GIGABYTE Z790 D DDR4

GIGABYTE Z790 D DDR4 Motherboard User Manual

Comprehensive guide for setup, operation, and maintenance of your GIGABYTE Z790 D DDR4 Motherboard.

1. Product Overview

The GIGABYTE Z790 D DDR4 Motherboard is engineered to support 13th and 12th Gen Intel Core Series Processors, offering unparalleled performance for gaming and demanding applications. It features robust power delivery, advanced thermal solutions, and next-generation connectivity to optimize your system's capabilities.



Image: The GIGABYTE Z790 D DDR4 Motherboard alongside its retail packaging, showcasing the product's design and branding.

Product Overview Video

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Video: A brief product overview highlighting the key features and design of the GIGABYTE Z790 D DDR4 Motherboard.

2. Key Features

- **Intel LGA 1700 Socket:** Supports 13th and 12th Gen Intel Core Series Processors.
- **Dual Channel DDR4:** Equipped with 4*SMD DIMMs for efficient memory performance.
- **Sturdy Power Design:** Features a 16+1+1 Twin Hybrid Phases Digital Power Design with 60A DrMOS for stable power delivery.
- **Comprehensive Thermal Design:** Includes Fully Covered MOSFET Heatsinks, M.2 Thermal Guard, Ultra Durable Armor, and a 6-layer & 2X Copper PCB for optimal heat dissipation.
- **Next Gen Connectivity:** Offers PCIe 5.0, Triple NVMe PCIe 4.0 x4 M.2 slots, and SuperSpeed USB 3.2 Gen 2x2 Type-C for high-speed data transfer.
- **Fast Networking:** Integrated 2.5GbE LAN for reliable and high-speed internet connection.
- **Fine Tuning Features:** Supports RGB FUSION 2.0 for customizable lighting, Addressable LED & RGB LED Strips, Smart Fan 6 for intelligent cooling control, and Q-Flash Plus for BIOS updates without CPU, Memory, or GPU installation.

