

ARC-1686-8I/8X

(8 Ports PCIe Gen 4.0 Cost-Effective RAID Adapters)

The new generation ARC-1686-8I/8X family offers advanced technology for increased performance and improved enterprise data protection. They were designed with 1.6 GHz dual core ROC processor and PCIe 4.0 interface for the most performance-hungry database and IT applications. Based on the ARM A15 PCIe 4.0 x8 to SAS/SATA/PCIe RAID on Chip (ROC) controller, the ARC-1686-8I/8X cost-effective tri-mode RAID adapters can offer both PCIe Gen 4.0 host and 12Gb/s SAS/SATA/PCIe (NVMe) tri-mode storage interfaces.



Highlights

- Tri-mode interface at each drive ports-12Gb/s SAS/SATA/ Gen 4.0 PCIe (NVMe)
- x8 PCIe Gen 4.0 host interface
- RAID levels 0, 1 (Simple/Multi Mirroring), 10, Single Disk (Single/Dual/Triple) or JBOD
- Hardware secure boot ready
- Universal Bay Management (UBM) management
- SFF-9402 compliant connector pin-out
- Support for SAS tape devices and transport layer retries (TLR) for error handling
- SED support for hardware encryption capable drives
- Redundant flash image for adapter availability
- Broad operating support including Windows, Linux (open source), FreeBSD (open source), Mac and VMware

Unparalleled Performance

The ARC-1686-8I/8X RAID adapters raise the standard to higher performance levels with several enhancements including new high performance 1.6GHz dual core ROC processor, 12Gb/s SAS/SATA/PCIe (NVMe) tri-mode storage and high performance PCIe 4.0 interface bus interconnection. The ARC-1686-8I/8X RAID adapters are compatible with existing PCI Express SFF-8639 Module (U.2) backplanes allowing users to boost performance for increasing bandwidth requirements. The ARC-1686-8I/8X RAID adapters will provide maximum read/write performance improvements for the most performance-hungry database, IT applications and streaming digital media environments.

Guaranteed Data Protection

Designed and leveraged with Areca's existing high performance RAID solution, ARC-1686-8I/8X provides superior levels performance and enterprise level data protection for the most demanding next-generation server and storage environments. It supports the hardware RAID levels 0, 1 (Simple/Multi Mirroring), 10, Single Disk (Single/Dual/Triple) or JBOD. The on-board ROC incorporates advanced security through hardware secure boot. Hardware secure boot helps ensure that the firmware code running on ARC-1686-8I/8X hardware platforms is authentic and unmodified.

Areca cost-effective RAID controllers incorporate onboard ROC processors to deliver true hardware RAID. The ability of hardware RAID controllers to rebuild an array in the event of a drive failure is superior to what software RAID controllers offer. ARC-1686 enables the addition of direct attached SAS tape to store the growing amount of digital data being generated and stored in local or cloud storage to provide better margins over HDD technology.

Maximum Interoperability

SFF-TA-10001 Specification (U.3), which defines a common bay type for SAS, SATA and NVMe. This provides for a Tri-mode host connection to the backplane that will accept a SAS/SATA or PCIe (NVMe) devices. The ARC-1686-8I/8X RAID adapters can operate in all three modes concurrently servicing NVMe, SAS or SATA drives that offers the operation of NVMe, SAS or SATA storage devices in a single drive bay. With a single ARC-1686-8I/8X RAID adapters, system integrators can take full advantage of SAS, SATA and x1, x2, and x4 NVMe drives in existed U.2 / U.3 based backplane. Universal Backplane Management (UBM) defines a common backplane control and management framework for a host to determine SAS/SATA/PCIe backplane capabilities. The ARC-1686-8I/8X adapters are UBM ready, and customers can immediately integrate these adapters into their U.3 backplanes utilizing UBM. They use ARC-1886 tri-mode RAID adapter operating system including Windows, Linux (Open Source), FreeBSD (Open Source), Mac, VMware and more, along with key system monitoring features such as enclosure management (UBM, SES2 & SGPIO) and SNMP function.

