MAXSUN
GAMING ENDLESS

MS-Challenger H610M

MAXSUN Motherboard Quick Guide

Dear Customer

Thank you for purchasing and choosing MAXSUN products. If you have any questions or need assistance while using the MAXSUN motherboard, please feel free to contact your local MAXSUN product distributor, or call the customer service hotline for mainland China users at 400-696-0606 to enjoy our after-sales support.

SK Group adheres to the relevant responsibility regulations of the national quality supervision and inspection “three guarantees” service, and provides you with a three-year quality assurance commitment of premium service. Please refer to the attached document for specific service terms. Thank you!

One：Three year warranty service

During the first to third year after purchase, if any quality issues listed in the "Microcomputer Product Performance Failure Table" occur while using the product normally, and if they fall within the scope of normal warranty, the final seller shall provide you with corresponding services in accordance with the relevant regulations on the "Three Guarantees".

If any components of the product are discontinued and equivalent replacements cannot be found on the market, the merchant will negotiate with you to jointly depreciate and supplement the price difference for other products (defective products will be depreciated according to the proportion stipulated in the "Three Guarantees").

Two：The situations not covered by warranty services

1. The motherboard has no faults;
2. The motherboard is beyond the warranty period;
3. The motherboard has incurred physical damage due to improper use, such as missing components or plugins, PCB deformation, severe scratches or oxidation, or major component burnout;
4. The barcode of the motherboard has been altered, lost, moved, or damaged;
5. The motherboard has been damaged due to human negligence, misuse, or irresistible forces, such as immersion in water, fire, lightning strikes, or other mechanical damages, as well as damage caused by not following the instructions;
6. The motherboard has been damaged due to improper packaging or handling during the process of sending it for repair;
7. The motherboard cannot be restored due to attempts by you or a third party to disassemble, repair, or replace components or devices (such as heat sinks).

Notice :

Copyright Statement:

About Manual:

This manual can be used as a technical reference. When using it, please refer to the actual product.

Abnormal Warranty Coverage:

1. Product failure and damage caused by improper use and installation, dismantling or replacing parts by yourself, or arbitrary changes in specifications are not covered by the warranty.
2. Once the product is changed or modified, as well as any damage caused by indirect, special or unexpected circumstances, it is not covered by the warranty.

Avoid using this product in the following environments: high temperature, low air pressure, low temperature, moisture, dust, strong magnetic field and long-term exposure to sunlight. Our company recommends that you use it in an environment with an altitude of less than 3,000 meters, a temperature of 0° to 35°C, and a humidity of 5% to 95%.

FCC Rules:

This device complies fully with Part 15 of the FCC Rules. Work in compliance with the following two conditions:
1. This device will not cause personal injury;
2. The device must be able to accept any resolved conflict interference, including conflicts that may cause improper operation.

Notice:

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. This restriction is a reasonable precaution against the possibility of harmful collisions during installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause harmful interference with communications tools. However, there is no guarantee that no conflicts will arise under a particular installation.

If, after turning the device off and on again, it is still determined that the device is actually causing a conflict with the radio or television, the user is asked to use one or more of the following knowledge to correct the conflict:

1. **Reinstall the receiving antenna;**
2. **Increase the separation between the device and the receiver;**
3. **Plug the computer into different sockets so that the two devices use different circuits;**
4. **If necessary, users can contact dealers or more experienced technical engineers to obtain additional information.**

To comply with emission restrictions, always use protective interface cables. The user may not make any changes or modifications to this device without express consent.

Security Information:

The components contained in this package have the potential to be damaged by electrostatic discharge (ESD). Please observe the following precautions to ensure successful computer assembly.

- Make sure all components are connected securely. If the connection is not tight, the computer may not recognize the component or be unable to turn on.
- When picking up the motherboard, please hold it by its edges to avoid touching sensitive components of the motherboard.
- It is recommended to wear an electrostatic discharge (ESD) wrist strap when handling the motherboard to prevent static electricity from damaging its configuration. If the ESD wrist strap does not work, discharge yourself by touching another metal object before handling the motherboard.
- When the motherboard is not installed, place the motherboard on an electrostatic shielding container or anti-static mat.
- Before turning on your computer, make sure there are no loose screws or metal components on the motherboard or anywhere inside the computer case.
- Do not start the computer until the installation is complete. Failure to do so may result in permanent damage to the component and injury to the user.
- If you need assistance during any installation step, please consult a professional computer technician.
- Before installing or removing any computer components, turn off the power and unplug the power cord from the outlet.
- Keep this user guide for future reference.
- This motherboard must be kept away from moisture.
- Before connecting the power supply to an electrical outlet, make sure that your outlet provides the same indicated voltage rated on the power supply.
- Place the power cord where it will not be walked on, and do not place anything on the power cord.
- Pay attention to all warning signs on the motherboard.
- When any of the following conditions occurs, please submit this motherboard to maintenance personnel for inspection:
    I. Liquid has penetrated into the computer. Liquid has penetrated into the computer.
    II. The motherboard is exposed to moisture.
    III. The motherboard is not working, or you still cannot make the motherboard work after following the user guide.
    IV. The motherboard has been dropped and damaged.
    V. The motherboard has obvious signs of damage.
- Never place the motherboard in an environment above 60 degrees Celsius (140 degrees Fahrenheit) to avoid damage to the motherboard.

Quick Guide:

Thank you for purchasing and using MAXSUN products. The following will introduce you to the common interfaces on motherboard products and how to install and use them. Before officially starting, please make sure you have the following components and tools ready:

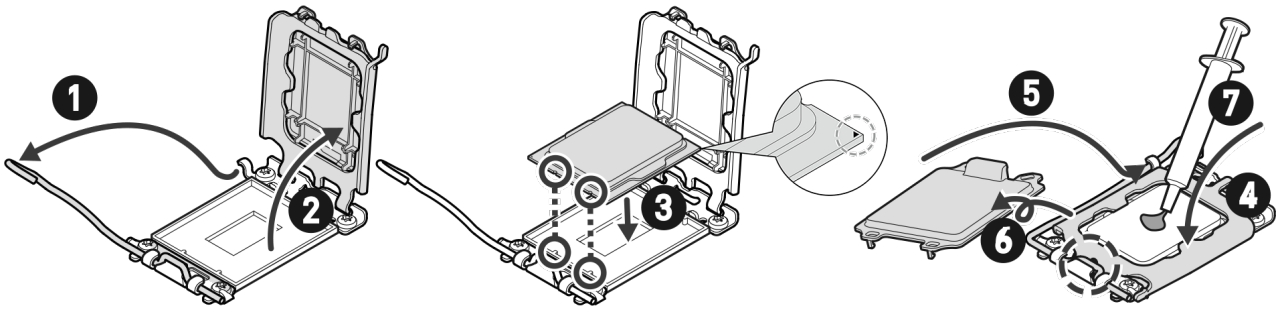
- Intel® LGA1700 CPU
- Intel® LGA1700 600/700 Series Motherboard
- LGA1700 CPU Cooler & Thermal Grease
- DDR4 / DDR5 memory
- M.2 HDD / SATA HDD
- PCIe x16 graphics card (if the CPU comes with its own core graphics card, it can be omitted)
- Computer case
- Screws & screwdrivers needed to install the computer (the screws used to assemble a desktop computer are generally ‘M3’ & ‘#6’ specifications)

Installation Instructions

- **Intel® LGA1700 Processor Installation**

Only supports Intel® LGA1700 14th/13th/12th generation Core™, Pentium® Gold and Celeron® processors

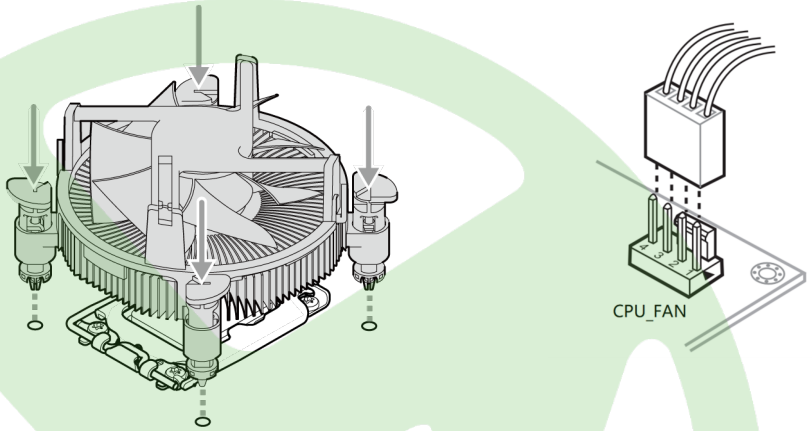
This slot has a fool-proof function. When installing the processor, pay attention to the fool-proof slot to avoid damaging the processor and processor socket.



- **LGA1700 CPU Cooler Installation**

Only LGA 1700 hole pitch radiators are supported. Do not use other empty radiators for forced installation, such as LGA 1200, to avoid unnecessary damage and failure.

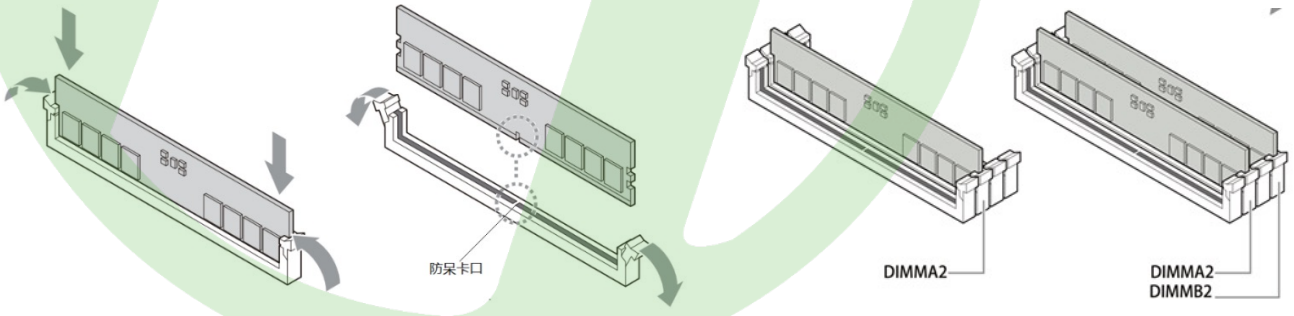
After installing the radiator, be sure to connect the 4-Pin fan power connector to prevent the fan from not working properly and causing overheating and damage to the CPU.



- **DDR4 / DDR5 U_DIMM RAM Installation**

Only U_DIMM memory insertion and use is supported. DDR4 memory supports 2400MHz by default, and DDR5 memory supports 4800MHz by default.

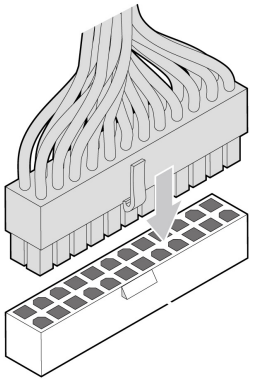
B series and Z series motherboards support memory overclocking in the BIOS, and the memory slots have an anti-misinsertion function. Do not insert or remove them violently.

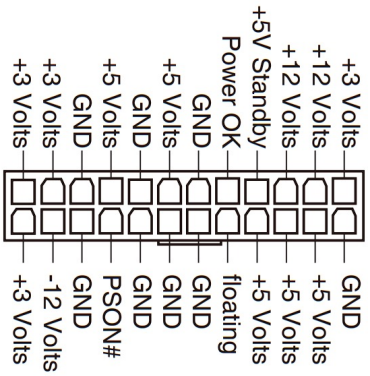


Installation Instructions

- **24-Pin ATX Power Connector Installation**

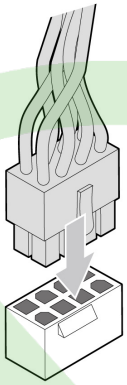
Used to connect the 12V, 5V, 3.3V power supplies required by the 24-Pin of the motherboard. The slot has an anti-misinsertion function.

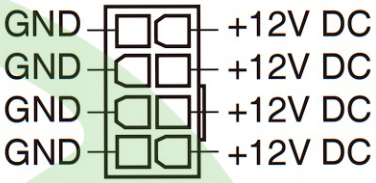




- **CPU 8-Pin 12V Power Connector Installation**

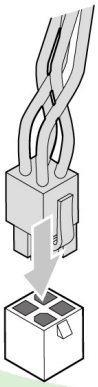
Used to connect the motherboard CPU +12V power supply. The interface has the function of preventing wrong insertion. If the CPU +12V power supply interface on the motherboard is (8+8)-Pin, be sure to insert the complete (8+4)-Pin interface to prevent unnecessary hardware damage caused by wire overheating.

