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› RasTech Raspberry Pi 5 8GB Kit User Manual

Vemico Raspberry Pi 5 8GB

RasTech Raspberry Pi 5 8GB Kit User Manual

Model: Raspberry Pi 5 8GB | Brand: Vemico

1. INTRODUCTION

This user manual provides comprehensive instructions for setting up, operating, and maintaining your RasTech Raspberry Pi 5 8GB Kit. The Raspberry Pi 5 is a versatile single-board computer designed for a wide range of applications, from educational projects and media centers to home automation and light desktop computing. This kit includes essential components to get you started quickly and efficiently.

2. WHAT'S IN THE BOX

Your RasTech Raspberry Pi 5 8GB Kit comes with the following components:

- 1 x Raspberry Pi 5 8GB Board
- 1 x 64GB Micro SD Card
- 2 x Card Readers (for 64GB Card)
- 1 x Active Cooler for Raspberry Pi 5
- 1 x Case for Raspberry Pi 5
- 2 x 4K Micro HD Out Cables
- 1 x GaN 27W 5A USB-C Power Supply
- 1 x Screwdriver
- 1 x User Manual (this document)

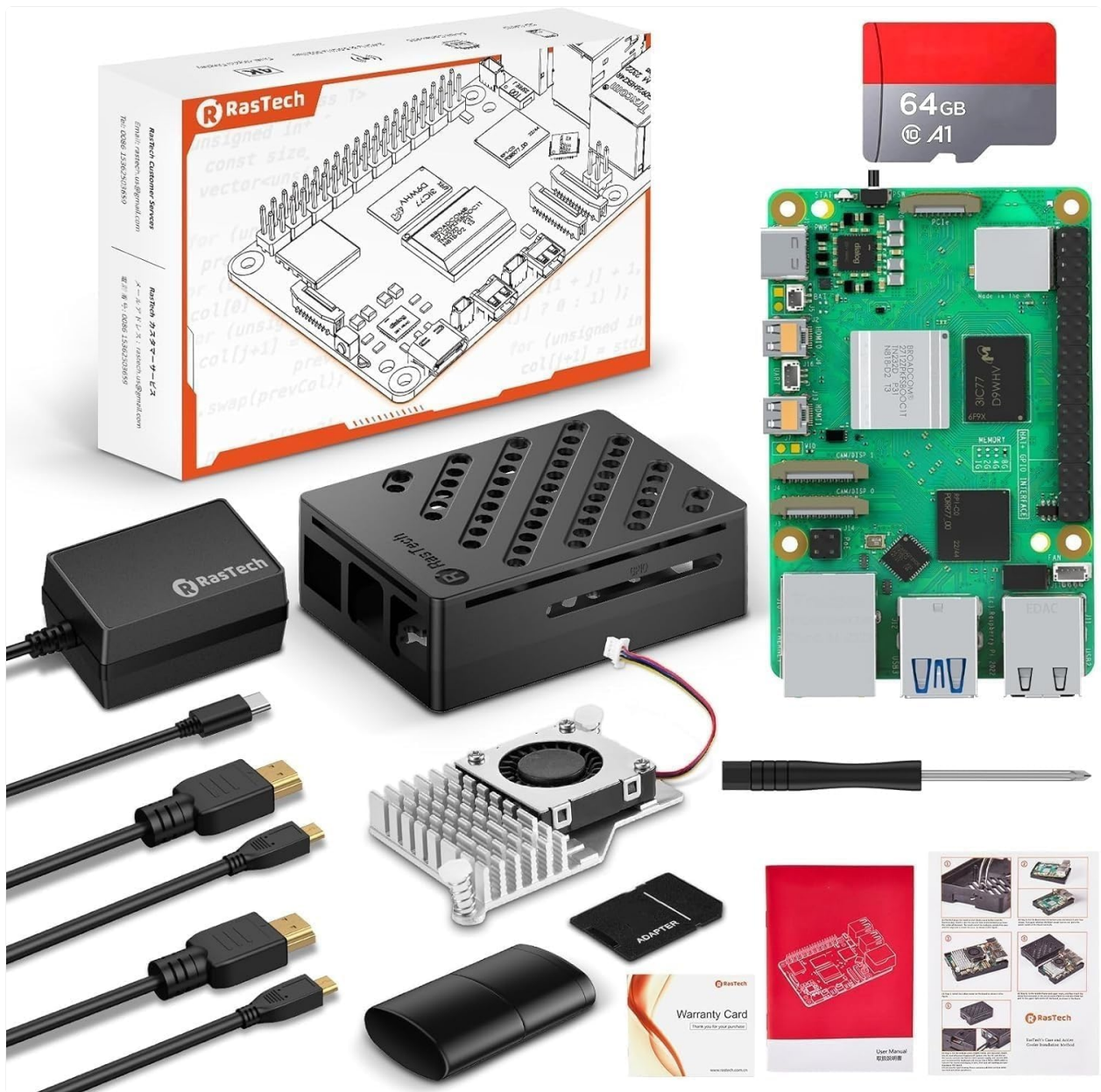


Figure 2.1: All components included in the RasTech Raspberry Pi 5 8GB Kit.

