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MSI MAG Z790 TOMAHAWK MAX WIFI

MSI MAG Z790 TOMAHAWK MAX WIFI Motherboard

User Manual

Model: MAG Z790 TOMAHAWK MAX WIFI (7E25-002R) | Brand: MSI

1. Introduction

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of your MSI MAG Z790 TOMAHAWK MAX WIFI ATX motherboard. Please read this manual thoroughly before proceeding with installation and use to ensure optimal performance and longevity of your system.
The MSI MAG Z790 TOMAHAWK MAX WIFI is designed for high-performance computing, supporting 12th, 13th, and 14th Generation Intel Core processors with an LGA 1700 socket. It features DDR5 memory support, PCIe 5.0 connectivity, and advanced cooling solutions.

2. Setup and Installation

Proper installation is crucial for the stability and performance of your system. Ensure you have all necessary components and tools before beginning.

2.1 Motherboard Layout

Familiarize yourself with the key components and connectors on the motherboard.



Figure 2.1: Top-down view of the MSI MAG Z790 TOMAHAWK MAX WIFI motherboard, showing the CPU socket, DIMM slots, PCIe slots, and M.2 slots.

2.2 CPU and Cooler Installation

Carefully install your LGA 1700 processor into the CPU socket. Apply thermal paste and install the CPU cooler according to its manufacturer's instructions.

2.3 Memory (RAM) Installation

The motherboard supports DDR5 memory. Insert DDR5 DIMMs into the memory slots, ensuring they are fully seated until the clips lock into place. Refer to the motherboard manual for recommended slot population for optimal performance (e.g., dual-channel configuration).

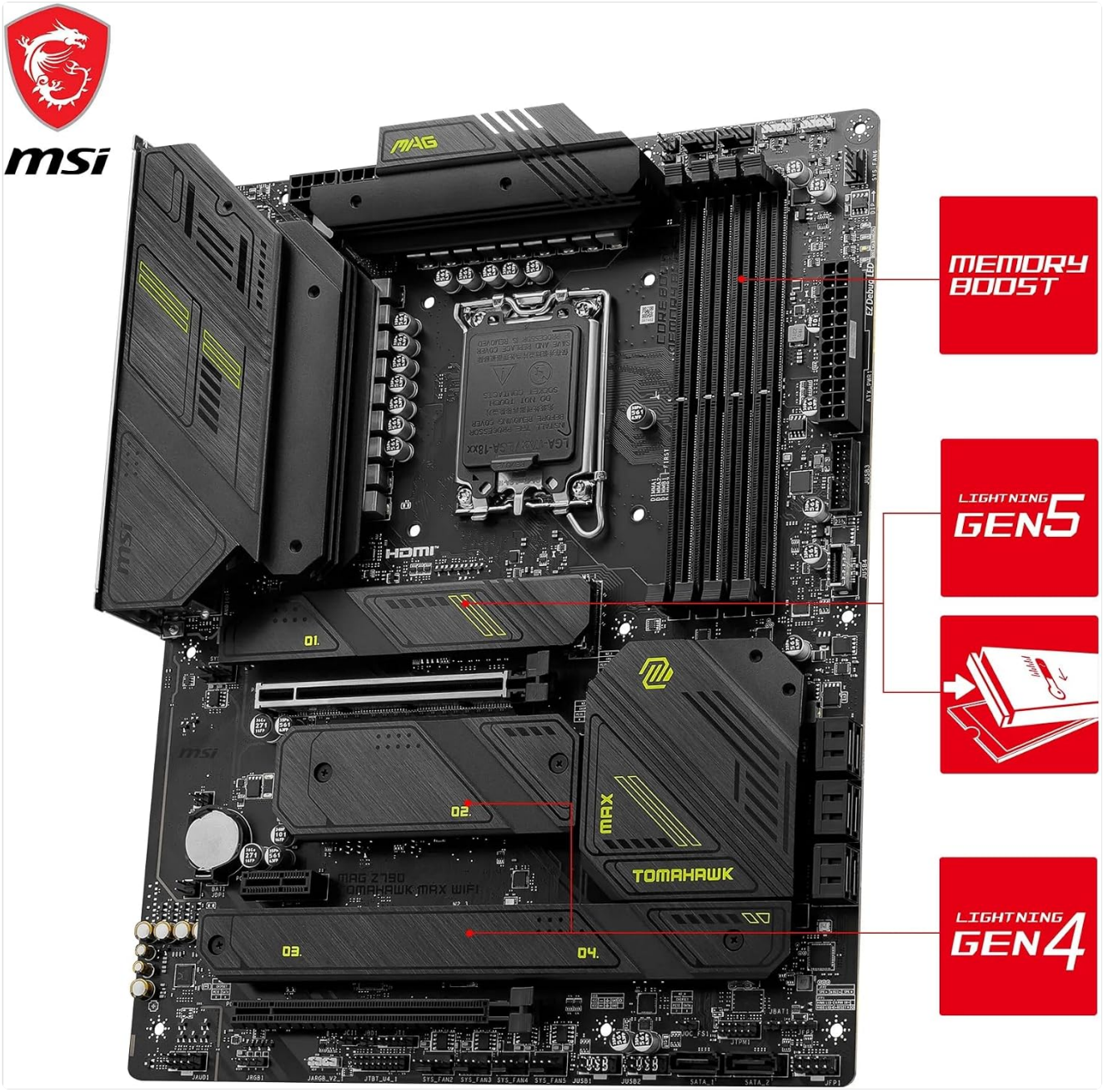


Figure 2.2: Close-up view of the motherboard highlighting the DDR5 DIMM slots with Memory Boost technology and the PCIe 5.0 x16 slot, along with multiple M.2 slots.

