

## ASRock B860M-X WIFI

# ASRock B860M X WiFi 6E Motherboard Instruction Manual

**MODEL: B860M-X WIFI**

Brand: ASRock

## 1. Overview

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The ASRock B860M X WiFi 6E is a Micro-ATX motherboard designed for Intel Core Ultra (Series 2) processors with an LGA1851 socket. This motherboard supports DDR5 memory up to 9066+ (OC) MHz and features a 7+1+1+1+1 power phase design for stable power delivery. It includes multiple PCIe slots, M.2 slots, SATA3 ports, and comprehensive USB 3.2 connectivity. Integrated WiFi 6E and Realtek 2.5G LAN provide high-speed networking. The board also supports BIOS Flashback for convenient firmware updates.

### Key Features:

- Supports Intel Core Ultra Processors (Series 2) (LGA1851)
- 7+1+1+1+1 Power Phase Design
- 2 x DDR5 DIMMs, Supports Dual Channel, up to 9066+ (OC)
- 1 PCIe 4.0 x16, 1 PCIe 4.0 x4, 1 PCIe 4.0 x1
- Graphics Output Options: 1 HDMI, 1 DisplayPort
- Realtek ALC897 7.1 CH HD Audio Codec
- 4 SATA3, 1 Blazing M.2 (PCIe Gen5x4), 1 Hyper M.2 (PCIe Gen4x4)
- 1 USB 3.2 Gen2x2 Type-C (Rear), 1 USB 3.2 Gen1 Type-C (Front), 5 USB 3.2 Gen1 (3 Rear, 2 Front), 6 USB 2.0 (2 Rear, 4 Front)
- Realtek 2.5G LAN, 802.11ax Wi-Fi 6E + Bluetooth
- Supports BIOS Flashback

## 2. Unboxing and Package Contents

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Before you begin installation, ensure all components are present and undamaged. The package typically includes the motherboard, a quick installation guide, support CD, SATA data cables, and Wi-Fi antennas.



Image: ASRock B860M X WiFi 6E Motherboard packaging and included accessories, such as manuals, cables, and Wi-Fi antennas.

### 3. Motherboard Layout

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Familiarize yourself with the motherboard's layout to identify key components and connectors for proper installation.

