KMDA-2630-S Series

User's Manual

Ver. A0.1

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Version Note

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Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from JHC. Please contact your local supplier for ordering information. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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- Product name and serial number
- Peripheral add-on equipment
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

CONTENTS

CHAPTER 1

General Information

1.1 Introduction

KMDA-2630-S is an ultra-low power consumption compact fanless box computer, Powered by Intel Elkhart lake SoC Celeron series quad-core or dual-core CPU, supports 2.5G bandwidth network and dual USB3.1 gen2 10G high-speed ports, with comprehensive IO functions. The aluminum profile has no fan for heat dissipation, small and exquisite, and wide-voltage power supply, suitable for machine vision, AGV/AMR and data gateway and other fields.

1.2 Features

Key Features

- Compact aluminum rectangular profile housing, fanless heat dissipation design
- Intel® Elkhart lake Celeron Soc CPU
- 1*DDR4 3200MHz SODIMM, up to 32GB
- Intel® UHD Graphics, 1*HDMI+1*VGA dual display
- 2*Intel® I226V (LAN1/2) + 2*Realtek 8111H (LAN3/4) network chip, up to 2.5Gbps bandwidth
- 2*USB3.1 Gen2, 6*USB2.0, Audio out + Line in + Mic
- 2*RS232, 2*RS232/422/485, 8位DIO
- 1*mSATA, 1*2.5 inch SATA bay
- DC 12V or DC 9-36V power in

1.3 Specifications

1.3.1 General

CPU: Intel® Elkhart lake SoC CPU： Celeron J6412 2.0-2.6GHz 4-core 4-thread； Celeron N6210 1.2-2.6GHz 2-core 2-thread

memory: 1*DDR4 SO-DIMM , 3200MHz, up to 32GB

Watchdog Timer: 255-level interval timer, setup by software

USB:

Front：2*USB3.1(Type A), 6*USB2.0(Type A)

Internal：1*USB2.0(Type A）

COM：

Rear：2*RS232/422/485（DB9 Male，setting working mode via BIOS），2*RS232(DB9 Male)

Expansion Interface:

1*M.2 B-key 3052, with PCIe X1+USB2.0+SIM slot，support 5G NR or 4G LTE；

1*Full size Mini PCIe，PCIe X1 Signal

存储:

1*2.5 inch SATA3.0(6.0Gbps) bay

1*mSATA，support AHCI

1.3.2 Display

Chipset：

Intel Gen10 UHD Graphics,

HW Encode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, JPEG/MJPEG ,VP8；

HW Decode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, VC-1/WMV9, JPEG/MJPEG, VP8, VP9

Resolution：

HDMI2.0 max res. 4096*2304@60Hz

VGA max res. 1920*1200@60Hz

1.3.3 Ethernet

Chipset: 2*Intel I226V + 2*Realtek 8111H Ethernet controllers

Speed: 10M / 100M / 1000M / 2.5G Adaptive

Interface: 4*RJ45

1.3.4 Audio

Chipset: Realtek ALC897 controller

Interface: Audio out + Line in + Mic, 3.5mm ports

1.3.5 Power Consumption

Input Voltage: DC in 12V, 1*3-pin phoenix terminal

Optional power board: Optional power board OFX-075， DC 9-36V， overvoltage and overcurrent reverse connection short circuit protection

Power Consumption： 26.4W（J6412 CPU/4G DDR4/64G SSD）

Power Adapter: AC/DC power adapter, DC 12V/5A 60W

1.4 Environmental requirements

Operating temperature: -20 ~60° C (Wide temperature SSD)

Relative humidity:10%-95%@40°C (non-condensing)

Storage temperature: -40 ~ 85°C (-40 ~ 185°F)

vibration: With SSD: 5grms/ random /5～500Hz；with HDD: 1grms/ random /5～500Hz

Shock: With SSD: 50g Peak acceleration (continued 11ms)； with HDD: 20g Peak acceleration (continued 11ms)

EMC: CE, FCC Class A

1.5 Ordering Information

Model No.	CPU	Introduction
KMDA-2630/S001	Intel® Celeron J6412	1*DDR4 SODIMM, 4*LAN, 2*USB3.1, 6*USB2.0, 4*COM, 8-bit DIO, 1*M.2, 1*Mini PCIe, 1*VGA, 1*HDMI, 1*Line out + 1*Line in + 1*Mic, 1*mSATA, 1*2.5" SATA bay, I-port, DC-IN 12V
KMDA-2630/S002	Intel® Celeron N6210	
KMDA-2630/S001/WP	Intel® Celeron J6412	1*DDR4 SODIMM, 4*LAN, 2*USB3.1, 6*USB2.0, 4*COM, 8-bit DIO, 1*M.2, 1*Mini PCIe, 1*VGA, 1*HDMI, 1*Line out + 1*Line in + 1*Mic, 1*mSATA, 1*2.5" SATA bay, I-port, DC-IN 9~36V
KMDA-2630/S002/WP	Intel® Celeron N6210	
PA-60DC12	AC/DC power adapter, DC 12V/5A 60W+X standard power line	

1.6 I/O Interface

KMDA-2630-S front view:

Figure 1. 1

I/O interface included on the front panel:

- 1*DC IN power input
- 1*VGA
- 1*HDMI
- 4*LAN
- 2*USB3.1
- 6*USB2.0

- 1*Power button
- 1*I-Port

KMDA-2630-S Rear view：

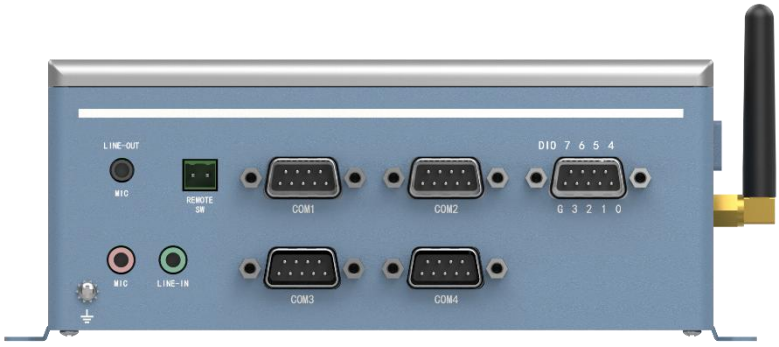


Figure 1. 2

I/O interface included on the rear panel：

- 1*8-bit DIO
- 2*RS232/422/485
- 2*RS232
- 1*Remote SW
- 1*Line out
- 1*Line in
- 1*Mic

