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ASRock B860 Steel Legend WiFi

ASRock B860 Steel Legend WiFi 6E Motherboard User Manual

Model: B860 Steel Legend WiFi

Brand: ASRock

1. Introduction

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of the ASRock B860 Steel Legend WiFi 6E motherboard. Designed for Intel Core Ultra (Series 2) processors with an LGA 1851 socket, this ATX motherboard supports DDR5 memory and features advanced connectivity and power delivery. Please read this manual thoroughly before proceeding with installation and usage.



Figure 1: ASRock B860 Steel Legend WiFi 6E Motherboard and packaging.

2. Package Contents

Verify that all components are present in the package before beginning installation. The standard package should include:

- ASRock B860 Steel Legend WiFi 6E Motherboard
- WiFi Antennas (2x)
- SATA Data Cables
- M.2 Screws/Standoffs
- Quick Installation Guide
- Regulatory Notice
- ASRock Sticker



Figure 2: Motherboard and included accessories.

3. Setup and Installation

Follow these steps carefully to install your ASRock B860 Steel Legend WiFi 6E motherboard and its components. Ensure your system is powered off and unplugged before handling any internal components.

3.1 Motherboard Layout Overview

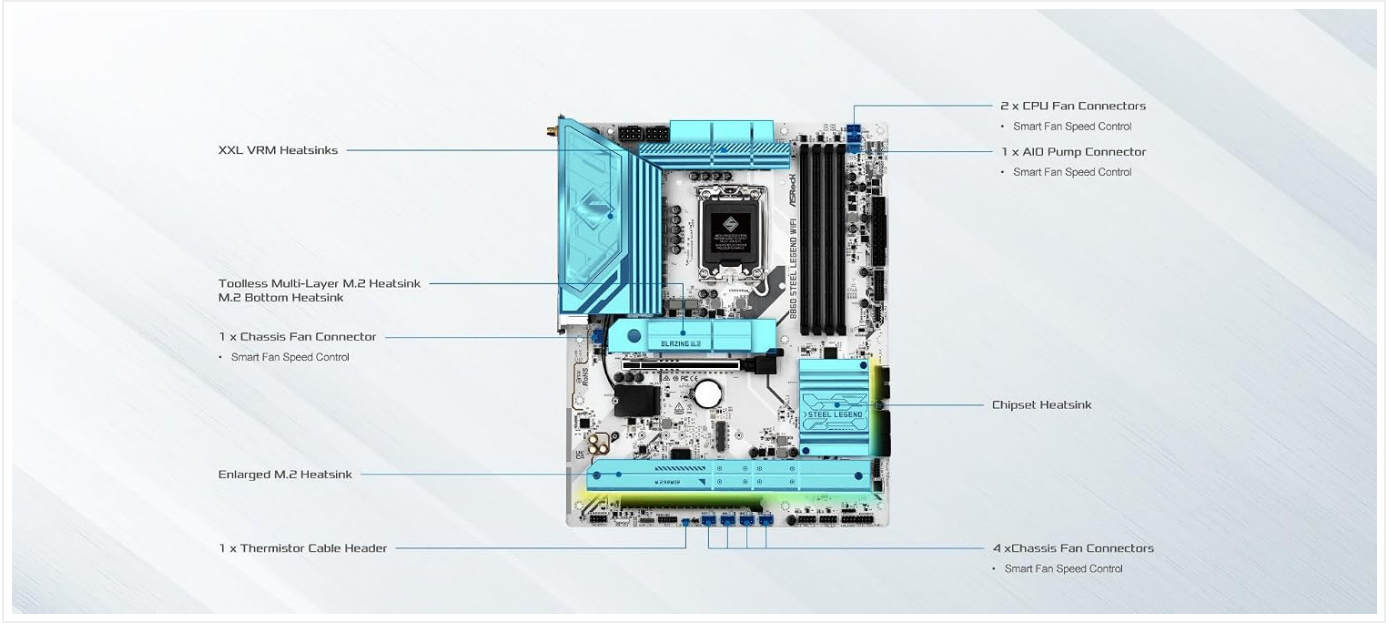


Figure 3: Key components and connectors on the motherboard.

Familiarize yourself with the motherboard's layout, including the CPU socket, DIMM slots, PCIe slots, M.2 slots, and various headers.

