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GIGABYTE Z790

GIGABYTE Z790 AORUS Master EATX Motherboard User Manual

Model: Z790 AORUS MASTER

Brand: GIGABYTE

Introduction

This user manual provides comprehensive instructions for the GIGABYTE Z790 AORUS Master EATX Motherboard. It covers setup, operation, maintenance, and troubleshooting to ensure optimal performance and longevity of your system. The GIGABYTE Z790 AORUS Master supports 13th and 12th Gen Intel Core Processors, delivering unparalleled performance. Unlock your gaming potential with GIGABYTE Z790 Motherboards. GIGABYTE Z790 motherboards come with upgraded power design, high grade storage standards, and outstanding connectivity that enables you to optimize your performance.

Key Features

- **Intel LGA 1700 Socket:** Supports 13th and 12th Gen Intel Core Series Processors.
- **DDR5 Compatible:** 4SMD DIMMs with XMP 3.0 Memory Module Support.
- **Commanding Power Design:** Direct 20+1+2 Phases Digital VRM Solution with 105A Power Stage.
- **Cutting-Edge Thermal Design:** M.2 Thermal Guard III, Fins-Array III with NanoCarbon Coating, 8mm Mega-Heatpipe, PCIe Ultra Durable Armor, 8-Layer PCB.
- **Next Gen Connectivity:** SMD PCIe 5.0, 1 PCIe 5.0 x4, 4 PCIe 4.0 x4 M.2, 2 USB 3.2 Gen 2x2 Type-C.
- **EZ-Latch Plus:** PCIe 5.0 & M.2 Connectors with a Quick Release & Screwless Design.
- **Fast Networking:** Marvell AQtion 10GbE LAN, Intel WiFi 6E 802.11ax, 2T2R & BT5.
- **Dynamic Audio:** ESS SABRE Hi-Fi 9118 DAC, ALC 1220-VB Audio, Audiophile WIMA Capacitors.
- **Fine Tuning Features:** RGB FUSION 2.0, Supports Addressable LED & RGB LED Strips, Smart Fan 6, Q-Flash Plus Update BIOS without installing CPU, Memory, and GPU.

Setup Guide

Before beginning installation, ensure your workspace is clean, well-lit, and static-free. It is recommended to wear an anti-static wrist strap.

1. **Prepare the Chassis:** Ensure your computer case is compatible with EATX motherboards and has adequate space for components and cooling.
2. **Install the CPU:** Carefully open the CPU socket lever, align the CPU with the triangular mark on the socket, and gently place it. Close the lever to secure the CPU.
3. **Install CPU Cooler:** Attach your chosen CPU cooler according to its manufacturer's instructions. Ensure proper thermal paste application.
4. **Install Memory (RAM):** Open the DIMM slot clips. Align the memory modules with the slots, ensuring the notch on the module matches the key in the slot. Press firmly until the clips snap into place. For optimal performance, install modules in the recommended dual-channel configuration (refer to the motherboard's detailed manual for specific slot recommendations).
5. **Mount the Motherboard:** Carefully place the motherboard into the chassis, aligning it with the standoffs. Secure the motherboard with screws.
6. **Install M.2 SSDs:** Utilize the EZ-Latch Plus system for screwless installation of M.2 SSDs into the available slots. Ensure thermal pads are correctly placed for optimal cooling.
7. **Connect Power Cables:** Connect the 24-pin ATX main power connector and the 8-pin (or 8+4-pin) CPU power connector from your power supply to the motherboard.
8. **Install Graphics Card (GPU):** Insert your PCIe 5.0 graphics card into the primary PCIe x16 slot. Secure it with the retention clip and a screw to the chassis.
9. **Connect Front Panel Cables:** Connect the power switch, reset switch, HDD LED, and USB/audio headers from your chassis to the corresponding pins on the motherboard.
10. **Connect Peripherals:** Connect SATA drives, case fans, and other peripherals as needed.

Operating Your Motherboard

Once all components are installed and connected, you can power on your system. The GIGABYTE Z790 AORUS Master is designed for stable and high-performance operation.

