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> GIGABYTE B650 Gaming X AX V2 Motherboard User Manual

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Model: B650 GAMING X AX V2 (rev. 1.0)

1. INTRODUCTION

The GIGABYTE B650 Gaming X AX V2 (rev. 1.0) is an advanced ATX motherboard designed to support AMD Ryzen 7000 Series Processors on the AM5 socket. It features DDR5 memory support, multiple M.2 slots for high-speed storage, PCIe 5.0 connectivity, and robust power delivery for optimal performance. This manual provides detailed instructions for installation, operation, maintenance, and troubleshooting to ensure a smooth experience with your new motherboard.



2. SAFETY INFORMATION

Always observe the following safety precautions when handling your motherboard and other computer components:

- **Electrostatic Discharge (ESD) Prevention:** Always wear an anti-static wrist strap or frequently touch a grounded metal object (like the computer case) before handling components to discharge static electricity.
- **Power Disconnection:** Ensure the power supply is unplugged from the wall outlet before installing or removing any components.
- **Component Compatibility:** Verify that all components (CPU, RAM, GPU, PSU) are compatible with the B650 Gaming X AX V2 motherboard. Refer to GIGABYTE's official website for the latest compatibility lists.
- **Proper Ventilation:** Ensure adequate airflow within your computer case to prevent overheating.
- **Handle with Care:** Avoid touching the gold contacts on components. Hold circuit boards by their edges.

3. PACKAGE CONTENTS

Before beginning installation, please check the contents of your motherboard package. The following items should be included:

- GIGABYTE B650 Gaming X AX V2 Motherboard
- User Manual / Quick Start Guide
- SATA Data Cables
- Wi-Fi Antenna
- M.2 Screws and Standoffs
- Driver CD/USB (or download instructions)

If any items are missing or damaged, please contact your retailer or GIGABYTE customer support.

4. MOTHERBOARD LAYOUT

Familiarize yourself with the various components and connectors on your motherboard. This section provides an overview of key areas.

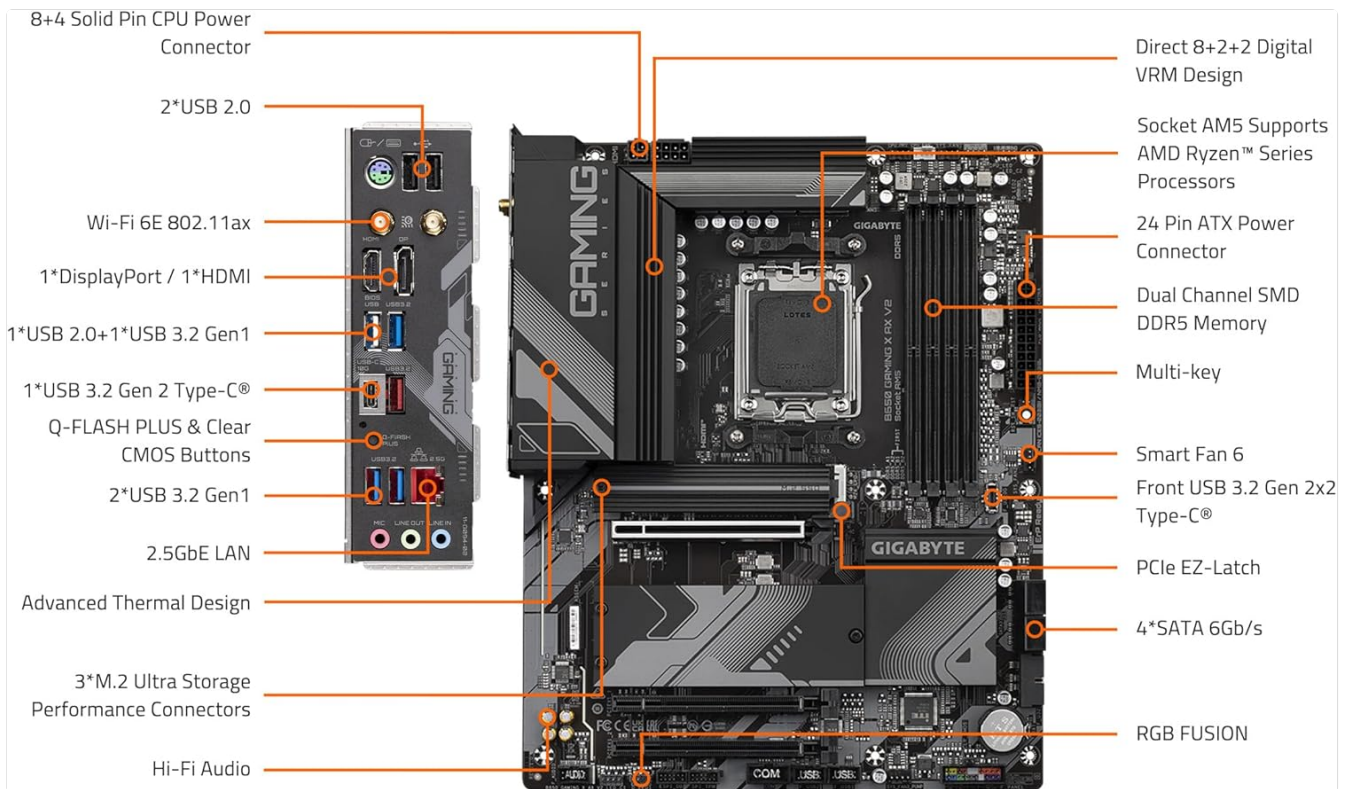


Image 4.1: Detailed diagram highlighting key components and connectors on the motherboard.

