ALAD-K1220T

User's Manual

Version Note

No.	Ver.	Note	Date	Writer
1	A1.0	First publish	20170504	Eileen Lee

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Acknowledgements

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http://www.jhctech.com.cn

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

ALAD-K1220T series are a intelligent, fanless embedded panel, powered by Intel® Skylake-U Celeron or Core I3/I5/I7 CPU.

This product offers multiple I/O interface, there are 1*HDMI interface, 2*Giga Lan ports, 4*USB3.0 ports, 2*COM ports, 1*Mini PCIe socket is PCIex1 and USB signal and 1*M.2 socket.

ALAD-K1220T series support 12.1 inch 1024*768@60Hz TFT LCD, with 5-wire resistive or projected capacitive touch screen, 1*2.5 inch SATA HDD driver bay and 1*M.2 for storage, DC 9~36V power input.

1.2 Features

1、Aluminum die-casting chassis, fanless design;

2、12.1" LED TFT LCD, 5-wire resistive or projected capacitive touch;

3、Intel® Celeron or Skylake-U Core I3/I5/I7 CPU;

4、1*DDR4L 2133 SODIMM, MAX 16GB;

5、1*Mini PCIe(PCIe+USB), 1*M.2 2242 B-Key;

6、2*COM, 2*LAN, 4*USB3.0;

7、1*2.5" HDD Bay, 1*M.2;

8、DC 9~36V power input;

9、Front ATX power button & rear power SW signal connector;

10、Flat bezel design, IP65 front panel;

11、Easy to assemble and disassemble HDD cover。

1.3 Specifications

1.3.1 General

CPU:

Intel® Skylake-U Core I3-6100U 2.3GHz, 2 cores and 4 threads, TDP 15W(Optional Celeron 3955U and I5-6300U)

BIOS: SPI 64M bit flash ROM

System Memory:

1*DDR4 2133 SODIMM, MAX 16GB

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

Serial Ports: 2* RS232/422/485, D-sub 9 male

USB: 4* USB 3.0 Type A Port in rear

Expansion Interface:

1* Mini PCIe with PCIeX1\USB2.0 or SATA signal, support wifi and 3G etc. ,jumper to be mSATA

1*PCI/PCIe X4(X1 signal)(Optional)

1* M.2 2242 B-Key（PCIe+USB+SATA）

Storage: 1* 2.5" SATA HDD or SSD, SATA3.0 6Gbps; 1*M.2(SATA or PCIe signal)

1.3.2 Display and Touch

Chipset: Intel® HD Graphics 520

Display Memory: Shared system memory

HDMI Resolution: **U**p to 3840*2160 @30Hz

LCD：

Type	12.1 inch TFT　LED
Resolution	1024*768
Color	16.2M colors
Pixel Pitch(mm)	0.240*0.240
Brightness(cd/㎡)	500
Viewing Angle	80 degree(left), 80 degree(right), 70 degree(up), 70 degree(down)
Operating Temperature	-30℃~70℃
Back light lifetime	50,000 hours

TOUCH:

Type	5-wire resistive touch	Projected capacitive touch
Resolution	Gap less	Gap less
Light transmittance	83%	90%
Interface	USB/RS232	USB/RS232
Power Consumption	+5 V @200 mA	+5 V @300 mA
OS	Windows and Linux	Windows and Linux
Click Lifetime	35 million times	3000 million times

1.3.3 Ethernet

Chipset: Intel® I210AT PCI express gigabit Ethernet controller

Speed: 10/100/1000 Mbps integrated

Interface: 2*RJ45

1.3.4 Audio (Optional)

Chip: RealtekALC888S-VD2-GR audio codec integrated

Speaker: 2*3W speaker out

1.3.5 Power Consumption

Input Voltage: DC 9~36V

Power Consumption:

TDP 12V/3.47A(Intel® I5-6300U CPU, 4GB DDR4 memory)

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

Power Requirement: Minimum power input: DC 12V/3.6A

1.4 Environmental Specifications

Operating temperature:

-10 ~ 55 °C (Wide operating temperature mSATA/SSD)

-0 ~ 50 °C (Conventional operating temperature SSD&HDD)

Relative humidity: 10~95% @ 40 ℃ (non-condensing)

Storage temperature: -20 ~ 60 ℃ (-4 ~ 140 ℉)

Vibration loading during operation:

With SSD/mSATA: 1Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis

Shock during operation:

– With SSD/mSATA: 10G, IEC 60068-2-64, half sine, 11 ms duration

EMC: CE, FCC Class A

1.5 Mechanical Specifications

ALAD-K1220T Dimensions: Unit: mm

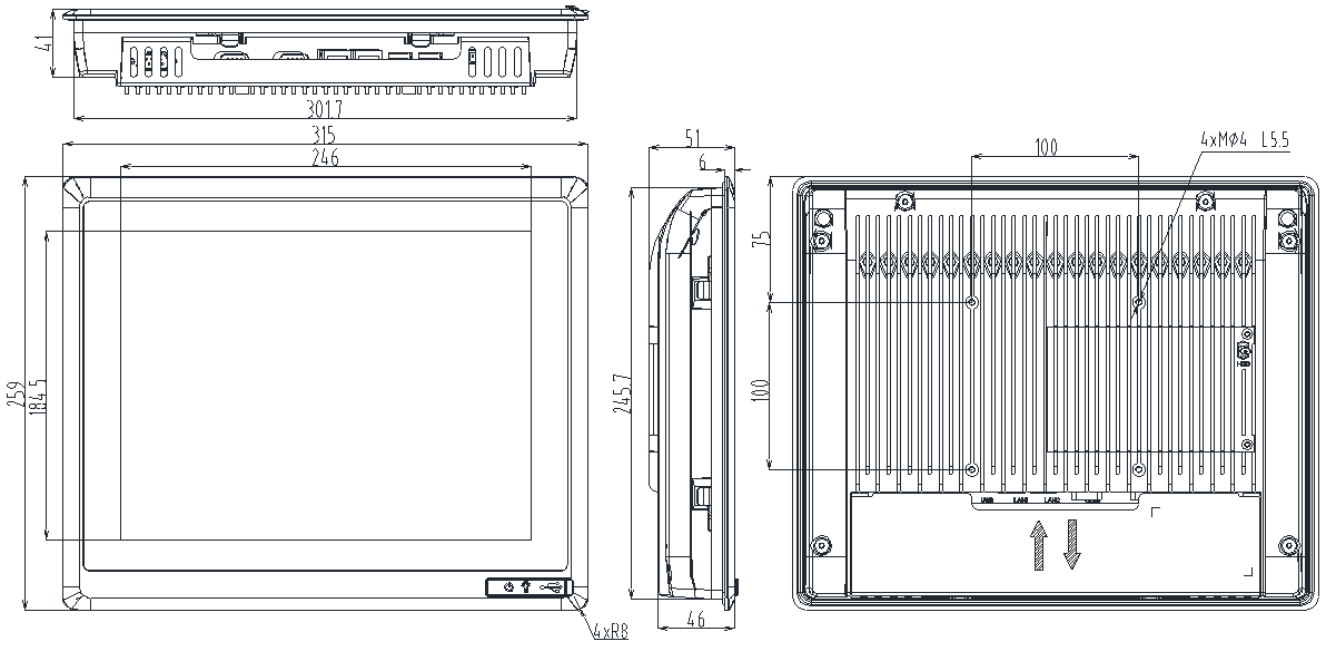

Figure 1.1

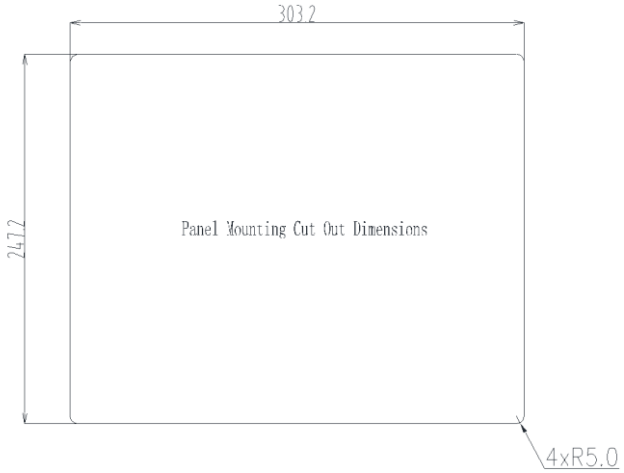

Figure 1.2

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 ALAD-K1220T Embedded Panel Computer consists of a JHC SBC (Single Board Computer) board EPI-I901 that is housed in an aluminum plate chassis. Your HDD and SDRAM, are all readily accessible by removing the aluminum cover. Any maintenance or hardware upgrades can be easily completed after opening the chassis.

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

Main board Internal Diagram-front side:

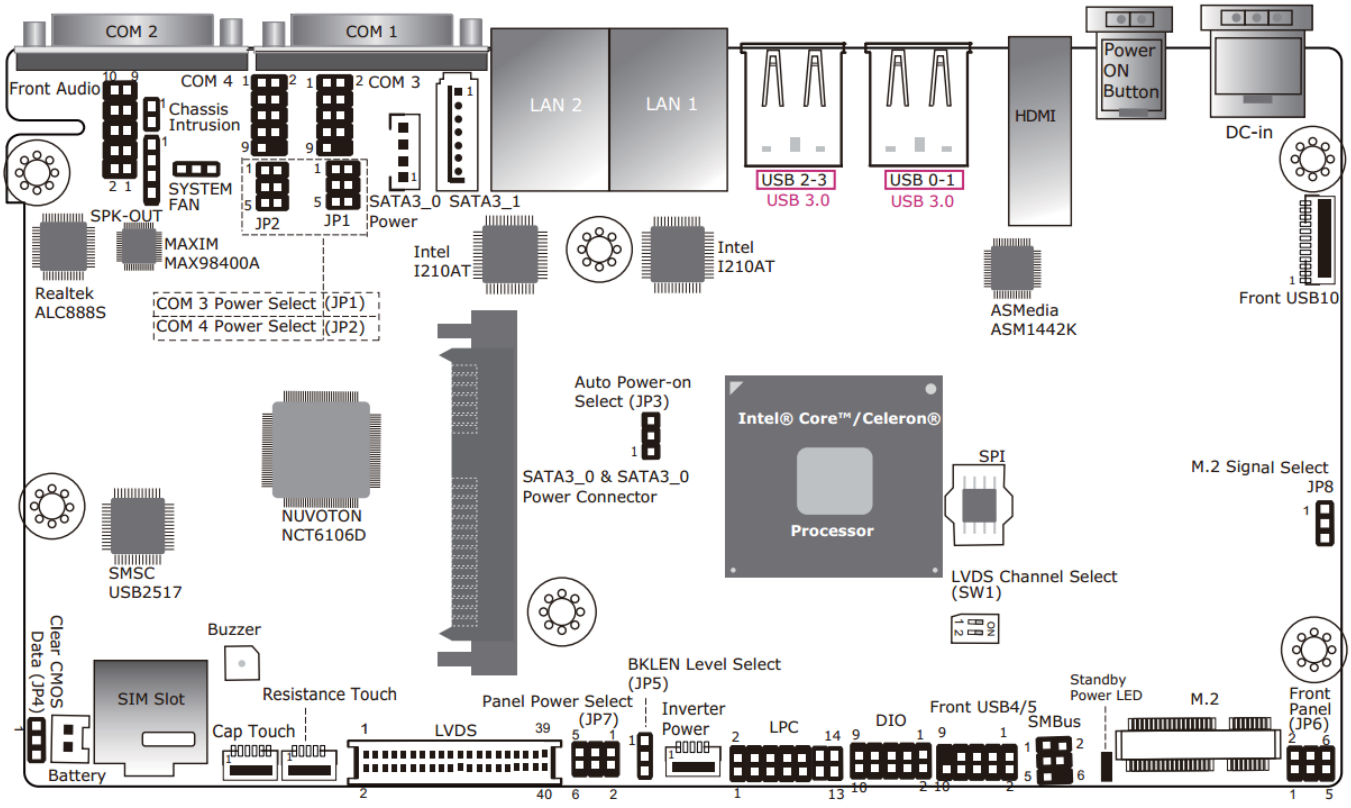

Figure 2.1-1 EPI-I901 Diagram-front side

Main board internal diagram-back side

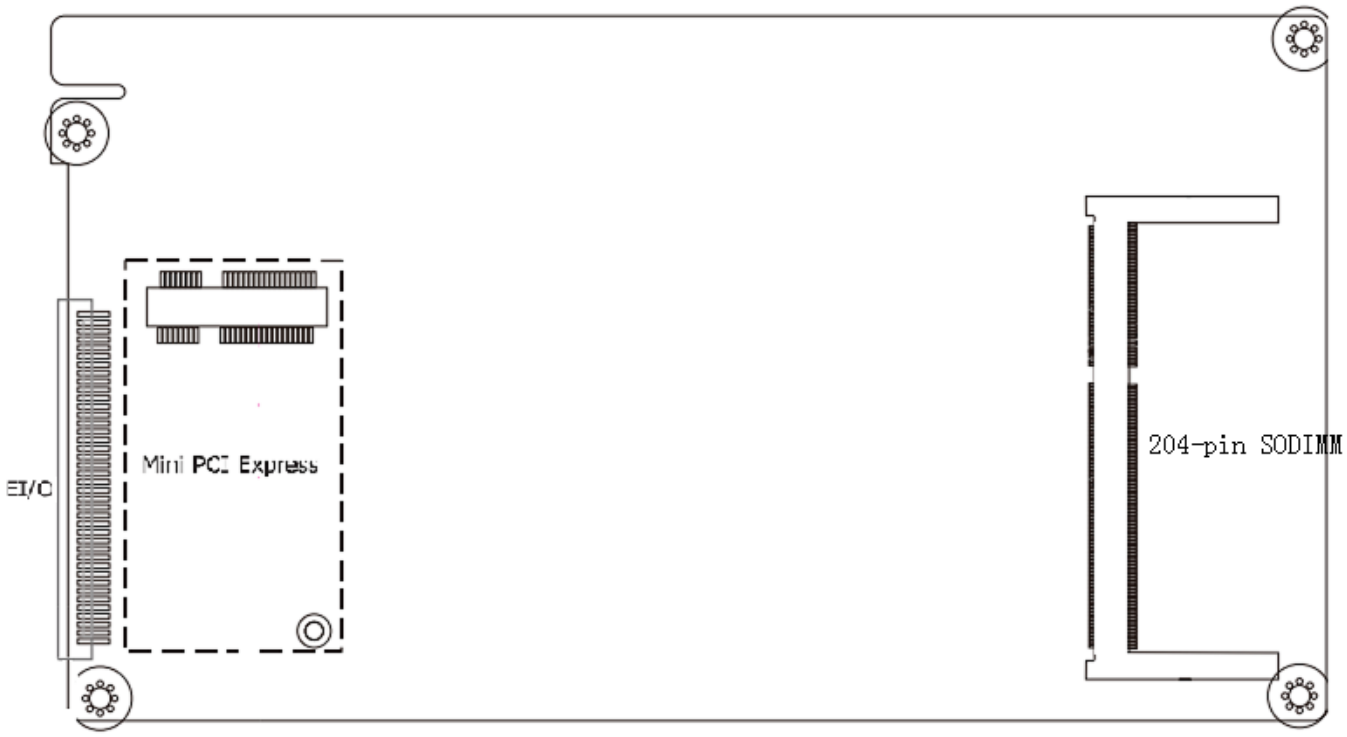

Figure 2.2 EPI-I901 diagram-back Side

2.2.1 Setting Jumpers

You can configure your ALAD-K1220T 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.

