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MSI B650SWIFI

MSI PRO B650-S WiFi ProSeries Motherboard User Manual

Model: B650SWIFI | Brand: MSI

1. INTRODUCTION

The MSI PRO B650-S WiFi ProSeries Motherboard is engineered to provide a robust and efficient platform for the latest AMD Ryzen 7000 Series Desktop Processors. Designed for productivity and performance, this motherboard integrates advanced features to support demanding computing tasks and high-speed data transfer.

Key features include:

- Support for AMD Ryzen 7000 Series Desktop Processors.
- Dual Channel DDR5 Memory support up to 7200+MHz (OC).
- Enhanced Power Design: 12+2 Duet Rail Power System with P-PAK, dual 8-pin CPU power connectors, Core Boost, Memory Boost.
- High Quality PCB: 6-layer PCB made with 2oz thickened copper for improved stability and durability.
- Advanced Network Solution: 2.5G LAN with Wi-Fi 6E and Bluetooth 5.3 for secure, stable, and fast network connections.

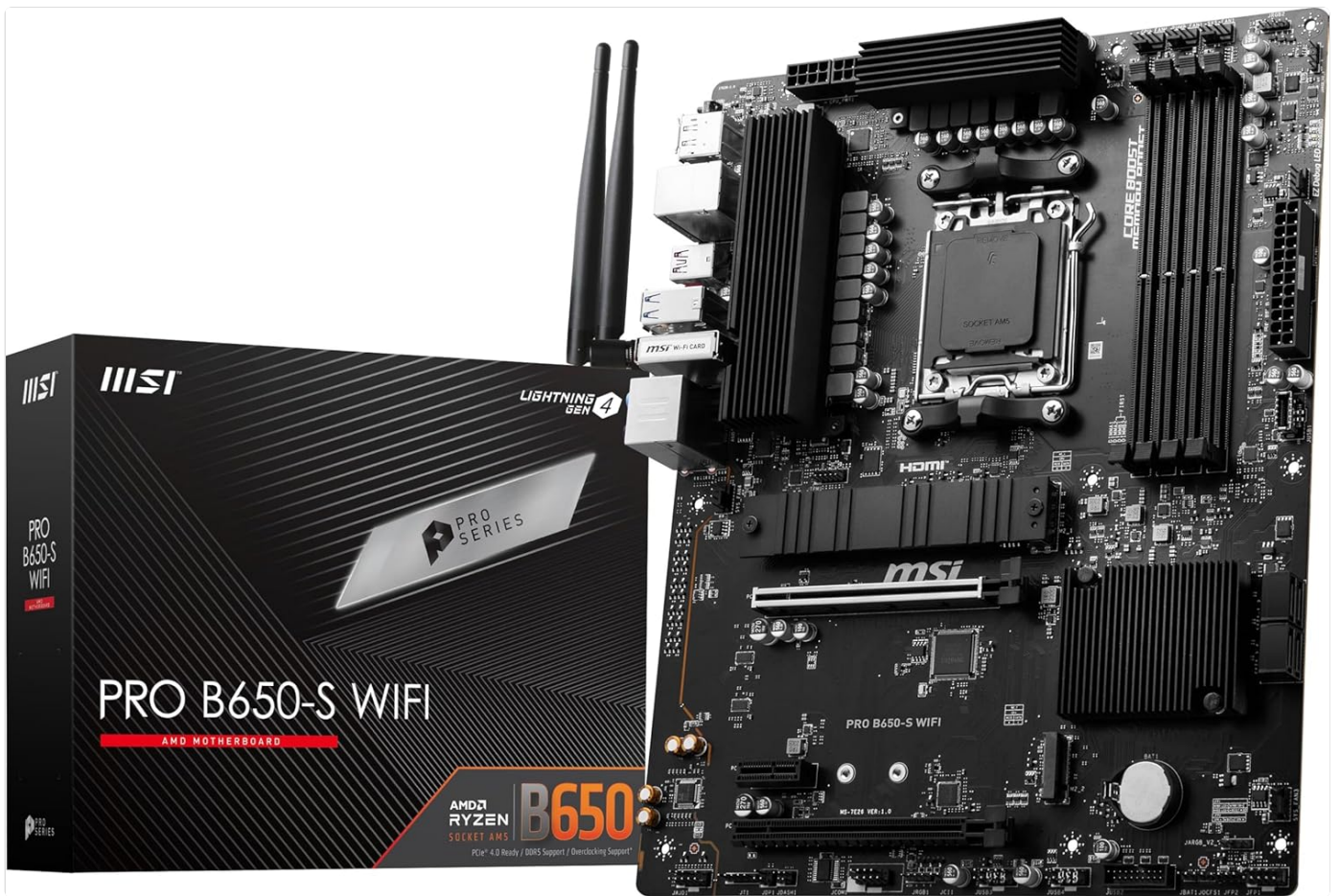


Figure 1.1: MSI PRO B650-S WiFi Motherboard and Packaging.

