

Safe usage tips

1. Before using this product, please read the product manual carefully;
2. For boards that are not ready for installation, they should be stored in anti-static protective bags;
3. Before taking out the board from the anti-static protection bag, place your hands on a grounded metal object for a while (such as 10 seconds) to release static electricity from your body and hands;
4. When handling the board, it is necessary to wear anti-static gloves and develop the habit of only touching its edges;
5. To avoid electric shock to the human body or damage to the product, the AC power supply must be turned off before unplugging or reconfiguring the board;
6. Before moving the board or the entire machine, the AC power must be turned off first;
7. When adding or reducing circuit boards for the entire product, it is necessary to first turn off the AC power supply;
8. Before connecting or disconnecting any device, you must first turn off the AC power supply;
9. To avoid unnecessary damage to the product caused by frequent power on and off, wait for at least 30 seconds after turning off the machine before turning it back on.
10. **The d6 code represents power incompatibility. Please replace the power supply. Alternatively, changing the position of components on the motherboard according to the image below can also solve this problem.**



1.1 Introduction

MATX-CS612 is a MATX series motherboard that supports LGA2011 XEON platform series CPUs

The main features of MATX-CS612 motherboard are as follows:

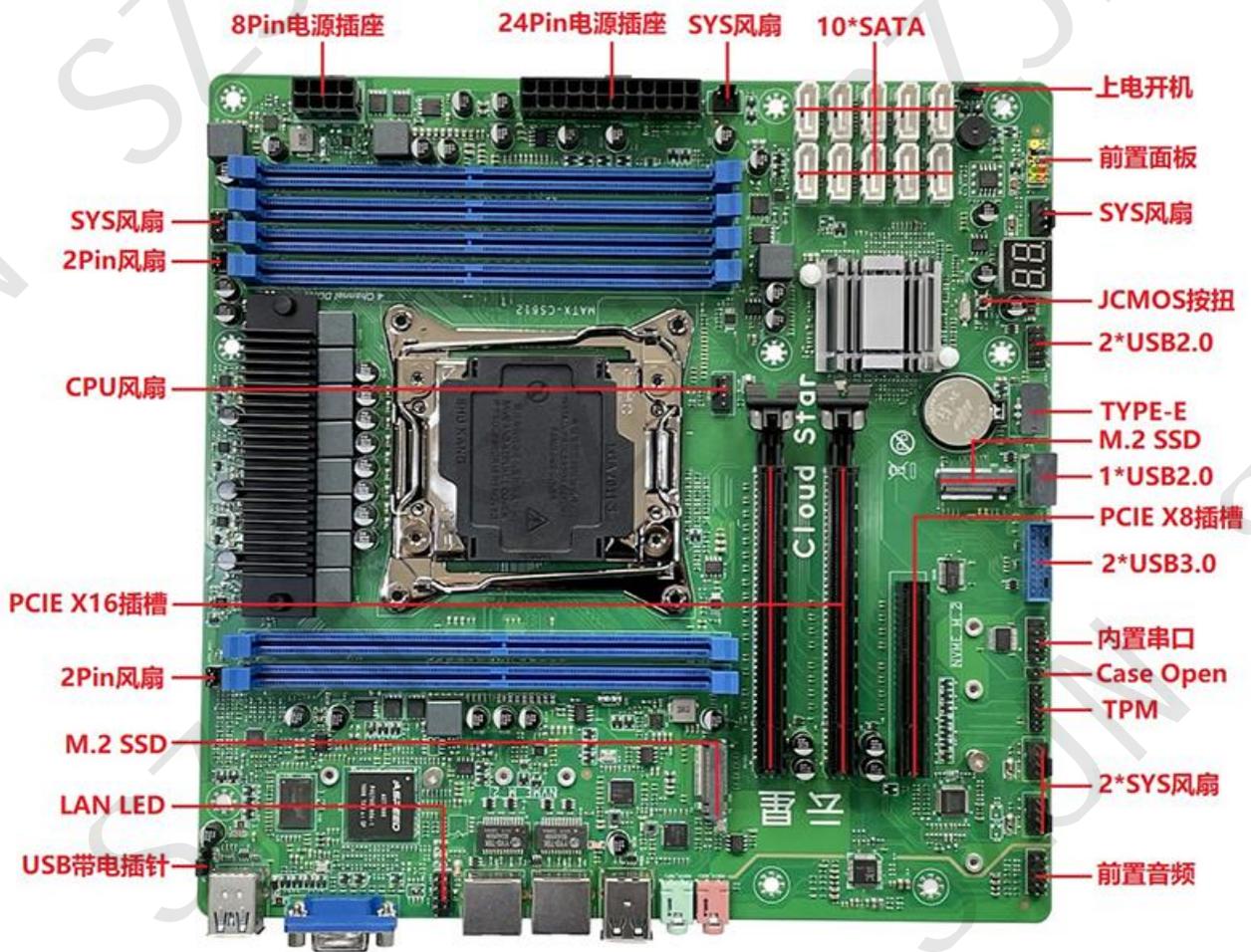
- Support LGA2011 XEON series CPUs;
- Supports four channel 2133, 2400MHz DDR4 ECC, ERCC memory, up to 192GB, single slot up to 32GB Display supports VGA(VGA adapter cable is not supported)
- Supports 2 2.5Gbps networks;
- Supports 2 M.2 interfaces (only NVME)
- Supports 9 USB interfaces and 1 TYPE-E interface
- Supports 2 PCIE X16 slots and 1 PCIE X8 slot
- Supports 10 SATA 3.0 interfaces
- Built in 1 RS232 serial port
- Support wide temperature range of -10~60 degrees Celsius for operation;
- Built in clear CMOS button for faster troubleshooting and problem-solving;
- 6-layer PCB design for more stable performance;

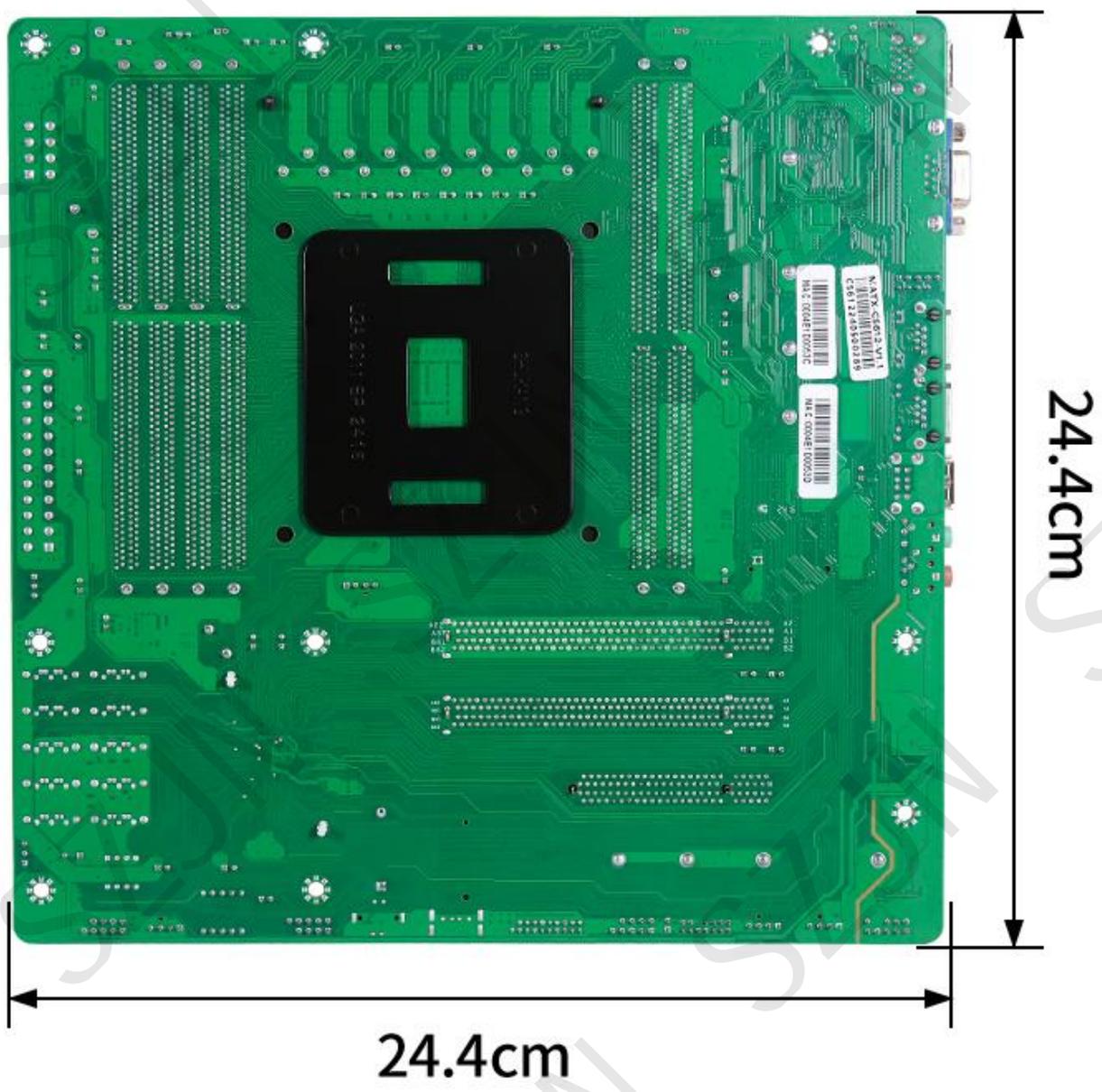
1.2 Product specifications

Motherboard size	244mm * 244mm
CPU	Supports E5 V3/V4 series processors
Ram	6 288Pin DDR4 DIMM memory slots, single memory supports up to 32GB
Expansion Slots	1 x PCIE X8 slot 2 x PCIE X16 slots 2 x M.2 SSD
I/O interface	1 x VGA display interface 2 x USB3.0 2 x USB2.0 2 x audio interfaces (Line Out/MIC-IN) 2 x RJ45 interfaces
Built in interface	10 x SATA interface 1 x 9-Pin Front Panel Switch Pin (FPANEL) 1 x 4Pin CPU cooling fan (CFAN1) 3 x 4Pin System Cooling Fan (SFAN1) 2 x 3Pin System Cooling Fan (SFAN1) 2 x 2Pin System Cooling Fans (SFAN1) 1 x built-in COM interface 1 x FUSB front interface (can be converted to 2 USB 2.0 interfaces) 1 x FUSB front interface (can be converted to 2 USB 3.0 interfaces) 1 x USB port (can be converted to 1 USB 2.0 interface) 1 x TYPE-E interface 1 x TPM interface 1 x 9pin built-in audio interface (F AUDIO) 1 x 8pin ATX interface 1 x 24 pin ATX interface 1 x 9pin LAN LED

Display	Supports VGA display (does not support VGA adapter cable)
Network	2 Intel I226V Network cards
Audio	Realtek ALC897, Support Line Out&Line In
I/O chip	NUVOTON NCT5585D
power supply	24Pin+8Pin ATX power supply
operating system	Windows 10/Windows 11/Linux, etc

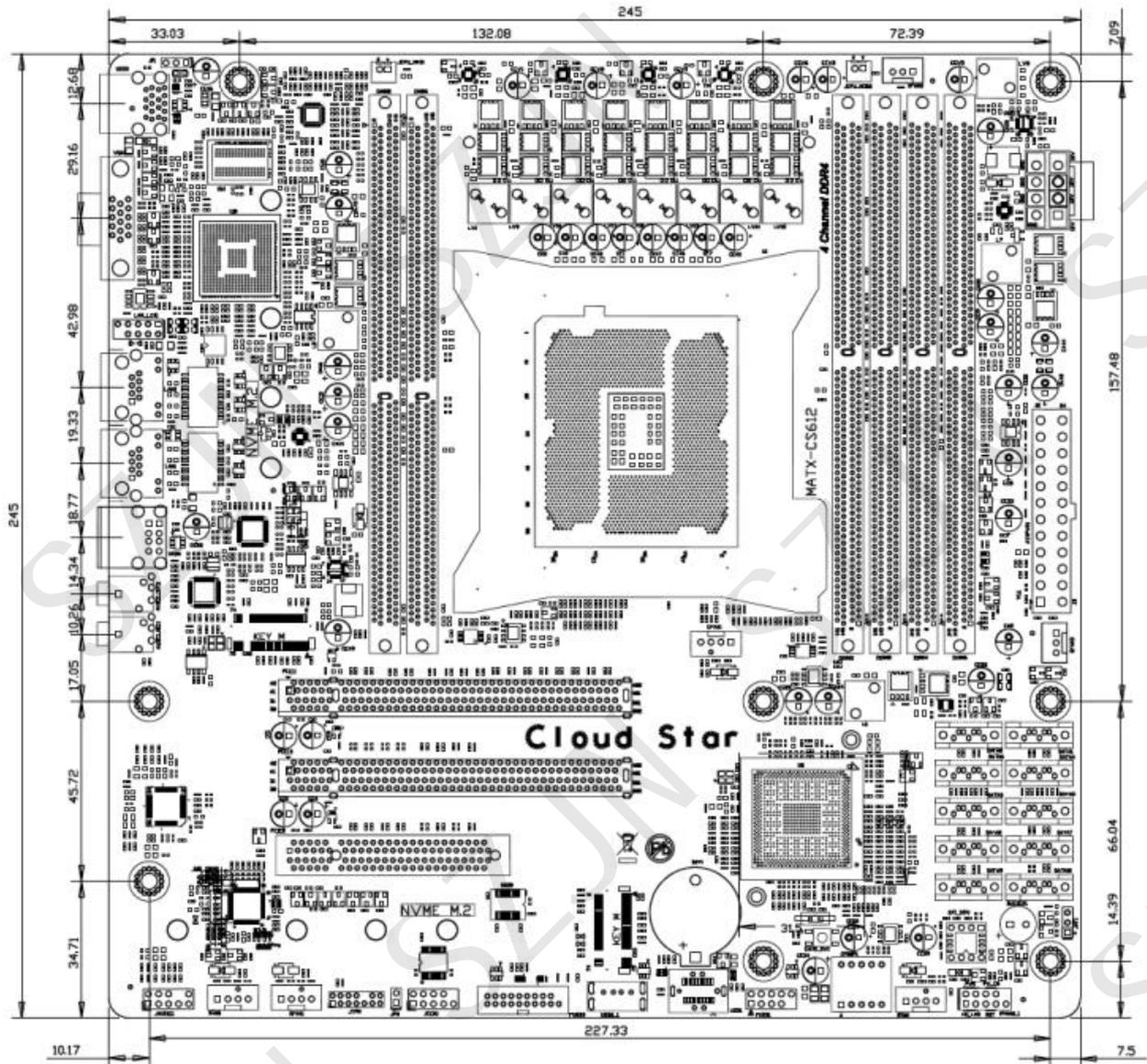
1.3 Motherboard Layout Structure Diagram





Please note: The above is the MATX-CS612 Ver: 1.1 identification diagram. Please refer to the actual product for this model

1.4 Motherboard layout dimension diagram



The above is the size diagram of MATX-C612 Ver: 1.1 series motherboard

Chapter 2 Motherboard Installation

2.1 Safety precautions:

Please do not tear off the serial number and agent warranty stickers on the motherboard before installation, otherwise it will affect the recognition standard of the product warranty period.

Before installing or removing the motherboard and other hardware devices, be sure to turn off the power and unplug the power cord from the socket.

When installing other hardware devices into the socket inside the motherboard, please confirm that the connectors and sockets are tightly connected.

Please try not to touch the metal wiring parts when taking the motherboard to avoid short circuits in the circuit.

It is best to wear an anti-static wristband when taking out the motherboard, central processing unit (CPU), or memory module. If there is no anti-static wristband, please make sure your hands are dry and touch metal objects first to eliminate static electricity.

Before installing the motherboard, please place it in an anti-static pad or bag.

When you need to unplug the motherboard power socket, please confirm that the power supply is turned off.

Before turning on the power, please ensure that the voltage value of the power supply is set to the standard voltage value in the window where it is located.

Before turning on the power, please ensure that all hardware device cables and power cords are properly connected.
 Do not allow screws to come into contact with the circuits or components on the motherboard to avoid damage or malfunction of the motherboard.
 Please ensure that there are no screws or metal products left on the motherboard or inside the computer case.
 Do not place the computer host on an uneven surface.
 Do not place the computer host in an environment with excessively high temperature.
 If the power is turned on during installation, it may cause damage to the motherboard, other devices, or yourself.
 If you are not familiar with the installation process or encounter any technical issues while using this product, please consult a professional technician.

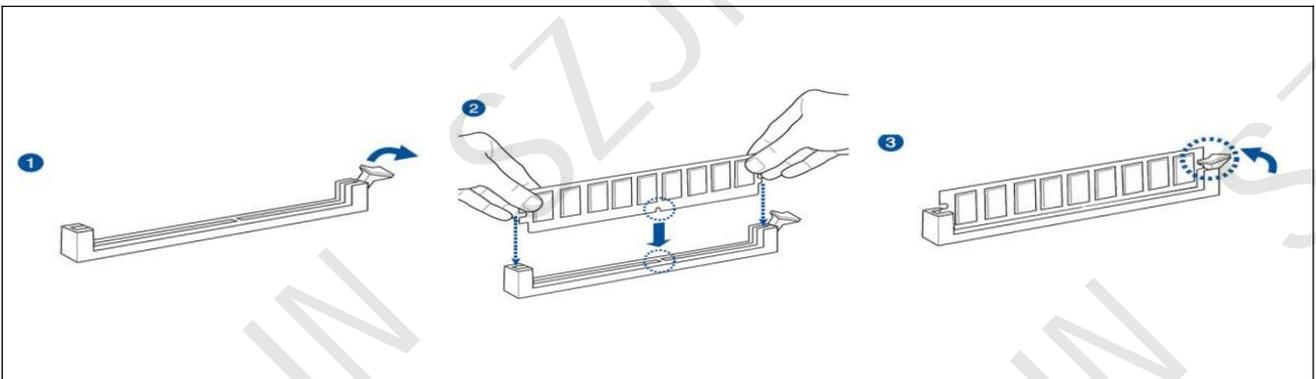
Memory installation

This motherboard provides 6 288 pin DDR4 DIMM memory slots. Before starting to install memory, please pay attention to the following information:

- 1) Please confirm that the memory you purchased is compatible with the specifications supported by this motherboard.
- 2) Before installing or removing memory, please make sure that the computer's power is turned off to avoid damage.
- 3) The memory design has foolproof markings, please do not insert in the wrong direction.

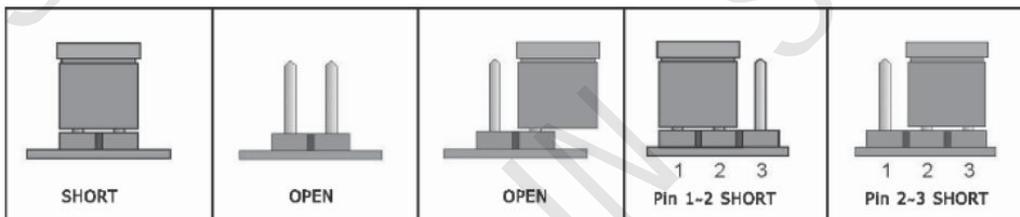
2.2 Installing Memory:

- 1) Before installing or removing memory, please turn off the power and unplug the AC power cord. Be careful to hold the two ends of the memory module and do not touch the metal contacts on top.
- 2) Align the gold finger of the memory module with the slot of the memory module, and pay attention to the convex starting point of the slot on the concave hole of the gold finger in the direction;
- 3) Insert the memory module into the memory slot at a 90 degree angle, and then press it down until you hear a "click" sound, indicating that the memory has been successfully installed and can be used. (Note: Do not apply too much pressure to the memory module to avoid damaging it)
- 4) To remove the memory module, push the tenons on both ends of the DIMM slot outward and then remove the memory module.



2.3 Jumper settings

2-pin connector: Insert the jumper cap into two pins to close it (short circuit).
 3-pin connector: The jumper cap can be inserted into pins 1-2 or 2-3 to close it (short circuit).



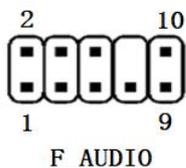
How to identify the position of the first pin of the jumper?

- 1) Please carefully check the motherboard. Any pins marked with "1" or white thick lines are considered as pin 1 positions.
- 2) Observing the solder pads on the backplane, typically square solder pads are the first pins.

