

MB-GZ590AP+W

Gigabyte Z590 Aorus Pro AX Z590 Express Chipset Gen 10 / 11 LGA 1200 ATX Motherboard with WiFi

Product Overview

Gigabyte Z590 Aorus Pro AX + Wifi: all-in-one LGA 1200 (rocket lake / coMet lake) Motherboard - with 12+1 phase digital VRM, pre-mounted I/O shield with thermal armor + RGB Fusion 2.0 with on-board RGB display (multi zones), Addressable LED Strip Support, 2x copper PCBs design, MoSFET heatsinks with copper heatpipe, SmartFan6 with 9+2 temperature sensors + 8x hybrid fan headers, solid pin power connectors (ATX 24+8+8pin), memory armor with stainless steel shielding, PCIe armor with stainless steel shielding, with 2x thunderbolt card connectors - Intel Z590 chipset, 4x dual channel DDR4-5400(O.C)/3200 with XMP support up to 128Gb, 6x SATA6G + quad (3x Gen4x4 + Gen3x4) M.2/NGFF with thermal guards (PCIe or SATA or Optane mode) with raid 0/1/0+1/5/10, on-board display with DP output (depends on CPU) + Realtek ALC4080 7.1 HD audio + optical s/pdif out + Intel 2.5Gb LAN with cFosSpeed Internet Accelerator, Intel Wifi-6 AX200 dual band 2.4/5Gbps WiFi + Bluetooth; 3x PCI-Ex16 (Gen4@16x + Gen3@4x + Gen3@4x) for Quad-GPU CrossfireX (no SLi), with 1x USB3 type-C (Gen2x2 20GBPs) + 4x USB3 type-A (Gen2 10GBPs) + 4x USB3 (Gen1 5GBPs) + 4x USB2.0, bundled Norton internet security - ATX



Specifications

Features:

The Best For The Pro

Z590 AORUS PRO AX motherboard comes with upgraded power solution, all PCIe 4.0 design and outstanding connectivity to elevate your gaming experience to the next level.

EXTREME POWER DESIGN

To unleash the full potential of the latest Intel 11th Gen CPU, the motherboard requires the best CPU power design. With the best quality components and GIGABYTE R&D design capability, Z590 AORUS PRO AX is a true beast among motherboards.

Power Design

Z590 AORUS PRO AX uses a pure digital CPU power design which includes a digital PWM Controller with Smart Power Stages and is capable of providing 90A of power from each phase for a total of 1080A. This 100% digital controller, new Tantalum Polymer Capacitors Array, and additional 8+4 Solid-pin CPU Power Connectors offer incredible precision and stability in delivering power to the motherboard's most power-hungry and energy-sensitive components, allowing enthusiasts to get the absolute maximum overclocking performance from the Eight core 11th Gen. Intel® Core™ processors.

- 90A Smart Power Stage for Each vCore Phase
- High Current Capacity MOSFET

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- Tantalum Polymer Capacitors Array
- Lower Temperatures
- Improved Transient

Improved Transient Response

By using brand new VRM design and Tantalum Polymer Capacitor Array, Z590 AORUS motherboard transient response and stability is highly improved under overclocking and heavy loading condition.

UNPARALLELED PERFORMANCE

GIGABYTE understands that our customer won't stop chasing better computer performance, and strive to deliver that in our products. For the Z590 series, protective and optimized memory trace enhance the performance; faster read and write speed save time and improve efficiency; and generous M.2 Storage with thermal guards ensure unthrottled read and write performance. Future upgrades to the Z590 are made possible by the use of PCIe 4.0-ready components.

Support for DDR4 XMP Up to 5000MHz and Beyond*

AORUS is offering a tested and proven platform that ensures proper compatibility with profiles up to 5000MHz and beyond. All users need to do to attain this performance boost is to ensure that their memory module is XMP capable and that the XMP function is activated and enabled on their AORUS motherboard.

3 x M.2 PCIe 4.0 Slot

M.2 PCIe 4.0 x4 slot with lower impedance

1X PCIe 4.0 Slot

Reinforced PCIe 4.0 x16 with lower impedance

Triple 7G/s Gen4 M.2 PCIe SSDs in RAID 0

The exclusive 3 PCIe 4.0 M.2 from CPU and 2nd Generation 7000 MB/s SSD provides unparalleled Read/ Write performance up to 20987 and 19378 MB/s.

Fins-Array II

Fins-Array II use a new louvered stacked-fins design which not only increases surface area by 300% compared to traditional heatsinks but also improves thermal efficiency with better.

