

User's Manual

KMDA-2701



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3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
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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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- Step 2. Contact your distributor, sales representative, or JHC's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

CONTENTS

GENERAL INFORMATION.....	1
1.1 INTRODUCTION	2
1.2 FEATURES	2
1.3 SPECIFICATIONS.....	2
1.3.1 General	2
1.3.2 Display.....	3
1.3.3 Ethernet.....	3
1.3.4 Audio.....	3
1.3.5 Power Consumption.....	3
1.4 ENVIRONMENTAL SPECIFICATIONS	3
1.5 MECHANICAL SPECIFICATIONS.....	4
HARDWARE INSTALLATION	7
2.1 INTRODUCTION	8
2.2 JUMPERS AND CONNECTORS	8
2.2.1 Setting Jumpers.....	9
2.3 JUMPER LOCATION	10
2.3.1 Clear CMOS Data.....	11
2.3.2 LVDS Power supply 12V/5V/3.3V Mode Select	12
2.3.3 COM5/COM6 RS232/RS485/RS422 Mode Select.....	12
2.3.4 COM5/COM6 Matching resistor Select Jumper.....	13
2.3.5 COM5/COM6 RI/5V/12V Power supply Select.....	13
2.4 I/O、BUTTON AND LED INDICATION	14
2.4.1 Ethernet Connector (LAN).....	15
2.4.2 Power Input Connector (DC-IN)	15
2.4.3 USB Connector	16
2.4.4 HDMI.....	17
2.4.5 VGA Connector.....	18
2.4.6 COM1/2 Connector.....	18
2.4.7 COM3/4 Connector.....	19
2.4.8 COM5/6 Connector.....	19
2.4.9 DIO Connector.....	20
2.4.10 SATA2.0 Port connector.....	21
2.4.11 SATA Power Connector.....	22
2.4.12 Line-Out and Mic Connector	22
2.4.13 I-port Connector	22
2.4.14 Remote Switch signal Connector	22
2.4.15 AT/ATX SW.....	23
2.4.16 LED.....	23
2.5 INSTALLATION	23
2.5.1 HDD/SSD Installation	23
2.5.2 Installing Mini PCIe Module	28
2.5.3 Installing MSATA	33
BIOS SETUP.....	35
3.1 AMI BIOS DESCRIPTION	36
3.2 BIOS PARAMETER SETTINGS	36
3.2.1 BIOS Navigation Keys	36
3.2.2 Main Menu.....	37
3.2.3 Advanced Menu.....	38
3.3 CHIPSET MENU	48

3.4 BOOT MENU.....	51
3.5 SECURITY MENU.....	52
3.6 SAVE & EXIT MENU	53
3.7 UPDATING THE BIOS.....	53
DRIVER INSTALLATION	55
4.1 ABOUT THE SOFTWARE DVD-ROM/CD-ROM	56
4.2 AUTO-INSTALLING UNDER WINDOWS 8/10	56
4.3 MANUAL INSTALLATION	59
4.4 CPU TEMP LED DRIVER	60
4.5 UTILITY SOFTWARE REFERENCE.....	60
SYSTEM RESOURCE.....	61
5.1 WDT AND GPIO	62
5.1.1 WDT	62
5.1.2 GPIO.....	63

CHAPTER

1

General Information

1.1 Introduction

KMDA-2701 is an intelligent, universal dimension box computer, with PCB to PCB multi-structure and fanless design. KMDA-2701 is equipped with the Intel® Celeron® Processor J1900 2.0-2.42GHz 4cores 4threads processor, with multiple I/O interfaces and 3.5 inches SATA HDD driver bay, mSATA slot for storage.

KMDA-2701 offers 1*HDMI and 1*VGA dual independent display, 4*Giga Lan ports, 1*USB3.0 port, 6*USB2.0 ports (1 inside), 1*Audio line out, 1*MIC, 6*COM ports, 24-bit DIO ports, 2*Mini PCIe sockets one with PCIe and USB signal, one with SATA and USB signal; The KMDA-2701 supports 1*3.5 inches SATA HDD driver bay, 1* mSATA for storage, DC 9-36V wide power input. Besides, operating temperature showing in LEDs, economic and reliable, it will be fit for security and manufacture application.

1.2 Features

Key features

- 1、 Universal Aluminum chassis, Fanless design;
- 2、 Intel® Celeron® Processor J1900 2.0-2.42G CPU;
- 3、 1*DDR3L 1333MHz SODIMM , Up to 8GB;
- 4、 4*Intel I211-AT PCIe Gig LAN;
- 5、 1*Mini PCIe with PCIeX1&USB signal(Full size), 1*Mini PCIe with SATA&USB signal(Full size);
- 6、 1*HDMI and 1*VGA dual independent display;
- 7、 1*USB 3.0, 6*USB 2.0(1 inside);
- 8、 2*RS232, 4*RS232/422/485, 24-bit DIO;
- 9、 1* Line out,1*Mic, 3.5mm phone jack;
- 10、 DC 9-36V wide power input.

1.3 Specifications

1.3.1 General

CPU: Intel® Celeron® J1900, 2.0~2.42GHz, 4cores, 4threads, 2M cache

BIOS: 8MB SPI BIOS

System Memory: 1*DDR3L 1333MHz SODIMM, Up to 8GB

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

Serial Ports: 2* RS-232 DB9 male, 4* RS-232/422/485, DB9 male

USB: 1*USB 3.0 Type A port, 5*USB2.0 Type A ports(Front), 1* USB 2.0 Type A port (inside)

Expansion Interface:

1* Mini PCIe with PCIeX1\ USB2.0 signal, 1*micro Sim slot for 4G LTE/WiFi/BT etc

1* Mini PCIe with SATA3\ USB2.0 signal, used to be mSATA

Storage:

1* mSATA (Full size), dual AHCI

1*3.5" HDD bay, SATA2 3.0Gbps, cooling by aluminum cover

1.3.2 Display

Chipset: Intel HD Graphics

Display Memory: Shared system memory

Resolution: HDMI up to 1920x1080 @60Hz; VGA up to 1920x1200 @60Hz

1.3.3 Ethernet

Chipset: 4*Intel® I211AT PCI Express Gigabit Ethernet controller

Speed: 10/100/1000 Mbps Integrated

Interface: 4*RJ45

1.3.4 Audio

Chipset: Realtek ALC662VD

Interface: 1*Line out, 3.5mm phone jack, 1*Mic

1.3.5 Power Consumption

Input Voltage: DC 9-36V Input

Power Consumption: TDP 12V/1.6A (3.5" HDD)

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

Power Requirement: Minimum power input: DC 12V/3A

1.4 Environmental Specifications

Operating temperature:

-20 ~ 70° C (Fanless with wide operating temp. SSD, Airflow)

-10 ~ 55° C (Fanless with HDD, Airflow)

Relative humidity: 10~90% @ 40°C (non-condensing)

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

Vibration loading during operation:

With SSD: 5 Grms, random, 5 ~ 500 Hz

With HDD: 1 Grms, random, 5 ~ 500 Hz

Shock during operation:

With SSD: 50g, peak acceleration (11 ms duration)

With HDD: 20g peak acceleration (11 ms duration)

EMC: CE, FCC Class A

1.5 Mechanical Specifications

Main board (front)

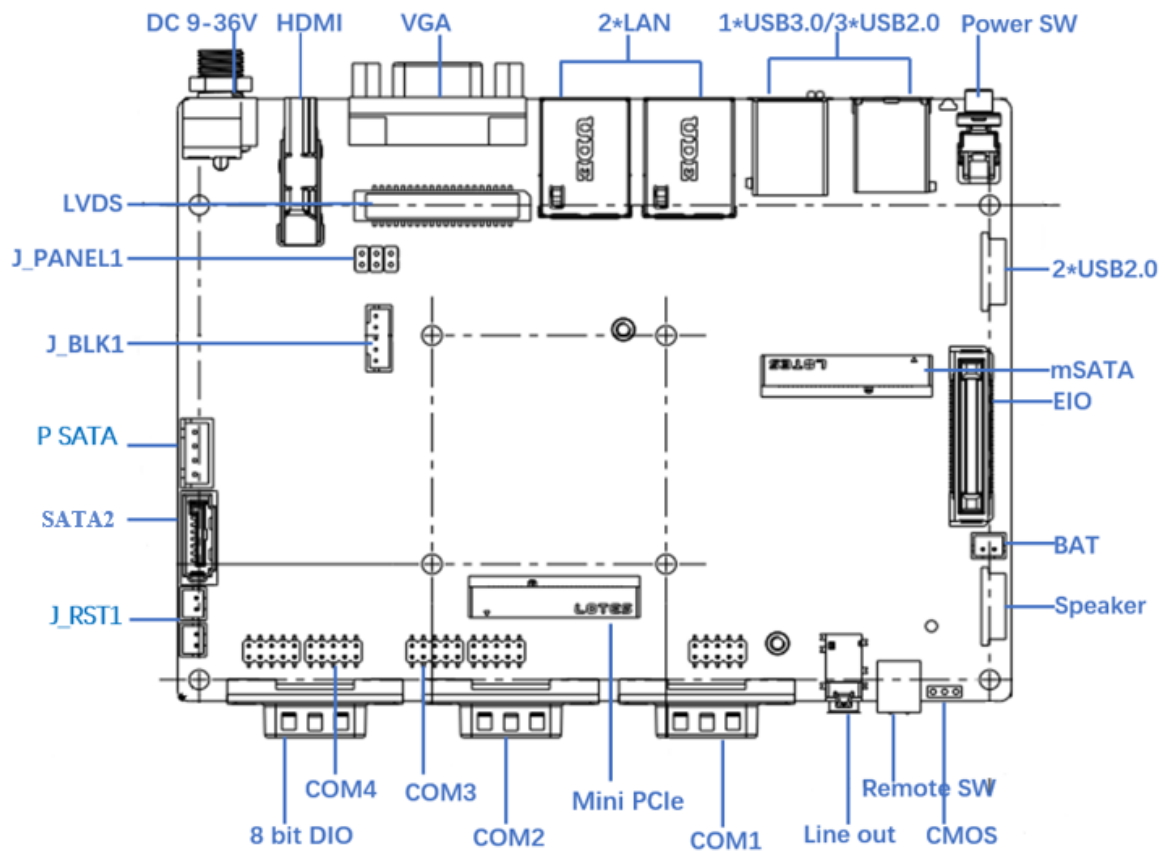


Figure 1.0

Main board (rear)

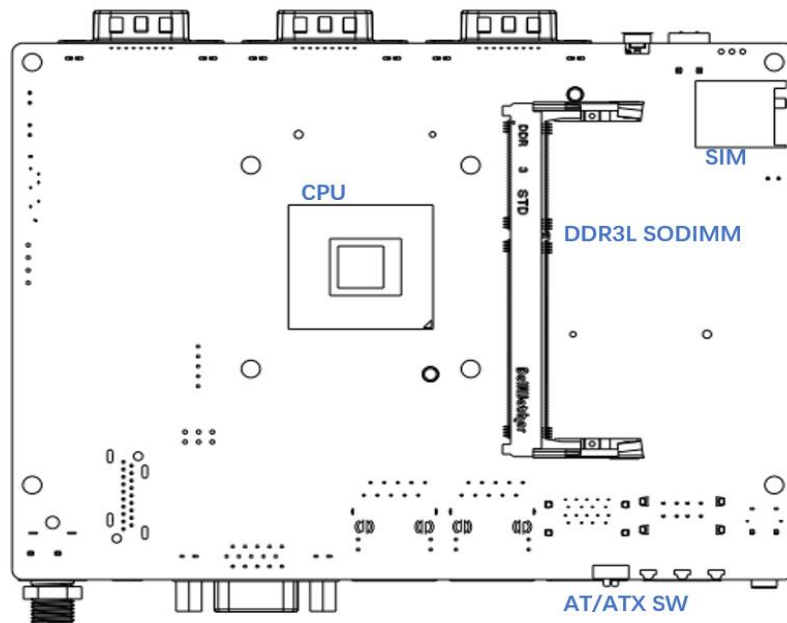


Figure 1.1

Sub-board(ECB 154)

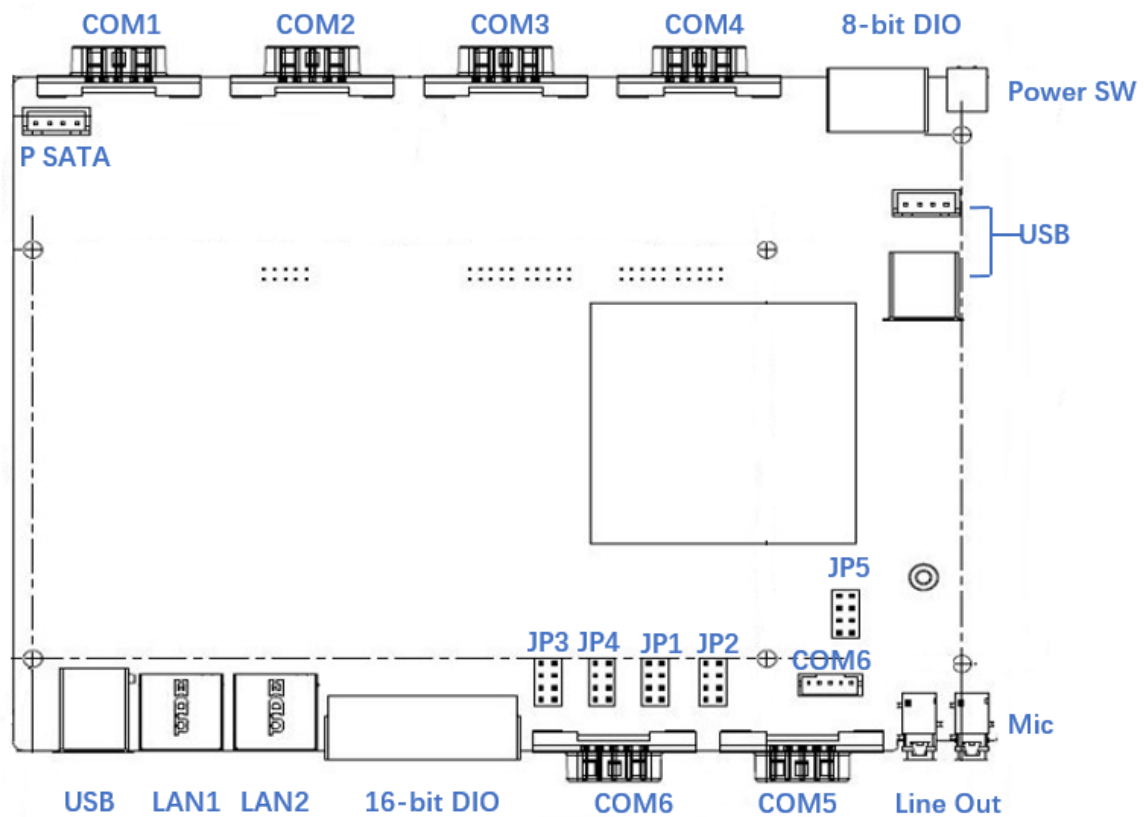


Figure 1.2

KMDA-2701 Dimensions:

Unit: mm

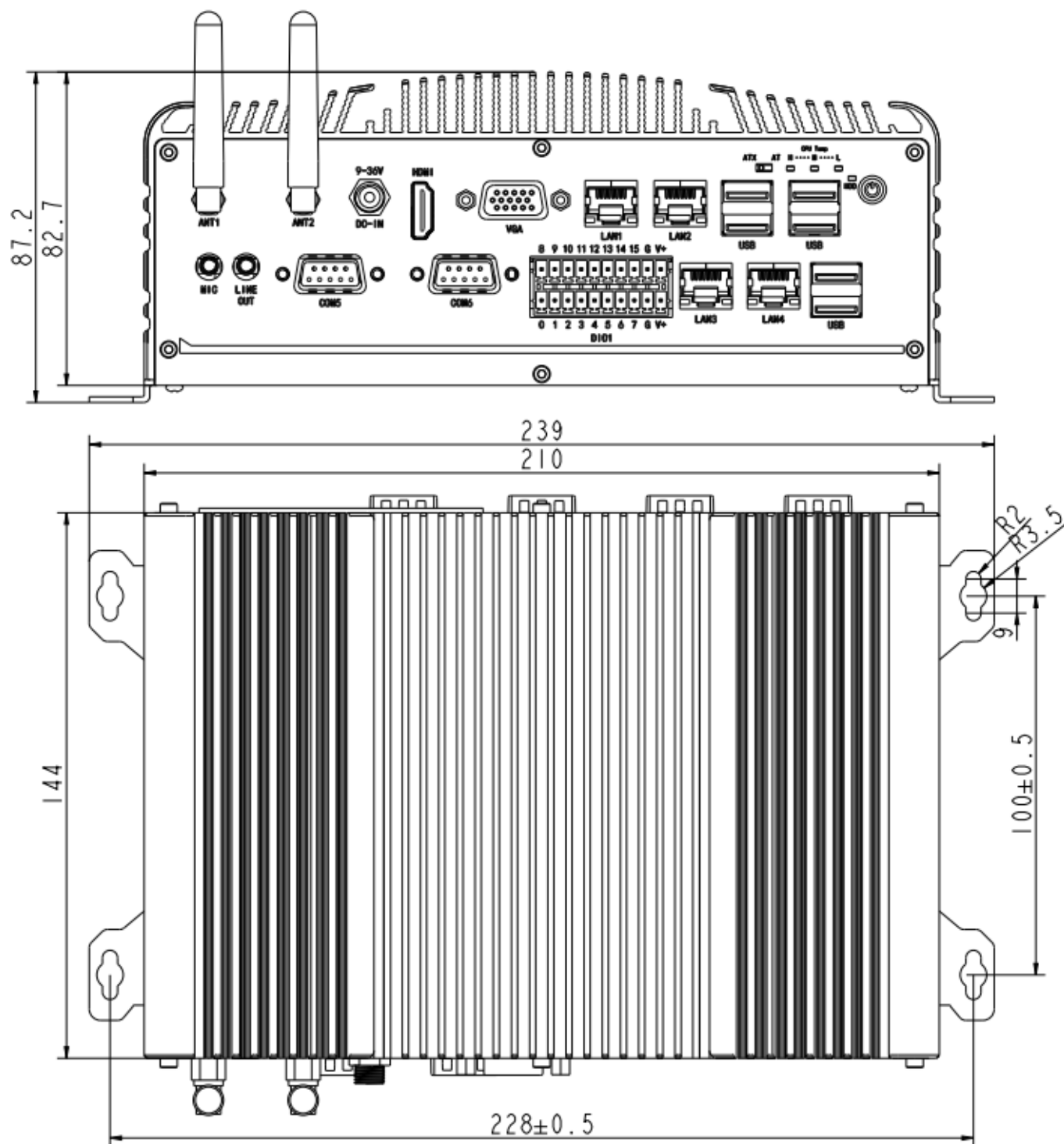


Figure 1.3

CHAPTER

2



Hardware Installation

2.1 Introduction

The following sections show the internal jumper settings and the external connectors and pin assignments for applications.

