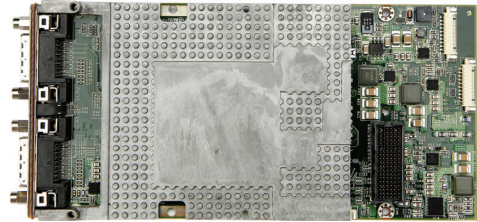# areca®
At the Heart of Storage

ARC-1883P

(8 Ports SAS/SATA RAID Ruggedized XMC)

Highlights

- Dual core 1.2 GHz ROC processor

- One XMC sites supporting PCIe 3.0 x8

- Dual SFF-8470 front panel connectors

- Front panel LEDs for global fault and activity

- Support up to 8 external SAS ports

- 12Gb/s throughput at each port

- Support up to (128) SAS/SATA lll using SAS expanders

- 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

- SES2 and SMP enclosure management

- Controller level hardware encryption and SED drive management

- Broad operating support including Windows, Linux (open source), FreeBSD(open source), Soaris(open source) and more systems

Product Overview

The ARC-1883P is a high performance XMC (PMC with high-speed serial fabric interconnect Mezzanine Card) that is ideal for ruggedized systems requiring high bandwidth storage. It is based on the ROC I/O controller, equipped with 8 ports of either SAS or SATA connectivity at 12.0 Gb/s per ports. Features include high performance dual core ROC processor, 2GB DDR3-1866 memory and high speed PCIe 3.0 x8 interface. A heat-sink is provided adequate cooling for the dual core ROC controller and conducts heat to front bracket. ARC-1883P can be used on Video/IR systems and Signal Intelligence, etc. Application areas can be found in markets such as medical, military, aerospace and automation.

Unsurpassed Data Availability

The SAS RAID controllers can also provide RAID levels 0, 1, 1E, 3, 5, 6,10, 30, 50, 60, Single Disk or JBOD for maximum configuration flexibility. 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 controllers with extreme performance RAID 6 engine installed provide the highest RAID 6 feature to meet this requirement. 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 and Redundant Flash Image.

ARC-1883P has featured with controller based hardware encryption function. Controller based hardware encryption describes the encryption of data occurring at the disk array controller before being sent to the disk drives. Since RAID controller is a natural central point of all data therefore encryption at this level is inherent and also reduces deployment complexity. ARC-1883 RAID controller has dedicated electronic circuitry for the cryptographic engine embedded in the ROC and operating at full channel speeds. The hardware encryption does not impact the performance of ARC-1883P RAID controller and can implement on any kinds of HDD that is transparent to the user, the OS, and applications.

SAS for Maximum Scalability

SAS builds on parallel SCSI by providing higher performance, improving data availability. 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-1883P includes 8 external SAS ports for easy expansion. When ARC-1883P SAS RAID controller used with SAS expanders, the adapter can provide up to (128) devices through one or more SAS JBODs, making two SFF-8470 connectors at the XMC front bezel are used for connectivity. Each connector combines four SAS/SATA ports into a single jack-screw style locked connection for operation in rugged environments.

Maximum Interoperability

The SAS RAID controller supports broad operating system including Windows, Linux (Open Source), FreeBSD (Open Source), Solaris (Open Source), Mac and more, along with key system monitoring features such as enclosure management(SES2 and SMP) and SNMP function.

Easy RAID Management

A set of 8 green LEDs and 8 red LEDs are provided on the backside of the board to transport activity/fault status for each of the 8 attached devices. The global state of these activity/fault indicators is also presented on the front panel using a single green and a single red LED. The controller contains 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 controller. The adapter firmware also contains a browser-based McRAID storage manager which can be accessed through the 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.

