ASUS TUF GAMING B860-PLUS WIFI

ASUS TUF Gaming B860-PLUS WiFi ATX Motherboard User Manual

Model: TUF GAMING B860-PLUS WIFI

1. PRODUCT OVERVIEW

The ASUS TUF Gaming B860-PLUS WiFi motherboard is designed for robust performance and reliability, supporting Intel Core Ultra Series 2 processors with the LGA 1851 socket. It features advanced power delivery, comprehensive cooling, and high-speed connectivity options suitable for demanding computing tasks and gaming.

- **Processor Support:** Intel LGA 1851 Socket, ready for Intel Core Ultra Processors (Series 2).
- **Power Solution:** 12+1+2+1 80A DrMOS power stages with 8+8 pin ProCool power connectors.
- **Memory:** DDR5 support with four DIMM slots, up to 256GB capacity, and speeds up to 8666MHz (OC).
- **Storage:** Three M.2 slots (one PCIe 5.0, two PCIe 4.0) and four SATA 6Gb/s ports.
- **Expansion:** PCIe 5.0 x16 SafeSlot with Q-Release, additional PCIe 4.0 slots.
- **Networking:** Integrated Wi-Fi 7, 2.5Gb Ethernet, and Bluetooth 5.4.
- **USB Connectivity:** USB 20Gbps Type-C (rear), USB 10Gbps Type-C (front), and various other USB ports.
- **Display Outputs:** DisplayPort and HDMI.

Figure 1.1: ASUS TUF Gaming B860-PLUS WiFi Motherboard and its retail packaging, including the Wi-Fi antenna.

2. SETUP AND INSTALLATION

2.1 Component Installation

Before installing the motherboard into your PC case, ensure all necessary components are prepared. Refer to the quick start guide included in the box for visual instructions.

1. **Processor (CPU) Installation:**
   Carefully open the LGA 1851 socket lever. Align the triangular mark on the CPU with the corresponding mark on the socket. Gently place the CPU into the socket without forcing it, then close the lever to secure it.

2. **Memory (RAM) Installation:**
   Locate the four DDR5 DIMM slots. Open the retention clips on both ends of the slot. Align the notch on the DDR5 memory module with the key in the DIMM slot. Press down firmly on both ends of the module until the clips snap into place. For optimal performance, install memory modules in the recommended dual-channel configuration as per the motherboard manual.

3. **Storage Device Installation:**
   The motherboard features three M.2 slots. For M.2 SSDs, locate the desired slot and remove the M.2 heatsink. Insert the M.2 SSD at an angle into the slot, then gently push it down and secure it with the M.2 Q-Latch mechanism or screw. For SATA drives, connect the SATA data cables to the four SATA 6Gb/s ports and the

power cables from your power supply.

4. **Graphics Card (GPU) Installation:**
   Insert your PCIe 5.0 x16 graphics card into the primary PCIe 5.0 x16 SafeSlot. Ensure the card is seated firmly and the PCIe Slot Q-Release lever locks it into place. Secure the card to the case with screws.

5. **Power Supply Unit (PSU) Connections:**
   Connect the 24-pin ATX main power connector and the 8+8 pin ProCool CPU power connectors from your PSU to the motherboard. Ensure all connections are secure.

Figure 2.1: Overview of the motherboard highlighting AI Intelligence features and CPU socket area.

Performance

12+1+2 — 12(80A) + 1(80A) + 2(80A) + 1(80A) Power Stages

AEMP III

An advanced firmware feature empowers users to achieve unparalleled memory performance with cutting-edge CUDIMM memory.

DIMM FIT

ASUS-exclusive BIOS feature that precisely analyzes individual memory modules to optimize performance and pinpoint potential issues.

PROCOOL POWER CONNECTORS

Proprietary 8+8 pin connectors improve PSU connection.

