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› ASRock AMD B850M Phantom Gaming Riptide WiFi 7 Motherboard User Manual

ASRock B850M RIPTIDE WIFI

ASRock AMD B850M Phantom Gaming Riptide WiFi 7 Motherboard User Manual

Brand: ASRock | Model: B850M RIPTIDE WIFI

INTRODUCTION

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of your ASRock AMD B850M Phantom Gaming Riptide WiFi 7 Motherboard. Please read this manual thoroughly before proceeding with any installation or configuration to ensure proper functionality and to prevent damage to your components.

KEY FEATURES

- **Next-Gen AMD Platform:** Supports AMD Socket AM5 Ryzen 9000, 8000, and 7000 Series Processors, providing a modern foundation for high-performance computing.
- **Robust Power Delivery:** 12+2+1 phase power design with Dr.MOS for VCore, SOC, and MISC ensures stable and efficient power for demanding workloads.
- **High-Speed DDR5 Memory:** 4 DDR5 DIMM slots support dual-channel configurations and overclocked speeds up to 8000+ (OC) for exceptional performance.
- **PCIe 5.0 Ready:** Features one PCIe 5.0 x16 slot for next-generation graphics cards and one Blazing M.2 (PCIe Gen5x4) slot for ultra-fast NVMe storage.
- **Advanced Connectivity:** Includes both USB Type-A and Type-C USB 3.2 Gen2 ports on the rear panel, plus front-panel USB 3.2 Gen1 Type-C support.
- **Comprehensive Storage Options:** Multiple M.2 slots (PCIe 5.0, PCIe 4.0) and four SATA3 ports accommodate extensive storage requirements.
- **Premium Audio Experience:** Realtek ALC1220 7.1 CH HD Audio Codec with Nahimic Audio delivers

immersive, high-fidelity sound quality.

- **Cutting-Edge Networking:** Realtek 2.5G LAN and WiFi 7 technology provide the latest in high-speed wired and wireless connectivity.
- **System Compatibility Note:** This micro-ATX form factor may not be compatible with all cases; please verify chassis specifications before purchase.

SETUP

1. Physical Installation

Before installing any components, ensure your system is powered off and unplugged. Handle the motherboard by its edges to avoid static discharge.

Motherboard Overview



Figure 1: Top view of the ASRock B850M Phantom Gaming Riptide WiFi 7 Motherboard, showing the CPU socket, RAM slots, M.2 slots, and heatsinks.

CPU Installation

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

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.

M.2 SSD Installation

The motherboard features multiple M.2 slots, including a Blazing M.2 (PCIe Gen5x4) slot. To install an M.2 SSD, remove the M.2 heatsink/cover. Insert the M.2 SSD into the slot at an angle, then gently push it down and secure it with the provided screw or toolless mechanism. Reattach the heatsink/cover.



Figure 2: Diagram illustrating the layout of power delivery, M.2 slots, and the PCIe 5.0 x16 slot on the ASRock B850M Motherboard.

Graphics Card Installation

Insert your PCIe 5.0 x16 graphics card into the primary PCIe slot. Ensure it is seated firmly and secure it with the case screw. Connect any necessary PCIe power cables from your power supply to the graphics card.

