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## ASRock 90-MXBN90-A0UAYZ

# ASRock B650 Steel Legend WiFi 6E ATX Motherboard User Manual

Model: 90-MXBN90-A0UAYZ

## 1. INTRODUCTION

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This manual provides comprehensive instructions for the installation, operation, and maintenance of your ASRock B650 Steel Legend WiFi 6E ATX Motherboard. Designed for AMD Socket AM5 Ryzen 9000, 8000, and 7000 Series Processors, this motherboard offers robust features for high-performance computing, including DDR5 memory support, PCIe 5.0, and WiFi 6E connectivity.



Figure 1: ASRock B650 Steel Legend WiFi 6E Motherboard, including its retail packaging, Wi-Fi antennas, and documentation.

## 2. SETUP AND INSTALLATION

### 2.1 Safety Precautions

- Always disconnect the power supply before installing or removing any components.
- Wear an anti-static wrist strap to prevent electrostatic discharge (ESD) damage to components.
- Handle components by their edges, avoiding contact with pins or circuitry.

### 2.2 Component Overview

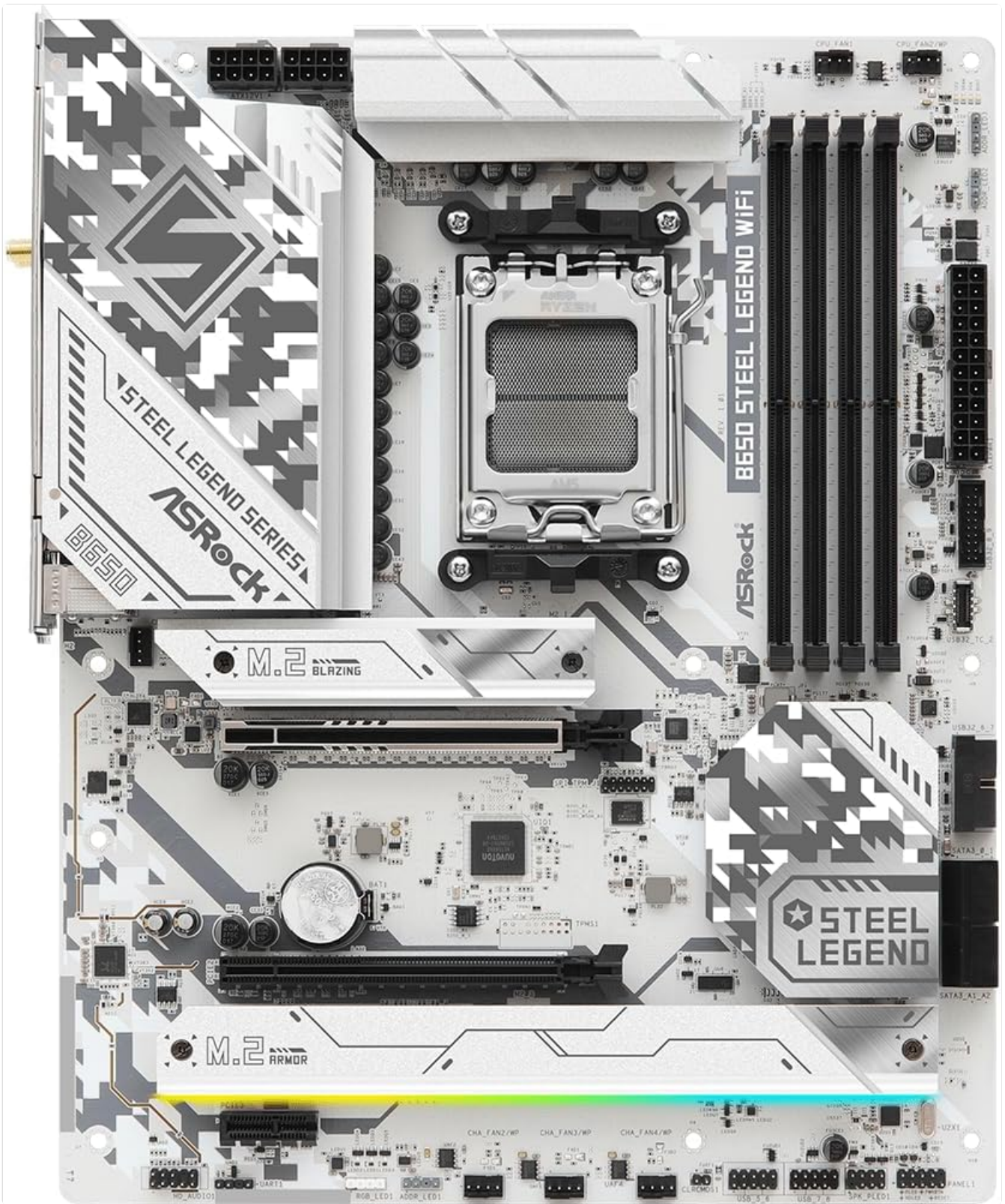


Figure 2: Top-down view of the ASRock B650 Steel Legend WiFi 6E Motherboard, showing the CPU socket, DDR5 DIMM slots, and M.2 slots.