Chapter 3 Interface Description

3.1 Audio Interface: F_AUDIO

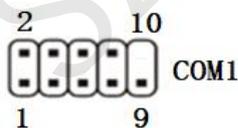
The motherboard provides a front audio interface with a pin spacing of 2.54mm and a 2 * 5-pin pin. The pin definitions are as follows:



pin	definition	pin	definition
1	MIC2_L_S	2	Mic-in_R
3	MIC2_R_S	4	NC
5	LINE2_R_S	6	MIC-Detect
7	FRONT_IO_SENSE	8	NC
9	LINE2_L_S	10	Line-Detect

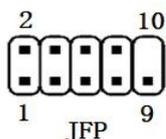
3.2 Serial port: COM1~COM6

The motherboard provides one built-in serial port (pin spacing 2.54mm)



pin	definition	pin	definition
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

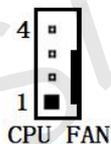
3.3 Switch interface: JFP definition:



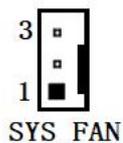
pin	definition	pin	definition
1	HDD_LED+	2	PWR_LED+
3	HDD_LED-	4	PWR_LED-
5	GND	6	PW_ON
7	RST	8	GND
9	GND	10	NC

3.4 Fan interface: CPU FAN, SYS FAN definitions:

The motherboard provides 2 cooling fan interfaces (pin spacing: 2.54mm), with pin definitions as follows:



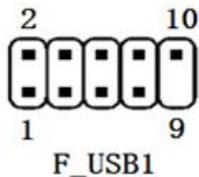
pin	definition
1	GND
2	+12V
3	TACH-IN
4	PWM



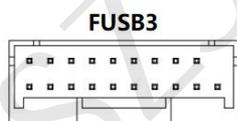
pin	definition
1	GND
2	+12V
3	TACH-IN

3.5 USB interface: Definition of F_USB1 and F_USB3:

The motherboard provides one 2 * 5pin USB interface and one 2 * 10pin USB interface. The definition of pins is as follows:



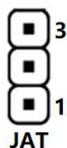
pin	definition	pin	definition
1	VCC	2	VCC
3	D-	4	D-
5	D+	6	D+
7	GND	8	GND
9	NC	10	GND



pin	definition	pin	definition
1	VBUS	11	D+
2	SSRX1-	12	D-
3	SSRX1+	13	GND
4	GND	14	SSTX2+
5	SSTX1-	15	SSTX2-
6	SSTX1+	16	GND
7	GND	17	SSRX2+
8	D-	18	SSRX2-
9	D+	19	VBUS
10	NC	20	NC

3.6 Power on jumper: JAT

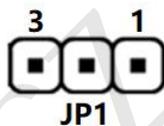
The motherboard provides one 1 * 3Pin JAT pin (pin spacing: 2.54mm), with pin definitions as follows:



pin	definition
1-2 (short circuit)	AT mode
2-3 (short circuit)	ATX mode

3.7 USB voltage setting: JP1

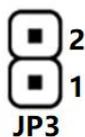
The motherboard provides one 1 * 3-pin USB power supply pin (pin spacing: 2.54mm), with pin definitions as follows:



pin	definition
1-2 (short circuit)	Normal
2-3 (short circuit)	+5VSB

3.8 Case open 设置: JP1

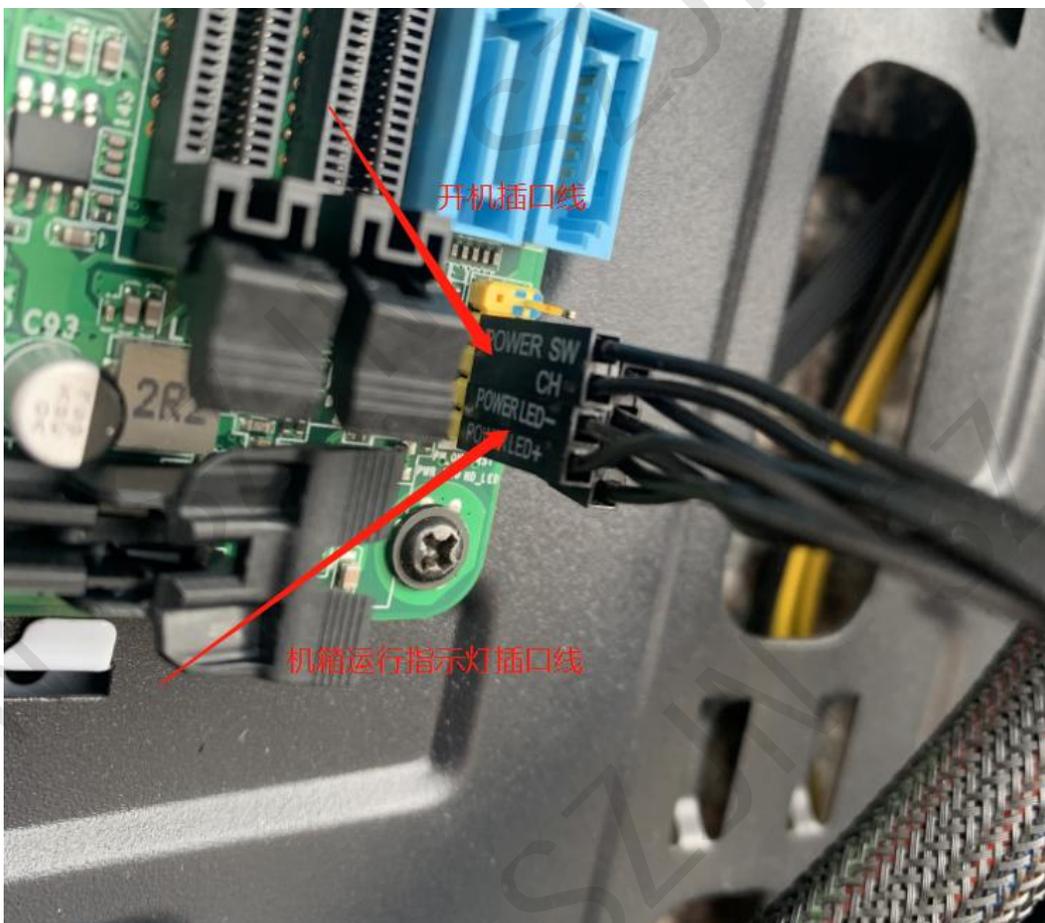
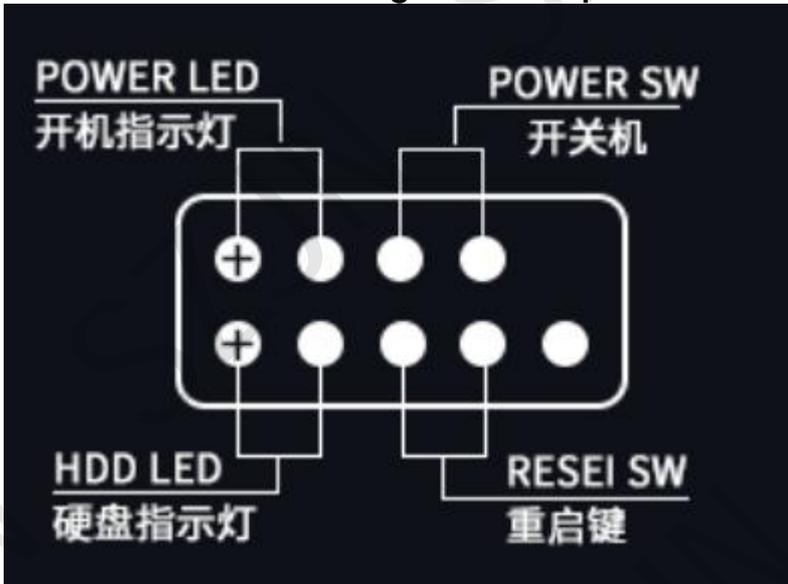
主板提供 1 个 1*2Pin Case open 插针 (脚距: 2.54mm), 管脚定义如下:

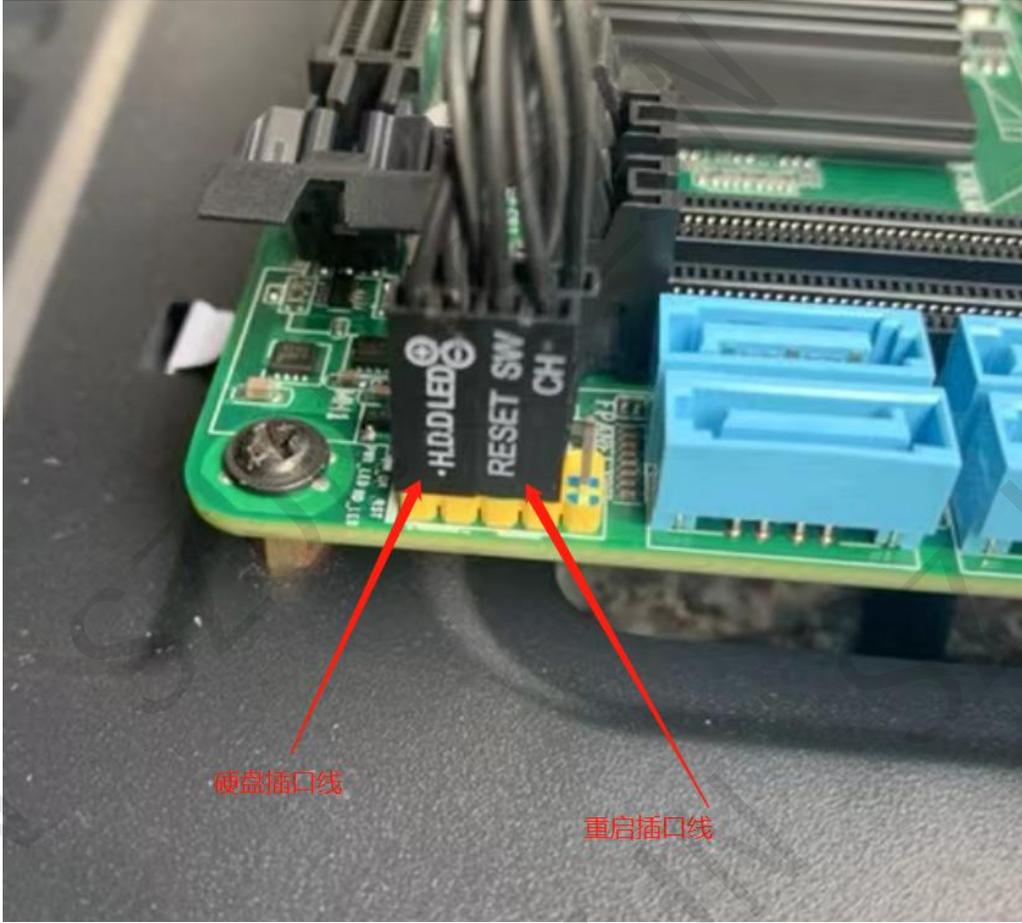


pin	definition
1-2 (disconnected)	GND
2-3 (short circuit)	Case open

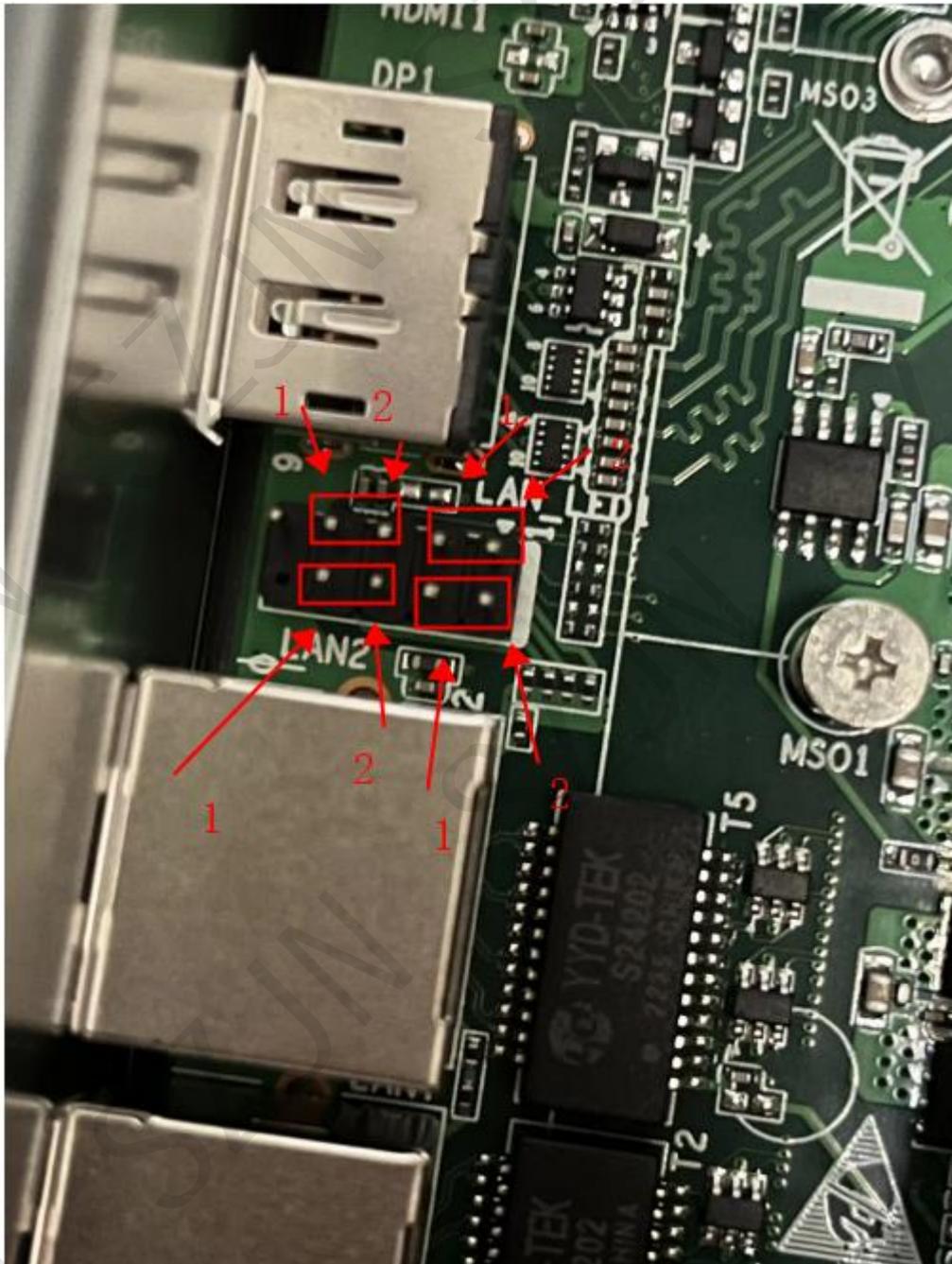
Precautions for motherboard installation!!!

1. The insertion method of the power on socket cable can be connected according to the picture insertion method



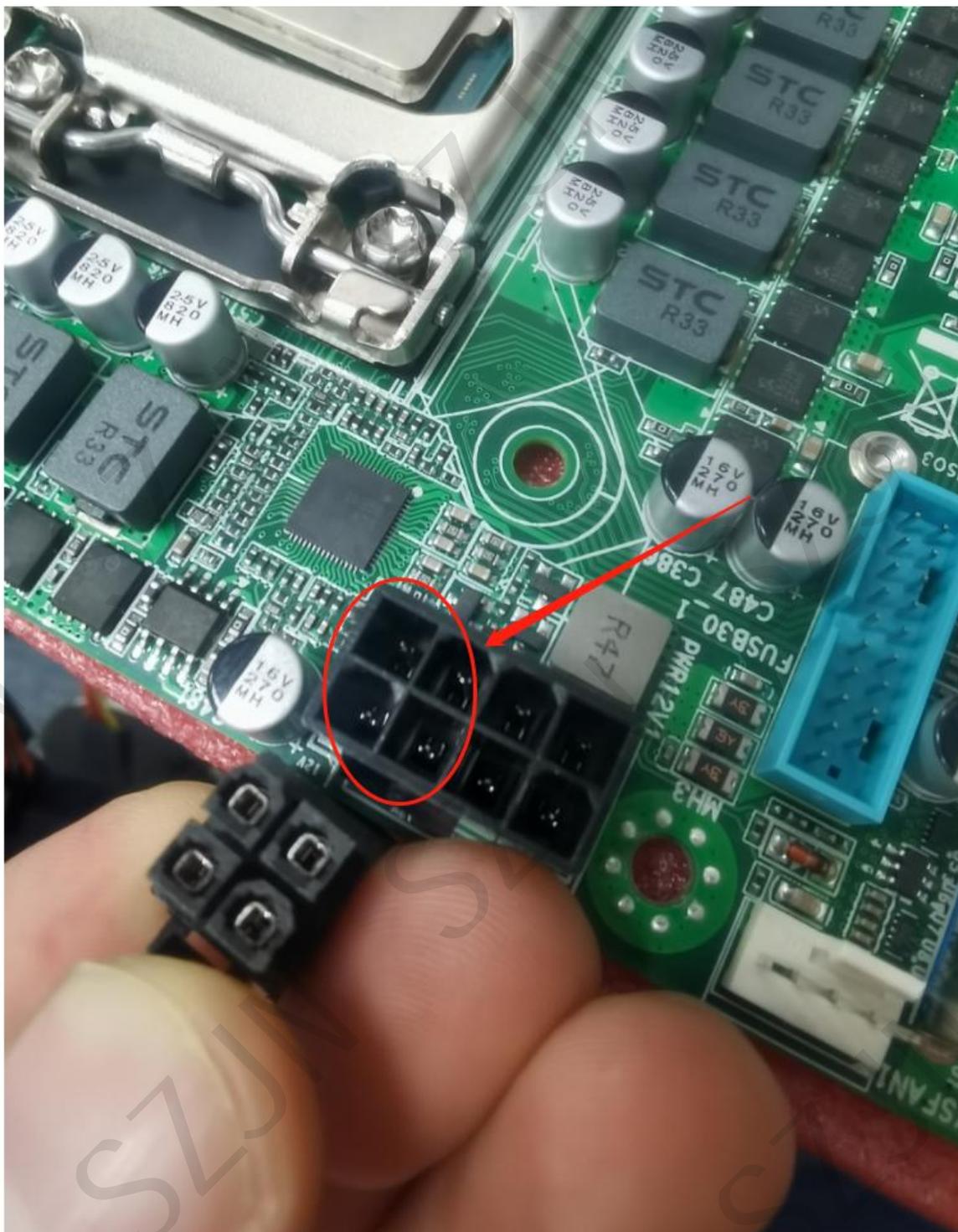


2. The connection method for the network card indicator lights is to connect them side by side on the 1-2 sockets, with LAN_1 plugged in one row above LAN_1 and LAN 2 plugged in the second row.



