

waveshare Pi 5 BOX C

waveshare Multi-Functional Mini-Computer Kit for Raspberry Pi 5 User Manual

Model: Pi 5 BOX C

1. INTRODUCTION

This manual provides detailed instructions for the assembly, operation, and maintenance of the waveshare Multi-Functional Mini-Computer Kit for Raspberry Pi 5. This kit is designed to transform your Raspberry Pi 5 into a robust mini-computer with enhanced expandability and efficient heat dissipation.

Please read this manual thoroughly before beginning assembly to ensure correct installation and optimal performance of your device.

2. PRODUCT OVERVIEW AND FEATURES

The waveshare Mini-Computer Kit for Raspberry Pi 5 is an all-in-one solution featuring an aluminum alloy case, a Pi5 HDMI and Type-C adapter, and a PCIe to M.2 board. It offers significant internal space for expansion and efficient thermal management.



Figure 2.1: Assembled waveshare Mini-Computer Kit for Raspberry Pi 5. This image shows the complete black aluminum alloy case with various ports visible on the front panel, including USB, Ethernet, and HDMI.

Key Features:

- **All-in-one Mini-Computer Kit:** Designed specifically for Raspberry Pi 5 (Raspberry Pi 5 not included), providing a compact and functional enclosure.
- **Enhanced Expandability:** Features larger internal space to support various HATs (Hardware Attached on Top) such as PoE HATs, and includes space for cable management.
- **PCIe to M.2 Interface:** The Pi5 Module BOX-C supports PCIe extension to an M.2 interface, enabling the use of M.2 Solid State Drives for faster storage.
- **Integrated HDMI and Type-C Adapter:** Includes an adapter with dual HDMI female ports and a Type-C port for convenient peripheral connections. Supports two power supply connection methods (front or back).
- **Efficient Heat Dissipation:** Reserved airflow vents and support for an optional cooling fan ensure optimal thermal performance for the Raspberry Pi 5.
- **Durable Construction:** Made with an aluminum alloy case and white aluminum alloy base plate for robust protection.

Mini-Computer Kit For Raspberry Pi 5

Designed For Raspberry Pi 5

Larger Internal Space, Onboard Rich Interfaces, With Strong Expandability
Fast And Easy To Build Your Own Raspberry Pi 5 Mini-Computer



Figure 2.2: Overview of the Mini-Computer Kit for Raspberry Pi 5. This image highlights the kit's purpose as a mini-computer solution for the Raspberry Pi 5, emphasizing its expandability and rich interfaces.

Comes With Pi5 HDMI And Type-C Adapter

Adapting Type-C, Dual HDMI Female Ports, And Screw Terminal For Easier Connection With Peripherals, Supports Two Power Supply Connection Methods From The Front Side Or The Back Side



