





AS56IPC-615H5-Q670 User Manual

Industrial Computer

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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 <u>https://www.astor.com.pl/wsparcie/dokumentacja-techniczna.html</u> to get more details.

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

Safety instructions

- 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.
- 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.
- 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.
- 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 $^{\circ}$ or higher than 80 $^{\circ}$, otherwise it may cause the damange to the device.
- 13. Please clean dust or replace fan regularly.

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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.

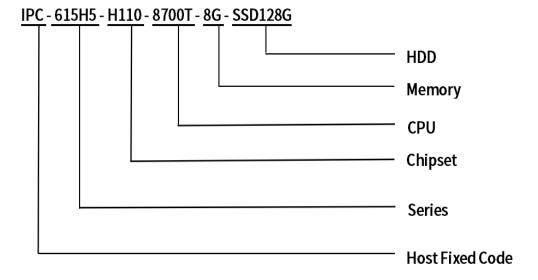
File Name	File Aim	File Content	File Save	
		Descrption of	Please download	
User	Please do read	the product's	from Nodka official	
manual	before use	function and	websiteget it from	
		relative setting	distributer.	

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		
<u>.</u>	result in death, serious injury or significant property damage		
	if do not deal with properly.		
	Danger: Indicate a urgent danger which could result in		
4	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		
	СОМ	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		
	СОМ	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		
	СОМ	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
	СОМ	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 PCleX16(Gen3) slots(Default2 X8 link) 3 x PCleX4(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	СРИ	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		
	СОМ	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		
	СОМ	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		
	СОМ	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 PCle4.0X16 (Default2X8 link) 3 x PCle 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)

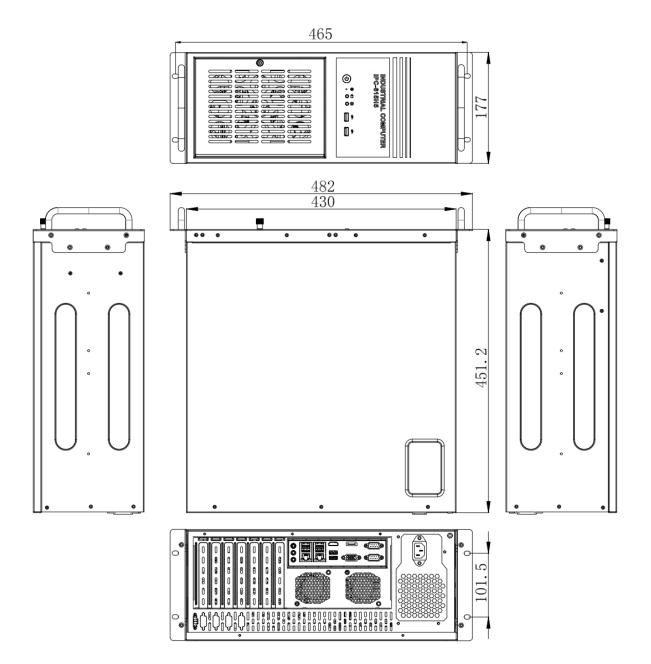
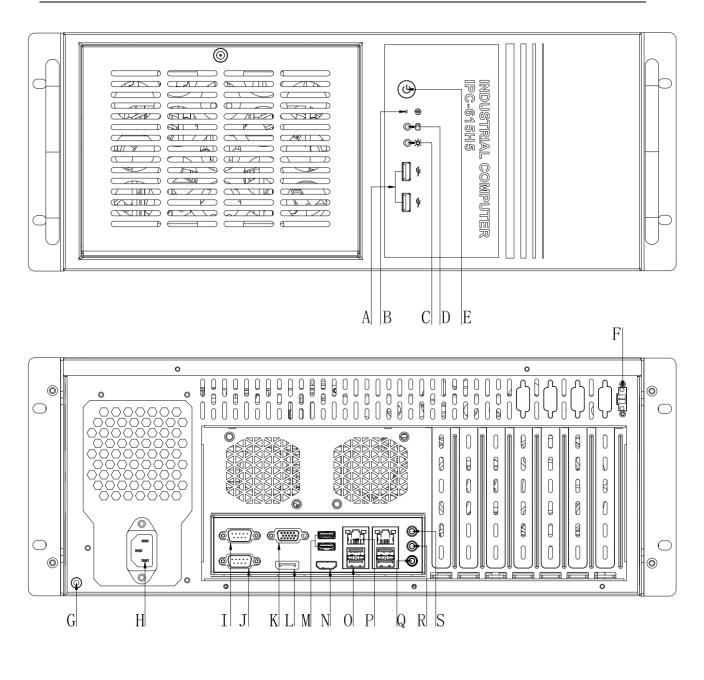


Image 0-2 AS56IPC-615H5 Product Dimensions Image

AS56IPC-615H5 user manual

A 🛛 ASTRAADA



A:USB2.0	F:SW	K:VGA	P:LAN
B:OS Restore	G:GND	L:DP	Q:Mice-in
C:Power LED	H:AC100~240V	M:USB3.0	R:Line-out
D:HDD LED	I:COM2	N:HDMI	S:Line-in
E:Power	J:COM1	O:USB3.0	



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.