3.2 CPU Installation (LGA 1851)

1. Locate the LGA 1851 CPU socket on the motherboard.
2. Gently push down the load lever and pull it away from the socket to open the CPU retention frame.
3. Carefully align the notches on your Intel Core Ultra (Series 2) processor with the keys on the socket. Ensure the CPU is oriented correctly.
4. Place the CPU into the socket without applying force. It should sit flush.
5. Close the retention frame and push the load lever back into its locked position.
6. Install your CPU cooler according to its manufacturer's instructions.

3.3 Memory (DDR5 DIMM) Installation

1. Locate the four DDR5 DIMM slots. For dual-channel operation, refer to the motherboard manual for recommended slot population (usually A2 and B2 first).
2. Open the clips at both ends of the DIMM slot.
3. Align the notch on the DDR5 memory module with the key in the DIMM slot.
4. Insert the memory module firmly into the slot until the clips snap into place. Ensure both clips are closed.

3.4 Storage Device Installation

M.2 SSDs:

1. Identify the Blazing M.2 (PCIe Gen5x4), Hyper M.2 (PCIe Gen4x4), and M.2 (PCIe Gen4x2) slots.
2. Remove the Toolless Multi-Layer M.2 Heatsink if present over the desired slot.
3. Insert the M.2 SSD into the slot at an angle.
4. Gently push down the SSD and secure it with the provided M.2 screw or standoff.
5. Reattach the M.2 heatsink for optimal thermal performance.

SATA Drives:

1. Connect one end of a SATA data cable to a SATA3 6.0 Gb/s port on the motherboard.
2. Connect the other end of the SATA data cable to your SATA HDD/SSD.

3. Connect a SATA power cable from your power supply to the SATA HDD/SSD.

3.5 PCIe Card Installation

1. Locate the PCIe 5.0 x16 slot for your graphics card and other PCIe slots.
2. Remove the corresponding expansion slot cover from your PC case.
3. Align your PCIe card with the slot and press down firmly until it is seated. The Lite Release Design feature assists with easier GPU installation.
4. Secure the card to the case with a screw.

3.6 Power Connections

- Connect the 24-pin ATX power connector from your power supply to the main ATX power socket on the motherboard.
- Connect the 8-pin and 4-pin (or 2x 8-pin) CPU power connectors from your power supply to the corresponding sockets near the CPU.