3.Regarding the sorting of memory insertion: As the motherboard has a built-in self-test program, the memory must be inserted into the main channel memory before passing the self-test program. The priority order is 8 6 2 1 3 4

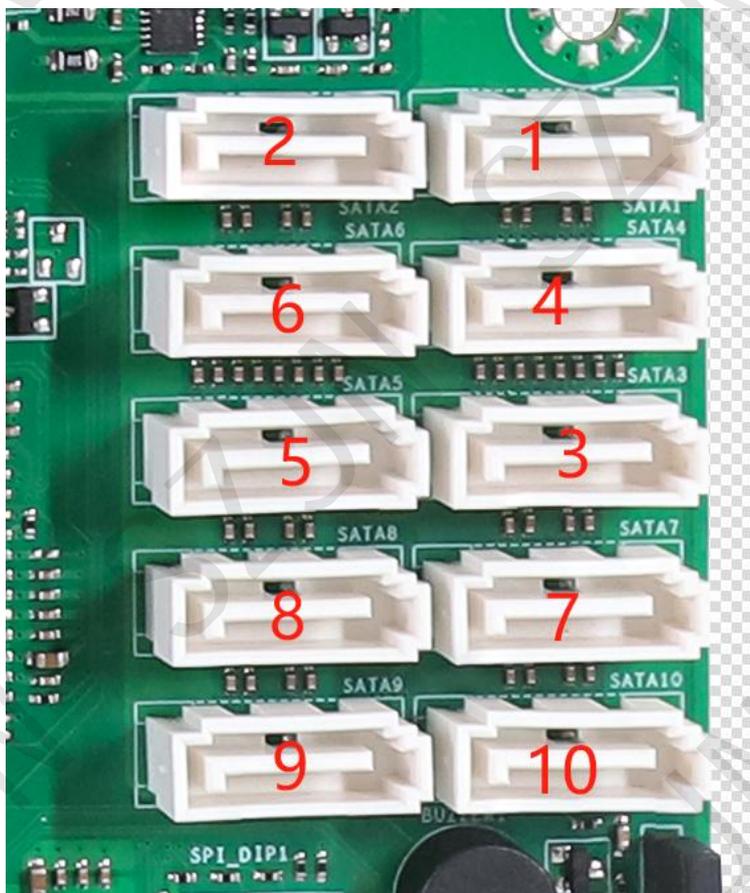
4.Regarding the 4pin CPU power plug method, the 4pin CPU is powered with the snap direction as the positive direction. Insert the 4pin on the left side and remember to install the snap in this direction as shown in the figure:



Regarding the 8-pin insertion method, simply insert the CPU 4+4 8-pin power cord in the direction of the buckle. The 8-pin power cord is shown in the figure:

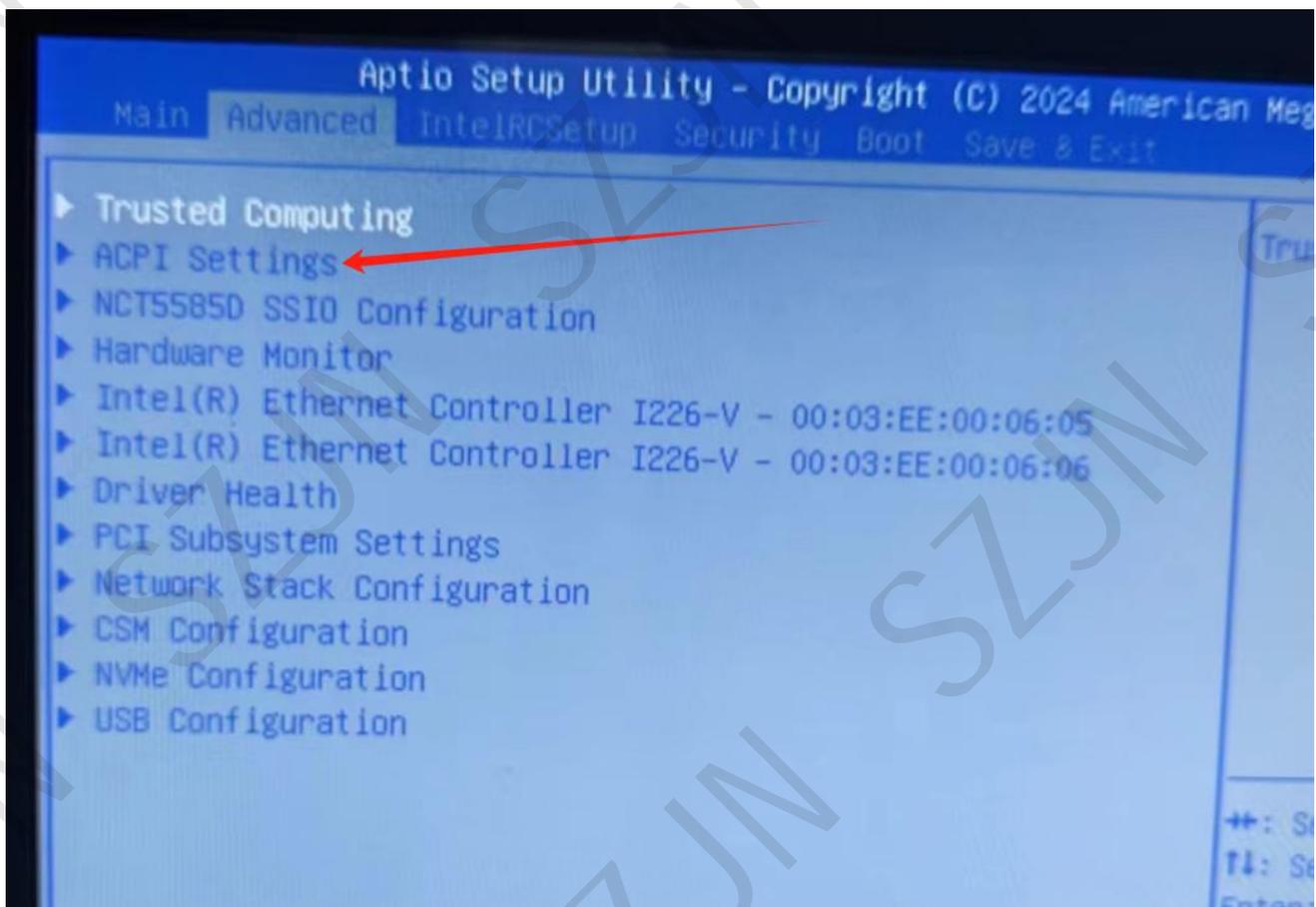


5. SATA interface sorting:



Common settings for motherboard BIOS

1. When the motherboard enters BIOS and needs to be powered on, press the delete or esc key continuously
2. To start the USB drive, continuously press the f11 key
3. Press F9 to restore default settings for Bios
4. Press F10 to save Bios settings
5. Bios network wake-up enable settings: Go to Advanced, select ACPI Settings, then select Lock Legacy Resources and select Enabled to enable (remember to press F10 to save the settings).



Advanced

ACPI Settings

Enable ACPI Auto Configuration [Disabled]

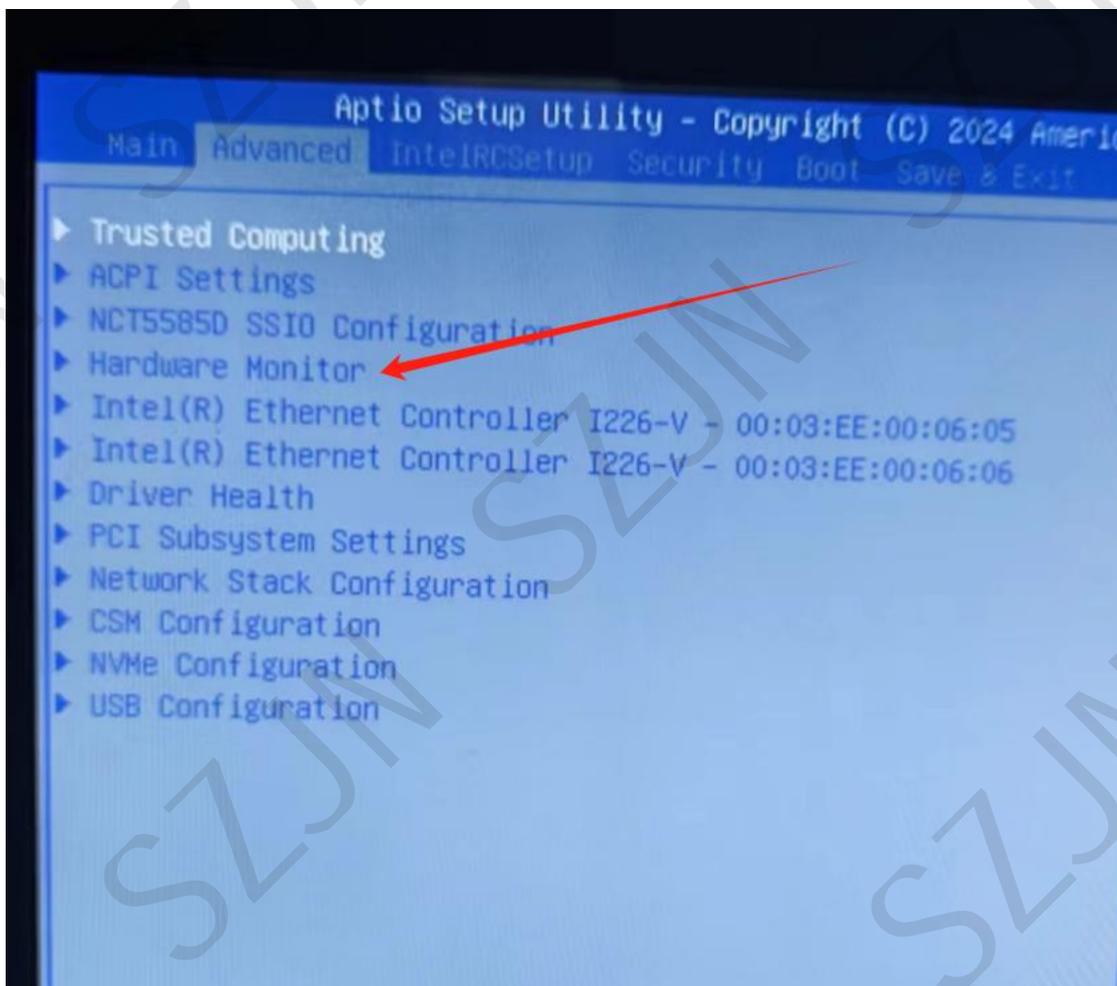
Enable Hibernation [Enabled]

ACPI Sleep State [Suspend Disabled]

Lock Legacy Resources [Disabled]



6. Fan speed control settings: Go to Advanced, select Hardware Monitor, and choose CPU Smart Fan control (which sets the CPU fan speed). If you need to adjust the chassis fan, select SYS Smart Fan Control (there are several chassis fan options that need to be adjusted and need to be set). All of these speed control options should be selected from the PWM Manual Mode option, and then enter the value of the speed you need to adjust. The default speed value is 128, the highest is 255, and the lowest is 0. Adjust the numerical speed according to the usage situation (remember to press F10 to save the settings).



Advanced

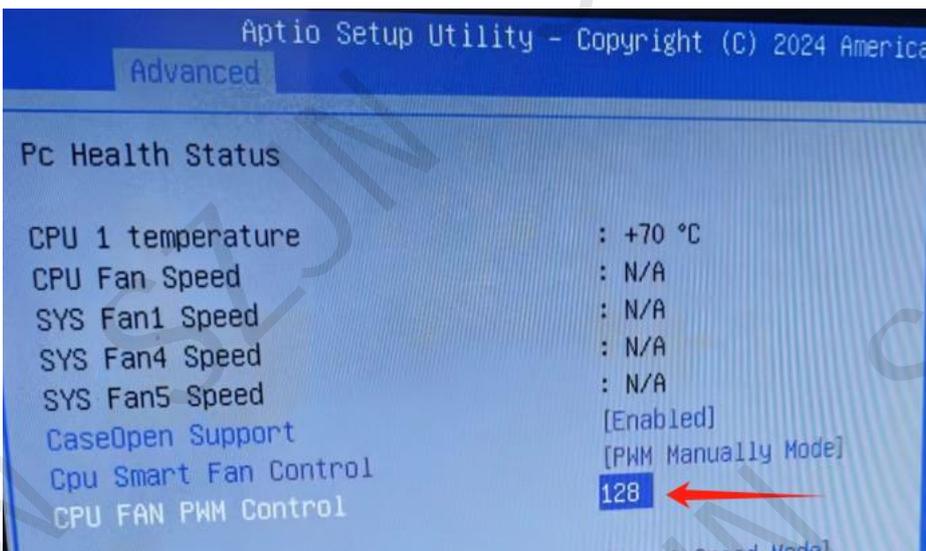
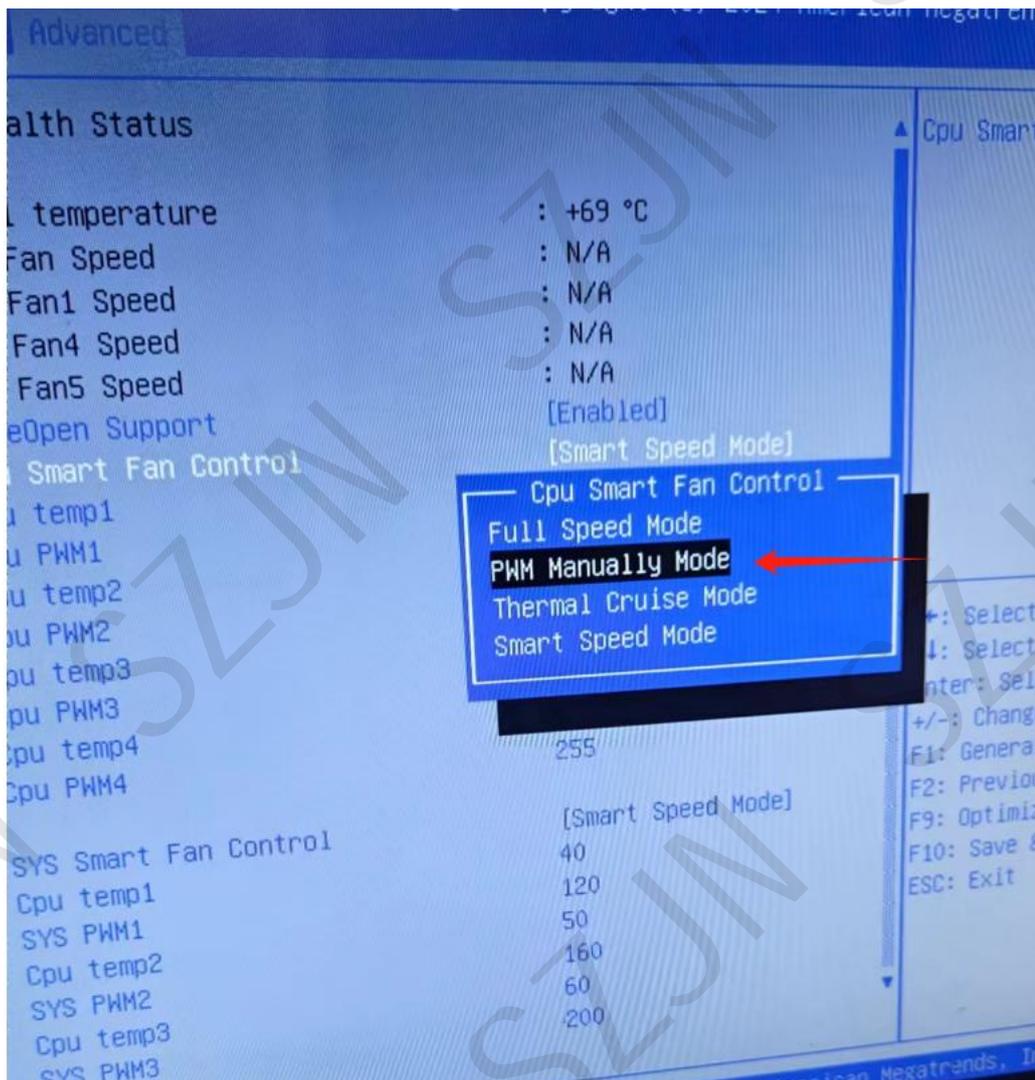
Pc Health Status

CPU 1 temperature	: +69 °C
CPU Fan Speed	: N/A
SYS Fan1 Speed	: N/A
SYS Fan4 Speed	: N/A
SYS Fan5 Speed	: N/A
CaseOpen Support	[Enabled]
Cpu Smart Fan Control	[Smart Speed Mode]
Cpu temp1	40
Cpu PWM1	120
Cpu temp2	50
Cpu PWM2	160
Cpu temp3	60
Cpu PWM3	200
Cpu temp4	70
Cpu PWM4	255
	[Smart Speed Mode]
SYS Smart Fan Control	40
Cpu temp1	120
SYS PWM1	50
Cpu temp2	160
SYS PWM2	60
Cpu temp3	200

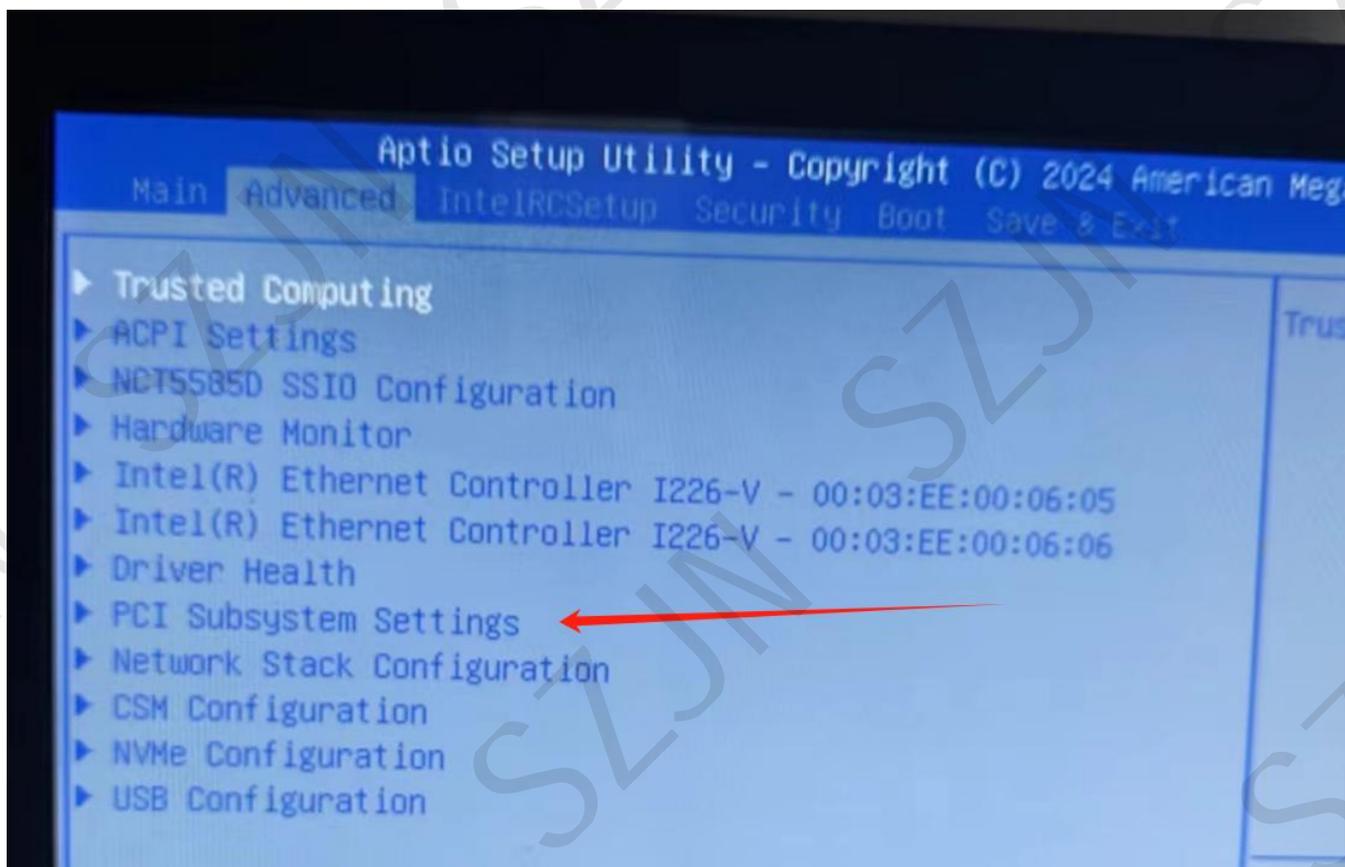
Cpu Smart Fan Mode Select

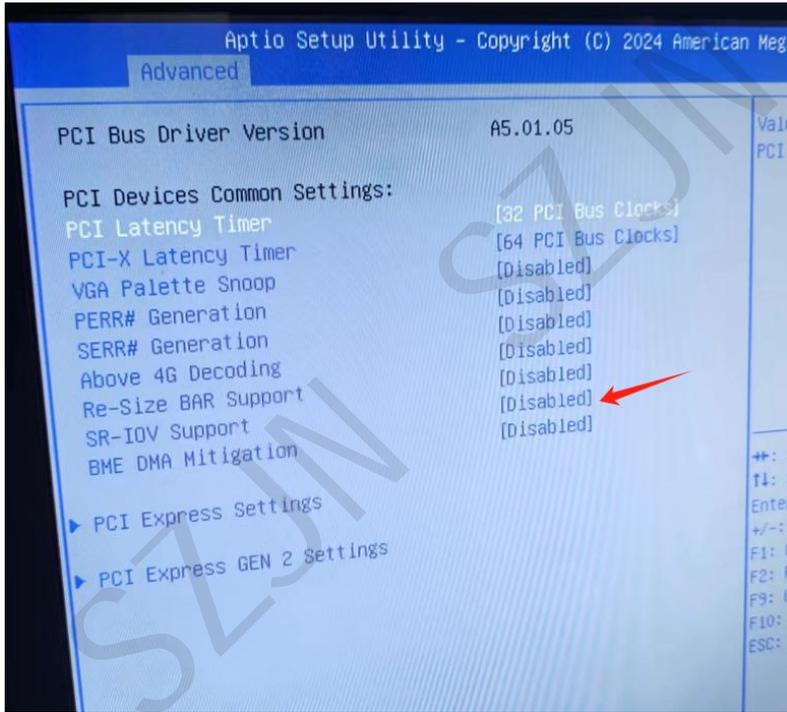
- ++: Select Screen
- ↑↓: Select Item
- Enter: Select
- +/-: Change Opt.
- F1: General Help
- F2: Previous Values
- F9: Optimized Defaults
- F10: Save & Exit
- ESC: Exit



