

## ASRock X870E NOVA WIFI

# ASRock Phantom Gaming X870E Nova WiFi Motherboard User Manual

Model: X870E NOVA WIFI

## 1. INTRODUCTION

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This manual provides detailed instructions for the installation, operation, and maintenance of your ASRock Phantom Gaming X870E Nova WiFi motherboard. The X870E Nova WiFi is designed for AMD Ryzen processors with Socket AM5, supporting DDR5 memory and featuring advanced connectivity options including PCIe 5.0, USB4, and WiFi 7. Please read this manual thoroughly before beginning installation to ensure proper setup and to maximize the performance and longevity of your system.

## 2. PACKAGE CONTENTS

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

- ASRock Phantom Gaming X870E Nova WiFi Motherboard
- Quick Installation Guide
- Regulatory Notice
- WiFi Antenna
- SATA Data Cables (quantity may vary)
- M.2 Screws/Standoffs
- ASRock Phantom Gaming Sticker



Image: The ASRock Phantom Gaming X870E Nova WiFi motherboard, its retail packaging, and various accessories including the WiFi antenna, SATA cables, and documentation.

### 3. PRODUCT OVERVIEW

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The ASRock Phantom Gaming X870E Nova WiFi motherboard is engineered for high-performance computing, featuring a robust power delivery system and extensive connectivity. Key features include:

- **20+2+1 Power Phase Design:** Ensures stable power delivery to the CPU for optimal performance.
- **Premium 5\*M.2 Sockets:** Multiple M.2 slots for high-speed storage, including one Gen5 slot.
- **EZ Release Design:** Simplifies the removal of components like graphics cards.
- **Dual USB4 Type-C:** Provides high-speed data transfer and display output capabilities.
- **Toolless Multi-Layer M.2 Heatsink:** Efficient cooling for M.2 SSDs without the need for tools.
- **Optimized 5Gbps LAN:** High-speed wired network connectivity.
- **WiFi 7:** Latest generation wireless networking for fast and reliable connections.



Image: A top-down view of the ASRock Phantom Gaming X870E Nova WiFi motherboard, showcasing the CPU socket, DIMM slots, PCIe slots, and M.2 heatsinks.

### 3.1. Motherboard Layout

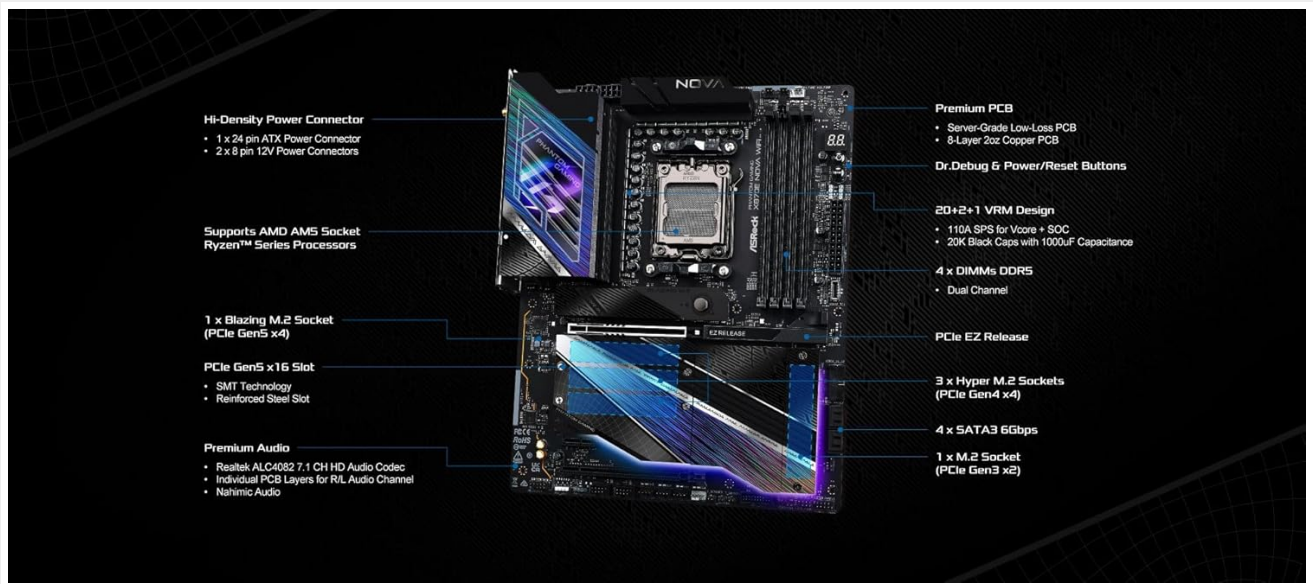


Image: A detailed diagram highlighting the front side components of the motherboard, including the CPU socket, DDR5 DIMM slots, PCIe 5.0 x16 slot, multiple M.2 sockets (Gen5, Gen4, Gen3), high-density power connectors, premium audio components (Realtek ALC4082), and Dr. Debug & Power/Reset Buttons.

