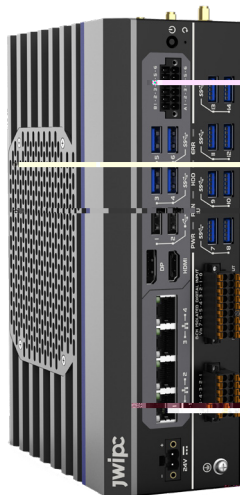
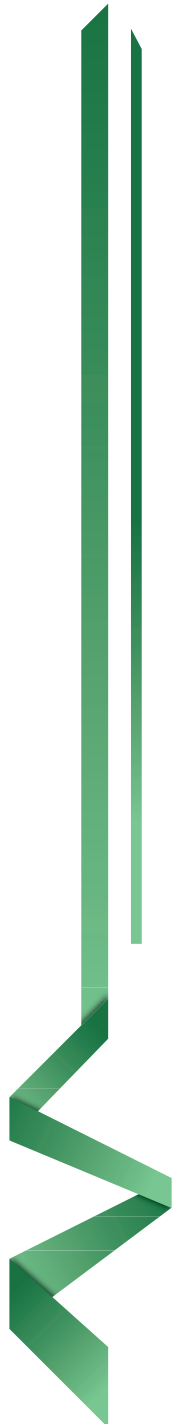


PAS-7513



Version 1.0






A





ESD

(ESD, electrostatic sensitive devices)



- ESD
- ESD
- ESD
- ESD
- ESD

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1

1.1

PAS-7513

- Intel LGA1700 12&13 i9/i7/i5/i3/G CPU TDP 65W
- 2 DDR5-SODIMM 64GB
- DP+HDMI
- 4 USB3.0 2 USB2.0 USB3.0 1.5A HUB
- 12pin 485/232 1 3 CAN
- 4 :2 Intel i226-V 2.5Gb RJ45 1 Intel i219LM RJ45 1 Intel

i210-AT RJ45

- 1 M.2 NVME X4 2242/2280 1 M.2 USB+PCIEx1 3042/3052
- SLB9670 TPM2.0
- 3 2*COM,8*USB3.0,16GPIO
- PAS-7513 USB , USB3 Vision®

1.2

	- PAS-7513
	-
CPU	- Intel LGA1700 12&13 i9/i7/i5/i3/G CPU,TDP 65W
	- H610
	- 2 DDR5 SODIMM
	- Intel UHD 730-770 HDMI+DP HDMI 2.0 max resolution up to 4096*2160@60Hz DP, max resolution up to 3840*2160*60Hz
	- 1 M.2 Key-M 2242/2280 SSD (NVME)
	- 1 Intel i219-V RJ45 (LAN A) 2 Intel i226-V 2.5Gb RJ45 (LANB,LANC),1 i210-AT (LAN D)
USB	- 4 USB3.0, 2 USB2.0
	- 2 x COM RS485/232 CAN 12Pin
	- M.2 3052 3042/ 4G/5G
CAN	- 1*CAN , COM 12Pin
TPM	- SLB9670 TPM2.0

3	COM	- 2 RS232/485/422(2)
	USB	- 8 USB3.0
	GPIO	- 16 I/O(8 , 8)
		- 255 / ,
		- DC 24V 2Pin
BIOS		- AMI UEFI BIOS
		- Win10 x64, Win11 x64, Linux, Ubuntu 21.04
L*W*H		- 230mm(L) x 165mm(W) x 71.5mm(H)