- **First Boot:** Upon the first boot, the system may take a moment to train the RAM. Access the BIOS/UEFI setup by pressing the DEL key during startup to configure settings, boot order, and enable XMP for memory.
- **BIOS Updates:** Regularly check the GIGABYTE website for the latest BIOS updates to ensure compatibility with new hardware and improved system stability. Use the Q-Flash Plus feature for convenient updates without a CPU, memory, or graphics card installed.
- **Driver Installation:** Install all necessary drivers for the chipset, LAN, Wi-Fi, audio, and other integrated components from the GIGABYTE support website or the provided driver disk.
- **Software Utilities:** Utilize GIGABYTE's software utilities like RGB FUSION 2.0 for lighting customization and Smart Fan 6 for fan control and system monitoring.

Maintenance

Proper maintenance ensures the longevity and stable performance of your motherboard and system.

- **Dust Removal:** Periodically clean dust from inside your PC case, especially from fans, heatsinks, and ventilation areas. Use compressed air for best results.
- **Cable Management:** Ensure cables are neatly managed to improve airflow and prevent obstruction of components.
- **BIOS/Driver Updates:** Keep your BIOS and drivers updated to the latest versions to benefit from performance improvements, bug fixes, and security patches.
- **Thermal Paste:** If replacing your CPU cooler, reapply fresh thermal paste to ensure efficient heat transfer.

Troubleshooting

If you encounter issues, refer to the following common troubleshooting steps:

Problem	Possible Solution
System does not power on.	Check power supply connections (24-pin ATX, 8-pin CPU), ensure front panel power switch is correctly connected, and verify power supply is switched on.
No display output.	Ensure graphics card is properly seated and connected to power. Check monitor cable connection. If using integrated graphics, ensure monitor is connected to motherboard video output. Try reseating RAM modules.
System reboots unexpectedly or crashes.	Check CPU and GPU temperatures. Ensure adequate cooling. Verify RAM stability (run memory diagnostic). Update BIOS and drivers. Check power supply stability.
Slow network speeds (Wi-Fi/LAN).	Ensure Wi-Fi antennas are securely attached. Update Wi-Fi and LAN drivers. Check router/modem. For LAN, ensure you are using a compatible cable.
BIOS update failure.	Use Q-Flash Plus for a more robust update process. Ensure the USB drive is formatted correctly (FAT32) and the BIOS file is renamed as required by GIGABYTE.

For more detailed troubleshooting, please refer to the official GIGABYTE support resources or the full user manual.

Specifications

Feature	Detail
Brand	GIGABYTE
Series	Z790 AORUS MASTER
Item Model Number	Z790
CPU Socket	LGA 1700
Compatible Processors	12th Gen Intel Core, 13th Core
RAM Memory Technology	DDR5
Memory Speed	5600 MHz (Base, supports higher via XMP)
Memory Storage Capacity	Up to 64 GB
Chipset Type	Intel Z790
Wireless Type	802.11ax (WiFi 6E)
LAN	Marvell AQtion 10GbE LAN
Product Dimensions	13.58 x 11.57 x 3.14 inches (EATX Form Factor)
Item Weight	6.97 pounds

Feature	Detail
Date First Available	October 20, 2022

Product Visuals and Overviews



Figure 1: The GIGABYTE Z790 AORUS Master EATX Motherboard alongside its retail packaging, showcasing the product's design and branding.



Figure 2: A top-down view of the GIGABYTE Z790 AORUS Master Motherboard, highlighting the CPU socket, DDR5 DIMM slots, and M.2 heatsinks.



Figure 3: The rear I/O panel of the motherboard, featuring multiple USB ports (including Type-C), 10GbE LAN, Wi-Fi 6E antenna connectors, and audio jacks.