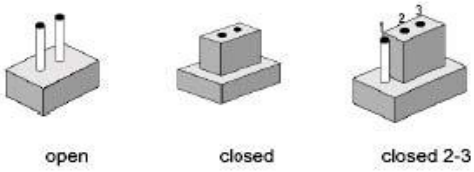

Figure 2.3

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

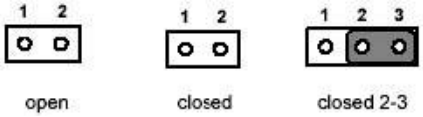

Figure 2.4

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 ALAD-K1220T Embedded Panel 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:

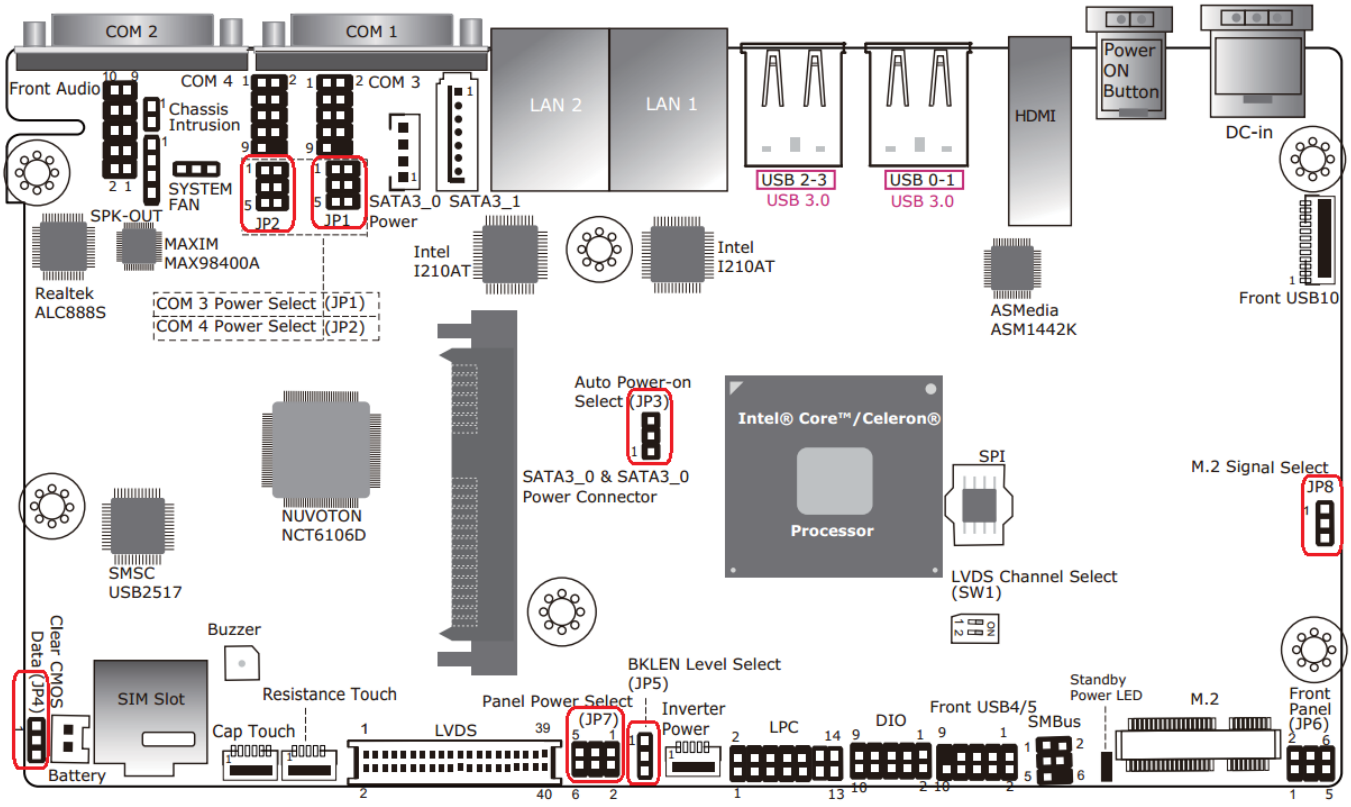

Figure 2.5 EPI-I901 Jumper

Jumpers

Jumper	Name	Description
JP1	COM3 RS232 Power Select	6-Pin Block
JP2	COM4 RS232 Power Select	6-Pin Block
JP3	Power-on Select	3-Pin Block
JP4	Clear CMOS Data Setting	3-Pin Block
JP5	LCD BKLEN Level Select	3-Pin Block
JP7	LCD Back light Power Select	6-Pin Block
JP8	M.2 Signal Select	3-Pin Block

2.3.1 JP1/JP2:COM3/COM4 RS232 Power Select

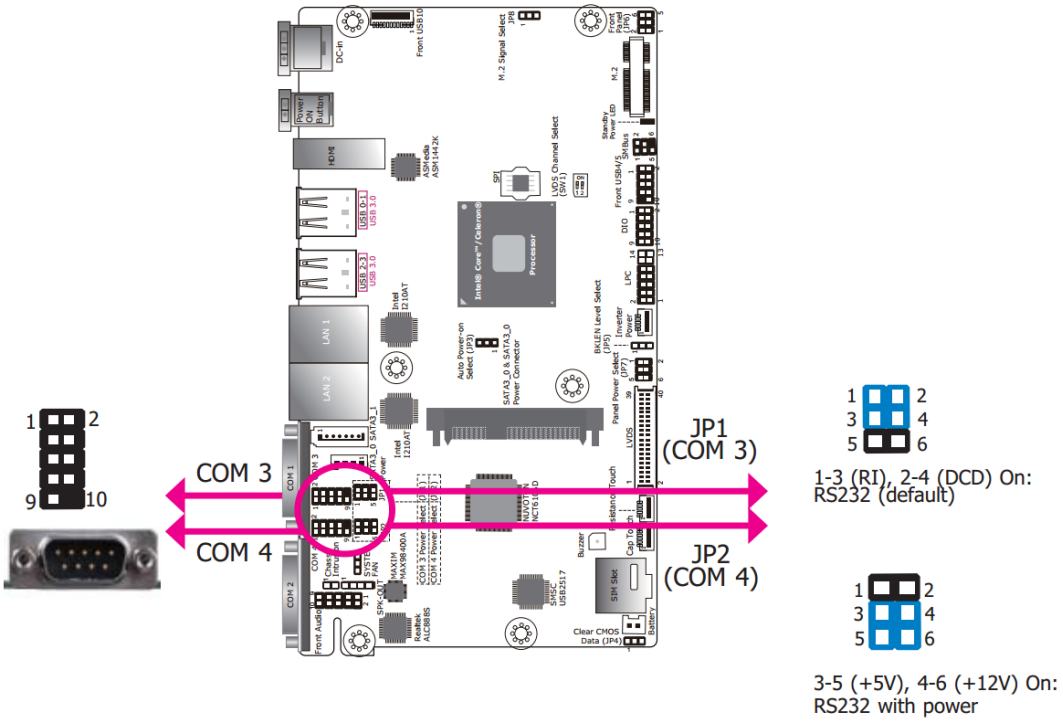

Figure 2.10

JP1 (for COM 3) and JP2 (for COM 4) are used to configure Serial COM ports to pure RS232 or RS232 with power. The pin functions of Com 3 and COM 4 will vary according to JP1's and JP2's setting respectively.

2.3.2 JP3: Power-on Select

JP3 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, connect pins 2 and 3 of JP3. If you want to use the power button, connect pins 1 and 2 of JP3.

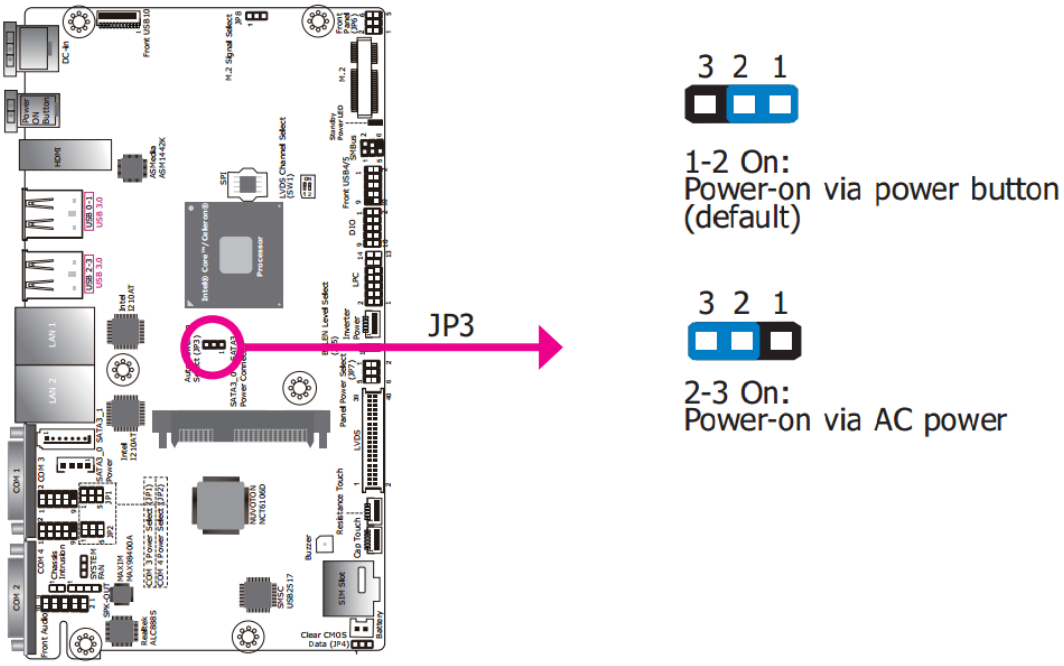

Figure 2.6

When using JP3 "Power On" feature to power the system back on after a power failure occurs, the system may not power on if the power lost is resumed within 5 seconds (power flicker).

2.3.3 JP4: Clear COMS Data

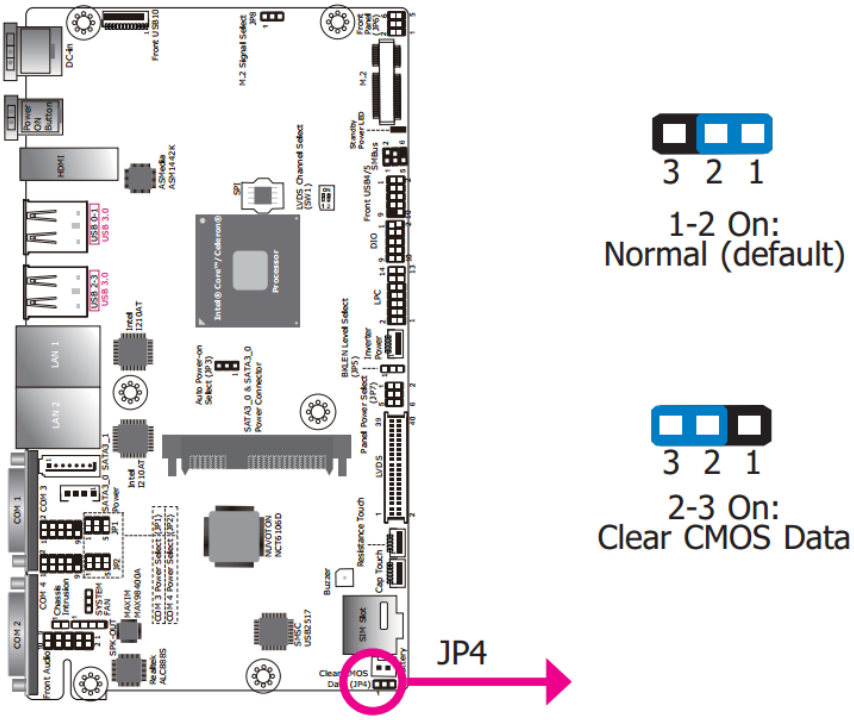

Figure 2.7

If you encounter the followings,

a) CMOS data becomes corrupted.

b) You forgot 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 JP4 pins 2 and 3 to On. Wait for a few seconds and set JP4 back to its default setting, pins 1 and 2 On.

3. Now plug the power cord and power-on the system.

2.3.4 JP5: BKLEN Level Select

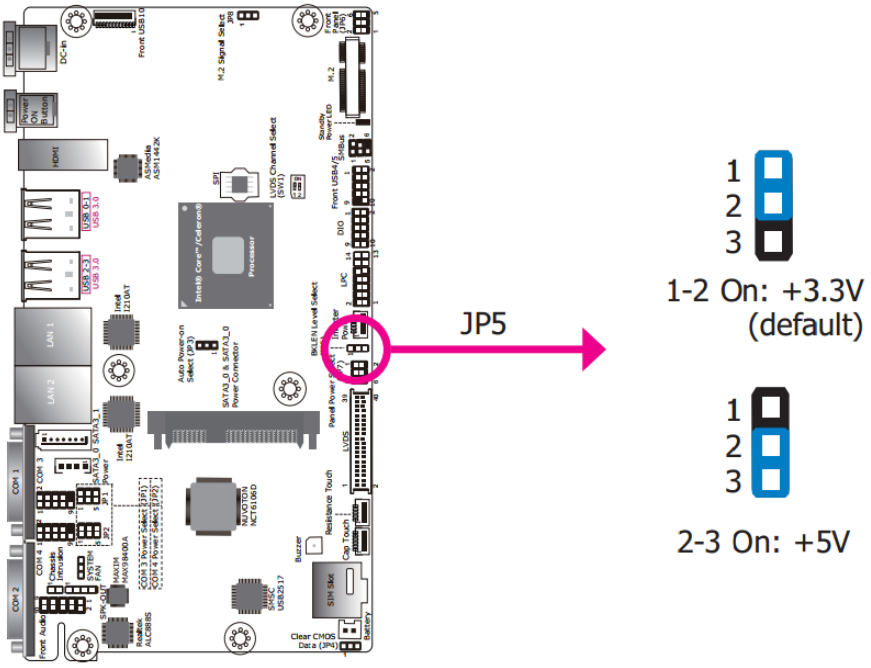

Figure 2.9

JP5 is used to select the level of BKLEN：3.3V or 5V.

2.3.5 JP7:LCD Back light Power Select

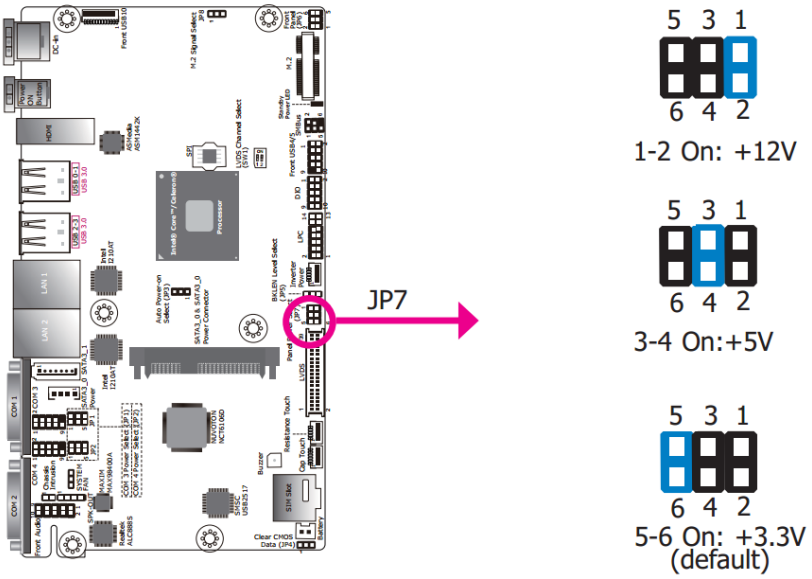

Figure 2.8

JP7 is used to select the power supplied with the LCD panel.

Important: Before powering-on the system, make sure that the power settings of JP7 match the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

2.3.6 JP8:M.2 Signal Select

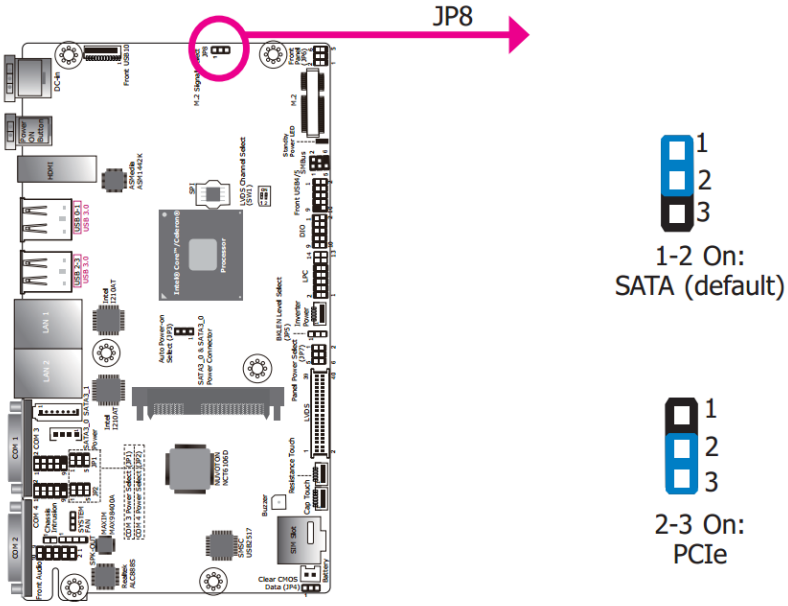

Figure 2.11

JP8 is used to select the M.2 signal.

2.4 I/O indication

Front view

Figure 2.12

Remark:1 power on/off & power LED & USB2.0 &

Rear view

Figure 2.13

Remark:1 DC 9-36V; 2 Remote SW; 3 HDMI; 4 USB*4; 5 LAN*2; 6 COM*2

2.4.1 Ethernet Connector (LAN)

The ALAD-K1220T is equipped with two Intel I210AT chip 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

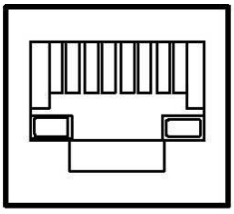

Figure 2.14 Ethernet Connector

Table 2.1: RJ-45 Connector pin assignments	
Pin	10/100/1000BaseT Signal Name
1	TX+(10/100), BI_DA+(GHz)
2	TX-(10/100), BI_DA-(GHz)
3	RX+(10/100), BI_DB+(GHz)
4	BI_DC+(GHz)
5	BI_DC-(GHz)
6	RX-(10/100), BI_DB-(GHz)
7	BI_DD+(GHz)
8	BI_DD-(GHz)

2.4.2 Power Input Connector (DC-IN)

This 3-pin 3.81mm connector provides maximum of 60W power and is considered a low power solution. Connect a DC power cord to this connector. Use a power adapter within 9~36V DC output voltage. Using a voltage out of the range 9~36V may fail to boot the system or cause damage to the system board.

Figure 2.15 3-pin 3.81 Connector

Table 2.2: Power Connector Pin Assignments	
Pin	Signal Name
1	+9~36V
2	NC
3	GND

2.4.3 Power SW button Connector

The power button is a round button which is used to power on or power off the device.

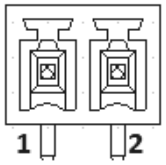

Figure 2.16 2-pin 3.81 Connector

Table 2.3: Power SW Connector Pin Assignments	
Pin	Signal Name
1	PWR_BTN
2	GND

2.4.4 USB Connector

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

The EPI-I901 board is equipped with four on board USB 3.0 ports (USB 1-2/3-4), two on board USB 2.0 ports (USB 4-5) . The 9-pin connector allows you to connect 2 additional USB 2.0 ports (USB 4-5).The additional USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis and then insert the USB port cables to a connector.

The additional USB2.0 ports by type A connectors in the front . Please refer to Table 2.4 for their pin assignments.