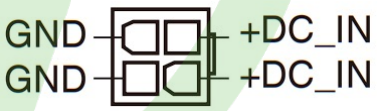




- **CPU 4-Pin 12V Power Connector Installation**

Used to connect the motherboard CPU +12V power supply. The interface has the function of preventing wrong insertion. If the CPU +12V power supply interface on the motherboard is (8+4)-Pin, be sure to insert the complete (8+4)-Pin interface to prevent unnecessary hardware damage caused by wire overheating.

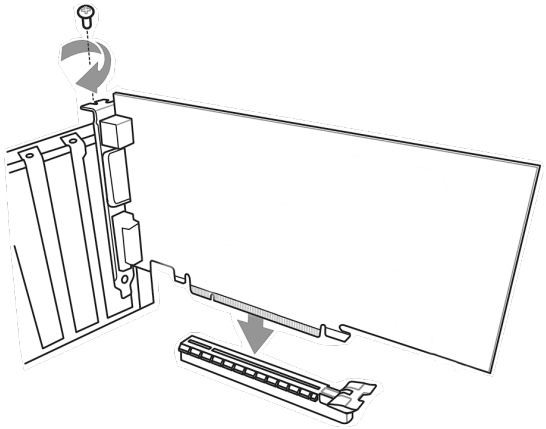




Installation Instructions

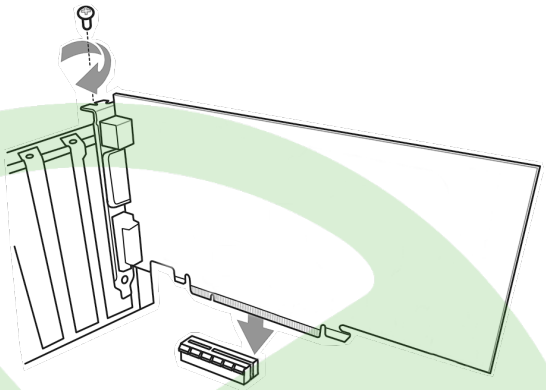
- **PCIe X16 Slot Installation**

  For installation of full-length PCIe X16 devices, recommended for installation of discrete graphics cards



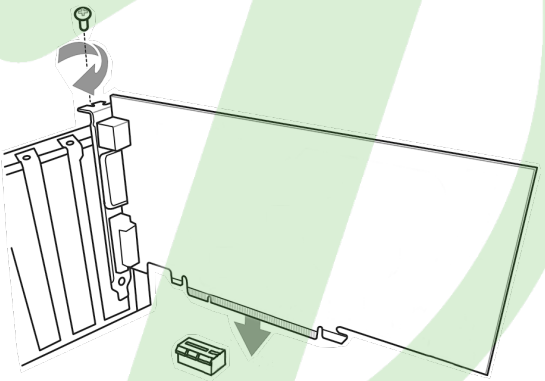
- **PCIe X14 Slot Installation**

  For installation of full-length PCIe X4 devices



- **PCIe X1 Slot Installation**

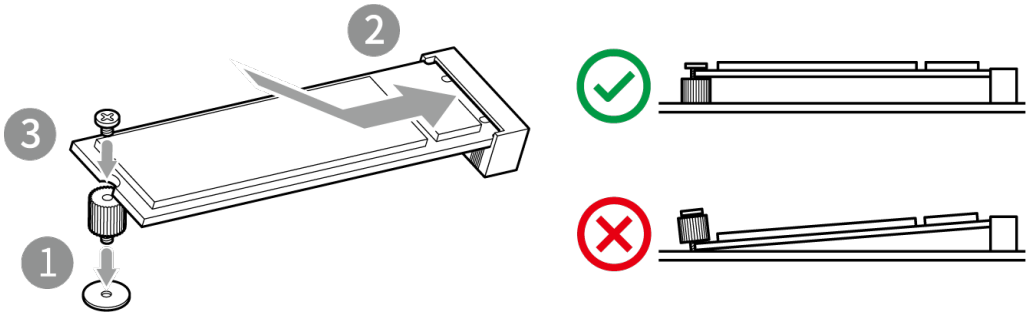
  For installation of full-length PCIe X4 devices



Installation Instructions

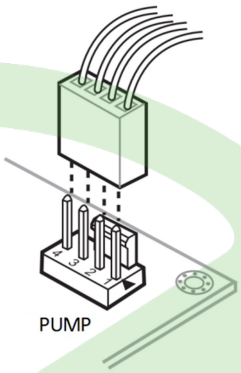
- **M.2 (Key_M) Slot Installation**

This location is used to install M.2 SSD. Different types will have different length compatibility. Maximum support is 22110. When installing, please pay attention to tightening the fixing screws as shown below to prevent SSD damage or data loss due to poor contact during use.



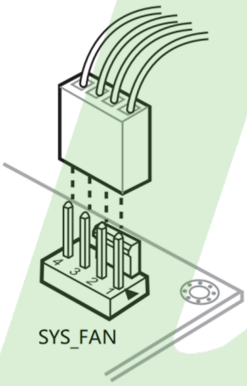
- **4-Pin PUMP PIN Installation**

Used to connect the water-cooling water pump of the CPU water-cooling radiator to supply power to the radiator. Be sure to connect it, otherwise the hardware may be damaged because the CPU heat cannot be discharged. The interface is designed to prevent misplugging, and the interface supports PWM mode.



- **4-Pin Chassis Fan PIN Installation**

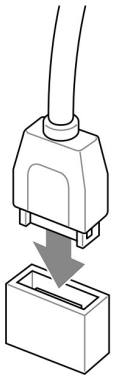
Used to connect a 4-Pin cooling fan. Please be sure to connect it, otherwise the hardware may be damaged because the heat in the chassis cannot be discharged. The interface is designed to prevent misplugging. The interface supports PWM mode.

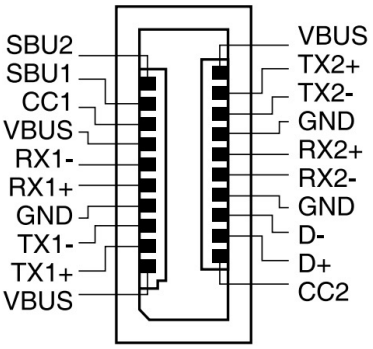


Installation Instructions

- **USB Type-C® Front PIN Installation**

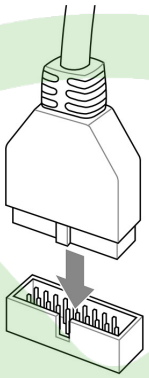
Used to connect Type-C ® Module, expandable chassis front Type-C ® Interface and Post Type-C ® Expand the interface.

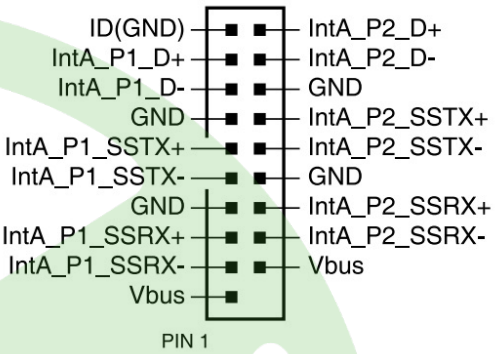




- **USB 3.2 Gen1 Front Pin (19-Pin) Installation**

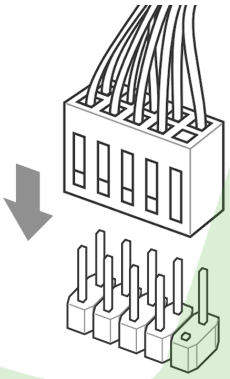
Used to connect the USB 3.2 module, a set of pins can expand to 2* USB 3.2 Gen1 interfaces on the front of the chassis. The interface protocol is USB 3.2 Gen 1, with a data transfer rate of up to 5Gb/s.

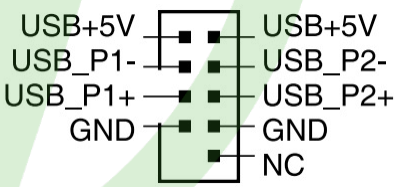




- **USB 2.0 Front Pin (9-Pin) Installation**

Used to connect USB 2.0 modules, a set of pins can expand 2* USB 2.0 Gen1 interfaces on the front of the chassis. The interface protocol is USB 2.0, with a maximum data transfer rate of 480Mb/s.

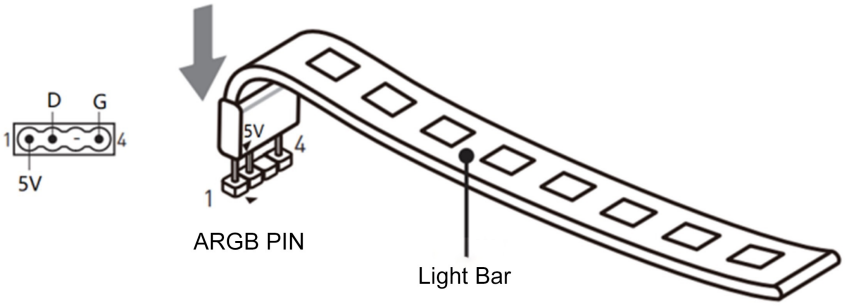




Installation Instructions

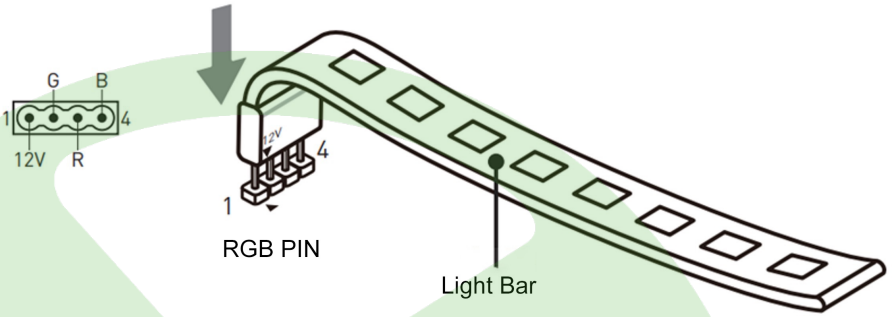
- **3-PIN ARGB PIN Installation**

Used to connect 3-Pin ARGB lighting devices, the lighting effect is off by default. It supports lighting effect control in BIOS and MAXSUN SYNC lighting effect software control in the system. Please note that this pin is not compatible with 4-Pin RGB devices, and incorrect insertion may cause device damage!



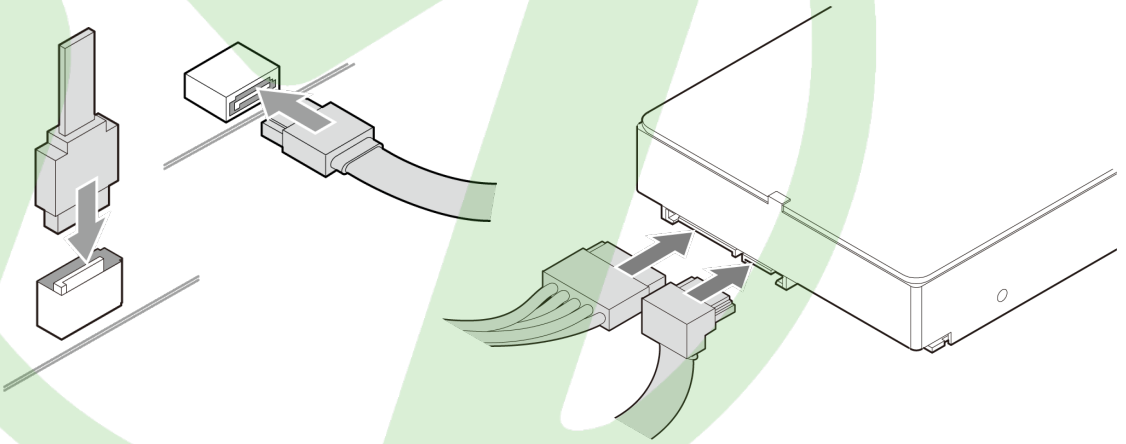
- **4-Pin RGB PIN Installation**

Used to connect 4-Pin NRGB lighting devices, the lighting effect is off by default. It supports lighting effect control in BIOS and MAXSUN SYNC lighting effect software control in the system. Please note that this pin is not compatible with 3-Pin ARGB devices, and incorrect insertion may cause device damage.



