GIGABYTE B650 GAMING X AX

GIGABYTE B650 Gaming X AX Motherboard User Manual

Model: B650 GAMING X AX

Introduction

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of your GIGABYTE B650 Gaming X AX Motherboard. Designed for AMD Ryzen 7000 Series Processors, this motherboard offers unparalleled performance, advanced thermal design, and stable connectivity for an optimized computing experience. Please read this manual thoroughly before beginning installation to ensure proper setup and functionality.



Image: GIGABYTE B650 Gaming X AX Motherboard and its retail packaging.

Key Features

- **AMD AM5 Socket:** Supports AMD Ryzen 7000 Series Processors.
- **5-Year Warranty:** Extended warranty for peace of mind.
- **DDR5 Compatible:** Features 4 SMD DIMMs with AMD EXPO and Intel XMP Memory Module Support.
- **Unparalleled Performance:** Direct 8+2+1 Phases Digital VRM Solution for stable power delivery.
- **Advanced Thermal Design & M.2 Thermal Guard:** Ensures VRM power stability and optimal M.2 SSD performance.
- **Stable Connectivity:** Includes 3 PCIe 4.0 x4 M.2 slots and USB 3.2 Gen 2x2 Type-C.
- **Fast Networking:** Equipped with 2.5GbE LAN and AMD Wi-Fi 6E for high-speed internet.
- **Fine Tuning Features:** Supports RGB FUSION 2.0, Addressable LED & RGB LED Strips, Smart Fan 6, and Q-Flash Plus for BIOS updates without CPU, Memory, or GPU.



Image: Top-down view of the GIGABYTE B650 Gaming X AX Motherboard, showcasing its layout and heatsinks.

Installation Guide

Follow these steps carefully to install your GIGABYTE B650 Gaming X AX Motherboard into your system. Ensure your power supply is disconnected before handling any components.