	U U U U U U U U U U U U U U	
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Image 0-4 IPC-615H5 LED

LED Name	Status	Description	
Dowor	Off	Indicates that the product is not powered	
Power Status Light	On (Green)	Indicates that the product is powered	
Hard	Off	Indicates that the hard disk is not working	
Disk Status Light	Orang e (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.

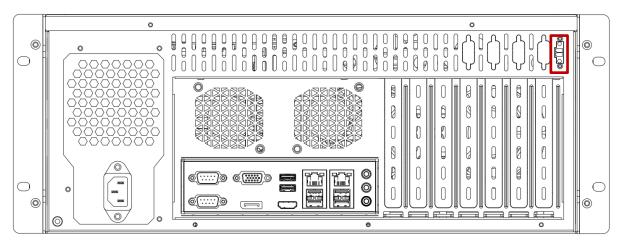


Image 0-6 IPC-615H5 Remote Switch

2.5.1.4 Power Interface

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

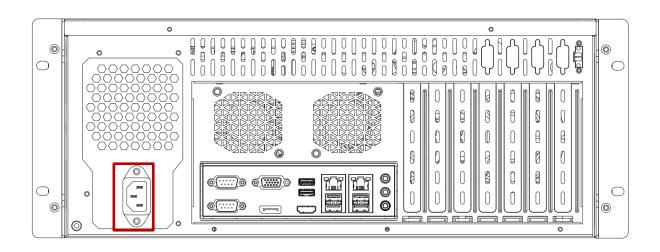


Image 0-7 AS56IPC-615H5 Power

2.5.1.5 Network Port: LAN1,LAN2

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

LAN2.

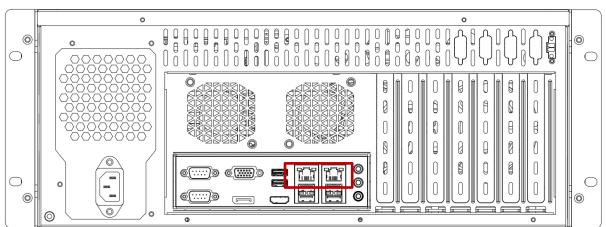


Image 0-8 AS56IPC-615H5 RJ45

Туре	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 Signal Name		
	No.	100BASE-TX	1000BASE-T
	1	TX+	TRD+(0)
Transmit ,	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.

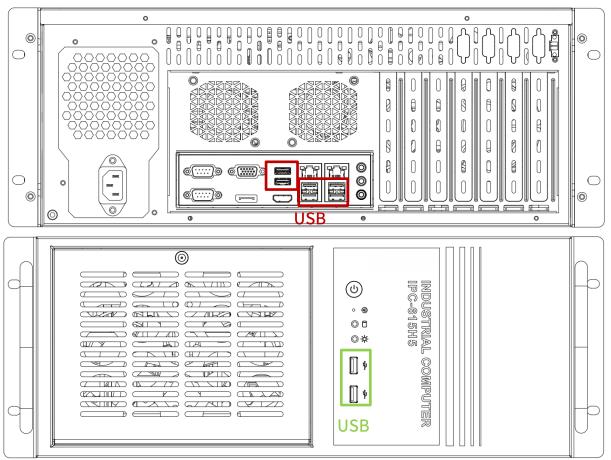


Image 0-9 AS56IPC-615H5

USB 3.0 Connector Pinout Definition:

	Pin No.	Signal
	1	USB_VCC
	2	DATA-
9 5	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).

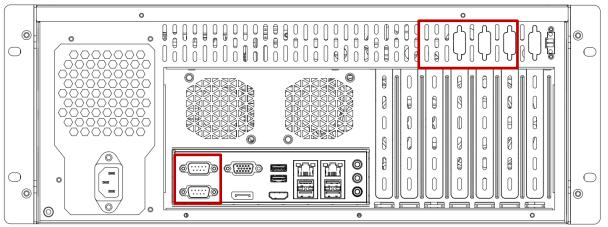




Image 0-11 C236/Q170/H110 Mainboard Jump Cap Position

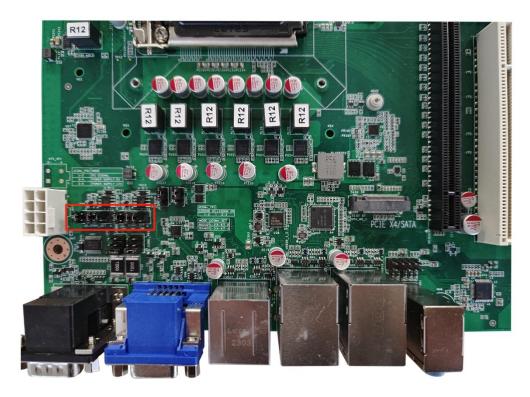


Image 0-12 H420E/Q470 Mainboard Jump Cap Position



Image 0-13 H610/Q670 Mainboard Jump Cap Position

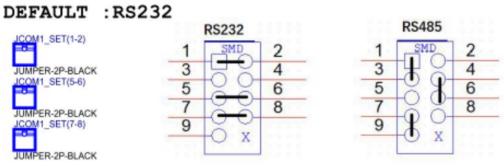


Image 0-14 Mainboard Jump Cap Definition

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

	Pin	Signal Name	
	No.	RS232	RS485
	1	N.C.	В
···	2	RXD	А
	3	TXD	N.C.
	4	N.C.	N.C.
	5	GND	GND
	6	N.C.	N.C.
DB9	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.

