## GIGABYTE B650 AORUS ELITE AX

# GIGABYTE B650 AORUS Elite AX Motherboard User Manual

Model: B650 AORUS ELITE AX

## 1. Introduction

The GIGABYTE B650 AORUS Elite AX is an ATX motherboard designed to support AMD Ryzen 7000 Series Processors, offering a robust foundation for high-performance computing and gaming systems. This motherboard integrates advanced features such as DDR5 memory support, PCIe 5.0 connectivity, and comprehensive thermal solutions to ensure optimal stability and performance. This manual provides essential information for setting up, operating, maintaining, and troubleshooting your GIGABYTE B650 AORUS Elite AX motherboard.




Figure 1.1: GIGABYTE B650 AORUS Elite AX Motherboard and retail packaging.

# 2. Setup and Installation

Proper installation is crucial for the stability and performance of your system. Always ensure your system is powered off and unplugged before handling components.

## 2.1. Component Installation

1. **CPU Installation:** Carefully align your AMD Ryzen 7000 Series Processor with the AM5 socket. Ensure the triangle on the CPU matches the triangle on the socket. Lower the CPU gently into the socket and secure the retention arm.
2. **Memory (RAM) Installation:** This motherboard supports DDR5 memory. Insert DDR5 DIMMs into the designated slots (4 DIMMs supported) until the clips on both ends snap into place. Refer to the motherboard's online manual for recommended slot configurations for dual-channel operation.
3. **Graphics Card (GPU) Installation:** Insert your PCIe 5.0 compatible graphics card into the primary PCIe x16 slot. The EZ-Latch feature provides a quick-release mechanism for easy installation and removal.
4. **NVMe SSD Installation:** Utilize the PCIe 5.0 NVMe x4 M.2 slots for high-speed storage. The EZ-Latch design simplifies the installation of M.2 SSDs without the need for screws. Ensure the M.2 Thermal Guard is properly installed over the SSD for optimal cooling.




Figure 2.1: Overview of motherboard layout, highlighting key installation areas.

## 2.2. Power Connections

Connect the 24-pin ATX power connector and the 8-pin CPU power connector from your power supply to the corresponding ports on the motherboard. Ensure all connections are secure.

## 2.3. BIOS Update (Q-Flash Plus)

The Q-Flash Plus feature allows you to update the BIOS without installing the CPU, memory, or graphics card. This is particularly

useful for ensuring compatibility with newer processors. Download the latest BIOS file from the GIGABYTE website, rename it as instructed, and place it on a USB flash drive. Insert the USB drive into the designated Q-Flash Plus USB port on the rear I/O panel and press the Q-Flash Plus button.

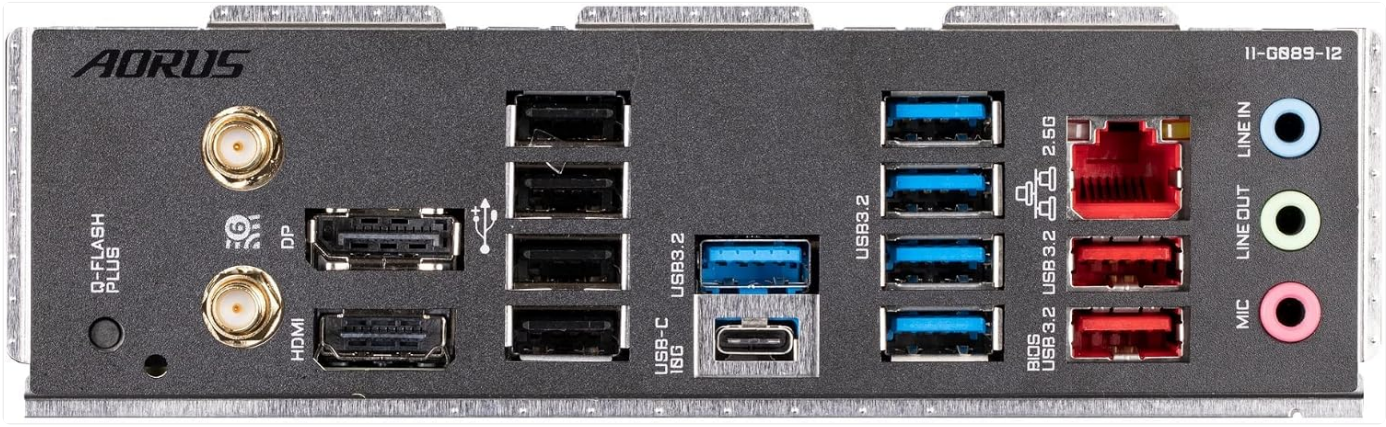



Figure 2.2: Rear I/O panel with Q-Flash Plus port highlighted.

# 3. Operating Your Motherboard

Once assembled, your GIGABYTE B650 AORUS Elite AX motherboard provides a powerful platform for your computing needs. This section covers general operational aspects.

