

Product Brief

MegaRAID™ 9520-8i PCIe Gen 4.0 Adapter



Key Features

- Tri-Mode Storage Interface
 - 12Gb/s SAS
 - 6Gb/s SATA
 - Gen 4.0 PCIe (NVMe)
- Hardware Secure Boot
- Universal Backplane Management (UBM) ready
- No host memory reservation requirements
- RAID 0, 1, and 10
- MegaRAID SafeStore™ Software for SED Key Management
- x8 PCIe Gen 4.0 Host Interface
 - Supports x8, x4, x2, x1 PCIe lanes at a transfer rate up to 16.0GT/s per lane, full duplex
 - Lane and polarity reversal
- SFF-9402 Compliant Connector Pinout

PCIe 4.0 x8, 8-Port SAS/SATA/NVMe Entry RAID Adapter

Overview

The MegaRAID™ 9520-8i adapter provides a reliable storage solution based on the Broadcom® second-generation PCIe Gen 4.0 Tri-Mode SAS3808 I/O controller.

Leveraging the MegaRAID iMR entry RAID firmware, the 9520-8i supports JBOD mode, RAID 0, 1, and 10 without requiring the Reserved Memory Region Reporting (RMRR) structure. This means that upon startup, the 9520-8i does not claim host memory for the RAID functions and other background operations. Due to security concerns, platform limitations on using RMRR are always increasing, so the 9520-8i instead uses the SAS3808 on-chip memory to carry out the RAID and other necessary operations. This also allows for easy integration into system architectures that do not have a memory reservation capability to support a traditional iMR solution, such as the 9540-8i.

Tri-Mode SerDes Technology

The Broadcom Tri-Mode SerDes technology enables operation of NVMe, SAS, or SATA storage devices in a single drive bay. A single adapter can operate in all three modes concurrently servicing NVMe, SAS, or SATA drives. The adapter negotiates between speeds and protocols to seamlessly work with any of the three types of storage devices. Tri-Mode support provides a nondisruptive way to evolve existing data center infrastructure. By upgrading to a Tri-Mode adapter, users can expand beyond SAS/SATA and use NVMe without major changes to other system configurations. The 9500 series adapters are compatible with existing PCI Express SFF-8639 Module (U.2) backplanes, allowing users to boost performance for today's ever increasing bandwidth requirements.

As next-generation systems expand the adoption of Tri-Mode SerDes technology through implementation of the SFF-TA-1001 and SFF-TA-1005 standards, the 9500 series adapters allow users to get the most performance and flexibility. The SFF-TA-1001 specification commonly known as U.3 defines a common bay type and connector for SAS (x1, x2, x4), SATA, and NVMe (x1, x2, x4) devices. The creation of the U.3 standard gives unprecedented flexibility to system OEMs and data centers that want to support the latest storage technologies at the lowest cost and system complexity. With a single 9500 series adapter, system implementers can take full advantage of SAS, SATA, and x1, x2, and x4 NVMe drives in a U.3-based backplane.

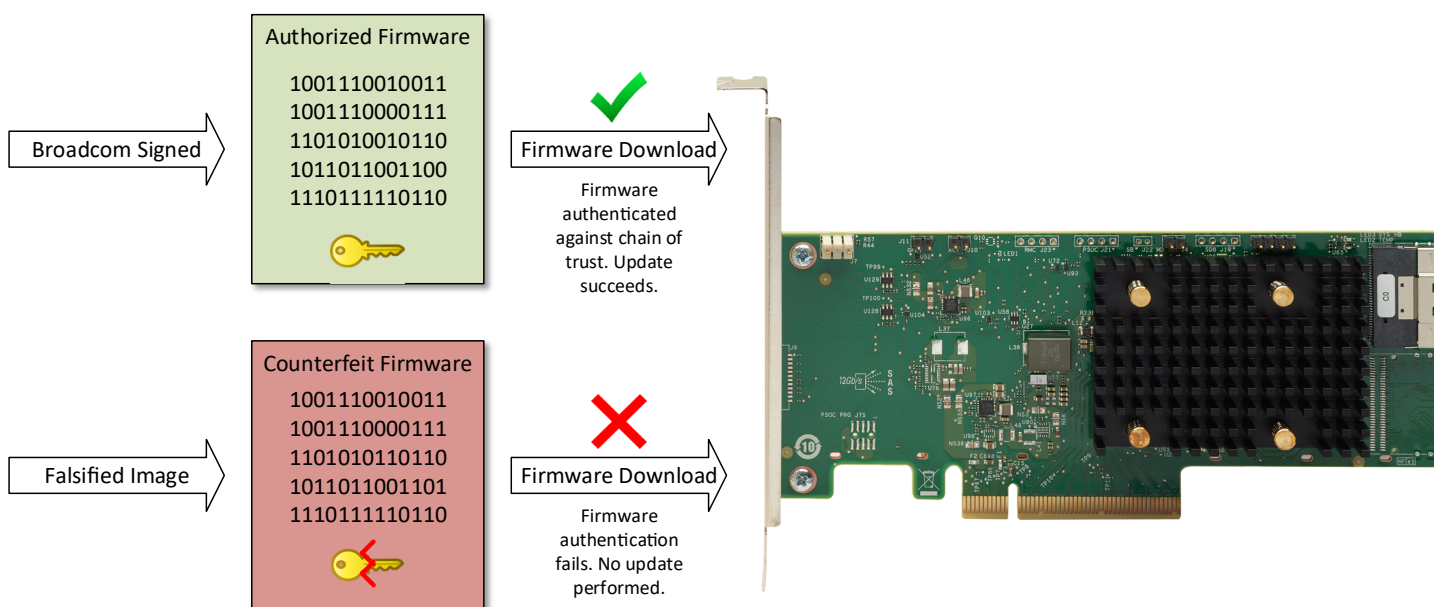
Tri-Mode SerDes Technology (cont.)

