3I610CW

Intel Skylake-U / Kaby Lake-U Core i CPU, DDR4 2133 MT/s SODIMM, 2 x LAN / DVI / VGA / USB / COM / PCIe mini card

All in One

Intel Skylake-U / Kaby Lake-U Core i CPU,

2 x Intel GbE LAN, 2 x PCIe mini card slots, VGA, DVI, SATA,

4 x USB 3.0, 3 x USB 2.0, 6 x COM, Wide Range DC-IN,

LVDS, Touch Screen

NO. 3I610CW
Release date: Dec. 19. 2018

Contents

Trademarks

Intel is a registered trademark of Intel Corporation.
Award is a registered trademark of Award Software, Inc.
All other trademarks, products and or product's name mentioned here are for identification purposes only, and may be trademarks and/or registered trademarks of their respective companies or owners.

User Manual edition 0.2, Dec. 19. 2018

Warning !

1. Battery
   Batteries on board are consumables.
   The life time of them are not guaranteed.

2. Fanless solution with HDD
   The specification & limitation of HDD should be considered carefully when the fanless solution is implemented.

3. We will not give further notification in case of changes of product information and manual.

4. SATA interface does not support Hot SWAP function.

5. There might be a 20% inaccuracy of WDT at room temperature.

6. Please make sure the voltage specification meets the requirement of equipment before plugging in.

7. There are two types of SSD, commercial grade and industrial grade, which provide different read/write speed performance, operation temperature and life cycle. Please contact sales for further information before making orders.

8. Caution! Please notice that the heat dissipation problem could cause the MB system unstable. Please deal with heat dissipation properly when buying single MB set.

9. Please avoid approaching the heat sink area to prevent users from being scalded with fanless products.

10. If users repair, modify or destroy any component of product unauthorizedly, We will not take responsibility or provide warranty anymore.

11. DO NOT apply any other material which may reduce cooling performance onto the thermal pad.

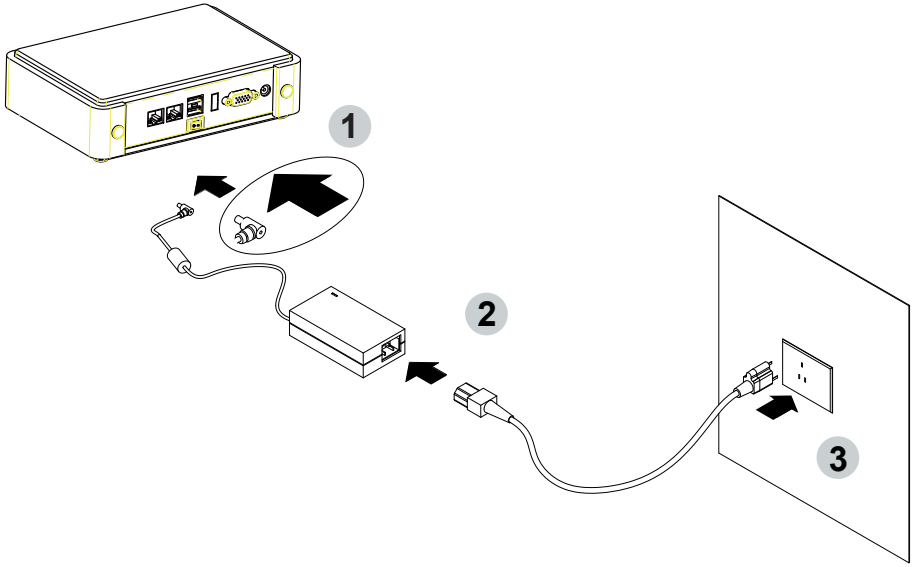
12. It is important to install a system fan toward the CPU to decrease the possibility of overheating / system hanging up issues, or customer is suggested to have a fine cooling system to dissipate heat from CPU.

✱ Hardware Notice Guide

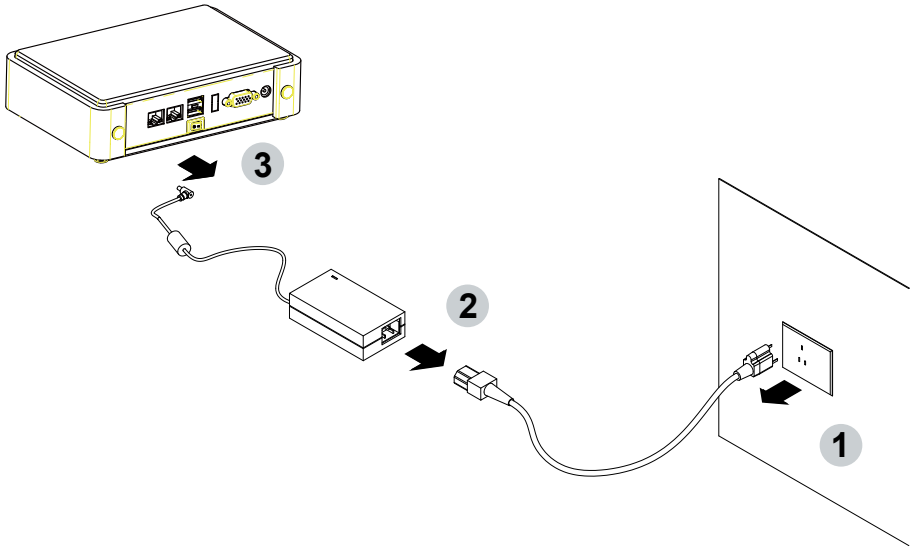
1. Before linking power supply with the motherboard, please attach DC-in adapter to the motherboard first. Then plug the adapter power to AC inlet.
   Always shut down the computer normally before you move the system unit or remove the power supply from the motherboard. Please unplug the DC-in adapter first and then unplug the adapter from the AC inlet.
   Please refer photo 1 as standard procedures.
2. In case of using DIRECT DC-in (without adapter), please check the allowed range for voltage & current of cables. And make sure you have the safety protection for outer issues such as short/broken circuit, overvoltage, surge, lightning strike.
3. In case of using DC-out to an external device, please make sure its voltage and current comply with the motherboard specification.
4. The total power consumption is determined by various conditions (CPU/motherboard type, device, application, etc.). Be cautious to the power cable you use for the system, one with UL standard will be highly recommended.
5. It's highly possible to burn out the CPU if you change/ modify any parts of the CPU cooler.
6. Please wear wrist strap and attach it to a metal part of the system unit before handling a component. You can also touch an object which is ground connected or attached with metal surface if you don't have wrist strap.
7. Please be careful to handle & don't touch the sharp-pointed components on the bottom of PCBA.
8. Remove or change any components form the motherboard will invalidate the warranty of the motherboard.
9. Before you install/remove any components or even make any jumper setting on the motherboard, please make sure to disconnect the power supply first. (follow the aforementioned instruction guide)
10. "POWERON after PWR-Fail" function must be used carefully as below:
    When the DC power adaptor runs out of power, unplug it from the DC current;
    Once power returns, plug it back after 5 seconds.
    If there is a power outage, unplug it from the AC current, once power returns, plug it back after 30 seconds. Otherwise it will cause system locked or made a severe damage.
11. **Always insert/unplug the DC-in horizontally & directly to/from the motherboard. DO NOT twist, it is designed to fit snugly.**
    Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

The 3I610CW is a 3.5" (146 x 102 mm) motherboard with wide range 9~36V DC power input: 3I610CW is based on the Intel® Skylake-U i7 / i5 / i3 / Celeron processor integrated 2 x GbE LAN, 7 x USB, 6 x COM Ports and VGA, DVI display interface that offer the ideal platforms for high performance applications in Healthcare Service, Smart Automation, Point-Of-Information (POI), Self-Services, In-vehicle Infotainment, Industry 4.0 and any compact high-performance Internet of Things (IoT) applications.

The 3I610CW supports high-speed data transfer interfaces such as PCIe gen3, USB 3.0, and SATA 6 Gb/s (SATA III), with one-channel DDR4 2133 MHz memory up to 16 GB SODIMM slot and supports six serial ports RS232 / RS485 / RS422 jumper free auto switch by BIOS and +5V / 12V selectable by jumper. It supports 4 ports of USB 3.0, 3 ports of USB 2.0. The expandable interfaces include 1 full-size PCIe Mini card for PCIe x 1 or mSATA (auto-detection) and USB interface, and 1 full-size PCIe Mini card for PCIe x 1 and USB 3.0 interface and one SATA III ports, as well as graphics interface for DVI and VGA displays. There is one SIM socket onboard for the mini card (mini card 2) to get the 3G / 4G communication easier and quickly

The embedded motherboard 3I610CW is specially designed with wide-Range Voltage DC in (9~36V) for widely varying input voltage requirement. It offers superb performance and PC specification in the industry using the specific housing. It supports with two 10 / 100 / 1000 Mbps Ethernet for seamless broadband connectivity. With Wake-On LAN function and the PXE function in BIOS, these are perfect control boards for networking devices. It also supports 1 LVDS interface for LCD Panel with touch function and 1 panel inverter power for Panel dimming control. It suitable for ALL-IN ONE Panel PC, POS Kiosk and automation control systems.

Please kindly contact LEX (info@lex.com.tw) if you have any further query or want to get the detail information.

1-1 Major Feature

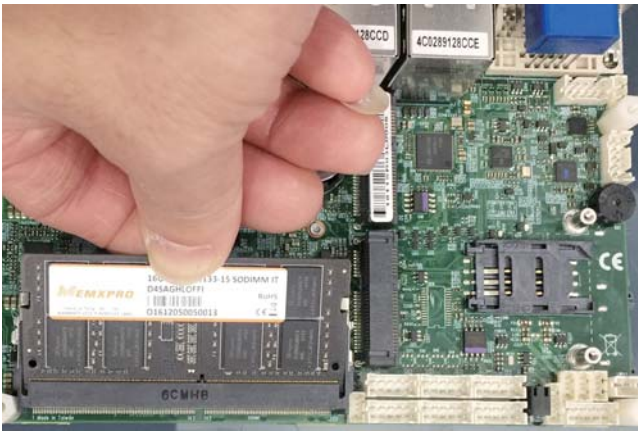
1. Intel® Celeron 3955U Processor 2.0GHz, (Dual core), Intel® Core i5-6200U Processor 2.3GHz / 2.8GHz (Dual core), Intel® Core i7-6600U Processor 2.6GHz / 3.4GHz (Dual core)
2. Intel 9th generation (Gen 9) LP graphics and media encode/decode engine, Intel® Celeron 3955U 300MHz / 900MHz, Intel® Core i5-6200U 300MHz / 1GHz, Intel® Core i7-6600U 300MHz / 1.05GHz
3. Support LVDS 2 Channels 48bits, Max up to 1920 x 1080 resolution, DVI / VGA up to 1920 x 1200
4. Support USB Touch & backlight power control function
5. DDR4 SODIMM slot x 1, up to 16GB
6. Support 2 x 10 / 100 / 1000 Mbps Intel LAN ports.
7. Support 6 x RS232 auto switch to RS485 / RS422 by BIOS, 4 ports external, 2 ports internal
8. 4 x USB 3.0 and 3 x USB 2.0, 4 ports external, 3 ports internal
9. ALC886 HD Audio Specification 1.0, Two channel Class D Audio Amplifier
10. Support extended 1 x full-size Mini PCIe card for PCIe x 1 / mSATA (auto-detect) and USB interface, 1 x full-size Mini PCIe card for PCIe x 1 and USB 3.0 interface.
11. 1 SIM card socket pair with MPCE2
12. Support 2 SATA port
13. Support PS2 Keyboard Mouse
14. Hardware digital Input & Output, 16 x DI / 16 x DO, Hardware Watch Dog Timer, 0~255 sec programmable
15. Support TPM 2.0 (Optional)
16. Wide Range DC IN +9V~36V
17. PCB Dimension: 146 x 102 mm