2.4 Storage Device Installation

The motherboard features multiple M.2 connectors, including one M.2 Gen5 x4 128Gbps slot and three M.2 Gen4 x4 64Gbps slots. Utilize the EZ M.2 Clips for tool-free installation of M.2 SSDs. Connect SATA drives to the available SATA ports.

2.5 Graphics Card and Expansion Cards

Install your graphics card into the primary PCIe 5.0 x16 slot. This slot is reinforced with Steel Armor for durability. Additional expansion cards can be installed in other available PCIe slots.

3. Operating Your System

Once all components are installed and connected, you can power on your system. The motherboard supports Windows 10 64-bit and Windows 11 64-bit operating systems.

3.1 BIOS/UEFI Configuration

Access the BIOS/UEFI settings by pressing the DEL key during system startup. Here you can configure boot order, enable/disable features, and adjust system settings.

3.2 Connectivity

The motherboard offers comprehensive connectivity options:

- **Wi-Fi 7:** Integrated Wi-Fi 7 module for high-speed wireless networking.
- **Bluetooth 5.4:** For connecting wireless peripherals.
- **Intel 2.5Gbps LAN:** For high-speed wired network connections.
- **USB Ports:** Includes USB 3.2 Gen 2x2 Type-C (20Gbps) and various USB 3.2 Gen 1 and USB 2.0 ports.
- **Video Output:** HDMI 2.1 and DisplayPort for integrated graphics output.
- **Audio:** 7.1 HD Audio with Audio Boost 5 for immersive sound.



Figure 3.1: Detailed view of the rear I/O panel, showing various ports including USB, HDMI, DisplayPort, LAN, Wi-Fi antenna connectors, and audio jacks.

4. Maintenance

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

4.1 Cooling System

The motherboard features integrated and AI cooling solutions, including VRM cooling with 7W/mK MOSFET thermal pads, a chipset heatsink, and M.2 Shield Frozr to prevent thermal throttling of SSDs. Frozr AI cooling automatically adjusts system fan settings based on CPU and GPU temperatures.



Figure 4.1: Angled view of the motherboard emphasizing the robust cooling design, including the Copper PCB and various heatsinks

for optimal thermal management.

4.2 Cleaning

Periodically clean dust from inside your PC case, especially around fans, heatsinks, and motherboard components. Use compressed air and anti-static brushes. Ensure the system is powered off and unplugged before cleaning.

4.3 Driver and BIOS Updates

Keep your motherboard drivers and BIOS/UEFI firmware updated to ensure compatibility, stability, and access to the latest features. Visit the official MSI website for the latest downloads specific to your model.

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5. Troubleshooting

This section provides solutions to common issues you might encounter.

5.1 No Display/Boot Issues

- Verify all power cables (24-pin ATX, 8-pin CPU) are securely connected.
- Reseat RAM modules. Try booting with only one RAM stick.
- Ensure the graphics card is properly seated in its PCIe slot and has adequate power.
- If using integrated graphics, ensure your monitor is connected to the motherboard's HDMI or DisplayPort.

5.2 Network Connectivity Problems

- Ensure Wi-Fi antennas are securely connected to the rear I/O panel.
- Check network cable connections for wired LAN.
- Install or update network drivers from the MSI website.
- Verify network settings in your operating system.

5.3 BIOS/UEFI Reset or Update

If you encounter issues after changing BIOS settings, you can clear the CMOS. The motherboard features a Clear CMOS Button on the rear I/O panel for easy reset. For BIOS updates, the Flash BIOS Button allows updating the BIOS without a CPU, memory, or graphics card installed.

