

Broadcom 05-50077-02

Broadcom 9500-16i 12Gb/s Tri-Mode SAS/NVMe HBA User Manual

Model: 05-50077-02

INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Broadcom 9500-16i 12Gb/s Tri-Mode SAS/NVMe Host Bus Adapter (HBA). The 9500-16i HBA is designed to offer maximum connectivity and performance for high-end servers and applications, supporting up to 1024 SAS/SATA devices or 32 NVMe devices with PCIe 4.0 connectivity. It is an essential component for enterprise data centers requiring flexible and high-bandwidth storage solutions.

SETUP AND INSTALLATION

Before installing the Broadcom 9500-16i HBA, ensure your system meets the following requirements:

- Available PCIe 4.0 x8 or x16 slot.
- Compatible operating system: Windows, macOS, or Linux.
- Sufficient power supply for the system and connected devices.
- Appropriate cabling for SAS/SATA or NVMe devices.

Installation Steps:

1. **Power Down System:** Completely shut down your computer and disconnect the power cord.
2. **Open Chassis:** Open the computer case to access the motherboard's PCIe slots.
3. **Locate PCIe Slot:** Identify an available PCIe 4.0 x8 or x16 slot.
4. **Insert HBA:** Carefully align the Broadcom 9500-16i HBA with the chosen PCIe slot and press firmly until it is securely seated. Ensure the retention clip or screw is fastened.
5. **Connect Cables:** Attach the necessary SAS/SATA or NVMe cables from your storage devices to the HBA's ports.
6. **Close Chassis:** Secure the computer case and reconnect the power cord.
7. **Power On and Install Drivers:** Power on your system. The operating system may automatically detect the new hardware. If not, download and install the latest drivers from the Broadcom official website.