Advanced Design Elements

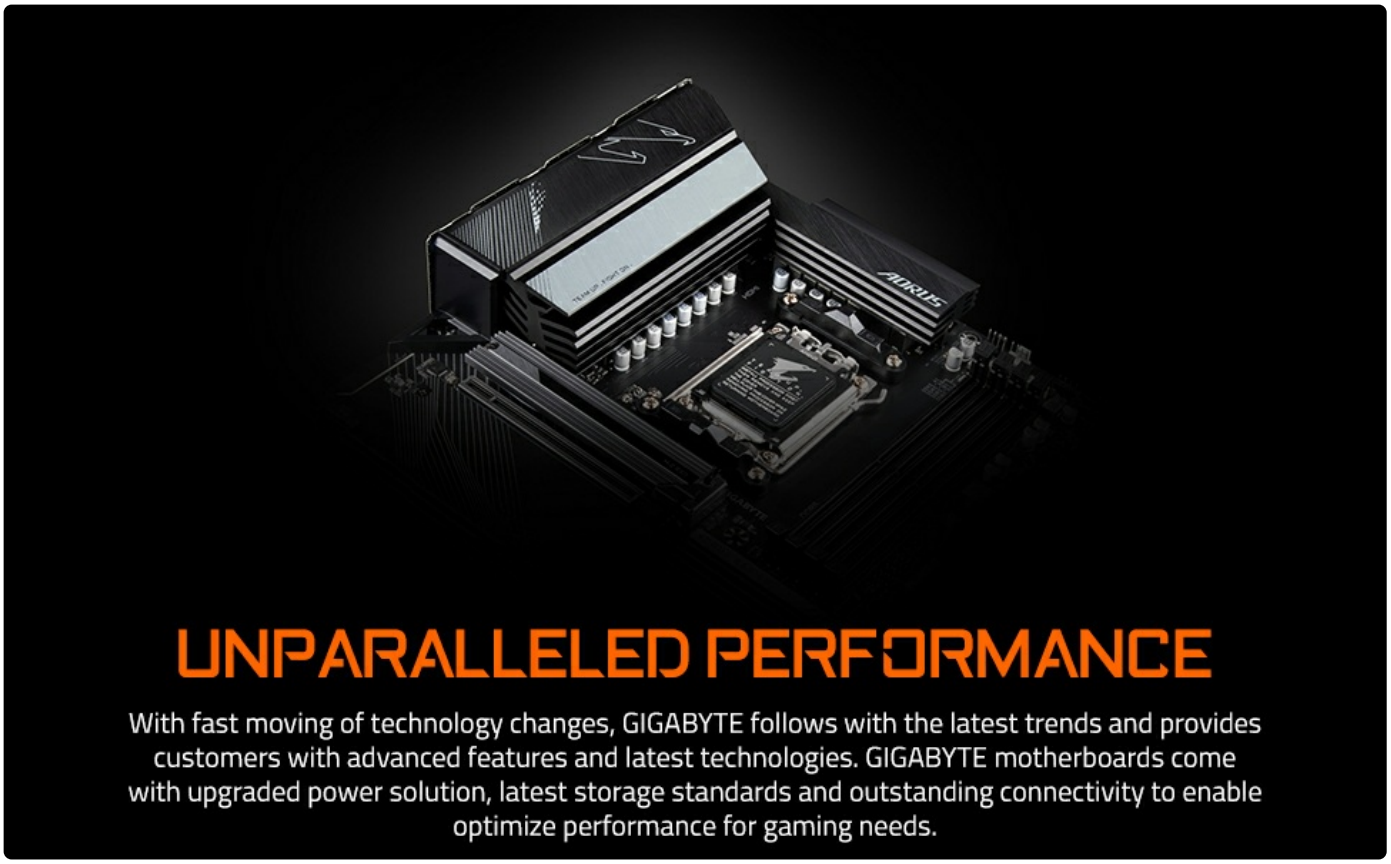


Image: Visual representation of the motherboard's components contributing to unparalleled performance, including power delivery and processor support.



Image: Close-up view of the motherboard's thermal design, emphasizing heatsinks and cooling solutions for optimal temperature management.



Image: Illustration of the motherboard's Ultra Durable construction, highlighting reinforced slots and high-quality components for longevity.



Image: Detailed view of the motherboard's connectivity options, including various USB ports, LAN, and audio jacks.

3. Component Identification

Familiarize yourself with the various components and connectors on your GIGABYTE Z790 D DDR4 Motherboard to ensure proper installation and configuration.

