

## MB-GZ590AX+WT

Gigabyte Z590 Aorus Xtreme Z590 Express Chipset Gen 10/ 11 LGA 1200 E-ATX Motherboard with Wifi + Thunderbolt4

### Product Overview

Gigabyte Z590 Aorus Xtreme + Wifi+Thunderbolt4: all-in-one LGA 1200 (rocket lake / coMet lake) mb - with 20+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



### Specifications

#### Features:

##### The Best for The Pro

Showcasing a state-of-the-art design, excellent functionality, an impressive thermal design, next generation connectivity, a Hi-Fi level audio system, and AORUS aesthetics, the flagship Z590 AORUS XTREME motherboard dominates the competition.

##### UNPARALLELED PERFORMANCE

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

##### 20\*+1 PHASES TRUE POWER DESIGN

- Pure Digital PWM Architecture
- 100A DrMOS for Each Phase
- High Current Capacity Driver-MOSFET
- Tantalum Polymer Capacitors Array
- 8+8 Solid Pin CPU Power Connector
- Low Temperature
- Improved Transient

##### TRUE POWER DESIGN

In order to unleash the full performance of the new high core count CPUs, GIGABYTE uses true power phases, a fully load-balanced VRM design with doublers, and a tantalum polymer capacitor array. By using doublers, the power design ensures that the high power draw of the CPU is fully balanced across all MOSFETs to achieve better efficiency and lower

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temperatures. In contrast, MOSFETs in competitors' traditional parallel power designs are not as well balanced which leads to lower efficiency and higher temperatures. For sudden changes between idle and high load states from the CPU, GIGABYTE utilizes a tantalum polymer capacitor array directly under the CPU socket as a buffer to improve transient response and stability under high CPU frequencies.

#### 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.

#### Support for DDR4 XMP Up to 5100MHz and Beyond\*

AORUS is offering a tested and proven platform that ensures proper compatibility with profiles up to 5100MHz 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.

#### XTREME MEMORY

Z590 AORUS XTREME uses revolutionary "XTREME MEMORY" technology, which includes Shielded Memory Routing, SMT DIMM, and Tantalum Polymer Capacitors Array to minimize all noise and electrical interference and reach the highest memory clock.

#### Tantalum Polymer Capacitors Array

Capacitors are placed directly underneath the memory DIMM to improve transient response.

#### SMT DIMM

Less external interference and shorter memory routing compared to traditional DIP design.

#### Shielded Memory Routing

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

#### 2X PCIe 4.0 Slot

Reinforced PCIe 4.0 x16 or x8/x8 with lower impedance.

#### PCIe 4.0 Turbo B-Clock

External clock generator for PCIe 4.0 overclocking.

#### PCIe 4.0 Active Switch

Switch PCIe 4.0 x16 into PCIe 4.0 x8/x8 with strengthened signal.

#### PCIe 4.0 M.2 Slot

M.2 PCIe 4.0 x4 slot with lower impedance.

#### AORUS PRO Gen4 AIC Adaptor

- 2x PCIe 4.0/3.0 M.2 Slots
- Full PCIe 4.0 hardware design
- Passive thermal design
- Double-Side M.2 SSD heatsinks

#### THERMAL REACTIVE ARMOR

Z590 AORUS XTREME uses an unprecedented and innovative thermal design to ensure the best CPU, Chipset, SSD stability and low temperatures under full load application and gaming.

#### Fins-Array II with NanoCarbon Coating

Fins-Array II use a new louvered stacked-fins design which not only increases surface area by 300% compared to traditional

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heatsinks but also improves thermal efficiency with better airflow and heat exchange.

#### 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 II greatly help transfers heat on the MOSFET.

#### Aluminum Cover

IO Cover is made from aluminum and is connected with Fins-Array to help overall MOSFET heat dissipation.

#### 3X M.2 Thermal Guard II

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

#### 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.

#### NanoCarbon Baseplate

A thin layer of NanoCarbon is coated on the baseplate through electrostatic adhesion to enhance thermal radiation capability.