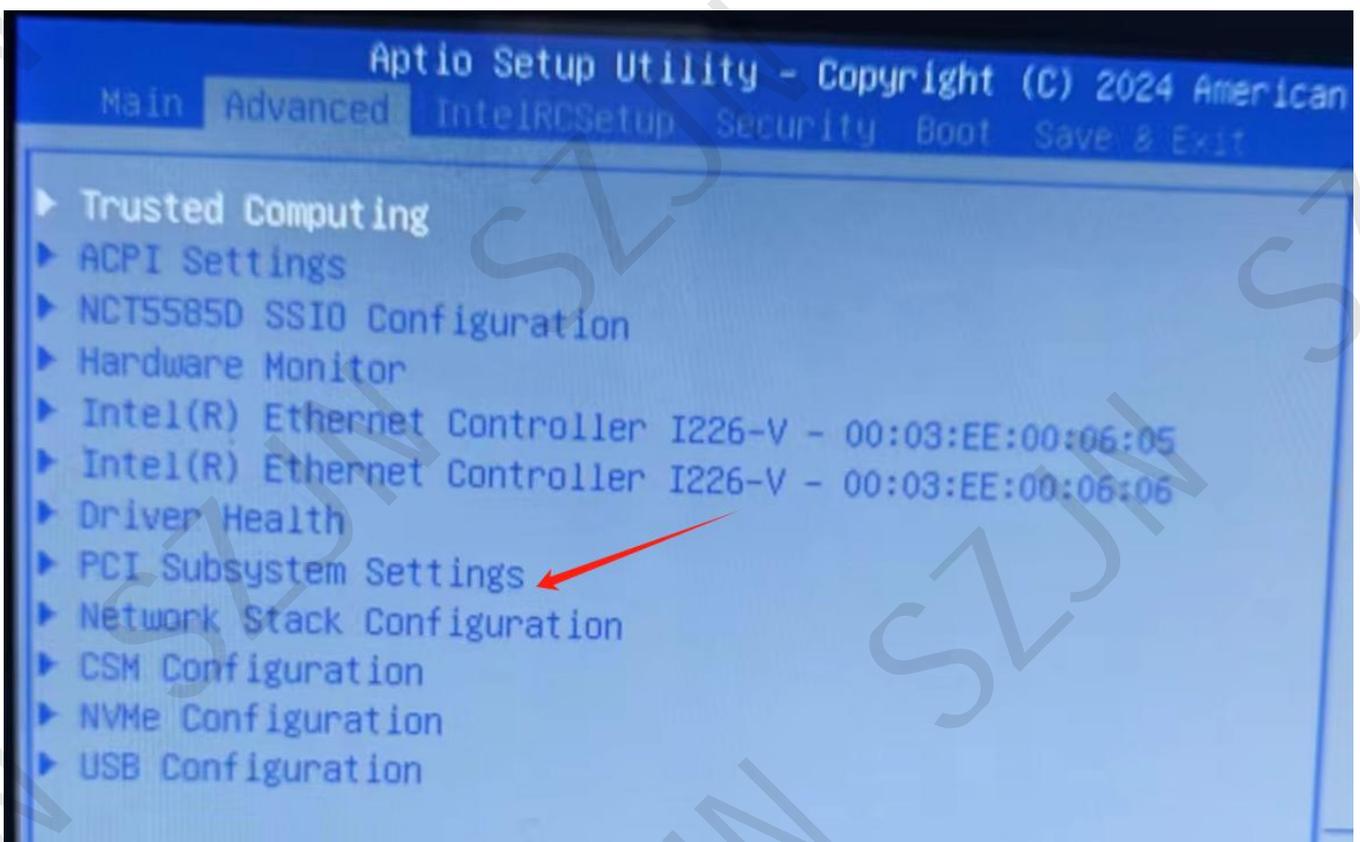


7. Enable SRV Support virtualization settings on the motherboard: Go to Advanced, select PCI Subsystem Settings, select SRV Supper, select Enadled to turn it on (remember to press F10 to save the settings)





8. Enable the Intel discrete graphics card settings on the motherboard (before enabling the settings, the Intel graphics card needs to be plugged into the PCIe 16 slot on the motherboard, and then connected to the VGA interface to enable the settings). Go to Advanced and select PCI Subsystem Settings , first select Above 4G Decoding and select Enabled to turn on, then open Re size BAR Support and select Enabled to turn on. After these two settings are turned on, go back to Advanced and select CSM Configuration, then select CSM Support and select Disabled to turn off (remember to press F10 to save the settings). You can directly use the Intel discrete graphics card.



Advanced

PCI Bus Driver Version

A5.01.05

Value
PCI

PCI Devices Common Settings:

PCI Latency Timer

[32 PCI Bus Clocks]

PCI-X Latency Timer

[64 PCI Bus Clocks]

VGA Palette Snoop

[Disabled]

PERR# Generation

[Disabled]

SERR# Generation

[Disabled]

Above 4G Decoding

[Disabled]

Re-Size BAR Support

[Disabled]

SR-IOV Support

[Disabled]

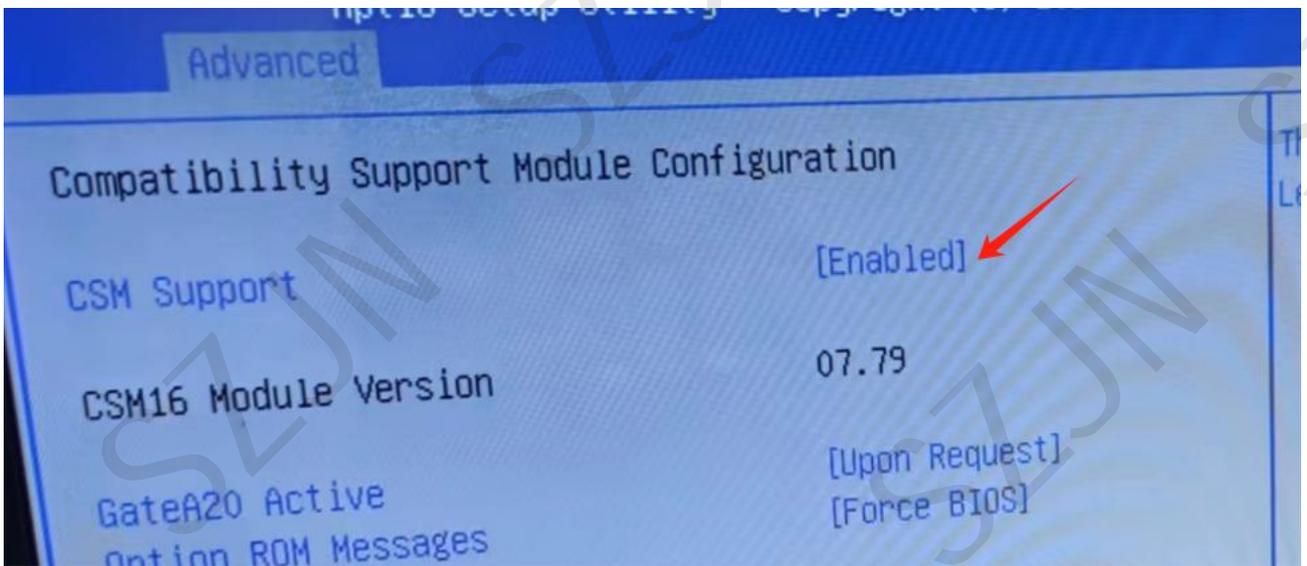
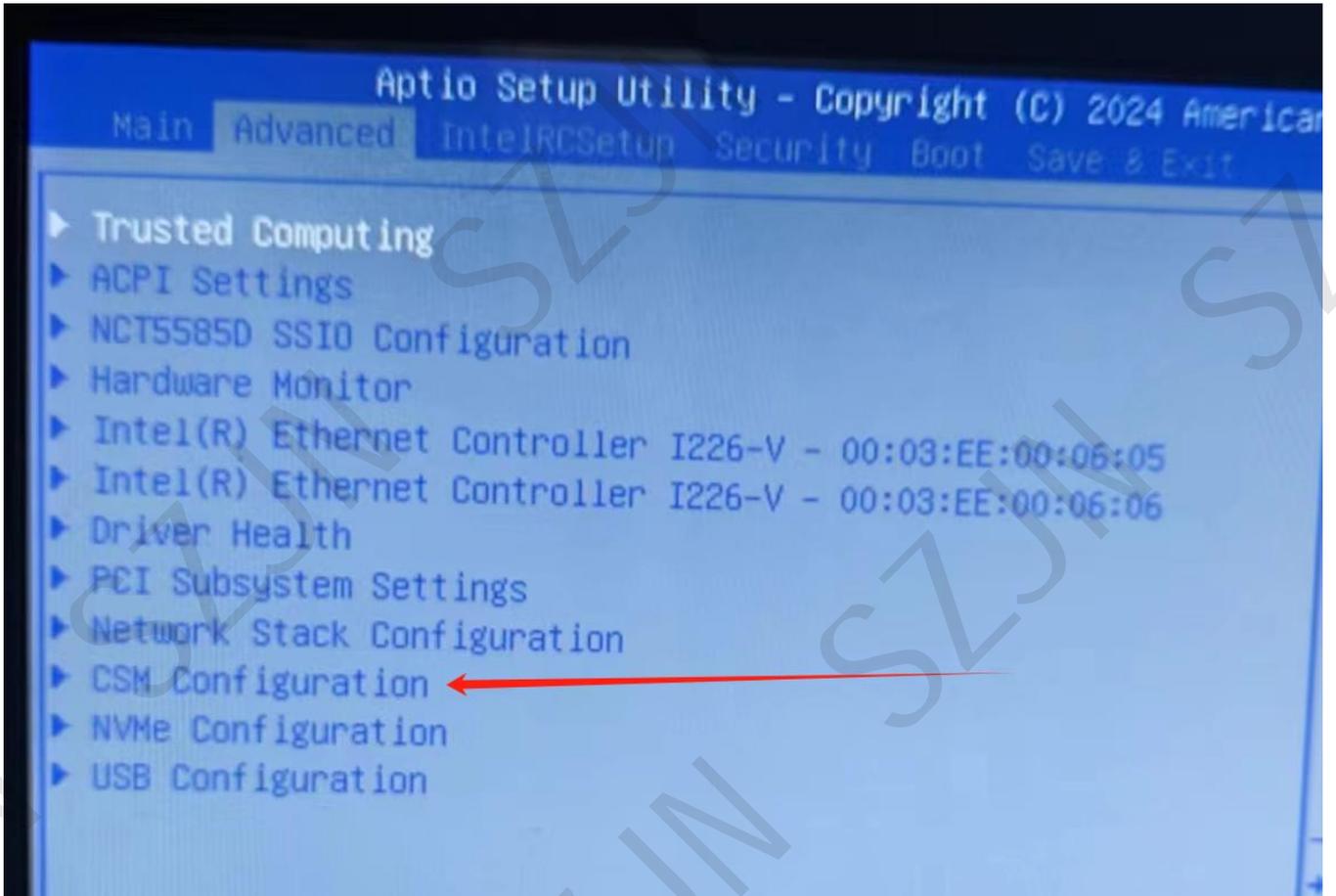
BME DMA Mitigation

[Disabled]

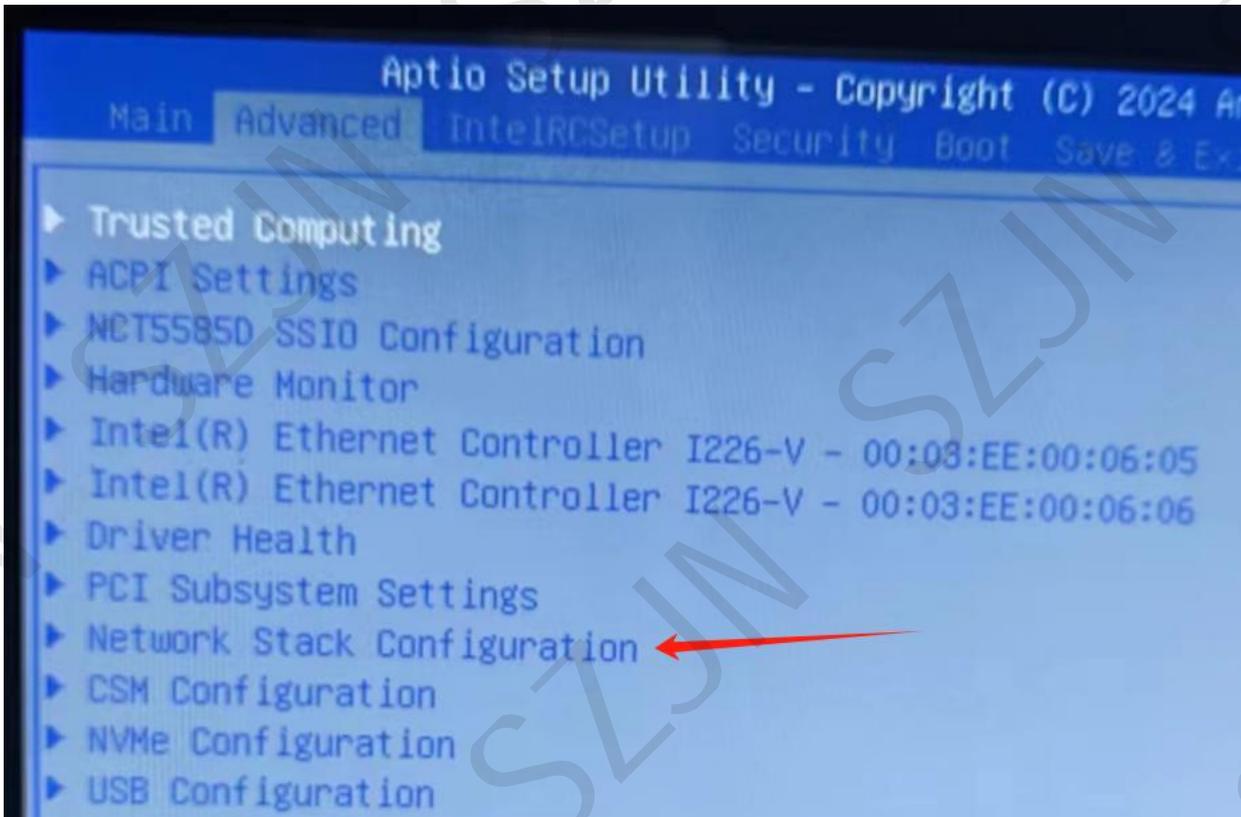
▶ PCI Express Settings

▶ PCI Express GEN 2 Settings

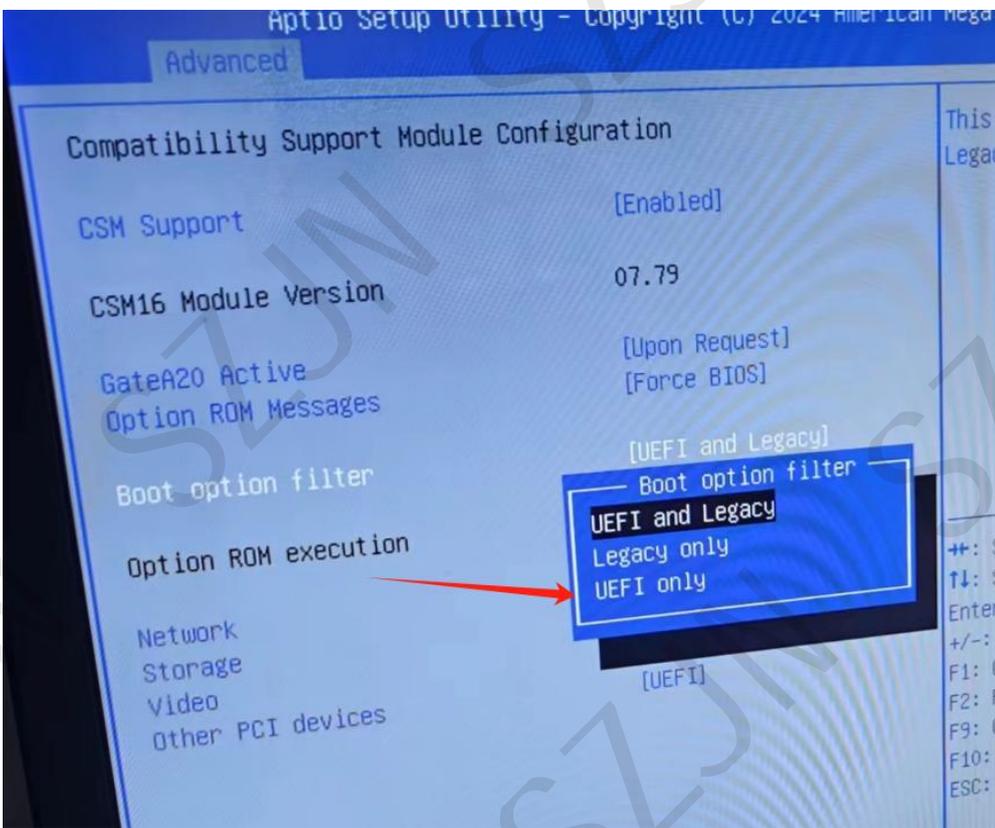
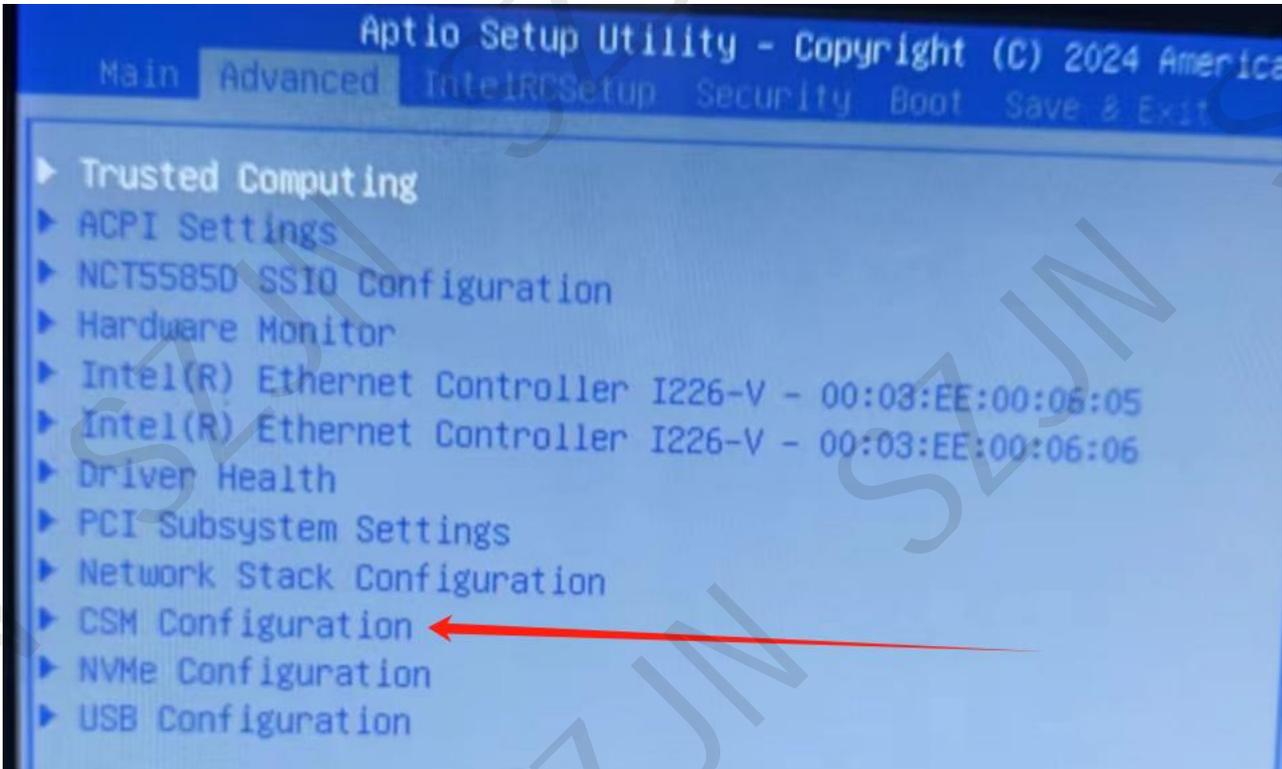
++: S
↑↓: S
Enter
+/-:
F1: G
F2: P
F9: 0
F10:



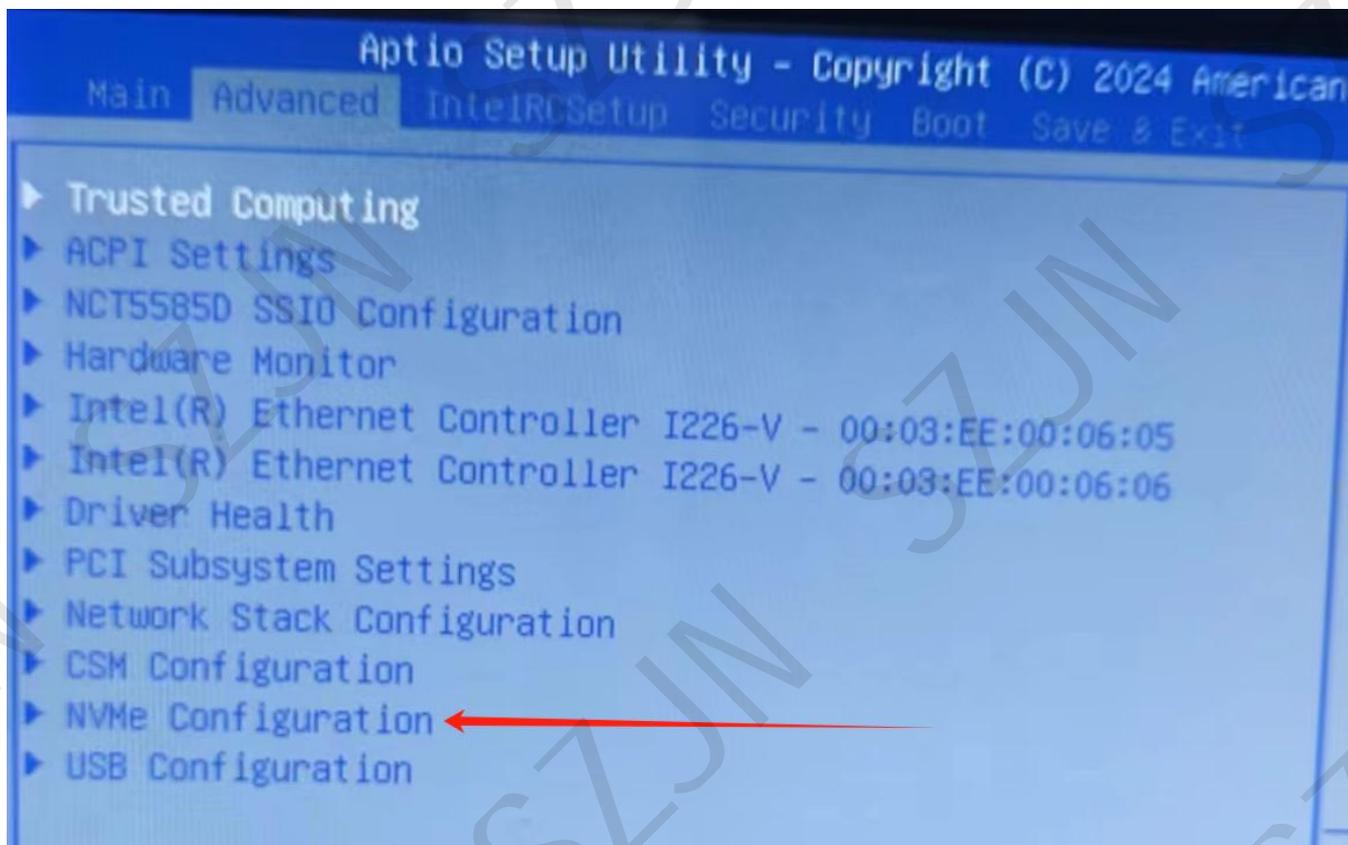
9. Enable IPV4 and IPV6 settings: Go to Advanced, select Network Stack Configuration, select Network Stack, select Enabled to enable, then select Ipv4 PXE Support and Ipv6 PXE Support, select Enabled to enable (remember to press F10 to save the settings).



