MINISFORUM

New Gen Mini Workstation Series

1 Disclaimer And Safety Instructions

• **Disclaimer**

1. Thank you for purchasing MS-R1 product.

2. The contents mentioned in this disclaimer are related to your safety, legal rights and responsibilities. Please pay attention to any warnings, cautions and attention signs on the instructions and product labels, and install according to the instructions in the instructions.

3. The product is relatively complex, and users need to have basic hands-on installation skills and safety knowledge. You should be careful during installation.

4. Before using this product, please read the instructions carefully to ensure that the product can be set up correctly. Failure to follow the instructions, warnings, cautions, and attention signs may damage the product or data, and may result in personal or property injury or loss.

5. Once you use this product, you are deemed to have carefully read the content requirements of the disclaimer, warning, caution, and attention signs, understood and accepted all the contents. You promise to take full responsibility for the consequences of using this product. You promise to use this product only for legitimate purposes and agree to this statement and any policies and guidelines formulated by MINISFORUM.

6. In addition to the warranty terms, MINISFORUM is not legally responsible for damage or injury caused directly or indirectly by using this product, especially those caused by failure to operate in accordance with safety guidelines. Users should follow the instructions mentioned in this statement and all safety guidelines.

7. The final interpretation right of this statement belongs to MINISFORUM.

• **Safety Precautions**

1. Dust, moisture and drastic temperature changes will affect the product life, so please try to avoid placing the product in these places.

2. The suitable temperature for the MINI PC and accessories is 0℃ ~ 35℃.

3. Before you using this product, make sure you leave enough space around the device for ventilation. Please don't block or cover these openings. Never insert objects of any kind into the ventilation openings.

4. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

5. When you use the power extension cords, the total current of all connected products should be within the rated current of cables, ensuring stable operation.

• **Maintenance Guideline**

1. Do not step on the power cord or put anything on your Mini PC.

2. Do not spill water or any other liquid over this product.

3. There's still some current passing through even when the system is off. To avoid severe damage caused by possible electric shock, plug out all power cables from sockets temporarily before cleaning or moving this product.

4. If you encounter the technical problems with the product unplug the power cord and contact a qualified service technician or your retailer.

• **FAQ**

1. The start-up speed may be slow in the following situations: unexpected restart, BIOS reset, and SSD replacement. Generally speaking, the start-up speed will return to normal after one successful power-on and power-off process.

2. The core graphics card will occupy a part of the memory as GPU-specific memory.

3. All M.2 do not support the SATA protocol and only support NVME SSDs based on PCIE. The U.2 adapter card also only supports NVME U.2 2.5-inch 7mm height hard drives based on the PCIE protocol.

4. The default username and password for the pre-installed system are set to "mini".
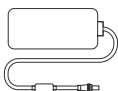
2 | Conventions Used In This Manual

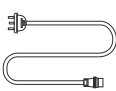Note： --- This message contains additional instructions for this item.

Important！ --- This information contains instructions that must be followed.

Warning！ --- This message contains information about user safety and product safety.
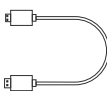
Package Contents

Ac Power Adapter */

Power Cord */

HDMI® Cable */

SSD Heatsink */

M.2 M-Key to M.2
E-Key adapter */
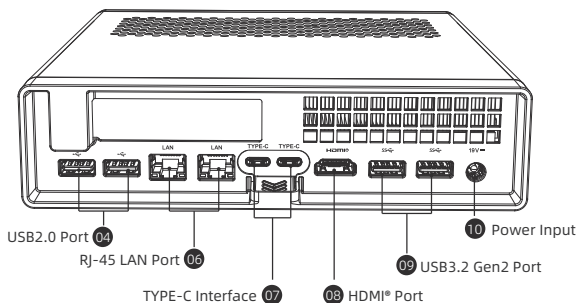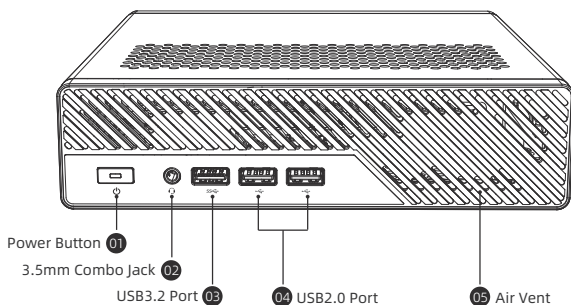
U.2 to M.2 E-Key
riser card */

