User's Manual

BRAV-7302

Ver.A1.0

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Version Note

No.	Ver.	Note	Date	Writer
1	A1.0	first publish	20180929	Tracy Liu

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Acknowledgements

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Product Warranty (2 years)

JHC warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by JHC, or which have been subject to misuse, abuse, accident or improper installation.

JHC assumes no liability under the terms of this warranty as a consequence of such events.

Because of JHC.s high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an JHC product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, JHC products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
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.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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.

Technical Support and Assistance

Step 1. Visit the JHC web site at www.jhctech.com.cn where you can find the latest information about the product.

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

CHAPTER 1

General Information

1.1 Introduction

BRAV-7302 is a high-performance GPU box computer of JHCTECH, CPU and GPU fan cooling by independent air passage. It powered by all kinds of Intel® Skylake-S/Kabylake-S CPU. It supports dual channel DDR4 2133/2400MHz memory, up to 32GB. It features gen.9th Intel® HD Graphics and NVIDA or AMD MXM3.1 GPU module.

BRAV-7302 offers 1*HDMI, 1*DP(Intel® HD 4K) and 1*VGA, 1*HDMI and 3*DP(GPU 4K), 2/3/7*Gigabit LAN ports, 4/6*USB3.0, 1*mini PCIe which support 4G LTE/wifi/BT. 1*mSATA, 1*M.2, 1/2*2.5" SATA HDD/SSD are used for storage. With DC 6~48V wide power input. With CPU+GPU dual processor, multi-LAN, multi-display, multi wireless communication, it is suitable for Intelligent AI, Video Security and Machine Vision.

(Note: BRAV-7302-T001 has no GPU module or VGA)

1.2 Features

Key Features

- CPU and GPU fan Cooling, independent air passage
- Intel® Q170/H110 Chipset+Skylake-S/Kabylake-S LGA1151 CPU
- MXM3.1 NVIDA GTX/AMD RX series GPU module, support 3*DP, 1*HDMI
- 2*260-pin SODIMM, dual channel DDR4 2133/2400MHz, up to 32GB
- 1*F-mini PCIe with SIM slot, support 4G LTE and Wifi/BT
- 1/2*SATA HDD/SSD bay, support Raid0/1, 1*mSATA, 1*M.2 2242 B-key for storage
- 4*DP, 2*HDMI, 1 VGA *(BRAV-7302-T001 has 1*DP, 1*HDMI)*
- Realtek ALC662VD controller, Audio out and MIC
- 2/6*Intel I210AT, 1*Intel I219LM support ivPro *(BRAV-7302-T001 only has 2*Intel I210AT)*
- 16-bit DIO, 4/6*USB3.0, 3*USB2.0, 4*COM *(BRAV-7302-S001/T001 has no DIO)*
- 1*I-port, optional 1*LPT, 1*PS/2, 1*M.2, 1*mini PCIe, I/O ports
- DC 6~48V, CPU temp. show in LED

*(Note: BRAV-7302-T001 has no GPU module, support 1*HDMI, 1*DP)*

1.3 Specifications

1.3.1 General

CPU: Intel® Skylake-S/Kabylake-S LGA1151 CPU

GPU: MXM3.1 NVIDIA GTX/AMD RX series GPU *(BRAV-7302-T001 has no GPU)*

Chipset: Intel® Q170 (*BRAV-7302-T001 is Intel® H110*)

System Memory: 2*DDR4 2133/2400MHz SODIMM, Up to 32GB

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

Serial Ports: 2* RS232/422/485 DB9 male, setup by BIOS, 2*RS232 DB9 male

USB: 4/6*USB 3.0 Type A ports(front), 2*USB2.0 Type A ports(rear), 1* USB 2.0 Type A port (inside)

Expansion Interface:

1*Full size Mini PCIe(PCIe+USB)with SIM slot

1*M.2 2242 B-key(PCIeX1+SATA3+USB)with SIM slot

1*mSATA(SATA3.0+USB)

Storage:

1*mSATA (Full size), 1*M.2 2242 B-key

2*2.5" SATA HDD/SSD bay, support Raid0/1 (BRAV-7302-S001)

1*2.5" SATA HDD/SSD bay, (BRAV-7302-S002)

2*2.5" SATA HDD/SSD bay, support Raid0/1 (BRAV-7302-T001)

1.3.2 Display

Chipset: Gen. 9th Intel® HD Graphics and GPU

Display Memory: Shared system memory and GPU memory

Resolution: HDMI 3840x2160@30Hz; DP 4096x2304@60Hz; VGA 2650x1600@60Hz

3*DP 1.2/1.3; 1*HDMI 1.4b/2.0 4K/5K display

1.3.3 Ethernet

Chipset: 2/6*Intel® I210AT Ethernet controllers, 1* Intel® I219LM Ethernet controller

Speed: 10/100/1000 Mbps Integrated

Interface: 2/3/7*RJ45

1.3.4 Audio

Chipset: Realtek ALC662VD controller

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

1.3.5 Power Consumption

Input Voltage: DC 6-48V Input

Power Consumption: TDP 19V/2.0A (35W CPU)—BRAV-7302-T001

TDP 24V/6A (51W CPU+78W GPU)—BRAV-7302-S00X

Power Adapter: AC to DC 24V/9.17A, 220W—BRAV-7302-S00X

AC to DC 19V/6.32A, 120W—BRAV-7302-T001

Power Requirement: Minimum power input DC 24V/7A—(BRAV-7302-S00X)

DC 19V/3A--(BRAV-7302-T001)

1.4 Environmental Specifications

Operating temperature:

-20 ~ 65° C (35W CPU without GPU, SSD, Airflow)—(BRAV-7302-T001)

-10 ~ 50° C (35W CPU+80W GPU)—(BRAV-7302-S00X)

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:1Grms, 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 BRAV 7302 Series Specifications

Model NO.	7302-S001	7302-S002	7302-T001
Chipset	Intel® Q170	Intel® Q170	Intel® H110
GPU	MXM3.1 GPU	MXM3.1 GPU	0
HDD bay	2	1	2
LAN	3*LAN	7*LAN	2*LAN
USB	4*USB3.0 3USB2.0	6*USB3.0 3USB2.0	4*USB3.0 3USB2.0

COM	4	4	4
DIO/bit	0	16-bit	0
Display	2*HDMI, 4*DP, 1*VGA	2*HDMI, 4*DP, 1*VGA	1*HDMI, 1*DP
I-port	1	1	1
Audio	√	√	√
Expansion	1*mini-PCIe 1*M.2 1*mSATA	1*mini-PCIe 1*M.2 1*mSATA	1*mini-PCIe 1*M.2 1*mSATA

1.6 Mechanical Specifications

Main Board Front(AXM-I950)

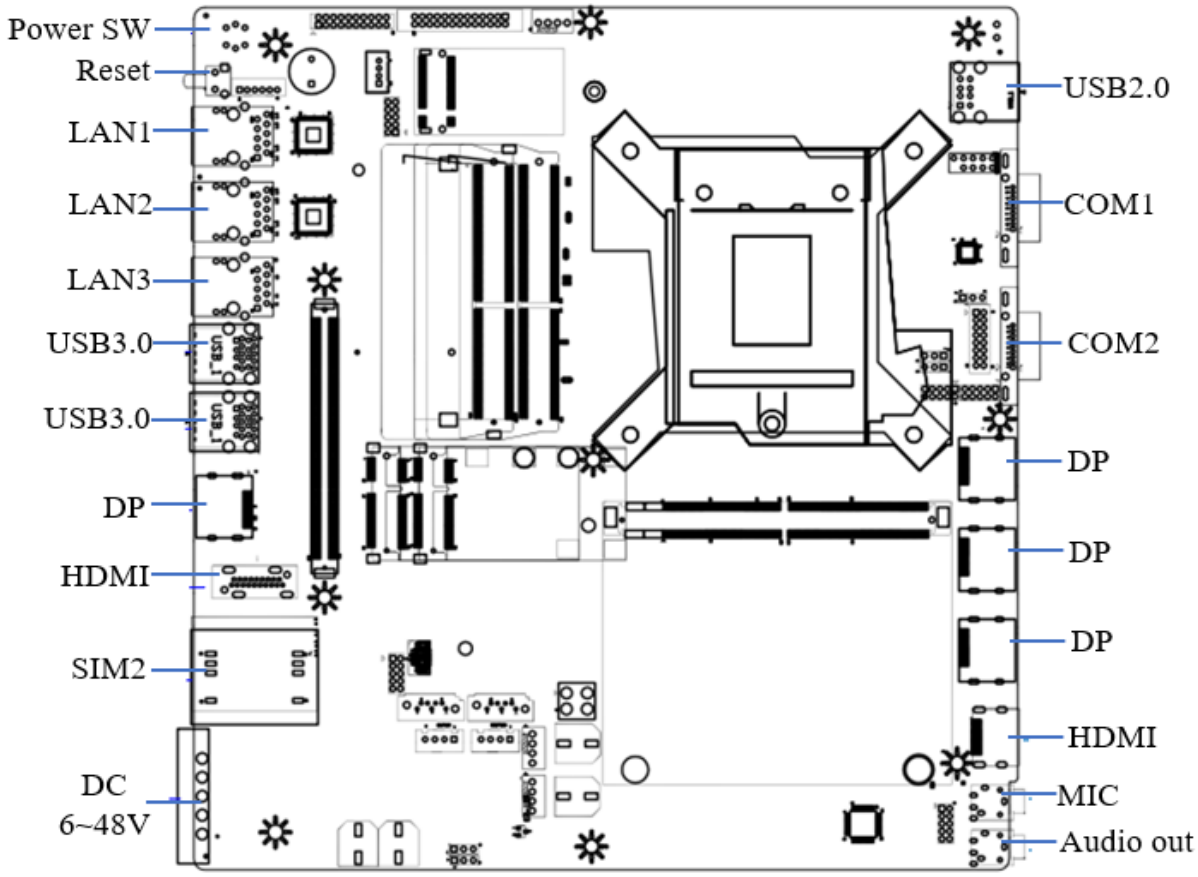


Figure 1.1

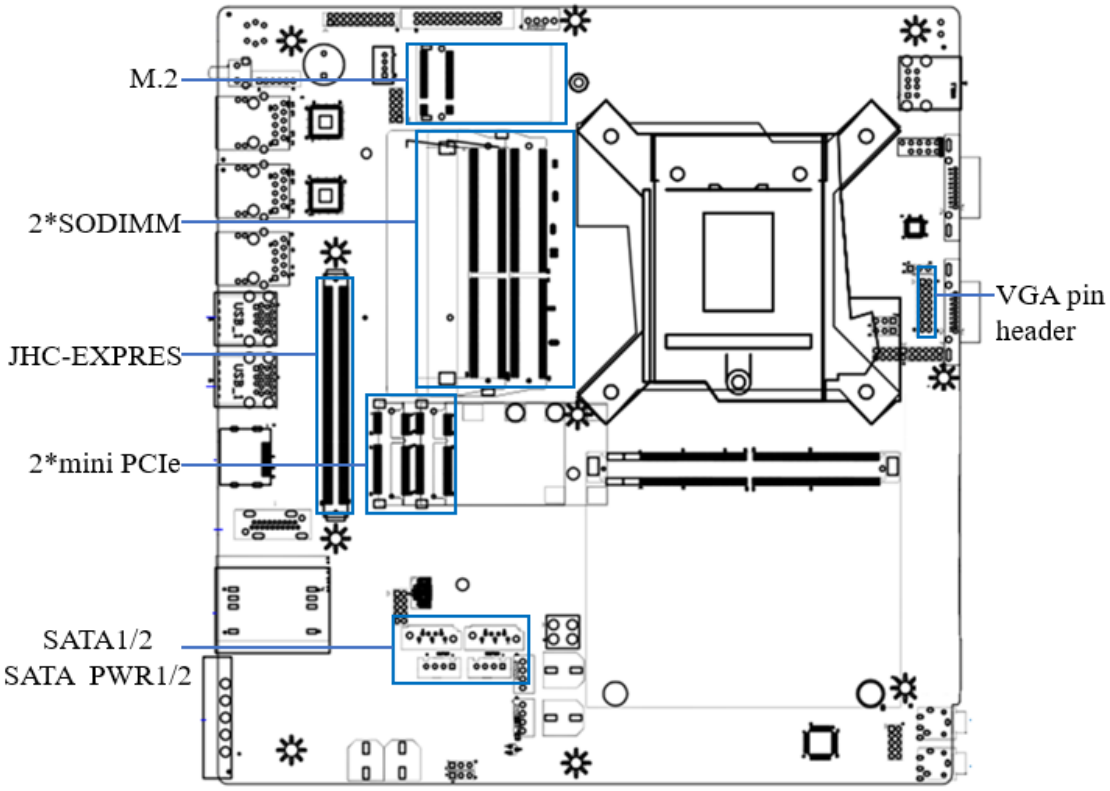


Figure 1.2

Main Board Rear(AXM-I950)

