

MB-GB650MAE+W

Gigabyte B650M Aorus Elite AX AMD B650 Chipset AMD Ryzen AM5 Socket Micro ATX Motherboard with WiFi

Product Overview

Gigabyte B650M Aorus Elite AX Wifi: AMD AM5 mb - with 12 2 1 phase digital VRM, aluminum i/o cover with 8mm heatpipe, Addressable LED Strip Support, on-board multi-key buttons, 2x copper PCBs design, MoSFET heatsinks SmartFan6 with 6x temperature sensors



Specifications

Features:

Unparalleled Performance

With the fast-moving technology changes, GIGABYTE always follows the latest trends and provides customers with advanced features and latest technologies. GIGABYTE motherboards are equipped with upgraded power solution, latest storage standards and outstanding connectivity to enable optimized performance for gaming.

Twin Digital VRM Digital

To ensure maximum Turbo Boost and overclocking performance of AMD's new generation CPU, GIGABYTE AORUS series motherboard equip the best VRM design ever built with the highest quality components.

Ultra Durable™ SMD PCIe 5.0 x4 M.2 Connector

The first PCIe 5.0 x4 M.2 Slot supports the latest M.2 25110 form factor. It doubles the bandwidth of PCIe 4.0 and ensures that compatible with cutting-edge M.2 SSDs released in next few years.

DDR5 EXPO & XMP Overclocking Up to 6600 and Beyond*

AORUS is offering a tested and proven platform that the memory overclocking capability is able up to 6600 and beyond. All users need to do for achieving this extreme memory performance boost is to ensure that their DDR5 memory modules are AMD EXPO™/ Intel® XMP capable, the EXPO/XMP function is activated and enabled on their AORUS motherboard.

Unlock DDR5 Voltage

- GIGABYTE exclusive circuit design unlocks Native DDR5 voltage control
- Transforms Native DDR5 memory module to Overclocked DDR5 memory
- Increases DDR5 memory overclocking performance and capability

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- Supports all PMIC vendors for maximum compatibility

Programmable Mode

GIGABYTE's exclusive design unlocks Native DDR5 PMIC secure mode into programmable mode and control Native DDR5 voltage with wide range.

Shielded Memory Routing

All memory routing is under the PCB inner layer shielded by a large ground layer to protect from external interference.

EXPO and XMP Dual Support

GIGABYTE AM5 MB supports both AMD EXPO™ and Intel® XMP overclocking memory modules for maximal compatibility. MB will automatically detect both profiles format in SPD, users can choose to enable one of profiles from BIOS menu and easily reach overclocked memory performance.

DDR5 Auto Booster

Automatically Boost the Native DDR5 frequency to 5000MHz while the system is under heavy loading by a single click.

AMD EXPO™ and Intel® XMP 3.0 User Profile

Define and create your own SPD profile into Native, EXPO and XMP 3.0 memory modules. One user-defined profile can be saved, loaded either locally or from/to an external storage device.

One empty SPD profile can be defined by users and carry to next computer

Quick memory performance simulation based on user input clock and timing parameters

Profile save and load function to share your memory parameters online

Outstanding Thermal Design

GIGABYTE Motherboards' unparalleled performance is guaranteed by innovative and optimized thermal design to ensure the best CPU, Chipset, SSD stability and low temperatures under full load application and gaming performance.

Real One-piece Build

TMOS is a TRUE single piece heatsink. Its one-piece design and larger surface drastically improve the cooling performance against competitors' multi-piece design.

3X Large Surface

Increased surface area up to 3X larger compared to traditional heatsinks. It improves heat dissipation from the MOSFETs.

Multi-Cut Design

Both TMOS & RMOS heatsinks with multiple channels and inlets featured which lead the air flow going through more efficiently and cause a great improvement of heat transfer performance.

M.2 Thermal Guard

The M.2 Thermal Guard prevents throttling and bottlenecks from high speed M.2 SSDs as it helps to dissipate heat before it becomes an issue.

8-Layer & 2X Copper PCB

2X COPPER PCBs design effectively lower the component temperature by its high thermal conductivity and low impedance.

GIGABYTE Ultra-Efficient M.2 Thermal Guard

With durability in mind, GIGABYTE provides a thermal solution for M.2 SSD devices. The M.2 Thermal Guard prevents throttling and bottlenecks from high speed M.2 SSDs as it helps to dissipate heat before it becomes an issue.

3% Cooler by implementing 2X copper PCB Design

By adopting 2X copper on PCB inner layer, it lowers the components' temperature at least 3% by turning the PCB into a super thin PCB size copper heatsink to dissipate the heat from the components effectively, due to its high thermal conductivity and

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lower impedance.

