

MINISFORUM MSA2

MINISFORUM MS-A2 Mini Workstation User Manual

Model: MSA2 | Brand: MINISFORUM

1. INTRODUCTION

This manual provides detailed instructions for the setup, operation, maintenance, and troubleshooting of your MINISFORUM MS-A2 Mini Workstation. The MS-A2 is a high-performance mini PC designed for demanding computing tasks, featuring an AMD Ryzen 9 7945HX processor, extensive connectivity, and expandable storage options.

2. PACKAGE CONTENTS

Please verify that all items listed below are included in your package:

- 1x MS-A2 Mini PC
- 1x HDMI Cable
- 1x US Power Adapter
- 1x Manual



3. PRODUCT OVERVIEW

The MINISFORUM MS-A2 is a compact yet powerful workstation designed for various applications, from demanding professional tasks to home lab environments. Its robust aluminum chassis ensures durability and efficient heat dissipation.

3.1 Front Panel

The front panel provides convenient access to essential ports and controls:

- Power Button
- 3.5mm Audio Jack (Headphone/Microphone Combo)
- 2x USB 3.2 Gen1 (5Gbps) Type-A ports
- 1x USB 2.0 Type-A port

3.2 Rear Panel

The rear panel offers extensive connectivity for peripherals and networking:

- 2x 10G SFP+ Ports
- 2x 2.5G RJ45 LAN Ports
- 2x USB-C (Alt DP, 8K@60Hz) Outputs
- 1x HDMI (8K@60Hz) Output
- 2x USB 3.2 Gen1 (5Gbps) Type-A ports
- 19V DC Power Input



Figure 3.1: Front and Rear I/O Interfaces of the MS-A2.

4. SETUP INSTRUCTIONS

1. **Connect Display:** Connect your monitor(s) to the MS-A2 using the HDMI or USB-C (Alt DP) ports. The device supports up to three 8K@60Hz displays simultaneously.
2. **Connect Peripherals:** Plug in your keyboard, mouse, and other USB devices into the available USB ports.

3. **Connect Network:** For wired network access, connect an Ethernet cable to one of the 2.5G RJ45 LAN ports or an SFP+ module to the 10G SFP+ ports. The device also supports 802.11ax (Wi-Fi 6E) for wireless connectivity.
4. **Connect Power:** Connect the power adapter to the 19V DC input on the rear panel, then plug the power cord into an electrical outlet.
5. **Power On:** Press the power button on the front panel to start your MINISFORUM MS-A2 Mini Workstation.



Figure 4.1: Triple display setup with the MS-A2.

5. OPERATING INSTRUCTIONS

Your MS-A2 Mini Workstation is designed for continuous operation and high-performance computing. It comes pre-installed with an operating system (if purchased with one) and is ready for use after initial setup.

- **Multi-Display Support:** Utilize the HDMI and dual USB-C (Alt DP) ports to connect up to three 8K@60Hz displays for an expanded workspace.
- **High-Speed Networking:** Leverage the dual 10G SFP+ ports and dual 2.5G LAN ports for ultra-fast wired network connections, ideal for network storage, servers, and high-bandwidth applications.
- **Storage Management:** The system supports multiple M.2 NVMe SSDs (2280/22110) and U.2 SSDs, compatible with RAID0 and RAID1 configurations for enhanced performance or data redundancy.

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Video 5.1: An introductory overview of the MINISFORUM MS-A2 Mini Workstation, highlighting its key features and design.

6. STORAGE EXPANSION & UPGRADES

The MS-A2 offers extensive upgradeability for memory and storage:

- **RAM:** Equipped with DDR5-5200 32GB RAM, expandable up to 96GB for enhanced multitasking capabilities.
- **M.2 NVMe SSD Slots:** Features multiple M.2 NVMe SSD slots (compatible with M.2 2280 SSD/enterprise class 22110 SSD) supporting PCIe4.0 with speeds up to 7000MB/sec. These slots are compatible with RAID0 and RAID1 configurations.
- **U.2 SSD Support:** One SSD slot is compatible with U.2 SSDs, allowing for enterprise-grade solid-state drives with larger capacities (e.g., 7.68 TB/15.36 TB or more) on the same four PCIe channels.
- **Built-in PCIe x16 Slot:** A physical PCIe x16 slot (wired as PCIe 4.0 x8) is available for low-profile GPU expansion or other PCIe cards, offering flexible expandability.