Power Connections

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

Rear I/O Panel

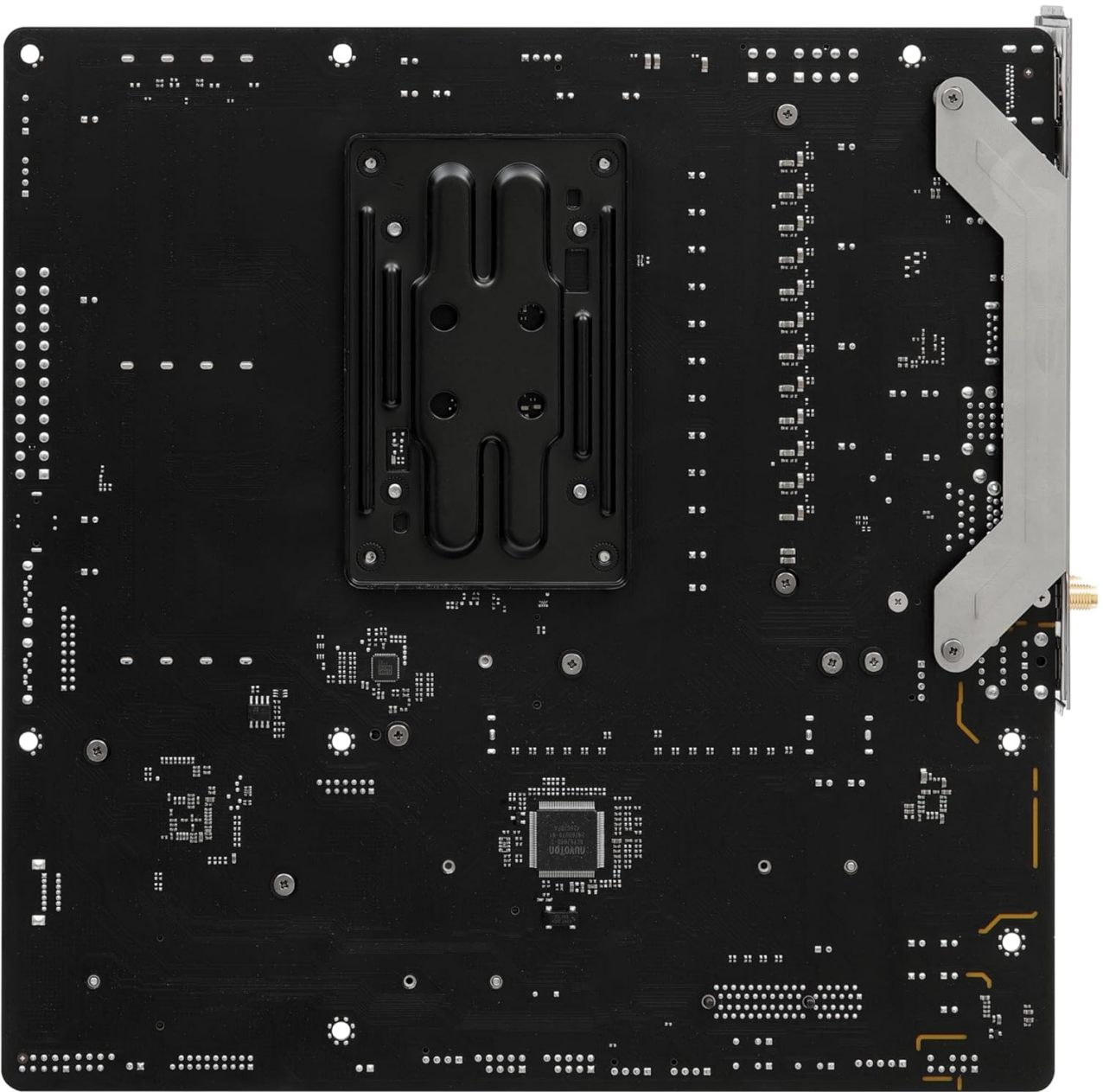


Figure 3: Close-up of the rear I/O panel, showing USB ports, HDMI, DisplayPort, 2.5G LAN, WiFi antenna connectors, and audio jacks.

2. Initial Boot and BIOS Access

After assembling all components, connect your monitor, keyboard, and mouse. Power on your system. During the Power-On Self-Test (POST), repeatedly press the **Delete** or **F2** key to enter the BIOS setup utility.

3. BIOS Update

Keeping your BIOS updated is crucial for system stability, compatibility with new hardware, and performance improvements. ASRock provides two methods for updating the BIOS: USB BIOS Flashback and Instant Flash.

Motherboard BIOS Update Tutorial Video

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Video 1: An official ASRock tutorial demonstrating two methods for updating the motherboard's BIOS: USB BIOS Flashback and Instant Flash. This video covers preparing a USB drive, downloading and renaming the BIOS file, and executing the update process.