This image displays the MSI PRO B650-S WiFi motherboard alongside its retail packaging, highlighting the product's branding and design.

2. PACKAGE CONTENTS

Before proceeding with installation, please verify that all components listed below are included in your package:

- MSI PRO B650-S WiFi Motherboard
- Wi-Fi Antenna
- SATA Cable
- I/O Shield
- EZ M.2 Clip
- Quick Installation Guide (Printed)
- European Union Regulatory Notice (Printed)

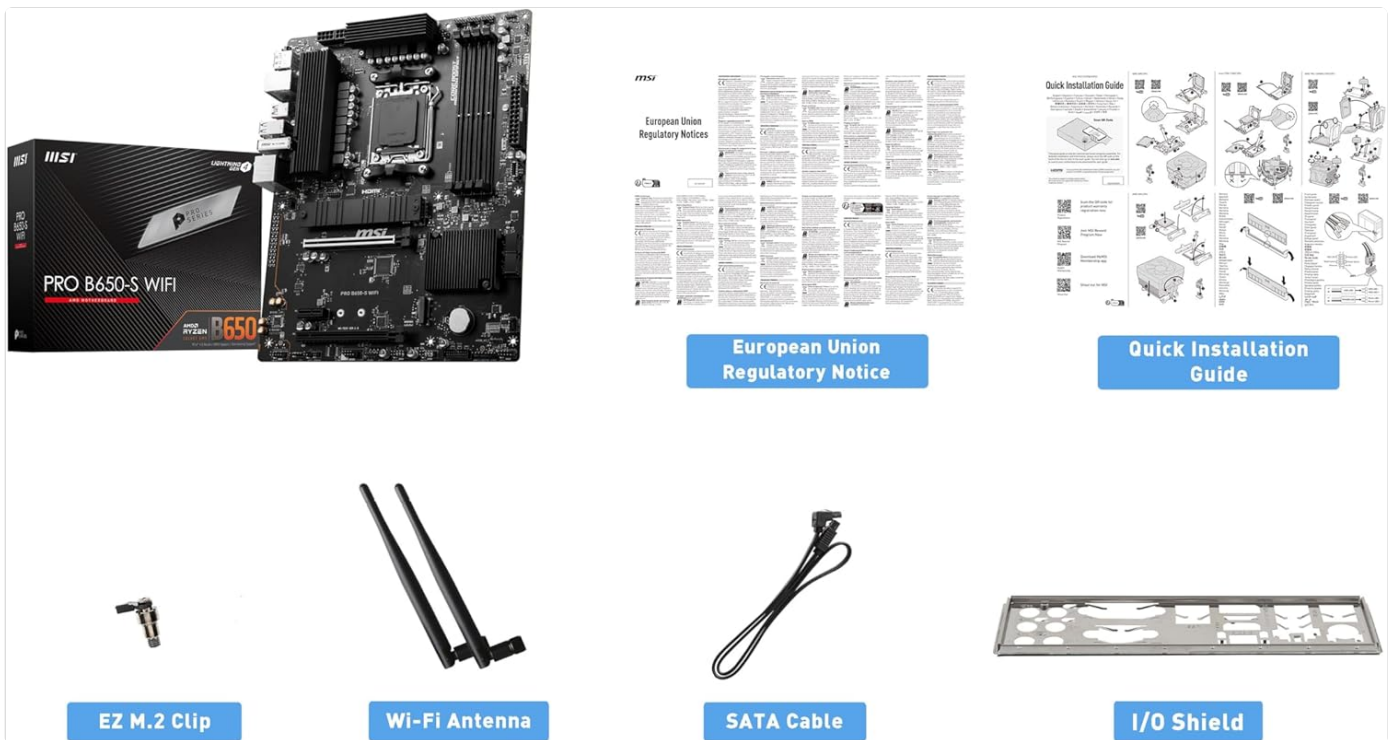


Figure 2.1: Included Accessories.

This image shows the various accessories that come with the motherboard, including the Wi-Fi antenna, SATA cable, I/O shield, and EZ M.2 clip, along with documentation.

3. SETUP AND INSTALLATION

This section provides instructions for installing the MSI PRO B650-S WiFi motherboard and its components into your system. Ensure you have a static-free environment and refer to your PC case manual for specific mounting details.

