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ASUS 90MB1BI0-M0EAY0

ASUS ROG Strix B650E-I Gaming WiFi Motherboard User Manual

Model: ROG STRIX B650E-I GAMING WIFI (90MB1BI0-M0EAY0)

1. INTRODUCTION

The ASUS ROG Strix B650E-I Gaming WiFi is a high-performance mini-ITX motherboard designed for AMD Ryzen AM5 processors. It offers advanced features such as PCIe 5.0 support, DDR5 memory compatibility, and robust connectivity options including WiFi 6E and 2.5G LAN. This manual provides essential information for setting up, operating, maintaining, and troubleshooting your motherboard.



Image: The ASUS ROG Strix B650E-I Gaming WiFi motherboard shown alongside its retail packaging, highlighting its compact mini-ITX form factor and included accessories.

2. PACKAGE CONTENTS

Verify that all items are present in your motherboard package:

- ASUS ROG Strix B650E-I Gaming WiFi Motherboard
- WiFi 6E Antenna
- SATA Cables
- Panel Cable
- Spare M.2 Thermal Pad
- ROG USB Splitter Cable
- ROG Keychain
- Thank You Card
- ROG Strix Stickers
- Rear M.2 2242 Bracket
- User Manual (this document)



Image: An exploded view showing the ASUS ROG Strix B650E-I Gaming WiFi motherboard and all its included accessories, such as cables, antenna, and documentation.

3. PRODUCT OVERVIEW

The ROG Strix B650E-I Gaming WiFi motherboard is engineered for optimal performance in a compact mini-ITX

form factor. It features a robust power delivery system, advanced cooling solutions, and comprehensive connectivity to support the latest AMD Ryzen processors and high-speed components.



Image: A detailed angled view of the ASUS ROG Strix B650E-I Gaming WiFi motherboard, showcasing its compact design and key component placements.



Image: Another angled perspective of the motherboard, providing a clear view of the CPU socket, RAM slots, and M.2 heatsink.

3.1 Thermal Control

The motherboard incorporates advanced thermal solutions to ensure stable performance during demanding tasks. This includes VRM heatsinks, M.2 heatsinks, and dedicated fan headers for efficient cooling management.