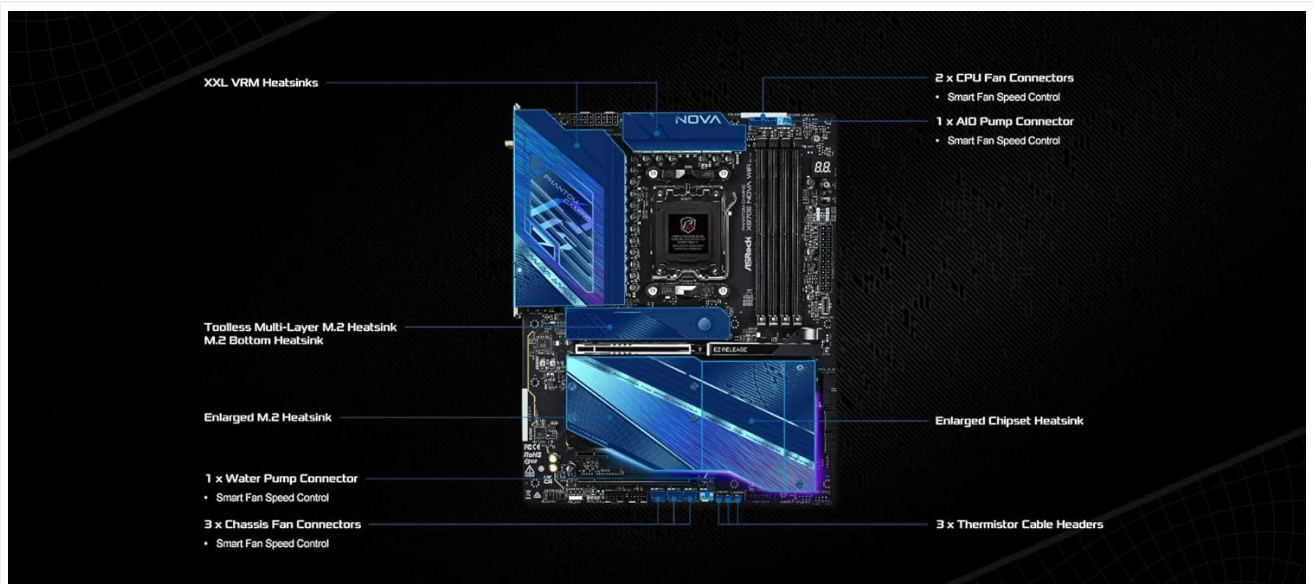


Image: A diagram illustrating the cooling solutions and fan headers on the motherboard, including XXL VRM Heatsinks, Toolless Multi-Layer M.2 Heatsinks, Enlarged M.2 Heatsinks, Enlarged Chipset Heatsink, CPU fan connectors, AIO pump connector, chassis fan connectors, and thermistor cable headers.