U.2 Mounting
Screw Set */

User Manual */

NOTE:
* The power adapter and other accessories included in the box will vary depending on the model parameter or area purchased.

3 | Getting To Know Your Mini PC

Power Button 01

3.5mm Combo Jack 02

USB3.2 Port 03

04 USB2.0 Port

05 Air Vent

USB2.0 Port 04

RJ-45 LAN Port 06

TYPE-C Interface 07

08 HDMI® Port

09 USB3.2 Gen2 Port

10 Power Input

Interface

01 **Power Button**
The power button allows you to turn the Mini PC on /off. You can press the power button to put your Mini PC to sleep mode or press it for 5 seconds to force shutdown your Mini PC.

02 **3.5mm Combo Jack**
This connector is used to connect audio output signals to a power amplifier or headphones. You can also use it to connect an external microphone or output signals from audio equipment.

03 **USB3.2 Port**
USB3.2 (Universal Serial Bus) port provides a transfer rate of up to 10 Gbit/s.It can be connected to keyboards, pointing devices, cameras, hard disks, printers and scanners.

04 **USB2.0 Port**
The USB (Universal Serial Bus) port is compatible with USB2.0 or USB1.1 devices such as keyboards, and printers.

05 **Air Vent**
The air vents allow your Mini PC chassis to expel hot air out.
Important! For optimum heat dissipation and air ventilation, ensure that the air vents are free from obstructions (such as Paper, books, clothes, transmission lines).

06 **RJ-45 LAN Port**
This RJ-45 network interface supports standard Ethernet cables and can be connected to a local area network. (Transmission speed 10Gbps)

07 **TYPE-C Interface**
This interface supports a maximum data transmission rate of USB3.2 Gen2 10Gbps. It supports Alt DP audio and video output, provides 5V/3A (15W) external power supply, and also supports 100W (20V/5A) PD-IN power input for the MS-R1.

08 **HDMI® Port**
The HDMI® interface is an uncompressed all-digital audio/video interface that supports up to 4K@60Hz. It provides a universal data connection channel for compatible devices, allowing connection to external displays and TVs.

09 **USB3.2 Gen2 Port**
USB3.2 Gen2 (Universal Serial Bus) port provides a transfer rate of up to 10 Gbit/s. It can be connected to keyboards, pointing devices, cameras, hard disks, printers and scanners.

10 **Power Input**
The power adapter can convert AC power to DC power. The converted power provides power to your Mini PC through the power input interface. To avoid damaging your Mini PC, please use the power adapter provided with the product.
Warning! When the power supply is in use, the temperature of the power adapter may rise and become hot. Do not place the power adapter close to your body.
Power adapter: DC 19V

