MSI Z790-P WIFI

MSI PRO Z790-P WiFi ProSeries Motherboard User Manual

Model: Z790-P WIFI

1. Introduction

This manual provides detailed instructions for the installation, configuration, and maintenance of your MSI PRO Z790-P WiFi ProSeries Motherboard. Designed for optimal performance and reliability, this motherboard supports 12th, 13th, and 14th Gen Intel Core, Pentium Gold, and Celeron Processors, offering a robust foundation for your computing needs.

2. Key Features

- **Processor Support:** Compatible with 12th, 13th, and 14th Gen Intel Core, Pentium Gold, and Celeron Processors.
- **Memory Support:** Supports DDR5 Memory, with speeds up to 7000+(OC) MHz.
- **Enhanced Power Design:** Features 14+1+1 DRPS with 55A DrMOS, dual 8-pin CPU power connectors, Core Boost, and Memory Boost for stable power delivery.
- **Premium Thermal Solution:** Includes an Extended Heatsink, MOSFET thermal pads rated for 7W/mK, additional choke thermal pads, and M.2 Shield Frozr for efficient heat dissipation.
- **High Quality PCB:** Constructed with a 6-layer PCB made from 2oz thickened copper and server-grade level material for durability and performance.
- **Connectivity:** Integrated Wi-Fi 6E, Bluetooth 5.3, 2.5Gbps LAN, USB 3.2 Gen2, HDMI, and DisplayPort outputs.

3. Package Contents

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



Image: The MSI PRO Z790-P WiFi motherboard alongside its retail box and various accessories.

- MSI PRO Z790-P WiFi Motherboard
- Wi-Fi Antenna
- 2 x SATA Cables
- 3 x M.2 Clips
- Quick Installation Guide
- Driver DVD
- I/O Shield (Note: Some packages may not include a separate I/O shield as it might be pre-attached)
- European Union Regulatory Notice

4. Setup and Installation

Follow these steps carefully to install your motherboard and its components.