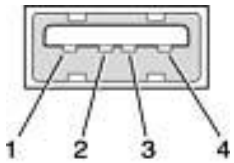

Figure 2.17 USB2.0 connector

Table 2.4: USB2.0 Connector	
Pin	Signal name
1	VCC
2	USB_P0
3	USB_P0+
4	GND

4 USB3.0 ports by type A connectors in rear IO. Please refer to Table 2.5 for their pin assignments.

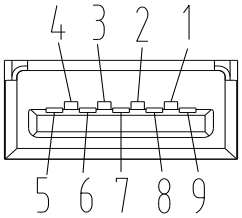

Figure 2.18 USB3.0 Connector

Table 2.5: USB3.0 Port Pin Assignments	
Pin	Signal Name
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

2.4.5 COM1/2 Connector

COM 1 and COM 2 are D-sub 9-pin connectors , they can be configure as RS232/RS422 and RS485 by BIOS setting. The serial ports are asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

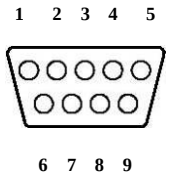

Figure 2.19 COM1/2 Connector

Table 2.6: COM1/2 Serial Port Pin Assignments			
Pin/Type	RS232 Signal	RS422 Signal	RS485 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	IR	NC	NC

2.4.6 COM3/4 Connector

COM3/4 are all 2*5 10-pin connectors, external serial port, standard RS232. The pin functions of COM port 3/4 will vary according to JP1's and JP2's setting. JP1 and JP2 allows you to configure the Serial COM port 3/4 to RS232. Refer to "COM3/COM4 RS232/Power Select" in this chapter for more information.

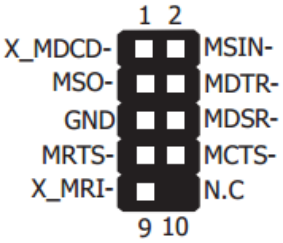

Figure 2.20 COM3/4Connector

Table 2.6: COM3/4 Serial Port Pin Assignments			
Pin	Signal Name	Pin	Signal Name
1	DCD	6	DSR
2	RxD	7	RTS
3	TxD	8	CTS
4	DTR	9	RI /+5V/+12V
5	GND	10	NC

2.4.7 SATA0 (Serial ATA) Connector

There are Serial ATA 3.0 ports with data transfer rate up to 6Gb/s (SATA 0). The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA data cable to a SATA connector and insert the other on-board docking parallelly into another Serial ATA device.

Figure 2.21 SATA0 Connector

Table 2.7: SATA Pin Assignments			
Pin	Signal Name	Pin	Signal Name
1	GND	5	RXN
2	TXP	6	RXP

3	TXN	7	GND
4	GND		

2.4.8 SATA(Serial ATA) Power Connector

2.5mm Pitch 1*4 Pin wafer Connector, One on board 5V and 12V output connectors are reserved to provide power for SATA devices.

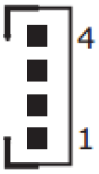

Figure 2.22 SATA Power Connector

Table 2.8: SATA Power Pin Assignments	
Pin	Signal Name
1	DC 12V
2	GND
3	GND
4	DC 5V

2.4.9 Digital IO Connector

The 8-bit Digital I/O 2*5 Pin connector provides powering-on function to external devices that are connected to these connectors.

Figure 2.23 DIO Connector

Table 2.9: Digital IO Port Pin Assignments			
Pin	Signal	Pin	Signal
1	DIO7	2	DIO6
3	DIO5	4	DIO4
5	DIO3	6	DIO2
7	DIO1	8	DIO0
9	+5V	10	GND

2.5 Installation

2.5.1 HDD/SSD Installation

Step 1.Unscrew the 2 screws on the HDD cover, and open the HDD cover.

Figure 2.24

Figure 2.25

Step 2.Screw the HDD/SSD on the drive bay though 4 screws .

Figure 2.26

Step 3.Push the drive bay into the SATA connector, and screw 1 screw to lock drive bay .

Figure 2.27

Figure 2.28

Step 4.Push HDD cover back to the chassis, screw 2 screws on the HDD cover.

Figure 2.29

2.5.2 Installing SODIMM module

Step 1. Unscrew the 9 screws on the back chassis, and open the back chassis .

Figure 2.30

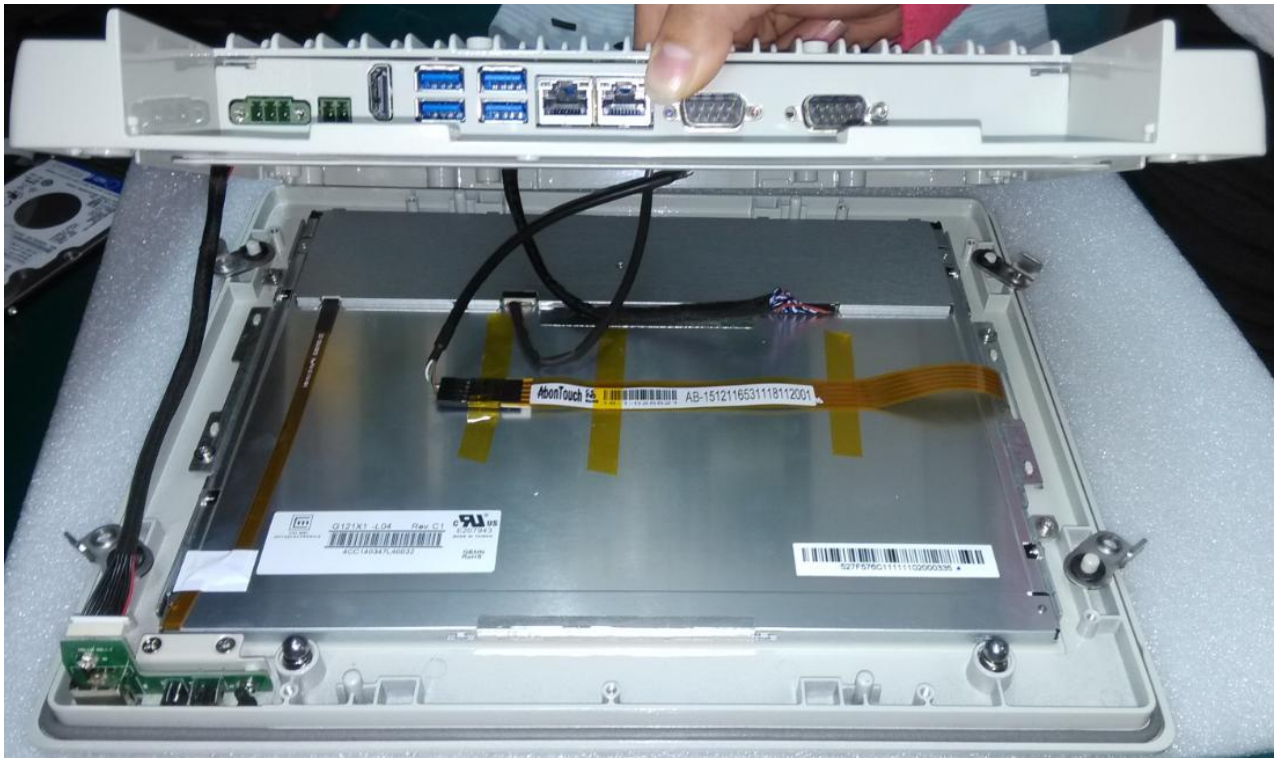

Figure 2.31

Step 2.Pull out 4 cable connectors from front IO card、touch panel and LCD.

Figure 2.32

Step 3. Hold the module with its notch aligned with the socket of the board and insert it at a 30 degree

angle into the socket. Push down the module until the clips at each end of the socket lock into position.

Figure 2.33

Figure 2.34

Step 4. Connect 4 cable connectors into front IO card、touch panel and LCD

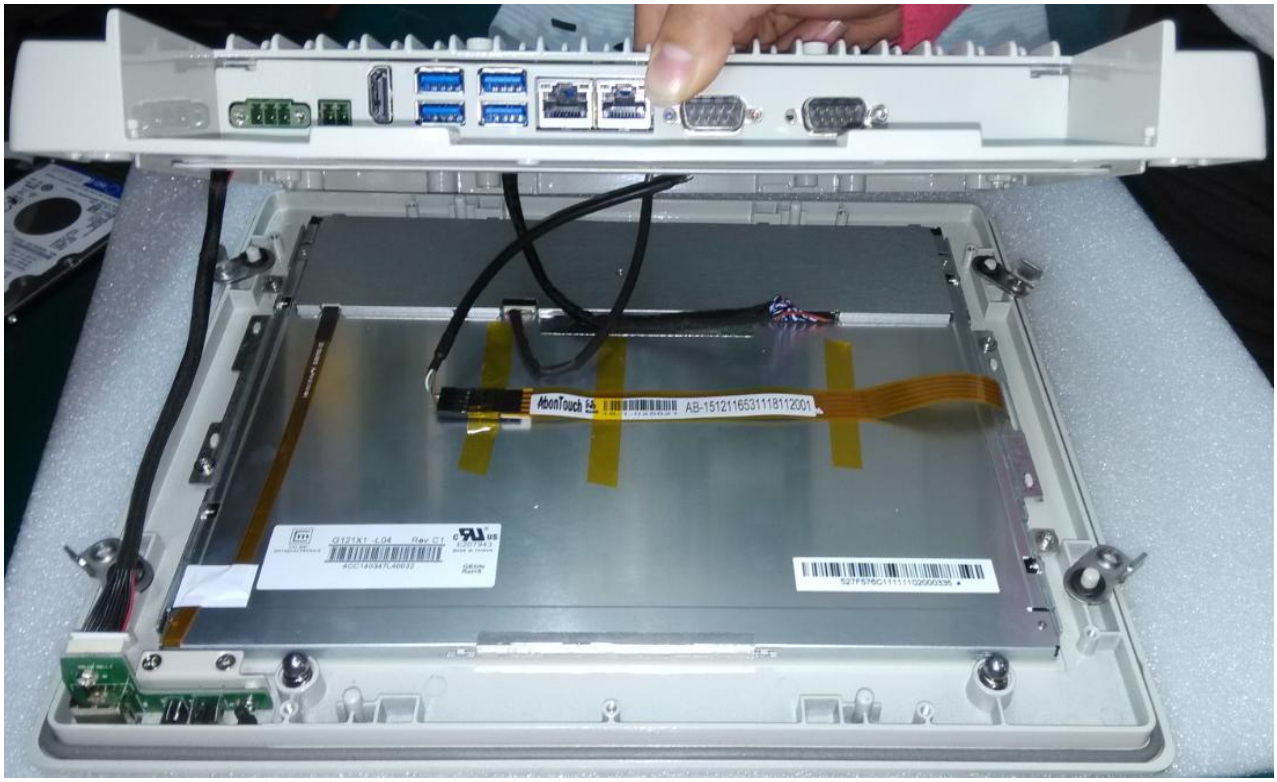

Figure 2.35

Step 5. Close the chassis back to the front panel, and screw the 9 screws on the chassis.

Figure 2.36

2.5.3 Installing mSATA Flash Card module

Step 1. Unscrew the 9 screws on the back chassis, and open the back chassis .

Figure 2.37

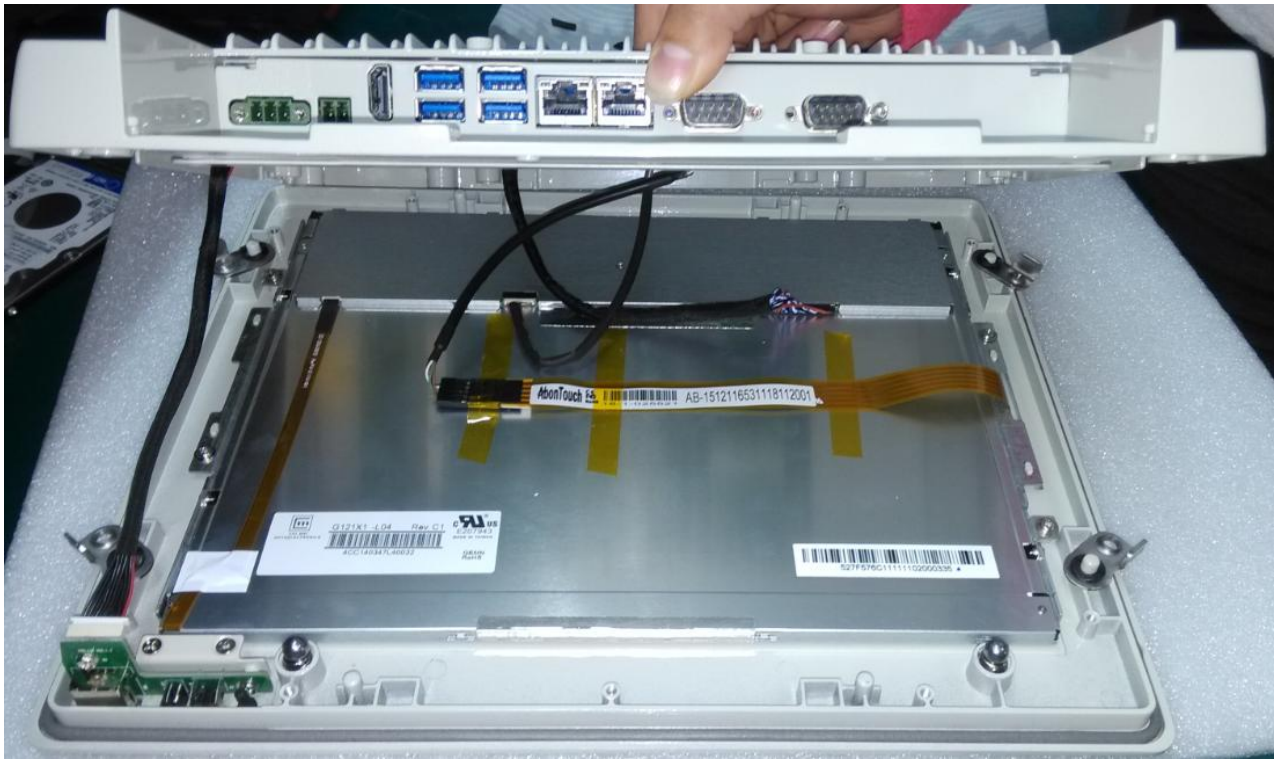

Figure 2.38

Step 2.Pull out 4 cable connectors from front IO card、touch panel and LCD.

Figure 2.39

Step 3. Hold the module with its notch aligned with the socket of the board and insert it at a 30 degree angle into the socket. screw 1 screws to the holder as shown in the following picture.

Figure 2.40

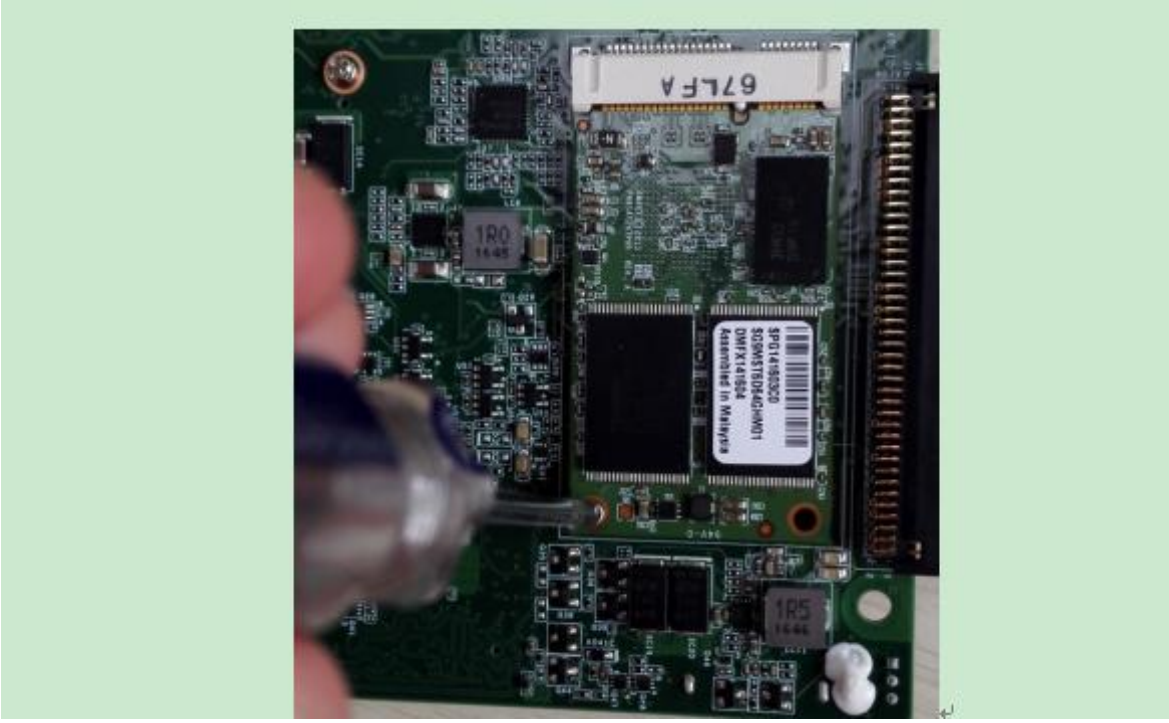

Figure 2.41

Step 4. Connect 4 cable connectors into front IO card、touch panel and LCD

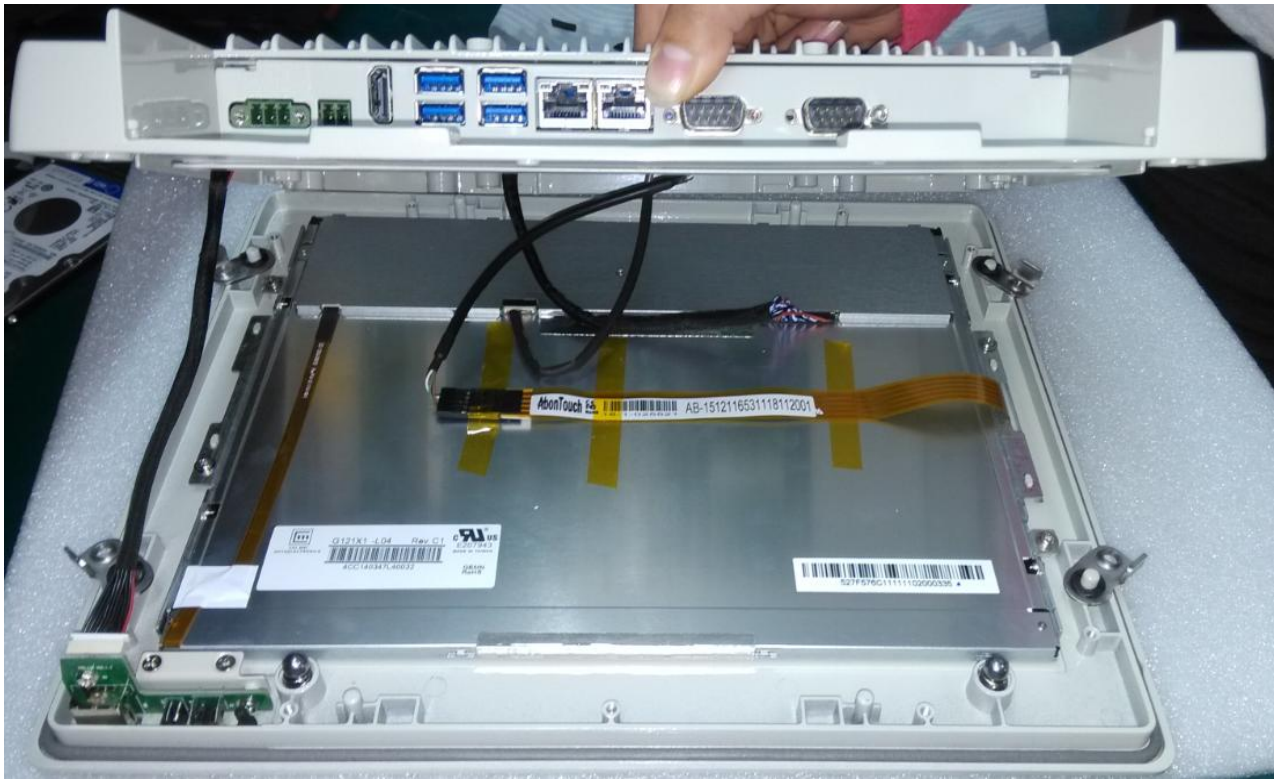

Figure 2.42

Step 5. Close the chassis back to the front panel, and screw the 9 screws on the chassis.

