# SAS DISK ARRAYS Adapter

ARC-1212/1222 (4/8 Ports PCIe to SAS RAID Adapters)

Areca high-performance PCIe to SAS RAID host adapter can provide up to 4/8 SAS/SATA ll peripheral devices. The adapters are based on the same RAID kernel of field-proven external RAID adapter. Applications that benefit most features from these controllers include NAS, server RAID solutions, web servers, supercomputing, near-line backup, security systems and streaming applications.
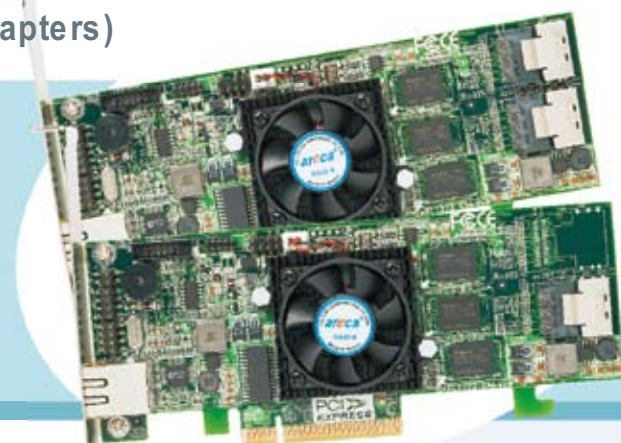
SAS for No Expansion

SAS builds on parallel SCSI by providing higher performance, improving data availability, and simplifying system design. The SAS interface supports both SAS disk drives for data-intensive applications and Serial ATA (SATA) drives for low-cost bulk storage of reference data. The ARC-1212/1222 support 4/8 SAS/SATA ll HDDs via one internal /two internal Min SAS connector without supporting the expansion function. This can meet the customer inquiry SAS solution (using same enclosure) to replace SATA solution. The ARC-1212/1222 SAS/SATA RAID controllers are low profile PCIe adapters, idea for IU and 2U rackmount system without needing the expansion capability.

Unparalleled Performance

The SAS RAID adapters raise the standard to higher performance levels with several enhancements including Intel New high-performance I/O Processor, a DDR2-533 memory architecture and high performance x8 Link PCIe host interface bus interconnection. The ARC1212/1222 low profile boards default support 256MB on-board memory with optional battery backup module. The high performance test result compared to other SATA ll RAID adapters is ideal solution for servers and workstations.

Unsurpassed Data Availability

The RAID 6 can offer fault tolerance greater that RAID 1 or RAID 5 but only consumes the capacity of 2 disk drives for distributed parity data. The SAS RAID adapters with extreme performance RAID 6 engine installed provide the highest RAID 6 feature to meet this requirement. The SAS RAID adapters can also provide RAID levels 0, 1, 10, 3, 5, 6, 30, 50, 60, Single Disk or JBOD for maximum configuration flexibility. Its high data availability and protection derives from the following capabilities: Online RAID Capacity

Expansion, Array Roaming, Online RAID Level / Stripe Size Migration, Global Online Spare, Automatic Drive Failure Detection, Automatic Failed Drive Rebuilding, Disk Hot-Swap, Online Background Rebuilding, Instant Availability/Background Initialization, Auto Reassign Sector, Redundant Flash Image and Battery Backup Module. Greater than 2 TB support allows for very large volume set application in 64-bit environment such as data-mining and managing large databases.

Maximum Interoperability

The SAS RAID adapter supports broad operating system including Vista/Server2003/XP/2000, Linux (Open Source), FreeBSD (Open Source), Solaris (Open Source), Mac and more, along with key system monitoring features such as enclosure management (Serial bus and SGPIO) and SNMP function. Our products and technology are based on extensive testing and validation process; leverage Areca SATA ll RAID adapter field-proven compatibility with operating systems, motherboards, applications and drivers.

Easy RAID Management

The adapters contain an embedded McBIOS RAID manager that can access via hot key at BIOS boot-up screen. This pre-boot RAID manager can use to simplify the setup and management of RAID adapter. The adapter firmware also contains a browser-based McRAID storage manager which can be accessed through the Ethernet port or ArcHttp proxy server. The McRAID storage manager allows local and remote to create and modify RAID set, volume set, and monitor RAID status from standard web browser. The Single Admin Portal (SAP) monitor utility can support one application to scan 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.

