GIGABYTE Z790 AORUS MASTER X

GIGABYTE Z790 AORUS Master X Motherboard User Manual

Model: Z790 AORUS MASTER X

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the GIGABYTE Z790 AORUS Master X Motherboard. This high-performance motherboard is designed to support 13th and next-gen Intel Core processors, featuring DDR5 memory support, advanced power delivery, and cutting-edge thermal solutions. Please read this manual thoroughly before beginning installation to ensure proper setup and optimal performance.



Figure 1.1: GIGABYTE Z790 AORUS Master X Motherboard and Packaging

The image displays the GIGABYTE Z790 AORUS Master X Motherboard alongside its retail packaging. The motherboard features prominent heatsinks and an LGA 1700 CPU socket. The box highlights key features such as Z790 chipset, DDR5 support, and AORUS branding.

2. Safety Information

Always observe the following safety precautions to prevent damage to the motherboard or injury to yourself:

- Disconnect the power cord from the wall outlet before touching any components.
- Wear an anti-static wrist strap or frequently touch a grounded metal object to discharge static electricity.
- Handle components by their edges to avoid touching sensitive parts.
- Ensure proper ventilation in your PC case to prevent overheating.
- Do not expose the motherboard to moisture or extreme temperatures.

3. Package Contents

Verify that all items listed below are included in your motherboard package. If any item is missing or damaged, contact your retailer.

- GIGABYTE Z790 AORUS Master X Motherboard
- SATA Data Cables
- Wi-Fi Antenna
- M.2 Screws and Standoffs
- User Manual and Quick Installation Guide
- Driver CD/USB Drive (may vary by region)

4. Component Overview

Familiarize yourself with the various components and connectors on your motherboard.

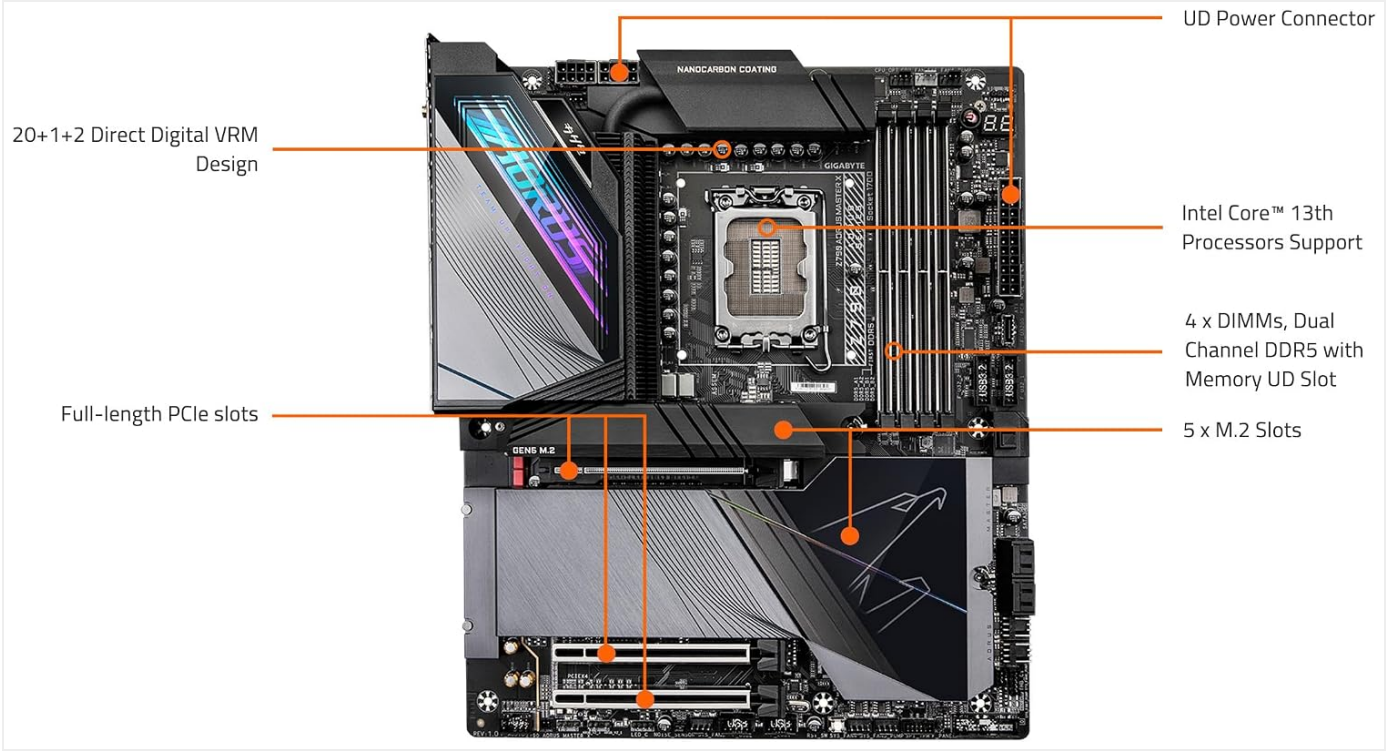


Figure 4.1: Motherboard Component Layout

This diagram highlights key areas of the motherboard. It shows the LGA 1700 CPU socket, four DDR5 DIMM slots, multiple PCIe slots (including a full-length PCIe 5.0 slot), five M.2 slots for storage, and the 20+1+2 Direct Digital VRM Design for power delivery. The UD Power Connector is also indicated.



Figure 4.2: Rear I/O Panel

The rear I/O panel features a variety of ports for external connectivity. These include multiple USB 3.2 ports (Type-A and Type-C, including 20Gb/s), 10GbE LAN port, Wi-Fi antenna connectors, audio jacks, DisplayPort (DP), and HDMI. Also visible are the Q-Flash Plus button and Clear CMOS button.