- **SATA Port Installation**

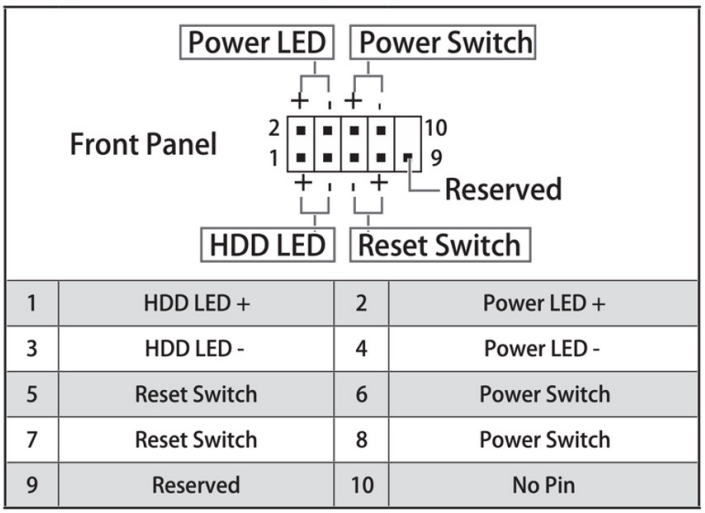
Used to connect SATA devices, use SATA data cables to connect SATA devices to the SATA interface on the motherboard, with a maximum interface speed of 6 Gb/s. Some SATA devices (such as SATA hard drives) also need to be connected to an additional power cord for use.



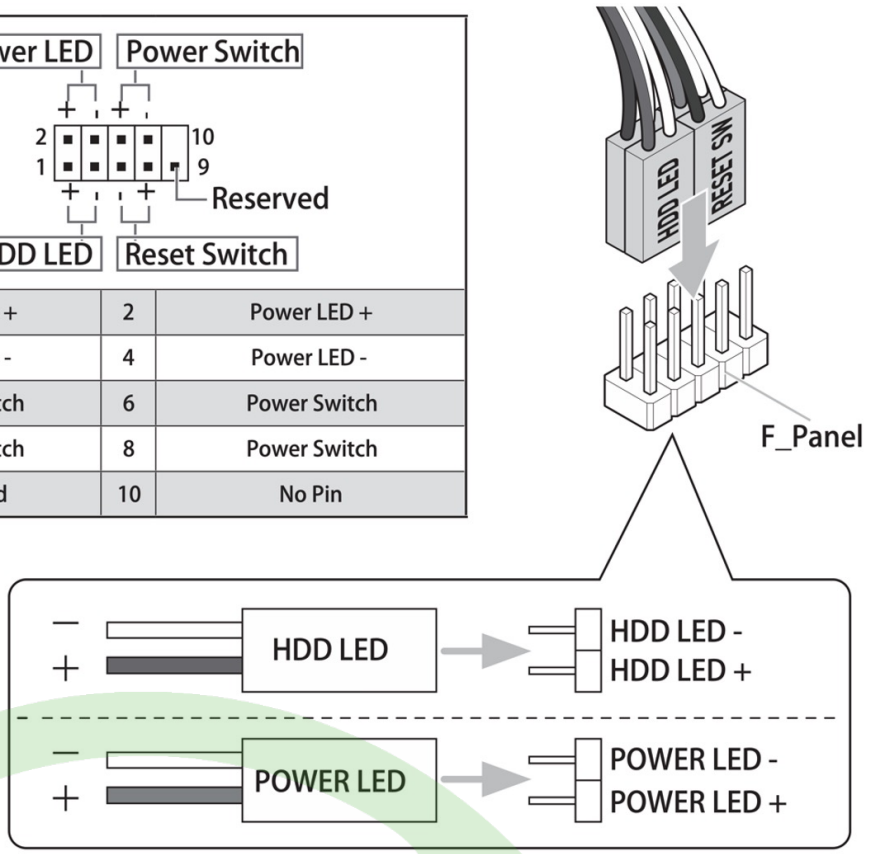
Installation Instructions

- **10-1 PIN F-PANEL System Panel PIN Installation**

Pin on the front panel of the chassis, used to connect the on/off key, restart key, power indicator light, and hard drive indicator light of the chassis.

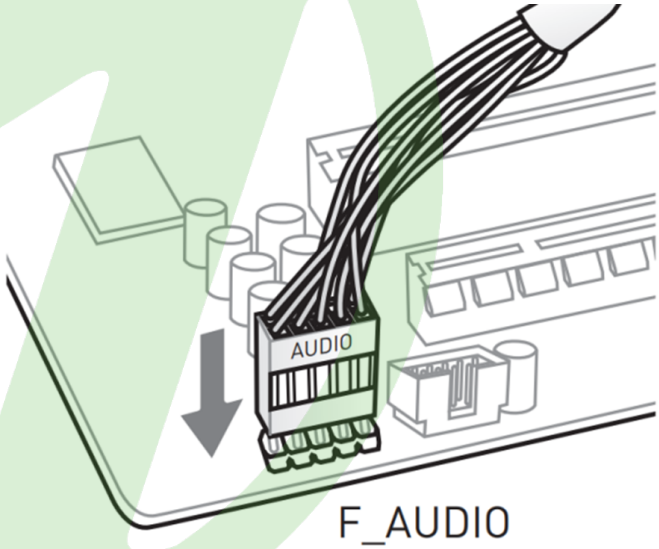


1	HDD LED +	2	Power LED +
3	HDD LED -	4	Power LED -
5	Reset Switch	6	Power Switch
7	Reset Switch	8	Power Switch
9	Reserved	10	No Pin



- **F-AUDIO Front Panel Audio PIN Installation**

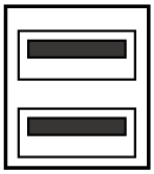
Audio pin on the front panel of the chassis, used to connect the audio module on the front panel of the chassis.



Guidelines for Rear I/O Port

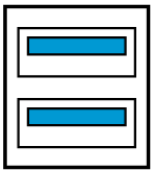
- **USB 2.0 Type-A**

Used to connect USB Type-A device. The interface protocol is USB 2.0, with a data transfer rate of up to 480 Mbps. It is recommended to connect USB Type-A devices such as keyboards, mouse, and USB headphones that do not require high transfer speeds.



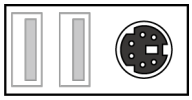
- **USB 3.2 Type-A**

Used to connect USB Type-A device. The interface protocol varies depending on the design of the motherboard, with two specifications available: USB 3.2 Gen1 or USB 3.2 Gen2. Please refer to the corresponding specifications of the motherboard for details. Suggested for connecting USB Type-A devices such as USB drives and portable hard drives that require high transmission speed.



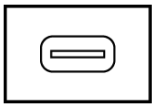
- **P/S2**

Used to connect devices such as P/S2 keyboards or mouse.



- **USB Type-C®**

Used to connect USB Type-C ® device. The interface protocol varies depending on the design of the motherboard. Please refer to the corresponding specifications of the motherboard for details. It is recommended to use it to connect USB Type-C devices such as USB drives and portable hard drives that require high transmission speed ® device.



- **HDMI™**

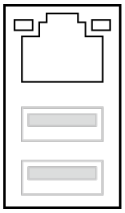
Used to connect HDMI ™ display device. The protocol version of this interface varies depending on the design of the motherboard. Please refer to the corresponding specifications of the motherboard for details.

- **DisplayPort**

Used to connect DP display device. The protocol version of this interface varies depending on the design of the motherboard. Please refer to the corresponding specifications of the motherboard for details.

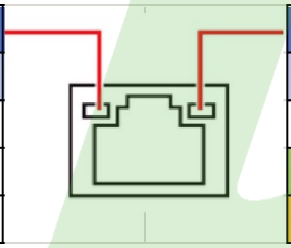
- **RJ45 LAN**

Used to connect RJ45 LAN cables. The speed of this port varies depending on the design of the motherboard. Please refer to the corresponding specifications of the motherboard for details.



RJ45 LAN LED Status Indicator Light

Activity Link LED	
Status	Description
Off	No link
Orange	Linked
Blinking	Data activity



Speed LED	
Status	Description
Off	10Mbps connection
Green	100 / 1000Mbps connection
Orange	2.5Gbps connection

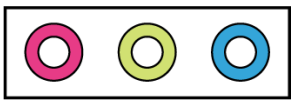
Guidelines for Rear I/O Port

- **WiFi Antenna Port (external screw and internal pin)**

For connecting Wi Fi antennas, please use a standard interface (internal screw external pin) for Wi Fi antenna connection.

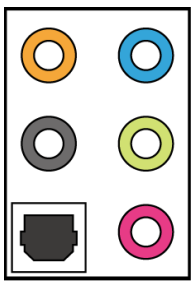
- **5.1 Channel Audio Interface**

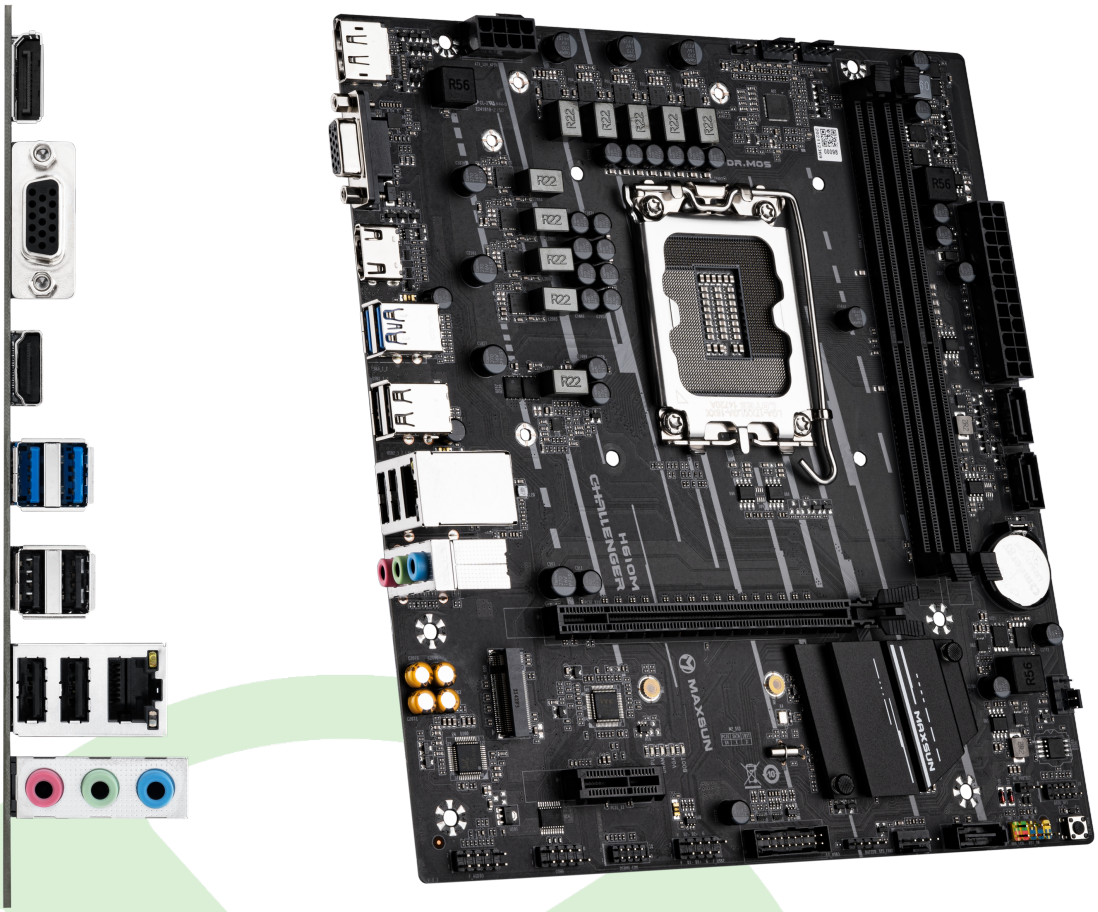
I. MIC-IN interface (light pink) is used to connect input devices such as microphones;
II. LINE-OUT interface (light green) is used to connect audio output devices such as speakers;
III. LINE-IN interface (light blue) is used to connect audio input devices;



- **7.1 Channel Audio Interface**

I. MIC-IN interface (light pink) is used to connect input devices such as microphones;
II. LINE-OUT interface (light green) is used to connect audio output devices such as speakers;
III. LINE-IN interface (light blue) is used to connect audio input devices;
IV. C/SUB interface (light orange) is used to connect subwoofer channels;
V. REAR interface (light gray) is used to connect surround sound channels;
VI. SPDIF OUT fiber optic interface is used to connect power amplifiers, decoders, projectors, and other devices with corresponding interfaces;