SMART FAN 6

Smart Fan 6 contains several unique cooling features that ensure gaming PC maintain its performance while staying cool and quiet. Multiple fan headers can support PWM/DC fan and pump, and users can easily define each fan curve based on different temperature sensors across the board via intuitive user interface.

High Current Support

Each fan headers support PWM and DC fan and Water Cooling Pump , and up to 24W (12V x 2A) with Over-Current Protection

Precision Control

Multiple temperature/fan speed control points for precise fan curve

Dual Curve Mode

Slope/Stair dual mode for different user scenario

Fan Stop

Fan can stop completely below users' specified temperature point

Improve fan curve UI

We increase control points from 5 to 7 and larger fan speed graph for precise and easier fan curve control.

Slope/Stair dual graph mode

Fan curve can be quickly switch with Slope and Stair modes for different user scenario. Slope is traditional and intuitive linear fan speed curve. With newly added Stair non-linear mode, fan keeps at same speed between specified temperature interval.

Manual Input

For advanced users, we provide fan speed manual input for more precise control.

EZ Tuning

Use can place 4 EZ Tuning points at rough temperature/fan speed, and Smart Fan 6 can quickly generate a fan curve.

Fan curve profile

Fan curve profile can be saved in BIOS ROM, profile will be kept after updating BIOS.

CONNECTIVITY

GIGABYTE Motherboards enable the ultimate connection experience with blazing data-transfer speeds through the next generation network, storage, and Wi-Fi connectivity.

802.11ax Wi-Fi 6E

The latest Wireless solution 802.11ax Wi-Fi 6E with new dedicated 6GHz band, enables gigabit wireless performance, provides smooth video streaming, better gaming experience, few dropped connections and speeds up to 2.4Gbps. Moreover, Bluetooth 5 provides 4X range over BT 4.2 and with faster transmission.

Wi-Fi 6E bring you the Ultimate VR experience!

Wi-Fi 6E brings faster Wi-Fi speeds, lower latency, and better battery life for VR devices, which means streaming VR games wirelessly from your PC to your VR device offers a lot smoother and has higher quality video.

Wi-Fi 6E Advantage

Spectrum congestion is huge problem in current Wi-Fi environment nowadays because too many devices all use existing 2.4GHz and 5GHz spectrum, and it cause unreliable connection and slower speed. Wi-Fi 6E is extended standard to Wi-Fi 6,

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and it use dedicated 6GHz band that it provides not only brand new frequency to transfer data, but also spacious spectrum for future more devices. With Wi-Fi 6E, users can enjoy faster connection and stronger signal than before.

First adopter on 2.5GbE LAN onboard

- Adoption of 2.5G LAN provide up to 2.5 GbE network connectivity, with at least 2X faster transfer speeds compared to general 1GbE networking, perfectly designed for gamers with ultimate online gaming experience.
- Support Multi-Gig(10/100/1000/2500Mbps) RJ-45 Ethernet

Connecting the Future - Front USB 3.2 Gen 2x2 Type-C

Featuring the USB 3.2 Gen 2x2 design which is doubled the performance than previous generation of USB 3.2 Gen 2. It works up to 20Gbps ultra-fast data transfer while connecting to USB 3.2 compliant peripherals. Through the USB Type-C® connector, users can enjoy the flexibility of reversible connection to access and store massive amounts of data rapidly.

CONNECTING THE FUTURE - Rear USB3.2 Gen 2 Type-C

AMD's native USB 3.2 Gen 2 provides USB 3.2 Gen 2 ports with speeds up to 10Gbps. With twice the bandwidth compared to its previous generation as well as backwards compatibility with USB 2.0 and USB 3.2 Gen 1, the much improved USB 3.2 Gen 2 protocol is available over the new reversible USB Type-C™ and the traditional USB Type-A connector for better compatibility over a wider range of devices.

High-End Audio Capacitors

AORUS motherboards use high-end audio capacitors. These high quality capacitors help deliver high resolution and high fidelity audio to provide the most realistic sound effects for gamers.

Audio Noise Guard

AORUS motherboards feature an audio noise guard that essentially separates the board's sensitive analog audio components from potential noise pollution at the PCB level.

Personalization

GIGABYTE motherboards bundle several useful and intuitive software to help users to control every aspect of motherboard and provide customizable lighting effect with outstanding aesthetics to fit your unique personality.