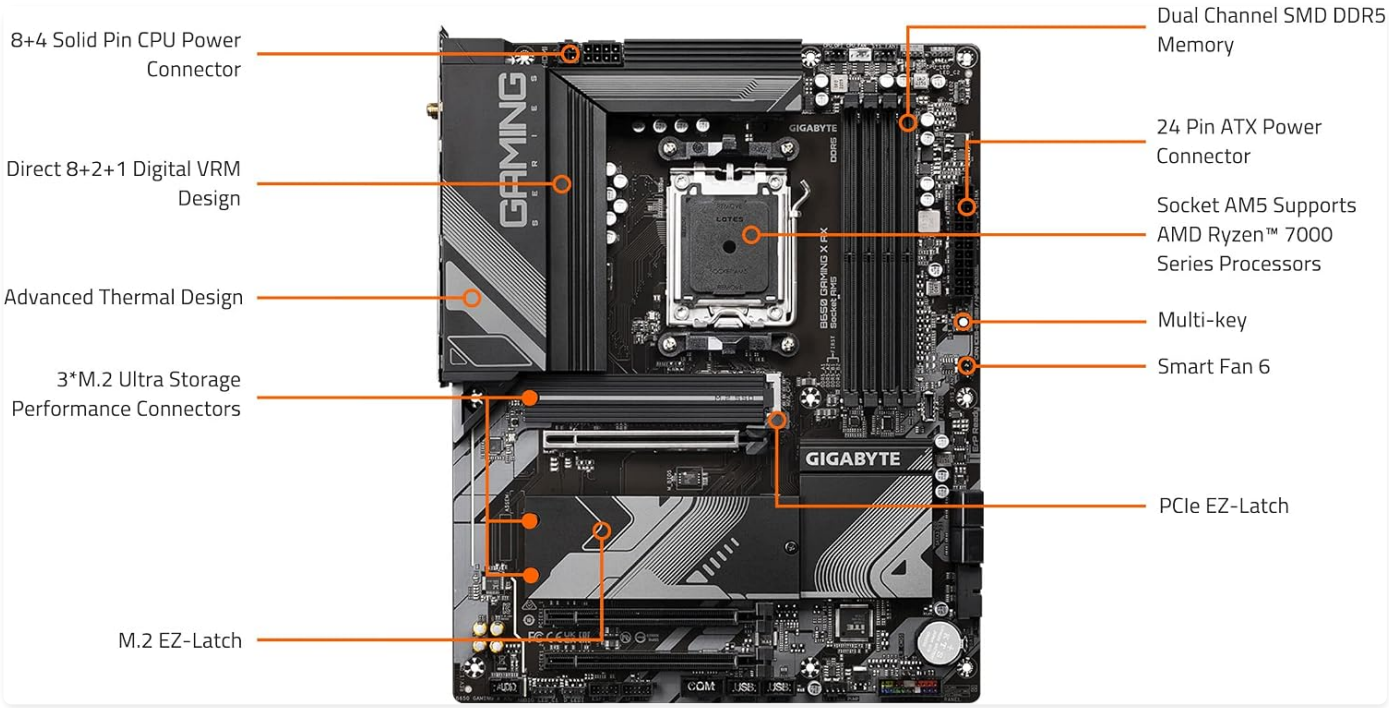


Image: Labeled diagram of the GIGABYTE B650 Gaming X AX Motherboard, highlighting key connectors and features such as the CPU socket, DDR5 DIMM slots, M.2 storage connectors, and power connectors.

1. CPU Installation

1. Locate the AM5 CPU socket on the motherboard.
2. Gently lift the retention arm and open the CPU socket cover.
3. Align the triangular mark on your AMD Ryzen 7000 Series Processor with the mark on the socket. Carefully place the CPU into the socket without forcing it.
4. Close the socket cover and press down the retention arm until it clicks into place.

2. Memory (RAM) Installation

1. Identify the four DDR5 DIMM slots. For optimal performance, refer to your CPU and memory manufacturer's guidelines for dual-channel configuration (typically slots 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. Press down firmly on both ends of the memory module until the clips snap into place.

3. Storage (M.2 SSD) Installation

1. Locate the M.2 slots, often covered by thermal guards. Remove the screw and thermal guard if present.
2. Insert the M.2 SSD into the slot at a slight angle.
3. Gently push down the SSD and secure it with the provided M.2 screw or EZ-Latch mechanism.
4. Reattach the M.2 thermal guard if applicable.

4. Power Connections

1. Connect the 24-pin ATX main power connector from your power supply to the corresponding slot on the motherboard.
2. Connect the 8-pin (or 4+4-pin) CPU power connector to the 8+4 Solid Pin CPU Power Connector near the CPU socket.

5. Peripheral Connections

1. Install your graphics card into the primary PCIe 4.0 x16 slot.
2. Connect front panel headers (USB, audio, power/reset buttons, LED indicators) to their respective pins on the motherboard. Refer to the motherboard's silkscreen labels for correct orientation.
3. Attach the Wi-Fi 6E antenna to the connectors on the rear I/O panel for wireless connectivity.
4. Connect any additional SATA devices, case fans, or RGB lighting strips.

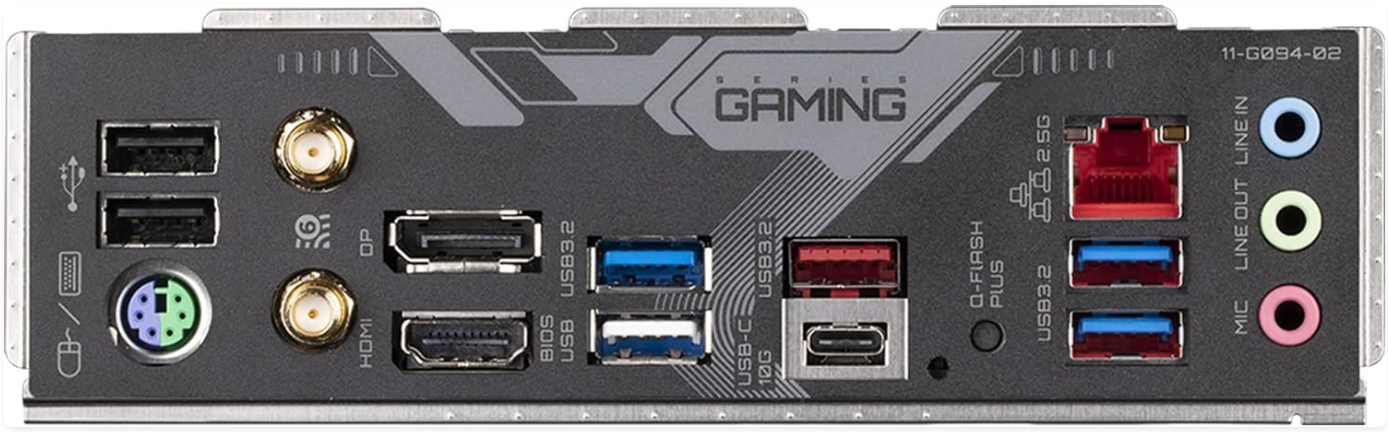


Image: Close-up view of the rear I/O panel of the GIGABYTE B650 Gaming X AX Motherboard, showing various ports including USB, HDMI, DisplayPort, LAN, and audio jacks.

