

ARC - 8068

SAS to SAS 6Gb/s RAID Controller

The SAS to SAS 6Gb/s RAID controller provides 6Gb/s SAS host interface link to the host board on the server system. This RAID controller utilizes the same RAID kernel that has been field-proven in existing internal/external SATA/SAS RAID controller products, allowing to bring stable and reliable SAS RAID external subsystem. The SAS to SAS 6Gb/s RAID controller provides for 2U/3U/4U rack-mounted external storage chassis capable of accommodating up to 12/16/24 6.0-Gb/s, Serial-Attached SCSI (SAS) drives or 6.0-Gb/s Serial ATA (SATA) drives.



Overview

SAS 2.0 builds on parallel SCSI by providing higher performance, improving data availability, and simplifying system design. The SAS 2.0 interface supports both 6Gb/s SAS disk drives for data-intensive applications and 6Gb/s Serial ATA (SATA) drives for low-cost bulk storage of reference data. The SAS to 6Gb/s SAS RAID controllers attach directly to SATA/SAS midplanes with 3/4/6 x SFF-8087 internal connectors or increase capacity using one additional SFF-8088 external connector. When used with SAS expanders, the controller can provide up to (128) devices through one or more SAS JBODs, making it an ideal solution for enterprise-class storage applications that called for maximum configuration flexibility.

Unparalleled Performance

The SAS to SAS 6Gb/s RAID controller incorporates onboard high performance 800MHz RAID-on-Chip storage processor and DDR2-800 SDRAM memory to deliver true hardware RAID. The RAID controller each includes default 2GB of ECC DDR2-800 SDRAM with optional battery backup module. The test result is against overall performance compared to other external SAS RAID subsystems. The powerful new ROC processors integrated 16 x 6Gb/s SAS ports on chip delivers high performance for NAS, server RAID solutions, supercomputing, near-line backup, security systems, streaming and cloud computing applications.

Unsurpassed Data Availability

Designed and leveraged with Areca's existing high performance solution, this controller delivers high-capacity at the best of cost/ performance value. It supports the hardware RAID 6 engine to allow two HDDs failures without impact the existing data and performance. Its high data availability and protection derives from the many advanced RAID features.

The SAS to SAS 6Gb/s RAID controller allows easy scalability from JBOD to RAID. It can be configured to RAID levels 0, 1, 1E, 3, 5, 6, 10, 00, 100, 30, 50, 60, Single Disk or JBOD. With innovative new ROC 6Gb/s SAS feature and support for SATA, SAS and SSDs, the SAS to SAS 6Gb/s RAID subsystems provides small- to mid-sized enterprises with superior levels of RAID performance and scalability for external storage. Using cost-effective SATA disk drive and completely integrated high-performance and data-protection capabilities, it can meet the performance and features of a midrange storage product at an entry-level price.

Easy RAID Management

The firmware-embedded web browser-based RAID manager allows local or remote to access it from any standard internet browser via a 1Gb/s LAN port. The firmware contains SMTP manager monitors all system events and user can select either single or multiple user notifications to be sent via "Plain English" e-mails. The firmware-embedded SNMP agent allows remote to monitor events via LAN with no SNMP agent required. The controller also supports API library for customer to write its own monitor utility. The Single Admin Portal (SAP) monitor utility can support one application to manage multiple RAID units in the network. The hardware monitor can monitor subsystem environment and show the warning message. The firmware and EPLD have implemented the SES-2 protocol and disk activity map to SGPIO based indicator LEDs. For backplane without SGPIO supporting, the expander box also provides one kind of alternative LED cable header to support the individual fault status indicator for those backplanes.

Controller Architecture

- 800 MHz PowerPC RAID-on-Chip for RAID core and SAS microcode
- 2GB DDR2-800 SDRAM with ECC protection on-board
- NVRAM for RAID event log & transaction log
- Write-through or write-back cache support
- Redundant flash image for adapter availability
- Real time clock support
- Battery Backup Module ready (Option)

RAID Feature

- RAID level 0, 1, 1E, 3, 5, 6, 10, 00, 100, 30, 50, 60, Single Disk or JBOD
- Multiple RAID selection
- Online array roaming
- Offline RAID set
- Online RAID level/stripe size migration
- Online capacity expansion and RAID level migration simultaneously
- Online volume set growth
- Support global hot spare and dedicated hot spare
- Instant availability and background initialization
- Automatic drive insertion/removal detection and rebuilding
- Greater than 2TB per volume set (64-bit LBA support)
- Greater than 2TB per disk drive
- Disk scrubbing/array verify scheduling for automatic repair of all configured RAID sets
- Login record in the event log with IP address and service (http, telnet and serial)
- Support intelligent power management to save energy and extend service life
- Support NTP protocol to synchronize RAID controller clock over the on-board LAN port
- Max 128 devices
- Max 128 LUNs (volume set) per controller

Drive Interface

- Up to 128 devices using SAS expanders (one external Mini SAS 4x connector)
- Up to 6Gb/s per port
- 12/16/24 SAS internal hard-drive connectors

Host Interface

- 6Gb SAS-to-SAS
Two Mini SAS 4x 6Gb/s SAS Ports - 600MB/sec per PHY link

Monitors/Notification

- LCD Control Panel for setup, alarm mute and configuration
- System status indication through LCD, LED and alarm buzzer
- Autonomous chassis management of two power supplies status connectors and four fan monitor/speed control connectors
- Subsystem management ready

RAID Management

- Field-upgradeable firmware in flash ROM
- Firmware-embedded manager via RS-232 port
- Firmware-embedded web browser-based RAID manager-access your RAID subsystem from any standard internet browser via 10/100/1000 LAN port
- Firmware-embedded SMTP manager monitors all system events and user can select either single or multiple user notifications to be sent via "Plain English" e-mails
- Firmware-embedded SNMP agent allows remote to monitor events via 10/100/1000 LAN with no SNMP agent required
- Access terminal menu by telnet via 10/100/1000 LAN port
- API library for customer to write its own monitor utility
- SAP management utility to easily manage multiple RAID units in the network

Software Drivers

- OS Independent

Electrical

- Power Requirements
3.2W max. On +5V 20W max. On +12V

Physical

- 146 (W) x 43 (H) x 200 (D) mm

Environmental

- Temperature
Operating 10° to 40°C
Storage -40° to 70°C

Relative Humidity

- Operating 10% to 80% (non-condensing)
- Storage 5% to 95% (non-condensing)

Optional Product - Accessories

• ARC-8026MB-Mounting Bracket

An ATX I/O Shield is a small metal plate located at the back of each rackmount chassis that provide openings for different I/O ports of a motherboard.

ARC-8026MB-Mounting Bracket for user to leverage the ATX I/O Shield position as ARC-8068 box I/O port. You can use ARC-8026MB to fit ARC-8068 box I/O port in the standard ATX I/O-Slot found in a Rackmount Chassis.



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