2.2 Jumpers and connectors

The KMDA-2701 Fanless Embedded Box Computer consists of an JHC SBC (Single Board Computer) board and an JHC sub-board that is housed in an aluminum plate chassis.

Warning: Do not remove any mechanical parts until you have verified that no power is flowing within the Embedded Box Computer. Power must be switched off and the power cord must be unplugged.

JHC SBC board Internal Diagram

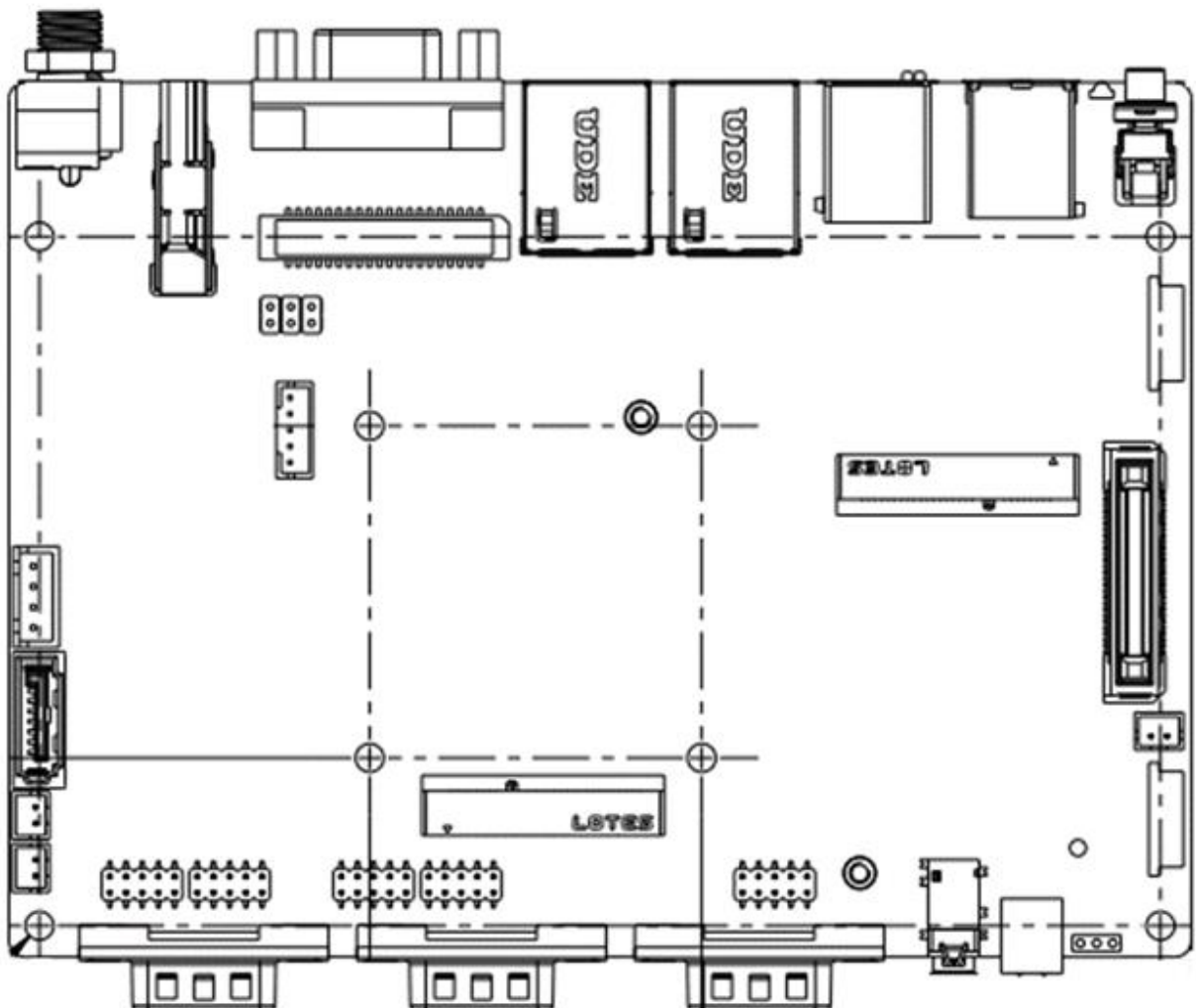


Figure 2.1

Sub-board Internal Diagram

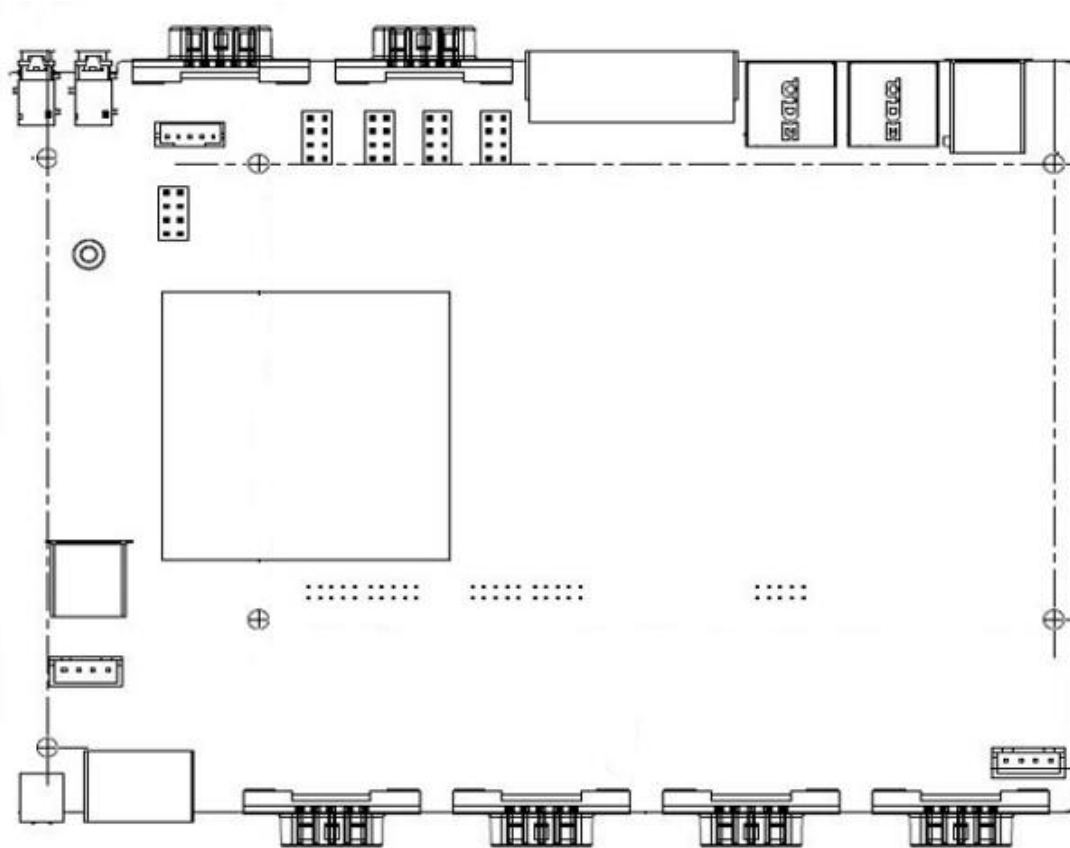


Figure 2.2

2.2.1 Setting Jumpers

You can configure your KMDA-2701 to match the needs of your application by setting the jumpers. A jumper is the simplest kind of electrical switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To —close “a jumper, you connect the pins with the clip”. To —open “a jumper you remove the clip”. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either pins 1 and 2 or pins 2 and 3.

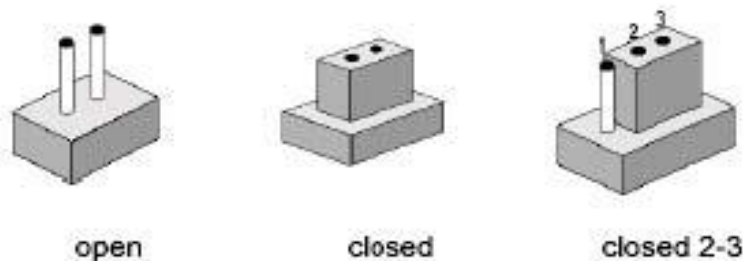


Figure 2.3

The jumper settings are schematically depicted in this manual as follows:

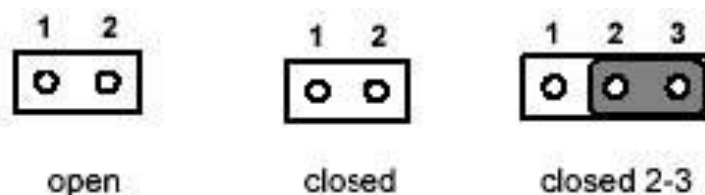


Figure 2.4

A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

2.3 Jumper Location

The KMDA-2701 Embedded Box Computer has a number of jumpers inside the chassis that allows you to configure your system to suit your application. The table below lists the functions of the various jumpers. The table below shows the function of each of the board's jumpers:

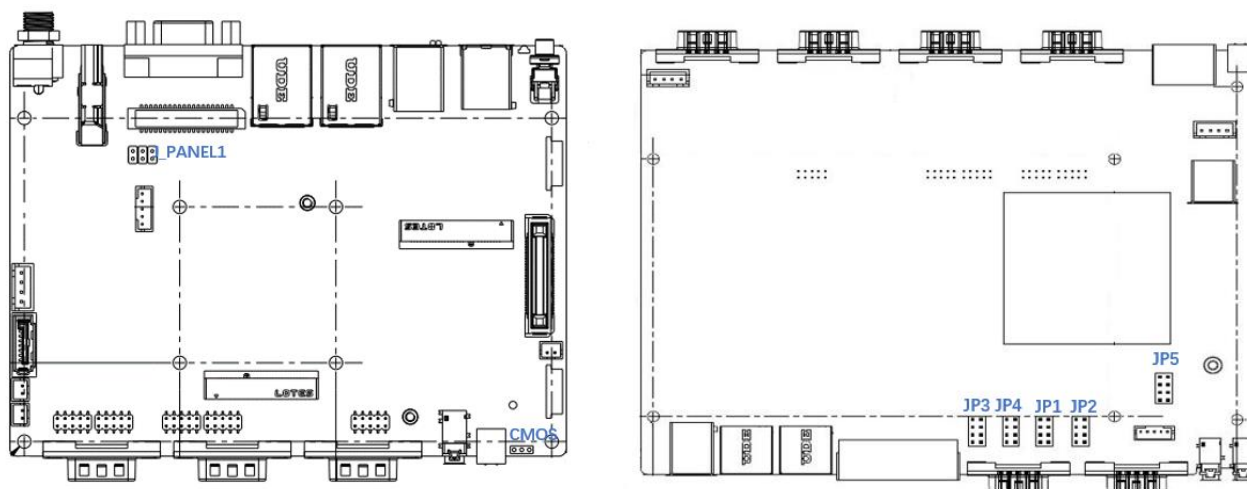


Figure 2.5

Jumpers

Jumper	Name	Description
CMOS	Clear CMOS Data Setting	3-Pin Block
J_PANEL1	LVDS screen 3.3V/5V/12V Power supply Select	6-Pin Block
JP1/JP3	COM5/COM6 RS232/RS485/RS422 Mode Select	8-Pin Block
JP2/JP4	COM5/COM6 Matching resistor Select	8-Pin Block
JP5	COM5/COM6 RI/5V/12V Power supply Select	8-Pin Block

NOTE: Please confirm the position of the 1 pin before performing the jumper operation.

2.3.1 Clear CMOS Data

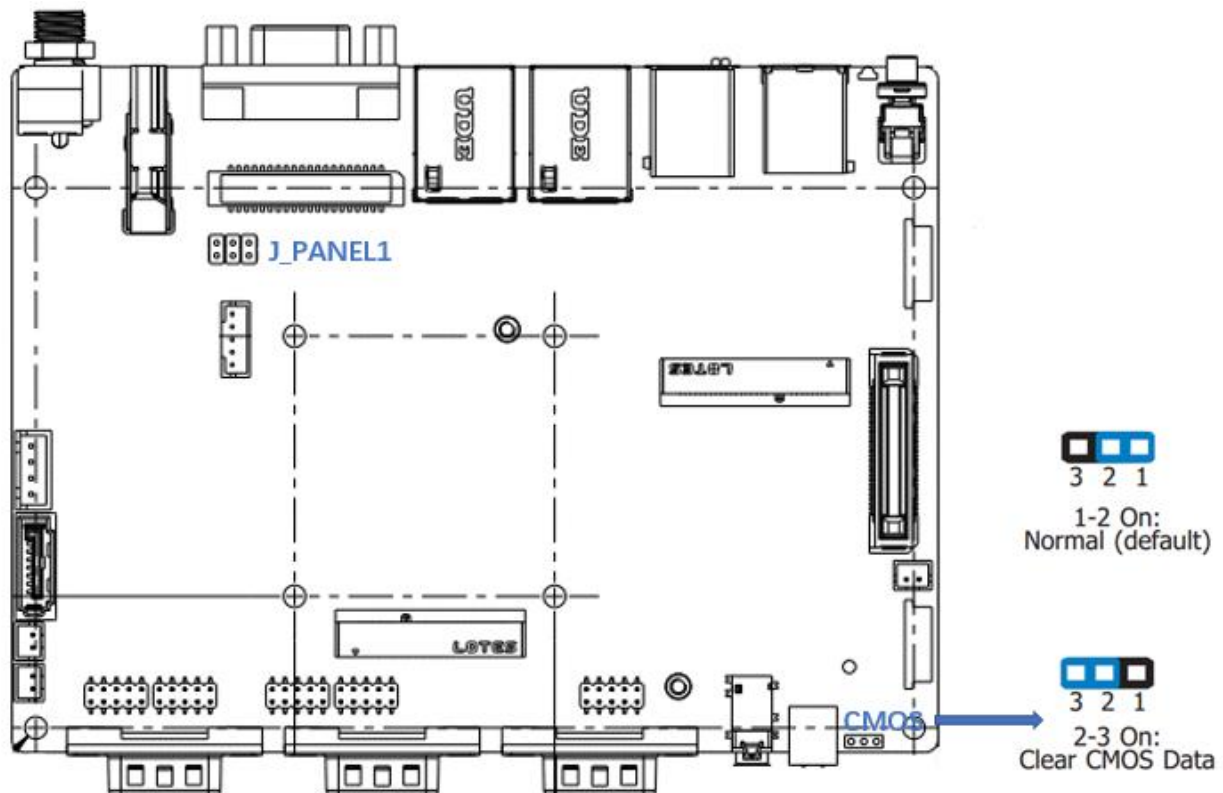


Figure 2.6

If you encounter the followings

- a) CMOS data becomes corrupted.
- b) You forget the supervisor or user password.

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.
2. Set CMOS pins 2 and 3 to On. Wait for a few seconds and set CMOS back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

2.3.2 LVDS Power supply 12V/5V/3.3V Mode Select

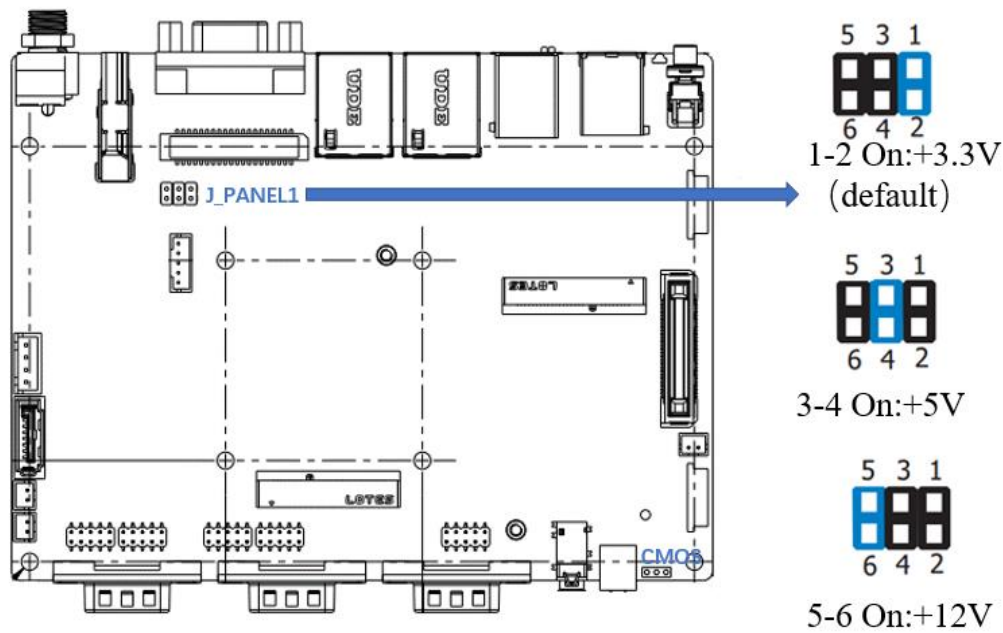


Figure 2.7

J_PANEL is used to select the power supplied of LVDS panel.