2

2.1
77

2.2
7777
20% 85%

0 40

10cm

50cm



7

12

2.3 7

2.3.1

-
-
-
-

2.4 7

-
-
-
-
-
-
-

50mm 100mm

(

I/O 0.5V

3

3.1

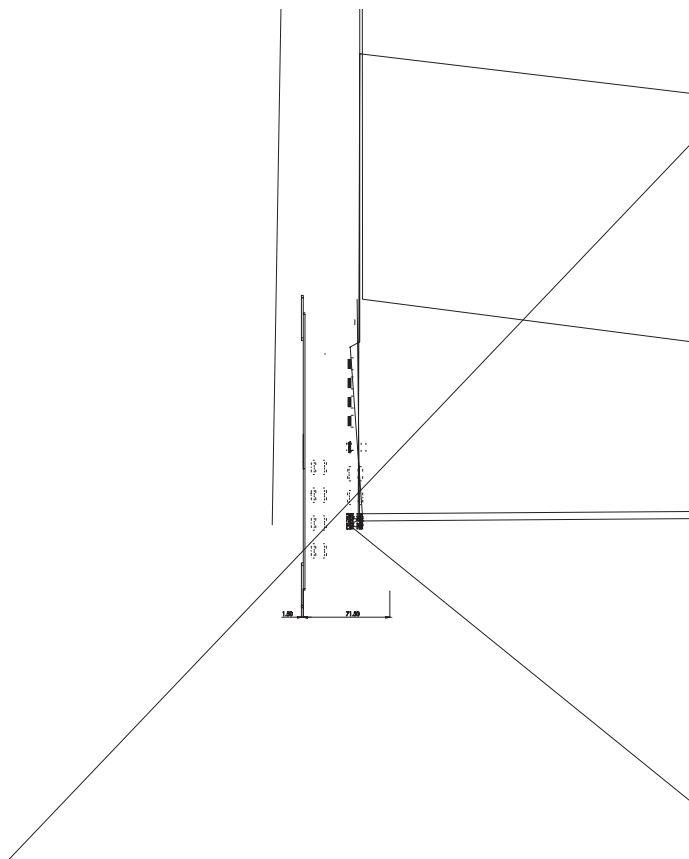
☐ VESA

DIN

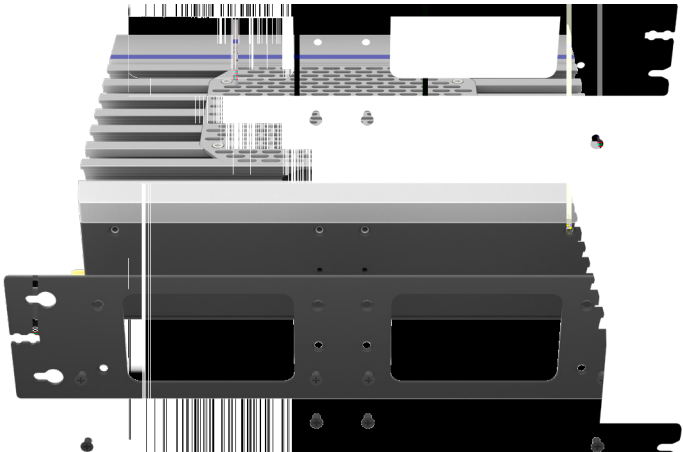
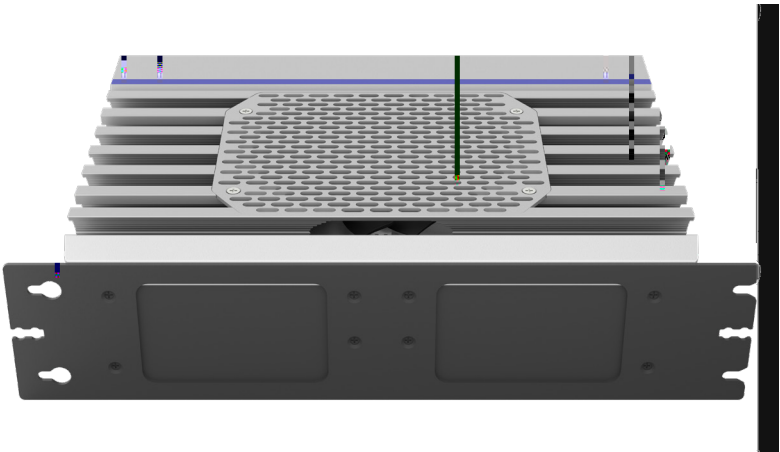


3.2 PAS-7513

mm

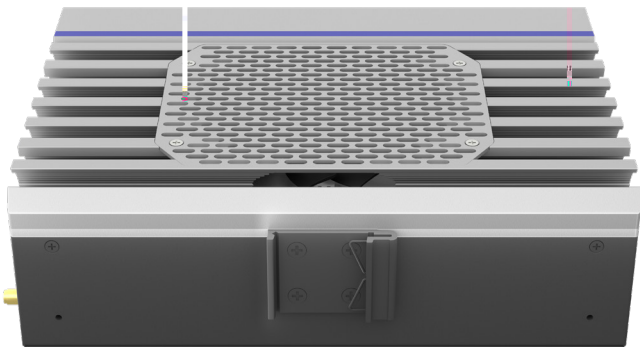


3.3 PAS-7513

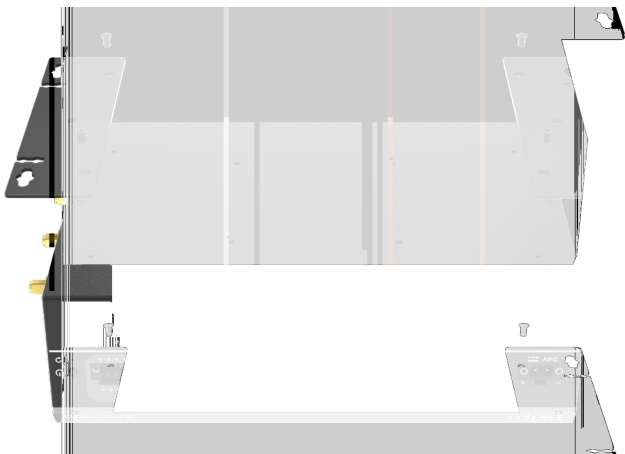


2 , M3x5.6

3.4 PAS-7513



3.5 PAS-7513

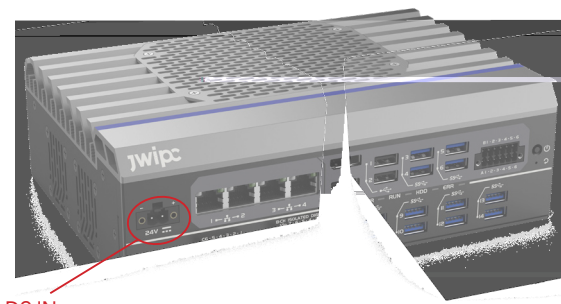


4

4.1

		
		
		
I/O		USB

4.2

DCIN	

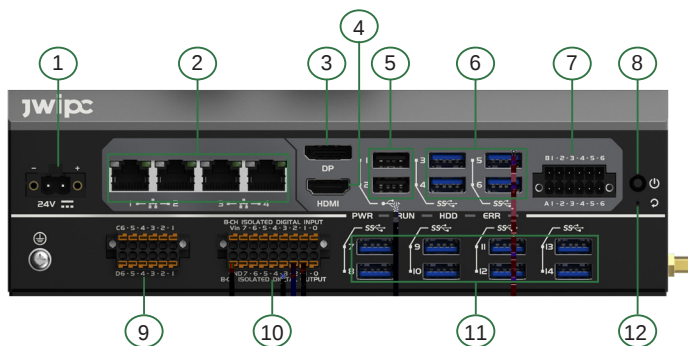


5

5.1 PAS-7513



5.2 PAS-7513 IO

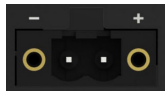


- 1.DC_IN DC
- 2.LAN RJ45
- 3.DP DP
- 4.HDMI
- 5.USB2.0 USB2.0
- 6.USB3.0 USB3.0
- 7.COM_CAN RS232+ RS485+CAN
- 8.Power Button
- 9.COM RS232+ RS422+ RS485
- 10.DIO /
- 11.USB3.0 USB3.0
- 12.RECOVER

