ASTRAADA

ASTOR

AS56IPC-615H5-Q670 User Manual

Industrial Computer

Copyright notice

Trademarks

Declaration of Conformity

This restriction is subject to provide protection for system operation in business environment, which will produce, use and transmit radio frequency energy. Without notice of the instructions of the correct installation and use, it may cause harmful interference to radio communication. The interference prevention cannot be guaranteed even with proper installation according to the manual. If the device gets bad affect on the signal of radio / TV. User could insure by turn device on/off. When this device produces some harmful interference, user can use the following measure to solve interference problem:

- Set the receiving antenna's direction or location.
- Increase the distance between this device and receiver.
- Plug in this device's power connector into different circuits of the power outlet with receiver

If you need technical support, please inform the dealer or experienced radio/TV technical personnel.

Technical Support and Service

Please visit the ASTOR website https://www.astor.com.pl/wsparcie/dokumentacja-techniczna.html to get more details.

If you need additional assistance, please contact us on support@astor.com.pl

Safety instructions

1. Please read the manual and related manual mentioned in this user manual before installing, wiring, operating, checking this Panel PC. All the operations should be based on the premise of full safety attention.
2. Please kindly keep this user manual for further reference.
3. Please unplug the cable before clean the device. Don’t use liquid or decontamination sprays to clean the device.
4. For devices that use power cables, there must be easily accessible power sockets around the devices
5. Make sure the device placed on a flat surface in case any damages casued by falling off.
6. Please make sure your voltage meet the requirements before plug in.
7. Please arrange the power cord in a position where people can not easily stumble. Do not cover any thing on the power cord.
8. Notice to all the warnings and cautions on this device.
9. Please unplug the device if you will not use it for a long time in case any damages caused by excessive voltage.
10. Please do not let any liquid in the device in case of causing fire or short circuit.
11. Do not open the device by yourself. To ensure your safety, before turning on the device, disconnect all external power supplies used by the system and

have the device turned on by a certified professional engineer with sufficient electrical knowledge.

In the following cases, please repair by professional personnel

- The damage of power cord or plug；
- Liquid flows into the device；
- The device can not work properly, or you can make it work properly by referring to the user manual;
- Fall off or any damage；
- Obvious damage on the surface;

12. Do not place the device over the environment range we suggested which is not below -30° or higher than 80 °, otherwise it may cause the damange to the device.
13. Please clean dust or replace fan regularly.

Content:

Chapter 1 Overview

In this chapter, it offers the descriptions of products files, functions and specifications etc

1.1 Reference file

Related file are shown as below table, please read before use the device.

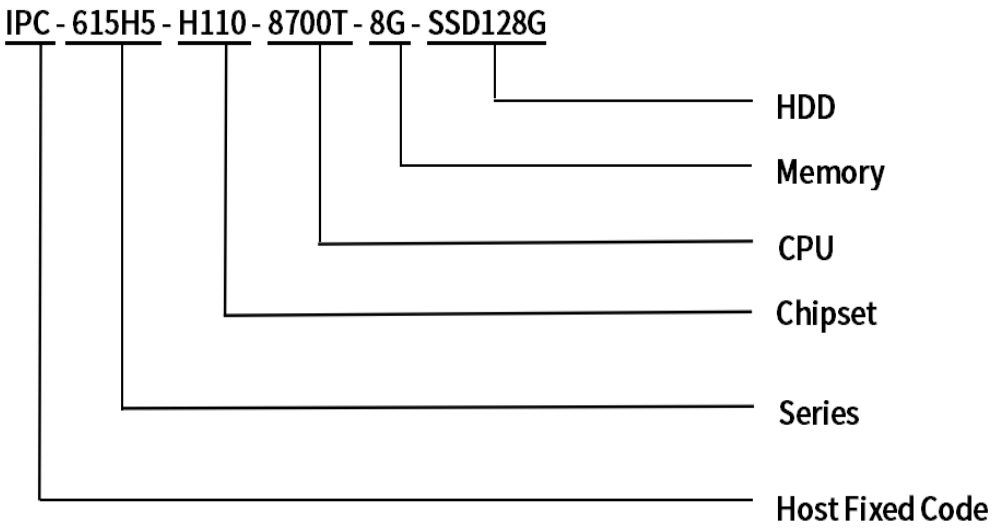
File Name	File Aim	File Content	File Save
User manual	Please do read before use	Descrption of the product’ s function and relative setting	Please download from Nodka official websiteget it from distributer.

The download link of Official website:

https://www.astor.com.pl/sklep/

1.2 Product naming format

The naming format of the product series is as follows:



1.3 Safety Introduction

For security purposes, the following SIGNS are used in this document to provide more security information for users.

SIGN	DESCRIPTION
	Warning： Indicates a potential situation which could result in death, serious injury or significant property damage if do not deal with properly.
	Danger：Indicate a urgent danger which could result in death, serious injury or significant property damage if do not deal with properly.

AS56IPC-615H5

2.1 Product Introduction

The AS56IPC series industrial computer platform features flexibility, ease of operation, and a distinctive design. It is always designed according to the actual needs of the industrial site, allowing it to operate stably for long periods under harsh working conditions. It possesses dustproof, moisture-proof, shockproof, and electromagnetic interference resistance characteristics. As a robust backend processing unit, it is applied in various fields of industrial systems and system integration.

Astor treats every user's feedback and suggestions with great care. The birth of the AS56IPC industrial computer represents the crystallization of Astor's years of experience in the industrial control industry. It is also a product innovation that has garnered attention from every user. The harsh application environment, dust accumulation, vibration impact, noise, and more are all sources of design inspiration for the AS56IPC-615H5 industrial computer.

2.2 Product Features

- Support 2 x DDR4-1866/2133/2400/2666MHz SO-DIMM slots,up to 64GB
- 4 x USB3.0(5Gpbs),4 x USB2.0,Built-in USB 2.0 Dongle
- Supports HDMI, DP, VGA Asynchronous Dual Display

Image 0-1 AS56IPC-615HS Product AppearanceImage

2.3 Product Specifications

Model		AS56IPC-615H5-H110
System	CPU	Intel® 6/7/8/9th generation Celeron/Pentium/Core-I series processor, TDP up to 95W Intel
	Chipset	H110 Chipset
	Memory	2x DDR4260-pin 1866/2133/2400/2666MHz SO-DIMM slots,up to 64GB
	Storage	1x M.2-2242/2280 Key M slot(SATA3.0 Signal),3 x SATA3.0(up to 6Gb/s)
	USB	4x USB3.0(5Gpbs),4x USB2.0,Built-in USB2.0 dongle
	COM	COM1-2:RS232/RS485,COM3-6:RS232
	LAN	LAN1:1219-V,LAN2:1210AT
	VGA	The highest resolution is 1920x1080@60Hz, and it supports asynchronous dual display
	HDMI	The highest resolution is 4096 x 2160@30Hz, and it supports asynchronous dual display
	DP	The highest resolution is 4096 x 2160@60Hz, and it supports asynchronous dual display
	Audio	Realtek ALC897 codec, 1 x Mic-in,1xLine-in, 1x Line-out
	PCI	3x PCI (32bit)
	PCIE	1x PCIeX16(Gen3) slot,2 x PCIeX4(Gen2,X1 link) slots,1x PCIeX4(Gen2,X2 link) slot
	Watch Dogs	1-255 levels programmable setting
OS Support	OS	Windows 7/8.1(Only support with Intel 6th Gen. CPU), Windows 10, Linux
Power	Input Voltage	AC100-240V,50-60Hz
Chassis	Structure	All-steel box structure
	Dimensions	(D)451mm x (W)430mm x (H) 177mm
	Net Weight	13Kg
Environment	Work Temperature	0°C~45°C (Use SSD)
	Storage Temperature	-20°C~60°C (Use SSD)
	Relative Humidity	5-95% RH@40°C, non-condensing
	Vibration	SSD applied:1.5Grms,IEC 60068-2-64, random,5~500Hz,1 hr/axis
	Shock	SSD applied:10G, IEC 60068-2-27, Half sine wave, lasting 11ms
	EMC	CE/FCC Class A

Model		AS56IPC-615H5-C236
System	CPU	Intel® 6/7/8/9th generation Celeron/Pentium/Core-I series processor, TDP up to 95W
	Chipset	Intel® C236 Chipset
	Memory	2 x DDR4260-pin 1866/2133/2400/2666MHZ SO-DIMM slots, upto 64GB
	Storage	4 x SATA3.0(up to 6Gb/s),support RAID 0/1/5/10
	USB	6xUSB3.0(5Gpbs),2 x USB2.0,Built-in USB 2.0 dongle
	COM	COM1-2:RS232/RS485,COM3-6:RS232
	LAN	LAN1:1219-V,LAN2:1210AT
	VGA	The highest resolution is 1920 x 1080@60Hz, and it supports asynchronous triple display
	HDMI	The highest resolution is 4096 x 2160@30Hz, and it supports asynchronous triple display
	DP	The highest resolution is 4096 x 2160@60Hz, and it supports asynchronous triple display
	Audio	Realtek ALC897 codec, 1x Mic-in, 1 x Line-in, 1x Line-out
	PCI	2xPCI (32bit)
	PCIE	2 x PCIeX4(Gen3) slots,1 x PCIeX4(Gen3,X1 link) slot 2 x PCIeX16(Gen3) slots (Default2X8 link)
	Watch Dogs	1-255 levels programmable setting
OS Support	OS	Windows 7/8.1(Only support with Intel 6th Gen. CPU), Windows 10,Linux
Power	Input Voltage	AC100-240V,50-60Hz
Chassis	Structure	All-steel box structure
	Dimensions	(D)451mm x (W)430mm x (H) 177mm
	Net Weight	13Kg
Environment	Work Temperature	0°C~45°C (Use SSD)
	Storage Temperature	-20°C~60°C (Use SSD)
	Relative Humidity	5-95% RH@40°C, non-condensing
	Vibration	SSD applied:1.5Grms, IEC 60068-2-64, random,5-500Hz,1 hr/axis
	Shock	SSD applied:10G, IEC 60068-2-27, Half sine wave, lasting 11ms
	EMC	CE/FCC Class A

Model		AS56IPC-615H5-Q170
System	CPU	Intel® 6/7/8/9th generation Celeron/Pentium/Core-I series processor, TDP up to 95W
	Chipset	Intel® Q170 Chipset
	Memory	2 x DDR4 260-pin 1866/2133/2400/2666MHz SO-DIMM slots, up to 64GB 4 x SATA3.0(up to 6Gb/s),support RAID 0/1/5/10
	Storage	1 x M.2-2242/2280 Key M slot(SATA3.0 Signal)
	USB	6 x USB3.0(5Gpbs),2 x USB2.0, Built-in USB 2.0 dongle
	COM	COM1-2:RS232/RS485,COM3-6:RS232
	LAN	LAN1:1219-V,LAN2:1210AT
	VGA	The highest resolution is 1920 x 1080@60Hz, and it supports asynchronous triple display
	HDMI	The highest resolution is 4096 x 2160@30Hz, and it supports asynchronous triple display
	DP	The highest resolution is 4096 x 2160@60Hz, and it supports asynchronous triple display
	Audio	Realtek ALC897 codec,1 x Mic-in,1 x Line-in,1 x Line-out
	PCI	2xPCI (32bit)
	PCIE	2x PCIeX16(Gen3) slots (Default2 X8 link) 2 x PCIeX4(Gen3) slots,1 x PCIeX4(Gen3,X1 link) slot
	Watch Dogs	1-255 levels programmable setting
OS Support	OS	Windows 7/8.1(Only support with Intel 6th Gen. CPU), Windows 10,Linux
Power	Input Voltage	AC100-240V,50-60Hz
Chassis	Structure	All-steel box structure
	Dimensions	(D)451mm x (W)430mm x (H) 177mm
	Net Weight	13Kg
Environment	Work Temperature	0°C~45°C (Use SSD)
	Storage Temperature	-20°C~60°C (Use SSD)
	Relative Humidity	5-95% RH@40°C, non-condensing
	Vibration	SSD applied:1.5Grms, IEC 60068-2-64, random,5-500Hz,1 hr/axis
	Shock	SSD applied:10G, IEC 60068-2-27, Half sine wave, lasting 11ms
	EMC	CE/FCC Class A

Model		AS56IPC-615H5-Q470
System	CPU	Intel® 10/11th generation Celeron/Pentium/Core-I series processor, TDP up to 125W
	Chipset	Intel® Q470 Chipset
	Memory	2 x DDR4 260-pin 2933MHz SO-DIMM slots,up to 64GB 1x M.2-2242/2280 Key M slot(Gen 10 only supports SATA protocol,
	Storage	Gen 11 supports PCIe protocol),4 x SATA3.0 (up to 6Gb/s),support RAID 0/1/5/10
	USB	6 x USB3.0(5Gpbs),2 x USB2.0,Built-in USB2.0 dongle
	COM	2x RS232/485(DB9),COM3-6:RS232
	LAN	LAN1:1219-V,LAN2:1210AT
	VGA	The highest resolution is 1920 x 1080@60Hz, and it supports asynchronous triple display
	HDMI	The highest resolution is 4096 x 2160@30Hz, and it supports asynchronous triple display
	DP	The highest resolution is 4096 x 2160@60Hz, and it supports asynchronous triple display
	Audio	Realtek ALC897 codec, 1 x Mic-in,1 x Line-in,1xLine-out
	PCI	2xPCI (32bit)
	PCIE	2 x PCIeX16(Gen3) slots(Default2 X8 link) 3 x PCIeX4(Gen3) slots
	Watch Dogs	1-255 levels programmable setting
OS Support	OS	Win10/11,Linux
Power	Input Voltage	AC100-240V,50-60Hz
Chassis	Structure	All-steel box structure
	Dimensions	(D)451mm x (W)430mm x (H) 177mm
	Net Weight	13Kg
Environment	Work Temperature	0°C~45°C (Use SSD)
	Storage Temperature	-20°C~60°C (Use SSD)
	Relative Humidity	5-95% RH@40°C, non-condensing
	Vibration	SSD applied:1.5Grms, IEC 60068-2-64, random,5~500Hz,1 hr/axis
	Shock	SSD applied:10G,IEC 60068-2-27, Half sine wave, lasting 11ms
	EMC	CE/FCC Class A

Model		AS56IPC-615H5-H420E
System	CPU	Intel® 10/11th generation Celeron/Pentium/Core-I series processor, TDP up to 125W
	Chipset	Intel® H420E Chipset
	Memory	2 x DDR4 260-pin 2933/3200MHZ SO-DIMM slots, up to 64GB 1 x M.2-2242/2280 Key M slot(SATA3.0 Signal)
	Storage	3 x SATA3.0(up to 6Gb/s)
	USB	6 x USB3.0(5Gpbs),2 x USB2.0,Built-in USB2.0 dongle
	COM	COM1-2:RS232/RS485,COM3-6:RS232
	LAN	LAN1:1219-V,LAN2:1210AT
	VGA	The highest resolution is 1920 x 1080@60Hz, and it supports asynchronous dual display
	HDMI	The highest resolution is 4096 x 2160@30Hz, and it supports asynchronous dual display
	DP	The highest resolution is 4096 x 2160@60Hz, and it supports asynchronous dual display
	Audio	Realtek ALC897 codec, 1 x Mic-in,1 x Line-in,1xLine-out
	PCI	3 x PCI (32bit)
	PCIE	1 x PCIe X16(Gen3) slot, 3x PCIe X4(Gen3,X1 link) slots
	Watch Dogs	1-255 levels programmable setting
OS Support	OS	Win10/11,Linux
Power	Input Voltage	AC100-240V,50-60Hz
Chassis	Structure	All-steel box structure
	Dimensions	(D)451mm x (W)430mm x (H) 177mm
	Net Weight	13Kg
Environment	Work Temperature	0°C~45°C (Use SSD)
	Storage Temperature	-20°C~60°C (Use SSD)
	Relative Humidity	5-95% RH@40°C, non-condensing
	Vibration	SSD applied:1.5Grms, IEC 60068-2-64, random, 5~500Hz,1 hr/axis
	Shock	SSD applied:10G,IEC 60068-2-27, Half sine wave, lasting 11ms
	EMC	CE/FCC Class A

Model		AS56IPC-615H5-H610
System	CPU	Intel® 12/13/14th generation Celeron/Pentium/Core-Iseries processor, TDP up to 125W
	Chipset	Intel H610 Chipset
	Memory	2 x DDR4 260-pin 3200MHz SO-DIMM slots,up to 64GB
	Storage	1x M.2-2242/2280 Key M slot(SATA3.0 Signal) 3 x SATA3.0 (up to 6Gb/s)
	USB	4 x USB3.0(5Gpbs),4 x USB2.0,Built-in USB 2.0 dongle
	COM	COM1-2:RS232/RS485,COM3-6:RS232
	LAN	LAN1:1219-V,LAN2:1210AT
	VGA	The highest resolution is 1920 x 1080@60Hz, and it supports asynchronous triple display
	HDMI	The highest resolution is 4096 x 2160@30Hz, and it supports asynchronous triple display
	DP	The highest resolution is 4096 x 2160@60Hz, and it supports asynchronous triple display
	Audio	Realtek ALC897 codec, 1 x Mic-in,1 x Line-in, 1 x Line-out
	PCI	3 x PCI (32bit)
	PCIE	1 x PCIe X16(Gen4) slot 1 x PCIe X4(Gen4) slot,2 x PCIe X4(Gen4,X1 link) slots
	Watch Dogs	1-255 levels programmable setting
OS Support	OS	Win10/11,Linux
Power	Input Voltage	AC100-240V,50-60Hz
Chassis	Structure	All-steel box structure
	Dimensions	(D)451mm x (W)430mm x (H) 177mm
	Net Weight	13Kg
Environment	Work Temperature	0°C~45°C (Use SSD)
	Storage Temperature	-20°C~60°C (Use SSD)
	Relative Humidity	5-95% RH@40°C, non-condensing
	Vibration	SSD applied:1.5Grms, IEC 60068-2-64, random, 5~500Hz,1 hr/axis
	Shock	SSD applied:10G,IEC 60068-2-27, Half sine wave, lasting 11ms
	EMC	CE/FCC Class A

Model		AS56IPC-615H5-Q670
System	CPU	Intel® 12/13/14th Generation Celeron/Pentium/Core-I series processor, TDP up to 125W
	Chipset	Intel® Q670 Chipset
	Memory	2 x DDR5 262-pin 4800/5600MHz SO-DIMM slots, up to 64GB
	Storage	1 x M.2 2242/2280 Key-M Slot (PCIE4.0 X4 Signal) 4 x SATA3.0 ports,support RAID 0/1/5/10
	USB	6 x USB3.0,2 x USB2.0,Built-in USB 2.0 dongle
	COM	COM1-2:RS232/RS485,COM3-6:RS232
	LAN	LAN1:1219-V,LAN2:1210AT
	VGA	The highest resolution is 1920 x 1080@60Hz, and it supports asynchronous triple display
	HDMI	The highest resolution is 4096 x 2160@30Hz, and it supports asynchronous triple display
	DP	The highest resolution is 4096 x 2160@60Hz, and it supports asynchronous triple display
	Audio	Realtek ALC897 codec, 1 x Mic-in,1 x Line-in,1xLine-out
	PCI	2 x PCI (32bit)
	PCIE	2 x PCIe4.0X16 (Default2X8 link) 3 x PCIe X4 (PCIE 4.0)
	Watch Dogs	1-255 levels programmable setting
OS Support	OS	Win10/11,Linux
Power	Input Voltage	AC100-240V,50-60Hz
Chassis	Structure	All-steel box structure
	Dimensions	(D)451mm x (W)430mm x (H) 177mm
	Net Weight	13Kg
Environment	Work Temperature	0°C~45°C (Use SSD)
	Storage Temperature	-20°C~60°C (Use SSD)
	Relative Humidity	5-95% RH@40°C, non-condensing
	Vibration	SSD applied:1.5Grms, IEC 60068-2-64, random, 5~500Hz,1 hr/axis
	Shock	SSD applied:10G,IEC 60068-2-27, Half sine wave, lasting 11ms
	EMC	CE/FCC Class A

2.4 Product Dimensions

2.4.1 AS56IPC-615H5

Dimensions (Unit:mm)