4.1. Motherboard Overview

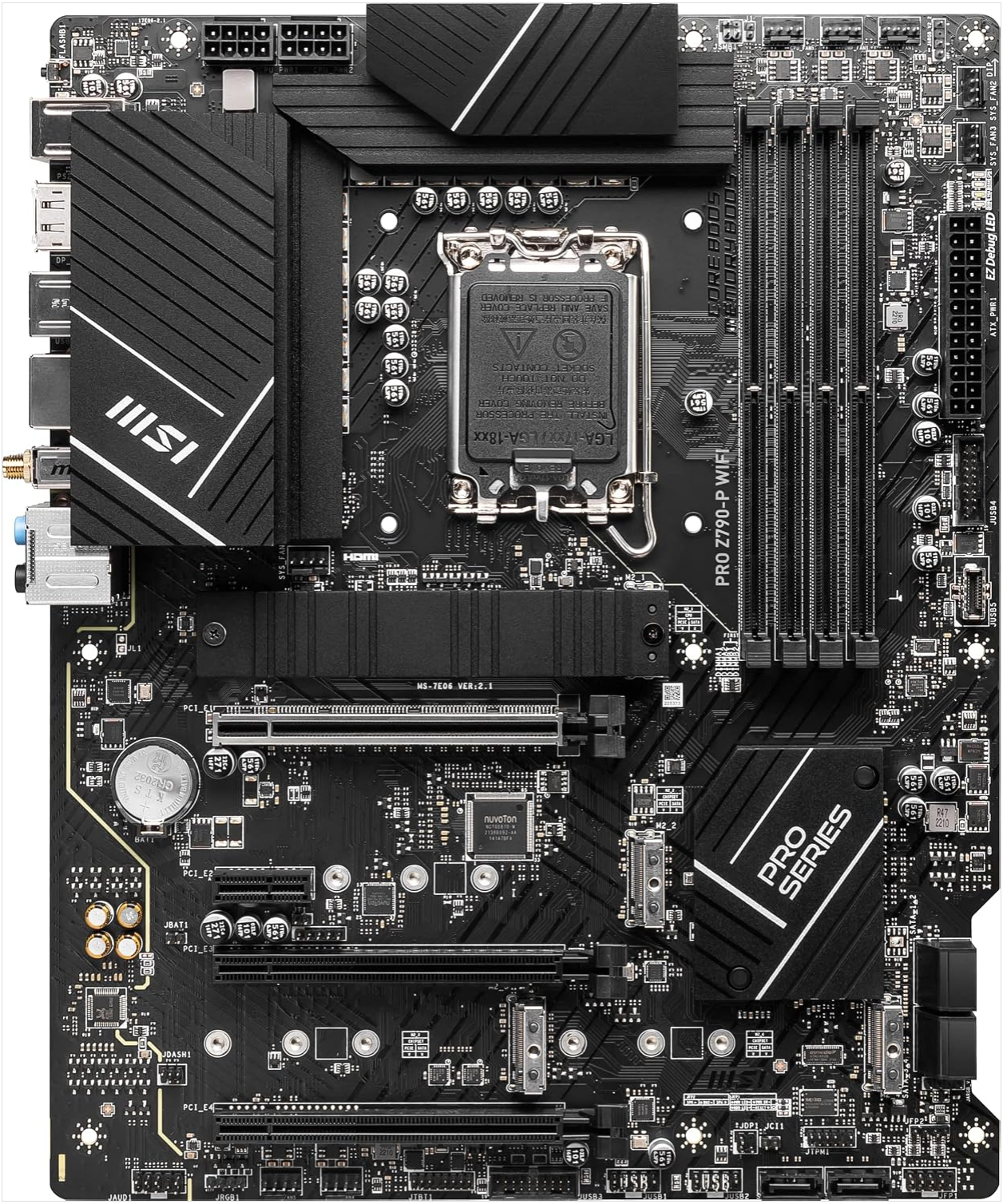


Image: A top-down view of the MSI PRO Z790-P WiFi motherboard, highlighting the CPU socket, RAM slots, and various headers.

4.2. CPU Installation (LGA 1700)

Carefully open the CPU socket retention arm. Align the triangular mark on your Intel LGA 1700 processor with the corresponding mark on the socket. Gently place the CPU into the socket without forcing it. Close the retention arm to secure the CPU.