5

CMOS

5.3

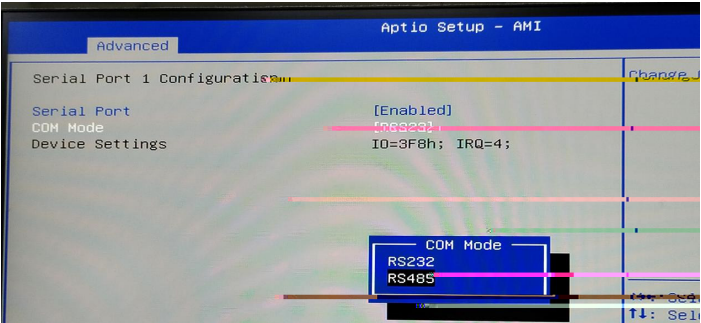
		
	1	DC-
	2	DC+

5.4 COM_CAN

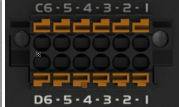
						
	PIN	RS232	RS422	RS485	CAN	
	A1	COM1_DCD	/	COM1_485-	/	/
	A2	COM1_SIN	/	COM1_485+	/	/
	A3	COM1_SOUT	/	/	/	/
	A4	/	/	/	/	GND
	A5	/	/	/	/	GND
	A6	/	/	/	/	PWRBTN#
	B1	COM2_DCD	/	COM2_485-	/	/
	B2	COM2_SIN	/	COM2_485+	/	/
	B3	COM2_SOUT	/	/	/	/
	B4	/	/	/	GND	/
	B5	/	/	/	CAN1_H	/
	B6	/	/	/	CAN1_L	/

COM1/2 RS232/485

BIOS



5.5 COM3_4

					
	PIN	RS232	RS422	RS485	
	C1	COM3_DCD	COM3_422TX-	COM3_485-	/
	C2	COM3_SIN	COM3_422TX+	COM3_485+	/
	C3	COM3_SOUT	COM3_422RX+	/	/
	C4	COM3_DTR	COM3_422RX-	/	/
	C5	/	/	/	GND
	C6	/	/	/	/
	D1	COM4_DCD	COM4_422TX-	COM4_485-	/
	D2	COM4_SIN	COM4_422TX+	COM4_485+	/
	D3	COM4_SOUT	COM4_422RX+	/	/
	D4	COM4_DTR	COM4_422RX-	/	/
	D5	/	/	/	GND
	D6	/	/	/	/

COM3/4 RS232/RS422/RS485

RS232	RS485	RS422
⌋C1(1-2)	⌋C1(3-4)	⌋C1(5-6)
⌋C2(1-3)	⌋C2(3-5)	⌋C2(3-5)
⌋C2(2-4)	⌋C2(4-6)	⌋C2(4-6)
⌋C3(1-3)	⌋C3(3-5)	⌋C3(3-5)
⌋C3(2-4)	⌋C3(4-6)	⌋C3(4-6)

RS232	RS485	RS422
⌋C4(1-2)	⌋C4(3-4)	⌋C4(5-6)
⌋C5(1-3)	⌋C5(3-5)	⌋C5(3-5)
⌋C5(2-4)	⌋C5(4-6)	⌋C5(4-6)
⌋C6(1-3)	⌋C3(3-5)	⌋C6(3-5)
⌋C6(2-4)	⌋C3(4-6)	⌋C6(4-6)

5.6 DIO

				
	1	DI_0	2	DO_0
	3	DI_1	4	DO_1
	5	DI_2	6	DO_2
	7	DI_3	8	DO_3
	9	DI_4	10	DO_4
	11	DI_5	12	DO_5
	13	DI_6	14	DO_6
	15	DI_7	16	DO_7
	17	VCC	18	GND