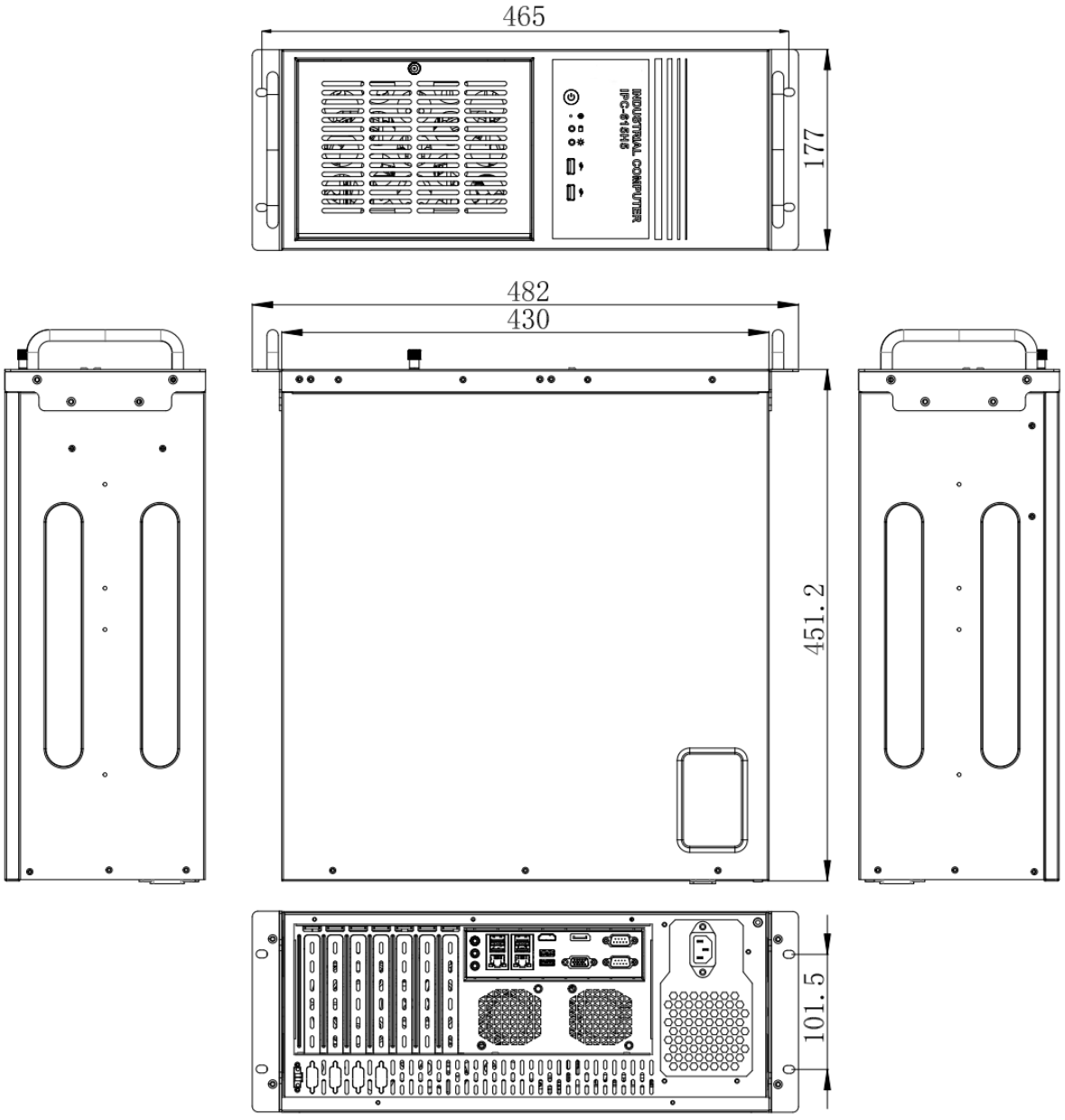
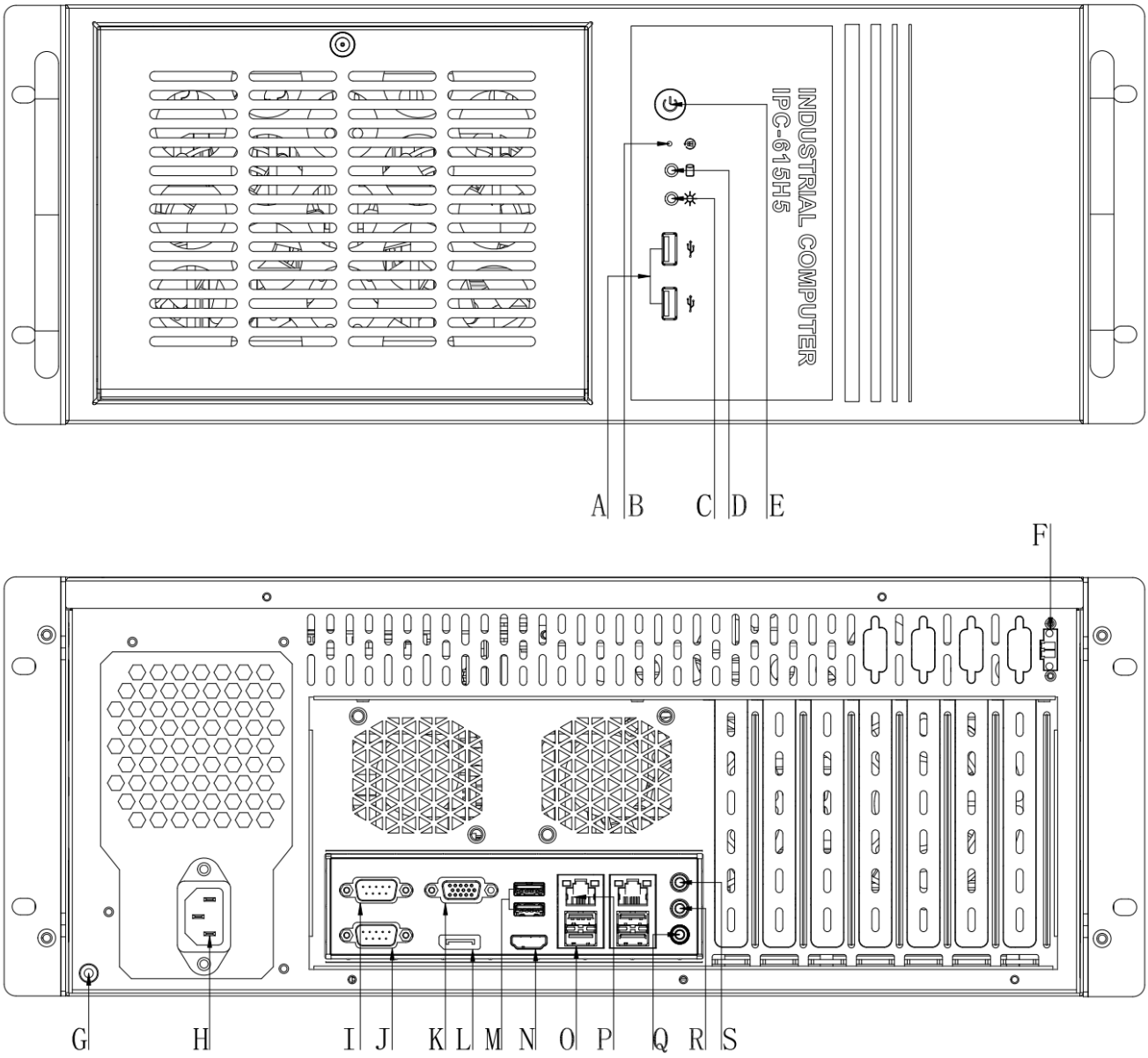


Image 0-2 AS56IPC-615H5 Product Dimensions Image



A:USB2.0
B:OS Restore
C:Power LED
D:HDD LED
E:Power

F:SW
G:GND
H:AC100~240V
I:COM2
J:COM1

K:VGA
L:DP
M:USB3.0
N:HDMI
O:USB3.0

P:LAN
Q:Mice-in
R:Line-out
S:Line-in

2.5.1 AS56IPC-615H5

2.5.1.1 LED

There are two status LEDs on the rear panel, indicating power and hard disk status respectively.

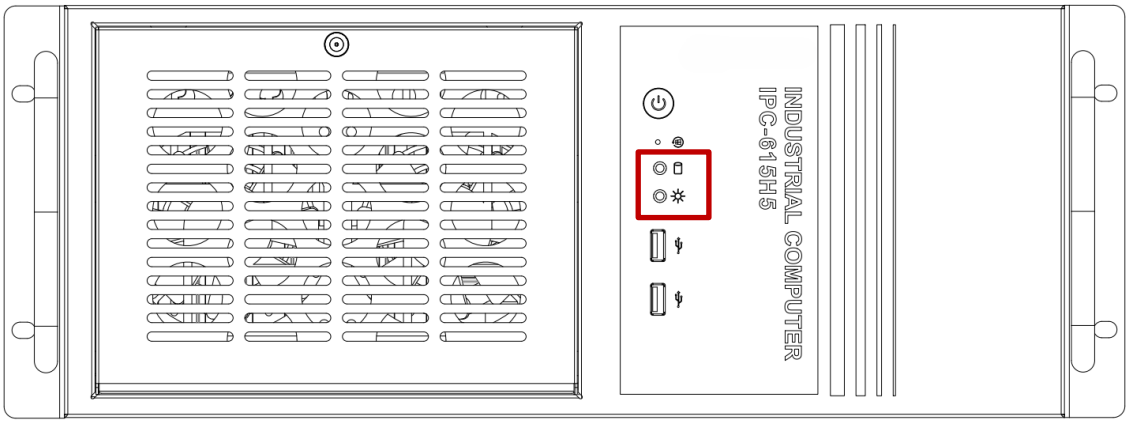


Image 0-4 IPC-615H5 LED

LED Name	Status	Description
Power Status Light	Off	Indicates that the product is not powered
	On (Green)	Indicates that the product is powered
Hard Disk Status Light	Off	Indicates that the hard disk is not working
	Orange (Green)	Indicates that the hard disk is working properly

2.5.1.2 Power Button

The front panel of the machine provides a power button, which can be used to turn on the machine by pressing it or to shut down the machine while it is powered on.

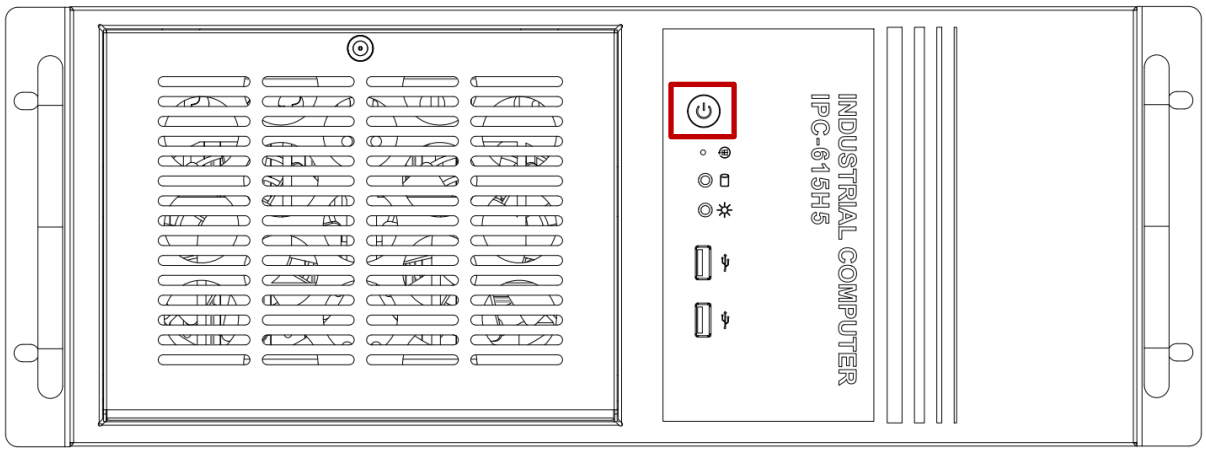


Image 0-5 IPC-615H5 Power Button

2.5.1.3 Remote Switch

The rear panel of the machine provides a remote switch button, which can be used to turn on the machine by pressing it or to shut down the machine while it is powered on.

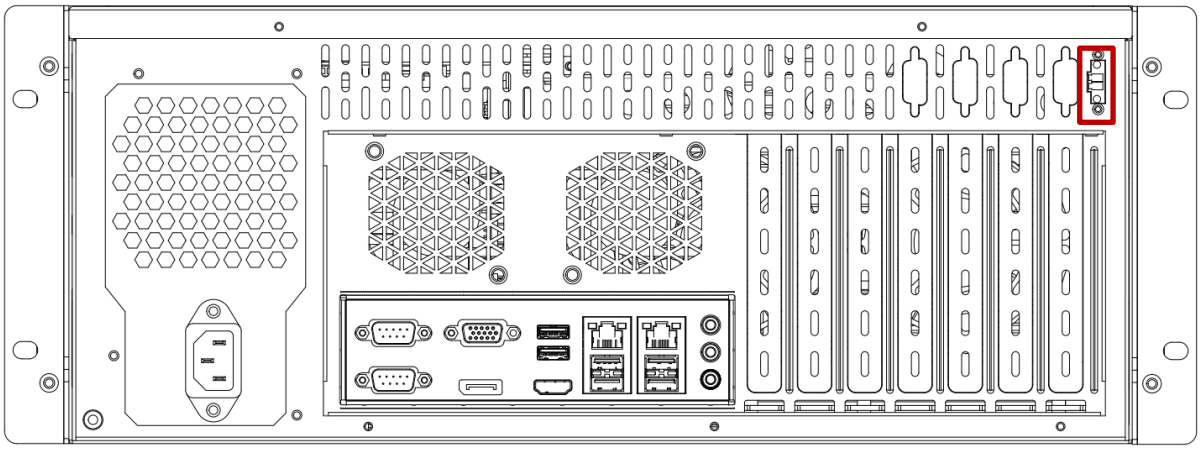


Image 0-6 IPC-615H5 Remote Switch

2.5.1.4 Power Interface

The AS56IPC-615H5 industrial computer uses AC 100-240V, 50-60Hz input.

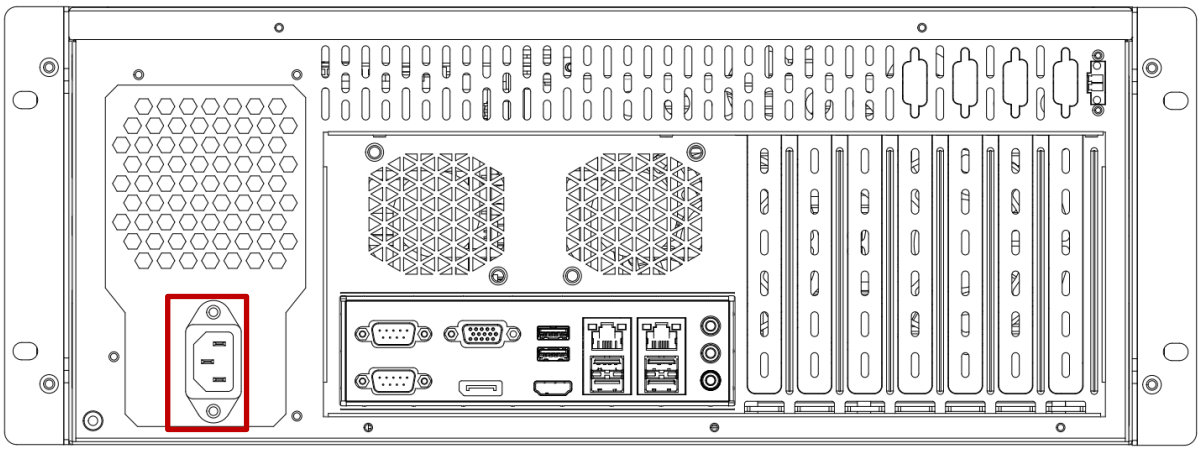


Image 0-7 AS56IPC-615H5 Power

2.5.1.5 Network Port：LAN1,LAN2

The product's carrier board has two Gigabit Ethernet ports, namely LAN1 and LAN2.

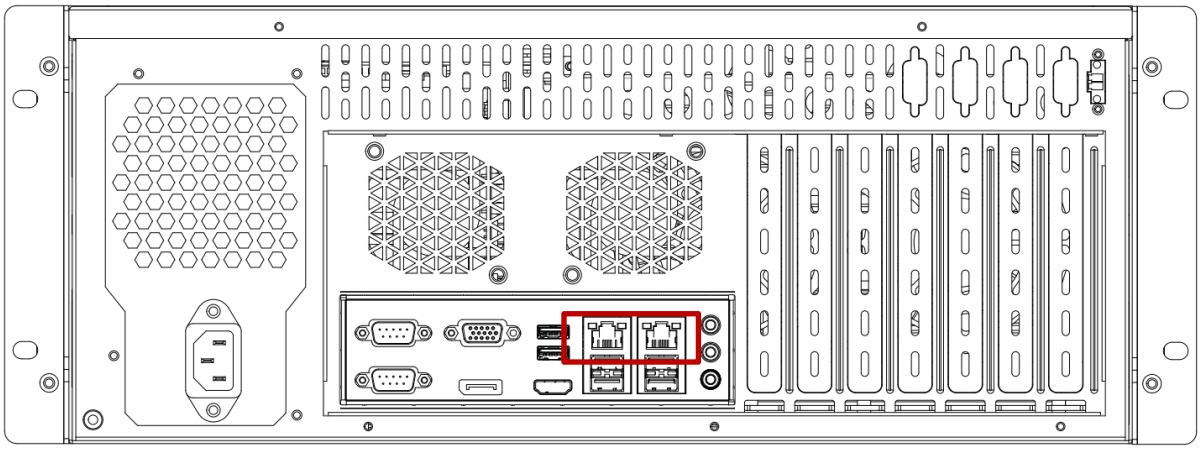


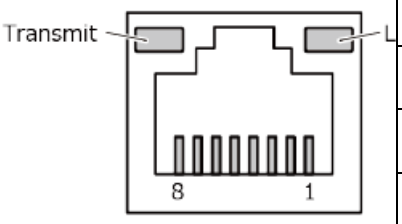
Image 0-8 AS56IPC-615H5 RJ45

Type	Parameter

Network Type	1000BASE-T/100BASE-TX/10BASE-T
Transmission Speed*	1000M/100M/10M bps
Maximum Cable Distance	100m/segment
Network Card Type	Intel® Ethernet Controller I210

*When the transmission speed is 1000 Mbps, a network cable of at least CAT 5e or higher is required.

Network Port Signal Definition:



Pin No.	Signal Name	
	100BASE-TX	1000BASE-T
1	TX+	TRD+(0)
2	TX-	TRD-(0)
3	RX+	TRD+(1)
4	N.C.	TRD+(2)
5	N.C.	TRD-(2)
6	RX-	TRD-(1)
7	N.C.	TRD+(3)
8	N.C.	TRD-(3)

2.5.1.6 USB

The rear panel of the AS56IPC-615H5 product provides four independent USB 3.0 Type-A ports and four independent USB 2.0 Type-A ports.

2.5.1.6.1 USB

The product has 8 onboard Type-A USB ports.

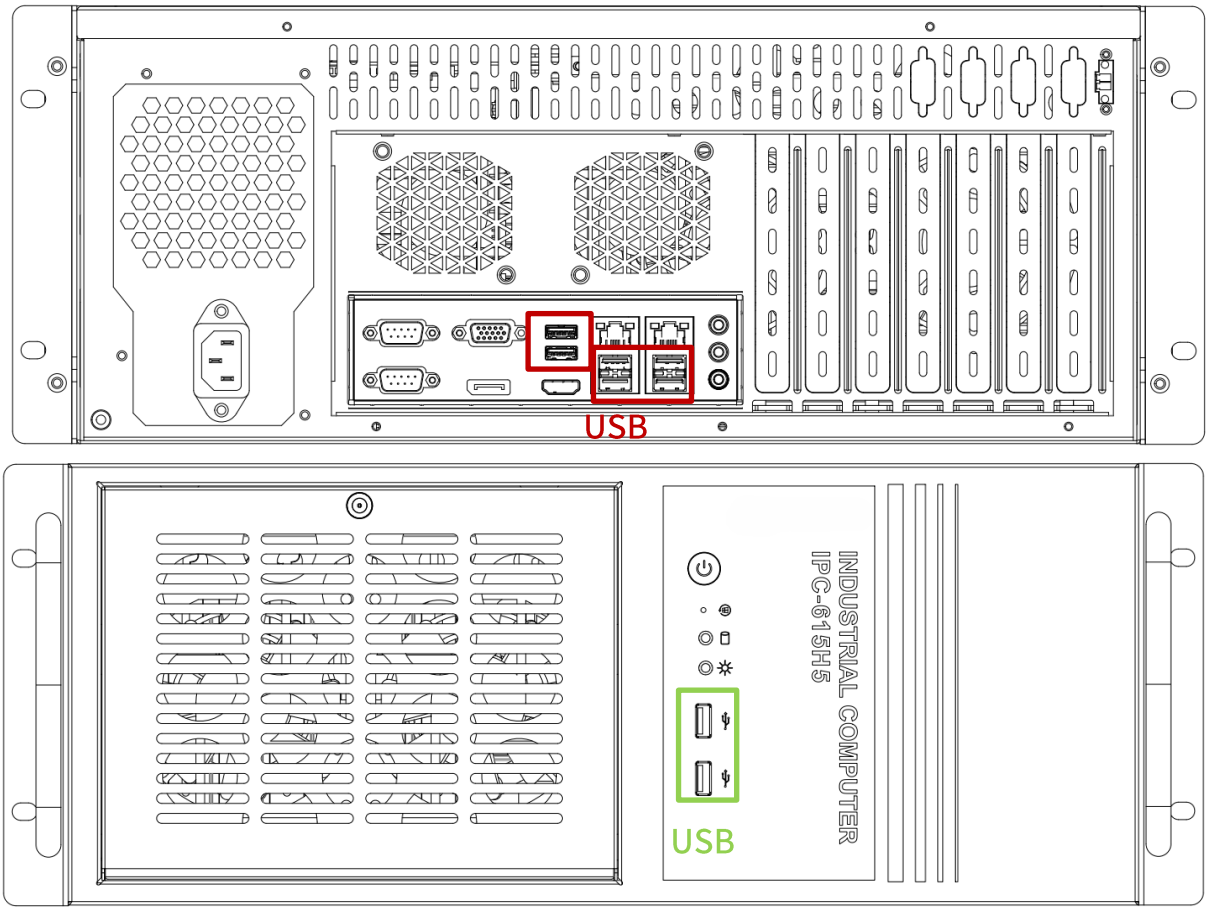
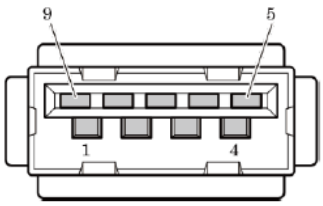


Image 0-9 AS56IPC-615H5

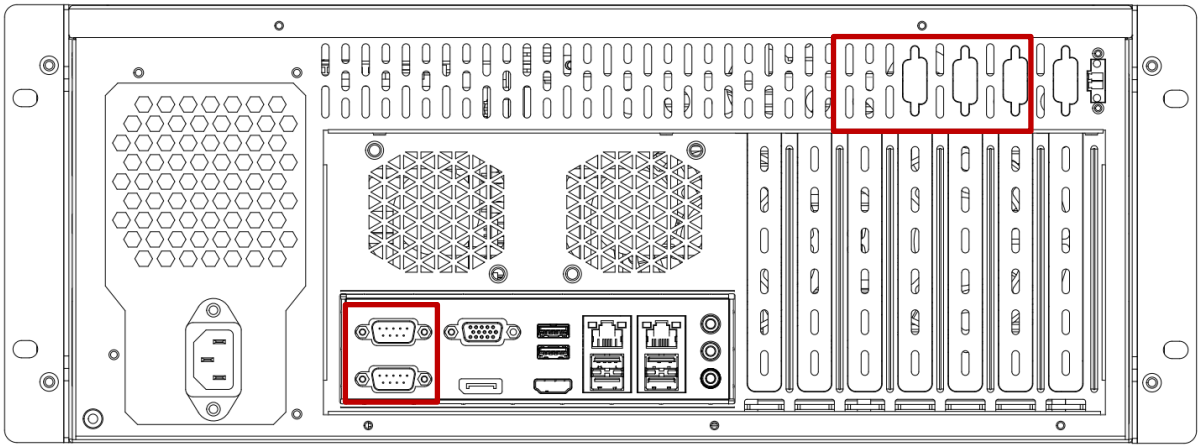
USB 3.0 Connector Pinout Definition：



Pin No.	Signal
1	USB_VCC
2	DATA-
3	DATA+
4	USB_GND
5	SSRX-
6	SSRX+
7	USB_GND
8	SSTX-
9	SSTX+

2.5.1.7 Serial Port COM1-COM6

AS56IPC products provide 2 DB9 serial ports, of which COM1-2 can support RS232/RS485 optional, (expandable COM3-6 only supports RS232).