RasTech RPi 5 8GB Quality Kit

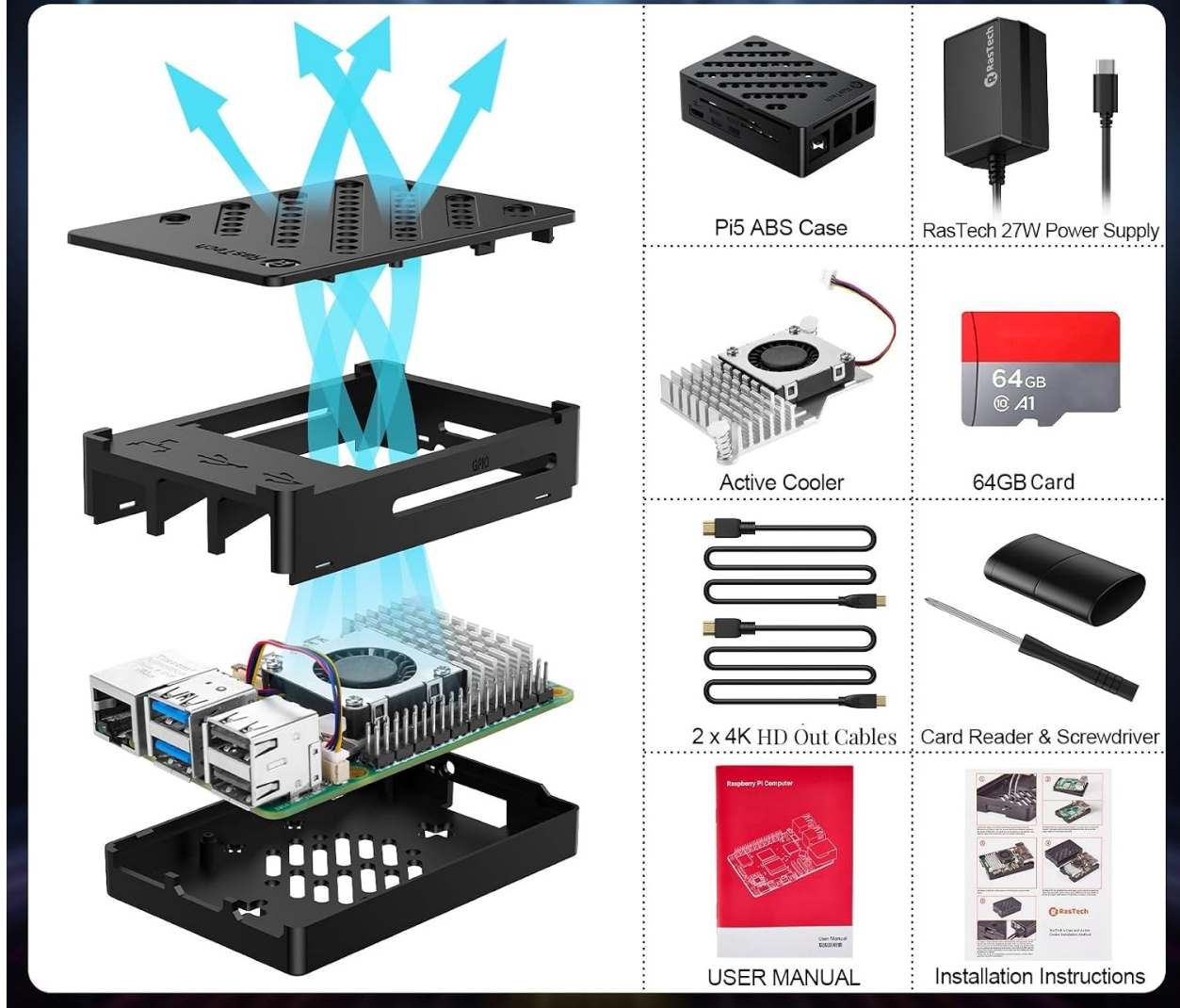


Figure 2.2: Exploded view illustrating the main components of the kit, including the case, active cooler, and Raspberry Pi 5 board.

3. PRODUCT OVERVIEW & FEATURES

3.1 Raspberry Pi 5 8GB Board

The Pi 5 board features a 64-bit quad-core Arm Cortex-A76 processor running at 2.4GHz, offering a 2-3 times increase in CPU performance compared to the Raspberry Pi 4. It includes an 800MHz VideoCore VII GPU with support for OpenGL ES 3.1 and Vulkan 1.2, delivering significantly improved graphics performance. It also provides dual 4Kp60 display outputs and built-in dual 4-channel MIPI camera/display transceivers for advanced camera support.

3.2 Connectivity and Ports

The Raspberry Pi 5 is equipped with a variety of ports for extensive connectivity:

- 1 x UART interface
- 1 x High-speed card slot

- 2 x USB 3.0 ports (supporting synchronous 5Gbps operation)
- 2 x USB 2.0 ports
- 2 x 4Kp60 Micro HD Out ports (supporting HDR)
- Built-in dedicated dual 4-channel 1Gbps MIPI DSI/CSI connectors (triple total bandwidth)
- Ethernet Jack
- USB-C Power In
- Power Button



Figure 3.1: Detailed view of the Raspberry Pi 5 ports and their functions.

3.3 Cooling System

The kit includes an Active Cooler designed specifically for the Raspberry Pi 5, providing efficient heat dissipation. The included case is designed with ventilation and precise cutouts to accommodate the cooler and ensure optimal airflow, preventing thermal throttling during intensive use.