Type-C



Screw Terminal

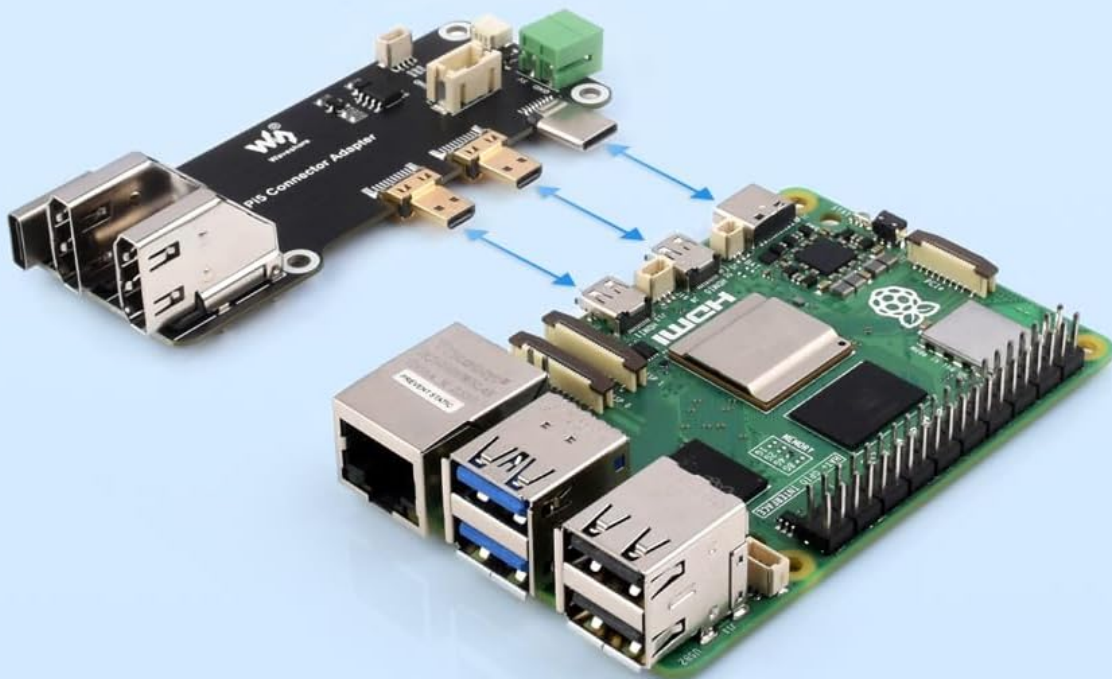


Figure 2.3: Pi5 HDMI and Type-C Adapter details. This image illustrates the included adapter board, showing its Type-C and dual HDMI female ports, and how it connects to the Raspberry Pi 5.

