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GIGABYTE Z890 EAGLE WIFI7

GIGABYTE Z890 Eagle WIFI7 Motherboard Instruction Manual

Model: Z890 EAGLE WIFI7

Brand: GIGABYTE

1. PRODUCT OVERVIEW

The GIGABYTE Z890 Eagle WIFI7 is a standard ATX motherboard designed to support Intel Core Ultra Processors (Series 2) with an LGA 1851 socket. It features a black PCB with gunmetal or dark gray accents, offering a sleek and modern aesthetic. This motherboard is engineered for high performance, incorporating advanced power delivery, thermal management, and extensive connectivity options.



Figure 1: Top-down view of the GIGABYTE Z890 Eagle WiFi7 Motherboard.

2. SETUP AND INSTALLATION

2.1 CPU Installation

The motherboard features Intel's new LGA 1851 socket. This socket has the same dimensions and center-to-center distance for mounting holes as LGA 1700, meaning your existing LGA 1700 compatible CPU coolers will work.



Figure 2: Close-up of the LGA 1851 CPU socket on the motherboard.

2.2 RAM Installation

The board includes four DDR5 DIMM slots, supporting up to 256GB of DDR5 9200 memory. Ensure RAM modules are correctly aligned and seated firmly into the slots until the clips engage.

2.3 M.2 SSD Installation

The motherboard provides three M.2 slots, all supporting PCIe Express 4.0. The bottom slot also supports SATA M.2 drives. All M.2 slots utilize Gigabyte's EZ-Latch Click system for tool-less installation and removal. Simply insert the M.2 drive and press it down until it clicks into place. To remove, press the latch and the drive will pop out.

2.4 PCIe Expansion Cards

There are three PCI Express X16 slots. The top slot is PCI Express 5.0 and runs at X16 speed, while the bottom two are PCI Express 4.0 and run at X4 speed. The top slot is metal-reinforced, referred to as PCIE UD Slot X, offering 10 times load-bearing capacity and a zinc alloy design. For graphics card removal, a dedicated button on the board allows for easy release of the graphics card slot, simplifying the process, especially with large coolers or M.2 heatsinks.

3. CONNECTIVITY

3.1 Rear I/O Panel

The rear I/O panel features an integrated I/O shield and includes the following connections:

- 4 x USB 2.0 ports
- 2 x USB 3.2 Gen 2 ports
- 1 x DisplayPort
- 1 x USB4 Type-C port (supports DisplayPort Alt Mode)
- 3 x USB 3.2 Gen 1 ports
- 1 x 2.5GbE LAN port
- Wi-Fi Easy Plug for antenna connection
- Audio connections (Line In, Line Out, Mic)



Figure 3: Rear I/O panel with various connectivity options.

3.2 Internal Headers

Key internal headers include:

- 24-pin ATX power connector
- 2 x 8-pin EPS connectors for CPU power
- 1 x USB 3.2 Gen 2 header
- 1 x USB 3.2 Gen 1 header
- 4 x SATA 6Gb/s ports (at a 90-degree angle for improved cable management)
- Front panel audio header
- LED demo header
- 2 x 3-pin addressable RGB headers
- 1 x 4-pin standard RGB header
- TPM header
- 2 x USB 2.0 headers
- Thunderbolt header

- Multiple 4-pin fan headers (CPU, optional CPU, system fans, pump)
- Front panel headers (power, reset, QFlash+)