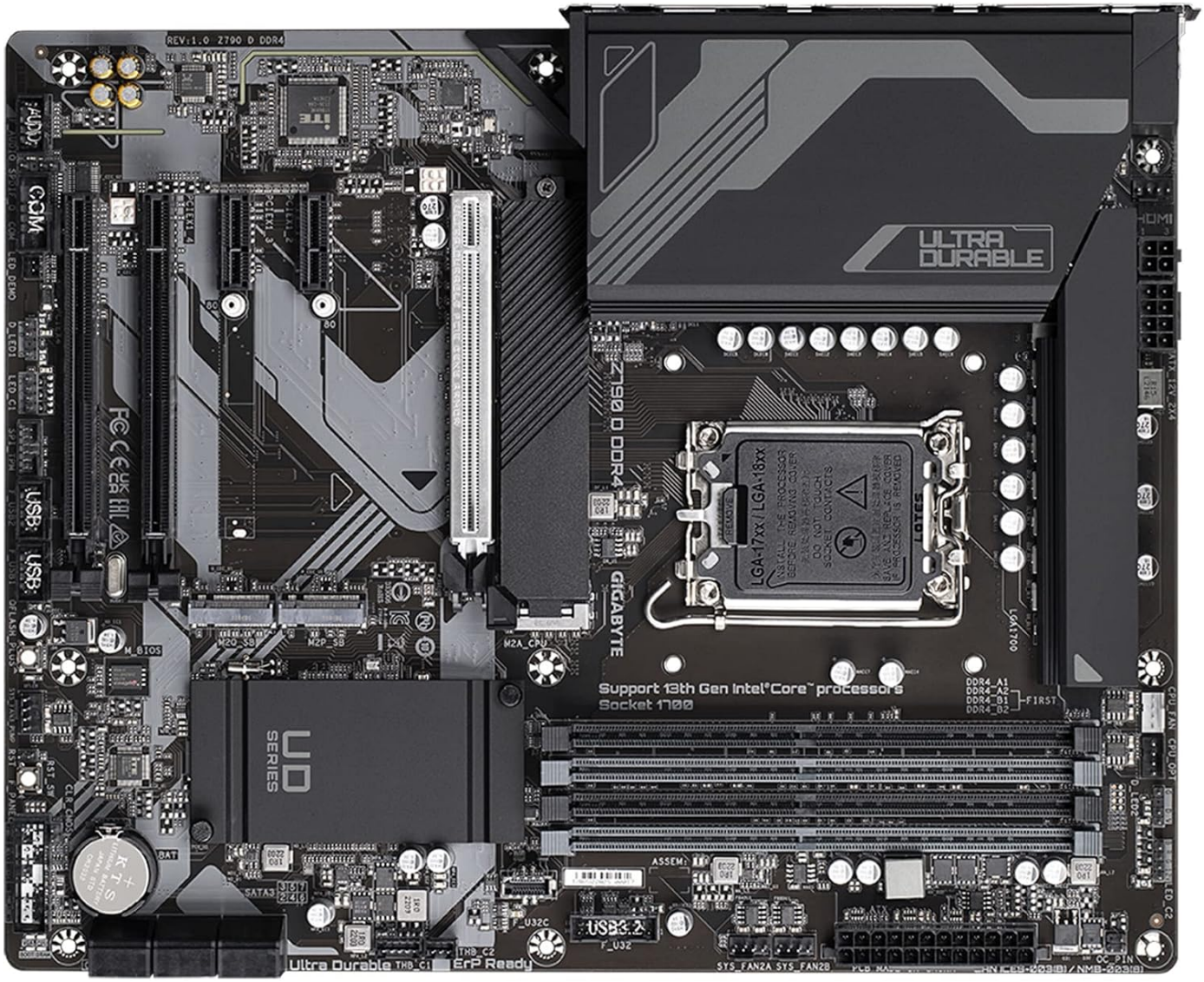


Image: A top-down view of the motherboard with key components such as the CPU socket, RAM slots, PCIe slots, and M.2 connectors clearly labeled for identification.

- **CPU Socket (LGA 1700):** Located centrally, this is where your Intel processor is installed.
- **DDR4 DIMM Slots:** Four slots for installing DDR4 memory modules, supporting dual-channel configuration.
- **PCIe 5.0 Slot:** The primary slot for your graphics card, offering high bandwidth.
- **NVMe PCIe 4.0 x4 M.2 Slots:** Multiple slots for high-speed solid-state drives.
- **SATA 6Gb/s Ports:** Connect traditional SATA storage devices.
- **USB Headers:** Internal headers for connecting front panel USB ports.
- **Fan Headers:** Multiple headers for connecting case fans and CPU coolers.
- **Front Panel Headers:** Connects to your PC case's power button, reset button, and LED indicators.