Figure 1.3

Sub-card(ECB-147-T001)

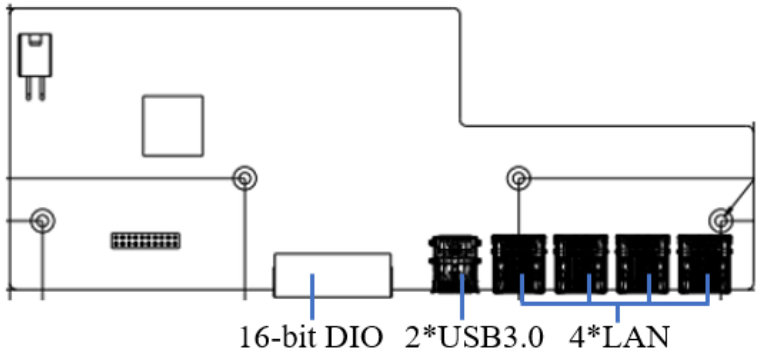


Figure 1.4

BRAV-7302 Dimension:

Unit: mm

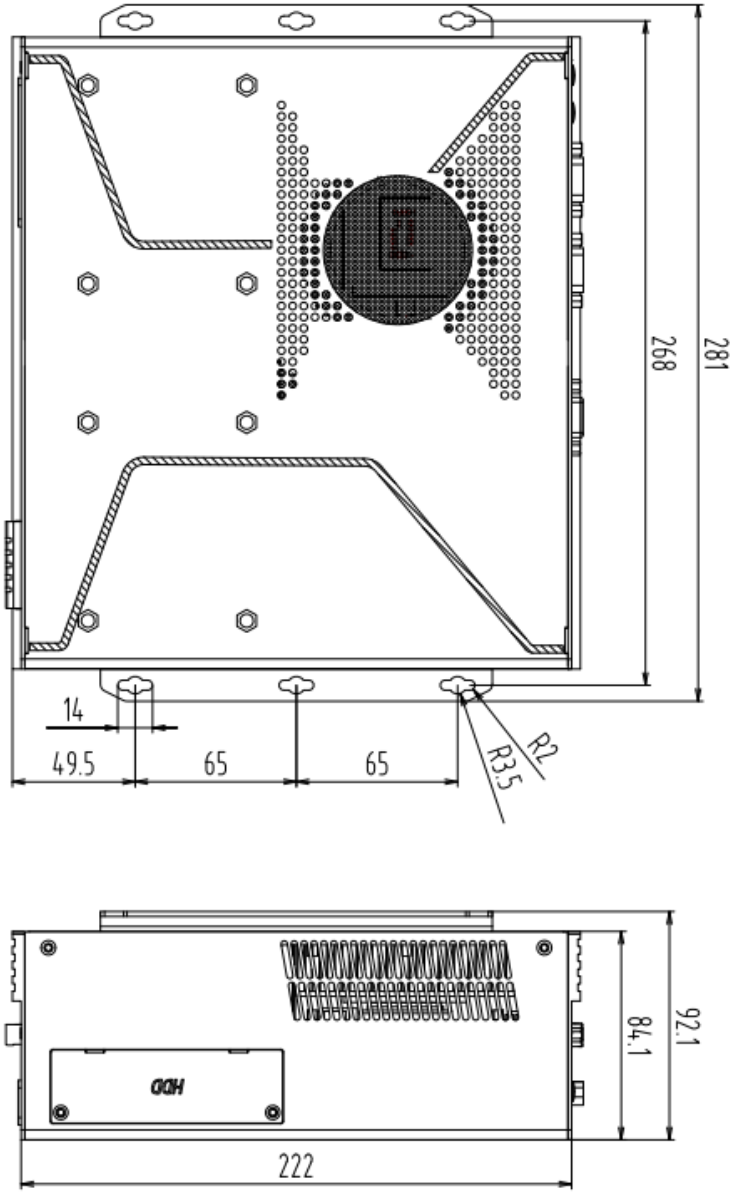


Figure 1.5

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 BRAV-7302 high-performance GPU computer from JHCTECH, consists of a JHC SBC(AXM-I950) and a sub-card(ECB-147-T001).

The specific combination is as follows:

Model No.	BRAV-7302-S001	BRAV-7302-S002	BRAV-7302-T001
AXM-I950-S001	✓	✓	×
AXM-I950-T001	×	×	✓
GPU	✓	✓	×
ECB-147-T001	×	✓	×

2.2.1 Setting Jumpers

You can configure your BRAV-7302 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.

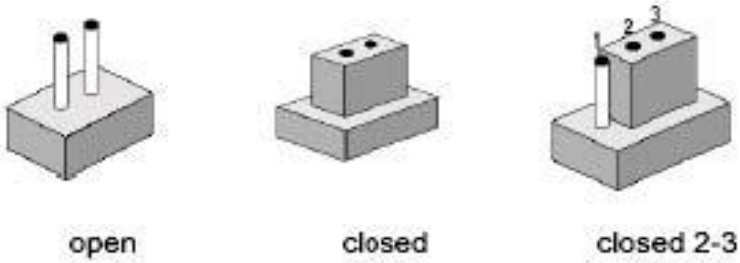


Figure 2.1

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

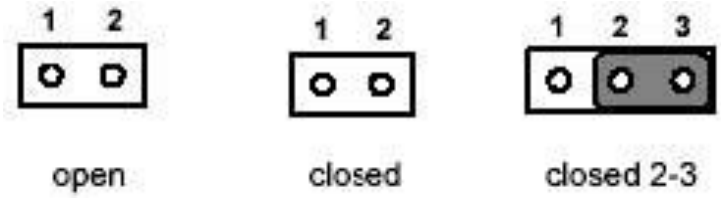


Figure 2.2

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 BRAV-7302 high-performance Box Computer has a number of jumpers inside the chassis that allows you to configure your system to suit your application. The table below shows the function of each of the board's jumpers:

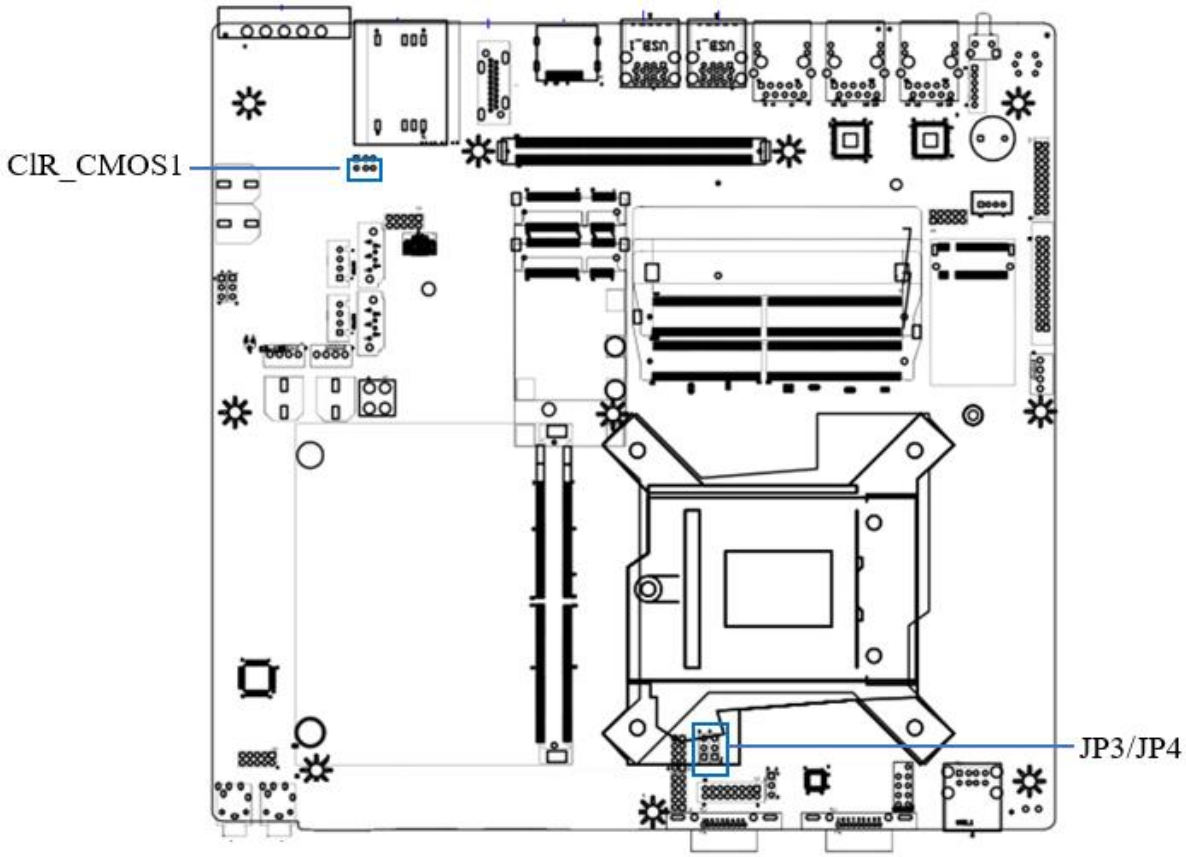


Figure 2.3

Jumpers

Jumper	Name	Description
CLR_CMOS1	Clear CMOS Data Setting	3-Pin Block
JP3/JP4	COM3/COM4 RI/5V/12V Power supply Select	6-Pin Block

2.3.1 CLR_CMOS1-Clear CMOS Data

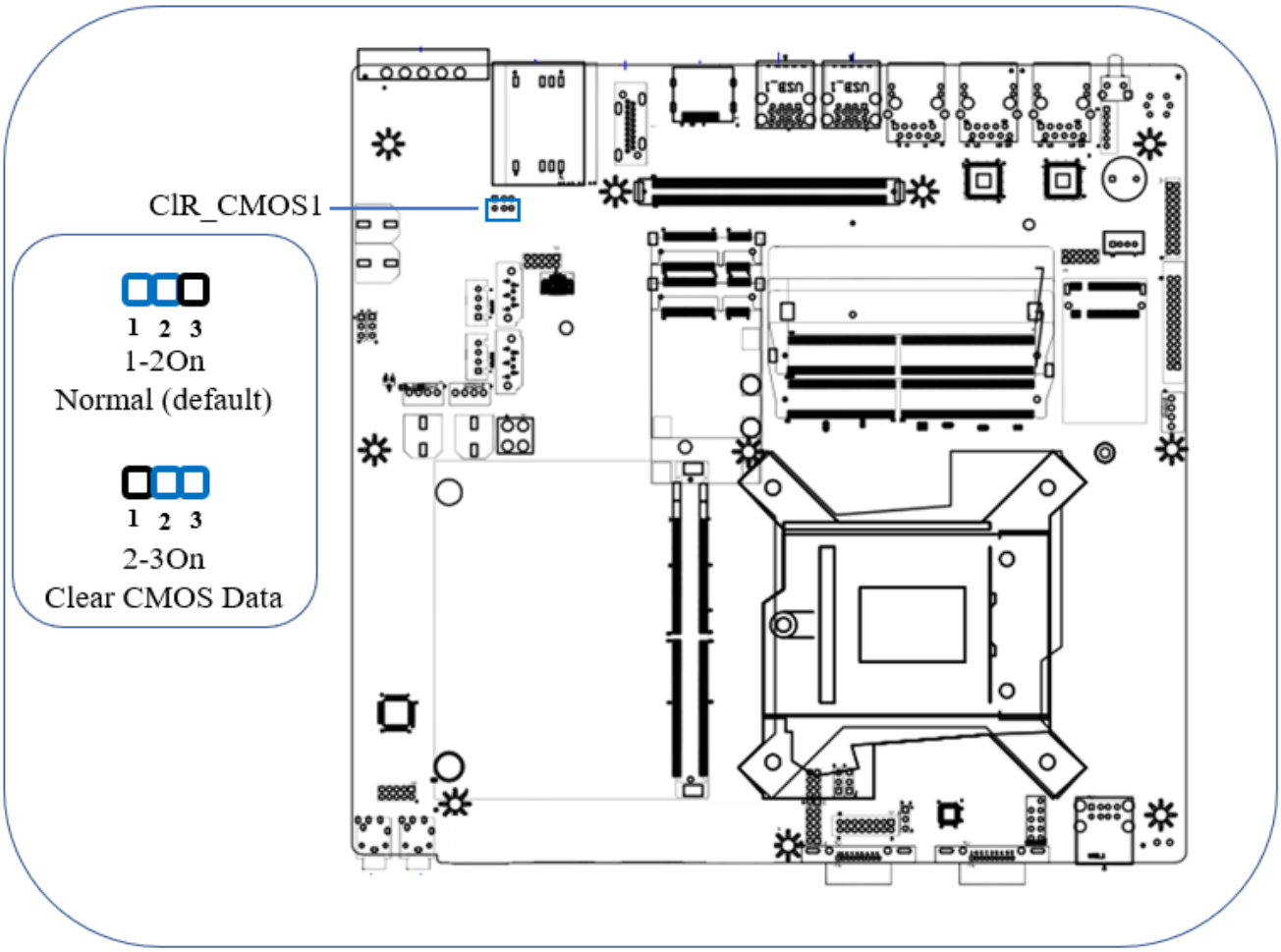


Figure 2.4

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 JP3/JP4-COM3/COM4 RI/5V/12V Power supply Select