#### Right Angled Connectors

Over 90% of connectors on Z590 AORUS XTREME are specifically designed to be right angled for easy cable management and clean airflow in the chassis.

#### 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.

#### Louver Directed Flow

Heat flow that goes through fins will enter from the leading edge of the louver and is then directed by other louvers or fins. This louver directed flow can greatly improve 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.

#### NanoCarbon Coated Fin Array Heatsink

As CPUs get more powerful, VRM modules get hotter under ultra high performance. Being the first adopters among industry using NanoCarbon as coating material to enhance thermal radiation speed up heat dissipation. Nanocarbon is coated onto the heatsink through electrostatic adhesion. The coating material covers the entire finned heatsink with 200um in thickness. In that way, heat is dissipated more quickly. The tests show 10% cooler with the NanoCarbon coating.

#### Direct-Touch Heatpipe II

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

#### NanoCarbon Baseplate

- Base plate made of aluminum instead of traditional iron ensures 3X thermal conductivity.
- A thin layer of NanoCarbon is coated on the base plate through electrostatic adhesion to enhance thermal radiation capability.
- Transfer heat from the back side PCB to the base plate so the NanoCarbon base plate can dissipate heat passively.

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- Effectively lowers backside PWM component temperature by 10%.

#### Right-Angled Connectors

Z590 AORUS XTREME uses revolutionary Right-Angled Connectors design, 90% of pin headers and connectors on motherboard are right-angled and relocated to one side of PCB. The never-seen-before design help easier cable management and better in-chassis air-flow when installing great amount of devices.

#### 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.

**CONNECTIVITY**

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

**Dual Thunderbolt™ 4 - The fastest 40Gb/s single-wire connection**

Powered by Intel's own Thunderbolt controller the new Thunderbolt™ 4 protocol, which is available over two USB Type-C® connectors on the back I/O of the GIGABYTE Z590 AORUS XTREME, brings an unprecedented single-wire bandwidth of up to 40 Gb/s -- twice more than USB3.2 Gen2x2! This incredible increase in bandwidth is also accompanied with support for different protocols such as DisplayPort 1.4a\* and compliant with USB4 standard, which is backwards compatible with USB 3.2 Gen1 and USB 2.0, opening up a world of new possibilities.

**Daisy-chain Multiple Devices**

Support for DisplayPort 1.4 makes Thunderbolt™ 4 a must have for any enthusiast. The Z590 AORUS XTREME is able to support two displays in 4K resolution at 60 FPS or one display in 8K resolution. In addition, Thunderbolt™ 4 over USB Type-C® has revolutionary industry-first features such as Power Delivery 2.0, USB4 specification compliance, and the ability to daisy-chain up to 10 devices thanks to the Z590 AORUS XTREME's dual USB Type-C® ports.

**Next Generation Multi-Gig Gaming**

The AQUANTIA® AQC107 is a high-performance, backward compatible with 10GBASE-T/ 5GBASE-T/ 2.5GBASE-T/ 1000BASE-T/ 100BASE-TX Ethernet Controller which is able to provide up to 10 GbE network connectivity, with 10 times faster transfer speeds compared to general 1GbE networking and is perfectly designed for media centers, workstations and gamers.

**Multi-Gigabit Support**

Ultimate online gaming experience with faster connection speed

Backward compatible with 5/2.5/1Gbps network

No re-wiring needed

**Intel 802.11ax WIFI 6E**

Intel latest Wireless solution 802.11ax WIFI 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.

**Benefit of WIFI6E**

- Dedicated spectrum in 6GHz band for less interference
- 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

**WIFI 6E Advantage**

Spectrum congestion is huge problem in current WIFI environment nowadays because too many devices all use existing 2.4GHz and 5GHz spectrum, and it cause unreliable connection and slower speed. WIFI 6E is extended standard to WIFI 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 WIFI 6E, users can enjoy faster connection and stronger signal than before.

