**BROADCOM 05-50077-00**

# Broadcom MegaRAID 9560-16i Storage Controller User Manual

Model: 05-50077-00

## 1. INTRODUCTION

This user manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of the Broadcom MegaRAID 9560-16i Storage Controller. This high-performance RAID controller is designed to manage various storage devices, offering robust data protection and efficient data access for server environments.

## 2. PRODUCT OVERVIEW

The Broadcom MegaRAID 9560-16i is a 16-channel storage controller supporting SATA 6Gb/s, SAS 12Gb/s, and PCIe 4.0 (NVMe) interfaces. It supports multiple RAID levels including 0, 1, 5, 6, 10, 50, 60, and JBOD, providing flexible storage solutions. The controller features a PCIe 4.0 x8 interface for high bandwidth connectivity.

### 2.1 Key Features

- Connect up to 240 SAS/SATA devices or 24 NVMe devices per controller.
- Low-profile form factor suitable for rack-mounted servers.
- Side-mounted SAS connectors for convenient cable management.
- PCIe 4.0 x8 host interface for high-speed data transfer.
- Support for RAID levels 0, 1, 5, 6, 10, 50, 60, and JBOD.
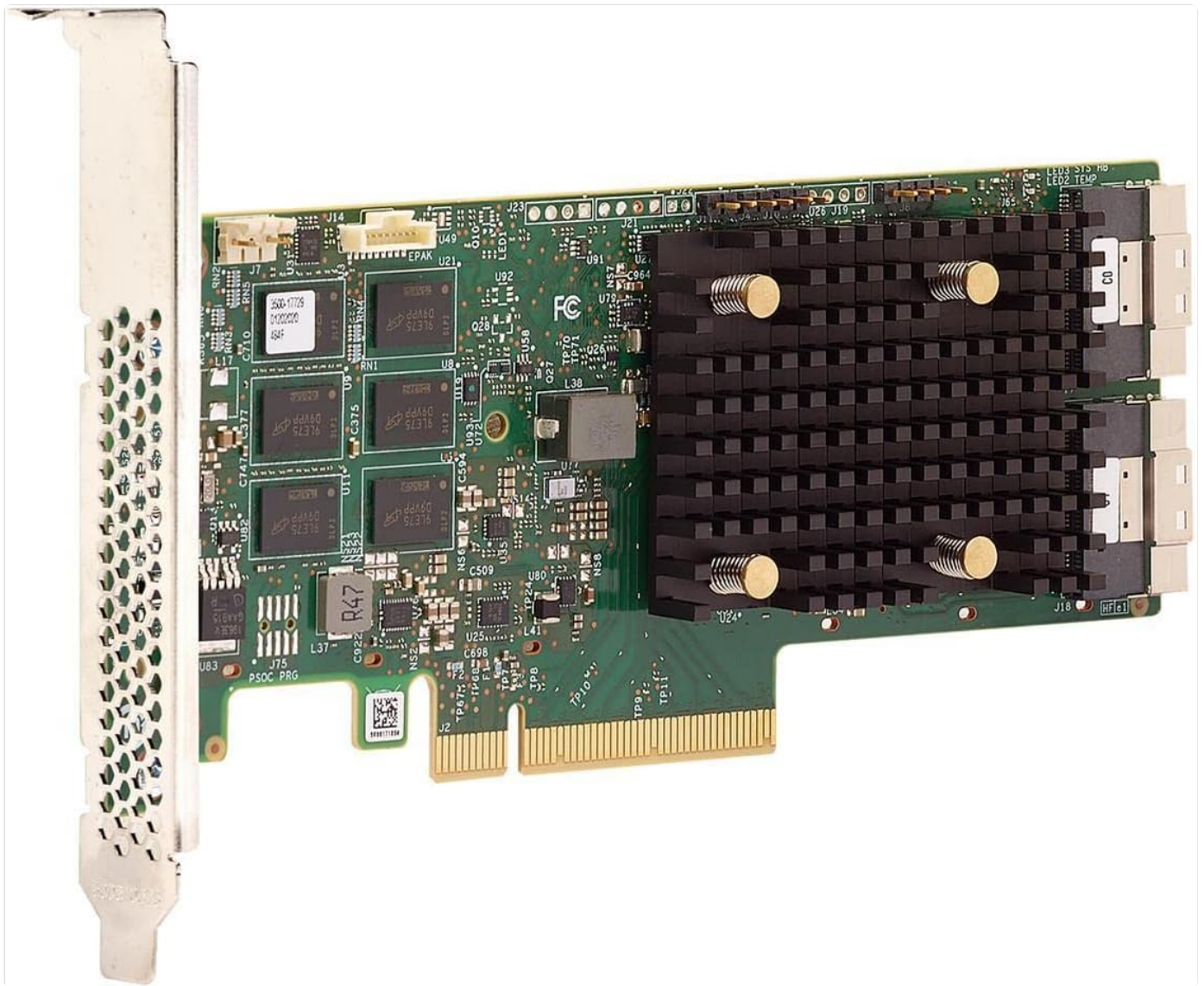
### 2.2 Product Image

