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## MSI PRO B650-S WIFI V1

# MSI PRO B650-S WiFi V1 Motherboard User Manual

Model: PRO B650-S WIFI V1 | Brand: MSI

## 1. INTRODUCTION AND OVERVIEW

The MSI PRO B650-S WiFi V1 is an ATX motherboard designed for AMD Ryzen 9000, 8000, and 7000 Series Processors using the AM5 socket. It supports DDR5 memory with speeds up to 6000+MHz (OC) and features dual PCIe 4.0 x16 slots and dual M.2 Gen4 storage options. This motherboard is equipped with Wi-Fi 6E and 2.5G LAN for robust connectivity.



Figure 1.1: The MSI PRO B650-S WiFi V1 Motherboard alongside its retail packaging.

Key features include:

- **Powerful VRM:** 12 Duet Rail Power System (P-PAK) VRM for AMD B650 chipset, supporting Ryzen 9000/8000/7000 series processors with MSI Core Boost technology.
- **Integrated Cooling:** Features 7W/mK MOSFET thermal pads, chipset heatsink, M.2 Shield Frozr, active Frozr AI CPU & GPU responsive cooling, and a 6-layer PCB with 2 oz. thickened copper.
- **DDR5 Memory Support:** Four DDR5 DIMM SMT slots for high-speed memory (up to 6000+ MHz).
- **Dual PCIe 4.0 x16 Slots:** Primary PCIe x16 slot with Steel Armor for enhanced durability, and a secondary PCIe x16 slot, both supporting PCIe 4.0.
- **Dual M.2 Connectors:** Two M.2 Gen4 x4 64Gbps slots, with the primary slot including Shield Frozr for thermal throttling prevention.
- **Advanced Connectivity:** Wi-Fi 6E, Bluetooth 5.3, 2.5Gbps LAN, USB 3.2 Gen 2x2 Type-C (20Gbps), HDMI 2.1, DisplayPort 1.4, and 7.1 HD Audio with Audio Boost.

## 2. SETUP GUIDE

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This section provides a general guide for setting up your MSI PRO B650-S WiFi V1 motherboard. Always refer to the detailed instructions provided in the physical manual for specific component installation steps.

