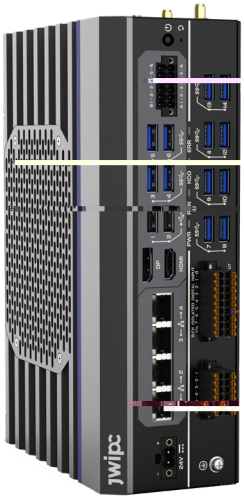
PAS-7513



Version 1.0

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ESD

(ESD, electrostatic sensitive devices)

ESD

- ESD
-
- ESD
- ESD
- ESD

目录

1 1
1.1 1
1.2 1
2 3
2.1 3
2.2 3
2.3 3
2.3.1 3
2.4 3
3 4
3.1 4
3.2 PAS-7513 4
3.3 PAS-7513 5
3.4 PAS-7513 6
3.5 PAS-7513 6
4 7
4.1 7
4.2 7
5 8
5.1 PAS-7513 8
5.2 PAS-7513 IO 8
5.3 9
5.4 COM_CAN 9
5.5 COM3_4 10
5.6 DIO 11
5.7 12
5.7.1 ATX-M1 12
5.7.2 FAN 12
5.7.3 BAT 12
5.7.4 PWRBTN 12
6 13
6.1 PAS-7513 13
7 BIOS 14
7.1 BIOS 14
7.2 BIOS 14
7.2.1 BIOS 14
7.2.2 14
7.3 BIOS 15
7.4 Main 15
7.5 Advanced 16

