GIGABYTE Z490 AORUS MASTER

GIGABYTE Z490 AORUS Master Gaming Motherboard User Manual

Model: Z490 AORUS MASTER

Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of your GIGABYTE Z490 AORUS Master Gaming Motherboard. Designed for 10th Gen Intel Core Series Processors, this motherboard features a 14-phase digital VRM, advanced cooling solutions, and high-speed connectivity options including Intel 2.5 GbE LAN and Wi-Fi 6. Please read this manual thoroughly before beginning installation to ensure proper setup and optimal performance.

Setup and Installation

Proper installation is crucial for the stability and performance of your system. Always ensure your power supply is disconnected before handling components.

Component Overview

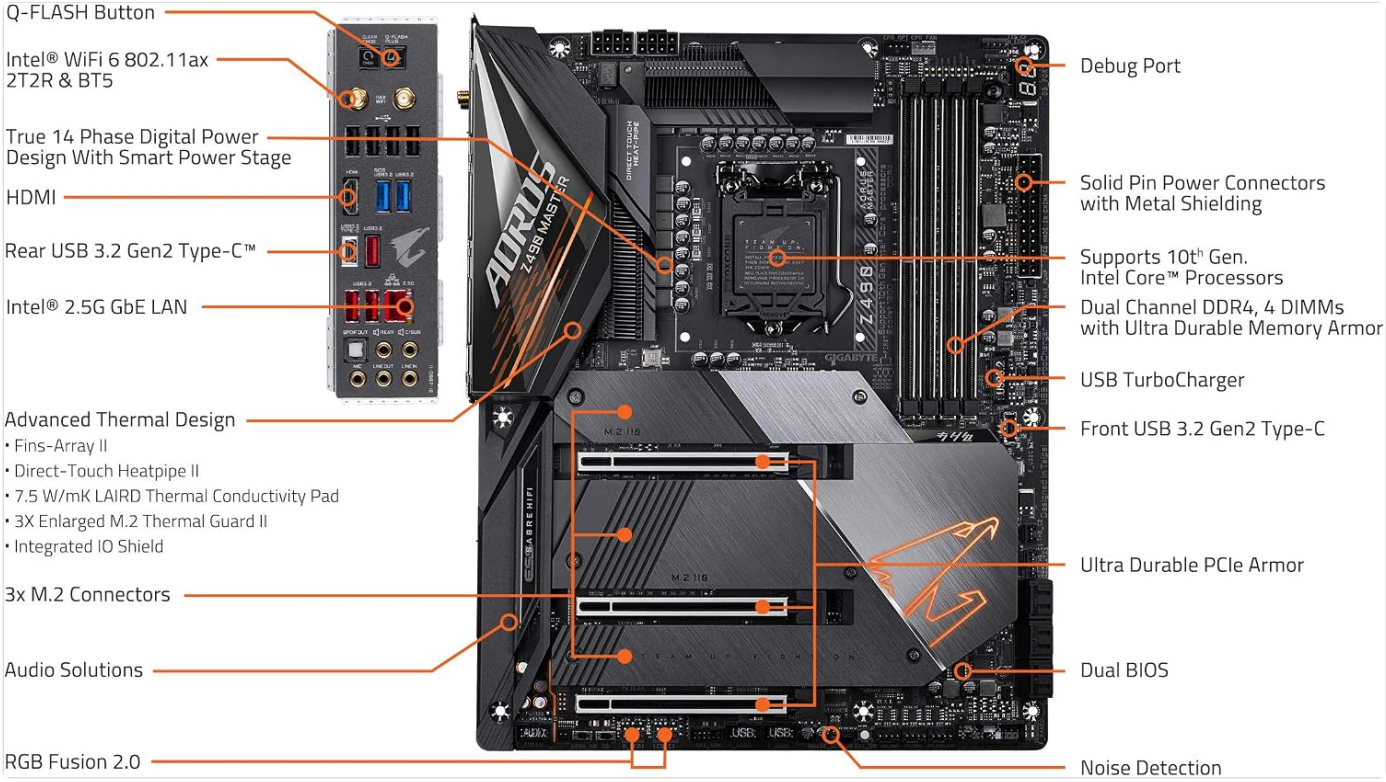


Figure 1: Overview of the GIGABYTE Z490 AORUS Master Motherboard with key components and features labeled, including the CPU socket, memory slots, M.2 slots, and various headers.