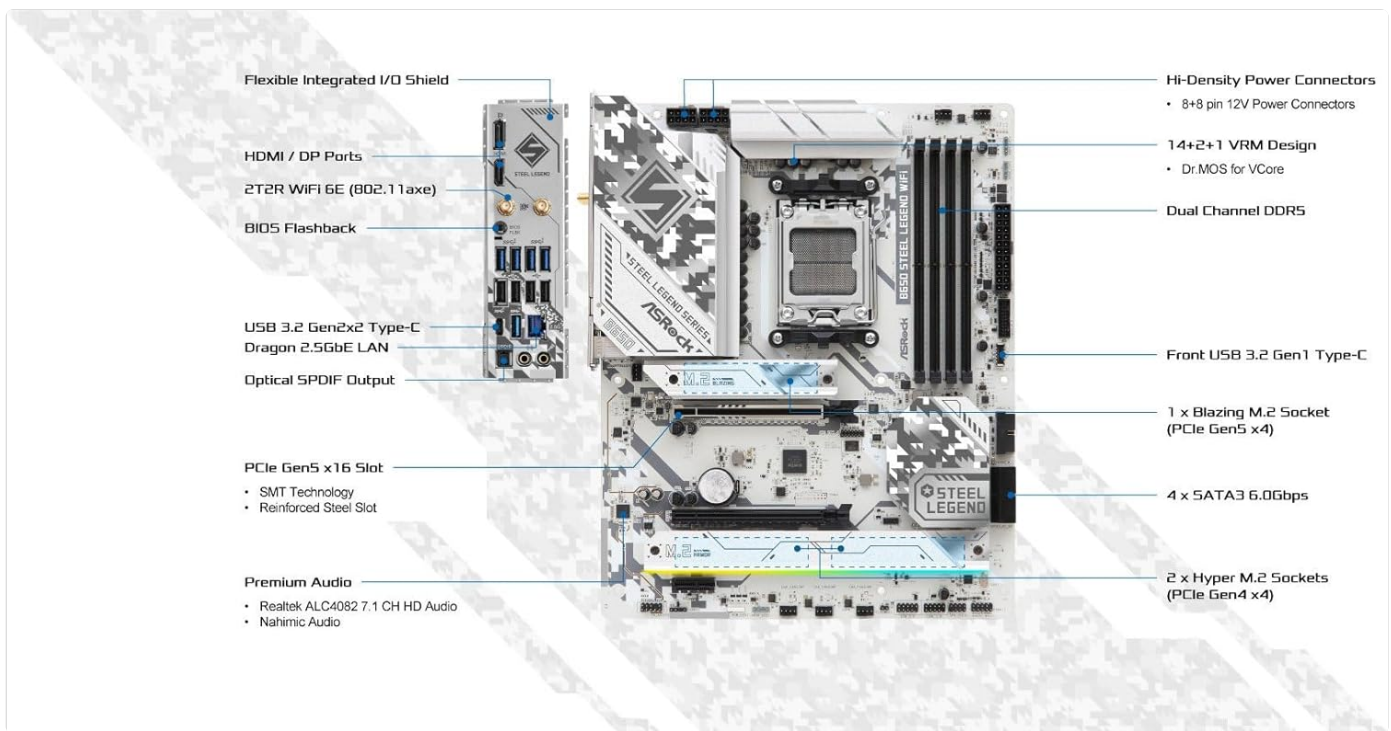


Figure 3: Detailed diagram highlighting the motherboard's rear I/O ports, power connectors, VRM design, DDR5 slots, PCIe slots, M.2 sockets, and audio features.