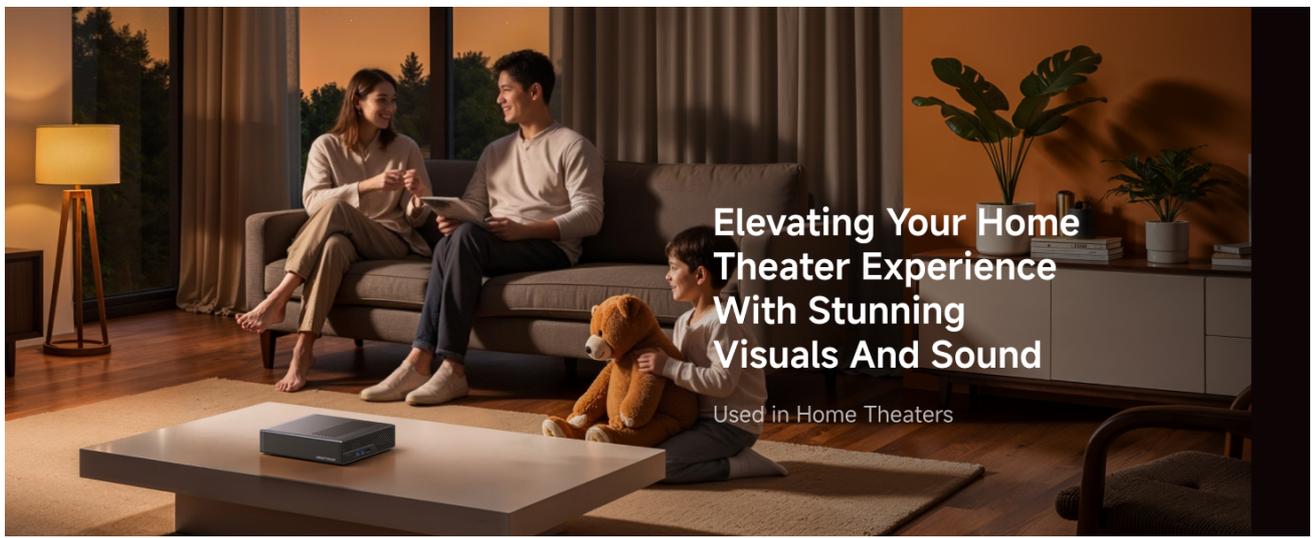


Figure 6.1: Flexible storage expansion options including M.2 and U.2 SSDs.



Figure 6.2: Built-in PCIe x16 slot for additional hardware.

7. PERFORMANCE & COOLING

The MS-A2 is powered by the AMD Ryzen 9 7945HX processor, offering 16 cores and 32 threads with boost speeds up to 5.2 GHz, and integrated AMD Radeon 610M Graphics.

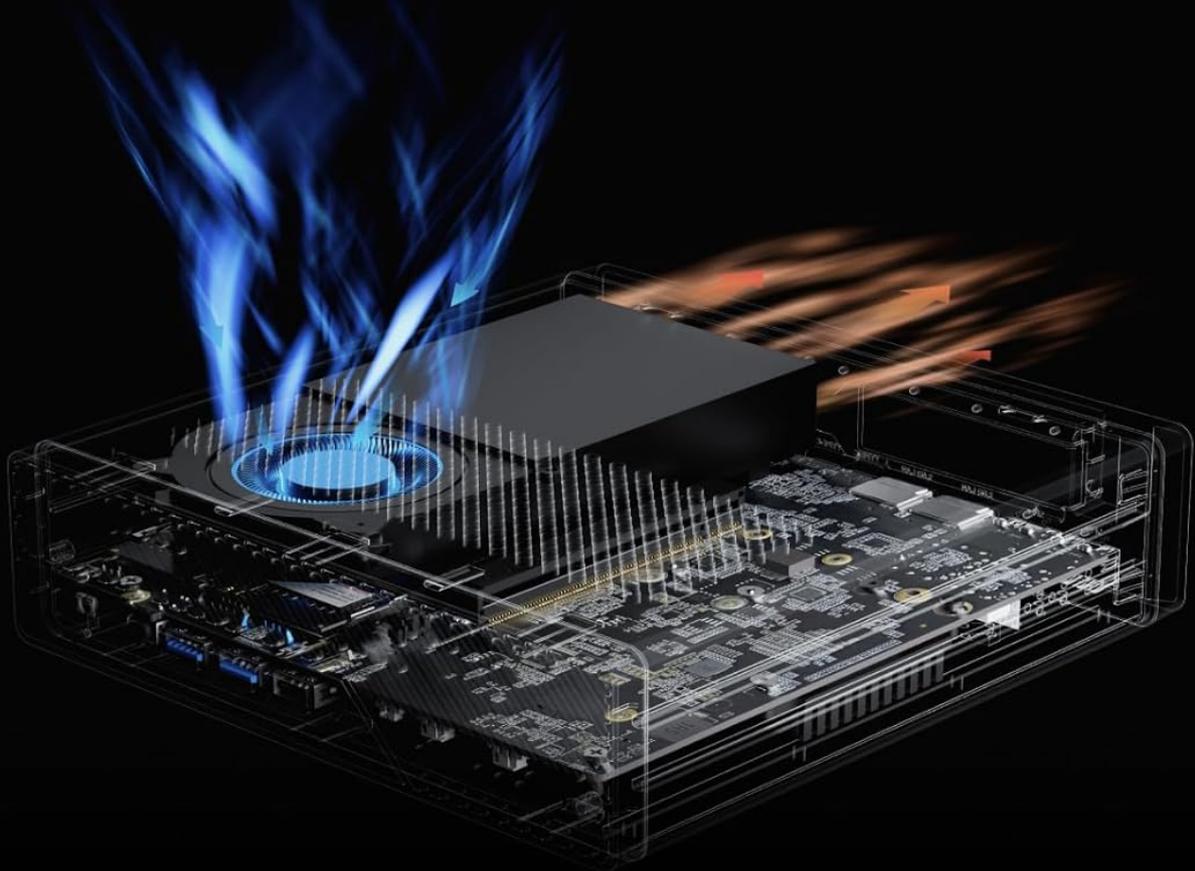
- **Processor:** AMD Ryzen 9 7945HX (16 cores/32 threads, up to 5.2 GHz) for excellent performance in demanding applications.
- **Graphics:** Integrated AMD Radeon 610M Graphics (Graphics frequency 2.2 GHz) handles computing tasks smoothly and supports triple 8K video output.
- **Cooling System:** An upgraded dual-fan, 4-heat pipe cooling system effectively reduces device temperature, ensuring stable performance and a quieter working environment.



