

ASUS TUF GAMING B850-PLUS WIFI

ASUS TUF Gaming B850-PLUS WiFi Motherboard Instruction Manual

Model: TUF GAMING B850-PLUS WIFI

1. INTRODUCTION

The ASUS TUF Gaming B850-PLUS WiFi motherboard is engineered to deliver robust performance and reliability for your computing needs. Designed for the future of AI computing, this motherboard provides the necessary power and connectivity for demanding AI applications. It is compatible with AMD Socket AM5, supporting AMD Ryzen 9000, 8000, and 7000 Series Desktop Processors.

Key features include an 8-layer PCB, 14+2+1 80A DrMOS power stages for stable power delivery, DDR5 memory support, PCIe 5.0 x16 with Q-Release, three M.2 slots, Wi-Fi 7, 2.5Gb Ethernet, DisplayPort, HDMI, USB 10Gbps & 20Gbps Type-C, BIOS FlashBack, Thunderbolt (USB4) header support, Aura Sync, M.2 Q-Latch, Q-Antenna, AEMP, and DTS audio.



Figure 1: ASUS TUF Gaming B850-PLUS WiFi Motherboard and its retail packaging.

2. SETUP AND INSTALLATION

2.1. Package Contents

Before beginning installation, ensure all components are present in the box:

- ASUS TUF Gaming B850-PLUS WiFi Motherboard
- Wi-Fi Antenna
- M.2 Rubber Pads (for M.2 drive support)
- SATA Cables (one straight, one 90-degree)
- Quick Start Guide
- ASUS TUF Stickers

This motherboard supports DDR5 memory across four DIMM slots, with a maximum capacity of 256GB. It supports speeds up to 8000 MT/s (OC). For optimal performance and stability, always consult the Qualified Vendor List (QVL) on the ASUS support website to ensure compatibility with your chosen memory modules.

1. Open the clips on both ends of the DIMM slot.
2. Align the notch on the memory module with the notch in the DIMM slot.
3. Press down firmly on both ends of the memory module until the clips snap into place.

EZ PC DIY

TUF GAMING
STAY TOUGH.



PCIe SLOT Q-RELEASE

A physical lever unlocks the first PCIe slot's security latch with one tap.



M.2 Q-LATCH

Secure the drive and neatly detach it with one tap.



BIOS FLASHBACK™

A safe and simple way to update BIOS without having memory or a CPU installed.



Q-ANTENNA

With Q-Antenna, attaching a WiFi antenna to your PC is now easy and fast.

Figure 4: The four DDR5 DIMM slots for memory installation.

2.4. M.2 Drive Installation

The motherboard features three M.2 slots for high-speed storage. M.2 #1 supports PCIe 5.0 x4, while M.2 #2 and M.2 #3 support PCIe 4.0 x4. M.2 #2 can accommodate drives up to 22110 size, while M.2 #1 and #3 support up to 2280. Dedicated heatsinks are provided for all M.2 slots to maintain optimal operating temperatures.

Important Note on PCIe Lane Sharing: M.2 slot #3 and the bottom PCIe x16 (G4) slot share bandwidth. If a drive is installed in M.2 slot #3, the bottom PCIe x16 (G4) slot will be disabled. Plan your storage and expansion card configuration accordingly.