Pi5 Module BOX-C: Supports PCIe Extending To M.2 Interface

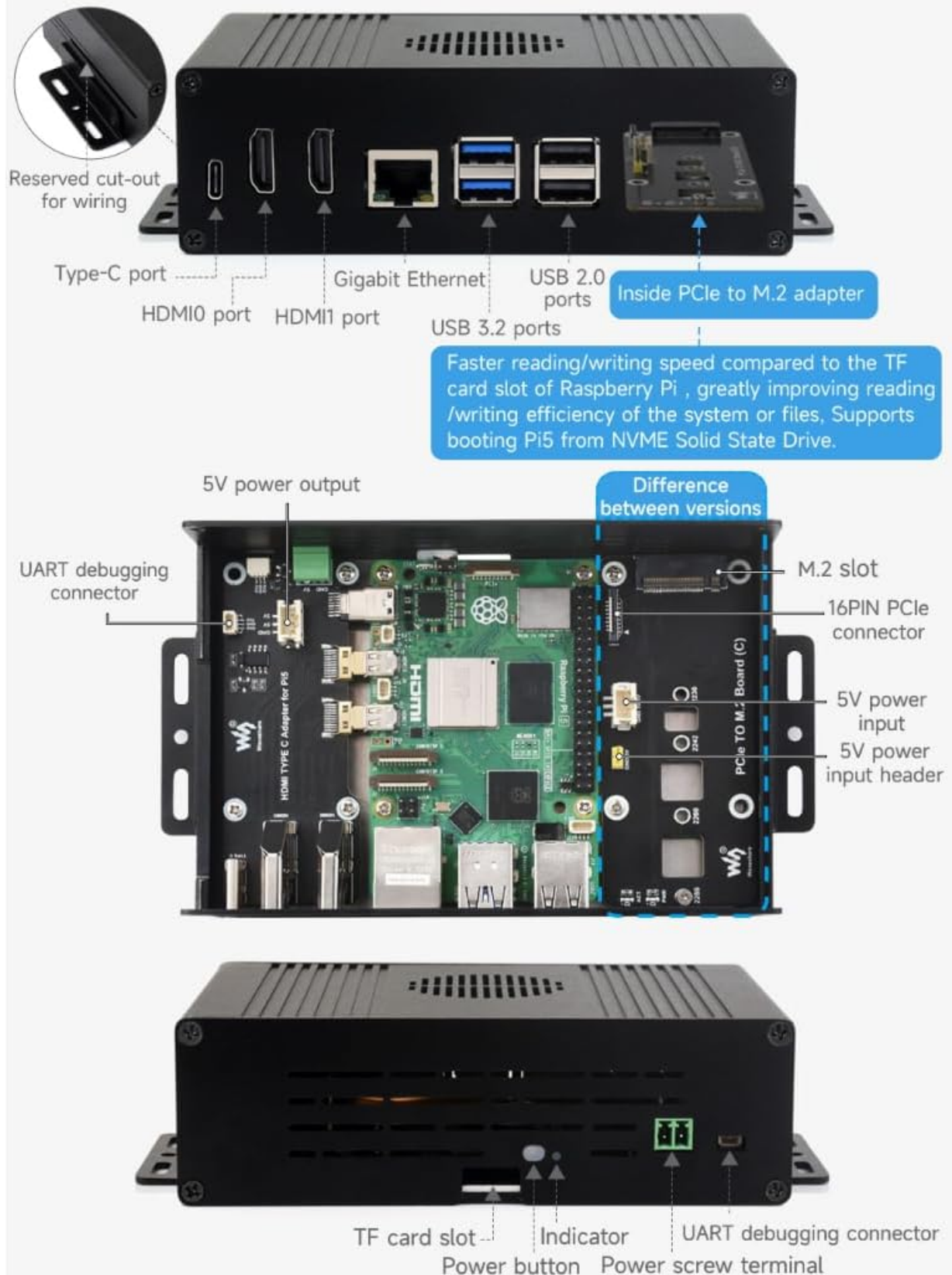


Figure 2.4: Detailed view of the Pi5 Module BOX-C. This image provides an annotated diagram of the kit's components, including the Type-C port, HDMI ports, Gigabit Ethernet, USB 2.0 and 3.2 ports, internal PCIe to M.2 adapter, M.2 slot, 16PIN PCIe connector, power inputs, and UART debugging connector.

Larger Space, Strong Expandability

Larger Internal Space, Supports Connecting To Various HATs Such As PoE HAT, Etc. Also With Space Left For Cable Management



Figure 2.5: Internal space and expandability. This image shows the internal dimensions of the case, indicating ample room for the Raspberry Pi 5 and additional HATs, with measurements in millimeters.

Reserved Airflow Vents For Efficient Heat Dissipation

Supports Installing Cooling Fan For Better Heat Dissipation



Figure 2.6: Airflow vents for efficient heat dissipation. This image illustrates the design of the case with reserved vents to facilitate airflow and support for an optional cooling fan.

Dual 4K Outputs



Figure 2.7: Dual 4K output capability. This image demonstrates the kit's ability to support dual 4K displays, showcasing two monitors connected to the system.

3. PACKAGE CONTENTS

Please verify that all items listed below are present in your package. If any items are missing or damaged, please contact customer support.

- Pi5 HDMI and Type-C adapter x1
- PCIe TO M.2 Board x1
- Metal case and white aluminum alloy base plate x1
- Silicone button x1
- M.2 Solid State Drive fixed screw x1
- PCIe cable x1
- Screw terminal x1
- Screws pack x1
- SH1.0 3PIN cable x1
- SH1.0 3PIN squid cable x1

- PH2.0 3PIN cable x1

Note: Raspberry Pi 5 board is NOT included in this kit and must be purchased separately.

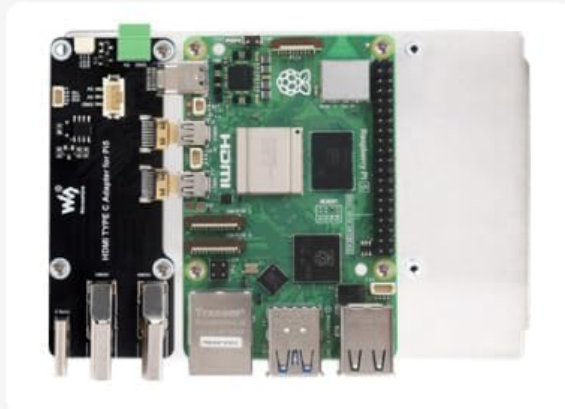
4. SETUP AND INSTALLATION

Follow these steps carefully to assemble your waveshare Mini-Computer Kit with the Raspberry Pi 5.

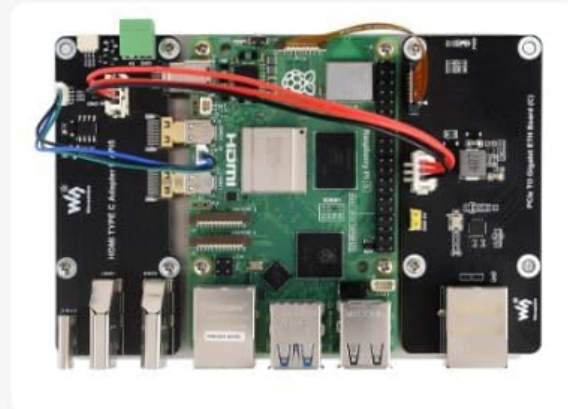
How To Install



Prepare the screws as shown above



1. Connect the HDMI adapter board to the Raspberry Pi 5 first, and mounting them on the white aluminum alloy base plate with 7x ① screws.