Key areas include:

- **CPU Socket (AM5):** Located centrally, this is where your AMD Ryzen 7000 series processor is installed.
- **DDR5 DIMM Slots:** Four slots for installing DDR5 memory modules.
- **PCIe Slots:** Includes a PCIe 5.0 x16 slot for your graphics card and additional PCIe 4.0 slots for expansion cards.
- **M.2 Connectors:** Multiple M.2 slots for high-speed NVMe SSDs, including one PCIe 5.0 x4 slot.
- **SATA 6Gb/s Connectors:** For connecting traditional SATA storage devices like HDDs and SSDs.
- **Front Panel Headers:** Connectors for your case's power button, reset button, USB ports, and audio jacks.
- **Rear I/O Panel:** Provides external connectivity for USB devices, display outputs (HDMI, DisplayPort), LAN, Wi-Fi antenna connectors, and audio jacks.

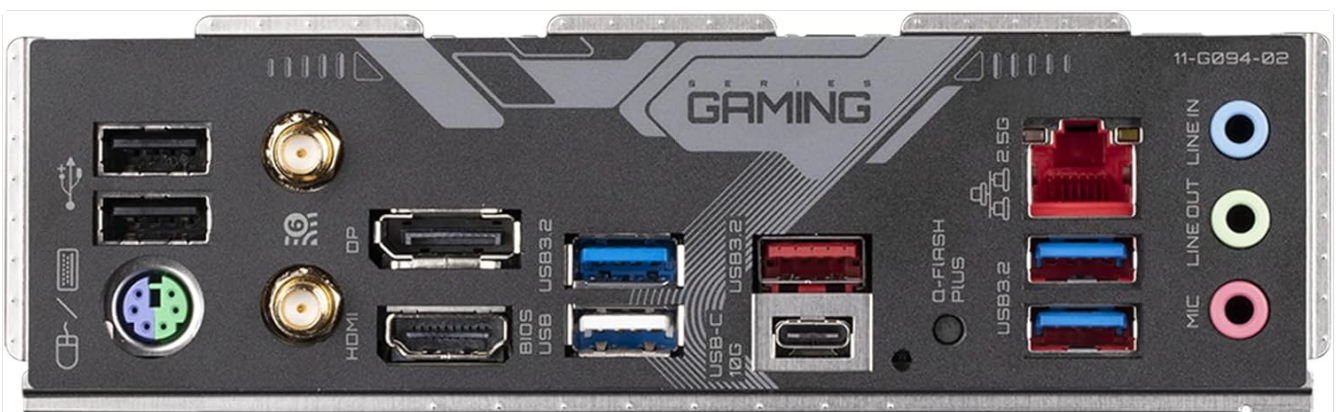


Image 4.2: Close-up view of the rear input/output panel, showing various ports.

5. SETUP AND INSTALLATION

5.1. Component Installation

1. CPU Installation:

Carefully open the CPU socket lever. Align the triangular mark on the CPU with the mark on the socket. Gently place the CPU into the socket without forcing it. Close the lever to secure the CPU. Apply thermal paste and install your CPU cooler according to its manufacturer's instructions.

2. RAM Installation:

Open the clips on both ends of the DDR5 DIMM slots. Align the notch on the memory module with the key in the slot. Press down firmly on both ends of the memory module until the clips snap into place. For dual-channel performance, install memory modules in the recommended slots (refer to your motherboard's specific manual for slot pairing).

3. M.2 SSD Installation:

Locate the M.2 slots and remove any pre-installed thermal guards. Insert the M.2 SSD into the slot at an angle, then gently push it down. Secure the SSD with the provided M.2 screw or EZ-Latch mechanism. Reinstall the thermal guard if applicable.

4. Graphics Card (GPU) Installation:

Open the retention clip on the PCIe 5.0 x16 slot. Align your graphics card with the slot and press down firmly until it is fully seated and the clip locks. Secure the card to your case with screws.

5. Power Supply Connection:

Connect the 24-pin ATX power connector and the 8-pin (and optional 4-pin) CPU power connectors from your power supply to the motherboard. Connect PCIe power cables to your graphics card if required. Connect SATA power cables to your storage drives.

5.2. Initial Boot and BIOS Setup

After assembling your system, connect a monitor, keyboard, and mouse. Power on your system.

- **Accessing BIOS:** During startup, repeatedly press the **DEL** key to enter the BIOS Setup Utility.
- **Basic BIOS Settings:**
 - Set the correct system date and time.
 - Configure boot order to prioritize your operating system drive.
 - Enable **AMD EXPO** or **Intel XMP** for optimal memory performance if your RAM supports it.
 - Save changes and exit BIOS. Your system will restart.