1-2 Specification

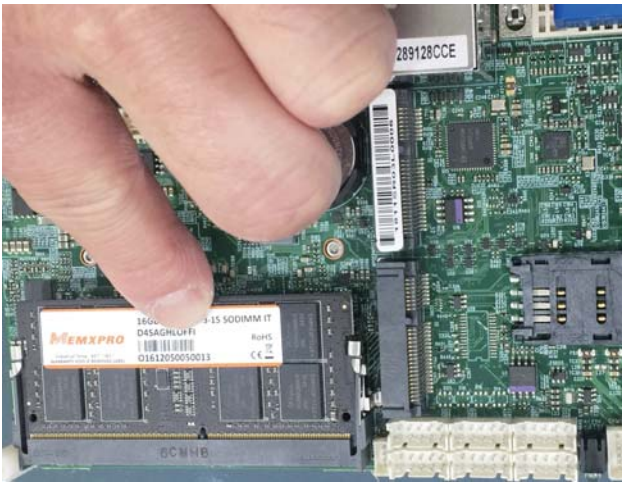
1. **SOC:** Intel® Celeron 3955U Processor 2.0GHz, (Dual core), Intel® Core i5-6200U Processor 2.3GHz / 2.8GHz (Dual core), Intel® Core i7-6600U Processor 2.6GHz / 3.4GHz (Dual core)
2. **Memory:** DDR4 SODIMM slot x 1, up to 16GB
3. **Graphics:** Intel 9th generation (Gen 9) LP graphics and media encode / decode engine, Intel® Celeron 3955U 300MHz / 900MHz, Intel® Core i5-6200U 300MHz / 1GHz, Intel® Core i7-6600U 300MHz / 1.05GHz. Support LVDS 2 Channels 48bits, Max up to 1920 x 1080 resolution, HDMI 1.4b up to 3840 x 2160, DVI / VGA up to 1920 x 1200
4. **Touch:** USB Touch
5. **SATA:** Integrated Serial ATA Host Controller 2 SATA port, SATA Gen3 Data transfer rates up to 6.0 Gb/s (600 MB/s).
6. **LAN:** 1 Intel I219LM Giga Phy & 1 Intel I210-IT LAN chipset with 10 / 100 / 1000 Mbps for PCIe x 1 V2.1
7. **I/O Chip:** F81966A-A I/O chipset for 6 ports RS232 / RS422 / RS485 auto switch by BIOS
8. **USB:** 4 type A USB 3.0, 3 USB 2.0
9. **Sound:** Support line in, line out and MIC in, Two channel Class D Audio Amplifier
10. **WDT / DIO:** Hardware digital Input & Output, 16 x DI / 16 x DO (Option) / Hardware Watch Dog Timer, 0~255 sec programmable
11. **Expansion interface:** one full-size PCIe Mini card for PCIe x 1 / mSATA (auto-detect) and USB interface, one full-size Mini PCIe card for PCIe x 1and USB interface
12. **SIM:** 1 socket pair with MPCE2
13. **TPM:** SLB 9665 TT 2.0 Trusted Platform Module (Optional)
14. **BIOS:** Insyde UEFI BIOS
15. **Dimension:** 146 x 102 mm (3.5 inch)
16. **Power:** On board DC +9~36V

1-3 Installing the SO-DIMM

1. Align the SO-DIMM with the connector at a 45 degree angle.

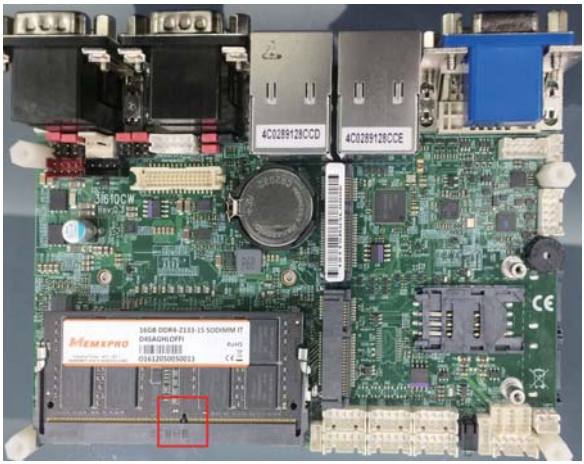


2. Press the SO-DIMM into the connector until you hear a click.

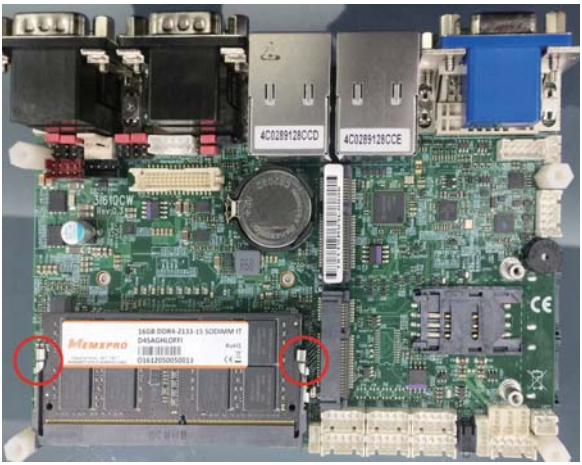


Notices:

1.The connectors are designed to ensure the correct insertion. If you feel resistance, check t h e connectors & golden finger direction, and realign the card.



2. Make sure the retaining clips (on two sides of the slot) lock onto the notches of the card firmly.



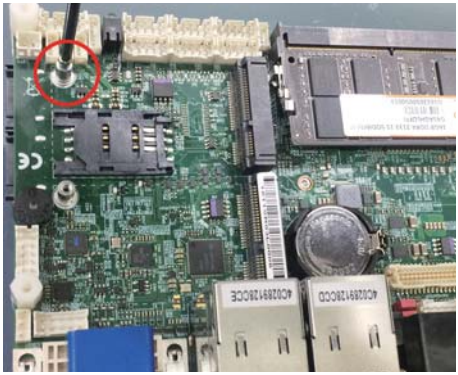
1-3-1-1 Removing the SO-DIMM

1. Release the SO-DIMM by pulling outward the two retaining clips and the SO-DIMM pops up slightly.

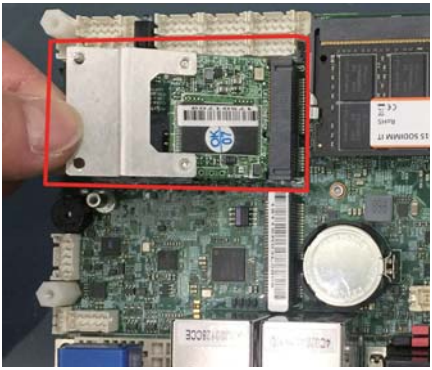
2. Lift the SO-DIMM out of its connector carefully.

1-4 Installing the Mini PCI-e Card (Full Size)

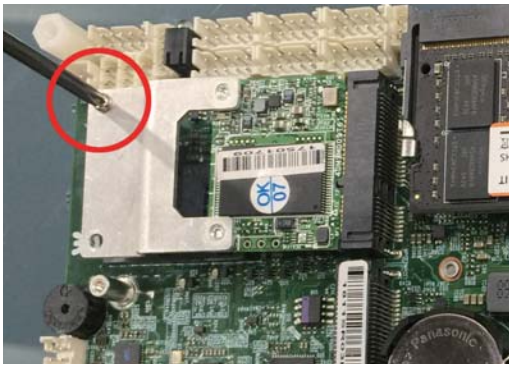
1. Unscrew the screw on the board



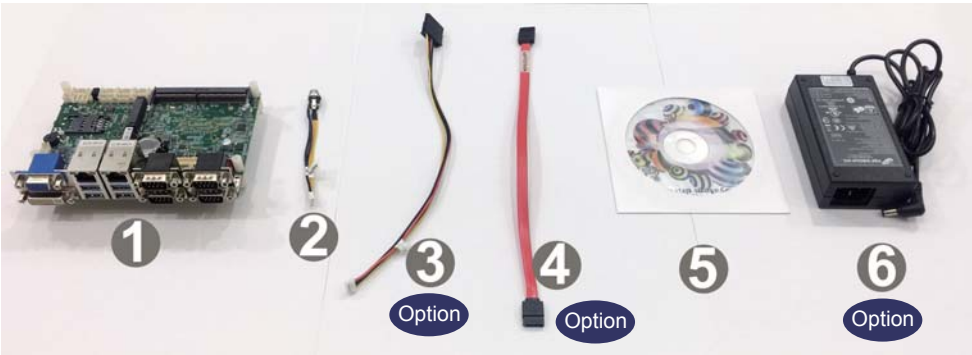
2. Plug in the Mini Card in a 45 angle



3. Gently push down the Mini Card and screw the screw back.



1-5 Packing List



	Material Code	Description	Detail Specification	Quantit
1	7G1901-1700001-0	MB-3I610CW-EC0-001	LF,3I610CW-EC0,Rev.:001	1
2	6G6003-7350-0100	Power Cable	LF, 2.0 2*4/DC JK,L=9cm	1
3	6G6003-1009-0100	SATA Power Cable	LF,L=25cm,1*4/2.0 to 180° SATA 15p	1(option)
4	6G6001-2203-0100	SATA DATA Cable (Red)	LF,L=25cm	1(option)
5	6G8006-2350-0100	DVD	LF, Support Apollo Lake/Skylake	1
6	6G5212-0620-0100	■60W Power Adapter,12V/5A,2.5Ø	LF,L Type,FSP060-DIBAN2,FSP	1(option)

*The packing list above is for the users who purchase single motherboard. The users who purchase the board with chassis may refer to the packing list in the Assembly Guide.

Please contact with your dealer if any of these items is missing or damaged on delivery. And please keep all parts of the delivery package with packing materials in case if you need to deliver or store the product in the future.

Chapter-2

Hardware Installation

2-1 Unpacking Precaution

This chapter provides the information how to install the hardware of 3I610CW.
2-1 and 1-5 to check the delivery package and unpack
carefully. Please follow the jumper setting procedure.

NOTE!

1. Do not touch the board or any other sensitive components without all necessary anti-static protection.
2. Please pay attention to the voltage limitation of DC-IN 12V 5%.
   Overuse of DC-IN voltage limitation or change to another power adapter (not provided with this system) will VOID warranty.

You should follow these
steps to protect the board from the static electric
discharge whenever you handle the board:

1. Ground yourself by a grounded wrist strap at all times when you handle the 3I610CW.
   Well secure the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please put on and connect the strap before handling the 3I610CW for harmlessly discharge any static electricity through the strap.

2. Please use anti-static pad to put any components, parts, or tools on the pad whenever you work on them outside the computer. You may also use the anti-static bag instead of the pad. Please ask your local supplier for necessary parts on anti-static requirement.

3. Do not plug any connector or set any jumper when the power is on.

2-2 Unpacking checkup

First of all, please follow all necessary steps of section 2-1 to protect 3I610CW from electricity discharge. With reference to section 1-5 please check the delivery package again with following steps:

1. Unpack the 3I610CW board and keep all packing material, manual and driver disc etc, do not dispose !

2. Is there any components lose or drops from the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD!
   CONTACT THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

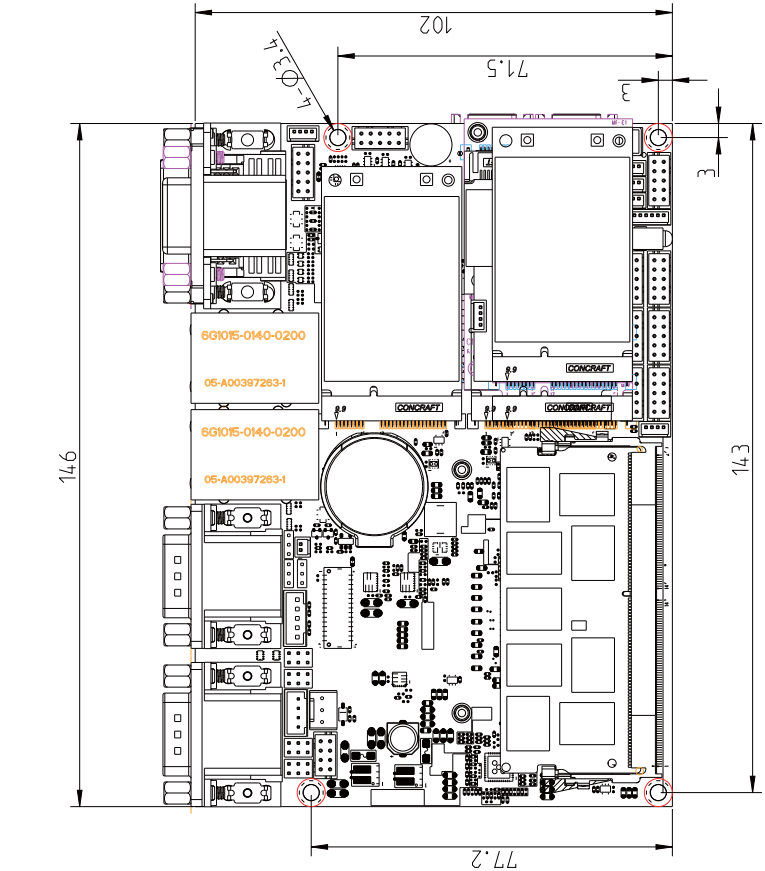
3. Is there any visible damage on the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

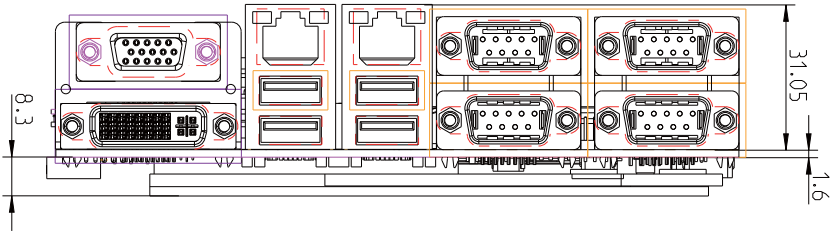
4. Check your optional parts (i.e. DDR, CF etc.), all necessary jumpers setting to jumper pin-set, and CMOS setup correctly.
   Please also refer to all information of jumper settings in this manual.

5. Check your external devices (i.e. Add-On-Card, Driver Type etc.) for complete add-in or connection and CMOS setup correctly.
   Please also refer to all information of connector connection in this manual.