Motherboard Layout
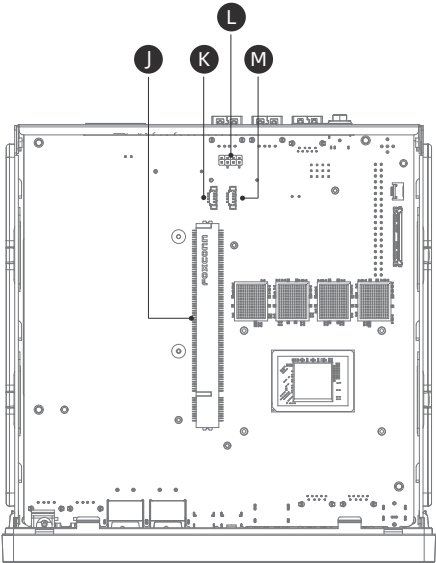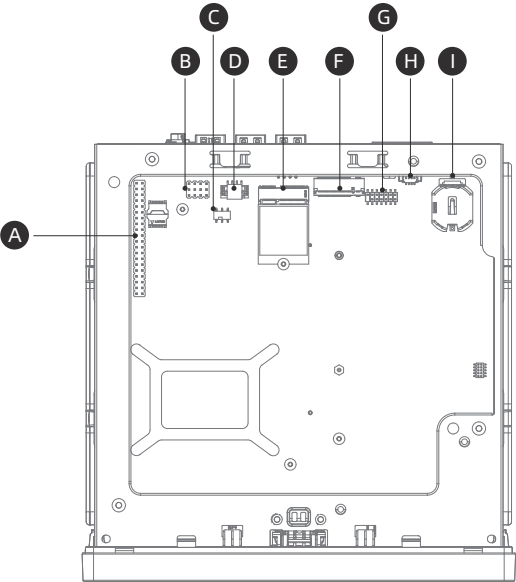
Motherboard Port

A **40PIN GPIO**

Used to connect external devices or sensors. For details, please refer to the related documents on "github.com/minisforum-docs".

B **BIOS FLASH PIN & UART1 PIN**

BIOS FLASH PIN can be directly connected to the BIOS chip for forced BIOS flashing.
UART1 PIN is the primary output serial port during the BIOS and LINUX stages, used for debugging startup issues. (The definition of UART is marked on the motherboard. Please refer to the related documents on "github.com/minisforum-docs" for BIOS FLASH PIN)

C **Auto Power-On Switch**

Enable automatic power-on when set to ON.
Disable automatic power-on when set to OFF.

D **U.2 POWER**

Provide 12 V power to the U.2 SSD when using a U.2 adapter.

E **M.2 E-KEY Interface**

This interface supports connection to M.2 E-Key Wi-Fi cards using the PCIe + USB protocol. With the built-in adapter board, it can also be converted to M-Key for connecting an SSD.

F **M.2 M KEY Interface**

Default SSD Interface.

G **TPM PIN**

An interface reserved possibly for TPM functionality, though it is currently not in use.

H **5V fan Port**

Used to connect an SSD cooling fan.

I **RTC Battery**

It supplies power to RTC when the system is powered off.

J **PCIE Port**

Supports cards that can be inserted into up to x16 slots, with a maximum transfer speed of PCIE4.0x8.
Important! Only supports single-slot, half-height PCIE cards.

K **PCIE FAN**

An external fan for DIY PCIe devices.
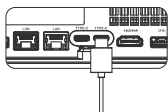Port definitions from 1-4: VCC12V, PWM, GND, FG.
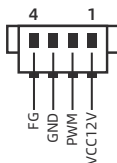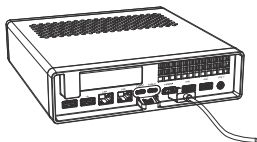

L **UART2 PIN**

The second UART interface, with its definition marked on the motherboard.
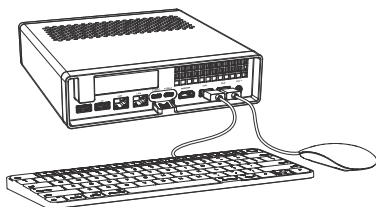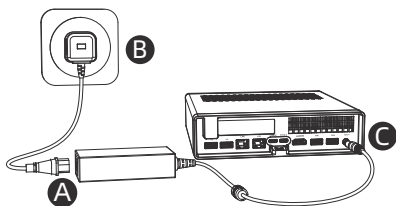
M **CPU FAN**

Used to connect a CPU cooling fan.

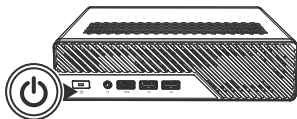Connect the display to the Mini PC's HDMI® port / TYPE-C port.

