

Adaptec® FS4500 Fibre to SATA RAID



Cost-effective, scalable Fibre Channel to SATA RAID solution

The Adaptec FS4500 Fibre to SATA RAID addresses the high growth, midrange storage market, combining cost-effective SATA technology with Fibre Channel RAID performance and reliability in SAN, DAS, and clustered configurations. It is ideal for reference data and fixed content applications where data availability, throughput and constant access to storage resources are critical. The FS4500 RAID is highly flexible and configurable to adapt to evolving storage requirements with flexible configurations.

Enhanced SATA Reliability

The Adaptec FS4500 maximizes SATA drive reliability and performance through enhanced thermal and rotational vibration characteristics. The FS4500 has no single point of failure with redundant, hot-swappable components and a passive midplane. RAID controllers mask the drives' SATA characteristics, presenting them to the host as high performance FC devices. Adaptec dual channel multiplexer (DCM) technology allows dual controllers to access each SATA drive for non-disruptive availability.

Optimal Data Availability and Throughput

The Adaptec FS4500 provides dual Fibre interfaces to loop, fabric, or point-to-point topologies, and redundant data paths for continuous access to large storage pools. RAID controllers maximize availability, with a "heartbeat" between them for transparent failover/failback in addition to cache coherency and battery back-up. With support for RAID levels 0-5, 10, 30, and 50, one can select the level that best meets application requirements. If a drive fails, the controller automatically rebuilds the data on a global hot spare without impacting system performance.

LUN masking, parity-protected data buses, and ECC-protected memory provide maximum availability and continuous data access.

Exceptional Scalability and Investment Protection

Each Adaptec FS4500 supports up to 12 disk drives or 3 TByte (using 250 GByte drives), in a dense 2U form factor. As storage needs grow, add Adaptec FS4100 JBOD expansion systems dynamically – up to a total of eight systems (96 drives). A 3Gbit-ready midplane and support for future SATA drives provide investment protection.

Innovative Modular Architecture

The Adaptec FS4500 is based on Adaptec advanced Flexible Storage Architecture (FSA). A modular, state-of-the-art design, FSA lets users optimize individual storage solutions to changing application requirements and network environments quickly and economically, by adding component "building blocks." The result is a flexible, universal storage solution for enterprises that addresses current and future needs, and unexpected changes.

Comprehensive Storage Management

Adaptec Spheras RAIDWatch software enables easy local or remote configuration, monitoring, and tuning of Adaptec FS4500 solutions. Notification utilities alert administrators to irregularities, while an intuitive interface provides a comprehensive, graphical overview for pre-emptive troubleshooting and system configuration.

Worldwide Service and Interoperability Testing

Adaptec helps ensure the performance and availability of your storage with a flexible support program – from telephone assistance to on-site maintenance – tailored to meet your needs. Adaptec works closely with industry leaders, testing various technologies and products to ensure seamless interoperability.

Product Highlights

Dual active, failover/failback RAID controllers provide up to 48,000 I/Os and 385 MByte/sec

No single point of failure with redundant, hot-swappable components

Scalable to 96 drives (24 TBytes), rackmount or pedestal configuration

Dual port access to each drive with patented multiplexor technology

Intuitive, comprehensive management with Adaptec RAIDWatch management software

3 Gbit SATA-ready midplane for investment protection

Single controller or dual controller high availability configurations

Up to 1 GByte of cache per controller

Two host ports, serial, Ethernet, and expansion port per controller

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Technical Specifications (Ordering Part Number: FS4500SR-AC)

