# ARC-1886VN-6H

（6Bays M.2 NVMe Hardware RAID controller ）

The ARC-1886VN-6H offers advanced hardware RAID technology for increased performance using 6bays M.2 NVMe and improved enterprise data protection using two SAS/SATA ports. The Hardware RAID controller accesses the data of NVMe disk array with a workload preset value. When the workload size does not reach the preset value, the RAID controller backs up the data of NVMe disk array to the two SAS/SATA ports hard disk array. It is designed with 1.6 GHz dual core ROC processor, DDR4-2666 memory and PCIe Gen 4.0 host/device interface and supports RAID levels 0, 1, 10, 3, 5, 6, Single Disk or JBOD.
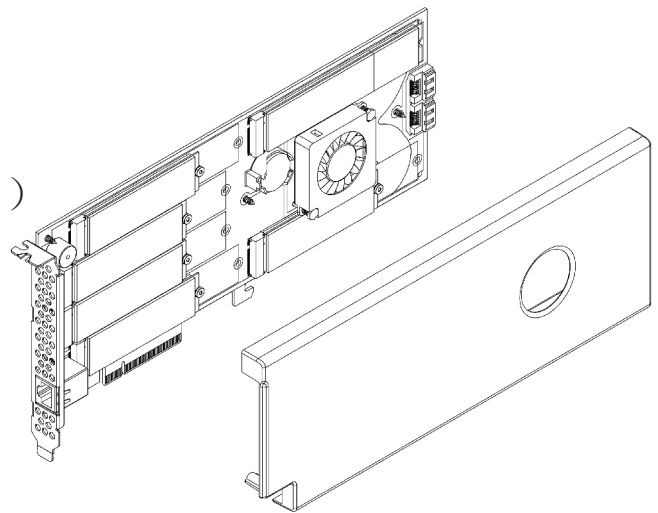
Highlights

- Supports up to 6Bays PCIe Gen 4.0 M.2 drives and 2 port 12Gb/s SAS/SATA ports

- PCIe Gen 4.0 throughput at each NVMe bay

- x8 PCIe Gen 4.0 host interface

- Support up to 8GB DDR4-2666 cache

- Support off module power loss protection using Supercap (optional)

- RAID levels 0, 1, 10, 3, 5, 6, Single Disk or JBOD

- Controller based hardware encryption for security

- Redundant flash image for adapter availability

- Hardware secure boot ready

- Capacity expansion, RAID level/stripe size migration

- Broad operating support including Windows, Linux (open source), FreeBSD (open source), Mac and VMware

NVMe Performance Gains for Fast Data

Based on the Broadcom SAS3916 x8 PCIe Gen 4.0 to SAS/SATA/PCIe RAID on Chip (RoC) controller, the ARC-1886VN-6H RAID adapter raises the standard to higher performance levels with several enhancements including new high performance 1.6 GHz dual core ROC processor, a DDR4-2666 memory and high performance PCIe Gen 4.0 host and 12Gb/s SAS/SATA/PCIe (NVMe) interface bus interconnection. The controller by default supports on-board 8G of ECC DDR4-2666 SDRAM memory. With the ARC-1886VN-6H provides an extremely fast, reliable and ultra-compact solution for companies that need storage designed especially for the high-speed data recording and processing. This RAID controller can hold up to 6 NVMe on just one full high PCIe adapter, increasing the capacity/speed the more NVMes are added. The card supports both 2280 and 22110 form factor drives and combines them on a tri-mode RAID controller to maximize I/O performance for database applications and streaming digital media environments. Paired with six Samsung 960 Pro 1TB SSDs, the card delivered nearly xxxxx MB/s of sequential read performance. Sequential write performance is knocking on the door of xxxxx MB/s.
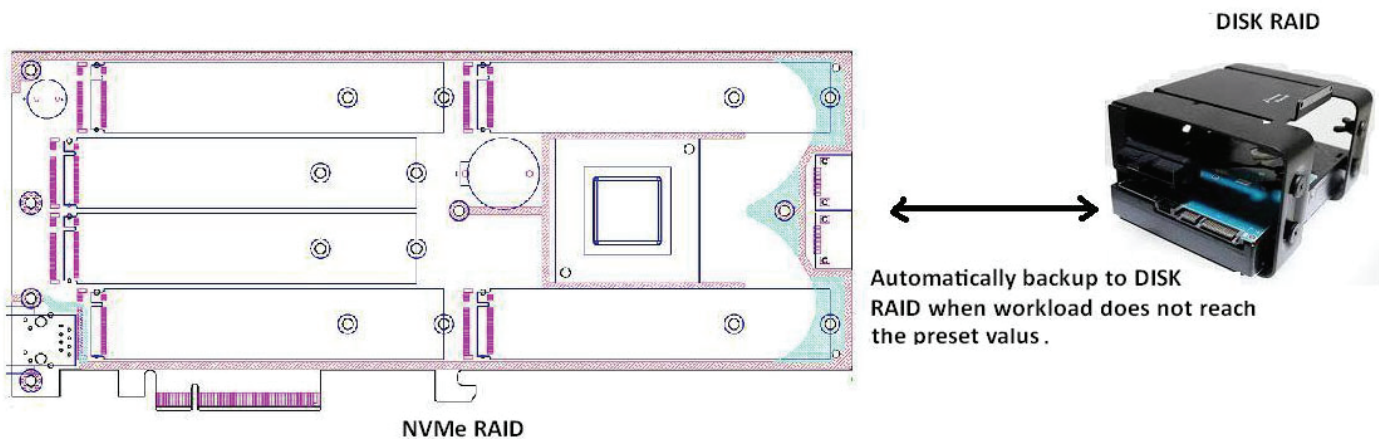
Guaranteed Data Protection

