

## B650M X3D PRO+ Motherboard



- Supports AMD Ryzen 7000 / 8000 / 9000 series processors
- AMD B650 single chip architecture
- Supports 4-DIMM DDR5 up to 256 GB Memory
- Supports PCle 4.0
- Supports PCIe 4.0 M.2 (64Gb/s)
- Supports HDMI 4K resolution
- Supports SMART BIOS UPDATE

| Specifcation     |   |
|------------------|---|
| CPU SUPPORT      | Socket AM5 support AMD Ryzen <sup>™</sup> 7000 / 8000 / 9000 series Processors<br>Support for future AMD Ryzen processors with BIOS update<br>* Please refer to www.biostar.com.tw for CPU support list.  |
| MEMORY           | AMD Ryzen 7000 / 8000 / 9000 Series Processors:<br>Supports Dual Channel DDR5 - 6000+(OC) MT/s, Non-ECC, Un-buffered Memory<br>4 x DDR5 DIMM Memory Slot, Max. Supports up to 256 GB Memory<br>Support Intel® Extreme Memory Profile (XMP) memory modules and AMD<br>EXTended Profiles for Overclocking (EXPO) memory modules<br>* Please refer to www.biostar.com.tw for Memory support list.  |
| INTEGRATED VIDEO | Supports DX12<br>Supports HDCP  |
| STORAGE          | Total support 2 x M.2 Socket and 4 x SATA (6Gb/s) ports<br>AMD Ryzen 7000 / 8000 / 9000 Series Processors<br>1x M.2 (Key M) Socket (M2M_CPU) :<br>Supports M.2 Type 2242/ 2260/ 2280 SSD module<br>Supports PCIe 4.0 x4 (64Gb/s) - NVMe/ AHCI SSD<br>AMD B650 Chipset<br>1x M.2 (Key M) Socket (M2M_SB) :<br>Support M.2 Type 2280 SSD module<br>Support PCIe 4.0 x 4 (64Gb/s) - NVMe / AHCI SSD<br>4x SATA III Connector (6Gb/s) : Supports AHCI & RAID 0, 1, 10 |
| LAN              | Realtek RTL8125B<br>10/ 100/ 1000/ 2500 Mb/s auto negotiation, Half / Full duplex capability  |
| AUDIO CODEC      | ALC897<br>7.1 Channels, High Definition Audio, Hi-Fi  |
| USB              | 2 x USB 3.2 Gen2 Type-C port (1 on rear I/Os and 1 via internal headers)<br>1 x USB 3.2 Gen2 port (1 on rear I/Os)<br>6 x USB 3.2 Gen1 port (4 on rear I/Os and 2 via internal headers)<br>6 x USB 2.0 port (2 on rear I/Os and 4 via internal headers)   |

| EXPANSION SLOT  | AMD Ryzen 7000 / 8000 / 9000 Series Processors<br>1 x PCle 4.0 x16 Slot (x16 or x8/x8 mode)<br>2 x PCle 4.0 x1 Slot (x1 mode)<br>AMD B650 Chipset<br>1 x PCle 4.0 x1 Slot (x1 mode)   |
|-----------------|---|
| REAR I/O        | 2 x WiFi Antenna Port<br>1 x PS/2 Keyboard/ Mouse Port<br>1 x SMART BIOS update Button<br>1 x HDMI Port (HDMI1.4)<br>1 x DP Port (DP1.2)<br>1 x USB 3.2 (Gen2) Type-C Port<br>1 x USB 3.2 (Gen2) Type-A Port<br>4 x USB 3.2 (Gen1) Type-A Port<br>2 x USB 2.0 Type-A Port<br>1 x 2.5G LAN port<br>3 x Audio Jack  |
| INTERNAL I/O    | 4 x SATA III Connector (6Gb/s)<br>1 x M.2 (E Key) Socket : Supports 2230 type Wi-Fi & Bluetooth module<br>2 x USB 2.0 Header (each header supports 2 USB 2.0 ports)<br>1 x USB 3.2 (Gen1) Header (each header supports 2 USB 3.2 (Gen1) ports)<br>1 x USB 3.2 (Gen2) Type-C Header (each header supports 1 USB 3.2 (Gen2)<br>Type-C ports)<br>1 x 8-Pin Power Connector<br>1 x 24-Pin Power Connector<br>1 x CPU Fan Connector<br>1 x CPU water cooling connector (CPU_OPT)<br>1 x System Fan Connector<br>1 x Front Panel Header<br>1 x Front Audio Header<br>1 x Internal Stereo Speaker Header<br>1 x CMP ort Header<br>1 x COM Port Header<br>1 x TPM Header<br>2 x LED Header (5V)<br>1 x LED Header (12V)<br>* M.2 (E Key) Wi-Fi card is not provided |
| H/W MONITORING  | CPU / System Temperature Monitoring<br>Smart / Manual CPU Fan Control<br>CPU/DDR Voltage Monitoring   |
| DIMENSION       | Micro ATX Form Factor Dimension: 24.4cmx24.4cm ( W x L )  |
| OS SUPPORT      | Supports Windows 10(64bit) / 11(64bit)<br>*Biostar reserves the right to add or remove support for any OS with or without<br>notice.  |
| BUNDLE SOFTWARE | BullGuard   |
| ACCESSORIES     | 2 x SATA Cable<br>1 x I/O Shield<br>1 x DVD Driver<br>1 x WiFi antenna accessories  |