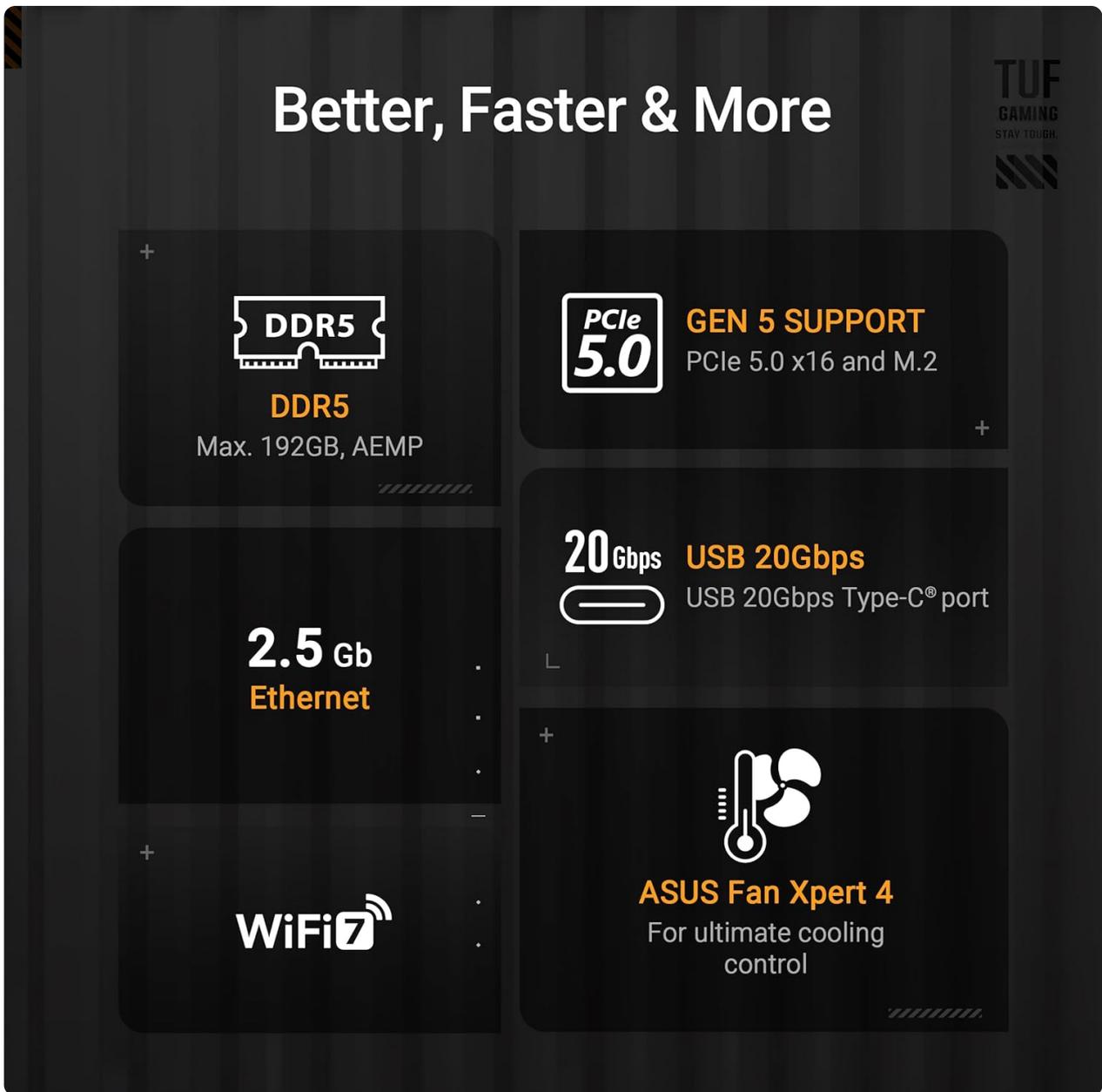


Figure 5: Location of M.2 slots with their respective heatsinks.

2.5. Power Connections

Connect your power supply unit (PSU) to the motherboard using the following connectors:

- **24-pin ATX Power Connector:** Main power for the motherboard.
- **Dual 8-pin CPU Power Connectors:** Provide stable power to the CPU, crucial for maintaining clock speeds and system stability.

3. OPERATING FEATURES

3.1. Power Design and Cooling

The motherboard features a robust 14+2+1 80A DrMOS power stage design, ensuring efficient and stable power delivery to all components. Extensive VRM heatsinks and dedicated M.2 heatsinks are integrated to dissipate heat effectively, maintaining optimal operating temperatures even under heavy loads. ASUS Fan

Xpert 4 provides ultimate cooling control, allowing for precise fan tuning.



Figure 6: Visual representation of the enlarged VRM heatsinks and M.2 heatsinks.