### 2.1. Motherboard Layout



AMD  
SOCKET  
AM5

B650 AMD  
RYZEN

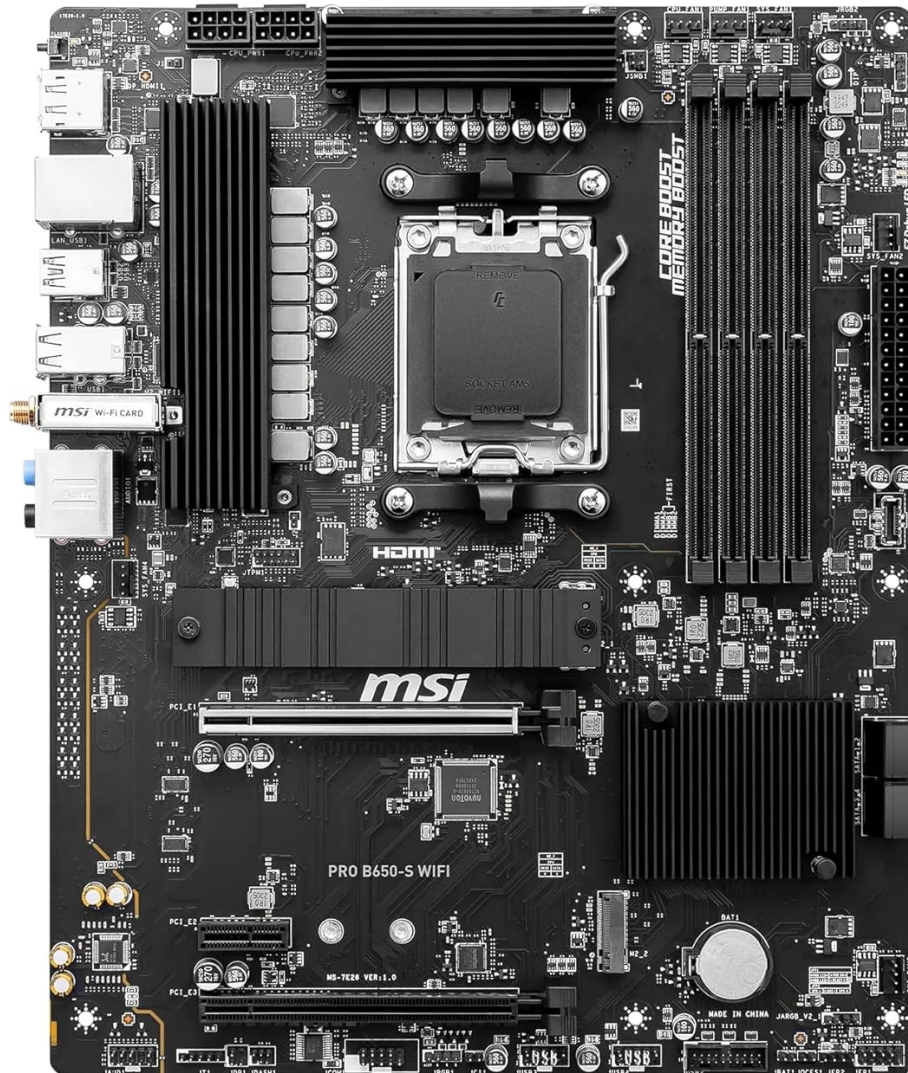


Figure 2.1: Top-down view of the motherboard, showing the general layout of components.

Familiarize yourself with the various headers, slots, and connectors on the motherboard before beginning installation.

## 2.2. CPU Installation

Carefully open the CPU socket lever. Align the triangular mark on your AMD Ryzen AM5 processor with the corresponding mark on the socket. Gently place the CPU into the socket without forcing it. Close the lever to secure the CPU.



Figure 2.2: Close-up view of the AM5 CPU socket area, indicating where the processor is installed.

## 2.3. Memory (RAM) Installation

Locate the four DDR5 DIMM slots. Open the clips on both ends of the slot. 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.

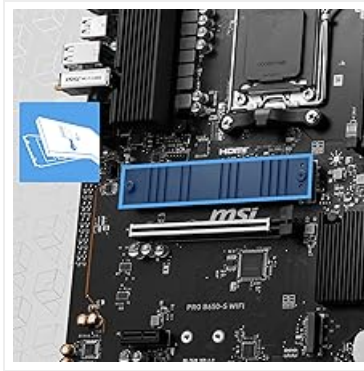


Figure 2.3: The DDR5 memory slots, capable of supporting speeds up to 7200MHz (OC).

## 2.4. Storage (M.2 SSD) Installation

The motherboard features two M.2 Gen4 x4 slots. For the primary M.2 slot, remove the M.2 Shield Frozr heatsink. Insert your M.2 SSD into the slot at an angle, then gently push it down and secure it with the provided screw or EZ M.2 Clip. Reattach the M.2 Shield Frozr if applicable.



Figure 2.4: Location of the dual M.2 Gen4 slots for high-speed storage.

## 2.5. Graphics Card (PCIe) Installation

Insert your graphics card into the primary PCIe 4.0 x16 slot (reinforced with Steel Armor). Ensure it is seated firmly and the retention clip locks into place. Secure the card to your PC case with screws.



Figure 2.5: The PCIe 4.0 x16 slots, with the top slot featuring Steel Armor for added durability.

## 2.6. Power Connections

Connect the 24-pin ATX main power connector and the 8-pin (or 4+4 pin) CPU power connector from your power supply to the corresponding ports on the motherboard. Ensure all connections are secure.



Figure 2.6: Illustration of the robust VRM design, indicating areas for power connections.

## 2.7. I/O Panel Connections

Connect your peripherals to the rear I/O panel. This includes USB devices, display cables (HDMI/DisplayPort), Ethernet cable, and audio jacks. Install the Wi-Fi antennas for wireless connectivity.