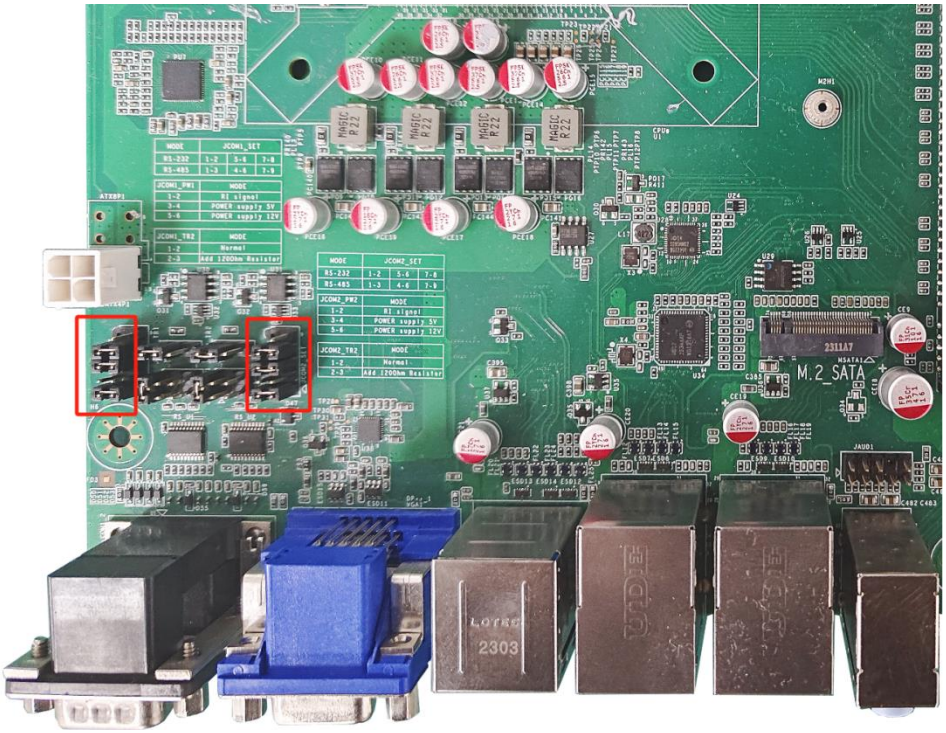


Image 0-11 C236/Q170/H110 Mainboard Jump Cap Position

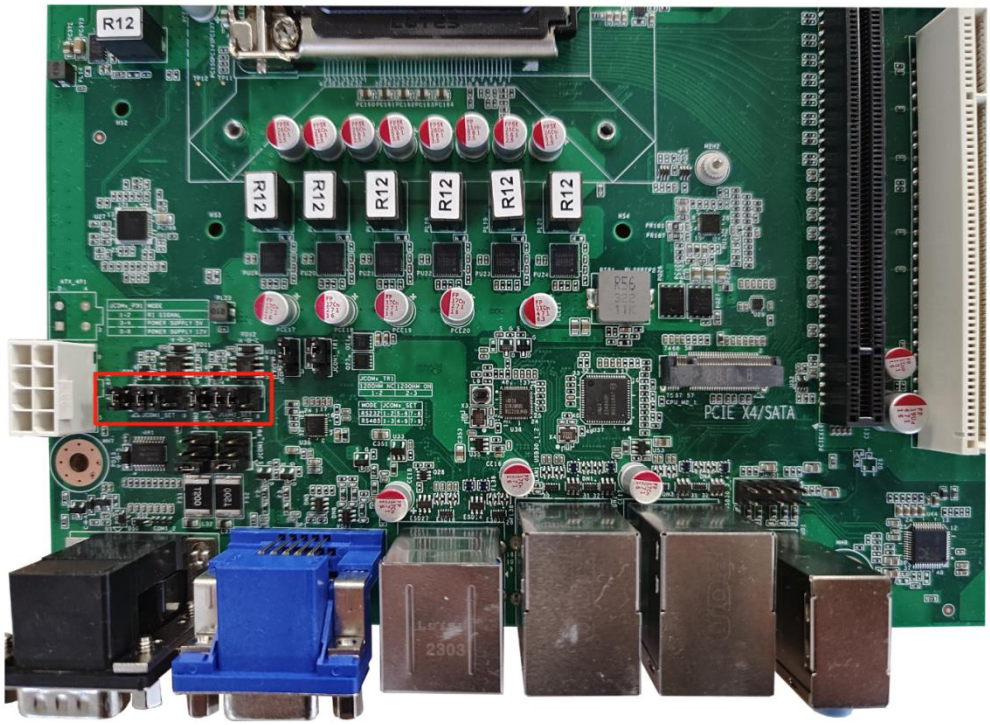


Image 0-12 H420E/Q470 Mainboard Jump Cap Position

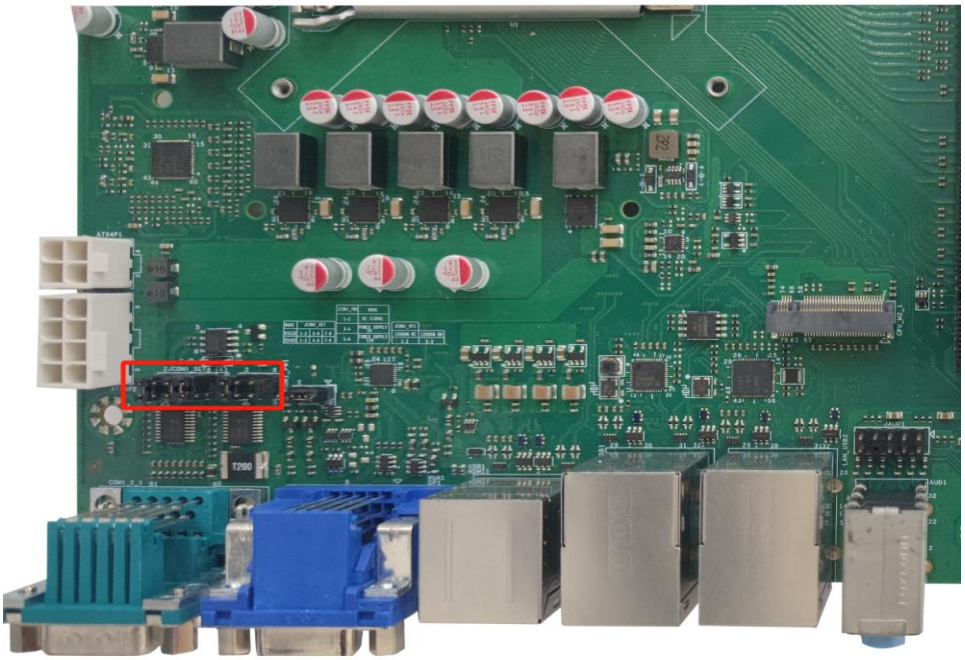


Image 0-13 H610/Q670 Mainboard Jump Cap Position

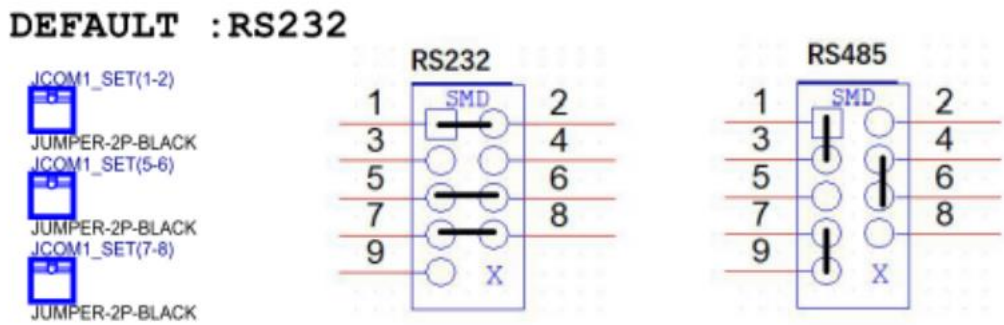
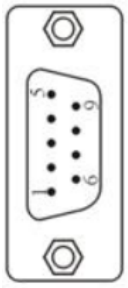


Image 0-14 Mainboard Jump Cap Definition

The serial port signal definition of the DB9 male header connector for COM port is as follows.:

	Pin No.	Signal Name	
		RS232	RS485
 DB9	1	N.C.	B
	2	RXD	A
	3	TXD	N.C.
	4	N.C.	N.C.
	5	GND	GND
	6	N.C.	N.C.
	7	RTS	N.C.
	8	CTS	N.C.
	9	N.C.	N.C.

2.5.1.8 Display Interface

The AS56IPC-615H5 provides standard HDMI + DP + VGA interfaces.

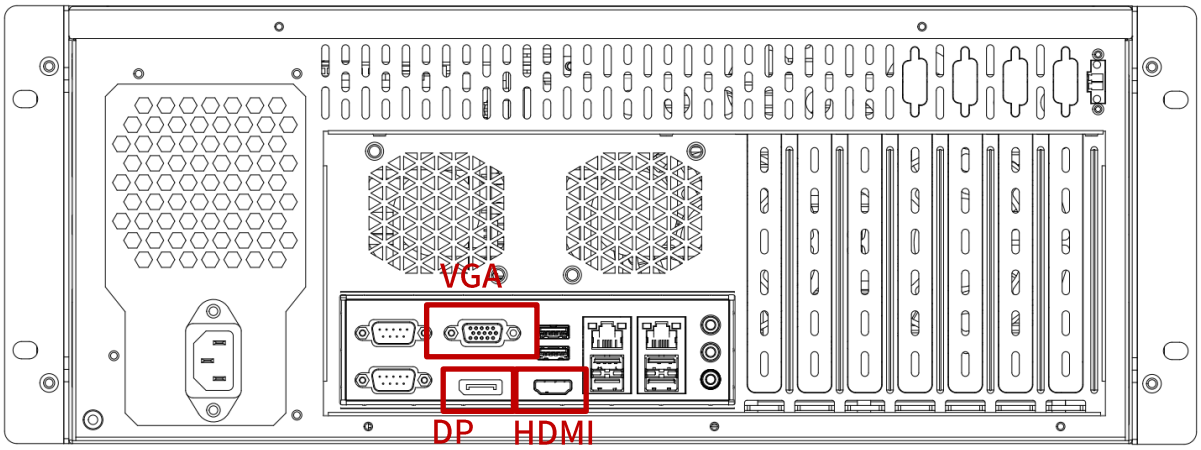
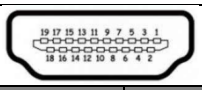


Image 0-15 AS56IPC-615H5

2.5.1.9 HDMI

The AS56IPC-615H5 provides a standard HDMI Type-A high-definition multimedia video display interface, with the pin definitions as follows:

HDMI-A Terminal			
Pin No.	Signal Name	Pin No.	Signal Name
1	TMDS DATA 2+	11	TMDS CLOCK SHIELD
2	TMDS DATA 2 SHIELD	12	TMDS CLOCK-
3	TMDS DATA 2-	13	CEC
4	TMDS DATA 1+	14	N.C.
5	TMDS DATA 1 SHIELD	15	DDC CLOCK
6	TMDS DATA 1-	16	DDC DATA
7	TMDS DATA 0+	17	GND
8	TMDS DATA 0 SHIELD	18	+5V PWR
9	TMDS DATA 0-	19	HOT PLUG DETECT
10	TMDS CLOCK+		

2.5.1.10VGA

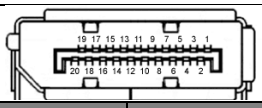
The AS56IPC-615H5 provides a standard DB15 monitor interface, with the pin definitions as follows:

VGA Terminal			
Pin No.	Signal Name	Pin No.	Signal Name
1	RED	9	+5V
2	GREEN	10	GND
3	BLUE	11	N/C
4	N/C	12	SDA

5	GND	13	H SYNC
6	GND R	14	V SYNC
7	GND G	15	SCL
8	GND B		

2.5.1.11DP

The AS56IPC-615H5 provides one standard DisplayPort (DP) monitor interface, with the pin definitions as follows:

DP Terminal			
Pin No.	Signal Name	Pin No.	Signal Name
1	ML_Lane 0(p)	11	GND
2	GND	12	ML_Lane 3(n)
3	ML_Lane 0(n)	13	GND
4	ML_Lane 1(p)	14	GND
5	GND	15	AUX_CH(p)
6	ML_Lane 1(n)	16	GND
7	ML_Lane 2(p)	17	AUX_CH(n)
8	GND	18	Hot Plug
9	ML_Lane 2(n)	19	DP_PWR Return
10	ML_Lane 3(p)	20	DP_PWR

2.5.1.12 JAT1

The motherboard supports two power-on modes: ATX and AT. The ATX mode is initiated by pressing the power button, while the AT mode is the default power-on self-start mode. JAT1 is a jumper that selects between AT and ATX modes, allowing for hardware or BIOS settings to enable the power-on self-start feature. For detailed configuration, refer to Section 3.4.7 on the hardware function jumper settings for automatic restart on power-on.

Setting	Function
1-2 Short Circuit	AT mode, power-on self-start (default)
2-3 Short Circuit	ATX mode, power-on by pressing the power button

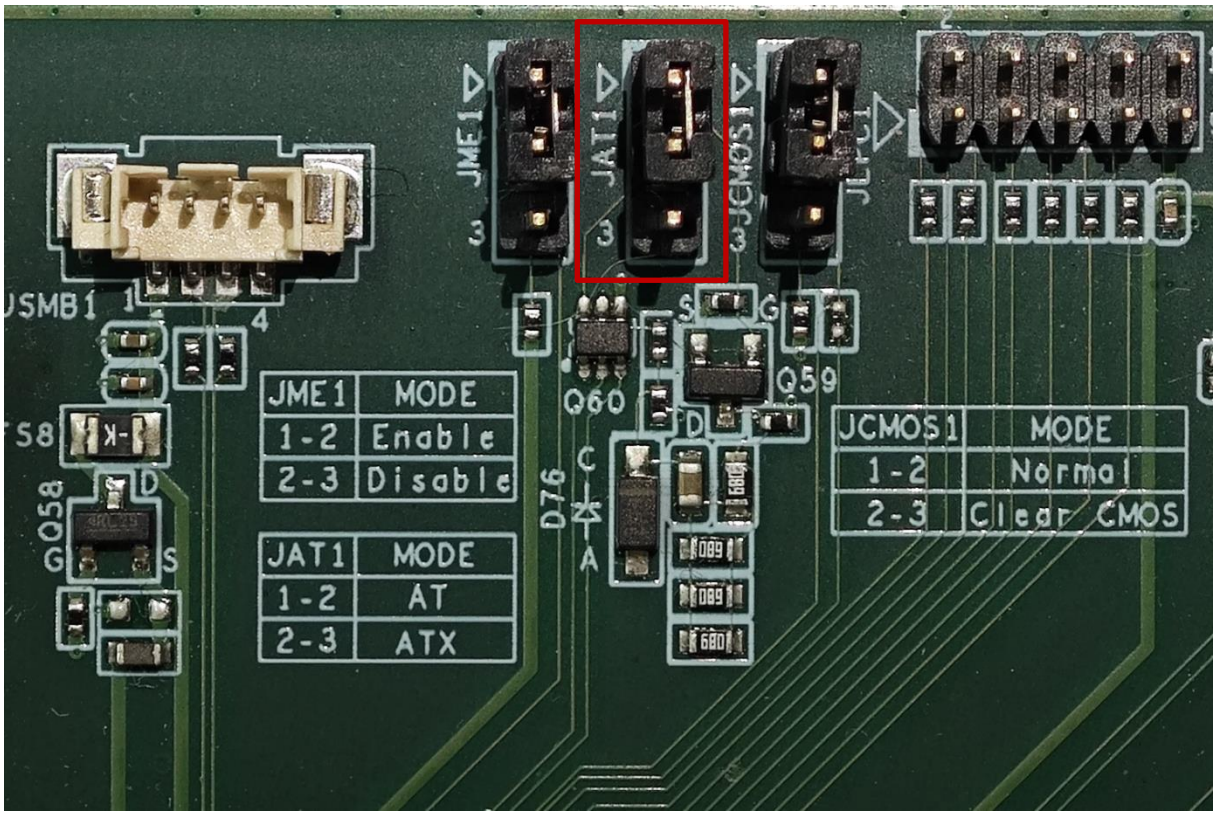


Image 0-16 C236/Q170/H110 Mainboard Jump Cap Position

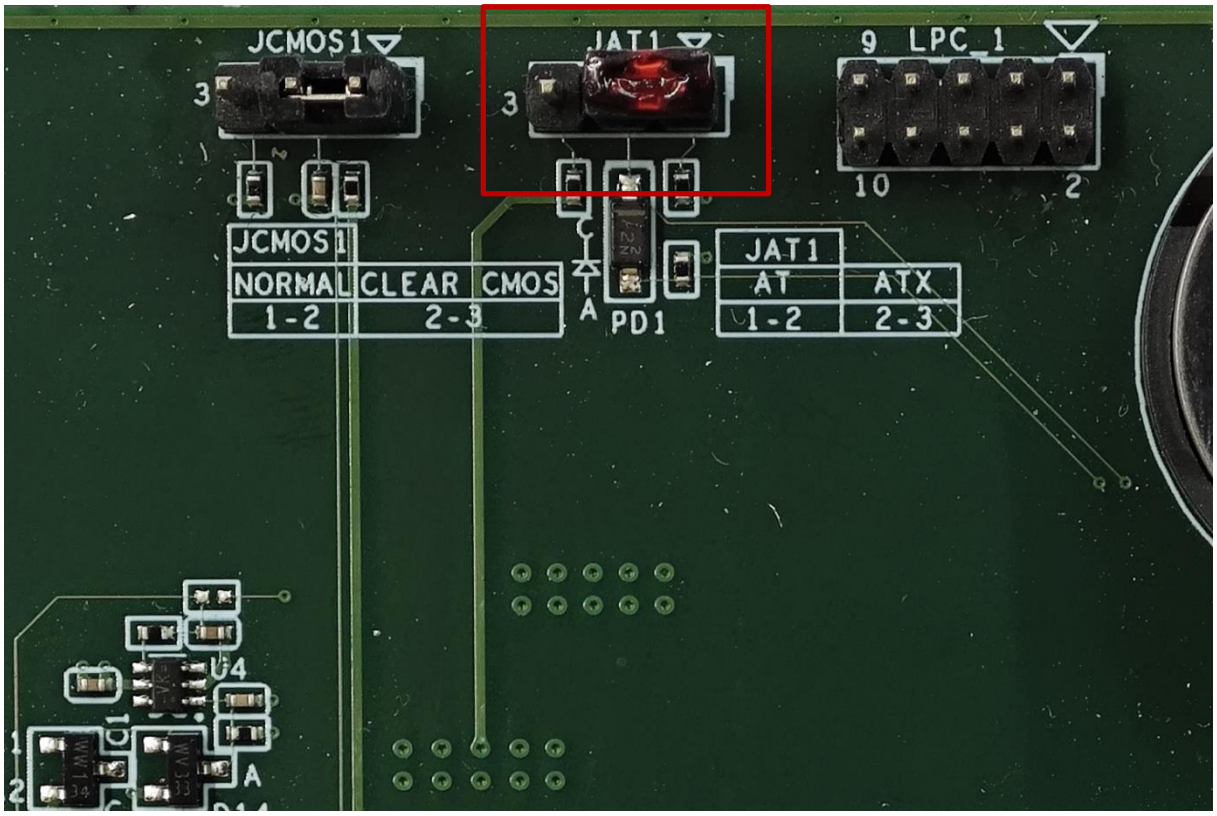


Image 0-17 H420E/Q470 Mainboard Jump Cap Position

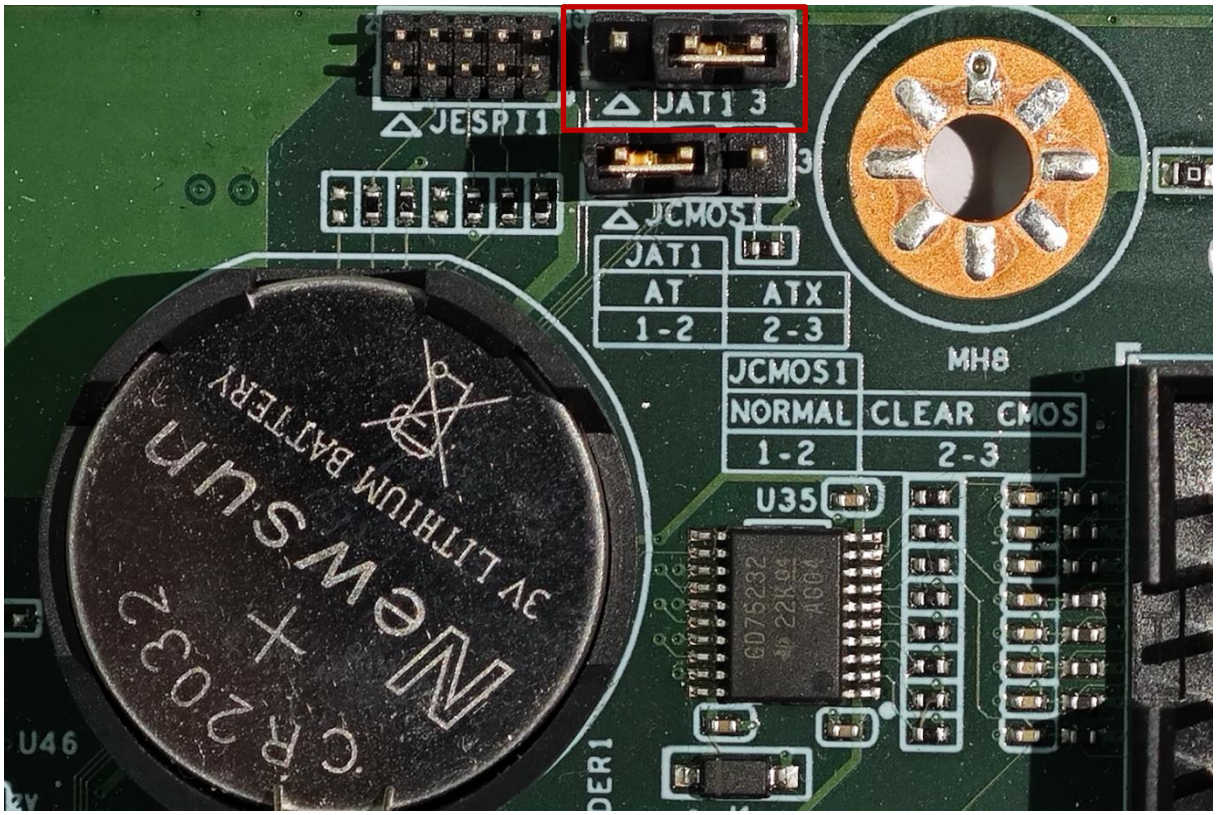


Image 0-18 H610/Q670 Mainboard Jump Cap Position

2.5.1.13 A key to restore the system

AS56IPC-615H5 provides a one-click system restore interface, as defined in Chapter 4: OS Backup and Restore.