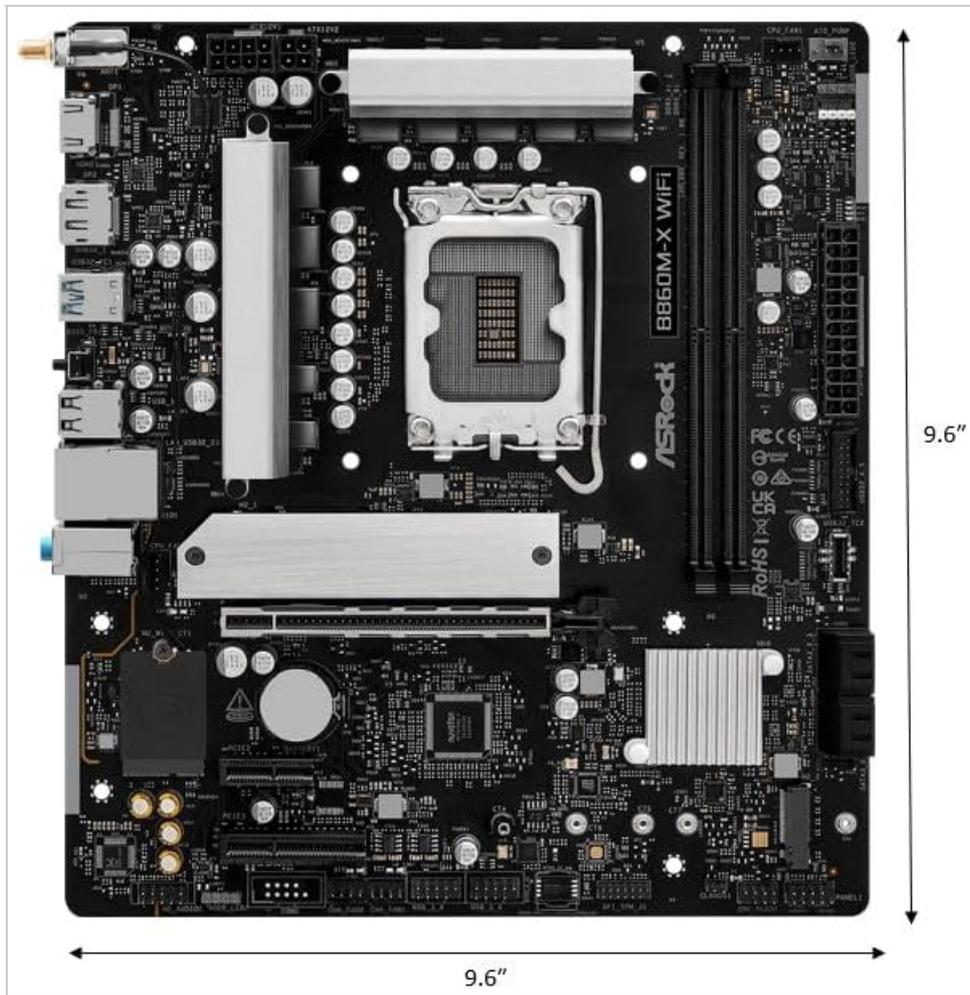


Image: Top-down view of the ASRock B860M X WiFi 6E Motherboard, showing the CPU socket, DIMM slots, PCIe slots, and various headers.

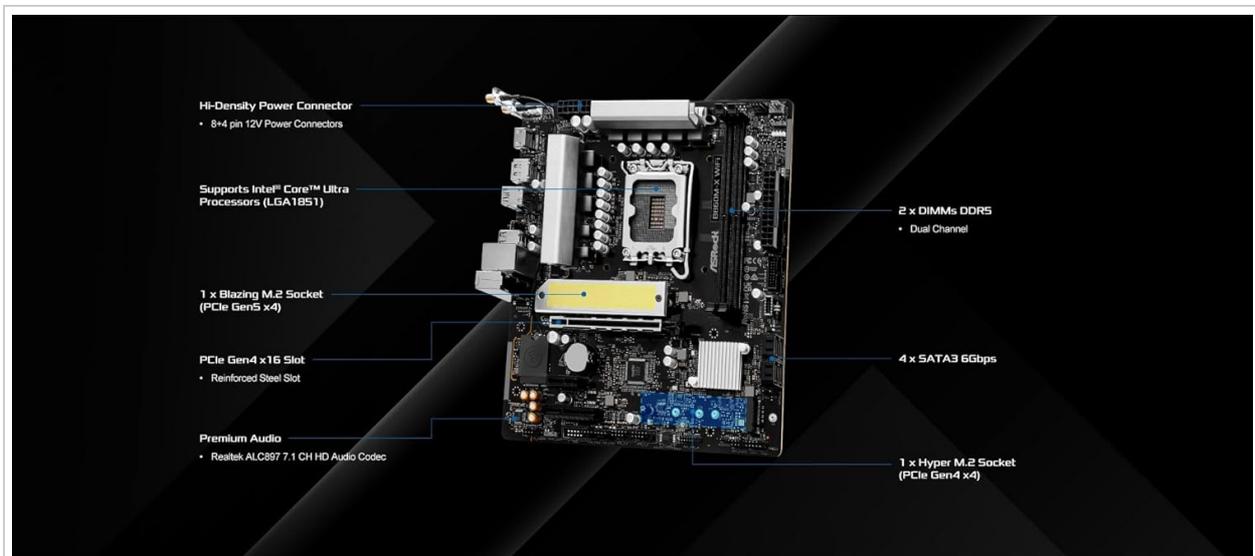


Image: Annotated diagram highlighting the CPU socket (LGA1851), DDR5 DIMM slots, Blazing M.2 (PCIe Gen5x4), Hyper M.2 (PCIe Gen4x4), and SATA3 6Gb/s ports.



Image: Annotated diagram showing the Aluminum VRM Heatsinks, M.2 Heatsink, Chipset Heatsink, and various fan connectors (CPU Fan, AIO Pump, Chassis Fan).



Image: Annotated diagram detailing the rear I/O panel with 802.11ax Wi-Fi 6E, HDMI & DisplayPort, USB 3.2 Gen2x2 Type-C, BIOS Flashback Button, 2.5Gbps LAN, and audio jacks, along with Addressable LED and RGB LED headers.