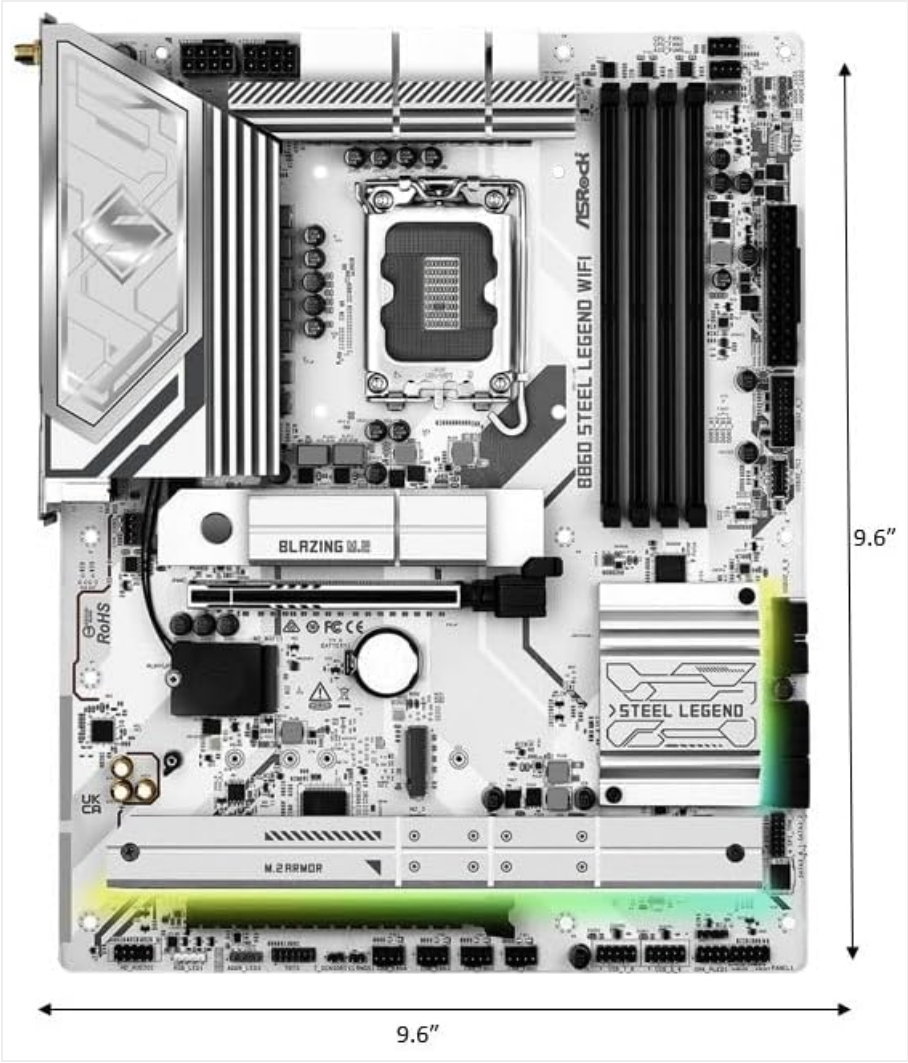


Figure 4: Illustration of the 14+1+1 Power Phase Design and Hi-Density Power Connectors.

3.7 Front Panel and I/O Connections

- Connect your case's front panel headers (power button, reset button, HDD LED, power LED) to the corresponding pins on the motherboard. Refer to the motherboard manual for exact pin assignments.
- Connect front panel USB headers (USB 3.2 Gen1, USB 2.0, USB 3.2 Gen2x2 Type-C) to the motherboard.
- Connect front panel audio headers.
- Install the included WiFi antennas to the rear I/O panel connectors.