Figure 2.1: Broadcom MegaRAID 9560-16i storage controller. This image displays the green circuit board with a large black heatsink covering the main processor, and multiple SAS/SATA ports on the right side. The card also features a PCIe connector at the bottom and a metal bracket for mounting.

## 3. SETUP AND INSTALLATION

### 3.1 System Requirements

- Available PCIe 4.0 x8 slot or higher.
- Compatible server or personal computer system.
- Operating system with appropriate driver support.
- Sufficient power supply.

### 3.2 Hardware Installation

1. **Power Off System:** Ensure the computer system is completely powered off and disconnected from the power source.
2. **Open Chassis:** Open the computer chassis to access the motherboard and expansion slots.
3. **Locate PCIe Slot:** Identify an available PCIe 4.0 x8 slot.
4. **Insert Controller:** Carefully align the Broadcom MegaRAID 9560-16i controller with the PCIe slot and firmly press it down until it is securely seated.
5. **Secure Card:** Secure the controller card with the retention mechanism or screw provided by your chassis.

6. **Connect Cables:** Connect your SAS/SATA/NVMe drives to the appropriate ports on the controller using compatible cables.

7. **Close Chassis:** Close the computer chassis and reconnect the power.

## 3.3 Driver Installation

After hardware installation, power on the system. You may need to install the appropriate drivers for the Broadcom MegaRAID 9560-16i controller. Drivers are typically available on the Broadcom official support website. Follow the driver installation instructions provided by Broadcom for your specific operating system.

## 4. OPERATING INSTRUCTIONS

## 4.1 Initial Configuration

Upon successful driver installation, the controller will be recognized by your operating system. Initial configuration, such as creating RAID arrays, is typically performed through the controller's BIOS utility during system boot-up or via a software utility provided by Broadcom (e.g., MegaRAID Storage Manager).

## 4.2 Creating RAID Arrays

1. Access the RAID controller's configuration utility during system startup (usually by pressing a specific key like Ctrl+R or Ctrl+H when prompted).

2. Select the drives you wish to include in the array.

3. Choose the desired RAID level (e.g., RAID 0, 1, 5, 6, 10, 50, 60, or JBOD) based on your performance and redundancy requirements.

4. Configure array parameters such as stripe size and cache policy.

5. Save the configuration and exit the utility. The system will then recognize the new logical drive.

## 4.3 Monitoring and Management

Use the Broadcom MegaRAID Storage Manager (MSM) or a similar utility to monitor the health of your RAID arrays and connected drives. This software allows you to view array status, perform maintenance tasks, and receive alerts for potential issues.

## 5. MAINTENANCE

- **Driver Updates:** Regularly check the Broadcom support website for updated drivers and firmware for your MegaRAID controller. Keeping drivers and firmware current can improve performance and stability.

- **System Cooling:** Ensure adequate airflow within your server chassis to prevent overheating of the controller and other components.

- **Data Backup:** While RAID provides data redundancy, it is not a substitute for regular data backups. Always maintain a robust backup strategy for critical data.