5.7

5.7.1 ATX-M1

1-2	ATX Mode
2-3	AT Mode

5.7.2 FAN

1	GND
2	+5V
3	PWM_IN
4	PWM_OUT

5.7.3 BAT

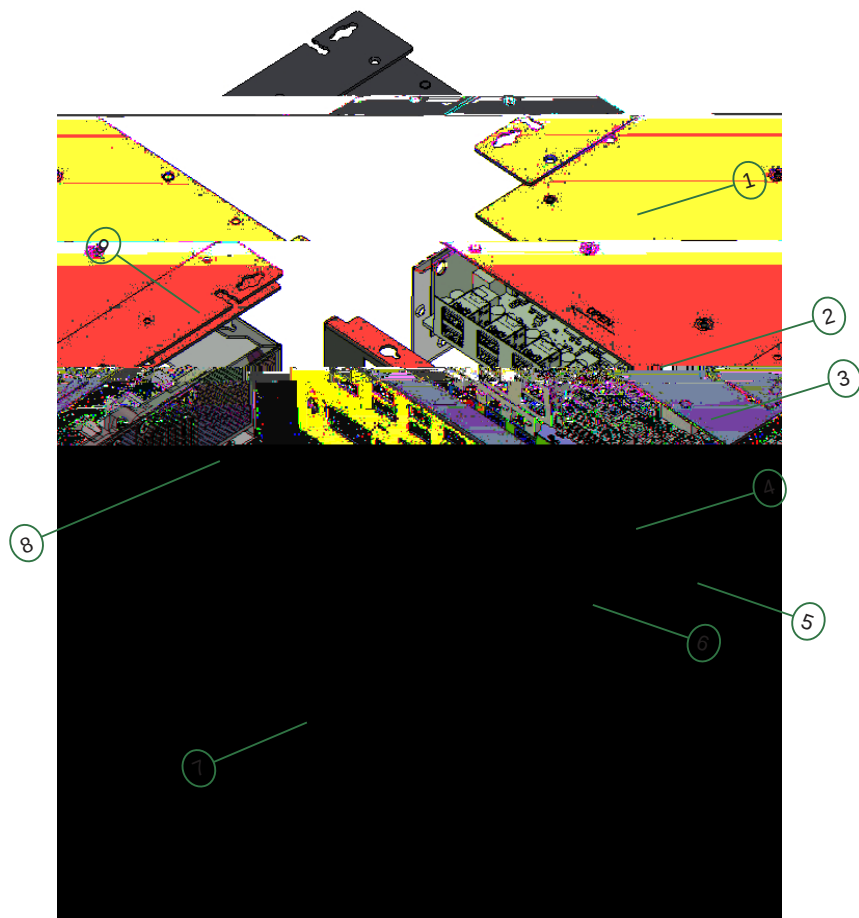
1	BAT+
2	BAT-

5.7.4 PWRBTN

1	+
2	GND

6

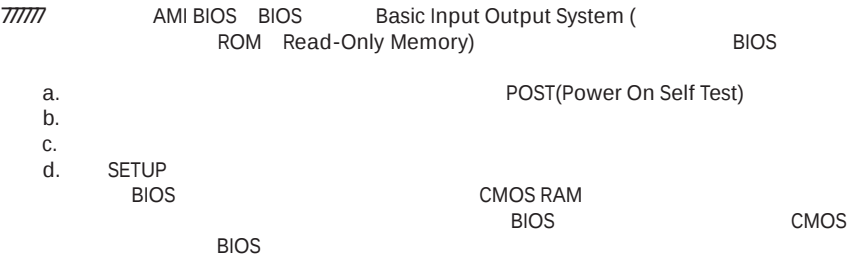
6.1 PAS-7513



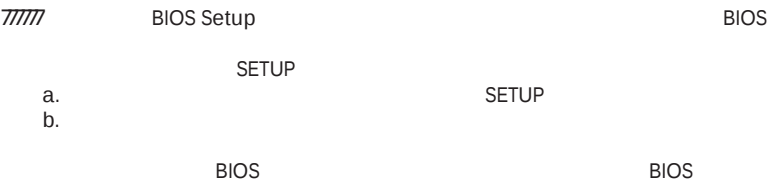
1		2		3	
4		5		6	
7		8	10	9	

7 BIOS

7.1 BIOS



7.2 BIOS



7.2.1



Press <Delete> to enter SETUP

Press <F11> to enter Boot Menu

7.2.2

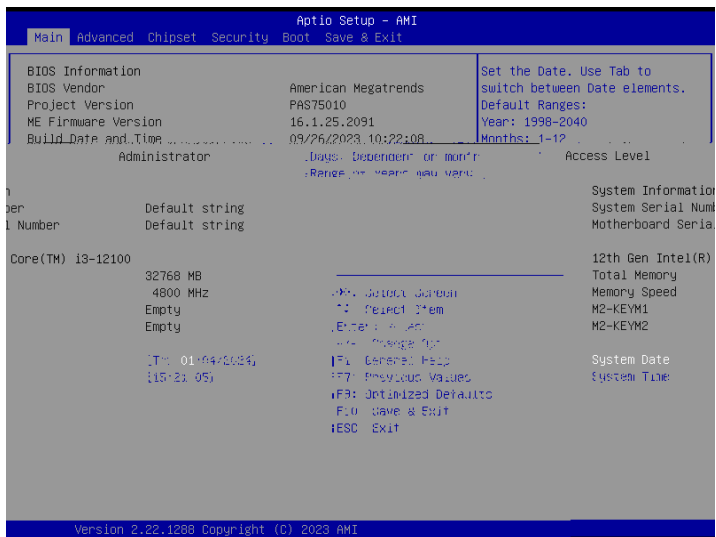
<Enter> <F1> <Esc>

F	
F	
F7	/
S	
S	CMOS SETUP
S	
S	
S	
S	CMOS

7.3 BIOS

Main		BIOS
Advanced		BIOS
Chipset		
Security		
Boot		
Save & Exit		BIOS

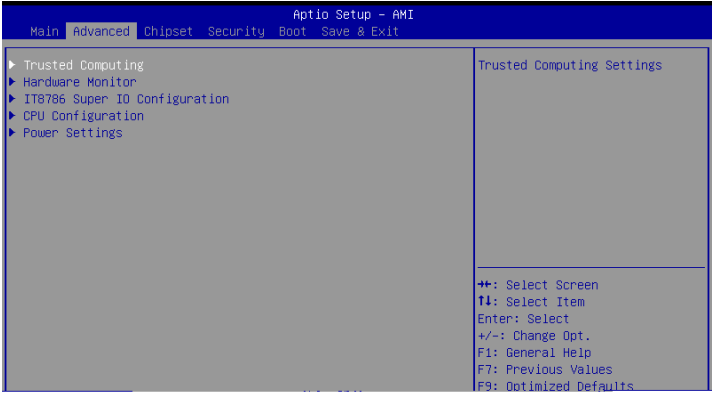
7.4 Main



System Date ()