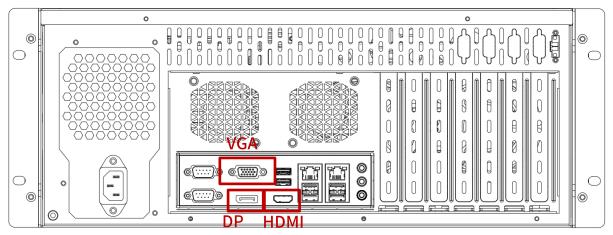


Image 0-15 AS56IPC-615H5

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		B77 B B B 9 7 5 3 1 CEREBORISCO GEORGOGOCO B 56 14 12 10 8 6 4 7	
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 poweron 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

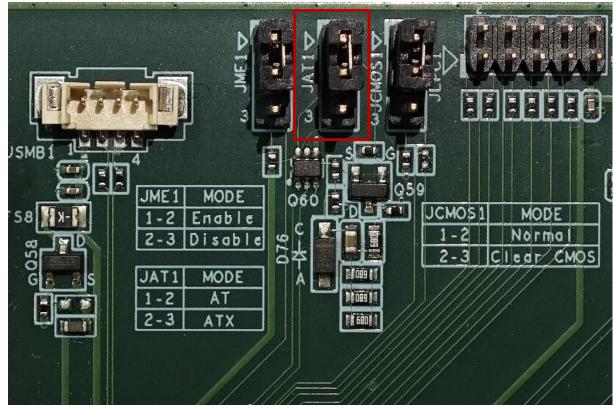


Image 0-16 C236/Q170/H110 Mainboard Jump Cap Position

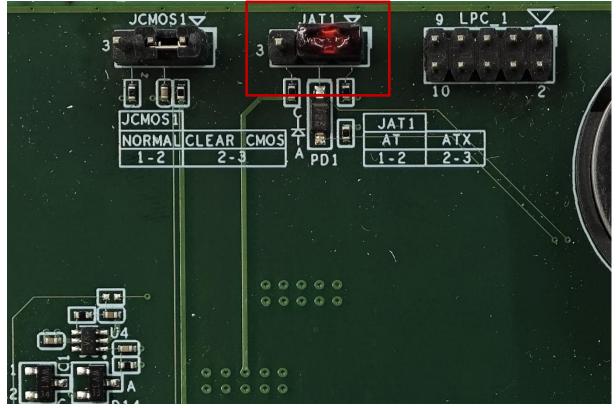


Image 0-17 H420E/Q470 Mainboard Jump Cap Position

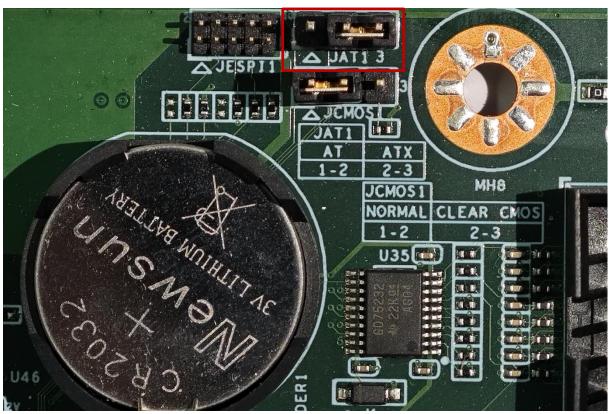


Image 0-18 H610/Q670 Mainboard Jump Cap Position

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.

	U PC-615H5 C MDUSTRIAL COMPUTER V V V V V V V V V V V V V	
--	--	--

Image 0-19 A key to restore the system

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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.

7208	Open Pin to Quick access Manage Pin to Start	
	Map network drive Disconnect network drive	
Network	Create shortcut Delete	
	Properties	
This PC		

Image 3-1 System Partition - Windows

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

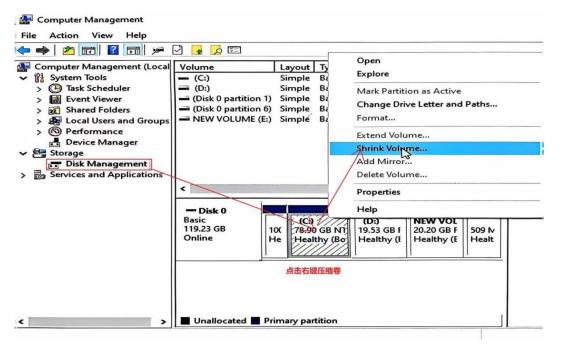


Image 3-2 System Partition - Windows

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.