Product packaging

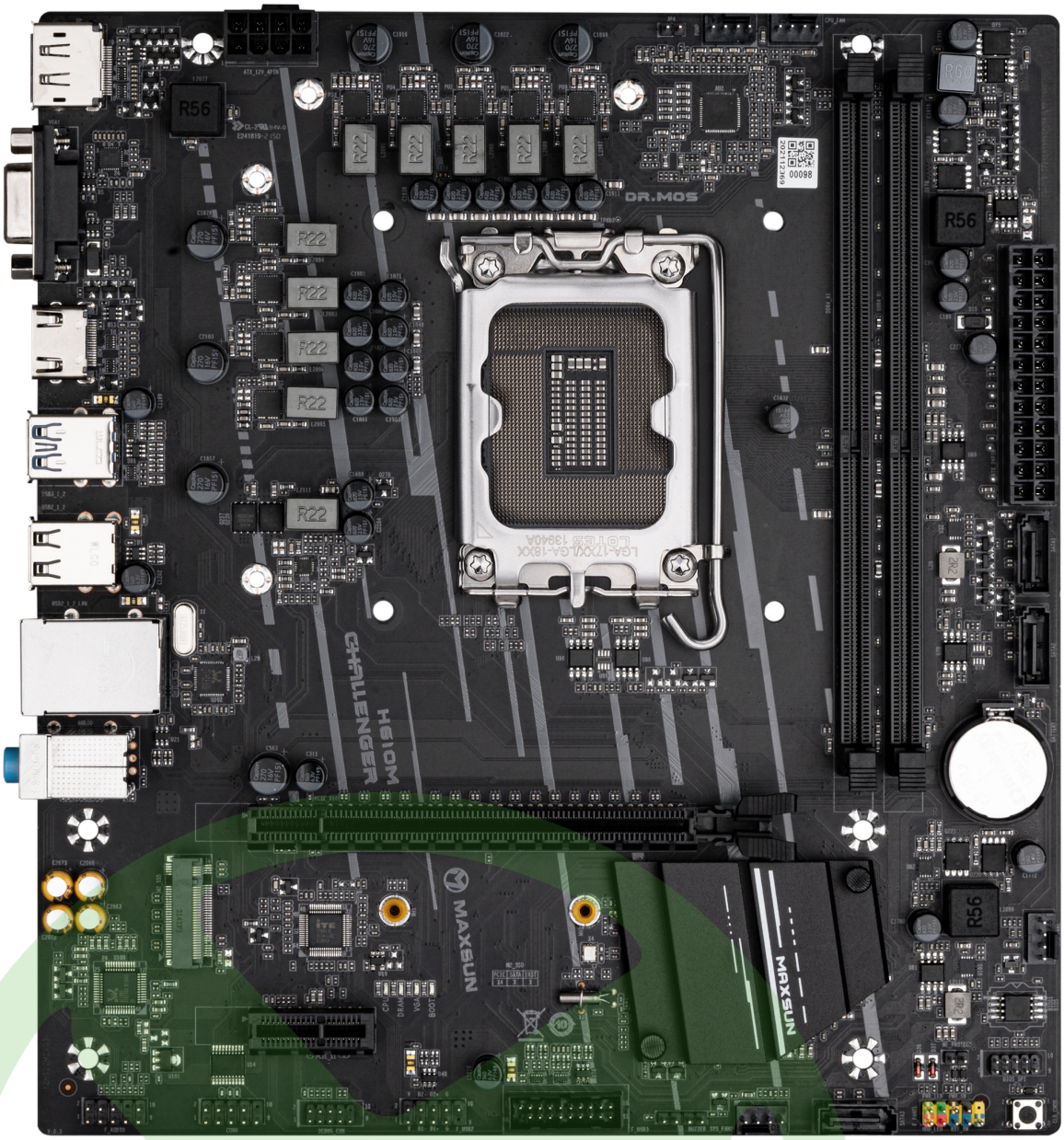
Motherboard pro	1 x MS-Challenger H610M Motherboard
Data cable	2 x SATA 6Gb/s Data cable
Other accessories	1 x M.2 SSD Screw pack
	1 x I/O Shield
	1 x Quick Guide

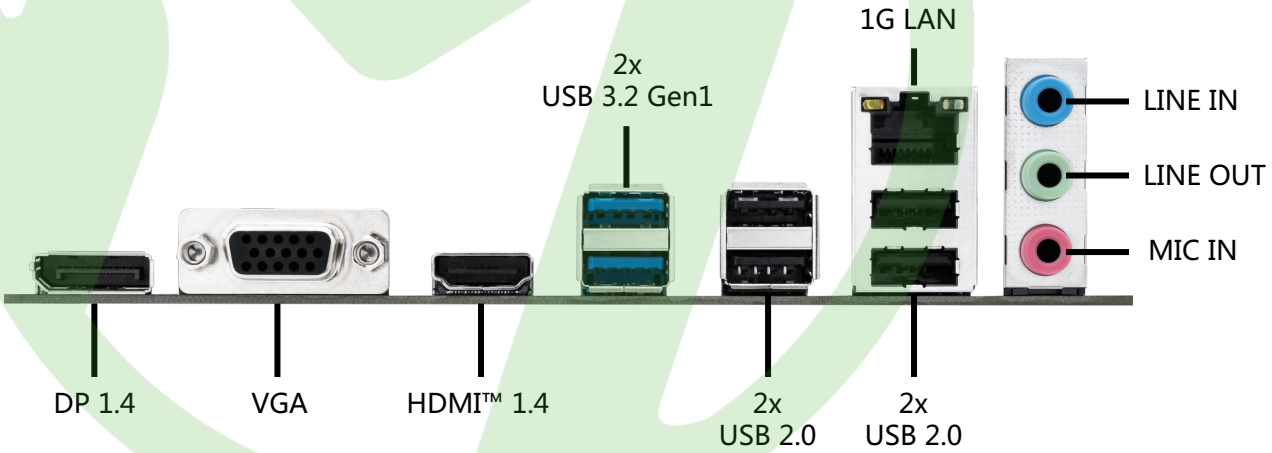
Specifications

Model	MS-Challenger H610M
Size	Micro-ATX 225mm x 205mm
CPU	The Intel® LGA1700 socket is compatible with 14th, 13th, and 12th generation Intel® Core™ processors, as well as Pentium® Gold and Celeron® processors.
Chipset	Intel® H610 Chipset
RAM	2x DIMM DDR4, maximum capacity 64GB Supports dual channel memory architecture Supports Intel ® Extreme Memory Profile (XMP) Supports 3200 (XMP)/2933/2666/2400/2133MHz memory frequency *The maximum frequency that the motherboard can support is influenced by CPU and memory DRAM particles, and different combinations can lead to differences in available frequencies.*
Display	1x DisplayPort 1.4, supporting up to 4K@60Hz 1x HDMI ™ 1.4, supports up to 4K@30Hz 1x VGA, supporting up to 1080p@60Hz *The graphics specifications of different types of CPUs vary. For details, please refer to www.intel.com.*
PCIe Expansion Slot	**From Intel ® 14th&13th&12th CPU:** 1x PCIe 4.0 X16 slot **From Intel ® H610 chipset:** 1x PCIe 3.0 X1 slot
SSD	**Supports 1x M.2 slots and 3x SATA 6Gb/s** **From Intel ® H610 chipset:** M.2 Key-M slot: Supports PCIe 3.0 X4/X2 mode, supports 2242/2280 3x SATA 6Gb/s
LAN	1x Realtek RTL8111H 1Gb LAN
USB	**On board USB (4 interfaces in total):** 1x USB 3.2 Gen 1 (5G), supports 2 additional USB 3.2 Gen1 1x USB 2.0 connector, supports 2 additional USB 2.0 **Rear USB (6 interfaces in total):** 2x USB 3.2 Gen 1 Type-A (5G) 4x USB 2.0 Type-A
Audio	Realtek ALC897 HD Audio chip

Rear I/O	1x DisplayPort 1.4 1x VGA 1x HDMI™ 1.4 2x USB 3.2 Gen 1 Type-A (5G) 4x USB 2.0 Type-A 1x Realtek 1Gb LAN 3x Audio jacks
Built-in I/O	**Power interface** 24-Pin ATX power connector 8-Pin +12V power connector **Fan interface** 1x 4-Pin CPU_FAN fan header 3x 4-Pin SYS_FAN chassis fan header **Storage interface** **1**x M.2 slot (Key_M) 3x SATA 6Gb/s **Onboard USB interface** 1x USB 3.2 Gen1 (5G), supporting 2 additional USB 3.2 Gen1 1x USB 2.0, supporting 2 additional USB 2.0 **Other interfaces** 1x COM port front connector 1x front audio pin 1x 10-1 Pin system pins 1x CLR-CMOS button
Operating System	Windows® 11， Windows® 10 64-bit
Special Features	Distributed Debug lights CLR_CMOS button Resizable bar technology

MAXSUN
GAMING ENDLESS





MAXSUN
GAMING ENDLESS

Intel H610 Series BIOS

USER GUIDE

Motherboard

Contents

1、BIOS Introduction

1.1 BIOS Description

BIOS is called Basic Input/Output System. When you turn on your computer, BIOS is the first program to run, and the modified BIOS data will be stored in a CMOS RAM maintained by the battery, and will not be lost when the power is cut off. Normally, no BIOS modification is necessary when the system is running normally, but if the CMOS data is lost due to battery depletion, the battery has to be replaced and the BIOS value has to be reset.

Note: BIOS interface options and functions may vary depending on the actual version, please refer to the actual version.

1.2 BIOS Operating Instructions

1.2.1 Instructions for entering BIOS

To enter the BIOS setup program screen, please follow the steps below:

Turn on the power or reboot the system and wait until the screen displays "Press<DEL>to enter setup.";

Press <DEL> to enter the BIOS setup program.

1.2.2 BIOS Mouse Instructions

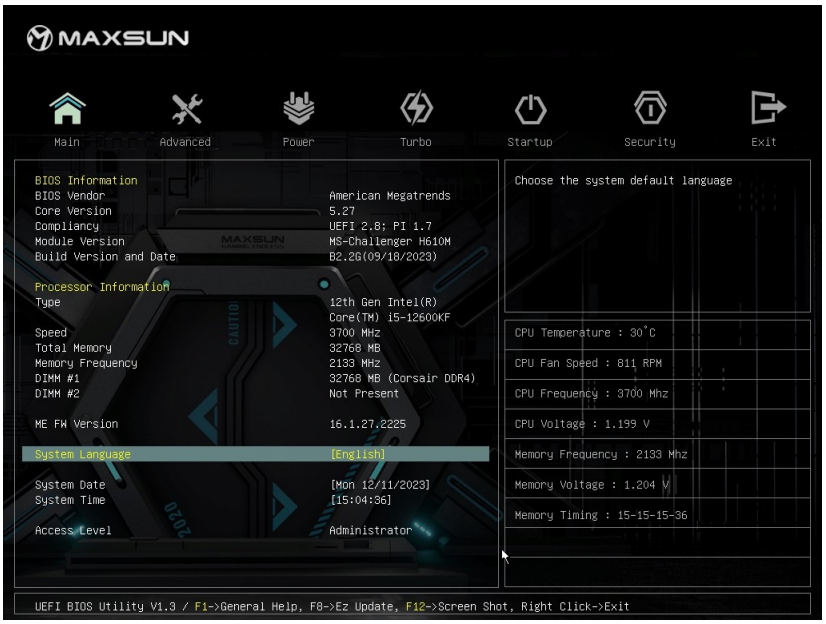
Left->Select, Right->Exit

1.2.3 BIOS Keyboard Instructions

< → >/< ← >	The next display screen selected to the right or left
< ↑ >/< ↓ >	Up or Down Selection
<Enter>	Select a value or option
< + >/< - >	Changing values or selections
< F1 >	Topic help, available only in the Status Display menu and the Selection Settings menu
< F7 >	Discard the changes made and use the value set before the modification.
< F9 >	Load preset optimization settings
< F10 >	Save the changed CMOS settings and exit
< ESC >	Exit

1.3 Page Introduction

1.3.1 BIOS Pages：



H610 motherboard BIOS is divided into a total of four functional areas, respectively, the main menu area, option selection area, option description area, operation description area.

1.3.2 Main menu page:

The main menu page has seven main menus, Main, Advanced, Power, Turbo, Startup, Security, and Exit.

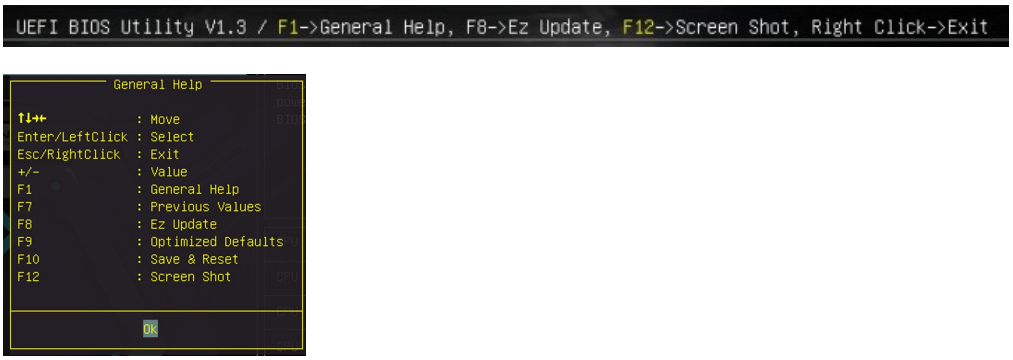
1.3.3 Option Selection Page :

The option selection page displays the content of the options and allows the user to select the functional options that need to be modified using the mouse or keyboard (the screenshot shows the first level of options for Advanced).