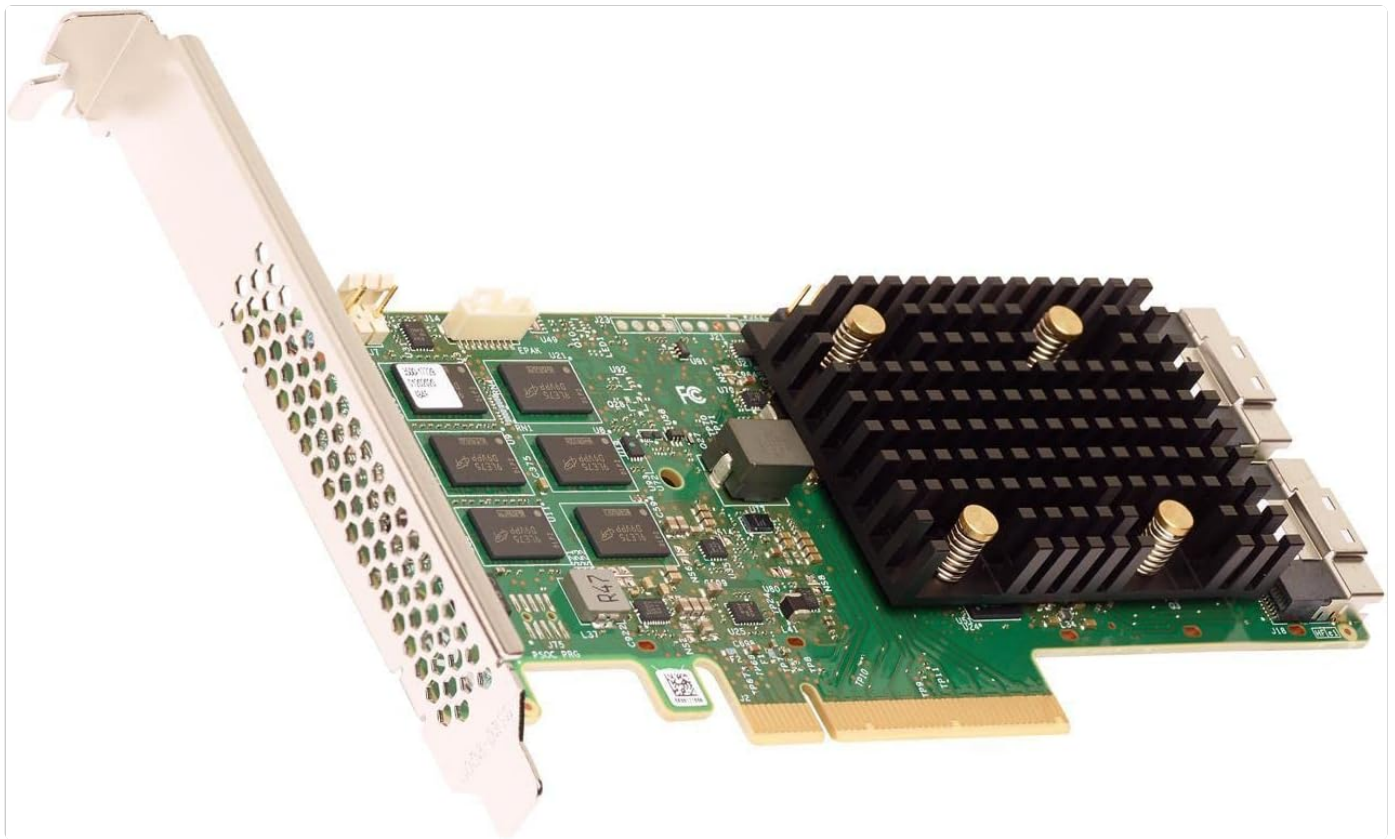


Figure 1: Broadcom 9500-16i HBA card. This image shows the full card, including the PCIe bracket, the main PCB, and the heatsink covering the controller chip. The multiple SAS/NVMe ports are visible on the right side of the card.

OPERATING THE HBA

The Broadcom 9500-16i HBA functions as an interface between your system's PCIe bus and your storage devices. Once installed and drivers are loaded, the HBA will enumerate connected SAS, SATA, or NVMe drives, making them accessible to your operating system and applications.

- **Tri-Mode Support:** The HBA supports SAS, SATA, and NVMe protocols simultaneously, allowing for flexible storage configurations.
- **Device Connectivity:** It can connect up to 1024 SAS/SATA devices or up to 32 NVMe devices, providing extensive scalability for large storage arrays.
- **PCIe 4.0 Bandwidth:** Leveraging PCIe 4.0, the HBA delivers high bandwidth necessary for demanding data center applications and high-performance storage.
- **Universal Bay Management (UBM) Ready:** This feature allows for enhanced management capabilities with compatible storage enclosures.

For specific configuration of RAID arrays (if supported by firmware) or advanced storage features, refer to the Broadcom documentation or your operating system's storage management tools.

MAINTENANCE

To ensure optimal performance and longevity of your Broadcom 9500-16i HBA, consider the following maintenance practices:

- **Driver Updates:** Regularly check the Broadcom support website for the latest firmware and driver updates. Keeping drivers current can improve compatibility, performance, and stability.
- **System Cooling:** Ensure adequate airflow within your server chassis to prevent overheating of the HBA and other

components. Proper cooling is crucial for sustained performance.

- **Cable Management:** Maintain tidy and secure cable connections to and from the HBA. Loose or damaged cables can lead to connectivity issues.
- **Environmental Conditions:** Operate the HBA within recommended temperature and humidity ranges as specified by Broadcom for server components.

TROUBLESHOOTING

If you encounter issues with your Broadcom 9500-16i HBA, consider the following troubleshooting steps:

- **HBA Not Detected:**
 - Verify the HBA is securely seated in the PCIe slot.
 - Try a different PCIe slot if available.
 - Check BIOS/UEFI settings to ensure PCIe slots are enabled.
- **Drives Not Detected:**
 - Ensure all data cables are properly connected to both the HBA and the drives.
 - Verify that the drives are powered on.
 - Check the HBA's firmware and driver versions; update if necessary.
 - Confirm drive compatibility with the HBA.
- **Performance Issues:**
 - Ensure the HBA is installed in a PCIe 4.0 slot for optimal bandwidth.
 - Check system resource utilization (CPU, RAM).
 - Verify drive health and performance.
 - Ensure proper cooling to prevent thermal throttling.

For advanced troubleshooting or issues not resolved by these steps, please refer to the official Broadcom support documentation or contact Broadcom technical support.