Direct-Touch Heatpipe II

With an extra large 8mm heatpipe and made from a new manufacturing process that narrows the gap between the heatpipe and heatsink, the new Direct-Touch Heatpipe greatly help transfers heat on the MOSFET.

LAIRD 7.5 W/mK Thermal Pad

By using 1.5mm thicker 7.5 W/mK thermal conductivity pads, it can transfer 4x more heat compared to traditional thermal pads in the same time

2X Copper PCB

2X Copper PCB design effectively lower the component temperature by its high thermal conductivity and low impedance

4X M.2 Thermal Guard

Enlarged double-sided M.2 heatsink prevents high-speed, large capacity PCIe 4.0/3.0 SSDs with double side flash from throttling due to overheating

ADVANCED THERMAL SOLUTION

Unthrottled performance is guaranteed by the enhanced thermal solution that incorporates Fins-Array II, Direct-Touch Heatpipe II and Thermal Guards II. The comprehensive solution delivers excellent heat dissipation. The Z590 AORUS PRO AX stays cool on VRMs and M.2 SSD even on full loading, making it most suitable for enthusiasts, overclockers and

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professional gamers.

Fins-Array II

Fins-Array II uses brand new louvered stacked fins technology which is usually only used on industrial equipment that need compact heat exchangers. It has a special secondary fins structure that enhances heat transfer performance.

Circulation Zone

Because of pressure difference and flow separation, a circulation zone will be formed between louvered fins. This circulation will cause flow entrain and eject in the vortice form which improves thermal efficiency.

Direct-Touch Heatpipe II

With an extra large 8mm heatpipe and made from a new manufacturing process to narrow the gap between the heatpipe and heatsink, new Direct-Touch Heatpipe II greatly helps transfer heat on MOSFETs.

AORUS M.2 Thermal Guard II

With durability in mind, GIGABYTE provides a new thermal solution for large capacity M.2 SSD devices with double side flash. The M.2 Thermal Guard II uses a double-sided heatsink design and prevents throttling and bottlenecks on high speed M.2 SSDs by dissipating heat before it becomes an issue.

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

Up to 7 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.

Fan Stop

Achieve fan silence. With Fan Stop, map any fan to stop completely when temperatures drop below a specified threshold. Which fan stops, based on readings from which sensor, and at what temperature-all of it can be customized to your liking.

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.

NEXT GENERATION CONNECTIVITY

A high-end product needs to be future-proof so your system stays up-to-date with the latest technology. Z590 AORUS PRO AX provides all next generation network, storage, and WIFI connectivity to keep you up to speed.

2X Faster than ever

- Adoption of 2.5G LAN provide up to 2.5 GbE network connectivity, with at least 2 times 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

New Introduce Intel® WiFi 6 802.11ax + BT 5 Module

Intel Wireless solution supports 802.11ax, 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.

Benefit of WIFI 6

- 5.5X throughput than 802.11ac 1x1*
- 4X better network capacity, no traffic jams especially in those dense area with lots of devices
- Network efficiency increase for better user experience

AORUS Antenna Supports Dual Band with Better WIFI Signal

- All new antenna supported dual band 802.11ax/ac 2.4GHz & 5GHz. better signal strength compared to traditional antenna design
- AORUS Antenna with smart antenna function for the best WIFI signal transmitting
- Multiple angle tilt and magnetic base for the best signal strength direction and location

Hi-Res Audio

Hi-Res Audio certified, meaning that the product is capable of reproducing frequencies up to 40kHz or above which ensures user with the best audio quality at all times.

Immersive Gaming ViBes

- Supports audio format up to 24-bit/384KHz and output SNR up to Rear/Front 120dB 110dB
- automatically detects impedance of audio device, preventing low volume and distortion
- Stream voice with up to 110dB(A) SNR via microphone.

DEFINITIVE AESTHETICS

Z590 AORUS PRO AX features RGB FUSION 2.0 and offers users the option to control onboard, external light strips, and/or AORUS devices with RGB/ Addressable RGB LEDs to make their PC more unique and stylish.

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.

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RGB FUSION Software

With an integrated intuitive user interface, the RGB Fusion 2.0 provides you a better solution for customizing the lighting effects across all supported devices. From motherboards, graphics cards to the peripheral products, you can personalize your gaming rig with your own style and show off your build by sharing the profiles. In addition, the new gaming mode makes the lighting effects interactive with selected games to bring you the most immersive gaming experience.