THERMAL CONTROL

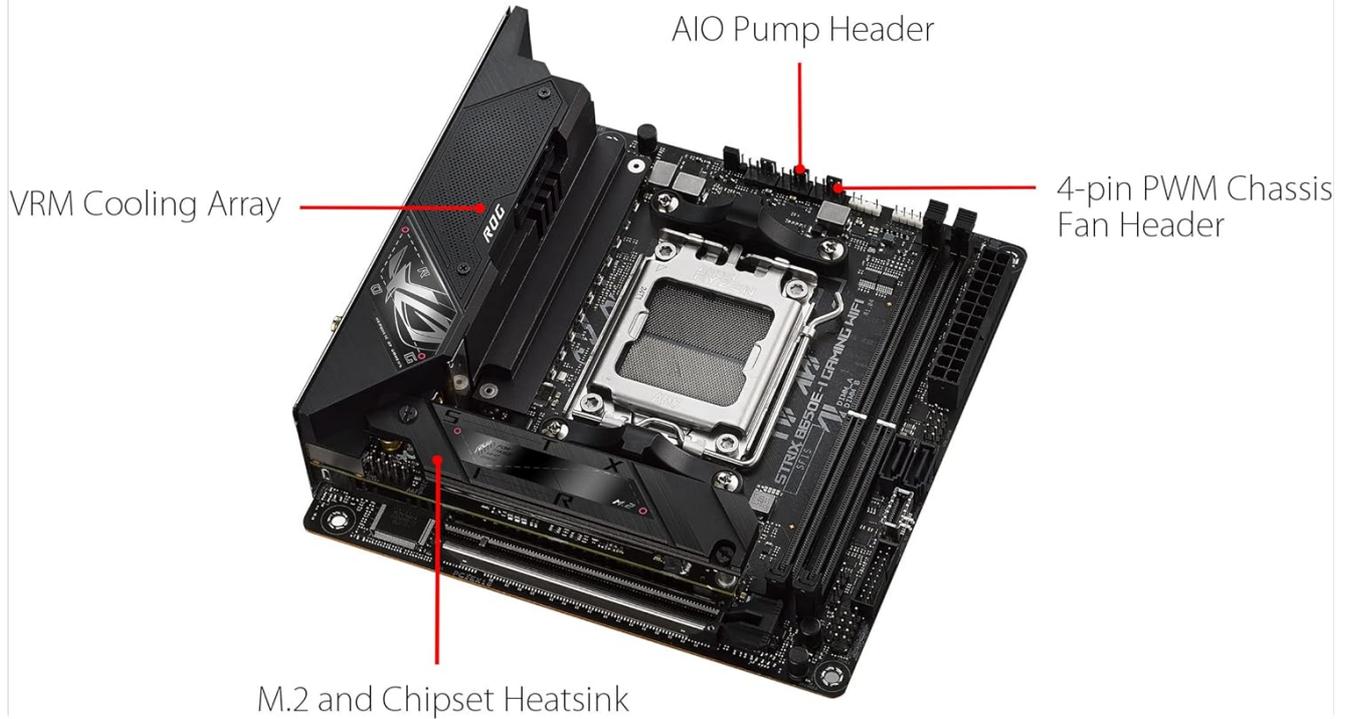
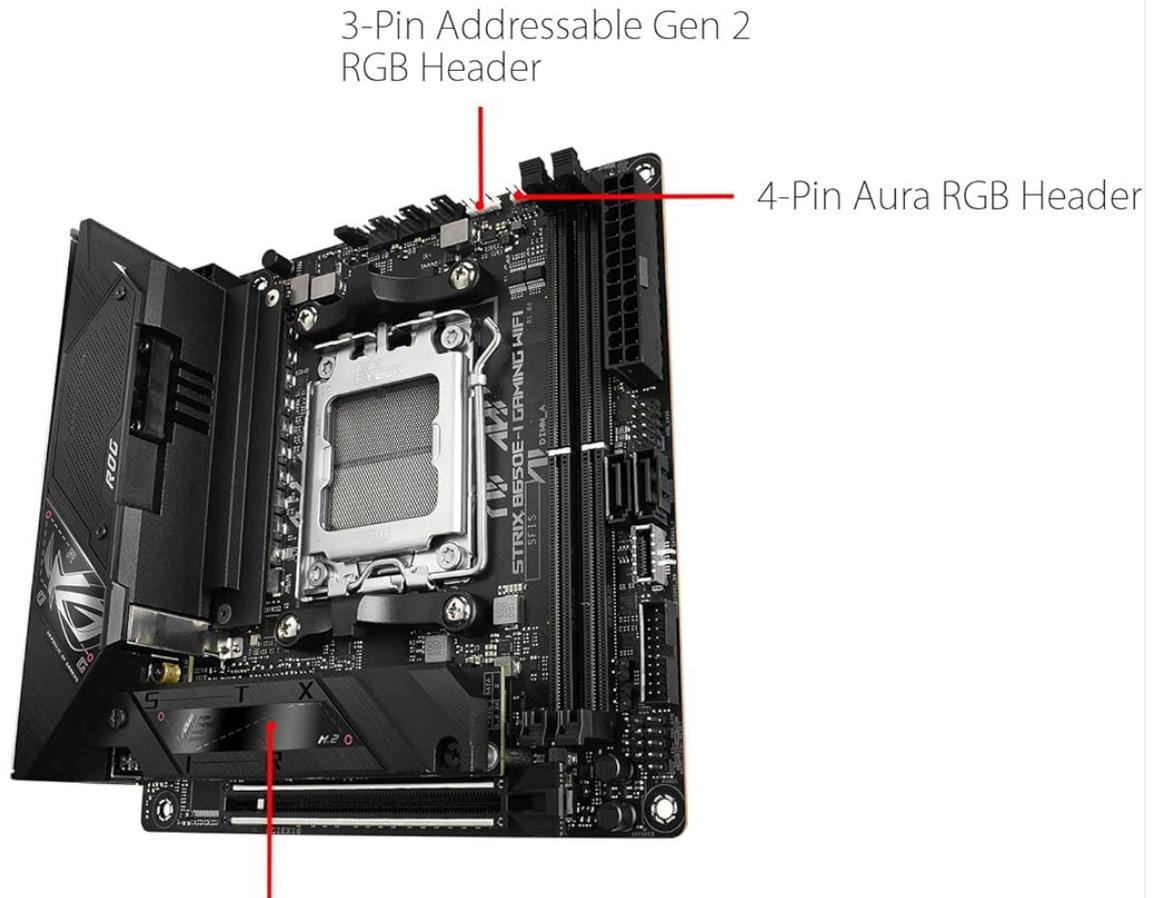