Connect the keyboard and mouse.

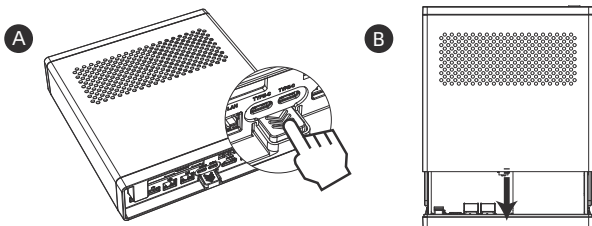Connect the provided power adapter to your Mini PC.

Turn on the power and start the Mini PC.

If the Mini PC is frozen or slow to respond, press and hold the power button at least for 10 seconds to force it shutdown.

To put your Mini PC on Sleep mode, press the Power button once.

Installation Guide

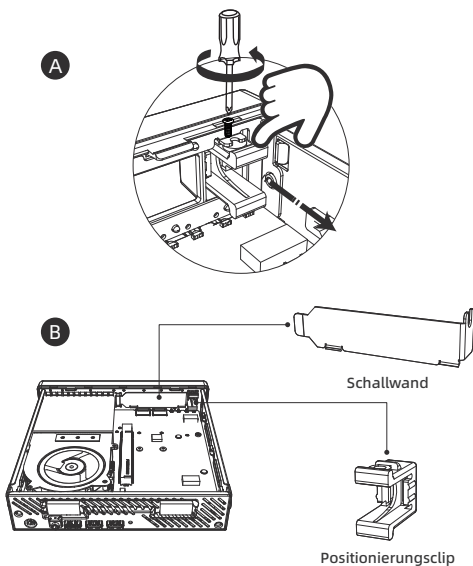① While pressing the button, pull out the motherboard case.

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DIY PCIE Expansion Card

⚠ **PCIe Expansion Card reminder: When inserting a graphics card, you should purchase and use a power adapter of at least 180 W.**

② First use a tool to unscrew the positioning clamp screw, press the positioning clamp to take it out, and remove the baffle.

Ⓐ

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Schallwand

Positionierungsclip

③ Insert the expansion card into the motherboard slot in an oblique direction, and insert the expansion card parallel into the PCIE slot with both hands.
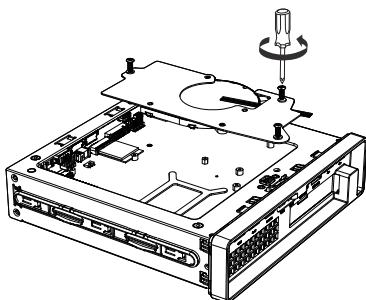**Note:** Only half-height single-slot PCIE expansion cards are supported

Ⓒ

D
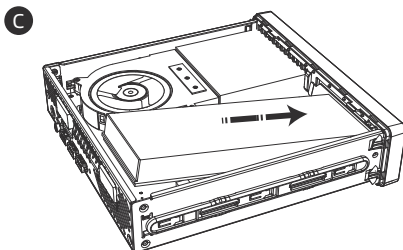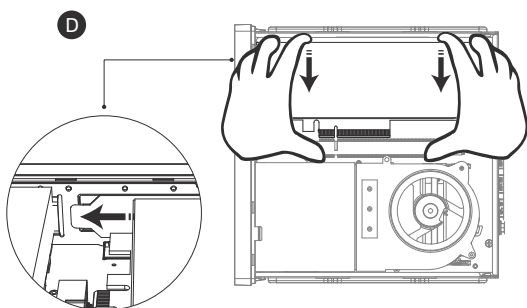
Warn! The correct way to disassemble the expansion card is as shown in the figure, and be careful not to pinch your hands.