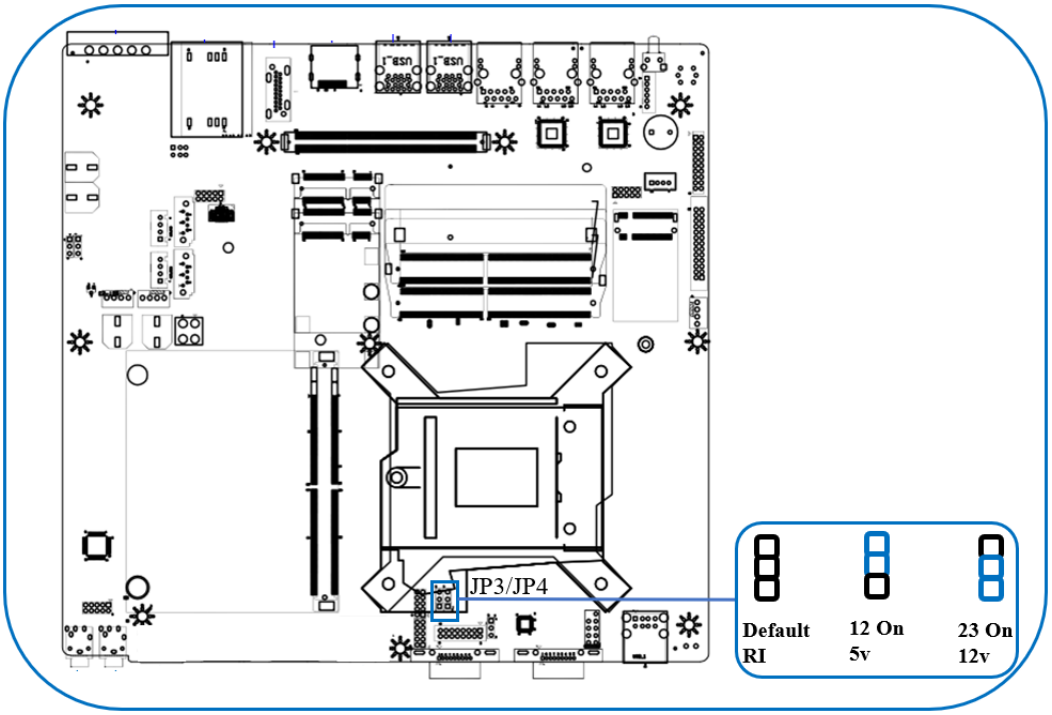


Figure 2.5

2.4 I/O/Button/LED Indication

NOTE: I/O Indication takes BRAV-7302-S002 for example, Other series products only have different number of interfaces.

Front view:

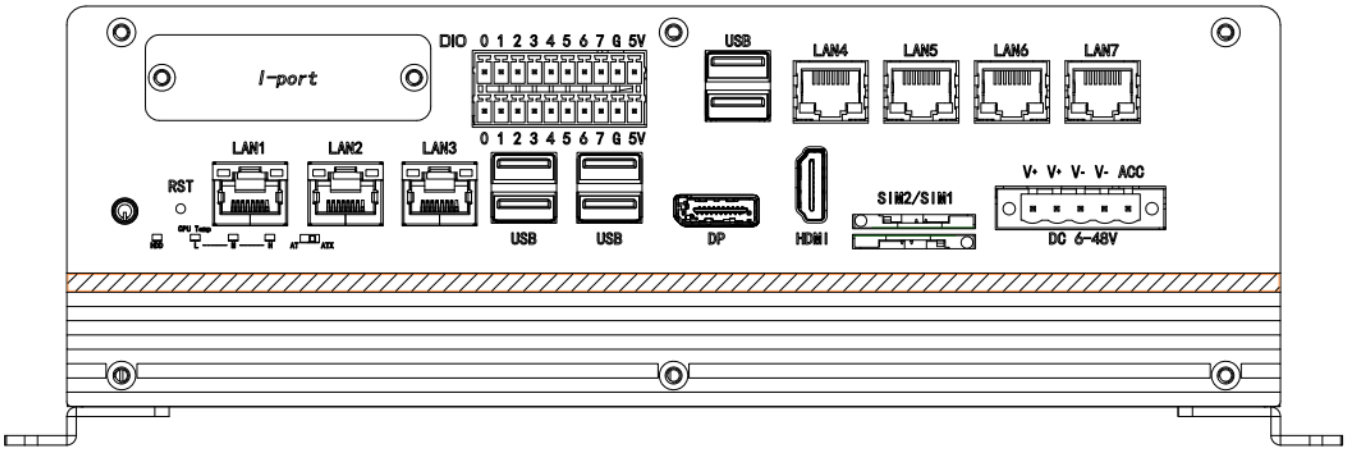


Figure 2.6

Rear view:

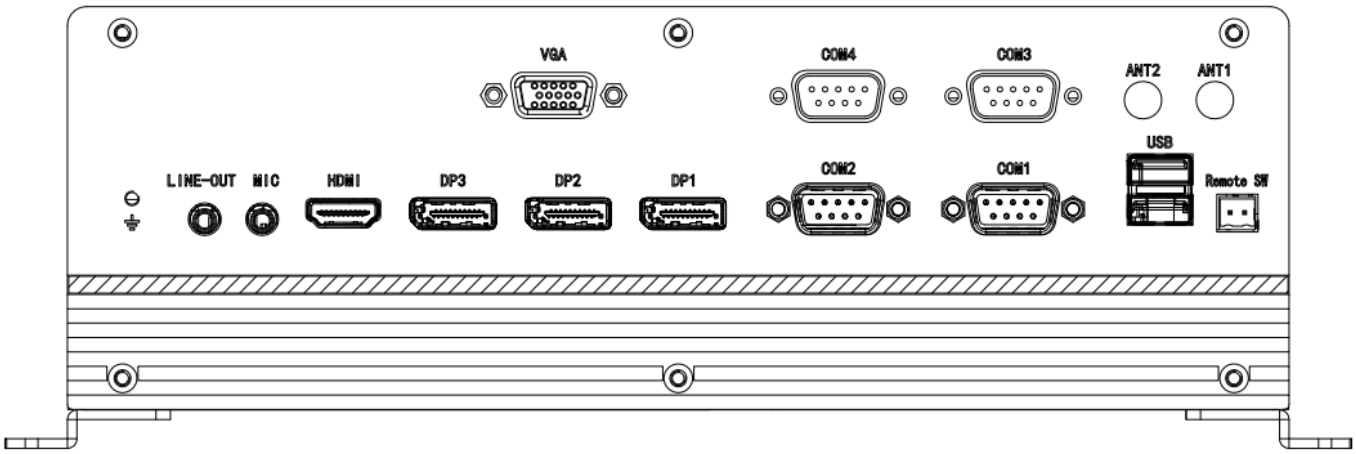


Figure 2.7

2.4.1 Ethernet Connector (LAN)

The BRAV-7302-S002 is equipped with 6 Intel I210AT chips and 1 Intel I219LM for 10/100/1000Mbps Ethernet controllers. The product provides 7*RJ45, with LED indicators on the front side to show its Active/Link status (Green LED) and Speed status (yellow LED).

Table 2.0 for pin assignments.

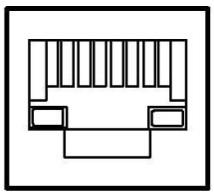


Figure 2.8 Ethernet Connector

Table 2.0: RJ-45 Connector pin assignments			
Pin	10/100/1000BaseT Signal	Pin	10/100/1000BaseT Signal
1	TX+(10/100), LAN_DA+(GHz)	5	LAN_DC-(GHz)
2	TX-(10/100), LAN_DA-(GHz)	6	RX-(10/100), LAN_DB-(GHz)
3	RX+(10/100), LAN_DB+(GHz)	7	LAN_DD-(GHz)
4	LAN_DC+(GHz)	8	LAN_DD-(GHz)

Table 2.1 for LAN Led active state.

Table 2.1: RJ-45 Led active state		
B Type	**Left LED**	**Right LED**

		Active LED	10M/100M/1000M Speed LED
LED Color		**Green**	**Green/ Yellow**
10M Cable	No Transmission	**OFF**	OFF
	Transition	**Green** Blinking	OFF
100M Cable	No Transmission	**OFF**	**Green** Lighting
	Transition	**Green** Blinking	**Green** Lighting
1000M Cable	No Transmission	**OFF**	**Yellow** Lighting
	Transition	**Green** Blinking	**Yellow** Lighting

2.4.2 USB Connector

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

The BRAV-7302 provides 4/6*USB3.0, 3*USB2.0(one inside for dongle). The USB interface complies with USB UHCI, Rev. 2.0 compliance. The USB interface can be disabled in the system BIOS setup.

Table 2.2 for USB2.0 pin assignments.

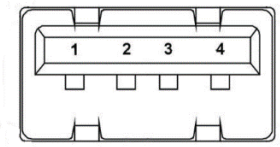


Figure 2.9 USB2.0 connector

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

Table 2.3 for USB3.0 pin assignments.

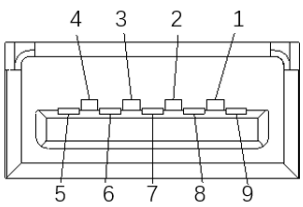


Figure 2.10 USB3.0 Connector

Table 2.3: USB3.0 Port Pin Assignments			
Pin	Signal	Pin	Signal
1	VBUS	6	StdA_SSRX+
2	D-	7	GND_DRAIN
3	D+	8	StdA_SSTX-
4	GND	9	StdA_SSTX+
5	StdA_SSRX-	Shell	Shield

2.4.3 HDMI

The BRAV-7302-S002 provides two high-resolution HDMI display ports. They can support the most resolution up to 3840*2160@30Hz.

Table 2.4 for HDMI pin assignments.

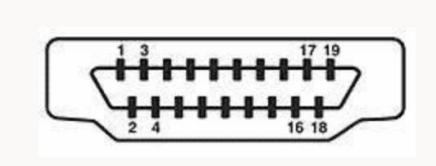


Figure 2.11 HDMI Connector

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: BRAV-7302-S001/T001 has one HDMI port)

2.4.4 DP

The BRAV-7302-S002 provides four high-resolution DP ports, it supports the most resolution up to 4096*2304@60Hz.

Table 2.5 for DP pin assignments.

