ASUS ROG STRIX Z890-A GAMING WIFI

ASUS ROG STRIX Z890-A GAMING WIFI Motherboard User Manual

Model: ROG STRIX Z890-A GAMING WIFI

Brand: ASUS

1. INTRODUCTION AND OVERVIEW

The ASUS ROG STRIX Z890-A GAMING WIFI is an Intel® Z890 LGA 1851 ATX motherboard designed for advanced AI PCs. It features robust power delivery with 16+2+1+2 power stages, supports DDR5 memory, and includes WiFi 7 with a Q-Antenna for high-performance networking. This motherboard offers extensive connectivity options, including five M.2 slots, PCIe 5.0 x16 SafeSlot, dual Thunderbolt™ 4 USB Type-C ports, and multiple USB 10Gbps ports.
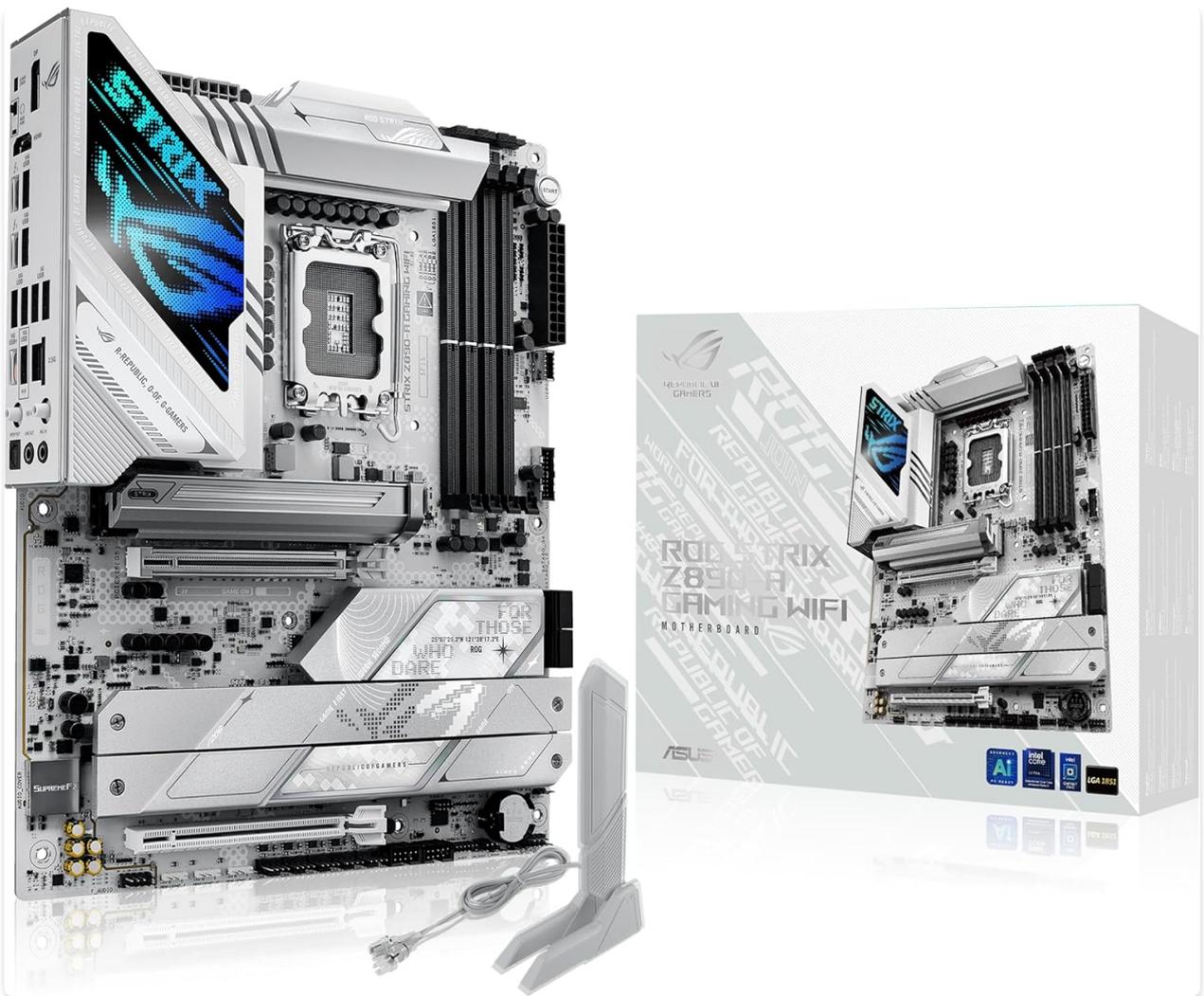
Image: The ASUS ROG STRIX Z890-A GAMING WIFI Motherboard alongside its packaging and included accessories, highlighting its sleek design and comprehensive bundle.