## 3.1. UEFI BIOS Navigation

The UEFI BIOS (Unified Extensible Firmware Interface Basic Input/Output System) is the primary interface for configuring your motherboard's settings. Access the BIOS by pressing the **DEL** key during system startup. The intuitive interface allows for adjustments to boot order, fan curves (Smart Fan 6), overclocking settings, and more.

## 3.2. Connectivity

The motherboard offers extensive connectivity options:

- **Networking:** Integrated 2.5GbE LAN for high-speed wired connections, and WiFi 6E with BT5 for robust wireless connectivity.
- **USB Ports:** A variety of USB ports, including front and rear USB-C, for connecting peripherals and external devices.
- **Audio:** Hi-Fi Audio with high-end audio capacitors provides clear and immersive sound.




Figure 3.1: Connectivity options on the GIGABYTE B650 AORUS Elite AX.

### 3.3. Personalization (RGB FUSION)

Customize your system's aesthetics using GIGABYTE's RGB FUSION software. This allows control over addressable LED and RGB LED strips connected to the motherboard, enabling synchronized lighting effects across compatible components.

## 4. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your motherboard and system.

- **Keep Drivers Updated:** Regularly check the GIGABYTE support website for the latest motherboard drivers, especially chipset drivers from AMD, to ensure system stability and performance.
- **BIOS Updates:** Periodically check for new BIOS versions on the GIGABYTE website. BIOS updates often include performance enhancements, bug fixes, and improved compatibility.
- **Dust Removal:** Keep the motherboard and surrounding components free of dust. Use compressed air to gently clear dust from heatsinks, fan blades, and PCB surfaces.
- **Thermal Management:** Ensure proper airflow within your PC case. The motherboard's cutting-edge thermal design, including fully covered MOSFET heatsinks and M.2 Thermal Guard, relies on adequate case ventilation.

## 5. Troubleshooting

This section addresses common issues you might encounter and provides potential solutions.

### 5.1. No POST / DRAM LED Stuck On

If your system fails to Power-On Self-Test (POST) and the DRAM LED remains illuminated, it often indicates a memory-related issue.

- **Reseat RAM:** Power off the system, unplug it, and reseat the memory modules firmly in their slots.

- **Test Single Stick:** If you have multiple RAM sticks, try booting with only one stick at a time in different slots to identify a faulty module or slot.
- **BIOS Update:** An outdated BIOS can sometimes cause memory compatibility issues. Use the Q-Flash Plus feature to update the BIOS to the latest version.

### 5.2. USB Device Issues / Slow Transfers

If USB devices are not recognized or data transfer speeds are unusually slow, consider the following:

- **Update Chipset Drivers:** Ensure you have the latest AMD chipset drivers installed directly from the AMD website.
- **BIOS Update:** BIOS updates can also address USB controller stability and performance.
- **Test Different Ports:** Try connecting the USB device to different USB ports on the motherboard.

### 5.3. General Instability / Crashes

System instability can stem from various factors. Ensure all components are properly seated and connected. Verify that your power supply is sufficient for your system's components. Overheating can also cause instability; monitor CPU and GPU temperatures.

Video 5.1: Product Overview Video. This video provides a visual overview of the GIGABYTE B650 AORUS Elite AX motherboard's features and design, which can be helpful for visual troubleshooting and component identification.

## 6. Specifications

Detailed technical specifications for the GIGABYTE B650 AORUS Elite AX Motherboard:

| Feature | Specification |
|---|---|
| Brand | GIGABYTE |
| Model Name | B650 AORUS ELITE AX |
| CPU Socket | Socket AM5 |
| Compatible Processors | AMD Ryzen 7000 Series |
| Chipset Type | AMD B650 |
| RAM Memory Technology | DDR5 |
| Memory Speed | Up to 6666 MHz |
| PCIe Support | PCIe 5.0 |
| M.2 Slots | PCIe 5.0 NVMe x4 M.2 |
| LAN | 2.5GbE LAN |
| Wireless Connectivity | WiFi 6E, BT5 |
| Audio | Hi-Fi Audio with High-End Audio Capacitors |
| Form Factor | ATX |
| Product Dimensions | 10.62 x 3.14 x 13.18 inches |
| Item Weight | 4.35 pounds |

# 7. Warranty and Support

GIGABYTE is committed to providing reliable products and support.

## 7.1. Product Warranty

The GIGABYTE B650 AORUS Elite AX Motherboard comes with a **5-Year Warranty**. Please retain your proof of purchase for warranty claims. For detailed warranty terms and conditions, refer to the official GIGABYTE website.

## 7.2. Technical Support

For technical assistance, driver downloads, and BIOS updates, please visit the official GIGABYTE support website. You can also refer to the User Manual (PDF) and Safety Information (PDF) available online for additional information.

Video 7.1: B650 Trailer (2022). This video provides a brief promotional overview of the B650 series, showcasing some of its key features and design elements.

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### Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

**Name**

Anonymous

**Email**

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

**Question**

Example: How do I reset this device or fix this error?

**Details**

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question