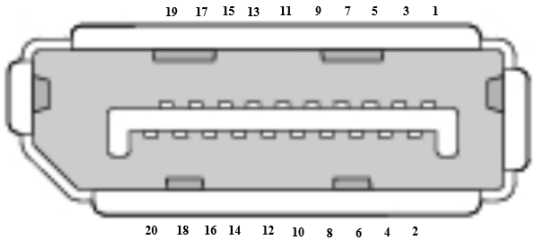


Figure 2.12 DP Connector

Table 2.5: DP 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		

(NOTE: BRAV-7302-S001/T001 has one DP port)

2.4.5 DIO Connector

The BRAV-7302-S002 provides a 16-bit DIO by a 2*10Pin terminal connector in front. The Pin assignments are as follows:

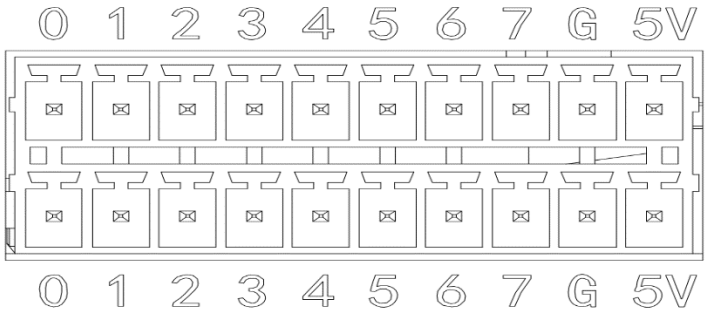


Figure 2.13 16-bit DIO Connector

Table 2.6: 16-bit DIO Pin Assignments			
Pin	DIO Signal	Pin	DIO Signal
1	DIO_0	11	DIO_8
2	DIO_1	12	DIO_9
3	DIO_2	13	DIO_10

4	DIO_3	14	DIO_11
5	DIO_4	15	DIO_12
6	DIO_5	16	DIO_13
7	DIO_6	17	DIO_14
8	DIO_7	18	DIO_15
9	GND	19	GND
10	VCC	20	VCC

(NOTE: BRAV-7302-S001/T001 has no DIO port)

2.4.6 Power Input Connector (DC-IN)

The BRAV-7302 provides a wide power input (DC 6~48V) by a 5-pin terminal.

Table 2.7 for pin assignments.

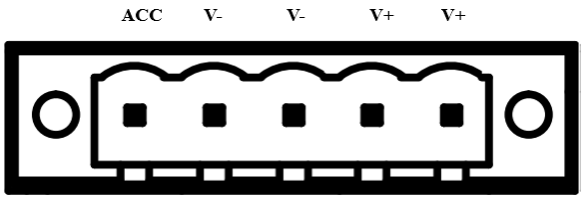


Figure 2.14 power input connector

Table 2.7:DC-IN port pin assignments			
Pin	Signal	Pin	Signal
1	V+	4	V-
2	V+	5	ACC
3	V-		

2.4.7 VGA

The BRAV-7302-S002 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 2650*1600@60Hz. Table 2.8 for pin assignments.

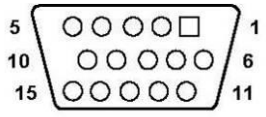


Figure 2.15 VGA Connector

Table 2.8: VGA port pin assignments			
Pin	Signal	Pin	Signal
1	RED	9	VCC
2	GREEN	10	HPD
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 BRAV-7302-T001 has no VGA port)

2.4.8 COM1/2 Connector

The BRAV-7302 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. Table 2.9 for pin assignments.

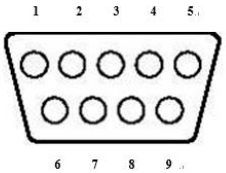


Figure 2.16 COM1/2 Connector

Table 2.9: 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

2.4.9 COM3/4 Connector

The BRAV-7302 provides 2*RS232 serial ports of COM3/4 by 2*D-sub 9-pin connectors.

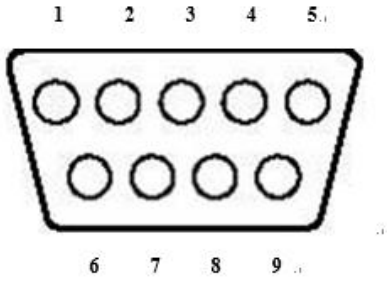


Figure 2.17 COM3/4 Connector

COM3/4 are only for RS232. Table 2.10 for pin assignments.

Table 2.10: 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/5V/12V		

2.4.10 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. Table 2.11 for pin assignments.

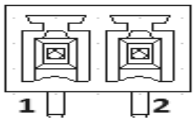


Figure 2.18 Remote SW Connector

Table 2.11: Remote Switch Pin Assignments

Pin	Signal
1	PWR_BTN

2.4.11 AT/ATX SW

The BRAV-7302 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.

2.4.12 LED

There are 1*Power LED, 1*HDD LED, 3*CPU temperature class LEDS on the front. Users can monitor the working state of the CPU according to the display of LEDs.

Table 2.12 for LEDs state of CPU temperature class.

Table 2.12: LEDs state of CPU temperature class.

LED	State
Red	Warning
Yellow	High
Green	Normal

2.5 Installation

Note: Installation steps take BRAV-7302-S002 as an example, and other models are similar.

2.5.1 HDD/SSD Installation

Step 1: Unscrew 2 screws on the HDD cover, remove the HDD cover;

Step 2: Unscrew 1 screws on the HDD/SSD bracket, take out the HDD/SSD bracket;

Step 3: Put the HDD/SSD in the drive bracket and screw 4 screws as picture shown;

Step 4: Put the drive bracket into the driver bay;

Step 5: Screw 1 screw on the HDD bracket;

Step 6: Install the HDD cover, screw 2 screws;


HDD


HDD

2.5.2 Installing mini-PCIe

Step 1: Unscrew 6 screws on the underside, remove the bottom bracket;

Unscrew 2 screws on the HDD cover, remove the HDD cover;

Unscrew 6 screws on the front panel, remove the front panel;

Unscrew 4 screws on both sides side as shown in picture;

Unscrew 3 screws on the rear panel;

Remove the up cover from the mother board;

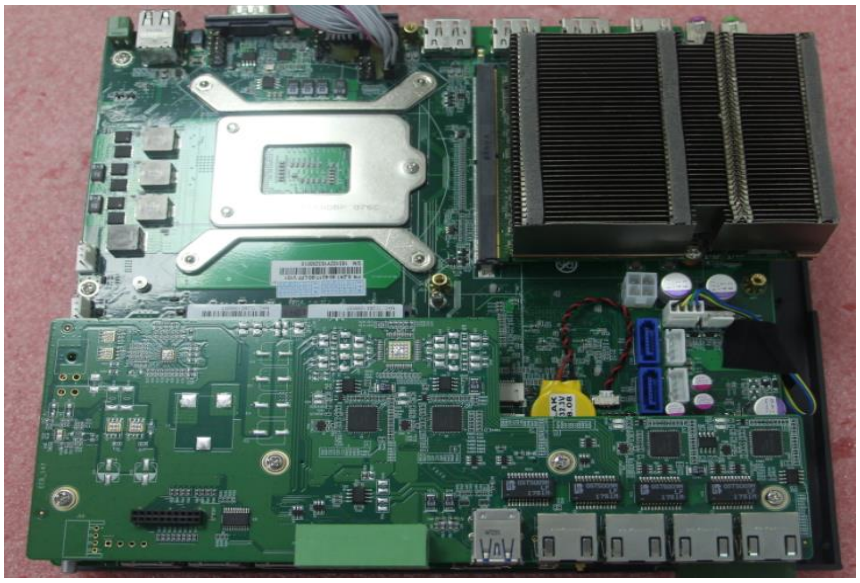
Unscrew 4 screws and 10 serial coppers on the rear panel, remove the rear panel;

Unscrew 4 screws on the GPU fan, remove the GPU fan;


DIO
I-port
USB
LAN
LAN
LAN
LAN
RST
LAN
LAN
LAN
USB
USB
DP
HDMI
SIM2/SIM1
V- V- V- V- ACC

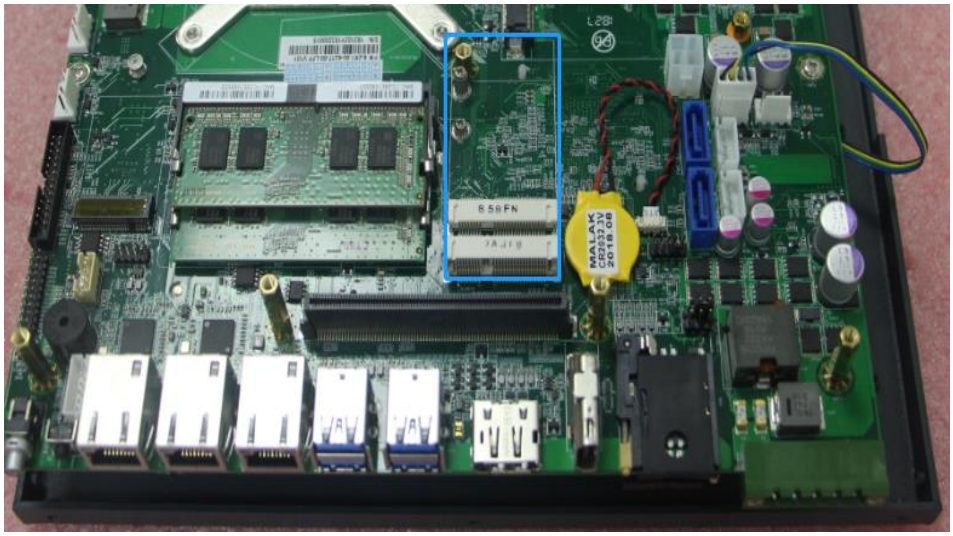

VGA
COM4
COM3
ANT2
ANT1
LINE-OUT
MIC
HDMI
DP3
DP2
DP1
COM2
COM1
USB


VGA
COM4
COM3
ANT2
ANT1
LINE-OUT
MIC
HDMI
DP3
DP2
DP1
COM2
COM1
USB
Remote SW

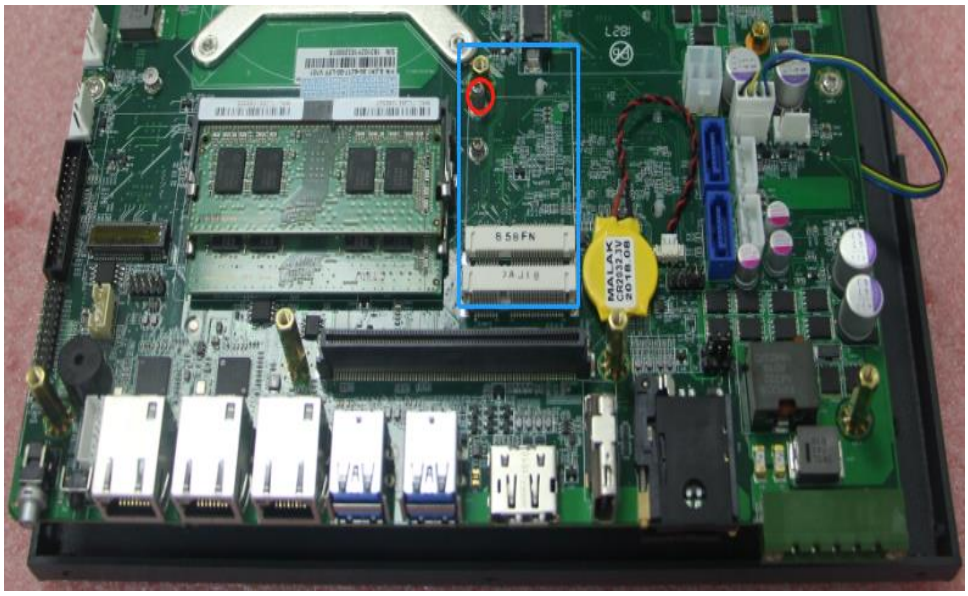


Step 2: Unscrew 4 screws on the sub-card ECB-147, remove the ECB-147;

Step 3: 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;



Step 4: Screw one screw to the holder;

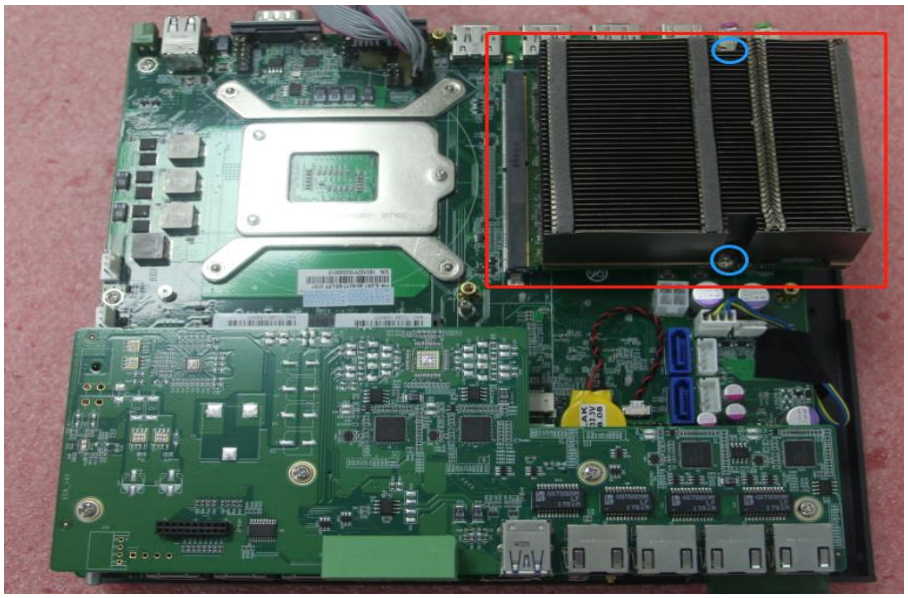


Step 5: Follow the reverse steps of disassembly to complete the product installation.