1.3.4 Option Description Area :

The function of this area is to provide a descriptive explanation of the selected options.

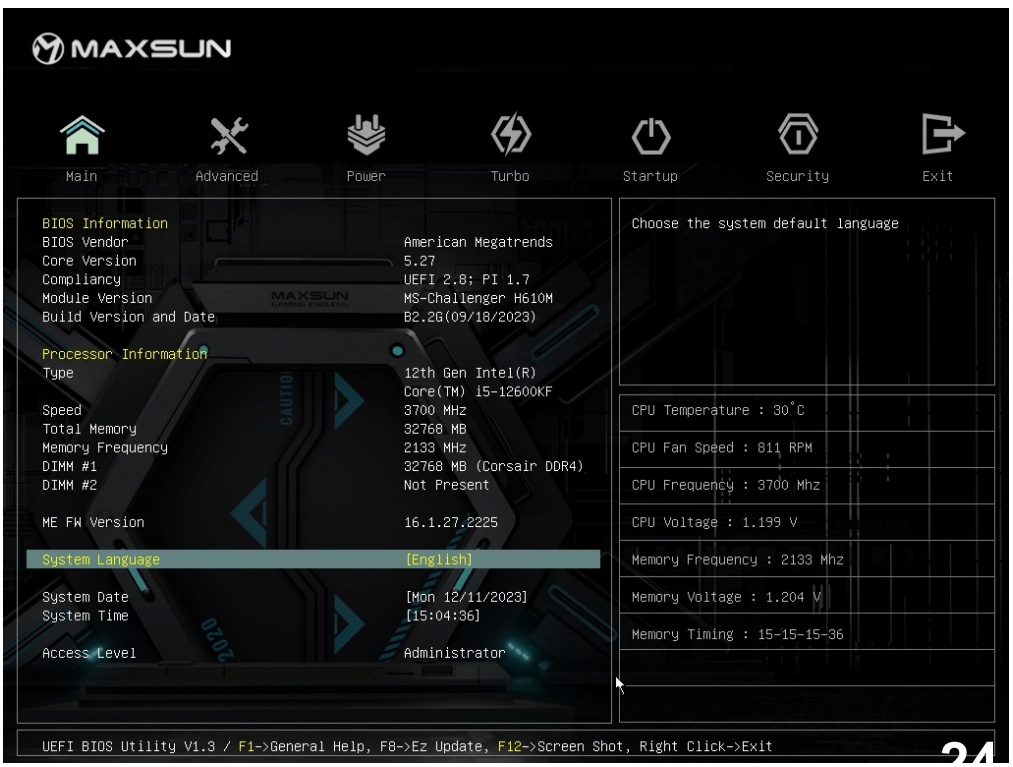
1.3.5 Operating Instructions Area：



This area is located at the bottom right of the main interface, the main function of the shortcut buttons for simple operation instructions.

2、Functions of BIOS Options

2.1 Main：



BIOS Information

Display detailed BIOS information, including BIOS manufacturer, code version, motherboard model, BIOS version, and update date (read-only).

Processor Information

Display detailed processor information, including processor model, processor frequency, memory information, and ME version (read-only).

System Language

Press the Enter key or the space bar to change the BIOS language, select Simplified Chinese or English.

System Date

Change the system date in <week><month><day><year> format.

System Time

Change the system time in <hour><minute><second> format.

2.2 Advanced：

CPU Configuration

Intel processor parameter settings.

ACPI Settings (ACPI Energy saving)

Set whether to enable the hibernation (S4) function.

SATA Configuration

SATA disk information and configuration of SATA disks.

Chipset Configuration

Changing chipset related functional configurations.

USB Configuration

Configure and view information about each USB port.

IT8613 Super IO Configuration

Changing COM port configuration information.

Hardware Monitor

Monitor the real-time status of the motherboard hardware, e.g. the CPU fan.

No Disk (PXE)

Configuration of disk-less network(PXE) and related functions.

Graphics Configuration

Integrated graphics card related configurations.

Trusted Computing

TPM2.0 configuration changes, Windows11 installations require this option to be turned on.

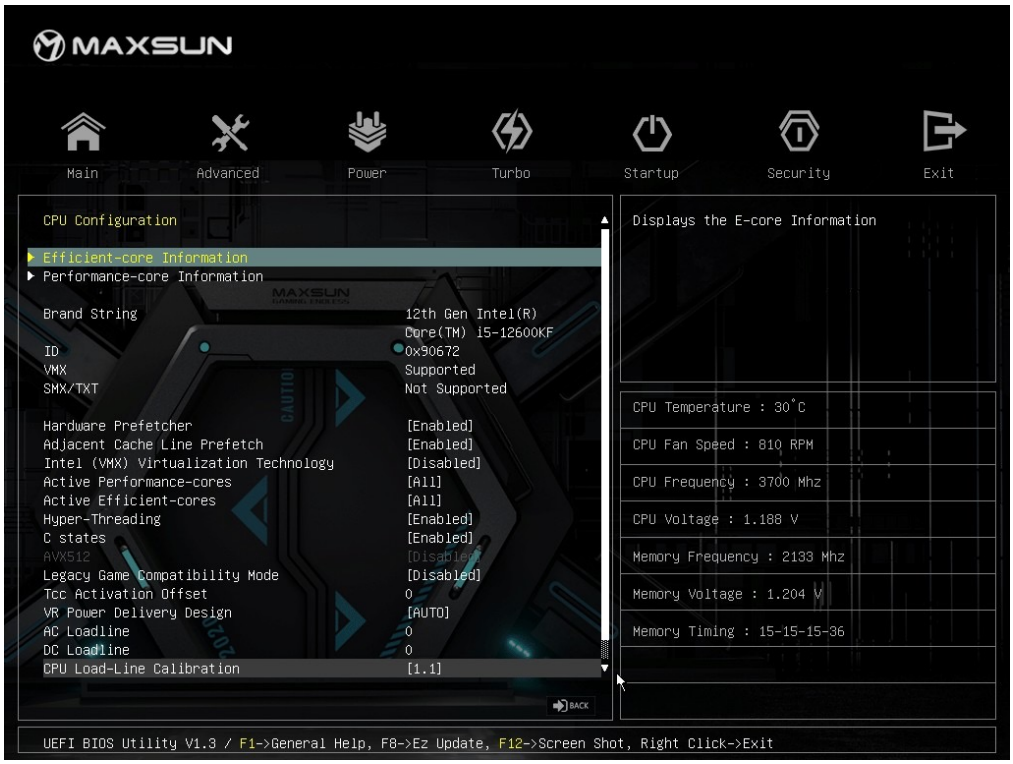
PCI Subsystem Settings

Configuration of PCIE interfaces.

NVMe Configuration

Information on NVMe protocol SSD and configuring NVMe protocol SSD.

2.2.1 CPU Configuration



Efficient Core Information

E-core information show.

Performance Core Information

P-core information show.

Hardware Prefetcher

Control hardware prefetch option, means the CPU has a hardware prefetch function, before the CPU processes instructions or data, it will prefetch these instructions or data from memory to the L2 cache, thus reducing the time of memory read, helping to eliminate potential bottlenecks, so as to improve the system performance, options: [disabled], [enabled].

Adjacent cache line prefetch

Controls the pre-reading of neighboring cached data. When the computer reads data, it will intelligently think that the data to be read next to or adjacent to the data is also needed, then it will be processed when the neighboring data will be read out in advance, which will greatly accelerate the speed of reading, options: [disabled], [enabled].

Intel （VMX）Virtualization technology

Supports Intel virtualization technology that allows a platform to run multiple operating systems in separate partitions. The system can run multiple systems virtually, options: [disabled], [enabled].

Active Performance Cores

This option is used to set the number of cores to activate performance cores. The options correspond to the number of CPU performance cores used: ALL (enable all performance cores), 1 (enable one performance core), 2 (enable two performance cores).

Active Efficient Cores

This option is used to set the number of hardware cores to activate E-core. The options correspond to the number of CPU mini-core cores used: ALL (enable all efficient cores), 1 (enable one efficient core), 2 (enable two efficient cores), 0 (disable all efficient cores).

Hyper-Threading

Intel Hyper-Threading technology treats the multi cores inside the processor as multi logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. This item appears when the installed CPU supports this technology, options: [disabled], [enabled].

C states

Controls processor power states to manage energy consumption by transitioning between idle states efficiently.

Legacy Game Compatibility Mode

Activates compatibility settings to ensure smooth operation of older games designed for legacy hardware configurations. This option adjusts system settings to emulate older hardware interfaces and behaviors, enabling seamless execution of vintage games that may encounter compatibility issues on modern systems.

VR Power Delivery Design

This affects how stable voltage is provided to the CPU or other components. Users can choose between digital or analog designs, adjust the number of phases for efficiency and stability, and select capacitor types for durability. Options for power efficiency and performance modes are also available.

AC Loadline

Setting the CPU AC Loadline Parameters.

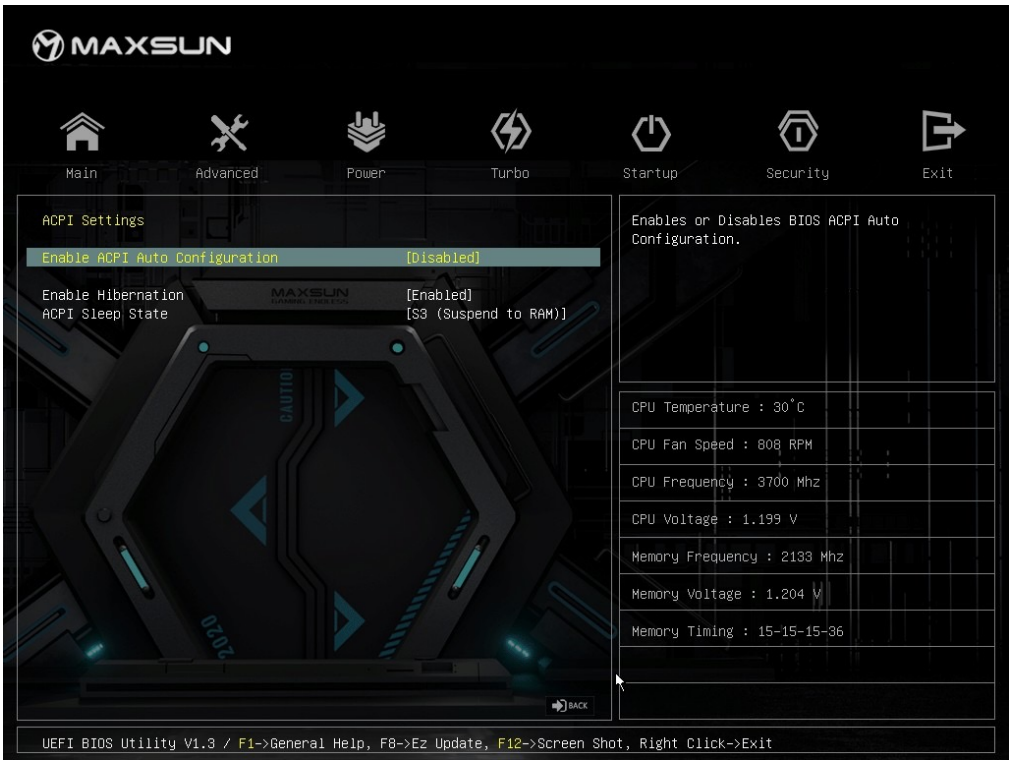
DC Loadline

Setting the CPU DC Loadline Parameters.

CPU Load-Line Calibration

It helps maintain stable CPU voltage by compensating for voltage droop when the processor is under heavy load. This setting is crucial for overclocking, ensuring consistent voltage delivery and preventing voltage fluctuations that could lead to system instability.

2.2.2 ACPI Settings



Enable ACPI Auto configuration:

ACPI manages power distribution and system configuration, optimizing performance and power consumption. Enabling this option allows the BIOS to automatically detect and configure ACPI settings based on hardware compatibility and system requirements. It simplifies system setup and ensures proper ACPI functionality without the need for manual adjustments, enhancing system stability and energy efficiency.