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omputer Management

Action View Help							
) 🚈 📰 🔽 📷 🤅	_	- <u>-</u> E					
emputer Management (Lo	ocal	Volume	Layout	Туре	File System	Status	A
System Tools		- (C:)	Simple	Basic	NTFS	Healthy (Bo	oot, Page I
🕒 Task Scheduler	Shri	ink C:					×
Event Viewer	5						
Shared Folders	Tot	al size before shrink in MB	: /			80790	
Local Users and Gro						1	
Performance Bevice Manager	Size	e of available shrink space	e in MB:			65000	
Storage	Ent	er the amount of space to	shrink in l	MB:	N	20480	•
Disk Management		-			2	60310	
Services and Applicatio	Tot	al size after shrink in MB:				60310	
		You cannot shrink a vol See the "defrag" event operation when it has c See "Shrink a basic vol	in the App ompleted.	lication	log for detailed	information ab	bout the
						Shrink	Cancel
	>	Unallocated Pri	mary par	tition			

Image 3-3 System Partition - Windows

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

Volume".

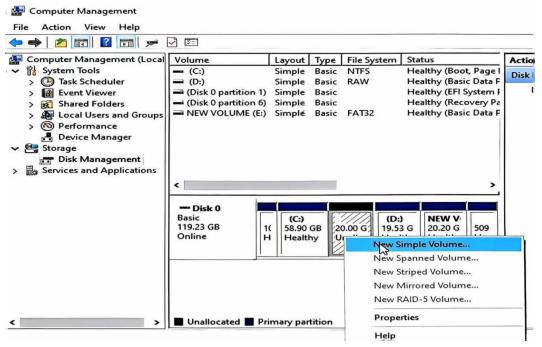


Image 3-4 System Partition - Windows

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.

	-	
1	nat Partition	
٩ ٦	To store data on this partition, yo	ou must format it first.
	Choose whether you want to for	nat this volume, and if so, what settings you want to use.
	O Do not format this volume	
	Format this volume with the	e following settings:
	File system:	NTFS ~
	Allocation unit size:	RAT32
	Volume label:	New Volume
	Perform a quick form	nat
	Enable file and folde	er compression
1		
		· · · · · · · · · · · · · · · · · · ·
		< Back Next > Cancel
1		

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.

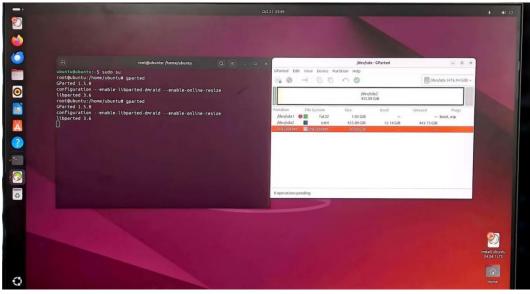


Image 3-9 System Partition - Ubuntu

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

						/dev/sda	(119.24 GiB)
			/dev/sda2				
Partition	Name	File Sy	Delete	Delete	ed	Unused	Flags
/dev/sda1	EFI System Partition	f at	Resize/Move		13 MiB	507.57 MiB	boot, esp
/dev/sda2		ext	Сору	Ctrl+C	BO GIB	111.99 GiB	
/dev/sda3 @	G.	📕 lini			0.00 B	977.00 MiB	
			Format to				
			Name Partition				
			Manage Flags				
			Check				
			Label File System				
			New UUID				
			Information				

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.

🛞 Resize/Move /dev/sda2		
Minimum size: 5936 MiB Maxim	um size: 120	D614 MiB
Free space preceding (MiB):	0	•
New size (MiB):	110374	•
Free space following (MiB):	10240	•
Align to:	MiB	:
	Cancel	Resize/Move

Image 3-11 System Partition - Ubuntu

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

/dev	/sda - GParted	>
GParted 编辑(E) 查看(V) 设备(D) 分区(P) 幕	計助(H)	
		/dev/sda (476.94 GiB) -
	dev/sda2 S5.89 GiB	
分区 文件系统 挂载点 大小 /dev/sda1 ④ fat32 /boo 1.05 /dev/sda2 ④ ext4 / 455.89		未用 标识 1.04 GiB boot, esp 438.72 GiB
未分配 未分配 20.00	GiB 日新建(N)	插入
	⑧ 删除(D)	删除
	→1 调整大小/移	多元力(R)
	© 复制(C)	Ctrl+C
	呛 粘贴(P)	Ctrl+V
	●3 格式化为(F)) >
	打开加密	
0 项操作待处理	挂载(M)	- 18 B B B B B

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.