Intuitive RAID Management

The McBIOS RAID is a BIOS based utility used to simplify configure and manage RAID adapter via hot key at M/B BIOS boot-up screen. Without having to deploy an agent, you can also configure, deploy, update, and monitor the ARC-1686-8I/8X, via the GUI or through CLI utility. Customers can launch the firmware browser-based McRAID GUI through ArcHttp proxy server. Additionally, Areca ArcSAP storage manager allows the user to scan multiple RAID units in the network and perform GUI management operations across multiple RAID units. The API package defines a higher level of commands and functions for developers who want to configure Areca RAID adapters with their own utility.

Adapter Architecture

- Dual Core RAID-on-Chip (ROC) 1.6GHz processor
- x8 PCIe Gen 4.0 host interface
- Support up to 8 internal or 8 external 12Gb/s SAS/SATA/PCIe Gen 4.0 (NVMe) ports
- Support backplanes based on the SFF-TA-1005 specification (UBM)
- Multi-adapter support for large storage requirements
- BIOS boot array support for greater fault tolerance
- Supports up to 32 SATA or SAS devices
- Boot support for the uEFI host BIOS
- Support up to 32 NVMe devices
- NVRAM for RAID event & transaction log
- Redundant flash image for adapter availability
- Support for SAS tape devices and transport layer retries (TLR) for error handling
- Hardware secure boot ready
- SFF-9402 compliant connector pin-out

RAID Features

- RAID level 0, 1 (Simple/Multi Mirroring), 10, Single Disk (Single/Dual/Triple) or JBOD
- Multiple RAID selection
- Configurable stripe size up to 1MB
- Support HDD firmware update
- 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
- Support global and dedicated hot spare
- Automatic drive insertion/removal detection and rebuilding
- Support for native 4K and 512 byte sector SAS and SATA devices
- Support UNMAP command
- S.M.A.R.T. support
- Multiple pairs SSD/HDD disk clone function
- SSD automatic monitor clone (AMC)
- SED support for hardware encryption capable drives

Monitors/Notification

- System status indication through alarm buzzer
- SMTP support for email notification
- SNMP support for remote manager
- Enclosure management (UBM, SES2 and SGPIO) ready

RAID Management

- Field-upgradeable firmware in flash ROM
- Hot key "boot-up" McBIOS RAID manager via M/B BIOS
- Web browser-based McRAID storage manager
- Support command-line interface (CLI)
- API library for developers to configure RAID adapters with their own utility
- Single Admin Portal (SAP) storage manager



Operating System

- Windows 11/10 / Server 2022 / Server 2019 / Server 2016
- Linux / FreeBSD / XenServer / unRAID
- VMware (Driver 7.x/6.7 support CLI in-band management)
- macOS

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

Environmental Specifications

Operating Voltage	12V
Power Consumption	Approximately 10.2 Watts
Temperature	Operating: 0°C to +55°C Storage: -40°C to 105°C
Humidity	Operating: 10-85%, relative humidity Non-operating: 5-90%, relative humidity
Compliance Certification	CE, FCC, RoHS

Model Name	ARC-1686-8I	ARC-1686-8X
I/O Processor	Tri-Mode Dual Core ARM A15 1.6GHz ROC	
Drive Connector	1 x SFF-8654 [x8]	2 x SFF-8644 [x4]
Drive Support	12Gb/s SAS, 6Gb/s SATA, Gen 4.0 PCIe (NVMe)	
Host Interface	x8 PCIe Gen 4.0	
Max Devices Support	32	
RAID Levels	0, 1 (Simple/Multi Mirroring), 10, Single Disk (Single/Dual/Triple) or JBOD	
Enclosure Ready	SGPIO, SES2 and UBM	
Management Port	In-Band: PCIe	
Form Factor (H x L)	LP-MD2 : 64.41(H) x 167.65(L) mm	
Software Package	Same as ARC-1886 Tri-Mode RAID Adapter	
Products View		



8F., No.22, Lane 35, Ji-Hu Rd., 114Taipei, Taiwan, R.O.C.

TEL: 886-2-87974060 FAX: 886-2-87975970 <http://www.areca.com.tw>

Technical Support: support@areca.com.tw Sales Information: sales@areca.com.tw

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