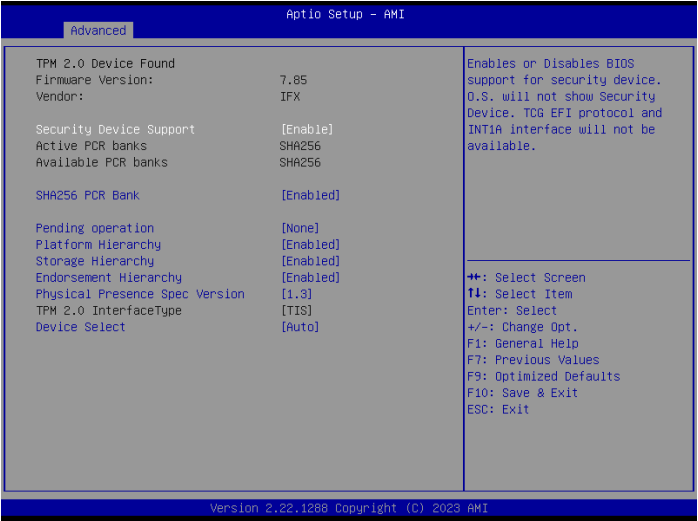
System Time

7.5 Advanced



Trusted Computing		
Hardware Monitor		
IT8786 Super IO Con f guration	Super IO	
CPU Con f guration	CPU	
Power Settings		

Trusted Configuration <Enter>



Security Device Support

BIOS

Disable,Enable.

SHA256 PCR Bank

SHA256 PCR Bank

Enabled,Disabled.

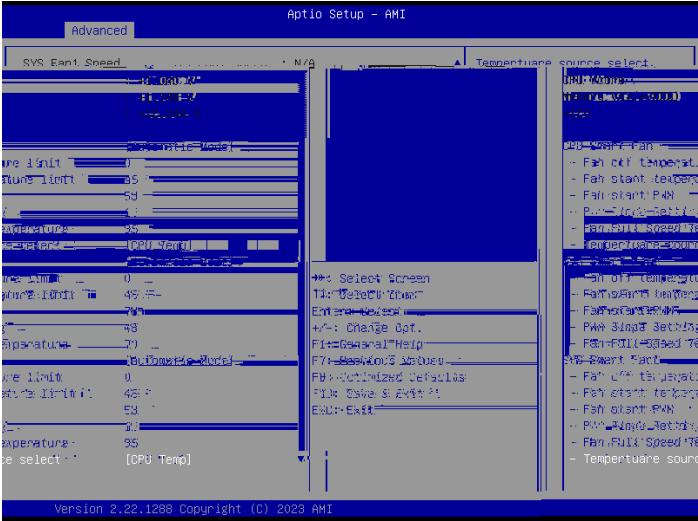
Pending operation

None, TPM Clear.

Platform Hierarchy

Enabled,Disabled.

Hardware Monitor <Enter>



CPU Smart Fan

CPU

Full on Mode, Automatic Mode, Manual Mode.

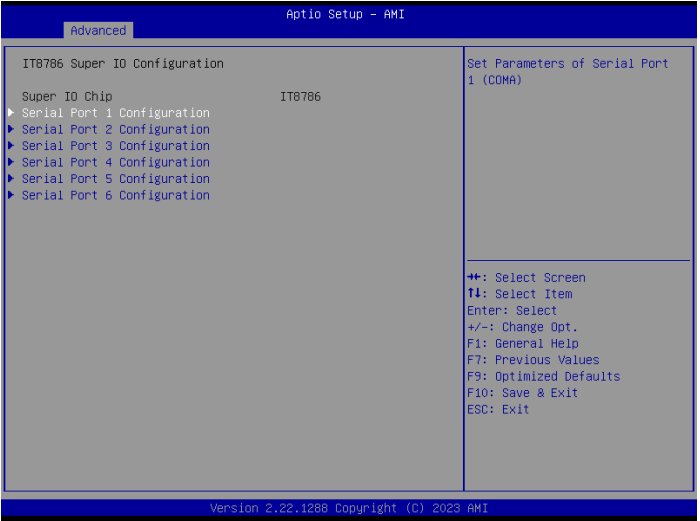
SYS Smart Fan2/1

Full on Mode, Automatic Mode, Manual Mode.

Tempertuare source select

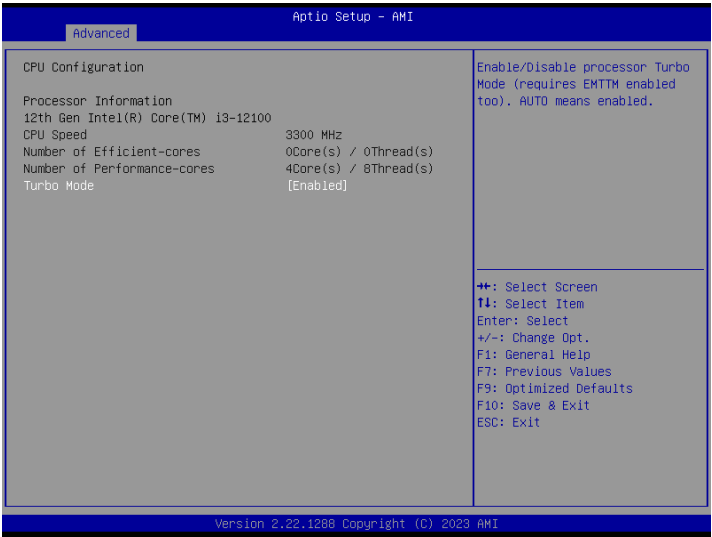
CPU Temp,SYS Temperature.