7.6 Chipset 21
7.7 Security 22
7.8 Boot 23
7.9 Save&Exit 24
8 25
8.1 WDT 25
8.2 GPIO 27
9 30
9.1 30

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 0 40
20% 85%
10cm
50cm

' ' 7
77777
12

2.3 7

2.3.1

-
-
-
-

2.4 7

-
-
-
- 50mm 100mm
- (
-
- I/O 0.5V

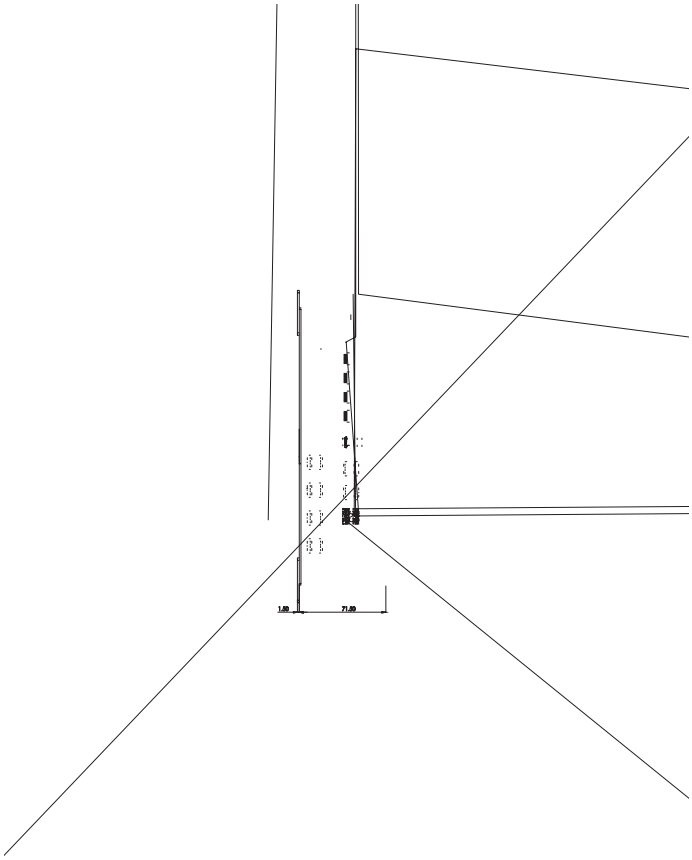
3

3.1

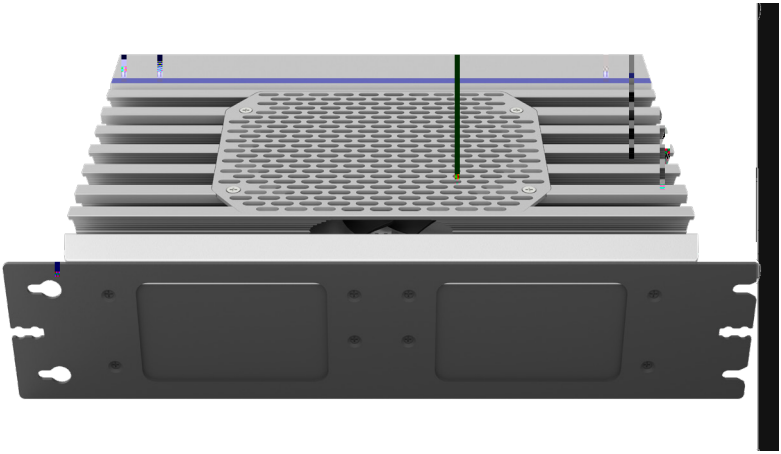
□ 19″ ■ □
■ □ VESA □
■ DIN

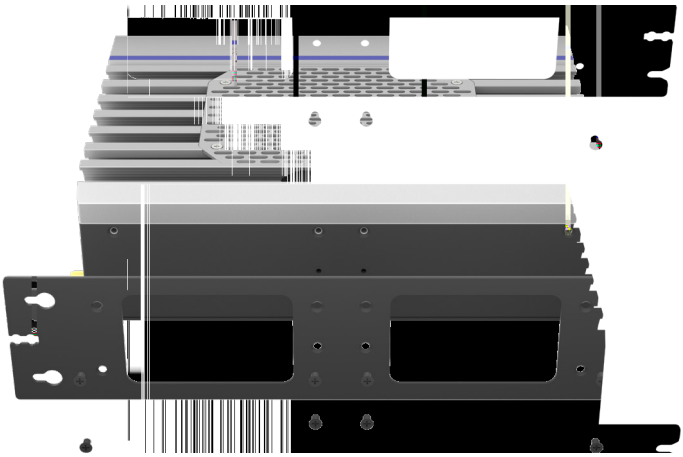
3.2 PAS-7513

mm



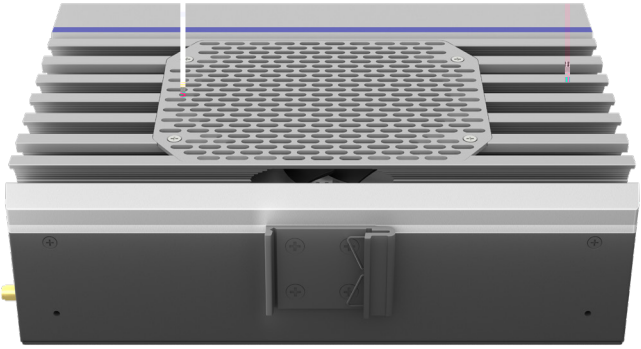
3.3 PAS-7513



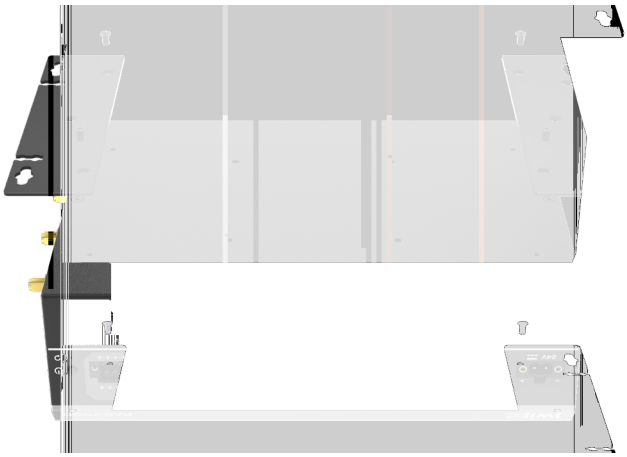


2 , M3x5.6

3.4 PAS-7513



3.5 PAS-7513



4

4.1

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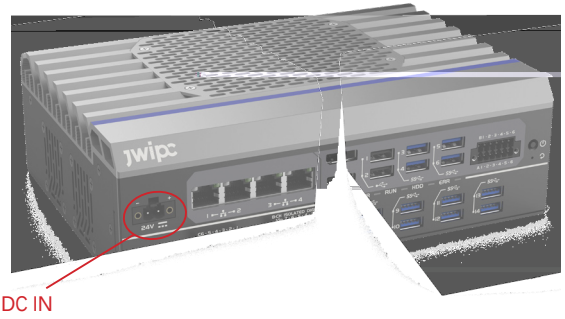
I/O USB I/O

4.2

DCIN	

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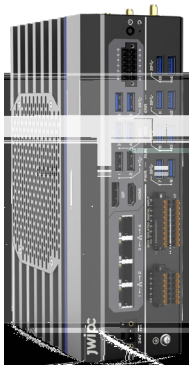
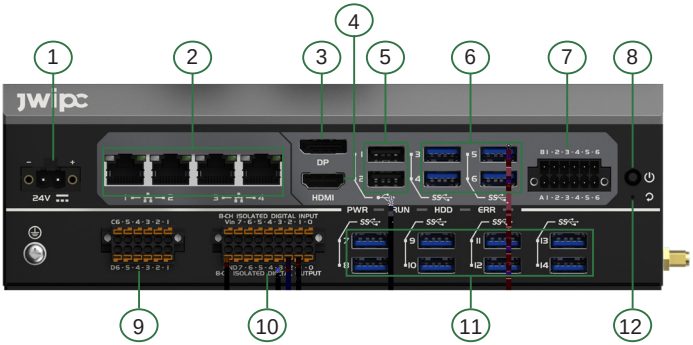
5