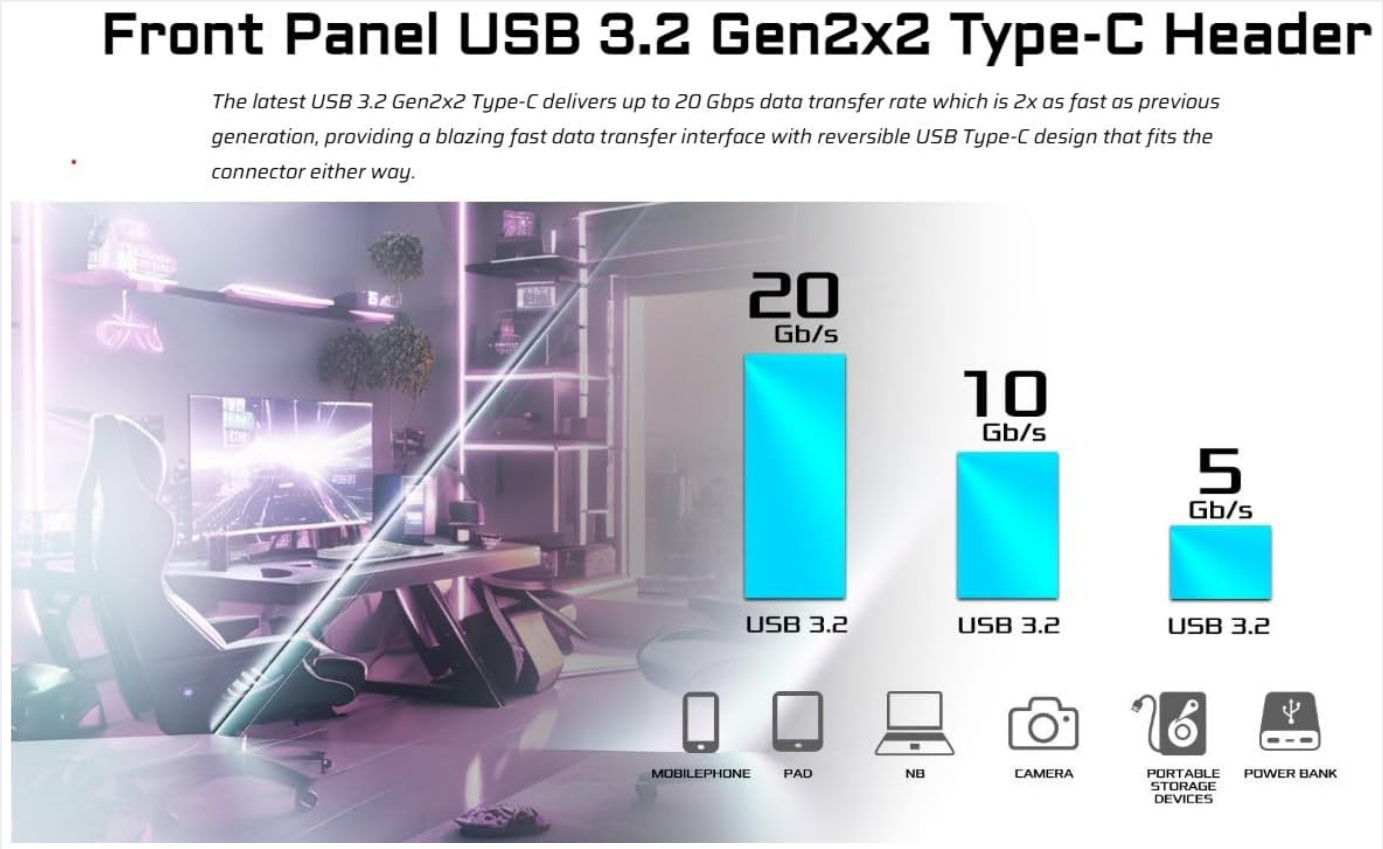


Figure 5: Rear I/O Panel with various ports and connectors.

4. Operating Instructions

This section details the key features and functionalities of your ASRock B860 Steel Legend WiFi 6E motherboard.

4.1 BIOS/UEFI Setup

Upon first boot, press **DEL** or **F2** during the POST screen to enter the UEFI Setup Utility. Here you can configure system settings, boot order, overclocking parameters, and monitor hardware status.

BIOS Flashback:

The motherboard supports BIOS Flashback, allowing you to update the BIOS without a CPU, RAM, or graphics card installed. Refer to the ASRock website for detailed instructions on using this feature.

4.2 Connectivity

- **Networking:** Integrated Realtek 2.5G LAN provides high-speed wired network access. The Intel WiFi 6E (802.11axe) module offers advanced wireless connectivity with Bluetooth support.
- **USB Ports:**
  - Rear: 1x Thunderbolt 4 Type-C, 2x USB 3.2 Gen2, 4x USB 3.2 Gen1, 3x USB 2.0.
  - Front Panel Headers: 1x USB 3.2 Gen2x2 Type-C (20Gbps), 4x USB 3.2 Gen1, 4x USB 2.0.
- **Display Outputs:** HDMI, DisplayPort, and Thunderbolt 4 Type-C ports are available for connecting displays.