KMDA-2630-S Side view：

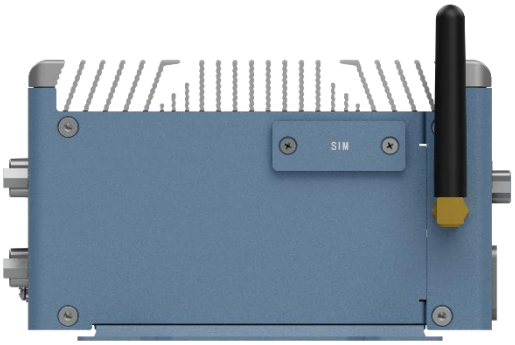


Figure 1. 3

I/O interface included in the side panel：

- 1*SIM slot

1.7 Dimension

KMDA-2630-S Series dimension（Unit：mm）

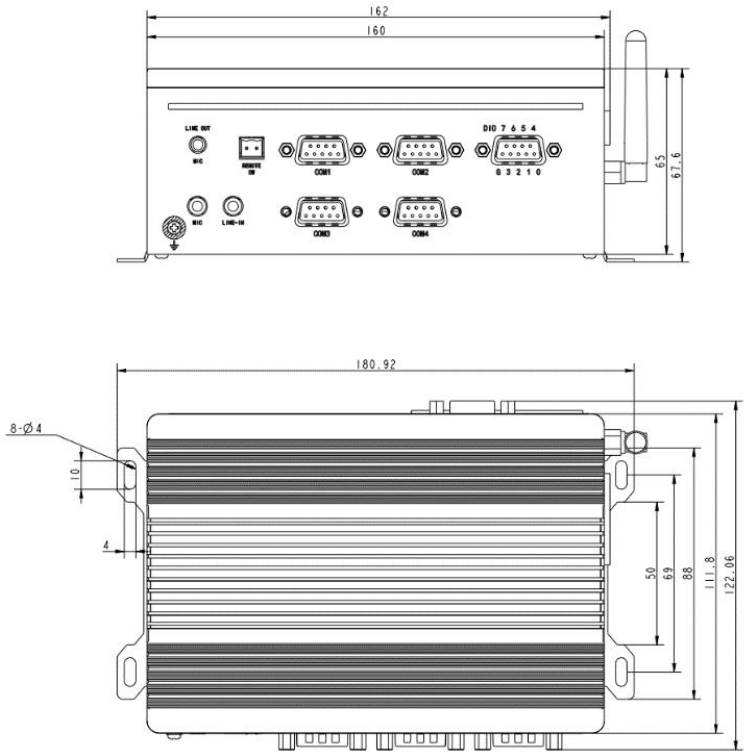


Figure 1.4

ECM-I716（front）：

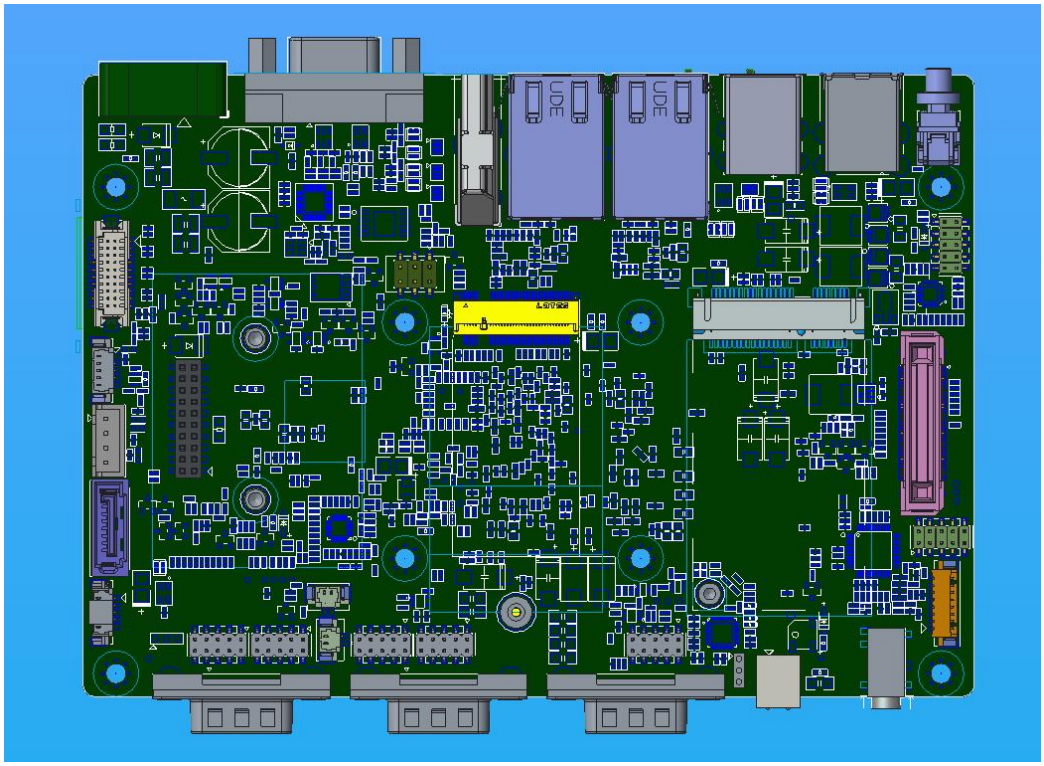


Figure 1.5

ECM-I716（back）：

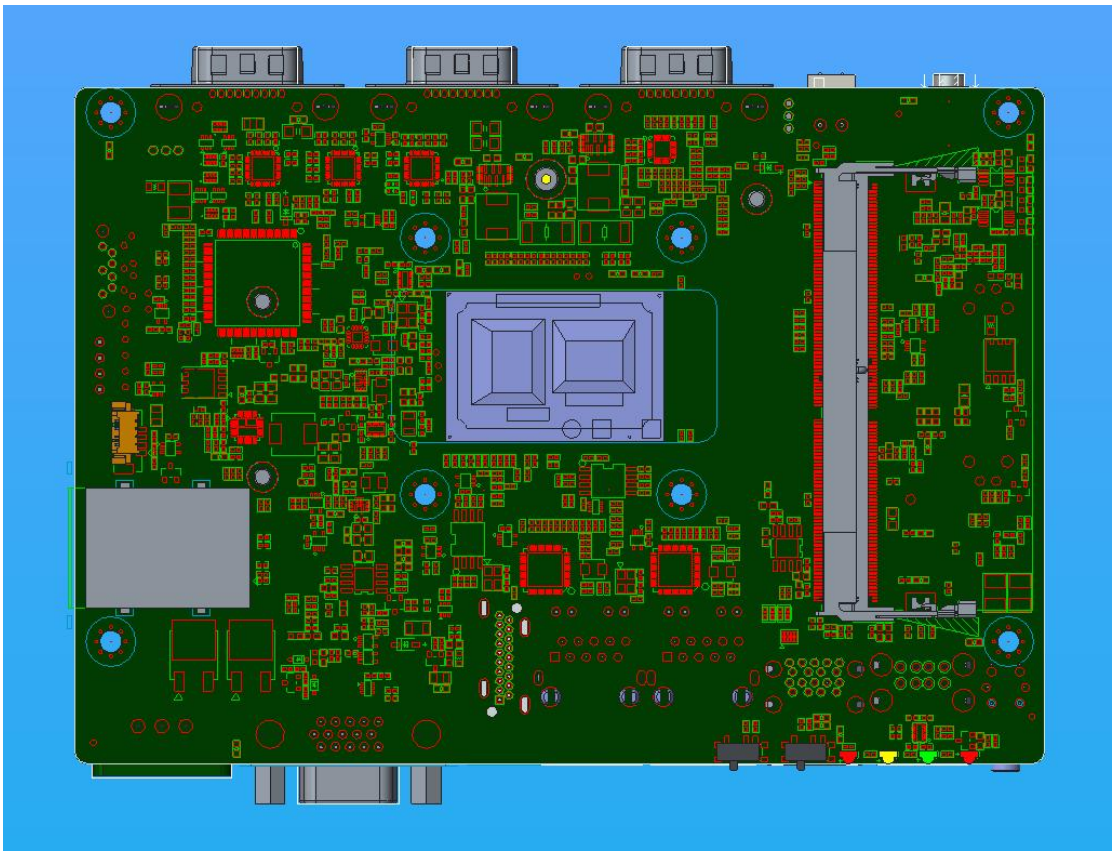


Figure 1.6

ECB-277：

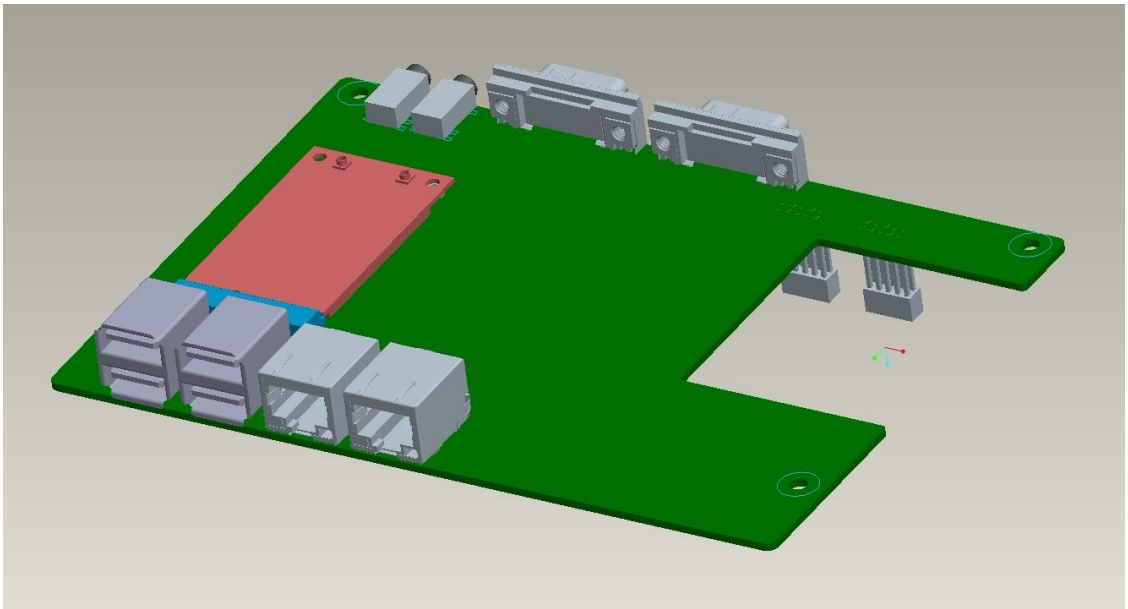


Figure 1.7

CHAPTER 2

Hardware Installation

2.1 Introduction

The following sections describe the panel dip switch setup and external connector and pin assignment for the product.

2.2 DIP switch setting

KMDA-2630 fanless box computer is equipped with a simple DIP switch on the panel. This simple DIP switch can be toggled with tweezers or a card pin, which is convenient for users to set according to different configuration requirements. The following table lists the function of each DIP switch on the panel.

DIP switch list:

Module No.	Description	Name
CLEAR/CMOS	Clear CMOS data and restore default settings	3-Pin switch
AT/ATX	Set the power-on mode, AT or ATX	3-Pin switch

2.2.1 CLEAR COMS/ CMOS

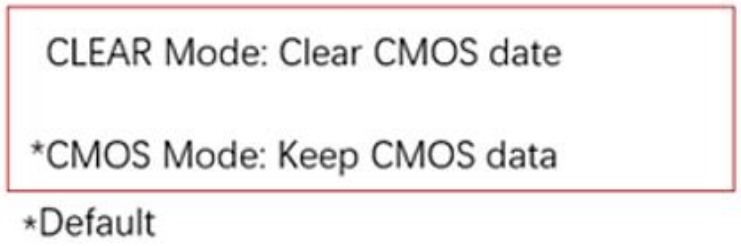


Figure 2.1

The CMOS is powered by the socket battery. Clearing CMOS will permanently erase the previous system settings and set them to the original (factory settings) system settings.

When you encounter the following problems:

a) COMS data is messy and lost;

b) Forgot the super password and user password;

You can store the default values in the ROM BIOS to reconfigure your system. The steps:

(1) Turn off the computer and disconnect the power supply;

(2) Toggle the DIP switch to CLEAR mode, stay for 5~6 seconds, and then return to CMOS mode;

(3) Start the computer, press the Del key to enter the BIOS settings during startup, and reload the optimal default values;

(4) Save and exit the setting.

2.2.2 AT/ATX power-on mode selection switch

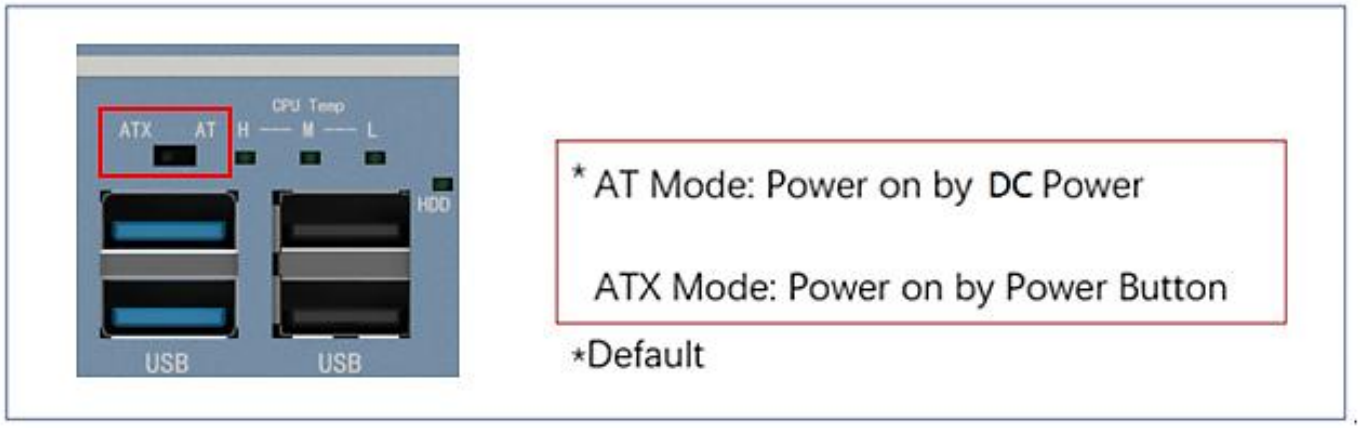


Figure 2.2

The front panel of KMDA-2630 provides AT/ATX switch, the user can use tweezers to toggle the DIP switch to set the machine's power-on mode. When you switch it to AT mode, it means that the machine is powered on by connecting DC power; when it is turned to ATX, it means turning on the power through the power switch button.

2.3 Connector Pin Assignments

2.3.1 Ethernet port（JLAN1, JLAN2）

KMDA-2630-S Series is equipped with 2*Intel I226V (LAN1/2) + 2*Realtek 8111H (LAN3/4) chips through 4 RJ45 interfaces, and I226V Network port supports 10M/100M/1000M/2.5G rate self-adaption. The Ethernet provides a standard RJ-45 interface with LED indicators. Table 2.1 is a detailed pin assignment introduction.

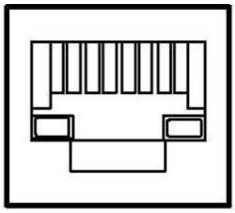


Figure 2.3 Ethernet port

Table 2.1: Ethernet 10/100/1000 Mbps RJ-45 port	
pin	10/100/1000BaseT signal
1	TX+(10/100), LAN_DA+(GHz)
2	TX-(10/100), LAN_DA-(GHz)
3	RX+(10/100), LAN_DB+(GHz)
4	LAN_DC+(GHz)

5	LAN_DC-(GHz)
6	RX-(10/100), LAN_DB-(GHz)
7	LAN_DD+(GHz)
8	LAN_DD-(GHz)

Table 2.2 shows the connection rate represented by the LAN1/2 network port LED.

Table 2.2: RJ-45 Led display state		
Type	Left LED	Right LED
LED color	Green	Yellow
10 M cable	Green fast blink	off
100M cable	Green blink	off
1000M cable	Green blink	Yellow light
2.5G cable	Green blink	Yellow light

Table 2.3 shows the connection rate represented by the LAN3/4 network port LED.

Table 2.3: RJ-45 Led display state		
Type	Left LED	Right LED
LED color	Green	Yellow
10 M cable	Green blink	off
100M cable	Green blink	Yellow light
1000M cable	Green blink	Yellow light

2.3.2 Power connector

KMDA-2630 provides 12V power input through a 3pin, 3.81mm terminal. Table 2.4 shows the detailed pin assignment.

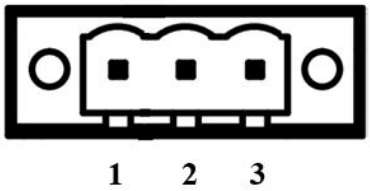


Figure 2.4 DC port

Table 2.4: DC-IN Port Pin Assignments			
Pin	Signal	Pin	Signal
1	12V	2	NC

3	GND		

2.3.3 CMOS battery

KMDA-2630 provides CMOS battery interface through 1*2pin, 1.25mm terminal, the interface pin definition is as follows.

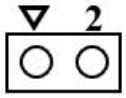


Figure 2.5 CMOS battery interface

Table 2.5：CMOS battery Port Pin Assignments			
Pin	Signal	Pin	Signal
1	BAT+	2	GND

2.3.4 Reset Port（RST）

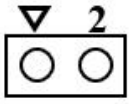


Figure 2.6 Reset

Table 2.6 Reset Port Pin Assignments			
Pin	Signal	Pin	Signal
1	SYS_RST#	2	GND

2.3.5 Remote SW connector

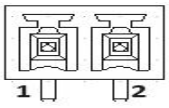


Figure 2.7 Remote SW

Table 2.7：Remote SW Port Pin Assignments			
Pine	Signal	Pin	Signal
1	PWR_SW	2	GND

2.3.6 8-bit DIO

KMDA-2630 provides 8-bit DIO interface through a single row thin layer DB9, the detailed pin definition is as follows.

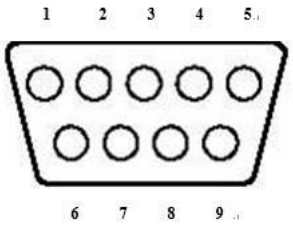


Figure 2.8 8-bit DIO

Table 2.8: DIO Port Pin Assignments			
Pin	Signal	Pin	Signal
1	DIO0	6	DIO4
2	DIO1	7	DIO5
3	DIO2	8	DIO6
4	DIO3	9	DIO7
5	GND		

2.3.7 SM Bus

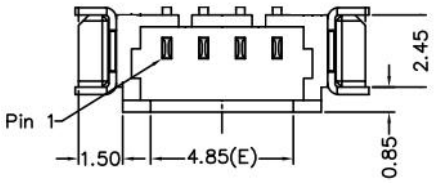


Figure 2.9 SM Bus

Table 2.9: SMB Port Pin Assignments			
Pin	Signal	Pin	Signal
1	GND	2	DAT
3	CLK	4	+V3.3

2.3.8 USB ports

The front panel of KMDA-2630-S provides 2*USB3.1 Gen2 X1 Type A through a double-layer connector, with a transmission speed of up to 10G bit/sec; 6*USB2.0 Type A, built-in 1*USB2.0 Type A.

Table 2.10 shows the detailed pin assignment of USB3.1 Gen2 X1：

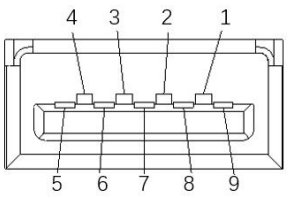


Figure 2.10 USB3.1 Type A port

Table 2.10：USB3.1 type A Port Pin Assignments			
Pin	Signal	Pin	Signal
1	VBUS	6	RX0+
2	D-	7	GND
3	D+	8	TX0-
4	GND	9	TX0+
5	RX0-	Shell	Shield

Table 2.11 shows the detailed pin assignment of USB2.0 Type A：

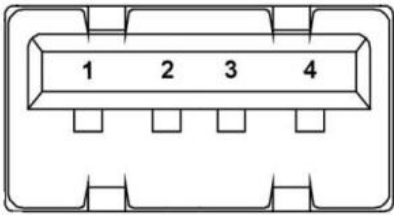


Figure 2.11 USB2.0

Table 2.11: USB2.0 Port Pin Assignments	
Pin	Signal
1	VCC
2	D-
3	D+
4	GND

2.3.9 HDMI

The front panel of KMDA-2630 provides a high-resolution vertical HDMI display interface, the highest resolution supported can reach 4096 x 2304@60Hz, Table 2.12 is the detailed pin assignment introduction.