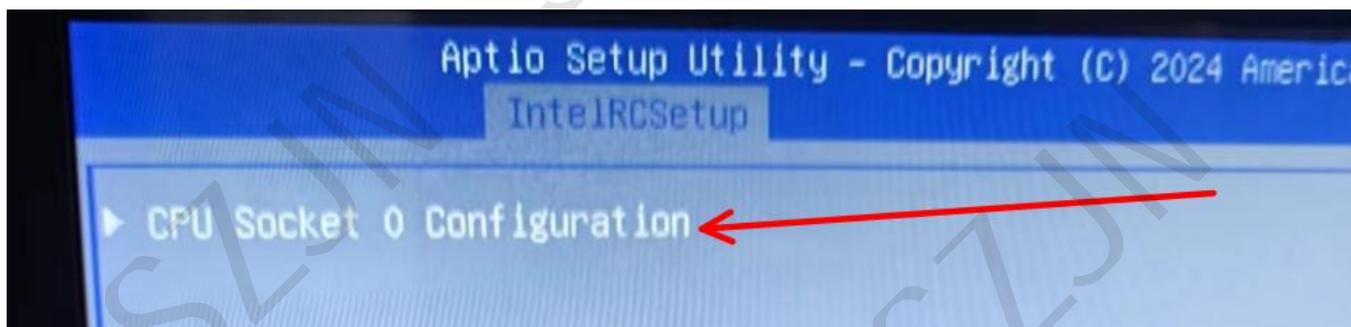
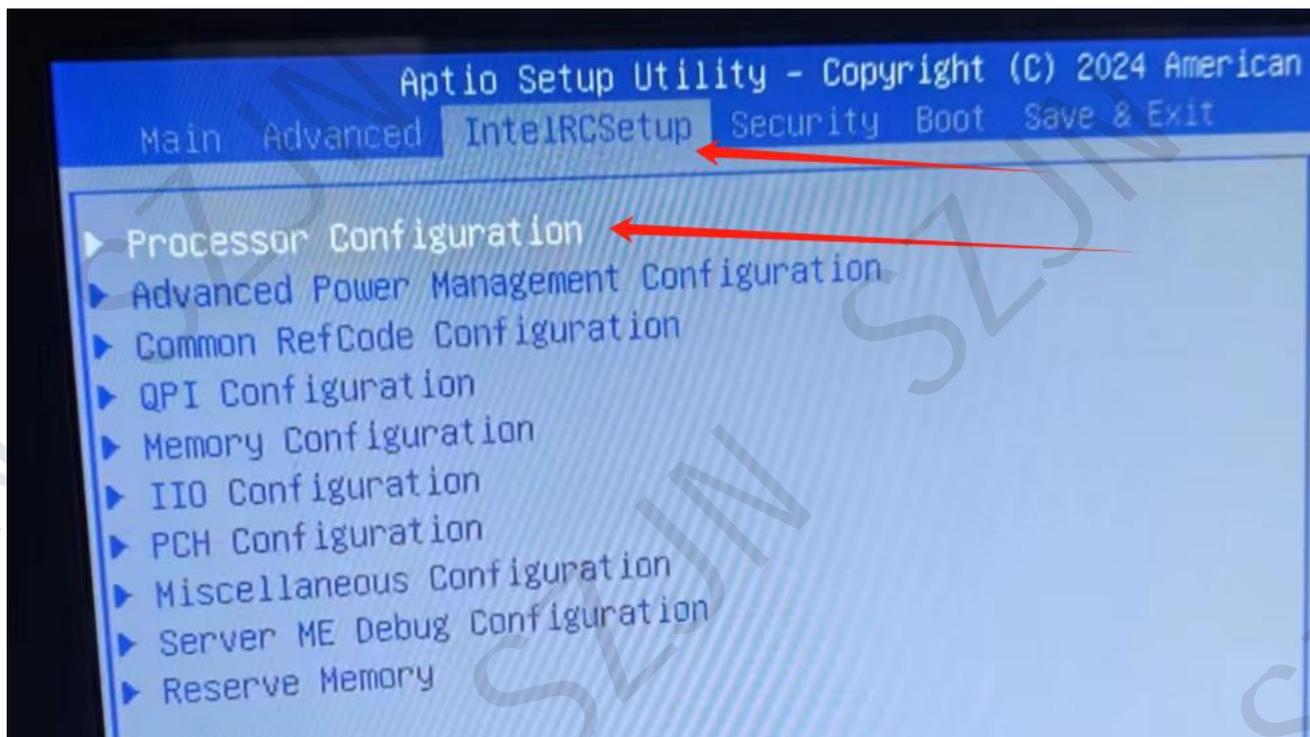
10. Set UEFI boot mode, enter Advanced, select CMS Configuration, and select UEFI only (remember to press F10 to save the settings).

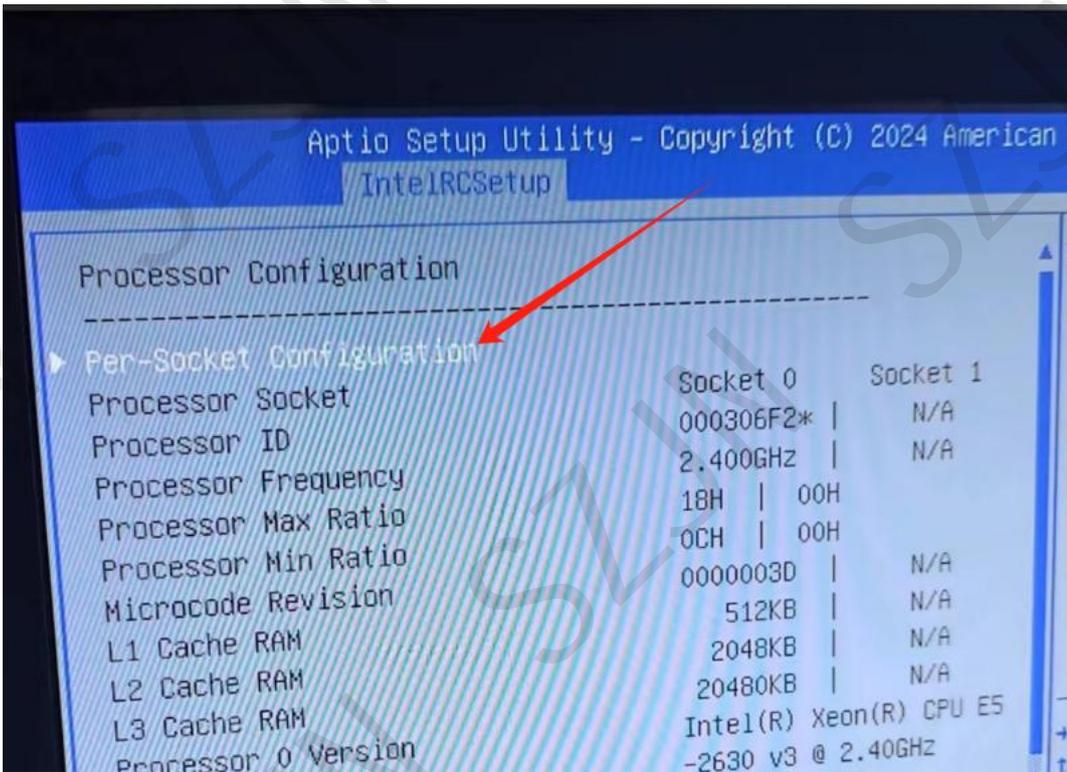
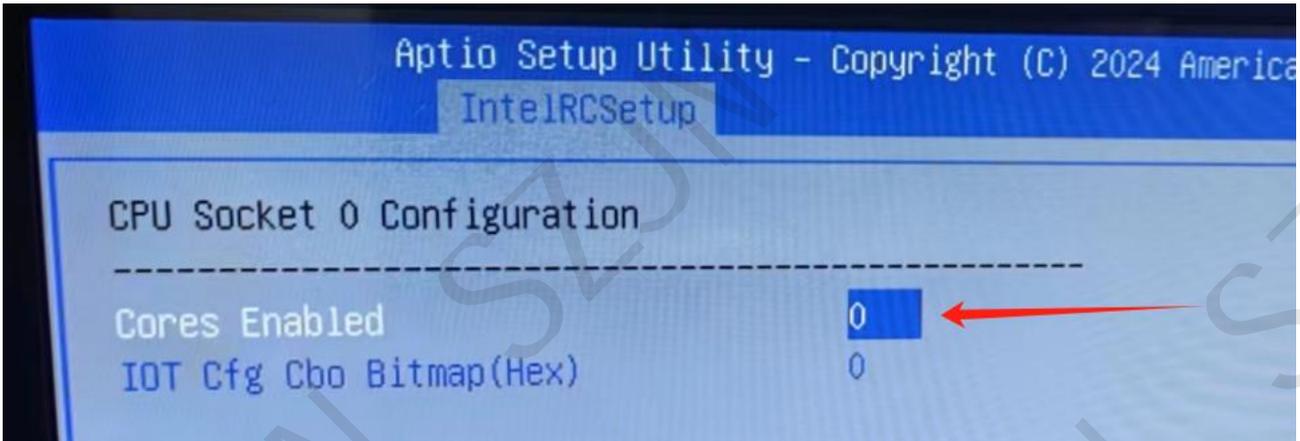


11. Check the solid-state status of the installed M2 NVMe, enter Advanced and select NVMe Configuration to see the status of the M2 hard drive

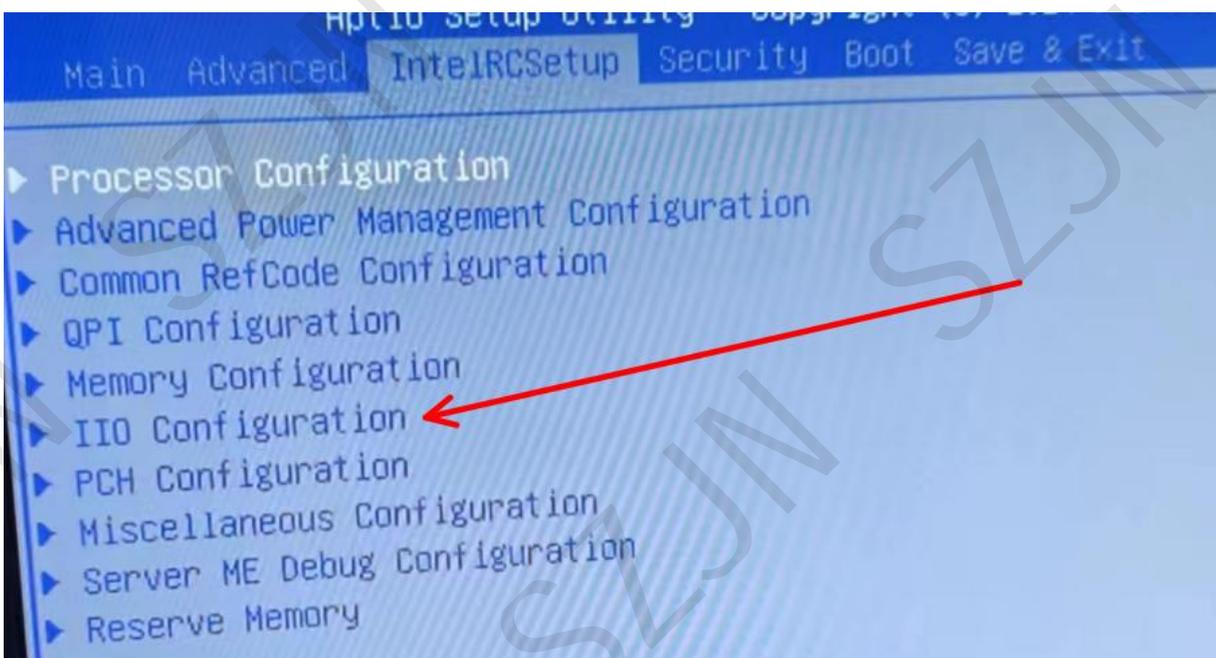


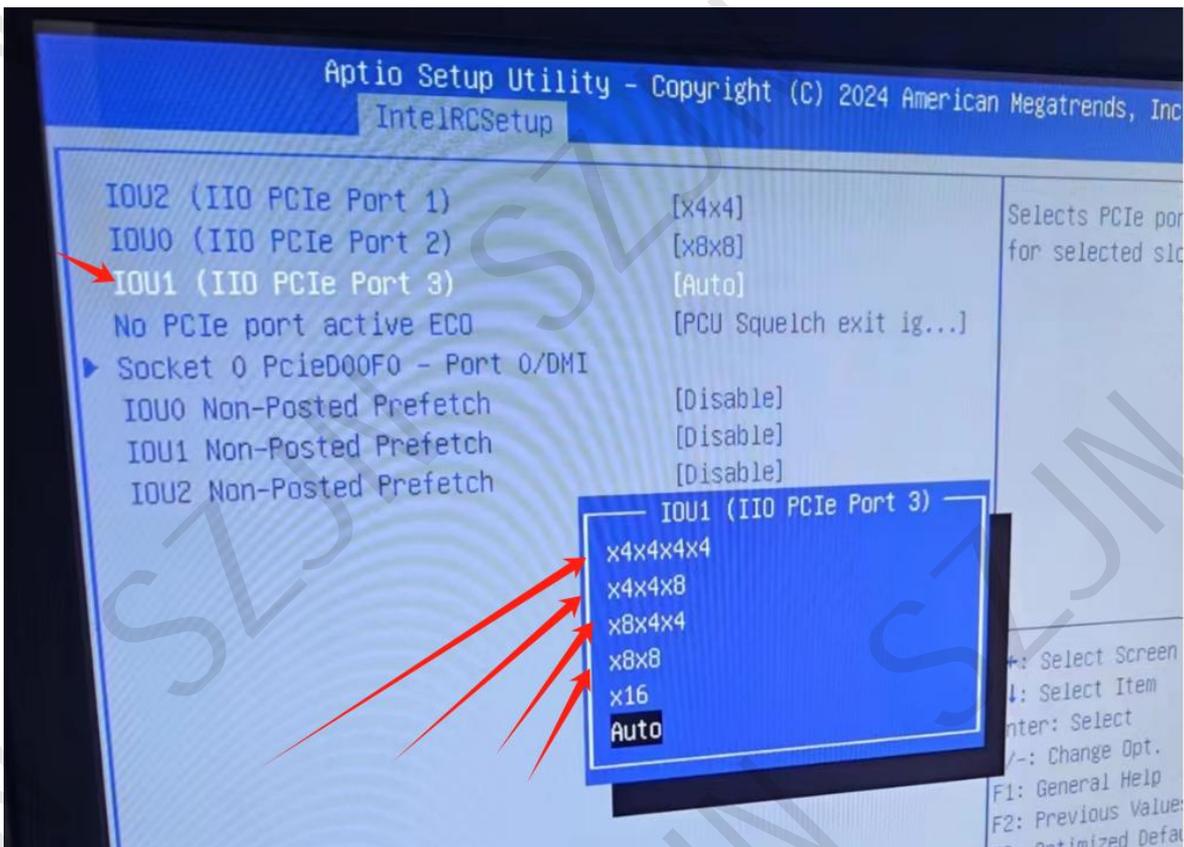
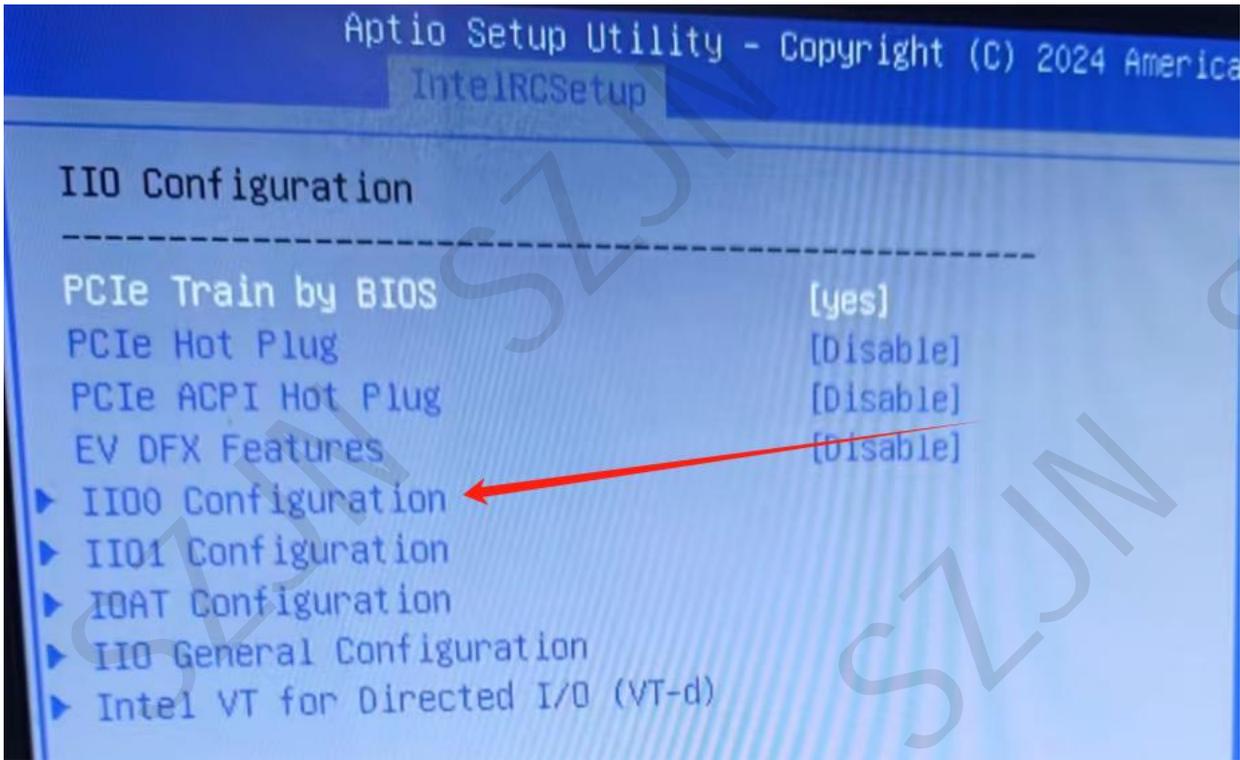
12. Set the number of cores to run on the CPU. Go to IntelRCSentup, select Processor Configuration, Select Per Socket Configuraton, select CPU Socket 0 Configuration, and select Cores Enabled to set the required number of cores to run . 0 represents all cores running (remember to press f10 to save the settings).





