

FOSA M5015 46M0851

Model: M5015 46M0851 | Brand: FOSA

INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of your FOSA SATA/SAS Array Card (Model: M5015 46M0851). This high-performance RAID controller is designed to enhance your system's storage capabilities and data integrity.

The card features eight internal 6 Gbps SAS/SATA ports, an 800 MHz processor with LSI SAS2108 6 Gbps RAID on Chip (ROC) controller, and an x8 PCI-E 2.0 host interface. It supports various RAID levels including 0, 1, 5, 10, and 50, offering flexibility for different storage needs. With support for up to 32 SAS or SATA drives, it is an ideal solution for high-capacity storage configurations.

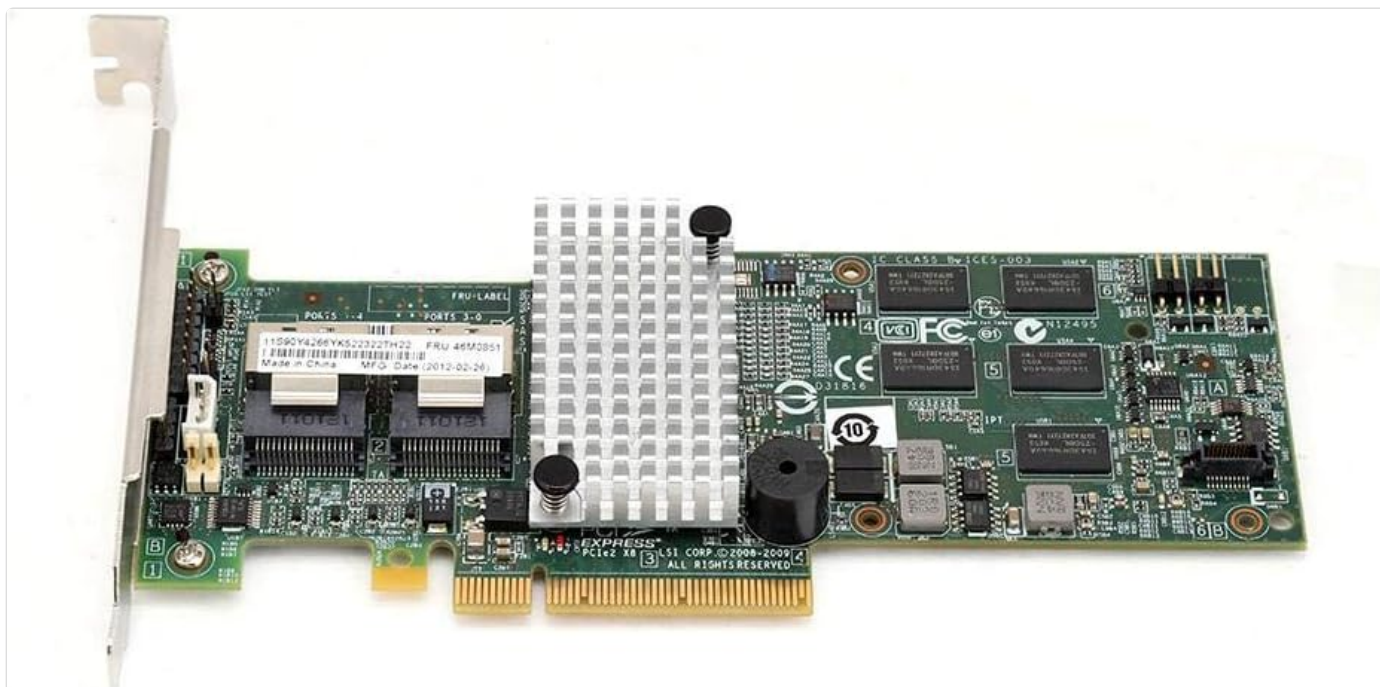


Figure 1: Overview of the FOSA SATA/SAS Array Card.

This image displays the FOSA SATA/SAS Array Card, highlighting its main components including the heatsink and internal connectors. It provides a general view of the card's physical design.

SETUP

1. Package Contents

Before proceeding with installation, ensure all components are present:

- 1 x M5015 Array Card
- (Note: Cables and other accessories may be sold separately or included depending on the specific package.)

2. System Requirements

- Available PCI-E x8 slot (PCI-E 2.0 recommended for optimal performance)
- Compatible Operating Systems: Windows, macOS, Linux
- Compatible devices: Desktop, Laptop (with appropriate expansion capabilities)
- SAS or SATA drives (3Gb/s or 6Gb/s)

3. Hardware Installation

1. **Power Off System:** Completely shut down your computer and disconnect the power cord.
2. **Open Chassis:** Open your computer case to access the motherboard's PCI-E slots.
3. **Locate PCI-E Slot:** Identify an available PCI-E x8 slot.
4. **Insert Card:** Carefully align the array card with the PCI-E slot and press down firmly until it is securely seated. Ensure the metal bracket is properly aligned with the chassis opening.
5. **Connect Drives:** Connect your SAS or SATA drives to the internal mini-SAS connectors (SFF-8087) on the array card using appropriate cables. The card supports up to 32 drives.
6. **Close Chassis:** Secure the card with the retaining screw or clip, close the computer case, and reconnect the power cord.



Figure 2: Front and back views of the Array Card.

This image shows both the component side and the solder side of the array card, providing a complete view for installation reference.