Beware of pinched hands
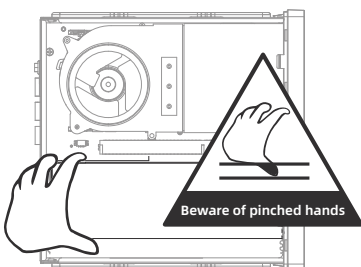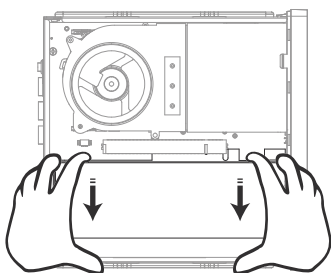
4 Turn it over and use tools to remove the heat dissipation bracket.
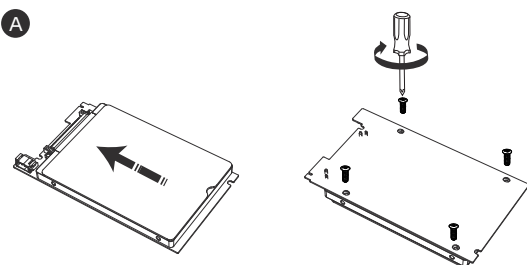
5 Remove the M.2 2230 Wi-Fi module.
Warning: Be sure to insulate the Wi-Fi antenna with electrical tape to prevent contact with the motherboard, which could cause a short circuit.
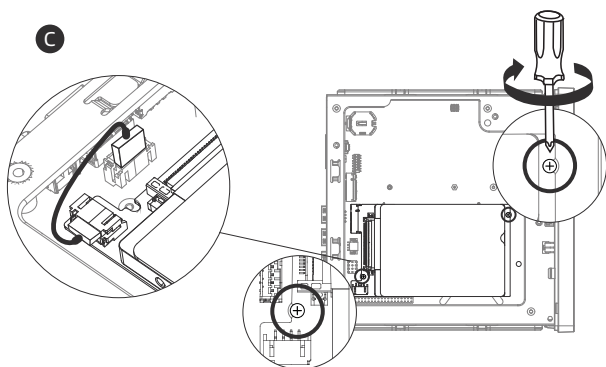
A

B

C

Electrical tape
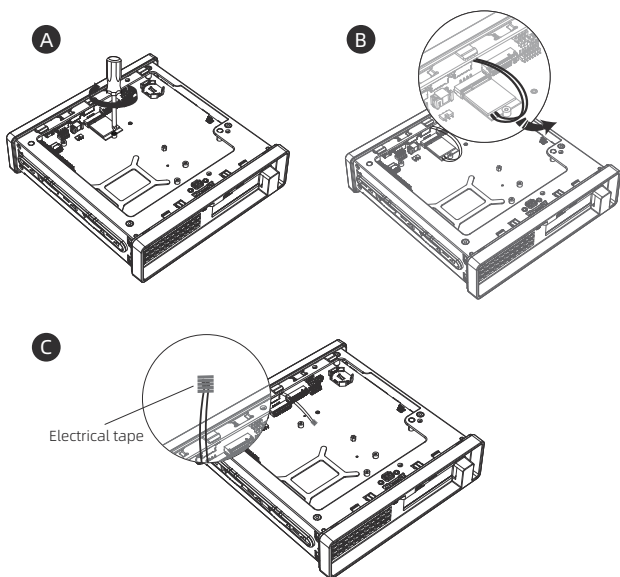
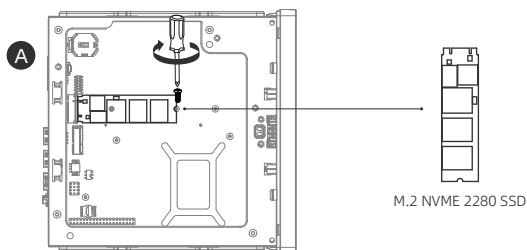6 Mount the U.2 SSD onto the U.2 to M.2 E-Key riser card and secure it with screws.