Figure 2.2: Motherboard layout showcasing power stages, DDR5 DIMM slots, and ProCool power connectors.
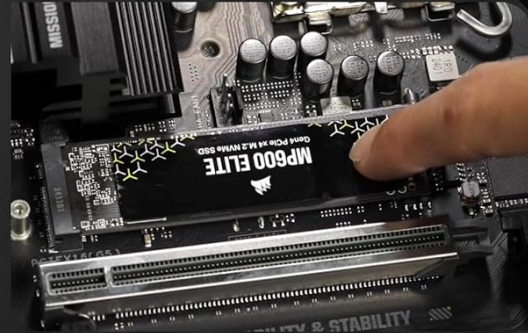
Figure 2.3: Key DIY features including PCIe Slot Q-Release, M.2 Q-Latch, Q-Antenna, and BIOS FlashBack™ button.

2.2 Initial Boot and BIOS Configuration

After assembling all components, connect your display, keyboard, and mouse. Power on your system. During the initial boot, press the designated key (usually DEL or F2) to enter the BIOS/UEFI setup. Here you can:

- Set the correct date and time.
- Configure boot order for your operating system installation media.
- Enable XMP/EXPO profiles for your DDR5 memory to achieve advertised speeds.
- Adjust fan curves using Fan Xpert 4 for optimal cooling and noise levels.
- Update the BIOS using the built-in utility or the BIOS FlashBack™ feature (refer to section 2.3).

2.3 BIOS FlashBack™

The BIOS FlashBack™ feature allows you to update the BIOS without installing a CPU, memory, or graphics card. This is useful for ensuring compatibility with newer processors or recovering from a corrupted BIOS.

1. Download the latest BIOS file from the ASUS support website for your specific motherboard model.

2. Rename the BIOS file according to the instructions on the ASUS support page (e.g., 'TUF.CAP').

3. Copy the renamed BIOS file to the root directory of a FAT32-formatted USB flash drive.

4. With the system powered off (but PSU connected and switched on), insert the USB flash drive into the dedicated BIOS FlashBack™ USB port on the rear I/O panel.

5. Press and hold the BIOS FlashBack™ button for three seconds until the LED starts blinking.

6. Release the button. The LED will continue to blink, indicating the BIOS update is in progress. Do not remove the USB drive or power off the system during this process.

7. The LED will stop blinking when the update is complete.

3. OPERATING YOUR SYSTEM

3.1 Software and Drivers

For optimal system performance and stability, install the latest drivers and utilities from the ASUS support website. The ASUS DriverHub utility can assist with automatic detection and installation of necessary drivers.

- **ASUS DriverHub:** Simplifies driver management with automatic detection and one-click installation.
- **ASUS AI Advisor:** Utilizes AI technology to understand natural-language questions, providing functionality insights.
- **ASUS GlideX:** Enables seamless screen sharing and control across PCs, tablets, and smartphones.
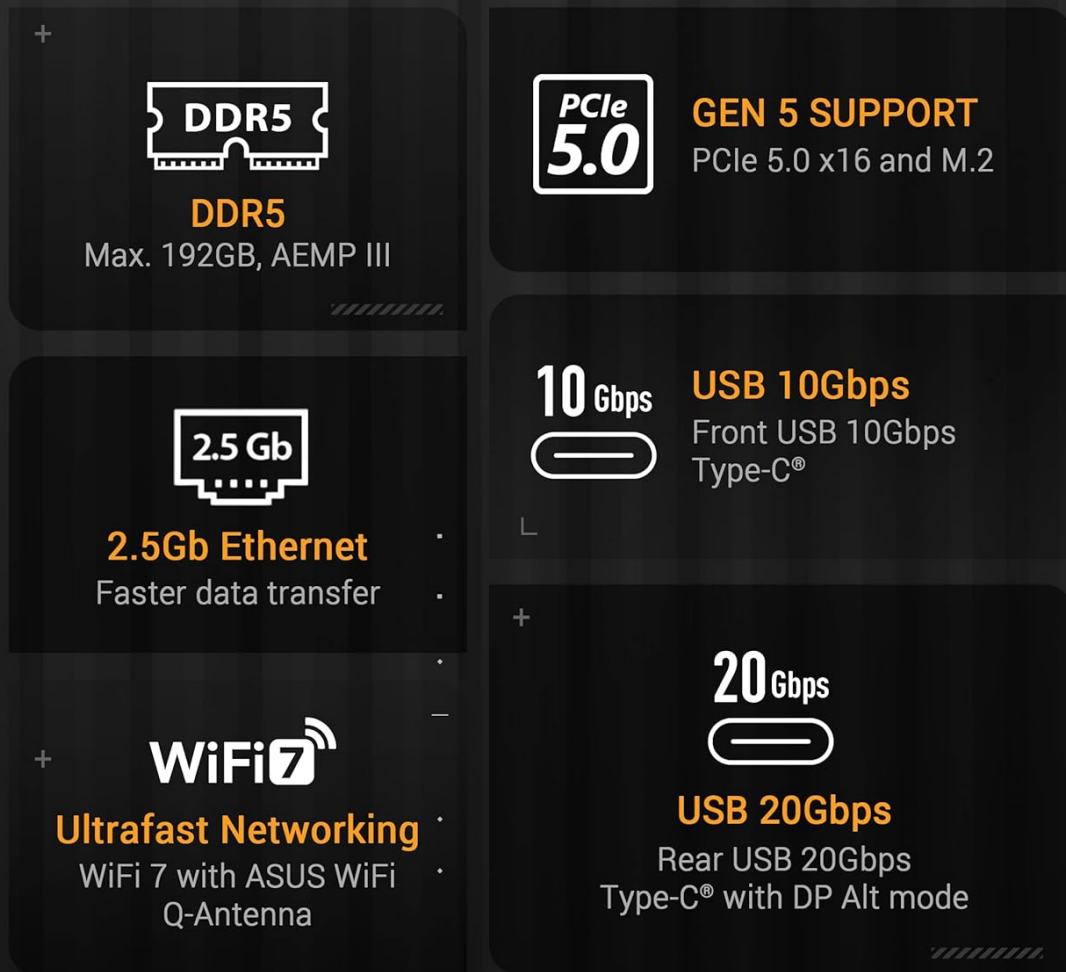
Figure 3.1: Key connectivity features including DDR5, PCIe 5.0, 2.5Gb Ethernet, Wi-Fi 7, and USB 10/20Gbps ports.