USB BIOS Flashback

1. Prepare a USB drive (at least 32GB) and format it to FAT32.

2. Download the latest BIOS file from the official ASRock website for your specific motherboard model.
3. Extract the downloaded ZIP file and rename the BIOS ROM file to "CREATIVE.ROM".
4. Copy the renamed "CREATIVE.ROM" file to the root directory of your FAT32-formatted USB drive.
5. With the system powered off (but AC power connected), insert the USB drive into the designated USB BIOS Flashback port on the rear I/O panel. Refer to your motherboard's physical manual for the exact port location.
6. Press and hold the USB BIOS Flashback button (usually located near the USB BIOS Flashback port) for about three seconds until the LED light starts to blink.
7. The LED will continue to blink during the update process and will stop when the update is complete. Do not power off the system during this time.

Instant Flash (via BIOS)

1. Prepare a USB drive (at least 32GB) and format it to FAT32.
2. Download the latest BIOS file from the official ASRock website for your specific motherboard model.
3. Extract the downloaded ZIP file and copy the BIOS ROM file (do not rename it for Instant Flash) to the root directory of your FAT32-formatted USB drive.
4. Insert the USB drive into any USB port on your powered-on system.
5. Enter the BIOS setup utility by pressing **Delete** or **F2** during POST.
6. Navigate to the "Tool" menu and select "Instant Flash".
7. The utility will automatically detect the BIOS file on your USB drive. Select the correct BIOS version and confirm the update.
8. The system will restart after the update is complete.

OPERATING

1. General Operation

Once the operating system is installed, ensure all necessary drivers are installed for optimal performance. You can download the latest drivers from the ASRock support website.