Key Features:

- **Ready for Advanced AI PCs:** Designed for the future of AI computing, with the power and connectivity needed for demanding AI applications.

- **Intel LGA 1851 Socket:** Ready for Intel Core Ultra processors (Series 2).

- **Exclusive AI Technologies:** NPU Boost, ASUS AI Advisor, ASUS-exclusive AI Overclocking, AI Cooling II, AI Networking II.

- **Robust Power Solution:** 16(90A)+2(90A)+1(90A)+2(80A) power stages with ProCool II power connectors, MicroFine alloy chokes and premium metallic capacitors.

- **Optimized Thermal Design:** Massive heatsinks with integrated I/O cover, high-conductivity thermal pads, and connected with an L-shaped heatpipe.

- **Latest M.2 Support:** One PCIe 5.0 M.2 slots and four PCIe 4.0 M.2 slots, all with substantial cooling solutions.

- **Abundant Connectivity:** Dual Thunderbolt 4 USB Type-C ports, USB 10Gbps Type-C rear I/O port with up to 30-watt Power Delivery fast charging plus USB Wattage Watcher, five additional USB 10Gbps ports, PCIe 5.0 x16 SafeSlot, and full support for next-gen graphics card, HDMI 2.1 and DisplayPort 1.4.

- **High-Performance Networking:** On-board Intel Wi-Fi 7 (802.11be) with ASUS WiFi Q-Antenna, Intel 2.5 Gb Ethernet.

- **DIY-Friendly Design:** PCIe Slot Q-Release Slim, new M.2 Q-Latch, M.2 Q-Release, M.2 Q-Slide, Q-Antenna, BIOS Q-Dashboard, Q-LED, FlexKey button, Start button, BIOS FlashBack button, Clear CMOS button and pre-mounted I/O shield.

Product Overview Video:

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Video: A comprehensive product overview of the ASUS ROG STRIX Z890-A GAMING WIFI Motherboard, showcasing its design and key features.
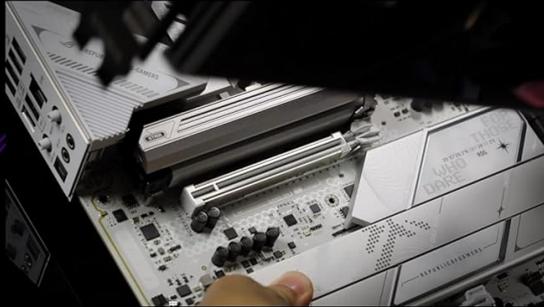
2. SETUP AND INSTALLATION

Installing your ASUS ROG STRIX Z890-A GAMING WIFI motherboard is streamlined with several user-friendly features. Ensure you have all components ready before beginning the installation process.

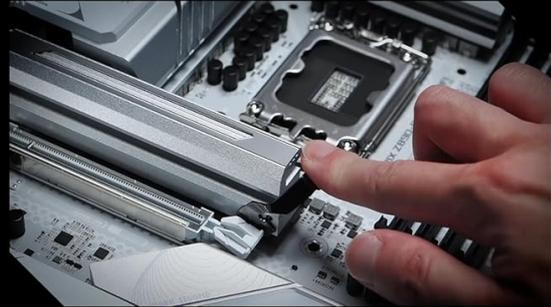### DIY-Friendly Design Features:

- **PCIe Slot Q-Release Slim:** Simplifies the removal of graphics cards from the PCIe slot.
- **M.2 Q-Latch:** Provides a tool-free method for installing or removing M.2 SSDs.
- **M.2 Q-Release:** Features a convenient switch to quickly remove M.2 heatsinks without tiny screws.
- **M.2 Q-Slide:** New sliding latch supports 2242, 2260, and 2280 sizes for easy M.2 installation.
- **Q-Antenna:** Simplifies WiFi antenna connection.
- **BIOS FlashBack Button:** Allows for BIOS updates without a CPU or RAM installed.
- **Clear CMOS Button:** Resets BIOS settings to default.
- **Pre-mounted I/O Shield:** Ensures easy and secure installation into your PC case.
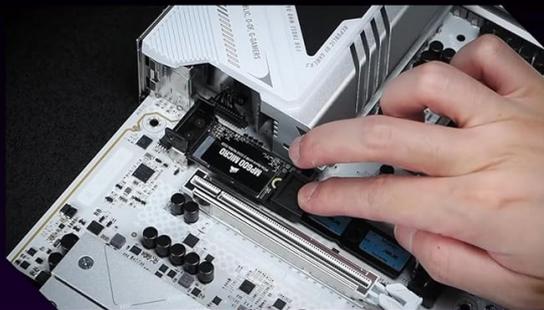
EZ PC DIY

PCIE® SLOT Q-RELEASE SLIM
Simply tilt the card to your right to automatically unlock it from the PCIe slot.

M.2 Q-RELEASE
The M.2 heatsink features a convenient switch to quickly remove it, eliminating the need for tiny screws.

M.2 Q-SLIDE
New sliding latch supports 2242, 2260 and 2280 sizes for easy PC DIY.

NEW M.2 Q-LATCH
The new Q-Latch design allows for tool-free installation or removal of M.2 SSDs with just one press.

Image: Detailed views of the motherboard's DIY-friendly features, such as the PCIe Slot Q-Release Slim and various M.2 installation mechanisms, designed for easier PC assembly.

What's in the Box:

What's in the box

QUICK START GUIDE

ROG STRIX STICKERS

ROG KEY CHAIN

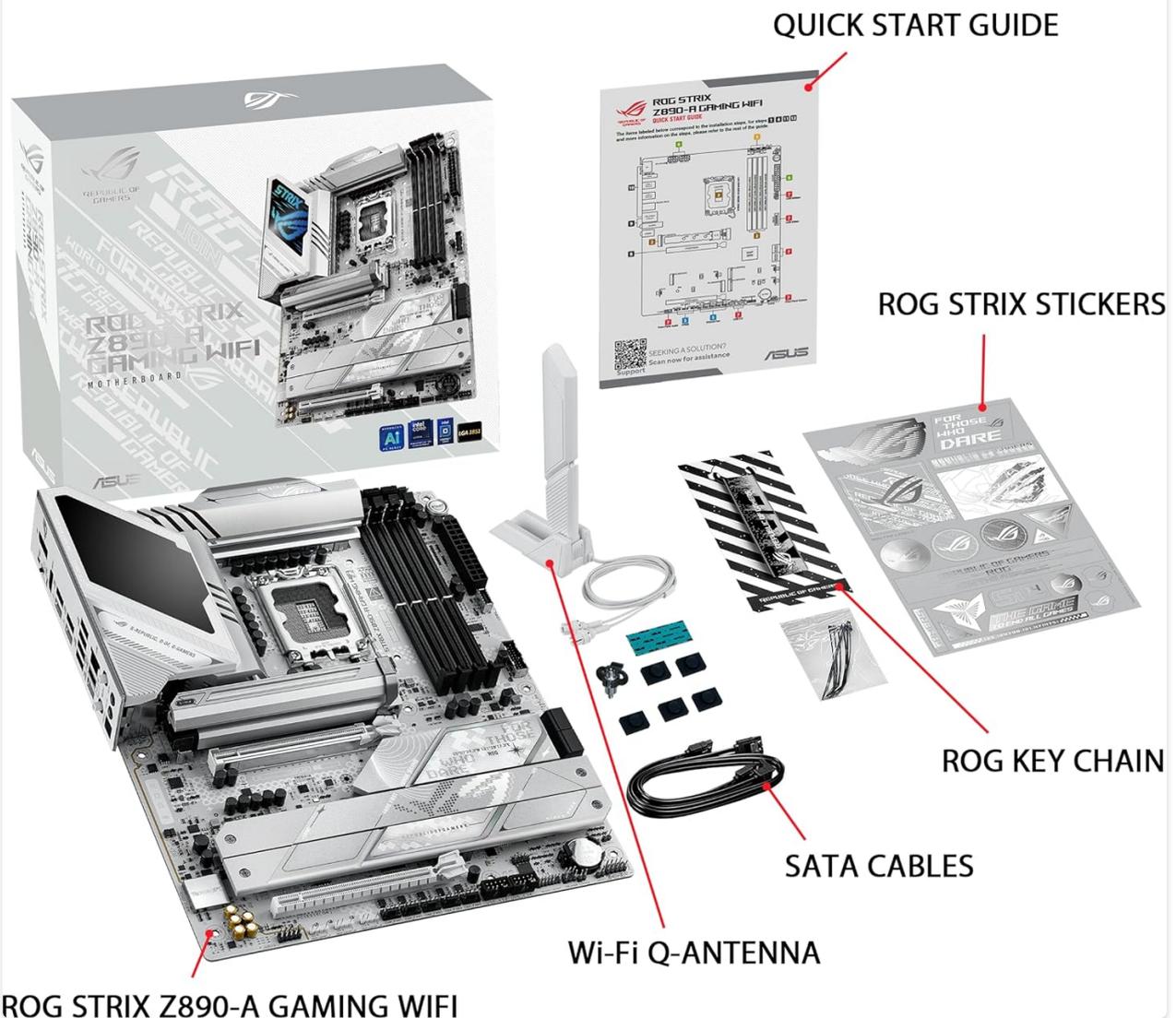SATA CABLES

Wi-Fi Q-ANTENNA

ROG STRIX Z890-A GAMING WIFI

Image: An unboxing view showing the ASUS ROG STRIX Z890-A GAMING WIFI Motherboard and all its included accessories, such as the Quick Start Guide, stickers, key chain, SATA cables, and the Wi-Fi Q-Antenna.

3. OPERATING YOUR MOTHERBOARD

The ROG STRIX Z890-A GAMING WIFI motherboard integrates advanced AI technologies to optimize system performance and user experience.

Exclusive AI Technologies:

- **AI Overclocking:** Profiles the CPU and cooling to predict optimal configuration and push system limits.
- **AI Cooling II:** Balances thermals and acoustics of any build with a single click.
- **AI Networking II:** Provides trustworthy and seamless connectivity, unleashing the full speed of WiFi 7.
- **ASUS AI Advisor:** Uses AI technology to understand natural-language questions, allowing users to explore motherboard functionality simply.

Image: A visual representation of the motherboard's AI capabilities, including AI Overclocking, AI Cooling II, AI Networking II, and the ASUS AI Advisor, demonstrating how they enhance system performance and user interaction.

4. PERFORMANCE AND THERMAL MANAGEMENT

This motherboard is engineered for extreme power and efficient thermal management to ensure stable performance even under heavy loads.
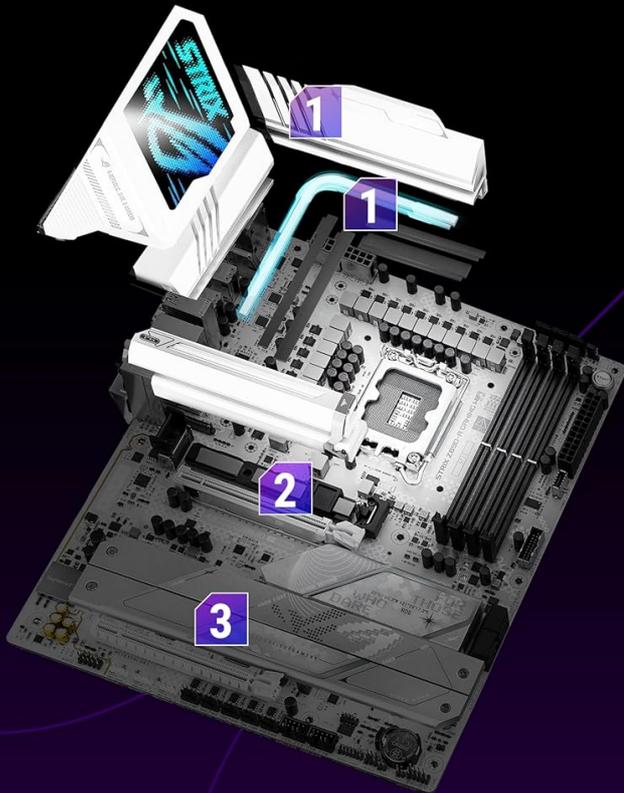
Optimized Thermal Design:

- **VRM Heatsink Array:** Large heatsinks with integrated I/O cover for effective heat dissipation from voltage regulator modules.
- **High-Conductivity Thermal Pads:** Ensures efficient heat transfer from components to heatsinks.
- **L-shaped Heatpipe:** Connects heatsinks for improved thermal conductivity.
- **M.2 Heatsinks and Backplate:** Dedicated cooling solutions for all five M.2 slots to prevent thermal throttling.