## 4. Setup and Installation

Follow these general steps for installing your motherboard and essential components. Always refer to the detailed instructions in your motherboard's physical manual for specific component placement and safety warnings.

### 4.1. CPU Installation

Carefully open the CPU socket retention arm. Align the triangular mark on your Intel Core Ultra (Series 2) processor with the mark on the LGA1851 socket. Gently place the CPU into the socket without forcing it. Close the retention arm to secure the CPU.

### 4.2. Memory (RAM) Installation

Unlock the DIMM slot clips. Align the notch on your DDR5 memory modules with the key in the DIMM slots. Press down firmly on both ends of the memory module until the clips snap into place. This motherboard supports dual-channel memory; refer to the manual for optimal slot population.

### 4.3. Storage (M.2 SSD, SATA Drives) Installation

For M.2 SSDs, locate the Blazing M.2 (PCIe Gen5x4) or Hyper M.2 (PCIe Gen4x4) slots. Remove the M.2 heatsink if present. Insert the M.2 SSD at an angle and secure it with the provided screw or standoff. Reattach the heatsink. For SATA drives, connect the SATA data cables to the motherboard's SATA3 6.0 Gb/s ports and to your storage devices. Connect SATA power cables from your power supply to the drives.

### 4.4. Expansion Card (GPU) Installation

Locate the PCIe 4.0 x16 slot. Open the retention clip at the end of the slot. Align your graphics card with the slot and press down firmly until it is fully seated and the retention clip locks. Secure the card to your chassis with screws. Connect any necessary PCIe power cables from your power supply to the graphics card.

### 4.5. Connecting Peripherals

Connect your monitor to the HDMI or DisplayPort on the rear I/O panel. Connect your keyboard, mouse, and other USB devices to the available USB ports. Attach the Wi-Fi antennas to the designated connectors on the rear I/O panel. Connect your Ethernet cable to the Realtek 2.5G LAN port if using a wired connection.

### 4.6. Powering On

Ensure all power cables (24-pin ATX, 8-pin CPU, PCIe power) are securely connected. Turn on your power supply's AC switch. Press the power button on your PC case. The system should initiate the boot process.

## 5. Operating and BIOS Configuration

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The BIOS (Basic Input/Output System) is firmware that initializes hardware during the booting process and provides runtime services for operating systems. You can access and configure various system settings here.

### 5.1. Accessing BIOS Setup

During system startup (POST), repeatedly press the **F2** or **Delete** key to enter the BIOS setup utility. Here you can configure boot order, overclocking settings (like DDR5 XMP/EXPO profiles), fan speeds, and other system parameters.

### 5.2. BIOS Update via USB BIOS Flashback

The BIOS Flashback feature allows you to update the BIOS without a CPU, RAM, or graphics card installed. This is useful for compatibility with newer CPUs.

Video: ASRock Motherboard BIOS Update Tutorial. This video demonstrates two methods for updating your ASRock motherboard's BIOS: USB BIOS Flashback and Instant Flash. It covers preparing a USB drive, downloading and renaming the BIOS file, inserting the USB into the designated port, and executing the update process.

1. **Prepare USB Drive:** Format a USB drive (at least 32GB) to FAT32 with 16KB allocation unit size.
2. **Download BIOS:** Download the latest BIOS from the official ASRock website. Extract the zip file and rename the BIOS ROM file to "CREATIVE.ROM". Copy this file to the root directory of your FAT32 formatted USB drive.
3. **Insert USB:** Turn off the system. Insert the USB drive into the designated USB BIOS Flashback port on the rear I/O panel (refer to your manual for exact location).
4. **Initiate Flash:** Turn on the power supply's AC switch (do not power on the system). Press and hold the USB BIOS Flashback button on the rear I/O for about 3 seconds until the LED light starts to blink.
5. **Completion:** Wait until the LED stops blinking, indicating the BIOS update is complete. This may take a

few minutes.

6. **Verify:** Turn on the system and enter BIOS setup (F2 or Delete) to verify the updated BIOS version.

### 5.3. BIOS Update via Instant Flash

Instant Flash is a BIOS update utility embedded in the BIOS ROM. It allows you to update the BIOS from a USB flash drive within the BIOS setup.