A

7 Insert the U.2 to M.2 E-Key riser card into the M.2 slot, align it properly, and secure the fixing screws. Then, connect the power cable.
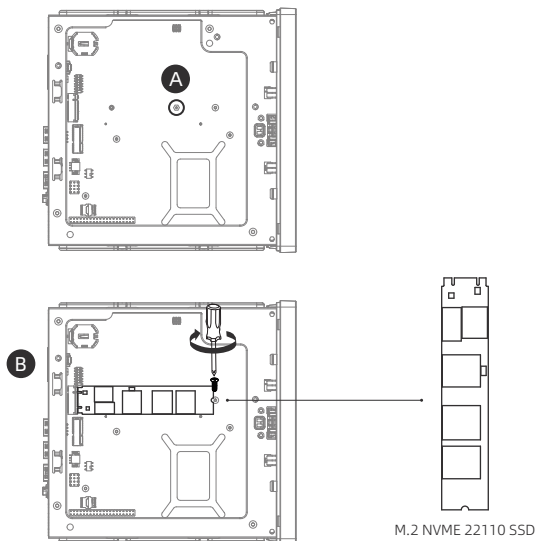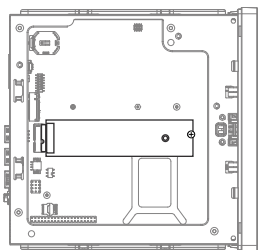
B

C
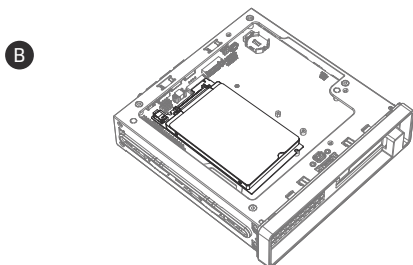
8 Insert the SSD card into the card slot at an angle and secure it with screws.

A

M.2 NVME 2280 SSD

9 **Note:** To installation 22110 SSD, you need to use a tool to unscrew the hexagonal screw post first.
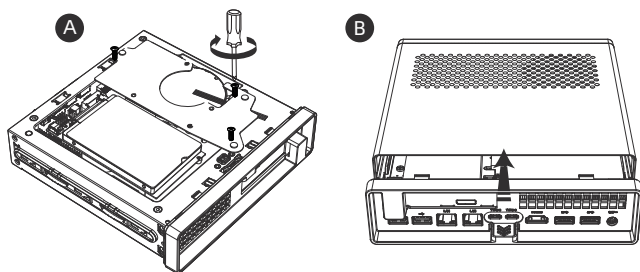

A

B

M.2 NVME 22110 SSD

10   Complete the installation of the U.2 to M.2 E-Key riser card.

11   Attach the included M.2 heat sink to the M.2 SSD, and then install it onto the M.2 M-Key to M.2 E-Key adapter.
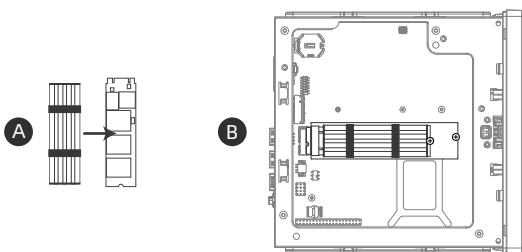
12   Re-tighten the screws of the heat dissipation bracket and install the motherboard case into the chassis.

FCC STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reason-able protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radiocommunica-tions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

−Reorient or relocate the receiving antenna.

−Increase the separation between the equipment and receiver.

−Connect the equipment into an outlet on a circuit different from that to which the receiv-er is connected.

−Consult the dealer or an experienced radio/ TV technician for help.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions

 (1)this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Transmitters in the 5.925-7.125 GHz band are prohibited from operating to control or communicate with unmanned aircraft systems.

FCC regulations restrict the operation of this device to indoor use only. It is prohibited on oil platforms, cars, trains, boats, and aircraft, except it is permitted in large aircraft while flying above 10,000 feet.

This product is only suitable for indoor used only.

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