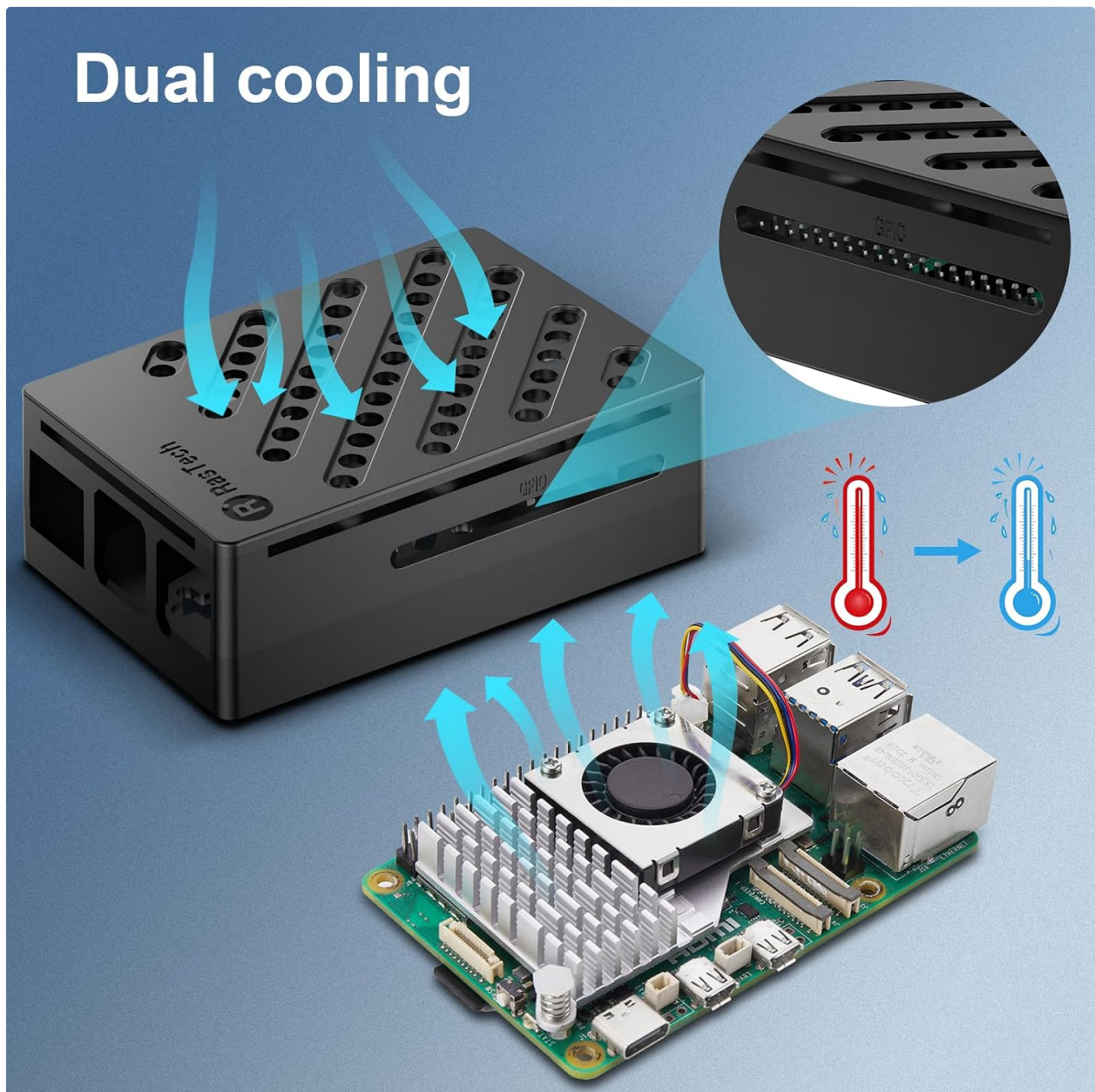


Figure 3.2: Illustration of the dual cooling system, showing airflow through the case and the active cooler.

3.4 Power Supply

The kit provides a GaN 27W USB-C Power Supply, compatible with the Pi 5 8GB board. It offers multiple output voltage options (5.1V at 5A, 9.0V at 3.0A, 12.0V at 2.25A, and 15.0V at 1.8A) to meet various device requirements.

GaN PD 27W Type-C Power Adapter for Raspberry Pi 5

16GB/8GB/4GB/2GB



Figure 3.3: The included 27W USB-C power adapter connected to the Raspberry Pi 5.

3.5 Official Product Video

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Video 3.1: An official product video from Vernico US showcasing the Raspberry Pi 5 8GB Kit and its features.

4. SETUP GUIDE

4.1 Assembly of Case and Cooler

Follow these steps to assemble your Raspberry Pi 5 board with the active cooler and case:

1. Insert the small black power button into the RasTech case. Ensure it is placed into the circular hole on the bottom case from the inside of the shell. The small end of the button is outside the case, and the large end is inside the case.
2. Place the Raspberry Pi 5 board into the bottom case. Ensure it aligns correctly with all ports and screw it in with the provided screws.

3. Install the active cooler onto the board as shown in the figure. Ensure the thermal pads are correctly placed on the relevant components (RAM, I/O chips, WiFi Radio, controllers) and the fan cable is connected to the fan interface.
4. Attach the middle frame and upper cover of the case. Ensure the white four-wire part of the active cooler PWM fan is inserted into the fan port in the upper right corner of the board.
5. Secure the case by snapping the top and bottom parts together.