2. Then install the PCIe expansion board according to the version you purchased (here we take the PCIe to Gigabit Ethernet adapter as an example) on the white aluminum alloy base plate with 2x ① screws, and connect the power cable and UART debug cable as shown. Set it aside for later use.



3. Fix the two wall-mount brackets with 2x ② screws and the back panel with 2x ③ screws to the case. And then install the silicone button to the position as shown.



4. Slide the Raspberry Pi 5, the adapter boards and the base plate assembled in step 2 horizontally into the bottom rail of the case. Be careful not to dislodge the silicone button.



5. Align the front panel with the interfaces and fix it with 2x ③ screws.



6. Attach the top cover and fix it with 4x ③ screws to complete the assembly.

Figure 4.1: Step-by-step installation guide. This image provides a visual walkthrough of the assembly process, showing the components and screw types required for each stage.

Installation Steps:

1. **Prepare Screws:** Organize the screws as shown in Figure 4.1 (top section) for easy access during assembly.
2. **Connect HDMI Adapter:** Connect the HDMI adapter board to the Raspberry Pi 5 first. Then, mount them onto

the white aluminum alloy base plate using 7x ① screws.

3. **Install PCIe Expansion Board:** Install the PCIe expansion board according to the version you purchased. For example, if using the PCIe to Gigabit Ethernet adapter, connect it to the white aluminum alloy base plate with 2x ② screws. Connect the power cable and UART debug cable as shown in Figure 4.1. Set it aside for later use.
4. **Attach Wall-Mount Brackets:** Fix the two wall-mount brackets with 2x ② screws and the back panel with 2x ③ screws to the case. Then, install the silicone button into its designated position.
5. **Slide Raspberry Pi Assembly:** Carefully slide the Raspberry Pi 5, adapter boards, and the base plate assembly (from step 2) horizontally into the bottom rail of the case. Exercise caution to avoid dislodging the silicone button.
6. **Align Front Panel:** Align the front panel with the interfaces and fix it with 2x ① screws.
7. **Attach Top Cover:** Attach the top cover and fix it with 4x ③ screws to complete the assembly.

Ensure all connections are secure and screws are tightened appropriately, but do not overtighten.

5. OPERATING INSTRUCTIONS

Once assembled, your waveshare Mini-Computer Kit with Raspberry Pi 5 is ready for operation. The kit enhances the functionality and connectivity of your Raspberry Pi 5.

Powering On:

- Connect a compatible 5V power supply to the Type-C port on the front panel or the screw terminal on the back panel, as per your preference.
- Ensure all peripherals (monitor, keyboard, mouse) are connected before powering on.
- The Raspberry Pi 5 will boot up according to its configured operating system (e.g., Raspberry Pi OS).

Connectivity:

- **HDMI:** Utilize the dual HDMI ports for connecting up to two displays, supporting resolutions up to 4K.
- **USB:** The front panel provides USB 2.0 and USB 3.2 ports for connecting various USB devices.
- **Ethernet:** Connect to a wired network using the Gigabit Ethernet port.
- **M.2 SSD:** If an M.2 SSD is installed via the PCIe to M.2 board, configure your Raspberry Pi 5 to boot from or utilize the SSD for storage, significantly improving data transfer speeds.
- **HATs:** The internal space allows for the installation of various Raspberry Pi HATs, expanding functionality such as Power over Ethernet (PoE) or other custom applications.

6. MAINTENANCE

To ensure the longevity and optimal performance of your waveshare Mini-Computer Kit, follow these maintenance guidelines:

- **Cleaning:** Periodically clean the exterior of the case with a soft, dry cloth. Avoid using liquid cleaners directly on the case or near ports.
- **Dust Removal:** Use compressed air to gently clear dust from the airflow vents and internal components. Ensure the device is powered off and disconnected from power before cleaning.
- **Ventilation:** Ensure the case's airflow vents are not obstructed to maintain proper heat dissipation.
- **Environmental Conditions:** Operate the kit in a well-ventilated area, away from direct sunlight, excessive

heat, humidity, and dust.

- **Firmware/OS Updates:** Regularly update the Raspberry Pi OS and any relevant firmware for connected HATs or components to ensure stability and security.