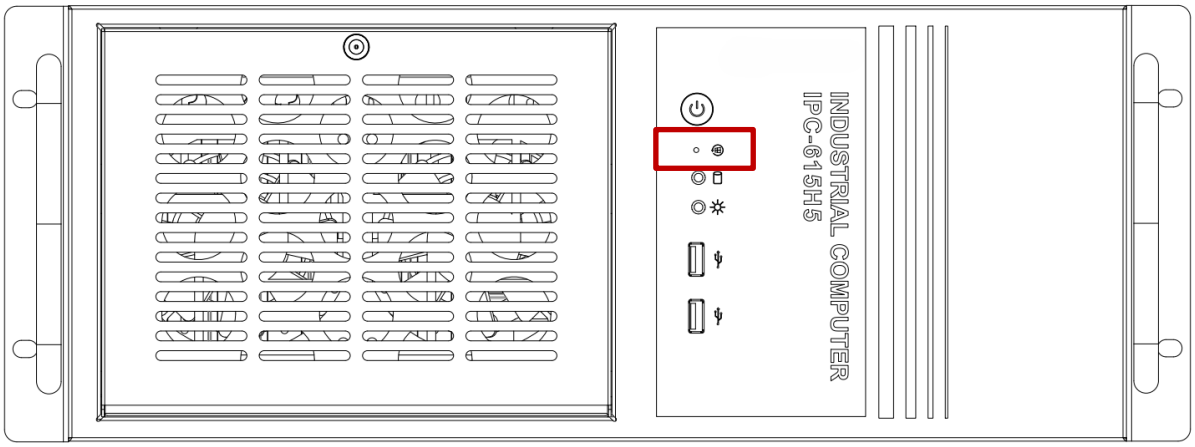


Image 0-19 A key to restore the system

Chapter 3 OS Backup & Restore

This section describes OS backup and restoration.

3.1 System Setup

3.1.1 System Partition-Windows

First, create sufficient system partitions under the system, ensure that the partition format is FAT32, and there is no Chinese character in the disk name.

1.Right-click "My Computer" and select "Manage", then go to "Disk Management" to partition the disk.

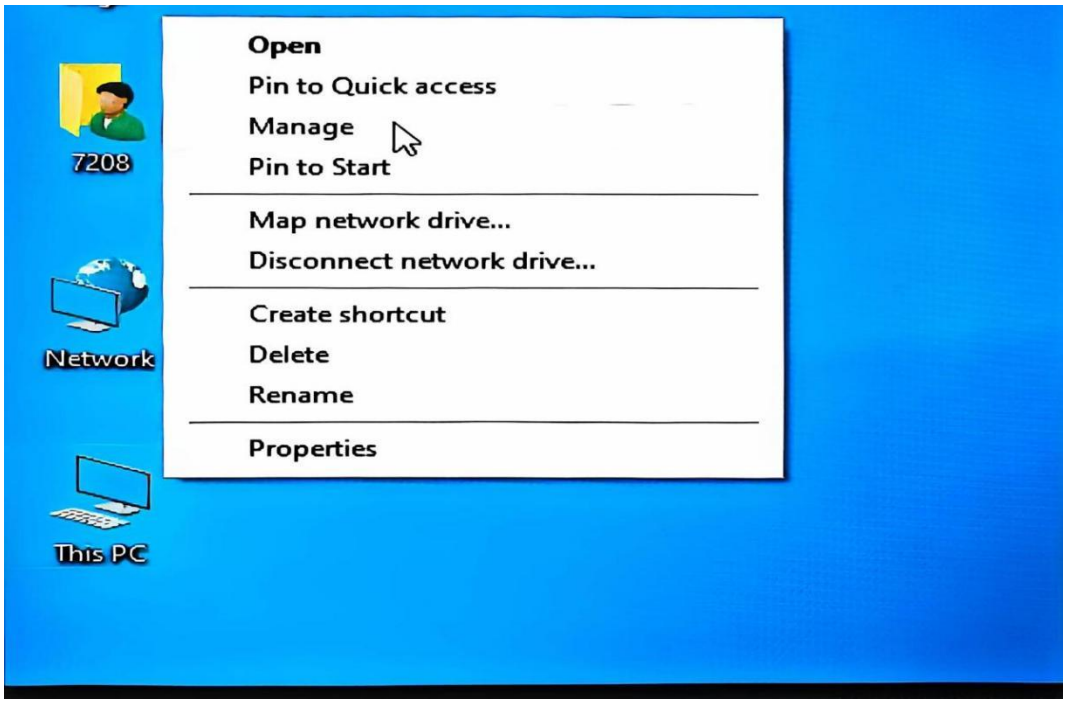


Image 3-1 System Partition - Windows

2. Choose "Shrink Volume" to compress Drive C (or any other drive that has extra space)

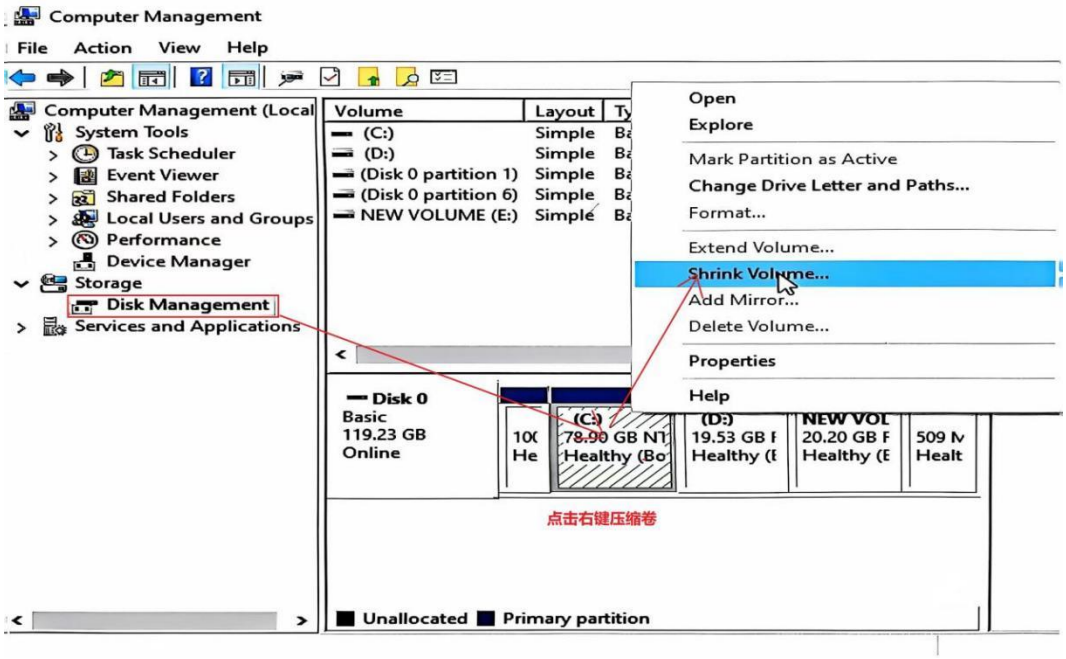


Image 3-2 System Partition - Windows

3.Enter the size of the compression volume in the red box area, here 20480 means to compress 20GB of space on Drive C.

Ps: The FAT32 format has a size limitation of 32GB. The current system partition on Drive C occupies 12G, and the final generated image file size is 5G. Please allocate the partition space size according to the actual usage.

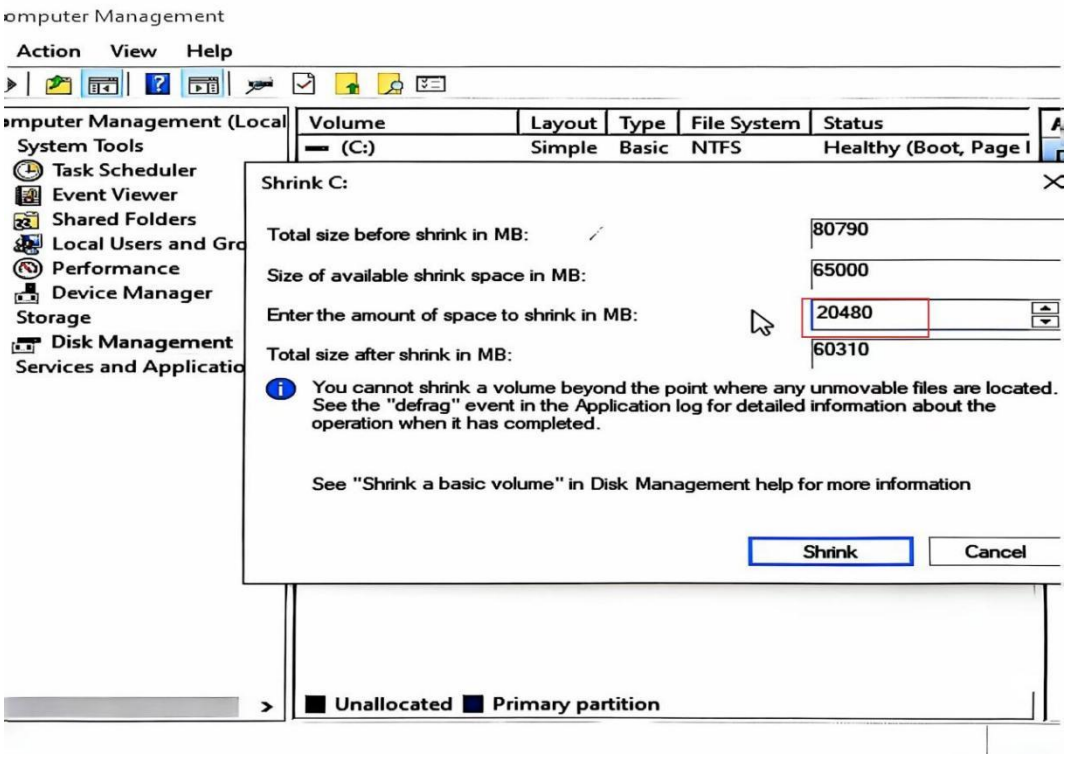


Image 3-3 System Partition - Windows

4.Right-click on the newly compressed blank volume and choose "New Simple Volume".

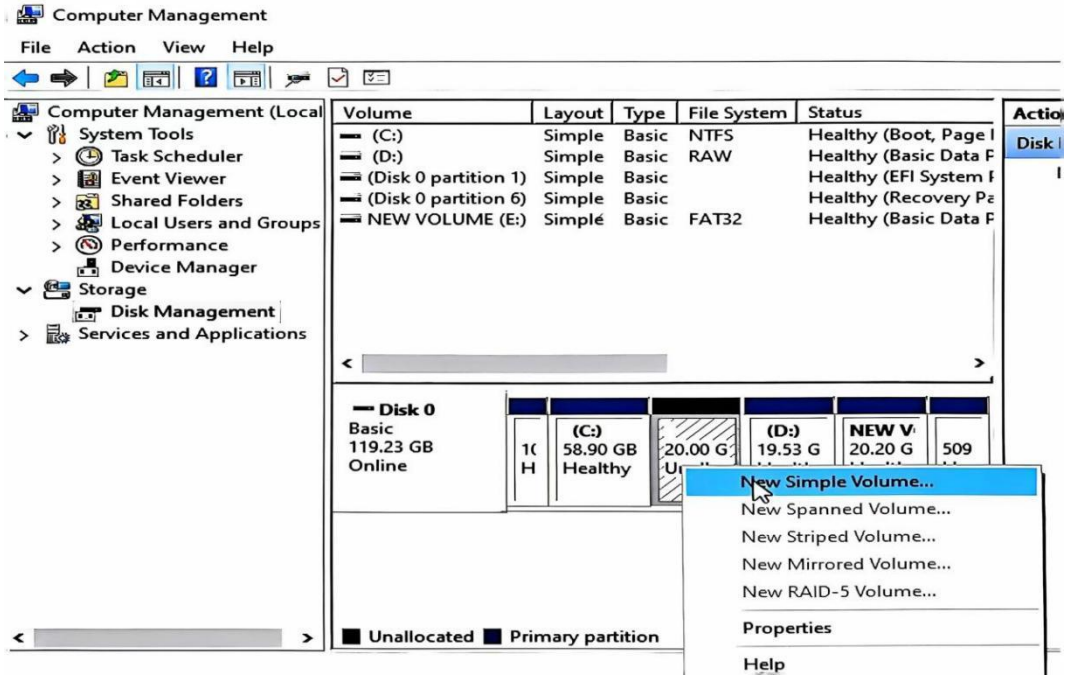


Image 3-4 System Partition - Windows

5.During the process of creating a new volume, only one option needs to be modified, while the other options can remain unchanged. Just click "Next" until the end, and finally, change the disk format to FAT32.

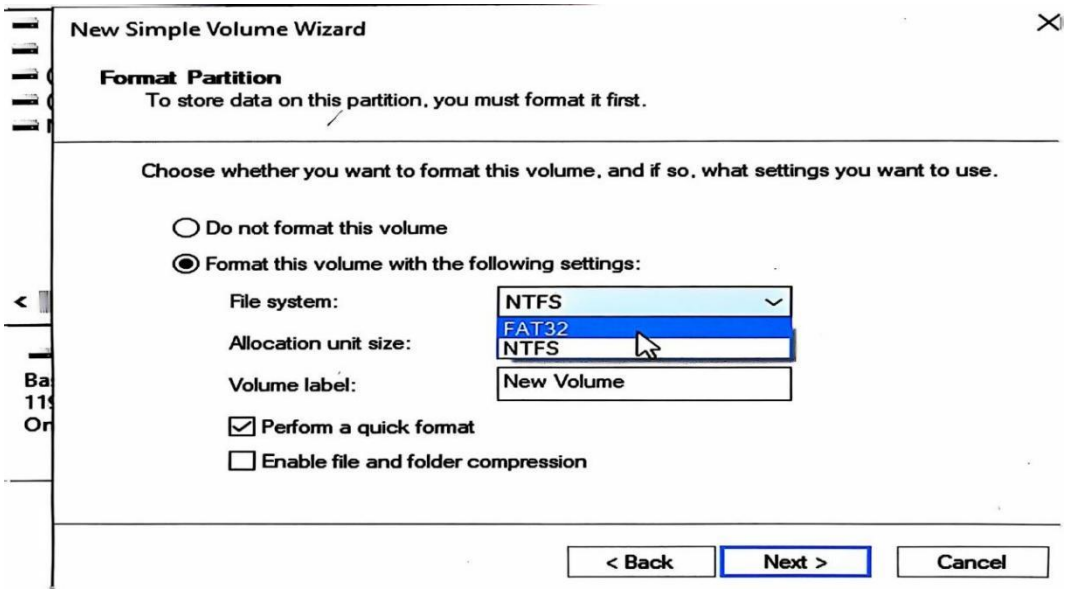


Image 3-5 System Partition - Windows

3.2.1System Partition-Ubuntu

If there is enough unallocated space under the Ubuntu system, there is no need to compress space from the main partition. Please skip steps 1-3.

Ps: If the system is not installed yet, please install the system first before proceeding.

Boot from the Ubuntu installation USB by pressing F7 during startup to enter the system boot menu and select the USB boot option.

Image 3-6 System Partition - Ubuntu

1.Select "Try Ubuntu" or "Install Ubuntu".

2.Ps: If you directly enter the Ubuntu system, you won't be able to modify the root partition space. In installation mode, the system won't lock the root partition. Please be careful when operating, as a mistaken uninstallation may lead to the loss of root files.

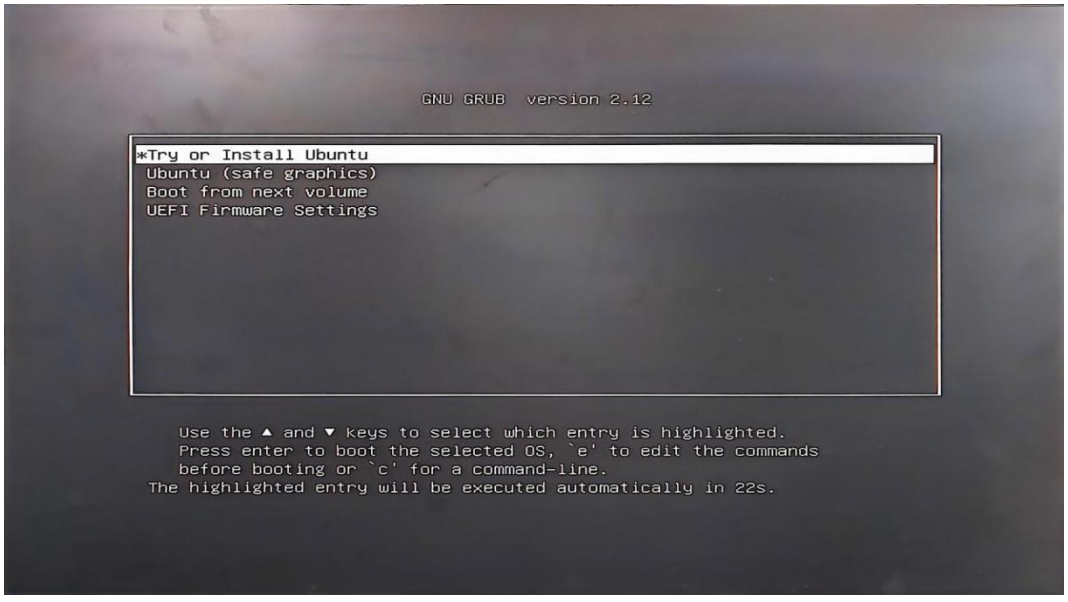


Image 3-7 System Partition - Ubuntu

3.After entering the system, close the installation process and make partition modifications in the installation mode.

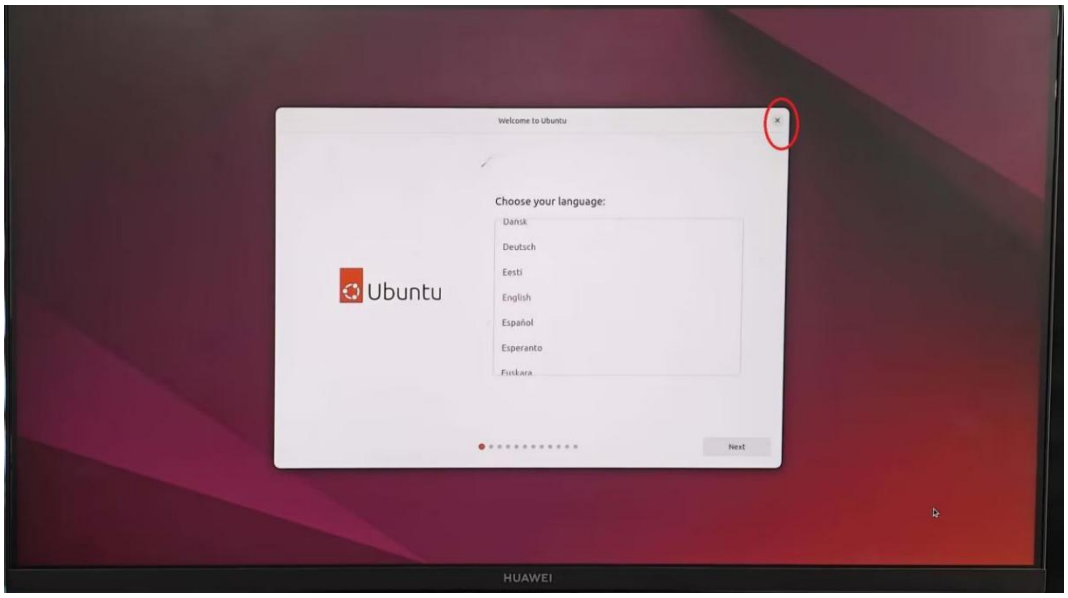


Image 3-8 System Partition - Ubuntu

4.Open the gparted tool using the command.

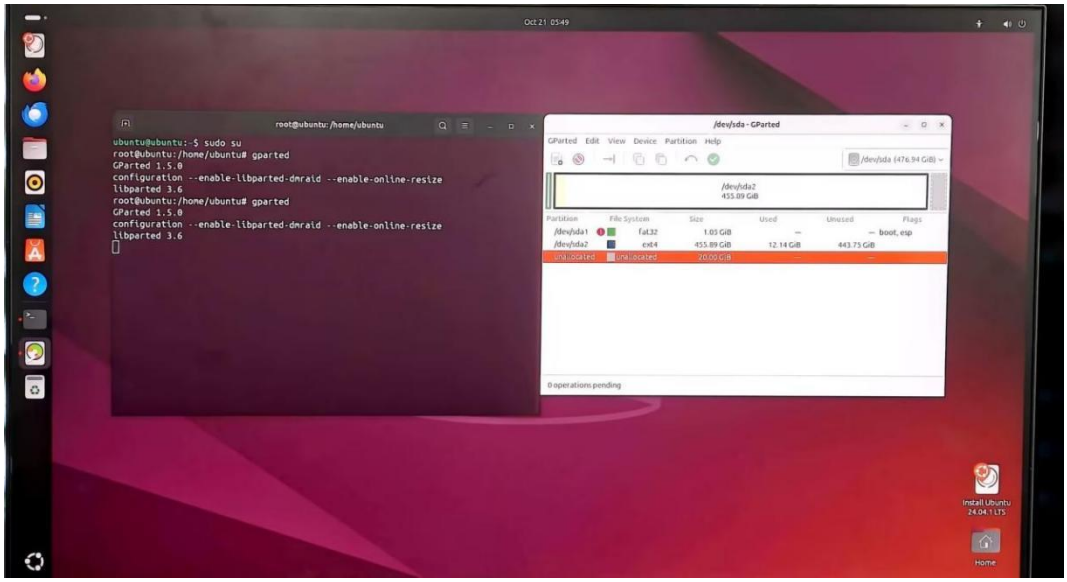


Image 3-9 System Partition - Ubuntu

5.Open the gparted tool, select the volume you want to compress, and perform the Resize/Move function.

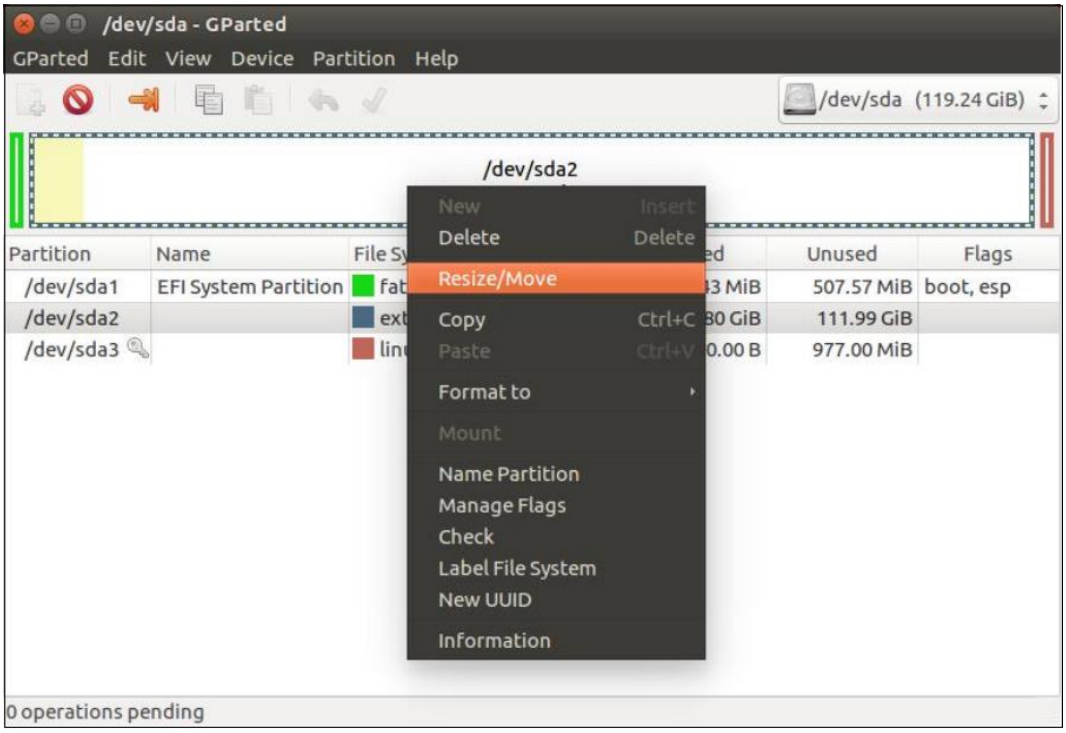


Image 3-10 System Partition - Ubuntu

6.When the following Image interface appears after clicking, first set "free space preceding(MiB)" to 0; then set the required compression space in "free space following(MiB)". Currently, my system partition size is 12G. Set the mirror partition to 10240, which is 10G of space, and click Resize/Move.

