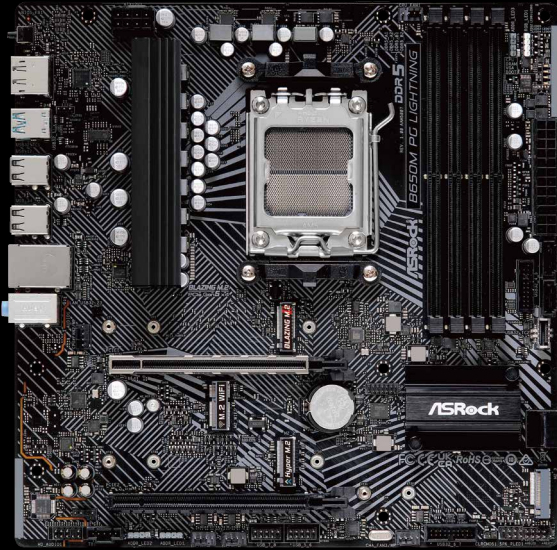




PHANTOM GAMING



# B650M PG LIGHTNING



B650



## PRODUCT BRIEF :

- Supports AMD Socket AM5 Ryzen™ 7000 Series Processors
- 6+2+1 Power Phase, Dr.MOS
- Supports DDR5 6000+ MHz (OC)
- 1 PCIe 4.0 x16, 1 PCIe 3.0 x16, 1 M.2 Key E for WiFi
- Integrated AMD RDNA™ 2 Graphics \*1
- Graphics Output Options: HDMI, DisplayPort
- Realtek ALC897 7.1 CH HD Audio Codec, Nahimic Audio
- 4 SATA3, 1 Blazing M.2 (PCIe Gen5 x4), 1 Hyper M.2 (PCIe Gen4 x4), 1 M.2 (PCIe Gen4 x2)
- 1 USB 3.2 Gen2 Type A+C (Rear), 1 USB 3.2 Gen1 Type-C (Front), 6 USB 3.2 Gen1 Type-A (2 Rear, 4 Front), 8 USB 2.0 (4 Rear, 4 Front)
- Phantom Gaming 2.5G LAN

- Supports ASRock Auto Driver Installer, BIOS Flashback

\*1 Actual support may vary by CPU.

I/O OVERVIEW



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

Providing a blazing fast data transfer interface with reversible USB Type-C design that fits the connector either way.



## Dr. MOS

Intelligently delivering higher current for each phase, thus providing improved thermal result and superior performance.



## Dragon 2.5Gbps LAN

Enjoy the faster connectivity experience for gaming, file transfers and backups.



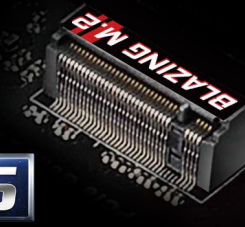
## M.2 (KEY E) For WiFi

Users may upgrade wireless module by M.2 (Key E) slot.  
\*WiFi Module is not included.



## Blazing M.2

Supports PCIe 5.0 SSD with a breathtaking data transfer rate.



## Auto Driver Installer

The LAN driver has already prepacked in BIOS ROM, simply follow the instructions and install all necessary drivers automatically.



