# H610MS Motherboard

- Supports 12th/ 13th/ 14th Generation Intel Core™ Processor
- Intel H610 single chip architecture
- Supports 2-DIMM DDR4 up to 64GB
- Supports USB 3.2 Gen1
- Supports PCIe 4.0
- Supports PCIe M.2 3.0 (32Gb/s)
- Supports HDMI® 4K2K

| Specifcation | |
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| CPU SUPPORT | Support for 12th/13th/14th Generation Intel Core™ i9/ i7/ i5/ i3 processors and Intel Pentium processors/ Intel Celeron processors in the LGA1700 package<br>* Please refer to www.biostar.com.tw for CPU support list. |
| MEMORY | Supports Dual Channel DDR4 3200/ 2933/ 2666/ 2400/ 2133/ 1866<br>2 x DDR4 DIMM Memory Slot, Max. Supports up to 64 GB Memory<br>Each DIMM supports non-ECC 4/8/16/32GB DDR4 module<br>Support Intel Extreme Memory Profile (XMP) memory modules<br>* Please refer to www.biostar.com.tw for Memory support list. |
| INTEGRATED VIDEO | By CPU model<br>Supports DX12<br>Supports HDCP |
| STORAGE | Total supports 1x M.2 socket and 4x SATA III (6Gb/s) ports<br>4 x SATA III Connectors (6Gb/s)<br>1 x M.2 (M Key) Socket (M2M_SB):<br>Supports M.2 Type 2240 /2260 /2280 SSD module<br>Supports PCIe 3.0 x 4 (32Gb/s) - NVMe/ AHCI SSD<br>4 x SATA III Connector (6Gb/s) |
| LAN | Realtek RTL8111H<br>RTL8111E-VL-CG / RTL8111HNM-CG / RTL8111E-VC-CG / RTL8168H-CG (V6.0)<br>10/ 100/ 1000 Mb/s auto negotiation, Half / Full duplex capability |
| AUDIO CODEC | ALC897<br>7.1 Channels, High Definition Audio |
| USB | 3 x USB 3.2 (Gen1) ports (1 on rear I/Os and 2 via internal headers)<br>8 x USB 2.0 ports (4 on rear I/Os and 4 via internal headers) |
| EXPANSION SLOT | Intel 12th/13th/14th Processors<br>1 x PCIe 4.0 x16 Slot<br>Intel H610 Chipset<br>1 x PCIe 3.0 x1 Slot |

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| REAR I/O | 1 x PS/2 Keyboard/ Mouse Port<br>1 x HDMI®<br>1 x DP Port<br>1 x USB 3.2 (Gen1) port<br>4 x USB 2.0 ports<br>1 x LAN port<br>3 x Audio Jack |
| INTERNAL I/O | 4 x SATA III Connectors (6Gb/s)<br>2 x USB 2.0 Header (each header supports 2 USB 2.0 ports)<br>1 x USB 3.2 (Gen1) Header (each header supports 2 USB 3.2 (Gen1) ports)<br>1 x 8-Pin Power Connector<br>1 x 24-Pin Power Connector<br>1 x CPU Fan Connector<br>1 x System Fan Connector<br>1 x Front Panel Header<br>1 x Front Audio Header<br>1 x Speaker Header<br>1 x Clear CMOS Header<br>1 x COM Port Header<br>1 x CIO:Chassis Intrusion Header<br>1 x TPM Header |
| H/W MONITORING | CPU / System Temperature Monitoring<br>Smart / Manual CPU Fan Control<br>CPU/DDR Voltage Monitoring |
| DIMENSION | Micro ATX Form Factor Dimension: 21.6cm x 22.8cm ( W x L ) |
| OS SUPPORT | Supports Windows 10(64bit) / 11(64bit)<br>※Biostar reserves the right to add or remove support for any OS with or without notice. |
| ACCESSORIES | 2 x SATA Cable<br>1 x I/O Shield<br>1 x DVD Driver<br>1 x Quick Guide<br>2 x M.2 Anchor |

# OVERVIEW

## Intel H610 chipset

With the Intel® H610 chipset and the 12th generation Intel® Core™ i9/ i7/ i5/ i3 processors and Intel® Pentium® processors, you will immediately be at the forefront of the battlefield, fueled by mind-blowing power and performance. From content creation to gaming, the Intel H610 chipset provides you with the power and performance you need.

## HD Audio

Provides high quality sound with minimal loss of audio fidelity.

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## Hi-Fi Ground

BIOSTAR Hi-Fi Ground ( Golden Line ) is noise-blocking multi-layer PCB design to isolates analog audio signals from digital sources. Unique PCB layout is ideal for exceptional clarity and high fidelity sound.

## Hi-Fi AMP

The built-in amplifier can drive major high-end headphones with over 100dB loads and offer wide band-width, low noise, high slew rate and low distortion audio source from front panel I/O. Gaming enthusiasts can enjoy a fuller range of dynamic sound with crisper details and less distortion.

