

# B850M-X WiFi



AMD  
SOCKET  
AM5 | B850

AMD  
RYZEN

AMD  
AMD RYZEN™ 9000 DESKTOP READY

WiFi 6E

## PRODUCT BRIEF :

- Supports AMD Socket AM5 Ryzen™ 9000, 8000 and 7000 Series Processors
- 6+1+1 Phase Power Design, Dr.MOS for VCore
- 2 x DDR5 DIMMs
- Supports Dual Channel, up to 8200+ (OC)
- 2 PCIe 4.0 x16, 1 PCIe 4.0 x1
- Graphics Output Options: 1 HDMI, 1 DisplayPort
- Realtek ALC897 7.1 CH HD Audio Codec, Nahimic Audio
- 1 Blazing M.2 (PCIe Gen5x4)
- 1 Hyper M.2 (PCIe Gen4x4)
- 4 SATA3
- 2 USB 3.2 Gen1 Type-C (1 Rear, 1 Front)
- 5 USB 3.2 Gen1 (3 Rear, 2 Front)
- 6 USB 2.0 (2 Rear, 4 Front)
- Realtek 2.5G LAN
- 802.11axe WiFi 6E +Bluetooth
- Supports BIOS Flashback



I/O OVERVIEW

### 6+1+1 Power Phase Design

Vcore with Dr.MOS design, delivering smoother and neater power to the CPU.



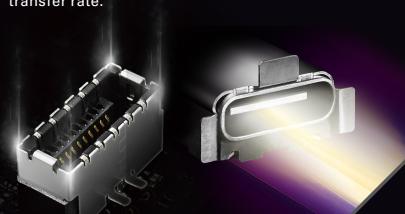
### BLAZING M.2 (PCIE GEN5 x4)

Supports up to 2\* NVMe M.2 SSDs and one of which is able to accommodate the latest PCI Express 5.0 standard.



### USB 3.2 TYPE-C (FRONT + REAR)

USB 3.2 Gen1 Type-C that delivers up to 5Gbps data transfer rate.



ASROCK  
AUTO DRIVER  
INSTALLER



BIOS  
Flashback

### Dragon 2.5Gbps LAN

Enjoy faster connectivity for gaming, file transfers and backups.



### Polychrome RGB

The RGB led header allows user to create unique PC style easily.



### WiFi 6E (802.11axe)

Better and faster internet traffic with lower latency!

\* The availability of WiFi 6E (6GHz) may vary between different countries.