IT8786 Super IO Configuration <Enter>



Serial Port 1/2/3/4/5/6 Configuration

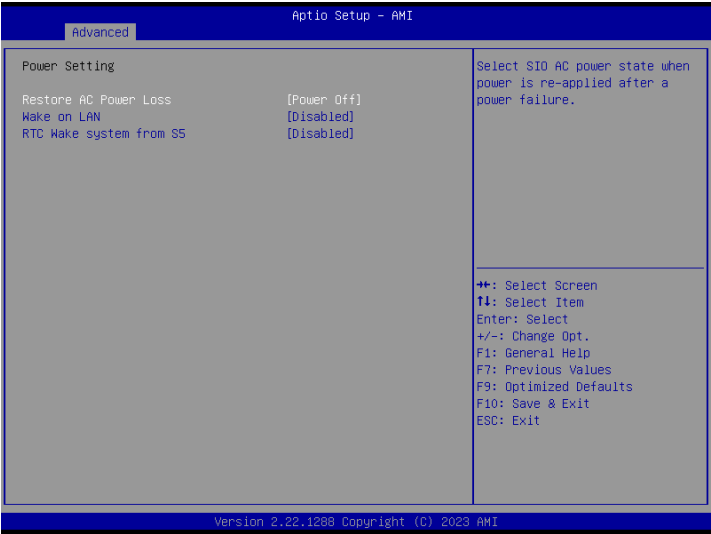
CPU Configuration <Enter>



Turbo Mode

Turbo
Enabled,Disabled.

Power Configuration <Enter>



Restore AC Power Loss

Power Off,Power On,Last State.

Wake on LAN

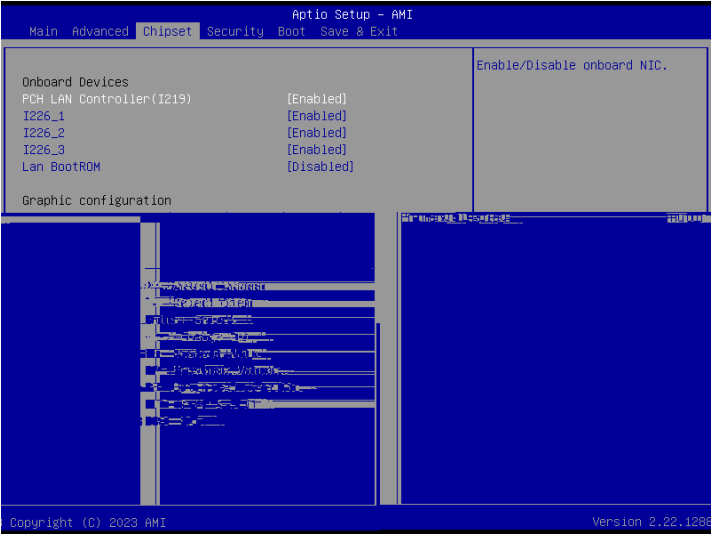
Disable,Enable.

RTC Wake system from S5

RTC

Disable,Enable.

7.6 Chipset



PCH LAN Controller(I219)

Enabled,Disabled.

I226_1/2/3

Disable,Enable.

Lan BootROM

ROM

Disable,Enable.

Primary Display

Auto,Enabled,Disabled.

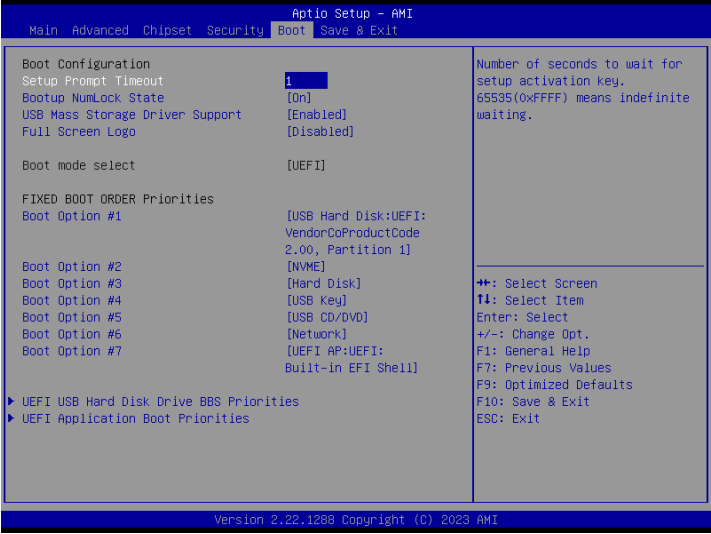
7.7 Security



Administrator Password7

1. Administrator Password <Enter>
 2. " Create New Password " 3~20
- <Enter> " Con frm Password "
- " Invalid Password! "
- " Administrator Password " " Enter Current Password "
- " Create New Password " <Enter>
- Password check
- BIOS
- Setup,Setup&Post

7.8 Boot



Boot NumLock State

NumLock

On,Of.

USB Mass Storage Driver Support

USB

Disable,Enable.

Full Screen Logo

Logo

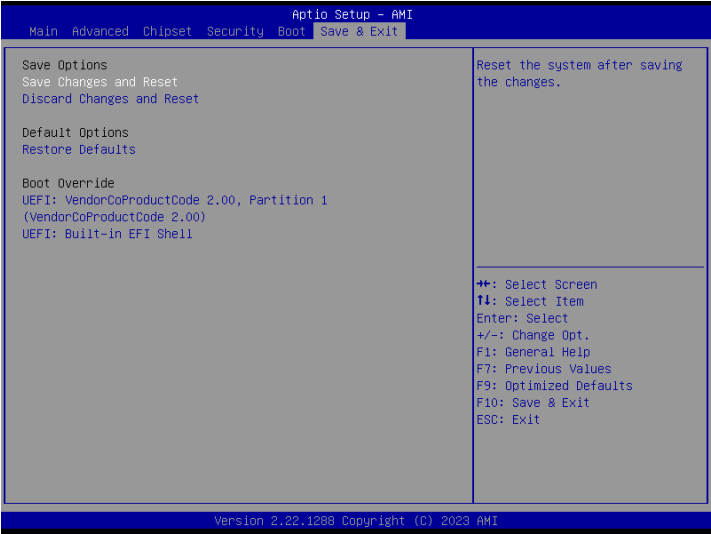
Disable,Enable.