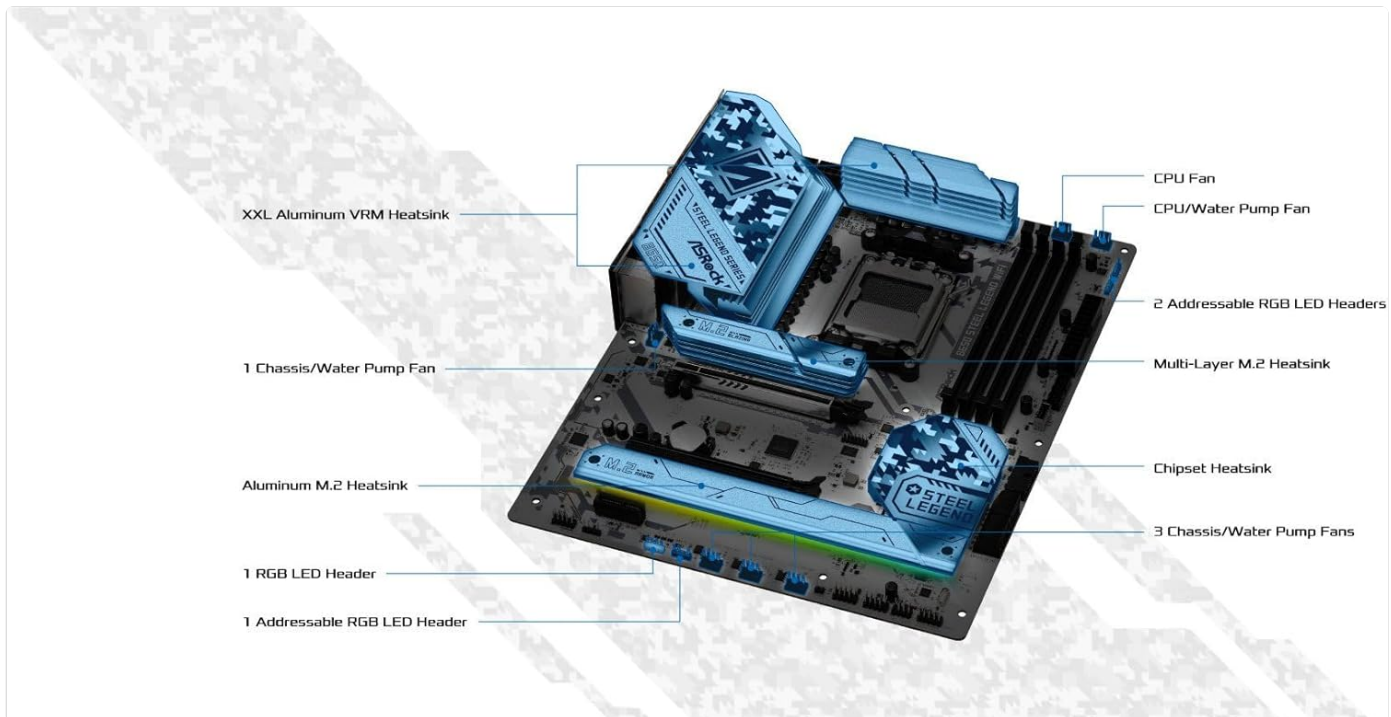


Figure 4: Diagram illustrating the placement of heatsinks (XXL Aluminum VRM, Multi-Layer M.2, Chipset) and various fan/pump headers on the motherboard.

## 2.3 Physical Installation Steps

- 1. Install CPU:** Open the CPU socket lever, align the CPU with the triangle marker, gently place it into the socket, and close the lever.
- 2. Install CPU Cooler:** Follow the cooler manufacturer's instructions for installation.
- 3. Install Memory (RAM):** Open the clips on both ends of the DDR5 DIMM slots. Align the memory module with the notch in the slot and press down firmly until the clips snap into place.
- 4. Install M.2 SSDs:** Locate the M.2 sockets. For Blazing M.2 (PCIe Gen5x4) and Hyper M.2 (PCIe Gen4x4), remove the heatsink, insert the M.2 SSD at an angle, and secure it with the provided screw or latch. Reattach the heatsink.
- 5. Install Graphics Card (GPU):** Insert the graphics card into the PCIe 5.0 x16 slot, ensuring it clicks into place. Secure it with a screw to the chassis.
- 6. Connect Power Supply:** Connect the 24-pin ATX power connector and the 8+8 pin 12V power connectors to the motherboard. Connect power to the graphics card if required.

7. **Connect Storage Drives:** Connect SATA drives to the SATA3 6.0 Gb/s ports.
8. **Connect Front Panel Cables:** Connect the power switch, reset switch, USB ports, and audio headers from your PC case to the corresponding pins on the motherboard.
9. **Install Wi-Fi Antennas:** Screw the included Wi-Fi antennas onto the connectors on the rear I/O panel.