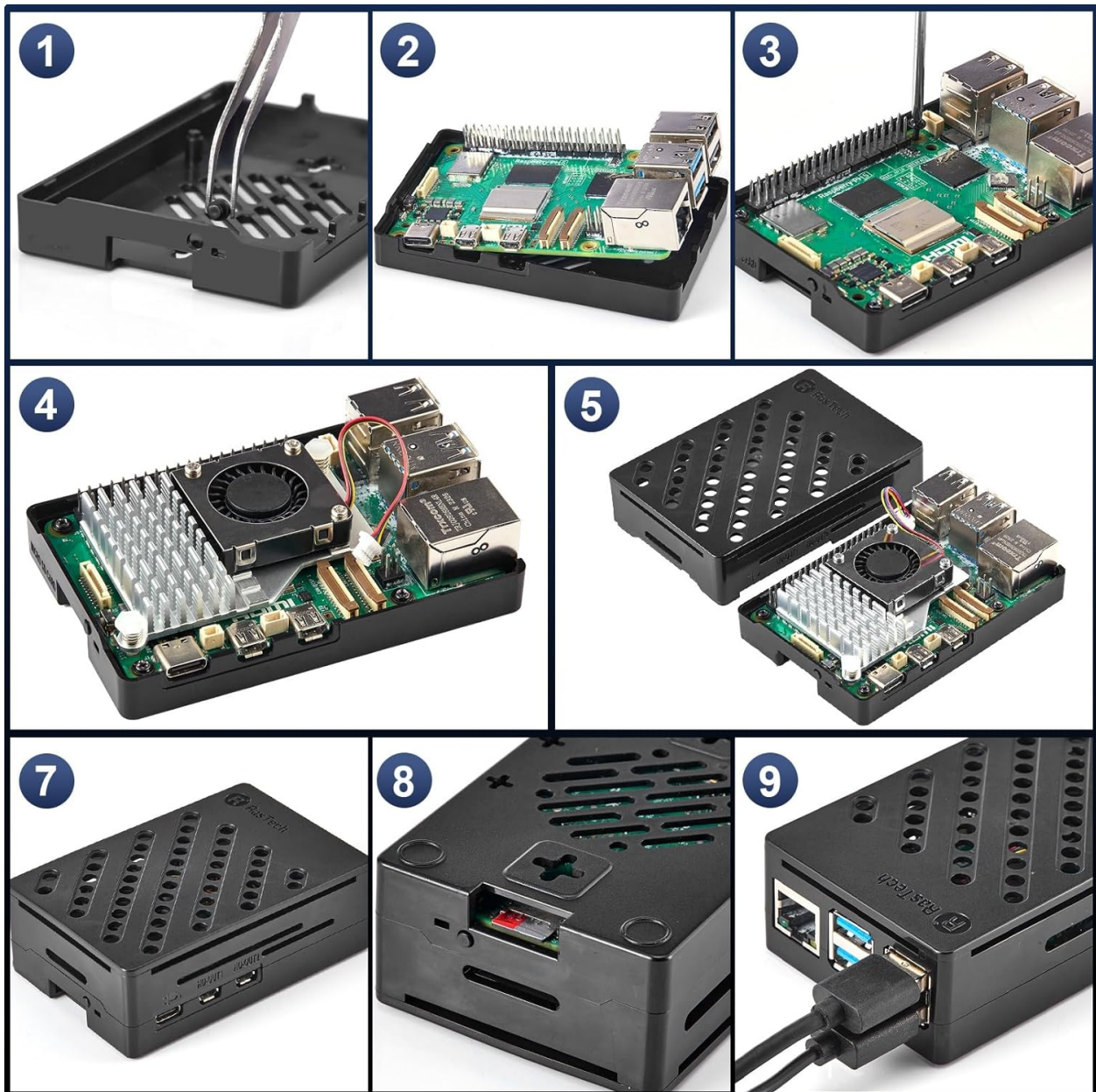


Figure 4.1: Step-by-step visual guide for assembling the Raspberry Pi 5 with its case and active cooler.