**AORUS Antenna**

All new antenna supported 802.11ax WIFI 6E 2.4GHz, 5GHz & 6GHz, 4dBi signal gain

2x signal strength compared to traditional antenna design

Two 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

**ESSential USB DAC**

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Complete Digital to Analog Signal processing on front-access USB Type-C® ports gets rid of any possibility of distortions and provides superb sound stage recreation so users can experience the vocal cohesion. Enjoy the depth of the music and the immersive sound profile.

- USB Type-C® for PC, Laptop and Android Devices
- Replace Ancient Front Audio Interfaces
- Powered by ESS SABRE HIFI DAC
- Premium Power Processing
- Left/Right Separation Routing
- Superior Sound Stage by WIMA Capacitors

### True Hi-Fidelity Music (Digital Audio)

Provides surround sound audio and enables DSD music playback

### Auto Impedance Sensing

Auto detects headphone coils from 6 to 600 ohm and automatically adjusts proper output power

### Anti-pop Circuit Design

Prevents popping noise when plugging in and removing the audio jack

### DTS:X® Ultra

Recreates an authentic, spatially accurate 3D audio experience for gaming over any headphones or speakers. Supports channel-based, scene based and object-based audio. Provides out-of-the-box calibration for a range of headphones and speakers. Provides post-processing enhancements and device level tuning for DTS® codecs. DTS Sound Unbound\* leverage Microsoft Spatial, enabling the the most believable, 3D audio experience for games. Immersion through DTS Headphone:X means in the sonic landscape, stationary and moving sounds can be heard from above, below or around the listener. Sounds pass around the listener with amazing externalization and accurate localization.

### PERSONALIZATION

Z590 AORUS XTREME provides full lighting effect and customization settings with outstanding aesthetics, enable enthusiasts to build gaming PC differently.

### 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.

### RGB FUSION 2.0

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.

### 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

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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.

#### MultiKey

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.

#### 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.

#### 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 Z590 AORUS XTREME and reinforce every slot to make each of them solid and durable.

#### 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!

#### Industry Leading 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

Z590 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

#### Specifications:

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### Specifications

|                         |                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Code</b>     | MB-GZ590AX+WT                                                                                                                                                                                                                                                                                                                                                                               |
| <b>CPU</b>              | 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                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Chipset</b>          | 1. Intel Z590 Express Chipset                                                                                                                                                                                                                                                                                                                                                               |
| <b>Memory</b>           | 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                                                                                                                                                                                                                                                                                                                                  |
| <b>Onboard Graphics</b> | Integrated Graphics Processor+Intel Thunderbolt 4 Controller:                                                                                                                                                                                                                                                                                                                               |
|                         | 1. 2 x Intel Thunderbolt 4 connectors (USB Type-C ports), supporting DisplayPort and Thunderbolt video outputs and a maximum resolution of 5120 x 2880@60 Hz with 24 bpp (via single display output)                                                                                                                                                                                        |
|                         | * Because of the limited I/O resources of the PC architecture, the number of Thunderbolt devices that can be used is dependent on the number of the PCI Express devices being installed. (Refer to Chapter 1-7, "Back Panel Connectors, " for more information.)                                                                                                                            |
|                         | * Support for DisplayPort 1.4 version, HDCP 2.3                                                                                                                                                                                                                                                                                                                                             |
|                         | Integrated Graphics Processor-Intel HD Graphics support:                                                                                                                                                                                                                                                                                                                                    |
|                         | 1. 1 x HDMI port, supporting a maximum resolution of 4096x2160@30 Hz                                                                                                                                                                                                                                                                                                                        |
|                         | * Support for HDMI 1.4 version and HDCP 2.3.                                                                                                                                                                                                                                                                                                                                                |
|                         | (Graphics specifications may vary depending on CPU support.)                                                                                                                                                                                                                                                                                                                                |