- **Physical Inspection:** Periodically inspect the controller and its connections for any signs of damage or loose cables.

## 6. TROUBLESHOOTING

| Problem | Possible Cause | Solution |
| --- | --- | --- |

| Problem | Possible Cause | Solution |
|---|---|---|
| Controller not detected by system. | Incorrectly seated in PCIe slot; incompatible slot; power issue; missing drivers. | Ensure controller is fully seated. Try a different PCIe slot. Verify power connections. Install or update drivers. |
| Drives not recognized by controller. | Loose or faulty cables; incompatible drives; drive failure. | Check all data and power cables. Ensure drives are compatible. Test drives individually if possible. |
| RAID array degraded or failed. | Drive failure; improper configuration. | Identify and replace the failed drive. Rebuild the array using the RAID management utility. Review configuration settings. |
| System performance issues. | Outdated drivers/firmware; high I/O load; insufficient system resources. | Update drivers and firmware. Optimize RAID array settings. Ensure adequate system RAM and CPU. |

For more detailed troubleshooting, refer to the official Broadcom support documentation or contact Broadcom technical support.
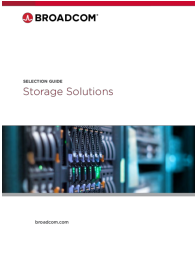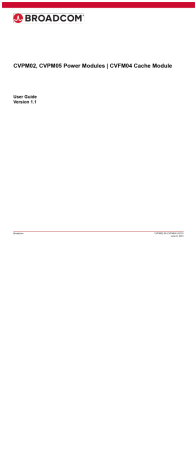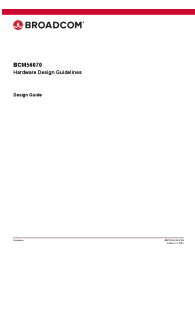
## 7. SPECIFICATIONS

| | |
|---|---|
| **Model Number** | 05-50077-00 |
| **Brand** | BROADCOM |
| **Product Dimensions** | 22 x 8 x 3 cm; 252 g |
| **Hardware Interface** | SAS, SATA, PCIe 4.0 (NVMe) |
| **Channels** | 16 |
| **RAID Levels Supported** | 0, 1, 5, 6, 10, 50, 60, JBOD |
| **Host Interface** | PCIe 4.0 x8 |
| **Compatible Devices** | Personal Computer (Servers) |
| **UPC** | 830343007462 |
| **ASIN** | B08B52PR5Q |
| **Date First Available** | 18 April 2020 |

## 8. WARRANTY AND SUPPORT

The Broadcom MegaRAID 9560-16i Storage Controller is covered by a manufacturer's warranty. For specific warranty terms and conditions, please refer to the documentation included with your product or visit the official Broadcom website. For technical support, driver downloads, firmware updates, and additional resources, please visit the Broadcom support portal. It is recommended to have your product model number (05-50077-00) and serial number ready when contacting

support.

## Related Documents - 05-50077-00

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|---|---|
|  | **Broadcom Storage Solutions Selection Guide: HBAs, MegaRAID, SafeStore, CacheCade**<br>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. |
|  | **Broadcom CVPM02, CVPM05, CVFM04 User Guide: Installation and Management**<br>Comprehensive user guide for Broadcom CVPM02, CVPM05 Power Modules and CVFM04 Cache Module. Learn about installation, configuration, monitoring, and specifications for MegaRAID cache backup solutions. |
|  | **Broadcom Emulex Host Bus Adapters Installation Guide Release 14.4**<br>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. |
|  | **BCM56070 Hardware Design Guidelines**<br>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. |

[Broadcom Emulex Fibre Channel Host Bus Adapters Installation Guide](#)
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.

[Broadcom Fabric OS v10.0.0 Release Notes: New Features, Fixes, and Updates](#)
This document provides comprehensive release notes for Broadcom Fabric OS v10.0.0, detailing new hardware and software features, security enhancements, defect fixes, important considerations, and compatibility information for network infrastructure.