3.2 Thermal Management

The motherboard features an optimized thermal design to maintain stable temperatures during operation:

- Large VRM heatsinks for efficient power delivery cooling.
- M.2 and PCH heatsinks to dissipate heat from storage and chipset.
- Hybrid fan headers and Fan Xpert 4 for precise fan control and system cooling.

4. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your motherboard and system.

- **BIOS Updates:** Periodically check the ASUS support website for the latest BIOS versions. Updating the BIOS can improve compatibility, stability, and performance. Use the BIOS FlashBack™ feature for convenient updates.
- **Driver Updates:** Keep all motherboard drivers (chipset, audio, LAN, Wi-Fi, etc.) updated to their latest versions. Use ASUS DriverHub for simplified management.

- **Dust Removal:** Regularly clean dust from your PC case, especially around heatsinks and fan vents, to prevent overheating. Use compressed air for effective cleaning.
- **Cable Management:** Ensure internal cables are neatly routed to promote good airflow and prevent interference.

5. TROUBLESHOOTING

If you encounter issues with your system, consider the following troubleshooting steps:

- **No Power/No Boot:**
  Ensure all power cables (24-pin ATX, 8+8 pin CPU) are securely connected. Verify your power supply is functioning correctly. Check the power button connection to the motherboard.
- **No Display:**
  Confirm your monitor is connected to the graphics card (or motherboard if using integrated graphics) and powered on. Reseat your graphics card and RAM modules. Try booting with only one RAM stick.
- **System Instability/Crashes:**
  Check CPU and GPU temperatures. Ensure all drivers are up to date. Run memory diagnostic tools to check for RAM errors. Verify your power supply meets the system's requirements.
- **Peripheral Issues:**
  Try connecting the peripheral to a different USB port. Ensure relevant drivers for the peripheral are installed.
- **Network Connectivity Problems:**
  For wired connections, check the Ethernet cable and router/modem. For Wi-Fi, ensure the antenna is properly connected and drivers are installed. Verify Wi-Fi 7 is enabled in your router settings if applicable.
- **BIOS Issues:**
  If the system fails to POST or you suspect a corrupted BIOS, use the BIOS FlashBack™ feature to re-flash the BIOS (refer to section 2.3).

