McRAID 12Gbps SAS-based Storage Subsystem

The 12Gb/s SAS interface supports both 12Gb/s SAS disk drives for data-intensive applications and 6Gb/s SATA drives for low-cost bulk storage of reference data. The Fibre/SAS/iSCSI to 12Gb/s SAS RAID controllers attach directly to SATA/SAS midplanes with 3/4 x Z-PACK HM-Zd high speed connectors or increase capacity using one additional Min SAS HD SFF-8644 external connector. The 12Gb/s SAS RAID subsystem supports flexibility interface configuration; 8 x 12Gb/s SAS ports, 2 x 16Gb/s fibre channels, 4 x 32Gb/s fibre channels or 2 x 10Gb/s iSCSI channel host and 4 x 12Gb/s SAS ports expander for performance and easy expansion. When used with 12Gb/s SAS expanders, the controller can provide up to (256) devices through one or more SAS JBODs, making it an ideal solution for enterprise class storage applications that called for maximum configuration flexibility.

Key Features

• 12Gb/s SAS-based external storage subsystem

• Support three host interface options: 12Gb/s SAS, 10Gb/s iSCSI or 16Gb/s FC

• Support up to 8GB cache per controller, optional FBM/BBM cache

• Hot-swap and redundant components for increased system availability

• Single or dual RAID controller modular design

• RAID Advanced Power Management

• Support HDD firmware download

Unparalleled Performance for 12Gb/s SAS

The 12Gb/s SAS RAID subsystems raise the standard to higher performance levels with several enhancements including new high performance 1.2 GHz dual core ROC processor, a DDR3-1866 memory architecture and high performance PCIe 3.0 interface bus interconnection. The subsystem each includes one 240-pin DIMM socket with default 2GB DDR3-1866, single rank, 1Rx8, upgrade to 8GB or 8GB DDR3-1600, dual rank, 2Rx8, ECC SDRAM. The 12Gb/s SAS is designed for backward compatibility with 6Gb/s and 3Gb/s SAS and SATA hard drives. Regardless of the drive speed, 12Gb/s SAS RAID controllers will provide maximum read/write performance improvements for the most performance-hungry database and IT applications.

The subsystem includes one 12Gb/s SAS expander that incorporates the latest enhancements in SAS along with new LSI DataBolt bandwidth optimizer technology. This is designed to help facilitate the industry transition to 12Gb/s SAS-enabled systems by allowing users to take advantage of 12Gb/s speeds while utilizing existing 6Gb/s drives and backplanes. Using DataBolt, the subsystem buffers 6Gb/s data and then transfers it out to the host at 12Gb/s speeds in order to match the bandwidth between faster hosts and slower SAS or SATA devices.

Unsurpassed Data Availability

Designed and leveraged with Areca's existing high performance RAID solution, ARC-92xx series subsystems provide superior levels performance and enterprise level data protection for the most demanding next generation server and storage environments. It supports the hardware RAID 6 engine to allow two HDDs failures without impact the existing data and performance. It allows users to hot swap drive in the event of a drive failure with zero downtime. With innovative new RAID-on-Chip 12Gb/s SAS feature and support for SATA, SAS and SSDs, the SAS RAID subsystems provides small- to mid-sized enterprises with superior levels of RAID performance and scalability for external storage. The optional flash-based backup module provides power to the cache if it contains data not yet written to the drives when power is lost. The subsystem also supports traditional Lithium-ion (Li-ion) battery backup module (BBM) to protect cached data on RAID Controllers.

Easy RAID Management

Configuration and monitoring can be managed either through the LCD control panel, RS232 port or LAN port. The firmware also contains an embedded terminal emulation via the RS-232 port. The firmware-embedded several available RAID managers include internet browser, CLI, Telnet, API, SMTP and SNMP via a LAN port. The ArcSAP Quick Manager can scan multiple RAID units in the local and remote side and provide an effective management interface for configuration, and monitoring Areca RAID controllers.

Model Name	ARC-9212R2	ARC-9216R3	ARC-9224R2	ARC-9224R4
Form Factor	2U-12 bays 19-inch rackmount chassis	3U-16 bays 19-inch rackmount chassis	2U-24 bays 19-inch rackmount chassis	4U-24 bays 19-inch rackmount chassis
Single Ctrl Model No.	ARC-9212SS-DR2 ARC-9212FS-DR2 ARC-9212FS-QR2 ARC-9212IS-DR2	ARC-9216SS-DR3 ARC-9216FS-DR3 ARC-9216FS-QR3 ARC-9216IS-DR3	ARC-9224SS-DR2 ARC-9224FS-DR2 ARC-9224FS-QR2 ARC-9224IS-DR2	ARC-9224SS-DR4 ARC-9224FS-DR4 ARC-9224FS-QR4 ARC-9224IS-DR4
Dual Ctrl Model No.	ARC-9212SD-DR2 ARC-9212FD-DR2 ARC-9212FD-QR2 ARC-9212ID-DR2	ARC-9216SD-DR3 ARC-9216FD-DR3 ARC-9216FD-QR3 ARC-9216ID-DR3	ARC-9224SD-DR2 ARC-9224FD-DR2 ARC-9224FD5QR2 ARC-9224ID-DR2	ARC-9224SD-DR4 ARC-9224FD-DR4 ARC-9224FD5QR4 ARC-9224ID-DR4