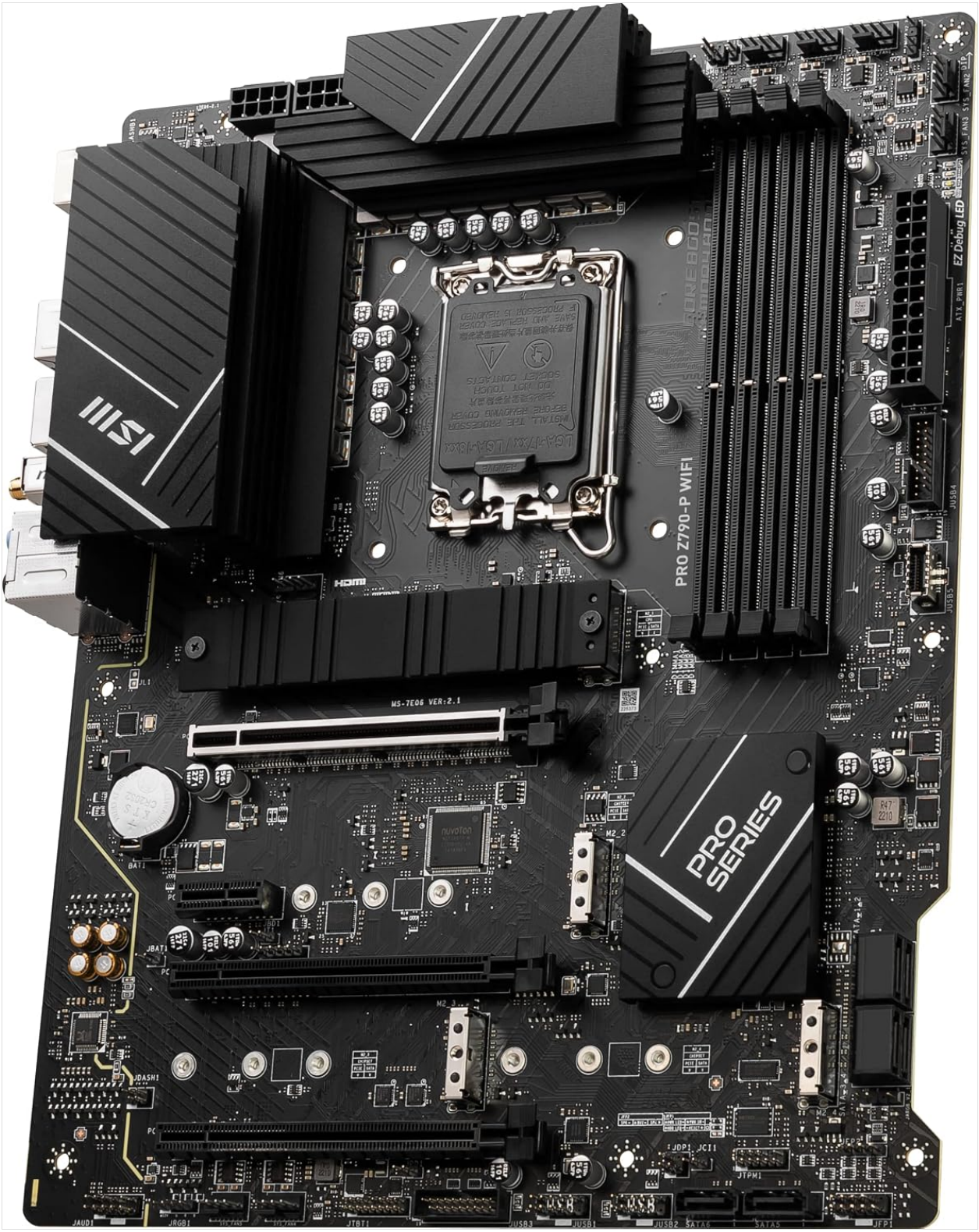


Image: An angled view of the motherboard, focusing on the LGA 1700 CPU socket and surrounding power delivery components.

4.3. RAM Installation (DDR5)

This motherboard supports DDR5 memory modules. Open the clips on both ends of the DIMM slots. Align the notch on the DDR5 memory module with the key in the DIMM slot. Press down firmly on both ends of the memory module until the clips snap into place. For optimal performance, install memory modules in the recommended slots as indicated in the motherboard manual (usually A2 and B2 for dual-channel).

4.4. Storage Installation (M.2 and SATA)

The motherboard features multiple M.2 slots for NVMe SSDs and SATA ports for traditional hard drives or

SSDs.

- **M.2 SSDs:** Remove the M.2 Shield Frozr heatsink if present. Insert the M.2 SSD into the slot at an angle, then gently push it down. Secure it with the provided M.2 clip or screw. Ensure the heatsink is reinstalled for thermal management. Note that some M.2 slots may have specific latch mechanisms; ensure they rotate freely to secure the drive.
- **SATA Drives:** Connect SATA data cables from your drives to the SATA ports on the motherboard. Connect SATA power cables from your power supply to the drives.