Designed and leveraged with Areca's existing high performance RAID solution, ARC-1886VN-6H brings PCIe NVMe to a high performance hardware RAID at high throughput, high IOPs and low latency. It supports the hardware RAID 6 engine to allow two HDDs failures without impact the existing data and performance. The ARC-1886VN-6H provides a dual disk arrays including a NVMe disk array and a hard disk array. The RAID controller has a preset value, and when the workload size does not reach the preset value, it backs up the data of M2 NVMe disk array to the SATA port hard disk array. This has the advantages of fast access to data by the NVMe disk and high reliability of data storage on the hard disk. The RAID controller with optional off module power loss protection is optimized for datacenter environ-ments. Its efficient PLP saves data issued by the RAID controller without data loss when a sudden power off or failure occurs. Controller based hardware encryption manages any kinds of drives attached to ARC-1886VN-6H controller cards without impacting the performance for higher levels of security.

Maximum Interoperability

The ARC-1886VN-6H RAID controller support broad operating system including Windows, Linux (Open Source), FreeBSD (Open Source), Mac, VMware and more, along with key system monitoring features such as enclosure management and SNMP function. Our products and technology are based on extensive testing and validation process; leverage ARC-1883 series controller field-proven compatibility with operating systems, motherboards, applications and device drivers.

Intuitive RAID Management

McBIOS RAID is a BIOS based utility used to simplify configure and manage RAID controller 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-1886VN-NVMe, via the GUI or through CLI utility. Customers can launch the firmware browser-based McRAID GUI through on-board Ethernet port or 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 management tool includes S.M.A.R.T. monitoring, TRIM/UNMAP support, and Terabyte Written (TBW) rating for NVMe SSD health checking.

DISK RAID

Automatically backup to DISK RAID when workload does not reach the preset valus.

NVMe RAID

Adapter Architecture

- Dual Core RAID-on-Chip (ROC) 1.6GHz processor
- x8 PCIe Gen 4.0 lane host interface
- 8GB on-board DDR4-2666 SDRAM with ECC
- Support both 2280 and 22110 form factor M2 drives
- Write-through or write-back cache support
- Support read/write cache allocation by policy
- Support up to 6 bays PCIe Gen 4.0 M.2 and 2 12Gb/s SAS/SATA internal ports
- Multi-adapter support for large storage requirements
- BIOS boot array support for greater fault tolerance
- Device Interface per M.2 slot PCIe Gen 4.0 at 16GT/s per lane
- Boot support for the uEFI host BIOS
- NVRAM for RAID event & transaction log
- Redundant flash image for controller availability
- Support NVMe off module power loss protection using ARC-1886-CAP (optional)
- Dimensions (LxH):262 x 107.2 mm (Full Height)

Monitors/Notification

- System status indication through global HDD activity/fault connector, individual activity/fault connector and alarm buzzer
- SMTP support for email notification
- SNMP support for remote manager
- Enclosure management ready

RAID Management

- Field-upgradeable firmware in flash ROM
- Support Out-of-Band management via Ethernet port
- 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 customer to write storage manager
- Single Admin Portal (ArcSAP) storage manager