Image: An exploded view illustrating the motherboard's advanced cooling components, including the VRM heatsink array, M.2 backplate, and M.2 heatsinks, designed to maintain optimal temperatures during operation.

5. CONNECTIVITY AND EXPANSION

The ROG STRIX Z890-A GAMING WIFI offers extensive connectivity and expansion options to support a wide range of peripherals and future upgrades.

Key Connectivity Features:

- **DDR5 Support:** Max 192GB, DIMM Fit, AEMP III, DIMM Flex for enhanced memory performance.
- **PCIe 5.0:** X1 Onboard M.2 slot and PCIe 5.0 x16 SafeSlot with full support for next-gen graphics cards.
- **Thunderbolt™ 4:** Two Thunderbolt™ 4 Type-C® Ports for high-speed data transfer.
- **USB 10Gbps:** Multiple USB 10Gbps ports, including a Type-C® rear I/O port with up to 30-watt Power Delivery fast charging and USB Wattage Watcher.
- **Intel® 2.5Gb Ethernet:** For reliable and fast wired network connections.
- **WiFi 7:** On-board Intel Wi-Fi 7 (802.11be) with ASUS WiFi Q-Antenna for ultra-fast wireless speeds.
- **Display Outputs:** HDMI 2.1 and DisplayPort 1.4 for versatile display connections.

Image: An infographic highlighting the motherboard's advanced features such as DDR5 memory support, PCIe 5.0, Thunderbolt 4, Intel 2.5Gb Ethernet, and WiFi 7, emphasizing its high-speed capabilities.

Image: A detailed view of the motherboard's rear I/O panel, showcasing its comprehensive array of ports including DisplayPort, HDMI, multiple USB Type-C and Type-A ports, 2.5G Ethernet, and Wi-Fi 7 antenna connections.

Image: The ASUS ROG STRIX Z890-A GAMING WIFI Motherboard shown with its Wi-Fi Q-Antenna securely connected to the rear I/O ports, illustrating its wireless networking capability.

6. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your motherboard. Keep the motherboard and surrounding components clean and free of dust. Regularly check for firmware updates and

apply them as recommended by ASUS.

- **Dust Removal:** Use compressed air to gently remove dust from heatsinks, fans, and other components.
- **Cable Management:** Ensure cables are neatly routed to allow for proper airflow within the PC case.
- **Thermal Paste:** If reapplying CPU cooler, ensure proper application of thermal paste.

7. TROUBLESHOOTING

This section provides guidance on common issues you might encounter with your motherboard.

Common Issues and Solutions:

- **DRAM Light On:** If the DRAM light illuminates, ensure your RAM modules are correctly seated in the DIMM slots and are compatible with the motherboard. Refer to the manual for recommended RAM configurations.
- **Bent CPU Socket Pins:** Physical damage to CPU socket pins is not covered under warranty. Handle the CPU and socket with extreme care during installation.
- **System Instability/Crashes:** Ensure your BIOS is updated to the latest version. Early BIOS versions may have compatibility issues with certain components, especially high-capacity RAM kits or graphics cards. Visit the ASUS support website for the latest BIOS updates.
- **No Display Output:** Verify that your graphics card is properly seated in the PCIe 5.0 x16 SafeSlot and that display cables are securely connected. If using integrated graphics, ensure your monitor is connected to the motherboard's HDMI or DisplayPort.

8. TECHNICAL SPECIFICATIONS

Specification	Value
Brand	ASUS
Series	ROG STRIX Z890-A GAMING WIFI
Item Model Number	ROG STRIX Z890-A GAMING WIFI
CPU Socket	LGA 1851
Compatible Processors	Intel® Core™ Ultra Processors (series 2)
Chipset Type	Intel Z890
RAM Memory Technology	DDR5
Memory Storage Capacity	192 GB
Memory Speed	320 MHz
Platform	Windows 11
Color	Silver White
Item Weight	1.76 ounces

Specification	Value
Product Dimensions	13.9 x 10.8 x 2.8 inches
Country of Origin	China
Date First Available	October 10, 2024

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the official ASUS website or contact ASUS customer support directly. Keep your proof of purchase for warranty claims.

Online resources, drivers, and BIOS updates are available on the ASUS support page for your specific motherboard model.