6. Please keep all necessary manual and driver disc in a good condition for future re-installation if you change your Operating System.

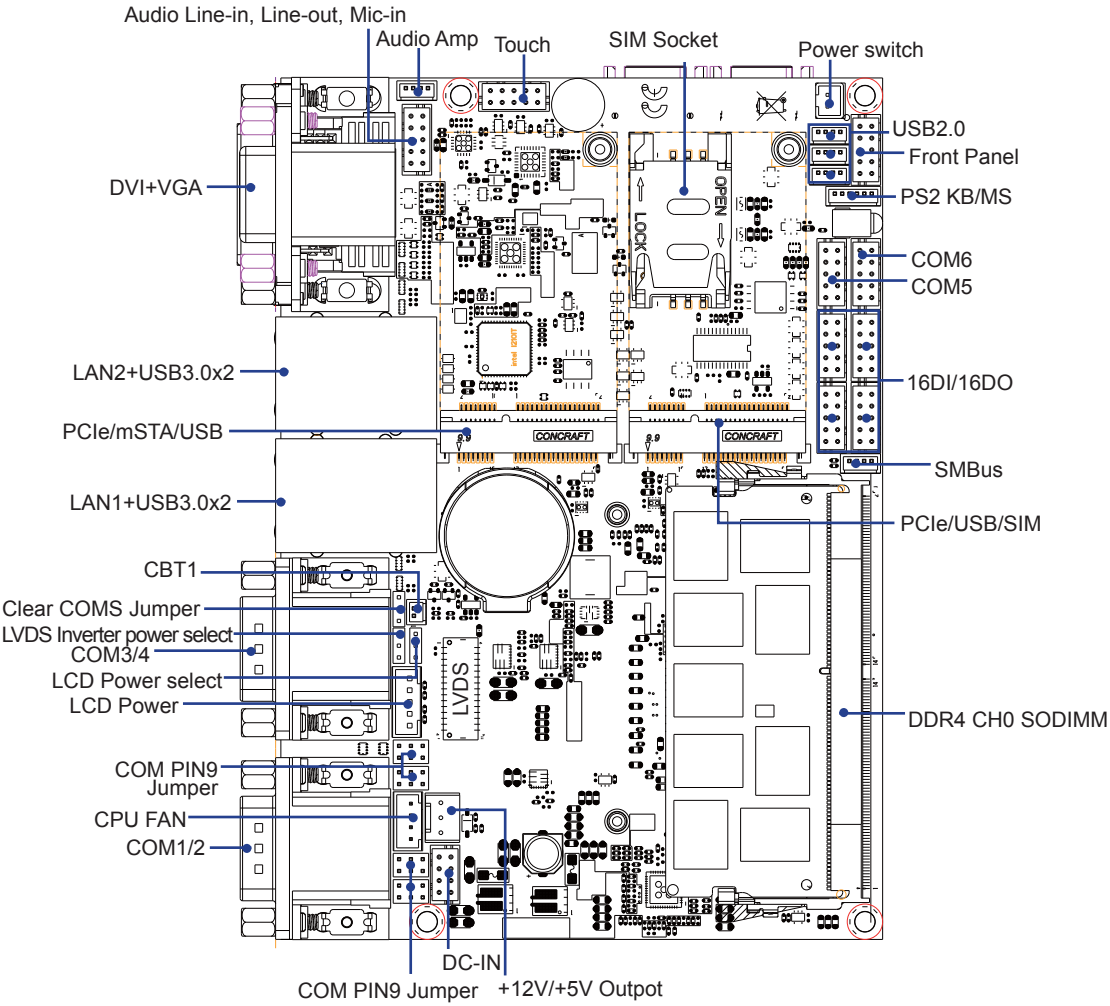
2-3 Dimension-3I610CW





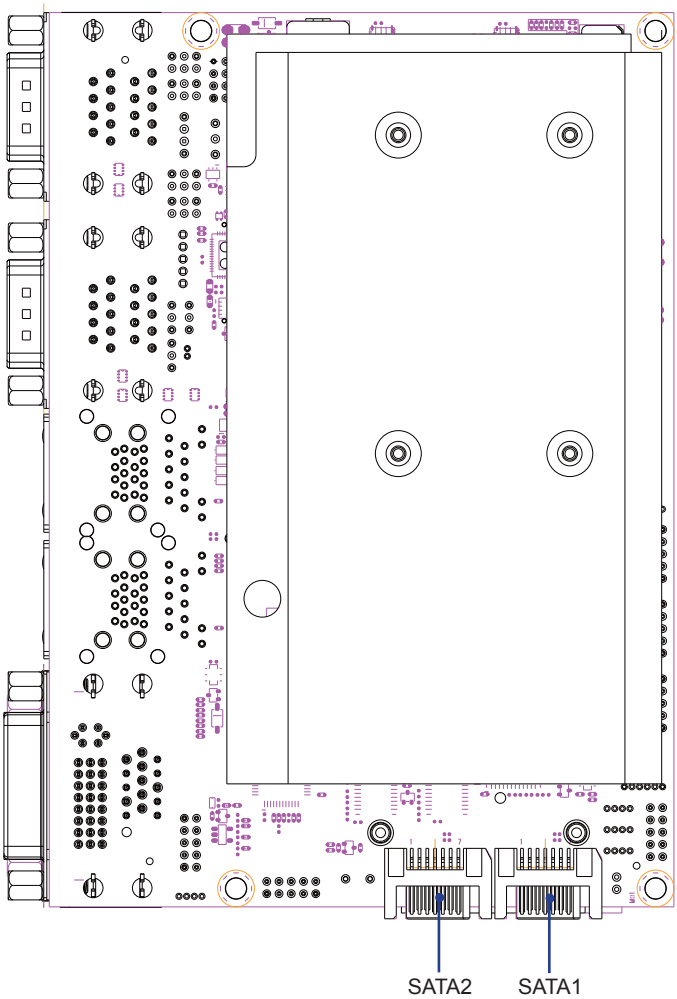
2-4-1 Layout-3I610CW-Function Map

TOP

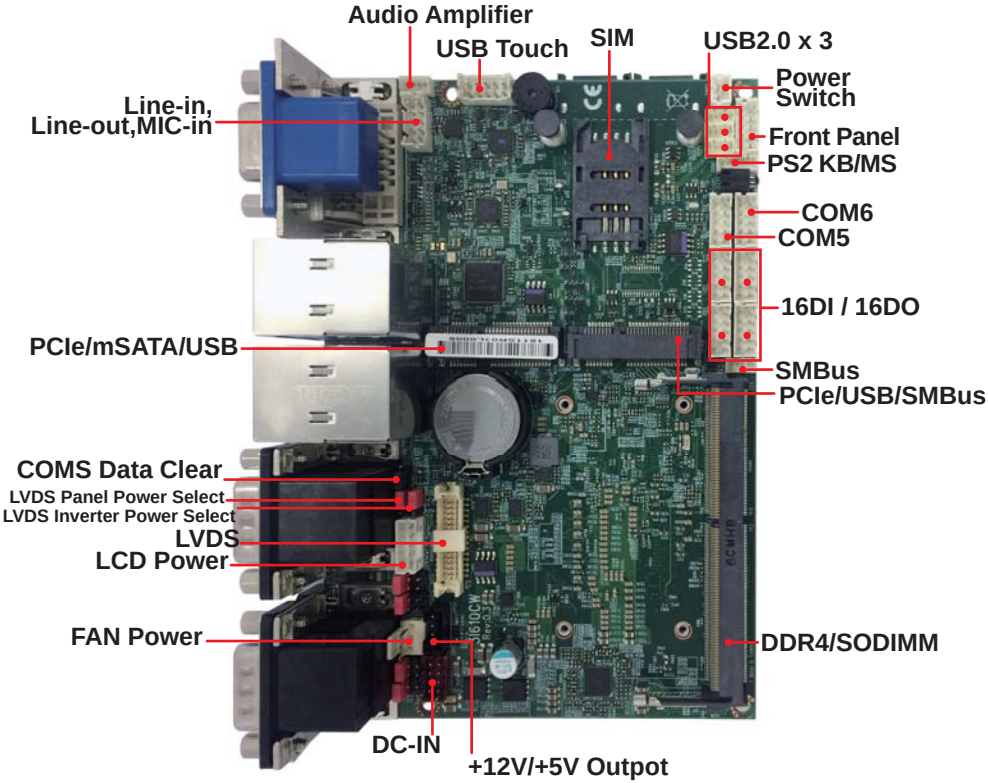


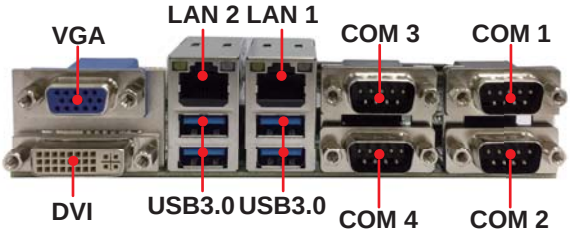
2-4-2 Layout-3I610CW-Function Map

BOT



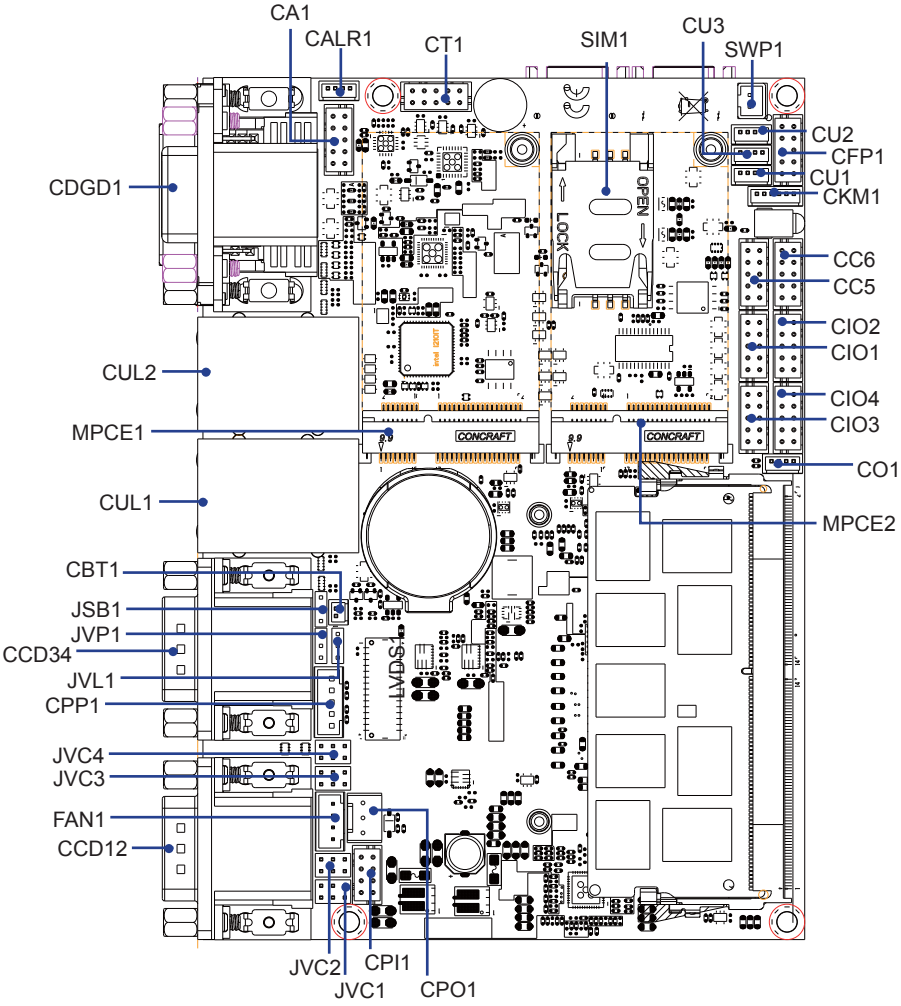
2-5 Function Map-3I610CW





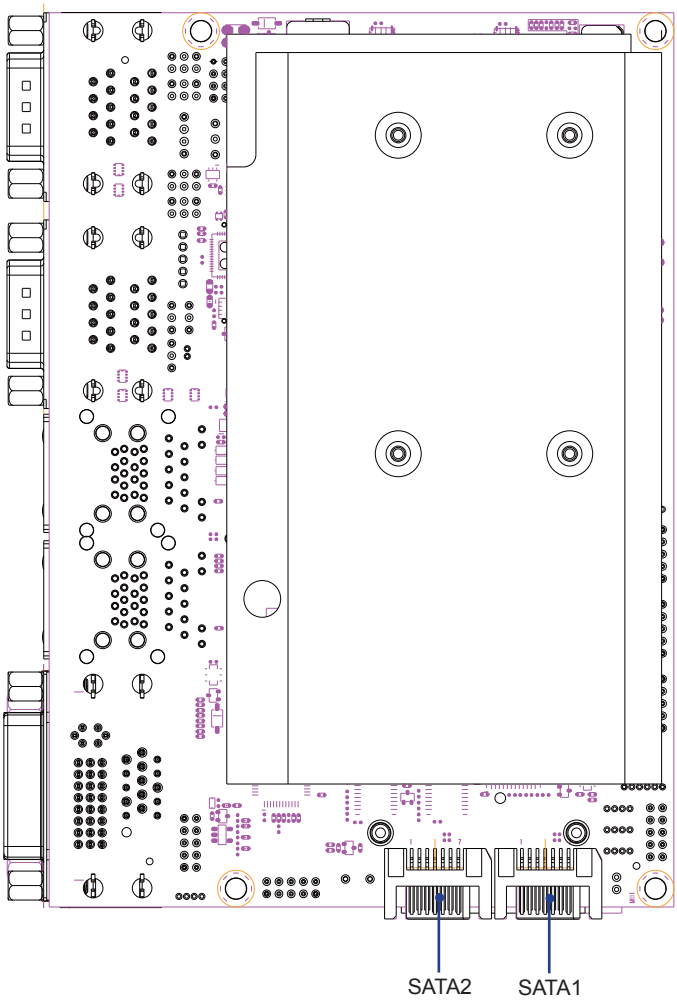
2-6-1 Connector MAP-3I610CW

TOP



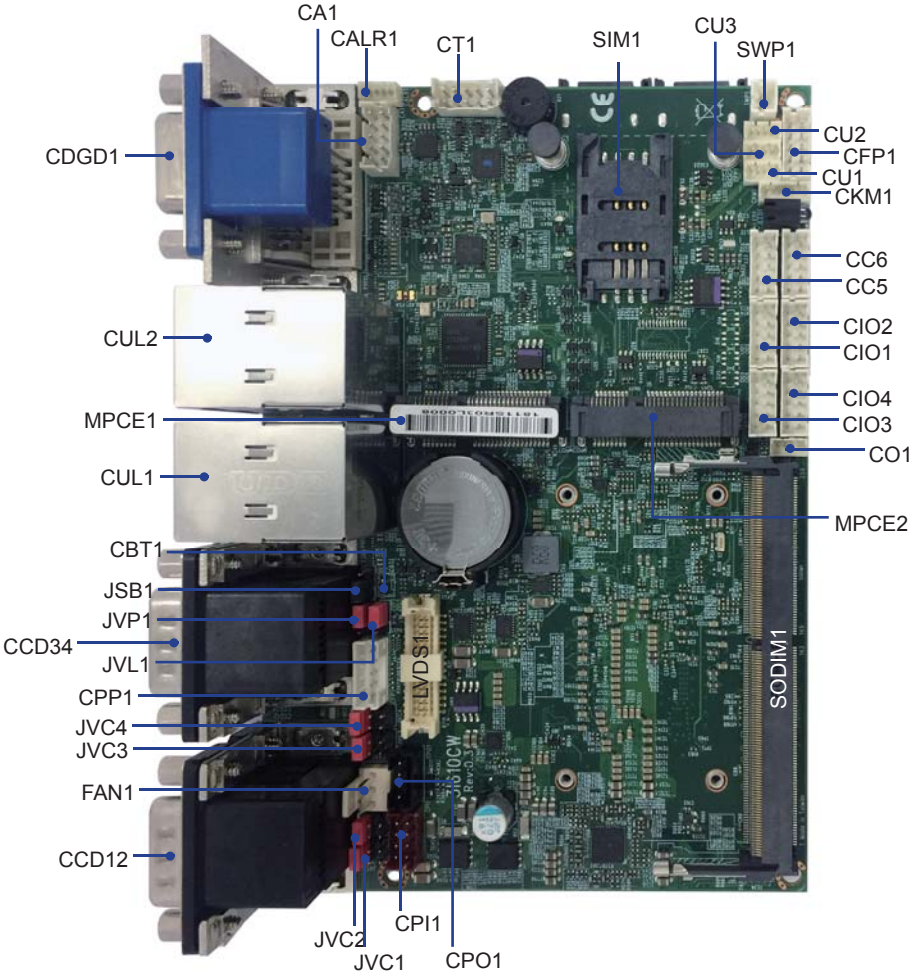
2-6-2 Connector MAP-3I610CW

BOT



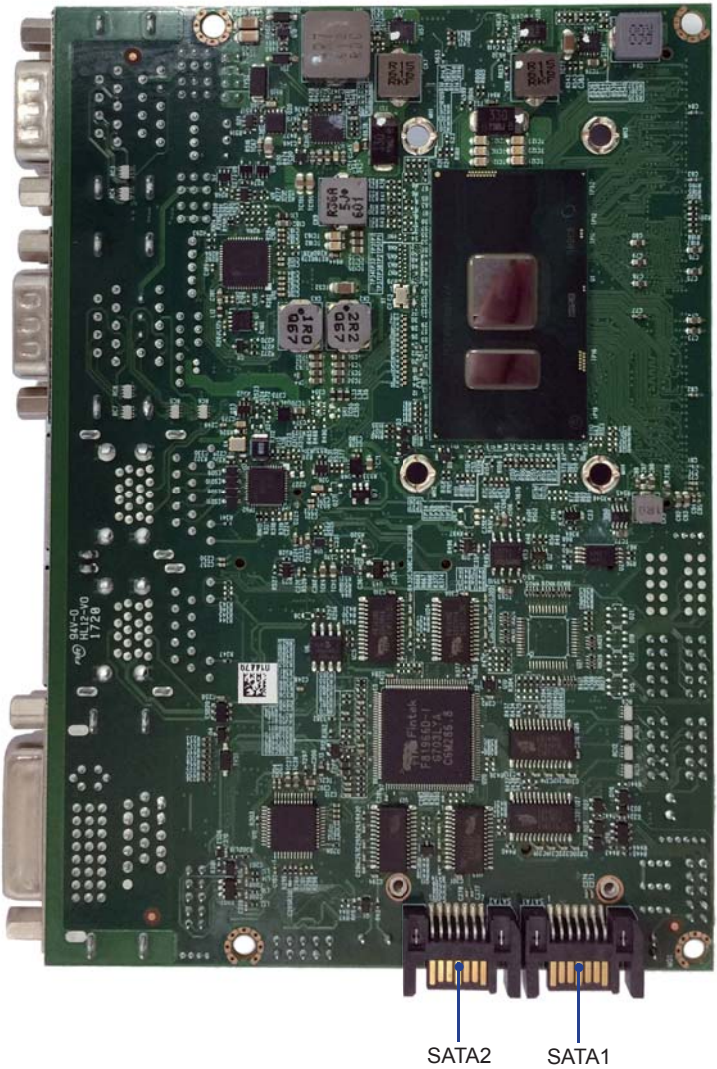
2-7-1 Diagram- 3I610CW

TOP



2-7-2 Diagram- 3I610CW

BOT



2-8 List of Jumpers

JSB1: CMOS DATA Clear

JVL1: LCD panel power select

JVP1: LVDS panel Inverter power select

JVC1 / 2 / 3 / 4: COM1 / 2 / 3 / 4 PIN9 RI / +12V / +5V Select

2-9 Jumper Setting Description

A jumper is ON as a closed circuit with a plastic cap covering two pins. A jumper is OFF as an open circuit without the plastic cap. Some jumpers have three pins, labeled 1, 2, and 3. You could connect either pin 1 and 2 or 2 and 3.The below figure 2.2 shows the examples of different jumper settings in this manual.

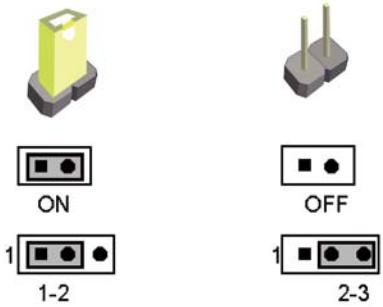


Figure 2.2

All jumpers already have its default setting with the plastic cap inserted as ON, or without the plastic cap as OFF. The default setting may be referred in this manual with a " * " symbol .