2.3.3 COM5/COM6 RS232/RS485/RS422 Mode Select

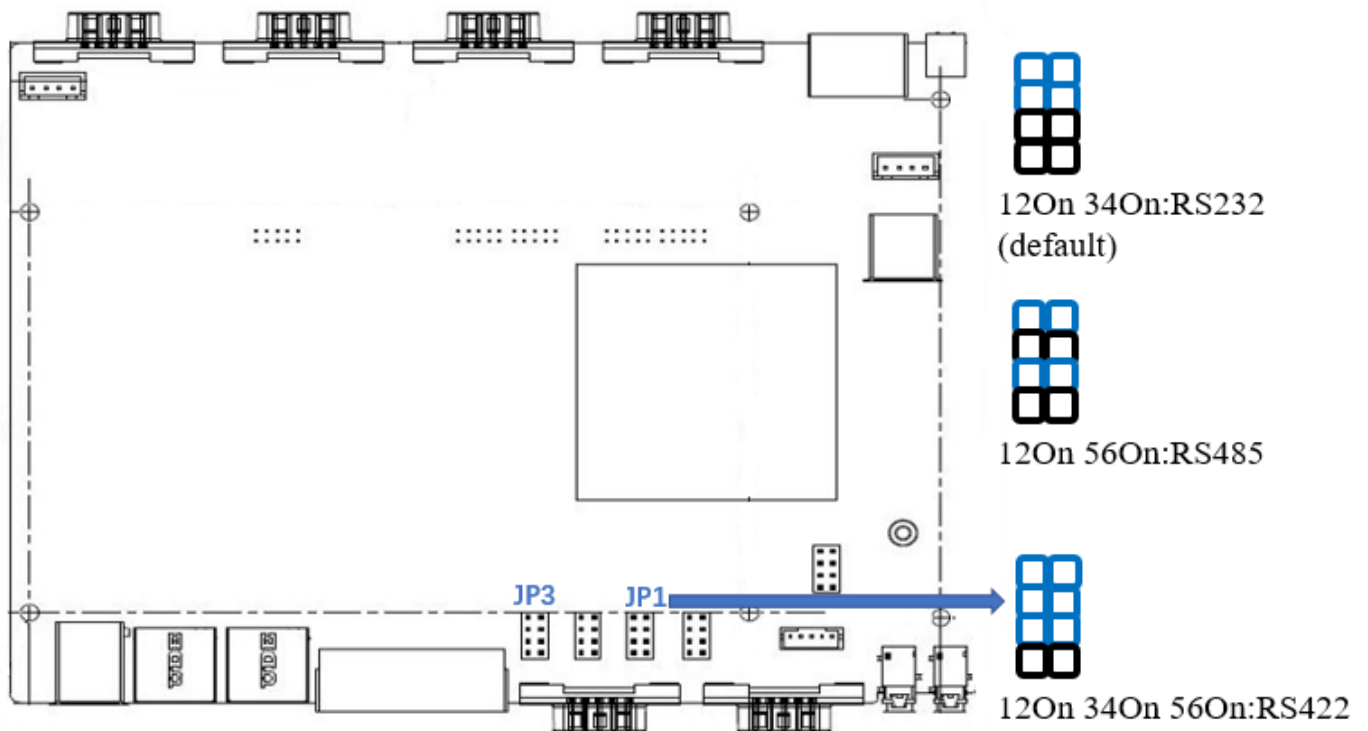


Figure 2.8

NOTE: JP1 is for COM5; JP3 is for COM6.

2.3.4 COM5/COM6 Matching resistor Select Jumper

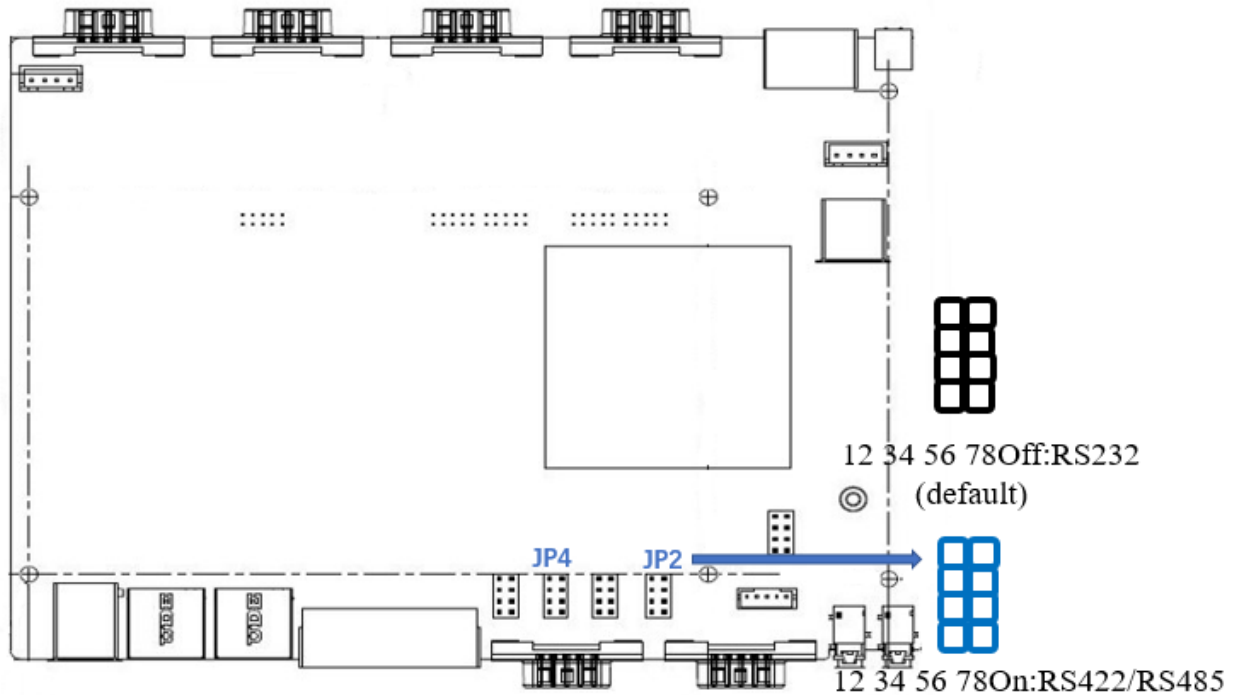


Figure 2.9

NOTE:JP2 is for COM5; JP4 is for COM6.

2.3.5 COM5/COM6 RI/5V/12V Power supply Select

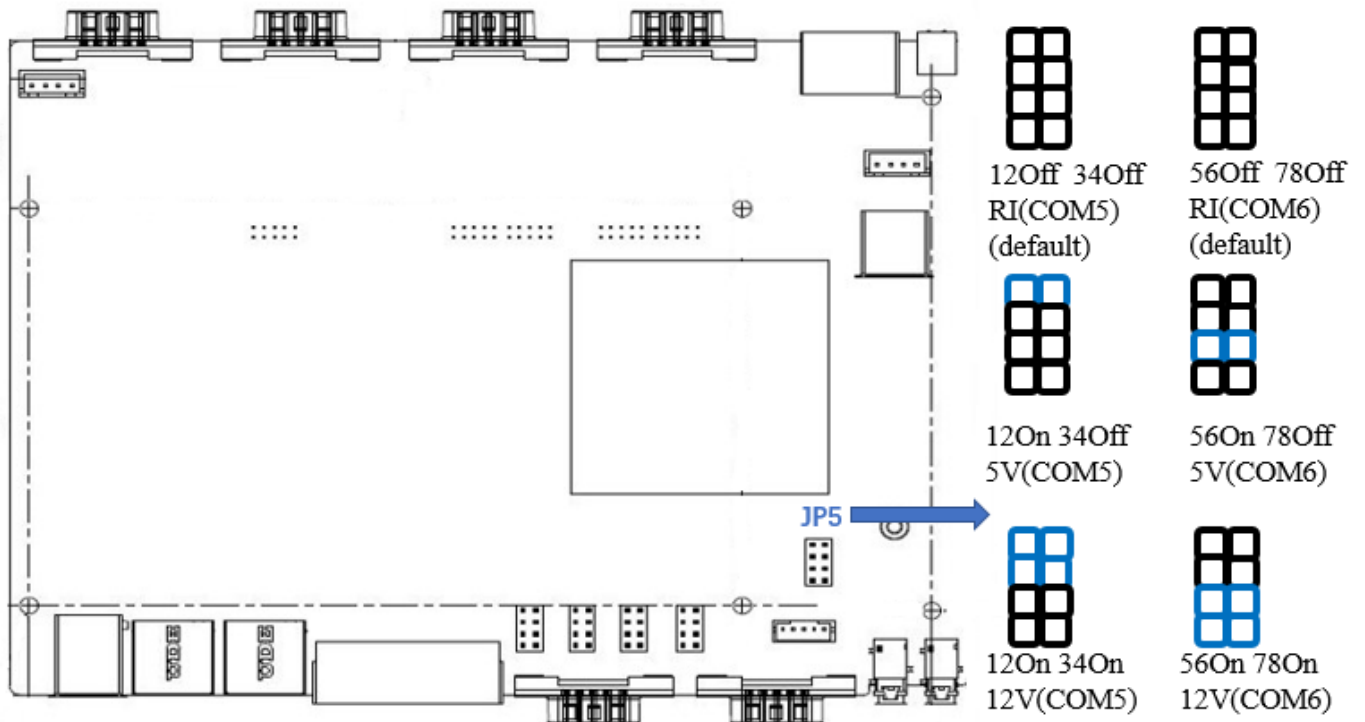


Figure 2.10

NOTE: Pin 12 and 34 are for COM5; Pin 56 and 78 are for COM6.

2.4 I/O、Button and LED indication

Front view

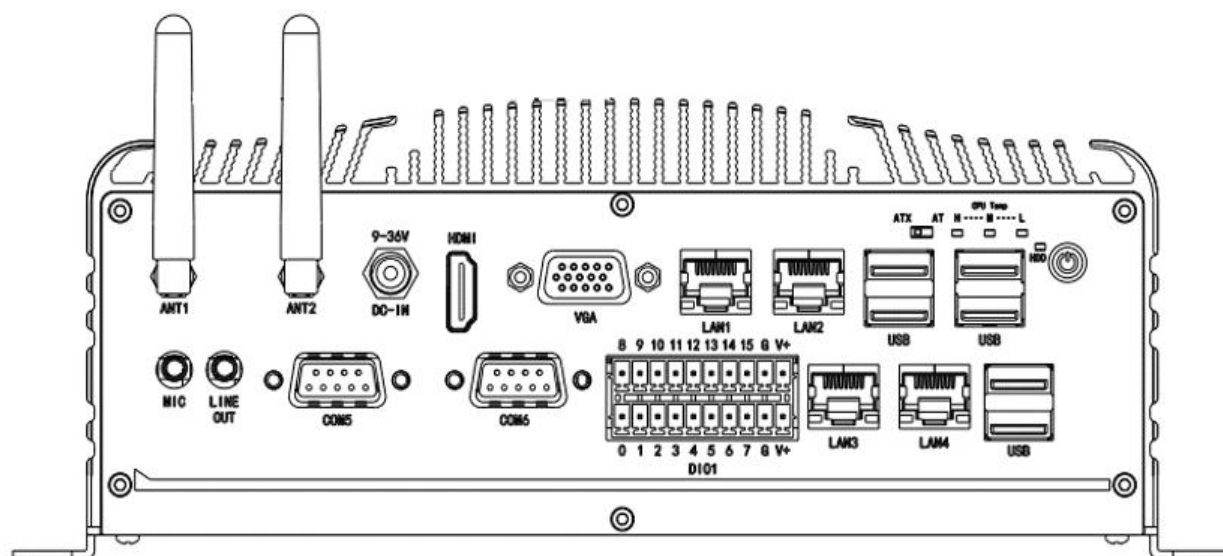


Figure 2.11

Rear view

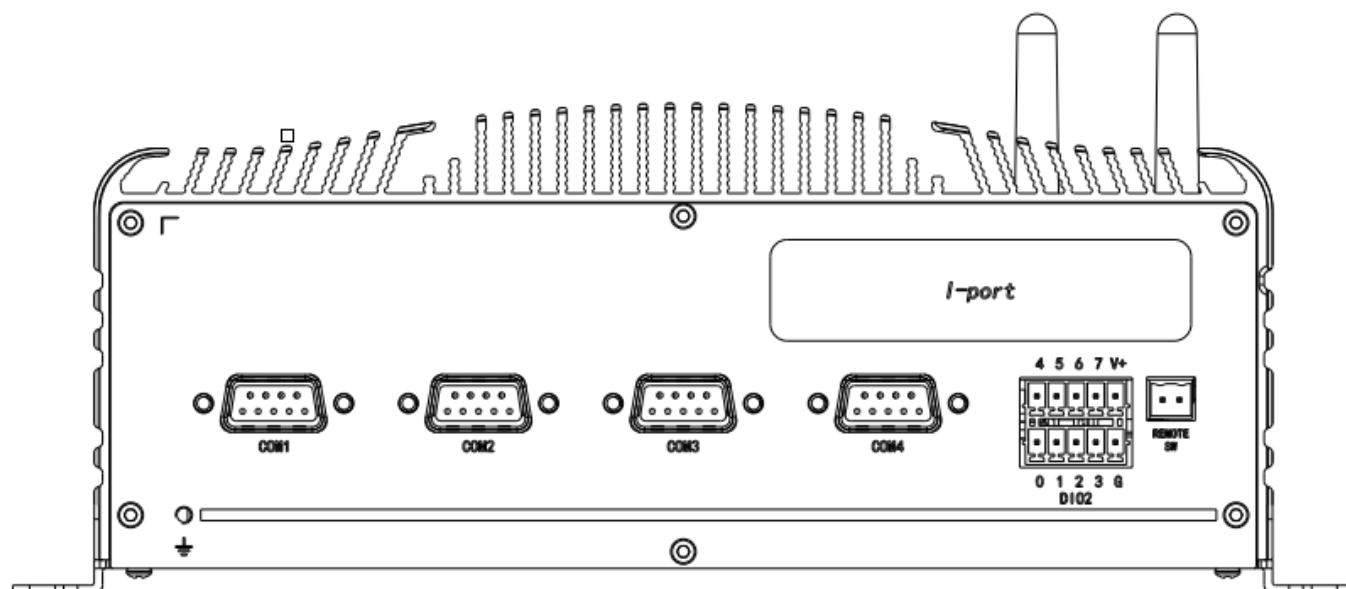


Figure 2.12

2.4.1 Ethernet Connector (LAN)

The KMDA-2701 is equipped with four Intel I211AT chips for 10/100/1000Mbps Ethernet controllers. The Ethernet port provides a standard RJ-45 connector with LED indicators on the front side to show its Active/Link status (Green LED) and Speed status (white LED). Table 2.1 for pin assignments

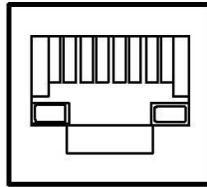


Figure 2.13 Ethernet Connector

Table 2.1: RJ-45 Connector pin assignments	
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)

2.4.2 Power Input Connector (DC-IN)

The KMDA-2701 uses a power socket that supports up to 60W of power and is a low-power solution. Using a 12V adapter to input voltage and a DC power supply to the outlet. If the voltage used is greater than the recommended voltage, the system will not boot or even damage the motherboard.

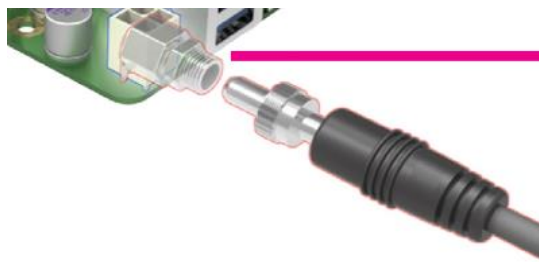


Figure 2.14 DC DIN-Jack

2.4.3 USB Connector

The USB device allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The KMDA-2701 supports up to seven USB-interface connectors, one is USB3.0, six are USB2.0. These USB-interface connectors give complete Plug & Play and hot swap capability for up to 127 external devices. The USB interface complies with USB UHCI, Rev. 2.0 compliance. The USB interface can be disabled in the system BIOS setup.

The USB-interface connector is used for connecting any device that con-forms to the USB interface. Many recent digital devices conform to this standard. The USB interface supports Plug and Play, which enables you to connect or disconnect a device whenever you want, without turning off the computer.

The USB2.0 pin definition is as follows:

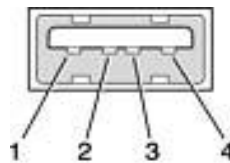


Figure 2.15 USB2.0 connector

Table 2.2: USB2.0 Connector	
Pin	Signal
1	USB_VCC
2	USB_D-
3	USB_D+
4	USB_GND

The KMDA-2701 provides one USB3.0 port by type A connector. Please refer to Table 2.3 for their pin assignments.

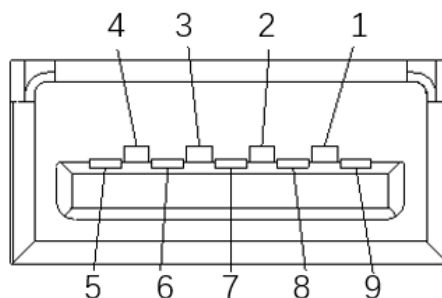


Figure 2.16: USB3.0 Connector

Table 2.3: USB3.0 Port Pin Assignments

Pin	Signal
1	VBUS
2	D-
3	D+
4	GND
5	StdA_SSRX-
6	StdA_SSRX+
7	GND_DRAIN
8	StdA_SSTX-
9	StdA_SSTX+
Shell	Shield

2.4.4 HDMI

The KMDA-2701 provides a high-resolution HDMI display port, it supports the most resolution up to 1920*1080@60Hz.

