ASUS 90MB1CJ0-M1EAY0

ASUS PRIME Z790-P WIFI Motherboard User Manual

Model: 90MB1CJ0-M1EAY0

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of your ASUS PRIME Z790-P WIFI Intel Z790 LGA 1700 ATX Motherboard. Please read this manual thoroughly before beginning installation to ensure proper setup and optimal performance.

2. WHAT'S IN THE BOX

Verify that all components listed below are included in your package. If any items are missing or damaged, contact your retailer.

What's in the Box

Figure 2.1: Package Contents of ASUS PRIME Z790-P WIFI Motherboard.

The image displays the ASUS PRIME Z790-P WIFI motherboard, a user guide, a rear I/O panel shield, two SATA cables, M.2 screws, M.2 rubber packages, and a Wi-Fi antenna.

- ASUS PRIME Z790-P WIFI Motherboard
- User Guide
- Rear I/O Panel Shield
- SATA Cables (x2)
- M.2 Screw Package
- M.2 Rubber Package
- Wi-Fi Antenna

3. KEY FEATURES

The ASUS PRIME Z790-P WIFI motherboard is designed to provide robust performance and extensive connectivity for

modern computing needs.
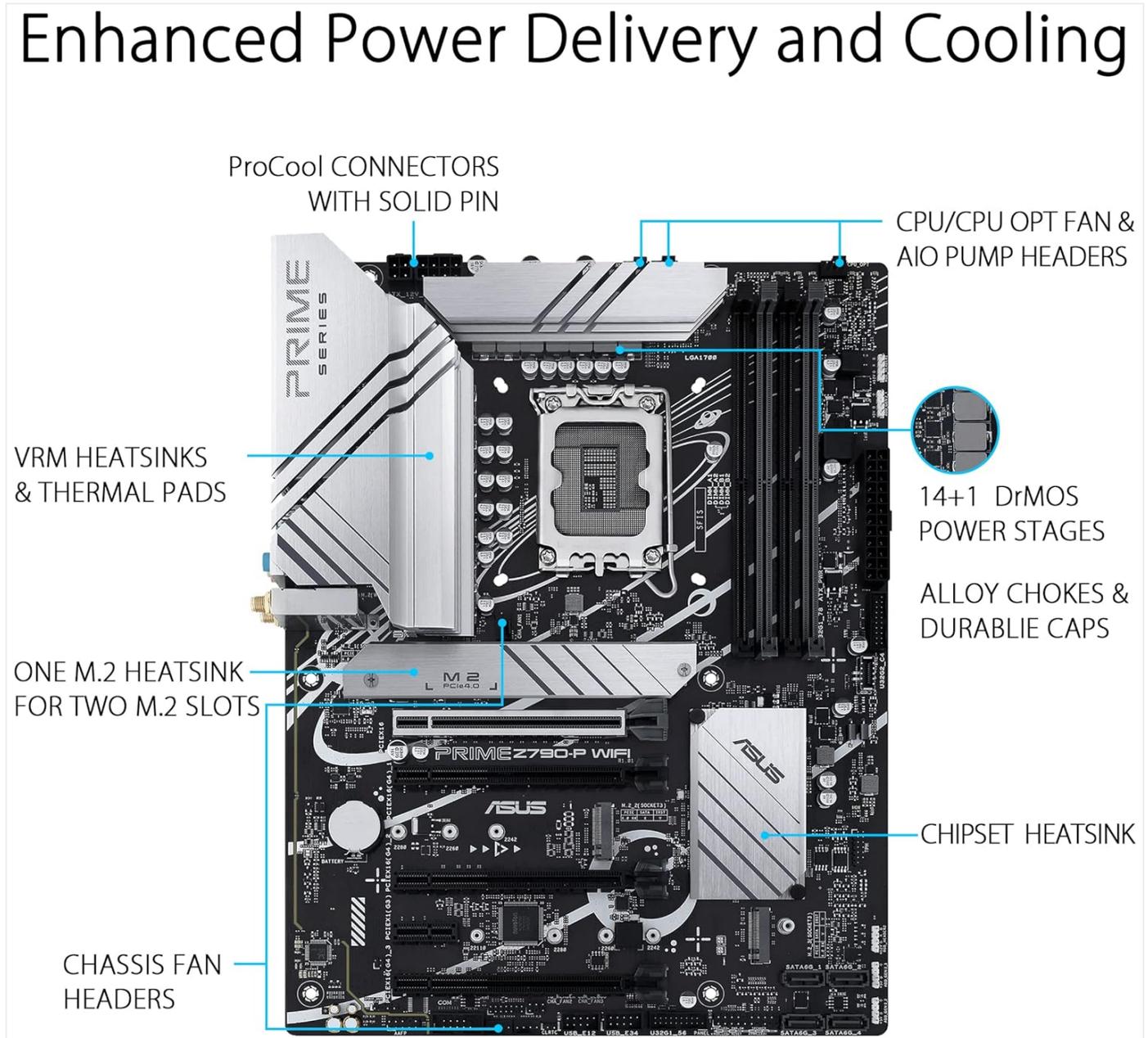
3.1. Enhanced Power Delivery and Cooling