2-10 JSB1: CMOS DATA Clear

A battery must be used to retain the motherboard configuration in CMOS RAM.

Close Pin1 and pin 2 of JSB2 to store the CMOS data.

To clear the CMOS,follow the procedures below:

1. Turn off the system and unplug teh AC power
2. Remove DC IN power cable from DC IN power connector
3. Locate JSB2 and close pin 1-2 for few seconds
4. Return to default setting by Close pin 1-2
5. Connect DC IN power cable back to DC IN Power connector

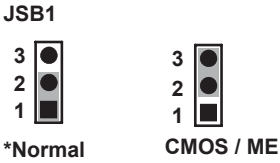
JSB1	DESCRIPTION
*1-2	Normal Set
2-3	CMOS / ME data clear

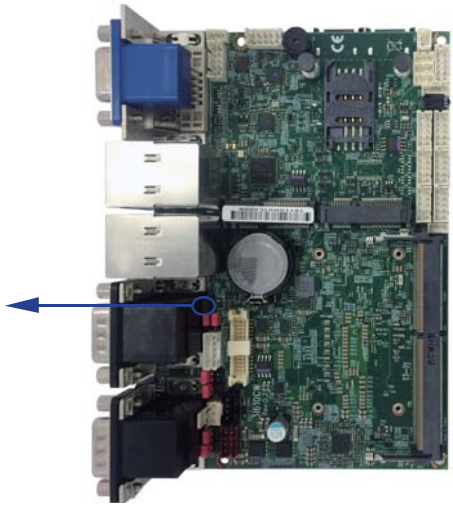
Note: Do not clear CMOS unless

1. Troubleshooting

2. Forget password

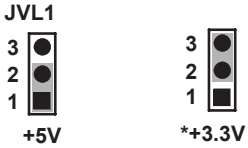
3. You fail over-clocking system

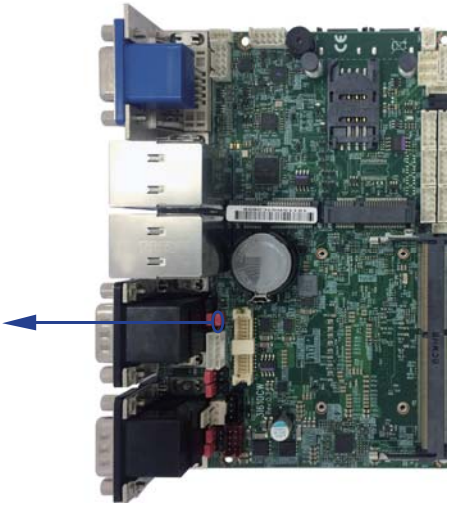




2-11 JVL1: LCD panel power select

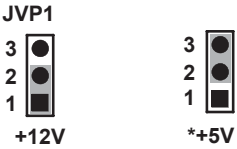
JVL1	DESCRIPTION
1-2	+5V
*2-3	+3.3V

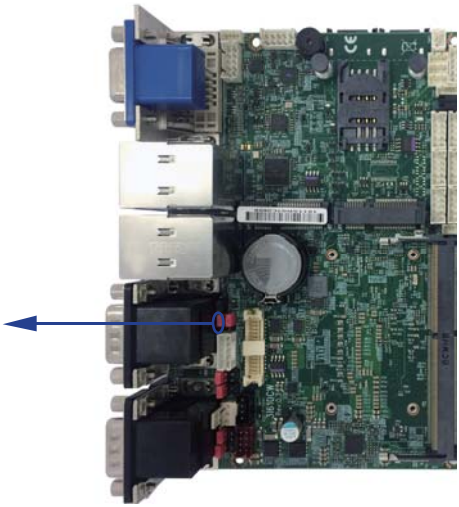




2-12 JVP1: LVDS panel Inverter power select

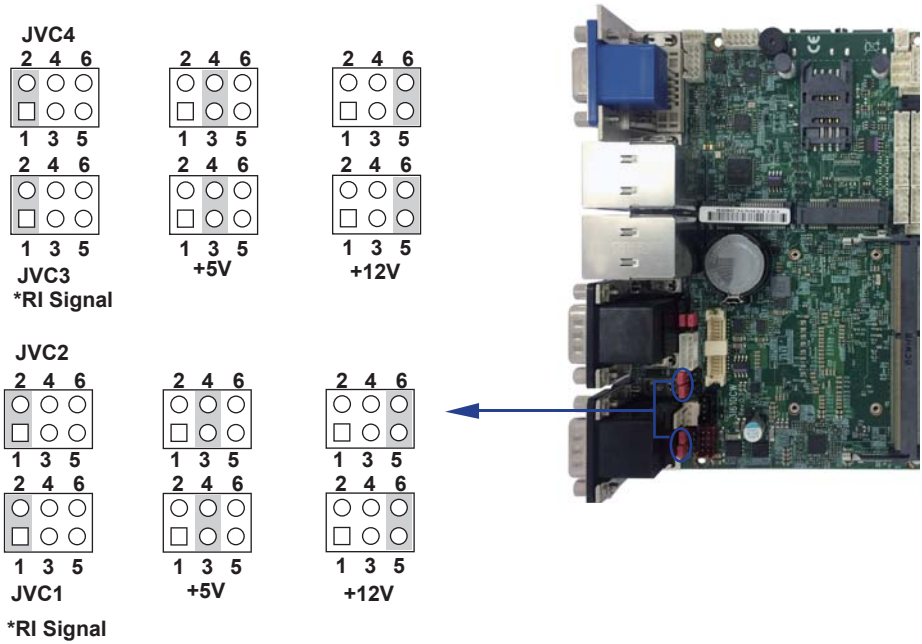
JVP1	DESCRIPTION
1-2	+12V
*2-3	+5V





2-13 JVC1/2/3/4: COM1/2/3/4 PIN9 RI/+12V/+5V Select

JVC1/2/3/4	DESCRIPION
*1-2	COM port pin9 use RI signal
3-4	COM port pin9 use +5V voltage
5-6	COM port pin9 use +12V voltage



Chapter-3

Connection

This chapter provides all necessary information of the peripheral's connections, switches and indicators. Always power off the board before you install the peripherals.