SPECIFICATIONS

Feature	Detail
Brand	Broadcom
Model Number	05-50077-02
Interface	PCIe 4.0
Hard Drive Interface	NVMe, SAS, SATA (Tri-Mode)
Max Devices (SAS/SATA)	Up to 1024
Max Devices (NVMe)	Up to 32
Operating System Compatibility	Windows, macOS, Linux
Item Weight	8.8 ounces (0.25 Kilograms)

Feature	Detail
Dimensions (LxW)	6.13 x 2.71 inches
Compatible Devices	Desktop (Servers)

WARRANTY AND SUPPORT

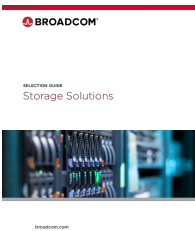
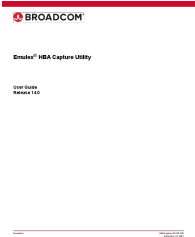

The Broadcom 9500-16i HBA is covered by a manufacturer's warranty. For detailed information regarding warranty terms, duration, and claims, please refer to the official Broadcom website or the documentation included with your purchase. For technical support, driver downloads, firmware updates, and additional product documentation, please visit the official Broadcom support portal. Having your product model number (05-50077-02) and serial number ready will assist in expediting support requests.

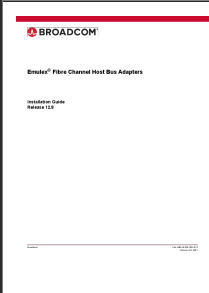
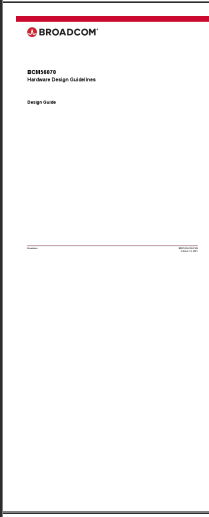
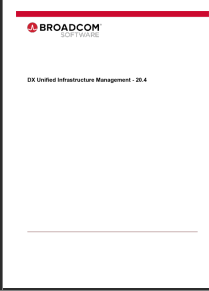
Official Broadcom Website: www.broadcom.com



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Related Documents - 05-50077-02

	<p>Broadcom Storage Solutions Selection Guide: HBAs, MegaRAID, SafeStore, CacheCade</p> <p>Comprehensive selection guide for Broadcom's storage solutions, including Host Bus Adapters (HBAs), MegaRAID controller cards, SafeStore software, CacheCade Pro 2.0, and various SAS, SATA, and U.2 enabled cables for enterprise data centers.</p>
	<p>Emulex HBA Capture Utility User Guide</p> <p>The Emulex HBA Capture Utility is a diagnostic tool from Broadcom designed to collect system information, logs, and firmware dumps from Emulex Host Bus Adapters (HBAs) to aid in troubleshooting and analysis. It supports Windows, Linux, Citrix, Solaris, and VMware ESXi, offering various capture modes via GUI or CLI.</p>
	<p>Broadcom Emulex Host Bus Adapters Installation Guide Release 14.4</p> <p>This installation guide (Release 14.4) from Broadcom provides detailed instructions for setting up Emulex Host Bus Adapters (HBAs), including models LPe38100, LPe37100, LPe36000, LPe35000, LPe32000, and LPe31000 series. It covers installation, compatibility, major features, specifications, and regulatory information.</p>

 <p>The image shows the cover of the 'Broadcom Emulex Fibre Channel Host Bus Adapters Installation Guide'. It features the Broadcom logo at the top, followed by the title 'Emulex® Fibre Channel Host Bus Adapters' and 'Installation Guide Release 12.8'.</p>	<p>Broadcom Emulex Fibre Channel Host Bus Adapters Installation Guide</p> <p>Comprehensive installation guide for Broadcom Emulex Fibre Channel Host Bus Adapters (HBAs), covering HBA identification, bracket changes, firmware settings, installation, media attachment, power application, and LED status interpretation. Release 12.8.</p>
 <p>The image shows the cover of the 'BCM56070 Hardware Design Guidelines'. It features the Broadcom logo at the top, followed by the title 'BCM56070 Hardware Design Guidelines' and 'Design Guide'.</p>	<p>BCM56070 Hardware Design Guidelines</p> <p>This document provides hardware design guidelines for the Broadcom BCM56070 family of devices, detailing electrical characteristics for high-speed I/O interfaces, connection diagrams, and routing examples.</p>
 <p>The image shows the cover of the 'DX Unified Infrastructure Management 20.4: Release Notes and User Guide'. It features the Broadcom Software logo at the top, followed by the title 'DX Unified Infrastructure Management - 20.4'.</p>	<p>DX Unified Infrastructure Management 20.4: Release Notes and User Guide</p> <p>Explore the comprehensive release notes and user guide for Broadcom DX Unified Infrastructure Management (DX UIM) version 20.4. This document details new features, installation, administration, and troubleshooting for robust IT infrastructure monitoring.</p>