5.1 PAS-7513

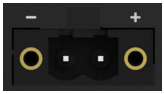


5.2 PAS-7513 IO



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

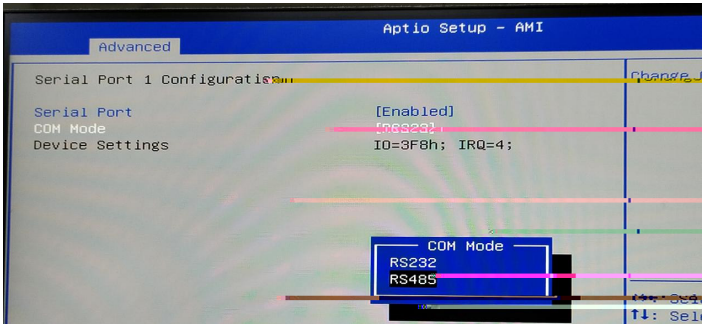


1	DC-
2	DC+

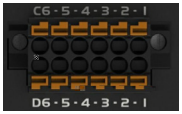
5.4 COM_CAN

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



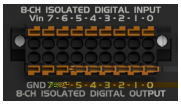
PIN	RS232	RS422	RS485	
C1	COM3_DCD	COM3_422TX-	COM3_485-	/
C2	COM3_SIN	COM3_422TX+	COM3_485+	/
C3	COM3_SOUT	COM3_422RX+	/	/
C4	COM3_DTR	COM3_422RX-	/	/
C5	/	/	/	GND
C6	/	/	/	/
D1	COM4_DCD	COM4_422TX-	COM4_485-	/
D2	COM4_SIN	COM4_422TX+	COM4_485+	/
D3	COM4_SOUT	COM4_422RX+	/	/
D4	COM4_DTR	COM4_422RX-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

COM3/4　　RS232/RS422/RS485

RS232	RS485	RS422
JC1(1-2)	JC1(3-4)	JC1(5-6)
JC2(1-3)	JC2(3-5)	JC2(3-5)
JC2(2-4)	JC2(4-6)	JC2(4-6)
JC3(1-3)	JC3(3-5)	JC3(3-5)
JC3(2-4)	JC3(4-6)	JC3(4-6)

RS232	RS485	RS422
JC4(1-2)	JC4(3-4)	JC4(5-6)
JC5(1-3)	JC5(3-5)	JC5(3-5)
JC5(2-4)	JC5(4-6)	JC5(4-6)
JC6(1-3)	JC3(3-5)	JC6(3-5)
JC6(2-4)	JC3(4-6)	JC6(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