3.1. Motherboard Overview

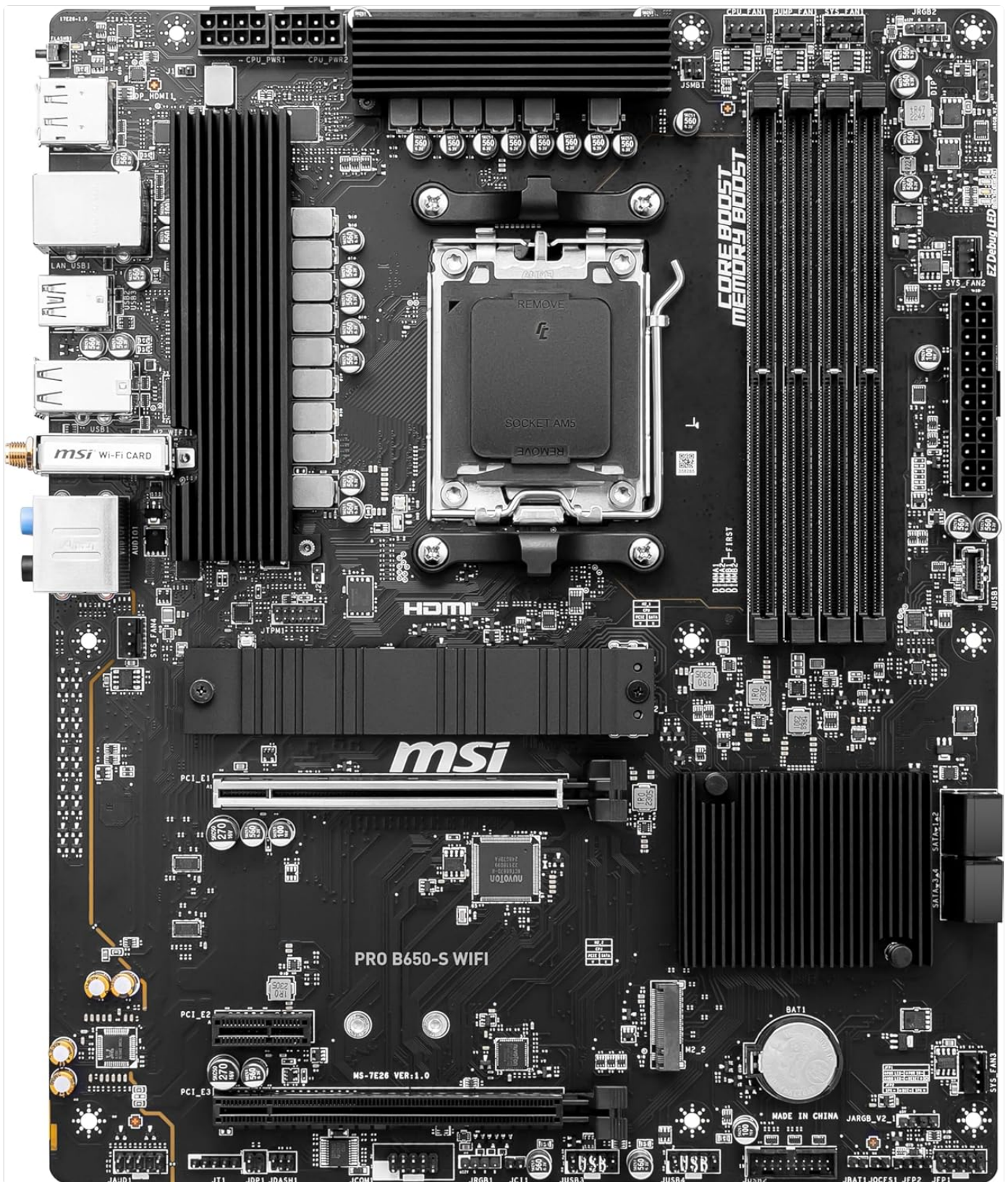


Figure 3.1: Motherboard Layout.

A top-down view of the motherboard, illustrating the placement of the CPU socket, DDR5 memory slots, PCIe slots, M.2 slots, and various headers.

3.2. CPU Installation (AM5 Socket)

1. Locate the AM5 CPU socket on the motherboard.
2. Gently lift the load lever and open the load plate.
3. Align the triangular mark on the AMD Ryzen processor with the triangular mark on the socket. Carefully place the CPU into the socket without forcing it.
4. Close the load plate and press down the load lever until it clicks into place, securing the CPU.

3.3. DDR5 Memory Installation

This motherboard supports DDR5 memory. For optimal performance and stability, ensure proper installation:

1. Open the clips at 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. **Important:** If installing two RAM sticks, insert them into slots 2 and 4 (A2 and B2) for dual-channel operation. If installing only one RAM stick, use slot 2 (A2). Incorrect slot usage may prevent the system from booting.

3.4. Storage Device Installation (M.2 SSDs and SATA Drives)

The motherboard features multiple M.2 slots and SATA 6Gb/s ports for storage.

