AMCC STORAGE

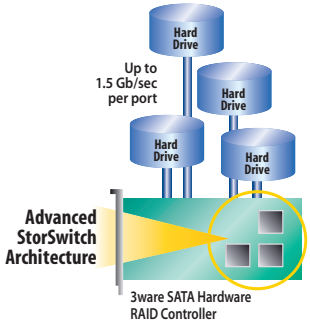
# 3ware® 9000 Series

## High-Performance Serial ATA Hardware RAID Controllers

*Only one RAID controller family can deliver fault tolerant, low cost storage, multi-terabyte capacity and unparalleled performance and reliability levels — the 3ware 9000 Series Serial ATA hardware RAID controllers. Combined with the AMCC StorSave Platform and an advanced RAID management feature set, the 9000 Series RAID controllers, available in 12, 8 and 4-port configurations, are the most compelling solution for high performance and highest reliability computing.*

### Benefits

- Over 400 MB per second RAID 5 reads for high performance computing applications[1]
- Single array capacities scale to over 4.8 TB per controller (64-bit LBA support)
- True hardware RAID minimizes impact to the host CPU, maximizing your system investment
- AMCC StorSave Platform for maximum reliability without sacrificing performance
- Advanced software and RAID features make configuring, managing and expanding RAID systems a breeze
- Multi-lane connectors combine four SATA ports into one for maximum reliability
- Broad operating system support including Windows, Linux (open source) and FreeBSD (open source)
- A family of 12, 8 and 4-port controllers simplifies migration as capacity requirements grow




### 3ware 9000 Series — The Highest Performing Hardware RAID

3ware's advanced switched RAID architecture — StorSwitch™ unleashes the power of Serial ATA (SATA), delivering the highest hardware RAID performance in its class. The 3ware 9500S hardware RAID controllers deliver in excess of 400 MB per second (MB/sec) sustained RAID 5 reads and over 100 MB/sec RAID 5 sequential writes with less than 3% CPU utilization[1]. The StorSwitch architecture can simultaneously handle commands to and from multiple drives. No single drive is penalized by another while executing read or write commands. The on-board processor ensures the host CPU is managing your applications — not the RAID controller functions. The result is superior overall performance compared to other Serial ATA controllers.

### Enterprise-class RAID Features and Management

The 3ware 9500S hardware RAID controllers include advanced RAID features for greater data protection and management. The AMCC StorSave Platform combines firmware and a Battery Backup Unit (BBU) that maximizes data protection without compromising performance. Greater than 2 TB support allows for very large arrays in 64-bit platforms. An enhanced firmware platform that allows features such as on-line capacity expansion (OCE), RAID Migration and enclosure management protects your RAID storage investment. 3ware's remote management software, 3ware Disk Manager 2 (3DM®2) simplifies storage configuration and management for Linux and Windows environments via a Web browser.

### Highest Reliability

Hardware RAID provides higher fault tolerance than software RAID because it protects your data in the event of an operating system failure. The 3ware 9500S SATA hardware RAID controllers support RAID levels 0, 1, 10, 5, 50 and Single Disk (JBOD).

The innovative AMCC StorSave Platform supplies power to the cache memory module in the event of a system power loss — without sacrificing performance. It includes exclusive features that utilize a write journaling technique, which enables not only controller but also drive write caching to continue in the event of a power failure. The highest levels of performance are continuously maintained while guarding against data loss.

### Integrated Solutions

3ware offers a truly innovative SATA cabling solution for large-scale configurations where space and airflow are at a premium. The 3ware 9500S Multi-lane (MI) controllers combine a highly reliable, locking cable/connector system that combines four SATA ports into one on the controller side. Available in 12 or 8-port configurations, the 3ware 9500S-MI controllers increase reliability, and simplify installation and routing.