RAID Features

- RAID level 0, 1, 10(1E), 3, 5, 6, Single Disk or JBOD
- Multiple RAID selection
- Configurable stripe size up to 1MB
- Array roaming
- RAID level/stripe size migration
- Capacity expansion and RAID level migration simultaneously
- Volume set growth
- Instant availability and background initialization
- Support global and dedicated hot spare
- S.M.A.R.T. support
- Support UNMAP command
- Multiple pairs SSD disk clone function
- SSD automatic monitor clone (AMC)
- Controller based hardware encryption function
- SED support for hardware disk encryption capable drives
- Support NTP protocol synchronize RAID controller clock over the on board Ethernet port

Environmental Specifications

Operating Voltage	12V
Power Consumption	Approximately 12 Watts (without M.2 drive)
Temperature	Operating: +5˚c to +60˚c Storage: -40˚c to 70˚c
Humidity	Operating: 10-85%, relative humidity Non-operating: 5-90%, relative humidity
Compliance Certification	CE, FCC, RoHS

Operating System

- Windows 10/Server 2019/2016
- Linux / FreeBSD / XenServer / unRAID
- VMware (Driver 6.x support CLI in-band management)
- Mac OS X / macOS

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

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At the Heart of Storage

ARC-1886i-8i/8x/4x4i

(8 Ports PCIe Gen 4.0 Tri-Mode RAID Adapters)

ARC-1886-8x8i/16i

(16 Ports PCIe Gen 4.0 Tri-Mode RAID Adapters)

The new fourth generation ARC-1886 family offers advanced technology for increased performance and improved enterprise data protection. They were designed with 1.6 GHz dual core ROC processor, DDR4-2666 memory and PCIe 4.0 interface for the most performance-hungry database and IT applications. Based on the Broadcom SAS3916 and SAS3908 PCIe 4.0 x8 to SAS/SATA/PCIe RAID on Chip (RoC) controller, the ARC-1886 series RAID adapters can offer both PCIe Gen 4.0 host and 12Gb/s SAS/SATA/PCIe (NVMe) Tri-Mode storage interfaces.
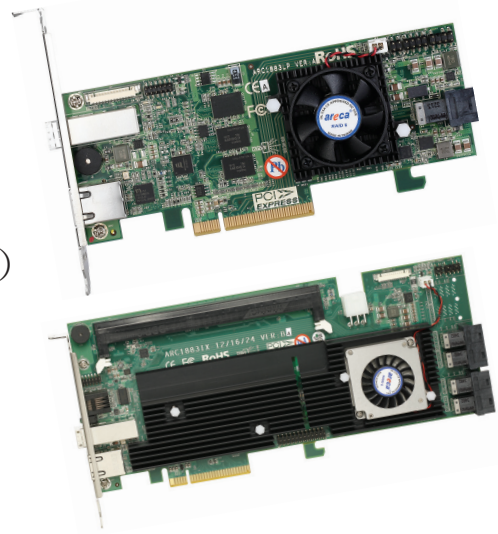
Highlights

- Tri-Mode interface at each drive ports-12Gb/s SAS/SATA/ Gen 4.0 PCIe (NVMe)

- x8 PCIe Gen 4.0 host interface

- Support up to 8GB DDR4-2666 cache

- Hardware secure boot ready

- Universal Bay Management (UBM) management

- SFF-9402 compliant connector pin-out

- Flash-based backup module (FBM) ready (optional)

- Controller based hardware encryption for security

- SED support for hardware disk encryption capable drives

- Redundant flash image for adapter availability

- Multiple RAID 0 and RAID 10 (1E) support (RAID 00 and RAID100)

- Broad operating support including Windows, Linux (open source), FreeBSD (open source), Mac and VMware

Unparalleled Performance

The ARC-1886 series RAID controllers raise the standard to higher performance levels with several enhancements including new high performance 1.6GHz dual core ROC processor, a DDR4-2666 memory, 12Gb/s SAS/SATA/PCIe (NVMe) Tri-Mode storage and high performance PCIe 4.0 interface bus interconnection. The low profile controllers by default support on-board 8G of ECC DDR4-2666 SDRAM memory. The ARC-1866 series 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-1886 RAID controllers will provide maximum read/write performance improvements for the most performance-hungry database and IT applications.