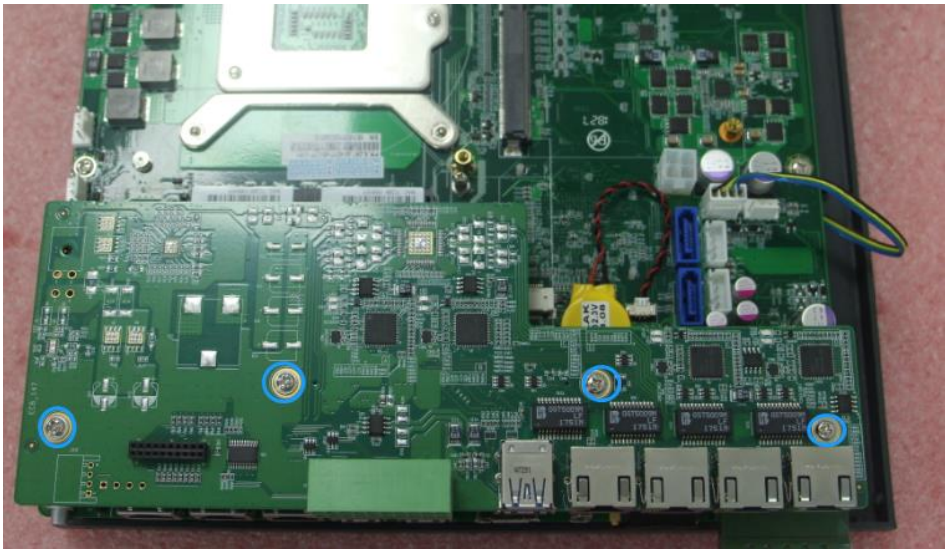
2.5.3 Installing MSATA

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"

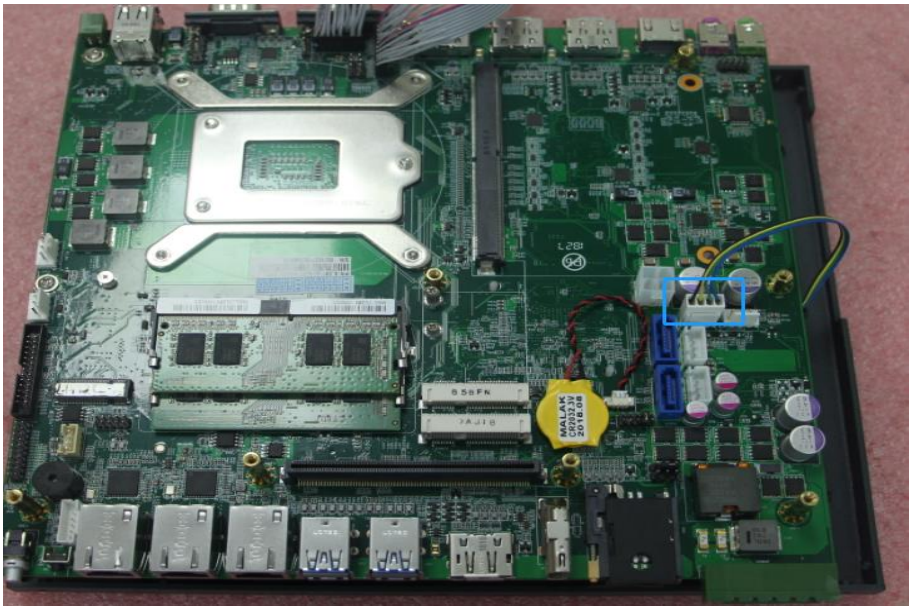
Step 2: Unscrew 2 screws on the GPU module, remove the GPU module;



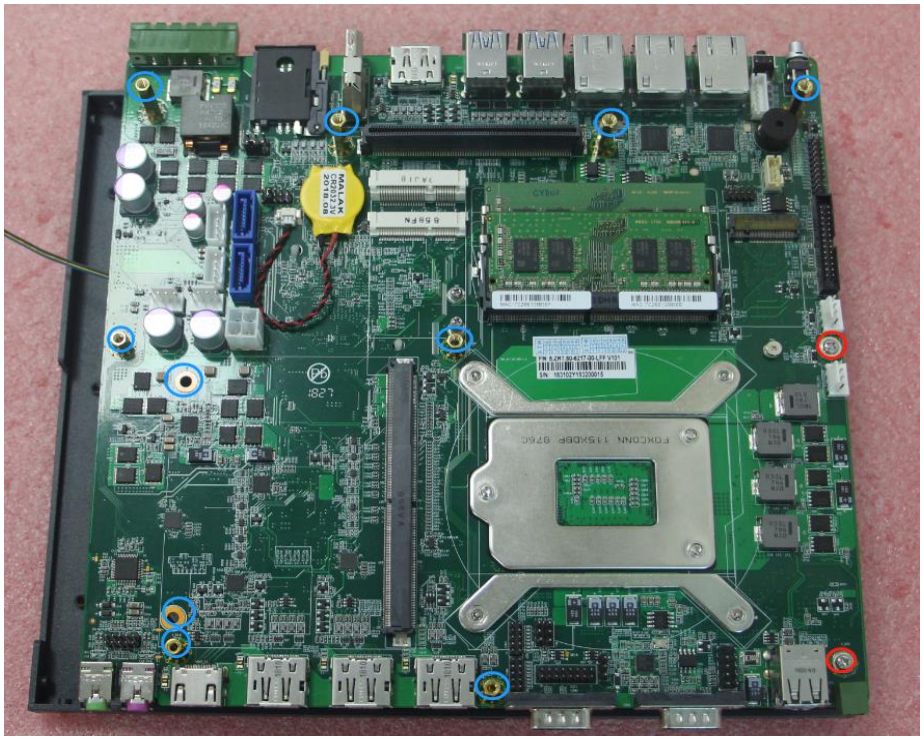
Step 3: Unscrew 4 screws on the sub-card ECB-147, remove the ECB-147;



Step 4: Remove the cable of the CPU fan which is connected with the mother board;



Step 5: Unscrew 2 screws and 10 serial copper columns on the mother board, remove the mother board;



Step 6: Hold the MSATA module with its notch aligned with the MSATA socket on the back of the mother board and insert it at a 30 degrees angle into the socket;

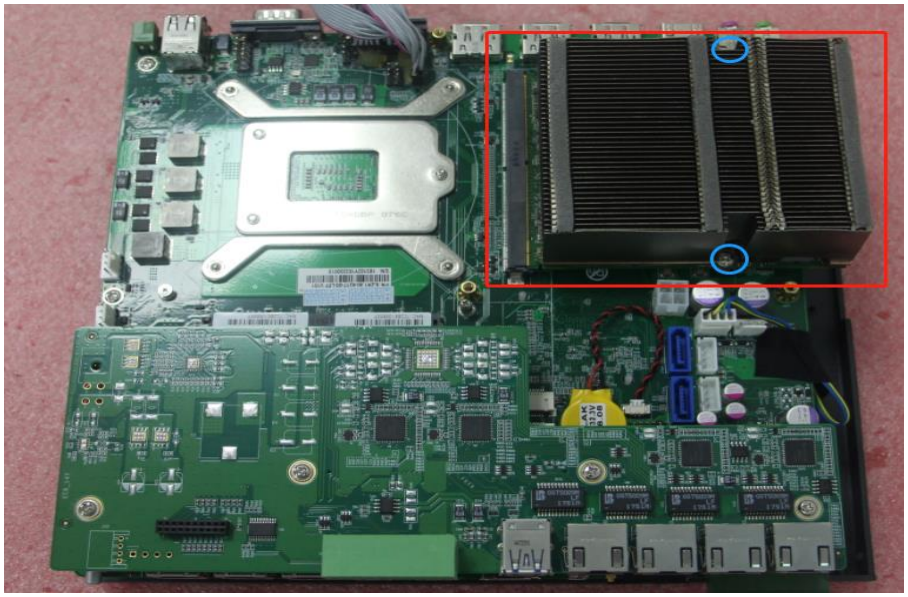
Screw one screw to the holder as shown in the picture.

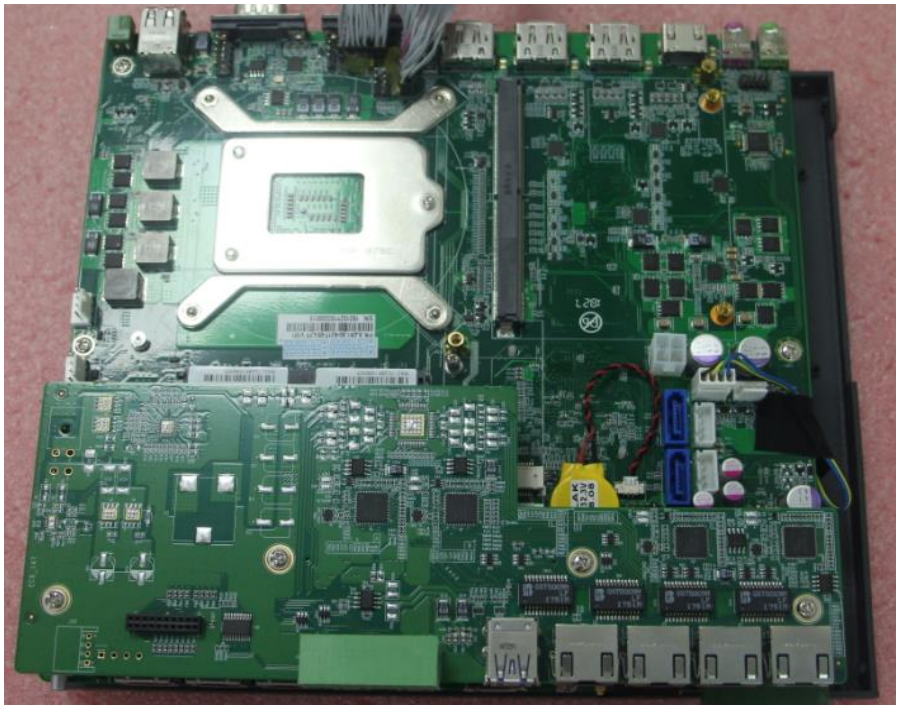
Step 7: Follow the reverse steps of disassembly to complete the product installation.

2.5.4 Installing GPU module

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"

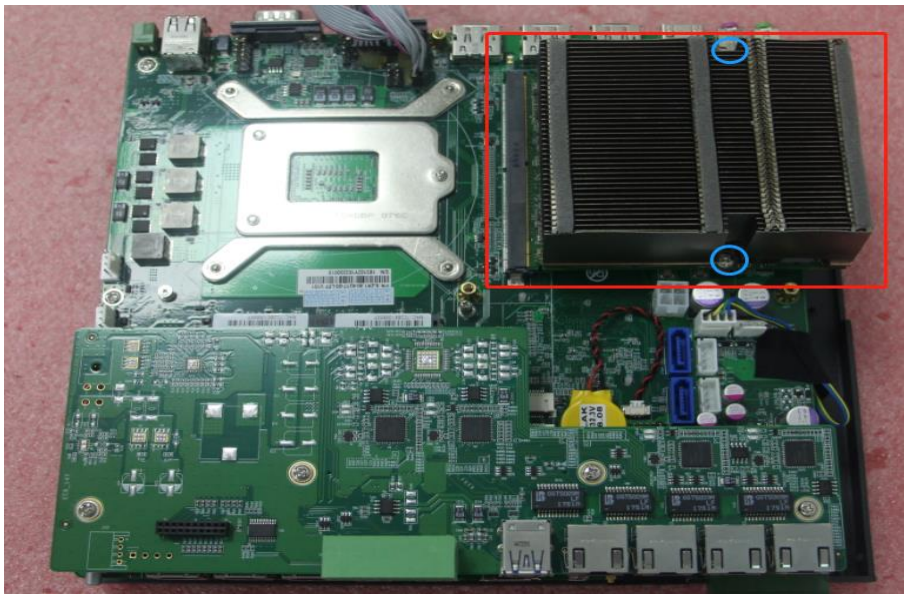
Step 2: Unscrew 2 screws on the GPU module, remove the GPU module;





Step 3: Hold the GPU module with its notch aligned with the MXM3.1 socket of the board and insert it;

Screw 2 screws on the GPU module as shown in the picture.