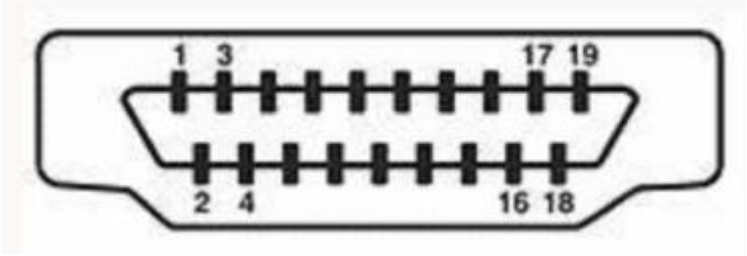


Figure 2.12 HDMI port

Table 2.12: HDMI Port Pin Assignments					
Pin	Signal	Pin	Signal	Pin	Signal
1	DATA2_P	8	GND	15	SCL

2	GND	9	DATA0_N	16	SDA
3	DATA2_N	10	CLK_P	17	GND
4	DATA1_P	11	GND	18	VCC
5	GND	12	CLK_N	19	DETECT
6	DATA1_N	13	NC		
7	DATA0_P	14	NC		

2.3.10 VGA port

The front panel of KMDA-2630 provides a VGA interface, which supports the maximum resolution of 1920*1200@60Hz. Table 2.13 shows the detailed pin assignment.

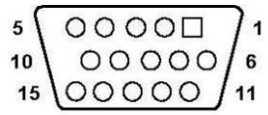


Figure 2.13 VGA显示接口

Table 2.13: VGA Port Pin Assignments

Pin	Signal	Pin	Signal	Pin	Signal
1	VGA_z_R	6	GND_RGB	11	SPD
2	VGA_z_G	7	GND_7	12	VGA_SDA
3	VGA_z_B	8	GND_RGB	13	MONHSYNC
4	SPC	9	VGA_5V	14	MONVSYNC
5	GND	10	GND	15	VGA_SCL

2.3.11 eDP interface

KMDA-2630 provides eDP interface through a 1.25mm 2X10Pin connector, the highest resolution is 4096x2160@60Hz, the detailed pin assignment is as follows.

Table 2.14: eDP Port Pin Assignments

Pin	Signal	Pin	Signal	Pin	Signal
1	DATA0_P	8	GND	15	AUXP
2	GND	9	DATA2_N	16	GND
3	DATA0_N	10	DATA3_P	17	AUXN
4	DATA1_P	11	GND	18	HPD
5	GND	12	DATA3_N	19	GND
6	DATA1_N	13	CTRL	20	PWR
7	DATA2_P	14	GND		

2.3.12 M.2 B-Key 3052

KMDA-2630 provides a M.2 B-Key 3052 with PCIe X1+USB2.0+SIM slot, which can support 5G NR or 4G LTE wireless routing module.

Table 2.15 shows the specific pin assignments.

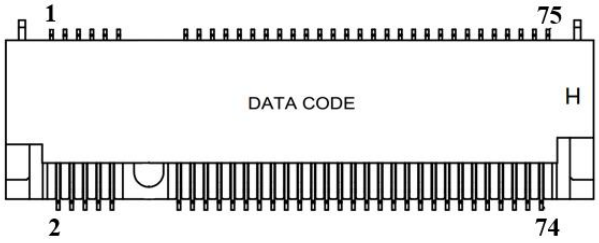


Figure 2.14 M.2 B-Key插槽

Table 2.15: M.2 B-Key 3052 （NGFF1）Port Pin Assignments

Pin	Signal	Pin	Signal
1	GND	2	+V3_M2
3	GND	4	+V3_M2
5	GND	6	+V3_M2
7	USB_P9	8	WIFI_DISABLE
9	USB_N9	20	NC
21	+V3_M2	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	SIM2_RESET
31	NC	32	SIM2_CLK
33	GND	34	SIM2_DATA
35	NC	36	SIM2_PWR
37	NC	38	SSD_SATA5_DEVSLP
39	GND	40	NC
41	PCIE_RX18-	42	NC
43	PCIE_RX18+	44	NC
45	GND	46	NC
47	PCIE_TX18-	48	NC
49	PCIE_TX18+	50	PLTRST_M2_N
51	GND	52	CLK_REQ15#
53	CLK_PCIe_N15	54	PCH_WAKE_N

55	CLK_PCIe_P15	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	SIM_DET
67	+3VS	68	SUSCLK
69	M.2_SSD_PEDET	70	+V3_M2
71	GND	72	+V3_M2
73	GND	74	+V3_M2
75	NC		

2.3.13 COM ports

The rear panel of KMDA-2630-S provides 2 RS232/422/485 serial ports (COM1, COM2) and 2 RS232 serial ports (COM3/COM4) through 4 DB9 single-row thin layers. Through BIOS setting, COM1/2 can be configured as RS232, RS422 or RS485. Table 2.16 and 2.17 are detailed pin assignment introduction.

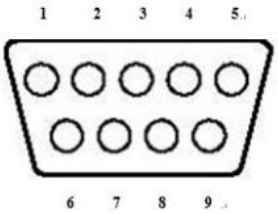


Figure 2.15 COM port

Table 2.16: COM1/2 Port Pin Assignments			
Pin	RS-232 signal	RS-422 signal	RS-485 signal
1	DCD	TX-	DATA-
2	RxD	TX+	DATA+
3	TxD	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

Table 2.17: COM3/4 Port Pin Assignments			
Pin	Signal	Pin	Signal
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC

2.3.14 SATA port

KMDA-2630 provides one SATA3.0 bay through one 7pin connectors, and the data transfer rate reaches 6Gb/s, which is used to connect SATA devices. Table 2.18 shows the detailed pin assignment of the SATA interface.

Figure 2.16

Table 2.18： SATA Port Pin Assignments			
Pin	Signal	Pin	Signal
1	GND	5	RX-
2	TX+	6	RX+
3	TX-	7	GND
4	GND		

2.3.15 SATA power

KMDA-2630 provides a SATA3.0 power interface through a 1*4pin 2.5mm connector. Table 2.19 is a detailed pin assignment introduction.

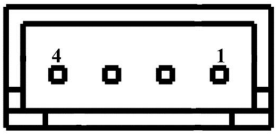


Figure 2.17 SATA power

Table 2.19: SATA power Port Pin Assignments

Pin	Signal	Pin	Signal
1	5V	3	GND
2	GND	4	12V

Warning: Make sure that Pin-1 of the SATA power connector has been inserted into the pin-1 of the corresponding plug to avoid damage to the board and hard drive !

2.3.16 mSATA port

KMDA-2630 provides 1 mSATA slot and supports AHCI. The detailed pin assignment is as follows.

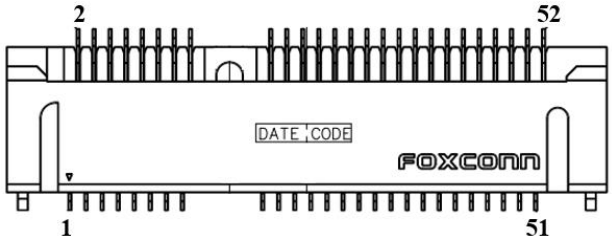


Figure 2.18 mSATA port

Table 2.20 mSATA Port Pin Assignments			
Pin	Signal	Pin	Signal
1	NC	2	+V3.3
3	NC	4	GND
5	NC	6	+V1.5
7	NC	8	LPC_FRAME#
9	GND	10	LPC_AD3
11	NC	12	LPC_AD2
13	NC	14	LPC_AD1
15	GND	16	LPC_AD0
17	PLTRST#	18	GND
19	LPC_CLK1	20	NC
21	GND	22	PLTRST#
23	SATA1_mSATA_z_RX+	24	+V3.3
25	SATA1_mSATA_z_RX-	26	GND
27	GND	28	+V1.5
29	GND	30	SMB_SCL
31	SATA1_mSATA_z_TX-	32	SMB_SDA
33	SATA1_mSATA_z_TX+	34	GND

35	GND	36	NC
37	GND	38	NC
39	+V3.3	40	GND
41	+V3.3	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+V1.5
49	NC	50	GND
51	NC	52	+V3.3

2.3.17 Front PANEL

KMDA-2630 provides F_PANEL interface through 2*5pin pins with 2.0mm pitch.

Table 2.21 is the detailed pin assignment introduction.

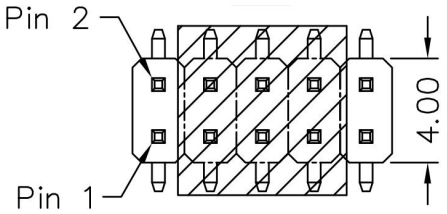


Figure 2.19 F-Panel

Table 2.21：F_PANEL Port Pin Assignments			
Pin	Signal	Pin	Signal
1	HDD_LED+	6	PWR_SW#_C
2	PWR_LED+	7	RST_SW#
3	HDDLED-	8	GND
4	PWR_LED-	9	SPK_OUT
5	GND	10	NC

2.3.18 Front Audio

KMDA-2630-S series machine provides F_Audio interface through 2*5pin pins with 2.0mm pitch. The pin definitions are as follows.

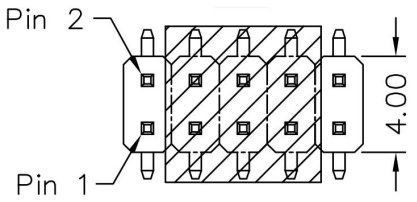


Figure 2.20 F-Audio port

Table 2.22：Front Audio Port Pin Assignments			
Pin	Signal	Pin	Signal
1	MCIN1_L	6	NC
2	GND_AUD	7	GND_AUD
3	MCIN1_R	8	FRONT_LINOUT
4	FRONTR_LINOUT	9	LINE1_L_R
5	LINE1_R-R	10	GND_AUD

2.3.19 JHCTECH Express-01 Composite signal high-speed interface（EIO）

KMDA-2630 provides the 80pin seismic high-speed signal interface of JHCTECH-01 E/IO high-speed interface specification through an 80pin connector, with 2*PCIeX1, 4*USB2.0, Front-Audio; 1*PS/2, Front-Panel, 1*Sm bus and 1*eSPI. The detailed pin assignment is as follows：

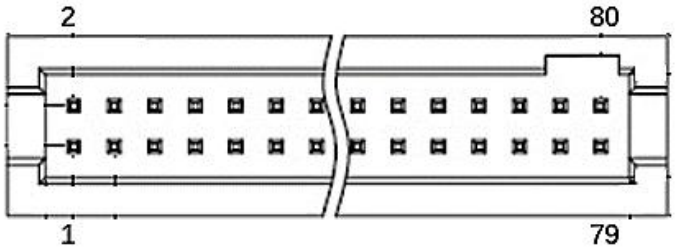


Figure 2.21

Table 2.23: EIO pin Assignments			
Pin	Signal	Pin	Signal
1	GND_1	41	GND_41
2	PCIE_Rx0+	42	PCIE_Tx0+
3	PCIE_Rx0-	43	PCIE_Tx0-
4	GND_4	44	GND_44
5	PCIE_Rx1+	45	PCIE_Tx1+
6	PCIE_Rx1-	46	PCIE_Tx1-
7	GND_7	47	GND_47
8	PCIE_CLK1+	48	GPIO_0
9	PCIE_CLK1-	49	GPIO_1
10	GND_10	50	GPIO_2
11	PCIE_CLK0+	51	GPIO_3
12	PCIE_CLK0-	52	GPIO_4
13	GND_13	53	GND_53
14	DCD4#	54	DCD3#

15	SIN4	55	DSR3#
16	PCIE_WAKE-	56	SIN3
17	DSR4#	57	RTS3#
18	DTR4#	58	SOUT3
19	SOUT4	59	CTS3#
20	PLTRST_N	60	DTR3#
21	POWERON	61	RI3#
22	SATA_LED#	62	LPC_CLK
23	PWR_LED	63	LPC_AD0
24	GND_24	64	LPC_AD1
25	PWRBTN#	65	LPC_AD2
26	RESET_IN#	66	LPC_AD3
27	GPIO_8	67	LPC_SERIRQ
28	GPIO_9	68	LPC_FRAME#
29	GPIO_10	69	GND_69
30	GPIO_11	70	USB0_D+
31	GPIO_12	71	USB0_D-
32	GPIO_13	72	GND_72
33	GND_33	73	USB1_D+/USB_SSTX+
34	SMB_CLK	74	USB1_D-/USB_SSTX
35	SMB_DAT	75	GND_75
36	GND_36	76	GPIO_5
37	GPIO_14	77	GPIO_6
38	GPIO_15	78	GND
39	GND_39	79	GPIO_7
40	+3V	80	+V5V

2.3.20 LED

There is a power indicator (switch), a hard disk indicator, and 3 CPU operating temperature indicators on the KMDA-2630 panel. The user can monitor the working condition of the machine through the status of the CPU indicator light. When the working temperature of the CPU is ≤85℃, the green light is on; when the temperature of the CPU is between 86℃ and 95℃, the yellow light is on, and when the working temperature of the CPU ≥ At 96°C, the red light is on. If you keep the CPU working under the red light, it will affect the service life of the machine.