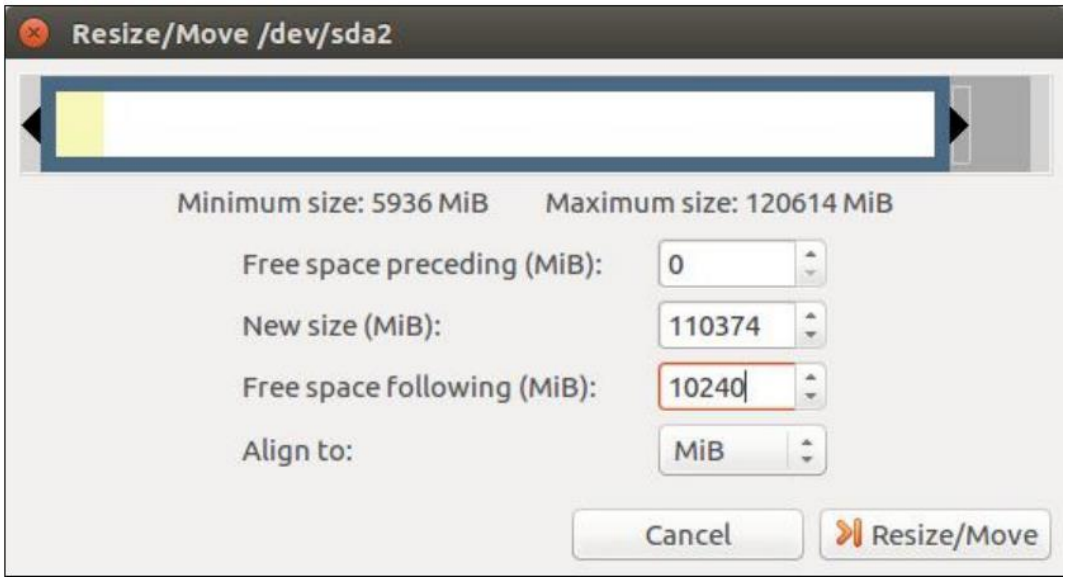


Image 3-11 System Partition - Ubuntu

7.Right-click on the freed-up space after compression and choose "New".

Image 3-12 System Partition - Ubuntu

8.Enter the next Image interface, select the red box and set the format to fat32, and label the volume as OS_BACKUP.

Image 3-13 System Partition - Ubuntu

9.After making the modifications, click the "Apply" button at the top to confirm the changes.

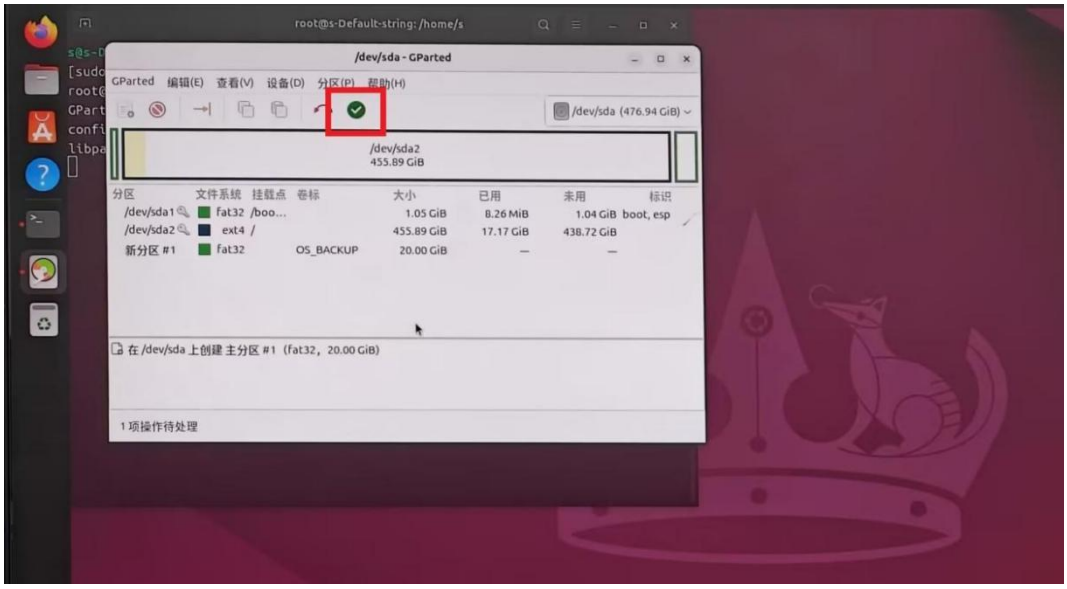


Image 3-14 System Partition - Ubuntu

3.3.1 Tool deployment（SATA）

1.Download the file from the link and extract it, then put the contents into the newly created partition, as shown in the following Image.

Baidu Pan link: https://pan.baidu.com/s/13I2K_2pH8qLGxTd-qKvvsA?pwd=pbnx

Extraction code: pbnx

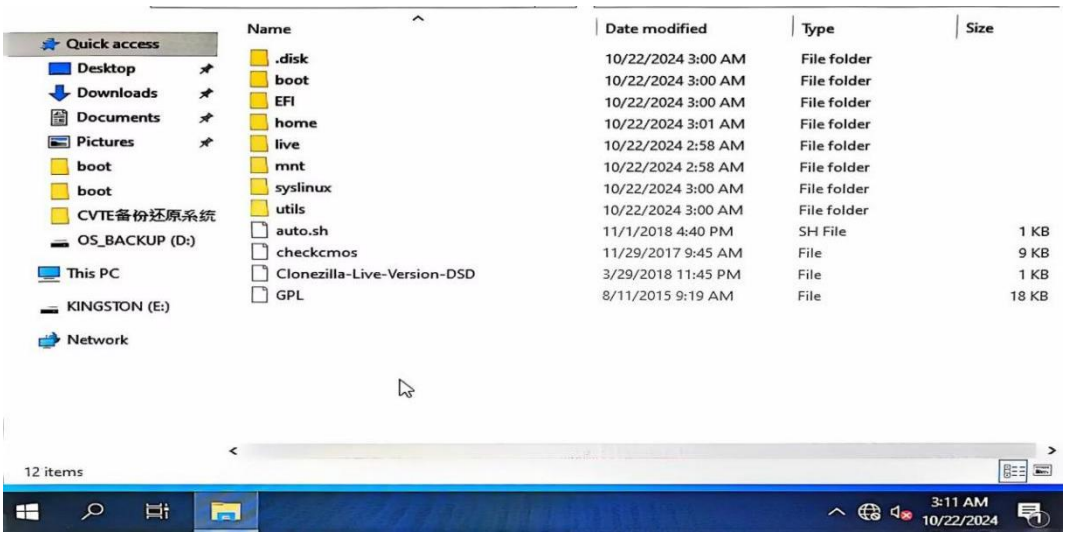


Image 3-15 Tool deployment

If you have custom requirements, you can modify the corresponding partition location in the script.

Ps: The situation of sda in Ubuntu is different from that in Windows. This function is designed for Windows systems by default. For Ubuntu, please use the "lsblk -f" command to check the sda partition situation and modify the information in the script accordingly.

2.First, enter the System_Recovery folder, and then enter the path System_Recovery\EFI\boot.

Open the backup function script backup.cfg.

Image 3-16 Tool deployment

3.Select the following content in the script file, and all subsequent modifications will be based on this content.

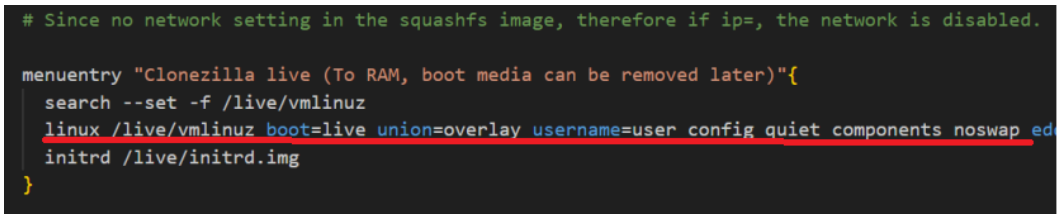


Image 3-17 Tool deployment

4.Based on the content of the above sentence, find the location of the next Image, and fill in the red box with the corresponding location of the newly created partition.

Image 3-18 Tool deployment

5.Fill in the red box with the partition location of the C drive.

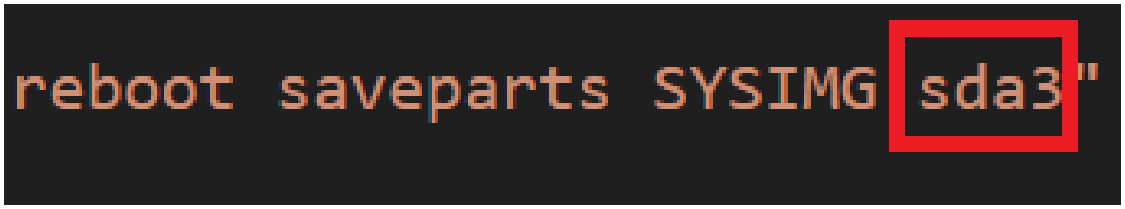


Image 3-19 Tool deployment

6.The restore script is similar to the backup script. Open the restore script restore.cfg in the same directory, and modify the content of the same sentence. The red box should indicate the location of the newly created partition.

Image 3-20 Tool deployment

7.Modify the values in both red boxes to the location of the C drive.

Image 3-21 Tool deployment

Ps: If you use nvme as the disk, you need to change

"sda" to "nvme0n1p + 3/4".

For example: sda3 -> nvme0n1p3, sda4 -> nvme0n1p4.

3.2 OS Backup & Restore

1.Press and hold the Delete key during boot-up to enter the BIOS interface. Select the Chipset category and enter the sub-item PCH-IO Configuration below.

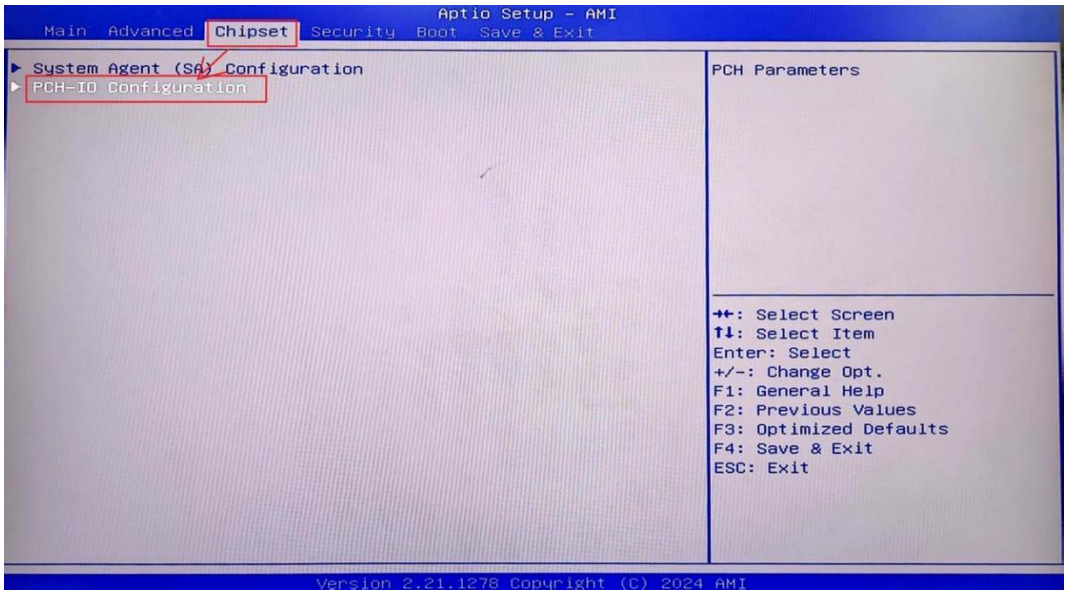


Image 3-22 OS Backup & Restore

2.Then enable the system backup function OS Recovery -> Enable.

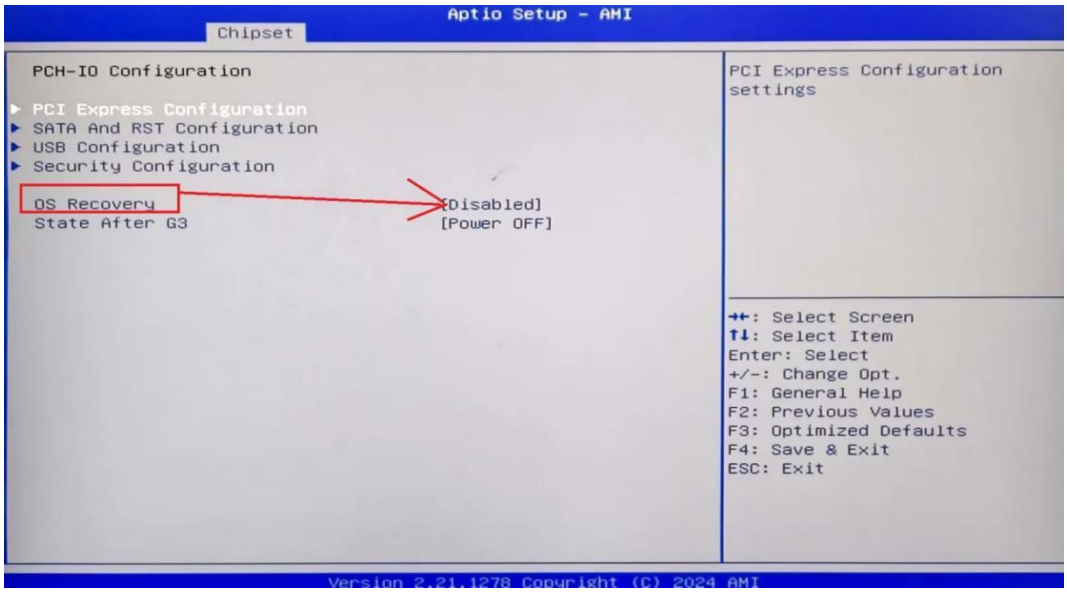


Image 3-23 OS Backup & Restore

3.Method 1: Press and hold the one-key recovery button for 3 seconds at the initial boot stage.

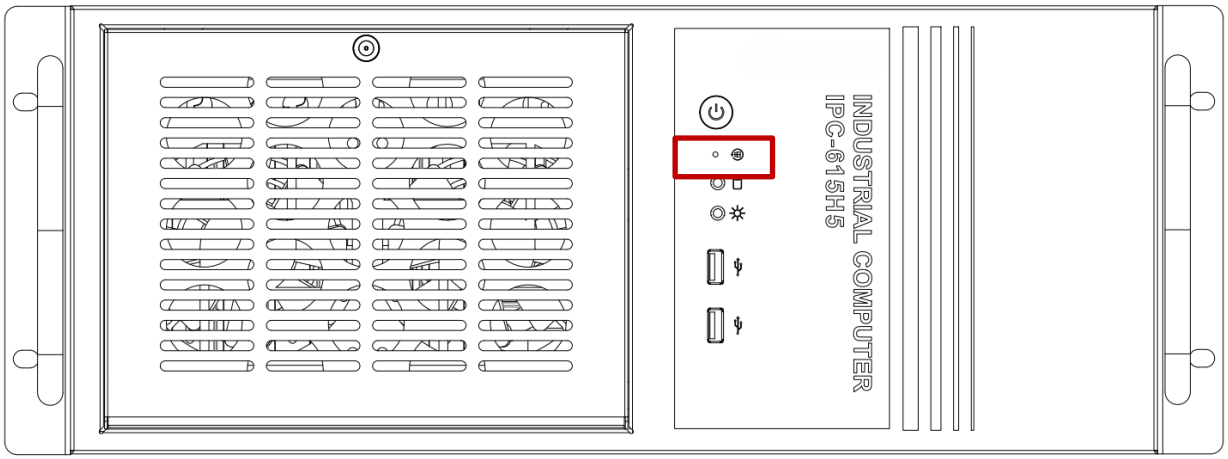


Image 3-24 OS Backup & Restore

4.Method 2: After the system is deployed, press the CTRL+F3 shortcut key in the BIOS interface to display "Recovery OS", and then press Enter.

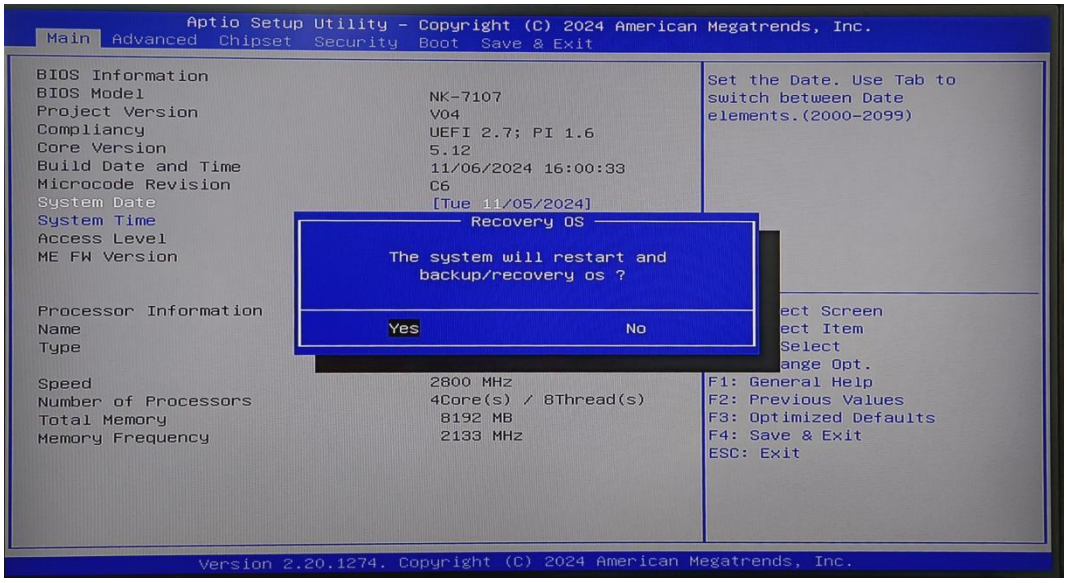


Image 3-25 OS Backup & Restore

5.Using one of the above two methods will take you to the Recovery Button menu, where you can select either the System backup (backup) or System Recovery (restore) menu interface.

Image 3-26 OS Backup & Restore

Chapter 4 BIOS Settings

4.1Introduction to this Chapter

This section describes how to use AMI's BIOS configuration program to set up your system. Setting BIOS parameters correctly can ensure stable and reliable operation of the system, while also improving the overall performance of the system. Improper or even incorrect BIOS parameter settings can greatly reduce the system's performance, making it unstable or even unable to function properly.

When the BIOS setting content in CMOS is damaged, the system will also request to enter the BIOS setting program. All setting values modified through BIOS are also saved in the system's CMOS memory, which is powered by the battery. Even if the external power supply is cut off, its content will not be lost unless an operation to clear the CMOS content is performed.

4.2 Boot BIOS Settings

When the system is powered on and turned on normally, you can see the message prompted to enter the BIOS setup program.

Press <DEL> or <ESC> to enter setup.

At this point (invalid for other times), press the key specified in the prompt message (usually the<Del>key) to enter the BIOS setup program.

If this prompt message has disappeared but the BIOS setup system needs to be re-entered, the computer needs to be powered off and restarted, or the system needs to be reloaded using the<Ctrl>+<Alt>+<Delete>key combination. Follow the above prompt message to re-enter the BIOS setup interface.

4.3 BIOS Setup Method

Under normal circumstances, use the arrow keys on the keyboard to select the settings tab. Press to enter the setting, '+' and '-' keys to switch between settings, to access help information, and to exit the settings.

For details, refer to the table below. The specific settings are subject to the actual motherboard's BIOS configuration.

Hot Key	Function	Description
<←><→>	BIOS Interface Selection	Within the BIOS Interface
<↑><↓>	BIOS Option Selection	Within the BIOS Interface
<CTRL>+<ALT>+<DEL>	Restart the System	After the system powers on and boots up
<Enter>	Confirm Selection	Within the BIOS Interface
<DEL>	Enter the BIOS Setup Interface	Within the BIOS Interface
<ESC>	Exit the BIOS Setup Interface	After the system powers on and boots up
<F3>	Load default	Within the BIOS Interface
<F4>	Save Settings and Exit	Within the BIOS Interface
<F7>	Invoke the BIOS Quick Boot Option Menu	After the system powers on and boots up

4.4 BIOS Settings

: Due to the BIOS program being updated from time to time, the following BIOS setup interface and description are for reference only.

4.4.1 BIOS Main Interface

Once the system is powered <Del>on, press to enter the BIOS setup interface, and the main menu will appear on the screen. Use the up, down, left, and right arrow keys to select among the relevant options, and then press <Enter>to enter the submenu.

The Main interface is the first interface for users to enter the BIOS, where you can query BIOS version, CPU, memory and other related information, and set the system date and time.

