

ARC-8026 SAS Expander Module

(Three 6Gb/s SAS 4x SFF-8088 ports; one host and two for expansion to additional JBOD enclosures)



Overview

The Areca SAS Expander module ARC-8026 is based on the LSI LSISAS2x36/28 expander IC, SAS-2 chip which features 36/28 x 6Gb/s ports and 6G/3G multiplexing, SAS 2.0 zoning, self-configuration, table-to-table routing, and an integrated PPC processor for SES-2 and enclosure management support. The ARC-8026 expander module features three 6Gb/s SAS 4x SFF-8088 ports; one host and two for expansion to additional JBOD enclosures. It is designed to fit into a stand-alone box and can be installed in a 5.25" mounting shell. The Areca SAS expander box is ideal for enclosure customers that want to support up to 24 channels 6Gb/s and 3Gb/s SAS/SATA/SSD JBOD function units using low-cost SFF-8087 SAS cables. It has been fully tested and qualified with 6Gb/s and 3Gb/s Areca external SAS/Fibre/iSCSI/PCIe to SAS RAID controller, SAS RAID adapters and HBAs.

SAS for Maximum Scalability

SAS 2.0 is designed for backward compatibility with SAS 1.0, twice speed data transfer 6Gb/s Per physical link than previous available. The SAS 2.0 interface supports both 6Gb/s SAS 2.0 disk drives for data-intensive applications, and 6Gb/s SATA drives for low-cost bulk storage of reference data. Applications can be optimized for cost/performance through the use of both SAS and SATA drive types. The ARC-8026 expander module includes 12/16/24 internal plus 12 external 6Gb/s SAS ports connection for host and easy expansion: High performance architecture sets new boundaries of industry performance expectations! 6Gb/s SAS/SATA (600MB/s bandwidth per physical link) 3.0Gb/s SAS/SATA (300MB/s bandwidth per physical link).

Easy Management

The expander box contains an embedded expander manager that can access via in-band SES-2 over SMP protocol and out-of band RS-232 port. An out-of-band serial port is available for managing the configuration and monitoring the expander. The preferred I/O connection for server and JBOD backplanes is the internal SFF-8087 connector. This connector has eight signal pins to support four SAS/SATA drives and six pins for the SFF-8485 compliant SGPIO (Serial General Purpose Input/Output) side-band signals. The Areca expander firmware and EPLD has implemented the SES-2 protocol and disk activity map to SGPIO based indicator LEDs. For backplane without SGPIO supporting, the expander box also provides two kinds of alternative LED cable header to support the

individual fault/activity status indicator for those backplanes. In addition to meet different enclosure, ARC-8026 expander module has implemented autonomous chassis management of two power supplies status connectors, four fan monitor/speed control connectors through the SES-2 protocol.

Maximum Interoperability

Areca presents its ultra-high performance and high reliability 6Gb/s SAS expander module for a cost-effective and enterprise-class JBOD storage enclosure. A 6Gb/s SAS expander module literally expands the number of end devices that you can connect together. Expander devices, typically embedded into an expander module to connect system backplane, support large configurations of SAS end devices, including SAS host/RAID adapters and SAS and SATA disk drives. The SAS protocol defines a mechanism that has been implemented in the SAS expanders to guarantee fair access between drives in a domain. With ARC-8026 SAS expander, you can build large and complex storage topologies. When Areca SAS 6Gb/s RAID adapter used with ARC-8026 expanders, the RAID adapters can provide up to (128) devices through one or more 6Gb/s SAS JBODs, making it an ideal solution for high-bandwidth applications and transaction-intensive enterprise-class storage applications that call for maximum configuration flexibility. Applications that benefit most features from these solutions include online transaction processing, server RAID solutions, supercomputing, near-line backup, security systems, streaming and cloud computing applications.

Features

Box Controller Modules

- Expander Board: 1 modules
- Sensors: 1 sensor on expander board

Controller External Connectors

SAS Connectors

- 1 x SAS "IN" connector for connection to the host
- 2 x SAS "OUT" connector for expansion to next JBOD enclosure

Drives

SAS Hot-Plug Hard Drives

- Up to 12/16/24 6.0 Gb/s SAS hard drives at speed of 10K or 15K rpm

SATA Hot-Plug Hard Drives

- Up to 12/16/24 6.0 Gb/s SATA hard drives at speeds of 7.2K or 10K rpm

Internal Connectors

- 3/4/6 SFF-8087 min- SAS connectors
- 1 x 6-pin power connector
- 4 x 3-pin fan connector
- 2 x 2-pin power status connector
- 1 x 6-pin LCD connector

Serial Connector (per Expander Board)

- 1 x 6-pin UART RJ-11 connector (for expander box manager only)

LED Indicators

Internal fault/activity header

- 12/16/24 2.54mm activity and fault header

External SAS Port LED Indicators

- Two one-color LED status indicators for each SAS host port, one for SAS port link and one for the activity status
- Two one-color LED status indicators for each SAS expansion port, one for SAS port link and one for the activity status

Monitors/Indicators

- System status indication through LCD, LED (Link status and Activity) and alarm buzzer
- Enclosure management (Protocols SES-2 over SAS ports) ready

Management

- In-band SAS port
- Out-of-band RS232 serial port
- CLI through RS232 serial port

Physical

Dimension

41(H) x 145(W) x 200(D) mm

Environmental

Temperature

Operating 10° to 40°C
Storage -40° to 70°C

Relative Humidity

Operating 10% to 80% (non-condensing)
Storage 5% to 95% (non-condensing)



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