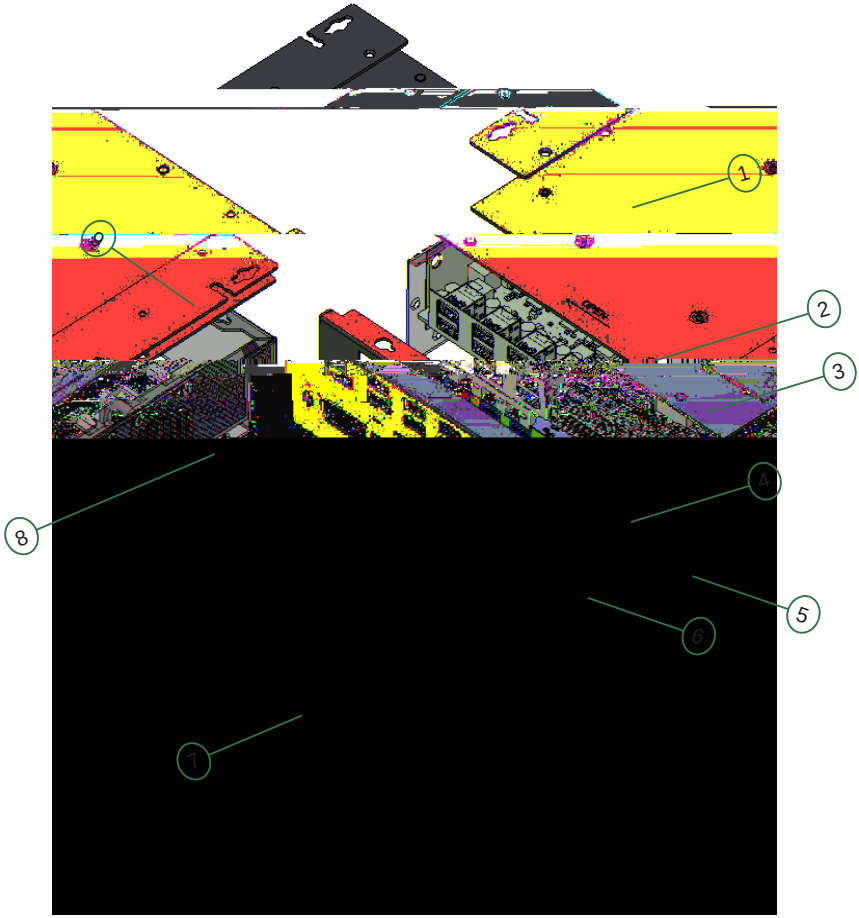
1	BAT+
2	BAT-

5.7.4 PWRBTN

1	+
2	GND

6

6.1 PAS-7513



1		2		3	
4		5		6	
7		8	IO	9	

7 BIOS

7.1 BIOS

AMI BIOS BIOS Basic Input Output System (
ROM Read-Only Memory) BIOS

a. POST(Power On Self Test)
b.
c.
d. SETUP
BIOS CMOS RAM
BIOS CMOS
BIOS

7.2 BIOS

BIOS Setup BIOS

SETUP
a. SETUP
b.

BIOS BIOS

7.2.1 BIOS

<DEL> BIOS

Press <Delete> to enter SETUP

Press <F11> to enter Boot Menu

7.2.2

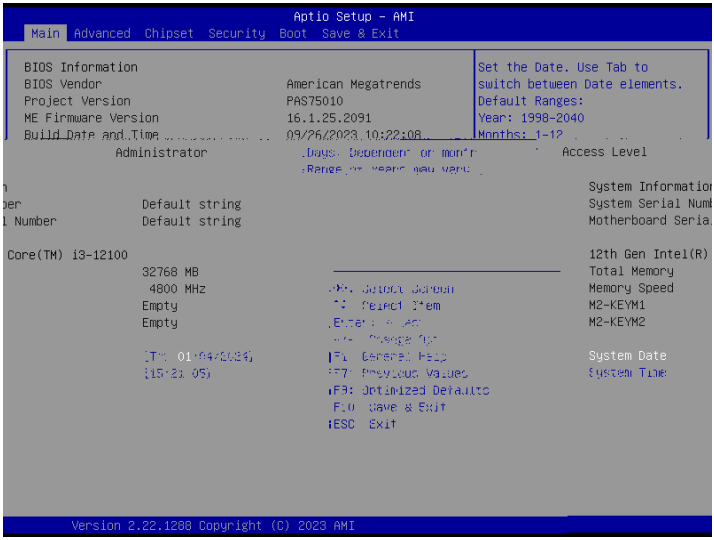
<Enter> <F1> <Esc>

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



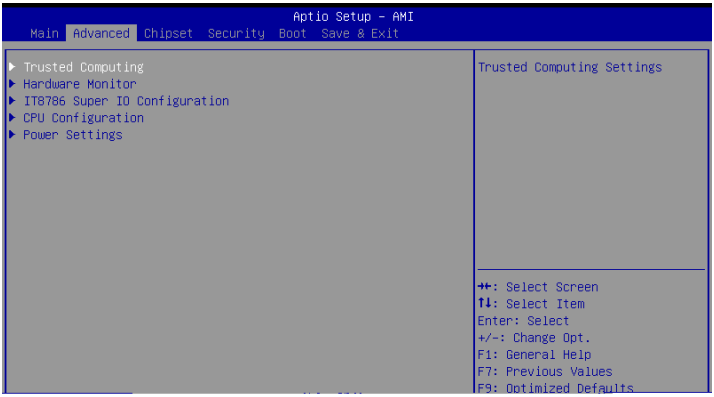
System Date ( )

, “ , / / ”

System Time

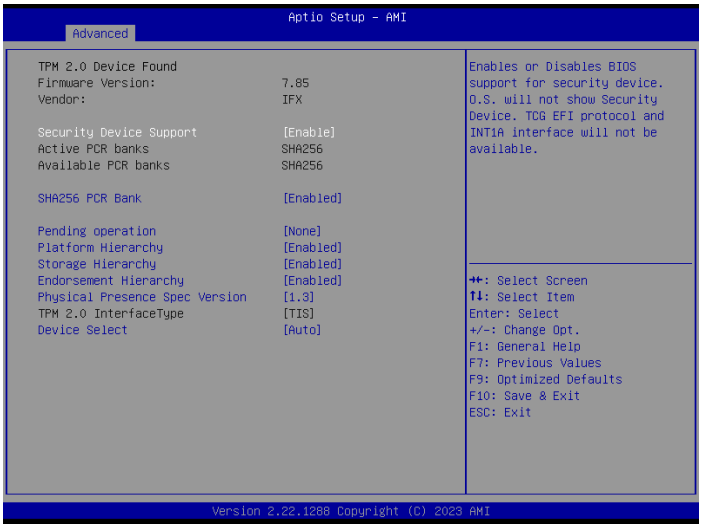
< >< >< >

7.5 Advanced



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

Trusted Con f guration <Enter>



Security Device Support

BIOS

Disable,Enable.