GPart Solition	d 编辑(E) 查看(V) 设备(D) ◎ → 『□ 『□	/dev/sda-GP 分区(P) 帮助(H) へ ② 创建新分		@ /dev/s	×	
・ ・ ・ ・ ・ ・ ・ ・ ・	1	大小: 33 MiB 副 20480 0 + MiB ~	大大小: 20480 创建为: 分区名称: 文件系统: 卷标:	主分区 fat32 OS_BACKUP		6
0项操	作符处理	•				•

Image 3-13 System Partition - Ubuntu

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

(1) (sudo	/dev/sda - GParted	
GPart	GParted 編輯(E) 查看(V) 设备(D) 分区(P) 强助(H) ○ ③ → □ □ □ ○	/dev/sda (476.94 GiB) ~
11bpa	/dev/sda2 455.89 GiB	
	女体系統 挂载点 巻标 大小 已用 /dev/sda1 ④ ■ fat32 /boo 1.05 Gi8 0.26 Mi8 /dev/sda2 ④ ■ ext4 / 455.89 Gi8 17.17 Gi8 新分区 #1 ■ fat32 OS_BACKUP 20.00 Gi8 -	未用 标识 1.04 GiB boot, esp 438.72 GiB
	┣ ┣ 在/dev/sda上创建主分区#1 (fat32, 20.00 GB)	
	1项操作待处理	

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

	Name	Date modified	Туре	Size
 ✔ Quick access ↓ Desktop ✔ ↓ Downloads ✔ ↓ Documents 	Name . disk boot FFI bome ive mnt syslinux utils auto.sh checkcmos Clonezilla-Live-Version-DSD	Date modified 10/22/2024 3:00 AM 10/22/2024 3:00 AM 10/22/2024 3:01 AM 10/22/2024 3:01 AM 10/22/2024 2:58 AM 10/22/2024 2:58 AM 10/22/2024 3:00 AM 10/22/2024 3:00 AM 11/1/2018 4:40 PM 11/29/2017 9:45 AM 3/29/2018 11:45 PM	Type File folder File folder File folder File folder File folder File folder File folder SH File File	Size
KINGSTON (E:)	🗋 GPL	8/11/2015 9:19 AM	File	18
2 items	<			8==
		11.284.394	^ €8 ₫≥	3:11 AM 10/22/2024



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.

	名称 ^	修改日期	类型	大小
*	📕 🛪 64-efi	2024/10/22 3:01	文件夹	
	backup.cfg	2024/10/22 11:11	Configuration 源文件	1 KE
*	Backup.efi	2019/9/18 16:29	EFI 文件	1,303 KE
Å	boott.efi	2017/9/5 8:27	EFI 文件	1,021 Ki
*	Clonezilla.efi	2017/12/22 3:25	EFI 文件	1,169 KI
*	grub.cfg	2017/11/29 11:38	Configuration 源文件	2 KI
*	grubx64.efi	2018/3/5 17:23	EFI 文件	1,116 KI
	restore.cfg	2024/10/22 11:12	Configuration 源文件	1 KI
levice(3)	Restore.efi	2019/9/18 16:29	EFI 文件	1,303 KI
	unicode.pf2	2017/2/11 23:09	PF2 文件	1,332 KE

Open the backup function script backup.cfg.



3.Select the following content in the script file, and all subsequent

modifications will be based on this content.

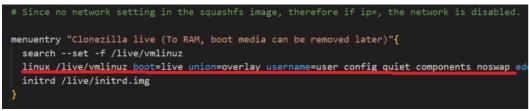


Image 3-17 Tool deployment

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.



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

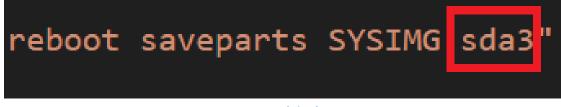


Image 3-19 Tool deployment

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.



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.

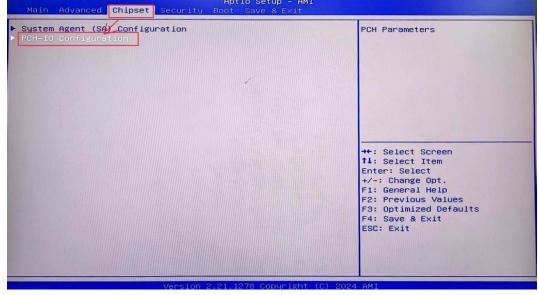


Image 3-22 OS Backup & Restore

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

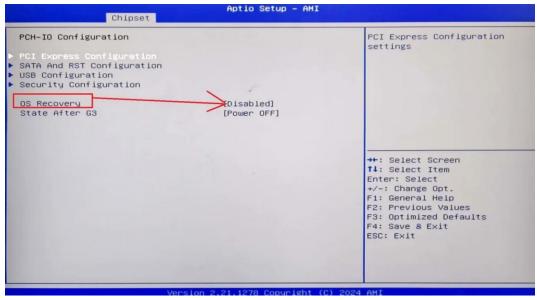


Image 3-23 OS Backup & Restore

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

initial boot stage.