7. TROUBLESHOOTING

If you encounter issues with your waveshare Mini-Computer Kit, refer to the following common troubleshooting steps:

- **No Power/Boot:**
 - Verify the power supply is correctly connected and providing sufficient voltage (5V).
 - Ensure the Raspberry Pi 5 is properly seated and all internal cables (e.g., PCIe cable) are securely connected.
 - Check the power button connection if applicable.
- **No Display Output:**
 - Confirm HDMI cables are securely connected to both the kit and the monitor.
 - Test with a different HDMI cable or monitor if possible.
 - Ensure the Raspberry Pi 5 is booting correctly (check activity LEDs).
- **M.2 SSD Not Detected:**
 - Ensure the M.2 SSD is correctly installed in the M.2 slot and the fixed screw is in place.
 - Verify the PCIe cable connecting the M.2 board to the Raspberry Pi 5 is secure.
 - Check Raspberry Pi OS documentation for M.2 SSD setup and booting instructions.
- **Overheating:**
 - Ensure the case's ventilation holes are not blocked.
 - Consider installing an optional cooling fan if temperatures remain high under load.
 - Reduce the workload on the Raspberry Pi 5 if necessary.

For further assistance, please refer to the official Raspberry Pi documentation or contact waveshare customer support.

8. SPECIFICATIONS

Below are the technical specifications for the waveshare Mini-Computer Kit (Model: Pi 5 BOX C).

Outline Dimensions



Figure 8.1: Outline dimensions of the waveshare Mini-Computer Kit. This technical drawing provides precise measurements of the assembled case in millimeters.

Feature	Specification
Model Name	Pi 5 BOX C
Brand	waveshare
Compatibility	Raspberry Pi 5
Case Material	Aluminum Alloy
Color	White (Base Plate), Black (Case)
Package Dimensions	8.11 x 5.94 x 2.13 inches
Item Weight	11.6 ounces
Total HDMI Ports	2 (via adapter)

Feature	Specification
Total USB Ports	1 (Type-C for power/data), additional USB 2.0/3.2 ports on Pi5
Connectivity Technology	HDMI, USB, Ethernet, PCIe
PCIe Expansion	Supports M.2 interface via included board
Heat Dissipation	Reserved airflow vents, supports optional cooling fan
Manufacturer	Waveshare
Date First Available	July 22, 2024

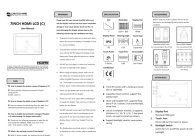
9. WARRANTY AND SUPPORT

This waveshare product is covered by a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the documentation provided with your purchase or visit the official waveshare website. For technical support, troubleshooting assistance, or inquiries regarding replacement parts, please contact waveshare customer service through their official channels. When contacting support, please have your product model number (Pi 5 BOX C) and purchase information readily available.

Online Resources:

- Official waveshare Website: www.waveshare.com
- Raspberry Pi Documentation: www.raspberrypi.com/documentation/

Related Documents - Pi 5 BOX C

	<p>Waveshare 7-inch HDMI LCD (C) User Manual: Setup and Usage Guide</p> <p>This user manual guides users through the setup and operation of the Waveshare 7-inch HDMI LCD (C) display, detailing its specifications, connection methods for Raspberry Pi and PCs, and essential usage tips for optimal performance.</p>
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[Waveshare 10.1-inch HDMI LCD \(B\) with Case: User Guide & Specs](#)

Comprehensive guide for the Waveshare 10.1-inch HDMI LCD (B) with case. Covers setup, software, and troubleshooting for Raspberry Pi and Windows PCs. Features 1280x800 IPS touchscreen.

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Waveshare 8DP-CAPLCD 8-inch HD Capacitive Touch Screen IPS Display

Detailed specifications and user guide for the Waveshare 8DP-CAPLCD, an 8-inch HD capacitive touch screen IPS display with 1280x800 resolution, compatible with Raspberry Pi and Windows devices. Features include optical bonding, multiple input/output ports, and software calibration instructions.

PI4-CASE-4G-5G-M.2 Assembly Tutorial

If you want a shell, remove the heat dissipation copper:

移除 M.2 壳盖

如果不想安装外壳，请移除 M.2 壳盖上的散热铜片



Please install the SIM card, antennas and other

components

请安装 SIM 卡和其他组件

[PI4-CASE-4G-5G-M.2 Assembly Tutorial: Install Raspberry Pi 5G HAT](#)

Comprehensive assembly tutorial for the PI4-CASE-4G-5G-M.2, designed to house a Raspberry Pi 4 with a 4G/5G M.2 module. Follow these step-by-step instructions to install your SIM card, antennas, and mounting hardware for a complete setup.