Figure 3.1: Power Delivery and Cooling Components.

This image illustrates the motherboard's power delivery and cooling solutions, including ProCool connectors with solid pins, VRM heatsinks and thermal pads, 14+1 DrMOS power stages, alloy chokes, durable caps, one M.2 heatsink for two M.2 slots, CPU/CPU OPT fan & AIO pump headers, chassis fan headers, and a chipset heatsink.

- **ProCool Connectors:** Ensures a secure and reliable connection to the PSU.
- **VRM Heatsinks & Thermal Pads:** Efficiently dissipate heat from the VRM area.
- **14+1 DrMOS Power Stages:** Provides stable power delivery to the CPU.
- **M.2 Heatsink:** Keeps M.2 SSDs cool for sustained performance.
- **Comprehensive Fan Headers:** Multiple headers for optimal cooling control.

3.2. Productivity and Expansion

Build For Every Productivity

4 X DIMM
DDR5 7000 (OC)
DUAL CHANNEL
OPTIMEM II

3 X M.2 SLOTS
1 X M.2 22110 (PCIe 4.0 X4)
1 X M.2 2280 (PCIe 4.0 X4)
1 X M.2 22110 (PCIe 4.0 X4 & SATA)

EXPANSION SLOTS
1 X PCIe 5.0 X16 SAFESLOT CORE+
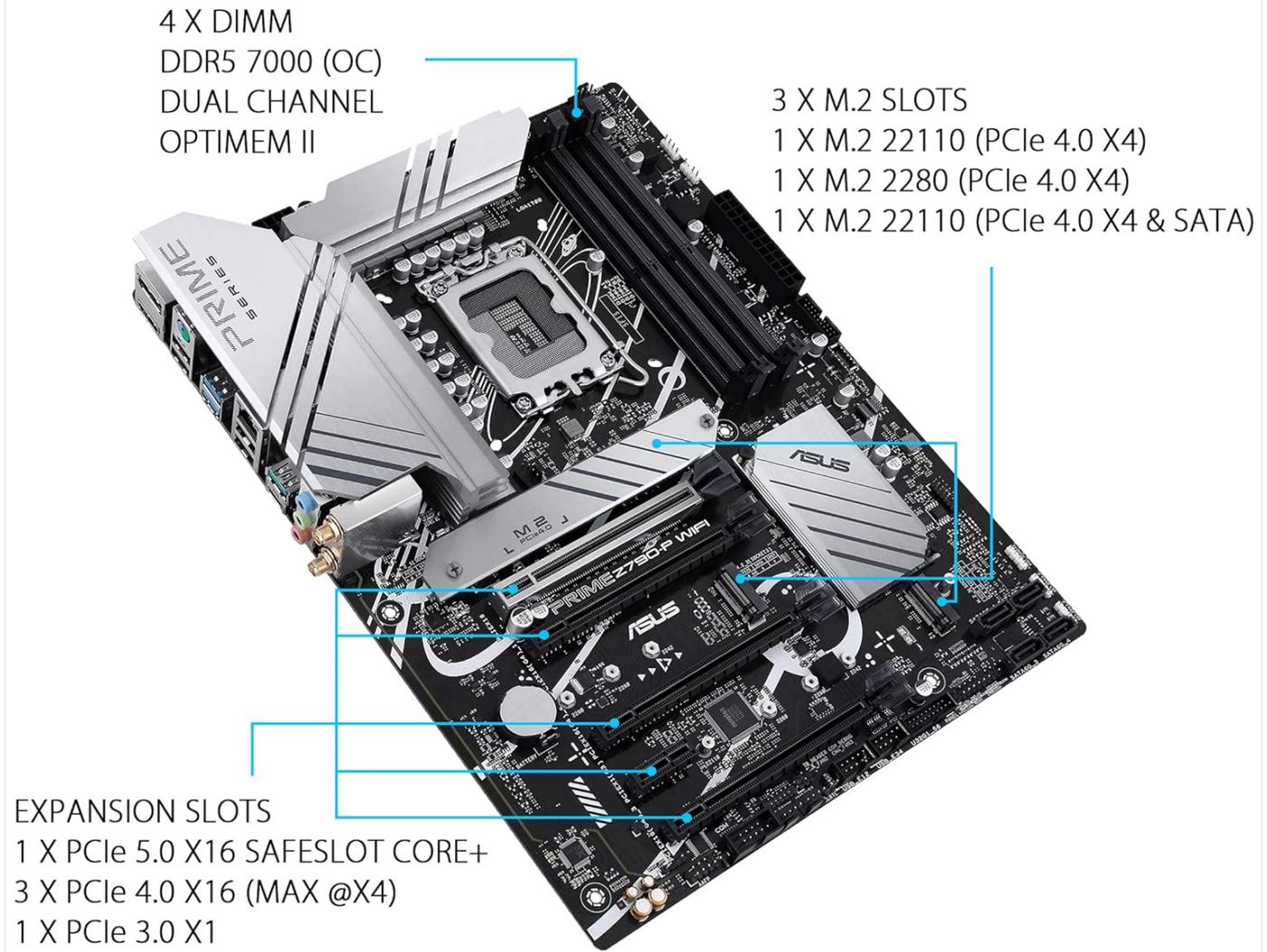3 X PCIe 4.0 X16 (MAX @X4)
1 X PCIe 3.0 X1

Figure 3.2: Memory and Storage Expansion.

The image highlights the motherboard's expansion capabilities, including four DIMM slots for DDR5 7000 (OC) dual-channel memory with OptiMem II, three M.2 slots (one M.2 22110 PCIe 4.0 X4, one M.2 2280 PCIe 4.0 X4, and one M.2 22110 PCIe 4.0 X4 & SATA), and various PCIe expansion slots (one PCIe 5.0 X16 SafeSlot Core+, three PCIe 4.0 X16 (max @X4), and one PCIe 3.0 X1).

- **DDR5 Support:** Four DIMM slots supporting DDR5 memory up to 7000MHz (OC).
- **Multiple M.2 Slots:** Three M.2 slots for high-speed NVMe SSDs, with one supporting SATA.
- **PCIe 5.0 Ready:** One PCIe 5.0 x16 SafeSlot Core+ for next-generation graphics cards.