Nahimic Audio



USB 3.2 Gen1  
Type-C



## Detail Specification

Platform	<ul style="list-style-type: none"> <li>- Micro ATX Form Factor: 9.6-in x 8.9-in, 24.4 cm x 22.6 cm</li> </ul>	Rear Panel I/O	<ul style="list-style-type: none"> <li>- 2 x Antenna Ports</li> <li>- 1 x HDMI Port</li> <li>- 1 x DisplayPort 1.4</li> <li>- 1 x USB 3.2 Gen1 Type-C Port</li> <li>- 3 x USB 3.2 Gen1 Type-A Ports</li> <li>- 2 x USB 2.0 Ports</li> <li>- 1 x RJ-45 LAN Port</li> <li>- 1 x BIOS Flashback Button</li> <li>- HD Audio Jacks: Line in / Front Speaker / Microphone</li> </ul>
Unique Feature	<ul style="list-style-type: none"> <li>Superb Productivity <ul style="list-style-type: none"> <li>- PCIe Gen5 (M.2)</li> <li>- Dual Channel DDR5</li> </ul> </li> <li>Rock-Solid Durability <ul style="list-style-type: none"> <li>- 6+1+1 Power Phase, Dr.MOS for VCore</li> </ul> </li> <li>Ultrafast Connectivity <ul style="list-style-type: none"> <li>- 2.5G LAN, 802.11axe Wi-Fi 6E Module</li> </ul> </li> <li>EZ Update <ul style="list-style-type: none"> <li>- BIOS Flashback Button</li> <li>- ASRock Auto Driver Installer</li> </ul> </li> <li>EZ Troubleshooter <ul style="list-style-type: none"> <li>- ASRock Post Status Checker</li> </ul> </li> </ul>	Storage	<p>CPU:</p> <ul style="list-style-type: none"> <li>- 1 x Blazing M.2 Socket (M2_1, Key M), supports type 2280 PCIe Gen5x4 (128 Gb/s) mode*</li> <li>- 1 x Hyper M.2 Socket (M2_2, Key M), supports type 2260/2280 PCIe Gen4x4 (64 Gb/s) mode*</li> </ul> <p>Chipset:</p> <ul style="list-style-type: none"> <li>- 4 x SATA3 6.0 Gb/s Connectors</li> </ul> <p>* Supports NVMe SSD as boot disks</p> <p>* M2_1 is the first priority for M.2 installation.</p> <p>* M2_1 will run at Gen5x4 with 9000 and 7000 series processors and Gen4x4 with 8000 (Phoenix 1 and Phoenix 2) series processors.</p> <p>* M2_2 will run at Gen4x4 with 9000 and 7000 series processors, Gen4x4 with 8000 (Phoenix 1) series processors and Gen4x2 with 8000 (Phoenix 2) series processors.</p>
CPU	<ul style="list-style-type: none"> <li>- Supports AMD Socket AM5 Ryzen™ 9000, 8000 and 7000 Series Processors*</li> </ul> <p>* The availability of expansion slots may vary by CPU. Please refer to PCIe/M.2 Bandwidth Table for details. (<a href="http://www.asrock.com/">http://www.asrock.com/</a>)</p>	RAID	<ul style="list-style-type: none"> <li>- Supports RAID 0, RAID 1 and RAID 10 for SATA storage devices</li> <li>- Supports RAID 0, RAID 1 and RAID 10 for M.2 NVMe storage devices*</li> </ul> <p>* Requires additional M.2 NVMe expansion cards to support RAID 10</p>
Chipset	<ul style="list-style-type: none"> <li>- AMD B850</li> </ul>	Connector	<ul style="list-style-type: none"> <li>- 1 x Thermistor Cable Header</li> <li>- 1 x SPI TPM Header</li> <li>- 1 x Power LED and Speaker Header</li> <li>- 1 x RGB LED Header*</li> <li>- 3 x Addressable LED Headers**</li> <li>- 2 x CPU Fan Connectors (4-pin) (Smart Fan Speed Control)***</li> <li>- 3 x Chassis/Water Pump Fan Connectors (4-pin) (Smart Fan Speed Control)***</li> <li>- 1 x AIO Pump Fan Connector (4-pin) (Smart Fan Speed Control)***</li> <li>- 1 x 24 pin ATX Power Connector</li> <li>- 1 x 8 pin 12V Power Connector (Hi-Density Power Connector)</li> <li>- 1 x Front Panel Audio Connector</li> <li>- 2 x USB 2.0 Headers (Support 4 USB 2.0 ports)</li> <li>- 1 x USB 3.2 Gen1 Header (Supports 2 USB 3.2 Gen1 ports)</li> <li>- 1 x Front Panel Type C USB 3.2 Gen1 Header</li> </ul> <p>* Supports in total up to 12V/3A, 36W LED Strip</p> <p>** Support in total up to 5V/3A, 15W LED Strip</p> <p>*** CPU_FAN1 supports the fan power up to 1A (12W).</p> <p>*** CPU_FAN2, CHA_FAN1~3 and AIO_PUMP support the fan power up to 3A (36W).</p> <p>*** CPU_FAN2, CHA_FAN1~3 and AIO_PUMP can auto detect if 3-pin or 4-pin fan is in use.</p>
