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> ASUS Z890 AYW Gaming WiFi W Motherboard User Manual

## ASUS Z890 AYW GAMING WIFI W

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Model: Z890 AYW GAMING WIFI W

## 1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your ASUS Z890 AYW Gaming WiFi W ATX Motherboard. Designed for Intel Core Ultra Series 2 processors, this motherboard offers advanced features and robust performance for gaming and demanding applications. Please read this manual thoroughly before proceeding with installation to ensure proper setup and optimal performance.



Image 1.1: Overview of the ASUS Z890 AYW Gaming WiFi W Motherboard, highlighting its design and key features.

## 2. PRODUCT FEATURES

The ASUS Z890 AYW Gaming WiFi W Motherboard incorporates several advanced features to enhance your computing experience:

- **Ready for Advanced AI PCs:** Engineered to support future AI computing demands, providing necessary power and connectivity.
- **Intel LGA 1851 Socket:** Compatible with Intel Core Ultra Processors (Series 2).
- **Robust Power Solution:** Features 12+1+2+1 80A DrMOS power stages with ProCool power connectors, a 6-layer PCB, alloy chokes, and durable capacitors for stable power delivery.
- **Next-gen Connectivity:** Supports DDR5 memory, Wi-Fi 6, PCIe 5.0, rear USB 20Gbps Type-C, front panel USB 20Gbps Type-C with up to 30W PD/PPS Fast-charge and USB Wattage Watcher, and Thunderbolt (USB4) header support.
- **Optimized Thermal Design:** Includes large VRM heatsinks, M.2 and PCH heatsinks, hybrid fan headers, and Fan Xpert 4 with AI Cooling II for efficient heat dissipation.
- **Latest M.2 Support:** One onboard PCIe 5.0 M.2 slot and three PCIe 4.0 M.2 slots, all equipped with cooling solutions.
- **DIY Friendly Design:** Features like PCIe Slot Q-Release, M.2 Q-Latch, Q-Dashboard, Q-LED, BIOS FlashBack button, BIOS FlashBack LED, and a pre-mounted I/O shield simplify the building process.
- **Unmatched Personalization:** Three Addressable Gen 2 headers, configurable with ASUS-exclusive Aura Sync RGB lighting.
- **Renowned Software:** Comes with ASUS DriverHub, ASUS MyHotkey, TurboV Core, and ASUS GlideX for enhanced control and utility.