Step 4: Follow the reverse steps of disassembly to complete the product installation.

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. For details, please refer to the following.

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

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.)

3.2 BIOS parameter settings

When the computer starts, the BIOS enters the power-on self-test (Post) program. The self-test program is a series of diagnostic programs that are solidified in the BIOS. When the self-test program is executed, if "Quiet Boot" is set to [Disabled], then the following information is displayed:

"Press <CTRL + P> to Enter MEBX setup menu" (if the motherboard supports AMT function)

"Press <DEL> or <ESC> to enter setup."

You can press <CTRL + P> during the boot process to enter the MEBX setup menu and set the AMT related parameters.

You can also press the <DEL> or <ESC> key during the boot process to enter the setup interface and set it up;

If this message disappears before you respond, you can turn it off and on or press the Reset button on the chassis to restart your computer.

You can also restart your computer by pressing <Ctrl> + <Alt>+<Delete> at the same time.

3.2.1 BIOS Navigation Keys

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

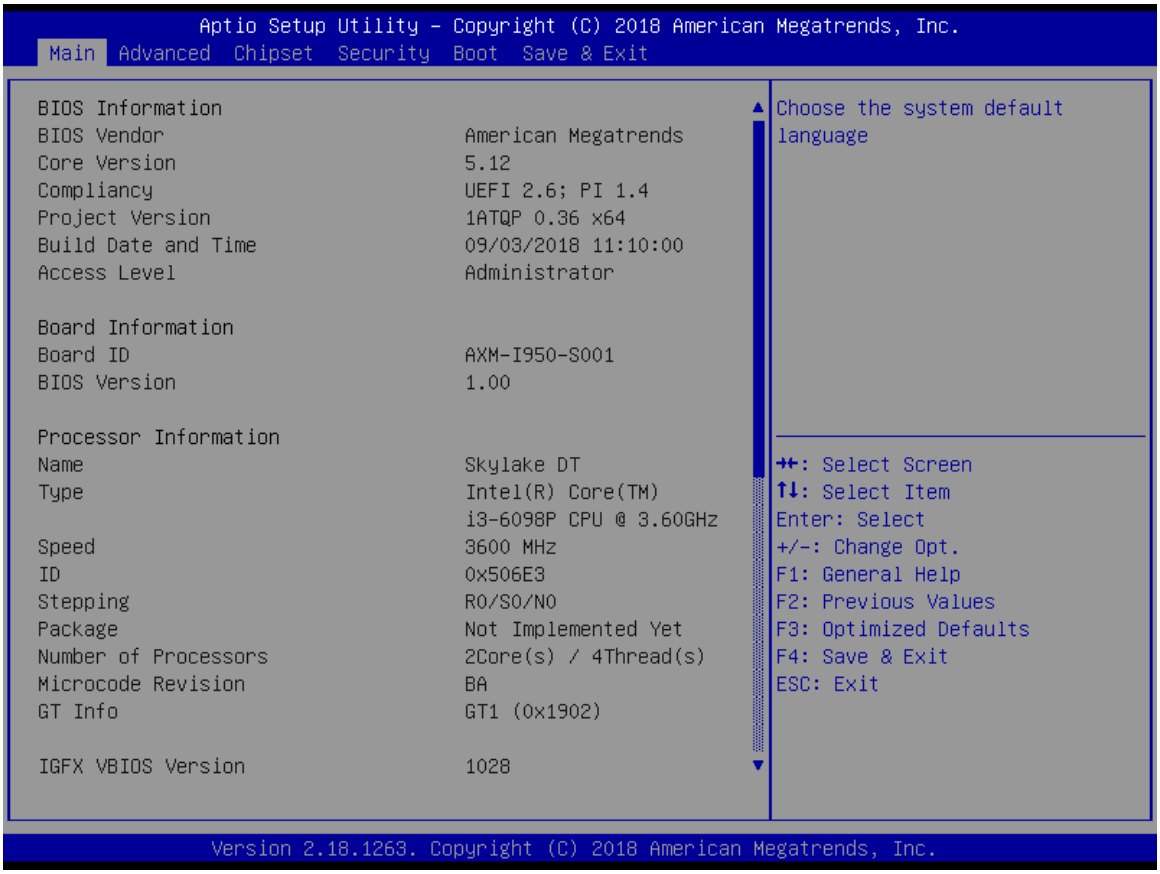
Table 3.1: The BIOS navigation keys

KEY	FUNCTION
ESC	Exit the current menu
↑↓→←	Scrolls through the items on a menu
+/-	Change Opt.
Enter	Select
F1	General Help
F2	Previous Value
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.

Board Information

This item shows the basic information of the motherboard, including the Board ID and BIOS Version of the motherboard.

Processor Information

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

IGFX VBIOS Version

This item shows the Current VBIOS version of the CPU integrated graphics.

Total Memory

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

Memory Frequency

This item shows the current memory operating frequency

PCH Information

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

ME FW Version

This item shows the version number of the ME firmware

ME firmware SKU

This item shows the ME firmware model number

System Language

Set the language interface of the BIOS.

System Date

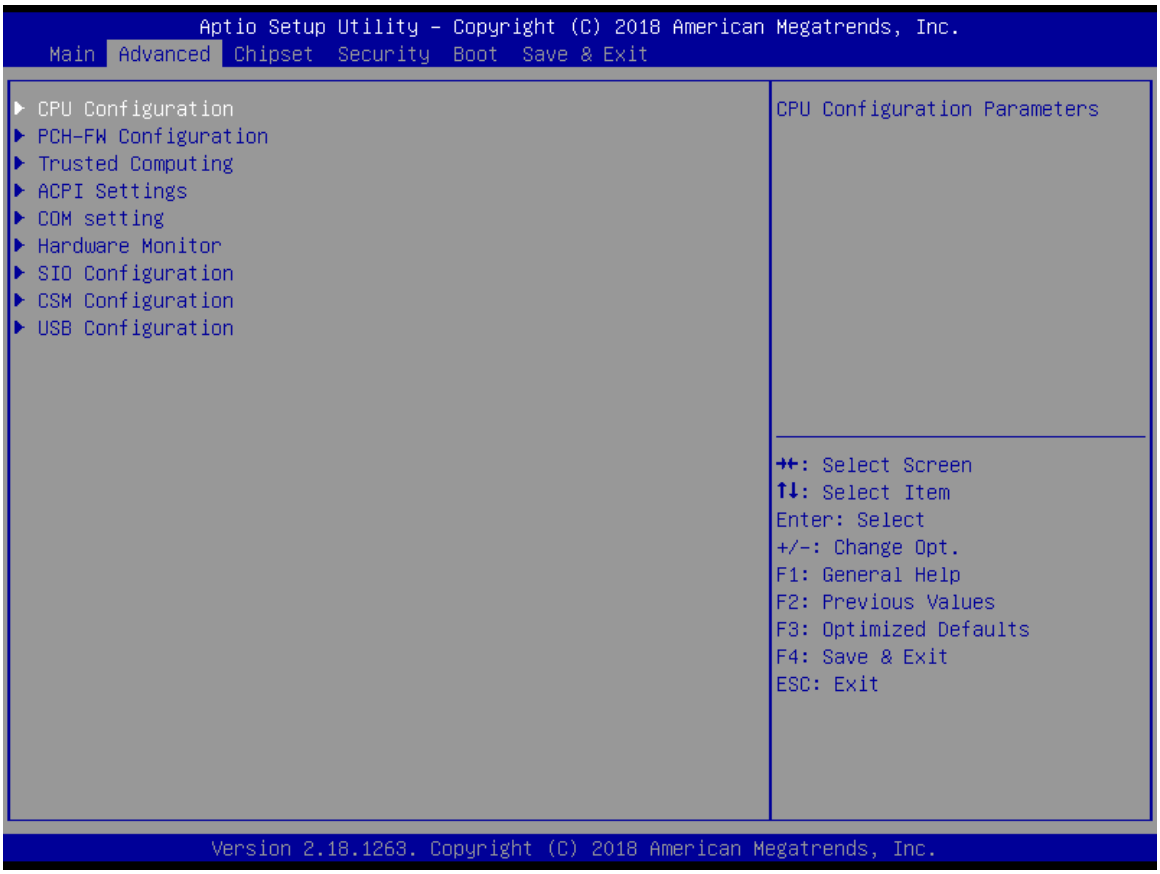
Set the date. The format of the date is <week><month><day><year>.

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.



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.

PCH-FW Configuration

This item contains the PCH firmware configuration, enter this sub-menu, there will be detailed details of the ME, as well as related settings of the AMT function.

Trusted Computing

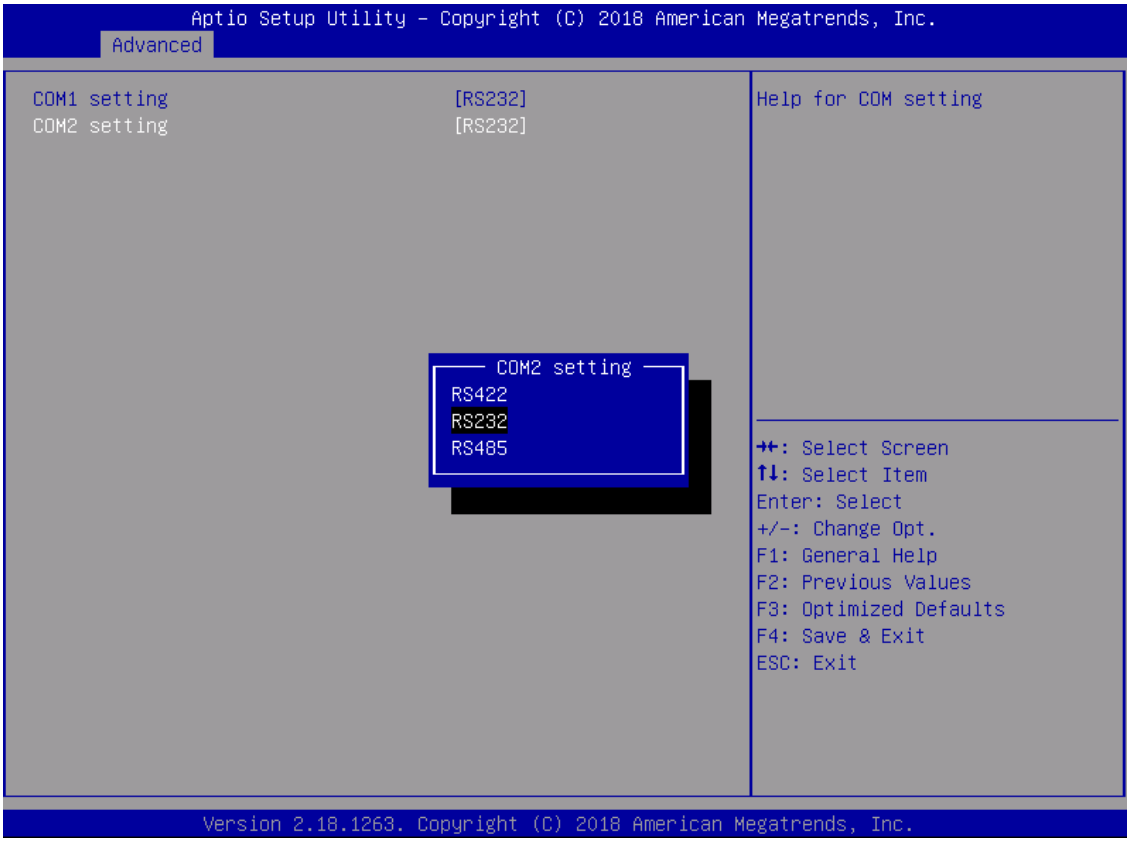
Trusted computing, enter this sub-menu, there will be the setting of the encryption security module (the motherboard will install the encryption module hardware will take effect)