Memory	<ul style="list-style-type: none"> <li>- Dual Channel DDR5 Memory Technology</li> <li>- 2 x DDR5 DIMM Slots</li> <li>- Supports DDR5 ECC/non-ECC, un-buffered memory up to 8200+(OC)*</li> <li>- Max. capacity of system memory: 128GB</li> <li>- Supports Extreme Memory Profile (XMP) and EXTended Profiles for Overclocking (EXPO) memory modules</li> </ul> <p>* Please refer to Memory Support List on ASRock's website for more information. (<a href="http://www.asrock.com/">http://www.asrock.com/</a>)</p>	BIOS Feature	<ul style="list-style-type: none"> <li>- 256Mb AMI UEFI Legal BIOS with GUI support</li> </ul>
Expansion Slot	<p>CPU:</p> <ul style="list-style-type: none"> <li>- 1 x PCIe 4.0 x16 Slot (PCIE1), supports x16 mode*</li> </ul> <p>Chipset:</p> <ul style="list-style-type: none"> <li>- 1 x PCIe 4.0 x1 Slot (PCIE2)*</li> <li>- 1 x PCIe 4.0 x16 Slot (PCIE3), supports x4 mode*</li> <li>- 1 x M.2 Socket (Key E), supports type 2230 WiFi/BT PCIe WiFi module</li> </ul> <p>* PCIE1 will run at Gen4x16 with 9000 and 7000 series processors, Gen4x8 with 8000 (Phoenix 1) series processors and Gen4x4 with 8000 (Phoenix 2) series processors.</p> <p>* Supports NVMe SSD as boot disks</p>	Software and UEFI	<p>Software</p> <ul style="list-style-type: none"> <li>- ASRock Motherboard Utility (A-Tuning)</li> <li>- ASRock Dragon 2.5G LAN Software</li> <li>- ASRock Polychrome SYNC</li> </ul> <p>* These utilities can be downloaded from ASRock Live Update &amp; APP Shop.</p> <p>UEFI</p> <ul style="list-style-type: none"> <li>- ASRock EZ Mode</li> <li>- ASRock Full HD UEFI</li> <li>- ASRock Auto Driver Installer</li> <li>- ASRock Instant Flash</li> </ul>
Graphics	<p>Integrated AMD RDNA™ graphics (Actual support may vary by CPU)</p> <ul style="list-style-type: none"> <li>- 1 x HDMI 2.1 TMDS/FRL 8G Compatible, supports HDR, HDCP 2.3 and max. resolution up to 4K 120Hz</li> <li>- 1 x DisplayPort 1.4 with DSC (compressed), supports HDCP 2.3 and max. resolution up to 4K 120Hz</li> </ul>	OS	<ul style="list-style-type: none"> <li>- Microsoft® Windows® 10 64-bit / 11 64-bit</li> </ul>
Audio	<ul style="list-style-type: none"> <li>- 7.1 CH HD Audio (Realtek ALC897 Audio Codec)</li> <li>- Nahimic Audio</li> </ul>	Certifications	<ul style="list-style-type: none"> <li>- FCC, CE</li> <li>- ErP/EuP ready (ErP/EuP ready power supply is required)</li> </ul>
LAN	<ul style="list-style-type: none"> <li>- 2.5 Gigabit LAN 10/100/1000/2500 Mb/s</li> <li>- Dragon RTL8125BG</li> <li>- Supports Dragon 2.5G LAN Software <ul style="list-style-type: none"> <li>- Smart Auto Adjust Bandwidth Control</li> <li>- Visual User Friendly UI</li> <li>- Visual Network Usage Statistics</li> <li>- Optimized Default Setting for Game, Browser, and Streaming Modes</li> <li>- User Customized Priority Control</li> </ul> </li> </ul>	Accessories	<ul style="list-style-type: none"> <li>- 1 x I/O Shield</li> <li>- 2 x SATA Data Cables</li> <li>- 2 x ASRock WiFi 2.4/5/6 GHz Antennas</li> </ul>
Wireless LAN	<ul style="list-style-type: none"> <li>- 802.11axe Wi-Fi 6E Module</li> <li>- Supports IEEE 802.11a/b/g/n/ac/ax/axe</li> <li>- Supports Dual-Band 2x2 with extended 6GHz band* support</li> </ul> <p>* Wi-Fi 6E (6GHz band) will be supported by Microsoft® Windows® 11. The availability will depend on the different regulation status of each country and region.</p> <p>It will be activated (for supported countries) through Windows Update and software updates once available.</p> <p>* A 6GHz compatible router is required for 6E functionality.</p> <ul style="list-style-type: none"> <li>- 2 antennas to support 2 (Transmit) x 2 (Receive) diversity technology</li> <li>- Supports Bluetooth 5.2</li> <li>- Supports MU-MIMO</li> </ul>		
USB	<p>CPU:</p> <ul style="list-style-type: none"> <li>- 3 x USB 3.2 Gen1 Type-A (Rear)</li> <li>- 1 x USB 2.0 (Rear (USB_2))</li> </ul> <p>Chipset:</p> <ul style="list-style-type: none"> <li>- 2 x USB 3.2 Gen1 Type-C (1 Rear, 1 Front)</li> <li>- 2 x USB 3.2 Gen1 Type-A (Front)</li> <li>- 5 x USB 2.0 (1 Rear (USB_1), 4 Front)</li> </ul> <p>* All USB ports support ESD Protection</p>		