HIGHLIGHTS

- Support up to (4/8) SAS/ SATA II HDDs
- 3Gb/s throughput at each drive ports
- Support up to 256MB DDR2-533 cache
- Intel RAID engine to support highest speed RAID 6
- Online capacity expansion, RAID level/stripe size migration
- Online volume set growth
- Redundant flash image for adapter availability
- Support Greater than 2TB per volume set and battery backup module (BBM)
- Serial bus and SGPIO enclosure management
- Broad operating support including Windows, Linux (open source), FreeBSD (open source), Solaris(open source) and more systems

Intel Server & Storage Innovation Award

ARECA **SAS DISK ARRAYS Adapter**

Adapter Architecture

- Intel 800MHz IOP348 I/O processor with SAS controller
- PCIe x8 link host interface
- 256MB on-board DDR2-533 SDRAM with ECC protection
- Support write-through or write-back cache
- Multi-adapter support for large storage requirements
- BIOS boot support for greater fault tolerance
- BIOS PnP (plug and play) and BBS (BIOS boot
- specification) support
- Intel RAID engine support extreme performance RAID 6 function
- NVRAM for RAID configuration & transaction log
- Redundant flash image for adapter availability
- Battery Backup Module ready (Option)
- RoHS Compliant

RAID Features

- RAID level 0, 1, 3, 5, 6, 30, 50, 60 or JBOD
- Multiple RAID selection
- Online array roaming
- Online RAID level/stripe size migration
- Online capacity expansion and RAID level migration simultaneously
- Online volume set growth
- Instant availability and background initialization
- Automatic drive insertion / removal detection and rebuilding
- Greater than 2TB per volume set (64-bit LBA support)
- Disk scrubbing/ array verify scheduling for automatic repair of all configured RAID sets
- Support spin down drives when not in use to extend service life (MAID)
- Support NTP protocol synchronize RAID controller clock over the on board Ethernet port

Disk Bus Interface

- Up to 4/8 SAS/SATA II HDDs (no expander capability)
- Up to 3Gbps per drive port

Host Connectivity

- PCIe x8 lane width host interface

Monitors/Notification

- System status indication through global HDD activity/fault connector, individual fault connector, LCD/I2C connector and alarm buzzer
- SMTP support for email notification
- SNMP support for remote manager
- Enclosure management (Serial bus and SGPIO) ready

RAID Management

- Field-upgradeable firmware in flash ROM

In-Band Manager

- Hot key "boot-up" McBIOS RAID manager via BIOS
- Web browser-based McRAID storage manager via Http proxy server
- Support Command Line Interface (CLI)
- API library for customer to write monitor utility
- Single Admin Portal (SAP) monitor utility
- Disk Stress Test (DST) utility for production

Out-of-Band Manager

- Firmware-embedded web browser-based McRAID storage manager, SMTP manager and SNMP agent and Telnet function via Ethernet port
- API library for customer to write monitor utility
- Support Push Button and LCD display panel

Operating System

- Windows 2000/XP/Server 2003/Vista
- Linux
- FreeBSD
- Novell Netware 6.5
- Solaris 10 x86/x86_64
- SCO Unixware 7.x.x
- Mac OS X 10.x (EFI BIOS support)

For latest supported OS listing visit: **www.areca.com.tw**

Environmental /Physical

Mechanical	
Dimension	ARC-1212/1222 62(H) x 168(L) mm
SAS Interface	ARC-1212 1 x SFF-8087 ARC-1222 2 x SFF-8087
I/O Interface	(2x4) header for individual activity LED connector (2x4) header for individual fault LED connector (2x2) header for global activity/fault LED connector (2x4) header for LCD & enclosure management connector (2x6) header for Battery Backup Module (BBM) connector (1xRJ45) for Ethernet port connector
Environment	
Operating	Temperature : +5 C to +50 C Humidity : 15-80%, non-condensing
Storage Temperature	Temperature : -40 C to 70 C Humidity : 5-90%, non-condensing
Electrical	
Power Requirements	1.10W max. +3.3V 10.92W max. +12V

Areca PCIe SAS RAID Card Comparison		
Model name	ARC-1212	ARC-1222
I/O Processor	Intel IOP348 800 MHz	
On-Board Cache	DDR2-533 256MB	
Host Bus Type	PCIe x 8 Lanes	
Driver Connector	1 x SFF-8087	2 x SFF-8087
Drive Support	4 x SAS/SATA HDDs	8 x SAS/SATA HDDs
Expander Support	No	No
RAID Level	0, 1, 10, 3, 5, 6, Single Disk or JBOD	0, 1, 10, 3, 5, 6, 30, 50, 60 Single Disk or JBOD
Management Port	In-Band: PCIe Out-Band: BIOS, LCD and LAN Port	
Enclosure Ready	Individual Activity/Fault Header, SGPIO and Serial bus interface	
Form Factor	Low Profile : 62 (H) x 168 (L)mm	

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