ACPI Settings

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

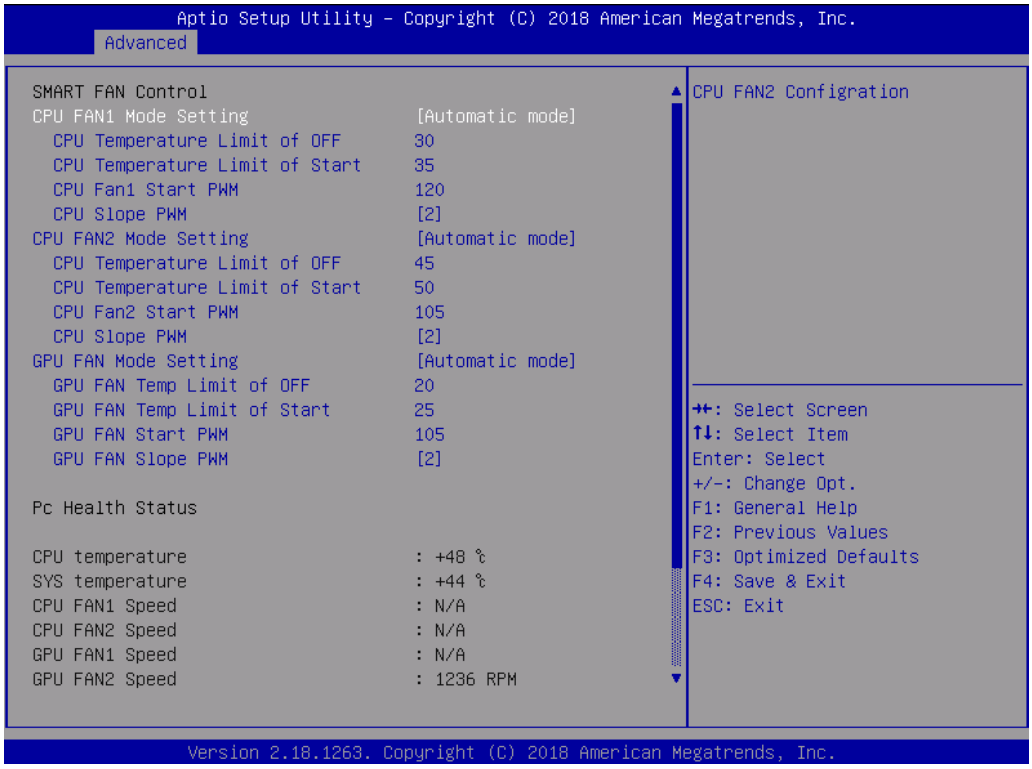
COM setting

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



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.



CPU Temperature Limit of OFF

Set the temperature at which the fan stops rotating;

CPU Temperature Limit of Start

Set the temperature at which the fan starts to rotate;

CPU Fan Start PWM

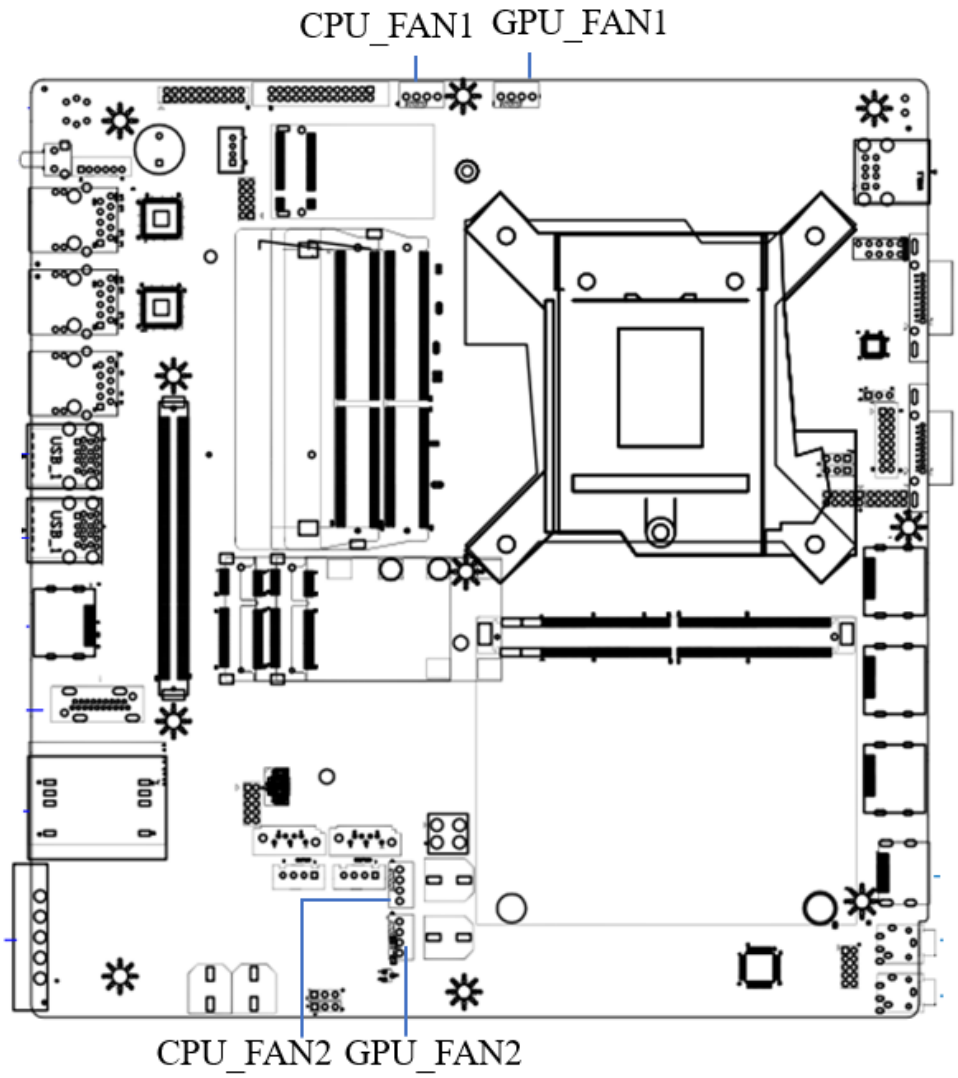
Set the PWM of the fan rotation, the higher the value, the higher the speed at which the fan starts.

CPU Slope PWM

Set the Slope of the PWM, the higher the value, the faster the fan accelerates.

NOTE: The specific position of the fan pin is as follows

The fan speed corresponding to fan 1 is high speed, and the fan speed corresponding to fan 2 is low speed.



SIO Configuration

Super IO configuration, enter this sub-menu, there will be the port configuration of the serial/parallel port which are included in IO.

CSM Configuration

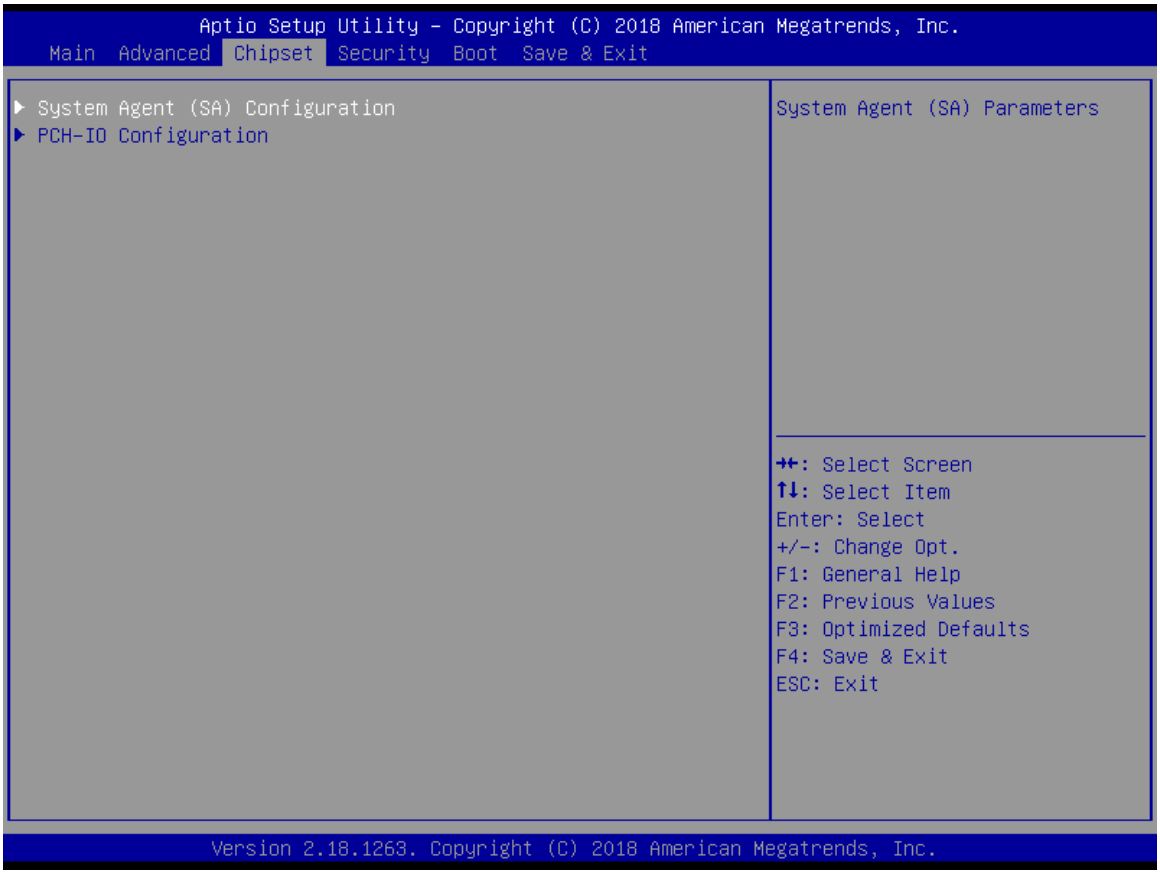
CSM (Compatibility Support Module) configuration, enter this sub-menu, there will be various settings to support UEFI startup and non-UEFI startup. If you need to start the traditional MBR device, you need to enable CSM. Turning off the CSM turns it into a pure UEFI boot.

USB Configuration

USB configuration, enter this sub-menu, there will be USB-related detailed settings.

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

Memory Configuration

Memory configuration, enter this submenu, there will be detailed memory information.

Graphics Configuration

Image processing configuration, enter this sub-menu, there will be CPU-integrated graphics related settings.

PEG Port Configuration

PEG graphics configuration, enter this sub-menu, there will be related settings for the external graphics card.