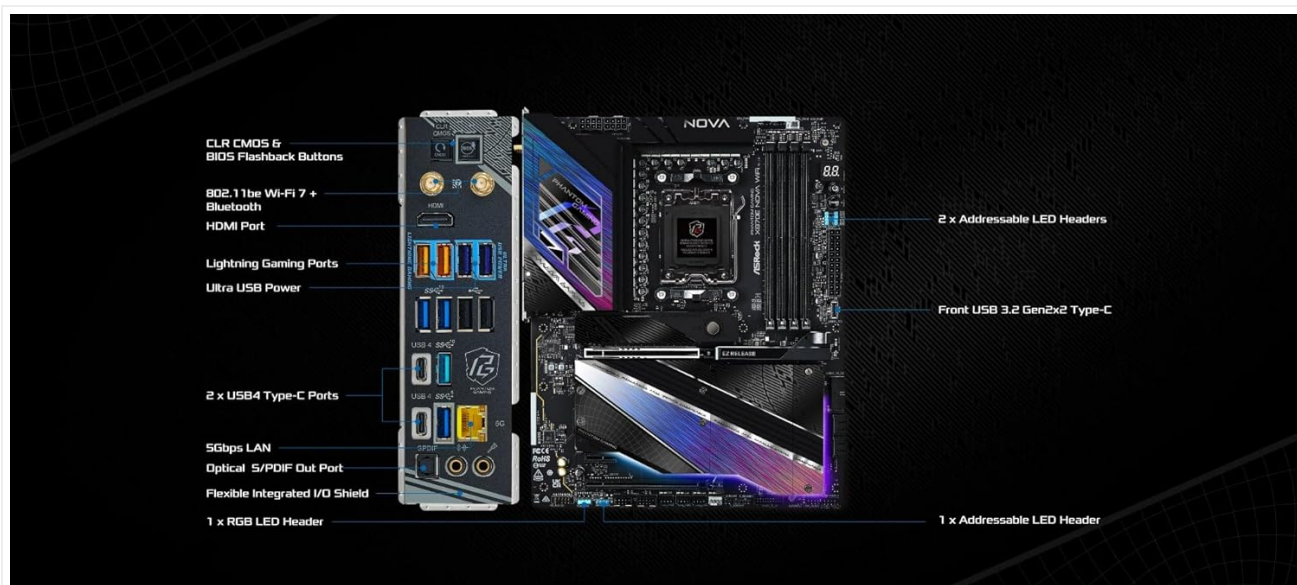


Image: A diagram detailing the rear I/O panel and internal headers, featuring CLR CMOS & BIOS Flashback Buttons, 802.11be Wi-Fi 7 + Bluetooth, HDMI port, Lightning Gaming Ports, Ultra USB Power, Dual USB4 Type-C ports, 5Gbps LAN, Optical S/PDIF Out Port, Flexible Integrated I/O Shield, and various Addressable LED Headers.

### 3.2. Rear I/O Panel

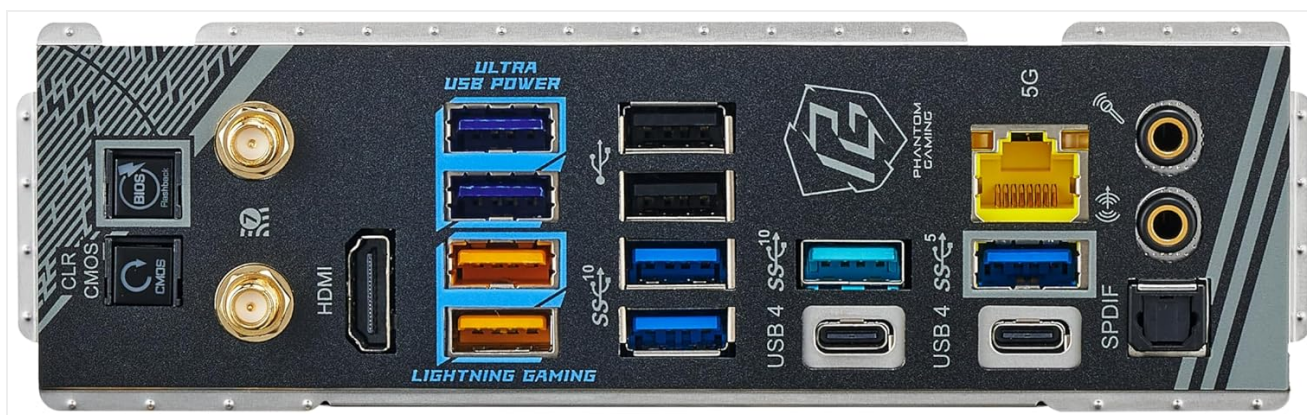


Image: A close-up view of the rear I/O panel, showing the various ports and buttons including USB 3.2 Gen2x2 Type-C, USB 3.2 Gen2 Type-A, USB 3.2 Gen1 Type-A, USB 2.0, HDMI, 5Gbps LAN, Wi-Fi antenna connectors, audio jacks, Optical S/PDIF Out, Clear CMOS button, and BIOS Flashback button.

## 4. SETUP AND INSTALLATION

Before installing any components, ensure your system is powered off and unplugged from the wall outlet. Wear an anti-static wrist strap to prevent electrostatic discharge (ESD) damage.

### 4.1. CPU Installation

1. Open the CPU socket lever and remove the protective cover.
2. Carefully align the AMD Ryzen processor with the socket, ensuring the golden triangle on the CPU matches the triangle on the socket.
3. Gently place the CPU into the socket without applying force.
4. Close the socket lever to secure the CPU.
5. Install your CPU cooler according to its manufacturer's instructions.

### 4.2. Memory (RAM) Installation

This motherboard supports DDR5 DIMMs. Install memory modules in pairs for optimal performance (dual-channel configuration).

1. Open the clips at both ends of the DIMM slot.
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. Storage (M.2 SSD) Installation

The motherboard features multiple M.2 slots with toolless heatsinks for high-speed NVMe SSDs.

1. Locate the desired M.2 slot and remove the heatsink by loosening the captive screw or using the toolless mechanism.
2. Insert the M.2 SSD into the slot at a 30-degree angle.
3. Gently push down the SSD and secure it with the M.2 screw or toolless latch.
4. Reattach the M.2 heatsink to ensure proper cooling.