Figure 2.22

Table 2.24：CPU temperature level represented by led status	
LEDs	Working status
Red	warning
Yellow	high temperature
Green	Normal

2.3.21 Mini-PCIe

KMDA-2630-S series machine provides one Mini-PCIe slot.

Detailed pin allocation is shown in the following table.

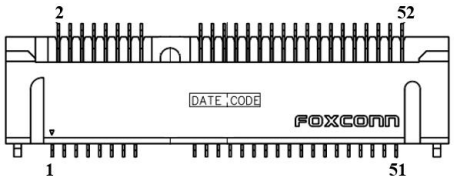


Figure 2.22 Mini-PCIe interface

Table 2.25：Mini-PCIe Port Pin Assignments			
Pin	Signal	Pin	Signal
1	PCIE_WAKE_N	2	+V3.3_MINICARD2
3	NC	4	GND
5	NC	6	+V1.5
7	CLKREQ#	8	NC
9	GND	10	NC
11	CLK_MIO1_PCIE-	12	NC
13	CLK_MIO1_PCIE+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	WIFI2_DISABLE#
21	GND	22	PLTRST#
23	PCIE_MINI_RX2-	24	+V3.3_MINICARD2
25	PCIE_MINI_RX2+	26	GND
27	GND	28	+V1.5
29	GND	30	SMB_SCL_RSM
31	PCIE_MINI_TX2-	32	SMB_SDA_RSM

33	PCIE_MINI_TX2+	34	GND
35	GND	36	
37	GND	38	
39	+V3.3_MINICARD2	40	GND
41	+V3.3_MINICARD2	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+V1.5
49	NC	50	GND
51	NC	52	+V3.3_MINICARD2

2.4 Installation

2.4.1 Install or replace the HDD/SDD

Step 1: Unscrew the four screws near the bottom cover of the machine body and remove the bottom cover.

Figure 2.4.1

Figure 2.4.2

Step 2: Remove the original SATA disk cable.

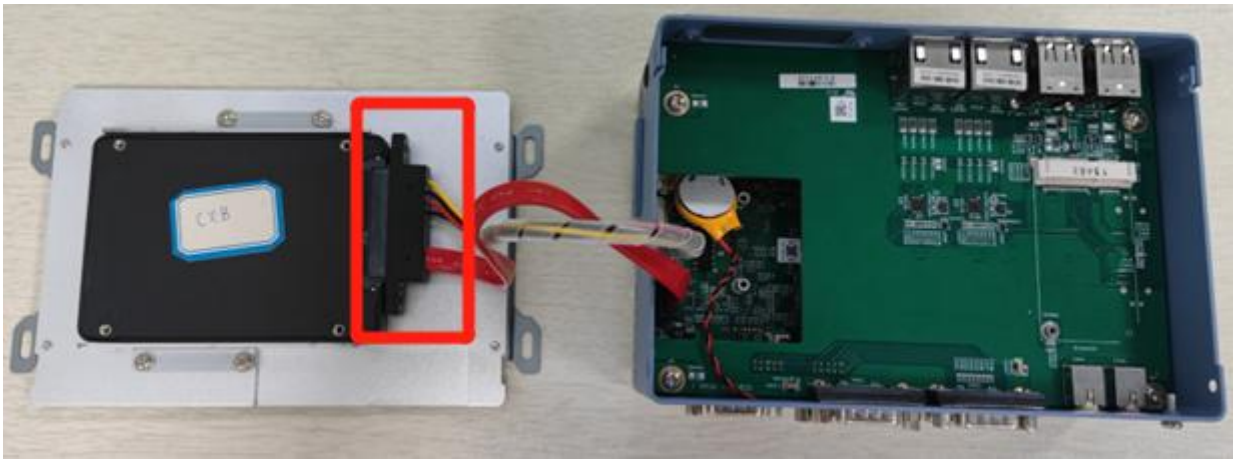


Figure 2.4.3

Step 3: Unscrew the four screws on the hard disk tray and remove the hard disk tray.

Figure 2.4.4

Step 4: Unscrew the four screws fastening the hard disk, remove the original hard disk, install the new HDD/SSD disk in the hard disk tray, and tighten the four screws respectively to secure the hard disk.

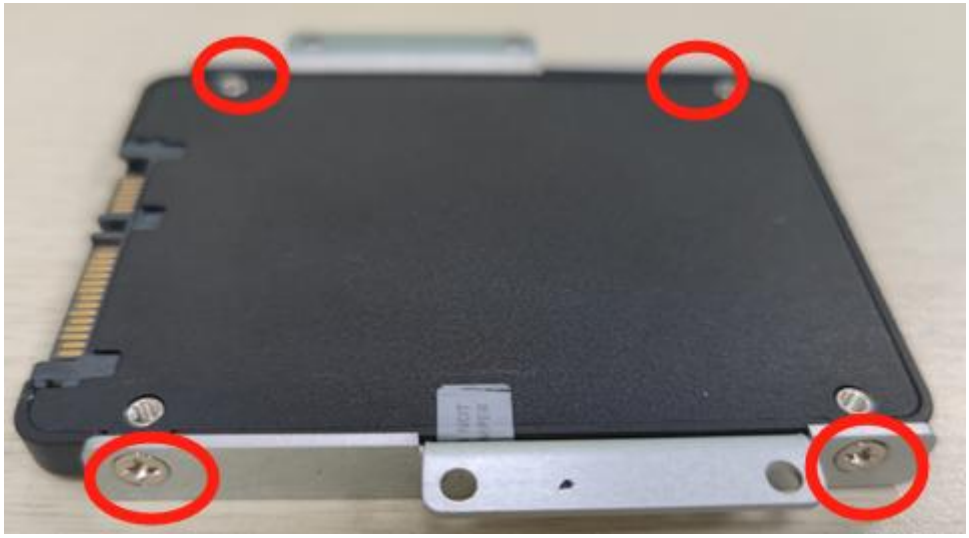


Figure 2.4.5

Step 5: Tighten the four screws on the hard disk tray with a hard disk in step three to secure the hard disk tray to the bottom cover.

Step 6: Install bottom cover and tighten 4 screws according to Step 1.

2.4.2 Install the OFX-075 wide-voltage power module

Tips: If you want to install the OFX-075 wide voltage power supply module, you need to remove the R3H2 resistor on the motherboard. The position of the resistor on the motherboard is as follows.

(This step needs professional guidance, please operate with caution)

Similarly, if you want to remove the OFX-075 wide voltage module, be sure to solder the R3H2 resistor back to the designated position on the motherboard.

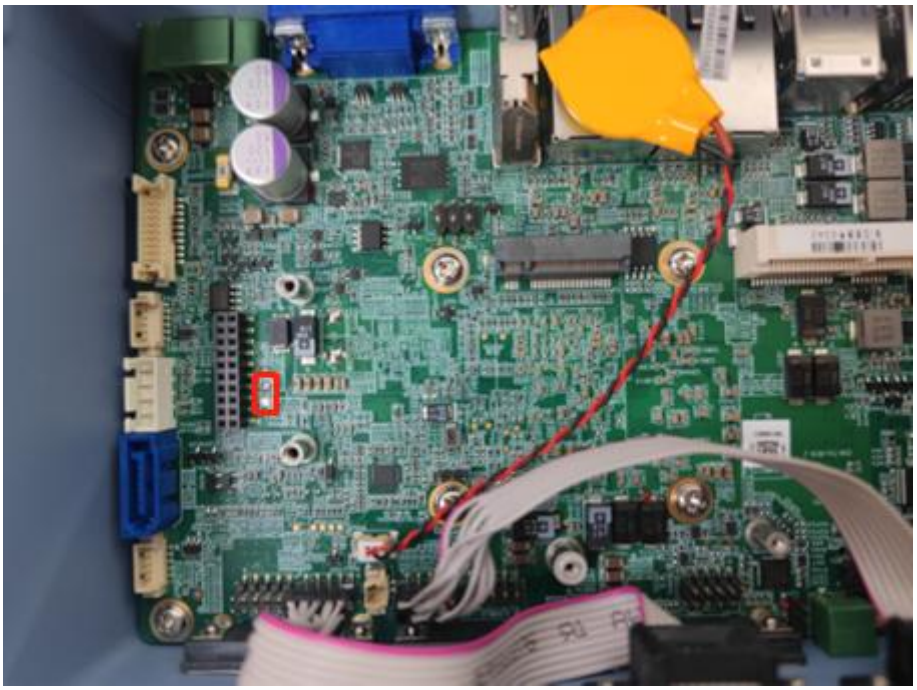


Figure 2.4.6

Step 1: As in Steps 1 and 2 of 2.4.1, unscrew and remove the SATA hard disk cable to remove the

hard disk bottom cover assembly.

Step 2: Unscrew the four screws on the front panel and remove the front panel.

Figure 2.4.7

Figure 2.4.8

Figure 2.4.9

Step 3: Unscrew a total of 12 screws on the rear panel, and remove the rear panel.

Figure 2.4.10

Figure 2.4.11

Figure 2.4.12

Step 4: Unscrew the four screws fixing the sub-card as shown in the figure and remove the sub-card.

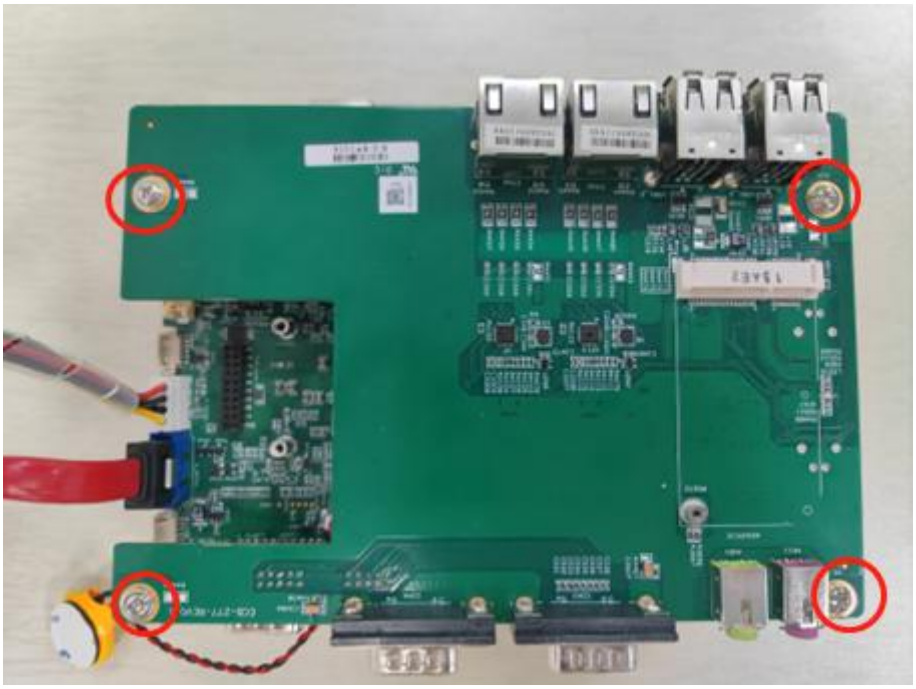


Figure 2.4.13

Step 5: Install the OFX-075 wide voltage power module upside down at the position shown in the figure, and tighten two screws to fix the power module.

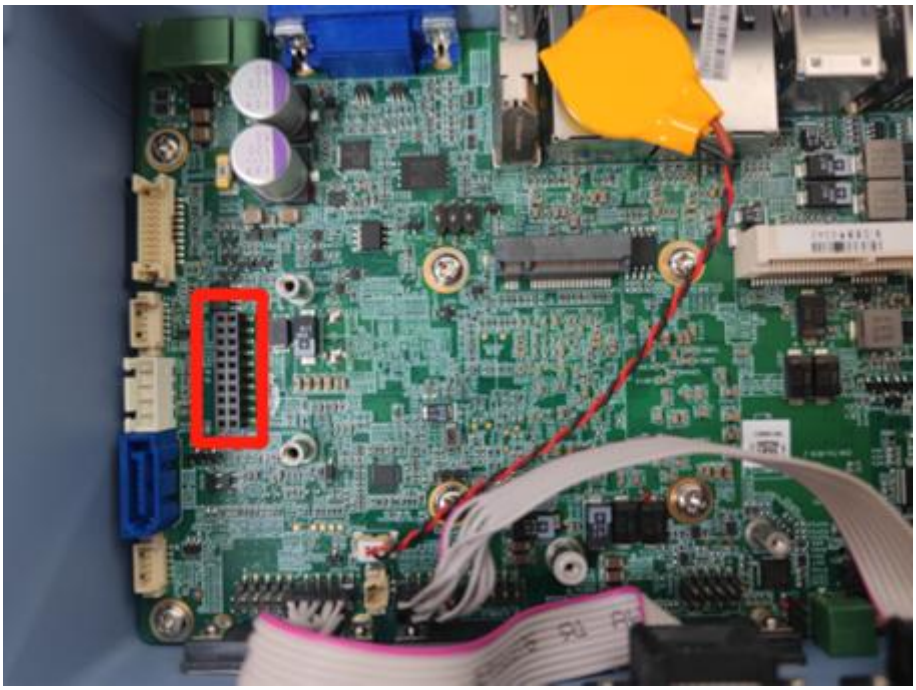


Figure 2.4.14

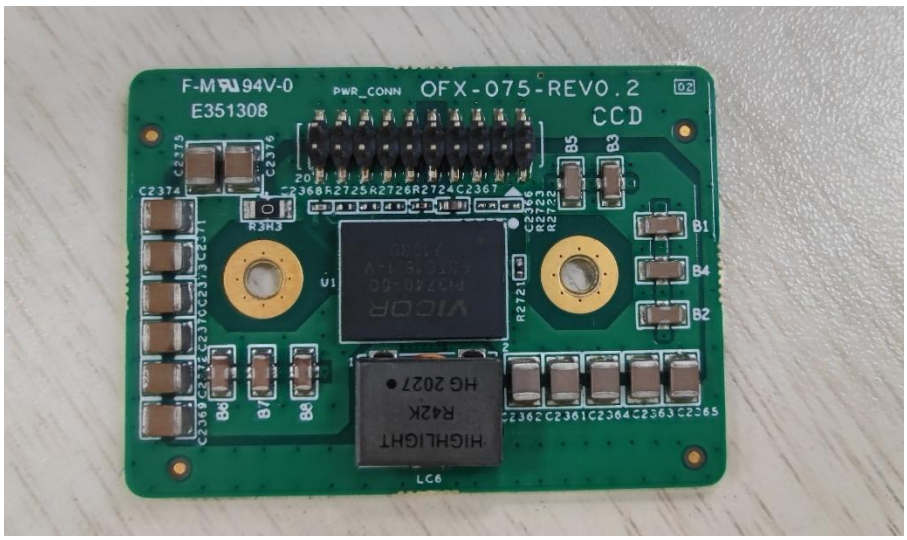


Figure 2.4.15

Figure 2.4.16

Step 6: According to the disassembly steps, complete the installation of the bottom cover with the reverse disassembly method.