The Pin assignments are as follows:

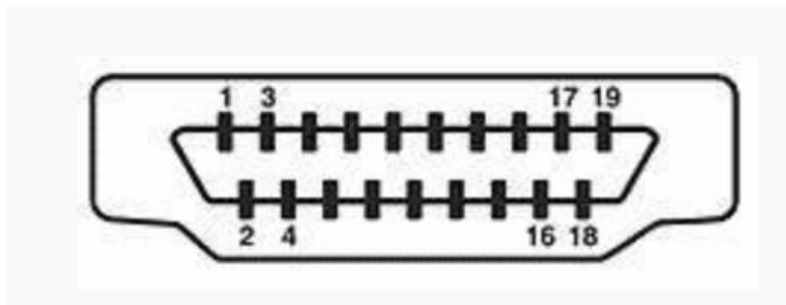


Figure 2.17 HDMI Connector

Table 2.4: HDMI 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		

Note: NC represents —No Connection

2.4.5 VGA Connector

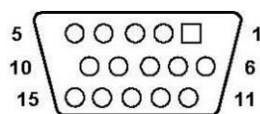


Figure 2.18 VGA Connector

Table 2.5: VGA port pin assignments			
Pin	Signal	Pin	Signal
1	RED	9	VCC
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	SDA
5	GND	13	HS
6	GND	14	VS
7	GND	15	SCL
8	GND		

Note: NC represents —No Connection

The KMDA-2701 provides a high-resolution VGA interface via D-sub 15-pin connector to support a VGA CRT monitor, it supports the most resolution up to 1920*1080@60Hz.

2.4.6 COM1/2 Connector

The KMDA-2701 provides 2 serial ports of COM1/2 by 2*D-sub 9-pin connectors. COM1/2 can be configured as RS232、RS422 or RS485 by BIOS setup.

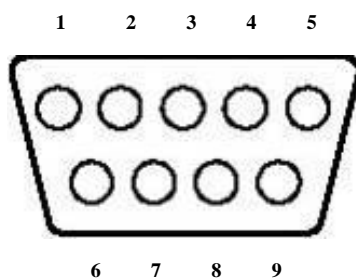


Figure 2.19 COM1/2 Connector

Table 2.6: COM1/2 Serial Ports 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

Note: NC represents —No Connection

2.4.7 COM3/4 Connector

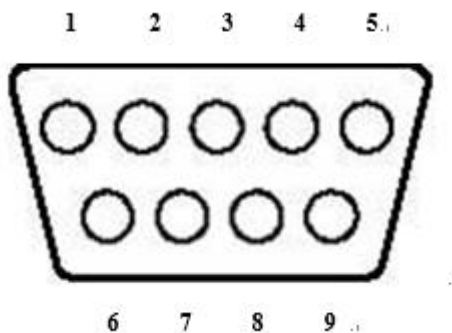


Figure 2.20 COM3/4 Connector

COM3/4 are only for RS232. The Pin assignments are as follows:

Table 2.7: COM3/4 Serial Port Pin Assignments			
Pin	Signal	Pin	Signal
1	DCD	2	RxD
3	TxD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

2.4.8 COM5/6 Connector

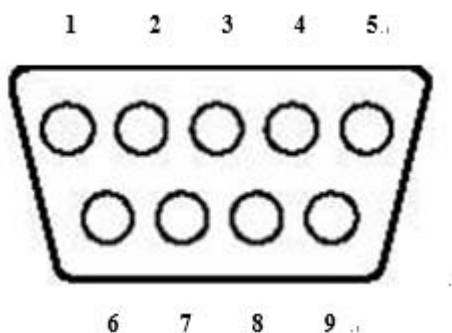


Figure 2.21 COM5/6 Connector

The functions of COM5/COM6 will vary according to Jumpers' setting. JP1/JP3/JP2/JP4 allow you to configure the serial COM port 5/6 to RS232、RS422 or RS485; JP5 allows you to select the power supply RI/5V/12V. Refer to “2.3.3”, “2.3.4”, “2.3.5” chapters for more information.

The Pin assignments are as follows:

Table 2.8: COM5/6 Serial 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/5V/12V	NC	NC

2.4.9 DIO Connector

The KMDA-2701 provides a 24-bit DIO by a 2*10Pin 16-bit DIO terminal connector and a 2*5Pin 8-bit DIO terminal connector in rear. The Pin assignments are as follows:

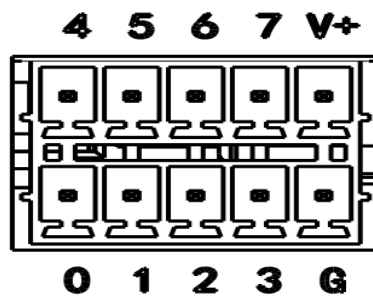


Figure 2.22 8-bit DIO Connector

Table 2.9: 8-bit DIO Pin Assignments			
Pine	DIO Signal	Pin	DIO Signal
1	DIO0	6	DIO4
2	DIO1	7	DIO5
3	DIO2	8	DIO6
4	DIO3	9	DIO7
5	GND	10	VCC

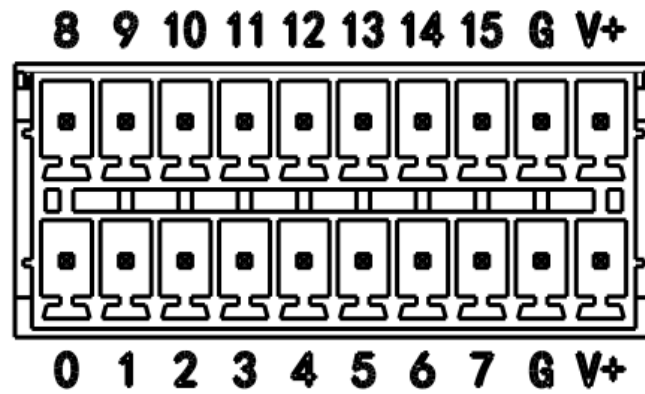


Figure 2.23 16-bit DIO Connector

Table 2.10: 16-bit DIO Pin Assignments			
Pin	DIO Signal	Pin	DIO Signal
1	DIO2_0	11	DIO2_8
2	DIO2_1	12	DIO2_9
3	DIO2_2	13	DIO2_10
4	DIO2_3	14	DIO2_11
5	DIO2_4	15	DIO2_12
6	DIO2_5	16	DIO2_13
7	DIO2_6	17	DIO2_14
8	DIO2_7	18	DIO2_15
9	GND	19	GND
10	VCC	20	VCC

2.4.10 SATA2.0 Port connector

The KMDA-2701 provides a serial ATA 2.0 port with data transfer rate up to 3Gb/s. The Serial ATA connector is used to connect Serial ATA devices.

The Pin assignments are as follows:



Figure 2.24

Table 2.11: SATA Port Pin Assignments

Pin	Signal	Pin	Signal
1	GND	5	RX-
2	TX+	6	RX+
3	TX-	7	GND
4	GND		

2.4.11 SATA Power Connector

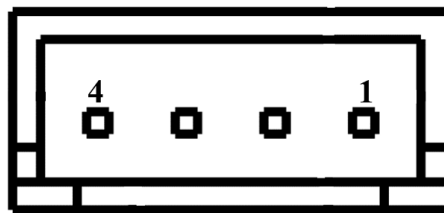


Figure 2.25

Table 2.12: SATA Power Pin Assignments

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

Warning: Make sure that Pin-1 of compatible SATA Power connector is inserted into corresponding Pin-1 of PWOUT to avoid possible damage to the board and hard disk driver!

2.4.12 Line-Out and Mic Connector

The KMDA-2701 provides a Line-Out connector and a Mic connector for audio output and input.

2.4.13 I-port Connector

There are optional 1*USB2.0 or Mini PCIe module I/O ports (such as CAN Bus, Gig LAN etc.) .

2.4.14 Remote Switch signal Connector

For the remote switch signal interface of the switch machine, the terminal of the motherboard coastline is a 2-pin terminal, as shown below.

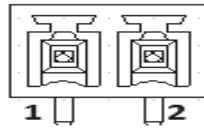


Figure 2.26

Table 2.13: Remote Switch Pin Assignments

Pin	Signal
1	PWR_BTN
2	GND

2.4.15 AT/ATX SW

The KMDA-2701 provides a AT/ATX SW, which users can set Power-on mode by it. When you dial it at AT, it means power on by AC Power; When you dial it at ATX, it means power on by Power button.

2.4.16 LED

There are 1*Power on LED, 1*HDD Run LED, 3*CPU temperature class LEDS on the front. CPU temperature class LEDs(Green($\leq 85^{\circ}\text{C}$)/Yellow($\geq 86^{\circ}\text{C}$ and $\leq 95^{\circ}\text{C}$)/Red($\geq 96^{\circ}\text{C}$). Users can monitor the working state of the CPU according to the display of the LED.

2.5 Installation

2.5.1 HDD/SSD Installation

Step 1: Unscrew 4 screws on the underside, remove the bottom bracket.

Step 2: Unscrew 2 screws on the front/rear panel.

Step 3: Unscrew the spring pad and nut of the DC-IN on the front panel.

Step 4: Unscrew 6 serial copper columns and 5 screws on the front panel.

Step 5: remove the front panel and the bottom cover.

Step 6: Put the HDD/SSD in the drive bay and screw 6 screws.

Step 7: Pull the drive bay onto the bottom cover and screw 6 screws.

Step 8: Using the SATA cable connect the HDD/SSD with the mother board.

Step 9: Close the bottom cover back to the chassis. install the front panel and screw 2 screws on the front/rear panel.

Step 10: Screw 5 screws and 6 serial copper columns on the front panel. Lock the spring pad and nut of the DC-IN on the front panel.

Step 11: Install the bottom cover and bottom bracket, screw 4 screws.

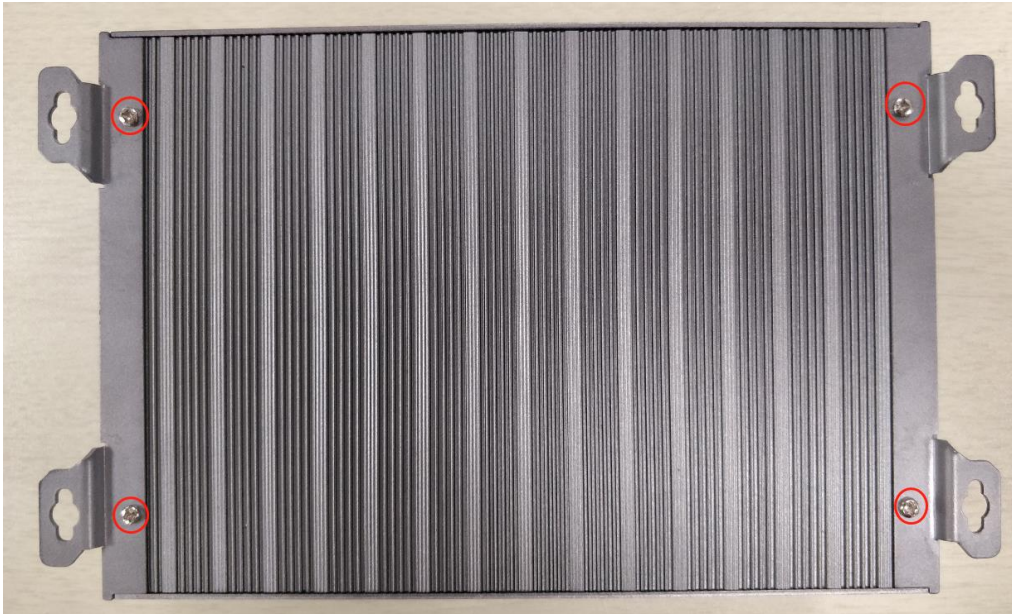


Figure 2.27

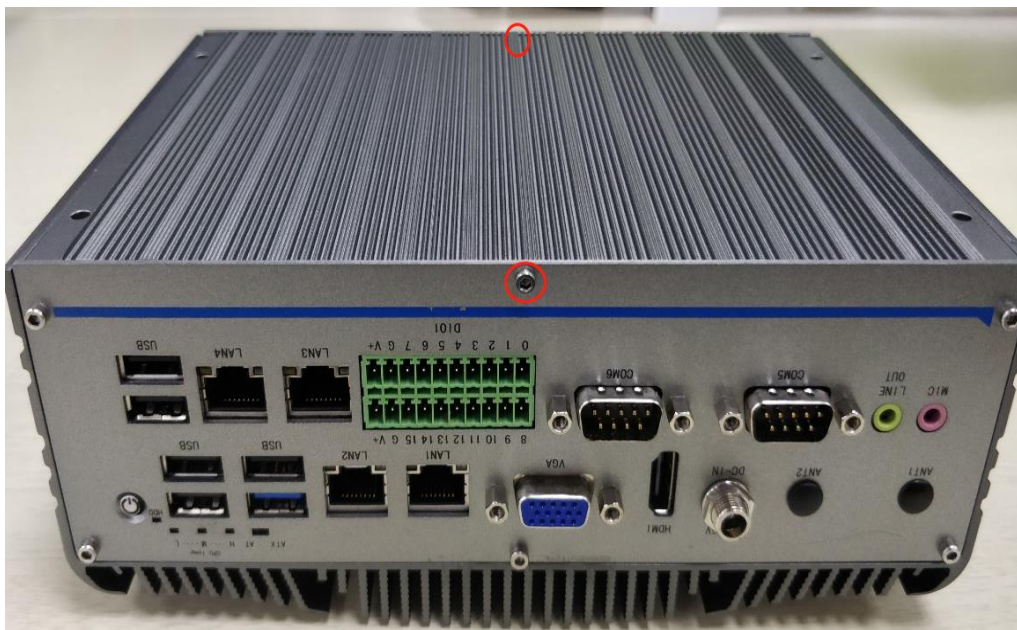


Figure 2.28



Figure 2.29



Figure 2.30



Figure 2.31



Figure 2.32



Figure 2.33



Figure 2.34



Figure 2.35



Figure 2.36

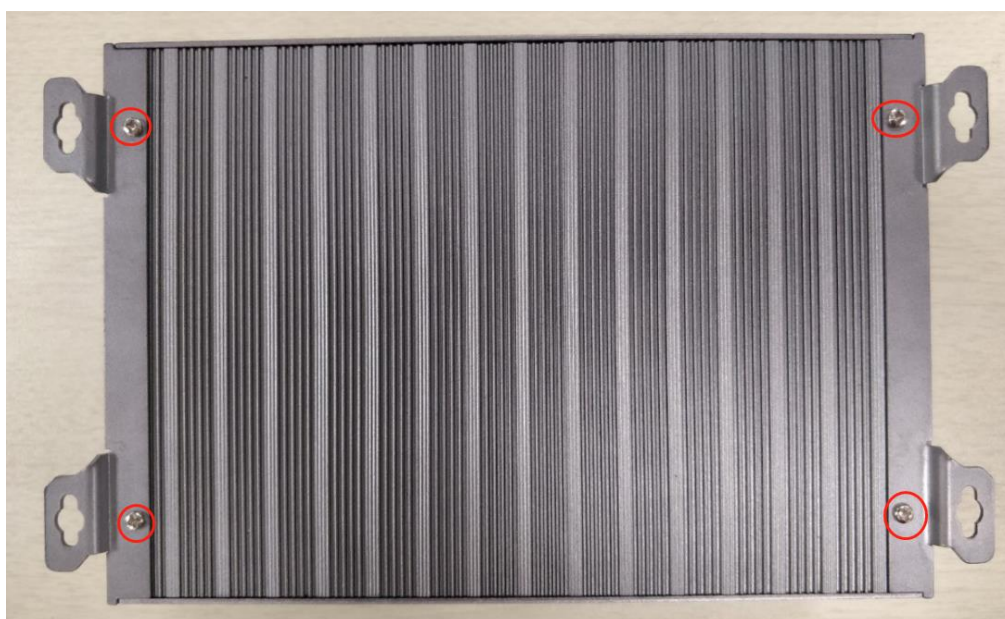


Figure 2.37

2.5.2 Installing Mini PCIe Module

Step 1: Unscrew 4 screws on the bottom cover, remove the bottom bracket.

Unscrew 2 screws on the front/rear panel.

Rotate the bottom assembly 180°, separate the SATA cable which connected the HDD/SSD with the mother board.

Unscrew 6 screws and 8 serial copper columns on the rear panel, remove the rear panel.

Unscrew 5 screws and 6 serial copper columns on the front panel. Unlock the spring pad and nut of the DC-IN on the front panel, remove the front panel.

Unscrew 7 screws on the sub-board, remove the sub-board.