CPU Support List

CPU Support List

CPU performance may be limited due to system configuration. A top down CPU cooler is recommended.										
Socket	Family	Model	Power	Core	Frequency	L2 Cache	L3 Cache	CPU Rev.	Validated BIOS	Bootable since BIOS
AMS	Ryzen 9	9950X(100-000001277)	170W	Granite Ridge	4.3GHz	16MB	64MB		3.15	3.15
AMS	Ryzen 9	9950X3D(100-000007119)	170W	Granite Ridge	4.3GHz	16MB	128MB		3.15	3.15
AMS	Ryzen 9	9900X3D(100-000001368)	120W	Granite Ridge	4.4GHz	12MB	128MB		3.15	3.15
AMS	Ryzen 9	9900X(100-000000662)	120W	Granite Ridge	4.4GHz	12MB	64MB		3.15	3.15
AMS	Ryzen 7	9800X3D(100-000001084)	120W	Granite Ridge	4.7GHz	8MB	96MB		3.15	3.15
AMS	Ryzen 7	9700X(100-000001404)	65W	Granite Ridge	3.8GHz	8MB	32MB		3.15	3.15
AMS	Ryzen 5	9600X(100-000001405)	65W	Granite Ridge	3.9GHz	6MB	32MB		3.15	3.15
AMS	Ryzen 5	9600(100-000000718)	65W	Granite Ridge	3.8GHz	6MB	32MB		3.15	3.15
AMS	Ryzen 7 PRO	PRO 8700GE(100-000001240)	35W	Phoenix 1	3.65GHz	8MB	16MB		3.15	3.15
AMS	Ryzen 7 PRO	PRO 8700G(100-000001238)	65W/45W	Phoenix 1	4.2GHz	8MB	16MB		3.15	3.15
AMS	Ryzen 7	8700F(100-000001590)	65W/45W	Phoenix 1	4.1GHz	8MB	16MB		3.15	3.15
AMS	Ryzen 7	8700G(100-000001236)	65W/45W	Phoenix 1	4.2GHz	8MB	16MB		3.15	3.15
AMS	Ryzen 5 PRO	PRO 8600GE(100-000001241)	35W	Phoenix 1	3.9GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 5 PRO	PRO 8600G(100-000001239)	65W/45W	Phoenix 1	4.35GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 5	8400F(100-000001591)	65W/45W	Phoenix 1	4.2GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 5	8600G(100-000001237)	65W/45W	Phoenix 1	4.3GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 5 PRO	PRO 8500GE(100-000001185)	35W	Phoenix 2	3.4GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 5 PRO	PRO 8500G(100-000001183)	65W/45W	Phoenix 2	3.55GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 5	8500GE(100-000001184)	35W	Phoenix 2	3.4GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 5	8500G(100-000000931)	65W/45W	Phoenix 2	3.5GHz	6MB	16MB		3.15	3.15
AMS	Ryzen 3 PRO	PRO 8300GE(100-000001189)	35W	Phoenix 2	3.5GHz	4MB	8MB		3.15	3.15
AMS	Ryzen 3 PRO	PRO 8300G(100-000001187)	65W/45W	Phoenix 2	3.45GHz	4MB	8MB		3.15	3.15
AMS	Ryzen 3	8300GE(100-000001188)	35W	Phoenix 2	3.5GHz	4MB	8MB		3.15	3.15
AMS	Ryzen 3	8300G(100-000001186)	65W/45W	Phoenix 2	3.45GHz	4MB	8MB		3.15	3.15
AMS	Ryzen 9	7950X3D(100-00000908)	120W	Raphael	4.2GHz	16MB	128MB		3.15	3.15
AMS	Ryzen 9	7900X3D(100-00000909)	120W	Raphael	4.4GHz	12MB	128MB		3.15	3.15
AMS	Ryzen 9	7950X(100-00000514-00)	170W	Raphael	4.5GHz	16MB	64MB		3.15	3.15
AMS	Ryzen 9	7900X(100-00000589-00)	170W	Raphael	4.7GHz	12MB	64MB		3.15	3.15
AMS	Ryzen 9	7900(100-000000590)	65W	Raphael	3.7GHz	12MB	64MB		3.15	3.15
AMS	Ryzen 9	Pro 7945(100-00000598)	65W	Raphael	3.7GHz	12MB	64MB		3.15	3.15
AMS	Ryzen 7	Pro 7745(100-00000599)	65W	Raphael PRO	3.8GHz	8MB	32MB		3.15	3.15
AMS	Ryzen 7	7800X3D(100-00000910)	120W	Raphael	4.2GHz	8MB	96MB		3.15	3.15
AMS	Ryzen 7	7700X(100-00000591-00)	105W	Raphael	4.5GHz	8MB	32MB		3.15	3.15
AMS	Ryzen 7	7700(100-00000592)	65W	Raphael	3.8GHz	8MB	32MB		3.15	3.15
AMS	Ryzen 5	Pro 7645(100-00000600)	65W	Raphael	3.8GHz	6MB	32MB		3.15	3.15
AMS	Ryzen 5	7600X(100-00000593-00)	105W	Raphael	4.7GHz	8MB	32MB		3.15	3.15
AMS	Ryzen 5	7600(100-000001015)	65W	Raphael	3.8GHz	6MB	32MB		3.15	3.15
AMS	Ryzen 5	7500F(100-00000597)	65W	Raphael	3.7GHz	6MB	32MB		3.15	3.15
AMS	Ryzen 5	7600X3D(100-000001721)	65W	Raphael	4.1GHz	6MB	96MB		3.15	3.15
AMS	Ryzen 5	7400F(100-000001845)	65W	Raphael	3.7GHz	6MB	32MB		3.15	3.15
AMS	Ryzen 9 PRO	PRO 9945(100-000001407)	65W	Granite Ridge PRO	3.4GHz	12MB	64MB		3.30	3.30
AMS	Ryzen 7 PRO	PRO 9745(100-000001408)	65W	Granite Ridge PRO	3.8GHz	8MB	32MB		3.30	3.30
AMS	Ryzen 7	9700F(100-000001902)	65W	Granite Ridge	3.8GHz	8MB	32MB		3.30	3.30
AMS	Ryzen 5 PRO	PRO 9645(100-000001409)	65W	Granite Ridge PRO	3.9GHz	6MB	32MB		3.30	3.30
AMS	Ryzen 5	7400(100-000001900)	65W	Raphael	3.3GHz	6MB	16MB		3.30	3.30
AMS	Ryzen 5 PRO	PRO 7445(100-000001899)	65W	Raphael	3.3GHz	6MB	16MB		3.30	3.30
AMS	Ryzen 5	9500F(100-000001406)	65W	Granite Ridge	3.8GHz	6MB	32MB		3.30	3.30