- **M.2 SSD:** Remove the M.2 heatsink (if present) and the M.2 standoff. Insert the M.2 SSD into the slot at a 30-degree angle. Secure it with the EZ M.2 clip or screw. Reattach the heatsink. Both M.2 slots support PCIe Gen4 x4.
- **SATA Drives:** Connect SATA data cables (included) from the motherboard's SATA ports to your SATA SSDs or HDDs. Connect power cables from your power supply to the drives.

3.5. Power Connections

Connect the following power cables from your power supply unit (PSU) to the motherboard:

- 24-pin ATX main power connector.
- Dual 8-pin CPU power connectors (ATX_12V).

3.6. Expansion Card Installation (PCIe)

Install your graphics card and other PCIe expansion cards into the appropriate PCIe 4.0 slots. Ensure the card is fully seated and secured with the case's retention mechanism.

3.7. Front Panel and I/O Connections

Connect your case's front panel headers (power button, reset button, USB ports, audio jacks) to the corresponding headers on the motherboard. Refer to the motherboard manual's diagram for exact pin assignments.



Figure 3.2: Rear I/O Panel.

A close-up view of the motherboard's rear input/output panel, showing various ports including USB, HDMI, DisplayPort, LAN, Wi-Fi antenna connectors, and audio jacks.

4. OPERATING INSTRUCTIONS

4.1. First Boot and BIOS/UEFI Setup

After assembling your system, connect a monitor, keyboard, and mouse. Power on the system. Press the **Del** key during startup to enter the BIOS/UEFI setup utility. Here you can configure boot order, enable XMP/EXPO for memory, and adjust other system settings.

The motherboard may take slightly longer than usual for the first boot to initialize all components, especially RAM. Observe the EZ Debug LEDs for status indicators.

4.2. Driver Installation

Once the operating system is installed, install the necessary drivers for the motherboard's chipset, LAN, Wi-Fi, Bluetooth, and audio. These drivers are typically provided on a USB drive or can be downloaded from the official MSI website for your specific motherboard model.

5. MAINTENANCE

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

- **BIOS Updates:** Periodically check the MSI website for BIOS/UEFI updates. Updates can improve compatibility, stability, and performance. Follow MSI's instructions carefully when updating the BIOS.
- **Cleaning:** Keep the motherboard and surrounding components free of dust. Use compressed air to gently clear dust from heatsinks, fans, and ports. Ensure the system is powered off and unplugged before cleaning.
- **Component Checks:** Occasionally inspect cable connections to ensure they are secure.

6. TROUBLESHOOTING

This section addresses common issues you might encounter.

Problem	Possible Cause	Solution
System does not power on / No display	Incorrect power connections, faulty PSU, CPU/RAM not seated correctly.	Verify 24-pin ATX and 8-pin CPU power cables are securely connected. Reseat CPU and RAM modules. Ensure RAM is in correct slots (2 and 4 for dual channel). Check EZ Debug LEDs on the motherboard for specific component errors (CPU, DRAM, VGA, BOOT).
System powers on but no display (DRAM error LED)	RAM not properly seated or in incorrect slots.	Ensure RAM modules are fully seated and clips are locked. If using two modules, install them in DIMM_A2 and DIMM_B2 (slots 2 and 4). If using one module, install it in DIMM_A2 (slot 2).
Wi-Fi/Bluetooth not working	Antennas not connected, drivers not installed.	Ensure Wi-Fi antennas are securely screwed into the rear I/O panel. Install the latest Wi-Fi and Bluetooth drivers from the MSI website.
Slow boot times on first startup	Memory training process.	This is normal for the first few boots on AM5 platforms as the system trains the memory. Subsequent boots should be faster.

7. SPECIFICATIONS

Feature	Detail
CPU Socket	Socket AM5

Feature	Detail
Compatible Processors	AMD Ryzen 7000 Series Desktop Processors
Chipset	AMD B650
RAM Memory Technology	DDR5
Memory Speed (OC)	Up to 7200 MHz
PCIe Slots	PCIe 4.0
M.2 Slots	Multiple (Both Gen4 x4)
SATA Ports	SATA 6Gb/s
USB Ports	USB 3.2 Gen 2, USB 2.0
Video Output	HDMI/DP (Requires integrated graphics on CPU)
LAN	2.5Gbps LAN
Wireless Connectivity	Wi-Fi 6E, Bluetooth 5.3
Form Factor	ATX
Dimensions (LxWxH)	12.76 x 10.55 x 2.76 inches
Item Weight	3.16 pounds

8. WARRANTY AND SUPPORT

MSI provides a standard manufacturer's warranty for the PRO B650-S WiFi Motherboard. For detailed warranty terms, conditions, and duration, please refer to the warranty card included with your product or visit the official MSI support website.

For technical support, driver downloads, BIOS updates, and troubleshooting guides, please visit the official MSI support portal:

www.msi.com/support

When contacting support, please have your motherboard model (PRO B650-S WiFi) and serial number ready.