Image: A diagram illustrating the thermal control features of the motherboard, including the VRM Cooling Array, M.2 and Chipset Heatsink, AIO Pump Header, and 4-pin PWM Chassis Fan Header.

3.2 Audiovisual Experience

Equipped with SupremeFX ALC4080 Codec and Savitech SV3H712 AMP, the motherboard delivers high-fidelity audio. It also features Aura Sync RGB headers for customizable lighting effects.

AUDIOVISUAL EXPERIENCE



SupremeFX ALC4080 Codec + Savitech SV3H712 AMP

- Impedance sense
- 120 dB SNR stereo playback output
- 113 dB SNR recording input
- SupremeFX shielding

Sonic Studio III

+ Sonic Studio Virtual Mixer + Sonic Suite

Companion

Sonic Radar III

DTS® Sound Unbound™

Image: A diagram highlighting the audiovisual features, including the 3-Pin Addressable Gen 2 RGB Header and 4-Pin Aura RGB Header, along with details on the SupremeFX audio solution.

3.3 Full Connectivity

The motherboard offers extensive connectivity options, including multiple USB ports, HDMI, DisplayPort, Intel 2.5Gb Ethernet, and WiFi 6E, ensuring versatile peripheral and network connections.

FULL CONNECTIVITY

WiFi 6E



Image: A diagram detailing the full connectivity options, showing the rear I/O panel with HDMI, USB ports, Ethernet, WiFi 6E, and audio jacks, as well as internal headers.

4. SETUP GUIDE

Follow these steps for proper installation of your motherboard and components:

- 1. Prepare the Case:** Ensure your PC case is compatible with mini-ITX motherboards. Install the I/O shield into the case's rear opening.
- 2. Install the CPU:** Open the CPU socket lever. Carefully align the AMD Ryzen AM5 processor with the socket, ensuring the triangle on the CPU matches the triangle on the socket. Gently place the CPU into the socket and close the lever to secure it.
- 3. Install the CPU Cooler:** Apply thermal paste (if not pre-applied) and install your chosen CPU cooler (air or AIO liquid cooler) according to its manufacturer's instructions. Connect the CPU fan/pump header to the motherboard.
- 4. Install RAM:** Open the clips on the DDR5 DIMM slots. Align your DDR5 memory modules with the slots and press down firmly until the clips snap into place.
- 5. Install M.2 SSDs:** Remove the M.2 heatsink/cover. Insert your M.2 NVMe SSD into the slot, securing it with the provided screw or standoff. Reattach the heatsink/cover. This motherboard supports two M.2 slots.
- 6. Mount the Motherboard:** Carefully place the motherboard into the PC case, aligning it with the standoffs. Secure the motherboard with screws.
- 7. Connect Power:** Connect the 24-pin ATX power connector and the 8-pin CPU power connector from your power supply unit (PSU) to the motherboard.
- 8. Connect Front Panel Cables:** Connect the power button, reset button, USB ports, and audio jacks from your case's front panel to the corresponding headers on the motherboard. Refer to the motherboard's silkscreen

labels for correct orientation.