SHA256 PCR Bank

SHA256 PCR Bank

Enabled,Disabled.

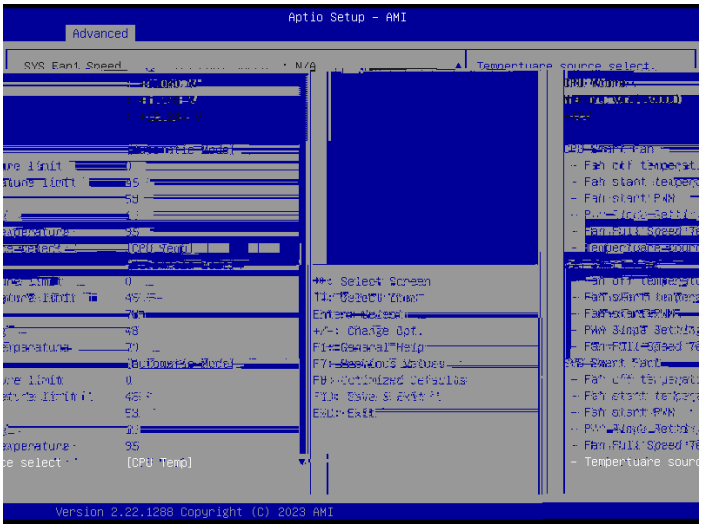
Pending operation

None, TPM Clear.

Platform Hierarchy

Enabled,Disabled.

Hardware Monitor <Enter>



CPU Smart Fan

CPU

Full on Mode,Automatic Mode,Manual Mode.

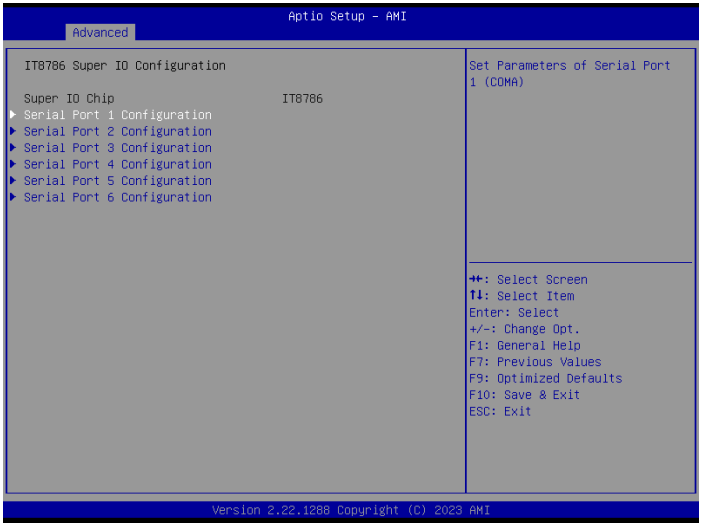
SYS Smart Fan2/1

Full on Mode,Automatic Mode,Manual Mode.

Tempertuare source select

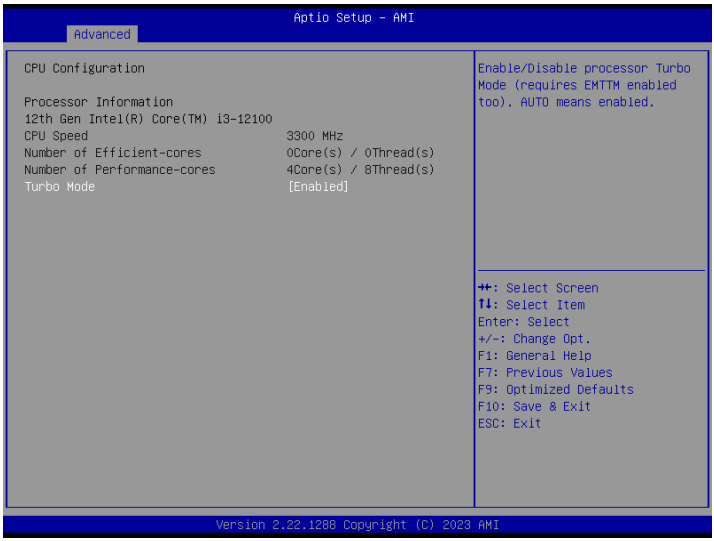
CPU Temp,SYS Temperature.