## OVERVIEW

| B650            | AMD B650 chipset<br>If you are a serious gamer or creator, you will want an AMD B650 motherboard.<br>With PCIe® 5.0 support for your NVMe drive and DDR5 support featuring AMD<br>EXPO <sup>™</sup> technology, AMD B650 is packed with features that help speed up your<br>game.   |
|-----------------|---|
| HD AUDIO        | HD Audio<br>Provides high quality sound with minimal loss of audio fidelity.  |
|                 | Hi-Fi Ground<br>BIOSTAR Hi-Fi Ground ( Golden Line ) is noise-blocking multi-layer PCB design to<br>isolates analog audio signals from digital sources. Unique PCB layout is ideal for<br>exceptional clarity and high fidelity sound.  |
|                 | Hi-Fi AMP<br>The built-in amplifier can drive major high-end headphones with over 100dB<br>loads and offer wide band-width, low noise, high slew rate and low distortion<br>audio source from front panel I/O. Gaming enthusiasts can enjoy a fuller range of<br>dynamic sound with crisper details and less distortion.  |
|                 | Smart Ear<br>Smart EAR is a windows-based audio utility which allows you to easily adjust<br>system volume. With its user-friendly GUI, you can also increase or decrease<br>impedance setting (Low/High Gain) to optimize your headphone performance.<br>You can easily enjoy high-quality and awesome sound.  |
| HDMI            | HDMI 4K2K<br>The new 4K2K resolution enables high-definition image display with four times<br>the resolution of full HD, 4K2K display is faithfully express bright, highly detailed<br>content that fills the entire screen with lifelike images. Connectivity with PCs via<br>a single HDMI cable for displaying 4K2K data.                                    |
| DISPLAY<br>PORT | DisplayPort<br>DisplayPort is a digital display interface developed by the Video Electronics<br>Standards Association (VESA). The interface is primarily used to connect a video<br>source to a display device such as a computer monitor, though it can also be<br>used to carry audio.  |
| DXI2            | DX12<br>DirectX 12 introduces the next version of Direct3D, the graphics API at the heart<br>of DirectX. Direct3D is one of the most critical pieces of a game or game engine,<br>and we've redesigned it to be faster and more efficient than ever before.<br>Direct3D 12 enables richer scenes, more objects, and full utilization of modern<br>GPU hardware. |
| SATA III        | SATAIII 6Gbps<br>SATAIII 6Gbps provides a higher bandwidth to retrieve and transfer HD media.<br>With this super speed data transfer, SATAIII allows an incredible data boost which<br>is 2x faster than the SATA II.   |

| DDR5                   | DDR5<br>DDR5 provides 50% higher bandwidth than DDR4, the frequency can be up to<br>6000+(OC)MHz, and can boasts the largest memory capacity available. It also<br>supports dual channels and has lower power consumption, which can provide<br>better performance and experience for overclockers.                              |
|------------------------|--|
| PGIe 4-0               | PCIe 4.0<br>PCIe 4.0 is the ubiquitous and general-purpose PCI Express I/O standard. At<br>16GT/s bit rate, the interconnect performance bandwidth is doubled over PCIe<br>3.0, while preserving compatibility with software and mechanical interfaces.  |
| PCIe 4-0<br>M-2        | PCIe 4.0 M.2 PCIe 4.0 M.2 delivers the highest bandwidth and lower latency. It is 2 times faster compared with PCIe 3.0 M.2 .  |
| USB 3.2<br>TYPE-C      | USB 3.2 Gen2 Type-C<br>USB 3.2 Gen2 offers up to double the transfer speed of USB 3.2 Gen1 at 10 Gbps<br>that allows for much higher data transfer rates and more efficient data transfer.<br>And the Type-C connector is reversible so it's easier to plug in.  |
| USB 3.2<br>GENITYPE-A  | USB 3.2 Gen1 Type-A<br>USB 3.2 Gen1 delivers a compelling performance boosts and can be used to<br>connect multiple devices without worrying about compatibility. It is capable of<br>data transfer speeds up to 5Gbps and backwards compatible with all existing USB<br>products.   |
| USB 3.2<br>GEN2 TYPE-A | USB 3.2 Gen2 Type-A<br>USB 3.2 Gen2 is a new standard called SuperSpeed USB 10Gbps to address<br>increased performance and improve data transmission speed. It is for a max data<br>transfer rate of 10Gbps and creates the best possible connection between your<br>devices.  |
| DR. MOS                | Dr. MOS<br>Dr. MOS integrates driver ICs and high-side / low-side MOSFETs into a small<br>package to reduce switching losses that enables superior efficiency and<br>performance at higher switching frequencies.  |
| DIGITAL                | Digital PWM<br>Digital PWM controller is with dual-output multiphase that faster transient<br>performance and accurately regulated frequency control. It can be enabled to<br>greatly increase system efficiency.  |
| 2.5 GbE<br>LAN         | <b>2.5 GbE LAN</b><br>The 2.5 GbE LAN offers faster transmission speeds compared to traditional 1 GbE LAN and is currently the mainstream transmission speed. It enhances data transmission speeds among devices within a local area network, making it particularly suitable for scenarios requiring large-scale data transfer. |