3.3. Personalization and Audio
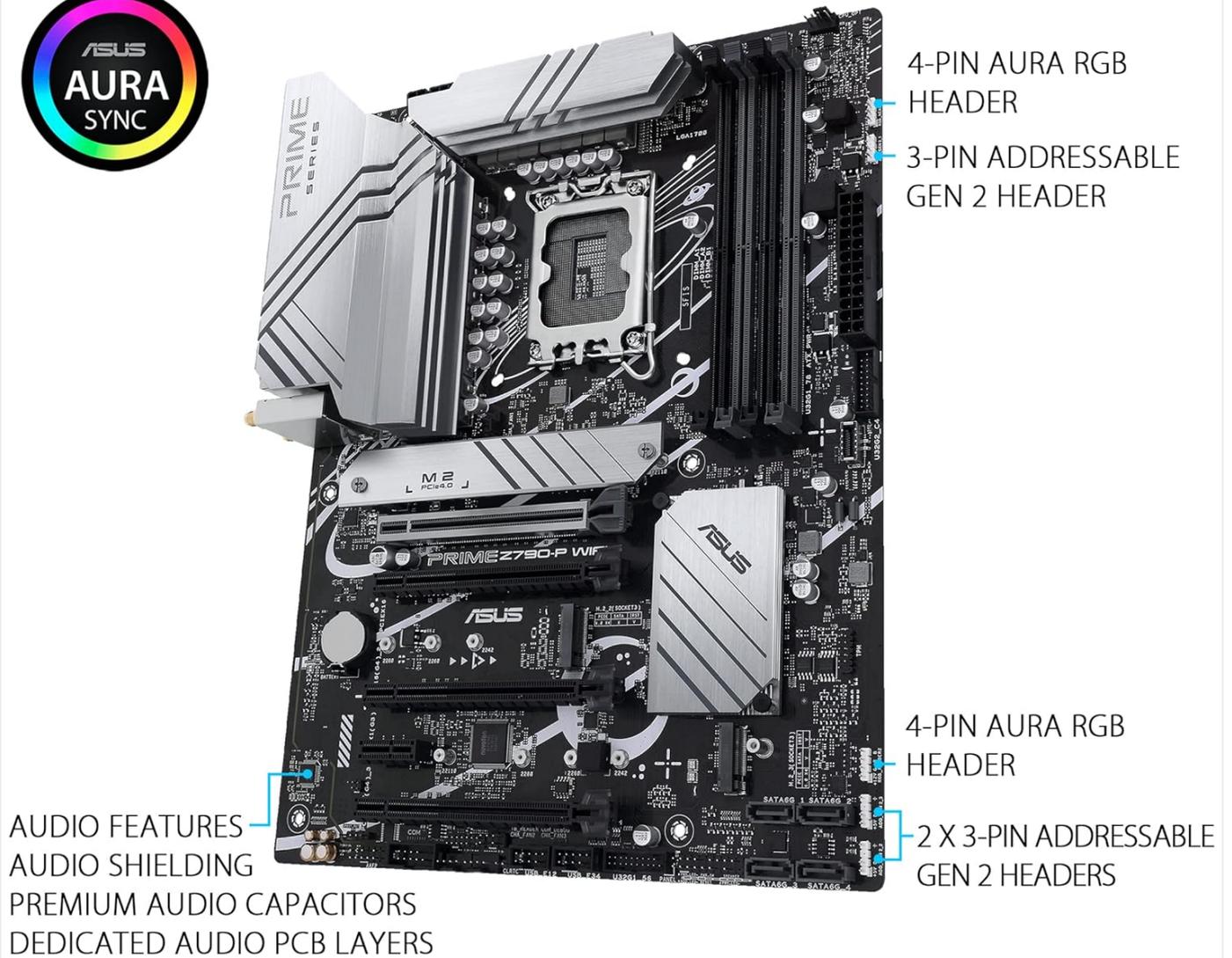
Personalize Your Build

Figure 3.3: Personalization and Audio Features.

This image highlights the motherboard's personalization and audio capabilities, including ASUS Aura Sync RGB headers (one 4-pin Aura RGB header and two 3-pin Addressable Gen 2 headers), audio features such as audio shielding, premium audio capacitors, and dedicated audio PCB layers.