PCH-IO Configuration (South Bridge Configuration)

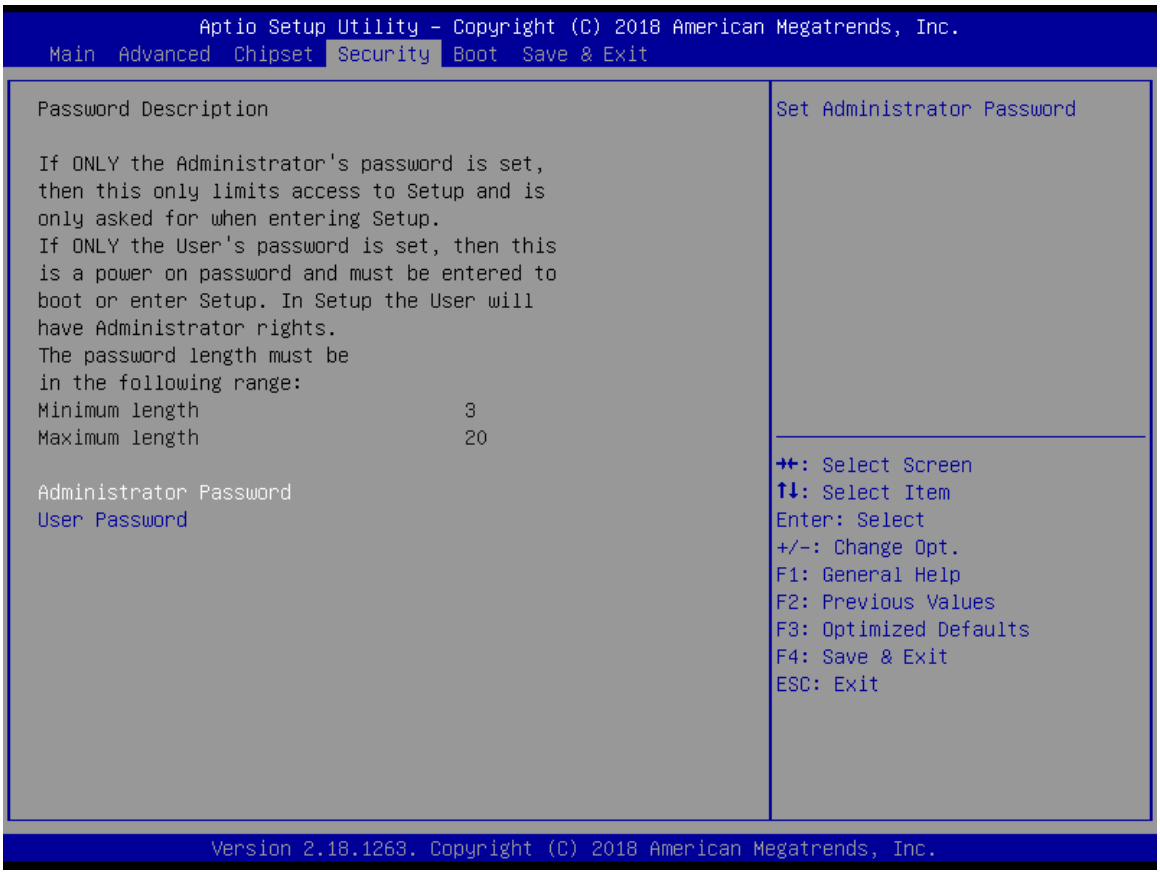
SATA And RST Configuration

SATA hard disk and fast storage configuration, enter this sub-menu, there will be related settings of the hard disk.

HD Audio Configuration

High-fidelity audio, which controls the switch settings of the motherboard's sound card.

3.2.5 Security menu



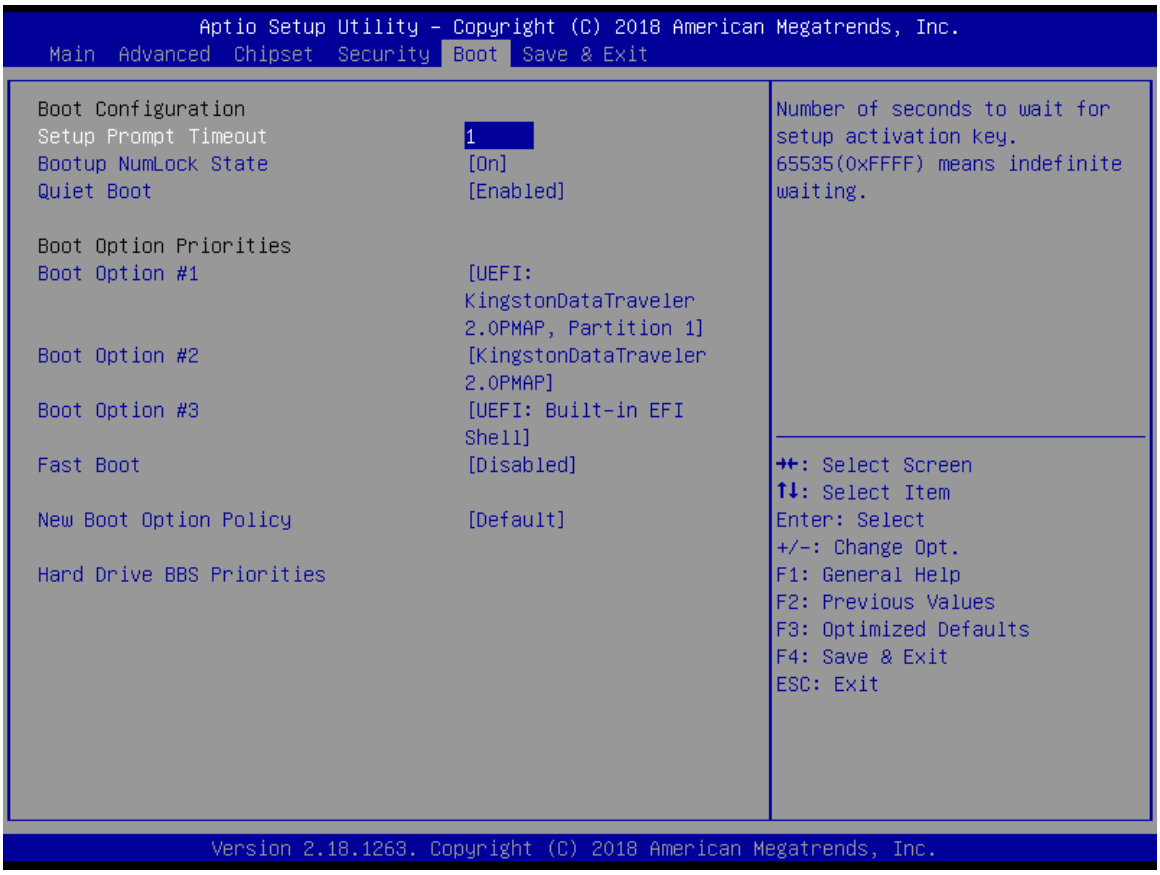
Administrator Password

Set the administrator password.

User Password

Set the normal user password.

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

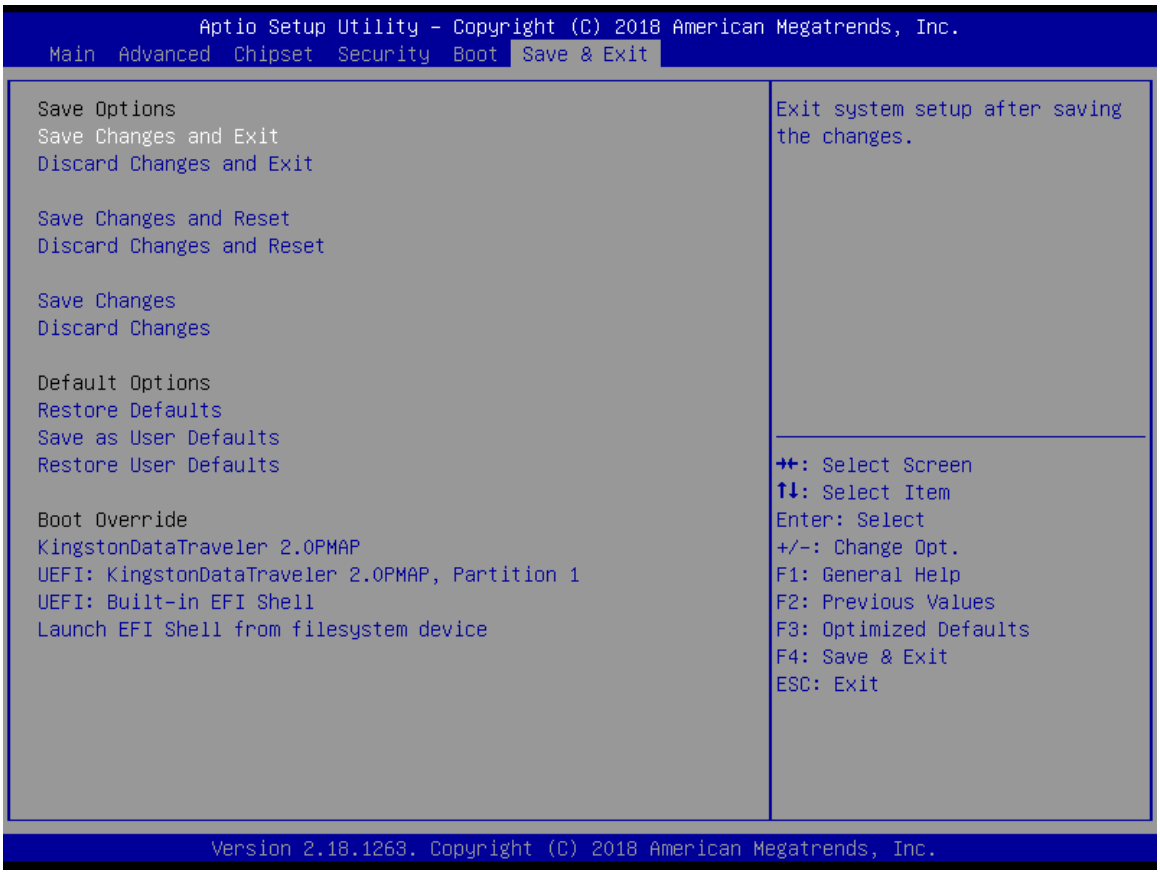
Fast Boot

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

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.

3.2.7 Save&Exit menu



This item includes:

Save changes and Exit;

Discard Changes and Exit;

Save Changes and Exit;

Discard Changes and Reset;

Save Changes;

Discard Changes;

Default Changes;

Boot Override

You can directly select the device to be started, press "Enter" to start directly.

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 BRAV-7302 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:

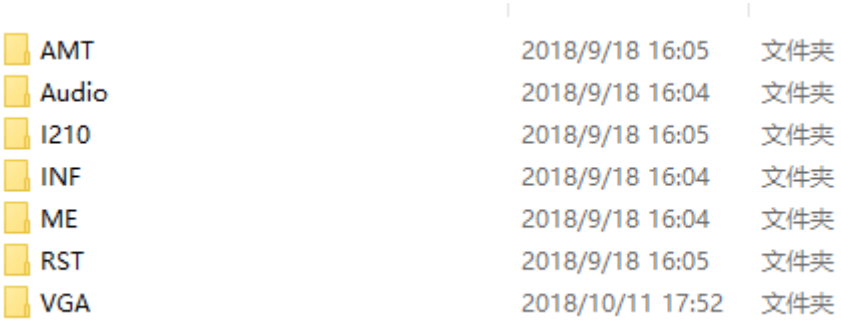


Figure 4.1

Step 1 – Install AMT Driver
Step 2 – Install Audio Driver
Step 3 – Install I210 LAN Driver
Step 4 – Install INF Driver
Step 5 – Install ME Driver
Step 6 – Install RST Driver
Step 7 – Install VGA Driver

Please read instructions below for further detailed installations.

4.2 Installation:

Insert the BRAV-7302 CD-ROM into the CD-ROM drive. And install the drivers in turn.

Step 1 – Install AMT Driver
1. Double click on the AMT 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 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 3 –Install I210 LAN Driver
1. Double click on the I210 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 INF Driver
1. Double click on the INF 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 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 6 –Install RST Driver
1. Double click on the RST 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 7 –Install VGA Driver
1. Double click on the VGA 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 CPU TEMP LED driver

The BRAV-7302 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.

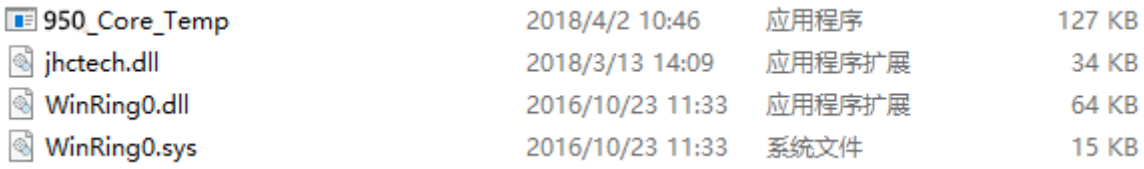


Figure 4.2

4.4 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_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* ============================================================================*/

/*============================================================================
 1  * void watchdog_set(int time);
 2  * function description： Watchdog function
 3  * parameter description： time is to Set the dog feeding time， Value between 0 and 255
                            Setting 0 means to turn off the watchdog
 4  * creation date：
 5*============================================================================*/

/*============================================================================
 1   * void smbus_16pin_gpio_mode(int port,int mode);
 2   * function description: Subcard input and output mode settings
 3   * parameter description:
```

Parameter: port represents the number of the GPIO, 1 or 2

Mode 8 bit of a bit, each bit controls the input and output mode of a GPIO pin,

Bit =1, the corresponding pin is used as the input port.

Bit =0, the corresponding pin is used as an output port.

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

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

4 * creation date：

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

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

1 * void smbus_16pin_gpio_output(int port,int level);

2 * function description： high and low levels output of the subcard

3 * parameter description:

Parameter: port represents the number of the GPIO, 1 or 2

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

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

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

4 * creation date：

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

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

1 * int smbus_16pin_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

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

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

4 * creation date:

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