IT8786 Super IO Configuration <Enter>



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

CPU Configuration <Enter>

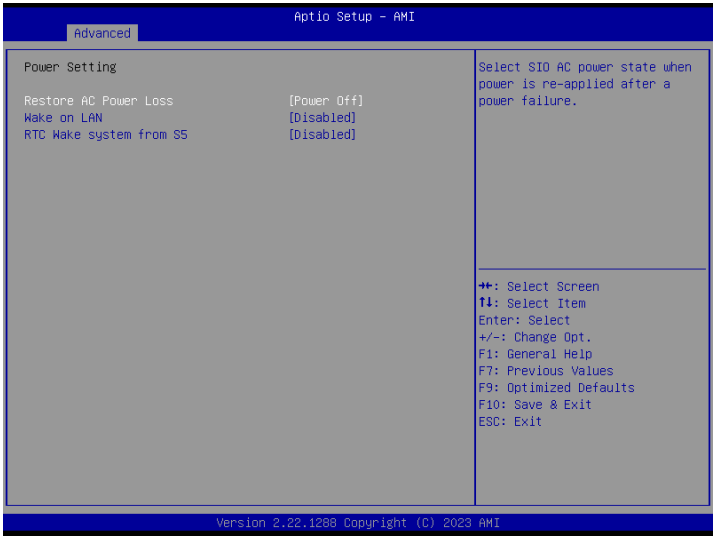


Turbo Mode

Turbo

Enabled,Disabled.

Power Con f guration <Enter>



Restore AC Power Loss

Power O f ,Power On,Last State.

Wake on LAN

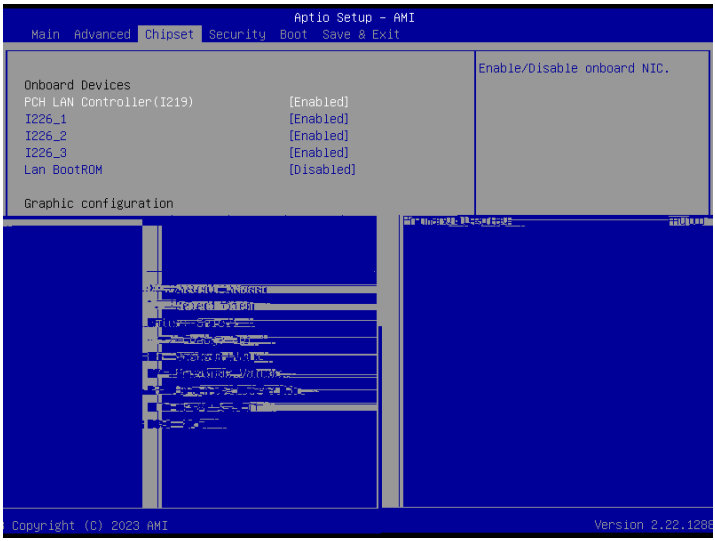
Disable,Enable.

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

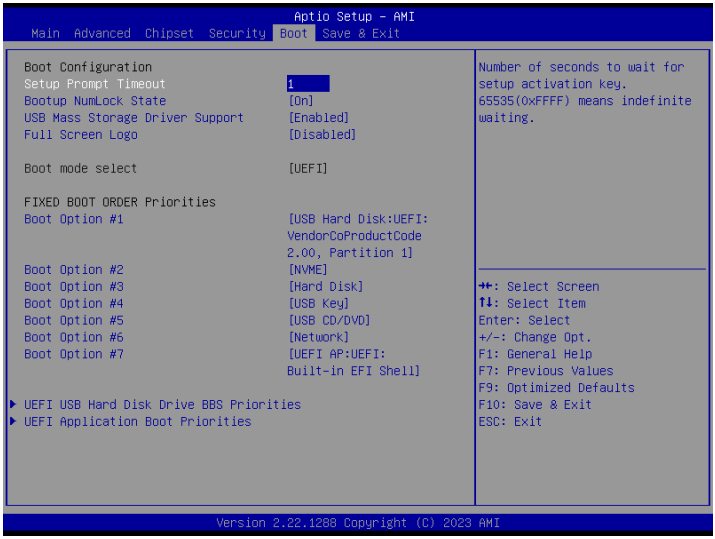
1. Administrator Password <Enter>
2. “ Create New Password ” 3~20 <Enter> “ Confrm Password ” “ Invalid Password! ”

