SAS 4x wide
Number of Host Ports	2	4
Number of Expansion Shelves	4	3
Number of Total Disk Drives	60	48
RAID 5: IOPS	40K Read / 33K Write	78K Read / 40K Write
RAID 6: IOPS	40K Read / 31K Write	78K Read / 40K Write
RAID 5: Throughput (MB/second)	460K Read / 330K Write	1,150K Read / 460K Write
RAID 6: Throughput (MB/second)	440K Read / 290K Write	1,150K Read / 400K Write

2U RAID Base Unit	SX-2300S/SX-2300R - Supports expansion shelves
Controller	Single/Dual redundant 64-bit RAID controller
RAID levels supported	0, 1, 3, 5, 6, 1+0, 15, 16, 30, 50, 60
Host interface	Two/Four SAS ports; 4x wide - 3.0 Gbps each
Expansion shelf interface	One/Two SAS ports; 4x wide - 3.0 Gbps each
Number of drives/Total capacity	12 drives/12 TB in base - 60 TB total with expansion
On-line capacity expansion	Automatically adds new drives to existing array
Cache memory capacity	512 MB standard, upgradable to 2 GB per controller
Non-volatile cache	Li-ION battery - minimum 72 hours
Maximum LUNs	64 configurable LUNs
Maximum number of hosts	64
LUN mapping/filtering	Configurable per logical partition
Host adapters available for	PCI-X, PCI
Power supplies and AC inlets	Dual hot-swap redundant 460/530 W; dual AC inlets

2U SATA Expansion Shelf	SX-2300S/SX-2300R - JBOD expansion shelves
Expansion architecture	Single/Dual SAS (Serial Attach SCSI) bus
Expansion shelf architecture	Multiplexed access to each drive within the shelf
Maximum drives	12 SATA II disk drives
Maximum capacity	12 TB per shelf
Removable drive trays	Hot swappable; individual drive locks
Power supplies	Dual hot-swappable; 460/530 Watts each
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

SATA II Disk Drives	Enterprise Class SATA Disk Drives
7,200 rpm disks	500, 750 GB, 1 TB; read seek time: 8.5 msec.

SX-2302S base unit shown with one SX-2300S expansion shelf

The SX-2300S supports up to 60 SATA II disk drives and scales to 60 TB with 4 disk-only (JBOD) expansion shelves.

Windows Storage Server 2003

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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, RS-232C, and GUI.
LCD front operating console	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	Supports 14 Operating Systems including Windows, Linux, and UNIX
Platforms supported	Intel, SUN, HP, IBM RS-6000, Apple, SGI
Cluster support	Supports 9 industry-standards including Windows, Linux, and Veritas
Remote monitoring ports	RJ45 10/100 Ethernet, dual RS-232
Communication protocols	TCP/IP, SNMP, SSH
Options	
FlashNAS Appliance	High performance NAS filer with snapshots; supports CIFS/NFS/AFP; NSPF option
XOsoft WANsync	Replication over IP for disaster recovery
Storage Management	
FlashView and FlashConsole	Automatic event and problem alert notification
FlashAlert call home service	24-hour call center available for immediate action
Manage out of band	Ethernet, TELNET via FlashConsole
Centralized management	Manage from any LAN workstation with web browser and no additional software
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 @ 8/10A; 240 VAC @ 4/5A; 460/530 W; PFC
RAID unit dimensions	3.5"h x 17.5"w x 19.2"d
RAID unit weight	Approximately 63 lbs. fully loaded with drives
Operating temperature	0° to 40° C
Cooling System	Two dual hot-swap, ball bearing blowers; <51 dB-A
Compliance	FCC, UL, CE, CSA
Warranty & Service	
Standard Warranty	One year, next day on-site and toll-free hotline
Installation and service	On-site installation; 24x7 service available

Rear View of Single and Dual Controller RAID Base Systems
Features RAID 6 Dual Parity Data Protection

SX-2300 Series products offer easily expansion, simple serviceability, scalability to 60 TB and simple, low cost SAS connections without fibre channel costs. It provides up to 252 TB in a single 42U data center cabinet.

SX-2302S base unit holds 12 drives and offers 2 SAS ports to create a multi-hosted system.

SX-2304R holds 12 drives with redundant controllers and 4 SAS ports to create a virtual "SAN-In-A-Box.

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