Initial Operation

First Boot and BIOS Setup

After assembling your system, connect your monitor, keyboard, and mouse. Power on the system. The first boot may take longer than usual due to DDR5 memory training. This is normal. If the system does not display anything, ensure all power connections are secure and memory modules are seated correctly.
To enter the BIOS/UEFI setup, repeatedly press the **DEL** key during startup. In the BIOS, you can configure various settings, including boot order, fan curves (Smart Fan 6), and memory profiles (AMD EXPO / Intel XMP). It is highly recommended to enable the EXPO/XMP profile for your DDR5 memory to achieve its rated speeds.

Driver Installation

Once your operating system is installed, install the latest drivers for your motherboard's chipset, LAN, Wi-Fi, audio, and other integrated components. These drivers are typically available on the GIGABYTE official website. Installing the correct drivers ensures optimal performance and stability.

Maintenance and Care

BIOS Updates

Regularly check the GIGABYTE website for BIOS updates. For AM5 platforms, BIOS updates often bring significant

performance improvements, stability enhancements, and compatibility fixes. The B650 Gaming X AX features Q-Flash Plus, allowing you to update the BIOS without installing the CPU, memory, or graphics card. Refer to the GIGABYTE website for detailed Q-Flash Plus instructions.

Cleaning

To maintain optimal performance and longevity, periodically clean your motherboard and PC components. Use compressed air to remove dust from heatsinks, fans, and PCIe slots. Ensure the system is powered off and unplugged before cleaning. Avoid using liquid cleaners directly on components.

General Care

Avoid exposing the motherboard to extreme temperatures or humidity. Handle the motherboard by its edges to prevent damage to components or static discharge. Ensure proper airflow within your PC case to prevent overheating.

Troubleshooting

No Display After Installation

- **Check Power Connections:** Ensure the 24-pin ATX and 8-pin/4+4-pin CPU power connectors are securely seated.
- **Reseat Components:** Remove and re-install the CPU, RAM modules, and graphics card to ensure they are properly seated.
- **Memory Compatibility:** Verify that your DDR5 memory is compatible with the motherboard and installed in the correct slots according to the manual. Try booting with only one RAM stick.
- **BIOS Reset:** Clear the CMOS by removing the CMOS battery for a few minutes or using the dedicated CMOS clear jumper (refer to the full user manual PDF).

System Instability or Crashes

- **Update Drivers:** Ensure all motherboard and component drivers are up-to-date.
- **Check Temperatures:** Monitor CPU and GPU temperatures to ensure they are within safe operating limits. Ensure adequate case airflow.
- **BIOS Settings:** If you have adjusted any BIOS settings, especially for overclocking or memory, revert to default settings or load optimized defaults.
- **Power Supply:** Ensure your power supply unit (PSU) has sufficient wattage for all your components.

For more detailed troubleshooting steps, please refer to the comprehensive User Manual PDF linked in the Support section.

Technical Specifications

Feature	Specification

Feature	Specification
Brand	GIGABYTE
Model Name	B650 GAMING X AX
CPU Socket	Socket AM5
Compatible Processors	AMD Ryzen 7000 Series
RAM Memory Technology	DDR5
Memory Storage Capacity	128 GB (Max)
Chipset Type	AMD B650
Product Dimensions (LxWxH)	10.62 x 10.55 x 2.67 inches
Item Weight	4.19 pounds
LAN	Realtek 2.5GbE LAN
Wireless Connectivity	AMD Wi-Fi 6E
USB Ports	USB 3.2 Gen 2x2 Type-C, USB 3.2 Gen 2, USB 3.2 Gen 1, USB 2.0
M.2 Slots	3 x PCIe 4.0 x4 M.2
Platform	Windows 10 (and newer)

Warranty and Support

Warranty Information

The GIGABYTE B650 Gaming X 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 or the full user manual.

Official Documentation and Support

For comprehensive information and further assistance, please refer to the official GIGABYTE resources:

- User Guide (PDF)
- User Manual (PDF)
- Safety Information (PDF)

- Visit the official GIGABYTE support website for the latest drivers, BIOS updates, and FAQs:www.gigabyte.com

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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.

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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