9. **Install Graphics Card (Optional):** If using a dedicated graphics card, insert it into the PCIe 5.0 x16 slot and secure it. Connect PCIe power cables from the PSU if required.
10. **Connect SATA Devices (Optional):** Connect SATA data cables from your storage drives (HDDs/SSDs) to the SATA 6Gb/s ports on the motherboard. Connect power cables from the PSU to these drives.
11. **Connect WiFi Antenna:** Screw the included WiFi 6E antenna onto the rear I/O panel connectors.
12. **Initial Boot and BIOS Update:** After assembly, connect a monitor, keyboard, and mouse. Power on the system. It is highly recommended to update the BIOS to the latest version for optimal compatibility and performance, especially for newer AMD Ryzen 7000/9000 series processors. The motherboard features FlashBack BIOS technology for a secure and fast upgrade, even without a CPU installed.

5. OPERATING INSTRUCTIONS

Once your system is assembled and the operating system is installed, you can begin using your ASUS ROG Strix B650E-I Gaming WiFi motherboard. Here are key operational aspects:

- **BIOS/UEFI Settings:** Access the BIOS/UEFI firmware by pressing the **DEL** or **F2** key during boot-up. Here you can configure boot order, enable EXPO for DDR5 memory, adjust fan curves, and manage other system settings.
- **Driver Installation:** Install all necessary drivers for the motherboard's components (chipset, LAN, WiFi, audio, etc.) from the ASUS support website or the included driver DVD/USB. Keeping drivers updated is crucial for system stability and performance.
- **Network Connectivity:** Utilize the Intel 2.5Gb Ethernet port for wired network connections or the integrated WiFi 6E for high-speed wireless connectivity. Ensure the WiFi antenna is properly connected for optimal signal strength.
- **USB Connectivity:** Leverage the various USB ports, including USB 3.2 Gen 2x2 Type-C, for high-speed data transfer with compatible devices.
- **Aura Sync RGB Lighting:** Customize the integrated RGB lighting and connected RGB devices using ASUS Aura Sync software.
- **Audio Configuration:** Configure your audio output and input devices through your operating system's sound settings. The SupremeFX audio solution provides high-quality sound.

6. MAINTENANCE

Regular maintenance helps ensure the longevity and optimal performance of your motherboard:

- **BIOS/UEFI Updates:** Periodically check the ASUS support website for new BIOS/UEFI versions. Updates can improve compatibility, stability, and add new features. Use the ASUS EZ Flash 3 utility or BIOS FlashBack for safe updates.
- **Driver Updates:** Keep your motherboard drivers (chipset, LAN, WiFi, audio, etc.) updated. Outdated drivers can lead to performance issues or instability.
- **Dust Cleaning:** Regularly clean dust from inside your PC case, especially from heatsinks (CPU, VRM, M.2) and fan blades. Use compressed air for best results. Ensure the system is powered off and unplugged before cleaning.
- **Cable Management:** Ensure internal cables are neatly routed to promote good airflow and prevent interference with components.
- **Software Maintenance:** Keep your operating system and applications updated. Run antivirus scans regularly.

7. TROUBLESHOOTING

If you encounter issues with your motherboard, refer to the following common troubleshooting steps:

- **No Power/No Boot:**

- Check all power connections (24-pin ATX, 8-pin CPU, PCIe for GPU).
- Ensure the PSU is switched on and functioning correctly.
- Try booting with minimal components (CPU, one RAM stick, CPU cooler, GPU if no integrated graphics).
- Clear CMOS: Refer to your motherboard manual for the specific jumper or button to clear CMOS settings.

- **No Display:**

- Ensure the monitor is connected to the correct display output (motherboard or graphics card).
- Reseat the graphics card and RAM modules.
- Test with a different monitor or display cable.

- **System Instability/Crashes:**

- Update BIOS/UEFI and all drivers to the latest versions.
- Check CPU and GPU temperatures to ensure they are not overheating.
- Run memory diagnostic tools to check for RAM errors.
- Disable any overclocking settings to test for stability.

- **Network Connectivity Issues (LAN/WiFi):**

- Ensure LAN cable is securely connected or WiFi antenna is attached.
- Install or update LAN/WiFi drivers.
- Check network adapter settings in your operating system.
- Restart your router/modem.

- **Slow Performance:**

- Ensure M.2 SSDs are properly installed and recognized.
- Verify that EXPO (Extreme Profile for Overclocking) is enabled in BIOS for DDR5 memory to run at its rated speed.
- Check for background processes consuming resources.