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|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Audio</b>                         | 1. Realtek ALC1220-VB codec+ESS ES9018K2M DAC+TI OPA1622 operational amplifier                                                           |
|                                      | * The front panel line out jack supports DSD audio.                                                                                      |
|                                      | 2. Support for DTS:X Ultra                                                                                                               |
|                                      | 3. High Definition Audio                                                                                                                 |
|                                      | 4. 2/4/5.1/7.1-channel                                                                                                                   |
|                                      | 5. Support for S/PDIF Out                                                                                                                |
| <b>LAN</b>                           | 1. 1 x Aquantia 10GbE LAN chip (10 Gbit/5 Gbit/2.5 Gbit/1 Gbit/100 Mbit) (LAN1)                                                          |
|                                      | 2. 1 x Intel 2.5GbE LAN chip (2.5 Gbit/1 Gbit/100 Mbit) (LAN2)                                                                           |
| <b>Wireless Communication module</b> | Intel Wi-Fi 6E AX210                                                                                                                     |
|                                      | 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                                                                |
|                                      | * Actual data rate may vary depending on environment and equipment.                                                                      |
|                                      | * Wi-Fi 6E and its 6GHz carrier frequency support may vary by country.                                                                   |
| <b>Expansion Slots</b>               | 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.          |
|                                      | 2. 1 x PCI Express x16 slot, running at x8 (PCIEX8)                                                                                      |
|                                      | * The PCIEX8 slot shares bandwidth with the PCIEX16 slot. When the PCIEX8 slot is populated, the PCIEX16 slot operates at up to x8 mode. |
|                                      | (The PCIEX16 and PCIEX8 slots conform to PCI Express 4.0 standard.)                                                                      |
|                                      | * Supported by 11th Generation processors only.                                                                                          |
|                                      | 3. 1 x PCI Express x16 slot, running at x4 (PCIEX4)                                                                                      |
|                                      | (The PCI Express x4 slot conforms to PCI Express 3.0 standard.)                                                                          |
| <b>Multi-Graphics Technology</b>     | 1. Support for AMD Quad-GPU CrossFire and 2-Way AMD CrossFire technologies                                                               |
| <b>Storage Interface</b>             | CPU:                                                                                                                                     |
|                                      | 1. 1 x M.2 connector (Socket 3, M key, type 2242/2280/22110 PCIe 4.0 x4/x2 SSD support) (M2P_CPU)                                        |
|                                      | * Supported by 11th Generation processors only.                                                                                          |
|                                      | Chipset:                                                                                                                                 |
|                                      | 1. 1 x M.2 connector (Socket 3, M key, type 2242/2280/22110 SATA and PCIe 3.0 x4/x2 SSD support) (M2A_SB)                                |
|                                      | 2. 1 x M.2 connector (Socket 3, M key, type 2242/2260/2280/22110 SATA and PCIe 3.0 x4/x2 SSD support) (M2M_SB)                           |
|                                      | 3. 6 x SATA 6Gb/s connectors                                                                                                             |
|                                      | * Refer to "1-9 Internal Connectors, " for the installation notices for the M.2 and SATA connectors.                                     |
|                                      | Support for RAID 0, RAID 1, RAID 5, and RAID 10                                                                                          |
|                                      | Intel Optane Memory Ready                                                                                                                |