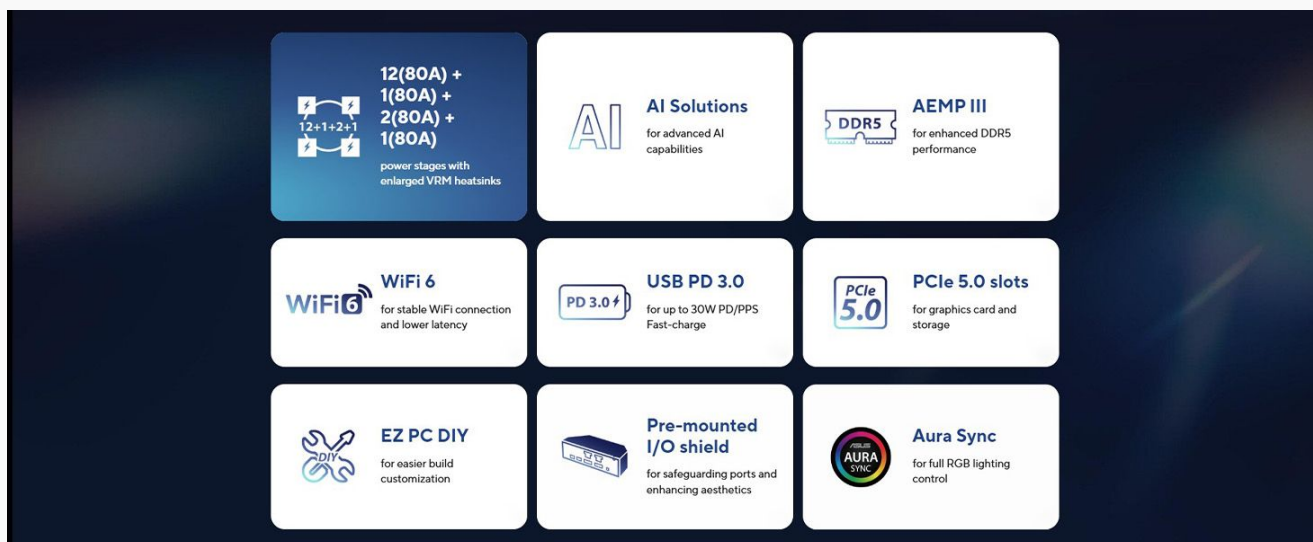


Image 2.1: Visual representation of key features including power stages, AI solutions, DDR5, Wi-Fi 6, PCIe 5.0, and DIY-friendly design.

### 3. SETUP GUIDE

Follow these steps for proper installation of your motherboard components.

#### 3.1. CPU Installation (LGA 1851)

1. Carefully open the CPU socket lever.
2. Align the notches on your Intel Core Ultra Series 2 processor with the socket.
3. Gently place the CPU into the socket without forcing it.
4. Close the socket lever to secure the CPU.

#### 3.2. Memory Installation (DDR5)

1. Open the clips on both ends of the DDR5 memory slots.
2. Align the notch on the DDR5 memory module with the key in the slot.
3. Press down firmly on both ends of the memory module until the clips snap into place.

### 3.3. Storage Installation (M.2, SATA)

The motherboard supports one PCIe 5.0 M.2 slot and three PCIe 4.0 M.2 slots, along with four SATA ports.

- **M.2 SSD:** Insert the M.2 SSD into the designated slot and secure it with the M.2 Q-Latch mechanism.
- **SATA Drives:** Connect SATA data cables to the SATA ports on the motherboard and to your storage drives. Ensure power cables are also connected to the drives.

### 3.4. Expansion Card Installation (PCIe 5.0)

1. Locate the PCIe 5.0 x16 slot for your graphics card.
2. Align your expansion card with the slot and press down firmly until it is seated correctly.
3. Utilize the PCIe Slot Q-Release for easy removal if needed.