13. PCIe slot splitting settings, enter IntelRCSentup, select IIO Configuring, select IIO0 Configuring, select IOU1 (IIO PCIe Port3) (this is the first PCIe X16 slot channel that is X16), you can set 4 modes X8X8, X8X4X4, X4X4X8, X4X4X4 (splitting function needs to be selected according to your own expansion accessories), select IOU0 (IIO PCIe Port2) (this is to set the second PCIe x16 slot channel X8 and the third PCIe x8 slot channel X8), the second and third PCIe slots can only set one mode X4X4X4 splitting. The function needs to be split according to your own expansion accessories. If x4x4x4 is set for the second and third slots, each slot will default to splitting 2 x4 channel signals (remember to press F10 to save the settings).





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IntelRCSetup

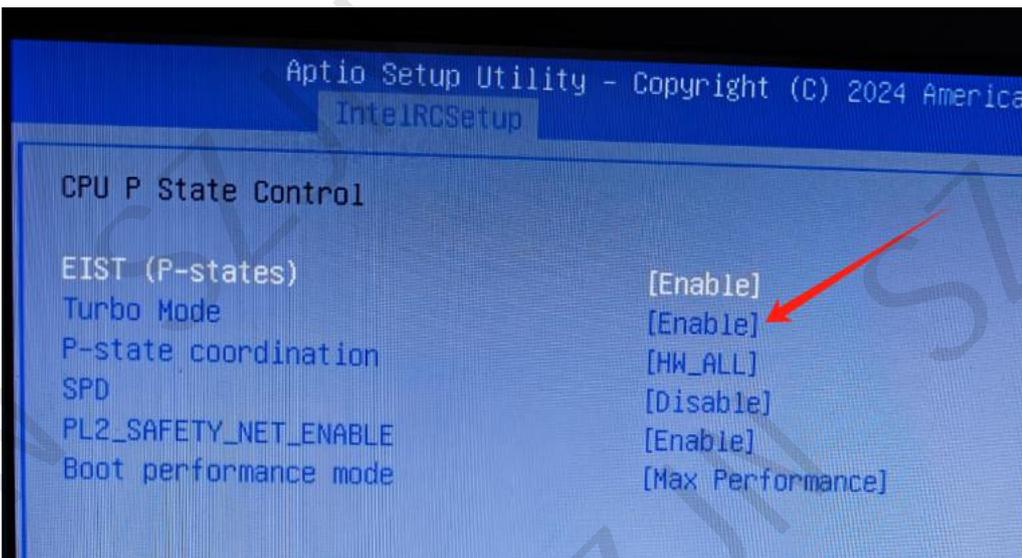
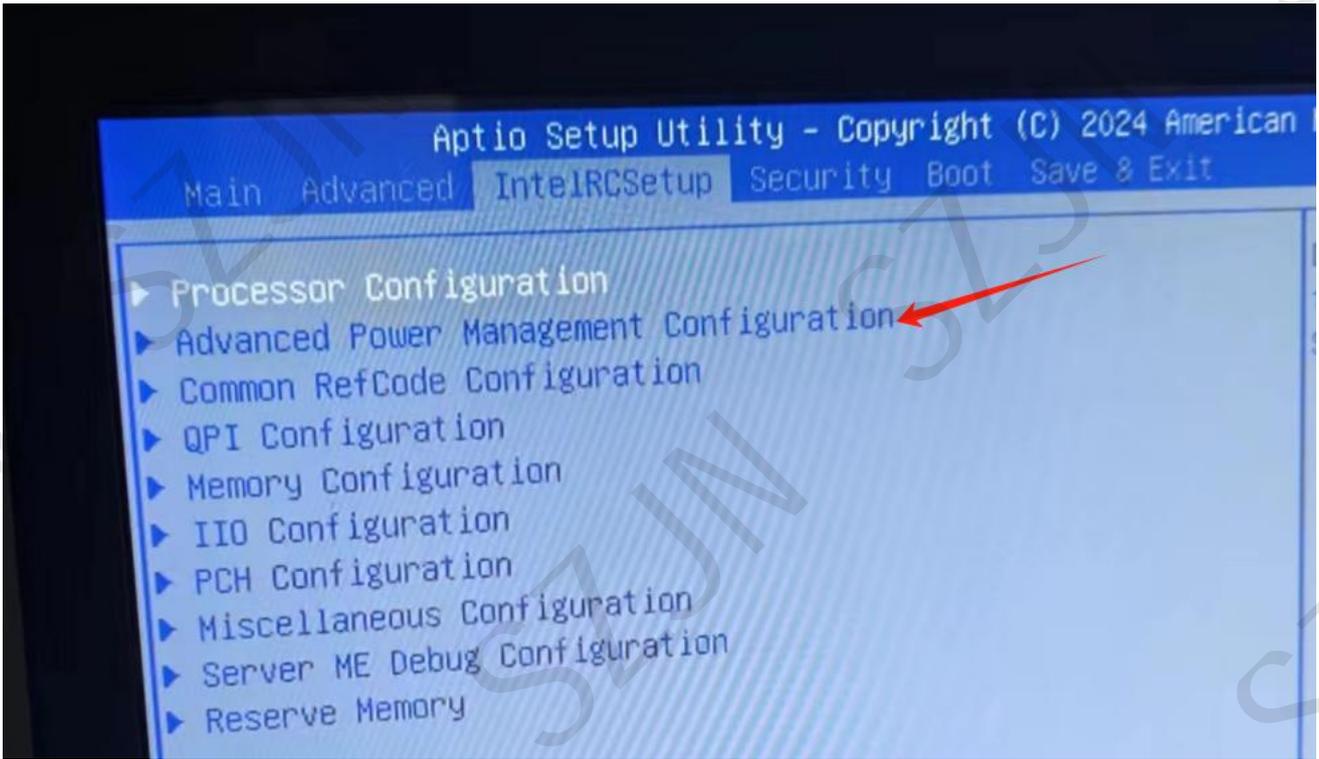
IOU2 (IIO PCIe Port 1)	[x4x4]	Selects PCIe port
IOU0 (IIO PCIe Port 2)	[x8x8]	for selected slot
IOU1 (IIO PCIe Port 3)	[Auto]	
No PCIe port active ECO	[PCU Squelch exit ig...]	
▶ Socket 0 PcieD00F0 - Port 0/DMI	[Disable]	
IOU0 Non-Posted Prefetch	[Disable]	
IOU1 Non-Posted Prefetch	[Disable]	
IOU2 Non-Posted Prefetch	[Disable]	

IOU0 (IIO PCIe Port 2)

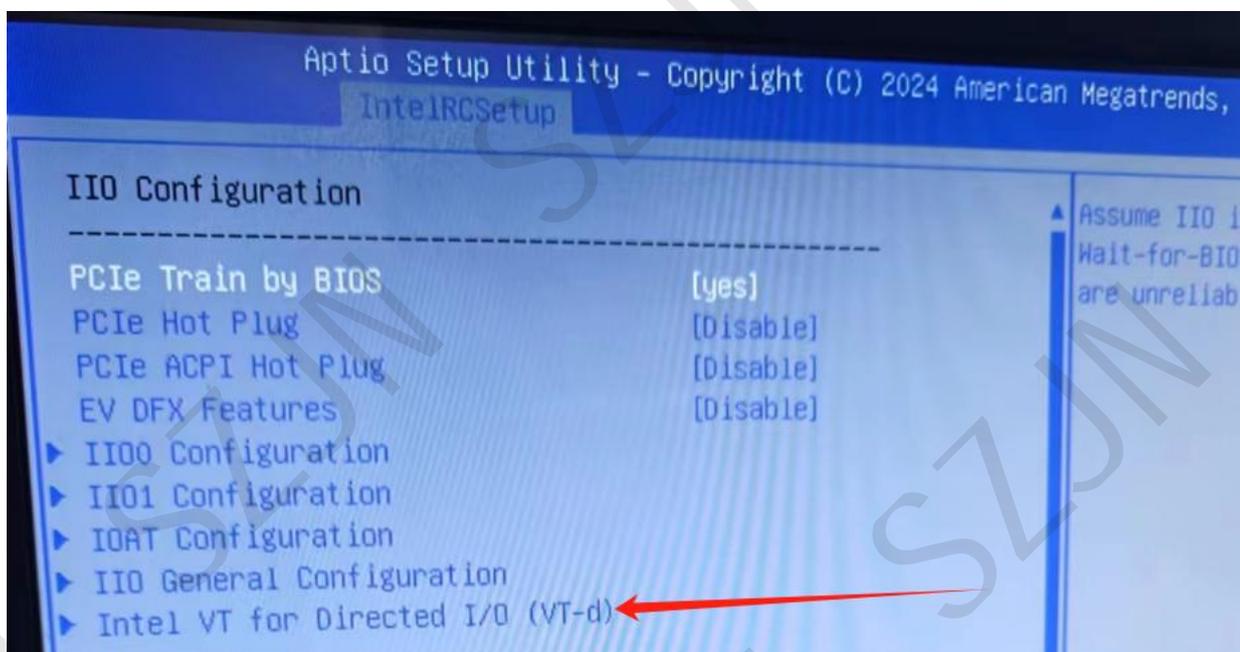
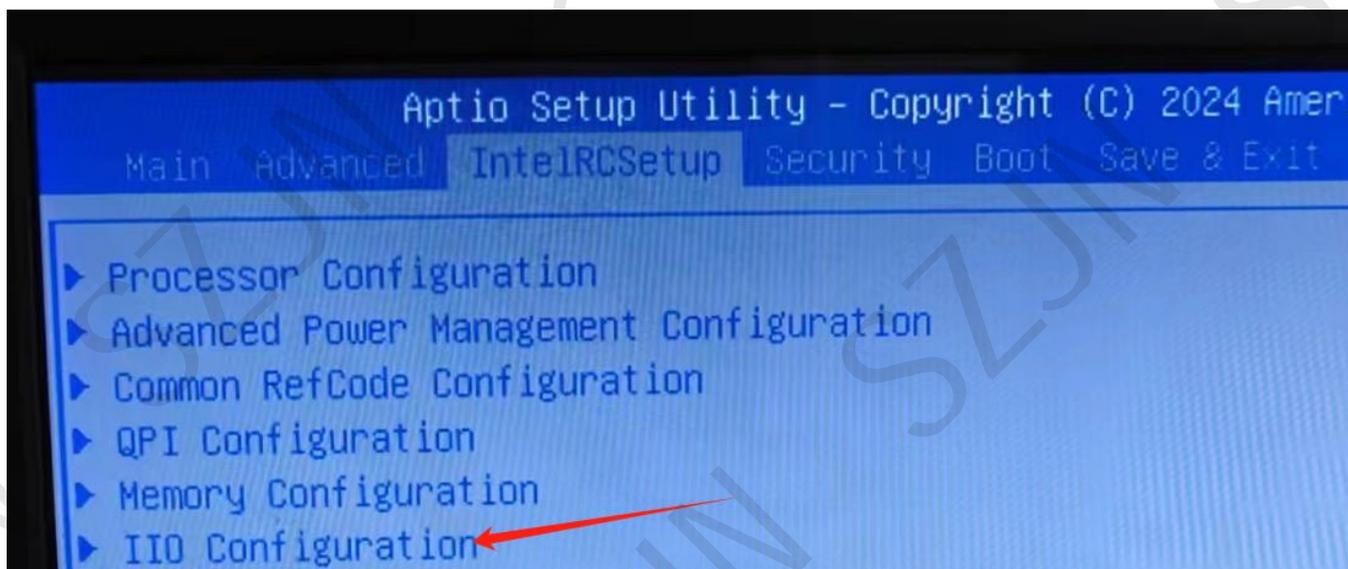
- x4x4x4x4
- x4x4x8
- x8x4x4
- x8x8**
- x16
- Auto

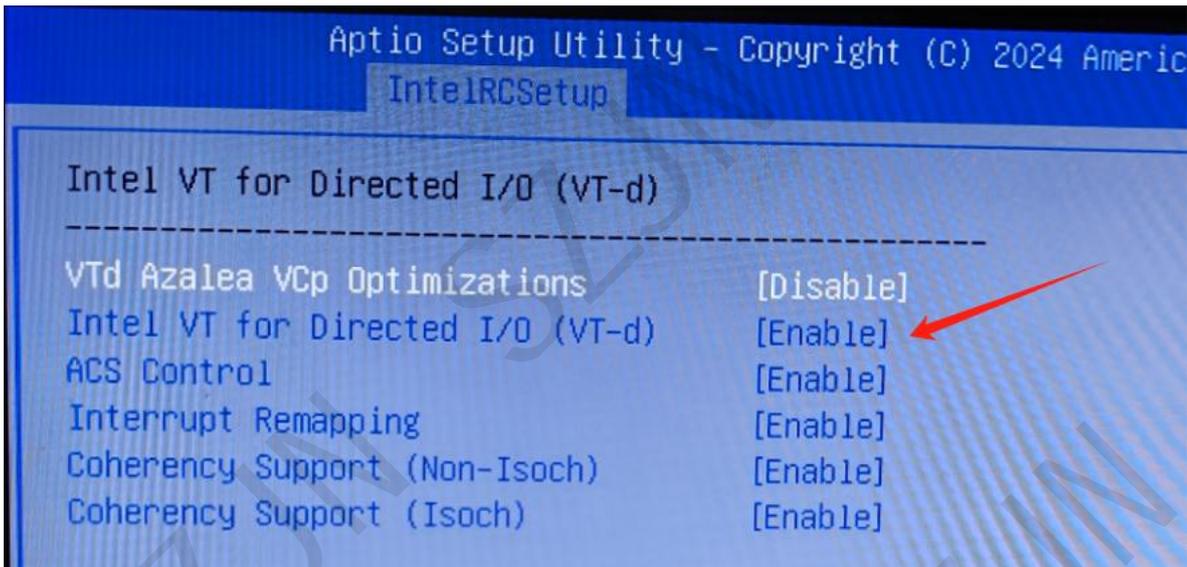
+ : Select Screen
↓ : Select Item
Enter : Select
/ - : Change Opt.
F1 : General Help
F2 : Previous Values
F9 : Optimized Defau

14. CPU Turbo Frequency Function Enable and Disable Settings: Enter IntelRCSentup, select Advanced Power Managmnt Conf igation, select CPU P State Control, select Turbo Mode (Enable is enabled, Disable is disabled), and use this function according to your needs (remember to press F10 to save after setting).

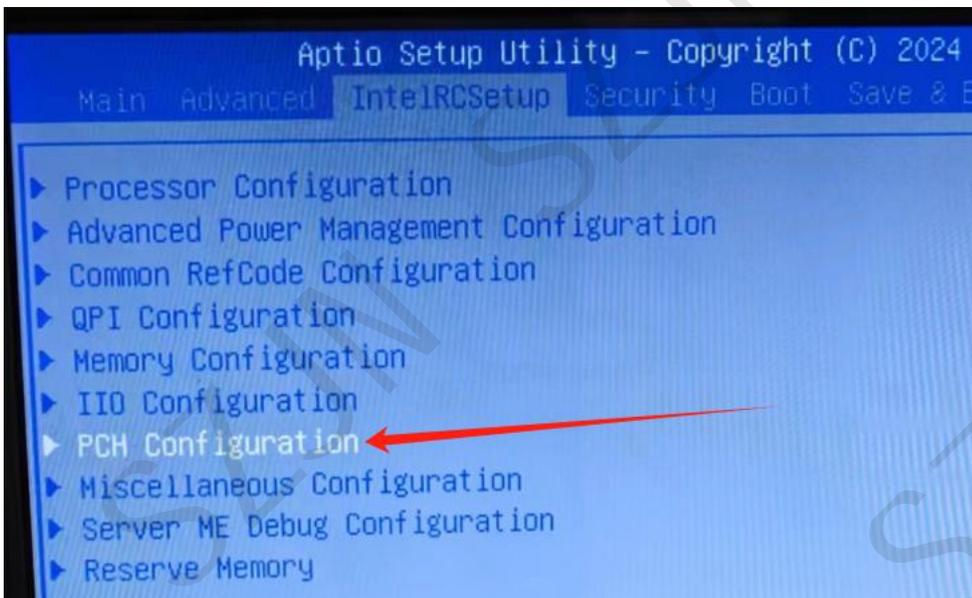


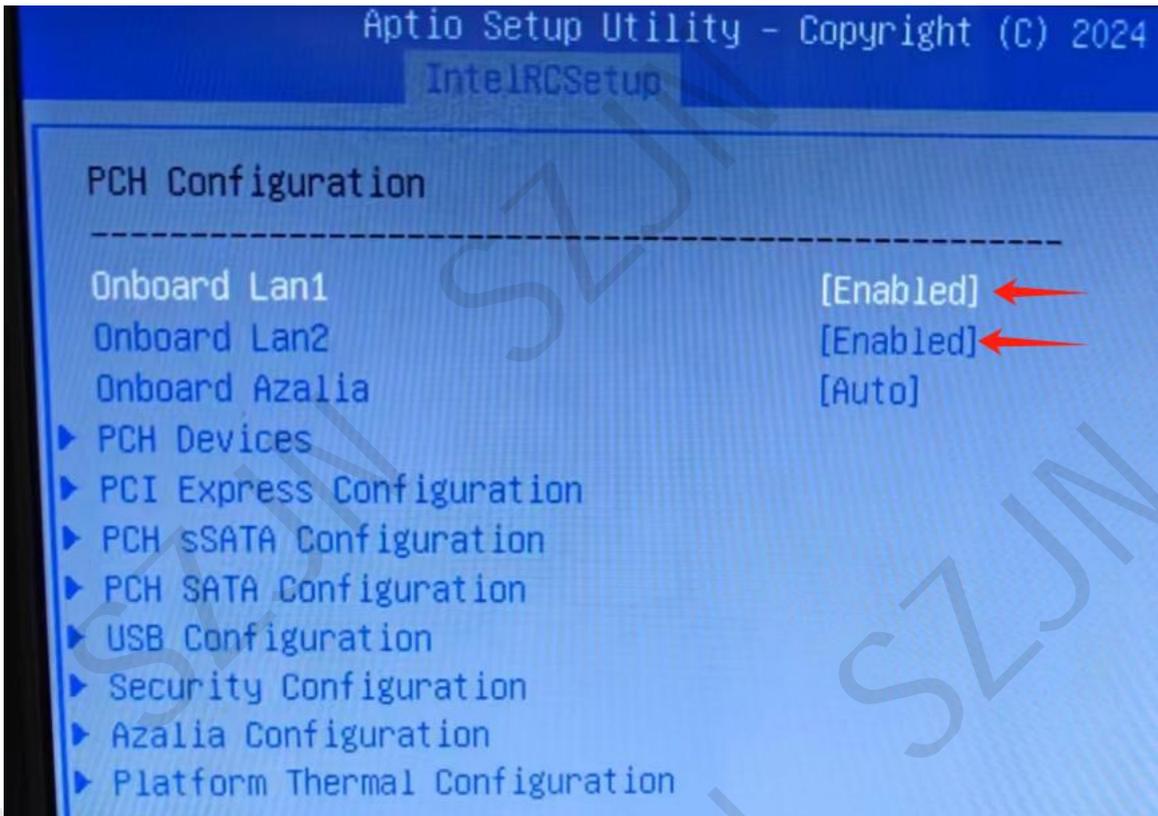
15. Enable virtualization VT-D settings: Go to IntelRCSetup, select IIO Configuration, select Intel VT for Directed I/O (VT-D), select VtD Azalaea CVP Optimizations, select Enable to open (remember to press F10 to save the settings).