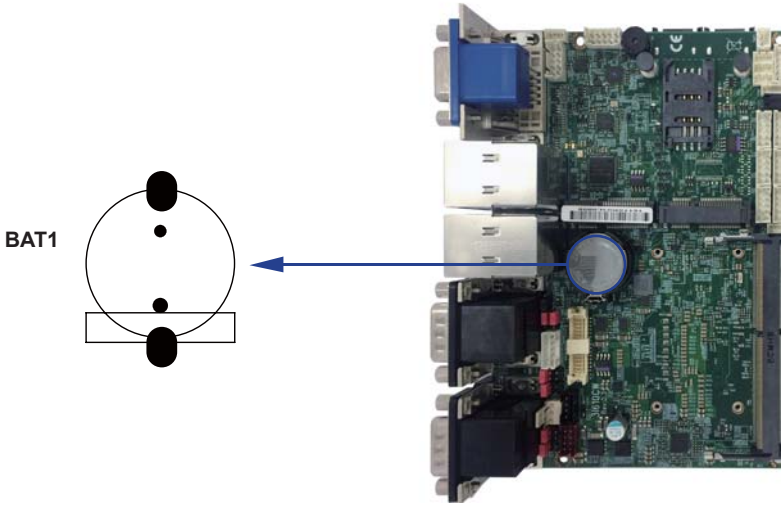
3-1 List of Connectors

BAT1:	Li 3V battery holder
CA1:	Line-out/Line-in / Mic-in / SPDIF-out 2x5 pin (2.0mm) Wafer
CALR1:	Amplifier Line-out Right / Left channel 4pin (1.25mm) wafer
CGD1 :	VGA DB15 + DVI Connector
CUL1 :	LAN port 1 RJ45 + USB3.0 Type A x 2 Connector
CUL2 :	LAN port 1 RJ45 + USB3.0 Type A x 2 Connector
CCD12 :	COM1 / 2 Dual DB9 connector
CCD34:	COM3 / 4 Dual DB9 connector
CC5:	COM5 2x5pin (2.0mm) wafer
CC6:	COM6 2x5pin (2.0mm) wafer
CFP1:	Front Panel connector 2x5pin (2.0mm) wafer
SWP1:	Power On-Off 1x2 pin Wafer
CIO1:	4DI / 4DO 2x5 pin (2.0mm) Wafer
CIO2:	4DI / 4DO 2x5 pin (2.0mm) Wafer
CIO3:	4DI / 4DO 2x5 pin (2.0mm) Wafer
CIO4:	4DI / 4DO 2x5 pin (2.0mm) Wafer
CO1:	I^2C Bus 4pin (1.25mm) Wafer
CPI1:	DC 12V-IN 2x4 pin (2.0mm) Red wafer connector
CPO1:	+12V / +5V power output 4 pin (2.0mm) Black wafer connector
CU1:	USB 2.0 port 4pin (1.25mm) Wafer
CU2:	USB 2.0 port 4pin (1.25mm) Wafer
CU3:	USB 2.0 port 4pin (1.25mm) Wafer
MPCE1:	Full size mini card port 1 sockets 52pin
MPCE2:	Full size mini card port 2 sockets 52pin
SATA1:	SATA connector 7pin.
SATA2:	SATA connector 7pin
SIM1:	SIM socket.
SODIM1:	DDR4 SO-DIMM socket 204pin.
CKM1:	PS2 KB/MS 1x6 pin (1.25mm) wafer

3-2 Li 3V battery connector

- BAT1: 3V Battery hold 2pin
  BAT1: Battery use Li 3V / 220mAh (CR2032)

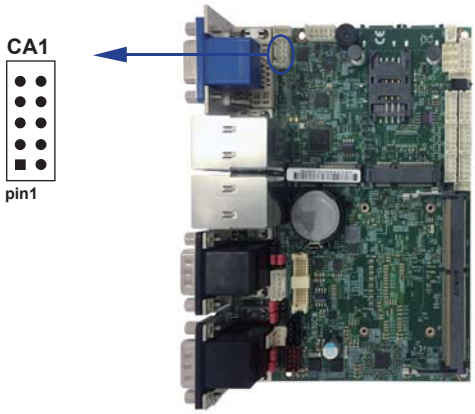
Note :
1.When board without Adaptor plug in, this board power RTC consumption 2.7uA
2.If adaptor always plug in RTC power consumption 0.1uA



3-3 Audio interface

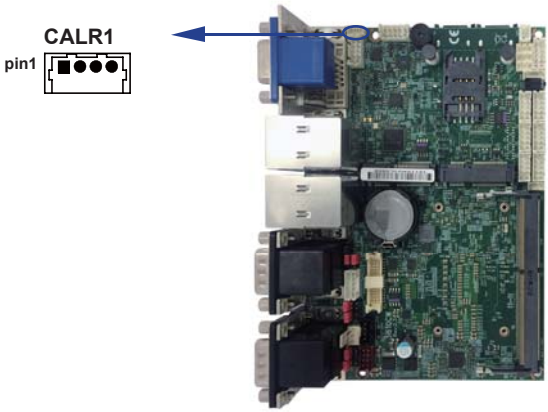
●CA1: Line-out / Line-in / Mic-in 2x5 pin (2.0mm) Wafer

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Line-out-R	2	MIC-IN
3	Line-in-R	4	GND
5	GND	6	GND
7	Line-in-L	8	+5V
9	Line-out-L	10	MIC-IN



● CALR1: Amplifier Line-out Right / Left channel 4pin (1.25mm) wafer

PIN NO.	DESCRIPTION
1	Left+
2	Left-
3	Right-
4	Right+



3-4 DVI-D / VGA Connector

● CDG1: DVI 12bit connector down side (DB Connector)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data 2-	9	Data 1-	17	Data 0-
2	Data 2+	10	Data 1+	18	Data 0+
3	GND	11	GND	19	GND
4	NC	12	NC	20	NC
5	NC	13	NC	21	NC
6	I^2C-CLK	14	+5V	22	GND
7	I^2C-DATA	15	GND	23	CLK+
8	NC	16	DVI-DETECT	24	CLK-

● CDG1: VGA DB15 Connector Up side (D-SUB 15PIN)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDC DATA
3	BULE	8	GND	13	H-SYNC
4	NC	9	NC	14	V-SYNC
5	GND	10	GND	15	DDC CLOCK

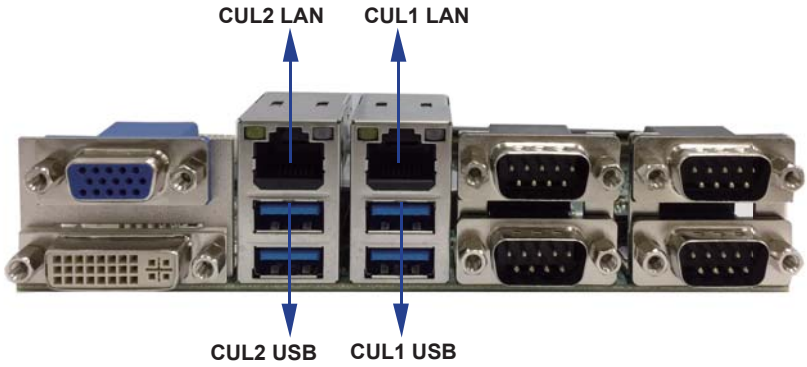
3-5 RJ45 / USB 3.0 Connector

- CUL1/2: RJ45 LAN1 Connector (Up)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDI0+	5	MDI2-
2	MDI0-	6	MDI1-
3	MDI1+	7	MDI3+
4	MID2+	8	MDI3-

- CUL1/2: USB3.0 Port 1 / 2 / 3 / 4 Connector (Down)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBUS	5	SS_RX-
2	D-	6	SS_RX+
3	D+	7	GND
4	GND	8	SS_TX-
		9	SS_TX+



3-6 COM1 / 3 DB9 Connector (CCD12 / CCD34: Up)

- **RS232 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI / Voltage
5	GND		

Note: The pin9 RI can be modify to Power to supply device. The power voltage can be set +12V or +5V. The RI change Voltage function is OEM need change BOM. Default is RI signal.

- **RS485 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data-	6	NC
2	Data+	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND		

- **RS422 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX-	6	NC
2	TX+	7	NC
3	RX+	8	NC
4	RX-	9	NC
5	GND		

Note: The COM1/3 mode decides from BIOS Setup selected.

3-6-1 COM2 / 4 DB9 Connector (CCD12 / CCD34: Down)

- **RS232 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI/Voltage
5	GND		

Note: The pin9 RI can be modify to Power to supply device. The power voltage can be set +12V or +5V. The RI change Voltage function is OEM need change BOM. Default is RI signal.

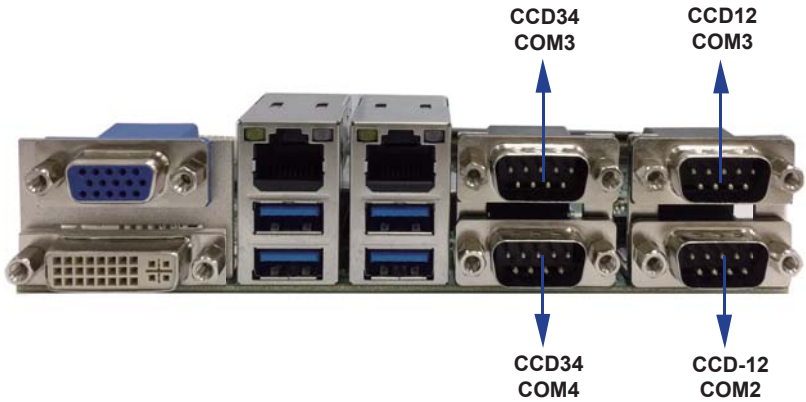
- **RS485 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data-	6	NC
2	Data+	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND		

- **RS422 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX-	6	NC
2	TX+	7	NC
3	RX+	8	NC
4	RX-	9	NC
5	GND		

Note: The COM2/4 mode decides from BIOS Setup selected.



3-7 CC5 / 6 COM5 / 6 2x5pin (2.0mm) wafer

- **RS232 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	+5V

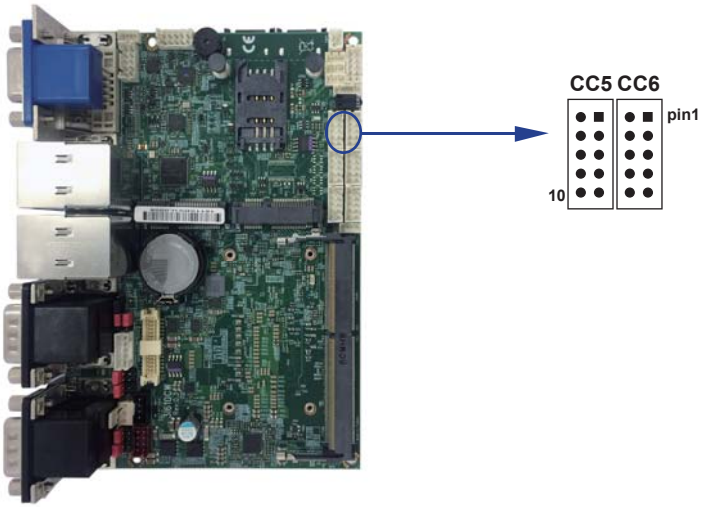
- **RS485 Mode**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data-	6	NC
2	Data+	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND	10	+5V

- **RS422 Mode**

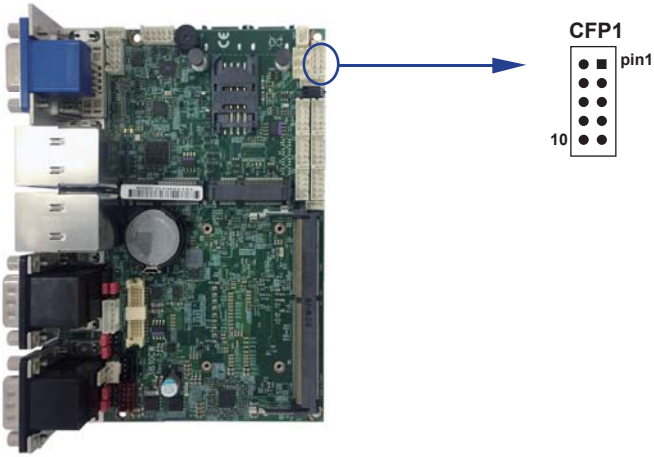
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX-	6	NC
2	TX+	7	NC
3	RX+	8	NC
4	RX-	9	NC
5	GND	10	+5V

Note: The COM5/6 mode decides from BIOS Setup selected.