### APPLICATIONS FOR 3WARE CONTROLLERS

# 3ware 9000 Series

### 3ware 9000 Series Features

- Optimized hardware XOR RAID 5 engine provides true hardware based RAID and intelligent drive management functions
- Supports RAID levels 0, 1, 10, 5, 50, Single Disk (JBOD)
- Single array capacity scales to over 4.8 TB per controller (64-bit LBA support)
- 128 MB of ECC protected SDRAM, upgradable to 256 MB
- AMCC StorSave Platform for maximum reliability and performance
  - — Battery Backup Unit (BBU)
  - — Write journaling for protection of drive write caching
- Storage management
  - — Online Capacity Expansion to grow total capacity easily
  - — RAID Level Management for converting non-redundant RAID volumes to RAID 5
- StreamFusion maximizes performance through efficient handling of sequential streams
- StorSwitch point-to-point, non-blocking switched architecture for highest performance
- Bootable array support for greater fault tolerance
- Variable stripe size for performance tuning by application
- Multiple array background initialization for immediate data redundancy
- Host controller and drive command queuing for peak performance
- Support for up to 4 cards per system for large storage requirements
- Multiple logical volumes and RAID levels can exist on one card for maximum configuration flexibility
- Legacy and SATA II out of band (OOB) staggered drive spin-up support
- Hot-swap and hot-spare support for data availability
- Dynamic sector repair for robust data protection
- S.M.A.R.T. disk drive monitoring for reliability
- SMTP support for email/pager notification
- Emergency Flash Recovery protects against power failure during firmware upgrades
- Support for drive activity LED
- Flexible task scheduling for increased useability
- Multi-lane connectors based on the Infiniband SFF-8470 specification
- Complete configuration management suite
  - — 3ware BIOS Manager (3BM) – BIOS configuration tool
  - — 3ware Disk Manager 2 (3DM® 2) – browser-based management tool
  - — Command Line Interface (CLI) – scriptable configuration tool

### Operating System Support

- Microsoft® Windows® 2003/XP/2000, RedHat® Linux, SuSE® Linux, FreeBSD
  For complete OS listing, go to: **www.3ware.com/support/OS-support**

### 3ware 9000 Series Specifications

- PCI 2.2 compliant 64-bit/66MHz bus master
- Serial ATA Specification 1.0a compliant
- BIOS PnP (plug and play) and BBS (BIOS boot specification) support
- Operating Temperature
  Without BBU: 0˚C to 50˚C
  With BBU: 10˚C to 40˚C
- Power Requirements
  8.72 W max. on +5 V
  250 mW max. on +3.3 V
  250 mW max. on -12V, +12 V not used
- Dimensions

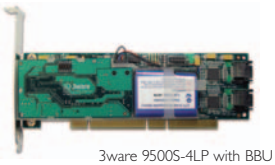
| | | | |
|---|---|---|---|
| PCI MD2 Low Profile: | 9500S-4LP | 7.475"L x 2.300"H | (18.987cm x 5.842cm) |
| PCI Half Length: | 9500S-8 | 7.475"L x 3.875"H | (18.987cm x 9.843cm) |
| | 9500S-12 | 7.475"L x 3.875"H | (18.987cm x 9.843cm) |
| | 9500S-8MI | 7.430"L x 3.875"H | (18.872cm x 9.843cm) |
| | 9500S-12MI | 7.430"L x 3.875"H | (18.872cm x 9.843cm) |

### Service and Support

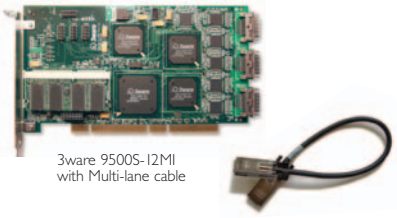
- 3-year warranty
- Support via the web at **www.3ware.com/support**
- For latest motherboard and hard drive compatibility listing go to: **www.3ware.com/products/compatibility_sata.asp**

### Accessories

- RDC-400-SATA: Serial ATA RAID Internal Drive Cage
- CBL-SATA-39: 1m Serial ATA Cable
- CBL-SATA-24: 0.61m Serial ATA Cable
- CBL-IB-05M: 0.5m Serial ATA Multi-lane (4x) Cable
- CBL-IB-10M: 1m Serial ATA Multi-lane (4x) Cable
- BBU-9500S-01: Battery Backup Unit



3ware 9500S-4LP with BBU



3ware 9500S-12MI
with Multi-lane cable

### 3ware 9000 Series Selection Guide

| Model | 9500S-4LP | 9500S-8 | 9500S-12 | 9500S-8MI | 9500S-12MI |
|---|---|---|---|---|---|
| **Drive Support** | Up to 4 Serial ATA | Up to 8 Serial ATA | Up to 12 Serial ATA | Up to 8 Serial ATA | Up to 12 Serial ATA |
| **RAID Levels** | 0,1,10,5, Single Disk (JBOD) | 0,1,10,5,50, Single Disk (JBOD) | 0,1,10,5,50, Single Disk (JBOD) | 0,1,10,5,50, Single Disk (JBOD) | 0,1,10,5,50, Single Disk (JBOD) |
| **Target Markets** | Departmental Servers, Video Editing | Departmental Servers, Security and Surveillance, Super Computing, Video On-Demand, NAS Storage | Security and Surveillance, Super Computing, Video On-Demand, Disk-to-Disk Backup, NAS Storage | Departmental Servers, Security and Surveillance, Super Computing, Video On-Demand, NAS Storage | Security and Surveillance, Super Computing, Video On-Demand, Disk-to-Disk Backup, NAS Storage |

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