RGB Fusion Multi-Zone Light Show Design

Now offering more LED customizations than ever, users can truly adapt their PC to represent their lifestyle. With full RGB support and a redesigned RGB Fusion 2.0 application, the user has complete control over the LEDs which surround the motherboard.

Friendly User Interface

The EASY MODE shows important hardware information in one page including CPU clock, Memory, Storage, Fan.

My Favorites

Add constantly used items into the favorite menu for quick access.

Storage Information

Show all kinds of storage information including SATA, PCIE and M.2 interface.

Changelog

List all changes before saving and exiting bios. Quickly review overall settings modification.

Intuitive Load Line Curve

Clearly show each loadline calibration setting in an intuitive curve graph.

GIGABYTE Control Center

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GIGABYTE CONTROL CENTER (GCC) is a unified software for all GIGABYTE supported products. It provides newly designed intuitive user interface to control all essential function.

- Unified software platform for all Gigabyte supported products
- Intuitive user interface for an eased experience
- Modularized control components only for installed hardware
- Auto update function to keep system up to date and support future products

Multi-key

A multi-function reset button that can be reconfigured to other function in BIOS for different user scenarios.

RGB Switch

Turn off all lighting effect on motherboard.

Direct-To-BIOS

Boot into BIOS menu directly without pressing any keyboard button.

Safe Mode

Boot into BIOS safe mode to change specific option without losing other BIOS settings.

ULTRA DURABLE

GIGABYTE Ultra Durable™ design provides product durability and high-quality manufacturing process. GIGABYTE motherboards use the best components and reinforce every slots to make each of them solid and durable.

PCIe EZ-Latch

Unlock the latch of the PCIe slot easily when remove the graphics card in the PCIe slot.

Update the BIOS easily without installing the CPU, memory and graphics card.

With GIGABYTE Q-Flash Plus, you don't need to install the CPU, memory and graphics card nor enter the BIOS menu to flash the BIOS. Just download and save a new BIOS file (rename to gigabyte.bin) on the USB flash drive, then press the dedicated Q-Flash Plus button and you're good to go!

Specifications:

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Specifications	
Product Code	MB-GB650MAE+W
CPU	1. AMD Socket AM5, support for: AMD Ryzen 7000 Series Processors
Chipset	1. AMD B650
Memory	1. Support for DDR5 6600(OC) / 6400(OC) / 6200(OC) / 6000(OC) / 5600(OC) / 5200 / 4800 / 4400 MT/s memory modules
	2. 4 x DDR5 DIMM sockets supporting up to 128 GB (32 GB single DIMM capacity) of system memory
	3. Dual channel memory architecture
	4. Support for non-ECC Un-buffered DIMM 1Rx8/2Rx8/1Rx16 memory modules
	5. Support for AMD EXtended Profiles for Overclocking (AMD EXPO) and Extreme Memory Profile (XMP) memory modules

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Onboard Graphics	Integrated Graphics Processor:
	1. 1 x DisplayPort, supporting a maximum resolution of 3840x2160@144 Hz
	* Support for DisplayPort 1.4 version and HDR.
	2. 1 x HDMI port, supporting a maximum resolution of 4096x2160@60 Hz
	* Support for HDMI 2.1 version and HDCP 2.3.
	** Support native HDMI 2.1 TMDS compatible ports.
Audio	1. Realtek Audio CODEC
	2. High Definition Audio
	3. 2/4/5.1/7.1-channel
	* You can change the functionality of an audio jack using the audio software. To configure 7.1-channel audio, access the audio software for audio settings.
	4. Support for S/PDIF Out
LAN	1. Realtek 2.5GbE LAN chip (2.5 Gbps/1 Gbps/100 Mbps)
Wireless Communication module	AMD Wi-Fi 6E RZ616 (MT7922A22M) (For PCB rev. 1.0)
	1. WIFI a, b, g, n, ac, ax, supporting 2.4/5/6 GHz carrier frequency bands
	2. BLUETOOTH 5.2
	3. Support for 11ax 160MHz wireless standard and up to 2.4 Gbps data rate
	Intel Wi-Fi 6E AX210 (For PCB rev. 1.1)
	1. WIFI a, b, g, n, ac, ax, supporting 2.4/5/6 GHz carrier frequency bands
	2. BLUETOOTH 5.3
	3. Support for 11ax 160MHz wireless standard and up to 2.4 Gbps data rate
	(Actual data rate may vary depending on environment and equipment.)
Expansion Slots	CPU:
	1. 1 x PCI Express x16 slot, supporting PCIe 4.0 and running at x16 (PCIEX16)
	* For optimum performance, if only one PCI Express graphics card is to be installed, be sure to install it in the PCIEX16 slot.
	Chipset:
	1. 1 x PCI Express x16 slot, supporting PCIe 4.0 and running at x4 (PCIEX4)
Storage Interface	CPU:
	1. 1 x M.2 connector (Socket 3, M key, type 25110/2280 PCIe 5.0* x4/x2 SSD support) (M2A_CPU)
	* Actual support may vary by CPU.
	2. 1 x M.2 connector (Socket 3, M key, type 22110/2280 PCIe 4.0 x4/x2 SSD support) (M2B_CPU)
	Chipset:
	1. 4 x SATA 6Gb/s connectors
	RAID 0, RAID 1, and RAID 10 support for NVMe SSD storage devices
	RAID 0, RAID 1, and RAID 10 support for SATA storage devices