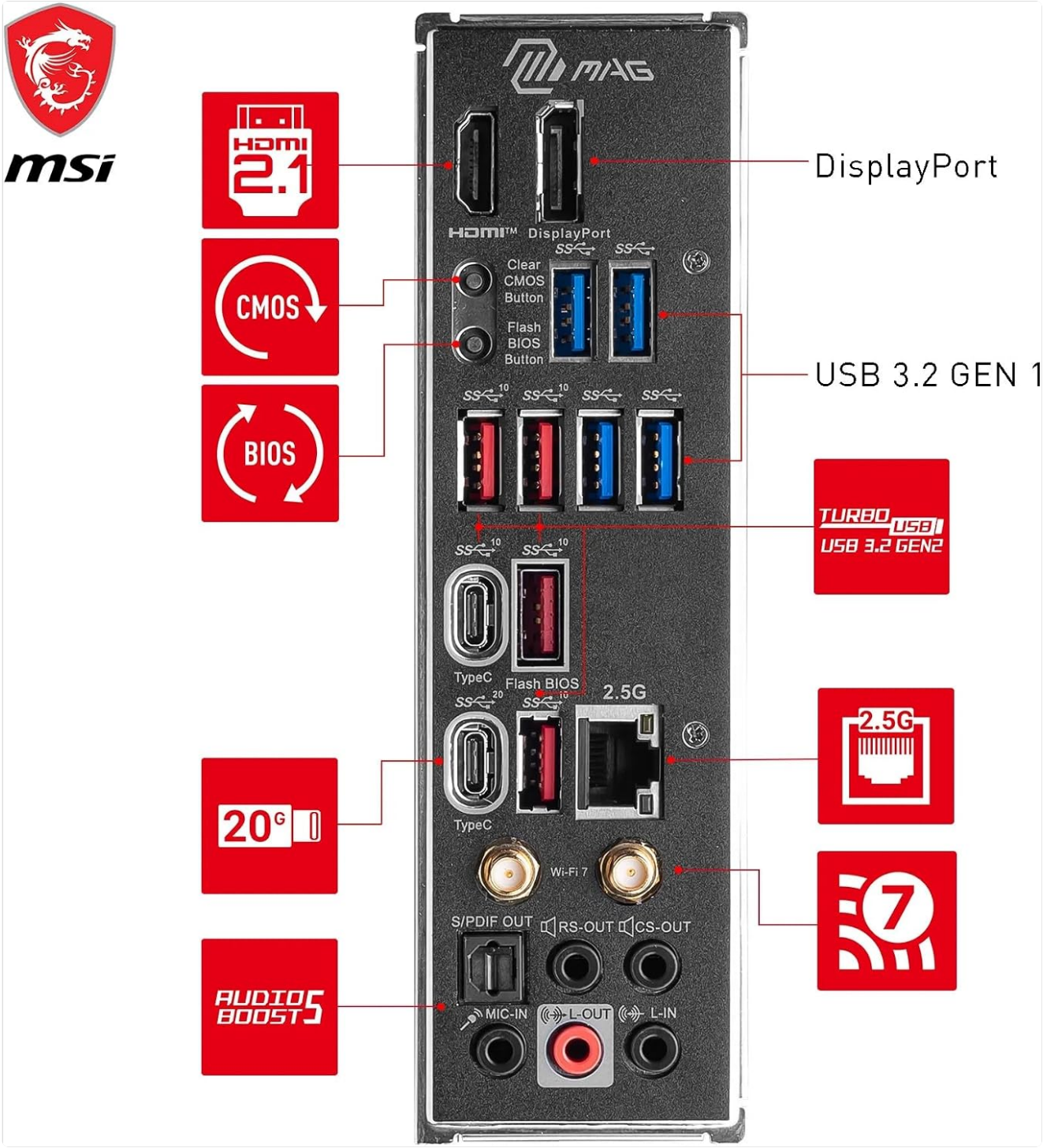


Figure 5.1: Close-up of the rear I/O panel, indicating the Clear CMOS Button and Flash BIOS Button for system recovery and firmware updates.

6. Specifications

Key technical specifications for the MSI MAG Z790 TOMAHAWK MAX WIFI motherboard:

Feature	Specification
Brand	MSI
Model Name	MAG Z790 TOMAHAWK MAX WIFI

Feature	Specification
Product Type	ATX Motherboard
CPU Socket	LGA 1700
Compatible Processors	12th, 13th, and 14th Gen Intel Core Processors
Chipset Type	Intel Z790
Memory Technology	DDR5
Max Memory Clock Speed	7800 MHz (OC)
PCIe Slots	1 x PCIe 5.0 x16, additional PCIe 4.0 slots
M.2 Connectors	1 x Gen5 x4, 3 x Gen4 x4
Network Connectivity	Wi-Fi 7, Bluetooth 5.4, Intel 2.5Gbps LAN
USB Ports	Total 15 (including USB 3.2 Gen 2x2 Type-C)
Operating System Support	Windows 11 64-bit, Windows 10 64-bit

7. Warranty and Support

Your MSI MAG Z790 TOMAHAWK MAX WIFI motherboard comes with a manufacturer's warranty. Please refer to the warranty card included with your product for specific terms and conditions.

7.1 Included Accessories

The retail package typically includes the following accessories:

- 2 x SATA Cables
- USB Drive (containing drivers and utilities)
- EZ M.2 Clips
- Wi-Fi Antenna



Figure 7.1: The MSI MAG Z790 TOMAHAWK MAX WIFI motherboard shown alongside its retail packaging and included accessories such as SATA cables, USB drive, EZ M.2 clips, and Wi-Fi antenna.

7.2 Technical Support

For technical assistance, driver downloads, or further information, please visit the official MSI support website. You can find FAQs, troubleshooting guides, and contact information for customer service there.

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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Email

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After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

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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