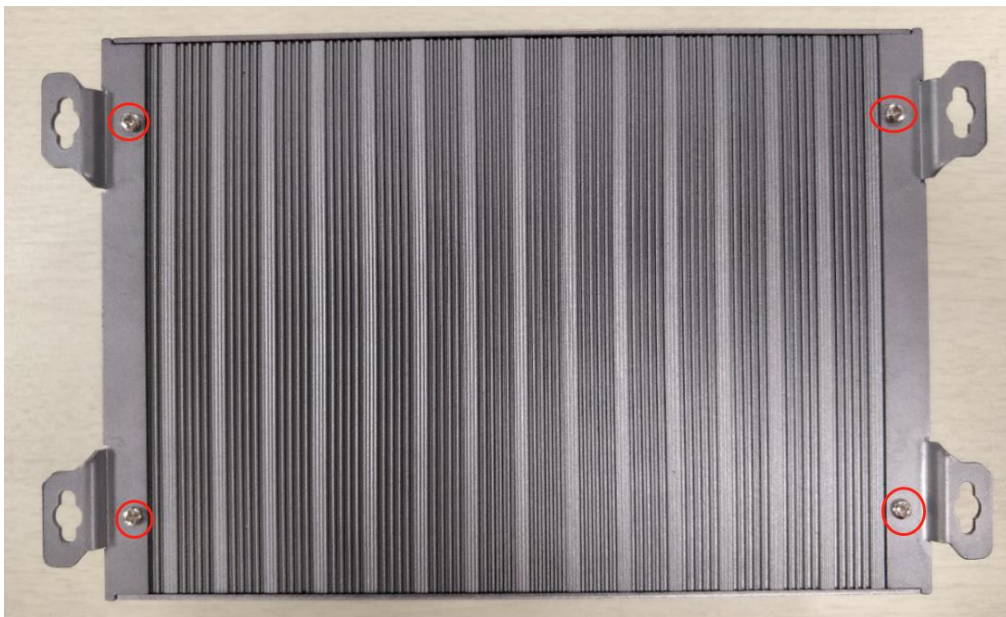


Figure 2.38



Figure 2.39



Figure 2.40



Figure 2.41



Figure 2.42

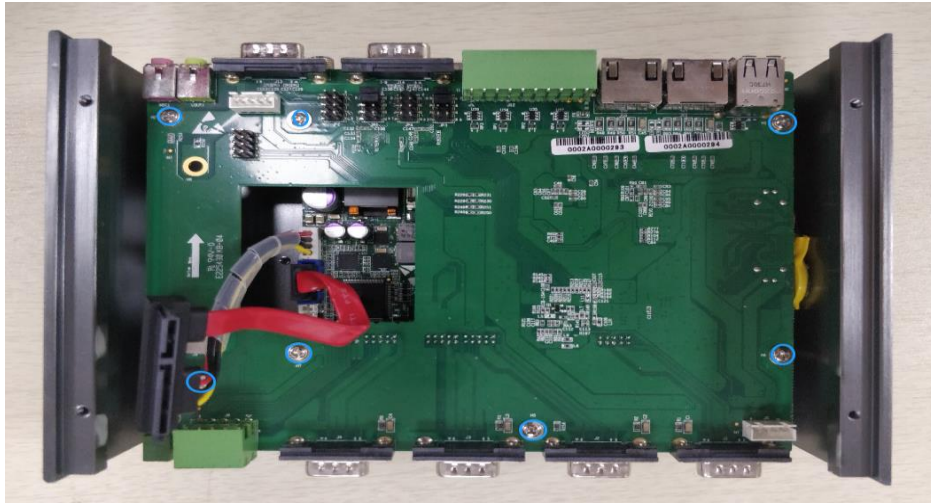


Figure 2.43

Step 2: Hold the Mini PCIE module with its notch aligned with the Mini PCIE socket of the board and insert it at a 30 degrees angle into the socket as shown in the picture.



Figure 2.44

Step 3: Screw one screw to the holder as shown in the picture.

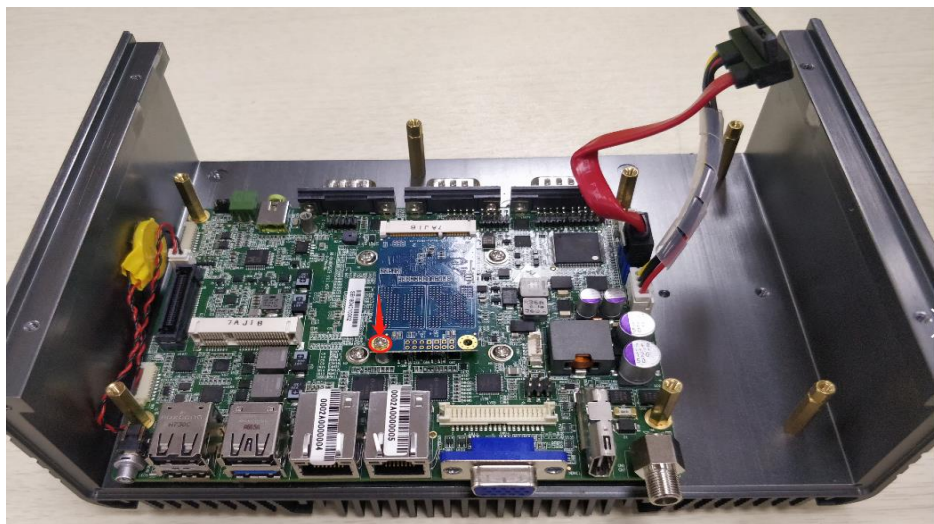


Figure 2.45

Step 4: Install the sub-card on the mainboard, Screw 7 screws on the sub-card.

Install the front panel. Screw 5 screws and 6 serial coppers on the front panel, lock the nut and spring pad of the DC-IN.

Install the rear panel. Screw 6 screws and 8 serial coppers on the rear panel.

Connect the HDD/SSD to the mainboard with the SATA cable.

Close the bottom cover back to the chassis, screw 2 screws on the front/rear panel.

Install the bottom bracket and screw 4 screws.

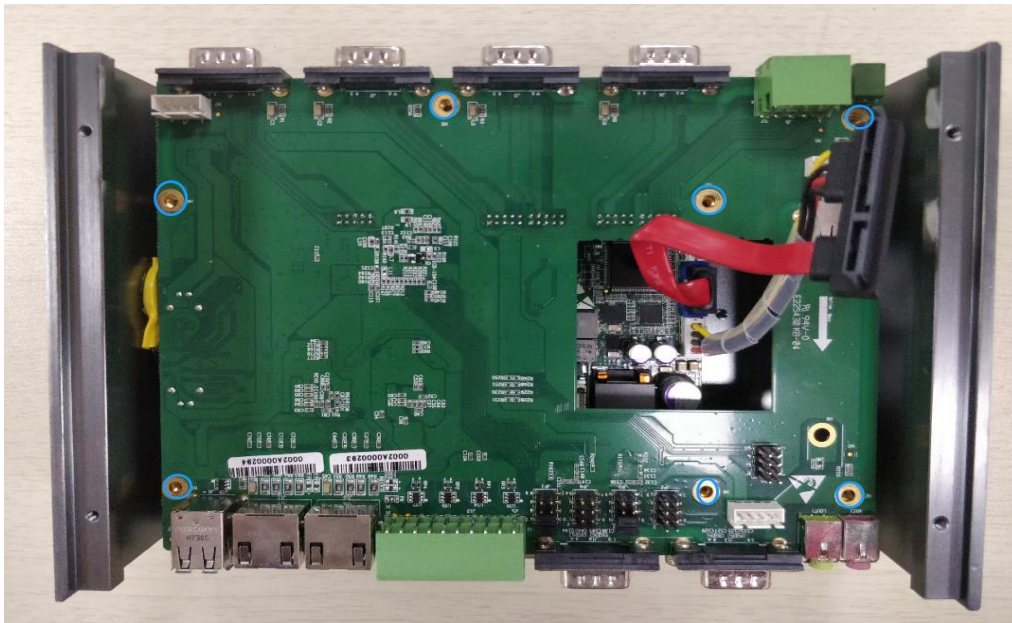


Figure 2.46

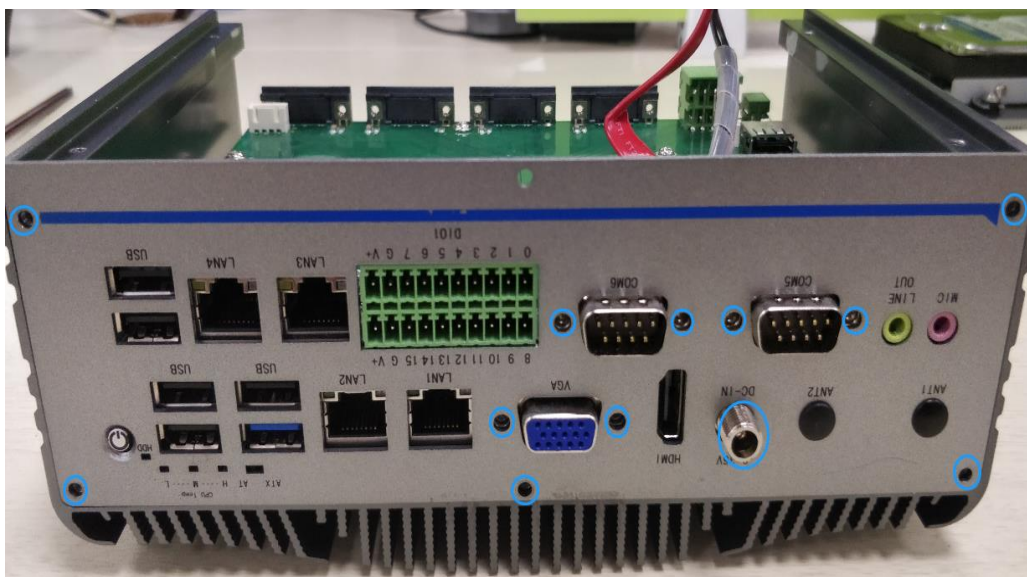


Figure 2.47



Figure 2.48



Figure 2.49



Figure 2.50

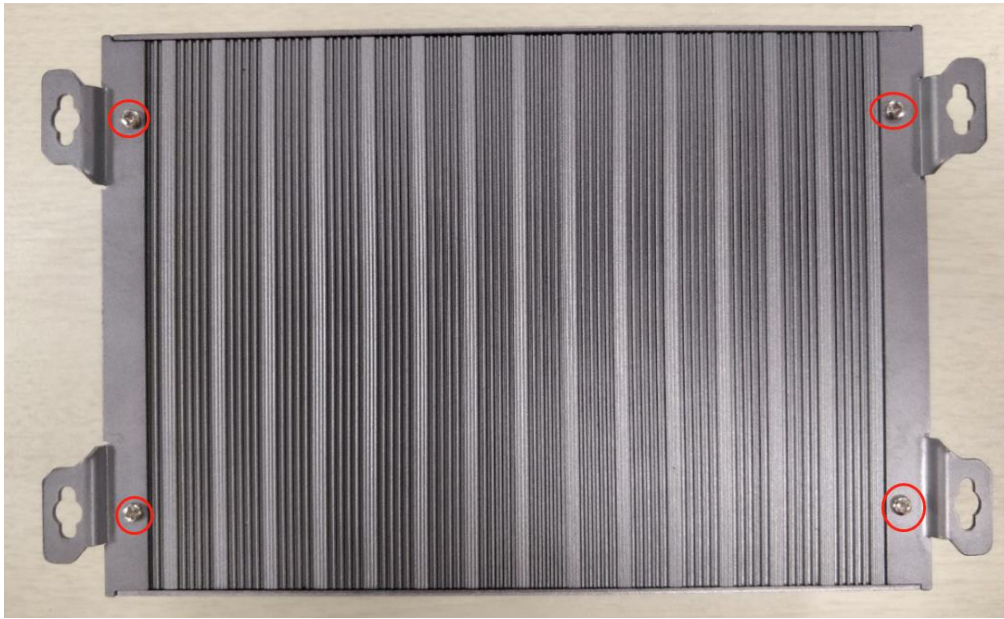


Figure 2.51

2.5.3 Installing MSATA

Step 1: The step here is the same as above chapter “**2.5.2 Installing Mini PCIe Module** -Step 1”, For details, please refer to the above chapter “**2.5.2 Installing Mini PCIe Module** -Step 1”

Step 2: Hold the MSATA module with its notch aligned with the MSATA socket of the board and insert it at a 30 degrees angle into the socket as shown in the picture.

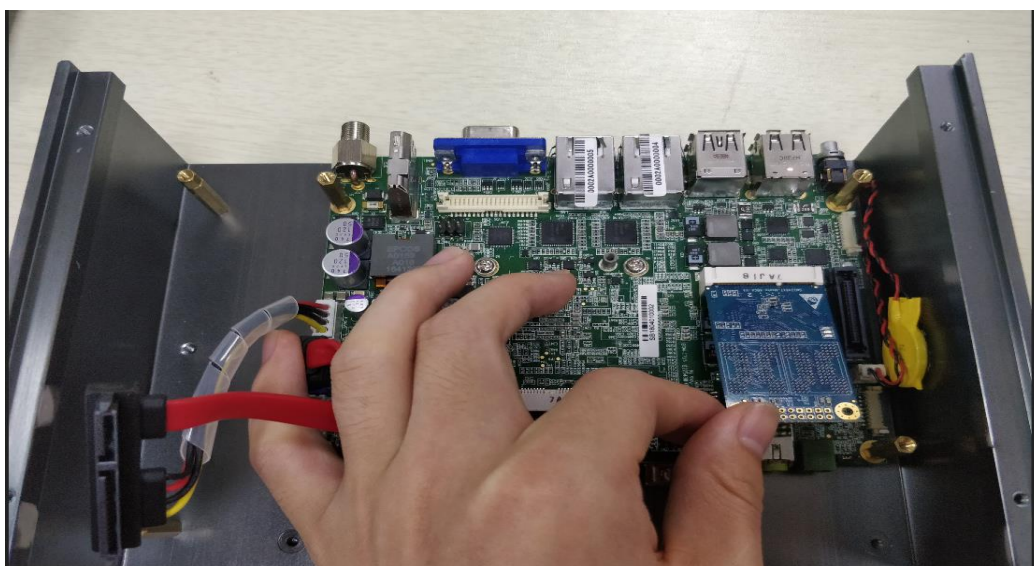


Figure 2.52

Step 3. Screw one screw to the holder as shown in the picture.



Figure 2.53

Step 4. The step here is the same as above chapter “[2.5.2 Installing Mini PCIe Module](#) -Step 4”,
For details, please refer to the above chapter “[2.5.2 Installing Mini PCIe Module](#) -Step 4”

CHAPTER

3

BIOS Setup

3.1 AMI BIOS Description

When booting, the BIOS will self-diagnose the hardware on the motherboard, set hardware timing parameters, etc., and finally hand over the system control to the operating system. 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.

3.2 BIOS parameter settings

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, the following message will be displayed on the screen: [Del->SETUP](#)

At this time, if you click the Del button, the BIOS will automatically transfer to the SETUP setting screen after detecting the IDE and other devices.

1. Turn on the system or restart the system. The self-test message will appear on the display screen.
2. When the “Press to enter setup” prompt appears in the middle of the screen, press the key to enter the BIOS setup program.
3. Use the arrow keys to move to the option you want to modify and press <Enter> to enter the sub-screen of the option.
4. Use the arrow keys and <Enter> to modify the value of the selected item. Press the Enter key to select the BIOS option and modify it.
5. Press <Esc> at any time to return to the previous screen.

Press the delete key to access BIOS Setup Utility.

3.2.1 BIOS Navigation Keys

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 Value
F3	Optimized Defaults
F4	Save & Exit

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. Please visit the manufacture's website for updated manual.

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.



Figure 3.1

BIOS Vendor (American Megatrends)

This item shows the information of the BIOS vendor.

BIOS ID (JH715A14)

This item shows the information of the BIOS version.

OS Selection (Windows 7)

This item shows the OS Selection.

Build Date and Time (02/05/2018/ 19:26:45)

This item shows the information of the BIOS build date and time.

System Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

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.

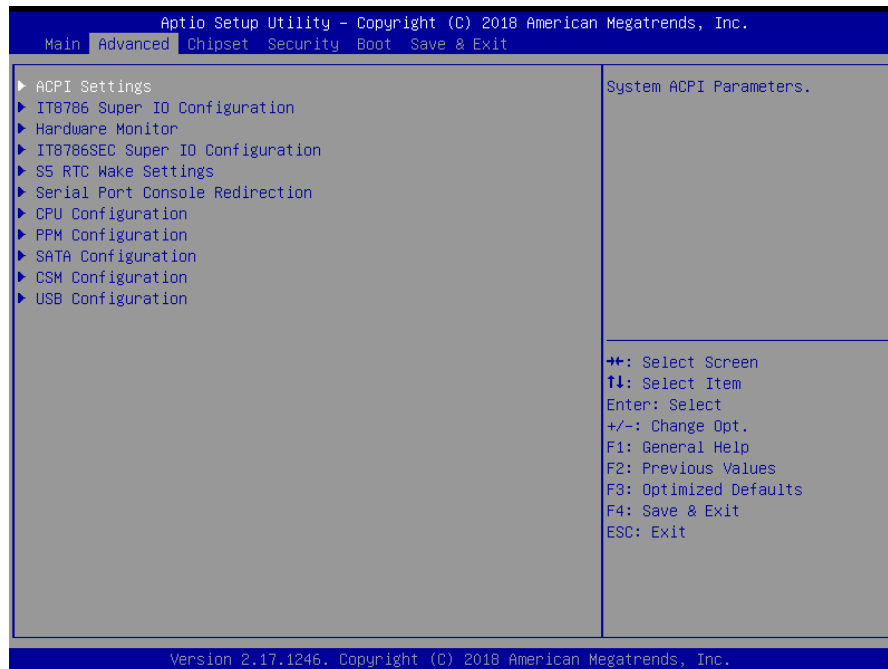


Figure 3.2

▶ ACPI Settings

The item in the menu shows the highest ACPI sleep state when the system enters suspend.

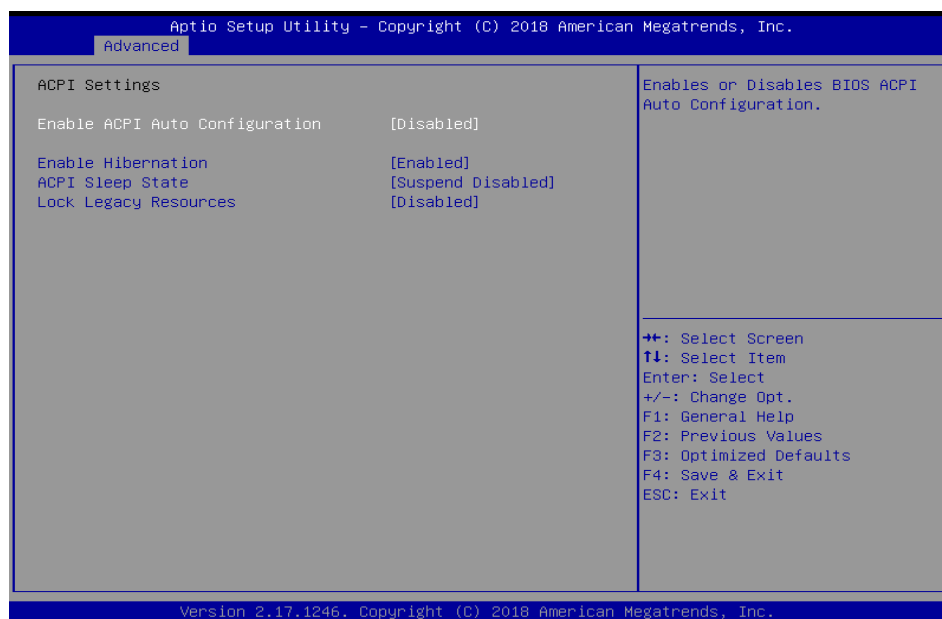


Figure 3.3

ACPI Sleep State

Suspend Disabled: Shut down system sleep

S3: Suspend to RAM

This item allows user to enter the ACPI S3 (Suspend toRAM) Sleep State (default).