USB	CPU:
	1. 1 x USB Type-C port on the back panel, with USB 3.2 Gen 2 support
	2. 2 x USB 3.2 Gen 2 Type-A ports (red) on the back panel
	CPU USB 2.0 Hub:
	1. 4 x USB 2.0/1.1 ports on the back panel
	Chipset:
	1. 1 x USB Type-C port with USB 3.2 Gen 2x2 support, available through the internal USB header
	2. 3 x USB 3.2 Gen 1 ports (1 port on the back panel, 2 ports available through the internal USB header)
	3. 4 x USB 2.0/1.1 ports available through the internal USB headers
	Chipset USB 3.2 Gen 1 Hub:
	1. 4 x USB 3.2 Gen 1 ports on the back pane
Internal I/O Connectors	1. 1 x 24-pin ATX main power connector
	2. 1 x 8-pin ATX 12V power connector
	3. 1 x CPU fan header
	4. 1 x water cooling CPU fan header
	5. 3 x system fan headers
	6. 1 x system fan/water cooling pump header
	7. 2 x addressable LED strip headers
	8. 2 x RGB LED strip headers
	9. 1 x CPU cooler LED strip/RGB LED strip header
	10. 2 x M.2 Socket 3 connectors
	11. 4 x SATA 6Gb/s connectors
	12. 1 x front panel header
	13. 1 x front panel audio header
	14. 1 x USB Type-C header, with USB 3.2 Gen 2x2 support
	15. 1 x USB 3.2 Gen 1 header
	16. 2 x USB 2.0/1.1 headers
	17. 1 x serial port header
	18. 1 x THB_U4 add-in card connector
	19. 1 x Trusted Platform Module header (For the GC-TPM2.0 SPI/GC-TPM2.0 SPI 2.0 module only)
	20. 1 x reset button
	21. 1 x reset jumper
	22. 1 x Clear CMOS jumper

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Back Panel Connectors	1. 1 x Q-Flash Plus button
	2. 2 x SMA antenna connectors (2T2R)
	3. 1 x DisplayPort
	4. 1 x HDMI port
	5. 1 x USB Type-C port, with USB 3.2 Gen 2 support
	6. 2 x USB 3.2 Gen 2 Type-A ports (red)
	7. 5 x USB 3.2 Gen 1 ports
	8. 4 x USB 2.0/1.1 ports
	9. 1 x RJ-45 port
	10. 1 x optical S/PDIF Out connector
	11. 2 x audio jacks
I/O Controller	1. iTE I/O Controller Chip
H/W Monitoring	1. Voltage detection
	2. Temperature detection
	3. Fan speed detection
	4. Water cooling flow rate detection
	5. Fan fail warning
	6. Fan speed control
	* Whether the fan (pump) speed control function is supported will depend on the fan(pump) you install.
BIOS	1. 1 x 256 Mbit flash
	2. Use of licensed AMI UEFI BIOS
	3. PnP 1.0a, DMI 2.7, WfM 2.0, SM BIOS 2.7, ACPI 5.0
Unique Features	1. Support for GIGABYTE Control Center (GCC)
	* Available applications in GCC may vary by motherboard model. Supported functions of each application may also vary depending on motherboard specifications.
	2. Support for Q-Flash
	3. Support for Q-Flash Plus
Bundled Software	1. Norton Internet Security (OEM version)
	2. LAN bandwidth management software
Operating System	1. Support for Windows 11 64-bit
	2. Support for Windows 10 64-bit
Form Factor	1. Micro ATX Form Factor; 24.4cm x 24.4cm

Product Information Online

For the latest product information, availability and purchasing details, please visit the product page:

Product page: <https://www.comx.co.za/MB-GB650MAE-W-Gigabyte-B650M-Aorus-Elite-AX-AMD-B650-Buy-p-273598.php>

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