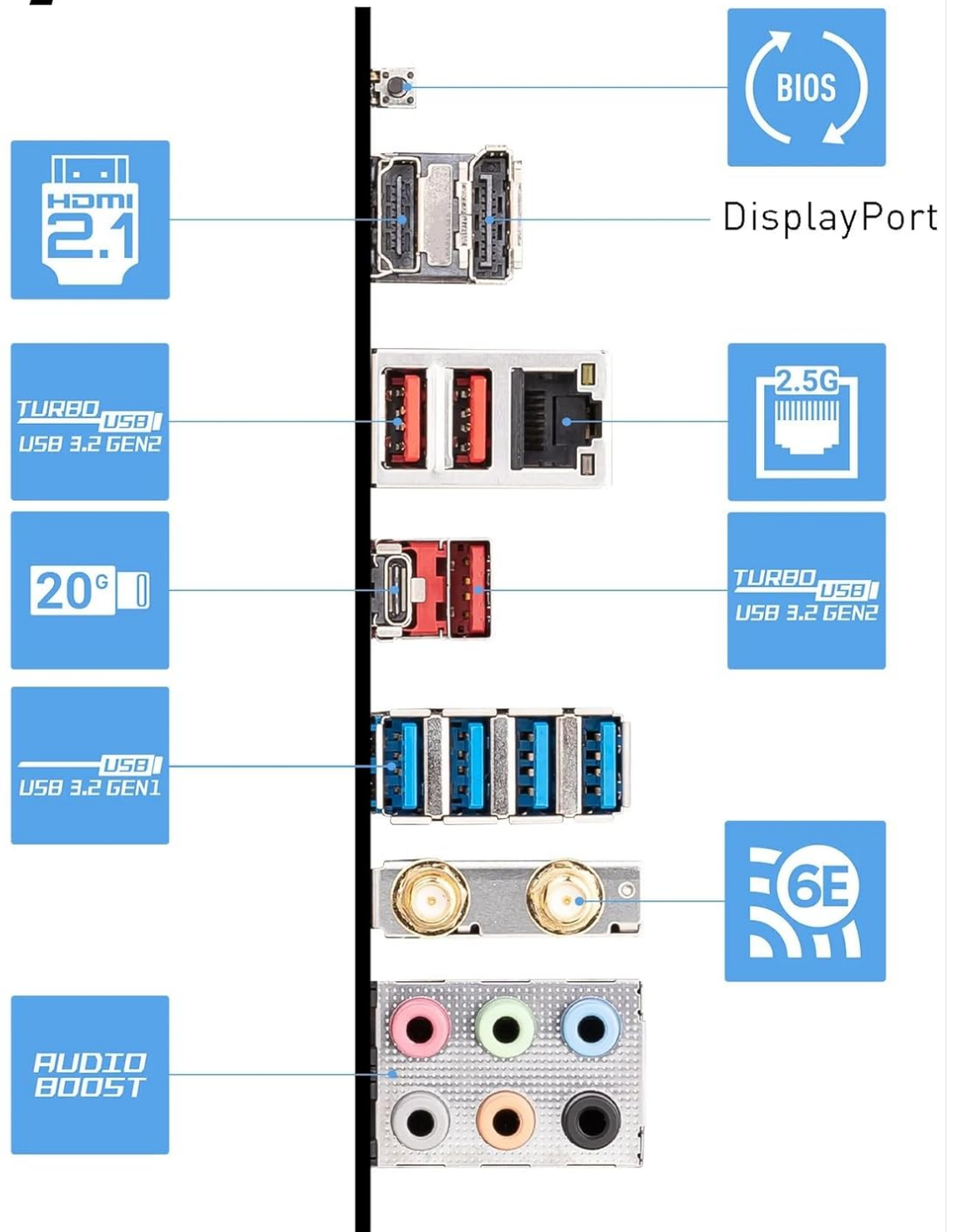


Figure 2.7: Detailed view of the rear I/O panel, showing various ports for connectivity.

### 3. OPERATING INSTRUCTIONS

Once all hardware components are installed, you can proceed with the initial boot-up and operating system installation.