- **Aura Sync RGB:** Customizable RGB lighting with multiple headers.
- **Advanced Audio:** Audio shielding, premium capacitors, and dedicated PCB layers for superior sound quality.
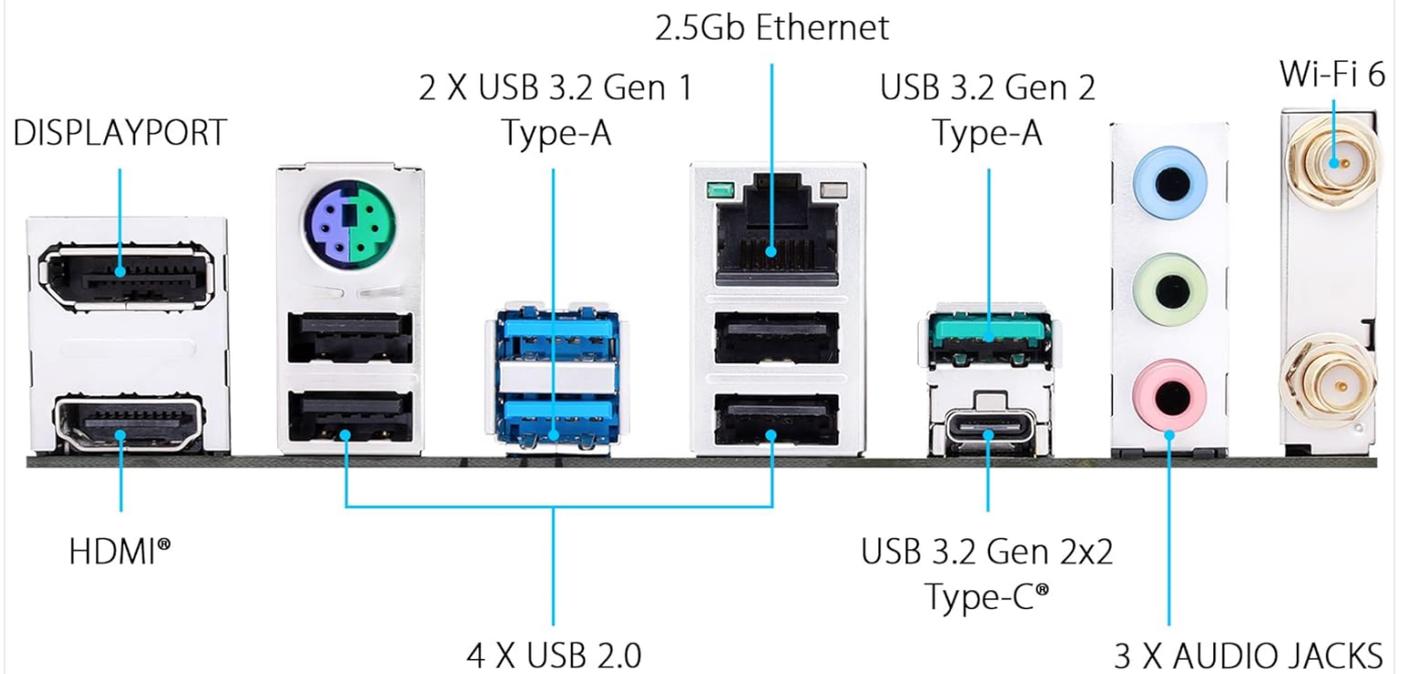
3.4. Ultrafast Connectivity

Figure 3.4: Rear I/O Panel Connectivity.

The image displays the rear input/output (I/O) panel of the motherboard, detailing its connectivity options: DisplayPort, HDMI, 2.5Gb Ethernet, two USB 3.2 Gen 1 Type-A ports, four USB 2.0 ports, one USB 3.2 Gen 2 Type-A port, one USB 3.2 Gen 2x2 Type-C port, three audio jacks, and Wi-Fi 6 antenna connectors.

- **Intel Wi-Fi 6:** High-speed wireless connectivity.
- **Realtek 2.5Gb LAN:** Fast and stable wired network connection.
- **USB 3.2 Gen 2x2 Type-C:** Ultra-fast data transfer speeds.
- **Display Outputs:** HDMI and DisplayPort for integrated graphics.

4. SETUP AND INSTALLATION

This section guides you through the physical installation of the motherboard and its components.

4.1. Safety Precautions

- Always disconnect the power supply from the wall outlet before installing or removing any components.
- Wear an anti-static wrist strap to prevent electrostatic discharge (ESD) damage to components.
- Handle components by their edges, avoiding contact with pins or circuitry.

4.2. Motherboard Installation

1. Prepare your PC case by installing the I/O shield.
2. Align the motherboard with the standoffs in your PC case.

3. Secure the motherboard with screws, ensuring it is firmly seated.

4.3. Component Installation

4.3.1. CPU Installation (LGA 1700)

1. Open the CPU socket retention lever.
2. Carefully place the Intel LGA 1700 CPU into the socket, aligning the golden triangle on the CPU with the triangle on the socket.
3. Close the retention lever to secure the CPU.