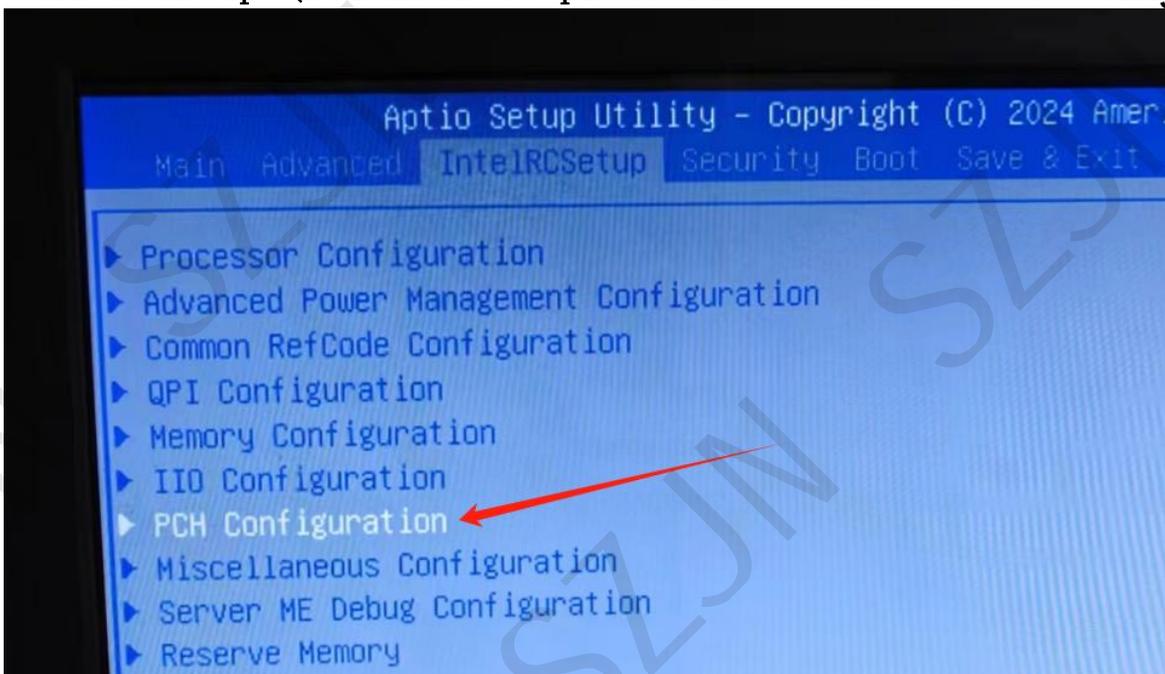


16. Bios turn off network port function settings: Go to IntelRCSetup, select PCH Configuration, select Onboard Lan1 and Onboard Lan2, select Disable to turn off (remember to press F10 to save the settings).





17. Settings for enabling and disabling incoming call startup: Go to IntelRCSetup, select PCH Configuration, select PCH Devices, select Restore AC after Power Loss, select Power off to disable incoming call startup, power no to enable incoming call startup (remember to press F10 to save the settings).



IntelRCSetup

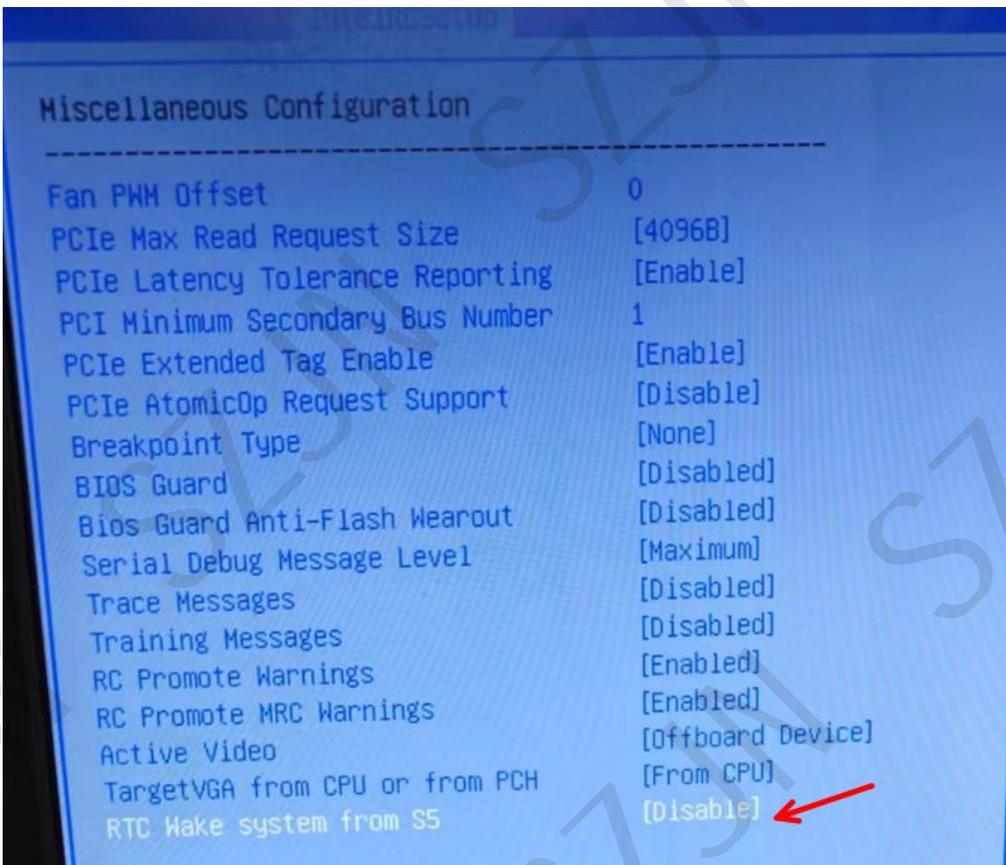
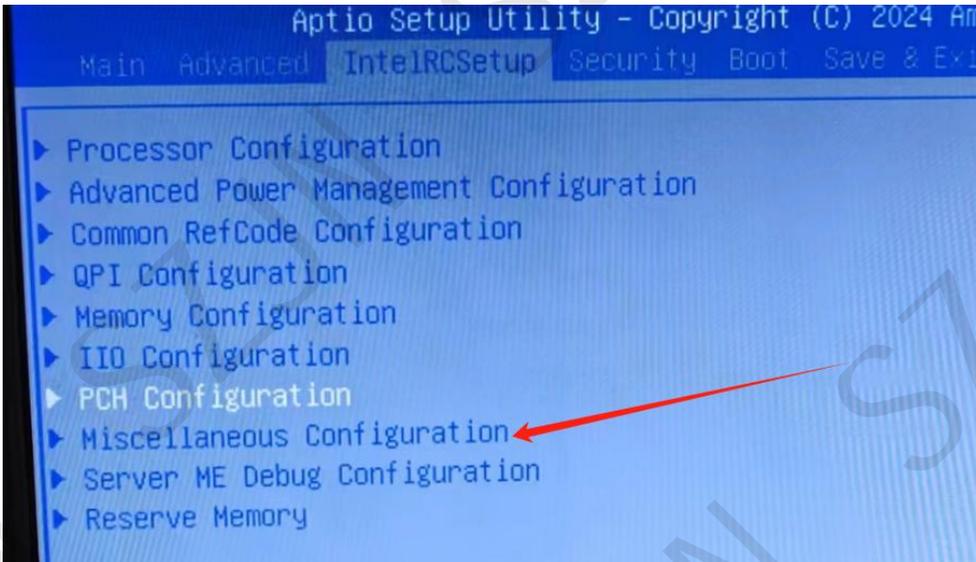
PCH Configuration

- Onboard Lan1 [Enabled]
- Onboard Lan2 [Enabled]
- Onboard Azalia [Auto]
- ▶ PCH Devices ←
- ▶ PCI Express Configuration
- ▶ PCH sSATA Configuration
- ▶ PCH SATA Configuration
- ▶ USB Configuration
- ▶ Security Configuration
- ▶ Azalia Configuration
- ▶ Platform Thermal Configuration

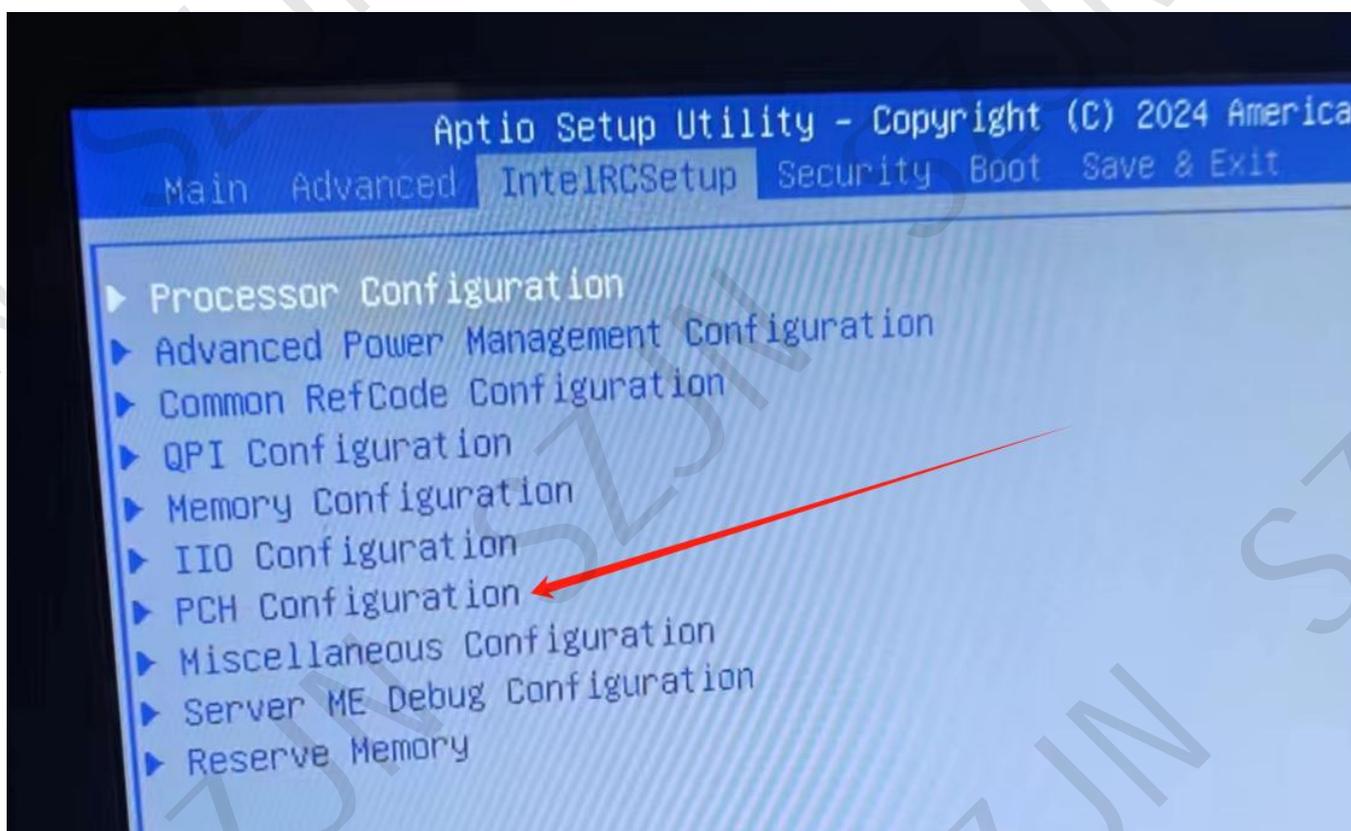
IntelRCSetup

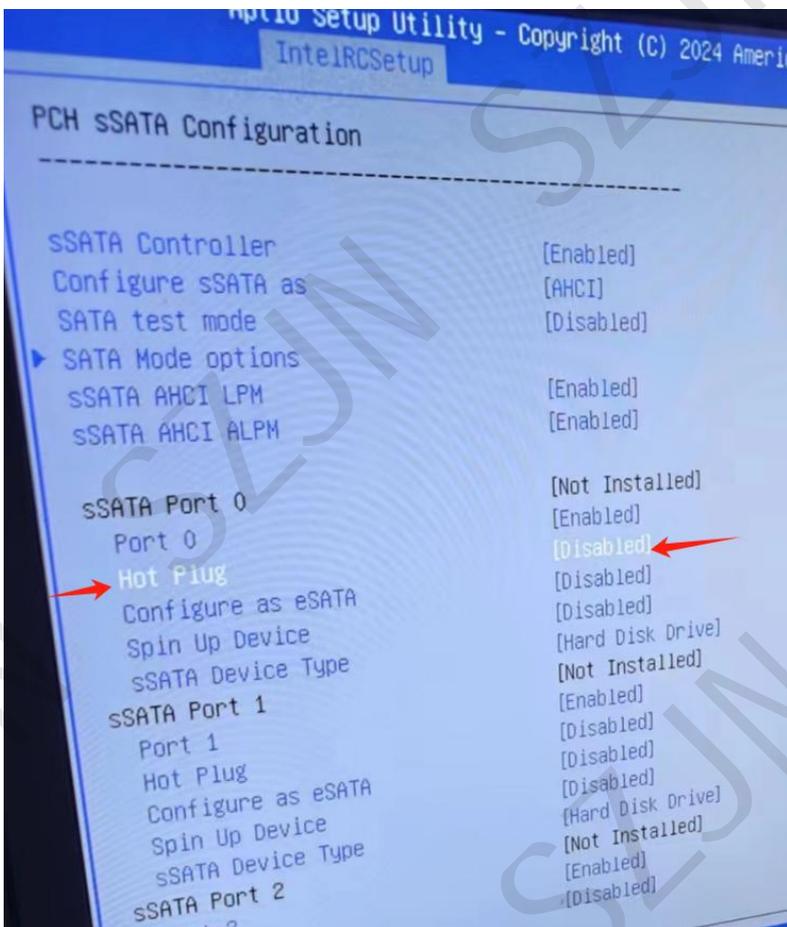
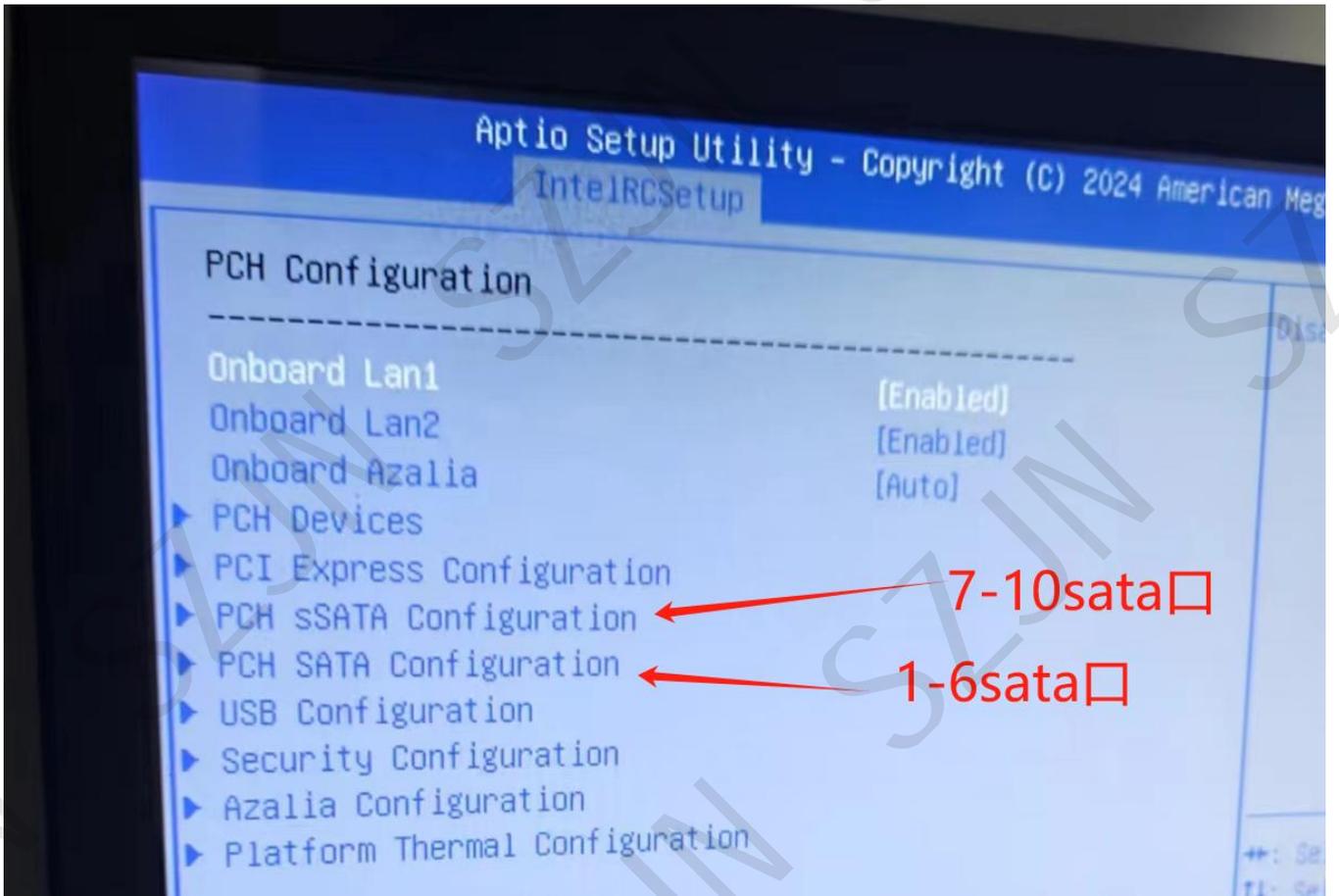
- Board Capability [DeepSx]
- DeepSx Power Policies [Disabled]
- GP27 Wake From DeepSx [Disabled]
- SMBUS Device [Enabled]
- PCH Server Error Reporting Mode (S) [Disabled]
- PCH Display [Enabled]
- Serial IRQ Mode [Quiet]
- External SSC Enable - CK420 [Disabled]
- Restore AC after Power Loss [Power Off] ←
- PCH CRID [Disabled]

18. Mainboard BIOS timed startup settings: Go to IntelRCSetup, select Miscellaneous Configuration, select RTC Wake system from s5, select Enable, and then go to set the time (remember to press F10 to save the settings).