Boot Option #1-7

NVME,Hard Disk,USB Hard Disk,USB key,USB CD/DVD,Network,UEFI AP:

Built-in EFI Shell.

7.9 Save&Exit



Save Changes and Reset

Discard Changes and Reset

Restore Defaults

8

8.1 WDT

WDT	SIO	LDN DEV7,	0X72 BIT7	1	0
0XF3	0X72 BIT7	1 0XF3	0X20	32	

8.1.1

```
//enter ite conf g
    IoWrite8(SioIndexPort,0x87);
    IoWrite8(SioIndexPort,0x01);
    IoWrite8(SioIndexPort,0x55);
    IoWrite8(SioIndexPort,0x55);

//select watchdog device
    IoWrite8(SioIndexPort,0x07);
    IoWrite8(SioDataPort,0x07);
    IoWrite8(SioIndexPort, 0xF1);
    temp_data = IoRead8(SioDataPort);
    temp_data &= 0xBB;
    temp_data |= 0x44;
    IoWrite8(SioIndexPort, 0xF1);
    IoWrite8(SioDataPort, temp_data);

//MAP to GP10
    IoWrite8(SioIndexPort, 0xF4);
    temp_data = IoRead8(SioDataPort);
    temp_data &= 0xC0;
    temp_data |= 0x08;
    IoWrite8(SioIndexPort, 0xF4);

//wdt start
if(ite_watch_dog_element->wdt_operator==START_WDT){

//clear status
IoWrite8(SioIndexPort, 0x71);
temp_data = IoRead8(SioDataPort);
temp_data &= 0xfe;
IoWrite8(SioIndexPort, 0x71);
IoWrite8(SioDataPort, temp_data);

IoWrite8(SioIndexPort, 0x72);
temp_data = IoRead8(SioDataPort);

temp_data &= 0x1f;
temp_data |= 0xC0;
//minute or second BIT7 1->second 0->minute
if(ite_watch_dog_element->wdt_unit == 1){
temp_data &= 0x7f;
}

}

IoWrite8(SioIndexPort, 0x72);
IoWrite8(SioDataPort, temp_data);
```

```

//Clear Status
IoWrite8(SioIndexPort, 0x71);
temp_data = IoRead8(SioDataPort);
temp_data &= 0xfe;
IoWrite8(SioIndexPort, 0x71);
IoWrite8(SioDataPort, temp_data);

//Count
IoWrite8(SioIndexPort, 0x74);
IoWrite8(SioDataPort, 0x0);
IoWrite8(SioIndexPort, 0x73);
IoWrite8(SioDataPort, ite_watch_dog_element->wdt_time);
//printf("wdt start:%x\n",IoRead8(data));
}

```

8.1.2

```

//wdt stop
if(ite_watch_dog_element->wdt_operator==STOP_WDT){
    IoWrite8(SioIndexPort, 0x74);
    IoWrite8(SioDataPort, 0x0);
    IoWrite8(SioIndexPort, 0x73);
    IoWrite8(SioDataPort, 0x0);
}

```

9-40-6 Watch Dog Timing Select

Bit	Description
7	WDT is reset upon a CPU interrupt.
6	WDT is reset upon a CPU interrupt.
5	WDT is reset upon a KPC (Keyboard) interrupt.
4	WDT Status will not be cleared by WDGCR1.RESET, and be cleared only when one is written to the WDT status.
3	1: Enable 0: Disable
2	Reserved
1	5VSB_CTRL# Timing Select 0: 5 seconds 1: 10 seconds
0	Force Time-out This bit is self-cleared.
0	WDT Status 1: WDT value is equal to 0. 0: WDT value is not equal to 0.

8.10.7 Watch Dog Timer Configuration Register (Index=72h, Default=001s0000b)

Bit	Description
7	WDT Time-out Value Select 1 1: Second 0: Minute
6	WDT Output through KRST (pulse) Enable 1: Enable 0: Disable

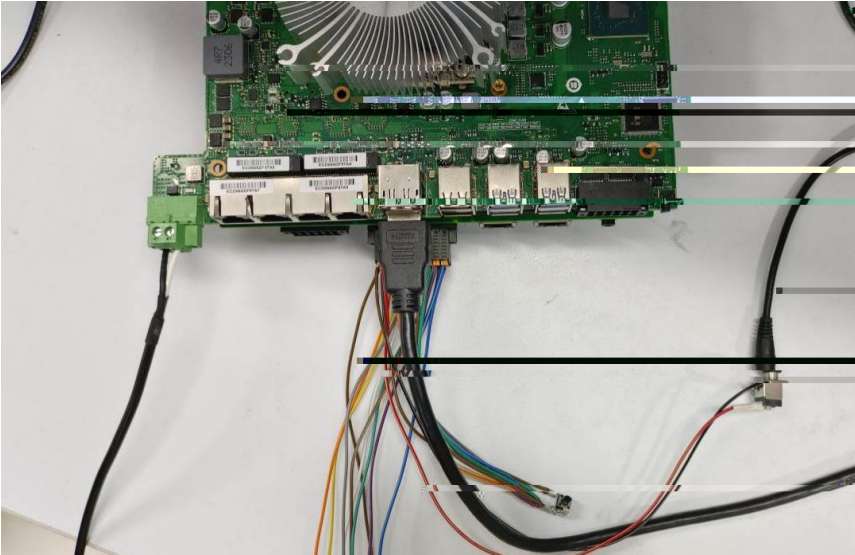
5	WDT Time-out Value Extra Select 1: 62.5ms x WDT Time-out value (default = 0.5s) 0: Removed by WDT Time-out value select bit 7 of this register
4	Reserved
3-0	Interrupt Level Select for WDT Please refer to Table 8-15. Interrupt Level Mapping Table on page 8