Press <Esc> to return to the Advanced Menu page.

► IT8786 Supper IO Configuration

The item in the menu shows the information of RTC wake settings.

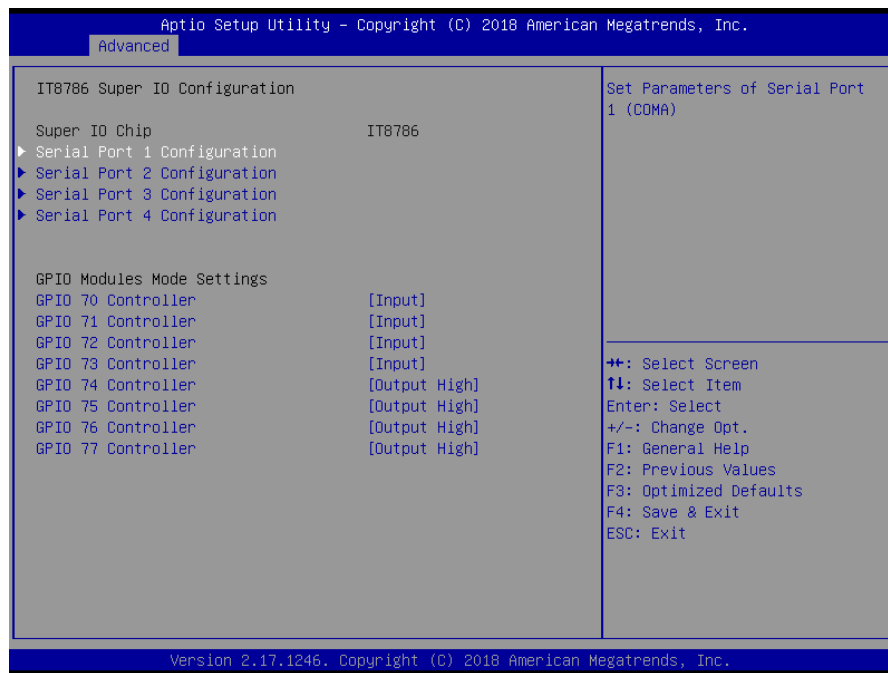


Figure 3.4

Serial Port 1 Configuration: Serial Port 1 Settings

Serial Port 2 Configuration: Serial 2 Settings

Serial Port 3 Configuration: Serial Port 3 Settings

Serial Port 4Configuration: Serial Port 4 Settings

8-bit TTL GPIO input and output settings

Serial Port 1 Configuration

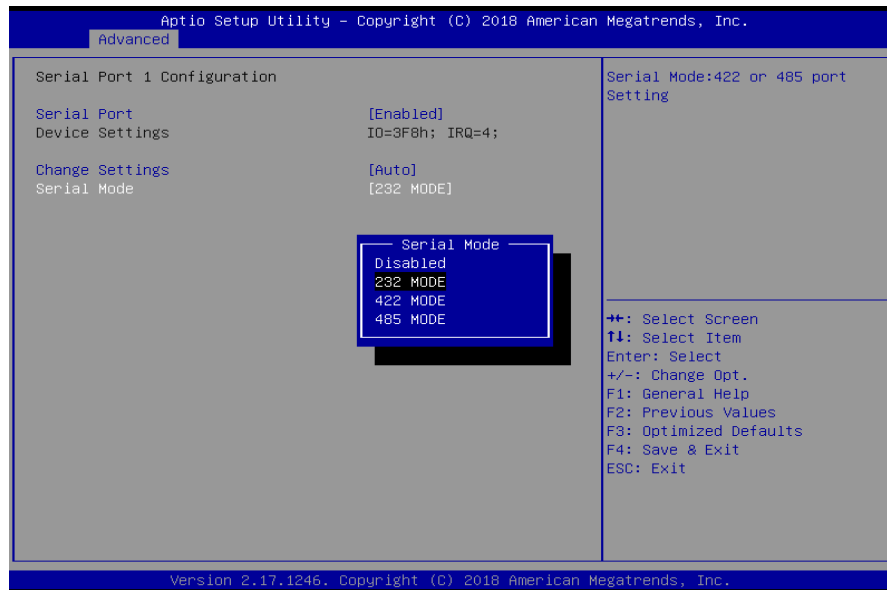


Figure 3.5

Serial Port

This item is used to set the serial interface to be turned on or off. The setting value is [Enabled] [Disabled]

Device Setting (Read Only)

This item displays the interrupt and address of the serial port.

Change Setting

Set port interrupt and address of the serial port.

Serial MODE

Set the mode of the serial port

(Subcard IO) used with the subcard ECB-154

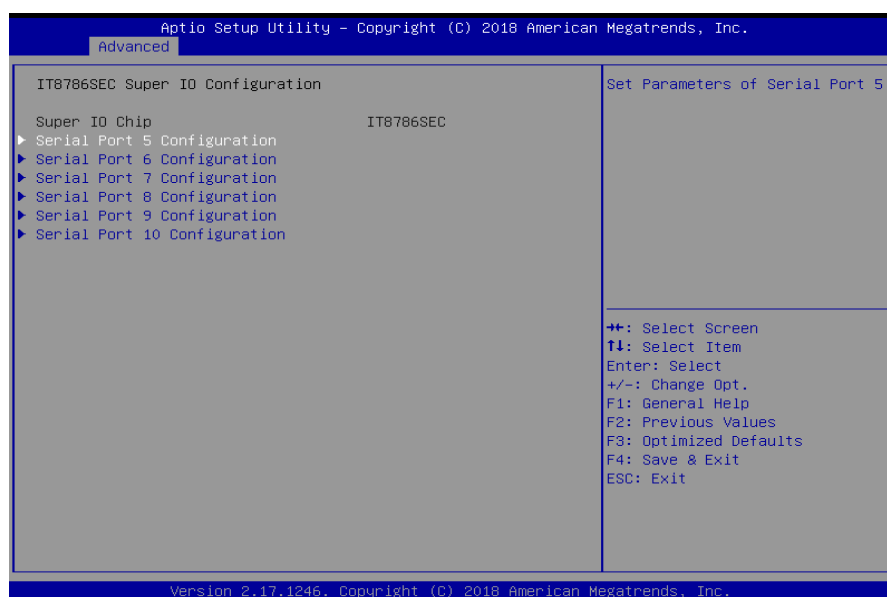


Figure 3.6

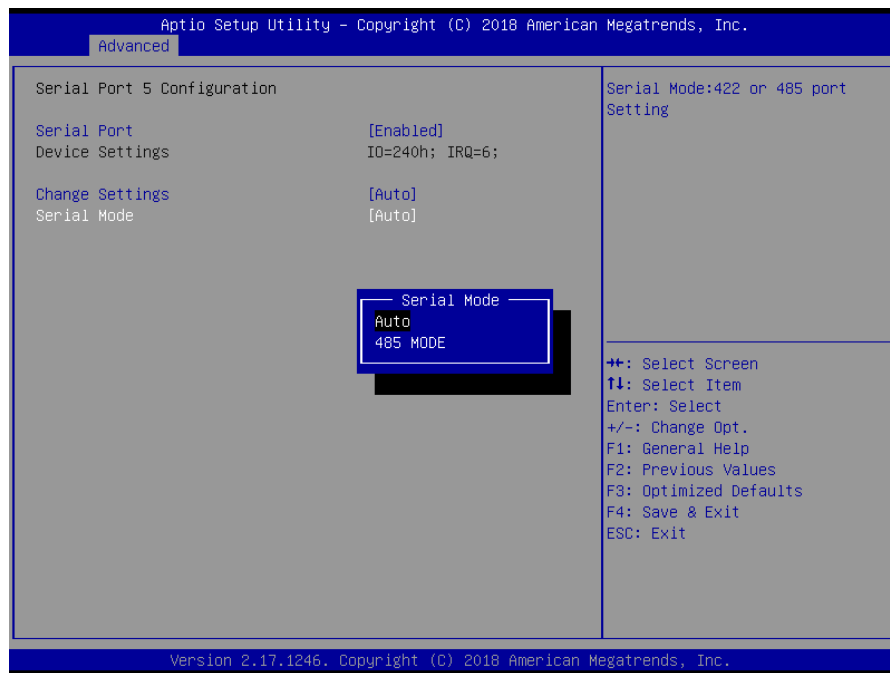


Figure 3.7

Serial Port 5-10 Configuration

Serial Port 5-10 Configuration is the same as above

► H/W Monitor

PC Health Status

This item is used for hardware security detection. The BIOS will display the current CPU and system temperature.

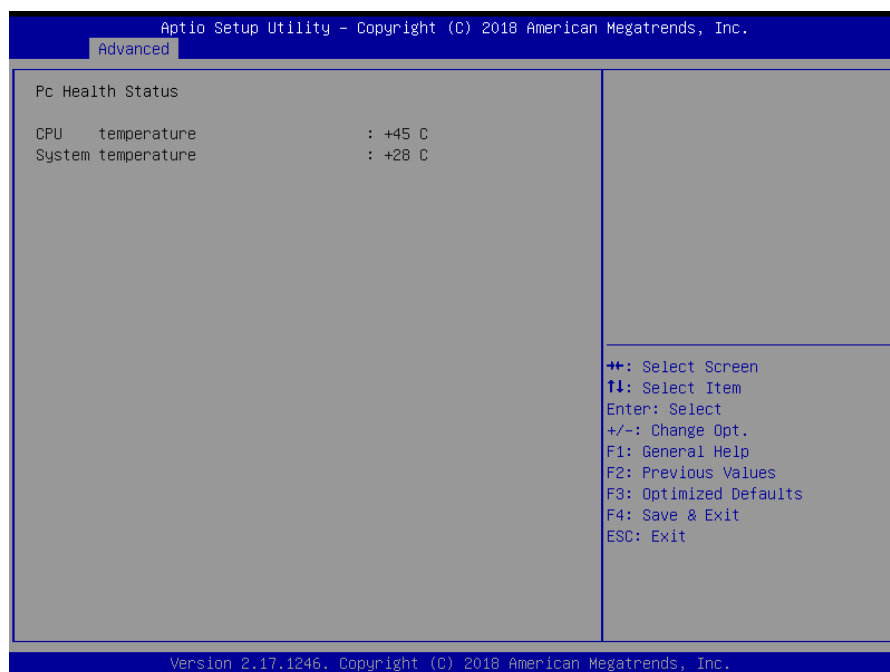


Figure 3.8

► S5 RTC Wake Settings



Figure 3.9

Wake system from S5

This item is used to set whether to power on regularly. The setting value is [Enabled] [Disabled].

If you select [Enabled], set the hour, minute, and second in the pop-up options.

► Serial Port Console Redirection

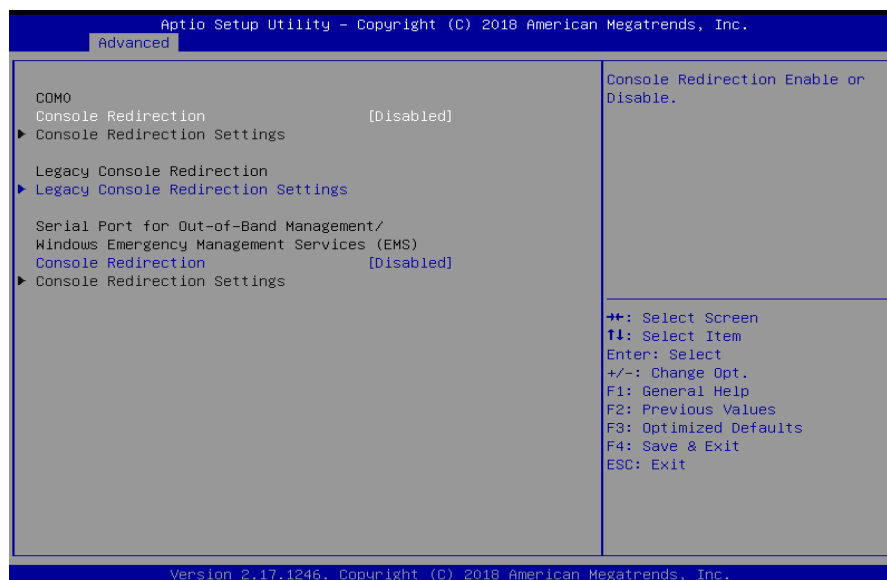


Figure 3.10

Console Redirection

Use this item to Serial Port Console Redirection

Press <Esc> to return to the Advanced Menu page.

► CPU Configuration

This item in the menu shows the information of the CPU.

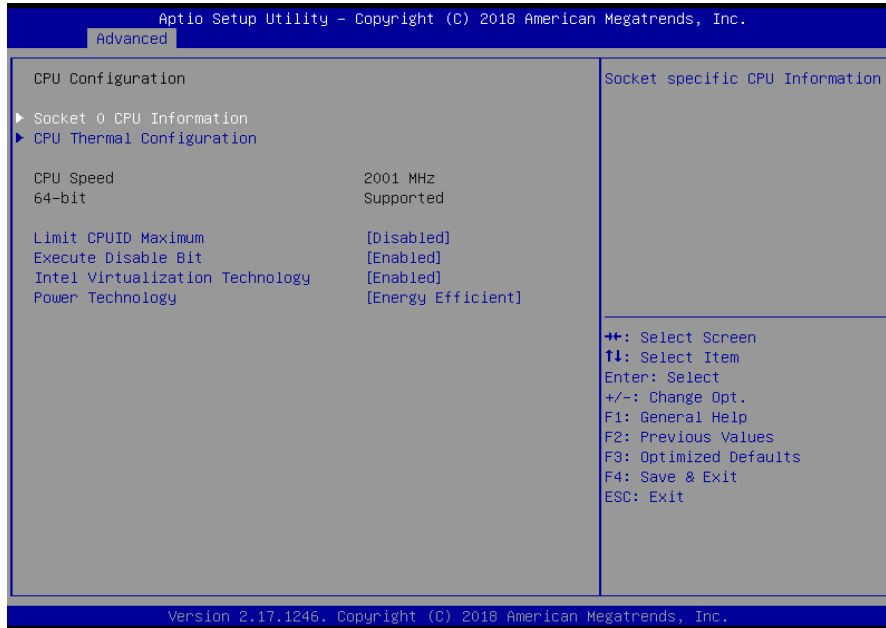


Figure 3.11

Socket 0 CPU Information

This item contains detailed information about the CPU, including the CPU manufacturer, model, frequency, L1 cache size, and L2 cache size.

CPU Speed

This item shows the processor speed.

64-bit

This item shows whether 64-bit operations are supported.

Limit CPUID Maximum

CPUID refers to CPU information, including model number, CPU family, cache size, clock speed and brand, as well as transistor number, pin type, size, etc. In the BIOS setup options of the Intel platform, it is usually Limit CPUID MAX to 3. The meaning is: limit the execution of the CPUID instruction to return a value greater than 3. Because return values greater than 3 may cause some operating system wrong, generally set this option to [Disabled] on Windows systems for better overclocking. The default value is [Disabled].

Execute Disabled Bit

The Execution Disable bit is a hardware feature of the Intel CPU that enables the CPU to avoid certain

malicious attacks based on buffer overflow viruses. In addition, the execution of the prohibition bit requires Windows XP SP2, Windows Server 2003 SP1 and other OS to work properly. The implementation principle is that the processor divides several areas in memory, some areas can execute application code, while others do not allow. The setting items are Disabled/Enabled, and the default is Enabled.

Intel Virtualization Technology

Intel Virtualization is the system hypothesis technology used in Intel's CPU. It enables multiple OS to run on a single PC. VT technology will play a very important role in various types of processors (including dual-core processors). This technology enables the processor to have and/or virtualization technology. With Virtualization Technology, we can run two operating systems simultaneously on the same machine.

Power Technology

This item sets the way of Power management.

► PPM Configuration

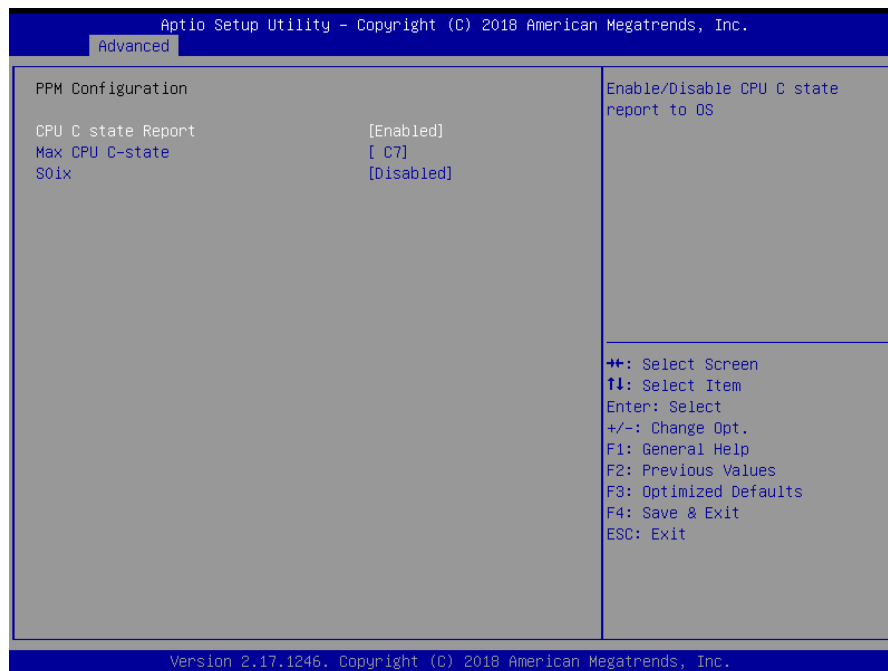


Figure 3.12

CPU C state Report

Whether to enable the CPU power status report, the setting values are: [Disabled], [Enabled]. When set to Enabled, the option Max CPU C-state appears and the Max CPU C-state value can be set.