“ 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

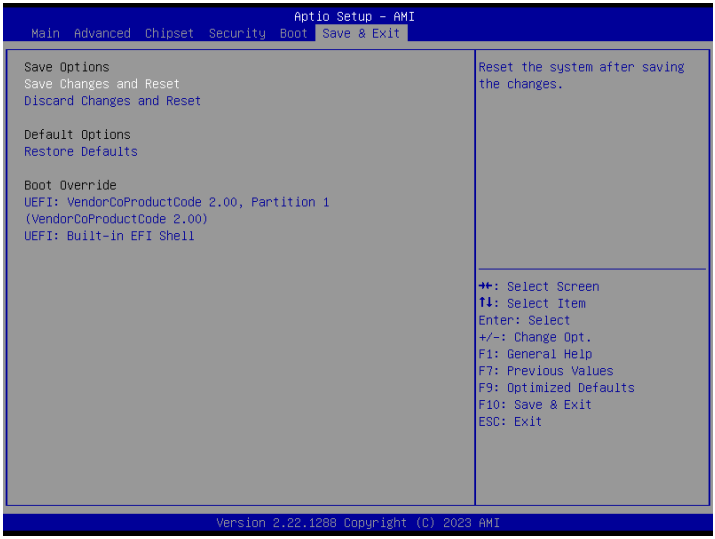
Logo

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

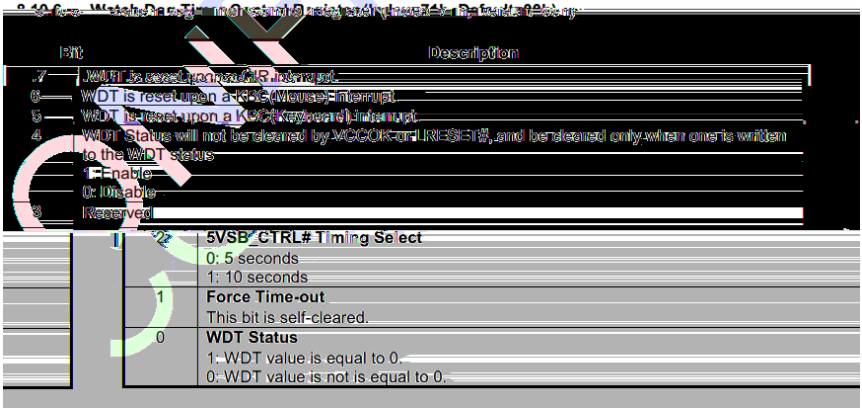
8.1.1

```
//enter ite config
        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);
     }
```



Bit	Description
7	WDT is reset upon a CIR Interrupt
6	WDT is reset upon a KBC (Mouse) Interrupt
5	WDT is reset upon a KBC (Keyboard) Interrupt
4	WDT Status will not be cleared by VCCOK or LRESET#, and be cleared only when one is written to the WDT status 1: Enable 0: Disable
3	Reserved
2	**5VSB_CTRL# Timing Select** 0: 5 seconds 1: 10 seconds
1	**Force Time-out** This bit is self-cleared.
0	**WDT Status** 1: WDT value is equal to 0. 0: WDT value is not is 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 Select** 1: 62.5ms x WDT Timer-out value (default =0.5s). 0: Determined by WDT Time-out Value Select 1 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 (LSB) Register (Index=73h, Default=38h)

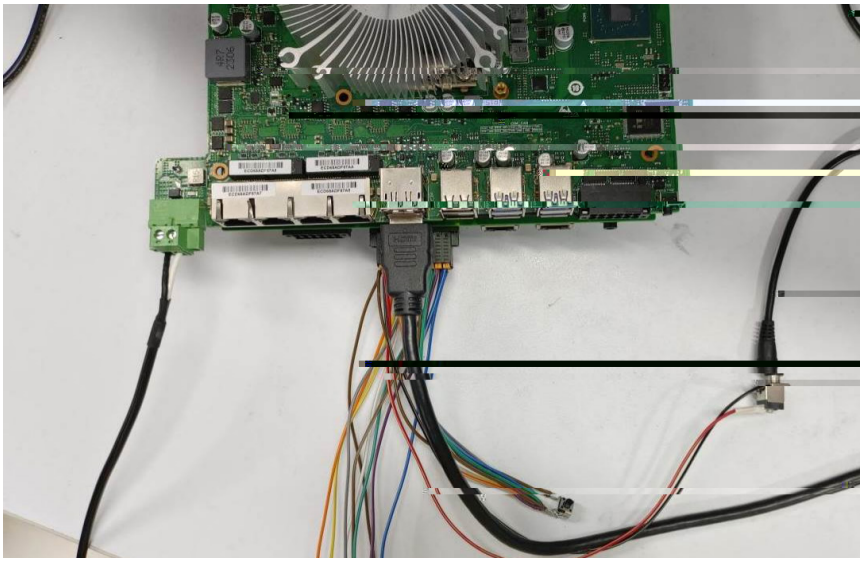
Bit	Description
7-0	WDT Time-out Value 7-0

Watch Dog Timer Time-out Value (MSB) Register (Index=74h, Default=00h)