6. SPECIFICATIONS

Feature	Specification
Brand	ASUS
Model Name	TUF GAMING B860-PLUS WIFI
CPU Socket	LGA 1851
Chipset Type	INTEL B860
Compatible Processors	Intel Core Ultra Processors (Series 2)
RAM Memory Technology	DDR5
Memory Slots	4 x DIMM
Max Memory Capacity	Up to 256GB
Memory Clock Speed	Up to 8666 MHz (OC)
PCIe 5.0 x16 Slot	1 (SafeSlot with Q-Release)
PCIe 4.0 x16 Slot	1 (x4 mode)

Feature	Specification
PCIe 4.0 x1 Slot	1
M.2 Slots	3 (1x PCIe 5.0 x4, 2x PCIe 4.0 x4)
SATA 6Gb/s Ports	4
Ethernet	2.5Gb LAN
Wi-Fi	Wi-Fi 7
Bluetooth	Bluetooth 5.4
Rear USB Ports	USB 20Gbps Type-C, USB 10Gbps Type-C, various USB 5Gbps Type-A
Front USB Headers	USB 10Gbps Type-C, USB 5Gbps Type-A, USB 2.0
Video Outputs	DisplayPort, HDMI
Form Factor	ATX
Dimensions (LxWxH)	12.01 x 9.61 x 2.76 inches
Item Weight	1.94 pounds

7. WARRANTY AND SUPPORT

This ASUS motherboard is covered by a manufacturer's warranty. For specific warranty terms, conditions, and duration, please refer to the warranty card included with your product or visit the official ASUS support website.

For technical support, driver downloads, BIOS updates, and further product information, please visit the official ASUS support website:

- **ASUS Support Website:** www.asus.com/support/
- **ASUS Store:** Visit the ASUS Store

When contacting support, please have your motherboard model name (TUF GAMING B860-PLUS WIFI) and serial number ready.

Related Documents - **TUF GAMING B860-PLUS WIFI**

TUF B560M-PLUS WIFI بازی	[ASUS TUF GAMING B560M-PLUS WIFI Motherboard Technical Specifications and Manual](#) Comprehensive technical specifications, installation guide, and BIOS information for the ASUS TUF GAMING B560M-PLUS WIFI motherboard, featuring Intel B560 chipset, LGA1200 socket, DDR4 memory support, PCIe 4.0, Wi-Fi 6, and 2.5Gb Ethernet.
PRIME Z790-P WIFI Motherboard	[ASUS PRIME Z790-P WIFI Motherboard User Guide](#) Comprehensive user guide for the ASUS PRIME Z790-P WIFI motherboard, covering installation, specifications, safety information, and BIOS setup. Learn about its features for building a high-performance PC.
TUF GAMING B660-PLUS WIFI D4 Motherboard	[ASUS TUF Gaming B660-PLUS WIFI D4 Motherboard User Manual](#) Comprehensive user manual for the ASUS TUF Gaming B660-PLUS WIFI D4 ATX motherboard. Includes installation guides, specifications, safety information, BIOS setup, and support details.
TUF GAMING B560M-E	[ASUS TUF GAMING B560M-E Motherboard: Specifications, Features, and Installation Guide](#) A comprehensive guide to the ASUS TUF GAMING B560M-E motherboard, detailing its specifications, features, package contents, installation procedures for CPU, RAM, and Wi-Fi cards, and BIOS settings. Includes troubleshooting information and safety precautions.
TUF GAMING B760M-PLUS WIFI Motherboard	[ASUS TUF GAMING B760M-PLUS WIFI Motherboard User Manual](#) Comprehensive user manual for the ASUS TUF GAMING B760M-PLUS WIFI motherboard, detailing specifications, installation guides, BIOS setup, RAID configurations, safety precautions, and compliance information.
TUF Z390M-PRO (Wi-Fi) بازی	[ASUS TUF Z390M-PRO GAMING (Wi-Fi) راهنمای مادربرد](#) با چیست (Wi-Fi) ASUS TUF Z390M-PRO GAMING مشخصات فنی، راهنمای نصب و ویژگی‌های مادربرد و پشتیبانی از پردازنده‌های نسل نهم اینتل Intel Z390.