► SATA Configuration

This item in the menu shows the mode of serial ATA configuration options.

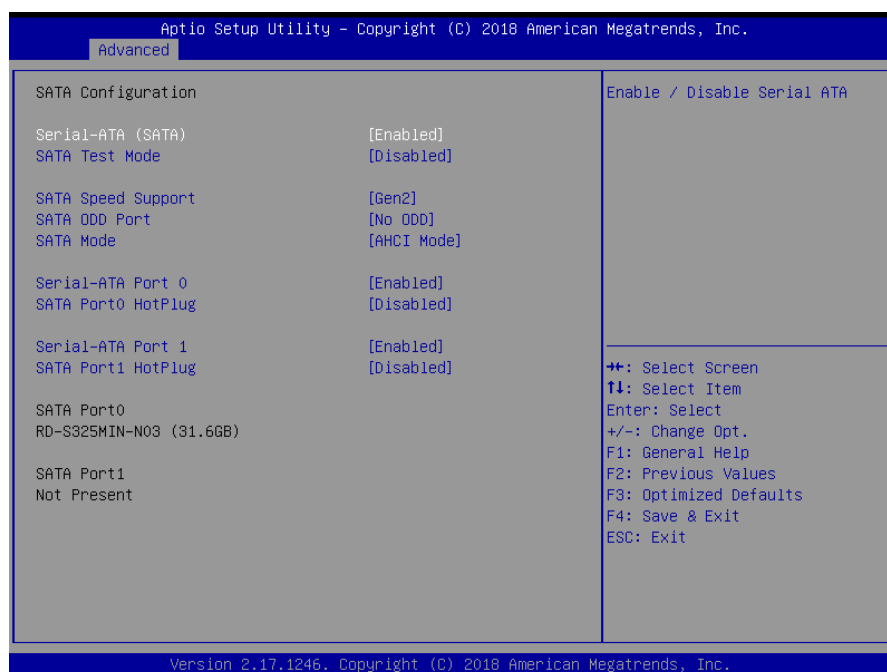


Figure 3.13

Serial-ATA(SATA)

This item allows you to enable or disable serial-ATA.

SATA Speed Support

This item shows the speed of support SATA.

Press <Esc> to return to the Advanced Menu page.

SATA ODD Port

This item indicates which SATA port is set as the optical drive port.

SATA Mode

This item is used to set the operating mode of the SATA.

Serial-ATA Port 0

This item shows whether to shut down Serial-ATA Port 0.

SATA Port 0 Hotplug

This item shows whether supports SATA Port 0 Hotplug.

Serial-ATA Port 1

This item shows whether to shut down Serial-ATA Port 1.

SATA Port 1 Hotplug

This item shows whether supports SATA Port 1 Hotplug.

► CSM Configuration

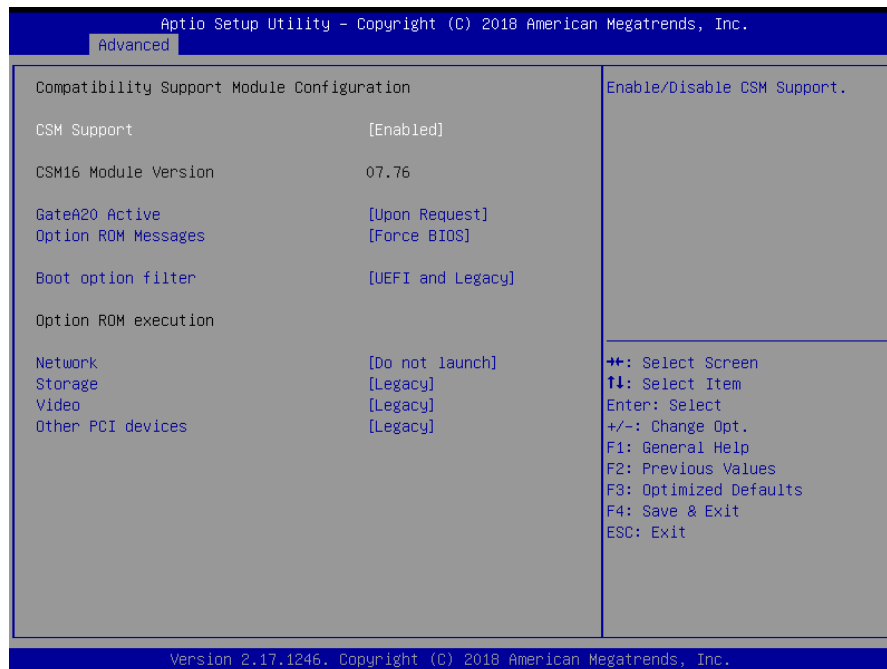


Figure 3.14

CSM Support

Compatibility Support Module, which is a compatibility support module, is a special module of UEFI and provides compatibility support for systems that do not support UEFI.

GateA20 Active

This item indicates whether to disable GA20 through the BIOS server or keep the activation status all the time.

Option ROM Messages

This item shows the display mode of option ROM Message.

Boot option filter

This item indicates the boot priority of controlling EFI or Legacy OpROM.

Network

This item is used to set the EFI network card OpROM boot or the traditional network card OpROM boot or priority boot.

Storage

This item is used to set the EFI storage OpROM boot or the traditional storage OpROM boot.

Video

This item is used to set EFI display OpROM startup or traditional display OpROM startup.

Other PCI devices

This item is used to set the EFI PCI device OpROM boot or the traditional PCI device OpROM boot

► USB Configuration

Use this item to show the information of USB configuration.

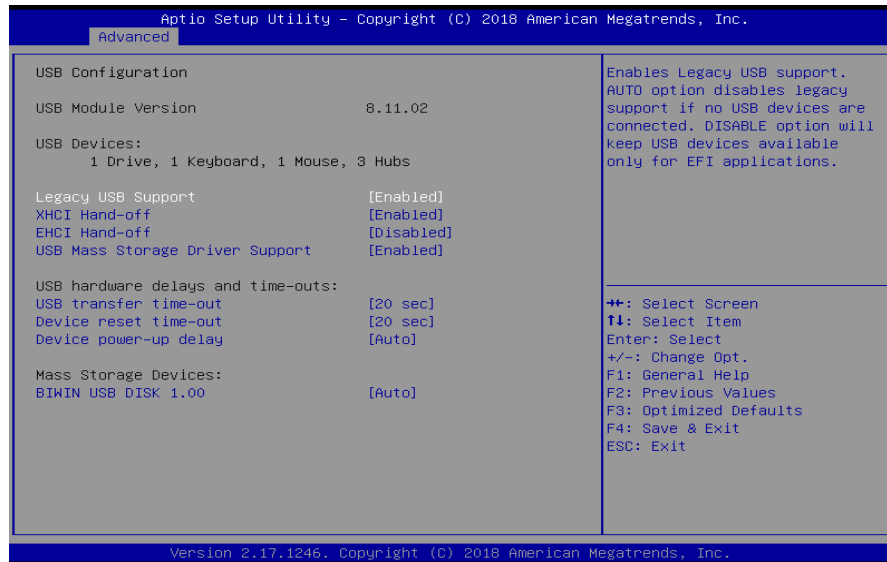


Figure 3.15

Legacy USB Support

This item is used to set the USB interface support. If you need to support USB devices under DOS, such as U disk, USB keyboard, etc., set this item to [Enabled] or [Auto]. Otherwise, select [Disabled].

USB 2.0 (EHCI) Support

[Enabled]: Allows USB EHCI transport protocol with a maximum transfer rate of 480Mbps

[Disabled]: Disable the USB2.0 interface, the traditional transfer rate is 12Mbps.

USB 2.0 Controller Mode

This item sets USB 2.0 device works in full speed mode (FullSpeed) or high speed mode (HiSpeed).

EHCI Hand-off

This option is used to determine whether to cut the USB port into USB 2.0 mode before entering the OS. Set to Disable, It will operate in USB 1.1 compatibility mode before giving ownership to the OS.

USB Mass Storage Driver Support

USB mass storage device support switch.

USB Transfer time-out

This item Sets the timeout period for control, batch, and interrupt transmission. The default is 20 seconds.

Device reset time-out

This item sets boot command timeout of the large capacity USB disk. The default is 20 seconds.

Device Power-up Delay

This item sets the maximum delay time that the USB device reports to the primary controller.

Mass Storage Devices

This item is used to set the specific type of connected USB device. The setting value is [Auto][Floppy][Forced FDD][Hard Disk][CD-ROM], the default is Auto.

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.

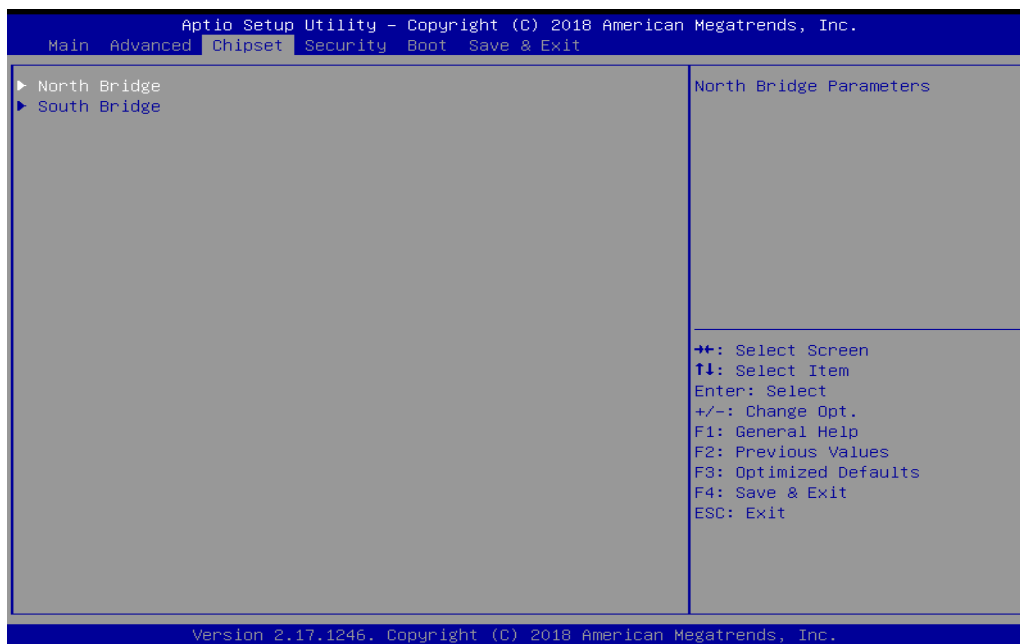


Figure 3.16

► North Bridge

Scroll to this item and press <Enter> and view the following screen:

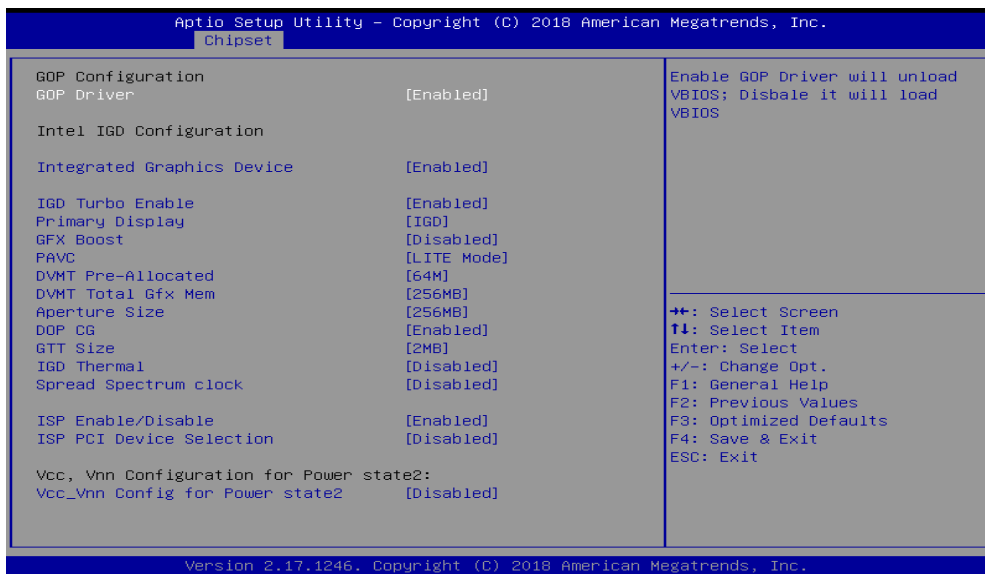


Figure 3.17

Integrated Graphics Device

This item indicates whether integrated graphics is enabled.

Primary Display

This item shows the main output display device when the system starts up.

DVMT pre-Allocated

This item sets the memory size pre-assigned to the motherboard integrated graphics in DVMT mode.

DVMT Total Gfx Mem

This item shows how much dynamic memory is allocated to the integrated graphic in total.

LCD Control

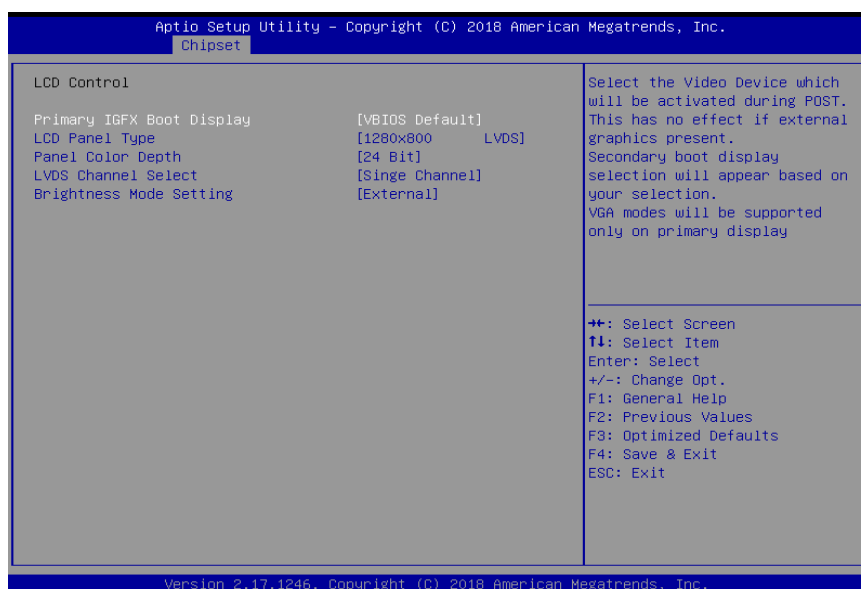


Figure 3.18

Primary IGFX Boot Display

This item sets IGFX main display device on POST stage, not affected by external graphics card, options are LVDS, CRT, HDMI. It defaults by VBIOS.

Secondary IGFX Boot Display

This item sets IGFX second display device on POST stage.

LCD Panel Type

This item sets resolution of the motherboard LVDS screen.

Press <Esc> to return to the Chipset Menu page.

► South Bridge

Scroll to this item and press <Enter> and view the following screen:



Figure 3.19

Restore AC Power Loss

This item sets the power-on status after power-on. If Power Off is selected, you need to press the power button to power on after power-on. If Power On is selected, it will be powered on directly after power-on. If Last State is selected after power-on, it will be restored to the state before power-off. order to use this feature.

Press <Esc> to return to the Chipset Menu page.

3.2.5 Boot Menu

This page enables you to set the keyboard Num-Lock state and devices boot sequence.

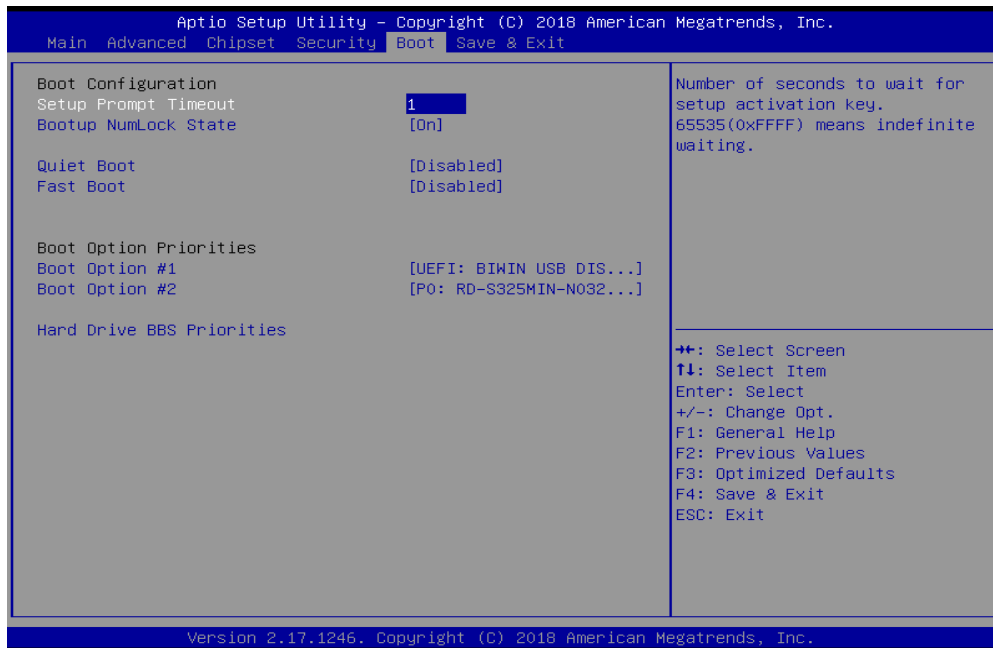


Figure 3.20

Setup Prompt Timeout

This item sets the wait time for the Setup shortcut. If you do not press the Setup shortcut within the set time, it will continue to boot.