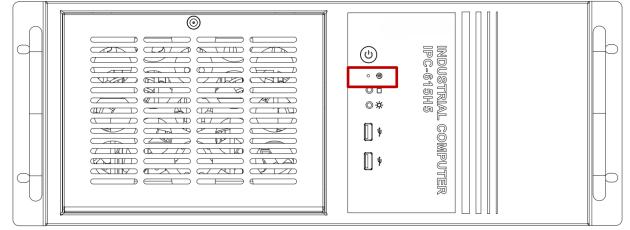


Image 3-24 OS Backup & Restore

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.

BIOS Information BIOS Model Project Version Compliancy Core Version Build Date and Time Microcode Revision	NK-7107 V04 UEFI 2.7; PI 1.6 5.12 11/06/2024 16:00 C6	Set the Date. Use Tab to switch between Date elements.(2000-2099)	
System Date System Time Access Level ME FW Version	[Tue 11/05/2024] Recovery DS - The system will resta backup/recovery os		
Processor Information Name Type	Yes	No ect Screen ect Item Select ange Opt.	
Speed Number of Processors Total Memory Memory Frequency	2800 MHz 4Core(s) / 8Threa 8192 MB 2133 MHz	ad(s) F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	

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.

Recovery Button Menu:
<mark>System Recovery</mark> System Backup Enter Setup
↑ and ↓ to move selection ENTER to select OS recovery

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 or <ESC> to enter setup.

At this point (invalid for other times), press the key specified in the prompt message (usually thekey) 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

Hot Key	Function	Description
<←><→>	BIOS Interface Selection	Within the BIOS
		Interface
$<\uparrow><\downarrow>$	BIOS Option Selection	Within the BIOS
		Interface
<ctrl>+<</ctrl>	Restart the System	After the system
ALT>+ 		powers on and boots up
<enter></enter>	Confirm Selection	Within the BIOS
		Interface
	Enter the BIOS Setup	Within the BIOS
	Interface	Interface
<esc></esc>	Exit the BIOS Setup	After the system
	Interface	powers on and boots up
<f3></f3>	Load default	Within the BIOS
		Interface
<f4></f4>	Save Settings and Exit	Within the BIOS
		Interface
<f7></f7>	Invoke the BIOS Quick Boot	After the system
	Option Menu	powers on and boots up

actual motherboard's BIOS configuration.



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 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.

Aptio Setup Utility Main Advanced Chipset Security	<mark>– Copyright (C) 2023 America</mark> y Boot Save & Exit	n Megatrends, Inc.
BIOS Information BIOS Model Project Version Compliancy Core Version Build Date and Time Microcode Revision System Date System Time Access Level ME FW Version	NK-7106 T04 UEFI 2.7; PI 1.6 5.12 11/13/2023 15:20:22 A0 [Thu 12/19/2024] [10:14:40] Administrator 11.6.26.1246	Set the Date. Use Tab to switch between Date elements.(2000–2099)
Processor Information Name Type Speed Total Memory Memory Frequency	CoffeeLake DT Intel(R) Core(TM) i9–9900K CPU @ 3.60GHz 3600 MHz 32768 MB 2667 MHz	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1274.	Copyright (C) 2023 American	Megatrends, Inc.

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

ltem	Content	Description
Bios Version	ххххх	BIOS version

Configurable Items

Item	Content	Description
System Date	Week Day Month / Day /	Set the system date
	Year	
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 $<\uparrow><\downarrow>$ keys and enter a setting by pressing. This section will introduce the Advanced settings options. The Advanced interface is shown in the image below:

Main Advanced Chipset Security Boot Save & Exit	ican Megatrends, Inc.
 CPU Configuration Power & Performance Trusted Computing ACPI Settings IT8786 Super IO Configuration Hardware Monitor USB Configuration CSM Configuration GPIO Function Watch Dog Control Network Stack Configuration Intel(R) I210 Gigabit Network Connection - 00:A0:09:00:00:00 	CPU Configuration Parameters
 Intel(R) Ethernet Connection I219-V - 88:88:88:88:88:87:88 	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

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.

Aptio Setup Utility – Copyright (C) 2023 American Megatrends, Inc. <mark>Iced</mark>
ttings Enable or disable System wake on alarm event. When enabled, system will wake on the date::hr::min::sec specified. ry day [Disabled] ate::hr::min::sec specified. oute 0 ond 0
++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263. Copyright (C) 2023 Americ

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.

aut Serial Port Device Settings ID=3F8h; IRQ=4; Change Settings IAuto] RS485 Autoflow Control IDisable RS485 Autoflow Control Enable Disable t: I		
Serial Port [Enabled] Device Settings ID=3F8h; IRQ=4; Change Settings [Auto] RS485 Autoflow Control [Disable] RS485 Autoflow Control Enable Disable +: Line Line	able or disable RS485 toflow control.	
RS485 Autoflow Control [Disable] RS485 Autoflow Control Enable Disable Jisable		
RS485 Autoflow Control Enable Disable ↓:		
Enable Disable t:		
Enable		

Image 0-4 BIOS-Advanced

4.4.5.1 Hardware 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.

Aptio Setup U Advanced	tility – Copyright (C) 2023 A	merican Megatrends, Inc.
Pc Health Status CPU temperature System temperature CPU Fan Speed Sys Fan 1 Speed Sys Fan 2 Speed P3V3_DUAL VCORE +12V P5V_DUAL P1V2_DDR VBAT > Smart Fan Function	: +29 % : +27 % : 2360 RPM : N/A : N/A : +3.368 V : +1.079 V : +12.295 V : +12.295 V : +5.095 V : +1.199 V : +3.204 V	Smart Fan function setting **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values
Version 2.20	.1274. Copyright (C) 2023 Ame	F3: Optimized Defaults F4: Save & Exit ESC: Exit

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.