## Smart Ear

Smart EAR is a windows-based audio utility which allows you to easily adjust system volume. With its user-friendly GUI, you can also increase or decrease impedance setting (Low/High Gain) to optimize your headphone performance. You can easily enjoy high-quality and awesome sound.

## HDMI® 4K2K

The new 4K2K resolution enables high-definition image display with four times the resolution of full HD, 4K2K display is faithfully express bright, highly detailed content that fills the entire screen with lifelike images. Connectivity with PCs via a single HDMI® cable for displaying 4K2K data.

## DisplayPort

DisplayPort is a digital display interface developed by the Video Electronics Standards Association (VESA). The interface is primarily used to connect a video source to a display device such as a computer monitor, though it can also be used to carry audio.

## DX12

DirectX 12 introduces the next version of Direct3D, the graphics API at the heart of DirectX. Direct3D is one of the most critical pieces of a game or game engine, and we've redesigned it to be faster and more efficient than ever before. Direct3D 12 enables richer scenes, more objects, and full utilization of modern GPU hardware.

## PCIe M.2

PCIe M.2 32Gb/s delivers the highest bandwidth and lower latency. It is 3 times faster compared with PCIe M.2 10Gb/s.

## PCIe 3.0

PCIe 3.0 is the ubiquitous and general-purpose PCI Express I/O standard. At 8GT/s bit rate, the interconnect performance bandwidth is doubled over PCIe 2.0, while preserving compatibility with software and mechanical interfaces.

## SATAIII 6Gbps

SATAIII 6Gbps provides a higher bandwidth to retrieve and transfer HD media. With this super speed data transfer, SATAIII allows an incredible data boost which is 2x faster than the SATA II.

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## Dual DDR4

The primary advantages of DDR4 over DDR3, include higher module density, lower voltage requirements, coupled with higher data transfer rate.

## PCIe 4.0

PCIe 4.0 is the ubiquitous and general-purpose PCI Express I/O standard. At 16GT/s bit rate, the interconnect performance bandwidth is doubled over PCIe 3.0, while preserving compatibility with software and mechanical interfaces.

## USB 3.2 Gen1 Type-A

USB 3.2 Gen1 delivers a compelling performance boosts and can be used to connect multiple devices without worrying about compatibility. It is capable of data transfer speeds up to 5Gbps and backwards compatible with all existing USB products.

## S-Hyper PWM

The S-Hyper PWM has DCR current sensing architecture and lossless characteristic, offering excellent precision in delivering stable power with 100% fixed voltage to ensure that critical components of the motherboard are under protected with the maximum performance and reliability.

## Super Durable Solid Caps

The best quality solid state capacitors with ultra low ESR design, the Super Durable Solid Caps doubles the lifespan.

## Super Durable Inductor

Super Durable Inductor brings the benefits of higher current capacity, lower energy loss and better power stability.

## Moistureproof PCB

The PCB will be oxidizing easily by damp or absorbed moisture, and ionic migration or CAF (Conductive Anodic Filament) will be generated. Moistureproof PCB meets high density and high reliability requirements for moisture proof.

## Super LAN Surge Protection

Super LAN Surge Protection, providing LAN port with more advanced antistatic protection capabilities by adding an integrated chip to strengthen electrical stability and prevent damage from lightning strikes and electrical surges. SLSP (Super LAN Surge Protection) series motherboard upgrades the existing system protection standards with maximum 4X protection comparing to other board makers.

## ESD Protection

ESD (Electrostatic Discharge) is the major factor to destroy the PC by electrical overstress (EOS) condition. ESD occurred by PC users when touch any devices connect to a PC, which may result in damage to the motherboard or parts. ESD protection is designed to protect the motherboard and equipment from damage by EOS.

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| | **UEFI BIOS**<br>Unified Extensible Firmware Interface (UEFI) is a brand new framework that provides a revolutionary interface. It is a modern clear and easy-to-use graphical user interface. The UEFI comes with a colorful easy-understand icons lead users into the setup layer directly. |
| | **BIO-Flasher**<br>BIO-Flasher is a convenient BIOS update tool. Just launch this tool and put the BIOS on USB pen driver before entering the OS. You can update your BIOS with only a few clicks without preparing an additional floppy disk or other complicated flash utility. |
| | **A.I FAN**<br>With A.I FAN users can ensure that their gaming PC can maintain its performance while staying cool. According to different cooling needs and usage scenarios, users can control speed modes. Allows users to have more customizability of fan modes and automatically detects different temperatures to make fan operate at defined speed for optimal cooling performance. |
| | **Debug LED**<br>Debug LED helps you identify any issues going with your board or hardware. When error occurs, the corresponding LED lights will inform you on the status of your board or hardware to shorten the test time effectively. |
| | **Smart Update**<br>Biostar Smart Update is a utility that can help users run online update. It can download the drivers for your motherboard from Biostar official website and install them automatically. |
| HDMI™<br>HIGH-DEFINITION MULTIMEDIA INTERFACE | **HDMI®**<br>The terms HDMI® and HDMI® High-Definition Multimedia Interface, and the HDMI® Logo are trademarks or registered trademarks of HDMI® Licensing Administrator, Inc. in the United States and other countries. |

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

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