5. Setup and Installation

Follow these steps for proper installation of your motherboard and its components.

5.1 CPU Installation

1. Locate the LGA 1700 CPU socket on the motherboard.
2. Open the CPU socket lever and lift the load plate.

3. Carefully align the CPU with the socket, ensuring the triangular mark on the CPU matches the mark on the socket.
4. Gently place the CPU into the socket. Do not force it.
5. Close the load plate and push down the lever until it locks into place.
6. Install your CPU cooler according to its manufacturer's instructions.

5.2 Memory (RAM) Installation

1. Locate the four DDR5 DIMM slots.
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. Insert the memory module firmly into the slot until the clips snap into place.
5. For dual-channel operation, refer to the motherboard manual for recommended slot configurations.

5.3 M.2 SSD Installation

1. Identify the M.2 slots on the motherboard. The Z790 AORUS Master X features five M.2 slots, including one PCIe 5.0 x4 slot.
2. Remove the M.2 heatsink/thermal guard if present.
3. Insert the M.2 SSD into the slot at an angle.
4. Gently push down the M.2 SSD and secure it with the provided M.2 screw or EZ-Latch Plus mechanism.
5. Reattach the M.2 heatsink/thermal guard.

5.4 Graphics Card (GPU) Installation

1. Locate the primary PCIe 5.0 x16 slot.
2. Open the retention clip at the end of the PCIe slot.
3. Align the graphics card with the slot and press down firmly until it clicks into place.
4. Secure the graphics card to the PC case with screws.
5. Connect the necessary PCIe power cables from your power supply to the graphics card.

5.5 Connecting Power and Peripherals

- Connect the 24-pin ATX main power connector from your power supply to the motherboard.
- Connect the 8-pin (and optional 4-pin) ATX 12V CPU power connectors.
- Connect front panel headers (power button, reset button, USB, audio) according to the motherboard manual.
- Connect SATA devices (HDDs/SSDs) to the SATA ports.
- Install the Wi-Fi antenna to the rear I/O panel connectors.

5.6 Initial Boot and BIOS Setup

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

- Press the **DEL** key during startup to enter the BIOS setup utility.
- Configure boot order, enable XMP for memory, and set other system preferences as needed.
- The **Q-Flash Plus** feature allows you to update the BIOS without installing the CPU, memory, or graphics card. Refer to the GIGABYTE website for detailed instructions on using Q-Flash Plus.

6. Operating System and Drivers

Once the hardware is installed, proceed with operating system installation and driver setup.

- Install your preferred operating system (e.g., Windows).

- After OS installation, install all necessary drivers from the provided driver CD/USB drive or download the latest versions from the official GIGABYTE website. This includes chipset drivers, LAN drivers, Wi-Fi drivers, audio drivers, and graphics drivers.
- Utilize GIGABYTE's software utilities such as **Smart Fan 6** for fan control and **RGB FUSION 2.0** for lighting customization.

7. Maintenance

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

- **Cleaning:** Periodically clean dust from the motherboard and components using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **BIOS Updates:** Check the GIGABYTE website for the latest BIOS versions. BIOS updates can improve compatibility, stability, and performance. Follow the provided instructions carefully when updating the BIOS.
- **Driver Updates:** Keep your drivers updated to ensure optimal performance and compatibility with new software and hardware.

8. Troubleshooting

This section provides solutions to common issues you might encounter.

Problem	Possible Cause / Solution
System does not power on.	Check power supply connections to the motherboard (24-pin ATX, 8-pin CPU). Ensure front panel power button header is correctly connected. Verify power supply is switched on.
No display on monitor.	Ensure graphics card is properly seated in the PCIe slot and power cables are connected. Check monitor cable connection. If using integrated graphics, ensure monitor is connected to motherboard video output. Try reseating RAM modules.
System unstable or crashes.	Check CPU and GPU temperatures. Ensure adequate cooling. Verify RAM is compatible and correctly installed. Try running memory diagnostic tools. Update BIOS and drivers to the latest versions. Check for bent CPU socket pins (requires careful inspection).
Network connectivity issues (LAN/Wi-Fi).	Install the latest LAN and Wi-Fi drivers from the GIGABYTE website. Ensure Wi-Fi antennas are securely connected. Check network cable connection for LAN.

9. Specifications

Key technical specifications for the GIGABYTE Z790 AORUS Master X Motherboard.

Feature	Detail

Feature	Detail
CPU Socket	LGA 1700
Chipset	Intel Z790
RAM Technology	DDR5 (4 DIMM slots)
Max Memory Capacity	Up to 192GB (actual max capacity may vary with BIOS updates)
Memory Speed (OC)	Up to 8200 MT/s (O.C.)
PCIe Slots	1x PCIe 5.0 x16, 2x PCIe 4.0 x16 (x4 mode)
M.2 Slots	5x M.2 slots (1x PCIe 5.0 x4, 4x PCIe 4.0 x4)
LAN	10GbE LAN
Wireless Connectivity	Wi-Fi 7, Bluetooth
USB Ports (Rear I/O)	Multiple USB 3.2 Gen 2x2 Type-C (20Gb/s), USB 3.2 Gen 2 Type-A, USB 3.2 Gen 1 Type-A
Video Outputs	DisplayPort, HDMI (for integrated graphics)
Form Factor	EATX

10. Warranty and Support

GIGABYTE products are covered by a limited warranty. For detailed warranty terms and conditions, please refer to the warranty card included with your product or visit the official GIGABYTE website.
For technical support, driver downloads, BIOS updates, and FAQs, please visit the GIGABYTE support website: www.gigabyte.com/support.
You may also contact GIGABYTE customer service for assistance. Contact information can be found on the support website.

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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.

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