

# ARC-8x07 External Controller

(6Gb SAS-to-SAS)/(16Gb/8Gb Fibre-to-SAS)/(1Gb iSCSI-to-SAS)

## SAS for Maximum Scalability

The ARC-8x07 is the most complete 24-bay controller with RAID control capabilities. The ARC-8x07 unleashes a truly innovative 6Gb/s SAS RAID solution for external controller. SAS 2.0 is designed for backward compatibility with SAS 1.0, twice speed data transfer 6Gb/s than previous available. The SAS 2.0 interface supports both 6Gb/s SAS disk drives for data-intensive applications and 6Gb/s SATA drives for low-cost bulk storage of reference data. The ARC-8x07 supports flexibility interface configuration; 8 x 6Gb/s SAS ports or 2 x 16Gb/s fibre channels or 4 x 8Gb/s fibre channels or 4 x 1Gb/s iSCSI channel host and 8 x 6Gb/s SAS ports expander for performance and easy expansion. When expander port used with SAS 6Gb/s expander, the ARC-8007 can provide up to (256) devices through one or more 6Gb/s SAS JBODs, making it an ideal solution for enterprise-class storage applications that call for maximum configuration flexibility.

## Unparalleled Performance

The 6Gb/s host interfaces make ARC-8x07 RAID subsystem well suited for professionals who need large capacity and exceptional performance with connectivity. The ARC-8x07 incorporates onboard high performance 800MHz dual core RAID-on-Chip storage processor and DDR3-1333 SDRAM memory to deliver true hardware RAID. Applications demand for higher computing power, networking bandwidth and support for virtualization applications are driving RAID subsystem for improved architecture internal bus interface and RAID performance. The powerful new ROC processors integrated 8 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 ARC-8x07 RAID subsystem allows easy scalability from JBOD to RAID. It can be configured to RAID levels 0, 1, 1E, 3, 5, 6, 10, 30, 50, 60, Single Disk or JBOD. With innovative new RAID-on-Chip 6Gb/s SAS feature and support for SATA, SAS and SSDs, the ARC-8007 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

Configuration and monitoring can be managed either through the LCD control panel, RS232 port or Ethernet port. The firmware also contains an embedded terminal emulation via the RS-232 port. 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 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 Disk Stress Test (DST) utility kicks out disks meeting marginal spec before the RAID unit is actually put on-line for real business. The hardware monitor can monitor subsystem environment and show the warning message.

## Adapter Architecture

- 800 MHz dual core PowerPC RAID-on-Chip for RAID core and SAS microcode
- One 240-pin DIMM socket for
  - DDR3-1333 single rank ECC registered SDRAM module using x8 or x16 chip organization (1Rx8 or 1Rx16), upgrade from 1GB (default) to 4GB
- 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, 30, 50, 60, Single Disk or JBOD
- Multiple RAID 0 and RAID 10(1E) support (RAID 00 and RAID100)
- 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
- Multiple pairs SSD/HDD disk clone function
- SSD automatic monitor clone (AMC) support
- 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
- Redundant controller operation with active/active and failover/failback function
- Max 256 devices
- Max 128 LUNs (volume set) per controller
- Dual-active RAID controller with cache mirroring through dedicated high speed bus
- Automatic synchronization of firmware version in the dual-active mode
- Multi-path & load-balancing support (Microsoft MPIO)
- Flexible RAID group ownership management
- Management port seamless take-over

## Host Interface

### 6Gb/s SAS-to-SAS

- Two 6Gb/s SAS Ports - 600MB/sec per port

### Fibre-to-SAS

- Four 8Gb/s Fibre Channels - 800MB/sec per channel
- Two 16Gb/s Fibre Channels - 1600MB/sec per channel

### 1Gb/s iSCSI-to-SAS

- Four 1Gb/s iSCSI Channels - 100MB/sec per channel
- iSCSI Hardware iSCSI off-load engine
- iSCSI jumbo frame
- iSCSI Header/Data digest support
- iSCSI MC/S feature support
- iSCSI CHAP authentication
- iSCSI Link Aggregation Control Protocol (LACP)

## Drive Interface

- Up to 24 x 6Gb/s internal port
- 2 x SAS "Expansion Out" connector for an additional JBOD enclosure
- Up to 256 devices using SAS expanders

## Monitors/Notification

- Push Buttons and LCD Display Panel for setup and status
- Environment and drive failure indication through LCD, LED and alarm buzzer
- Enclosure management ready

## RAID Management

- Field-upgradeable firmware in flash ROM
- Firmware-embedded manager via RS-232 port and LCD
- Firmware-embedded browser-based RAID manager, SMTP manager, SNMP agent and Telnet function via 1Gb/s LAN port
- API library for customer to write its own monitor utility
- SAP monitor utility easily manage multiple RAID units in the network

## Software Drivers

- OS Independent

## Environment

- Operating Temperature: +5 C to +60 C Humidity: 15 -80%, no-condensing
- Storage Temperature Temperature: -40 C to +70 C Humidity: 15 -80%, no-condensing

## Electrical

- Power Requirements 20W max. on +12V : 1.2W max. on +5V

External Solution 6Gb/s SAS RAID Controller Comparison

Model Name	ARC-8007-SAS	ARC-8007-Fibre	ARC-8007-iSCSI
Mechanical			
Host Interface	2 x Min SAS 4x 6Gb Ports	2 x 16Gb / 4 x 8Gb Fibre Channels	4 x 1Gb Ethernet Ports
Host Connector	2 x SFF-8088	2 x SFP / 4 x SFP	4 x RJ45
Disk Interface	3 x (2 pair 10 columns) Z-Pack HM-Zd connectors/ Two external SFF-8088 connectors for expander		
Management Interface	2 x RJ11: For serial port, 1 x RJ45: For Ethernet port		
Dimension	146 (W) x 43 (H) x 261.5 (L)		



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