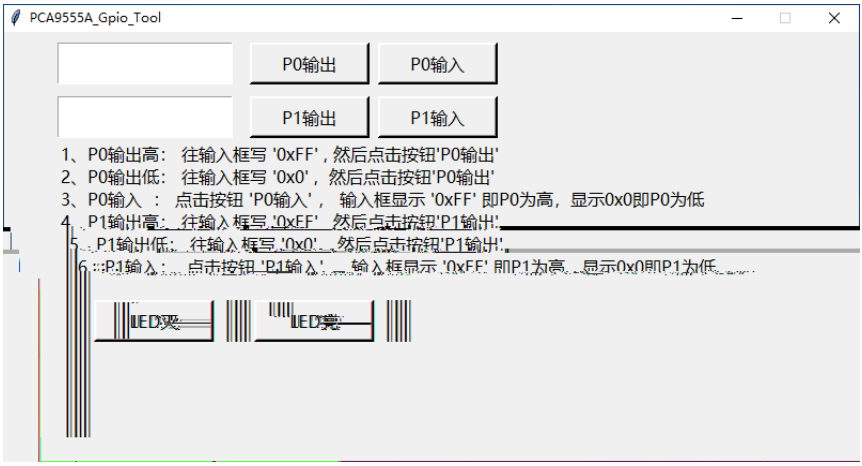
Bit	Description
7-0	WDT Time-out Value 15-8

8.2 GPIO

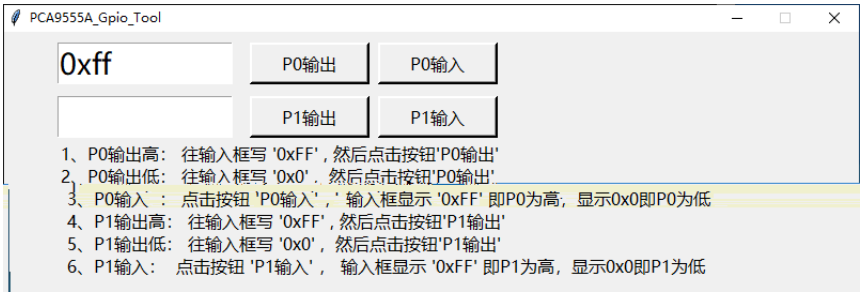
1 5V LED 5V 12V 24V



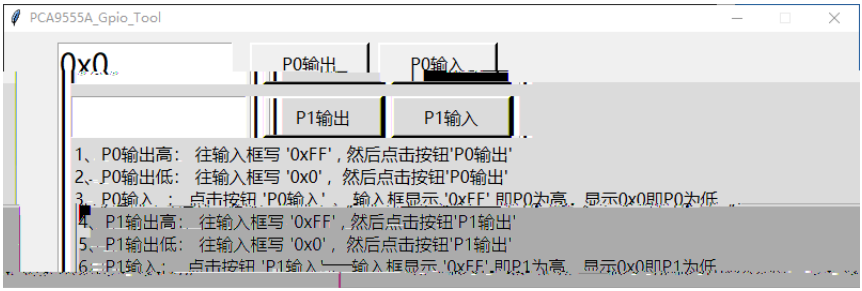
2 PCA9555A_Gpio_Tool



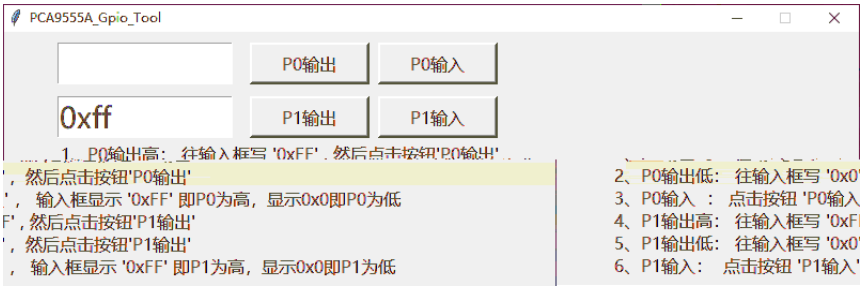
3 “ P0 ” 0x f



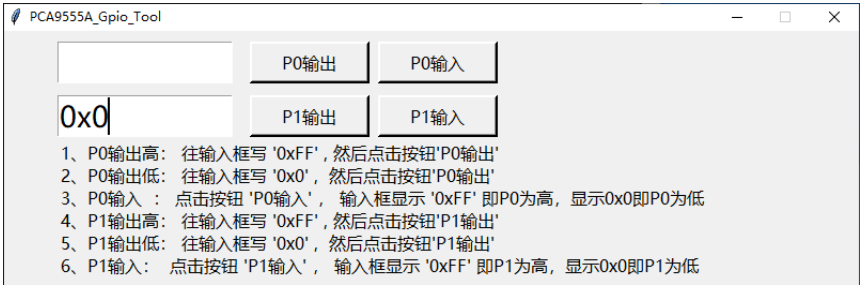
4 “ P0 ” 0x0



5 “P1 ” 0xf “P1 ” 0xf “P1 ”



6 “P1 ” 0x0 “P1 ”



Sample code PCA9555A_Gpio_Tool_LED_Program_source_code

9

9.1

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