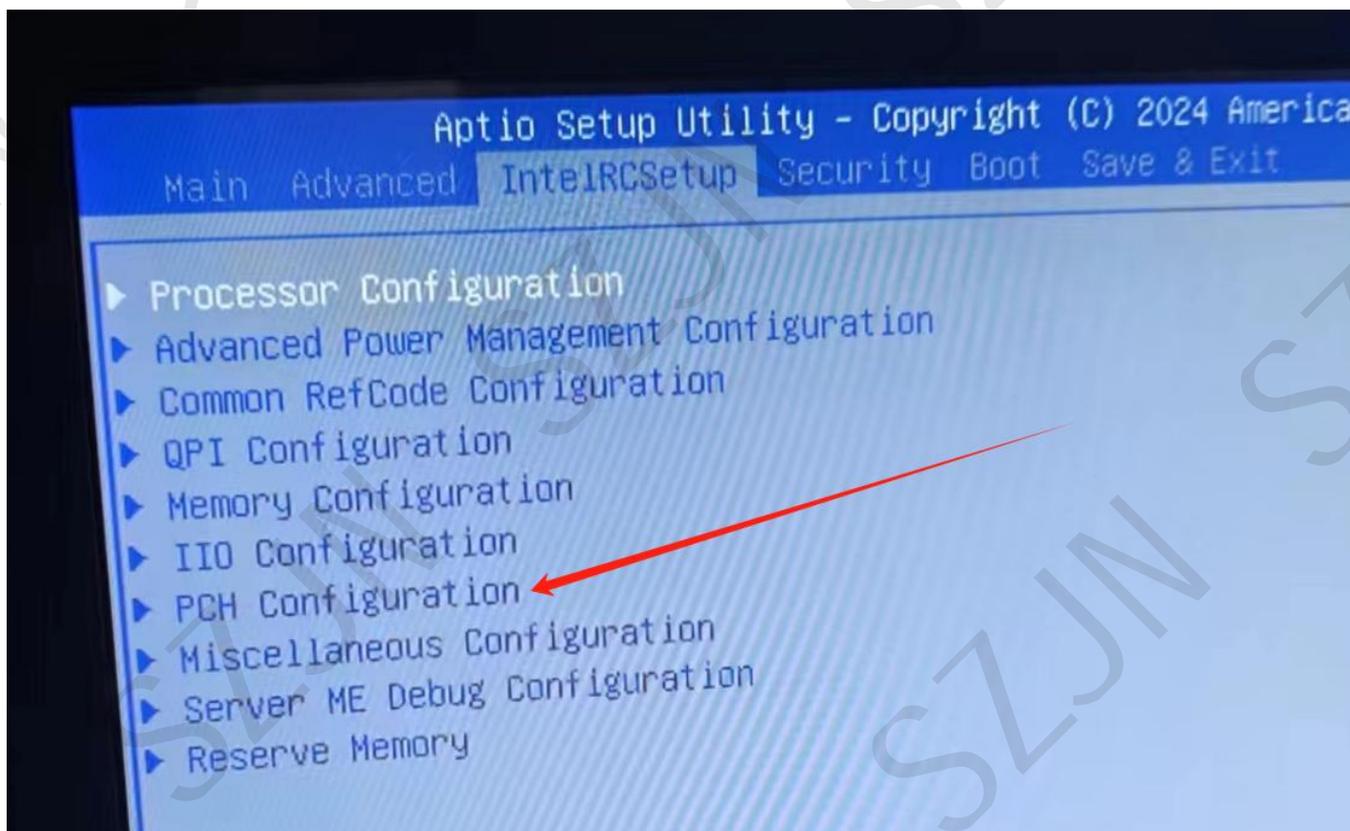


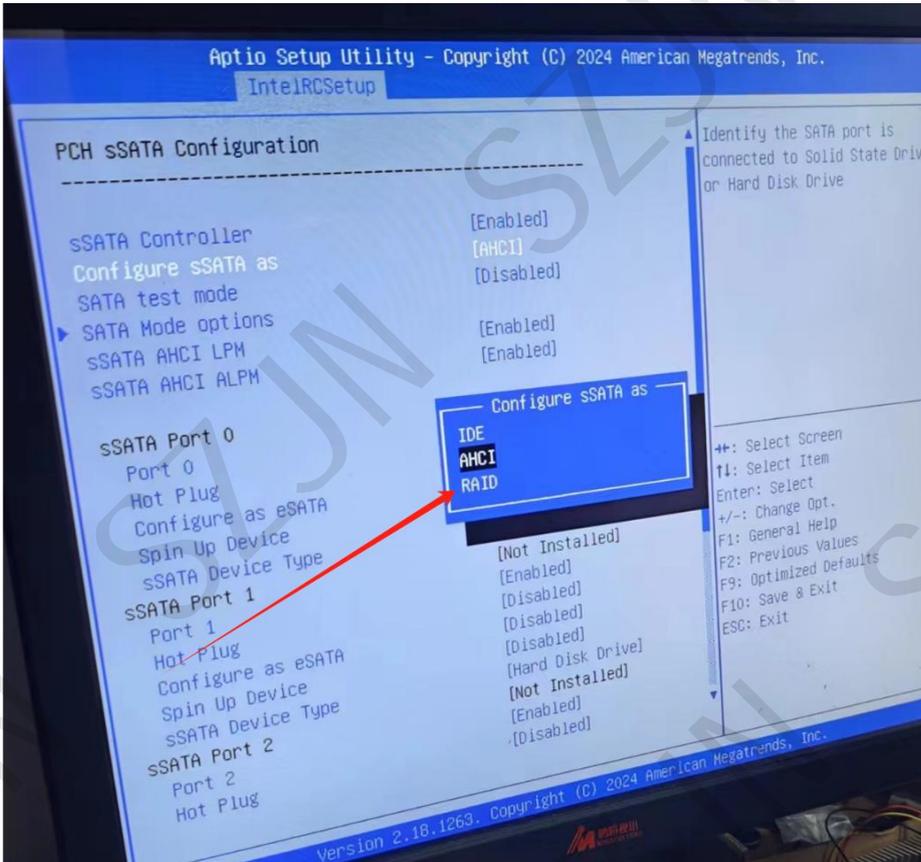
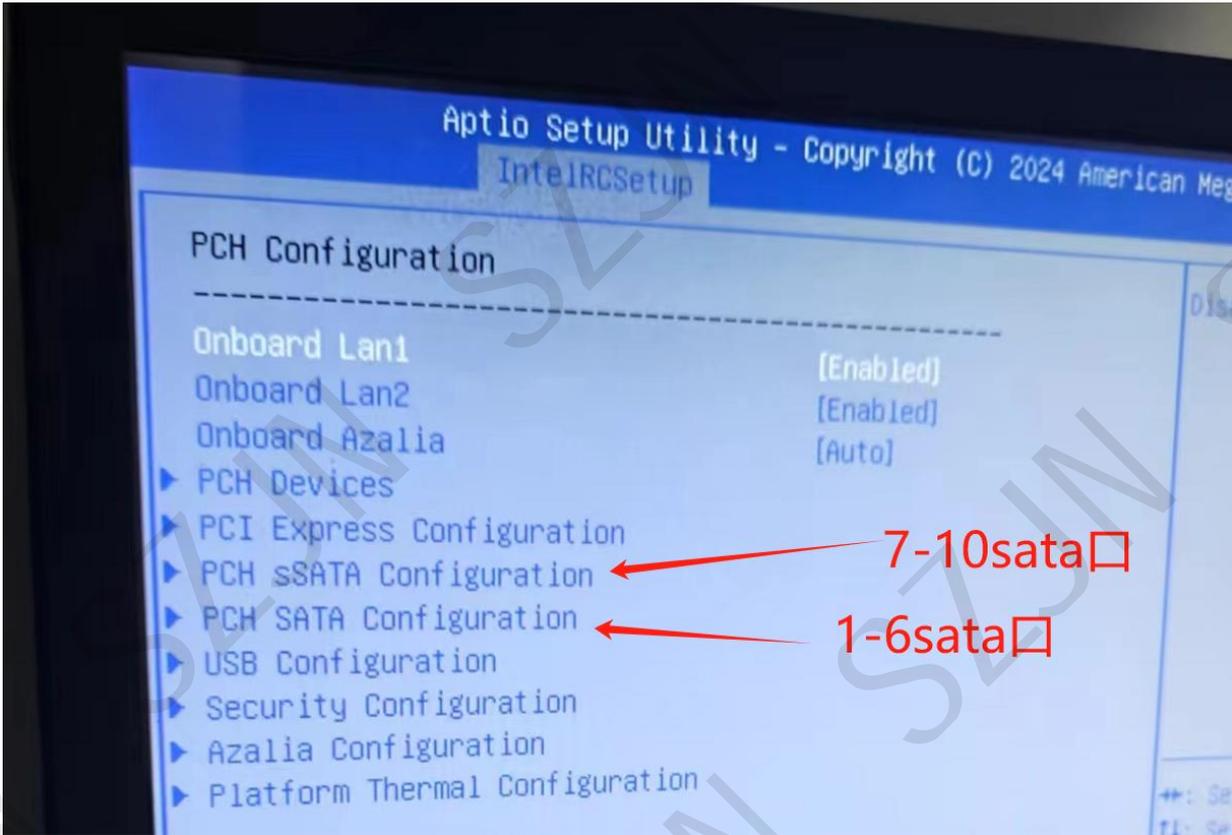
19. Mainboard SATA interface hot plug settings (Regarding BIOS SATA port instructions, the first PCH sSATA Configuration option is set to 7-10 SATA ports, and the second PCH SATA Configuration option is set to 1-6 SATA ports: enter IntelRCSentup, select PCH Configuration, select PCH sSATA Configuration (7-10 SATA ports) and PCH SATA Configuration (1-6 SATA ports), find the Hot Plug options for all SATA ports, select Enabled to turn on the hot plug function (remember to press F10 to save the settings).

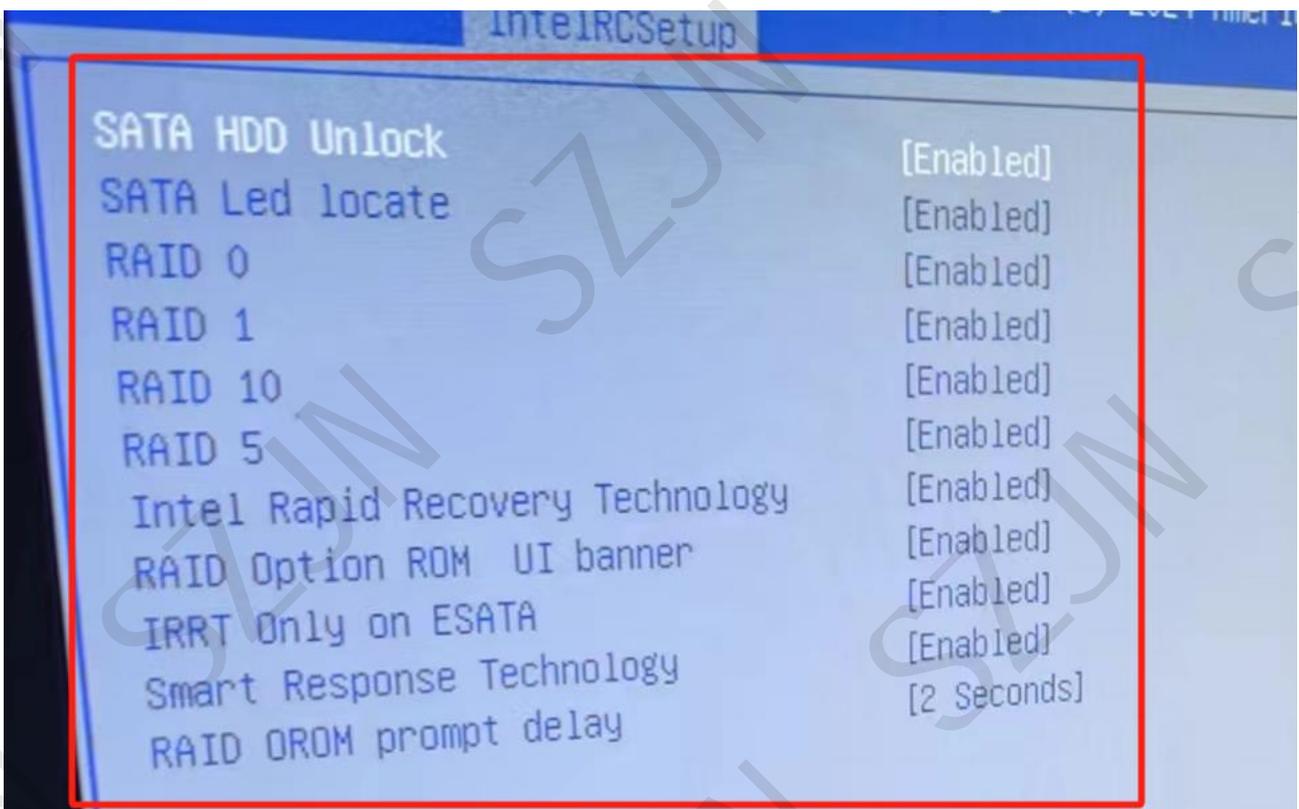
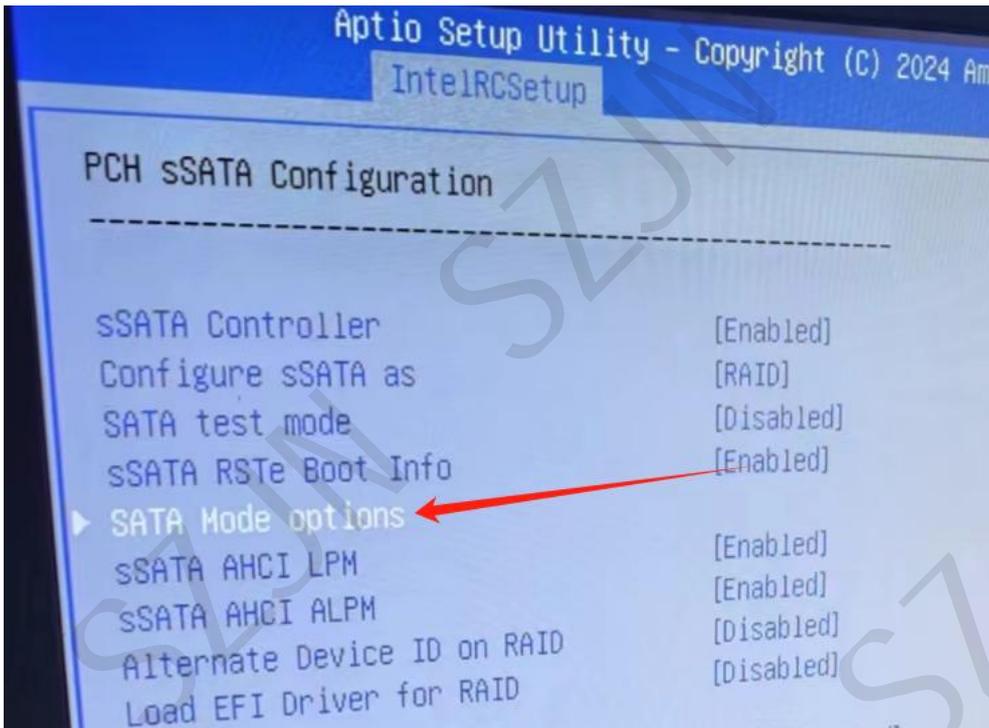




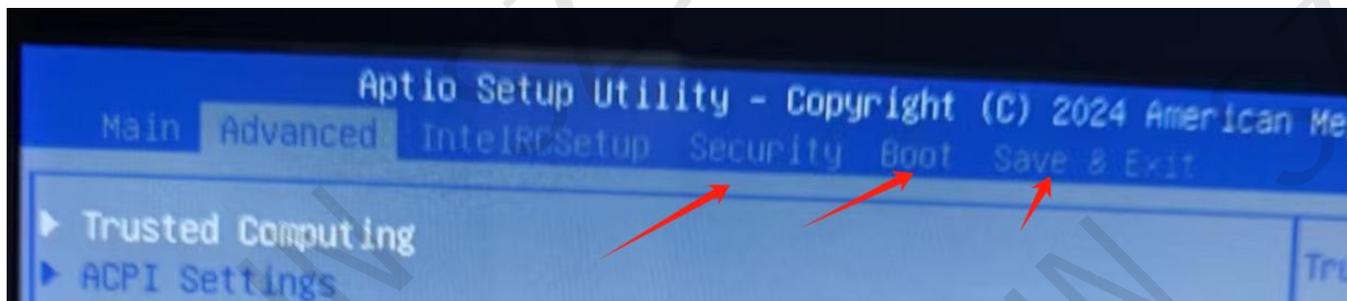
20. Bios Configuration RIAD Function Settings (Regarding the BIOS SATA port instructions, the first PCH sSATA Configuration option is set to 7-10 SATA ports, and the second PCH SATA Configuration option is set to 1-6 SATA ports: enter IntelRCSentup, select PCH Configuration, select PCH sSATA Configuration (7-10 SATA ports) and PCH SATA Configuration (1-6 SATA ports), select Configure sSATA as, select RAID settings, and then select SATA Mode options to configure RAID mode (remember to press F10 to save the settings). Note: Configuring RAID needs to be set according to your own system requirements, and beginners are not recommended to tinker with it. It is recommended to go directly to the system you are using. Just configure the RAID mode.



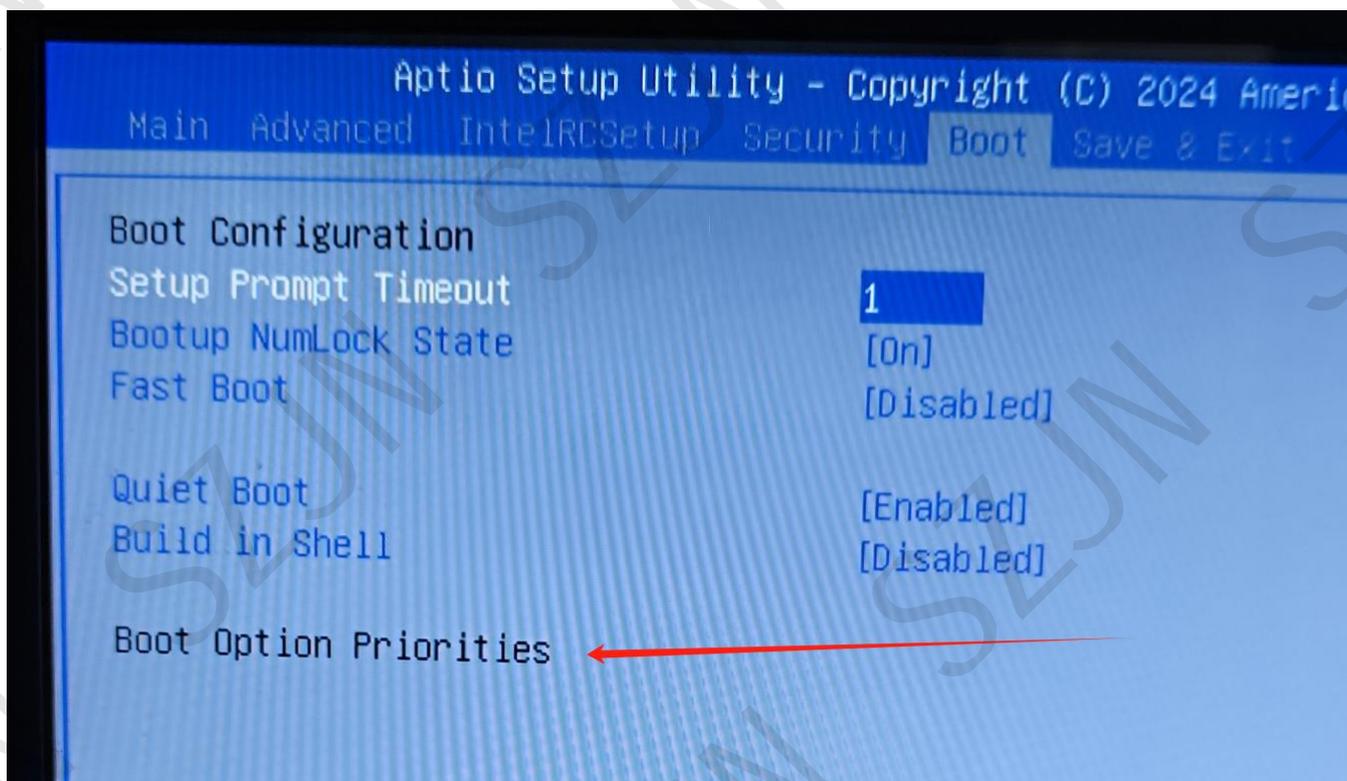




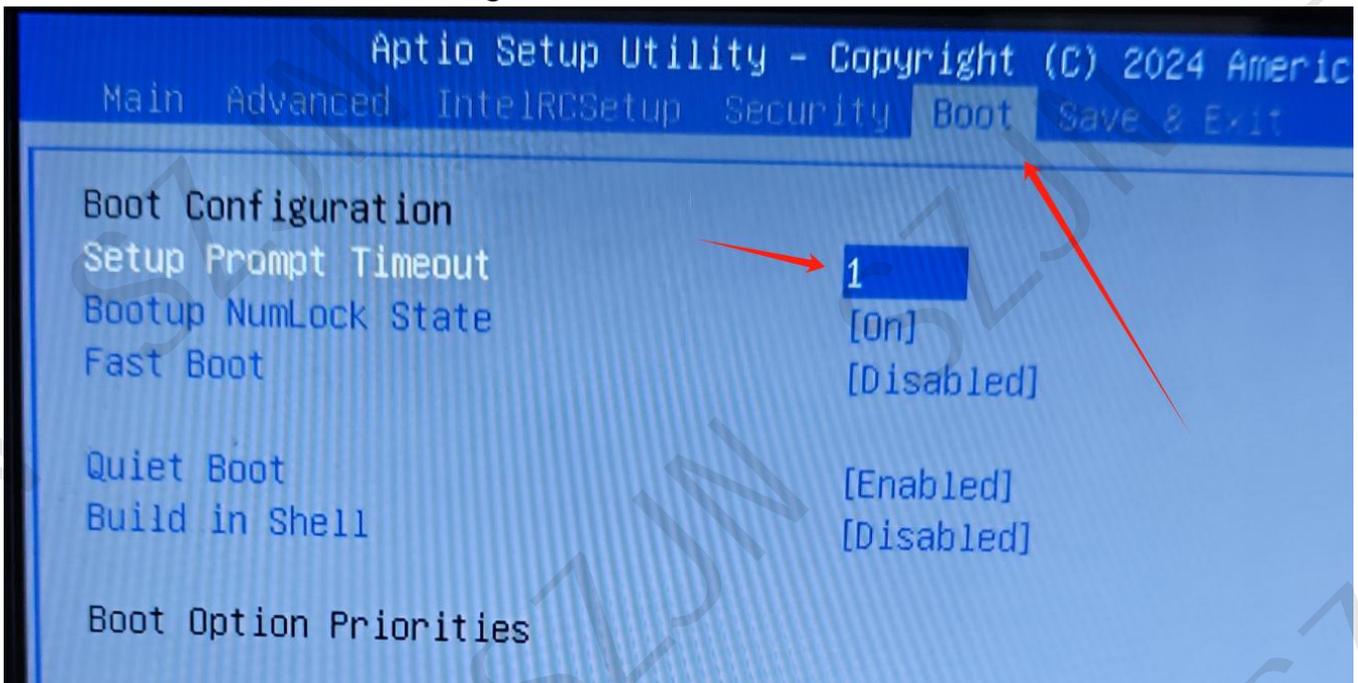
21. Bios can directly view the recognition status of all hard drives in the Security, Boot, and Save&Exit options



22. BIOS system hard disk boot: Go to Boot and select Boot Option Priorities to choose your own system hard disk (remember to press F10 to save after setting).



23. Bios Set Hard Disk Delay Start: When entering Boot, select Setup Prompt Timeout, which defaults to 1 second. You can set it according to your actual usage situation (usually when there are many hard disks on top, if you don't set it, the power supply may not be able to start directly). This function is operated according to your usage situation (remember to press F10 to save the settings).



24. VGA shutdown path: IntelRCSetup/PCI Express CONFIGURATION/PCI eXPress ROOR Port4

If you have any other questions or suggestions, you can send an email to jiaxinwang828@gmail.com

We are still planning to launch a new motherboard and will continue to collect the needs of our users.