Bootup Numlock State

This item determines if the NumLock key is active or inactive at system start-up time. The default value is On, which is a digital lock on when the system starts. Set to Off, the keypad is in cursor control state at startup.

Show Full Logo

This item shows the vendor logo on the startup screen.

[Enabled]: Display static LOGO screen at startup;

[Disabled]: Display self-test information at start.

Boot Option #1/#2

These items show the boot priorities.

#1 is the highest priority boot device in the boot option.

Hard Drive BBS Priorities



Figure 3.21

This item sets the hard disk that can be used as the boot device. If there are multiple hard disks, you should select the priority of these hard disks in the item. The highest priority hard disk will be displayed in Boot Option #1.

3.2.6 Security Menu

Scroll to this item and press <Enter> and view the following screen:

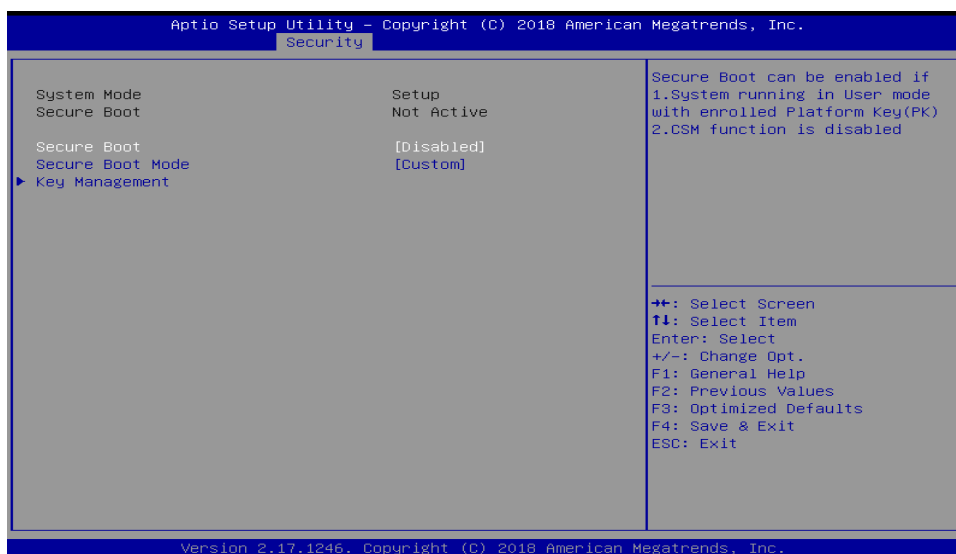


Figure 3.22

3.2.7 Save & Exit Menu

This page enables you to exit system setup after saving or without saving the changes.

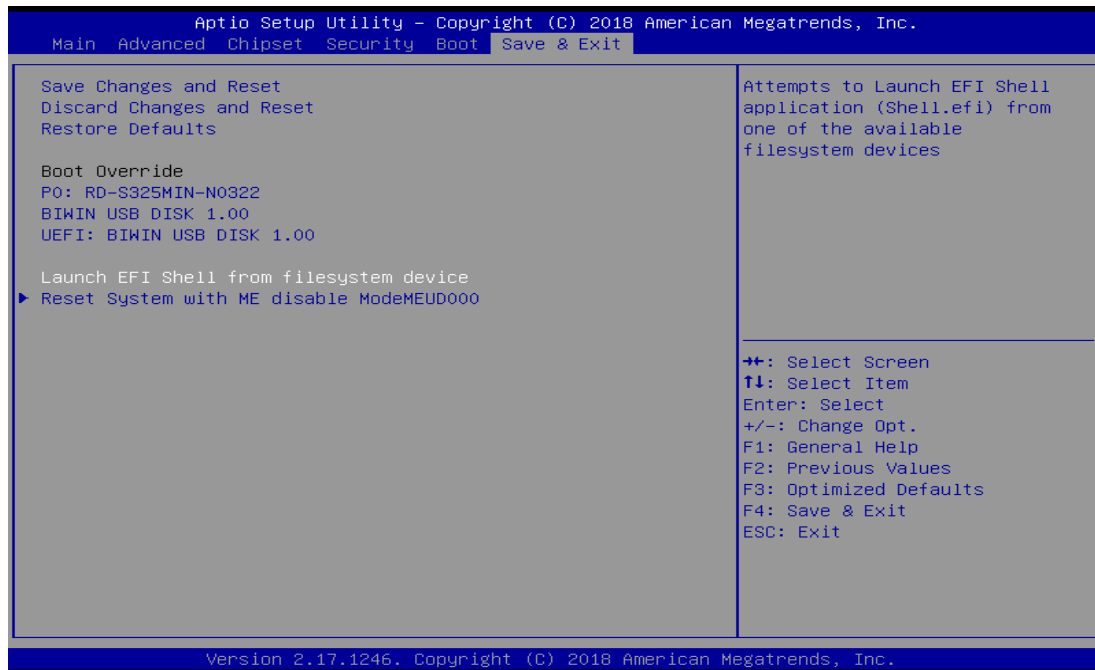


Figure 3.23

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 any changes that you have made and exit.

Restore Defaults

This item enables you to restore the system 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.

Fpt64.efi is a FLASH IC read/write program that loads BIOS data on the motherboard and needs to be operated in a shell environment.

Please boot the system into the shell environment, enter the directory where the BIOS file is located, and then use the fpt64.efi program to write the BIOS data you used to upgrade (for example, XXXX.ROM) to the FLASH IC.

The specific operation instructions are:

```
Fpt64.efi -f xxxxxxxx.bin
```

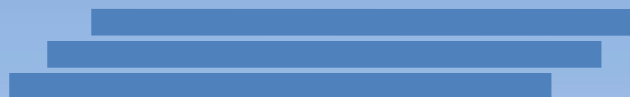
If you need to add other parameters after the instruction, please add: space after the above instruction

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-2701 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

4.1 About the Software DVD-ROM/CD-ROM

The support software DVD-ROM/CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT or something similar. These files may contain important information that is not included in this manual.

Never try to install all software from folder that is not specified for use with your motherboard.

4.2 Auto-installing under Windows 8/10

The Auto-install DVD-ROM/CD-ROM makes it easy for you to install the drivers and software for your motherboard.

If the Auto-install DVD-ROM/CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software DVD-ROM/CD-ROM disk loads automatically under Windows 8/10. When you insert the DVD-ROM/CD-ROM disk in the DVD-ROM/CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.

If the opening screen does not appear; double-click the file “setup.exe” in the root directory.

Drivers Tab

Table 4.1: Drivers Tab

Setup	Click the Setup button to run the software installation program. Select from the menu which software you want to install.
Browse CD	<p>The Browse CD button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support disk.</p> <p>Before installing the software from Windows Explorer, look for a file named README.TXT or something similar. This file may contain important information to help you install the software correctly.</p> <p>Some software is installed in separate folders for different operating systems, such as Windows 7/8/10. Always go to the correct folder for the kind of OS you are using.</p> <p>In install the software, execute a file named SETUP.EXE by double-clicking the file and then following the instructions on the screen.</p>
Exit	The Exit button closes the Auto Setup window.

Utilities Tab

Lists the software utilities that are available on the disk.

Information Tab

Displays the path for all software and drivers available on the disk.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

1. Click Setup. The installation program begins:

The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

2. Click Next. The following screen appears:

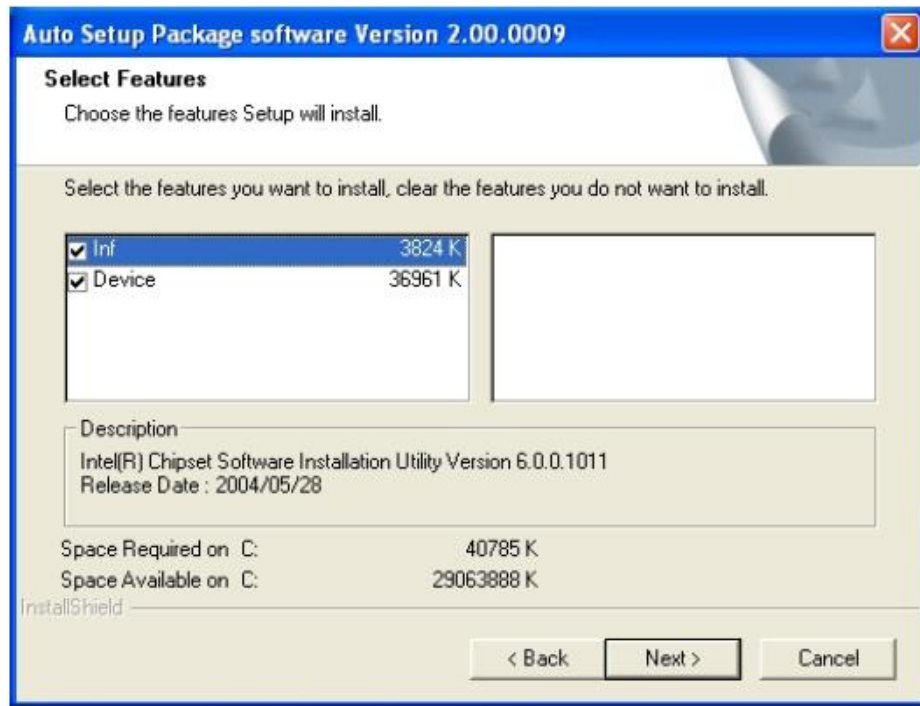


Figure 4.1

3. Check the box next to the items you want to install. The default options are recommended.
4. Click Next run the Installation Wizard. An item installation screen appears:

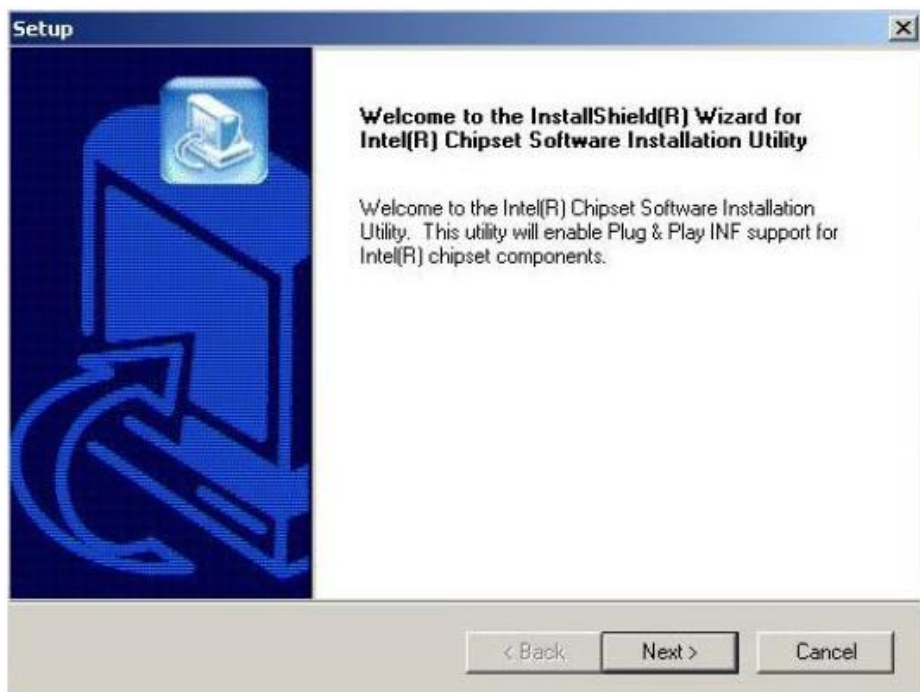


Figure 4.2

5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm

commands and allow the computer to restart a few times to complete the installation.

Windows 8/10 will show the following screen after system restart, you must select "Desktop" in the

bottom left to install the next driver.



Figure 4.3

Windows 8/10 will appear below UAC (User Account Control) message after the system restart. You must select “Allow” to install the next driver.

Continue this process to complete the drivers installation.

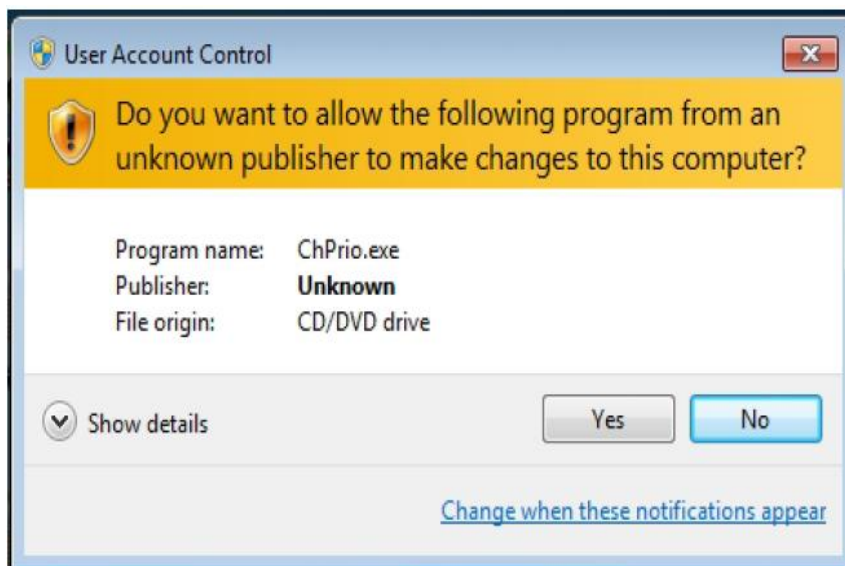


Figure 4.4

4.3 Manual Installation

Insert the disk in the DVD-ROM/CD-ROM drive and locate the PATH.DOC file in the root directory.

This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

4.4 CPU TEMP LED driver

The KMDA-2701 provides temperature showing in LEDs, economic and reliable. Users can monitor the working state of the CPU according to the display of the LED. Please perform the following operations, making LEDs work normally.

Find the CPU temperature test tool folder and open it, as shown below;

Run the exe application;

NOTE: Please add the .exe application to the startup item to ensure that the program can run when power on.





 715_Core_Temp	2018/4/2 10:46	应用程序	127 KB
 jhctech.dll	2018/3/13 14:09	应用程序扩展	34 KB
 WinRing0.dll	2016/10/23 11:33	应用程序扩展	64 KB
 WinRing0.sys	2016/10/23 11:33	系统文件	15 KB

Figure 4.5

4.5 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 anytime without prior notice. Please refer to the support disk for available software.

CHAPTER

5



**SYSTEM
RESOURCE**

5.1 WDT and GPIO

5.1.1 WDT

```
/* =====
1  * void jhctech_init();
2  * function description: library initialized, This function must be called before calling other
functions
3  * parameter description:
4  * creation date:
5
=====*/
```

```
void jhctech_init();
/* =====
1  * void jhctech_init();
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
=====*/
```

```
void jhctech_deinit();
/* =====
```

5.1.2 GPIO

```
/* =====
```

- 1 * BYTE I715_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 Fill in the motherboard GPIO port, which is a fixed value designed by the manufacturer

- 4 * creation date:

5 *

```
=====*/
```

BYTE I715_MB_gpio_input(WORD port);

```
/* =====
```

- 1 * void I715_MB_gpio_output(WORD port, BYTE value);
- 2 * function description: high and low level output of the motherboard

3 * parameter description:

parameter:

Port Fill in the motherboard GPIO port, which is a fixed value designed by the manufacturer

Value 8 bits of a byte, 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

4 * creation date:

5 *

=====*/

void I715_MB_gpio_output(WORD port,BYTE value);

/* =====

1 * void I715_MB_gpio_init();

2 * function description: Motherboard gpio initialization function, need to be called once before
use

3 * parameter description:

4 * creation date:

```

5                                                                 *

=====*/

void I715_MB_gpio_init();

void I715_MB_gpio_init();

/*=====

1      * void I715_watchdog_set(int time);

2      * function description:  WDT function

3      * parameter:  Time sets the dog feed time, the time value is 0-255,

                Setting 0 means to turn off the watchdog

4      * creation date:

5                                                                 *

=====*/

void I715_watchdog_set(int time);

/*=====

1      * void I715_2nd_gpio_mode(int port,int mode);

2      * function description:  subcard input and output mode settings

3      * parameter description:

```

parameter: port fill in GPIO number, 1 or 2

mode 8 bits of a byte, each bit controls input and output mode of a GPIO pin

bit = 1, Corresponding pin as input

bit = 0, Corresponding pin as output

mode	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GPIO pin	PIN8	PIN7	PIN6	PIN5	PIN4	PIN 3	PIN2	PIN1

Note : The output value is valid only when the pin is in output mode.

4 * creation date:

5 *

=====*/

void I715_2nd_gpio_mode(int port,int mode);

/*=====

1 * void I715_2nd_gpio_output(int port,int level);

2 * function description: subcard output high and low level

3 *parameter descirption:

parameter: port fill in GPIO number of the subcard, 1 or 2

level 8 bits of a byte, each bit controls a GPIO pin output value,

Bit =1, means output high level

Bit =0, means output low level

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

description: The output value is valid only when the pin is in output mode

4 * creation date:

5 *

===== */

void I715_2nd_gpio_output(int port,int level);

/*=====

1 * int I715_2nd_gpio_input(int 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

Value=1, means high level

Value=0, means low level

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

parameter: port fill in subcard GPIO number, 1 or 2

descripiton: The read value is valid only when the pin is in input mode

4 * creation date:

5 *

=====*/

int I715_2nd_gpio_input(int port);