Pre-Installation Checklist

- Ensure you have a compatible 10th Gen Intel Core Processor (LGA1200 socket).
- Gather all necessary components: CPU, CPU cooler, DDR4 RAM modules, M.2 SSDs (if applicable), graphics card, power supply, and PC case.
- Prepare a clean, static-free workspace. Consider using an anti-static wrist strap.

Installation Steps

1. **Install CPU:** Carefully open the CPU socket lever, align the CPU with the triangle marker on the socket, gently place the CPU, and close the lever.
2. **Install CPU Cooler:** Follow the cooler manufacturer's instructions to install the CPU cooler onto the motherboard.
3. **Install RAM:** Open the clips on the DDR4 DIMM slots. Align the RAM modules with the notch in the slot and press firmly until the clips snap into place. For dual-channel operation, refer to your motherboard's specific manual for recommended slot configurations.
4. **Install M.2 SSDs:** Locate the M.2 slots. Remove the M.2 Thermal Guard screws, insert the M.2 SSD at an angle, and secure it with the provided screw. Reattach the Thermal Guard. This motherboard supports up to three M.2 drives.
5. **Mount Motherboard:** Install standoffs in your PC case according to the motherboard's ATX form factor. Carefully place the motherboard onto the standoffs and secure it with screws.
6. **Connect Power:** Connect the 24-pin ATX main power connector and the 8+8 Solid-pin CPU power connectors from your power supply to the motherboard.
7. **Connect Peripherals:** Connect front panel headers (power, reset, USB, audio), SATA drives, and any other necessary cables.
8. **Install Graphics Card:** Insert your graphics card into the primary PCIe x16 slot and secure it. Connect PCIe power cables from your power supply to the graphics card if required.

For detailed visual guides, please refer to the official GIGABYTE installation manual PDF available on the product support

page.

Operating Your Motherboard

Once your system is assembled, you can proceed with initial boot-up and operating system installation.

BIOS Setup

The BIOS (Basic Input/Output System) is the first software that runs when you power on your computer. It allows you to configure hardware settings, boot order, and system performance. To enter BIOS setup, press the `DEL` key during the initial boot screen.

- **Easy Mode:** Provides a simplified interface for common settings like boot order, fan control, and XMP profile activation for memory.
- **Advanced Mode:** Offers comprehensive control over CPU, memory, power, and peripheral settings. This is where you can fine-tune performance and troubleshoot advanced issues.
- **Q-Flash Plus:** This feature allows you to update the BIOS without installing the CPU, memory, or graphics card. Refer to the dedicated section in the full manual for detailed instructions.

Key Features and Technologies

- **14 Phases Digital VRM with 90A Smart Power Stage:** Ensures stable and efficient power delivery to the CPU, crucial for high-performance computing and overclocking.
- **Next-Generation VRM Cooling:** Features Fins Array II and Direct Touch Heatpipe with Nanocarbon coating for superior heat dissipation.
- **Shielded Xtreme Memory Design:** Supports Dual Channel Non-ECC Unbuffered DDR4 with Tantalum Polymer Capacitors Array for enhanced memory stability and overclocking potential up to 5000 MHz.
- **Intel 2.5 GbE LAN:** Provides high-speed wired network connectivity.
- **Intel Wi-Fi 6 and Bluetooth 5:** Offers fast wireless networking and peripheral connectivity. Ensure the included AORUS Antennas are connected for optimal performance.
- **AMP UP Audio:** Features ALC1220-VB2 with ESS Sabre ES9118 Rear Audio DAC for high-fidelity audio output.
- **RGB Fusion 2.0:** Customize the motherboard's integrated RGB lighting and synchronize it with other compatible devices.
- **Smart Fan 5:** Advanced fan control system with hybrid fan headers, fan stop function, PWM controls, and noise detection for optimal cooling and acoustics.

Maintenance

Regular maintenance helps prolong the lifespan and ensure the stable operation of your motherboard and PC.