Figure 2.43

2.5.4 Installing I/O Cover

Step 1. Put the panel PC on the plane desk as shown in the following picture.

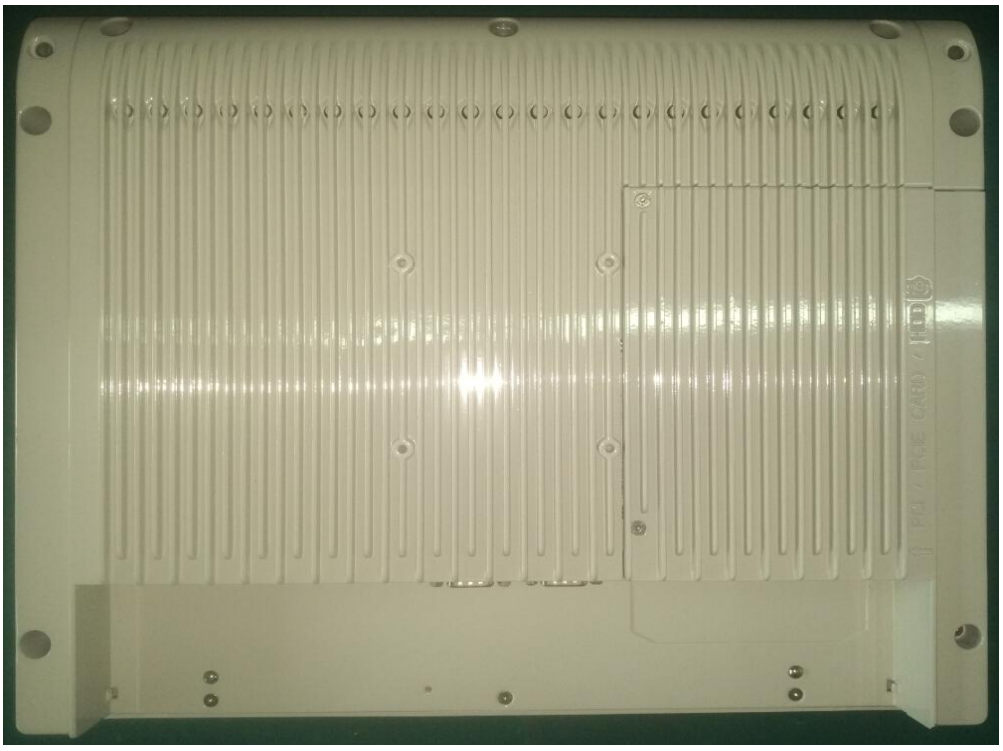

Figure 2.44

Step 2. Aligning the I/O cover at the I/O opening, note the key holes.

Figure 2.45

Figure 2.46

Step 3. Plug and push the I/O cover into the I/O opening.

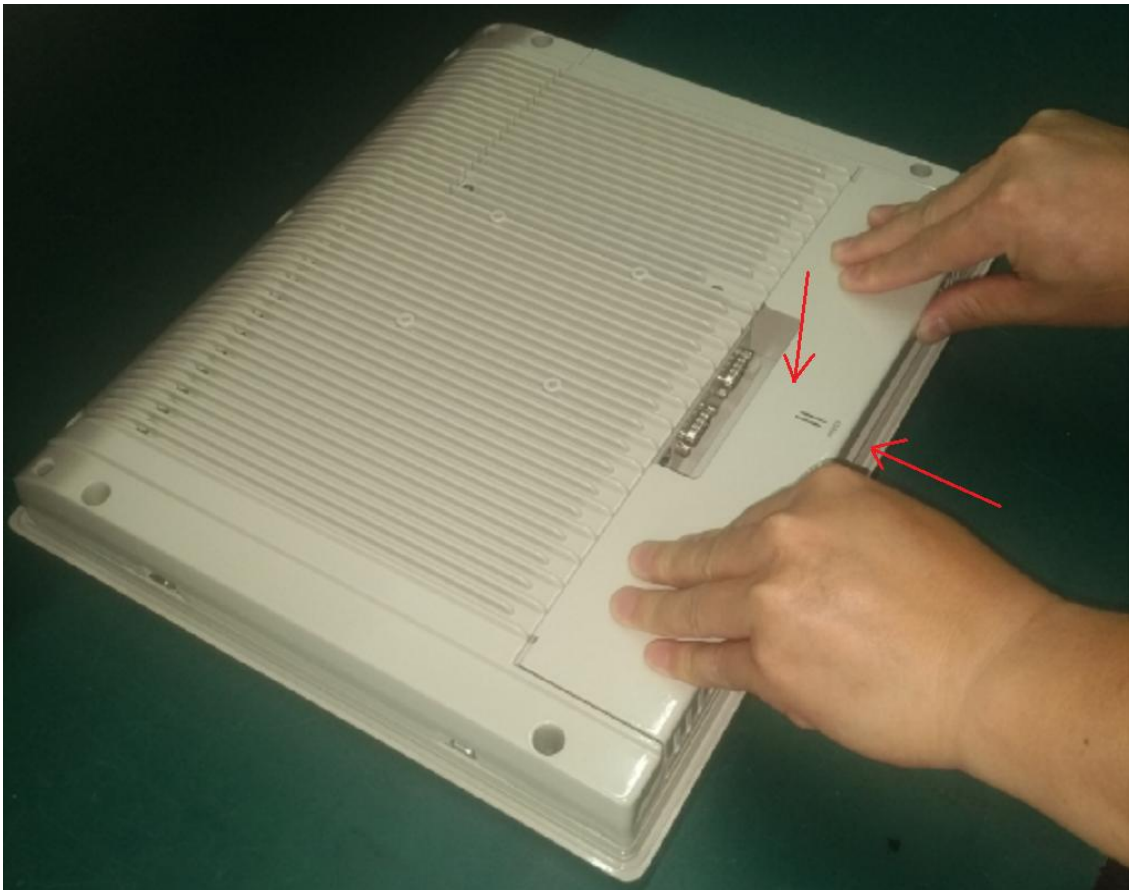

Figure 2.47

2.5.5 Front USB

Step 1. Pull out the rubber cover from the hole

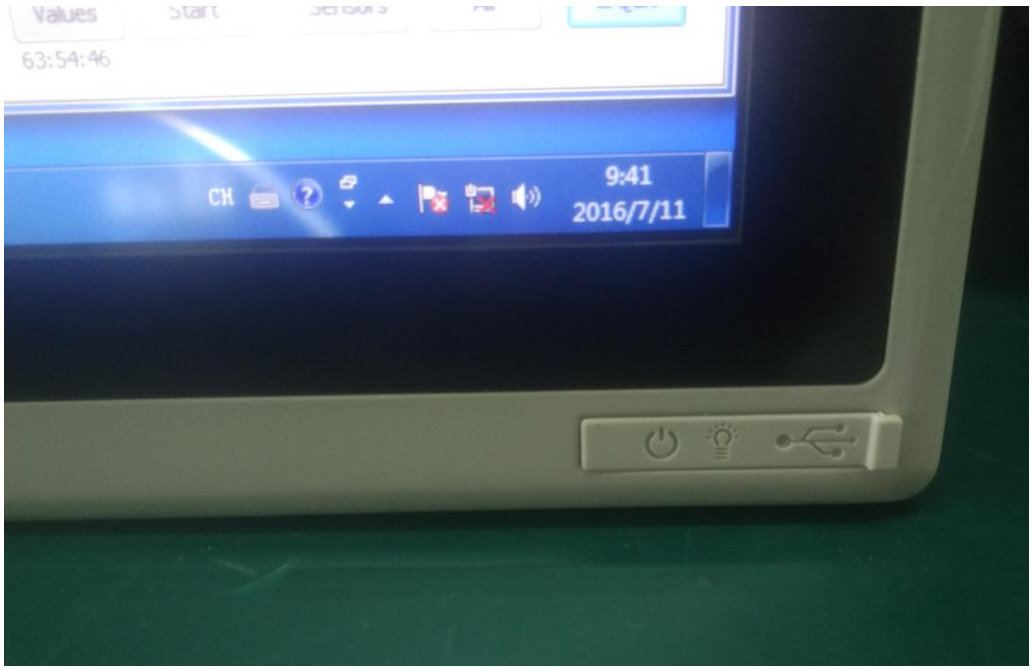

Figure 2.48

Figure 2.49

Step 2. Plug USB device into the USB type A connector.

Figure 2.50

2.5.6 Panel Mounting

Step 1. Install the panel PC into the panel opening.

Figure 2.51

Step 2. Pull out the 4 clamps from the holes around the two sides of the bezel.

Figure 2.52

Figure 2.53

Step 3. Insert the screws into each clamp and fasten them.

Figure 2.54

Figure 2.55

CHAPTER 3

BIOS Setup

3.1 Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.

3.2 Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

3.3 Entering the BIOS Setup Utility

The SBC EPI-I901's BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen. The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message "Press DEL to run setup" will appear on the screen. If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

3.4 Legends

Keys	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the hightlight up or down between submenu or fields.
<Esc>	Exit to the BIOS Setup Utility.
<F1>	Help
<F5>	Change values
<F6>	Change values
<F9>	Setup Defaults
<F10>	Save and Exit
<Enter>	Press <Enter> to enter the highlighted submenu.

3.5 Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

3.6 Sub menu

When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

3.7 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

Status Page Setup Menu/Option Page Setup Menu

Press [F1] to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

Insyde BIOS Setup Utility

3.8 Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

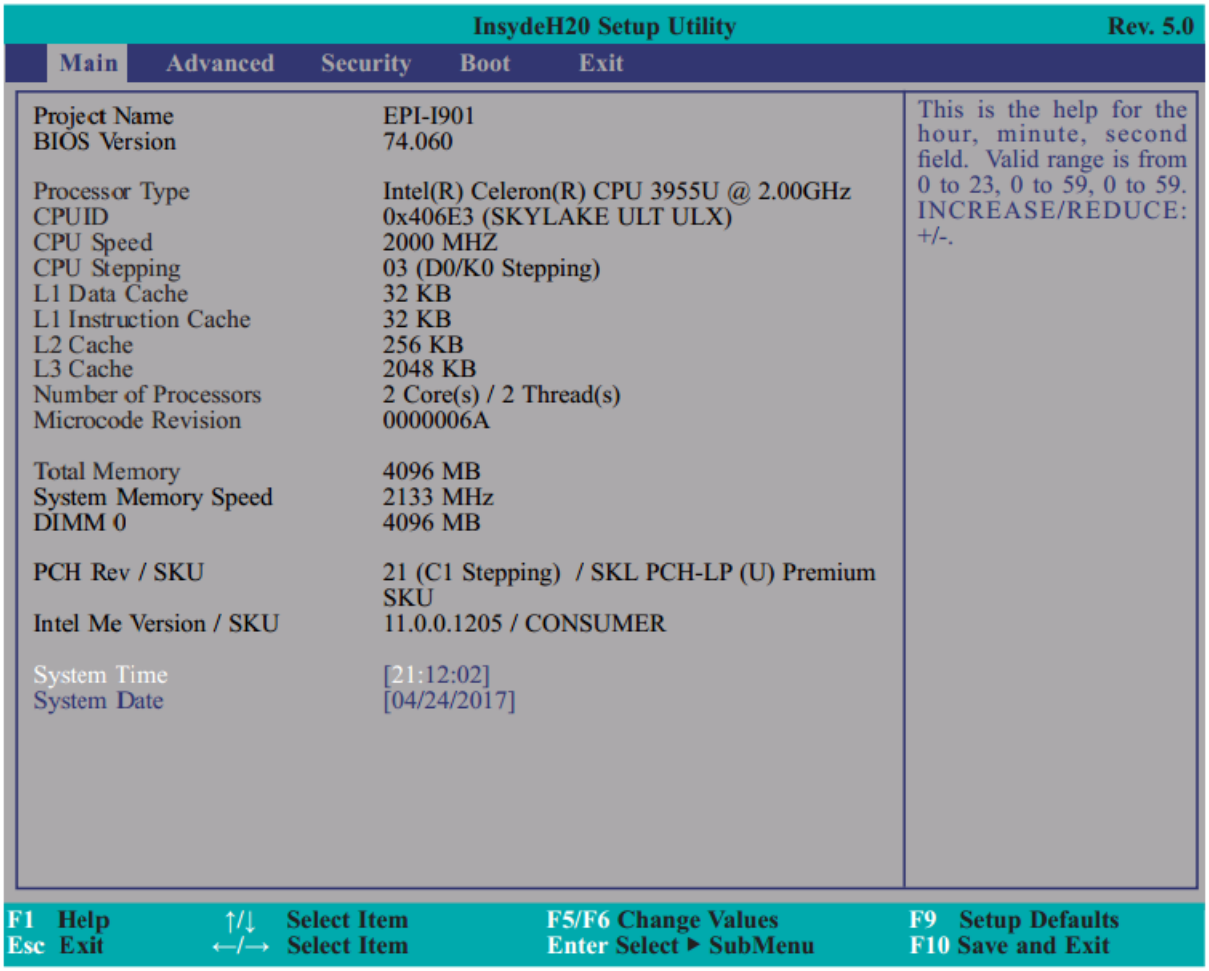

Figure 3.1 Main

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1980 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

3.9 Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let

you set some features according to your preference.

Important:Setting incorrect field values may cause the system to malfunction.

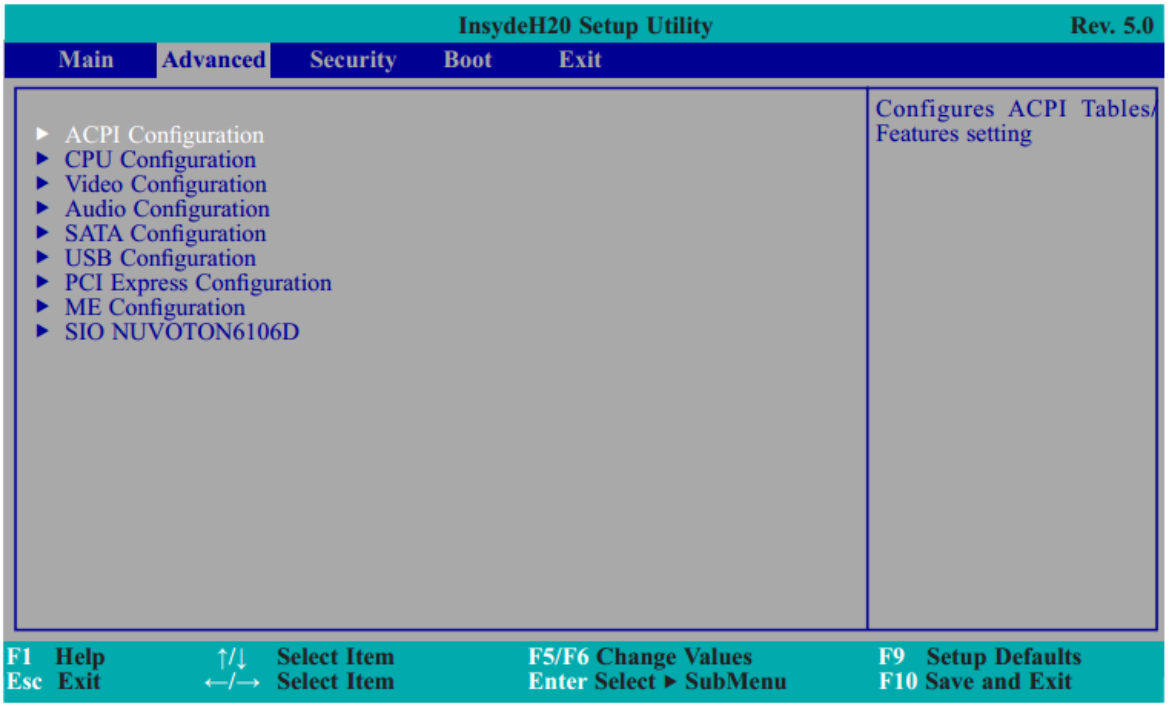

Figure 3.2 Advanced

3.9.1 ACPI Settings

This section is used to configure the system ACPI parameters.