### 4.4. Expansion Card (PCIe) Installation

Install your graphics card or other PCIe expansion cards into the appropriate slots.

1. Align the expansion card with the PCIe slot.
2. Press down firmly until the card is seated correctly.
3. Secure the card with a screw to the chassis.

### 4.5. Power Connections

Connect the main 24-pin ATX power connector and the 8-pin 12V CPU power connectors from your power supply to the motherboard.

### 4.6. Front Panel and Other Connections

Connect the front panel headers (power button, reset button, HDD LED, power LED), USB headers, audio headers, and any fan headers to their respective pins on the motherboard. Refer to the motherboard layout diagram for pin locations.

## 5. OPERATING YOUR SYSTEM

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### 5.1. BIOS/UEFI Setup

The BIOS (Basic Input/Output System) or UEFI (Unified Extensible Firmware Interface) is the firmware that initializes your hardware and launches the operating system. To enter the BIOS setup utility, press the **Delete** or **F2** key during the Power-On Self-Test (POST) process.

Within the BIOS, you can configure various system settings, including boot order, CPU and memory parameters, fan speeds, and enable/disable integrated peripherals.

### 5.2. Driver Installation

After installing your operating system, it is crucial to install the latest drivers for your motherboard components. These drivers can be found on the ASRock support website for your specific motherboard model. Install drivers for the chipset, LAN, audio, Wi-Fi, and any other integrated devices.

### 5.3. Software Utilities

ASRock provides various software utilities to enhance your user experience, such as ASRock App Shop for driver and software updates, Polychrome RGB for lighting control, and Phantom Gaming Tuning for system optimization. These can be downloaded from the ASRock website.

## 6. MAINTENANCE

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### 6.1. Cleaning

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

### 6.2. BIOS Updates

Periodically check the ASRock website for BIOS updates. BIOS updates can improve system stability, add support for new hardware, or fix bugs. Follow the instructions provided by ASRock carefully when performing a BIOS update to avoid system damage.

## 7. TROUBLESHOOTING

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If you encounter issues with your system, refer to the following common troubleshooting steps:

- **No Power:** Ensure all power cables (24-pin ATX, 8-pin 12V CPU) are securely connected to the motherboard and power supply. Check the power supply switch and wall outlet.
- **No Display:** Verify that the graphics card is properly seated in the PCIe slot and that the monitor cable is connected to the graphics card (not the motherboard's integrated graphics output, unless using an APU).
- **No POST (Power-On Self-Test):** Listen for beep codes (if a speaker is connected) or check the Dr. Debug LED on the motherboard for diagnostic codes. Consult the motherboard manual for the meaning of these codes.
- **System Instability/Crashes:** This can be caused by various factors. Check memory seating, CPU cooler installation, and ensure all drivers are up-to-date. Consider running memory diagnostic tools.
- **Operating System Not Booting:** Check the boot order in BIOS/UEFI to ensure the correct drive is selected. Verify that the operating system installation is not corrupted.
- **Peripheral Not Detected:** Ensure the peripheral is properly connected. Try a different port or slot. Install the latest drivers for the peripheral.

For more advanced troubleshooting, consult the comprehensive manual available on the ASRock support website or contact ASRock technical support.

## 8. SPECIFICATIONS

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Below are the technical specifications for the ASRock Phantom Gaming X870E Nova WiFi Motherboard:

Feature	Specification
Brand	ASRock
Model Name	X870E NOVA WIFI
CPU Socket	Socket AM5

Feature	Specification
Compatible Processors	AMD Ryzen 7000 Series Processors, AMD Ryzen 8000 Series Processors, AMD Ryzen 9000 Series Processors
Chipset Type	AMD X870E
RAM Memory Technology	DDR5
Memory Clock Speed	8200 MHz (OC)
Memory Storage Capacity	Up to 256 GB
PCIe Slots	1 x PCIe 5.0 x16, additional PCIe slots for expansion
M.2 Slots	5 (1 Gen5, 3 Gen4, 1 Gen3)
USB Ports	Dual USB4 Type-C, various USB 3.2 Gen2, USB 3.2 Gen1, USB 2.0
LAN	5 GbE LAN
Wireless Connectivity	WiFi 7, Bluetooth
Audio Codec	ALC4082
Form Factor	ATX
Item Weight	2.2 pounds
Platform	Windows 10, Windows 11

## 9. WARRANTY AND SUPPORT

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

You can find drivers, BIOS updates, and additional documentation on the ASRock support page:

- [ASRock Support Website](#)

When contacting support, please have your motherboard model (X870E NOVA WIFI) and serial number ready.