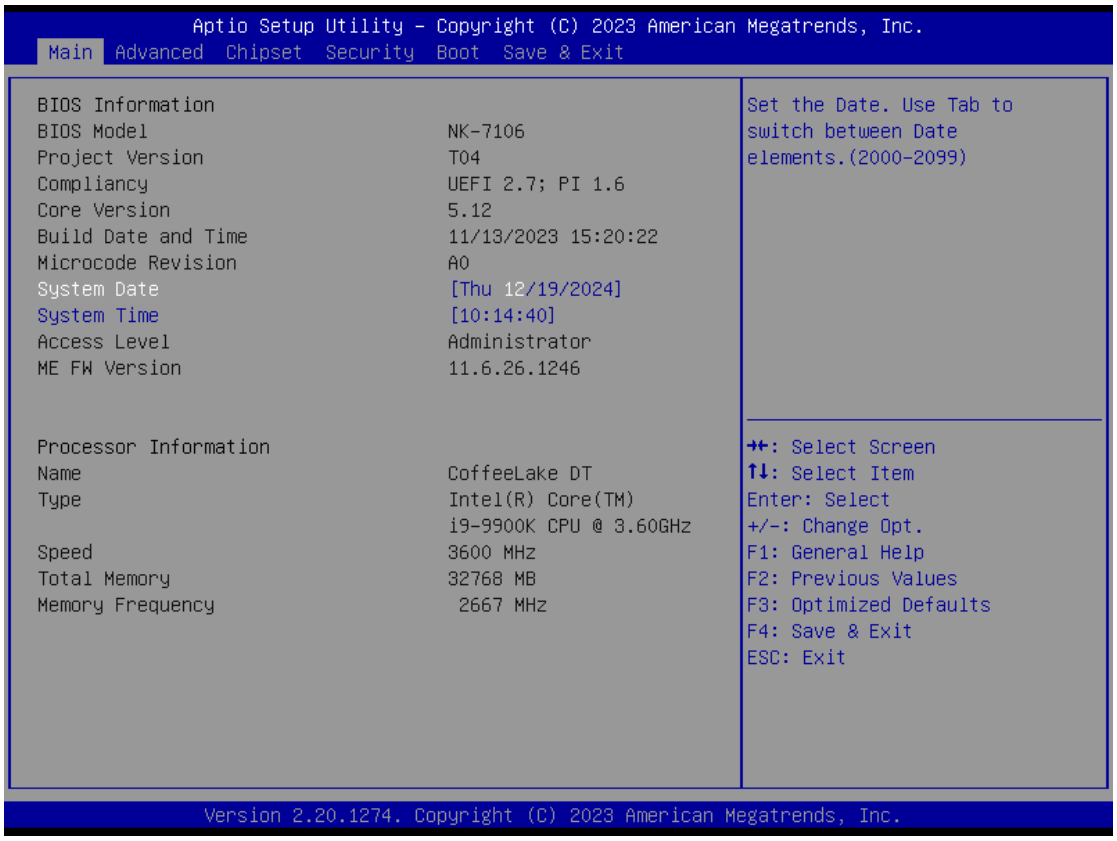


Image 0-1 BIOS-Main

You can switch between the following menu items using the <- and -> arrow keys on the keyboard:

- **Main**
  - In this menu, you can view the basic configuration information of the system, set the language, and system time, etc
- **Advanced**
  - In this menu, you can set the specific functions of the system
- **Chipset**
  - In this menu, you can set the function of the system chipset
- **Security**
  - In this menu, you can set password protection and other security features for the system
- **Boot**
  - In this menu, you can set the boot sequence of the system
- **Save & Exit**
  - In this menu, you can load or save settings and exit the BIOS setup system

4.4.2 Main

Selecting "System Date" or "System Time" allows you to change the system date and time, respectively. Press the key or <-><-> arrow keys to move between fields. The system date format is "Month / Day / Year," and the system time is in 24-hour format, with the format being "Hour : Minute : Second." Use the "+", "-", and number keys to modify the values. Press the Enter key to switch between Month / Day / Year or Hour / Minute / Second. After making the changes, press F4 to save the settings, which will take effect after a reboot

■ Display Item

Item	Content	Description
Bios Version	xxxxx	BIOS version

■ Configurable Items

Item	Content	Description
System Date	Week Day Month / Day / Year	Set the system date
System TIme	Hour : Minute : Second	Set the system time

4.4.3Advanced

Entering the Advanced interface provides access to advanced system settings. Here, you can configure various advanced options such as CPU settings, memory settings, SATA settings, overclocking settings, virtualization options, and more. You can navigate through the options using the <↑><↓> keys and enter a setting by pressing . This section will introduce the Advanced settings options. The Advanced interface is shown in the image below:

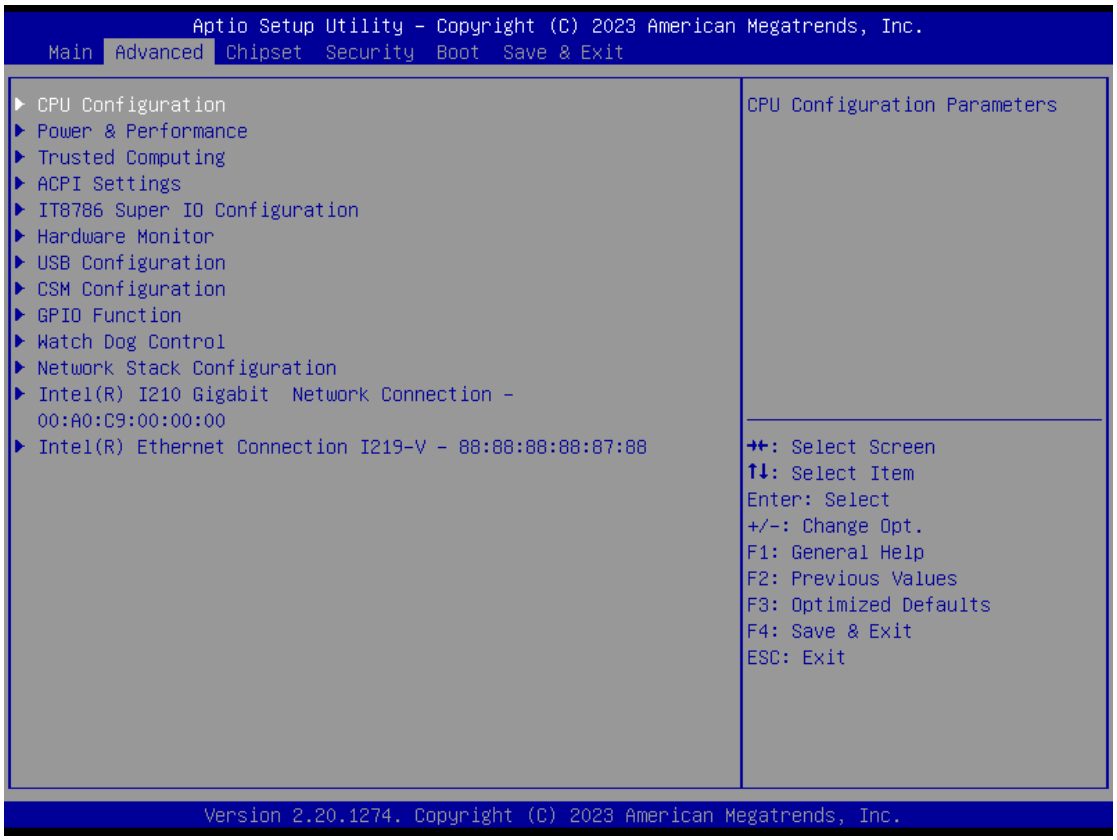


Image 0-2 BIOS-Advanced

: Please set it carefully under the guidance of technical support. Improper setting may cause the system to fail to start or hardware damage!

4.4.4 RTC Wake Settings

In the Advanced interface, sequentially select RTC Wake Settings -> Wake System with Fixed Time to enable or disable the system's scheduled wake-up feature. The default setting is Disabled. To set it to Enabled, you can specify the date, hour, minute, and second for the system to wake up at a designated time. After completing the settings, press F4 to save and exit. The changes will take effect upon restart.

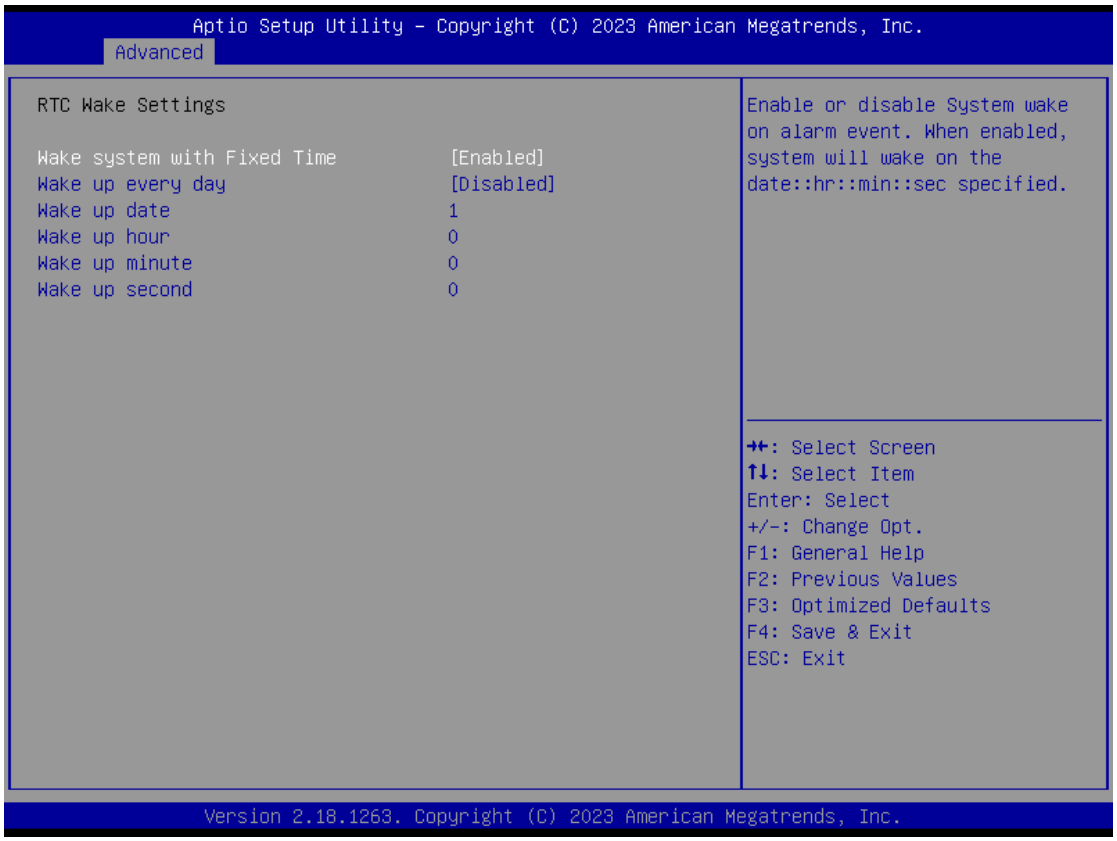


Image 0-3 BIOS-Advanced

4.4.5 COM Port Mode Setting

In the Advanced interface, sequentially select IT8786 Super IO Configuration > Serial Port 1/2 Configuration > Serial Port > RS485 Autoflow Control. Serial Port X (X represents the serial port number) is for enabling or disabling the COM port, with the default setting being Enabled. RS485 Autoflow Control is for enabling or disabling RS485 flow control, with the default setting being Enabled. If the hardware serial port is set to RS485, it should be set to Enabled. If you need RS232 mode, you must change the flow control of the corresponding serial port to Disabled. After completing the settings, press F4 to save and exit. The changes will take effect upon restart.

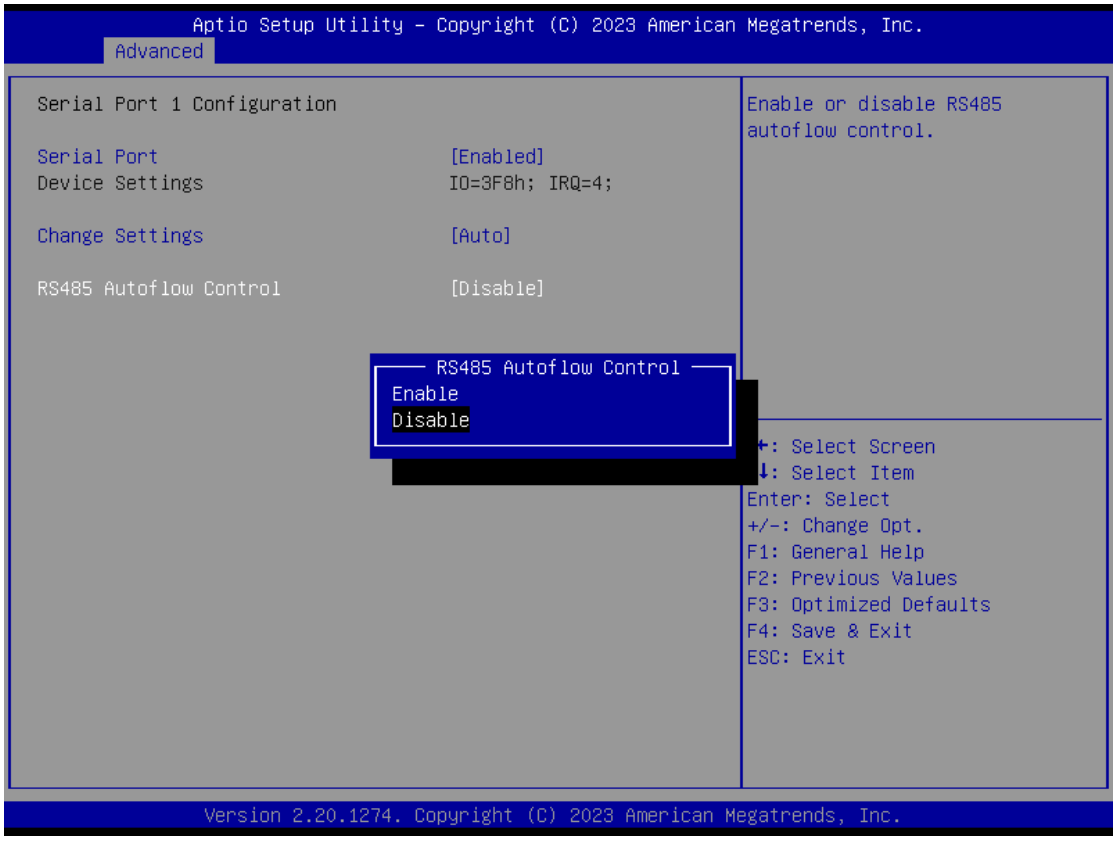


Image 0-4 BIOS-Advanced

4.4.5.1Hardware Monitor

In the Advanced interface, select Hardware Monitor to display information such as CPU temperature, system temperature, critical voltage parameter values, and Smart Fan Function.

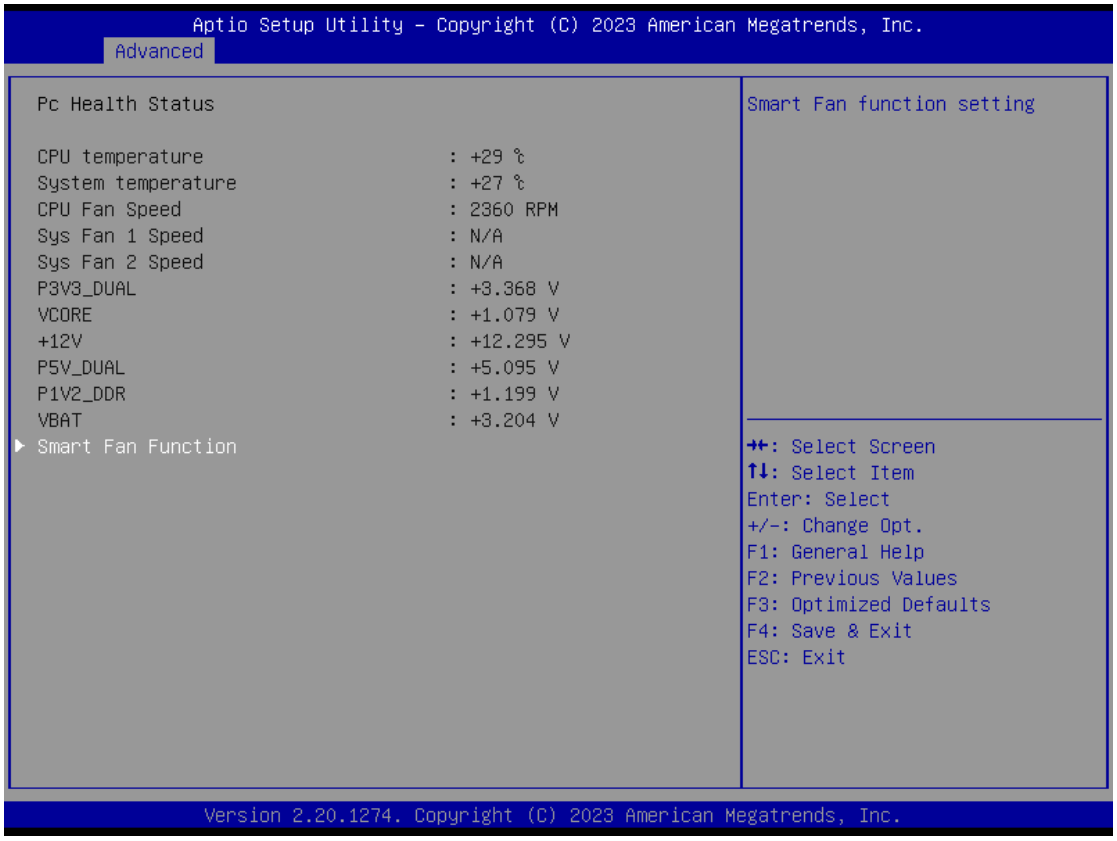


Image 0-5 BIOS-Advanced

4.4.5.2Cpu Fan Setting

Smart Fan Function: There are Cpu Fan Setting, SysFan1 Setting, and SysFan2 Setting. Smart Fan1 Mode is divided into Manual Mode (Software Mode) and Intelligent Mode (Automatic Mode). The default is Automatic Mode. By selecting Software Mode, users can set the system temperature risk value, fan start temperature, fan stop temperature, fan mode, duty cycle, etc., according to their application needs. The settings for SysFan1 Setting and SysFan2 Setting are the same as those for Cpu Fan Setting.

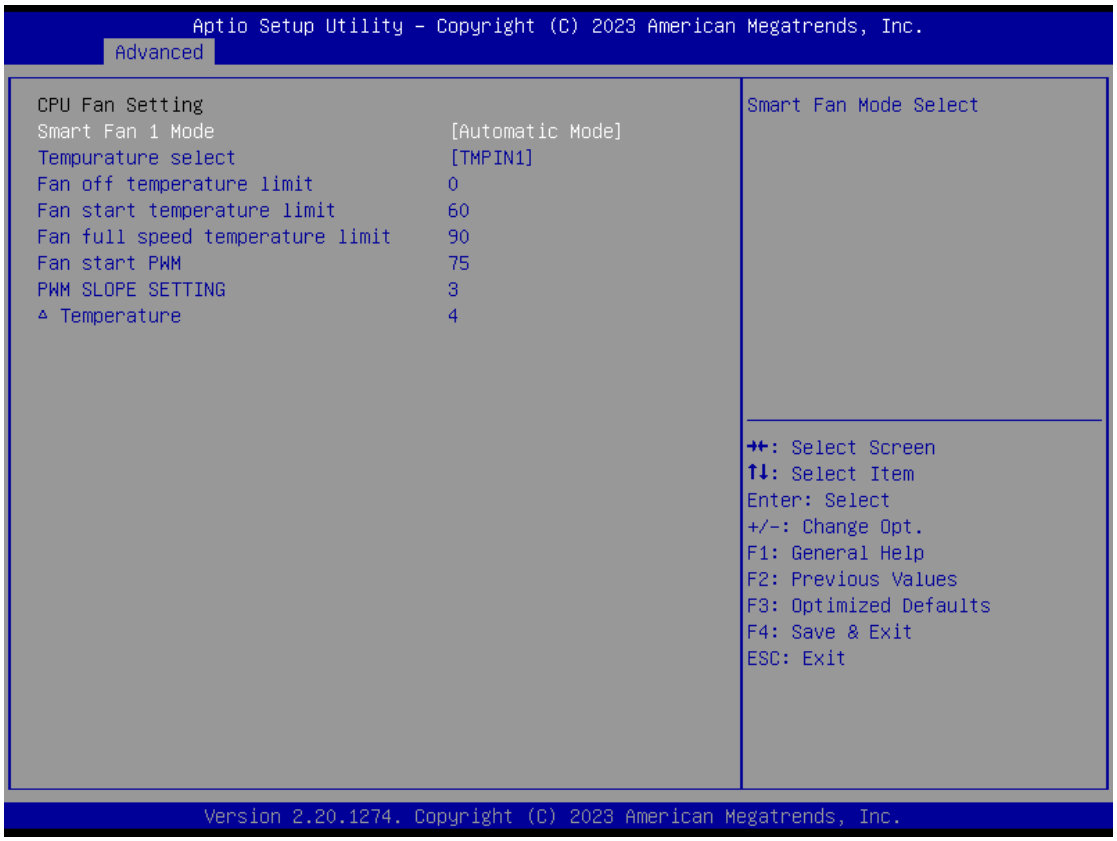


Image 0-6 BIOS-Advanced

4.4.5.3Turbo Mode

In the Advanced interface, sequentially select PowerIn the Advanced interface, sequentially select PowerPower Management Control > Boot Performance sequentially select Power & Performance > CPU-Power Management Control > Boot Performance Mode. The default setting is Turbo Performance. Select Max Non-Turbo Performance and set Turbo Mode to Disabled to turn off overclocking.

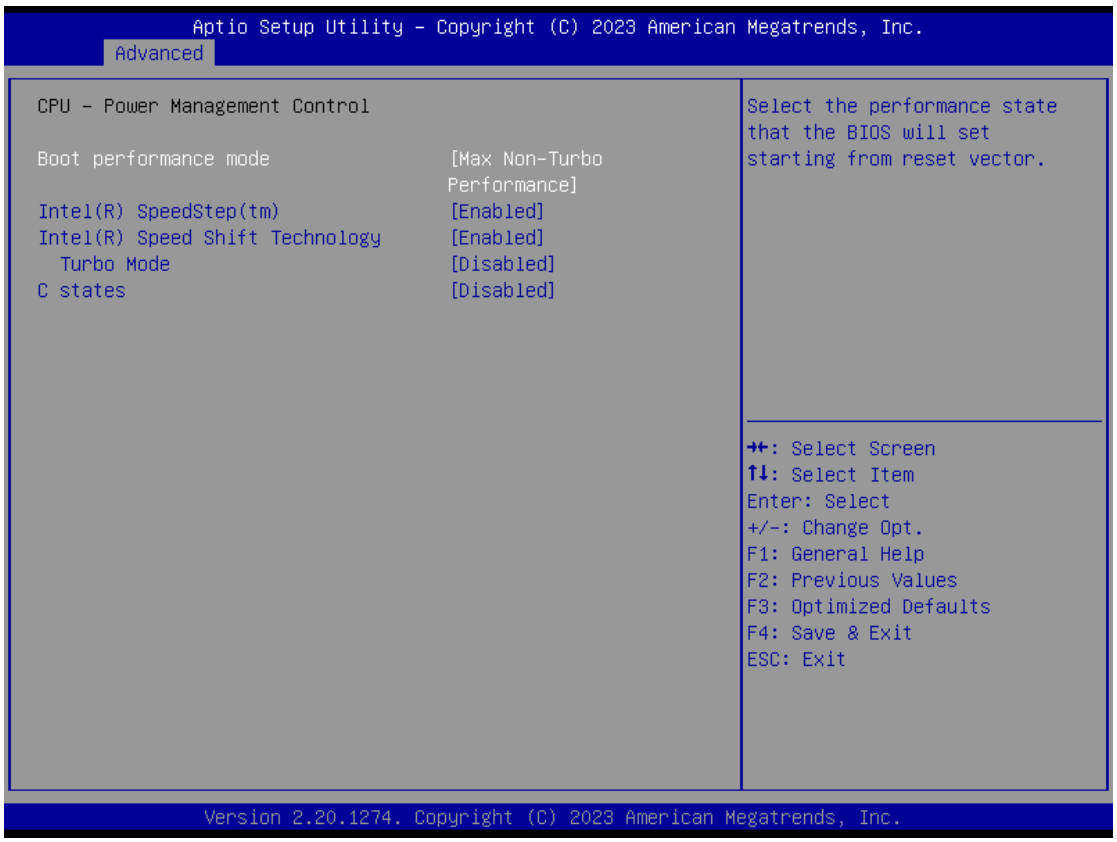


Image 0-7 BIOS-Advanced

4.4.5.4 GPIO

In the Advanced interface, select GPIO Function -> Change GPIO Function to enable or disable GPIO. The default setting is Disabled. When set to Enabled, you can configure individual GPIO Functions as GPI (General Purpose Input) or GPO (General Purpose Output). After selecting GPO mode, you can choose between HIGH or LOW. After completing the settings, press F4 to save and exit. The changes will take effect after the system restarts.