2.4.3 Installing Memory Modules

Step 1: Remove the bottom cover, front and rear panels and subcards as in Steps 1, 2, 3 and 4 of 2.4.2.

Step 2: If there is an OFX-075 wide voltage module, remove it.

Step 3: Remove the SATA cable shown in the figure.

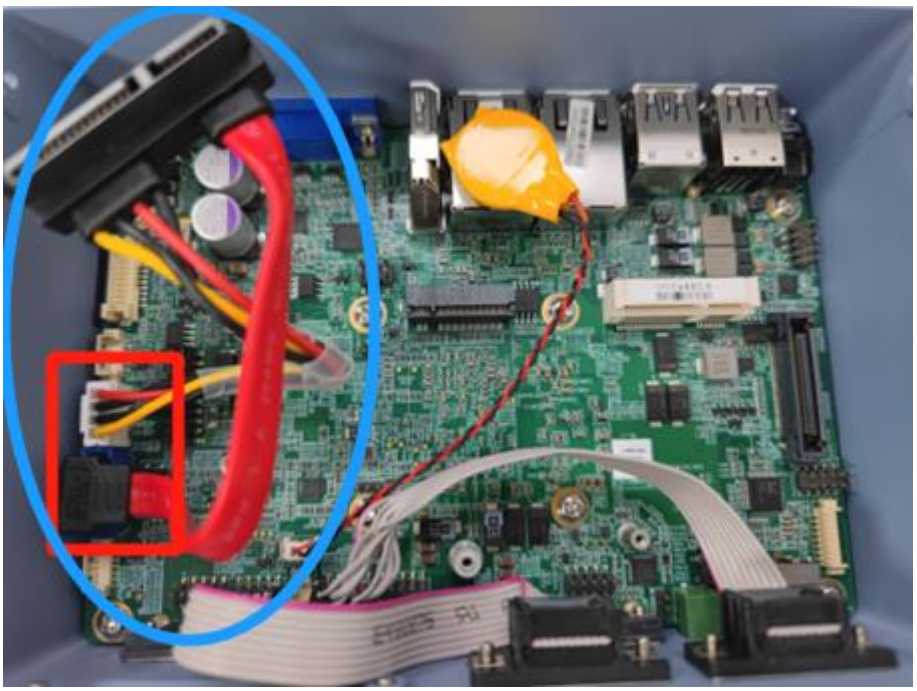


Figure 2.4.17

Step 4: Unscrew the 8 screws fixing the motherboard, and remove the motherboard.

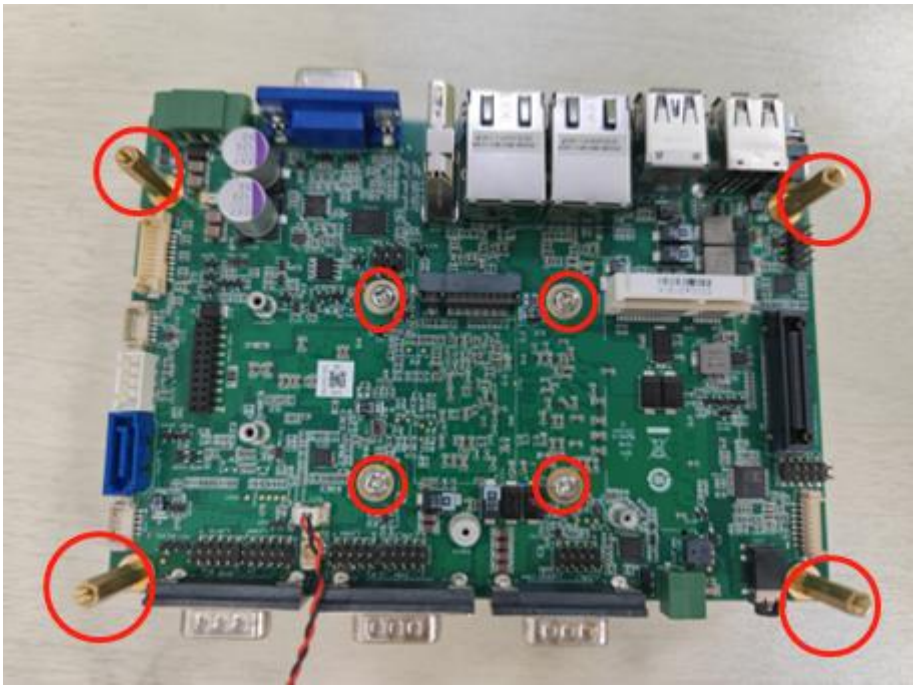


Figure 2.4.18

Step 5: Press the latches on both sides of the memory module and remove the original memory module from the mainboard. Take out the new memory module, align the gap, tilt the memory module 30 degrees, insert the memory module into the slot, and press down the memory module until the memory module is locked by the latches on both sides.

Figure 2.4.19

Step 6: Reinstall the specified thermal tape on the CPU and south bridge, then follow the disassembly steps and complete the product installation with the reverse steps.

Figure 2.4.20

CHAPTER 3

BIOS Setup

3.1 BIOS Description

BIOS is the communication bridge between hardware and software. How to correctly set the BIOS parameters is crucial for the system to work stably and whether the system works at its best.
This chapter describes how to change the system settings through the BIOS settings.
Note: For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS.

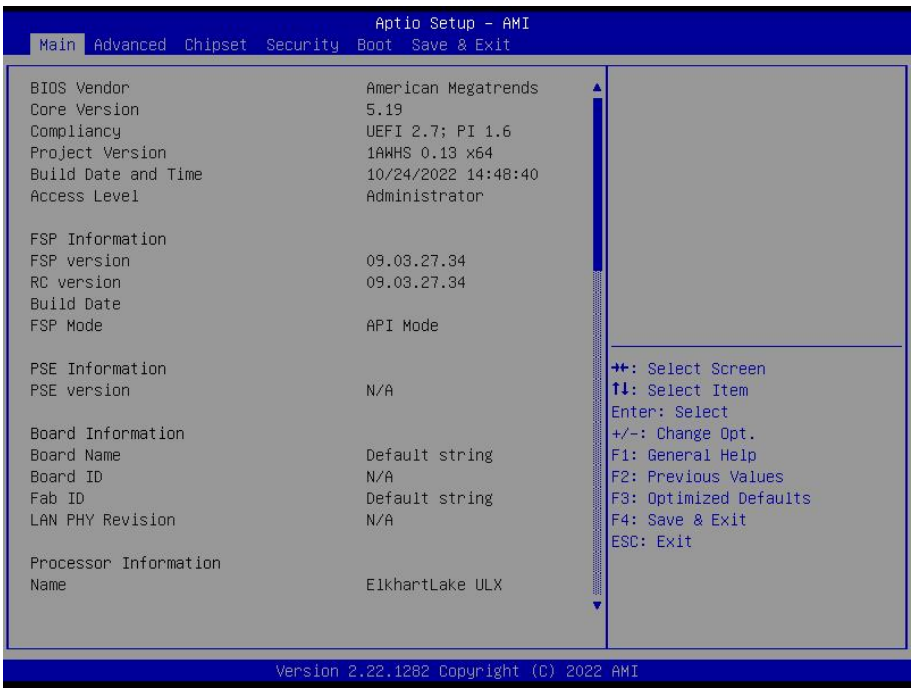
You need to make SETUP settings as follows:
1. An error message appears on the screen during the system self-test and asks for the SETUP setting.
2. You want to change the factory default settings based on customer characteristics.
(But in general, customers are not recommended to set it up. In most cases, using the default value is already the best setting.)

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

3.1.1 Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self-Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, Press the "**DEL**" key to enter BIOS Setup Utility.


Aptio Setup – AMI
Main Advanced Chipset Security Boot Save & Exit
BIOS Vendor American Megatrends
Core Version 5.19
Compliancy UEFI 2.7; PI 1.6
Project Version 1AWHS 0.13 x64
Build Date and Time 10/24/2022 14:48:40
Access Level Administrator
FSP Information
FSP version 09.03.27.34
RC version 09.03.27.34
Build Date
FSP Mode API Mode
PSE Information
PSE version N/A
Board Information
Board Name Default string
Board ID N/A
Fab ID Default string
LAN PHY Revision N/A
Processor Information
Name ElkhartLake ULX
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1282 Copyright (C) 2022 AMI

3.2 BIOS parameter settings

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take no responsibility to any damage caused by changing the BIOS settings.

3.2.1 BIOS Navigation Keys

Enter the SETUP settings interface, The BIOS navigation keys are listed below:

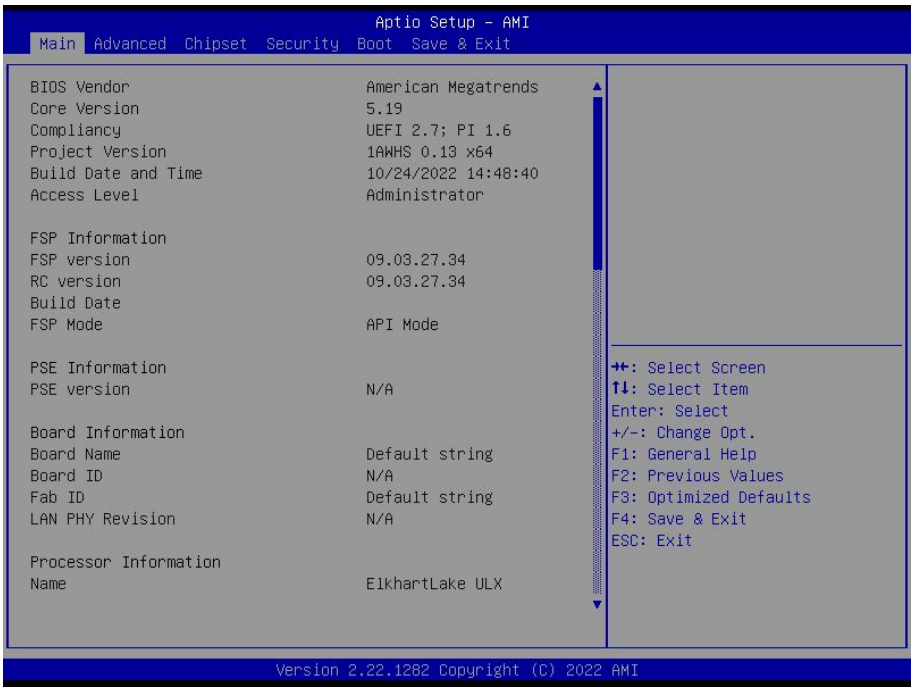
Table 3.1: The BIOS navigation keys

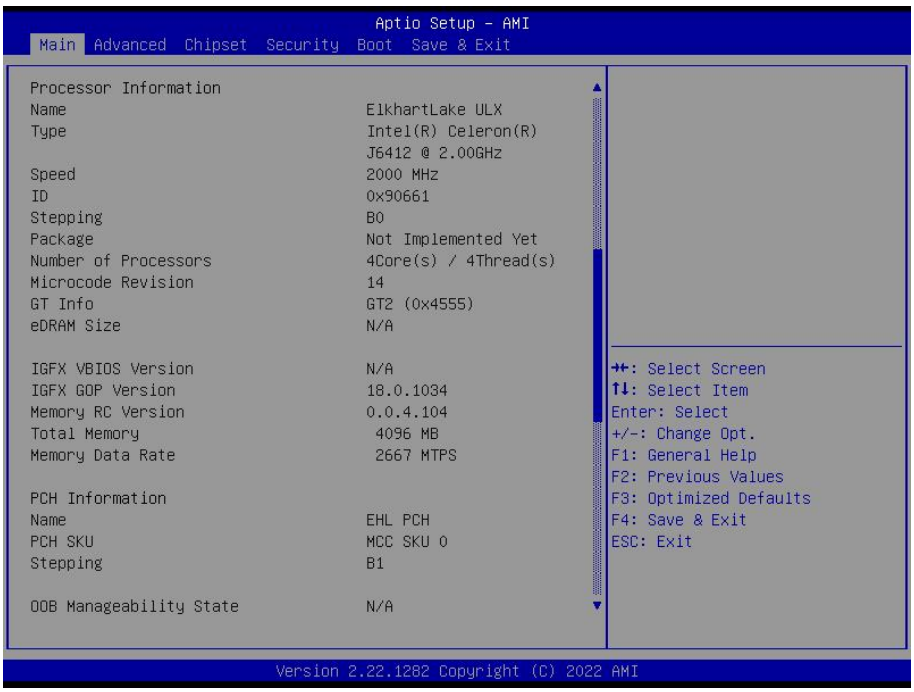
KEY	FUNCTION
ESC	Exit the current menu
↑↓→←	Scrolls through the items on a menu
+/-	Change Opt.
Enter	Select
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit

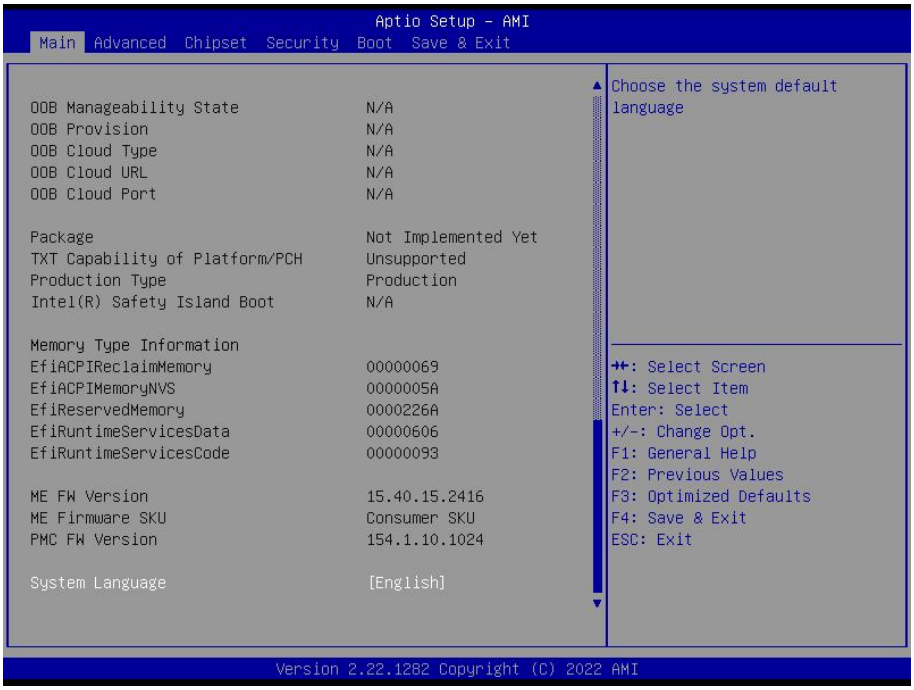
3.2.2 Main Menu

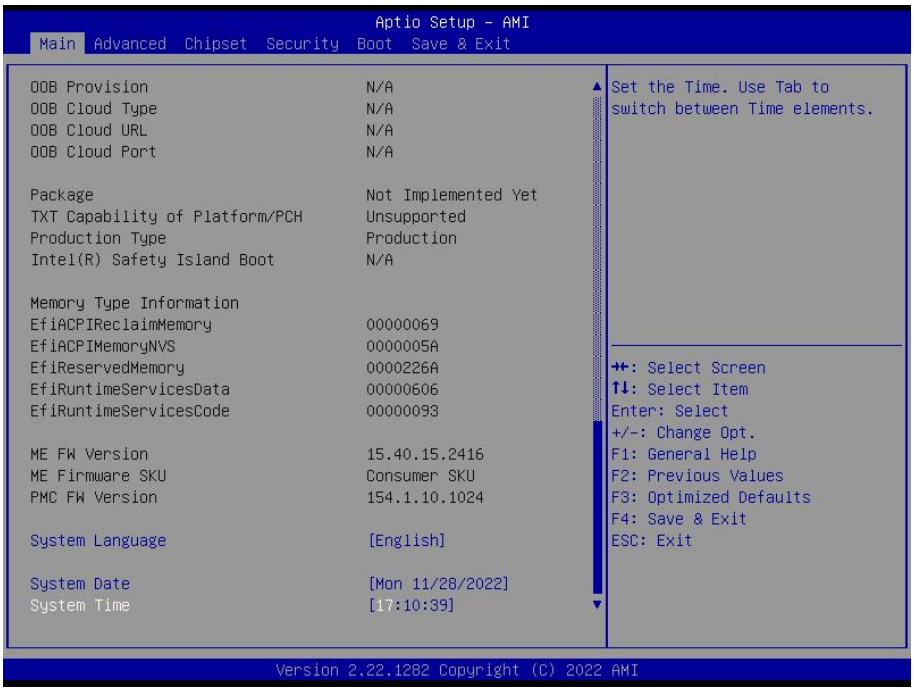
When you enter the BIOS Setup program, the main menu appears, giving you an overview of the basic system information. Select an item and press <Enter> to display the submenu. Press <Esc> to back to the main menu.

The BIOS setup program provides a help screen. You can call up this help screen from any menu by simply pressing the <F1> key. This help screen lists the corresponding keys and possible selections. Press <Esc> to exit the help screen.









BIOS Information

This item shows the information of the BIOS vendor, version, build date and time etc.

Processor Information

This item shows the basic information about the currently used processor, including name, type, speed, ID, core, Microcode version, etc.

Total Memory

This item shows the total memory size of the current motherboard.

Memory Data Rate

This item shows the current memory operating frequency.

PCH Information

This item shows the basic information about PCH, including name, model, type, etc.

System Language

Set the language interface of the BIOS.

System Date

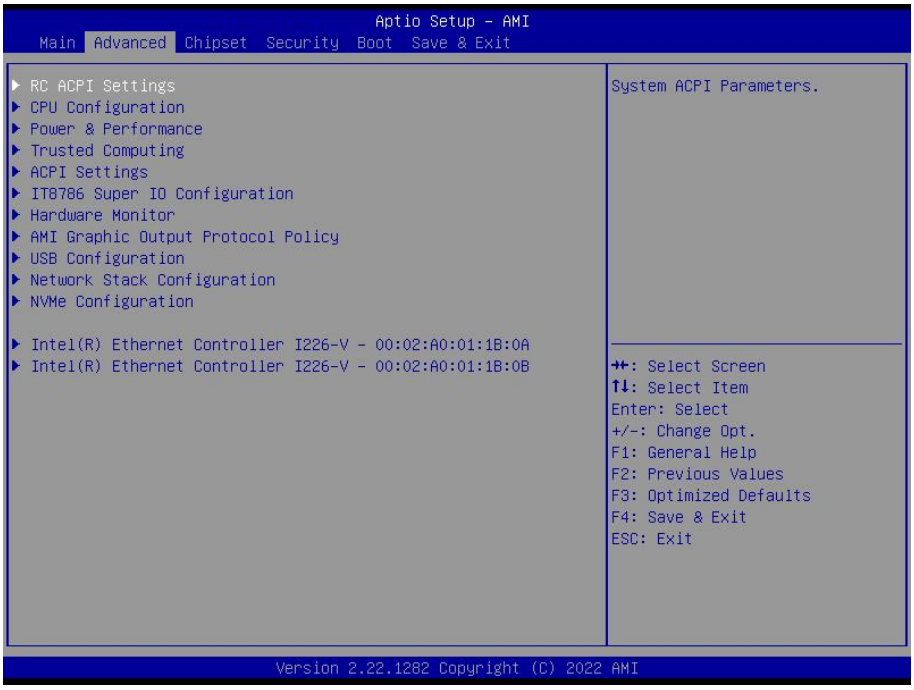
Set the date. The format of the date is <week><month><day><year>.

System Time

Set the time. The format of the time is <hour><minute><second>.

3.2.3 Advanced Menu

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



RC ACPI Settings

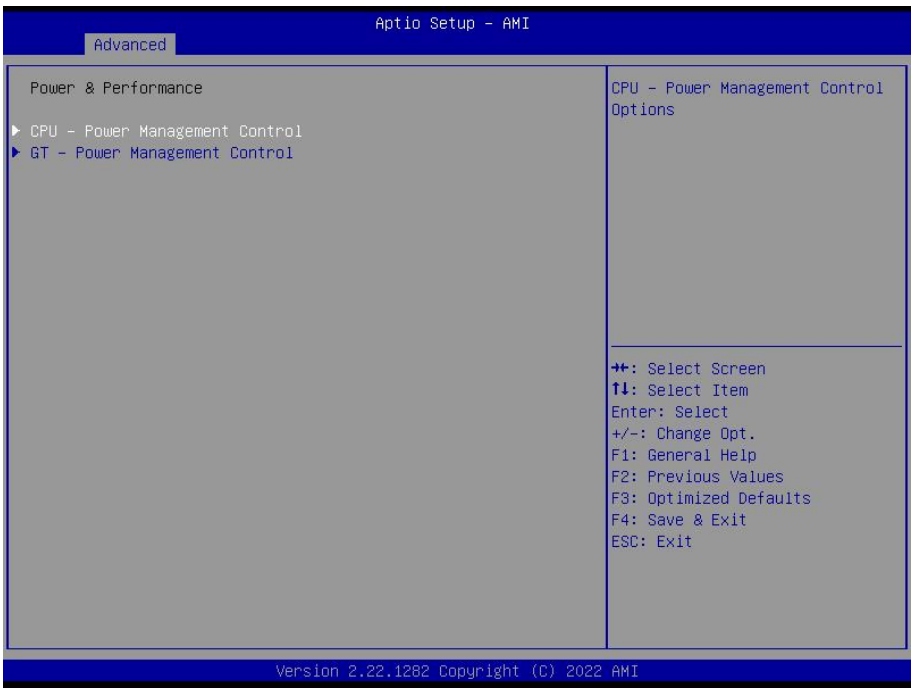
Advanced power management, it can help the operating system to reasonably control and distribute the power of computer hardware devices.

CPU Configuration

The configuration of the central processor, enter this sub-menu, there will be detailed details of the CPU, as well as various settings of the CPU.

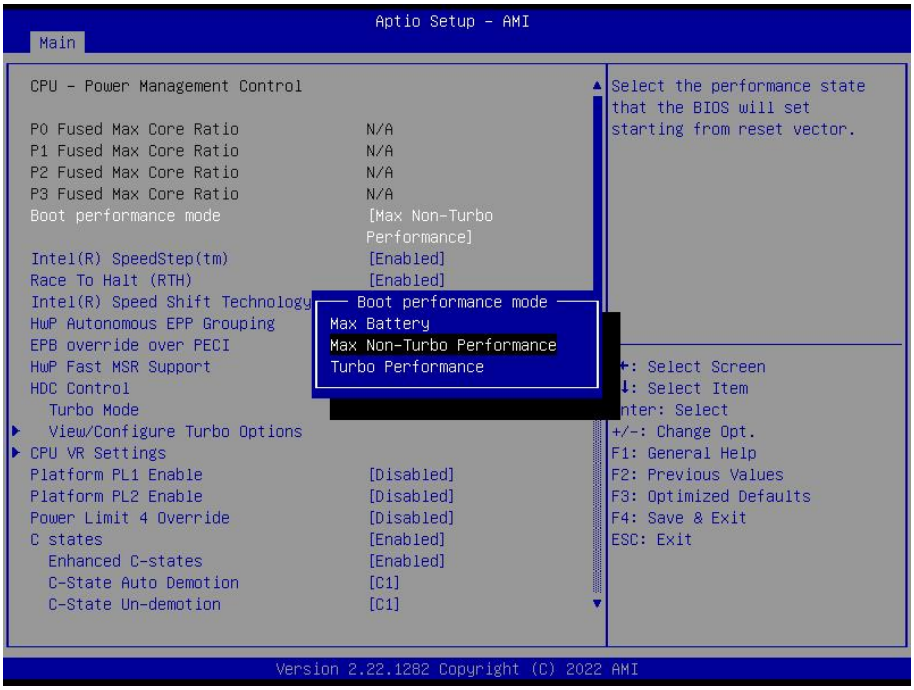
Power & Performance Configuration

This item contains the Power & Performance configuration, enter this sub-menu, there will be detailed details of the Power & Performance, as well as related settings of the Power & Performance function.



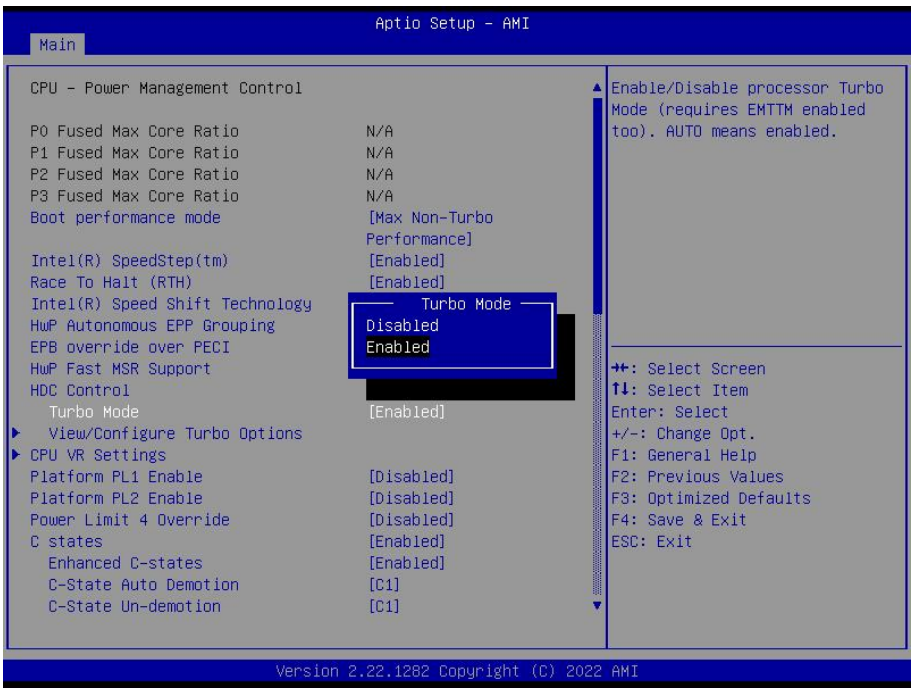
CPU-Power Management Control

This item contains the CPU-Power management control configuration, enter this sub-menu, there will be detailed details of the CPU-Power Management Control, as well as related settings of the CPU-Power Management Control function.