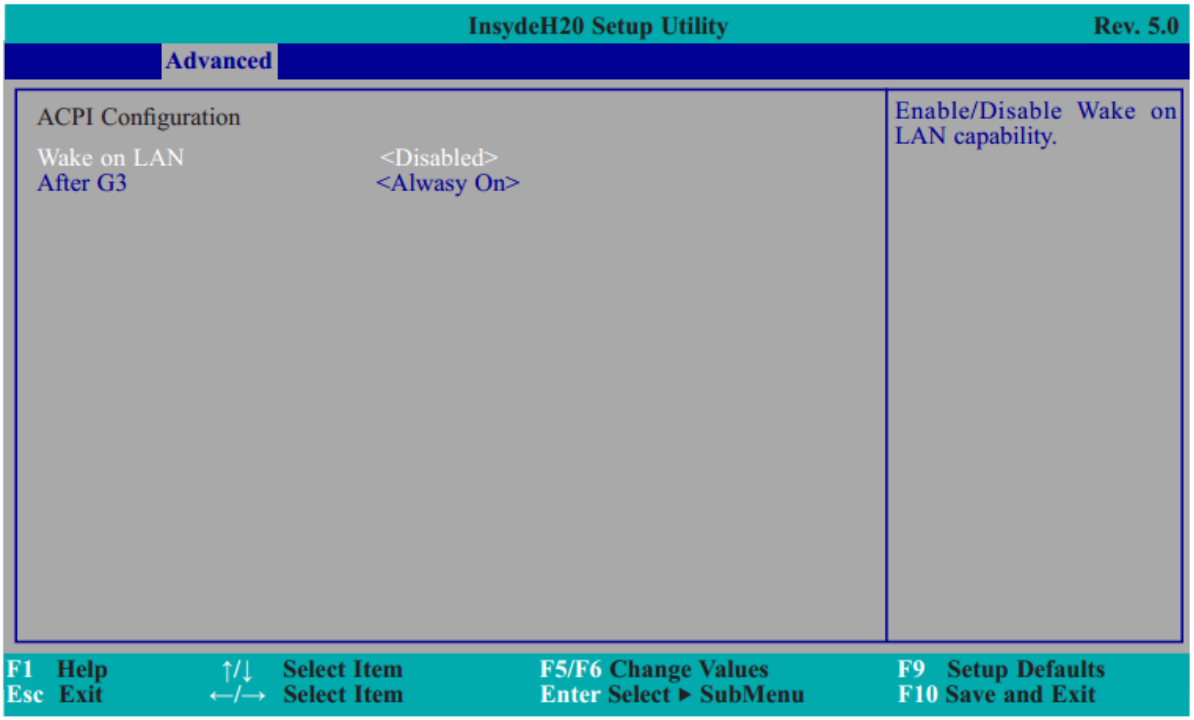

Figure 3.3 ACPI

- **Wake on LAN**

This field use to enable or disable the LAN signal to wake up the system.

- **After G3**

This field is to specify what state to go when power is re-applied after a power failure (G3 state).

>Always On The system working state.

>Always Off Off, except for trickle current to devices such as the power button.

3.9.2 CPU Configuration

This section is used to configure the CPU.

- **Intel(R) SpeedStep(tm)**

This field is used to enable or disable the Intel Enhanced SpeedStep Technology.

- **Turbo Mode**

Enable or disable the turbo mode.

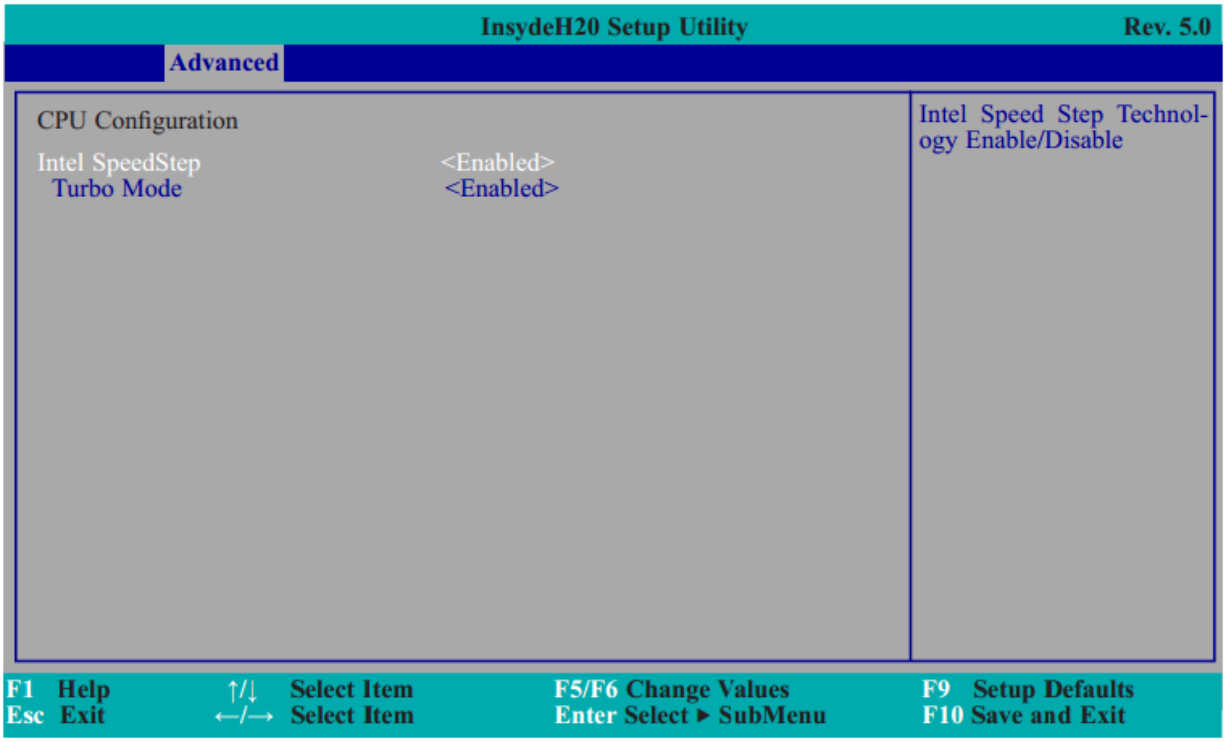

Figure 3.4 CPU Configuration

3.9.3 Video Configuration

This section configures the video settings.

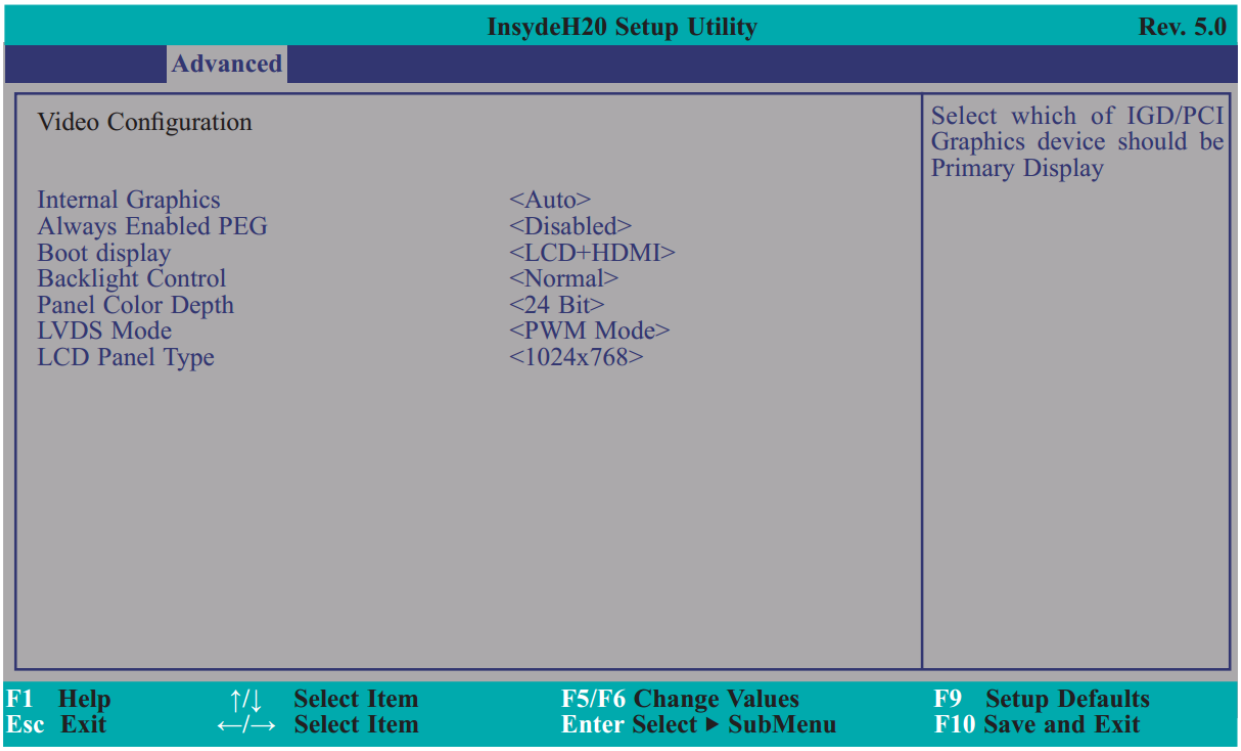

Figure 3.5 Video Configuration

- **Primary Display**

Select which of IGD Graphics device should be Primary Display

- **Integrated Graphics Device**

Enable or disable the IGD function.

- **Boot display**

Set the display device combination.

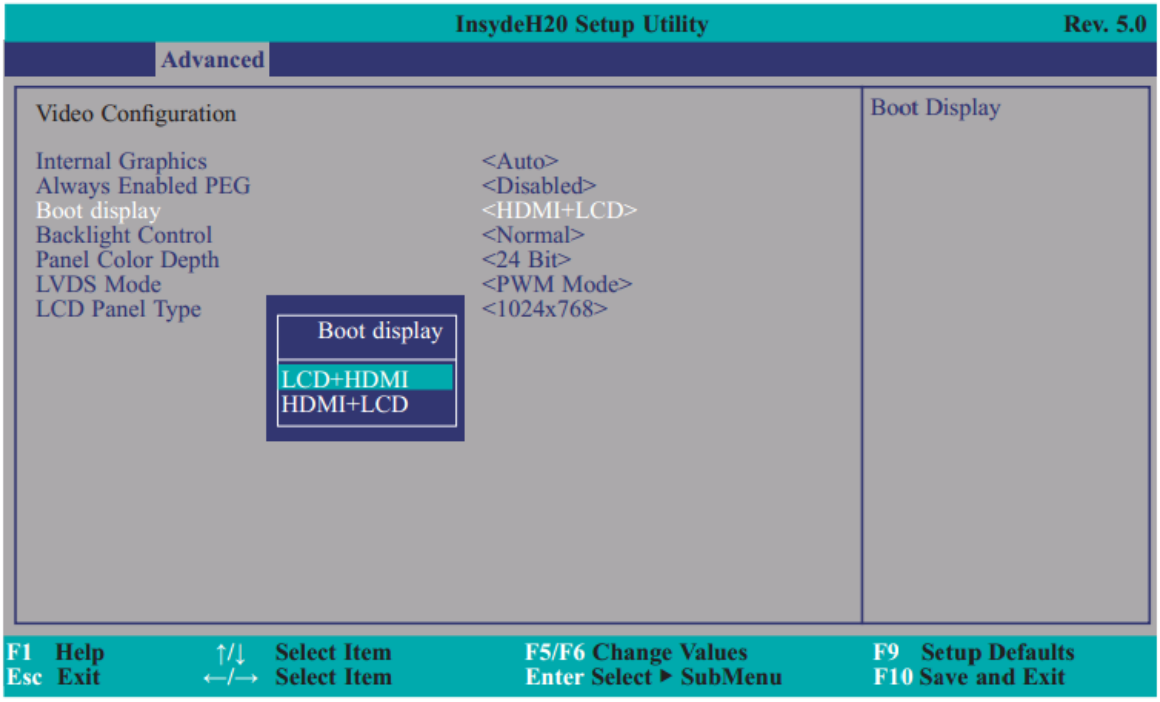

Figure 3.6 Boot display

- **LCD Panel Type**

Select the LCD panel type.

- **LCD Panel Color Depth**

Select the LCD panel color depth: 18 bit, 24 bit, 36 bit, and 48 bit.

- **Dimming Control**

Select Dimming Type PWM/DC mode for LCD.

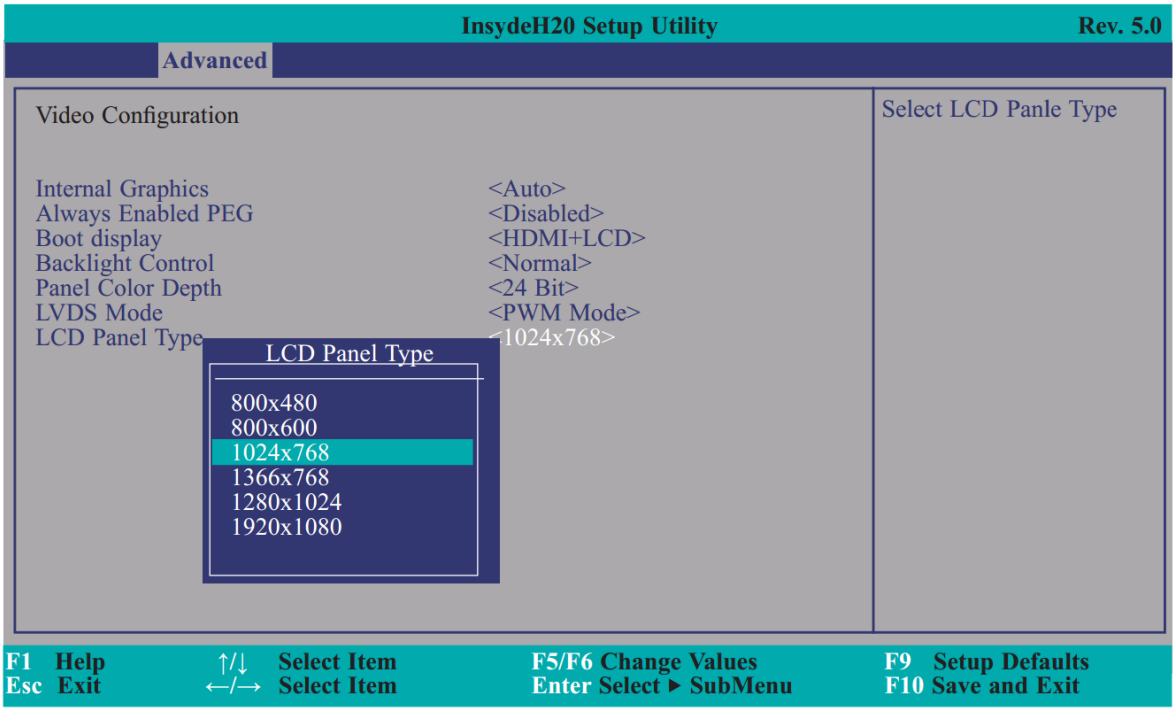

Figure 3.7 LCD panel

3.9.4 Audio Configuration

This section is used to configure the audio settings.

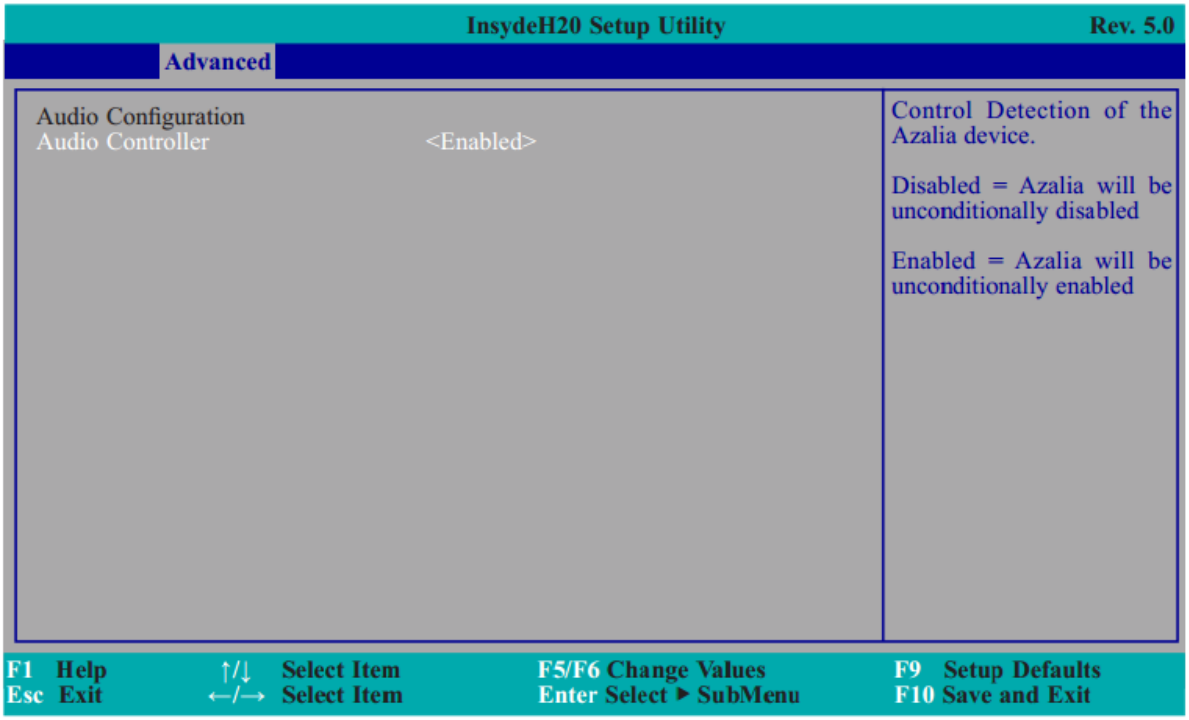

Figure 3.8 Audio Configuration

- **Audio Controller**

Control the detection of the Azalia device.