3.2. EZ PC DIY Features

The motherboard includes several features designed to simplify the PC building process:

- **PCIe Slot Q-Release:** A physical lever unlocks the first PCIe slot's security latch with one tap, making graphics card removal easier.
- **M.2 Q-Latch:** Secure and detach M.2 drives without screws, using a simple latch mechanism.
- **BIOS FlashBack:** Update the BIOS easily using a USB drive, even without a CPU or memory installed.
- **Q-Antenna:** Simplifies the attachment of the Wi-Fi antenna.



AMD
RYZEN

AMD
SOCKET
AM5

B850

Figure 7: Key features for simplified PC assembly and maintenance.

4. CONNECTIVITY

4.1. PCIe Expansion Slots

The motherboard offers a variety of PCIe slots for expansion cards:

- **1 x PCIe 5.0 x16 Slot:** Directly connected to the CPU, ideal for the latest high-performance graphics cards.
- **1 x PCIe 4.0 x16 Slot:** Connected via the B850 chipset, shares bandwidth with M.2 slot #3.
- **2 x PCIe x1 Slots:** For additional expansion cards.

4.2. Internal USB Headers

For front panel and internal device connectivity:

- **2 x USB 2.0 Headers:** Support up to 480 Mbps.
- **1 x USB 5Gbps Header:** For faster USB devices.
- **1 x USB 10Gbps Type-C Header:** For modern front panel Type-C ports.
- **1 x Thunderbolt (USB4) Header:** Allows connection of an add-on Thunderbolt I/O card for high-speed peripheral support.

4.3. SATA Ports

Four SATA 6Gbps ports are available for traditional SATA storage devices such as HDDs and SSDs.

4.4. Rear I/O Panel

The integrated I/O shield provides a comprehensive set of ports:

What's in the Box

Exclusive TUF Gaming B850-Plus WiFi Bundle



Figure 8: Overview of the rear I/O panel with various connectivity options.

- **Video Outputs:** DisplayPort, HDMI.
- **Ethernet:** 1 x Realtek 2.5Gb Ethernet port.
- **USB Ports:**
 - 3 x USB 10Gbps Type-A ports
 - 2 x USB 2.0 ports

- 1 x USB 20Gbps Type-C port
- 4 x USB 5Gbps Type-A ports
- **Wireless:** Wi-Fi 7 module.
- **Audio:** Realtek ALC1220P codec supporting 7.1 Channel Surround Sound (up to 32-bit, 192 kHz playback, but 32-bit is not supported in 7.1 mode due to bandwidth limitations).
- **BIOS Flashback Button:** For convenient BIOS updates.

5. SPECIFICATIONS

Feature	Specification
Brand	ASUS
Series	TUF GAMING B850-PLUS WIFI
Item Model Number	TUF GAMING B850-PLUS WIFI
CPU Socket	Socket AM5
Compatible Processors	AM5 (AMD Ryzen 7000, 8000, 9000 Series)
Chipset Type	AMD B850
RAM Memory Technology	DDR5
Memory Speed	8000 MHz (OC)
Memory Storage Capacity	192 GB (Max)
Product Dimensions	12.01 x 9.61 x 1.89 inches
Item Weight	4 pounds
Color	BLACK
Platform	Windows

6. MAINTENANCE

To ensure the longevity and optimal performance of your ASUS TUF Gaming B850-PLUS WiFi motherboard, regular maintenance is recommended:

- **Driver Updates:** Regularly check the ASUS support website for the latest drivers for your motherboard's components (chipset, audio, LAN, Wi-Fi, etc.). Keeping drivers updated can improve performance and stability.
- **BIOS Updates:** Periodically check for new BIOS versions on the ASUS support website. BIOS updates can offer improved compatibility, stability, and new features. Utilize the BIOS Flashback feature for

convenient updates.