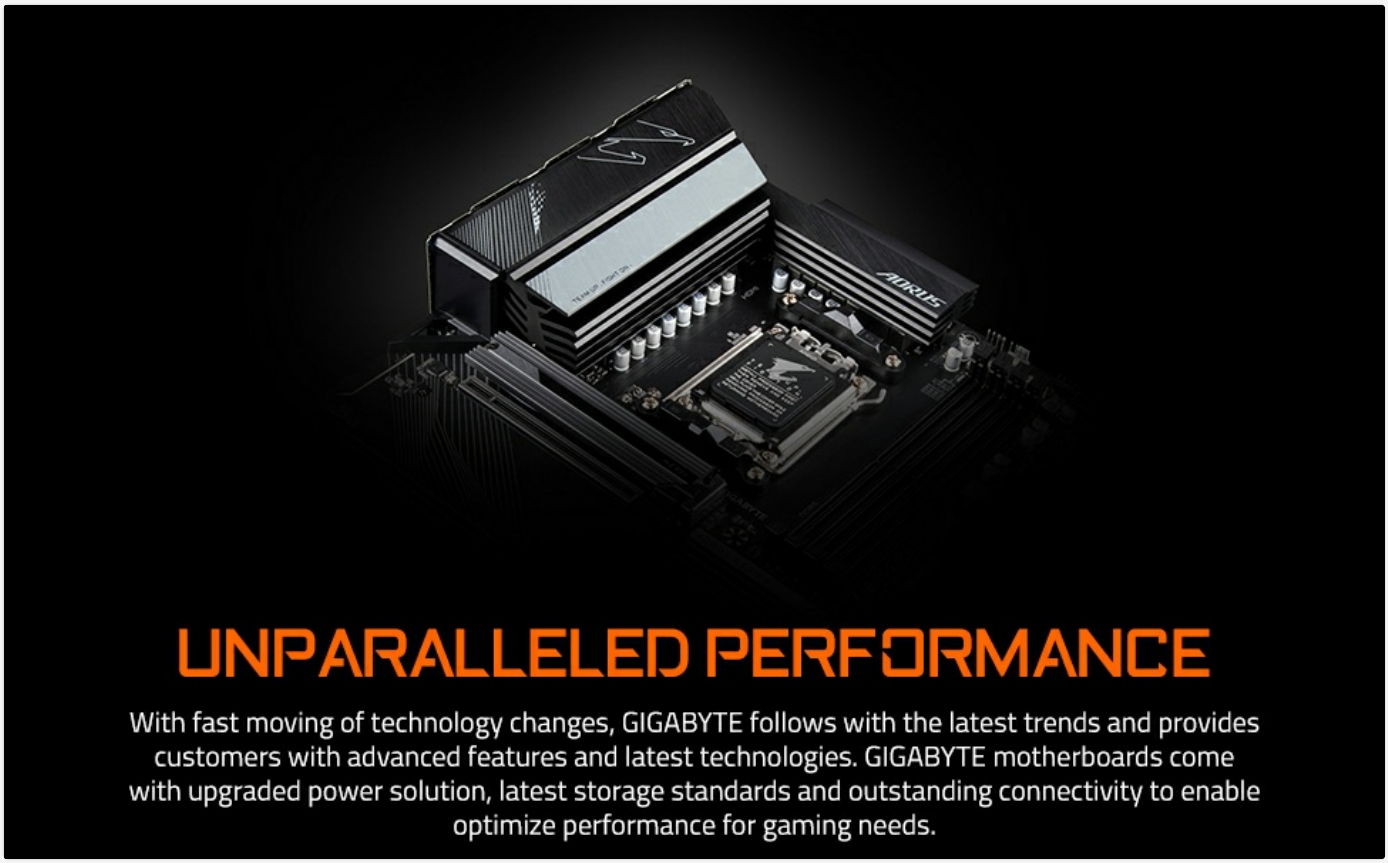


Figure 4: An illustration highlighting the unparalleled performance capabilities of the GIGABYTE Z790 AORUS Master Motherboard, emphasizing its advanced power solution and connectivity.



Figure 5: A visual representation of the motherboard's outstanding thermal design, including M.2 Thermal Guard III and Fins-Array III, ensuring optimal cooling under load.

Product Overview Video

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Video 1: An official product overview video showcasing the GIGABYTE Z790 AORUS Master Motherboard's features, design, and connectivity options. This video provides a dynamic look at the motherboard's key components and highlights its capabilities for high-end PC builds.

Warranty and Support

For detailed warranty information, please refer to the warranty card included with your product or visit the official GIGABYTE website.
For additional support, including drivers, utilities, and FAQs, please visit the GIGABYTE support page:
GIGABYTE Z790 AORUS Master Support Page
You can also download the official User Guide (PDF) for more in-depth information:
Download User Guide (PDF)

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