Figure 4: A table detailing supported AMD Ryzen CPUs, their families, models, power consumption, core frequencies, cache sizes, and validated BIOS versions.

2. Networking

The motherboard features Realtek 2.5G LAN for high-speed wired connections and WiFi 7 for advanced wireless connectivity. Install the appropriate drivers for both to enable full functionality.

3. Audio

The Realtek ALC1220 7.1 CH HD Audio Codec with Nahimic Audio provides high-fidelity sound. Connect your speakers or headphones to the appropriate audio jacks on the rear I/O panel or front panel audio headers. Install the audio drivers for full features and customization.

ASRock AMD B850 Series Motherboards Overview

Your browser does not support the video tag.

Video 2: An official ASRock video highlighting the features and capabilities of the AMD B850 Series Motherboards, including the Phantom Gaming Riptide WiFi model.

MAINTENANCE

1. BIOS Updates

Regularly check the ASRock website for new BIOS versions. Updates can improve system performance, stability, and compatibility. Refer to the "BIOS Update" section under Setup for detailed instructions or watch the provided tutorial video.

2. Cleaning

To maintain optimal performance and longevity, periodically clean your motherboard and PC components. Ensure the system is powered off and unplugged before cleaning. Use compressed air to remove dust from heatsinks, fans, and other components. Avoid using liquid cleaners directly on the motherboard.

TROUBLESHOOTING

1. Common Issues

- **No Boot / Yellow Light:** If the system does not boot and displays a yellow light, this could indicate a CPU or RAM issue. Re-seat the CPU and RAM modules. Ensure the CPU is correctly installed and the RAM is compatible and properly seated.
- **SSD Boot Order Issues:** If the system switches between SSDs on boot-up, enter the BIOS settings and disable other boot devices or set the preferred boot drive explicitly.
- **Bluetooth Connectivity:** For improved Bluetooth connection, ensure the WiFi antenna is securely screwed into the rear I/O panel.

2. BIOS Flashback

If your system encounters a critical BIOS error or you need to update the BIOS without a compatible CPU, the BIOS Flashback feature can be used. Refer to the "BIOS Update" section for detailed steps on using this feature.

SPECIFICATIONS

Feature	Specification
Brand	ASRock
CPU Socket	Socket AM5
Compatible Devices	Desktop
RAM Memory Technology	DDR5
Compatible Processors	AMD Ryzen 9000/8000/7000 Series
Chipset Type	AMD B850
Memory Clock Speed	8000 MHz (OC)
Platform	Windows 11
Model Name	B850M RIPTIDE WIFI
CPU Model	AMD Ryzen 7 (example)
Processor Socket	Socket AM5
Memory Storage Capacity	256 GB
Ram Memory Maximum Size	256 GB
Main Power Connector Type	24-Pin
Graphics Card Interface	PCI Express
Memory Slots Available	4
Number of Ports	23
System Bus Standard Supported	SATA 3
Total SATA Ports	4
Total USB Ports	17
Number of Ethernet Ports	1
Total Number of HDMI Ports	1
Total PCIe Ports	2
Item Weight	3 Pounds

WARRANTY AND SUPPORT

Warranty Information

This ASRock motherboard comes with a **3 Years Manufacturer Warranty**. Please retain your proof of purchase

for warranty claims.

Customer Support

For any product questions or assistance, please contact ASRock directly through Amazon's messaging system. You can also visit the official ASRock support website for additional resources, FAQs, and driver downloads.