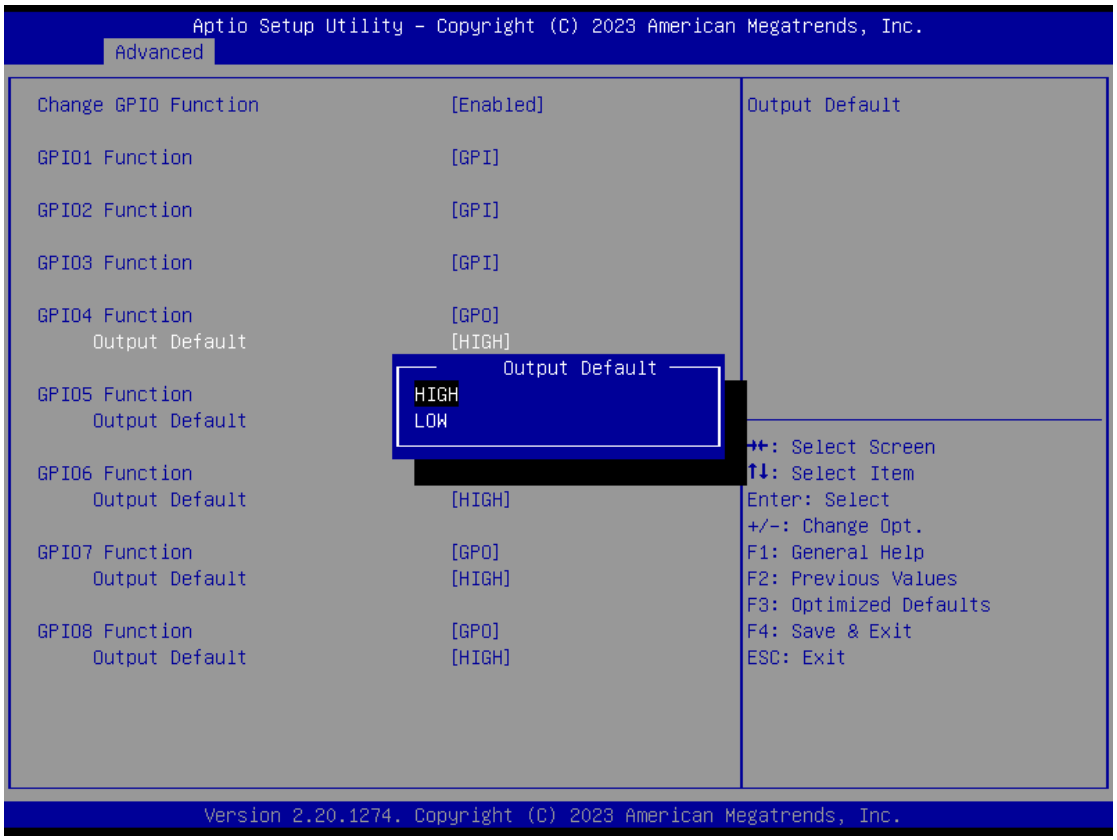


Image 0-8 BIOS-Advanced

4.4.5.5 Watch Dog

In the Advanced interface, select Watch Dog Control > Watch Dog to enable or disable the Watch Dog function. The default setting is Disabled. After completing the settings, press F4 to save and exit, and the system will restart.

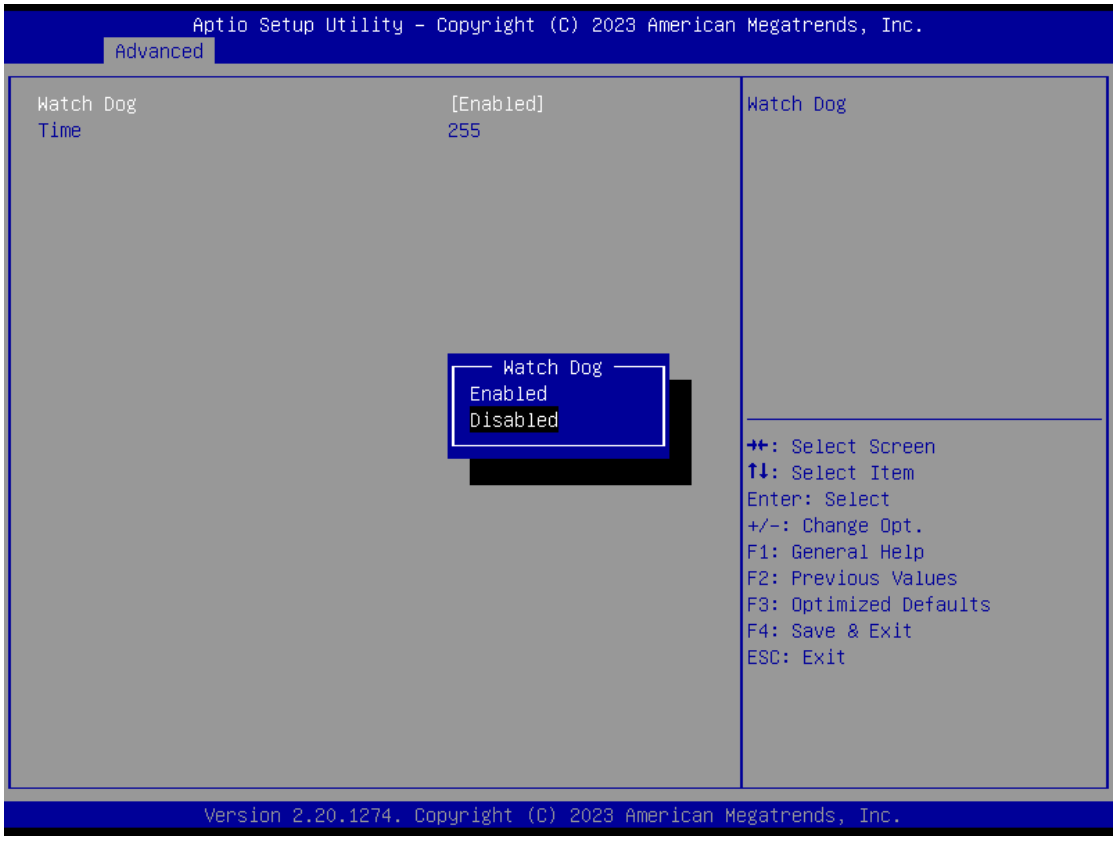


Image 0-9 BIOS-Advanced

4.4.5.6 TPM

In the Advanced interface, select Trusted Computing -> Security Device Support to enable or disable the TPM (Trusted Platform Module) feature. After making the changes, press F4 to save and exit. The system will need to restart for the changes to take effect.

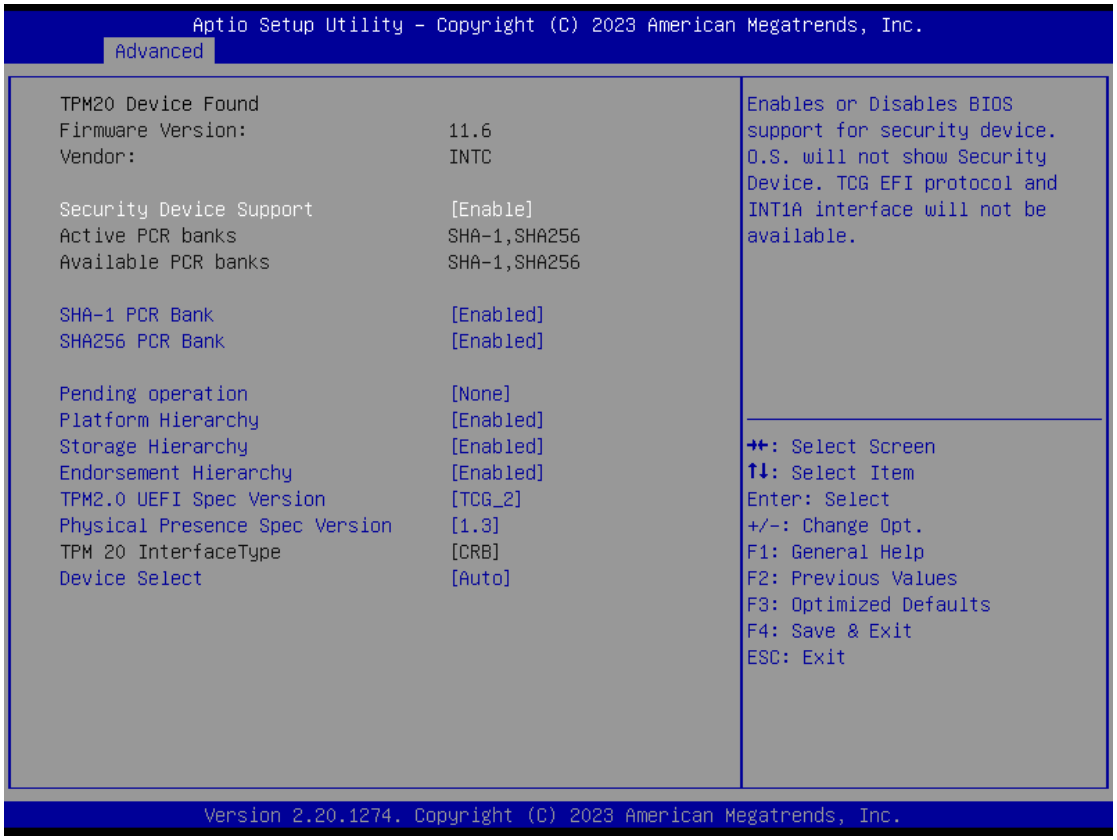


Image 0-10 BIOS-Advanced

4.4.6 Chipset Interface

Entering the Chipset interface allows you to configure the chipset options of the computer. The chipset is an integrated circuit that connects various components on the motherboard. The settings here may involve configurations such as PCIe, USB, and hard disk controller settings. You can navigate through the options using the <↑><↓> keys and enter a setting by pressing . This section will introduce the Chipset settings options. The Chipset interface is shown below:

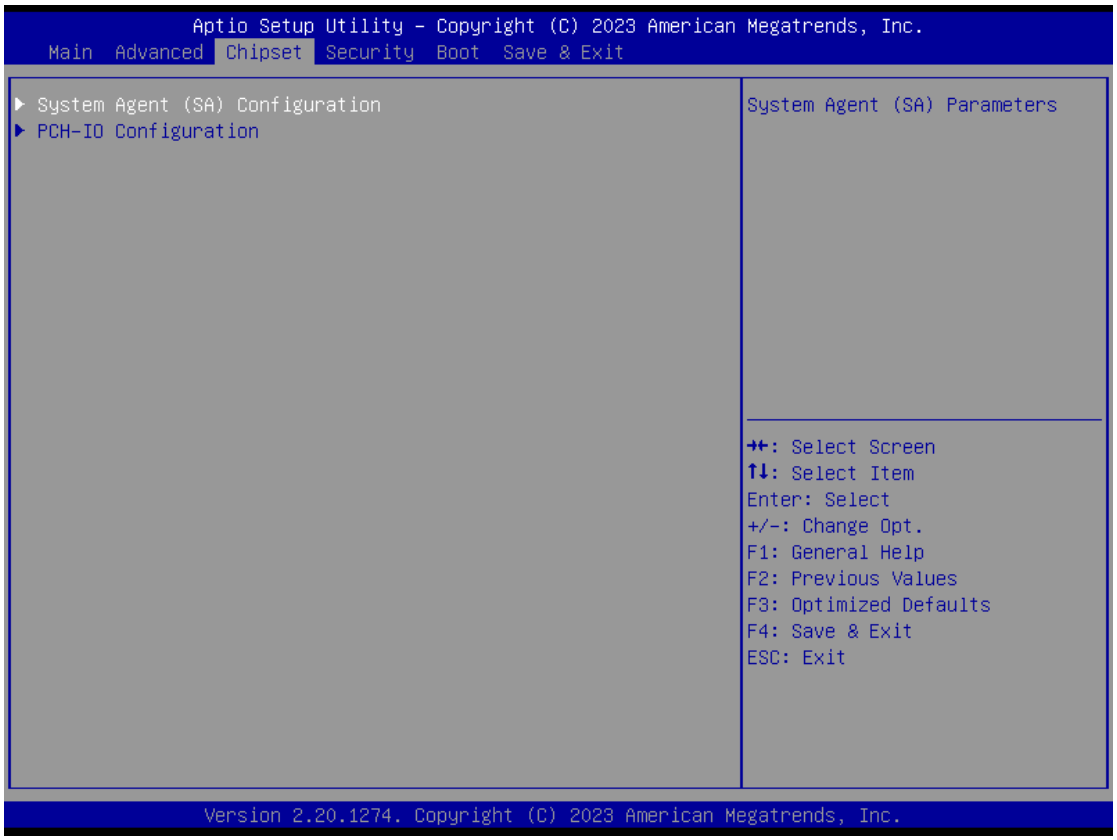


Image 0-11 BIOS-Chipset

4.4.6.1 Display Priority

In the Chipset interface, select System Agent (SA) Configuration > Graphics Configuration > Primary Display to set the display priority. After making the changes, press F4 to save and exit. The system will need to restart for the changes to take effect.

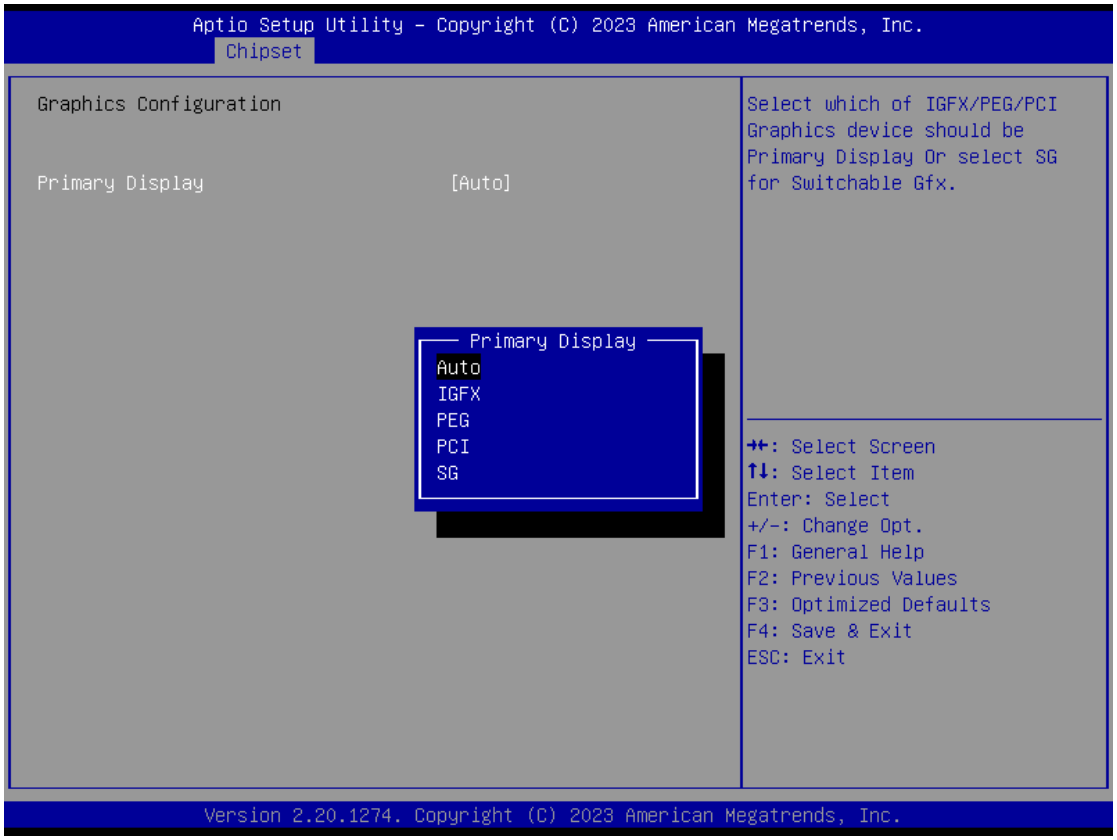


Image 0-12 BIOS-Chipset

4.4.7 SATA Configuration

In the Chipset interface, select PCH-IO Configuration > SATA And RET Configuration to enable or disable the power-on feature. "Power on" is set to AT mode, where the system powers on automatically after being connected to a power source; "Power off" is set to ATX mode, which requires pressing the Power button to start the computer after being connected to a power source. The default setting is "Power off". After making the changes, press F4 to save and exit. The system will need to restart for the changes to take effect.

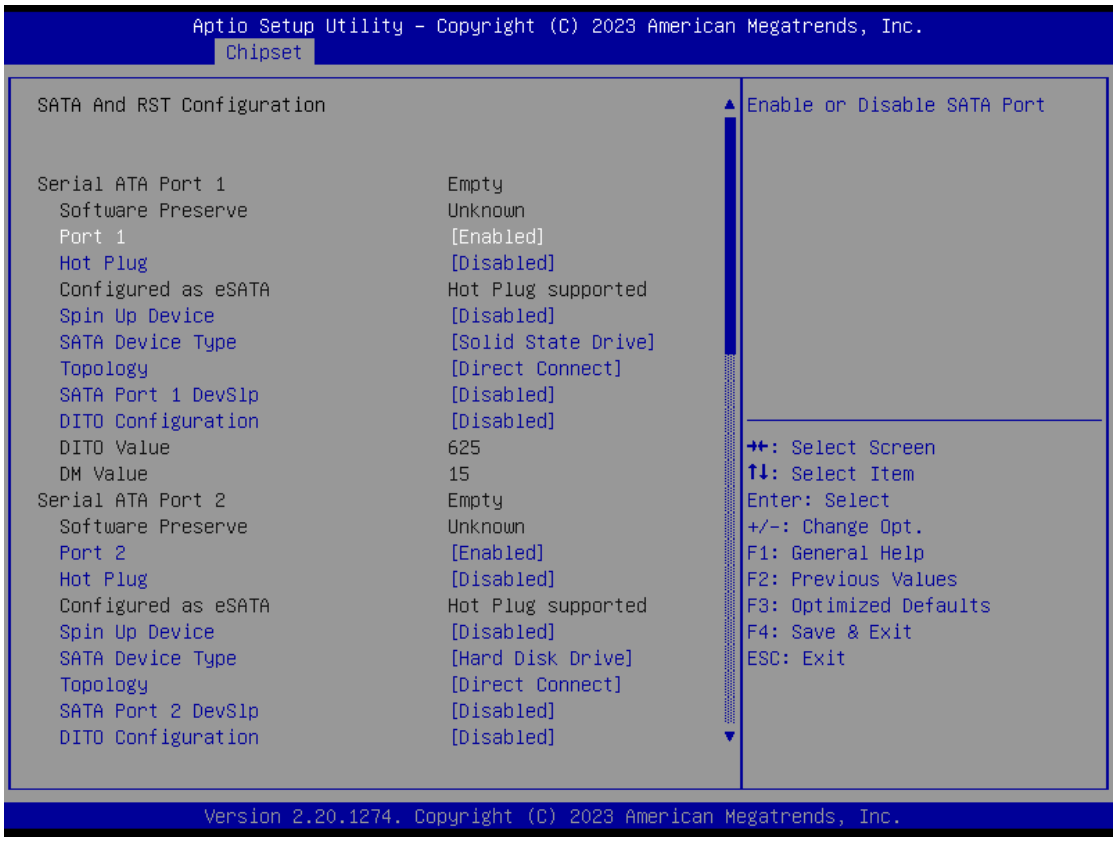


Image 0-13 BIOS-Chipset

4.4.7.1AC Power Lost

In the Chipset interface, select PCH-IO Configuration > AC Power Lost to enable or disable the power-on feature. S0 State is AT mode, where the system powers on automatically after being connected to a power source; S5 State is ATX mode, which requires pressing the Power button to start the computer after being connected to a power source. The default setting is S5 State. After making the changes, press F4 to save and exit. The system will need to restart for the changes to take effect.