## 3. OPERATING INSTRUCTIONS

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### 3.1 Initial Boot and BIOS/UEFI Setup

- Power on your system. Press **Del** or **F2** during startup to enter the BIOS/UEFI setup utility.
- Navigate through the BIOS/UEFI using your keyboard or mouse.
- Set the correct date and time.
- Configure boot order to prioritize your operating system drive.
- Enable XMP/EXPO for DDR5 memory to achieve advertised speeds (up to 7200+(OC)).
- Save changes and exit BIOS/UEFI.

### 3.2 Driver Installation

After installing your operating system (Windows 10 or Windows 11), install the necessary drivers for optimal performance. ASRock provides an Auto Driver Installer for convenience. Key drivers include:

- Chipset Drivers
- LAN Driver (Dragon 2.5G LAN)
- Wi-Fi Driver (802.11ax WiFi 6E)
- Audio Driver (Realtek ALC4082 7.1 CH HD Audio Codec, Nahimic Audio)
- Graphics Drivers (for integrated or discrete GPU)

## 4. MAINTENANCE

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- **Cleaning:** Regularly clean dust from the motherboard and components using compressed air. Ensure the system is powered off and unplugged.
- **BIOS Updates:** Check the ASRock website for the latest BIOS/UEFI updates. BIOS Flashback feature allows updating BIOS without a CPU, RAM, or GPU installed. Follow the specific instructions provided by ASRock for BIOS updates carefully.
- **Software Updates:** Keep all drivers and operating system software updated to ensure stability and security.

## 5. TROUBLESHOOTING

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Problem	Possible Cause	Solution
System does not power on.	Loose power connections, faulty PSU, incorrect front panel wiring.	Check all power cables (24-pin, 8+8 pin CPU, GPU). Verify front panel power switch connection. Test PSU.
No display output (no POST).	Incorrectly seated RAM/GPU, faulty component, BIOS issue.	Reseat RAM modules (try one at a time). Reseat graphics card. Clear CMOS. Use BIOS Flashback if necessary.
Operating system not detected.	Incorrect boot order, faulty storage drive, OS corruption.	Check boot order in BIOS/UEFI. Verify storage drive connections. Reinstall OS if necessary.
Network connectivity issues.	Missing/outdated LAN/WiFi drivers, faulty cable/antenna.	Install/update LAN/WiFi drivers. Ensure Wi-Fi antennas are securely attached. Check Ethernet cable.

## 6. SPECIFICATIONS

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- **CPU Socket:** AMD Socket AM5
- **Compatible Processors:** AMD Ryzen 9000, 8000, and 7000 Series Processors
- **Chipset:** AMD B650
- **Power Phase:** 14+2+1 Power Phase, 80A Dr.MOS for Vcore
- **Memory:** 4 x DDR5 DIMMs, Supports Dual Channel, up to 7200+(OC)
- **PCIe Slots:**
  - 1 x PCIe 5.0 x16
  - 1 x PCIe 3.0 x16
  - 1 x PCIe 4.0 x1
- **Graphics Output:** 1 x HDMI, 1 x DisplayPort
- **Audio:** Realtek ALC4082 7.1 CH HD Audio Codec, Nahimic Audio
- **Storage:**
  - 4 x SATA3 6.0 Gb/s
  - 1 x Blazing M.2 (PCIe Gen5x4)
  - 2 x Hyper M.2 (PCIe Gen4x4)
- **USB Ports:**
  - 1 x USB 3.2 Gen2x2 Type-C (Rear)
  - 1 x USB 3.2 Gen1 Type-C (Front)
  - 1 x USB 3.2 Gen2 Type-A (Rear)
  - 8 x USB 3.2 Gen1 Type-A (4 Rear, 4 Front)
  - 8 x USB 2.0 (4 Rear, 4 Front)
- **LAN:** Dragon 2.5G LAN
- **Wireless:** 802.11ax WiFi 6E + Bluetooth
- **Form Factor:** ATX
- **Special Features:** ASRock Auto Driver Installer, BIOS Flashback
- **Dimensions:** 3.94 x 1.97 x 0.5 inches (Product Dimensions)
- **Item Weight:** 2.2 pounds
- **Compatible OS:** Windows 10, Windows 11

## 7. WARRANTY AND SUPPORT

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### 7.1 Warranty Information

This ASRock motherboard comes with a manufacturer's warranty. Please refer to the warranty card included in your product packaging or visit the official ASRock website for detailed warranty terms and conditions specific to your region.

### 7.2 Technical Support

For technical assistance, driver downloads, BIOS updates, or further inquiries, please visit the official ASRock support website or contact ASRock customer service. You may also refer to the [User Manual \(PDF\)](#) or [Installation Manual \(PDF\)](#) provided by ASRock.

If you have questions about the product purchased on Amazon, you may contact the seller, ASRock USA, through the Amazon platform.