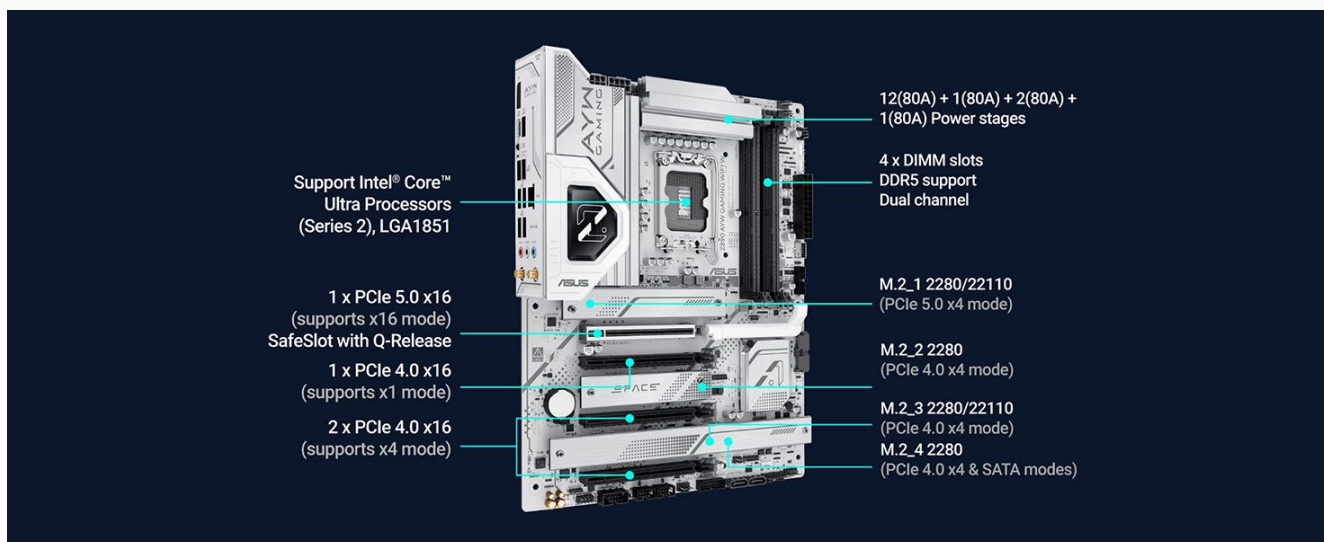


Image 3.1: Detailed layout of the motherboard, indicating CPU socket, DDR5 slots, M.2 slots, and PCIe slots.

### 3.5. Power Connections

- Connect the 24-pin ATX power connector from your power supply to the motherboard.
- Connect the 8-pin and 4-pin (or 8-pin only, depending on your PSU) CPU power connectors to the motherboard.

### 3.6. Front Panel and Rear I/O Connections

- Connect your case's front panel connectors (power button, reset button, USB, audio) to the corresponding headers on the motherboard. Refer to the motherboard diagram for exact locations.
- Connect peripherals to the pre-mounted rear I/O shield ports, including USB, Ethernet, Wi-Fi antenna, and audio jacks.

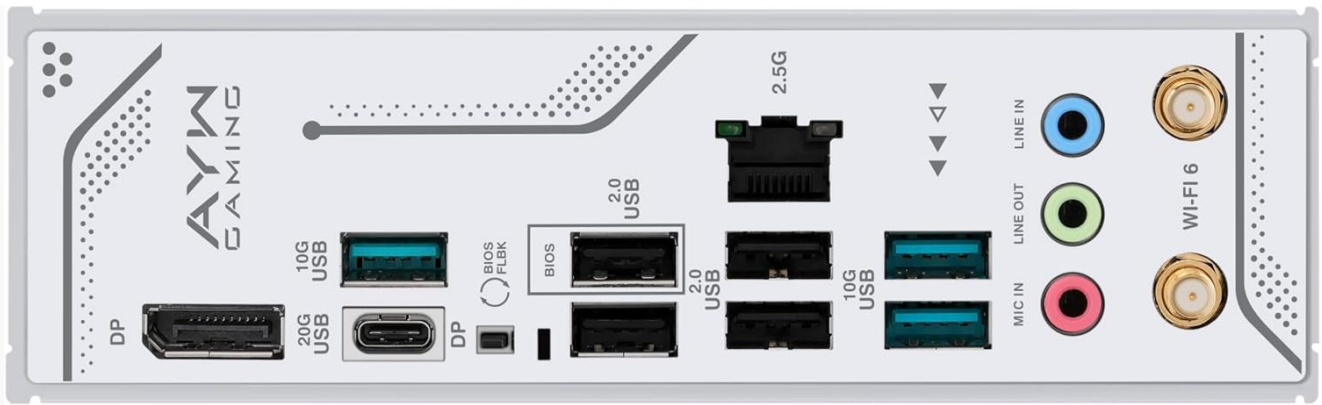


Image 3.2: Close-up view of the rear I/O panel, showing various connectivity options including USB, DisplayPort, HDMI, Ethernet, and Wi-Fi antenna connectors.

## 4. OPERATING INSTRUCTIONS

### 4.1. Initial Boot and BIOS Setup

1. After assembling your PC, connect a monitor, keyboard, and mouse.
2. Power on your system. Press the **DEL** key or **F2** key during startup to enter the BIOS/UEFI setup utility.
3. Configure boot order, system time, and other essential settings. Save changes and exit.