Aptio Setup Utility - Advanced	- Copyright (C) 2023 American	Megatrends, Inc.
CPU Fan Setting Smart Fan 1 Mode Tempurature select Fan off temperature limit Fan start temperature limit Fan full speed temperature limit Fan start PWM PWM SLOPE SETTING A Temperature	[Automatic Mode] [TMPIN1] 0 60 90 75 3 4	Smart Fan Mode Select
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1274. C	Copyright (C) 2023 American M	egatrends, Inc.

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.

Aptio Setup Utility - Advanced	Copyright (C) 2023 Americar) Megatrends, Inc.
CPU – Power Management Control		Select the performance state that the BIOS will set
Boot performance mode Intel(R) SpeedStep(tm) Intel(R) Speed Shift Technology Turbo Mode C states	[Max Non-Turbo Performance] [Enabled] [Enabled] [Disabled] [Disabled]	starting from reset vector.
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1274. C	opyright (C) 2023American ⊧	Megatrends, Inc.

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.

Aptio Setup Utilit Advanced	ty – Copyright (C) 2023 America	an Megatrends, Inc.
Change GPIO Function	[Enabled]	Output Default
GPIO1 Function	[GPI]	
GPIO2 Function	[GPI]	
GPIO3 Function	[GPI]	
GPIO4 Function Output Default	[GPO] [HIGH]	
GPIO5 Function Output Default	Output Default —— HIGH LOW	
GPIO6 Function		↑↓: Select Item
Output Default	(HIGH)	Enter: Select +/-: Change Opt.
GPIO7 Function	[GPO]	F1: General Help
Output Default	[HIGH]	F2: Previous Values F3: Optimized Defaults
GPIO8 Function	[GPO]	F4: Save & Exit
Output Default	[HIGH]	ESC: Exit
Version 2.20.1274	4. Copyright (C) 2023 American	Megatrends, Inc.

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.

Aptio Setup Utility - Advanced	Copyright (C) 2023 American	Megatrends, Inc.
Advanced Watch Dog Time	[Enabled] 255 Watch Dog Enabled Disabled	Watch Dog ++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1274. Co	pyright (C) 2023 American Mu	egatrends, Inc.

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.

TPM20 Device Found		Enables or Disables BIOS
Firmware Version:	11.6	support for security device.
Vendor:	INTC	O.S. will not show Security
Parimity Davida Company	[Enchlo]	Device. TCG EFI protocol and INT1A interface will not be
Security Device Support Active PCR banks	[Enable] SHA-1,SHA256	available.
Available PCR banks	SHA-1,SHA256	avallable.
	3HH-1,3HH230	
SHA-1 PCR Bank	[Enabled]	
SHA256 PCR Bank	[Enabled]	
Pending operation	[None]	
Platform Hierarchy	[Enabled]	
Storage Hierarchy	[Enabled]	++: Select Screen
Endorsement Hierarchy	[Enabled]	↑↓: Select Item
TPM2.0 UEFI Spec Version	[TCG_2]	Enter: Select
Physical Presence Spec Version 👘	[1.3]	+/-: Change Opt.
TPM 20 InterfaceType	[CRB]	F1: General Help
Device Select	[Auto]	F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

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 < \uparrow >< \downarrow > keys and enter a setting by pressing. This section will introduce the Chipset settings options. The Chipset interface is shown below:

Aptio Setup Utility – Copyright (C) 2023 Americ Main Advanced <mark>Chipset</mark> Security Boot Save & Exit	can Megatrends, Inc.
 System Agent (SA) Configuration PCH-ID Configuration 	System Agent (SA) Parameters
	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1274. Copyright (C) 2023 American	n Megatrends, Inc.

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.

Aptio Setup U [.] Chipset	tility – Copyright (C) 2023	American Megatrends, Inc.
Graphics Configuration		Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG
Primary Display	[Auto]	for Switchable Gfx.
	Primary Display Auto IGFX PEG PCI SG	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20	.1274. Copyright (C) 2023 Am	merican Megatrends, Inc.

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.