6. OPERATING YOUR MOTHERBOARD

6.1. Driver Installation

After installing your operating system, it is crucial to install the latest drivers for your motherboard's components. You can find these on the GIGABYTE official website for your specific model. Key drivers include:

- Chipset Drivers
- LAN Driver (Realtek 2.5GbE)
- Wi-Fi Driver (AMD Wi-Fi 6E)
- Audio Driver
- USB Drivers

6.2. Software Utilities

GIGABYTE provides several software utilities to enhance your experience:

- **GIGABYTE Control Center (GCC):** A unified software platform to manage various GIGABYTE utilities, including RGB Fusion for lighting control, Smart Fan 6 for fan speed management, and system information monitoring.
- **BIOS Update Utilities:** Tools for updating your motherboard's BIOS from within the operating system.

6.3. Connectivity

The B650 Gaming X AX V2 offers extensive connectivity options:

- **LAN:** Realtek 2.5GbE LAN provides high-speed wired network connectivity.
- **Wi-Fi:** AMD Wi-Fi 6E offers fast wireless internet and Bluetooth connectivity. Ensure the included antenna is connected for optimal signal.
- **USB:** A variety of USB ports, including USB 3.2 Gen2x2 Type-C for ultra-fast data transfer, USB 3.2 Gen2, and USB 3.2 Gen1 ports.

Video 6.1: An official GIGABYTE video showcasing key features of the B650 series motherboards, including PCIe Gen5, DDR5 support, and connectivity options.

7. MAINTENANCE

7.1. Cleaning

Regular cleaning helps maintain optimal performance and longevity:

- **Dust Removal:** Use compressed air to regularly clear dust from fans, heatsinks, and other components. Ensure the system is powered off and unplugged.
- **Surface Cleaning:** Use a soft, lint-free cloth to gently wipe down surfaces. Avoid using liquid cleaners directly on components.

7.2. BIOS Updates

GIGABYTE periodically releases BIOS updates to improve stability, add support for new CPUs/RAM, and fix bugs. It is recommended to keep your BIOS updated to the latest stable version. You can update the BIOS using:

- **Q-Flash:** Update BIOS directly from a USB flash drive within the BIOS utility.
- **Q-Flash Plus:** Update BIOS without a CPU, RAM, or graphics card installed, using a dedicated USB port and button on the rear I/O panel.
- **GIGABYTE Control Center (GCC):** Update BIOS from within Windows.

Always download BIOS updates from the official GIGABYTE website and follow the instructions carefully to avoid damaging your motherboard.

8. TROUBLESHOOTING

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

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
System does not power on.	Loose power cables, faulty PSU, front panel header incorrect.	Check 24-pin ATX and 8-pin CPU power connections. Verify front panel power switch connection. Test PSU.
No display on monitor.	Graphics card not seated, monitor cable loose, faulty RAM.	Reseat graphics card. Check monitor cable. Try one RAM stick at a time in different slots.
Operating system not booting.	Incorrect boot order, corrupted OS, faulty storage drive.	Check boot order in BIOS. Reinstall OS. Test storage drive.
Network connectivity issues.	Missing LAN/Wi-Fi drivers, loose cable/antenna, router issue.	Install/update network drivers. Ensure LAN cable is secure or Wi-Fi antenna is connected. Restart router.
System instability/crashes.	Overheating, unstable RAM/CPU overclock, outdated BIOS.	Monitor temperatures. Reset BIOS to default. Update BIOS.

For more complex issues, consult the detailed troubleshooting section in the full user manual available on the GIGABYTE website or contact GIGABYTE technical support.

9. SPECIFICATIONS

Below are the key technical specifications for the GIGABYTE B650 Gaming X AX V2 motherboard:

Feature	Specification
CPU Socket	AMD AM5 (LGA 1718)
Chipset	AMD B650
Memory	4 x DDR5 DIMM slots, up to 128GB, supports AMD EXPO & Intel XMP
PCIe Slots	1 x PCIe 5.0 x16, 2 x PCIe 4.0 x1
Storage	1 x PCIe 5.0 x4 M.2, 2 x PCIe 4.0 x4 M.2, 4 x SATA 6Gb/s
LAN	Realtek 2.5GbE LAN
Wireless	AMD Wi-Fi 6E, Bluetooth 5.2
USB Ports	USB 3.2 Gen2x2 Type-C, USB 3.2 Gen2, USB 3.2 Gen1, USB 2.0
Audio	High Definition Audio
Form Factor	ATX

10. WARRANTY AND SUPPORT

GIGABYTE motherboards typically come with a manufacturer's warranty. Please refer to the warranty card included in your product packaging or visit the official GIGABYTE website for detailed warranty terms and conditions specific to your region.

For technical support, driver downloads, BIOS updates, and further product information, please visit the official GIGABYTE support website:

[GIGABYTE Support Website](#)

You may also find helpful resources and community forums by searching for your specific model, B650 GAMING X AX V2, online.