|                                |                                                                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>USB</b>                     | Chipset+Intel Thunderbolt 4 Controller:                                                                                                    |
|                                | 1. 2 x USB Type-C ports on the back panel, with USB 3.2 Gen 2 support                                                                      |
|                                | Chipset:                                                                                                                                   |
|                                | 1. 1 x USB Type-C port with USB 3.2 Gen 2x2 support, available through the internal USB header                                             |
|                                | 2. 2 x USB 3.2 Gen 2 Type-A ports (red) on the back panel                                                                                  |
|                                | Chipset+2 USB 3.2 Gen 2 Hubs:                                                                                                              |
|                                | 1. 6 x USB 3.2 Gen 2 Type-A ports (red) on the back panel                                                                                  |
|                                | 2. 2 x USB 3.2 Gen 1 ports available through the internal USB header                                                                       |
|                                | Chipset+USB 2.0 Hubs:                                                                                                                      |
|                                | 1. 4 x USB 2.0/1.1 ports available through the internal USB headers (with the included front USB header extension cable)                   |
| <b>Internal I/O Connectors</b> | 1. 1 x 24-pin ATX main power connector                                                                                                     |
|                                | 2. 2 x 8-pin ATX 12V power connectors                                                                                                      |
|                                | 3. 1 x CPU fan header                                                                                                                      |
|                                | 4. 1 x water cooling CPU fan header                                                                                                        |
|                                | 5. 6 x system fan headers                                                                                                                  |
|                                | 6. 2 x system fan/water cooling pump headers                                                                                               |
|                                | 7. 1 x noise detection header                                                                                                              |
|                                | 8. 2 x integrated extension cable headers for addressable and RGB LED strips                                                               |
|                                | 9. 6 x SATA 6Gb/s connectors                                                                                                               |
|                                | 10. 3 x M.2 Socket 3 connectors                                                                                                            |
|                                | 11. 1 x front panel header                                                                                                                 |
|                                | 12. 1 x front panel audio header                                                                                                           |
|                                | 13. 1 x USB Type-C header, with USB 3.2 Gen 2x2 support                                                                                    |
|                                | 14. 1 x USB 3.2 Gen 1 header                                                                                                               |
|                                | 15. 1 x USB 2.0/1.1 headers                                                                                                                |
|                                | 16. 2 x temperature sensor headers                                                                                                         |
|                                | 17. 1 x power button                                                                                                                       |
|                                | 18. 1 x reset button                                                                                                                       |
|                                | 19. 1 x OC Ignition button                                                                                                                 |
|                                | 20. 2 x BIOS switches                                                                                                                      |
|                                | 21. Voltage Measurement Points                                                                                                             |
|                                | &#246;All fan headers are subject to support AIO_Pump, Pump and high performance fan with the capability of delivering up to 2A/12V @ 24W. |

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|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Back Panel Connectors</b> | 1. 1 x Q-Flash Plus button                                                                                                                                           |
|                              | 2. 1 x Clear CMOS button                                                                                                                                             |
|                              | 3. 2 x SMA antenna connectors (2T2R)                                                                                                                                 |
|                              | 4. 2 x Thunderbolt 4 connector (USB Type-C port, with USB 3.2 Gen 2 support)                                                                                         |
|                              | 5. 8 x USB 3.2 Gen 2 Type-A ports (red)                                                                                                                              |
|                              | 6. 1 x HDMI port                                                                                                                                                     |
|                              | 7. 2 x RJ-45 port                                                                                                                                                    |
|                              | 8. 1 x optical S/PDIF Out connector                                                                                                                                  |
|                              | 9. 5 x audio jacks                                                                                                                                                   |
| <b>I/O Controller</b>        | 1. iTE I/O Controller Chip                                                                                                                                           |
| <b>H/W Monitoring</b>        | 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.                                                              |
| <b>BIOS</b>                  | 7. Noise detection                                                                                                                                                   |
|                              | 1. 2 x 256 Mbit flash                                                                                                                                                |
|                              | 2. Use of licensed AMI UEFI BIOS                                                                                                                                     |
|                              | 3. Support for DualBIOS                                                                                                                                              |
| <b>Unique Features</b>       | 4. PnP 1.0a, DMI 2.7, WfM 2.0, SM BIOS 2.7, ACPI 5.0                                                                                                                 |
|                              | 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                                                                                                                                                           |
|                              | RGB Fusion                                                                                                                                                           |
|                              | Smart Backup                                                                                                                                                         |
|                              | System Information Viewer                                                                                                                                            |
|                              | 2. Support for Q-Flash Plus                                                                                                                                          |
|                              | 3. Support for Q-Flash                                                                                                                                               |
|                              | 4. Support for Xpress Install                                                                                                                                        |

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## ComX Computers

### Product Specification Sheet

|                         |                                           |
|-------------------------|-------------------------------------------|
| <b>Bundled Software</b> | 1. Norton Internet Security (OEM version) |
|                         | 2. cFosSpeed                              |
| <b>Operating System</b> | 1. Support for Windows 10 64-bit          |
| <b>Form Factor</b>      | 1. E-ATX Form Factor; 30.5cm x 27cm       |

## 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-GZ590AX-WT-Gigabyte-Z590-Aorus-Xtreme-Z590-Express-Buy-p-252695.php>

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