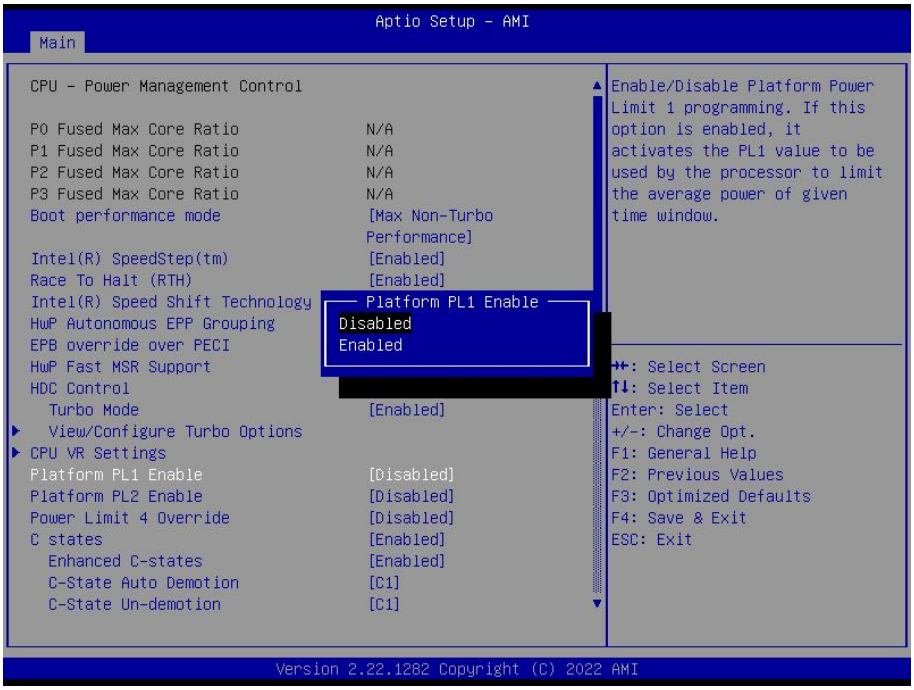
Boot performance mode

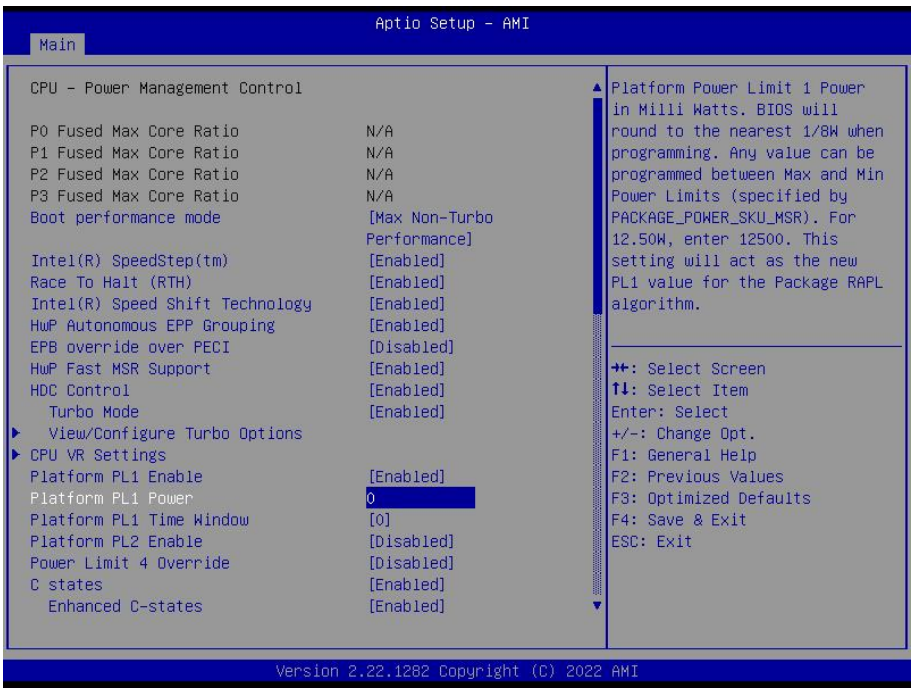
Boot performance mode settings, enter this sub-menu, there will be set boot performance mode: Max Battery, Max Non-Turbo Performance, Turbo Performance.



Turbo Mode

Turbo mode settings, enter this sub-menu, you can choose whether to set it to turbo mode.





Platform PL1 Enable

If Platform PL1 is enabled, you can manually limit CPU power consumption at Platform PL1 Power.

Trusted Computing

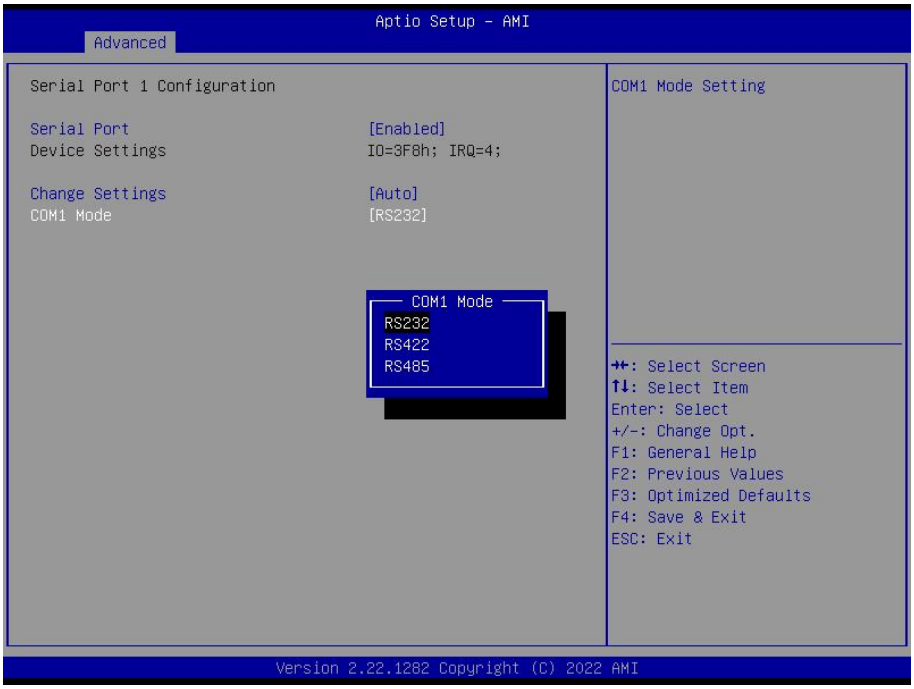
Trusted computing, enter this sub-menu, there will be the setting of the encryption security module (the motherboard will install the encryption module hardware will take effect).

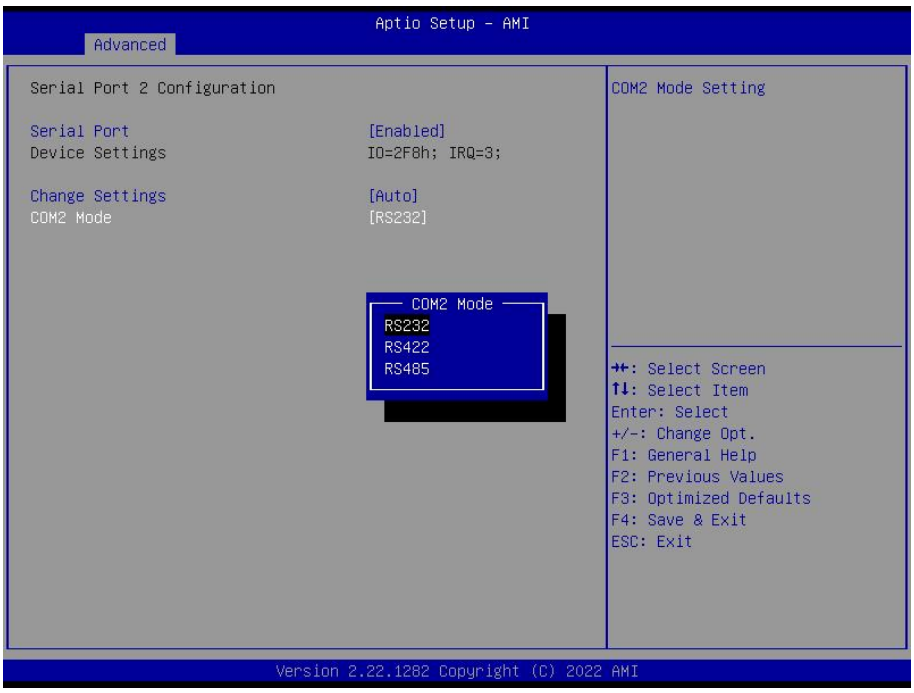
ACPI Settings

Advanced configuration and power management interface settings, enter this submenu, there will be ACPI related settings.

IT8786 Super IO Configuration

COM port settings, enter this sub-menu, there will be set COM working mode: RS232, RS485, RS422.





Hardware Monitor

Hardware monitoring, enter this sub-menu, there will be CPU temperature, fan speed, status display of each common working voltage, as well as parameter settings of intelligent fan control.

USB Configuration

This item contains the USB configuration, enter this sub-menu, there will be detailed details of the USB, as well as related settings of the USB.

Network Stack Configuration

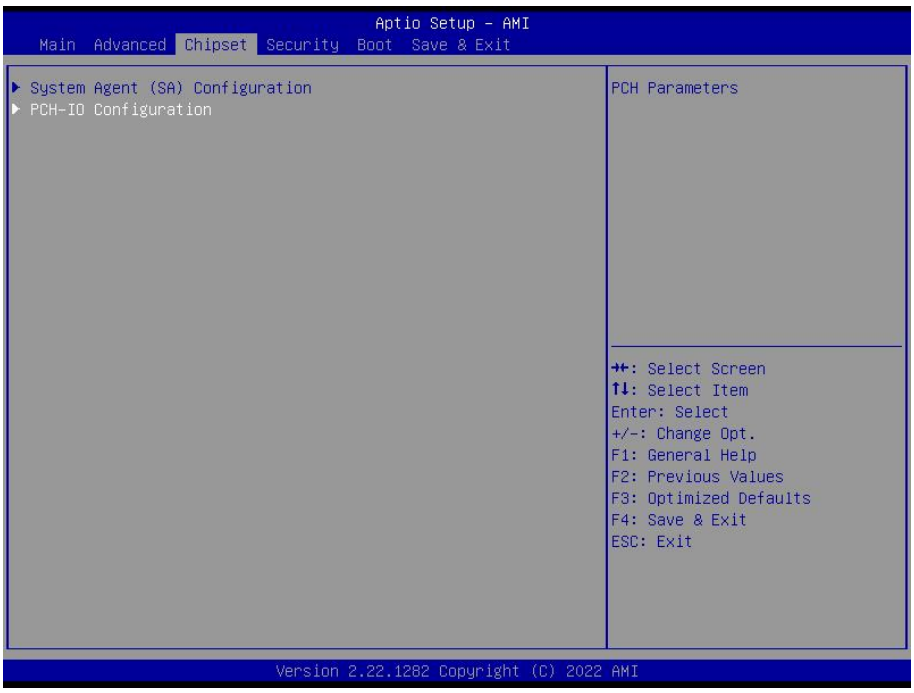
Network stack configuration menu， enter this submenu, there will be network stack configuration related settings.

NVMe Configuration

NVMe device settings, enter this sub-menu, there will be set NVMe device.

3.2.4 Chipset Menu

The chipset menu items allow you to change the settings for the North Bridge chipset, South Bridge chipset and other system.