- **Dust Removal:** Periodically clean dust from inside your PC case, especially around heatsinks and fans, using compressed air. Ensure the system is powered off and unplugged.
- **BIOS Updates:** Check the GIGABYTE website for the latest BIOS versions. BIOS updates can improve compatibility, stability, and performance. Use the Q-Flash Plus feature for safe updates.
- **Driver Updates:** Keep your drivers, especially for chipset, LAN, and Wi-Fi, updated to the latest versions from the GIGABYTE support page. This can resolve performance issues and improve compatibility.
- **Cable Management:** Ensure all internal cables are neatly routed and secured to improve airflow and prevent accidental disconnections.

Troubleshooting

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

Common Issues and Solutions

Problem	Possible Cause / Solution
System does not power on or boot.	Check all power connections (24-pin ATX, 8-pin CPU, PCIe for GPU). Ensure CPU and RAM are correctly seated. Verify front panel power button connection. Try clearing CMOS (see below).
No display output.	Ensure monitor cable is connected to the graphics card (not motherboard, if discrete GPU is installed). Reseat graphics card and its power cables. Try one RAM stick at a time in different slots.
Intel 2.5GbE LAN connectivity issues.	Update to the latest LAN driver from GIGABYTE's official website. Some users have reported success with driver version 1.0.1.4. Ensure network cable is securely connected.
Bluetooth not working or flaky.	Ensure the included AORUS Wi-Fi/Bluetooth antennas are securely connected to the rear I/O panel. Update Wi-Fi/Bluetooth drivers.
Coil whine or unusual noises.	In BIOS, navigate to "Advanced" (under Tweaker) -> "CPU settings" and disable "C-States control". This can often mitigate coil whine.

Clearing CMOS

Clearing the CMOS (Complementary Metal-Oxide-Semiconductor) can resolve issues caused by incorrect BIOS settings or corrupted BIOS data. This will reset all BIOS settings to their default values.

- **Method 1 (CLR_CMOS Jumper):** Power off your PC and unplug the power cord. Locate the CLR_CMOS jumper on the motherboard (refer to the full manual for exact location). Short the two pins with a metal object (like a screwdriver) for 5-10 seconds.
- **Method 2 (CMOS Battery):** Power off your PC and unplug the power cord. Remove the small coin-cell battery (CR2032) from the motherboard. Wait for 1-5 minutes, then reinsert the battery.



Figure 2: Rear I/O panel of the GIGABYTE Z490 AORUS Master Motherboard, showing various ports including USB, LAN, Wi-Fi antenna connectors, and audio jacks. The Q-Flash Plus button and Clear CMOS button are also visible.

Specifications

Detailed technical specifications for the GIGABYTE Z490 AORUS Master Motherboard.

Feature	Detail
Brand	GIGABYTE
Model Number	Z490 AORUS MASTER
CPU Socket	LGA 1200
Compatible Processors	10th Generation Intel Core

Feature	Detail
Chipset Type	Intel Z490
RAM Memory Technology	DDR4
Memory Speed	Up to 5000 MHz (OC)
Memory Storage Capacity	128 GB (Max)
LAN	Intel 2.5GbE LAN chip
Wireless Type	Intel Wi-Fi 6 (802.11ax) and Bluetooth 5
USB Ports (Rear)	3x USB 3.2 Gen 2 Type-A, 1x USB 3.2 Gen 1 Type-C, 2x USB 3.2 Gen 1 Type-A, 4x USB 2.0
USB Ports (Front)	1x USB 3.2 Gen 2 Type-C, 2x USB 3.2 Gen 1, 4x USB 2.0
Audio	AMP UP Audio ALC1220-VB2 with ESS Sabre ES9118 Rear Audio DAC
Product Dimensions	13.58 x 11.57 x 3.14 inches
Item Weight	4.03 pounds

Warranty and Support

GIGABYTE provides warranty coverage for its products. Please refer to the official GIGABYTE website for the most up-to-date warranty terms and conditions specific to your region.

Customer Support

For technical assistance, driver downloads, BIOS updates, and further documentation, please visit the official GIGABYTE support website. You can also find an Installation Manual (PDF) for this product.

- **GIGABYTE Official Website:** www.gigabyte.com
- **Product Support Page:** Search for "Z490 AORUS MASTER" on the GIGABYTE website for specific drivers, utilities, and FAQs.

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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