4.3.2. RAM Installation (DDR5)

1. Open the clips on both ends of the DIMM slots.
2. Align the notch on the DDR5 memory module with the key in the DIMM slot.
3. Press down firmly on both ends of the memory module until the clips snap into place.

4.3.3. M.2 SSD Installation

1. Remove the M.2 heatsink (if applicable) and the M.2 screw/standoff from the desired M.2 slot.
2. Insert the M.2 SSD into the slot at a 30-degree angle.
3. Gently push down the M.2 SSD and secure it with the M.2 screw. Reinstall the heatsink if removed.

4.3.4. Graphics Card Installation

1. Open the retention clip on the PCIe 5.0 x16 slot.
2. Align your graphics card with the slot and press down firmly until it clicks into place.
3. Secure the graphics card to the PC case with a screw.

5. OPERATING INSTRUCTIONS

Once all components are installed and connected, you can power on your system.

5.1. First Boot and BIOS Setup

1. Connect your monitor, keyboard, and mouse.
2. Power on your system. Press the DEL key during POST (Power-On Self-Test) to enter the BIOS/UEFI setup utility.
3. Configure boot order, enable XMP/EXPO for memory, and set up other necessary parameters.
4. Save changes and exit BIOS.

5.2. Driver Installation

After installing your operating system, install the latest drivers for your motherboard components from the ASUS support website or the provided driver CD/USB drive.

- Chipset Drivers
- LAN Drivers
- Wi-Fi Drivers
- Audio Drivers
- Graphics Drivers (if using integrated graphics)

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your motherboard.

- **Dust Removal:** Periodically clean dust from the motherboard and components using compressed air. Ensure the system is powered off and unplugged.
- **BIOS Updates:** Check the ASUS support website for the latest BIOS updates. Update BIOS only when necessary and follow the instructions carefully.
- **Driver Updates:** Keep your drivers updated to ensure compatibility and performance.
- **Cable Management:** Ensure cables are neatly routed to improve airflow and prevent interference.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
System does not power on.	Loose power cables, faulty PSU, incorrect front panel connections.	Check all power connections (24-pin ATX, 8-pin CPU). Verify front panel power switch connection. Test PSU if possible.
No display output.	Graphics card not seated correctly, monitor cable loose, incorrect display output selected.	Reseat graphics card. Ensure monitor cable is securely connected to both monitor and GPU/motherboard. Try different display ports.
System reboots unexpectedly.	Overheating, unstable power, faulty RAM.	Check CPU/GPU temperatures. Ensure proper cooling. Test RAM modules individually.
Wi-Fi/LAN not working.	Missing or outdated drivers, antenna not connected (Wi-Fi), cable issue (LAN).	Install/update network drivers. Ensure Wi-Fi antenna is securely connected. Check LAN cable.

8. SPECIFICATIONS

Detailed technical specifications for the ASUS PRIME Z790-P WIFI Motherboard.

Feature	Detail
Model Name	ASUS PRIME Z790-P WIFI
CPU Socket	LGA 1700
Chipset	Intel Z790
RAM Memory Technology	DDR5
Memory Clock Speed	4800 MHz (up to 7000MHz OC)
Compatible Processors	Intel Celeron (and other LGA 1700 compatible CPUs)
Product Dimensions	12.01 x 9.21 x 1.57 inches
Item Weight	2.16 pounds
Connectivity	Intel Wi-Fi 6, Realtek 2.5Gb LAN, USB 3.2 Gen 2x2 Type-C, HDMI, DisplayPort

Feature	Detail
Expansion Slots	1 x PCIe 5.0 x16, 3 x PCIe 4.0 x16 (max @x4), 1 x PCIe 3.0 x1
M.2 Slots	3 (supporting PCIe 4.0 x4, one with SATA support)

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official ASUS website or contact ASUS customer service.

- **ASUS Official Website:** www.asus.com
- **Support Page:** Visit the support section on the ASUS website for drivers, FAQs, and troubleshooting guides.
- **Customer Service:** Contact details for regional customer service can be found on the ASUS website.

Please retain your proof of purchase for warranty claims.