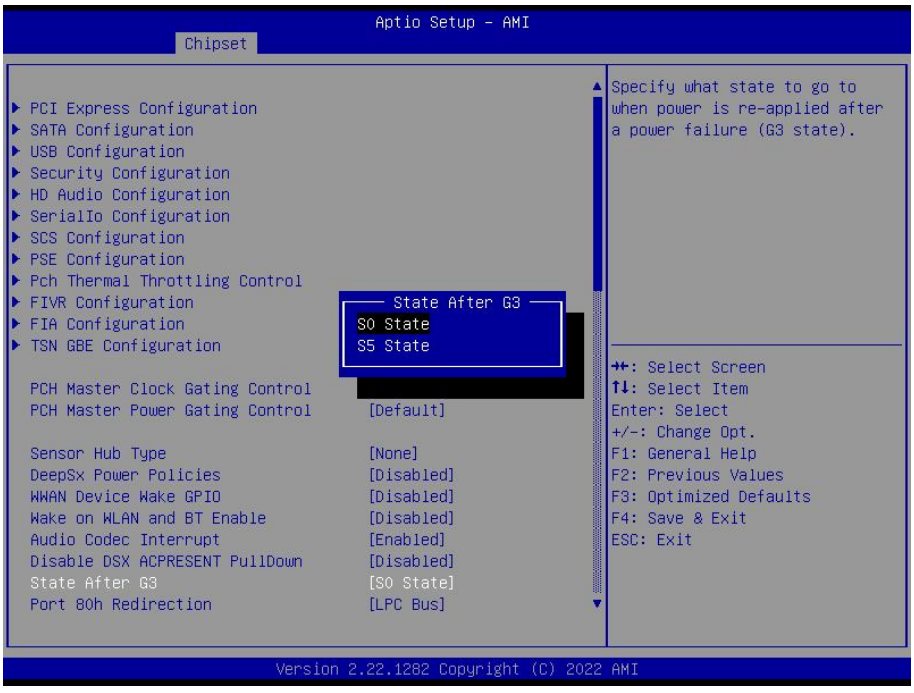


System Agent (SA) Configuration

System agent configuration menu， enter this submenu, there will be system agent configuration related settings.

PCH-IO Configuration (South Bridge Configuration)

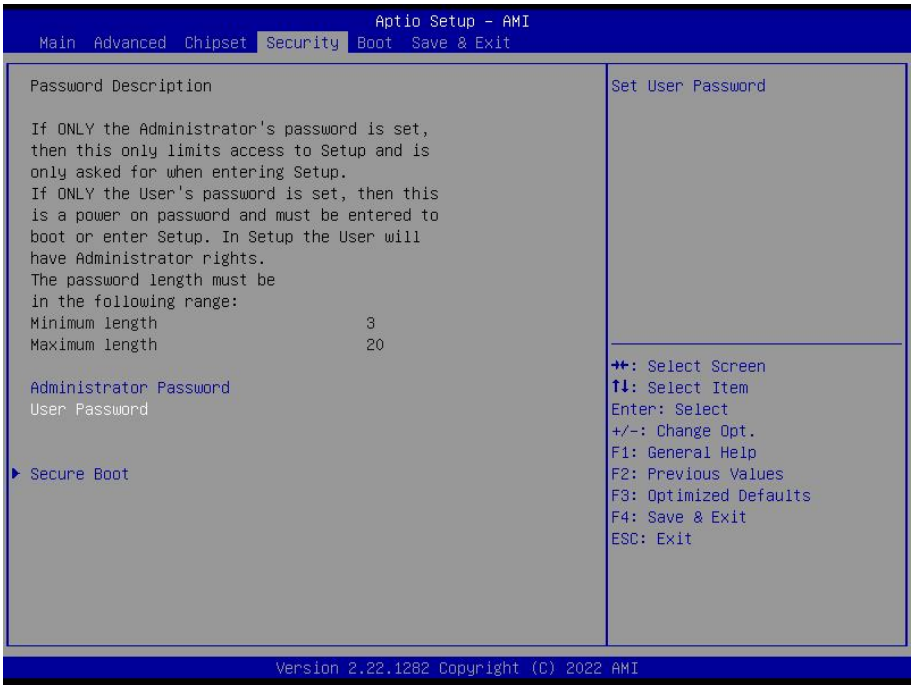
PCH-IO configuration menu, enter this submenu, there will be PCH-IO configuration related settings.



State After G3

State After G3 related settings, you can select S0 State or S5 State. When you select S0, you can set the start-up automatically, and when you select S5, you can set the start-up not automatically.

3.2.5 Security menu



Administrator Password

This item sets the information of the administrator password.

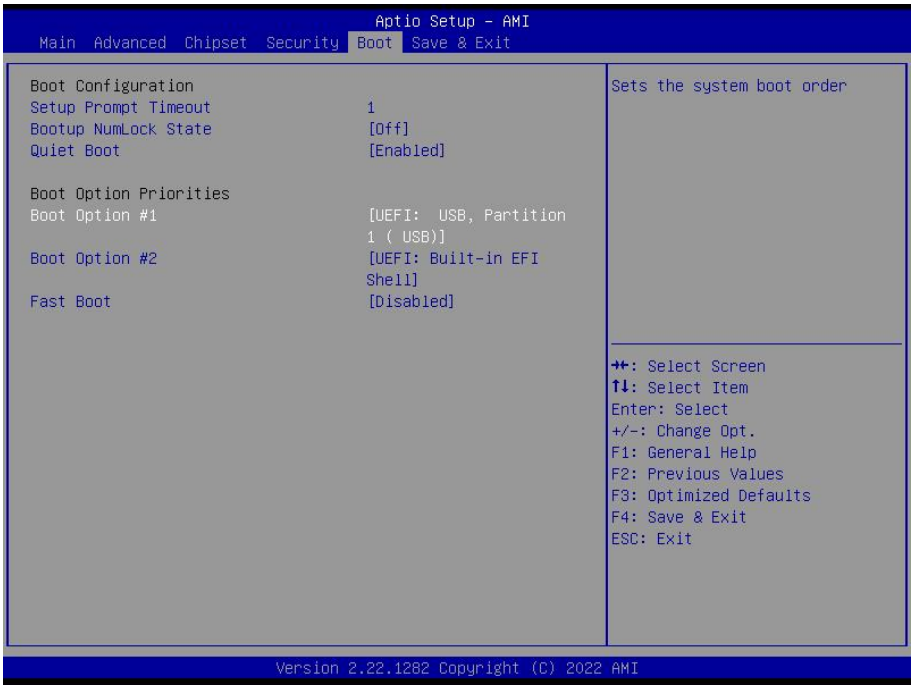
User Password

This item sets the information of the normal user password.

Secure Boot

This item sets the information of the secure boot.Secure Boot feature is Actice if Secure Boot is Enabled,Platform key(PK) is enrolled and mode change requires platform reset.

3.2.6 Boot menu



Setup Prompt Timeout

Setup prompts for waiting time. This option is to set the time to wait for the Del key to enter the BIOS setup after booting.

Bootup NumLock State

Set the state of the small numeric keypad at startup.

Quiet Boot

Switch full screen logo control.

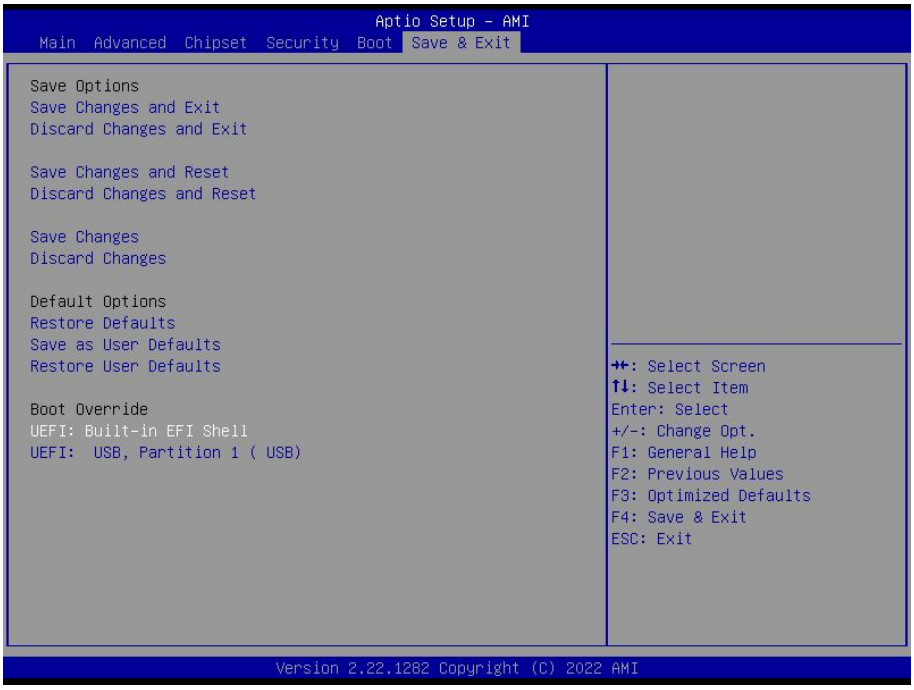
Set Boot Priority

Start device priority settings. If the user wants to install the operating system, please set "Boot Option #1" as your CD-ROM device or your U disk device (make sure that your CD-ROM drive has an operating system or your U disk has a PE system). After the setting is completed, press the “F4” button to save and exit. The system will boot from your CD-ROM drive or USB flash drive.

Fast Boot

Turn the quick start function on or off. When set to "Enabled", the system will skip some detection items and reduce the startup time.

3.2.7 Save & Exit menu



Save changes and Exit;

This item enables you to save the changes that you have made and exit.

Discard Changes and Exit;

This item enables you to discard the changes that you have made and exit.

Save Changes and Reset;

This item enables you to save the changes that you have made and reset.

Discard Changes and Reset;

This item enables you to discard the changes that you have made and reset.

Save Changes;

This item enables you to save the changes that you have made.

Discard Changes;

This item enables you to discard the changes that you have made.

Restore Defaults;

This item enables you to restore the system defaults.

Save as User Defaults;

This item enables you to save the changes as user defaults that you have made.

Restore User Defaults;

This item enables you to restore the user defaults.

3.3 Updating the BIOS

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS provides the underlying driver for hardware resources and is the bridge between hardware and operating system. Now hardware and various applications are constantly updated. When your system encounters problems, such as the system does not support the latest published CPU, you need to upgrade your BIOS.

NOTE:

1. Only upgrade the BIOS if you encounter problems and need to.
2. To upgrade the BIOS, please use the BIOS read/write program attached to our driver CD or download the updated version of the program from the relevant website.
3. Do not turn off the power or reboot the system during the upgrade process, so your BIOS data will be damaged and the system may not boot.
4. After the refresh is complete, you need to manually optimize the LOAD Default.
5. To prevent accidents, please backup the current BIOS data first.

CHAPTER 4

Driver Installation

The KMDA-2630 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

4.1 Follow the sequence below to install the drivers:

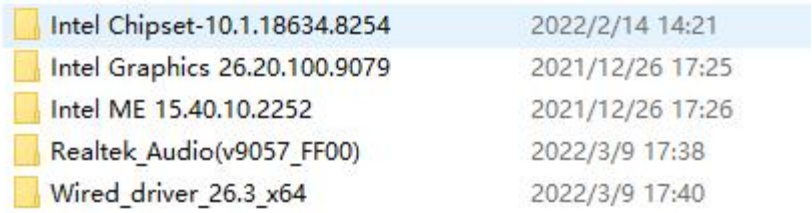


Figure 4.1

Step 1 – Install Chipset Driver

Step 2 – Install Graphic Driver

Step 3 – Install ME Driver

Step 4 – Install AUDIO Driver

Step 5 – Install LAN Driver

Please read instructions below for further detailed installations.

4.2 Installation:

Insert the KMDA-2630 CD-ROM into the CD-ROM drive. And install the drivers in turn.

Step 1 – Install Chipset Driver
1. Double click on the Chipset folder and double click on the Setup.exe
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 2 – Install Graphic Driver
1. Double click on the Graphic folder and double click on the Setup.exe
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 3 –Install ME Driver
1. Double click on the ME folder and double click on the Setup.exe
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 4 –Install AUDIO Driver
1. Double click on the AUDIO folder and double click on the Setup.exe
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 5 –Install LAN Driver
1. Double click on the Wired folder and double click on the Setup.exe
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

4.3 Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license. These software(s) are subject to change at any time without prior notice. Please refer to the support disk for available software.

CHAPTER 5

SYSTEM RESOURCE

5.1 WDT and GPIO

/* ==========

1 * void jhctech_init();

2 * function description: library initializated, This function must be called before calling other functions

3 * parameter description：

4 * creation date：

5*==========*/

/* ==========

1 * void jhctech_deinit();

2 * function description: library release, Pair with jhctech_init, release the library's occupied resources when not needed

3 * parameter description：

4 * creation date：

5* ==========*/

/*==========

1 * BYTE MB_gpio_input(WORD port)

2 * function description: read the motherboard GPIO input level

3 * parameter description：

Return value: return a byte (8 bit), each bit of the 8-bit corresponding to the level state of a GPIO pin

Return value	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GPIO pin	PIN8	PIN7	PIN6	PIN5	PIN4	PIN3	PIN2	PIN1

parameter：port is the GPIO port of the main board, which is a fixed value designed by the manufacturer

description：

4 * creation date：

5*==========*/

/*==========

1 * void MB_gpio_output(WORD port,BYTE value);

2 * function description： The motherboard outputs high and low levels

3 * parameter description：

parameter： port is the GPIO port of the main board, which is a fixed value designed by the manufacturer

Level 8 bit of a bit, each bit controls a GPIO pin output value,

Bit =1, means output high level

Bit =0, means output low level

value	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GPIO pin	PIN8	PIN7	PIN6	PIN5	PIN4	PIN3	PIN2	PIN1

description：

4 * creation date：

5*==========*/

/*==========

1 * void MB_gpio_init();

2 * function description: The GPIO initialization function of the motherboard needs to be called once before use

3 * parameter description:

4 * creation date：

5*==========*/

/*==========

1 * void watchdog_set(int time);

2 * function description: Watchdog function

3 * parameter description: Time sets the dog feeding time, the value of time is 0-255, setting 0 means closing the watchdog

```
4    * creation date：
5*=============================================================================*/
```

Note: If you want more programs of the motherboard's watchdog and GPIO, please call +86-0755-86021176-(8021)/+86-0755-86021176-(8023) for more information.