8.10.8 Watch Dog Timer Time-out Value 0 (SB) Register (Index=73h, Default=001s0000b)

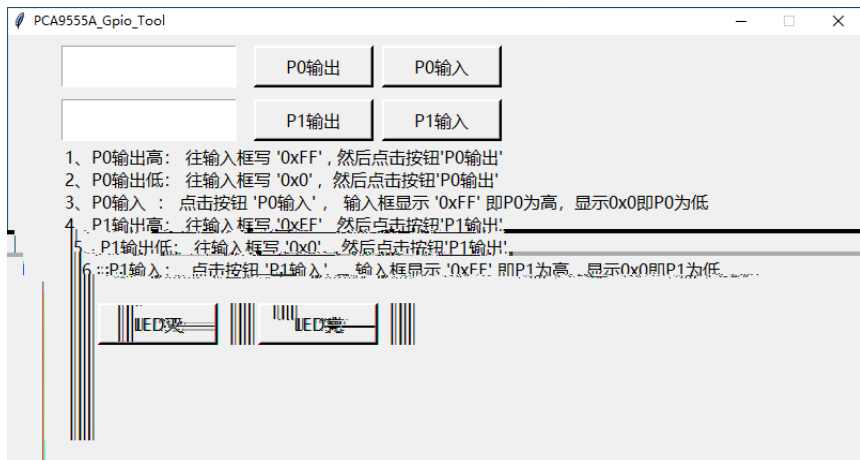
Bit	Description
7-0	WDR Time-out Value 7-0
24-0	Watch Dog Time-out Value 24-0 (Reserved) (Default = 001s0000b)
15-8	WDR Time-out Value 15-8

8.2 GPIO

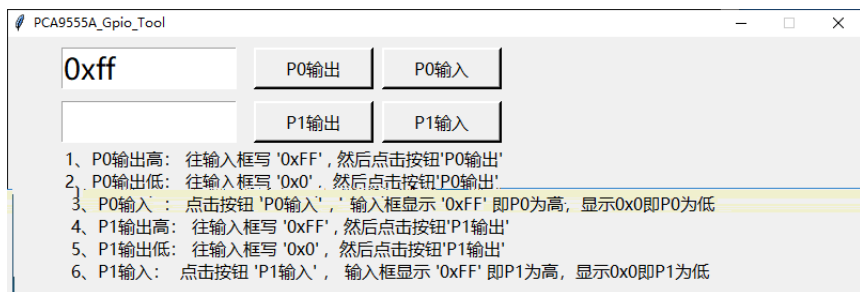
1 5V LED 5V 12V 24V



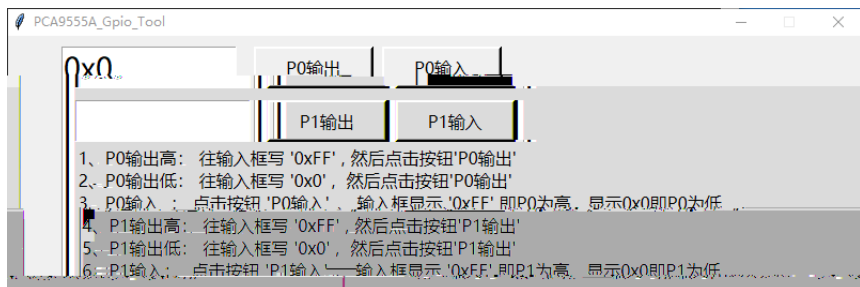
2 PCA9555A_Gpio_Tool



3 “ P0 ” 0xf



4 “ P0 ” 0x0



5 “ P1 ” 0xf “ P1 ” 0xf “ P1 ”

0xff

P0输出

P0输入

P1输出

P1输入

1、P0输出高：往输入框写 '0xFF'，然后点击按钮'P0输出'，然后点击按钮'P0输出'，输入框显示 '0xFF' 即P0为高，显示0x0即P0为低，然后点击按钮'P1输出'，然后点击按钮'P1输出'，输入框显示 '0xFF' 即P1为高，显示0x0即P1为低

2、P0输出低：往输入框写 '0x0'

3、P0输入：点击按钮 'P0输入'，输入框显示 '0xFF' 即P0为高，显示0x0即P0为低

4、P1输出高：往输入框写 '0xFF'

5、P1输出低：往输入框写 '0x0'

6、P1输入：点击按钮 'P1输入'

6 “ P1 ” 0x0 “ P1 ”

0x0

P0输出

P0输入

P1输出

P1输入

1、P0输出高：往输入框写 '0xFF'，然后点击按钮'P0输出'

2、P0输出低：往输入框写 '0x0'，然后点击按钮'P0输出'

3、P0输入：点击按钮 'P0输入'，输入框显示 '0xFF' 即P0为高，显示0x0即P0为低

4、P1输出高：往输入框写 '0xFF'，然后点击按钮'P1输出'

5、P1输出低：往输入框写 '0x0'，然后点击按钮'P1输出'

6、P1输入：点击按钮 'P1输入'，输入框显示 '0xFF' 即P1为高，显示0x0即P1为低

Sample code PCA9555A_Gpio_Tool_LED_Program_source_code

29

9

9.1

		/
		1 2 12
	“ ”	
		1 2 3
		Winpe
I O		PCI ISA
	BIOS	Setup BIOS Setup BIOS
BIOS		
Boot device not found	BIOS	BIOS “ ” (Boot)
USB	USB 2.0 USB 2.0	USB 2.0
	USB	1 Support USB Legacy 2 USB