## Detail Specification

<b>Platform</b>	- Micro ATX Form Factor: 9.6-in x 9.6-in, 24.4 cm x 24.4 cm	<b>Rear Panel I/O</b>	- 2 x Antenna Mounting Points - 1 x HDMI Port - 1 x DisplayPort 1.4 - 1 x USB 3.2 Gen2 Type-A Port (10 Gb/s) - 1 x USB 3.2 Gen2 Type-C Port (10 Gb/s) - 2 x USB 3.2 Gen1 Type-A Ports - 4 x USB 2.0 Ports - 1 x RJ-45 LAN Port - 1 x BIOS Flashback Button - HD Audio Jacks: Line in / Front Speaker / Microphone
<b>Unique Feature</b>	<p>Superb Productivity</p> <ul style="list-style-type: none"> <li>- PCIe Gen5 (M.2)</li> <li>- Dual Channel DDR5</li> </ul> <p>Rock-Solid Durability</p> <ul style="list-style-type: none"> <li>- 6+2+1 Power Phase, 50A Dr.MOS</li> </ul> <p>Ultrafast Connectivity</p> <ul style="list-style-type: none"> <li>- 2.5G LAN</li> </ul> <p>EZ Update</p> <ul style="list-style-type: none"> <li>- BIOS Flashback Button</li> <li>- ASRock Auto Driver Installer</li> </ul> <p>EZ Troubleshooter</p> <ul style="list-style-type: none"> <li>- ASRock Post Status Checker</li> </ul>	<b>Storage</b>	<p>CPU:</p> <ul style="list-style-type: none"> <li>- 1 x Blazing M.2 Socket (M2_1, Key M), supports type 2260/2280 PCIe Gen5x4 (128 Gb/s) mode*</li> </ul> <p>Chipset:</p> <ul style="list-style-type: none"> <li>- 1 x Hyper M.2 Socket (M2_2, Key M), supports type 2260/2280 PCIe Gen4x4 (64 Gb/s) mode*</li> <li>- 1 x M.2 Socket (M2_3, Key M), supports type 2260/2280 PCIe Gen4x2 (32 Gb/s) mode*</li> <li>- 4 x SATA3 6.0 Gb/s Connectors</li> </ul> <p>* Supports NVMe SSD as boot disks</p>
<b>CPU</b>	- Supports AMD Socket AM5 Ryzen™ 7000 Series Processors*	<b>RAID</b>	- Supports RAID 0, RAID 1 and RAID 10 for SATA storage devices - Supports RAID 0, RAID 1 and RAID 10 for M.2 NVMe storage devices* * Requires additional M.2 NVMe expansion cards to support RAID 10
<b>Chipset</b>	- AMD B650	<b>Connector</b>	<ul style="list-style-type: none"> <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>- 1 x CPU Fan Connector (4-pin)**</li> <li>- 1 x CPU/Water Pump Fan Connector (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 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>- 1 x Thunderbolt AIC Connector (5-pin) (Supports ASRock Thunderbolt 4 AIC Card)</li> <li>- 2 x USB 2.0 Headers (Support 4 USB 2.0 ports)</li> <li>- 2 x USB 3.2 Gen1 Headers (Support 4 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 ** Support in total up to 5V/3A, 15W LED Strip *** CPU_FAN1 supports the fan power up to 1A (12W). **** CPU_FAN2/WP supports the fan power up to 2A (24W). ***** CHA_FAN1~3/WP support the fan power up to 2A (24W). ***** CPU_FAN2/WP and CHA_FAN1~3/WP can auto detect if 3-pin or 4-pin fan is in use.</p>
<b>Memory</b>	<ul style="list-style-type: none"> <li>- Dual Channel DDR5 Memory Technology</li> <li>- 4 x DDR5 DIMM Slots</li> <li>- Supports DDR5 non-ECC, un-buffered memory up to 6000+(OC)*</li> <li>- Max. capacity of system memory: 192GB</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>	<b>BIOS Feature</b>	- 256Mb AMI UEFI Legal BIOS with GUI support
<b>Expansion Slot</b>	<p>CPU:</p> <ul style="list-style-type: none"> <li>- 1 x PCIe 4.0 x16 Slot (PCIe1), supports x16 mode*</li> <li>- 1 x PCIe 3.0 x16 Slot (PCIe2), supports x4 mode*</li> </ul> <p>Chipset:</p> <ul style="list-style-type: none"> <li>- 1 x M.2 Socket (Key E), supports type 2230 WiFi/BT PCIe WiFi module</li> </ul> <p>* Supports NVMe SSD as boot disks - Supports AMD CrossFire™ - 15µ Gold Contact in VGA PCIe Slot (PCIe1)</p>	<b>Software and UEFI</b>	<p>Software</p> <ul style="list-style-type: none"> <li>- ASRock Motherboard Utility (Phantom Gaming Tuning)</li> <li>- ASRock Phantom Gaming 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 Full HD UEFI</li> <li>- ASRock Auto Driver Installer</li> <li>- ASRock Instant Flash</li> </ul>
<b>Graphics</b>	<p>Integrated AMD RDNA™ 2 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>	<b>OS</b>	- Microsoft® Windows® 10 64-bit / 11 64-bit
<b>Audio</b>	<ul style="list-style-type: none"> <li>- 7.1 CH HD Audio (Realtek ALC897 Audio Codec)</li> <li>- Nahimic Audio</li> </ul>	<b>Certifications</b>	- FCC, CE - ErP/EuP ready (ErP/EuP ready power supply is required)
<b>LAN</b>	<ul style="list-style-type: none"> <li>- 2.5 Gigabit LAN 10/100/1000/2500 Mb/s</li> <li>- Dragon RTL8125BG</li> <li>- Supports Phantom Gaming 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>	<b>Accessories</b>	<ul style="list-style-type: none"> <li>- 1 x User Manual</li> <li>- 1 x I/O Shield</li> <li>- 2 x SATA Data Cables</li> <li>- 4 x Screws for M.2 Sockets</li> </ul>
<b>USB</b>	<ul style="list-style-type: none"> <li>- 1 x USB 3.2 Gen2 Type-C (Rear)</li> <li>- 1 x USB 3.2 Gen2 Type-A (Rear)</li> <li>- 1 x USB 3.2 Gen1 Type-C (Front)</li> <li>- 6 x USB 3.2 Gen1 Type-A (2 Rear, 4 Front)</li> <li>- 8 x USB 2.0 (4 Rear, 4 Front)</li> </ul> <p>* All USB ports support ESD Protection</p>		