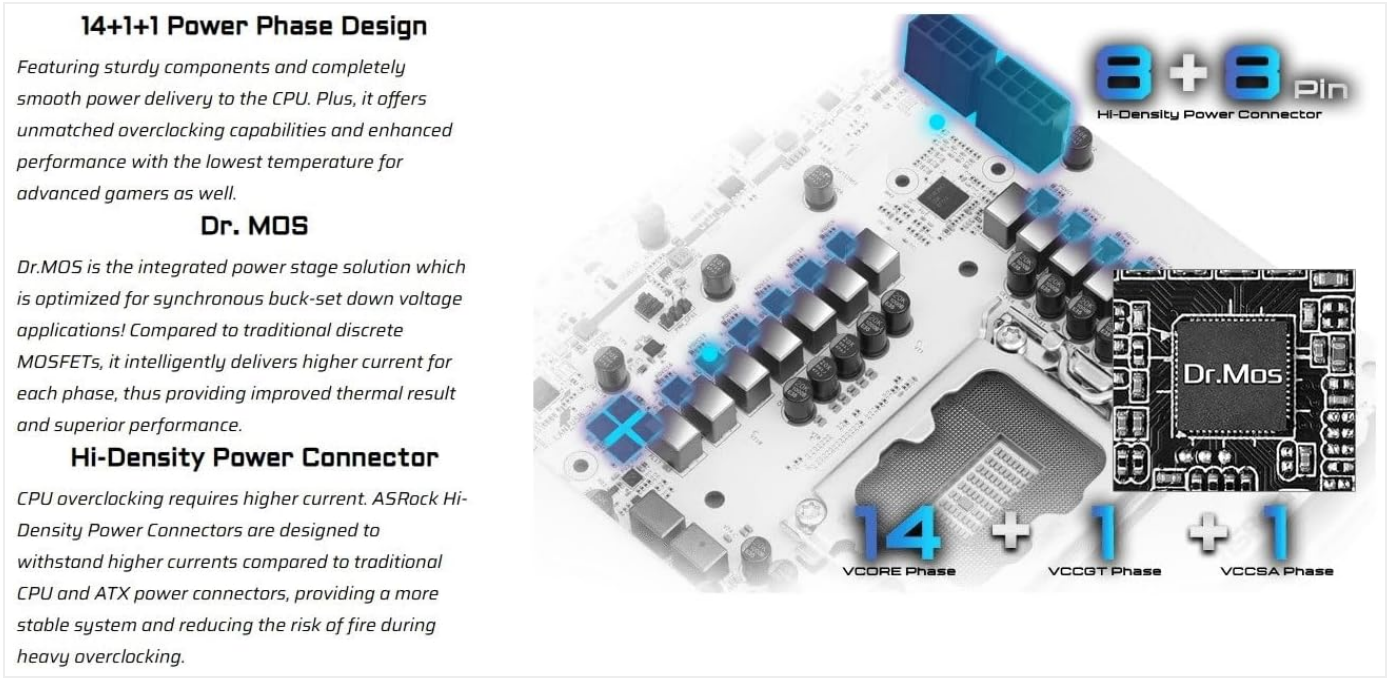


Figure 6: Data transfer speed comparison for USB 3.2 generations, highlighting the 20Gbps capability of USB 3.2 Gen2x2.

4.3 Audio

The Realtek ALC1220 7.1 CH HD Audio Codec, combined with Nahimic Audio technology, provides an immersive audio experience for gaming and multimedia.

4.4 Cooling Features

The motherboard incorporates several cooling solutions to maintain optimal temperatures:

- **XXL VRM Heatsinks:** Designed to dissipate heat from the voltage regulator modules.
- **Toolless Multi-Layer M.2 Heatsink:** Provides effective cooling for high-speed M.2 SSDs.
- **Fan Headers:** Multiple fan headers (CPU Fan, AIO Pump, Chassis Fan) with Smart Fan Speed Control allow for comprehensive system cooling management.