ULTRA DURABLE

GIGABYTE is reputable for its product durability and high quality manufacturing process. Needless to say, we use the best components we can find for the GIGABYTE motherboard and reinforce every slot to make each of them solid and durable.

Ultra Durable™ PCIe Armor

The innovative one piece stainless steel shielding design from GIGABYTE reinforces the PCIe connectors to provide the extra strength required to support heavy graphics cards.

Ultra Durable™ Memory Armor

AORUS' exclusive one piece stainless steel shielding design prevents against PCB distortion/twisting and plate bending, in addition to preventing any possible ESD interference.

Solid Pin Power Connectors

AORUS motherboards feature solid plated ATX 24pin & ATX 12V 8pin + 8pin power connectors to offer a stable power supply during CPU overloading.

Solid Pin Power connector advantages

- Larger contact area for electricity
- More metal quantity to sustain higher power and generated heat
- Ultra durable and longer lifespan

Q-Flash Plus

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!

GIGABYTE BIOS & APP CENTER

Good software goes hand in hand with perfect hardware. GIGABYTE motherboard bundled several useful and intuitive software to help users to control every aspect of motherboard.

New User Interface

All new 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.

APP CENTER

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GIGABYTE APP CENTER is a useful portal of all GIGABYTE MB utilities and drivers, you can choose any utility you want to install from APP CENTER and keep updated with the latest utilities and drivers version.

EasyTune™

GIGABYTE's EasyTune™ is a simple and easy-to-use interface that allows users to fine-tune their system settings or adjust system and memory clocks and voltages in a Windows environment. With Smart Quick Boost, one click is all it takes to automatically overclock your system, giving an added performance boost when you need it the most.

System Information Viewer

GIGABYTE System Information Viewer is a central location that gives you access to your current system status. Monitor components such as the clocks and processor, set your preferred fan speed profile, create alerts when temperatures get too high or record your system's behavior; these are the possibilities of the System Information Viewer.

Specifications:

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Specifications

Product Code	MB-GZ590AP+W
CPU	LGA1200 package:
	1. 11th Generation Intel Core i9 processors / Intel Core i7 processors / Intel Core i5 processors
	2. 10th Generation Intel Core i9 processors / Intel Core i7 processors / Intel Core i5 processors / Intel Core i3 processors/ Intel Pentium processors / Intel Celeron processors
	* Limited to processors with 4 MB Intel Smart Cache, Intel Celeron G5xx5 family.
	3. L3 cache varies with CPU
Chipset	1. Intel Z590 Express Chipset
Memory	1. 11th Generation Intel Core i9/i7/i5 processors:
	Support for DDR4 5400 (O.C.)/ DDR4 5333(O.C.)/ DDR4 5133(O.C.)/DDR4 5000(O.C.)/4933(O.C.)/4800(O.C.)/ 4700(O.C.)/ 4600(O.C.)/ 4500(O.C.)/ 4400(O.C.)/ 4300(O.C.)/4266(O.C.) / 4133(O.C.) / 4000(O.C.) / 3866(O.C.) / 3800(O.C.) / 3733(O.C.) / 3666(O.C.) / 3600(O.C.) / 3466(O.C.) / 3400(O.C.) / 3333(O.C.) / 3300(O.C.) / 3200(O.C.) / 3000(O.C.) / 2933 / 2800 / 2666 / 2400 / 2133 MHz
	2. 10th Generation Intel Core i9/i7 processors:
	Support for DDR4 2933/2666/2400/2133 MHz memory modules
	3. 10th Generation Intel Core i5/i3 /Pentium/Celeron processors:
	Support for DDR4 2666/2400/2133 MHz memory modules
	4. 4 x DDR4 DIMM sockets supporting up to 128 GB (32 GB single DIMM capacity) of system memory
	5. Dual channel memory architecture
	6. Support for ECC Un-buffered DIMM 1Rx8/2Rx8 memory modules (operate in non-ECC mode)
	7. Support for non-ECC Un-buffered DIMM 1Rx8/2Rx8/1Rx16 memory modules
	8. Support for Extreme Memory Profile (XMP) memory modules