### 4.2. Driver Installation

Install all necessary drivers for your motherboard components, including chipset, audio, LAN, and Wi-Fi drivers. These can be found on the ASUS support website or via the included ASUS DriverHub software.

### 4.3. Software Utilities

Utilize ASUS software for system optimization and monitoring:

- **Armoury Crate:** Centralized software for managing Aura Sync RGB lighting, fan profiles, and system information.
- **AI Cooling II:** Optimizes thermal performance and reduces noise by dynamically adjusting fan speeds based on CPU temperatures.
- **AI Advisor:** Provides insights and recommendations for PC performance optimization.



Image 4.1: Illustration of ASUS AI Solutions, including AI Advisor and AI Cooling II, designed for automated

## 5. MAINTENANCE

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### 5.1. Cleaning

Regularly clean your PC to prevent dust buildup, which can affect cooling and performance. Use compressed air to clear dust from heatsinks, fans, and other components. Ensure the system is powered off and unplugged before cleaning.

### 5.2. BIOS Updates

Periodically check the ASUS support website for BIOS updates. BIOS updates can improve system stability, compatibility, and performance. Use the BIOS FlashBack feature for convenient updates without a CPU or memory installed.

### 5.3. Driver Updates

Keep your drivers updated to ensure optimal performance and compatibility with new hardware and software. Use ASUS DriverHub or visit the ASUS support website for the latest drivers.

## 6. TROUBLESHOOTING

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This section addresses common issues you might encounter.

### 6.1. No Boot / No Display

- **Check Power Connections:** Ensure all power cables (24-pin ATX, 8-pin CPU, GPU power) are securely connected.
- **Reseat Components:** Reinstall CPU, RAM, and graphics card to ensure they are properly seated.
- **Q-LED Indicators:** Observe the Q-LEDs on the motherboard. These LEDs indicate the status of key components (CPU, DRAM, VGA, BOOT) during startup and can help pinpoint the source of an issue.
- **Test with Minimal Components:** Remove all non-essential components (extra drives, expansion cards) and try booting with only CPU, one RAM stick, and GPU.

### 6.2. Connectivity Issues (Wi-Fi/LAN)

- **Driver Installation:** Verify that the latest Wi-Fi and LAN drivers are installed.
- **Antenna Connection:** Ensure the Wi-Fi antenna is securely connected to the rear I/O panel.
- **Cable Check:** For LAN, ensure the Ethernet cable is properly connected to both the motherboard and the router/modem.

### 6.3. BIOS FlashBack

If your system fails to boot after a BIOS update or if you need to update the BIOS for a new CPU, use the BIOS FlashBack feature. Insert a USB drive with the renamed BIOS file into the designated BIOS FlashBack USB port and press the BIOS FlashBack button. Refer to the motherboard manual for detailed instructions on using this feature.

## 7. SPECIFICATIONS

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Feature	Specification
Brand	ASUS
Model Name	Z890 AYW GAMING WIFI W
CPU Socket	LGA 1851
Compatible Processors	Intel® Core™ Ultra processors (Series 2)
Chipset Type	INTEL Z890
RAM Memory Technology	DDR5
Memory Slots Available	4
Memory Storage Capacity (Max)	192 GB
Graphics Card Interface	PCI Express
Total PCIe Ports	4
Total M.2 Slots	4 (1x PCIe 5.0, 3x PCIe 4.0)
Total SATA Ports	4
Total USB Ports	17 (various types, including USB 20Gbps Type-C)
Number of Ethernet Ports	1 (2.5Gb LAN)
Wireless Connectivity	Wi-Fi 7
Main Power Connector Type	24-Pin
Platform	Windows 11
Manufacturer	ASUS
UPC	197105752115

## 8. WARRANTY AND SUPPORT

Your ASUS Z890 AYW Gaming WiFi W Motherboard comes with a **3-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use.

For technical support, driver downloads, and further information, please visit the official ASUS support website. You can also find FAQs and troubleshooting guides there.

Please retain your proof of purchase for warranty claims.