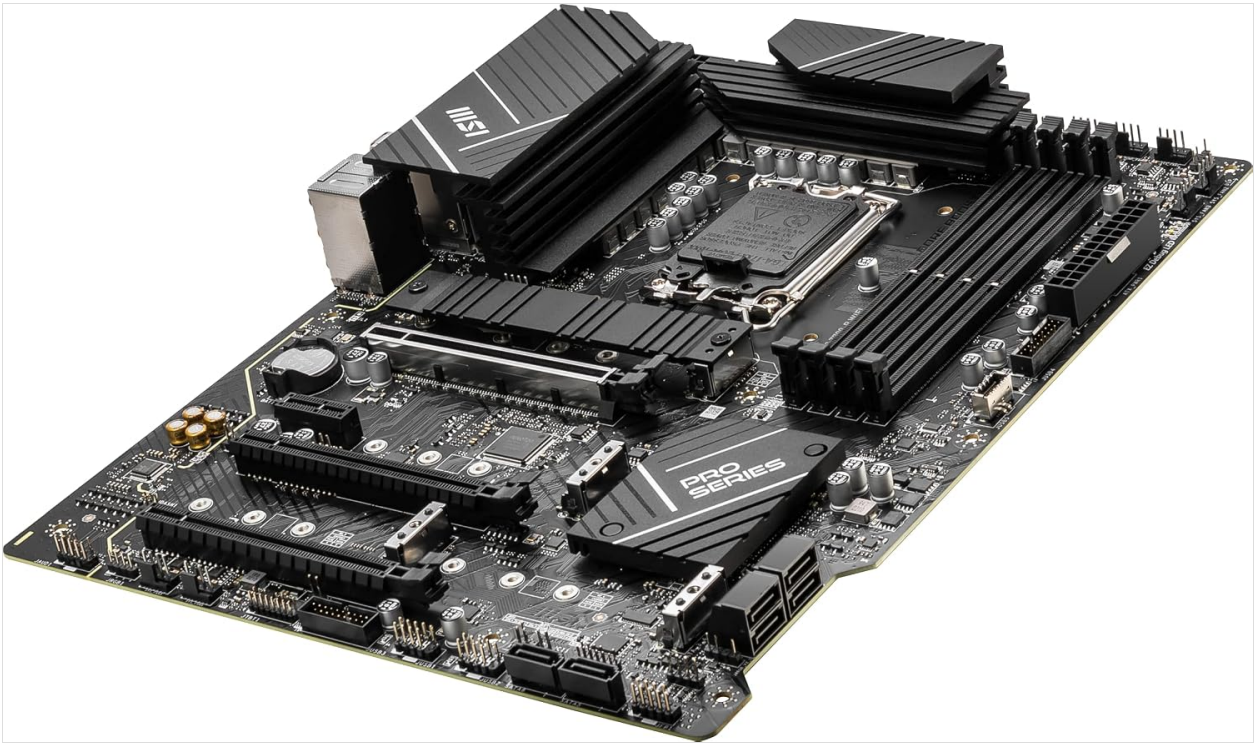


Image: An angled view of the motherboard, highlighting the M.2 slots, their heatsinks, and PCIe expansion slots.

4.5. Power Connections

Connect the 24-pin ATX main power connector from your power supply to the motherboard. Additionally, connect **both** 8-pin EPS 12V CPU power connectors to ensure stable power delivery to the CPU, especially for higher-end processors or when using integrated graphics. Failure to connect both may result in system instability or no video output.

4.6. Expansion Cards (PCIe)

Insert your graphics card or other PCIe expansion cards into the appropriate PCIe slots. Ensure they are fully seated and secured with the case's retention mechanism.

4.7. Front Panel Connectors

Connect the front panel cables from your PC case (power button, reset button, USB ports, audio jacks, etc.) to the corresponding headers on the motherboard. Refer to the detailed motherboard manual for exact pin layouts.

4.8. I/O Panel Connections

Connect your peripherals to the rear I/O panel ports.



Image: A close-up view of the various ports on the motherboard's rear I/O panel, including USB, Ethernet, Wi-Fi antenna connectors, and audio jacks.

5. Operating Your System

5.1. BIOS/UEFI Setup

Upon first boot, or if you need to configure system settings, press the**DEL** key during startup to enter the BIOS/UEFI setup utility. Here you can adjust boot order, enable XMP for memory, configure storage settings, and update the BIOS.

5.2. Driver Installation

After installing your operating system, install the necessary drivers for your motherboard components. Use the provided Driver DVD or download the latest drivers from the official MSI website for optimal performance and compatibility. This includes chipset drivers, LAN drivers, Wi-Fi/Bluetooth drivers, and audio drivers.