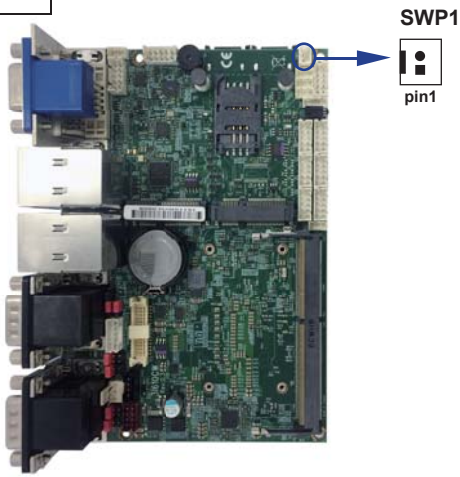
3-8 CFP1 Front Panel connector 2x5pin (2.0mm) wafer

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Power button pin	2	Power button GND
3	Reset pin	4	Reset GND
5	Power LED-	6	Power LED+
7	HDD LED-	8	HDD LED+
9	LAN LED-	10	LAN LED+



3-9 SWP1 Power On/off switch Wafer (1 X 2 pin 2.00mm wafer)

PIN NO.	DESCRIPTION
1	Power button pin
2	Power button GND



3-10 Digital Input / Output / Watch Dog Time

● CIO1 DIO 0--3 (2x5pin 2.0mm wafer)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DI-0	2	DO-3
3	DI-1	4	DO-2
5	DI-2	6	DO-1
7	DI-3	8	DO-0
9	GND	10	+5V

● CIO2 DIO 4--7 (2x5pin 2.0mm wafer)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DI-4	2	DO-7
3	DI-5	4	DO-6
5	DI-6	6	DO-5
7	DI-7	8	DO-4
9	GND	10	+5V

● CIO3 DIO 8--11 (2x5pin 2.0mm wafer)

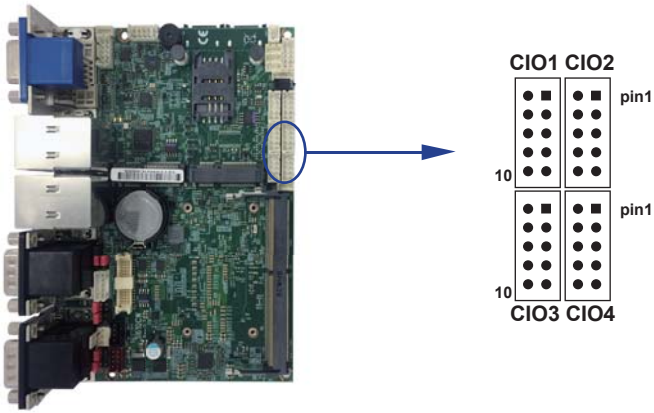
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DI-8	2	DO-11
3	DI-9	4	DO-10
5	DI-10	6	DO-9
7	DI-11	8	DO-8
9	GND	10	+5V

● CIO4 DIO 12--15 (2x5pin 2.0mm wafer)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DI-12	2	DO-15
3	DI-13	4	DO-14
5	DI-14	6	DO-13
7	DI-15	8	DO-12
9	GND	10	+5V

3-10-1 IO Device: F75113 LPC under Windows (64bit)

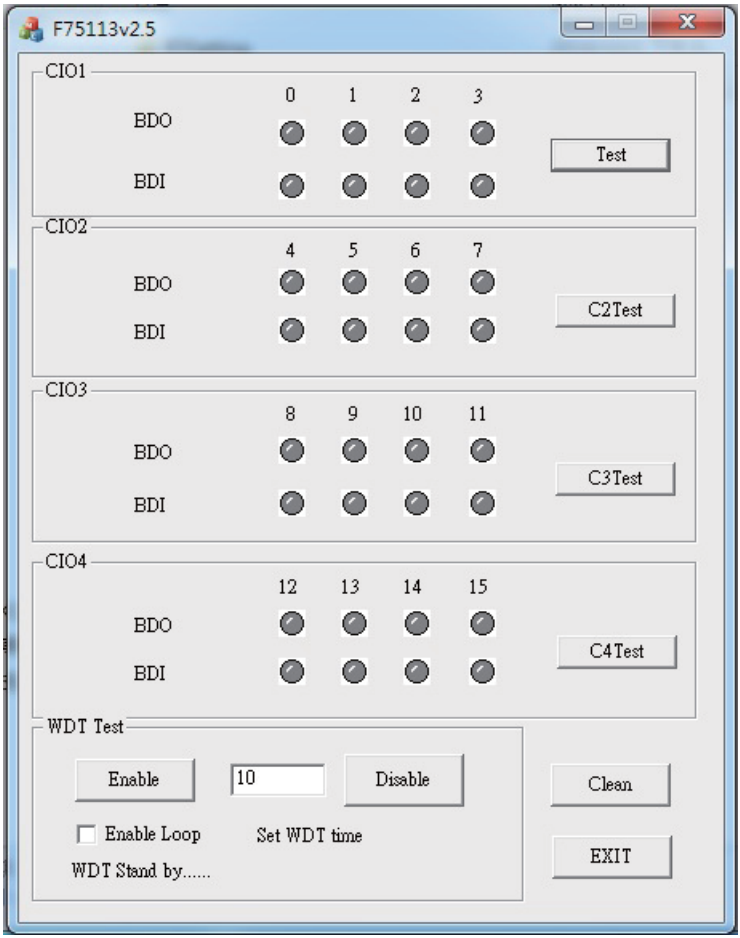
Contents [hide]



The Sample code source you can download from

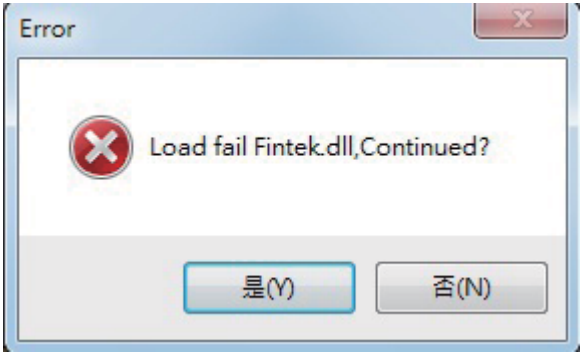
Source file: F75113v2.5W_src.zip
Binary file: F75113v2.5W_bin_x64.zip
We do the demo test with a test tool which DIx connect to DOx with Relay.

How to use this Demo Application

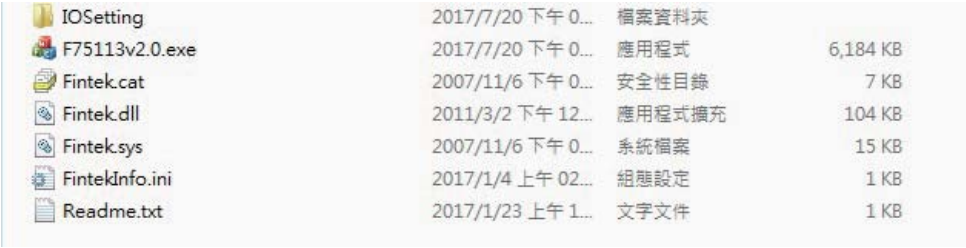


1. Press the "Test" button to test CIO1 function
2. Press the "C2test" button to test CIO2 function
3. Press the "C3test" button to test CIO3 function
4. Press the "C4test" button to test CIO4 function

If the next picture appears

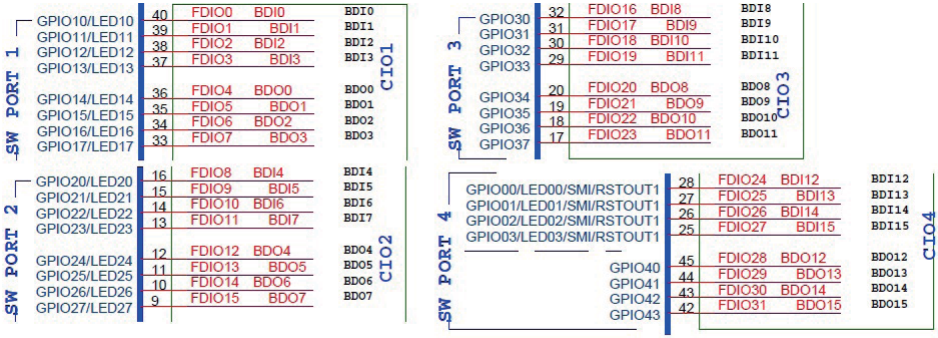


MB no LPC or the drive placement is wrong
Drive the location for the next picture



IOSetting	2017/7/20 下午 0...	檔案資料夾	
F75113v2.0.exe	2017/7/20 下午 0...	應用程式	6,184 KB
Fintek.cat	2007/11/6 下午 0...	安全性目錄	7 KB
Fintek.dll	2011/3/2 下午 12...	應用程式擴充	104 KB
Fintek.sys	2007/11/6 下午 0...	系統檔案	15 KB
FintekInfo.ini	2017/1/4 上午 02...	組態設定	1 KB
Readme.txt	2017/1/23 上午 1...	文字文件	1 KB

F75113 GPIO Picture



Introduction

F75113 driver connection

```
hinstLib = LoadLibrary(L"Fintek.dll");
 if (hinstLib == NULL)
 {
    if(Application->MessageBoxW(L"Load fail Fintek.dll,Continued?",L"Error",16+4)==IDNO)
    {
      Application->Terminate();
    }
      return;
 }
```

GPIO Status Register Write

```
SETINT2PROC ProcAdd;
 char *endptr;
 char Numbers[] = "0x20";
 char Value[] =   "0xF0";
 ProcAdd = (SETINT2PROC) GetProcAddress(hinstLib, "GPIO_LPC_W");
 if (NULL != ProcAdd)
 {
   if (! (*ProcAdd)( strtol(Numbers, &endptr, 16), strtol(Value, &endptr, 16)))
   {
     ShowMessage("Write Fail");
   }
 }
```

GPIO Status Register Read

```
GETINT2PROC ProcAdd1;
 int datatest;
 char NRtest[] = "0x22";
 ProcAdd1 = (GETINT2PROC) GetProcAddress(hinstLib, "GPIO_LPC_R");
 if (NULL != ProcAdd1)
 {
   if (! (*ProcAdd1)( strtol(NRtest, &endptr, 16), &datatest))
   {
     ShowMessage("Read Fail");
   }
 }
```

GPIO Comparison

```
if( data == 0xF0 )
 {
  ((CStatic *)GetDlgItem(IDC_LED_DO0))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEIN
TRESOURCE(IDB_BITMAP_Green)));
  ((CStatic *)GetDlgItem(IDC_LED_DO1))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEIN
TRESOURCE(IDB_BITMAP_Green)));
  ((CStatic *)GetDlgItem(IDC_LED_DO2))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEIN
TRESOURCE(IDB_BITMAP_Green)));
  ((CStatic *)GetDlgItem(IDC_LED_DO3))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEIN
TRESOURCE(IDB_BITMAP_Green)));
   if( data2 == 0x01 )
   {
      ((CStatic *)GetDlgItem(IDC_LED_DI0))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEI
NTRESOURCE(IDB_BITMAP_Green)));
      ((CStatic *)GetDlgItem(IDC_LED_DI1))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEI
NTRESOURCE(IDB_BITMAP_Red)));
      ((CStatic *)GetDlgItem(IDC_LED_DI2))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEI
NTRESOURCE(IDB_BITMAP_Red)));
      ((CStatic *)GetDlgItem(IDC_LED_DI4))->SetBitmap(::LoadBitmap(AfxGetInstanceHandle(),MAKEI
NTRESOURCE(IDB_BITMAP_Red)));
   }
   .....
 }
```

F75113 driver delete

```
 char N9[] = "0x10";
 char V9[] = "0x00";
 ProcAdd = (SETINT2PROC) GetProcAddress(hinstLib, "GPIO_LPC_W");
  if (NULL != ProcAdd)
   {
    if (! (*ProcAdd)( strtol(N9, &endptr, 16), strtol(V9, &endptr, 16)))
     {
      ShowMessage("Write Fail");
     }
   }
   if (hinstLib != NULL)
   {
    FreeLibrary(hinstLib);
   }
```

Version update details

Version 2.1 update code removes default naming change to wafer name and write comment