If these steps do not resolve your issue, consult the ASUS support website or contact their customer service for further assistance.

8. SPECIFICATIONS

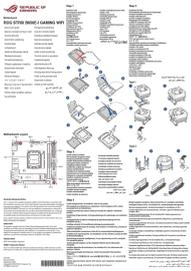
Feature	Specification
Brand	ASUS
Model Name	ROG STRIX B650E-I GAMING WIFI
Item Model Number	90MB1BI0-M0EAY0
CPU Socket	Socket AM5

Feature	Specification
Compatible Processors	AMD Ryzen™ 7000 Series Desktop Processors (and 9000 Series after BIOS update)
Chipset Type	AMD B650
RAM Memory Technology	DDR5
Max RAM Support	Up to 64GB
Memory Clock Speed	4133 MHz (and higher via EXPO)
PCIe Support	PCIe 5.0
M.2 Slots	Two M.2 slots
Ethernet	Intel 2.5Gb Ethernet
Wireless Connectivity	WiFi 6E (802.11ax)
USB Ports	USB 3.2 Gen 2x2 Type-C, USB 3.2 Gen 2, USB 2.0
Video Output	HDMI 2.1, DisplayPort
Audio	SupremeFX ALC4080 Codec + Savitech SV3H712 AMP
Form Factor	Mini-ITX
Product Dimensions	6.69 x 1.97 x 6.69 inches
Item Weight	2.2 pounds

9. WARRANTY AND SUPPORT

ASUS products are manufactured to the highest quality standards. For information regarding your product's warranty, please refer to the warranty card included in your package or visit the official ASUS support website. The website provides comprehensive resources, including FAQs, driver downloads, and contact information for technical support.

For the latest drivers, BIOS updates, and troubleshooting guides, please visit: www.asus.com/support/



[ASUS ROG STRIX B650E-I GAMING WIFI Motherboard Quick Start Guide](#)

A concise guide for installing the ASUS ROG STRIX B650E-I GAMING WIFI motherboard, covering CPU, RAM, storage, expansion cards, and system connections for a smooth setup.



[ASUS ROG STRIX B650E-E GAMING WIFI Motherboard Quick Start Guide](#)

A concise guide for installing and setting up the ASUS ROG STRIX B650E-E GAMING WIFI motherboard, covering CPU, memory, storage, expansion cards, system connections, and initial power-on procedures.



ROG STRIX
B650E-F GAMING
WIFI

[ASUS ROG STRIX B650E-F GAMING WIFI Motherboard User Guide](#)

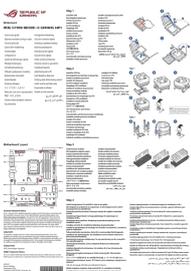
Official user guide for the ASUS ROG STRIX B650E-F GAMING WIFI motherboard, covering installation, configuration, BIOS, RAID, and safety information for AMD Ryzen™ 7000 Series Desktop Processors.



ROG STRIX
B650-A GAMING
WIFI

[ROG STRIX B650-A GAMING WIFI Motherboard User Manual](#)

This official user manual provides comprehensive guidance for the ASUS ROG STRIX B650-A GAMING WIFI motherboard. It covers essential information for installation, configuration, and operation, ensuring users can effectively set up and utilize their PC components. Explore detailed specifications, step-by-step installation procedures, BIOS settings, and troubleshooting tips designed for PC enthusiasts and builders. For the latest product information and support, visit the official ASUS website.



[ASUS ROG STRIX B650E-E GAMING WIFI Motherboard Quick Start Guide](#)

Concise guide to installing and setting up the ASUS ROG STRIX B650E-E GAMING WIFI motherboard, covering CPU, fan, memory, storage, expansion cards, and system connections.

ROG STRIX
Z690-I
GAMING
WIFI

ASUS
Motherboard

[ASUS ROG Strix Z690-I Gaming WiFi Motherboard User Manual](#)

Comprehensive user guide for the ASUS ROG Strix Z690-I Gaming WiFi motherboard, covering installation, basic setup, BIOS configuration, and technical specifications for Intel 12th Gen processors.