

4Gb FC-SAS/SATA-II RAID F5404E

Fueled by radical advances in digital video production, medical screening, CCTV surveillance, disk-to-disk backup and new requirements for securities compliance, the explosion in digital content creation continues unabated. The sheer volume and wide range of digital information present a unique challenge for the storage manager, requiring solutions that deliver low cost and power efficient, high-performance storage across the enterprise.

• Realize Value from Storage 24/7 - Xyratex RAID Solutions

OEMs and solution integrators now require ever more sophisticated systems and solutions capable of managing and maintaining this vast amount of business critical data. They are also under considerable pressure to address four key challenges: shorten time to market; reduce test, integration, warranty and service costs; increase reliability; and bolster customer satisfaction.

Xyratex RAID solutions reduce development costs, feature enterprise-class RAID functionality including RAID-6 and Snapshot, support high availability, dual controller configuration support and are highly reliable.

• Redefining Flexibility and Availability – Xyratex F5404E

The Xyratex F5404E was engineered to address these demands, combining 4Gb Fibre Channel (FC) RAID connectivity with Serial ATA II (SATA) disk drives, and Serial Attached SCSI (SAS) expansion technology, offering affordable RAID data storage and high performance capabilities.

The Xyratex F5404E sets a new standard in the design of mass storage enclosures to provide OEMs with unsurpassed disk storage capacity in a single enclosure. Housing 48 SATA drives in 4U of rack space, the F5404E can store 48TB of data in a single unit. With a combination of high performance controllers and high-density packaging, the fully HA design of the F5404E increases the flexibility of storage deployment to the end user.

The Xyratex F5404E provides the bandwidth needs for disk-to-disk backup, archive and other storage intensive applications, while leveraging SAS full duplex, point-to-point architecture with dedicated connections for maximum data throughput. There is also no single point of failure, with two RAID controllers per chassis and host-based dynamic multi-pathing to maintain continuous access to application data. Meanwhile, the F5404E has the lowest power consumption (50 percent more TB/KW), and highest density (33 percent more TB/ft²) of any nearline storage RAID system on the market.



Features

- RAID 1, 5, 6, 10 & 50 support
- Snapshot support for up to 512 snaps
- Four (4) 4Gb/s high speed Fibre Channel host connections per system
- Up to 48 high performance cost effective SATA drives in one system
- StorView™ controller based or host based management software
- Online capacity growth through dynamic array and LUN expansion
- Cableless, modular design and redundant, hot-swappable components for fault tolerance
- Customizable fascia, SCSI Inquiry Strings, management interface, multi-path manager
- RAID Advanced Power Management

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4Gb FC-SAS/SATA-II RAID F5404E

• Manage Storage and Recovery from a Single Pane of Glass

Xyratex's StorView software configures and administers the F5404E storage system. Automated control of individual controller's cache, arrays and devices via a web-based interface simplifies storage administration, while StorView's full-function Command Line Interface (CLI) allows integration of array management into existing operational procedures. Xyratex's entire 5000 Series of RAID systems come standard with StorView management software, allowing for intuitive administration and performance monitoring. An optional upgrade to StorView Global Manager enables configuration, monitoring and management of 5000 Series RAID controllers from any location, anywhere on the network.

All models in the 5000 RAID series are also equipped with Snapshot, providing a point-in-time record of critical data stores. Four snapshots are available to start implementing immediate recovery capabilities, while an optional Snapshot upgrade allows for up to 24 snapshots per Logical Drive and up to eight Logical Drives in snapshot mode. The StorView software also enables access to the RAID Advanced Power Management which can be used to reduce the operational costs of the RAID storage system, while ensuring continuous availability to data. Xyratex Advanced Power Management can reduce energy consumption by up to 40%.

• Technical Specification

General Information

Product Code	RS-4835-F4-5404E
External Interface	4Gb FC, point-to-point, loop and fabric (switched) topologies
Supported Operating Platforms	Windows 2003 (IA32, EM64T); RedHat Linux AS3/AS4 (IA32, EM64T); SuSE Linux 9/10 (IA32, EM64T)
Supported Hosts	256, 512 LUNs, LUN Masking, >2TB LUNs
Total Capacity per Unit	48TB
Expansion Chassis	RS-4835-E3-XPN (1 max), SAS connected, single and dual IO Module configurations
Total Expansion Capacity	96TB, 1G Cache per controller (selectable by volume – read, adaptive read-ahead, write through, write-back), battery backup

Disk Drives

Interface Types	SATA-II (3GB), NCQ, dedicated bandwidth to each drive
Max Drives per Enclosure	48, 512 Logical Drives/system, automatic bad sector assignment

RAID Controllers

No. RAID Controllers	2 (dual – HA)
RAID Levels Supported	Up to 96 disk arrays with independent RAID level 0, 1, 5, 6, 10, & 50 support, selectable strip sizes (64, 128 & 256K), partial strip read/write
RAID Protection Features	Background initialization, background parity checking and automatic drive rebuild with redundant RAID arrays

System Management

Software	StorView, StorView Global, StorView Path Manager
Interfaces Supported	Ethernet (out-of-band), FC host based (in-band)

System Availability

Hot Swappable Components	PSU/cooling modules, disk drives, RAID controllers
Additional Reliability Features	StorView Path Manager for Windows and Linux - host based dynamic multi-path failover

Dimensions

Height	175mm (6.89") 4 EIA Units
Width	482mm (19") IEC Rack Compliant
Depth	810mm (31.9") 1m depth rack required
Weight	74.8Kg (165lbs) with drives
Service Clearance	559mm (22") shelf pull-out

Altitude, Power and Temperatures

Operational Altitude	0 to 2,133m (0 to 7,000ft)
Non-operational Alt.	0 to 12,192m (0 to 40,000ft)
Voltage	100 to 240V AC 5.0A maximum per input
Frequency	60/50Hz, single-phase
Power Consumption	800W typical
Temperature Range	Operating: 5°C to 35°C (41°F to 95°F)
Humidity	Operating: 10% to 80% non-condensing

Shock and Vibration

Operational Shock	5g 10ms ½ sine
Operational Vibration	Random 0.21grms 5-500Hz
Non-op. Shock	30g 10ms ½ sine
Non-op. Vibration	Random 1.04 grms 2-200Hz
Relocation Vibration	Swept sine 0.9g 2-200Hz
Acoustics	<58 dB LpA @20°C

Approvals

CCC, CE, UL, cUL, RoHS (R5)
Microsoft WHQL, Microsoft RAID System Submission – MPIO 2-Node Cluster

Warranty Information

Enclosures with drives Up to 3 years. Please contact Xyratex for detailed warranty information.

Environmental Standards



ISO 14001: 2004 Cert No. EMS91560



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