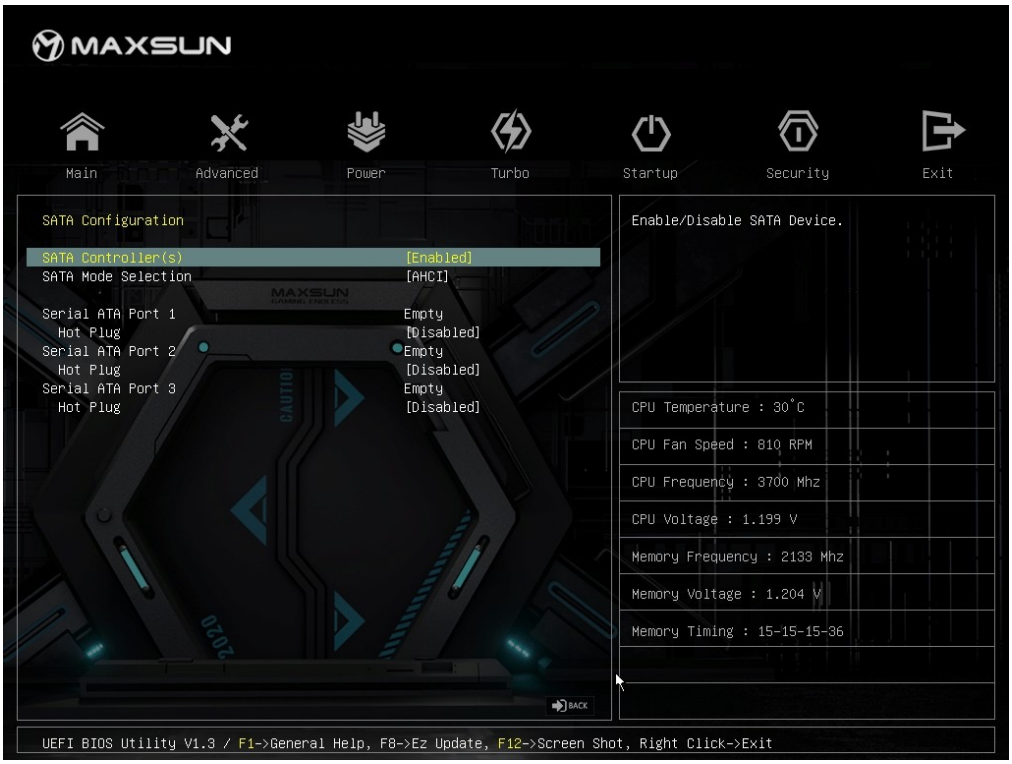
Enable Hibernation

Set whether to enable the hibernation (S4) function, options: [disabled], [enabled].

ACPI Sleep State

Set whether to enable the sleep (S3) function, options: S3(Suspend to RAM), Suspend Disabled.

2.2.3 SATA Configuration



SATA Controller(s)
Controls whether the SATA interface is used,
options: [disabled], [enabled].

SATA Mode Selection
AHCI offers advanced features like native command queuing and hot-swapping, while RAID enables disk mirroring or striping for data redundancy or performance improvement. Selecting the appropriate mode ensures optimal performance and compatibility with the storage devices connected to the system.

Port (1-4)
Control to turn on or off the corresponding SATA disk device,
options: [disabled], [enabled].

Hot Plug
Control to turn on or off the hot-plug state of the corresponding SATA disk,
options: [disabled], [enabled].

2.2.4 Chipset Configuration

Audio Configuration

HD Audio

Enables/disables High Definition Audio support for onboard audio devices.

HDMI Audio

Activates/deactivates audio output through HDMI ports for multimedia.

Power Management Control

RC6(Render Standby)

Controls the power-saving state for GPU rendering when idle.

PCI Express Native Power Management

Manages power states of PCI Express devices for energy efficiency.

Native ASPM

Enables Active State Power Management for PCI Express devices.

DMI Link ASPM Control

Manages ASPM for Direct Media Interface links.

ASPM support

Supports Active State Power Management for PCI Express devices.

L1 Substates

Controls the power-saving states for PCI Express links.

DMI Gen3 ASPM

ASPM support specifically tailored for third-generation Direct Media Interface.

Pcie Configuration

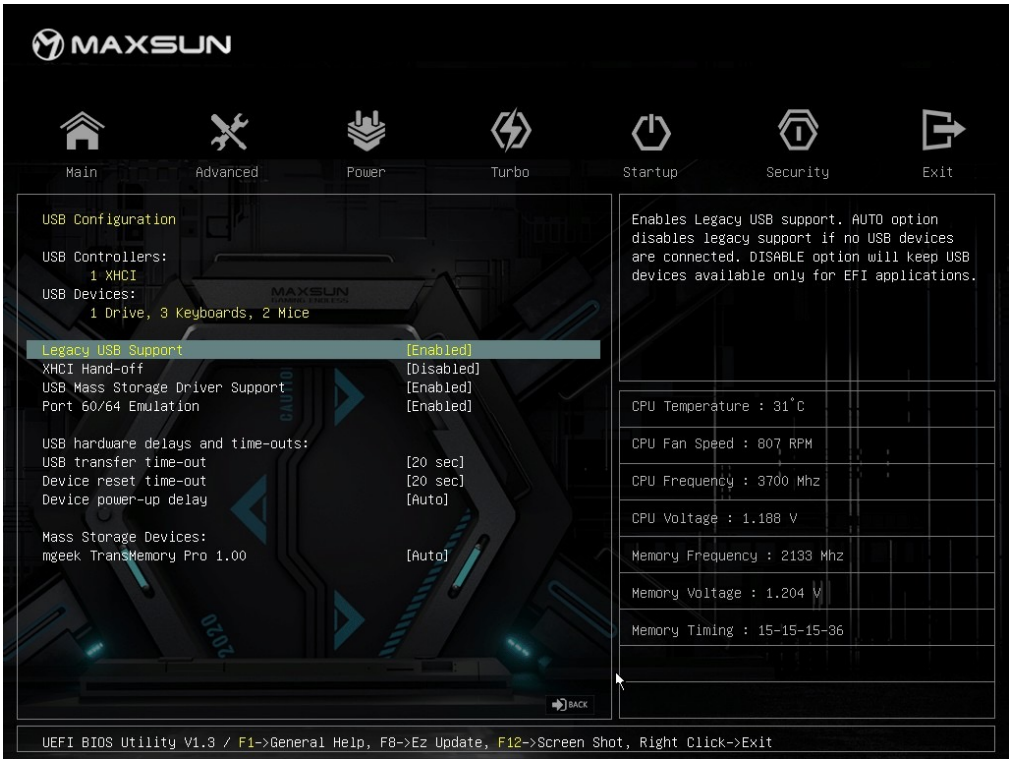
Pcie x16 Speed

Sets the speed of the PCI Express x16 slot for graphics cards.

Pcie x16 Clock Gating

Manages clock gating for PCI Express x16 slots to conserve power.

2.2.5 USB Configuration



Legacy USB Support

Setup for supporting older legacy USB device, options: [disabled], [enabled].

XHCI Hand-off

XHCI is an extensible host controller interface, and this option sets whether the XHCI relay function is supported, options: [disabled], [enabled].

USB Mass Storage Device Support

Control to turn on or off the USB interface of mass storage devices, such as USB flash drives, removable hard drives, etc.

Port 60/64 Emulation

Simulates legacy I/O port accesses for compatibility with older operating systems or hardware that rely on accessing ports 60h/64h. This option enables or disables the emulation of these ports to ensure proper functioning of legacy components or software.

USB transfer time-out

USB transfer timeout value time setting (1-20sec).

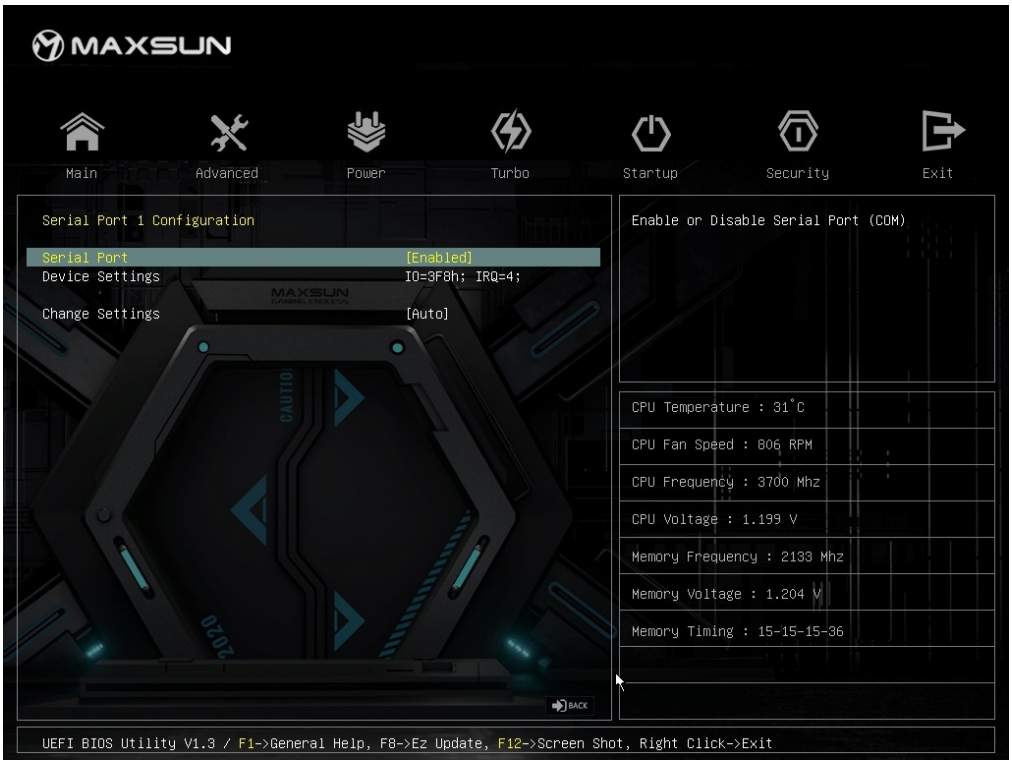
Device reset time-out

USB command timeout setting (10-40sec).

Device power-up delay

USB boot delay time setting, divided into Auto and Manual.

2.2.6 IT8613 Super IO Configuration



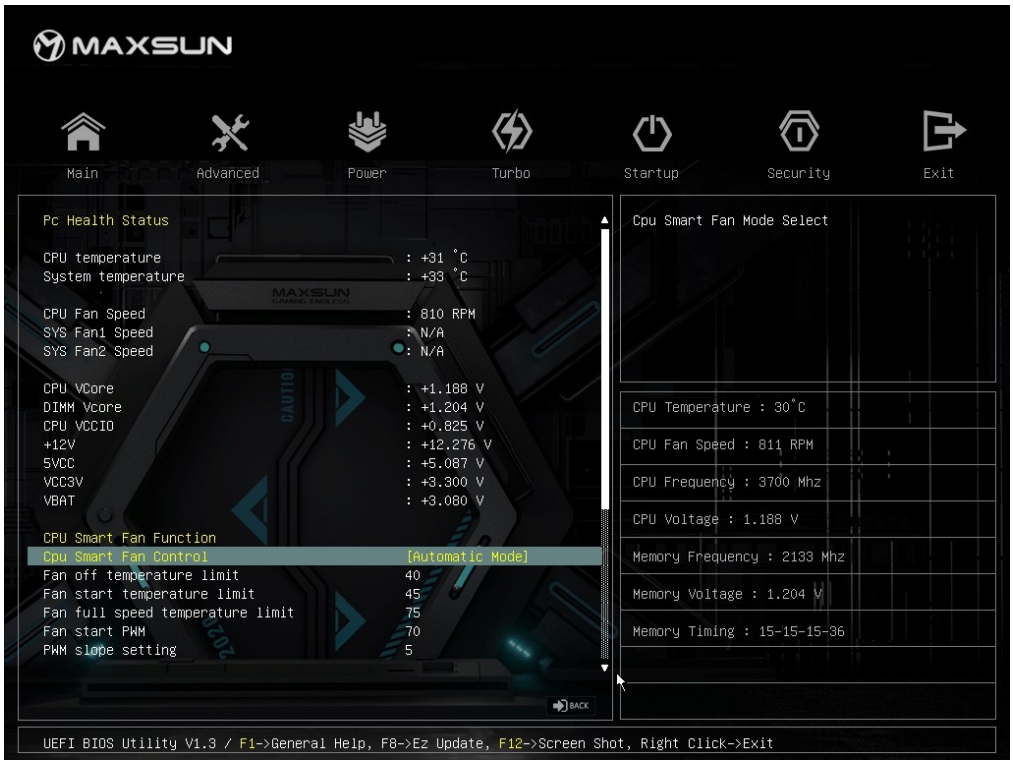
Serial Port

Controls the opening and closing of the motherboard's COM ports, as well as parameterizing the COM ports.