Strong Heat Dissipation

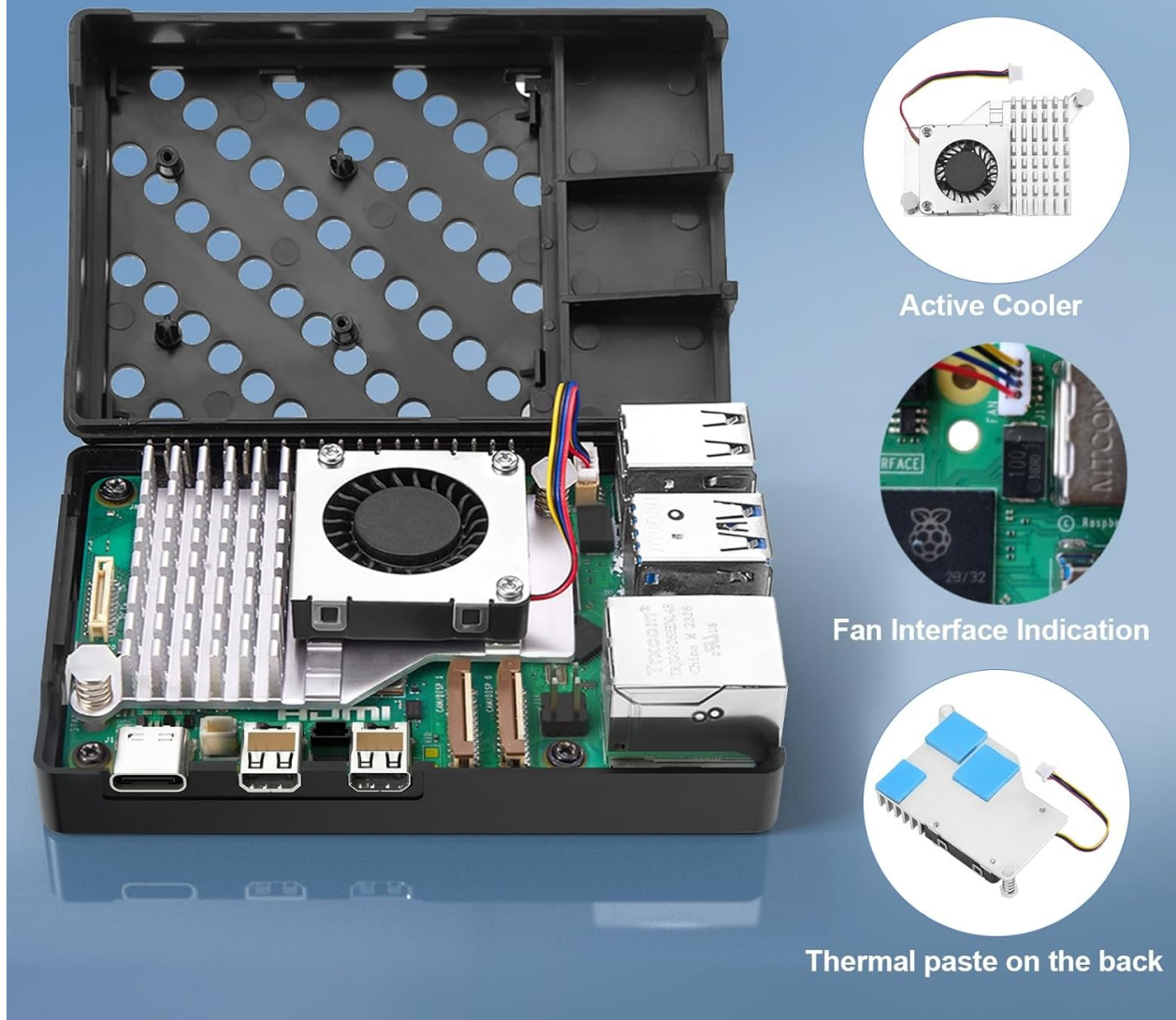


Figure 4.2: Close-up of the Raspberry Pi 5 board with the active cooler installed, showing thermal paste application areas.