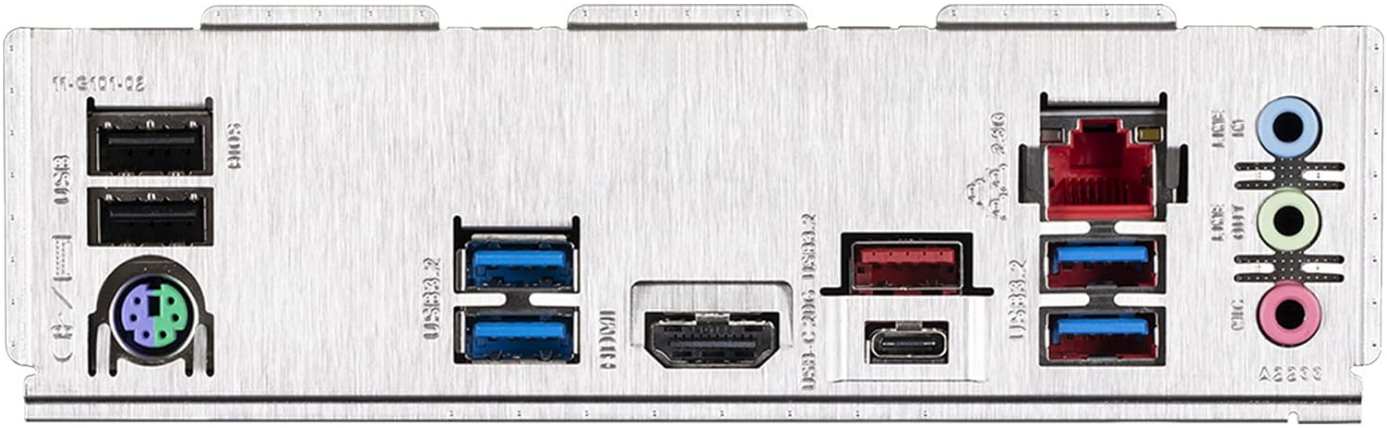


Image: The rear input/output (I/O) panel of the motherboard, showing various ports for external device connections, including USB, HDMI, LAN, and audio jacks.

- **USB 2.0/1.1 Ports:** For connecting standard USB devices.
- **USB 3.2 Gen 1 Ports:** Faster USB ports for compatible devices.
- **USB 3.2 Gen 2x2 Type-C Port:** High-speed reversible USB port.
- **HDMI Port:** For video output to a display.
- **2.5GbE LAN Port:** For wired network connection.
- **Audio Jacks:** For connecting speakers, headphones, and microphones.
- **Q-Flash Plus Button:** Allows BIOS updates without a CPU, memory, or graphics card installed.

4. Setup Guide

Follow these steps carefully to set up your GIGABYTE Z790 D DDR4 Motherboard and build your system.

4.1. Before You Begin

- Ensure you have all necessary components: CPU, CPU cooler, RAM, storage devices (M.2 SSDs, SATA SSDs/HDDs), graphics card (if not using integrated graphics), power supply, and PC case.
- Work on a clean, static-free surface. Use an anti-static wrist strap to prevent damage to components.
- Refer to your CPU and cooler manuals for specific installation instructions.

4.2. Installing the CPU

1. Locate the LGA 1700 CPU socket on the motherboard.
2. Gently push down the load lever and pull it away from the socket to open the retention frame.
3. Align the triangular mark on the CPU with the mark on the socket. Carefully place the CPU into the socket without forcing it.
4. Close the retention frame and push the load lever back into place until it clicks.
5. Install your CPU cooler according to its manufacturer's instructions.

4.3. Installing RAM (DDR4)

1. Open the clips at both ends of the DDR4 DIMM slots.
2. Align the notch on the RAM module with the key in the DIMM slot.
3. Press down firmly on both ends of the RAM module until the clips snap into place.
4. For dual-channel performance, install RAM modules in matching colored slots (e.g., slots 2 and 4).

4.4. Installing Storage Devices

1. **M.2 SSD:** Locate the M.2 slots. Remove the M.2 Thermal Guard if present. Insert the M.2 SSD into the slot at an angle, then gently push it down and secure it with the provided screw or EZ-Latch mechanism. Reinstall the Thermal Guard.
2. **SATA Devices:** Connect SATA data cables from your SSDs/HDDs to the SATA 6Gb/s ports on the motherboard. Connect SATA power cables from your power supply to the drives.

4.5. Installing the Graphics Card (Optional)

1. Locate the primary PCIe 5.0 x16 slot (usually the top reinforced slot).
2. Open the retention clip at the end of the slot.
3. Align the graphics card with the slot and press down firmly until it is fully seated and the clip snaps shut.
4. Secure the graphics card to the PC case with screws.
5. Connect PCIe power cables from your power supply to the graphics card if required.

4.6. Connecting Power Supply Cables

1. Connect the 24-pin ATX main power connector from your power supply to the motherboard.
2. Connect the 8-pin (or 4+4-pin) CPU power connector(s) to the appropriate headers near the CPU socket.

4.7. Final Connections

1. Connect front panel cables (Power SW, Reset SW, HDD LED, Power LED) to the front panel headers. Refer to the motherboard manual for exact pin layout.
2. Connect USB 2.0, USB 3.0, and USB Type-C front panel cables to their respective headers.
3. Connect case fan cables to the fan headers.
4. Install the motherboard into your PC case, securing it with screws.

5. Operating Instructions

Once your hardware is assembled, follow these steps to get your system up and running.