#### 3.1. Initial Boot and BIOS/UEFI Setup

Power on your system. Press the **DEL** key during startup to enter the BIOS/UEFI setup utility. Here you can configure boot order, enable XMP for memory, adjust fan curves, and perform other system settings. Save changes and exit BIOS to continue.

#### 3.2. Operating System Installation

Insert your Windows 11 (or other OS) installation media (USB drive or DVD). Follow the on-screen prompts to install the

operating system on your chosen storage drive.

### 3.3. Driver Installation

After OS installation, install the necessary drivers for your motherboard components. These typically include chipset drivers, LAN drivers, Wi-Fi/Bluetooth drivers, audio drivers, and any specific utility drivers. You can find the latest drivers on the official MSI website for your model.

### 3.4. Network Connectivity

Connect to the internet using the 2.5Gbps LAN port or the integrated Wi-Fi 6E. Ensure Wi-Fi antennas are properly installed for optimal wireless performance.

## 4. MAINTENANCE

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

- **Dust Cleaning:** Periodically clean dust from the motherboard and components using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **BIOS/UEFI Updates:** Check the MSI support website for the latest BIOS/UEFI updates. Updates can improve stability, compatibility, and performance. Follow the update instructions carefully to avoid system damage.
- **Driver Updates:** Keep your drivers updated to ensure compatibility with new software and to benefit from performance improvements and bug fixes.
- **Component Checks:** Occasionally check all cable connections (power, data) to ensure they are secure.

## 5. TROUBLESHOOTING

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This section covers common issues and their potential solutions.

- **No Power/No Boot:**
  - Check all power connections (24-pin ATX, 8-pin CPU, GPU power).
  - Ensure the power supply is switched on.
  - Verify the front panel power button connection to the motherboard.
  - Try booting with minimal components (CPU, one RAM stick, GPU if no integrated graphics).
- **No Display:**
  - Ensure the monitor is connected to the graphics card (or motherboard if using integrated graphics).
  - Check display cable connections.
  - Reseat the graphics card and RAM modules.
  - Try a different display output or monitor.
- **System Instability/Crashes:**
  - Check CPU and GPU temperatures.
  - Ensure RAM is properly seated and compatible. Run a memory diagnostic.
  - Update BIOS/UEFI and all drivers to the latest versions.
  - Verify power supply wattage is sufficient for all components.
- **Component Not Detected:**
  - Reseat the component (e.g., M.2 SSD, PCIe card).
  - Check BIOS/UEFI settings to ensure the port/slot is enabled.
  - Ensure drivers are installed for the component.

For more advanced troubleshooting, consult the full motherboard manual or MSI's online support resources.

## 6. SPECIFICATIONS

Feature	Specification
Model Name	PRO B650-S WIFI V1
CPU Socket	Socket AM5
Compatible Processors	AMD Ryzen 9000/8000/7000 Series
Chipset	AMD B650
RAM Memory Technology	DDR5
Memory Speed (Max)	7200 MHz (OC)
PCIe Slots	2 x PCIe 4.0 x16 (Primary with Steel Armor)
M.2 Slots	2 x M.2 Gen4 x4 64Gbps (Primary with Shield Frozr)
Network Connectivity	Wi-Fi 6E, Bluetooth 5.3, 2.5Gbps LAN
USB Ports (Rear)	USB 3.2 Gen 2x2 Type-C (20Gbps), USB 3.2 Gen 2, USB 3.2 Gen 1
Display Outputs	HDMI 2.1, DisplayPort 1.4
Audio	7.1 HD Audio with Audio Boost
Form Factor	ATX
Item Weight	3.24 pounds
Dimensions	13.5 x 10.5 x 2.5 inches (Package)

## 7. WARRANTY AND SUPPORT

For warranty information, please refer to the warranty card included with your product or visit the official MSI website. MSI provides technical support and resources for their products.

**Online Support:** For the latest drivers, BIOS updates, FAQs, and troubleshooting guides, please visit the official MSI support website: [www.msi.com/support](http://www.msi.com/support)

**Contact Support:** If you require further assistance, please contact MSI customer service through their website or the contact information provided in your product documentation.