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Onboard Graphics	Integrated Graphics Processor-Intel HD Graphics support:
	1. 1 x DisplayPort, supporting a maximum resolution of 4096x2304@60 Hz
	* Support for DisplayPort 1.2 version and HDCP 2.3
	(Graphics specifications may vary depending on CPU support.)
Audio	1. Realtek ALC4080 codec
	2. High Definition Audio
	3. 2/4/5.1/7.1-channel
	4. Support for S/PDIF Out
LAN	1. Intel 2.5GbE LAN chip (2.5 Gbit/1 Gbit/100 Mbit)
Wireless Communication module	Intel Wi-Fi 6 AX200
	1. WIFI a, b, g, n, ac, ax, supporting 2.4/5 GHz Dual-Band
	2. BLUETOOTH 5.1
	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	1. 1 x PCI Express x16 slot, 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.
	* The PCIEX16 slot shares bandwidth with the M2B_CPU and M2C_CPU connectors.
	* The PCIEX16 slot operates at up to x8 mode when a device is installed in the M2B_CPU or M2C_CPU connector.
	(The PCIEX16 slot conforms to PCI Express 4.0 standard.)
	*Supported by 11th Generation processors only.
	2. 2 x PCI Express x16 slots, running at x4 (PCIEX4_1/PCIEX4_2)
	(PCIEX4_1 and PCIEX4_2 slots conform to PCI Express 3.0 standard.)
Multi-Graphics Technology	1. Support for AMD Quad-GPU CrossFire and 2-Way AMD CrossFire technologies
Storage Interface	CPU:
	1. 1 x M.2 connector (Socket 3, M key, type 2242/2260/2280 PCIe 4.0 x4/x2 SSD support) (M2A_CPU)
	2. 2 x M.2 connectors (Socket 3, M key, type 2260/2280/22110 PCIe 4.0* x4/x2 SSD support) (M2B_CPU)(M2C_CPU)
	*Supported by 11th Generation processors only.
	Chipset:
	1. 1 x M.2 connector (Socket 3, M key, type 2242/2260/2280/22110 SATA and PCIe 3.0 x4/x2 SSD support) (M2P_SB)
	2. 6 x SATA 6Gb/s connectors
	Support for RAID 0, RAID 1, RAID 5, and RAID 10
	* Refer to "1-7 Internal Connectors, " for the installation notices for the M.2 and SATA connectors.
	Intel Optane Memory Ready

USB	Chipset:
	1. 1 x USB Type-C port on the back panel, with USB 3.2 Gen 2x2 support
	2. 1 x USB Type-C port with USB 3.2 Gen 2 support, available through the internal USB header
	3. 4 x USB 3.2 Gen 2 Type-A ports (red) on the back panel
	4. 2 x USB 3.2 Gen 1 ports available through the internal USB header)
	Chipset+USB 3.2 Gen1 Hubs:
	1. 4 x USB 3.2 Gen1 ports on the back panel
	Chipset+2 USB 2.0 Hubs:
	1. 8 x USB 2.0/1.1 ports (4 ports on the back panel, 4 ports available through the internal USB headers)
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. 6 x SATA 6Gb/s connectors
	11. 4 x M.2 Socket 3 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 Gen2 support
	15. 1 x USB 3.2 Gen1 header
	16. 2 x USB 2.0/1.1 headers
	17. 2 x Thunderbolt add-in card connectors
	18. 1 x Trusted Platform Module header (For the GC-TPM2.0 SPI/GC-TPM2.0 SPI 2.0 module only)
	19. 1 x Clear CMOS jumper
	20. 2 x temperature sensor headers
	21. 1 x Q-Flash Plus button

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Back Panel Connectors	1. 1 x USB Type-C port, with USB 3.2 Gen 2x2 support
	2. 4 x USB 3.2 Gen 2 Type-A ports (red)
	3. 4 x USB 3.2 Gen 1 ports
	4. 4 x USB 2.0/1.1 ports
	5. 2 x SMA antenna connectors (2T2R)
	6. 1 x DisplayPort
	7. 1 x RJ-45 port
	8. 1 x optical S/PDIF Out connector
	9. 5 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 APP Center
	* Available applications in APP Center may vary by motherboard model. Supported functions of each application may also vary depending on motherboard specifications.
	@BIOS
	EasyTune
	Fast Boot
	Game Boost
	ON/OFF Charge
	RGB Fusion
	Smart Backup
	System Information Viewer
	2. Support for Q-Flash Plus
	3. Support for Q-Flash
	4. Support for Xpress Install
Bundled Software	1. Norton Internet Security (OEM version)
	2. cFosSpeed

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Operating System	1. 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-GZ590AP-W-Gigabyte-Z590-Aorus-Pro-AX-Z590-Express-Buy-p-252411.php>

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