5.1. First Boot and BIOS Setup

1. Connect your monitor, keyboard, and mouse to the rear I/O panel.
2. Power on your system. Press the `DEL` key repeatedly during startup to enter the BIOS/UEFI setup utility.
3. In the BIOS, verify that all installed components (CPU, RAM, storage) are detected correctly.
4. Configure boot order to prioritize your operating system installation media (USB drive or DVD).
5. Save changes and exit BIOS. Your system will restart.

5.2. Operating System Installation

Follow the on-screen prompts to install your preferred operating system (e.g., Windows 10/11, Linux distribution).

5.3. Driver Installation

After OS installation, install the latest drivers for your motherboard components (chipset, LAN, audio, USB, etc.) from the GIGABYTE official website or the provided driver CD/USB drive. This ensures optimal performance and stability.

5.4. RGB FUSION 2.0 and Smart Fan 6

Utilize GIGABYTE's software utilities like RGB FUSION 2.0 to customize your system's lighting effects and Smart Fan 6 to fine-tune fan curves for optimal cooling and noise levels.

6. Maintenance

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

6.1. Cleaning

- Periodically clean dust from your PC case and motherboard components using compressed air.
- Ensure fans and heatsinks are free of obstructions to maintain effective cooling.
- Always power off and unplug your system before cleaning.

6.2. BIOS Updates

- Check the GIGABYTE website regularly for the latest BIOS updates.
- BIOS updates can improve compatibility, stability, and performance.
- Use the Q-Flash Plus feature for safe and easy BIOS updates, even without a CPU or RAM installed.

7. Troubleshooting

This section provides solutions for common issues you might encounter.

Problem	Possible Cause	Solution
System does not power on.	Loose power cables, faulty power supply, incorrect front panel connections.	Check all power connections (24-pin ATX, 8-pin CPU). Ensure front panel power switch is correctly connected. Test power supply.
No display on monitor.	Incorrect display cable connection, faulty graphics card, RAM not seated properly.	Verify display cable is securely connected to both monitor and graphics card/motherboard. Reseat RAM modules. Test with a different graphics card if possible.
System reboots unexpectedly.	Overheating, unstable power, faulty components.	Check CPU and GPU temperatures. Ensure adequate airflow in the case. Verify power supply stability. Run memory diagnostic tests.
Storage drive not detected.	Loose data/power cables, incorrect BIOS settings, faulty drive.	Check SATA/M.2 connections. Ensure SATA ports are enabled in BIOS. Test drive on another system if possible.
Network connection issues.	Loose LAN cable, outdated LAN drivers, router/modem issue.	Verify LAN cable connection. Install/update LAN drivers. Restart router/modem.

For more complex issues, consult the GIGABYTE support website or contact their technical support.

8. Technical Specifications

Feature	Detail
Brand	GIGABYTE
Model Name	Z790 D DDR4
CPU Socket	LGA 1700
Compatible Processors	13th and 12th Generation Intel Core Series Processors
Chipset Type	Intel Z790
RAM Memory Technology	DDR4 (Dual Channel, 4*SMD DIMMs)
Memory Clock Speed	2133 MHz (Supports higher speeds via XMP)
PCIe Connectivity	PCIe 5.0, Triple NVMe PCIe 4.0 x4 M.2
USB Connectivity	SuperSpeed USB 3.2 Gen 2x2 Type-C, USB 3.2 Gen 1, USB 2.0/1.1
LAN	2.5GbE LAN
Power Design	16+1+1 Twin Hybrid Phases Digital Power Design with 60A DrMOS
Thermal Design	Fully Covered MOSFET Heatsinks, M.2 Thermal Guard, Ultra Durable Armor, 6-layer & 2X Copper PCB
Product Dimensions	13.18 x 10.62 x 3.14 inches
Item Weight	3.72 pounds
Platform	Windows 10 (Compatible with Windows 11)

9. Warranty and Support

GIGABYTE products are designed for reliability and performance. For detailed warranty information, please refer to the warranty card included with your product or visit the official GIGABYTE website.
For technical assistance, driver downloads, BIOS updates, and FAQs, please visit the GIGABYTE support page. You can also contact their customer service for direct support regarding product issues or inquiries.
GIGABYTE Support Website: www.gigabyte.com/support

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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