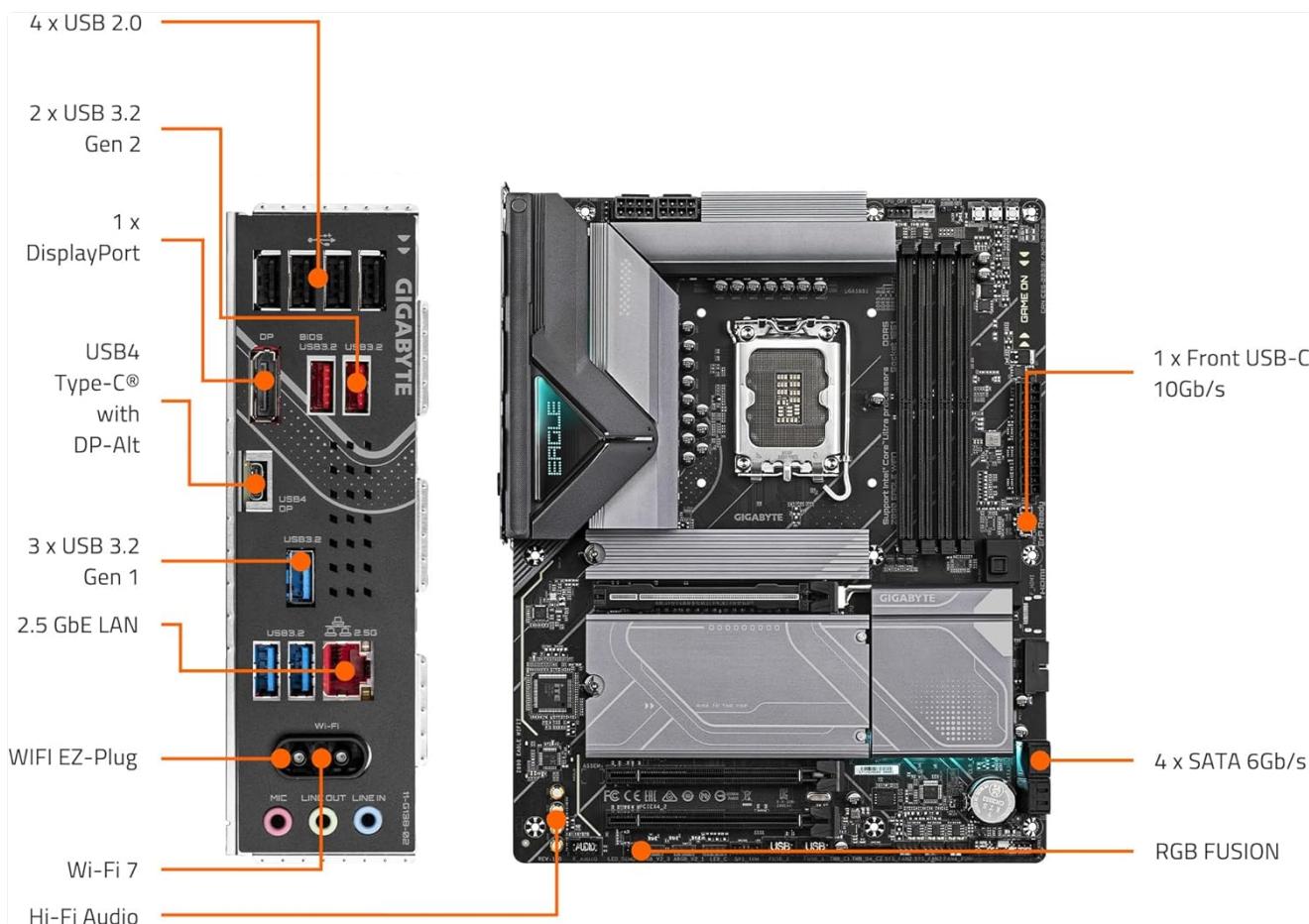


Figure 4: Diagram illustrating internal headers and ports.

4. FEATURES

4.1 Power Design

The motherboard utilizes a robust 14+1+2 power phase design, with Vcore phases rated at 60A, ensuring stable and efficient power delivery to the CPU for optimal performance and overclocking stability.

4.2 Thermal Management

Large heatsinks cover the power delivery components to maintain optimal temperatures. The M.2 slots are also covered by heatsinks, with the top M.2 heatsink being thicker to effectively cool PCIe Express 5.0 drives.

4.3 EZ-Latch System

Gigabyte's EZ-Latch Plus system simplifies the installation and removal of M.2 SSDs and graphics cards. M.2 drives can be installed without screws, and a dedicated button allows for easy release of the graphics card from its PCIe slot.

4.4 RGB Lighting

The motherboard features integrated RGB lighting, including illumination by the 'Eagle' logo on the rear I/O cover, along the edge of the board where it says 'Game On', and around the chipset heatsink, providing customizable aesthetics.

5. OPERATING

5.1 BIOS Updates

The QFlash+ button on the front panel headers allows you to update the BIOS without needing to install a CPU, RAM, or a video card, simplifying the update process.

5.2 Wi-Fi 7 Antenna

The included Wi-Fi 7 antenna features a Wi-Fi Easy Plug design. Simply line up and plug in the antenna to the designated port on the rear I/O panel. No more turning small knobs to secure the connection.

6. MAINTENANCE

6.1 M.2 Heatsink Removal and Installation

To access the M.2 slots, release the latch on each heatsink and lift it off. To reinstall, align the heatsink and snap it back into place. The EZ-Latch system ensures a secure fit without the need for tools.

7. TROUBLESHOOTING

The motherboard includes an EZ-Debug Zone with small buttons for Power, Reset, and QFlash+. These features assist in diagnosing and resolving boot-up issues or performing BIOS updates without a full system assembly.

8. SPECIFICATIONS

Feature	Specification
Brand	GIGABYTE
Series	Z890 EAGLE WIFI7
CPU Socket	LGA1851
Compatible Processors	Intel Core Ultra 200 Processors
Chipset Type	Intel Z890
RAM Memory Technology	DDR5
Memory Clock Speed	5600 MHz (up to 9200 MT/s with XMP)
RAM Memory Maximum Size	256 GB
M.2 Slots	4x M.2 Slots (PCIe 4.0, one supports SATA M.2)
PCIe Slots	1x PCIe 5.0 x16, 2x PCIe 4.0 x4
USB Connectivity	USB4, USB 3.2 Gen 2, USB 3.2 Gen 1, USB 2.0
Networking	WIFI7, 2.5GbE LAN
Platform	Windows, Windows 10, Windows 11
Item Weight	4.33 pounds
Product Dimensions	13.2 x 10.6 x 3.1 inches

9. WARRANTY AND SUPPORT

This GIGABYTE motherboard comes with a 5-year warranty. For technical support, driver downloads, and further assistance, please visit the official GIGABYTE website or contact their customer service.