I/O Interface

Host Interface	• SAS-to-SAS
	  2 x 12Gb/s SAS Ports
		• Fibre-to-SAS
		  2 x 16Gb/s Fibre channels
		  4 x 32Gb/s Fibre channels
			• iSCSI-to-SAS:
			  2 x 10Gb/s iSCSI channels	

Drive Channel per Enclosure	Up to 12 x 3.5"/2.5" HDDs or SSDs	Up to 16 x 3.5"/2.5" HDDs or SSDs	Up to 24 x 2.5" HDDs or SSDs	Up to 24 x 3.5"/2.5" HDDs or SSDs
Disk Bus Interface	12Gb/s SAS or 6Gb/s and 3Gb/s SAS/SATA HDDs/SSDs			
Max. JBOD per RAID Ctrl	• Expansion up to 7 JBODs with 256 HDDs limitation • One downstream SFF-8644 (4 x 12Gb/s) expansion port			

RAID Controller

RAID_on_Chip	Dual Core RAID-on-Chip (ROC) 1.2 GHz processor
Cache Memory	• One 240-pin DIMM socket for 2GB (default) DDR3-1866, 1RX8,ECC module - up to 4GB or 8GB DDR3-1866, 1RX8, Unbuffered/Registered ECC module or - up to 4GB or 8GB DDR3-1600, 2RX8, Unbuffered/Registered ECC module
RAID Features	• 0, 1, 10(1E), 3, 5, 6, 30, 50, 60, Single Disk or JBOD • Automatic drive failover and detection and rebuild using multiple Global, Dedicated or Enclosure hot-spare drives • Multiple RAID 0 and RAID 10(1E) support (RAID 00 and RAID100) • Multiple pairs SSD/HDD disk clone function • SSD automatic monitor clone support
Availability and Reliability	• Redundant controller operation with active/active and fail-over/fail-back function • 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
Hot Swap Battery Pack	Yes (optional)

Subsystem Management

RAID Management	• Field-upgradeable firmware in flash ROM • Firmware-embedded manager via RS-232 port • API library for customer to write its own monitor utility	• Embedded browser-based RAID manager via built-in 10/100 Lan port • SAP monitor utility easily manage multiple RAID units in the network • Access terminal menu by telnet via a LAN port
Monitors / Notification	• LCD control panel for setup, alarm mute and configuration • System status indication through LCD, LED and alarm buzzer • SMTP support for email notification	• SNMP support for remote manager • Enclosure management ready (SES over in-band SAS)

Mechanical Specification

Power Supply/In/out	• Dual 595W hot swap, N+1 redundant with PFC	• Supports 100–240VAC input at 47 and 63Hz frequency
Cooling	Two Cooling fans housed within each power supply unit	
Environment	• Temperature: 0 to 40°C operating/ -40 to 60°C non-operation • Relative humidity: Operating 10% to 80% (non-condensing)/ Storage 5% to 95% (non-condensing)	

Dimensions (H x W x D)	• Without handles
	  88.2 x 445 x 506 mm
	  (3.2 x 17.5 x 19.9 in)
	• With handles
	  88.2 x 482 x 542 mm
	  (3.2 x 22.9 x 21.3 in)
		• Without handles
		  132.6 x 445 x 506 mm
		  (5.2 x 17.5 x 19.9 in)
		• With handles
		  132.6 x 482 x 542 mm
		  (5.2 x 22.9 x 21.3 in)
			• Without handles
			  88.2 x 445 x 470 mm
			  (3.2 x 17.5 x 18.5 in)
			• With handles
			  88.2 x 482 x 506 mm
			  (3.2 x 22.9 x 19.9 in)
				• Without handles
				  176.4 x 445 x 506 mm
				  (6.4 x 17.5 x 19.9 in)
				• With handles
				  176.4 x 482 x 542 mm
				  (6.4 x 22.9 x 21.3 in)

Weight (W/O Drives)	• Single: 27 kg (59.5 lb) • Dual: 28 kg (61.7 lb)	• Single: 31 kg (68.3 lb) • Dual: 32 kg (70.5 lb)	• Single: 28 kg (61.7 lb) • Dual: 29 kg (63.9 lb)	• Single: 34 kg (74 lb) • Dual: 35 kg (77 lb)