1. **Prepare USB Drive:** Format a USB drive (at least 32GB) to FAT32. Download the latest BIOS from the official ASRock website and copy the BIOS ROM file to the root directory of your USB drive.
2. **Insert USB & Boot:** Insert the USB drive into any USB port on the motherboard. Turn on the system and enter the BIOS setup utility (F2 or Delete).
3. **Access Instant Flash:** In the BIOS setup, navigate to the "Tool" menu and select "Instant Flash".
4. **Select BIOS File:** The utility will automatically detect the BIOS file on your USB drive. Select the appropriate BIOS version and confirm to proceed with the update.
5. **Completion:** Do not power off the system during the update. Once complete, the system will prompt you to reboot.
6. **Load Defaults:** After rebooting, enter the BIOS setup again. Go to the "Exit" menu, select "Load UEFI Defaults", and press "Yes" to continue. Then "Save Changes and Exit" to reboot with optimized settings.

## 6. Operating System Installation

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After successfully installing your hardware and configuring the BIOS, you can proceed with installing your preferred operating system (e.g., Windows 11). Insert your OS installation media (USB drive or DVD) and set it as the primary boot device in the BIOS. Follow the on-screen instructions to complete the OS installation.

## 7. Maintenance

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

- **Dust Removal:** Periodically clean dust from the motherboard and components using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **Cable Management:** Ensure cables are neatly routed to improve airflow and prevent interference.
- **BIOS Updates:** Keep your BIOS updated to benefit from performance improvements, bug fixes, and compatibility enhancements.
- **Driver Updates:** Install the latest drivers for your motherboard chipset, network, audio, and other components from the ASRock website.

## 8. Troubleshooting

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If you encounter issues, refer to these common troubleshooting steps.

- **No Power/No Boot:**
  - Check all power connections (24-pin ATX, 8-pin CPU, PCIe power).
  - Ensure the power supply is switched on.
  - Verify front panel header connections (power button).
- **No Display:**
  - Ensure the monitor is connected to the correct graphics output (dedicated GPU or motherboard I/O).

- Reseat the graphics card and memory modules.
- Test with a different monitor or cable.

- **System Instability/Crashes:**

- Check CPU and GPU temperatures.
- Ensure RAM is properly seated and compatible.
- Update BIOS and drivers.
- Run memory diagnostic tools.

- **Peripheral Not Detected:**

- Try a different USB port.
- Install or update relevant drivers.
- Check BIOS settings for USB port enablement.

## 9. Specifications

Feature	Specification
Brand	ASRock
Model Name	B860M-X WIFI
CPU Socket	LGA 1851
Compatible Processors	Intel Core Ultra (Series 2)
Chipset Type	Intel B860
RAM Memory Technology	DDR5
Memory Clock Speed	Up to 9066+ (OC) MHz
Ram Memory Maximum Size	128 GB
Memory Slots Available	2
Graphics Card Interface	Integrated, PCI Express
Total PCIe Ports	3 (1x PCIe 4.0 x16, 1x PCIe 4.0 x4, 1x PCIe 4.0 x1)
Total SATA Ports	4
M.2 Slots	1x Blazing M.2 (PCIe Gen5x4), 1x Hyper M.2 (PCIe Gen4x4)
Total USB Ports	13 (including 1x USB 3.2 Gen2x2 Type-C Rear, 1x USB 3.2 Gen1 Type-C Front)
Number of Ethernet Ports	1 (Realtek 2.5G LAN)
Wireless Connectivity	802.11axe Wi-Fi 6E + Bluetooth
Total Number of HDMI Ports	1

DisplayPort	1
Audio Codec	Realtek ALC897 7.1 CH HD Audio Codec
Form Factor	Micro ATX

## 10. Warranty and Support

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### 10.1. Warranty Information

This ASRock motherboard comes with a 3-year manufacturer's warranty. Please retain your proof of purchase for warranty claims. For detailed warranty terms and conditions, refer to the official ASRock website or the warranty card included in your package.

### 10.2. Technical Support

For any questions or technical assistance regarding your ASRock B860M X WiFi 6E motherboard, please contact ASRock USA support directly or through the Amazon platform where the product was purchased. You can also find additional resources, FAQs, and driver downloads on the official ASRock website.