OPERATING INSTRUCTIONS

1. Initial Boot and BIOS Configuration

Upon first boot after installation, the system may enter the card's BIOS/interface for array setup. It is crucial to set up a virtual disk, as this is how the operating system interfaces with the disk array. Refer to the card's on-screen prompts or the LSI MegaRAID documentation for detailed BIOS navigation.

2. RAID Level Configuration

The card supports various RAID levels to suit your data redundancy and performance needs:

- **RAID 0 (Striping):** Offers maximum performance and capacity, but no data redundancy.
- **RAID 1 (Mirroring):** Provides data redundancy by duplicating data across two drives, reducing usable capacity by half.

- **RAID 5 (Striping with Parity):** Balances performance, capacity, and data redundancy. Requires at least three drives.
- **RAID 10 (1+0):** Combines mirroring and striping for high performance and redundancy. Requires at least four drives.
- **RAID 50 (5+0):** Combines RAID 5 arrays with striping for increased performance and capacity over RAID 5.

3. Software Management

For advanced management and monitoring of your RAID array, it is recommended to use the LSI MegaRAID Storage Manager (MSM) software. This utility allows for:

- Online Capacity Expansion (OCE)
- Online RAID Level Migration (RLM)
- Global and Dedicated Hot Spare Parts configuration
- Automatic recovery during reconstruction
- Monitoring drive health and array status

PCI Express 2.0 X8 can provide faster signal transmission for high bandwidth applications.



Figure 3: PCI Express 2.0 X8 for high bandwidth applications.

This image illustrates the card's PCI Express 2.0 X8 interface, emphasizing its capability for faster signal transmission crucial for high-bandwidth applications.

Fast and stable connection, and easy to use.

Excellent reading and writing performance: maximum read rate: 2,875MB/s, maximum write rate: 1,850MB/s.



Figure 4: Fast and stable connection with excellent read/write performance.

This image highlights the card's performance, noting its fast and stable connection, with a maximum read rate of 2,875MB/s and a maximum write rate of 1,850MB/s.

MAINTENANCE

1. Firmware Updates

It is highly recommended to keep the card's firmware updated to the latest version. Older firmware versions (e.g., from 2010) may limit performance (e.g., 3Gbps instead of 6Gbps for SSDs) or cause compatibility issues with modern hardware. Firmware and drivers are typically available on the Broadcom (formerly LSI) website under legacy RAID controllers.

Note: Updating firmware can be a complex process. Follow the manufacturer's instructions carefully. Incorrect firmware flashing can render the card inoperable.

2. Physical Inspection

Periodically inspect the card for dust accumulation on the heatsink and components. Use compressed air to clean if

necessary. Ensure all cable connections remain secure.

TROUBLESHOOTING

Common Issues and Solutions:

- **Card Not Recognized by System:**
 - Ensure the card is fully seated in the PCI-E slot.
 - Check motherboard BIOS settings; some modern consumer boards may require CSM (Compatibility Support Module) to be enabled for proper recognition.
 - Verify power connections if applicable (though this model is typically bus-powered).
- **Drives Not Detected or Incorrect Speed:**
 - Ensure drives are properly connected to the card's ports.
 - Update the card's firmware. Older firmware may not correctly recognize newer drives or negotiate 6Gbps speeds.
 - Verify drive health.
- **RAID Array Not Recognized or Data Loss:**
 - If replacing an existing RAID card, ensure the new card is compatible with the existing array's metadata. This card (M5015) may not recognize arrays created on different LSI 9260-8i variants without specific firmware or configuration.
 - Do not attempt to rebuild or reconfigure an array without proper knowledge, as this can lead to permanent data loss.
- **Slow Boot Times (POST):**
 - Some motherboards allow "Quick Boot" or similar settings in the UEFI/BIOS to bypass the card's POST screen, speeding up system startup. Disable Quick Boot if you need to access the card's BIOS/CLI during startup.

For further assistance, consult the official documentation for LSI MegaRAID controllers or seek support from the manufacturer's website.

SPECIFICATIONS

Feature	Detail
Brand	FOSA
Model Number	M5015 46M0851
Ports	8 internal 6 Gbps SAS/SATA ports (via two mini-SAS internal connectors SFF-8087)
Throughput per Port	6 Gbps
Processor	800 MHz with LSI SAS2108 6 Gbps RAID on Chip (ROC) controller
Host Interface	x8 PCI-E 2.0
Onboard Data Cache	512 MB DDR2 running at 800 MHz

Feature	Detail
Max Drives Supported	Up to 32 SAS or SATA drives
RAID Levels Supported	0, 1, 5, 10, 50
Dimensions	6.69 x 4.72 x 0.79 inches
Item Weight	4.6 ounces
Country of Origin	China
Compatible Devices	Desktop, Laptop
Operating System	Windows, macOS, Linux

WARRANTY AND SUPPORT

Warranty Information

Specific warranty terms for this product are typically provided at the point of purchase or on the manufacturer's official website. Please retain your proof of purchase for warranty claims. This product is often sold as "removed from Server, not a whole new product," which may affect warranty coverage. Verify warranty details with your seller.

Technical Support

For technical assistance, driver downloads, and firmware updates, please refer to the official support resources for LSI MegaRAID controllers, which are now part of Broadcom. Their website typically hosts comprehensive documentation and support tools.

You may also contact your reseller for initial support or guidance.

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