Figure 7.1: AMD Ryzen 9 7945HX Processor performance overview.

Dual Engines, Zero Noise

Unleash Extreme Performance.



All-new Upgraded
Triple Pure Copper Heat Pipes



Phase-change Material
Precision Temperature Control
Easy To Maintain



Upgraded Turbo Fan
30% Increased Airflow



Jet Direct Airflow
Ice-cool Efficiency, Zero Obstruction

Figure 7.2: Advanced cooling system for sustained performance.

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Video 7.1: A promotional video showcasing the MINISFORUM MS-A2 Mini Workstation's features and capabilities.

8. MAINTENANCE

To ensure optimal performance and longevity of your MS-A2 Mini Workstation, regular maintenance is recommended:

- **Dust Removal:** Periodically clean the ventilation grilles and internal components with compressed air to prevent dust buildup, which can hinder cooling efficiency.
- **Software Updates:** Keep your operating system and drivers updated to ensure compatibility, security, and optimal performance.
- **Physical Inspection:** Regularly check all cable connections to ensure they are secure.

9. TROUBLESHOOTING

If you encounter issues with your MS-A2, refer to the following common troubleshooting steps:

- **No Power:** Ensure the power adapter is securely connected to both the device and a working electrical outlet. Verify the power button is pressed.
- **No Display:** Check all display cable connections (HDMI, USB-C). Ensure your monitor is powered on and set to the correct input source.
- **Network Connectivity Issues:** For wired connections, check the Ethernet cable and router/switch status. For Wi-Fi, ensure the Wi-Fi module is enabled and connected to the correct network.
- **Overheating:** Ensure the ventilation grilles are not obstructed. Clean any dust buildup. Consider adjusting fan settings in the BIOS if available.
- **Driver Issues:** Download the latest drivers from the MINISFORUM official website for your specific model.

10. SPECIFICATIONS

Feature	Detail
Processor	AMD Ryzen 9 7945HX (16 Cores/32 Threads, up to 5.2 GHz)
Graphics Coprocessor	AMD Radeon 610M (Graphics Frequency 2200MHz)
RAM	32 GB DDR5 (Expandable up to 96GB)
Memory Speed	5200 MHz
Hard Drive	1 TB SSD (M.2 2280 PCIe4.0, supports RAID0/RAID1, U.2 SSD)
Additional M.2 Slots	2x M.2 NVMe SSD Slots (compatible with M.2 2280 SSD/enterprise class 22110 SSD/RAID0/RAID1)
PCIe Slot	Built-in PCIe x16 Slot (Physical PCIe x16, bandwidth PCIe 4.0 x8)
Video Output	1x HDMI (8K@60Hz), 2x USB-C (Alt DP, 8K@60Hz)
LAN Ports	2x 10G SFP+ Ports, 2x 2.5G RJ45 Ports
Wireless Type	802.11ax (Wi-Fi 6E)
USB Ports (Front)	2x USB 3.2 Gen1 Type-A, 1x USB 2.0 Type-A
USB Ports (Rear)	2x USB 3.2 Gen1 Type-A

Feature	Detail
Audio	3.5mm Audio Jack
Operating System	OS (Operating System not specified, typically Windows or Linux compatible)
Item Weight	6.89 pounds
Dimensions	9.17 x 9.02 x 4.76 inches

11. WARRANTY & SUPPORT

For warranty information and technical support, please refer to the documentation included in your package or visit the official MINISFORUM website. Additional protection plans may be available for purchase.

- **Protection Plans:** 3-Year Protection Plan, Complete Protect (monthly subscription).
- **Return Policy:** 30-day refund/replacement duration.