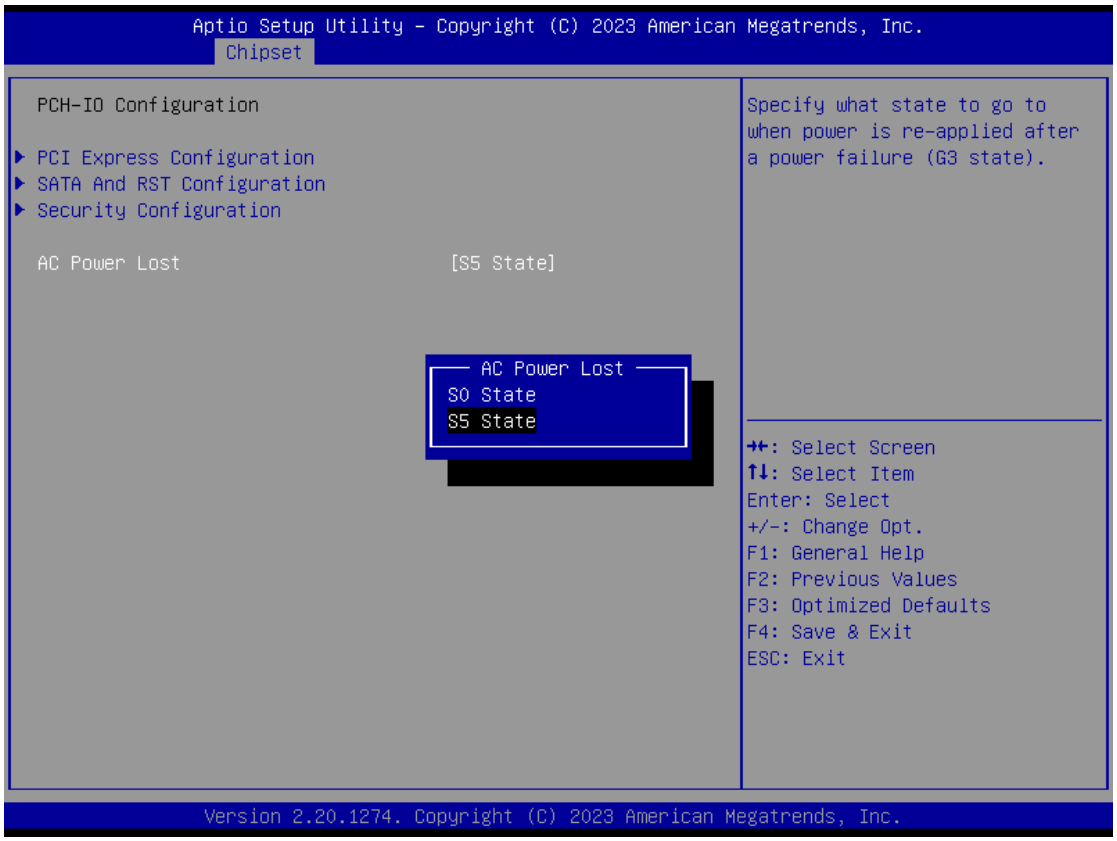


Image 0-14 BIOS-Chipset

4.4.7.2 Raid

In the Chipset interface, sequentially select System Agent (SA) Configuration > VMD setup menu -> Enable VMD controller to configure RAID functionality. After making the changes, press F4 to save and exit. The system will need to restart for the changes to take effect.

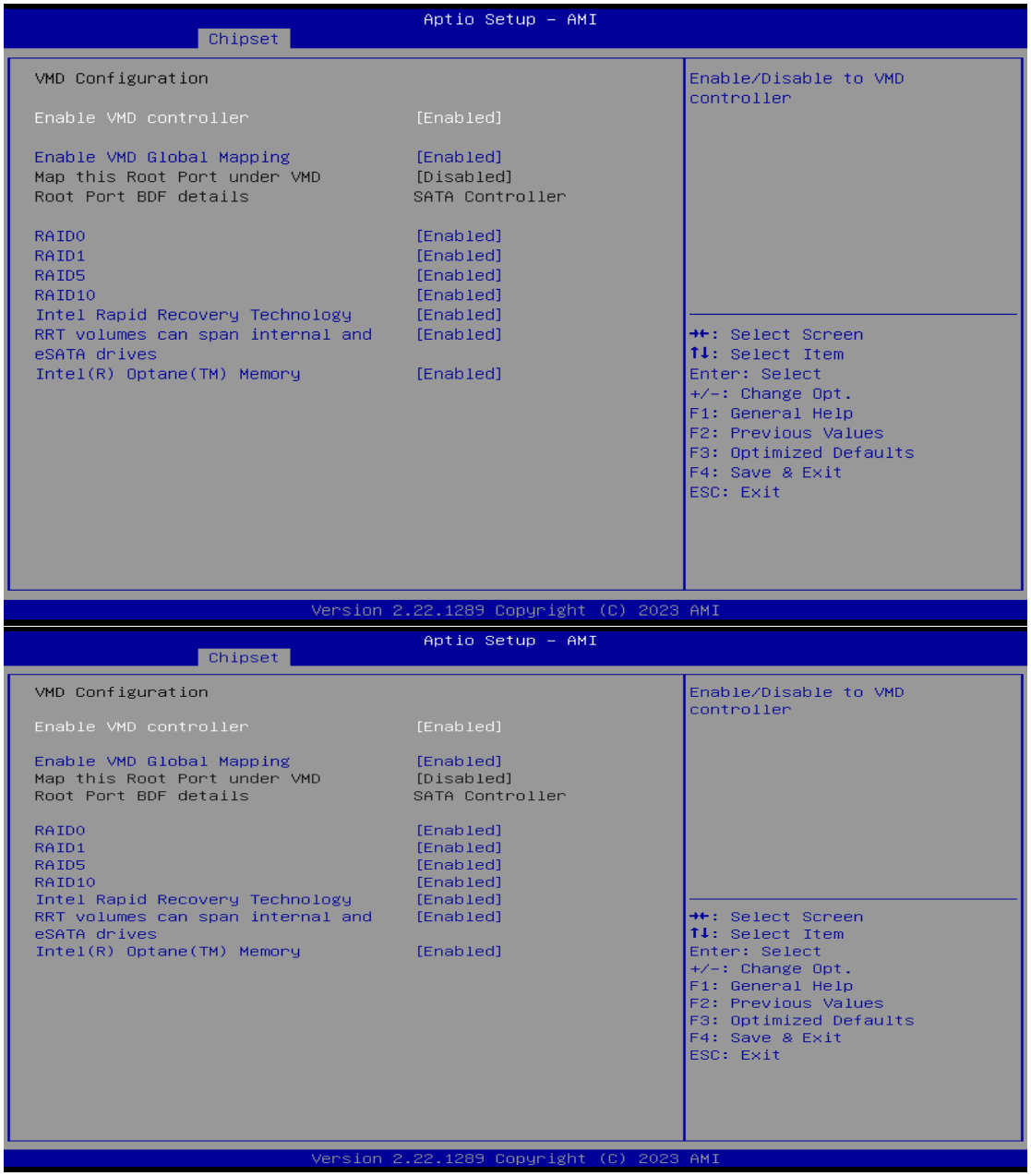


Image 0-15 BIOS-Chipset

4.4.8*Security Interface*

Entering the Security interface allows you to set up password protection and other security features for the system. Select to enter the administrator and user password security settings to access the sub-menu for this item. You can navigate through the options using the <↑><↓> keys and enter a setting by pressing <Enter>. This section will introduce the Security settings options. The Security interface is shown below:

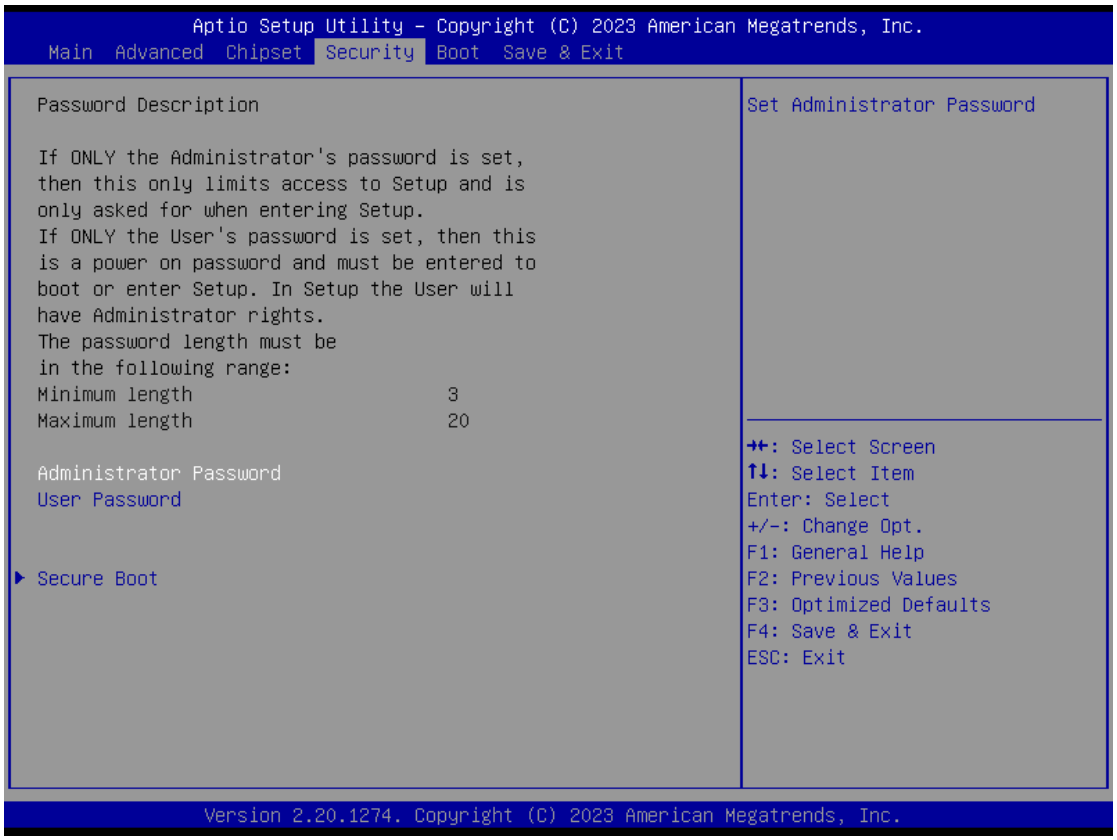


Image 0-16 BIOS-Security

4.4.8.1 System Administrator Password Setting

In the Security interface, select Administrator Password and press Enter to enter. Use the keyboard to input a password consisting of six or more characters, including letters, numbers, and special characters, to set up the administrator password. After making the changes, press F4 to save the settings. The system will need to restart for the changes to take effect.

4.4.8.2 User Password Setting

In the Security interface, select User Password and press Enter to enter. Use the keyboard to input a password consisting of six or more characters, including letters, numbers, and special characters, to set up the user password. After making the changes, press F4 to save the settings. The system will need to restart for the changes to take effect.

: Once a password is set, it is crucial to remember the password. Otherwise, you may lose access to the system due to lack of permissions! This might also incur additional maintenance costs.

4.4.9 *BOOT Interface*

Entering the BOOT interface allows you to set the system's boot order, select boot options, and configure boot settings. You can navigate through the options using the <↑><↓> keys and enter a setting by pressing <Enter>. This section will introduce the BOOT settings options. The BOOT interface is shown below:

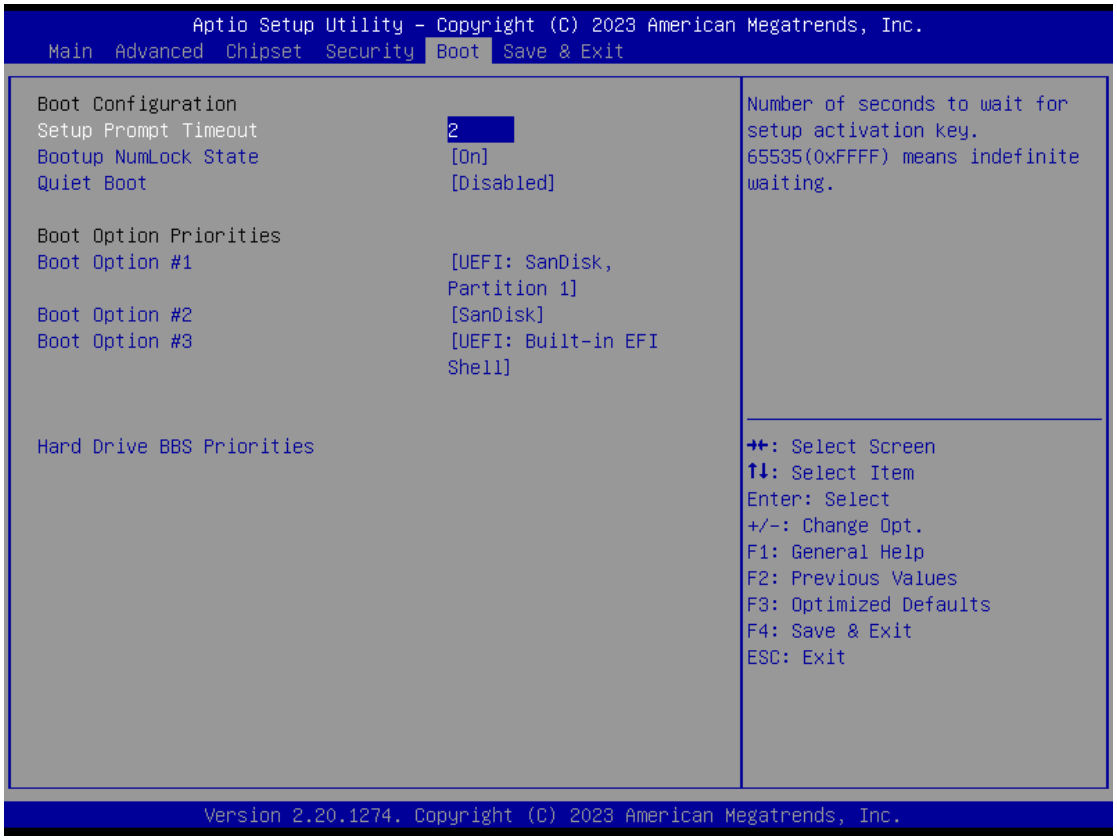


Image 0-17 BIOS-Boot

4.4.9.1 Set the Num Lock Status at Startup

In the BOOT interface, select Boot Num Lock State and choose ON/OFF to enable or disable the Num Lock key on the keyboard. After making the changes, press F4 to save the settings. The system will need to restart for the changes to take effect.

4.4.9.2 Set the Boot Logo

In the BOOT interface, select Quiet Boot to enable or disable the boot logo display. Choose "Enable" to show the logo during startup, and "Disable" to turn off the logo display. After making the changes, press F4 to save the settings. The system will need to restart for the changes to take effect.

4.4.9.3 Set the Boot Order

In the BOOT interface, select Boot Option Priorities to set the order of boot devices. Boot Option #1 is the first priority for booting, Boot Option #2 is the second priority, and so on. After making the changes, press F4 to save the settings. The system will need to restart for the changes to take effect.

4.4.10 Save & Exit Interface

Entering the Save & Exit interface allows you to load or save the set values and exit the BIOS configuration. Select the option to save and exit the BIOS settings to access the sub-menu for this item. You can navigate through the options using the <↑><↓> keys and enter a setting by pressing <Enter>. This section will introduce the Save & Exit settings options. The Save & Exit interface is shown below:

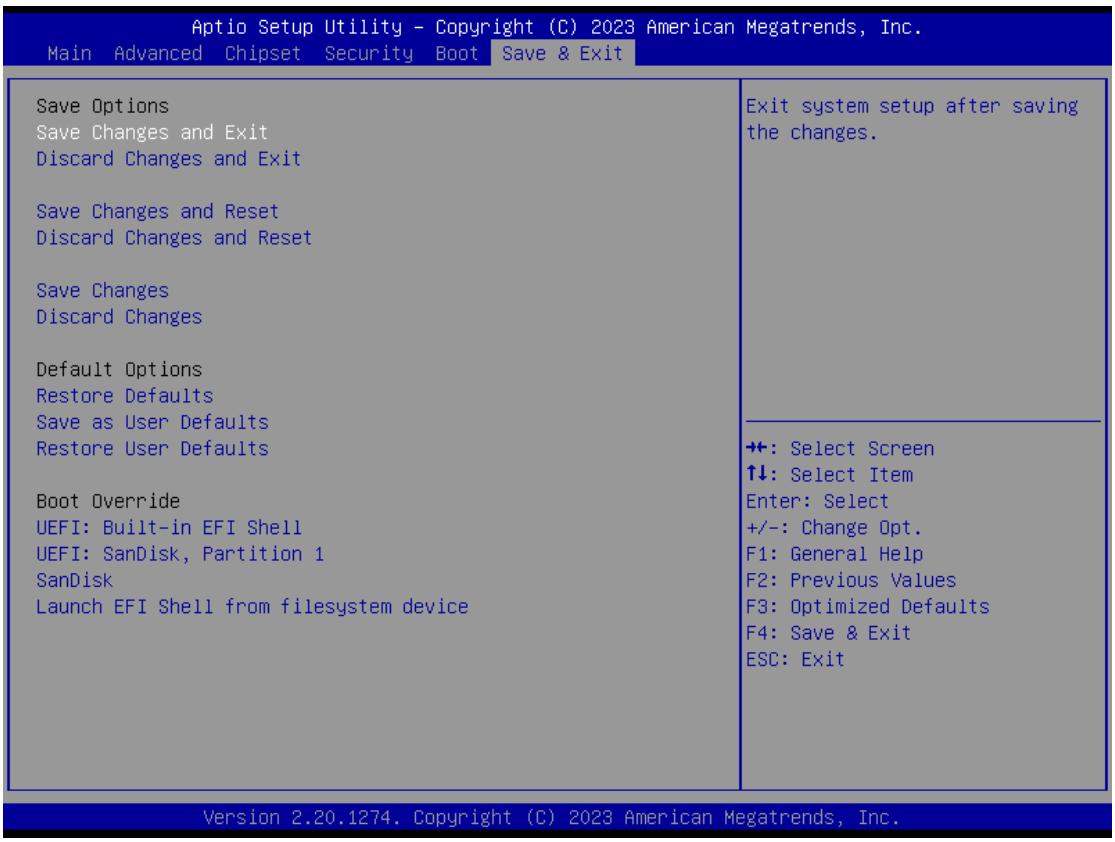


Image 0-18 BIOS-Save&Exit

4.4.10.1 Save Changes and Reset System

In the Save & Exit interface, select Save Changes and Reset. After making the changes, press F4 to save the settings. The system will need to restart for the changes to take effect.

4.4.10.2 Reset System Without Saving Changes

In the Save & Exit interface, select Discard Changes and Reset. After making the selection, press F4 to save the settings. The system will need to restart for the changes to take effect.

4.4.10.3 Restore System Defaults

In the Save & Exit interface, select Restore Defaults. After making the selection, press F4 to save the settings. The system will need to restart for the changes to take effect.

4.4.10.4 Set Boot Device Priority

In the Save & Exit interface, select Boot Override. After making the selection, press F4 to save the settings. The system will need to restart for the changes to take effect.

Chapter 5: Driver Installation

This chapter mainly introduces the installation of system hardware and related driver software.

5.1 Driver Installation

1. Go to the official website www.astor.com.pl and download the corresponding drivers.

2. Select the corresponding machine model and click search, download the relevant drivers, and follow the installation wizard to install the driver software.。

Chapter 6: List of Optional Accessories

6.1 List of Optional Accessories

Accessories	Description
DDR4/5 SO-DIMM	8GB,16GB,32GB
2.5" Solid State Drive (SSD)	128GB,256GB,512GB... ...
M.2 Solid State Drive (2242/2280)	256GB,512GB,1TB... ...
3.5" Hard Disk Drive (HDD)	1T,2T,4T... ...

Chapter 7 Safety Prevention And Maintenance

 ：The preventive measures outlined in this chapter should be strictly followed. Failure to follow such preventive measures may result in serious damage to the machine.

7.1 Safety precautions

Please follow the safety precautions outlined in this section below.

7.1.1General safety precautions

Please ensure that the following safety precautions are always followed.

- Always follow the electrostatic prevention measures outlined below when turning on the machine.
- Once it is necessary to install, move, or modify the machine, ensure that the power is turned off and the power cord is disconnected.
- It is prohibited to apply voltage levels that exceed the specified voltage range. Otherwise, it may cause a fire or electric shock.
- When the machine is in operation, electric shock may occur once the chassis of the machine is opened.
- Do not drop or insert any object into the ventilation opening of the machine.
- Once a large amount of dust, water, or liquid enters the machine, the power should be immediately turned off, the power cord should be unplugged, and the machine supplier should be contacted.
- The following activities are prohibited:
  - Do not drop the machine onto hard ground.
  - It is prohibited to strike the machine or apply excessive force to it.
  - It is prohibited to use the machine in places where the ambient temperature exceeds the rated temperature.

7.1.2 Antistatic precautions

 : Failure to take ESD preventive measures during machine installation may result in permanent damage to the machine and serious injury to the user. Electrostatic discharge (ESD) can cause serious damage to machine electrical components. Dry climates are more prone to ESD generation. Therefore, once the

machine is opened and any electrical components need to be handled, the following anti-static precautions must be strictly followed:

- Wearing an anti-static wrist strap: Wearing a simple anti-static wrist strap helps to avoid ESD damage to any electrical components.
- Self grounding: Before handling any electrical components, touch any grounded conductive material. During the handling of electrical components, any conductive substances that are grounded should be frequently touched.
- Use anti-static pads: When configuring electrical components or engaging in related work, they should be placed on the anti-static pad. This can reduce the likelihood of ESD damage occurring.
- Only touching the edges of electrical components: When handling electrical components, it is advisable to hold them by grasping the edges.

7.1.3 Product disposal method

 : If the wrong type of battery is replaced, there may be an explosion risk, and only certified engineers can replace the onboard battery. Dispose of waste batteries in accordance with relevant instructions and local laws and regulations.

Outside the EU - If you need to dispose of waste electrical and electronic products outside the EU, please contact your local regulatory authority to ensure the correct disposal method is taken.

Within the EU:

EU-wide legislation implemented by member states requires that waste electrical and electronic equipment (WEEE) be disposed of separately from general household waste, with the exception of products marked with a left-hand symbol. This includes monitors and electrical components such as cords or power cables. To dispose of your product, follow the guidelines provided by your local authorities or ask the store where you purchased the product. The marking on electrical and electronic products is only applicable within the current EU

member states. Please follow the relevant national guidelines for the disposal of electrical and electronic products.

7.2 Maintenance and cleaning precautions

Please follow the following guidelines to maintain or clean the machine.

7.2.1 Maintenance and cleaning

Before cleaning any parts or components of the machine, please read the following details first.

It is prohibited to directly spray or spray liquid onto any other components.

- Internal cleaning is not required. Avoid liquid entering the interior.
- Be careful to avoid damaging small, detachable components inside.
- Please turn off the power before cleaning.
- It is prohibited to drop any object or allow any liquid to enter the equipment through the opening.
- When cleaning, be careful of any allergic reactions that the human body may have to solvents or chemicals.
- Avoid eating, drinking, and smoking near the work area.
- Regularly clean the dust around the fan and its surroundings.

7.2.2 Cleaning Tools

Only specially designed specialized products can be used to clean certain components. In such cases, the cleaning prompt will clearly indicate such products. The following is a list of items that can be used for cleaning.

- **Cloth - Although tissue or tissue paper can be used, it is recommended to use a soft, clean cloth.**
- **Water or external alcohol - A cloth dipped in water or external alcohol should be used.**
- **Using solvents - It is recommended not to use solvents as they may cause damage to plastic components.**

- Vacuum cleaner - Using a vacuum cleaner specifically designed for computers is the best cleaning method. Dust and dirt may restrict airflow, leading to corrosion of the circuit.
- Cotton swab - A cotton swab dipped in external alcohol or water is an excellent tool for wiping areas of equipment that are difficult to touch.
- Foam tags – if possible, it is better to use foam tags and other non rough tags for cleaning

Chapter 8 FAQ

8.1 Technical Support and Services

Please visit the official website of www.astor.com.pl to download the documents and related driver software, or directly contact your local distributor to provide support and services.