ComX Computers
Product Specification Sheet

MB-GB650AP+W

Gigabyte B650 Aorus Pro AX AMD B650 Chipset AMD Ryzen AM5 Socket ATX Motherboard with WiFi

Product Overview

Gigabyte B650 Aorus Pro AX + Wifi : AMD AM5 mb - with 16+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 9x temperature sensor



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 Design
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. Reinforced PCIe 5.0 M.2 connectors with metal shielding to provide higher strength.

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
- 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.

Ultra Durable™ SMD DDR5 Memory Armor
GIGABYTE's exclusive stainless steel shielding design.

GIGABYTE Active OC Tuner
With GIGABYTE's exclusive Active OC Tuner BIOS function, CPU* can work with AMD P.B.O. for gaming and other light workload applications with the highest CPU boost clock, but when the applications require all CPU cores horsepower, it automatically switches to the Manual OC mode where it can utilize the high frequency for all the CPU cores.

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.

Fully Covered Thermal Design
High coverage MOSFET and integrated molding Heatsinks to improve thermal efficiency with better airflow and heat exchange.

M.2 Thermal Guard III
M.2 Thermal Guard III constructed with 6X optimized heat dissipation surface and double-sided M.2 heatsinks to prevent throttling and bottlenecks on high-speed/ large capacity of PCIe 5.0 M.2 SSDs.

8mm Mega-Heatpipe
8mm Mega-Heatpipe has 30% wider diameter than traditional 6mm heatpipe and is able to transfer more heat under same time period.

8-Layer & 2X Copper PCB
2X COPPER PCBs design effectively lower the component temperature by its high thermal conductivity and low impedance.

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

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.

Multi-Cut Design
TMOS features several channels and inlets on the heatsink. This design allows for the air flow to go through which leads to a great improvement of the heat transfer performance.

M.2 Thermal Guard III
M.2 Thermal Guard III constructed with 6X optimized heat dissipation surface to prevent throttling and bottleneck that high-speed/ large capacity of M.2 SSDs may cause, especially under heavy workload. The special design of heatsink grooves in the direction of CPU further enhances the in-chassis air flow and optimizes the heat convection efficiency.

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.

Noise Detection
With the new Noise Detection function, you can monitor noise level of all devices including fans, CPU coolers, graphics card, etc. in real time, and you can determine how fast your fan speed needs to be. Our bundled Noise Detection cable doesn't include any sound recording function, it simply detects sound pressure while protecting your privacy.

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

2X Faster than ever

- 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 Gen1, 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.

True High-Fidelity Music (Realtek ALC1220)
Paired with Realtek's latest ALC1220 Codec, playback for surround sound audio and DSD enabled music are easier than ever.

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
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.

EZ-Latch
With GIGABYTE EZ-Latch, you can DIY your PC in no time, quick and easy.

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:

© 2022 Respective owners and brand holders. This table has been carefully researched and generated by ComXpert International CC (http://www.comx.co.za), however, errors and omissions may occur. Only references to South Africa apply. All products are sourced in South Africa from the official suppliers and the warranty is that of the local supplier. E&OE. This table and our site's content may be used on condition that this notice and link remains intact and unaltered.

Specifications	
Product Code	MB-GB650AP+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 module
Onboard Graphics	Integrated Graphics Processor:
	1. 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 ALC1220-VB CODEC
	* The back panel line out jack supports DSD audio.
	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. Intel 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
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)
	* The PCIEX4 slot shares bandwidth with the M2C_SB connector. The PCIEX4 slot becomes unavailable when a device is installed in the M2C_SB connector.
	2. 1 x PCI Express x1 slot, supporting PCIe 3.0 and running at x1 (PCIEX1)
	Support for AMD CrossFire technology (PCIEX16 and 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 25110/2280 PCIe 4.0 x4/x2 SSD support) (M2B_CPU)
	Chipset:
	1. 1 x M.2 connector (Socket 3, M key, type 25110/2280 PCIe 4.0 x4/x2 SSD support) (M2C_SB)
	2. 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. 1 x USB 3.2 Gen 2 Type-A ports (red) on the back panel
	3. 2 x USB 3.2 Gen 1 ports available through the internal USB header
	4. 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 4-pin ATX 12V power connector
	4. 1 x CPU fan header
	5. 1 x water cooling CPU fan header
	6. 4 x system fan headers
	7. 2 x system fan/water cooling pump headers
	8. 2 x addressable LED strip headers
	9. 2 x RGB LED strip headers
	10. 1 x CPU cooler LED strip/RGB LED strip header
	11. 3 x M.2 Socket 3 connectors
	12. 4 x SATA 6Gb/s connectors
	13. 1 x front panel header
	14. 1 x front panel audio header
	15. 1 x USB Type-C header, with USB 3.2 Gen 2x2 support
	16. 1 x USB 3.2 Gen 1 header
	17. 2 x USB 2.0/1.1 headers
	18. 1 x noise detection header
	19. 1 x THB_U4 add-in card connector
	20. 1 x Trusted Platform Module header (For the GC-TPM2.0 SPI/GC-TPM2.0 SPI 2.0 module only)
	21. 1 x serial port header
	22. 1 x reset button
	23. 1 x reset jumper
	24. 2 x temperature sensor headers
	25. 1 x Clear CMOS jumper
Back Panel Connectors	1. 1 x Q-Flash Plus button
	2. 2 x SMA antenna connectors (2T2R)
	3. 4 x USB 2.0/1.1 ports
	4. 1 x HDMI port
	5. 3 x USB 3.2 Gen 2 Type-A ports (red)
	6. 1 x USB Type-C port, with USB 3.2 Gen 1 support
	7. 4 x USB 3.2 Gen 1 ports
	8. 1 x RJ-45 port
	9. 2 x audio jacks
	10. 1 x optical S/PDIF Out connector
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.
	7. Noise detection
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. ATX Form Factor; 30.5cm 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-computers.co.za/MB-GB650AP-W-Gigabyte-B650-Aorus-Pro-AX-AMD-B650-Chipset-AMD-Ryzen-AM5-Socket-ATX-p-273485.php

Images and specifications are provided for reference and are subject to change without notice. E&OE.

Terms of Use: https://www.comx-computers.co.za/terms-of-use.php
Terms of Sale: https://www.comx-computers.co.za/terms-of-sale.php

PDF generated: 2026-11-15 14:28:15.

This PDF was generated automatically and may include content prepared or assisted by automated or AI-based systems. While reasonable care is taken to ensure accuracy, errors or omissions may occur.

For the most current and accurate product information, please refer to the product information available on our website. If any specification or other information differs from information published elsewhere, please confirm the details with us before relying on the information or making a purchasing decision.

If you identify an error or discrepancy, please report it to us so that we may investigate and correct it where necessary.