Change Settings

Allows users to modify BIOS settings according to their preferences or system requirements.

2.2.7 Hardware Monitor



Pc Health Status

Displays monitored values and status of CPU temperature, fan, CPU voltage, etc.

CPU Smart Fan Control

Dynamically adjusts fan speed based on CPU temperature, optimizing cooling efficiency while minimizing noise. This feature intelligently regulates fan speeds to maintain optimal operating temperatures for the CPU, ensuring both performance and system longevity. Users can customize fan curves or presets to balance cooling performance with noise

2.2.8 No Disk (PXE)

Onboard LAN Controller

Enables or disables the onboard LAN controller, options: [disabled], [enabled].

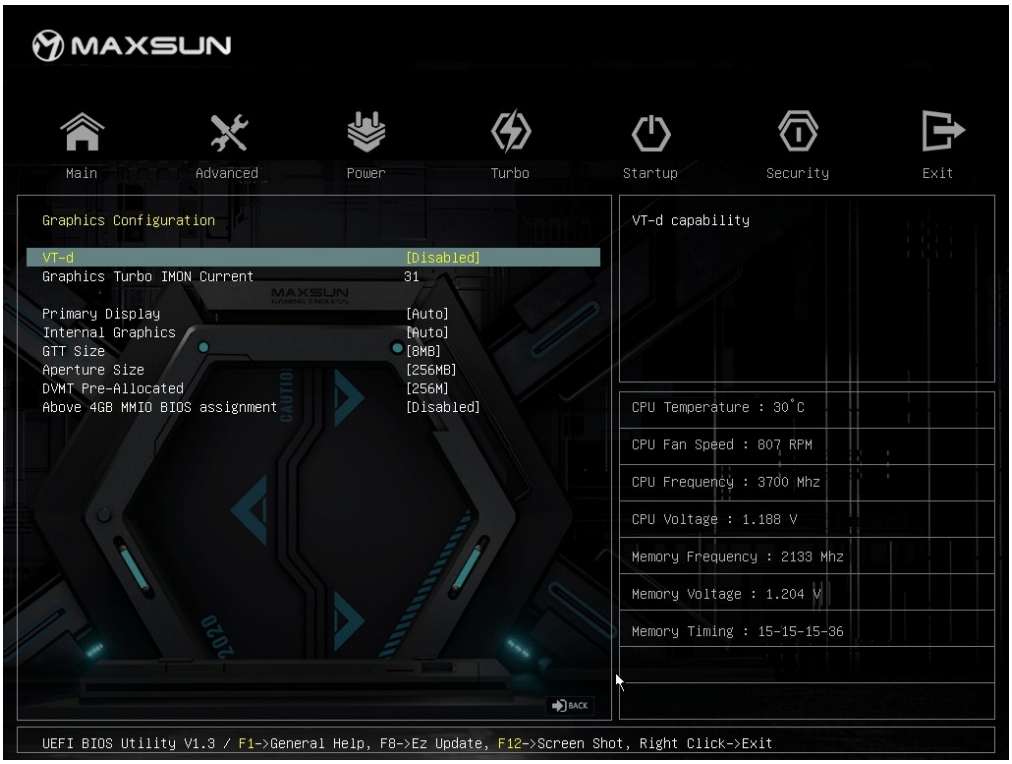
PXE Function Support

Enables the Preboot Execution Environment (PXE), allowing network booting for system deployment or diagnostics. This option facilitates booting from a network server, useful for remote system management, operating system installation, or network-based troubleshooting.

Network Stack

Activates the TCP/IP network stack, enabling network communication capabilities at the firmware level. This feature supports various network protocols for tasks such as remote management, file transfer, or accessing network resources before the operating system loads.

2.2.9 Graphics Configuration



VT-D

Enables or disables Intel VT-D (Intel Virtualization for Directed I/O) technology, options: [disabled], [enabled].

Graphics Turbo IMON Current

Display supported graphics card turbo IMON current values (14-31).

Primary Display

Controls the motherboard's default display modes, with Auto (default discrete graphics card priority output), IGFX (simultaneous output of integrated and discrete graphics cards), and PEG Slot (discrete graphics card priority output),

Internal Graphics

Controls CPU integrated output in three modes: auto, on, or off.

GTT Size

Setting the VGA memory size capacity (2-8MB).

Aperture Size

Setting the buffer allocation size (128MB、256MB、512MB).

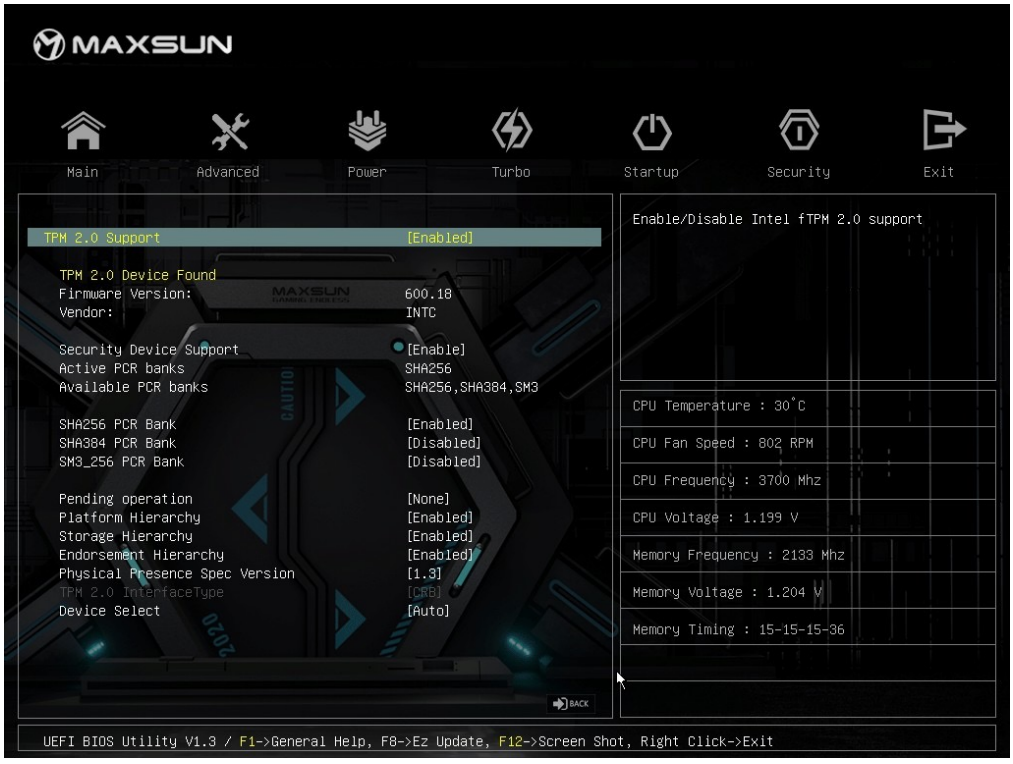
DVMT Pre-Allocated

Setting dynamic shared VGA memory presets (32-512MB).

Above 4G MMIO BIOS assignment

Control to turn on or off MMIO BIOS allocation for 4G or more.

2.2.10 Trusted Computing



Security Device Support

Control to enable or disable TPM support, options: [disabled], [enabled].

SHA256 PCR Bank

Control to turn the SHA256 algorithm on or off, options: [disabled], [enabled].

SHA384 PCR Bank

Control to turn the SHA384 algorithm on or off, options: [disabled], [enabled].

SM3_256 PCR Bank

Control to turn the SM3_256 algorithm on or off, options: [disabled], [enabled].

Pending operation

Sets the options when waiting for an operation, which can be set to None or TPM Clear.

Platform Hierarchy

Control to turn on or off the TPM platform structure, options: [disabled], [enabled].

Storage Hierarchy

Control to turn on or off the TPM storage structure, options: [disabled], [enabled].

Endorsement Hierarchy

Control to turn on or off the hierarchy of TPM support, options: [disabled], [enabled].

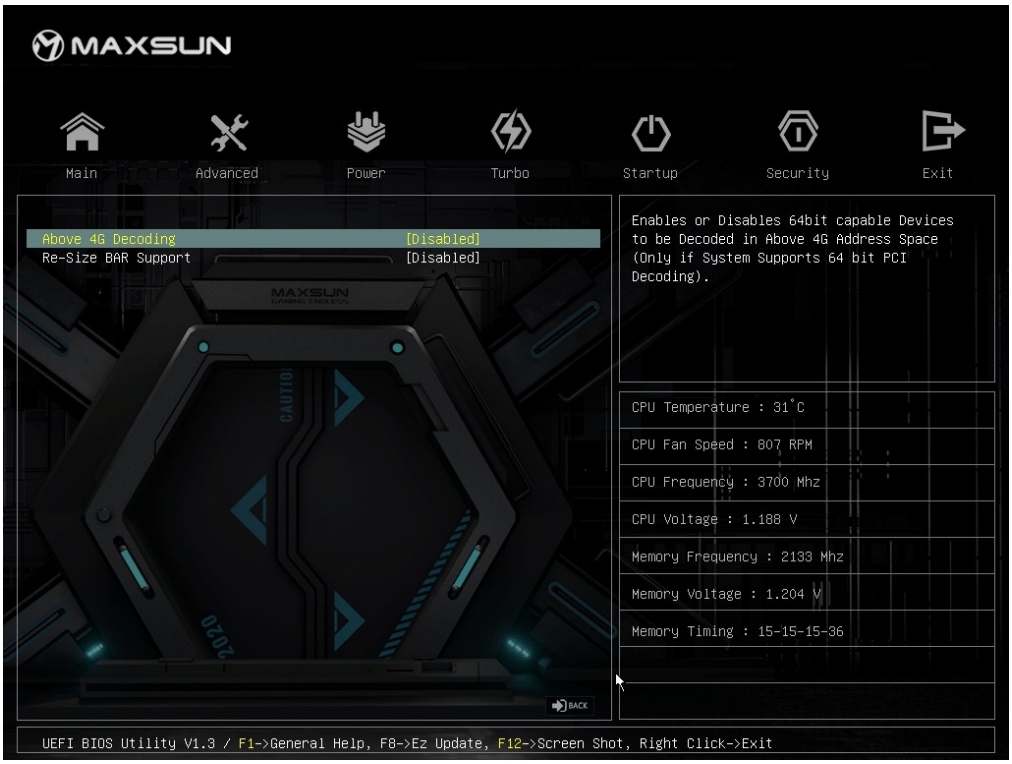
Physical Presence Spec Version

Setting the operating version of the TPM physical presence, optionally version 1.2 or 1.3.

Device Select

Set up TPM device selection with Auto, TPM1.2, and TPM2.0 to choose from.

2.2.11 PCI Subsystem Settings



Above 4G Decoding

Enables or disables 64-bit capable devices to be decoded in above 4G address space. It is only available if the system supports 64-bit PCI decoding,

options: [disabled], [enabled].

Re-size BAR Support

Enables or disables the Resize BAR (Base Address Register) support. It is only available if the system supports 64-bit PCI/ PCIe decoding. If the system supports 64-bit PCI/ PCIe decoding, please enable this item for compatible PCIe device.

Attention: Enabling the Re-Size BAR support feature requires the following four conditions to be met simultaneously.