Category: AllowPages
AllowPages > AllowPages

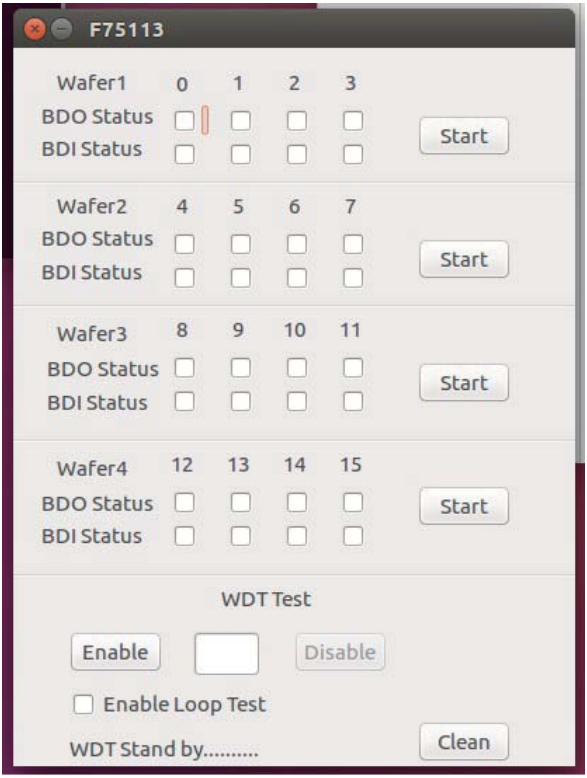
3-10-2 IO Device:F75113 LPC under Linux(64bit)

Contents [hide]

The Sample code source you can download from

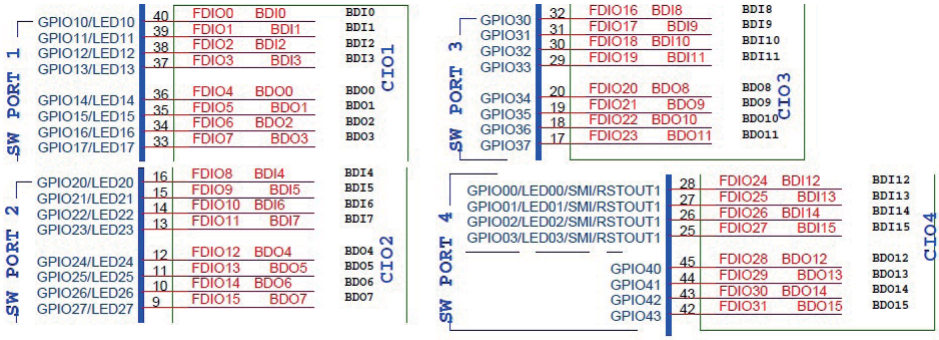
Source file: F75113v2.5_linux_src.tar.gz
Binary file: Linux_F75113v2.5_bin.tar.gz
We do the demo test with a test tool which DIx connect to DOx with Relay.

How to use this Demo Application



1. Press the "Start" button to test CIO1 function
2. Press the "Start" button to test CIO2 function
3. Press the "Start" button to test CIO3 function
4. Press the "Start" button to test CIO4 function
5. Press the "Enable" button to test WDT function
If you need to use the WDT,Please use "sh F75113set.sh"
He can help you set the WDT register for normal use WDT

F75113 GPIO Picture



Introduction

GPIO Status Register Write

```
init_fintek_sio(eSIO_TYPE_F81866, 0 ,&sio_data)
ActiveSIO(sio_data.ic_port, sio_data.key);
CHECK_RET(_EnableGPIO(0x06 , eGPIO_Mode_Enable));
CHECK_RET(_SetGpioOutputEnableIdx( 0x06 , eGPIO_Direction_Out));
CHECK_RET(_SetGpioDriveEnable( 0x06 , eGPIO_Drive_Mode_OpenDrain));
CHECK_RET(_SetGpioOutputDataIdx( 0x06 , 1));
DeactiveSIO(sio_data.ic_port);
```

GPIO Status Register Read

```
init_fintek_sio(eSIO_TYPE_F81866, 0 ,&sio_data)
ActiveSIO(sio_data.ic_port, sio_data.key);
CHECK_RET(_EnableGPIO(0x06 , eGPIO_Mode_Enable));
CHECK_RET(_SetGpioOutputEnableIdx( 0x06 , eGPIO_Direction_In));
CHECK_RET(_GetGpioInputDataIdx( 0x06 , &data));
DeactiveSIO(sio_data.ic_port);
```

GPIO Comparison

```
CHECK_RET(_GetGpioInputDataIdx (0x10,&BDIO_data));
 if((BDIO_data == 1) & (BDIO_startvalue_data == 0) )
 {
   gtk_toggle_button_set_active(GTK_TOGGLE_BUTTON(checkbutton2), TRUE);
 }
 CHECK_RET(_GetGpioInputDataIdx (0x11,&BDI1_data));
 if((BDI1_data == 1) & (BDI1_startvalue_data == 0) )
 {
   gtk_toggle_button_set_active(GTK_TOGGLE_BUTTON(checkbutton4), TRUE);
 }
 CHECK_RET(_GetGpioInputDataIdx (0x12,&BDI2_data));
 if((BDI2_data == 1) & (BDI2_startvalue_data == 0) )
 {
   gtk_toggle_button_set_active(GTK_TOGGLE_BUTTON(checkbutton6), TRUE);
 }
 CHECK_RET(_GetGpioInputDataIdx (0x13,&BDI3_data));
 if((BDI3_data == 1) & (BDI3_startvalue_data == 0) )
 {
   gtk_toggle_button_set_active(GTK_TOGGLE_BUTTON(checkbutton8), TRUE);
 }
```

F75113 driver delete

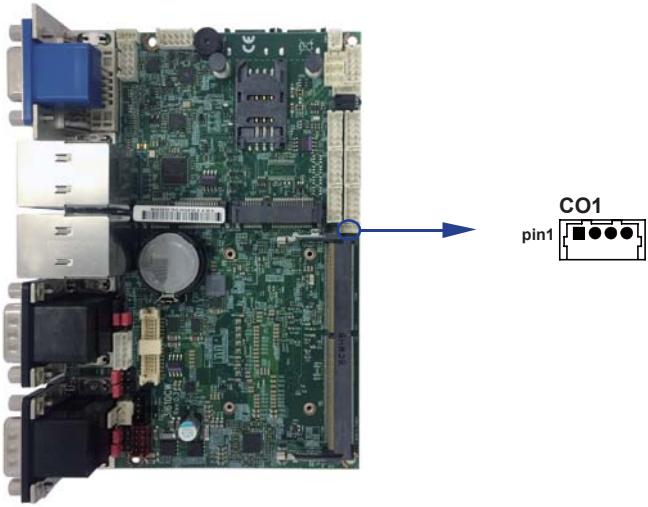
```
on_window1_destory        (GtKObject    *object,
                          gpointer      user_data)
 {
   int nRet = 0;
   sFintek_sio_data sio_data;
   set_debug(1);
   if( nRet = init_fintek_sio(eSIO_TYPE_F75113,0, &sio_data))
   {
       fprintf(stderr,"init_fintek_sio error\n");
       exit(3);
   }
   ActiveSIO(sio_data.ic_port, sio_data.key);
   DeactiveSIO(sio_data.ic_port);
   gtk_main_quit();
 }
```

Category: AllowPages
AllowPages > AllowPages

3-11 I^2C Bus Interface

● **CO1: I^2C Bus 4pin (1.25mm) Wafer**

PIN NO.	DESCRIPTION
1	+3.3V
2	GND
3	I^2C Clock
4	I^2C DATA

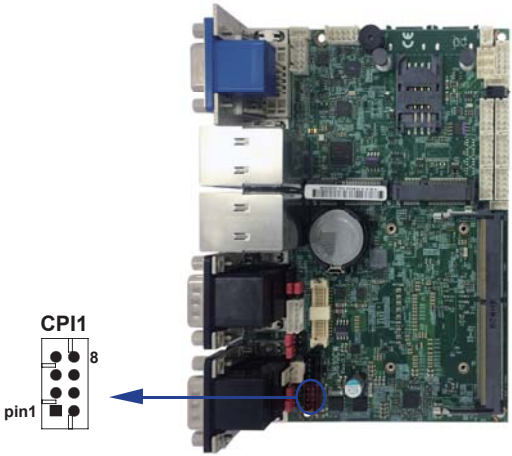


3-12 DC power input

● CPI1: DC Power input (2x4pin 2.0mm Wafer) (Red)

PIN NO	DESCRIPTION
3,4,5,6	DC-IN
1,2,7,8	GND

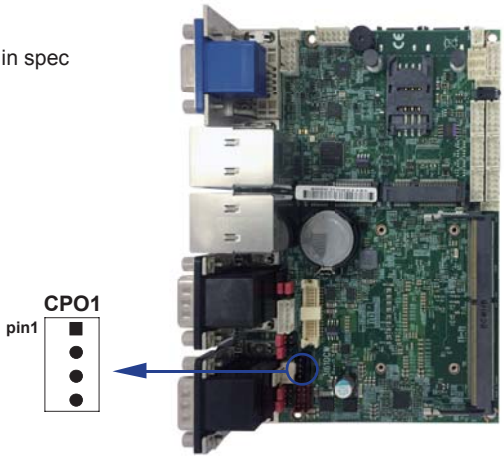
Note: Very important check DC-in Voltage



● CPO1: +12V/+5V DC voltage output

PIN NO.	DESCRIPTION
1	+5V
2	GND
3	GND
4	+12V *

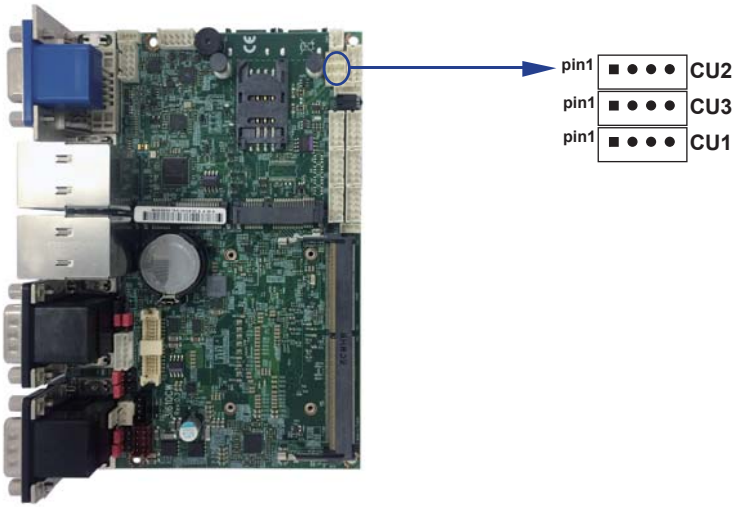
* Note: Attention! Check Device Power in spec



3-13 USB Interface

● CU1/2/3 USB2.0 port (1x4pin 1.25mm Wafer)

PIN NO	DESCRIPTION
1	+5V
2	DATA-
3	DATA+
4	GND

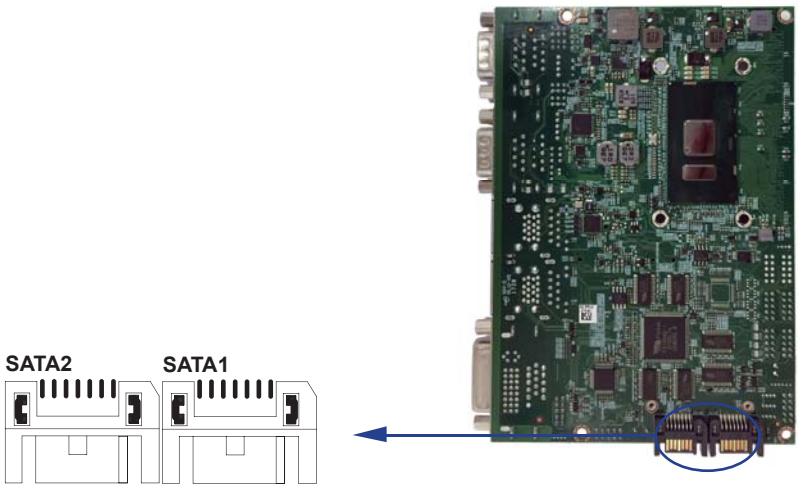


3-14 SATA interface

- **SATA 1/2: SATA port 1x7pin Connector**

PIN NO.	DESCRIPTION
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

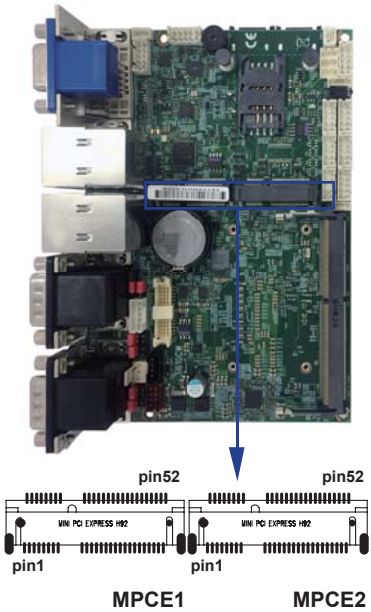
Note:
1. CPO1 provide SATA HDD power +12V, GND, +5V