Adapter Architecture

- Dual Core 800 MHz ROC I/O processor for RAID core and SAS microcode
- 2GB on-board DDR3-1866 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)
- NVRAM for RAID event & transaction log
- Redundant flash image for adapter availability
- RoHS Compliant

RAID Features

- RAID level 0, 1,1E, 3, 5, 6, 10, 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
- 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 intelligent power management to save energy and extend service life
- Multiple pairs SSD/HDD disk clone function
- SSD automatic monitor clone (AMC) support
- Controller level hardware encryption function support

Host Connectivity

- PCIe 3.0 x8 Lane XMC
- For use on single slot VME bus, compact PCI and Multibus II XMC application.

Disk Bus Interface

- Dual SFF-8470 connectors support 8 SAS ports
- Up to (128) SAS or SATA III drives using SAS expanders
- Up to 12Gb/s per port

Monitors/Notification

- 8 sets individual fault connector, and alarm buzzer
- A set of on -board 8 LEDs for each activity and fault.
- 2 global activity/fault LED
- Serial bus output for activity/fault LED
- SMTP support for email notification
- SNMP support for remote manager
- Enclosure management (SES2 and SMP) ready

RAID Management

- Hot key "boot-up" McBIOS RAID manager via M/B BIOS
- Web browser-based McRAID storage manager via ArcHttp proxy server utility
- Support Command Line Interface (CLI)
- API library for customer to write monitor utility
- Single Admin Portal (SAP) monitor utility
- Field-upgradeable firmware in flash ROM

Operating System
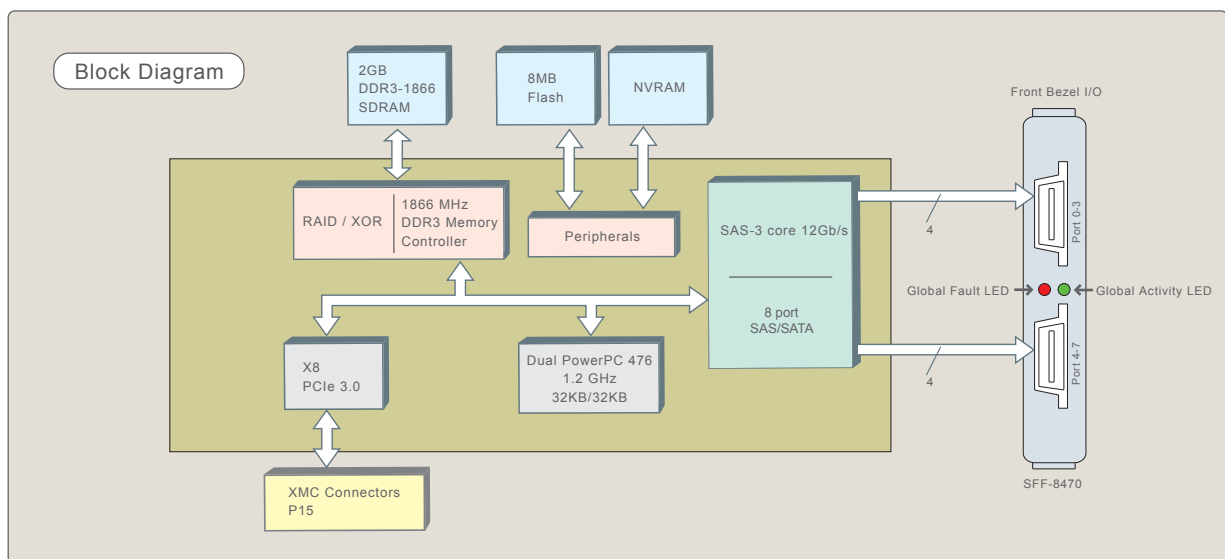
- Windows
- Linux
- FreeBSD
- Solaris 10 x86/x86_64

For more information & latest supported OS listing visit **www.areca.com.tw**

• Mechanical

Power Requirements	0.91W max. +3.3V
	11.6W max. +12V
Dimension	149 x 74 mm

• Environmental

Operating	Temperature: 0°c to +50°c
	Humidity: 10-85%, non-condensing
Storage Temperature	Temperature: -40°c to 85°c
	Humidity: 5-90%, non-condensing

Block Diagram

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