5.3. Operating System Installation

This motherboard is fully compatible with Windows 11. For a smooth installation, ensure you have a stable internet connection during the process, especially for driver downloads. If using Wi-Fi 6E, note that full functionality is typically available only on Windows 11.

6. Maintenance

6.1. BIOS Updates

Regularly check the MSI website for BIOS updates. BIOS updates can improve system stability, add support for new hardware, and fix bugs. Follow the instructions provided by MSI carefully when performing a BIOS update. This motherboard supports a BIOS Flashback feature, allowing updates without a CPU or RAM installed, which can be useful for troubleshooting.

6.2. Driver Updates

Keep your drivers updated to ensure optimal performance and compatibility with new software and hardware. Visit the MSI support page for your motherboard model to download the latest drivers.

6.3. Physical Cleaning

Periodically clean your computer's interior to prevent dust buildup, which can lead to overheating. Use compressed air to remove dust from heatsinks, fans, and other components. Ensure the system is powered off and unplugged before cleaning.

7. Troubleshooting

This section addresses common issues you might encounter.

7.1. No Video Output

- **Check Power Connections:** Ensure both 8-pin EPS 12V CPU power connectors are securely plugged into the motherboard. A single connector may not provide sufficient power, especially if using integrated graphics.
- **Dedicated GPU:** If you have a dedicated graphics card, ensure it is properly seated in the PCIe slot and has all necessary power cables connected. Try connecting your monitor to the dedicated GPU's output.
- **Integrated GPU:** If your CPU has integrated graphics, try connecting your monitor to the motherboard's HDMI or DisplayPort output.
- **RAM:** Reseat your RAM modules. Incorrectly seated RAM is a common cause of no video output.

7.2. RAM Stability Issues

- **Compatibility:** Refer to the motherboard's Qualified Vendor List (QVL) on the MSI website for compatible DDR5 memory modules.
- **XMP Profile:** If using high-speed RAM, enable the XMP (Extreme Memory Profile) in the BIOS. If stability issues occur, try manually setting the RAM speed to a lower, officially supported frequency (e.g., 4800MHz or 5600MHz for 12th/13th Gen Intel CPUs).
- **Number of Sticks:** Using four RAM sticks may limit the maximum stable overclocking frequency compared to two sticks.

7.3. M.2 SSD Installation Challenges

- **Latches/Screws:** Ensure M.2 SSDs are properly secured using the provided clips or screws. Some M.2 slots feature rotating latches; ensure they have full range of motion to secure the drive.
- **SATA Port Sharing:** Be aware that some M.2 slots may share bandwidth with SATA ports. Refer to the detailed motherboard manual for specific configurations to avoid conflicts.

7.4. Wi-Fi Connectivity Issues

- **Driver Installation:** Ensure the latest Wi-Fi drivers are installed from the MSI website.
- **Operating System:** Wi-Fi 6E functionality is primarily supported on Windows 11. If using Windows 10, you may not experience the full benefits of Wi-Fi 6E.
- **Antenna:** Ensure the Wi-Fi antenna is securely connected to the rear I/O panel.

8. Specifications

Feature	Specification
Brand	MSI
Model Name	PRO Z790-P WIFI
CPU Socket	LGA 1700
Compatible Processors	Intel Core 14th/13th/12th Gen, Pentium Gold, Celeron Processors
Chipset Type	Intel Z790
RAM Memory Technology	DDR5

Memory Speed	Up to 7000 MHz (OC)
Product Dimensions	12 x 9.6 x 2.5 inches (ATX Form Factor)
Item Weight	2.51 pounds
Platform	Windows 11
Connectivity	Wi-Fi 6E, Bluetooth 5.3, 2.5Gbps LAN, USB 3.2 Gen2, HDMI, DisplayPort

9. Warranty and Support

For warranty information, technical support, and further assistance, please visit the official MSI website or contact your local retailer. Keep your proof of purchase for warranty claims.
MSI Support Website: www.msi.com