| SCLID<br>CAPS          | Super Durable Solid Caps<br>The best quality solid state capacitors with ultra low ESR design, the Super<br>Durable Solid Caps doubles the lifespan.  |
|------------------------|---|
|                        | Super Durable Inductor<br>Super Durable Inductor brings the benefits of higher current capacity, lower<br>energy loss and better power stability.   |
| MOISTUREPROOF          | Moistureproof PCB<br>The PCB will be oxidizing easily by damp or absorbed moisture, and ionic<br>migration or CAF (Conductive Anodic Filament) will be generated. Moistureproof<br>PCB meets high density and high reliability requirements for moisture proof.   |
| ESD<br>PROTECTION      | <b>ESD Protection</b><br>ESD (Electrostatic Discharge) is the major factor to destroy the PC by electrical overstress (EOS) condition. ESD occurred by PC users when touch any devices connect to a PC, which may result in damage to the motherboard or parts. ESD protection is designed to protect the motherboard and equipment from damage by EOS. |
| OC-OV-OH<br>PROTECTION | OC / OV / OH Protection<br>OC / OV / OH Protection design detects overvoltage conditions and prevents<br>voltage surges from spreading in real time. It also actively cuts off the<br>overvoltage supply to protect your system.  |
| 2.5GUARD               | 2.5GUARD features 2.5G having higher data transfer speeds and can strengthen electrical stability and prevent damage from lightning strikes and electrical surges. It's 2.5X improvement than standard Ethernet connections.  |
|                        | VIVID LED DJ<br>New VIVID LED DJ with more customizability and options to control multiple<br>RGB/ARGB LED lighting zones independently. Users can control color, speed and<br>brightness for different modes at ease.  |
| UEFI<br>BIOS           | UEFI BIOS<br>Unified Extensible Firmware Interface (UEFI) is a brand new framework that<br>provides a revolutionary interface. It is a modern clear and easy-to-use graphical<br>user interface. The UEFI comes with a colorful easy-understand icons lead users<br>into the setup layer directly.  |
| BIOS                   | BIO-Flasher<br>BIO-Flasher is a convenient BIOS update tool. Just launch this tool and put the<br>BIOS on USB pen driver before entering the OS. You can update your BIOS with<br>only a few clicks without preparing an additional floppy disk or other complicated<br>flash utility.  |

| A.I FAN                        | A.I FAN<br>With A.I FAN users can ensure that their gaming PC can maintain its performance<br>while staying cool. According to different cooling needs and usage scenarios,<br>users can control speed modes. Allows users to have more customizability of fan<br>modes and automatically detects different temperatures to make fan operate at<br>defined speed for optimal cooling performance. |
|--------------------------------|---|
| SVIED<br>SVIED<br>ROCK<br>ZONE | LED ROCK ZONE<br>LED ROCK ZONE comes with the RGB 12V LED header and Digital 5V LED header<br>which offer more colorful lighting options to DIY lovers. Adjusting the color of LED<br>and changing system colors by VIVID LED DJ will make you fully enjoy the process<br>of PC modding developing your personal style.   |
| CPU OPT<br>HEADER              | <b>CPU OPT</b><br>BIOSTAR offers one more fan header which is called CPU OPT. Users can use it to<br>connect any kind of water coolers for a liquid cooling system. Keep your<br>computer stable and enjoy your machine at the utmost potential.  |
| BIOSTAR<br>RGB<br>SYNC         | BIOSTAR RGB SYNC<br>BISOTAR RGB SYNC is designed to create your personalized lighting effects. Let<br>all the RGB peripherals and components sync together.   |
|                                | Debug LED<br>Debug LED helps you identify any issues going with your board or hardware.<br>When error occurs, the corresponding LED lights will inform you on the status of<br>your board or hardware to shorten the test time effectively.   |
|                                | A.I TP Control<br>A.I TP Control is designed for overclockers. It provides a user-friendly BIOS<br>environment that overclockers can adjust the temperature setting to keep your<br>PC safe and enjoy extreme overclocking performance.   |
| Smart<br>Update                | Smart Update<br>Biostar Smart Update is a utility that can help users run online update. It can<br>download the drivers for your motherboard from Biostar official website and<br>install them automatically.   |
| SMART<br>BIOS UPDATE           | SMART BIOS UPDATE<br>The easiest way to update the BIOS is provided.<br>Connect the USB driver to the SMART BIOS USB port to update.  |
|                                | HDMI<br>The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI<br>Logo are trademarks or registered trademarks of HDMI Licensing Administrator,<br>Inc. in the United States and other countries.   |

\*The specification and pictures are subject to change without notice and the package contents may differ by area or your motherboard version!

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