- **Dust Removal:** Over time, dust can accumulate on components and heatsinks, affecting cooling efficiency. Gently clean the motherboard and heatsinks with compressed air or a soft brush to prevent dust buildup.
- **Cable Management:** Ensure internal cables are neatly managed to promote good airflow within your PC case, contributing to better cooling.
- **RGB Control:** If you have compatible ARGB devices connected, use ASUS Aura Sync software to configure and synchronize lighting effects.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter:

- **System Fails to Boot / No Display:**
 - Verify all power connections (24-pin ATX, 8-pin CPU) are securely seated.
 - Ensure RAM modules are correctly installed in the DIMM slots. Try reseating them or testing with one module at a time. Refer to the QVL for compatibility.
 - Check that your graphics card is properly seated in the PCIe slot and has adequate power.
 - If using integrated graphics, ensure your monitor is connected to the motherboard's video output (DisplayPort or HDMI).
- **Storage Device Not Detected:**
 - For M.2 drives, ensure they are properly seated and secured with the M.2 Q-Latch.
 - Remember the shared bandwidth limitation: if you are using an M.2 drive in slot #3, the bottom PCIe x16 (G4) slot will be disabled. Ensure no conflicting devices are installed.
 - For SATA drives, check SATA data and power cable connections.
 - Verify drive detection in the BIOS/UEFI settings.
- **Intermittent Network Connectivity (Wi-Fi/LAN):**
 - Ensure the Wi-Fi antenna is securely connected to the Q-Antenna ports on the rear I/O panel.
 - Update Wi-Fi and LAN drivers from the ASUS support website.
 - Check network cable connections for the 2.5Gb Ethernet port.
- **BIOS Update Issues:**
 - When using BIOS Flashback, ensure the USB drive is formatted to FAT32 and the BIOS file is correctly renamed as per ASUS instructions.
 - Use the designated BIOS Flashback USB port on the rear I/O panel.

8. WARRANTY AND SUPPORT

For detailed warranty information, technical support, and the latest drivers and utilities, please visit the official

ASUS support website. You can register your product to manage your warranty and track support requests.

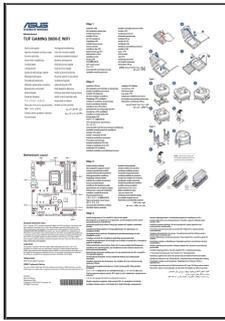
ASUS Support Website: www.asus.com/support/

It is highly recommended to register your product upon purchase to ensure you receive timely updates and support.

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Related Documents - TUF GAMING B850-PLUS WIFI

 <p>TUF GAMING B850-E WIFI</p>	<p>ASUS TUF GAMING B850-E WIFI Motherboard User Manual and Guide</p> <p>Comprehensive user manual for the ASUS TUF GAMING B850-E WIFI motherboard, covering installation, BIOS setup, RAID configurations, specifications, and safety guidelines.</p>
 <p>TUF GAMING B850-PLUS WIFI</p>	<p>ASUS TUF GAMING B850-PLUS WIFI Motherboard User Manual</p> <p>Comprehensive user manual for the ASUS TUF GAMING B850-PLUS WIFI motherboard, detailing installation, specifications, BIOS/RAID support, and safety information.</p>
	<p>ASUS TUF GAMING B650M-E WIFI Quick Start Guide</p> <p>A concise guide for installing and setting up the ASUS TUF GAMING B650M-E WIFI motherboard, covering CPU, memory, storage, expansion cards, and system connections.</p>
	<p>ASUS TUF GAMING B650M-E WIFI Motherboard Quick Start Guide</p> <p>This guide provides essential steps for installing the ASUS TUF GAMING B650M-E WIFI motherboard, including CPU, fan, memory, storage, and expansion card installation, along with system connections and initial setup.</p>
	<p>ASUS TUF GAMING A620M-PLUS WIFI Motherboard: Quick Start Guide</p> <p>Comprehensive guide for installing the ASUS TUF GAMING A620M-PLUS WIFI motherboard, covering CPU, RAM, expansion cards, storage, and system connections. Includes setup steps and component identification.</p>



[ASUS TUF GAMING B650-E WIFI Motherboard Quick Start Guide](#)

A concise, step-by-step guide for installing the ASUS TUF GAMING B650-E WIFI motherboard, covering CPU, RAM, storage, expansion cards, power connections, and initial system setup.