Guaranteed Data Protection

Designed and leveraged with Areca's existing high performance RAID solution, ARC-1886 provides superior levels performance and enterprise level data protection for the most demanding next-generation server and storage environments. 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. Controller based hardware encryption manages any kinds of drives attached to ARC-1886 controller cards for higher levels of security. API code for third-party Enterprise Key Management systems integrates and manages encryption function. The on-board ROC incorporates advanced security through hardware secure boot. Hardware secure boot helps ensure that the firmware code running on ARC-1886 hardware platforms is authentic and unmodified.

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-1886 RAID adapter can operate in all three modes concurrently servicing NVMe, SAS or SATA drives taht offers the operation of NVMe, SAS or SATA storage devices in a single drive bay.. With a single ARC-1886 series RAID adapter, system integrators can take full advantage of SAS, SATA and x1, x2, and x4 NVMe drives in existed U.2/future U.3 based backplane. Universal Backplane Management (UBM), which defines a common backplane control and management framework for a host to determine SAS/SATA/PCIe backplane capabilities. The ARC-1886 series adapters are UBM ready, and customers can immediately integrate these adapters into their U.3 backplanes utilizing UBM. They support broad operating system including Windows, Linux (Open Source), FreeBSD (Open Source), Mac, VMware and more, along with key system monitoring features such as enclosure management (SES-2, SMP, & SGPIO) and SNMP function.

Intuitive RAID Management

The McBIOS RAID is a BIOS based utility used to simplify configure and manage RAID controller 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-1886 series, via the GUI or through CLI utility. Customers can launch the firmware browser-based McRAID GUI through on-board Ethernet port or 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
- 8GB on-board DDR4-2666 SDRAM with ECC
- Write-through or write-back cache support
- Support read/write cache allocation by policy
- Support up to 4/8/16 internal or 4/8 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 512 SATA or SAS devices using SAS expanders
- Boot support for the uEFI host BIOS
- NVRAM for RAID event & transaction log
- Redundant flash image for controller availability
- Flash-based backup module (FBM) ready (optional)
- Hardware secure boot ready
- SFF-9402 compliant connector pin-out

RAID Features

- RAID level 0, 1, 10(1E), 3, 5, 6, 30, 50, 60, Single Disk or JBOD
- Multiple RAID 0 and RAID 10(1E) support (RAID 00 and RAID100)
- 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)
- Controller based hardware encryption function
- SED support for hardware disk encryption capable drives
- Support NTP protocol synchronize RAID controller clock over the on board Ethernet port

Monitors/Notification

- System status indication through global HDD activity/fault connector, individual activity/fault connector, LCD/I²C connector and alarm buzzer
- SMTP support for email notification
- SNMP support for remote manager
- Enclosure management (SES-2, SMP and SGPIO) ready

RAID Management

- Field-upgradeable firmware in flash ROM
- Support Out-of-Band management via Ethernet port
- 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
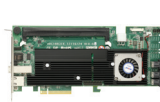- Support push button and LCD display panel (optional)

Operating System

- Windows 10 / Server 2019 / Server 2016
- Linux / FreeBSD / XenServer / unRAID
- VMware (Driver 6.x support CLI in-band management)
- Mac OS X / macOS

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

Environmental Specifications

Operating Voltage	3.3V+12V
Power Consumption(8/16 ports)	12/14 Watts
Temperature	Operating: +5˚c to +60˚c Storage: -40˚c to 70˚c
Humidity	Operating: 10-85%, relative humidity Non-operating: 5-90%, relative humidity
Compliance Certification	CE, FCC, RoHS

Model Name	ARC-1886-8i	ARC-1886-8x	ARC-1886-4x4i	ARC-1886-8x8i	ARC-1886-16i
I/O Processor	Dual Core RAID-on-Chip 1.6GHz				
On-Board Cache	8GB on-board DDR4-2666 SDRAM				
Drive Connector	1 x 8 SFF-8654	2 x SFF-8644	1 x SFF-8643 1 x SFF-8644	1 x SFF-8654 2 x SFF-8644	two x 8 SFF-8654
Drive Support	12Gb/s SAS, 6Gb/s SATA, Gen 4.0 PCIe (NVMe)				
Management Port	In-Band: PCIe /Out-of-Band: BIOS, LCD and LAN Port				
Enclosure Ready	Individual Fault Header, SGPIO, SMP and SES2				
FBM/BBM Support	ARC-1883-CAP				
Power Dissipation (12V)	14.4W			37.2W	
Form Factor(LxH)	Low Profile: 169.5 x 64.4 mm			Low Profile: 254 x 98.4 mm	
Products View					