>Disabled

Azalia will be unconditionally disabled.

>Enabled

Azalia will be unconditionally enabled.

3.9.5 SATA Configuration

This section is designed to select the SATA controller and the type of hard disk drive which are installed in your system unit.

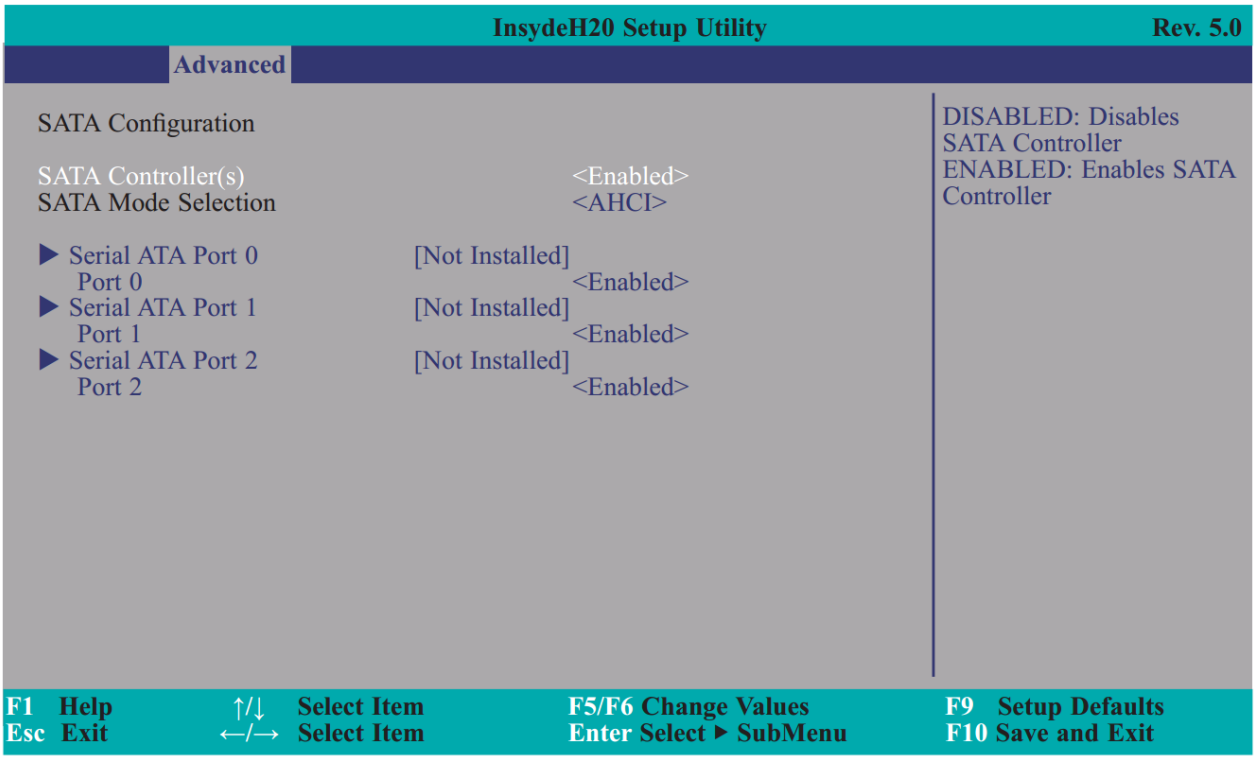

Figure 3.9 SATA Configuration

- **SATA Controller**

This field is used to enable or disable Serial ATA devices.

- **HDC Configures As**

The mode selection determines how the SATA controller(s) operates.

>AHCI Mode

This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

> RAID Mode

This option allows you to create RAID using Intel® Rapid Storage Technology or other methods on the Serial ATA devices.

- **Serial ATA Port 0, and 1**

This field is used to enable or disable the serial ATA port.

3.9.6 USB Configuration

This section is used to configure the parameters of the USB device.

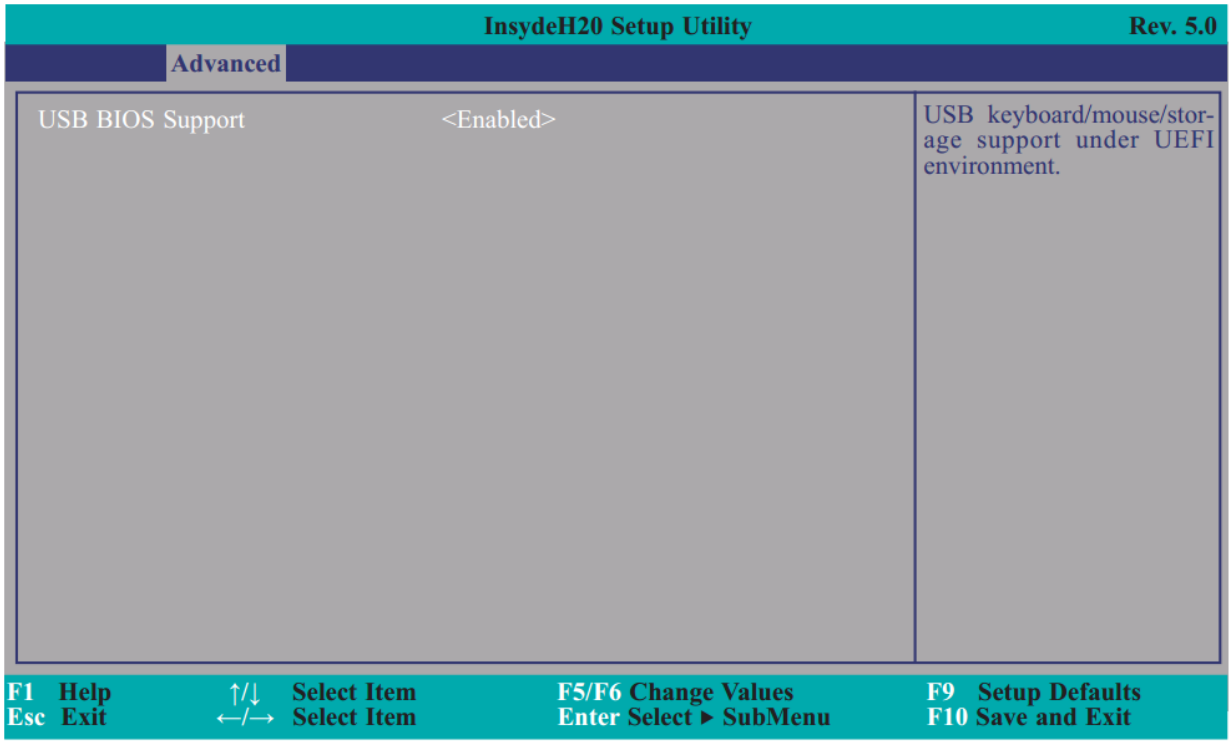

Figure 3.10 USB Configuration

- **USB BIOS Support**

Disabled

Disable USB keyboard/mouse/storage support.

Enabled

Enable USB keyboard/mouse/storage support in the UEFI and DOS environment.

3.9.7 PCI Express Configuration

This section configures settings relevant to PCI Express root ports.

- **PCI Express Root Port 3** and PCI Express Port 4 link to the EIO connector.
- **PCI Express Root Port 5** links to the Ethernet controller I210AT on LAN1.
- **PCI Express Root Port 6** links to the Ethernet controller I210AT on LAN2.
- **PCI Express Root Port 9** links to the mini PCIE connector.
- **PCI Express Root Port 12** links to the M.2 connector.

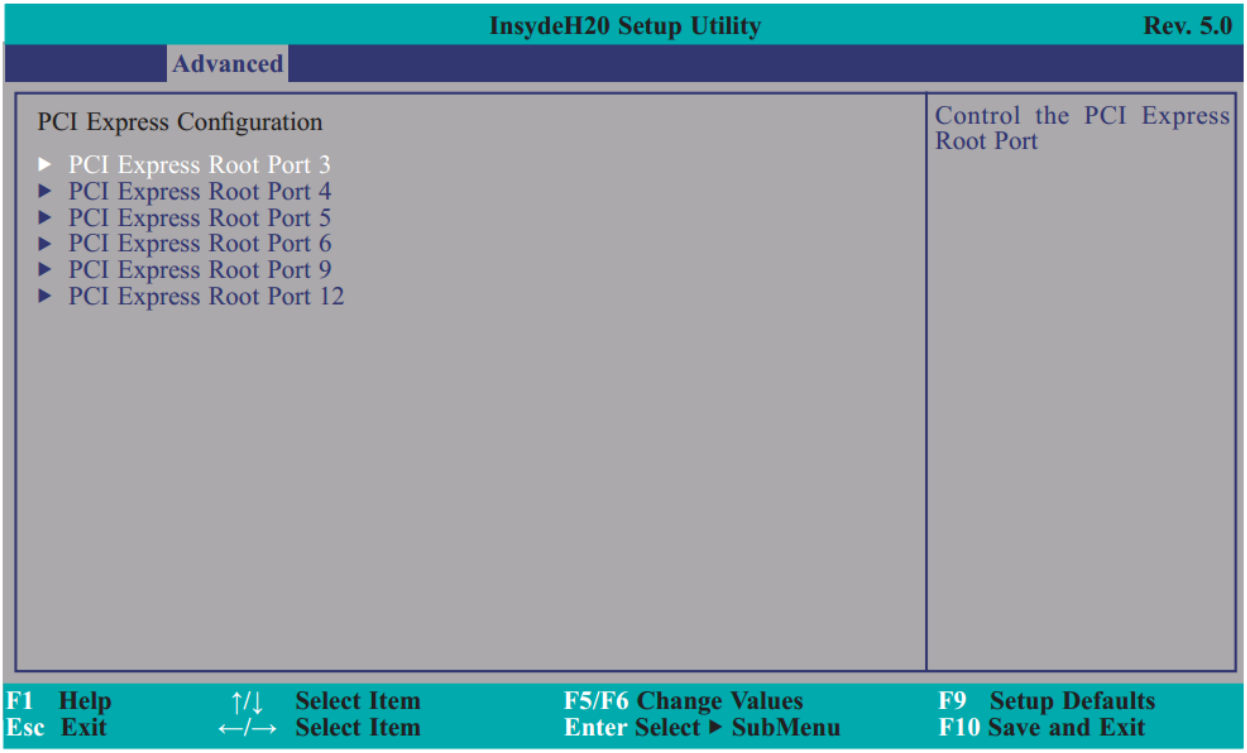

Figure 3.11 PCI Express Configuration

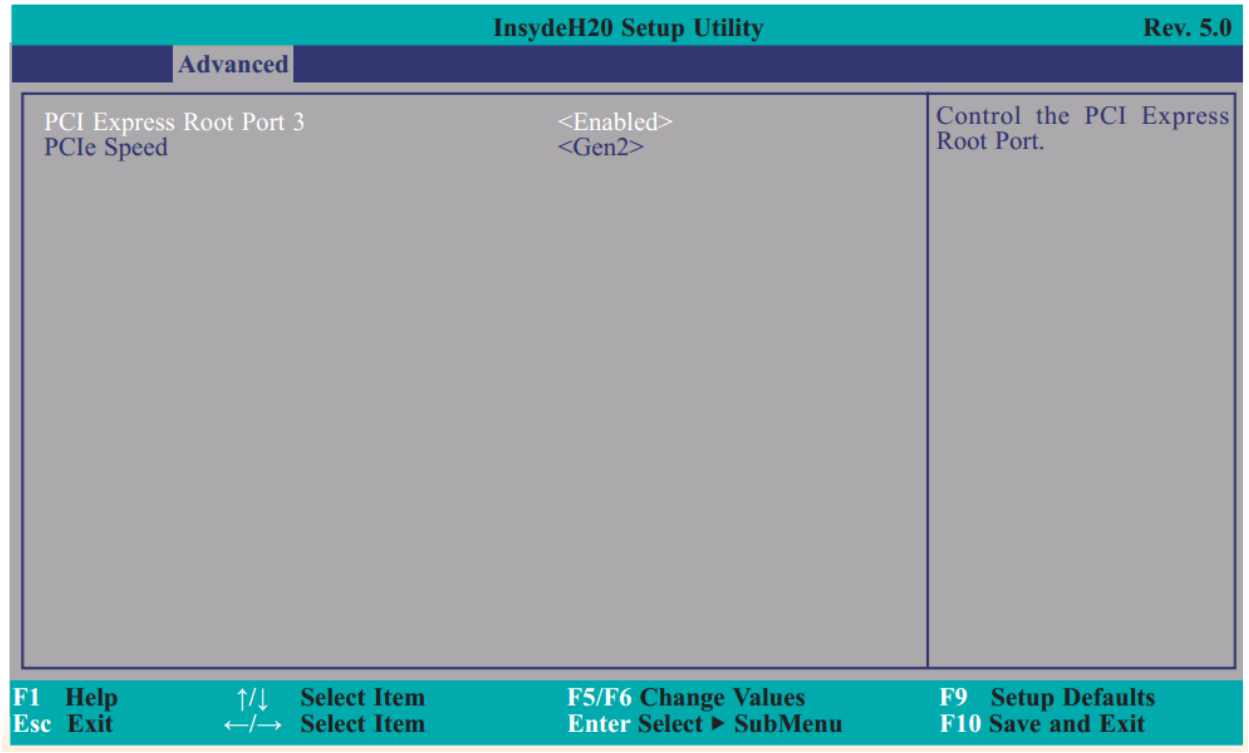

Figure 3.12 PCI Express Root Port

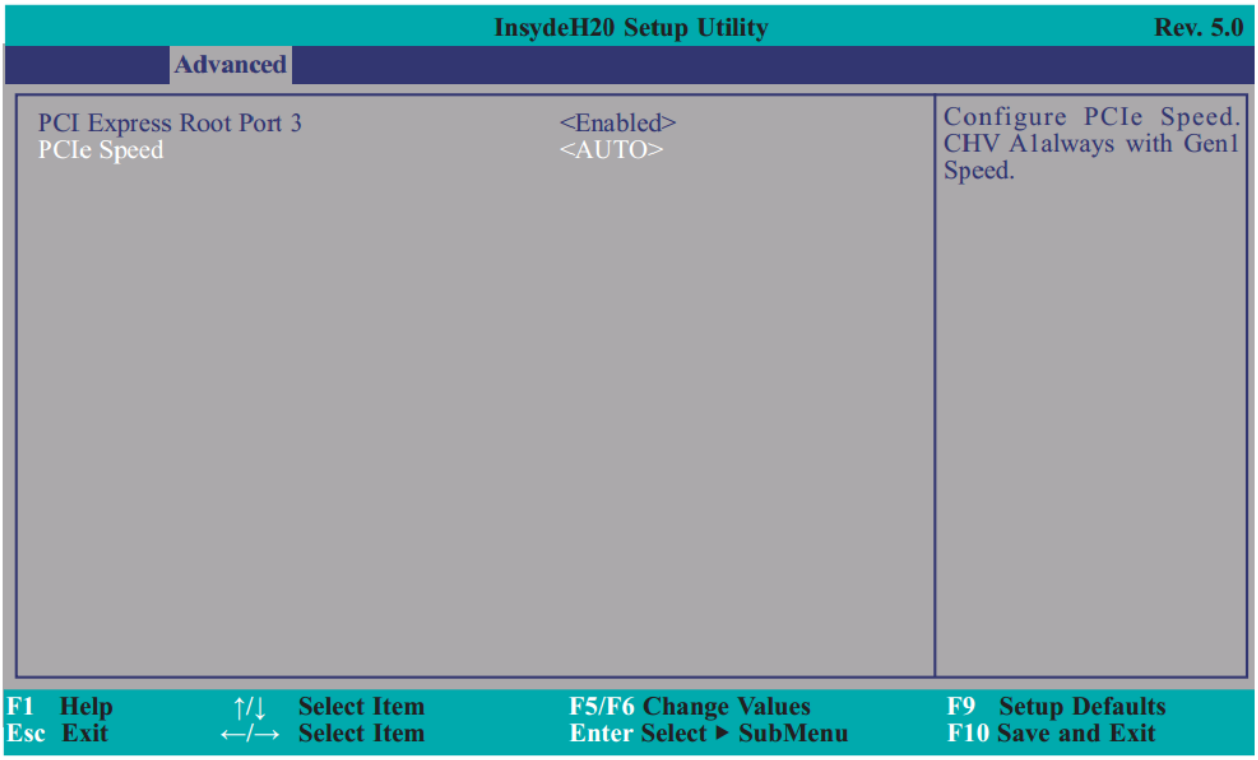

Figure 3.13 PCI Express Root Port

- **PCI Express Root Port**

This field is used to enable or disable the PCI Express Root Port.

- **PCIe Speed**

Select the speed of the PCI Express Root Port: Gen1,Gen2 or Gen3.

3.9.8 ME Configuration

This section configures settings relevant to flash ME region.

- **Me Fw Image Re-Flash**

This field is used to enable or disable the flash ME region. Please set this item as Enable when doing on board BIOS flash ROM update.