Control and management of multiprotocol (SAS/SATA/NVMe) backplanes has been loosely defined in previous generations of products. Recognizing this, Broadcom worked with key industry members to introduce Universal Backplane Management (UBM) or SFF-TA-1005. UBM builds upon current management frameworks to provide a comprehensive approach to managing SAS, SATA, and NVMe. The 9500 series adapters are UBM ready, and customers can immediately integrate these adapters into their U.3 backplanes utilizing UBM.

Hardware Secure Boot

The onboard controller incorporates advanced security through hardware secure boot. The hardware secure boot feature permits only authenticated firmware to execute on the adapter. The controller's Internal Boot ROM establishes an initial Root of Trust (RoT). Hardware secure boot authenticates and builds a Chain of Trust (CoT) with succeeding firmware images using the RoT, meaning only authorized firmware is executed on the adapter. Broadcom provides the signed firmware images, making the use of hardware secure boot transparent to customers, while providing confidence in the security of the solution.

Simple Secure Boot



MegaRAID 9520-8i

Feature	
Port Count	8 internal
Connectors	One x8 SFF-TA-8654
Host Interface	x8 PCIe Gen 4.0
Storage Interface	12Gb/s SAS, 6Gb/s SATA, Gen 4.0 PCIe (NVMe)
Controller	SAS3808
RAID Levels	0/1/10
Max. Expanders	2
Max. PCIe Switches	0
Max. SAS/SATA Drives	16
Max. PCIe Drives	2
RAID Features	• RAID 0, 1, and 10 plus JBOD • Auto resume after loss of system power during array rebuild or OCE • Single controller multipathing • Load balancing • 64k stripe size • Fast initialization for quick array setup • Check consistency for background data integrity • SSD support with SSD Guard™ technology • Patrol read for media scanning and repairing • Two virtual drive support • DDF-compliant Configuration on Disk (COD) • S.M.A.R.T. support • Global Hot Spare with Revertible Hot Spare support: – Automatic rebuild – Enclosure affinity – Emergency SATA hot spare for SAS arrays • Enclosure management: – SES (inband) – SGPIO (sideband) – Universal Backplane Management (UBM) ready • DataBolt bandwidth optimizer technology support for compatible expander-based enclosures • Shield state drive diagnostic technology • MegaRAID SafeStore Software for SED Key Management
Management Utilities	• LSI Storage Authority (LSA) • StorCLI (command-line interface) • HII (UEFI Human Interface Infrastructure)
OS Support	Microsoft Windows, VMware vSphere®/ESXi, Red Hat Enterprise Linux, SuSE Linux, Ubuntu Linux, Citrix XenServer, CentOS Linux, Debian Linux, Oracle Enterprise Linux, Fedora, FreeBSD Refer to www.broadcom.com/support/download-search for details on versions.
Dimensions	155.52 mm (±0.13 mm) x 68.77 mm (±0.13 mm)
Operating Conditions	Operating: 0°C to 55°C, 5% to 90% RH non-condensing Storage: -45°C to 105°C, 5% to 95% RH non-condensing
Typical Power	6.0W
Operating Voltage	12V ±8%; 3.3V ±9%
MTBF (Calculated)	>5,000,000 hours at 40°C
Hardware Warranty	3 years

Ordering Information

Single Pack	05-50134-25
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