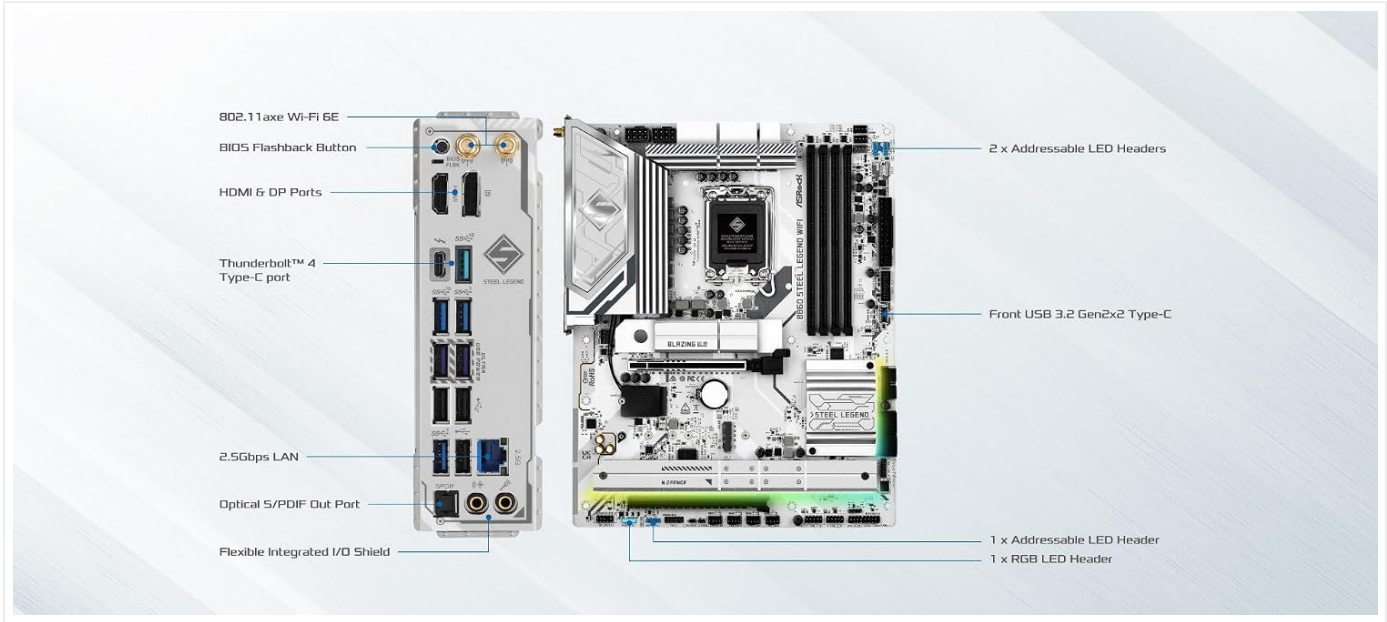


Figure 7: Overview of the motherboard's cooling components.

5. Maintenance

Proper maintenance ensures the longevity and stable operation of your motherboard.

- **Dust Removal:** Regularly clean dust from inside your PC case, especially from heatsinks and fans, using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **BIOS Updates:** Periodically check the ASRock official website for the latest BIOS updates. BIOS updates can improve system stability, compatibility, and performance. Follow the instructions provided by ASRock carefully when updating the BIOS.
- **Driver Updates:** Keep your chipset, network, audio, and other drivers updated to ensure optimal performance and compatibility with your operating system and peripherals.

6. Troubleshooting

This section provides solutions to common issues you might encounter.

- **No Power/No POST:**
  - Check all power connections (24-pin ATX, 8-pin/4-pin CPU power) to the motherboard and power supply.
  - Ensure the CPU, RAM, and graphics card are properly seated.
  - Try booting with only essential components (CPU, one RAM stick, graphics card if no integrated graphics).
  - Clear CMOS by removing the CMOS battery for a few minutes or using the clear CMOS jumper (refer to the full manual for location).
- **No Display:**
  - Verify that your monitor is connected to the correct display output (either on the graphics card or motherboard if using integrated graphics).
  - Ensure the graphics card is fully seated in its PCIe slot and has adequate power connected.
  - Test with a different display cable or monitor if possible.
- **Network Connectivity Issues:**
  - **Wired LAN:** Check the Ethernet cable connection. Ensure LAN drivers are installed.
  - **WiFi:** Ensure WiFi antennas are securely attached. Install the latest WiFi drivers. Check router settings.
- **M.2 SSD Not Detected:**
  - Ensure the M.2 SSD is correctly seated and secured.
  - Check BIOS/UEFI settings to ensure the M.2 slot is enabled and configured correctly.
  - Some M.2 slots may share bandwidth with SATA ports; check the full manual for potential conflicts.

7. Specifications

Key technical specifications for the ASRock B860 Steel Legend WiFi 6E motherboard:

Feature	Specification
Brand	ASRock
Model Name	B860 Steel Legend WiFi
CPU Socket	LGA 1851
Compatible Processors	Intel Core Ultra (Series 2)

Feature	Specification
Chipset Type	Intel B860
RAM Memory Technology	DDR5
Memory Clock Speed	Up to 8666+ MHz (OC)
Memory Storage Capacity (Max)	256 GB
Graphics Output Options	1x HDMI, 1x DisplayPort, 1x Thunderbolt 4 Type-C
Storage Interfaces	1x Blazing M.2 (PCIe Gen5x4), 2x Hyper M.2 (PCIe Gen4x4), 1x M.2 (PCIe Gen4x2), 4x SATA3
USB Ports (Rear)	1x Thunderbolt 4 Type-C, 2x USB 3.2 Gen2, 4x USB 3.2 Gen1, 3x USB 2.0
USB Ports (Front Headers)	1x USB 3.2 Gen2x2 Type-C, 4x USB 3.2 Gen1, 4x USB 2.0
LAN	Realtek 2.5G LAN
Wireless Connectivity	802.11axe Wi-Fi 6E + Bluetooth
Audio Codec	Realtek ALC1220 7.1 CH HD Audio Codec, Nahimic Audio
Form Factor	ATX
Dimensions	13.78 x 11.18 x 3.03 inches (Package)
Item Weight	4.22 pounds

8. Warranty and Support

For warranty information and technical support, please refer to the official ASRock website or contact ASRock customer service directly. Warranty terms and conditions may vary by region and retailer.
Official ASRock Website: www.asrock.com
For product-related inquiries, you may also contact the seller on Amazon.

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