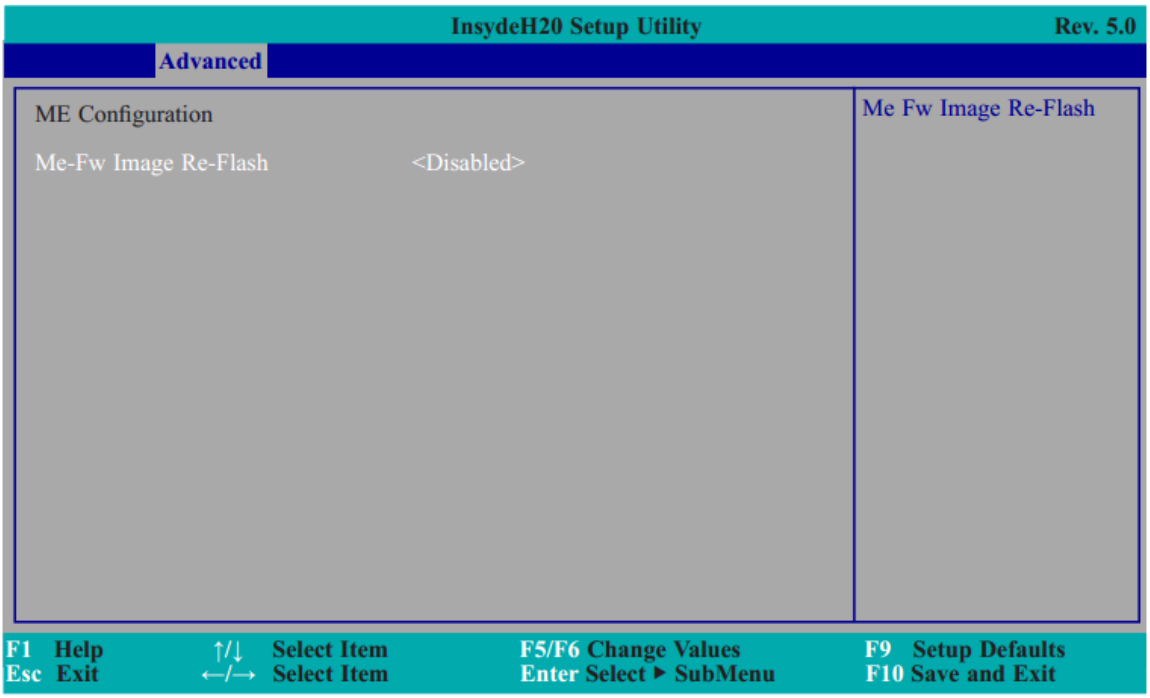

Figure 3.14 ME Configuration

3.9.9 SIO NUVOTON6106D

This section configures the system super I/O chip parameters.

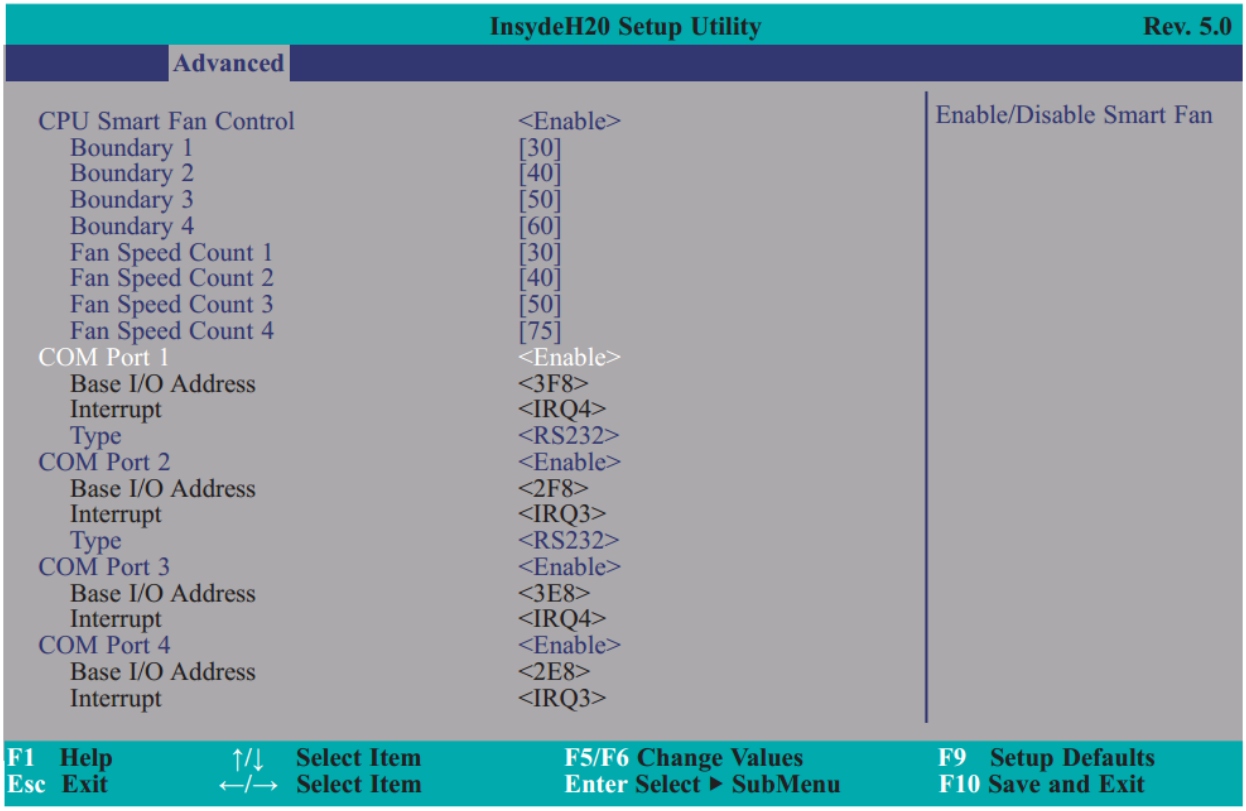

Figure 3.15 SIO NUVOTON6106D

- **CPU Smart Fan Control**

Enable or disable the CPU smart fan.

- **Boundary 1 to Boundary 4**

Set the boundary temperatures that determine the operation of the fan with different fan speeds accordingly. For example, when the CPU temperature reaches boundary 1temperature, the system or CPU fan should be turned on and operate at the designated speed. The range is from 0-127oC.

- **Fan Speed Count 1 to Fan Speed Count 4**

Set the fan speed. The range is from 0 (fan stop)-100% (full speed).

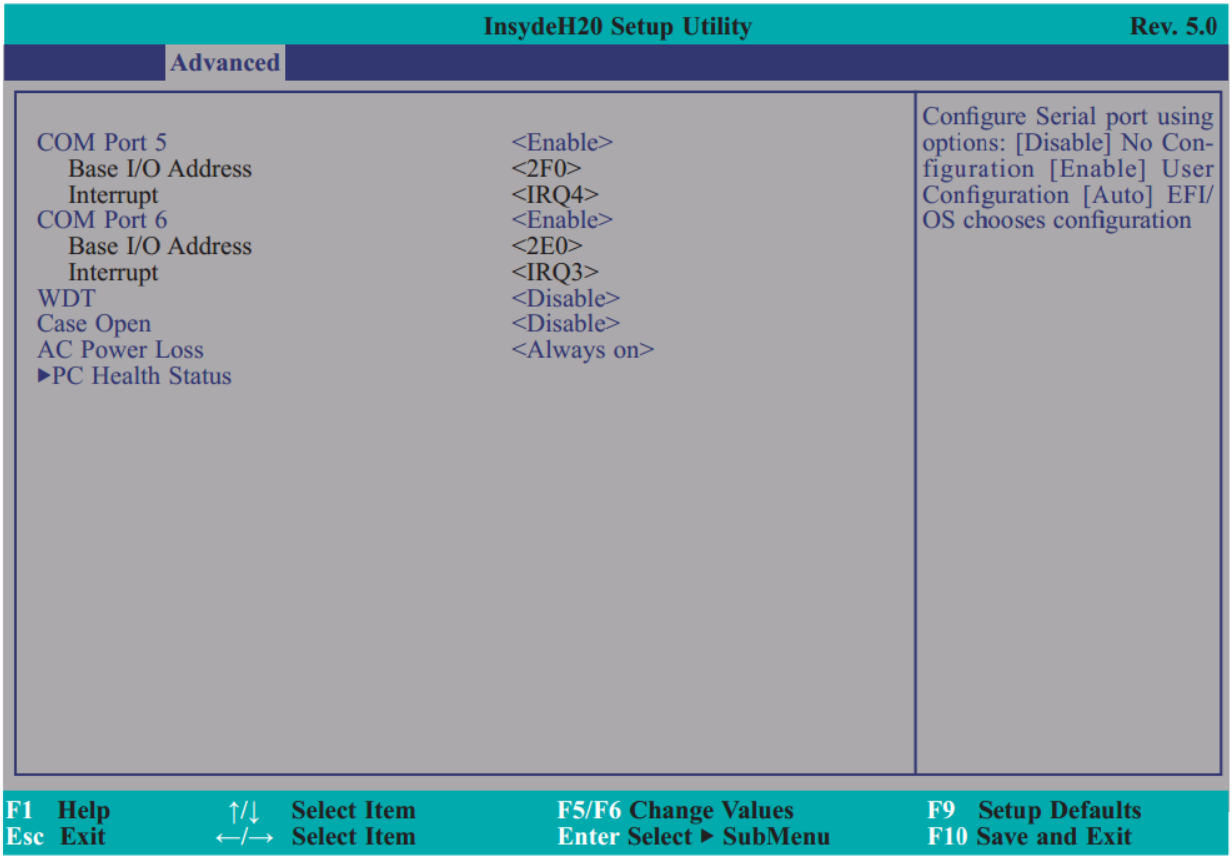

Figure 3.16 SIO NUVOTON6106D

- **Serial Port 1 to Serial Port 6**

Configure the settings to use the serial port.

>Disable No configuration

>Enable User configuration

- **Type**

Choose RS232/RS422/RS485 (Peer-to-Peer) for the serial port type.

COM 5 for ==> Resistance touch panel controller

COM 6 for ==> Reserve for Capacitance touch panel

- **WDT**

Enable or disable the watchdog function.

- **Case Open**

Enable or disable the case open.

- **AC Power Loss**

Set the AC power loss always off/on. This item is only working when JP6 (auto power on) jumper is set as 1-2 on.

- **PC Health Status**

This field only displays the PC health status.

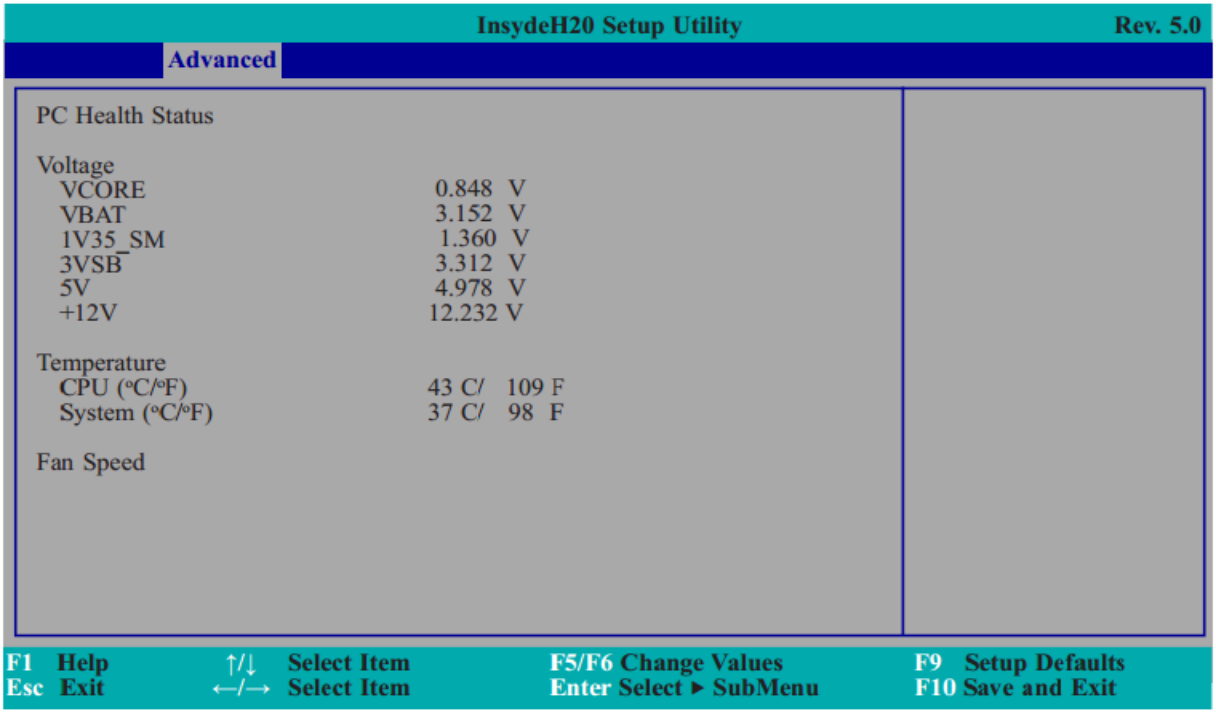

Figure 3.17 PC Health Status

3.9.10 Security

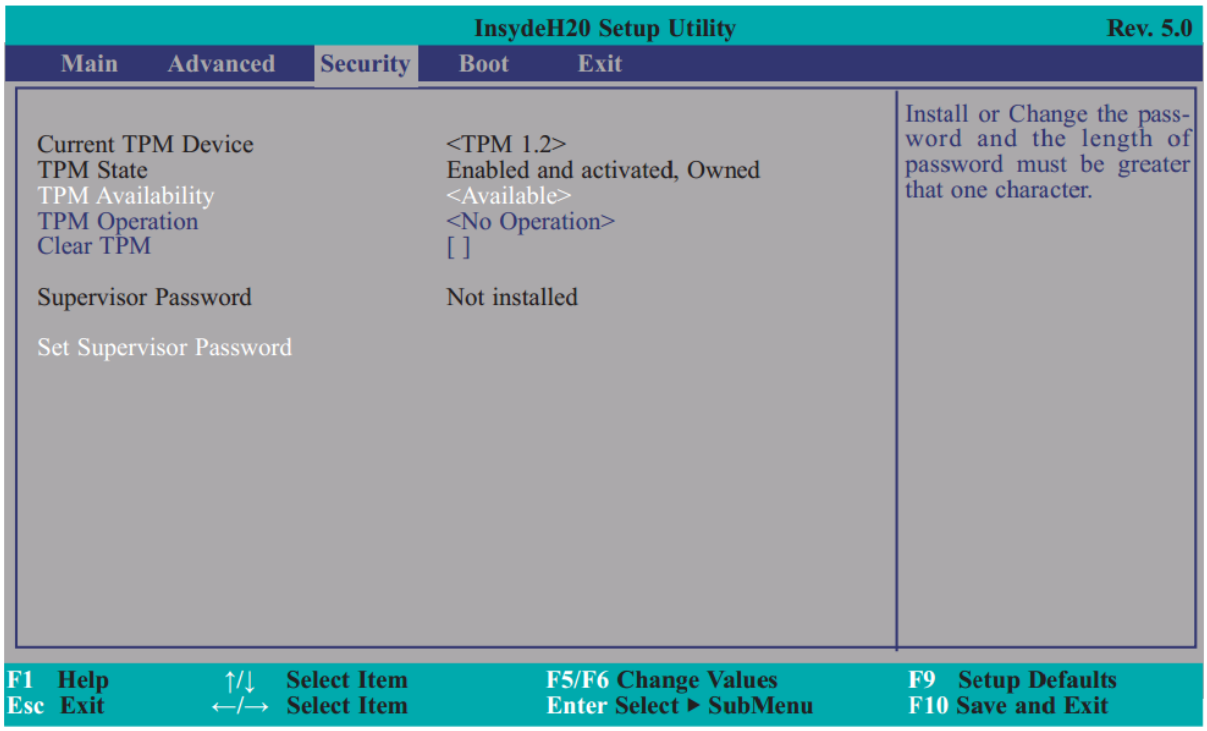

Figure 3.18 Security

- **TPM Availability**

Show or hide the TPM availability and its configurations.

- **TPM Operation**

Enable or disable the TPM function. It displays the following options:

- No Operation: No changes to the current state.
- Disable: Disable and deactivate TPM.
- Enable: Enable and activate TPM.

- **Clear TPM**

Remove all TPM ownership contents.

- **Set Supervisor Password**

Set the supervisor's password and the length of the password must be greater than one character.

- **Power-on Password**

If you select to set the supervisor password, this option will be shown. Enable or disable the system to require password at boot.

3.9.11 Boot

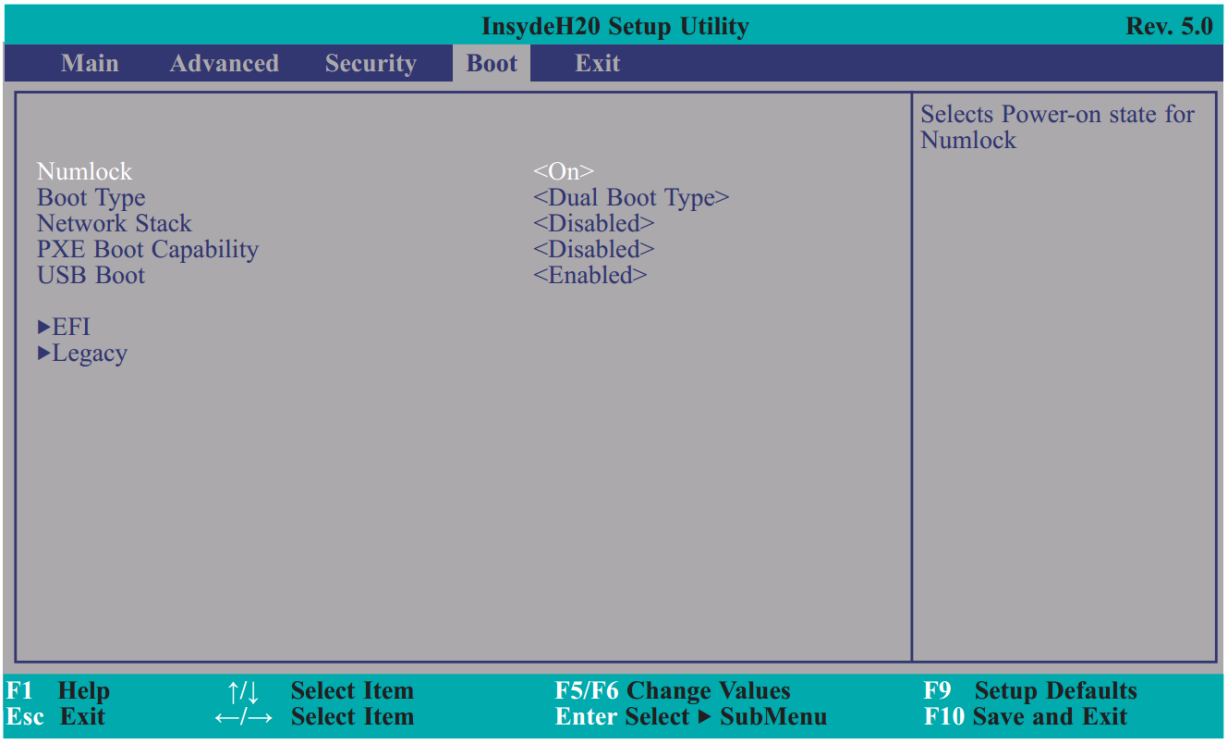

Figure 3.19 Boot

- **Numlock**

Select the power-on state for numlock.