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| <p>System</p> <p>Host interface</p> <ul style="list-style-type: none"> One or two Fibre Channel controllers; each controller supports dual optical or copper (SFP) connections, 200 MB/s each (400 MB/s total) Serial (RS232) port, Ethernet port, copper or optical (SFP) expansion port <p>Disk drive interface</p> <p>Independent 150 MB/s point-to-point connections to each SATA disk drive with dual port access and failover by each controller to each drive</p> <p>Measured performance (dual controllers, RAID 5)</p> <p>Up to 385 MB/s (sustained reads), 48,000 I/Os (cached reads)</p> <p>RAID controller specifications</p> <ul style="list-style-type: none"> PowerPC 750 667 MHz RISC processor Hardware XOR Up to 1 GB memory per controller 4 MNB flash memory ECC memory support <p>Controller features</p> <ul style="list-style-type: none"> Dual active with automatic, transparent failover/failback Auto-negotiate speeds In-band and out-of-band management Replacement controller reflashes FW to match peer controller Selective LUN deletion LUN Masking – up to 128 LUNs and 1024 host ports supported F_port and FL_port support Cache coherency Battery protected mirrored write cache Write through, write back, or read-ahead cache support per logical drive Variable cache line size and stripe size Dedicated controller-to-controller communication path Background disk scrubbing and data integrity checking Concurrent RAID level support – 0-5, 10, 30, 50 | <ul style="list-style-type: none"> Each logical drive can have an independent RAID level On-line RAID group expansion/partitioning Up to 32 MB I/O request sizes Global hot spare drives assign a spare to a specified LUN Write through/back configurability per LUN Write through performance optimization <p>Capacity</p> <p>Up to 12 drives (3 TB) capacity per 2U enclosure with a total maximum of 96 drives (24 TB) capacity per subsystem</p> <p>Redundant, hot-swappable components</p> <ul style="list-style-type: none"> Up to two RAID controllers Two independent AC power inlets Two advanced advanced power and cooling modules (APC) Enclosure services module (hot-swappable, not redundant) Up to 12 drives No active components on data path <p>Maximum cable lengths</p> <p>Optical: Up to 25 meters Copper: Up to 6 meters</p> <p>Pedestal cabinet dimensions</p> <p>19.5in H x 4.6in W x 21.5in D (49.53cm H x 11.7cm W x 54.6cm D) Weight with drives: 60 lbs (27 kg) max</p> <p>Rackmount enclosure dimensions</p> <p>3.5in H x 17.6in W x 19.5in D (8.9cm H x 44.7cm W x 49.53cm D) Weight with drives: 60 lbs (27 kg) max</p> <p>3 year system warranty</p> <p>Monitoring</p> <p>Temperature, advanced power and cooling modules including fan speed control, disk drives, and I/O module(s)</p> <p>Failure notification</p> <p>SCSI enclosure services (SES) over I2C physical interface, LEDs, audible alarms, FRU (field replaceable unit) revision and serial number reporting, events reported to Adaptec RAIDWatch software</p> | <p>Disk Drives</p> <p>Capacity: Up to 250 GB Rotational velocity: 7200 RPM Interface: SATA Form factor: 3.5-inch form factor, 1.0-inch height</p> <p>AC Power</p> <p>Input voltage: Autoranging, 85-264 VAC Input frequency: 47-63 Hz Power factor correction: Per EN61000-3-2 Input current: 100-240 VAC @ 4-2.5 A Output power: 491 W peak, 430 W average</p> <p>Operating Environment</p> <p>Temperature: 0° to 40° C Temperature gradient: 20° C per hour Relative humidity: 5 to 95 percent (non-condensing) Altitude: -200 to 10,000 feet Shock: 5G @ 11ms, 1/2 sine wave pulse Vibration: 0.2G @ 5Hz to 350Hz</p> <p>Electromagnetic emissions standards</p> <p>CE Mark, EN55022 Class A, EN61000 Class A, FCC Class A, Canadian DOC Class A, VCCI Class A</p> <p>Safety standards</p> <p>UL 1950, CSA 22.2-950, EN 60950</p> <p>Quality standards</p> <p>Manufactured under an ISO 9002 registered quality system</p> <p>Software</p> <p>Adaptec RAIDWatch</p> <p>Local or remote management, monitoring, and configuration with host platform support for Microsoft® Windows®, Sun Solaris SPARC, and Linux</p> |
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