Aptio Setup Utili Chipset	ty – Copyright (C) 2023 Amer	rican Megatrends, Inc.
SATA And RST Configuration		Enable or Disable SATA Port
Serial ATA Port 1 Software Preserve Port 1 Hot Plug Configured as eSATA Spin Up Device SATA Device Type Topology SATA Port 1 DevSlp DITO Configuration DITO Value DM Value Serial ATA Port 2 Software Preserve Port 2 Hot Plug Configured as eSATA Spin Up Device SATA Device Type Topology SATA Port 2 DevSlp DITO Configuration	Empty Unknown [Enabled] [Disabled] Hot Plug supported [Disabled] [Solid State Drive] [Direct Connect] [Disabled] [Disabled] 625 15 Empty Unknown [Enabled] [Disabled] Hot Plug supported [Disabled] [Hard Disk Drive] [Direct Connect] [Disabled] [Disabled] [Disabled]	<pre>**: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </pre>
Version 2.20.127	4. Copyright (C) 2023 Americ	can Megatrends, Inc.

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.

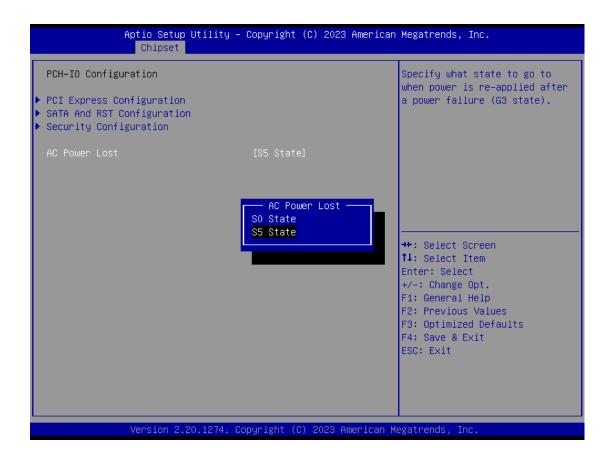


Image 0-14 BIOS-Chipset

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.

	Aptio Setup – AMI	
Chipset VMD Configuration Enable VMD controller Enable VMD Global Mapping Map this Root Port under VMD Root Port BDF details RAID0 RAID1 RAID5 RAID1 Intel Rapid Recovery Technology RRT volumes can span internal and eSATA drives Intel(R) Optane(TM) Memory	Aptio Setup - AMI [Enabled] [Disabled] SATA Controller [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled]	Enable/Disable to VMD controller ++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
Chipset	2.22.1289 Copyright (C) 202 Aptio Setup – AMI	
<pre>VMD Configuration Enable VMD controller Enable VMD Global Mapping Map this Root Port under VMD Root Port BDF details RAID0 RAID1 RAID5 RAID10 Intel Rapid Recovery Technology RRT volumes can span internal and eSATA drives Intel(R) Optane(TM) Memory</pre>	<pre>[Enabled] [Disabled] SATA Controller [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled]</pre> [Enabled]	Enable/Disable to VMD controller ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Image 0-15 BIOS-Chipset

4.4.8Security 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 $<\uparrow><\downarrow>$ keys and enter a setting by pressing <Enter>. This section will introduce the Security settings options. The Security interface is shown below:

Aptio Setup Ut Main Advanced Chipset Se	<mark>ility – Copyright (C)</mark> 2023 <mark>curity </mark> Boot Save & Exit	American Megatrends, Inc.
Password Description		Set Administrator Password
If ONLY the Administrator's then this only limits access only asked for when entering If ONLY the User's password is a power on password and m boot or enter Setup. In Setu have Administrator rights. The password length must be in the following range: Minimum length Maximum length	to Setup and is Setup. is set, then this ust be entered to	
Administrator Password User Password	20	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help</pre>
▶ Secure Boot		F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.	1274. Copyright (C) 2023 Am	erican Megatrends, Inc.

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 $<\uparrow><\downarrow>$ keys and enter a setting by pressing <Enter>. This section will introduce the BOOT settings options. The BOOT interface is shown below:

Aptio Setup Utility – Copyright (C) 2023 American Megatrends, Inc. Main Advanced Chipset Security <mark>Boot</mark> Save & Exit		
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot	2 [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Boot Option #1 Boot Option #2 Boot Option #3	[UEFI: SanDisk, Partition 1] [SanDisk] [UEFI: Built–in EFI Shell]	
Hard Drive BBS Priorities		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.20.1274. Copyright (C) 2023 American Megatrends, Inc.		

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 $<\uparrow><\downarrow>$ keys and enter a setting by pressing <Enter>. This section will introduce the Save & Exit settings options. The Save & Exit interface is shown below:

Aptio Setup Utility – Copyright (C) 2023 American Main Advanced Chipset Security Boot Save & Exit	Megatrends, Inc.
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset	Exit system setup after saving the changes.
Discard Changes and Reset Save Changes Discard Changes	
Default Options Restore Defaults Save as User Defaults	
Restore User Defaults Boot Override UEFI: Built-in EFI Shell	<pre>++: Select Screen ↓↓: Select Item Enter: Select +/-: Change Opt.</pre>
UEFI: SanDisk, Partition 1 SanDisk Launch EFI Shell from filesystem device	F1: General Help F2: Previous Values F3: Optimized Defaults
	F4: Save & Exit ESC: Exit
Version 2.20.1274. Copyright (C) 2023 American M	egatrends, Inc.

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._o

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

A: 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.