4.2 Operating System (OS) Installation

The included 64GB SD card is blank. You will need to install an operating system onto it. The easiest way to do this is by using the official Raspberry Pi Imager tool. You can download it from the [Raspberry Pi website](https://www.raspberrypi.com/software/). Follow the on-screen instructions in the Imager to select your desired OS (e.g., Raspberry Pi OS) and write it to the SD card.

4.3 Initial Connection

Once the OS is flashed onto the SD card, insert it into the card slot on your Raspberry Pi 5. Connect your monitor(s) using the 4K Micro HD Out cables, and plug in your keyboard and mouse into the USB ports. Finally, connect the 27W USB-C Power Supply to the USB-C Power In port. The Raspberry Pi 5 will automatically boot up.

5. OPERATING INSTRUCTIONS

5.1 Basic Usage

Upon successful boot, you will be greeted by the Raspberry Pi OS desktop environment. You can navigate using your

connected keyboard and mouse. The power button on the case allows for safe shutdown and startup of the device.

5.2 Network Connectivity

The Raspberry Pi 5 supports both wired (Gigabit Ethernet) and wireless (802.11ac Wi-Fi, Bluetooth) connectivity. You can configure Wi-Fi settings through the desktop interface. For wired connection, simply plug an Ethernet cable into the Ethernet jack.

5.3 Software and Applications

Raspberry Pi OS comes pre-installed with various applications for programming, web browsing, and multimedia. You can install additional software from the Raspberry Pi OS repositories or other sources as needed for your projects.

6. MAINTENANCE AND CARE

To ensure the longevity and optimal performance of your Raspberry Pi 5 kit, consider the following:

- **Dust Prevention:** Keep the device in a clean, dust-free environment. Dust can accumulate on components and affect cooling efficiency.
- **Temperature Control:** Avoid operating the Raspberry Pi 5 in excessively hot environments. The active cooler helps manage heat, but extreme ambient temperatures can still impact performance.
- **Safe Shutdown:** Always perform a proper software shutdown before disconnecting power to prevent data corruption on the SD card.
- **Cable Management:** Ensure all cables are connected securely and are not under strain.

7. TROUBLESHOOTING

If you encounter issues with your Raspberry Pi 5 kit, try the following troubleshooting steps:

- **No Power/No Boot:**
 - Ensure the 27W USB-C power supply is correctly connected and plugged into a working outlet.
 - Verify the SD card is properly inserted and has a valid operating system image.
 - Try re-flashing the OS onto the SD card.
- **No Display Output:**
 - Check that the Micro HD Out cables are securely connected to both the Raspberry Pi and the monitor.
 - Ensure your monitor is set to the correct input source.
 - Test with a different monitor or cable if possible.
- **Overheating:**
 - Ensure the active cooler is correctly installed and its fan is spinning.
 - Verify that the thermal pads are making proper contact with the components.
 - Ensure the case is properly assembled and not obstructing airflow.
 - Operate the device in a well-ventilated area.
- **Peripheral Issues (Keyboard/Mouse):**

- Try connecting peripherals to different USB ports.
- Ensure the peripherals are functioning correctly on another computer.

For more detailed troubleshooting or specific issues, refer to the extensive online Raspberry Pi community forums and documentation.

8. SPECIFICATIONS

Feature	Description
Processor	64-bit quad-core Arm Cortex-A76 @ 2.4GHz
GPU	800MHz VideoCore VII (OpenGL ES 3.1, Vulkan 1.2)
RAM	8GB LPDDR4X-4266
Storage	Supports 64GB Micro SD Card (included)
Video Output	Dual 4Kp60 Micro HD Out (HDR support)
USB Ports	2 x USB 3.0, 2 x USB 2.0
Network	Gigabit Ethernet
Wireless	802.11ac Wi-Fi, Bluetooth 5.0
Power Supply	GaN 27W 5.1V5A USB-C (included)
Operating System	Raspberry Pi OS (Raspbian) recommended
Dimensions	4 x 3 x 1 inches
Weight	1.28 pounds

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation included in your kit or visit the official Vemico support website. You can also find extensive community support and resources on the official Raspberry Pi website and forums.

Manufacturer: Vemico
Product ASIN: B0D2WYFS23