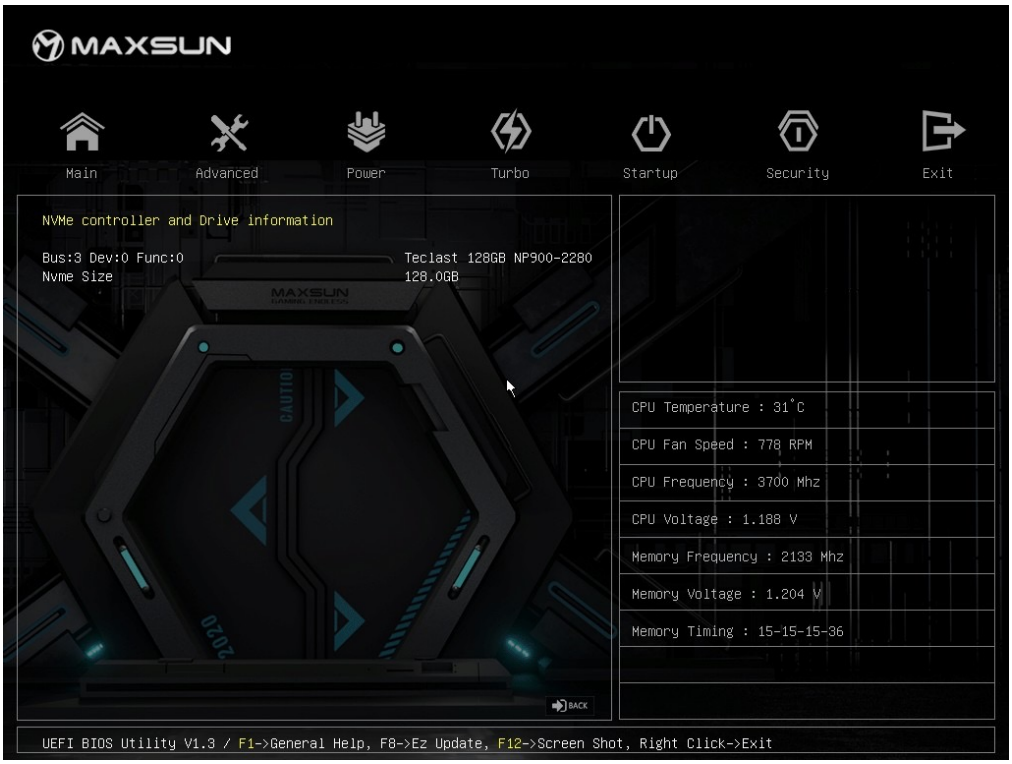
1、Above 4G Decoding is Enabled.

2、Re-size BAR Support is Enabled.

3、Discrete graphics card using AMD 6000 series above PCIE4.0 graphics card, NVIDIA 30 series above PCIE4.0 graphics card. Such as AMD 6800xt, RTX 3060, RTX 4060 etc.

4、CSM is Disabled.

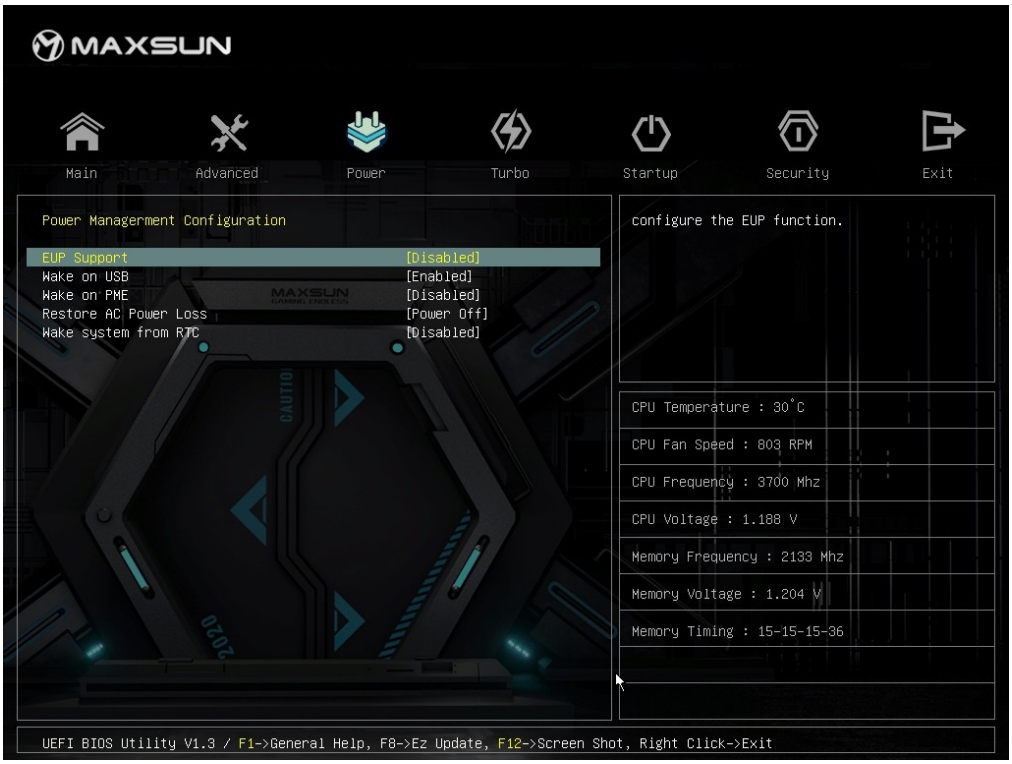
2.2.12 NVMe Configuration



NVMe Information

Display detailed SSD information, including manufacturer, model, and capacity (read-only).

2.3 Power：



EUP Support

Enables Energy Using Products (EUP) compliance, reducing standby power consumption to meet energy efficiency standards.

Wake on USB

Allows the system to be powered on remotely via USB activity, useful for remote management or waking the system from sleep mode.

Wake on PXE

Permits the system to wake from a sleep state upon receiving a Wake-on-LAN (WoL) signal over the network, commonly used for remote system administration and deployment.

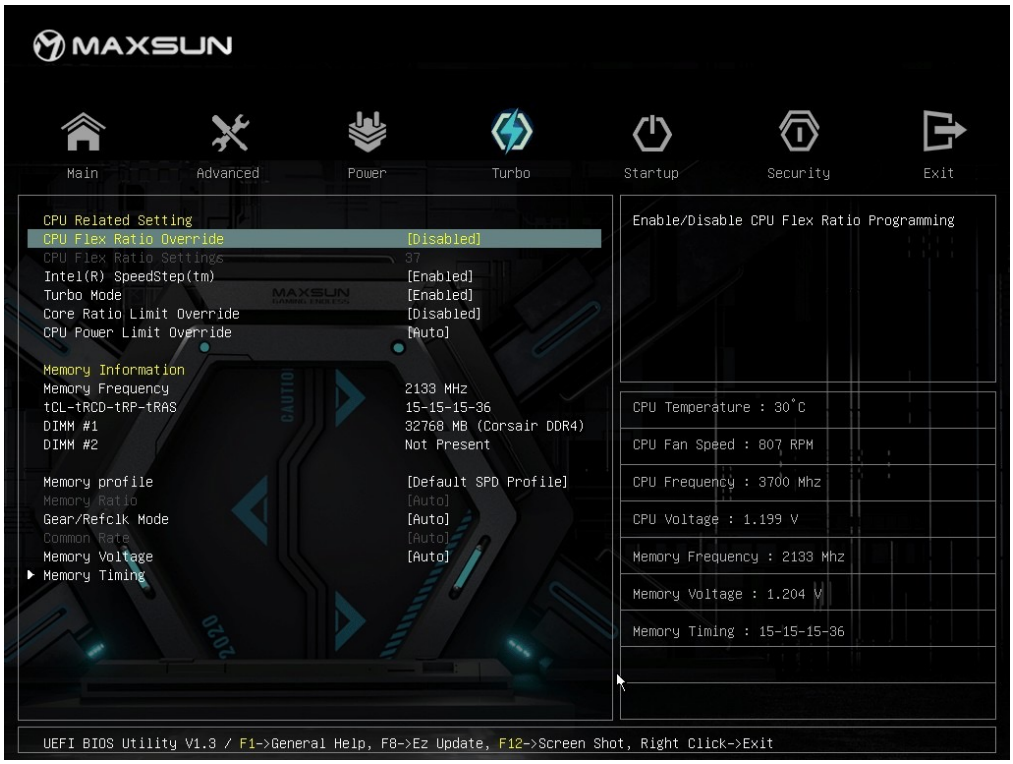
Restore AC Power Loss

Determines the system behavior after a power loss, either remaining off or automatically powering on when AC power is restored.

Wake system from RTC

Enables the system to wake up at a specified time set in the Real-Time Clock (RTC) BIOS useful for scheduled system boot-ups or tasks.

2.4 Turbo：



CPU Flex Ratio Override

Control to turn on or off CPU custom frequency status, options: [disabled], [enabled].

Intel(R) SpeedStep(tm)

Adjusts CPU frequency dynamically to optimize performance and power consumption, reducing speed during idle periods.

Turbo Mode

Controls to turn on or off CPU boost mode, options: [disabled], [enabled].

Core Ratio Limit Override

Allows manual adjustment of CPU core frequency multiplier, offering fine-tuning for processor performance.

CPU Power Limit Override

Permits modification of CPU power limits, enabling overclocking or power-saving adjustments.

Memory Profile

Select to turn on memory XMP profile (XMP data is memory dependent).

Gear / Refclk Mode

Setting the ratio mode of memory frequency to memory controller frequency (Auto/Gear1/Gear2).

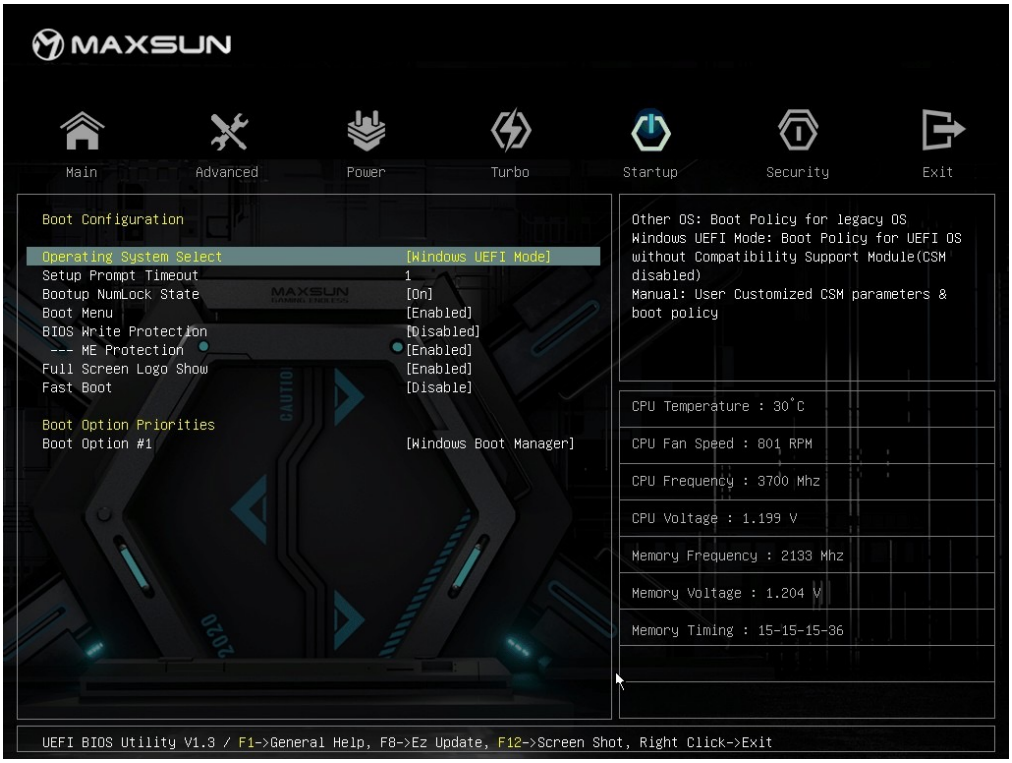
Memory Voltage

Setting memory voltage parameters (Auto/1.2-1.65V).

Memory Timing

Controls memory access timings for improved system stability and performance, allowing adjustment of memory latency parameters.

2.5 Startup:



Operating System Select

Specifies the operating system type to optimize system compatibility and performance settings accordingly.

Setup Prompt Timeout

Setting the amount of time the motherboard stays at the LOGO when booting up.

Bootup NumLock State

Setting the BIOS to enable or disable the keypad, options: [on], [off].

Boot Menu

Control to turn on or off the Guided Prompts menu, options: [disabled], [enabled].

BIOS Write Protection

Set whether to enable the BIOS write protection function. This option must be turned off before updating the BIOS, options: [disabled], [enabled].

Full Screen Logo Show

Control to turn on or off the display of the boot logo, options: [disabled], [enabled].

Fast Boot

Accelerates system startup by bypassing certain hardware checks and initialization processes, reducing boot time for quicker system access.

2.6 Security:

Administrator password

Set the password to enter administrator mode. The BIOS options can be modified only after entering the administrator mode.

User Password

Set the password for entering user mode. BIOS settings cannot be changed in usermode.

Secure Boot

Set whether to enable secure boot.

2.7 Exit:

Ez Update

Facilitates easy BIOS firmware updates via a user-friendly interface, simplifying the process of keeping system firmware up-to-date.

Save Changes and Reset

Save current BIOS settings and reboot.

Discard Changes and Exit

Not saving the currently changed BIOS options and rebooting.

Restore Defaults

Resets BIOS settings to their factory default values, useful for troubleshooting or reverting changes that may have caused system instability.

Save as User Defaults

Save the current options as the user's default settings.

Restore User Defaults

Restore the user's default settings. Note: You need to create the user default settings first.

Windows Boot Manager

Manages the boot process for Windows operating systems, allowing users to select and prioritize bootable Windows installations or recovery options.