- **Boot Type**

Select the boot type. The options are Dual Boot Type, Legacy Boot Type or UEFI Boot Type.

- **Network Stack**

This option is shown only when the boot type is set to Dual or UEFI.Enable or disable UEFI network stack. It supports the operation of these functions or software: Windows 8 BitLocker Network Unlock, UEFI IPv4/IPv6 PXE and legacy PXE Option ROM.

- **PXE Boot Capability**

Disable or enable PXE boot to LAN.

- **USB Boot**

Enable or disable the booting to USB boot devices.

Note:
If the boot type is set to UEFI, the method for RAID volume creation will be different. Please refer to Chapter 5 - RAID for more information.

- **Boot Device Priority**

This section configures legacy boot order. This menu is shown only when the boot type is set to Legacy or Dual.

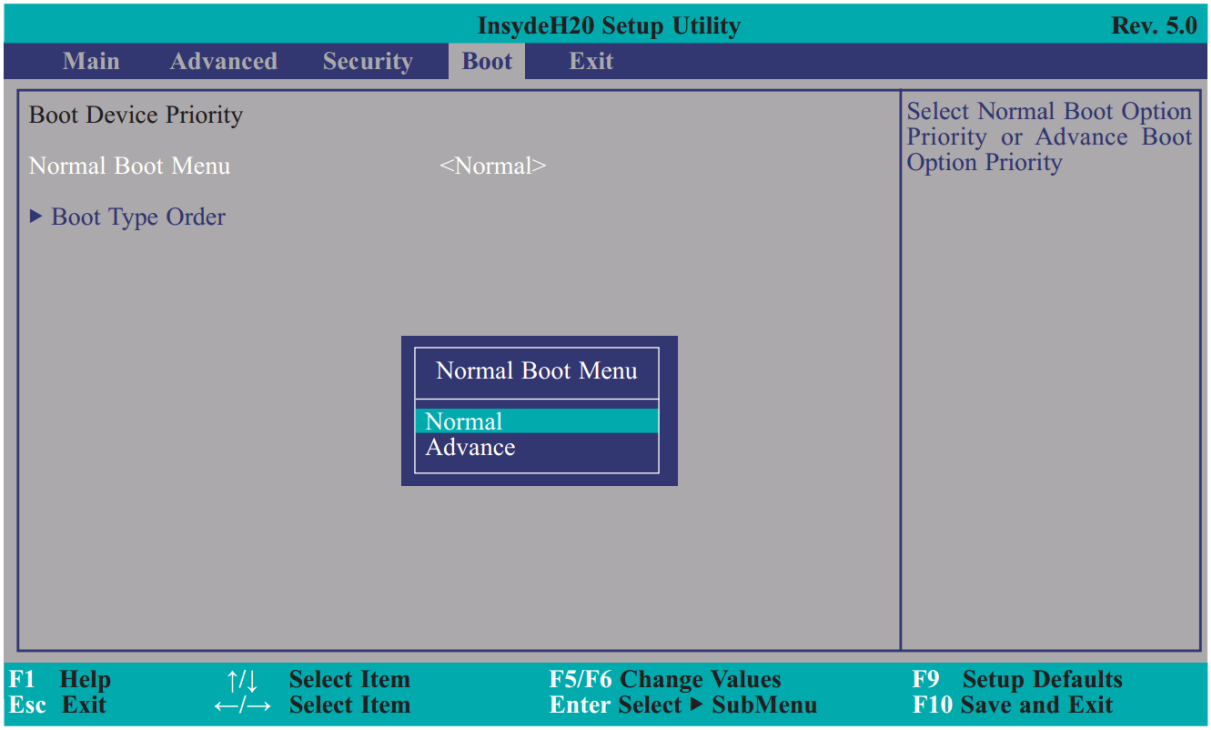

Figure 3.20 Boot

- **Boot Menu**

Normal

For this option, determine the boot order for all bootable devices. Use + and - keys to arrange the priority of the listed boot devices.

Advance

For this option, determine the boot order for the devices within each category. Use + and - keys to arrange the priority of the listed boot devices.

- **Boot Type Order**

USB+and - keys to arrange the sequence of storage devices that the system's hardware checks for the operating system's boot files. The first device in the order list has the highest boot priority. For example, to boot from a floppy drive instead of a hard drive, place the floppy drive ahead of the hard drive in the list.

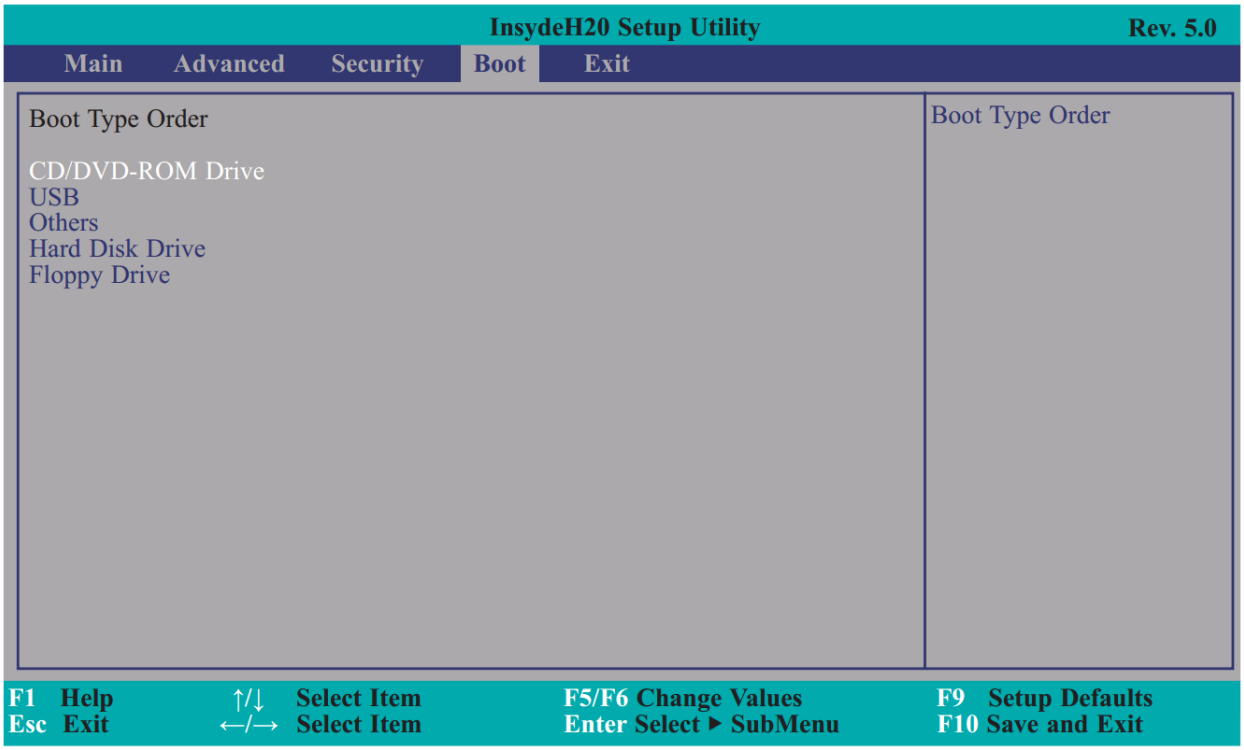

Figure 3.21 Boot Type Order

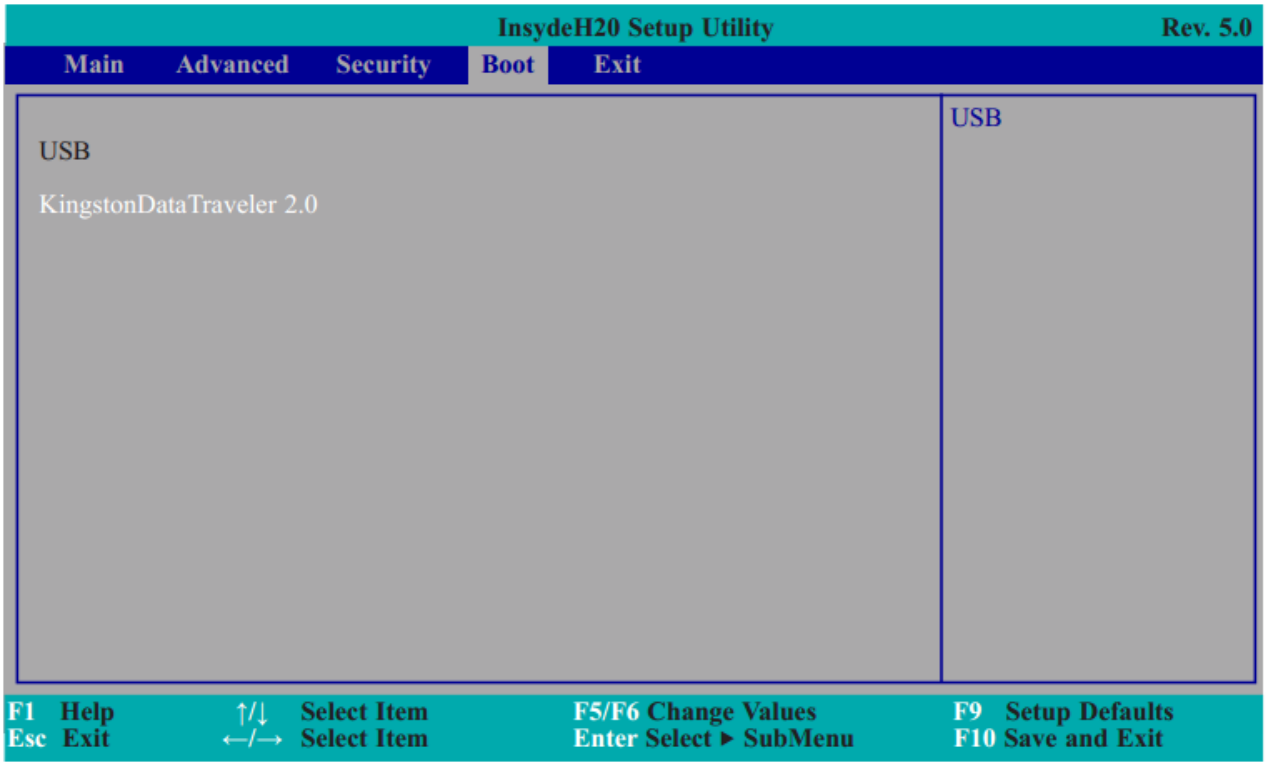

Figure 3.22 USB Boot

3.9.12 Exit

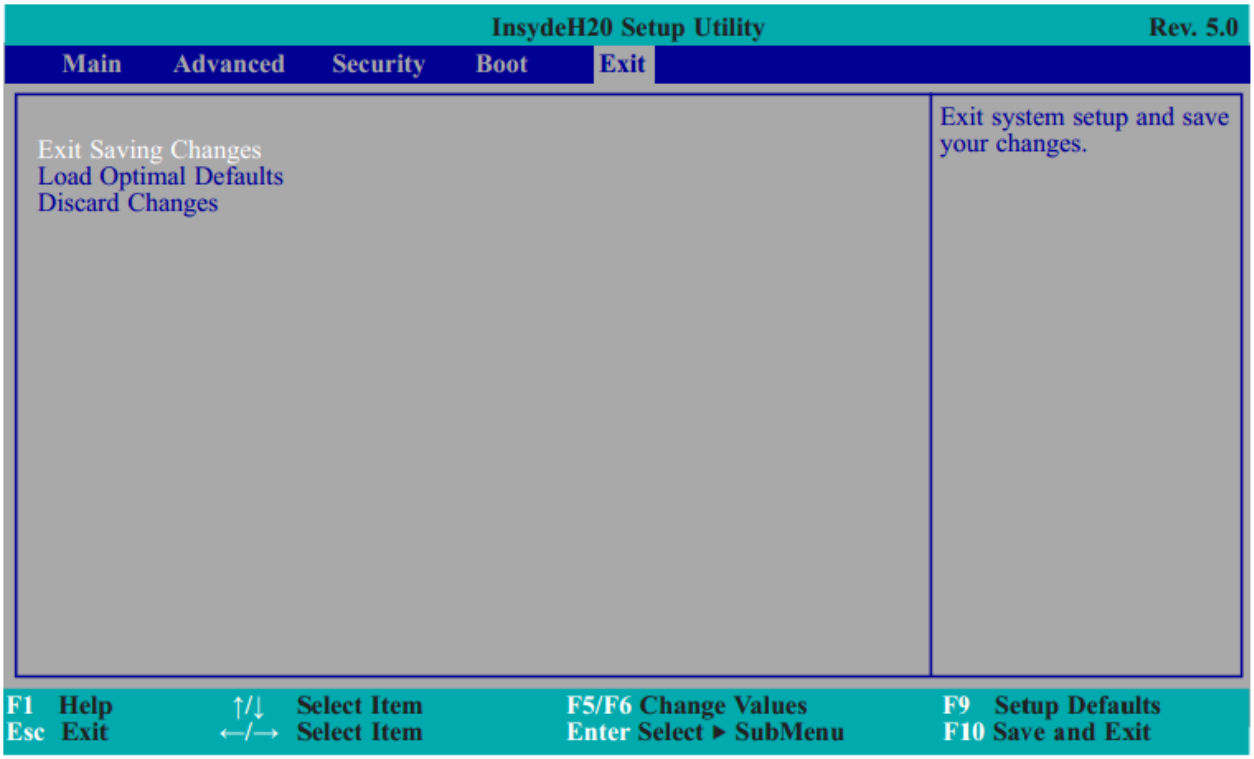

Figure 3.23 Exit

- **Exit Saving Changes**

Select this field and then press <Enter> to exit the system setup and save your changes.

- **Load Optimal Defaults**

Select this field and then press <Enter> to load optimal defaults.

- **Discard Changes**

Select this field and then press <Enter>to exit the system setup without saving your changes.

CHAPTER 4

Driver Installation

The ALAD-K1220T 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:

Step 1 – Install Intel Chipset Software Installation Utility

Step 2 – Install Intel Graphics Drivers

Step 3 – Install Audio Drivers

Step 4 – Install LAN Driver

Step 5– Install Kernel Mode Driver Framework (For Windows 7 only)

Step 6– Install Intel Trusted Execution Engine Driver

Step 7– Install HW Utility

Step 8– Install Intel USB 3.0 Drivers (For Windows 7 and Windows 8.1)

Step 9– Install IO Driver

Please read instructions below for further detailed installations.

4.2 Installation:

Insert the ALAD-K1220T CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 4 in order.

Step 1 –Install Intel Chipset Software Installation Utility

1)Setup is ready to install the utility. Click Next.

2)Read the license agreement then click Yes.

3) Go through the readme document for more installation tips then click Next.

4) Click Finish to exit setup.

Step 2 – Install Intel HD Graphics Drivers

1)Setup is now ready to install the graphics driver.Click Next.

2)Read the license agreement then click Yes.

3)Go through the readme document for system requirements and installation tips then click Next.

4)Setup is now installing the driver. Click Next to continue.

5)Click "Yes, I want to restart this computer now" then click Finish.

Step 3 –Install Audio Drivers

1)Setup is ready to install the driver. Click Next.

2)Click "Yes, I want to restart my computer now" then click Finish.

Step 4 –Install LAN Driver

1)Setup is ready to install the driver. Click Next.

2)Click "I accept the terms in the license agreement" then click "Next"

3) Select the program features you want installed then click Next.

4) Click Install to begin the installation.

5) After completing installation, click Finish.

Step 5 –Install Kernel Mode Driver Framework (For Windows 7 only)

1) Click "Yes " to install the update.

2) The update is installed now.

3)Click "Restart Now " to restart your computer when the installation is complete.

Step 6 –Install Intel Trusted Execution Engine Driver

1) Tick "I accept the terms in the License Agreement" and then click "Next."

2) The step shows the components which will be installed. Then, Click Next.

3) The step displays the installing status in the progress.

4) Click "Finish" when the installation is complete.

Step 7 –Install HW Utility

1) Setup is ready to install the driver.

2)Click "Next" to continue.

3)Read the license agreement then click "I accept the terms in the license agreement". Click "Next".

4)The wizard is ready to begin installation. Click "Install".

5)Please wait while the program features are being installed.

6)After completing installation, click "Finish".

Step 8 –Install Intel USB 3.0 Drivers (For Windows 7 and Windows 8.1)

1) Setup is ready to install the driver. Click Next.

2) Read the license agreement then click Yes

3) Go through the readme document for more installation tips then click Next.

4)Setup is currently installing the driver. After installation has completed, click Next.

5)After completing installation, click Finish.

Step 9 –Install IO Driver

1) Setup is ready to install the driver. Click Next.

2)Read the license agreement carefully.Click "I accept the terms in the License Agreement" then click Next.

3)Read the file information then click Next.

4)Setup is ready to install the driver.Click Next.

CHAPTER 5

SYSTEM RESOURCE

5.1 WDT Function

WDT Set Example
See the function: WD_SetTimerValue(ucResetTime)