3-15 Module socket

● MPCE 1/2 PCI Express mini card

PIN NO.	Description	PIN NO.	Description
1	NC	2	+3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	NC	8	SIM Power
9	GND	10	SIM Data
11	PCIe-CLK-	12	SIM CLK
13	PCIe-CLK+	14	SIM Reset
15	GND	16	SIM RFU
KEY			
17	NC	18	GND
19	NC	20	NC
21	GND	22	Reset
23	PCIe-RX-/mSATA-RX+	24	+3.3V
25	PCIe-RX+/mSATA-RX-	26	GND
27	GND	28	+1.5V
29	GND	30	SMB-CLK
31	PCIe-TX-/mSATA-TX-	32	SMB-DATA
33	PCIe-TX+/mSATA-TX+	34	GND
35	GND	36	USB-DATA-
37	GND	38	USB-DATA+
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	mSATA/PCIe detect	52	+3.3V



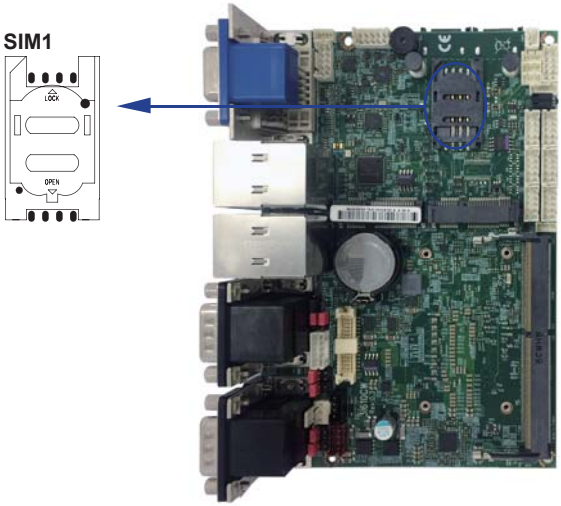
Note:
1. MPCE1 Pin51 mSATA / PCIe auto detect function, but MPCE2 PCIe only.
2. Pin8 ~ Pin16 SIM signal only for MPCE2

3-16 SIM1: SIM Card socket

● **SIM1: SIM card socket pin define is follow ISO 7816-2 smart card standard.**

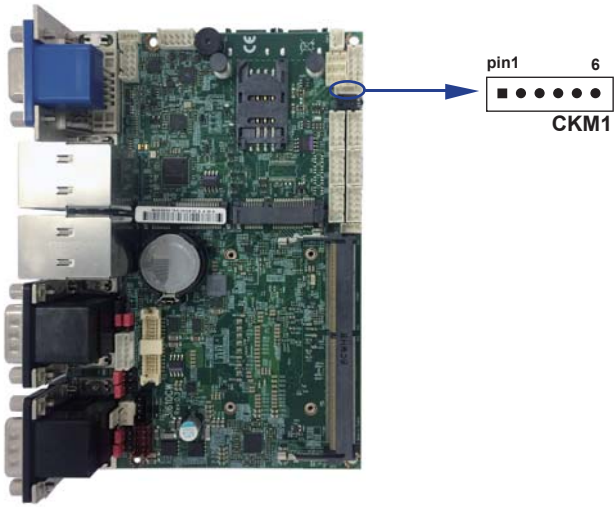
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	5	GND
2	RST	6	VPP
3	CLK	7	DATA
4	NC	8	GND

Note: 1. MPCE2 Pin 8, 10,12,14,16 for SIM1 card reader use.



3-17 CKM1: KB/MS port 1x6pin (1.25mm) Wafer

PIN NO.	DESCRIPTION
1	+5V
2	Keyboard Data
3	Keyboard Clock
4	GND
5	Mouse DATA
6	Mouse Clock



3-18 Connector wafer of Compatible Brand and part number list

Location	CKTS	PITCH	Brand Name	Mating connector	Cable housing
CA1	2x5 10Pin	2.00mm	JST	B10B-PHDSS	PHDR-10VS
CALR1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CC1	2x5 10Pin	2.00mm	JST	B10B-PHDSS	PHDR-10VS
CC2	2x5 10Pin	2.00mm	JST	B10B-PHDSS	PHDR-10VS
CFP1	2x5 10Pin	2.00mm	JST	B10B-PHDSS	PHDR-10VS
CIO1	2x5 10Pin	2.00mm	JST	B10B-PHDSS	PHDR-10VS
CKM1	1x6 6Pin	1.25mm	MOLEX	53047-0610	51021-0600
CO1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CPI1	2x4 8Pin	2.00mm	JST	B8B-PHDSS	PHDR-08VS
CPO1	1x4 4Pin	2.00mm	JST	B4B-PH-KL	PHR-4
CU8	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU9	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU10	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
SWP1	1x2 2Pin	2.00mm	JST	B2B-PH-KL	PHR-2

Chapter-4

Introduction of BIOS

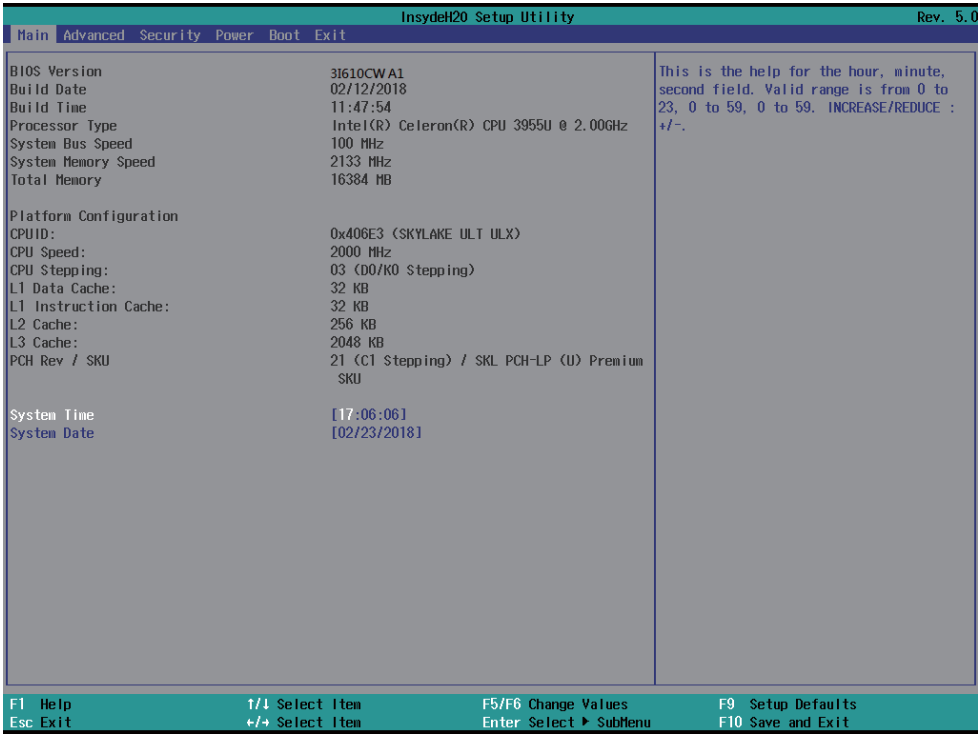
The BIOS is a program located in the Flash Memory on the motherboard.
This program is a bridge between motherboard and operating system.
When you start the computer, the BIOS program gains control.
The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary hardware, it detects the entire hardware devices and configures the parameters of the hardware synchronization. After these tasks are completed, BIOS will give control of the computer back to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate with, it is the key factor of system stability and of ensuring your system performance at best.
In the BIOS Setup main menu, you can see several options. We will explain these options in the following pages. First, let us see the function keys you may use here:

Press <Esc> to quit the BIOS Setup.
Press ↑↓←→(up, down, left, right) to choose the option you want to confirm or modify.
Press <F10> to save these parameters and to exit the BIOS Setup menu after you complete the setup of BIOS parameters.
Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

4-1 Enter Setup

Power on the computer and press <Del> key immediately to enter Setup.
If the message disappears before your respond but you still wish to enter Setup, restart the system by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart the system by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.

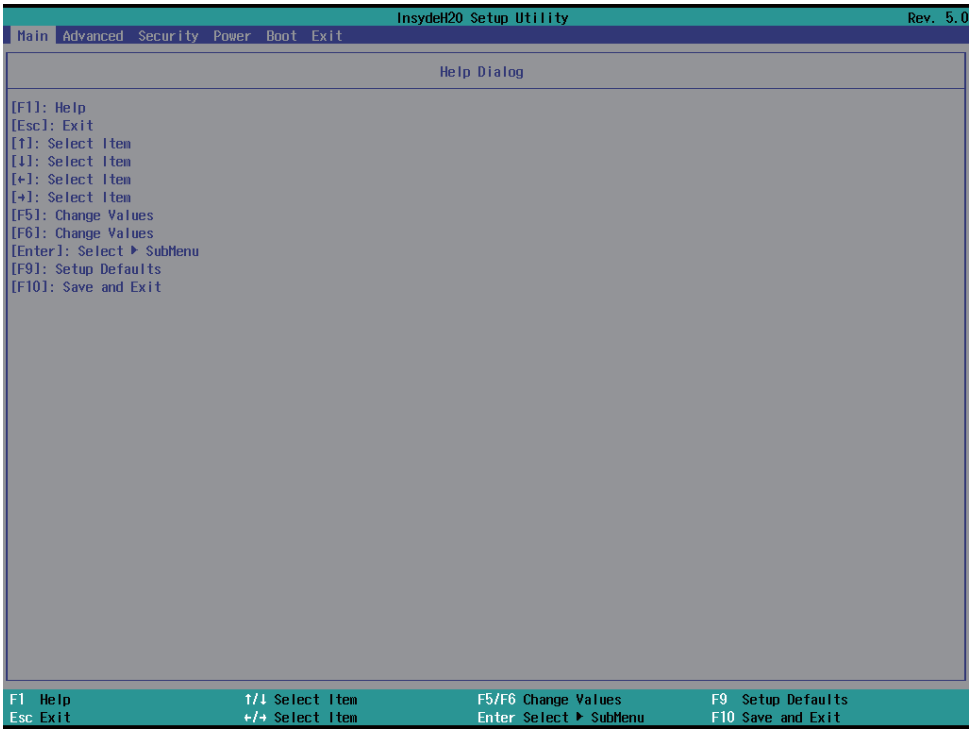
4-2 BIOS Menu Screen & Function Keys



In the above BIOS Setup main menu of, you can see several options.
We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press ←→ (left, right) to select screen;
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<–> or <F5>/<F6> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F9]: Optimized defaults.
- [F10]: Save & Exit.
- Press <Esc> to quit the BIOS Setup.

4-3 General Help



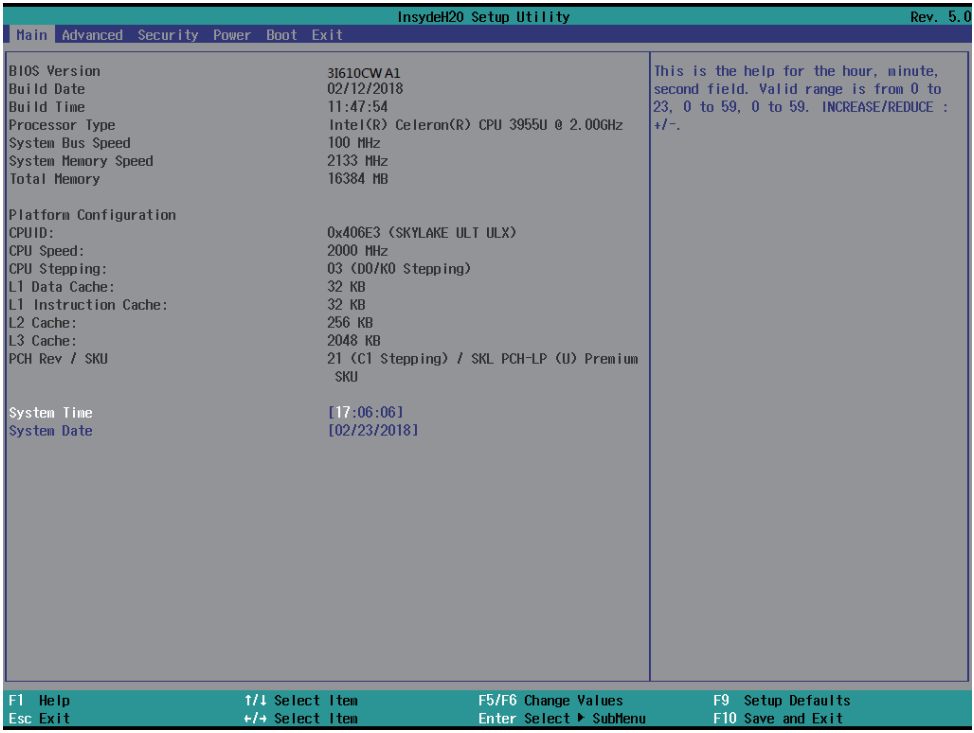
Status Page Setup Menu/ Option Page Setup Menu

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

4-4 Menu Bars

There are six menu bars on top of BIOS screen:
Main To change system basic configuration
Advanced To change system advanced configuration
Security Password settings
Power PME & Power button settings
Boot Exit Save setting, loading and exit options.
User can press the right or left arrow key on the keyboard to switch from menu bar.
The selected one is highlighted.

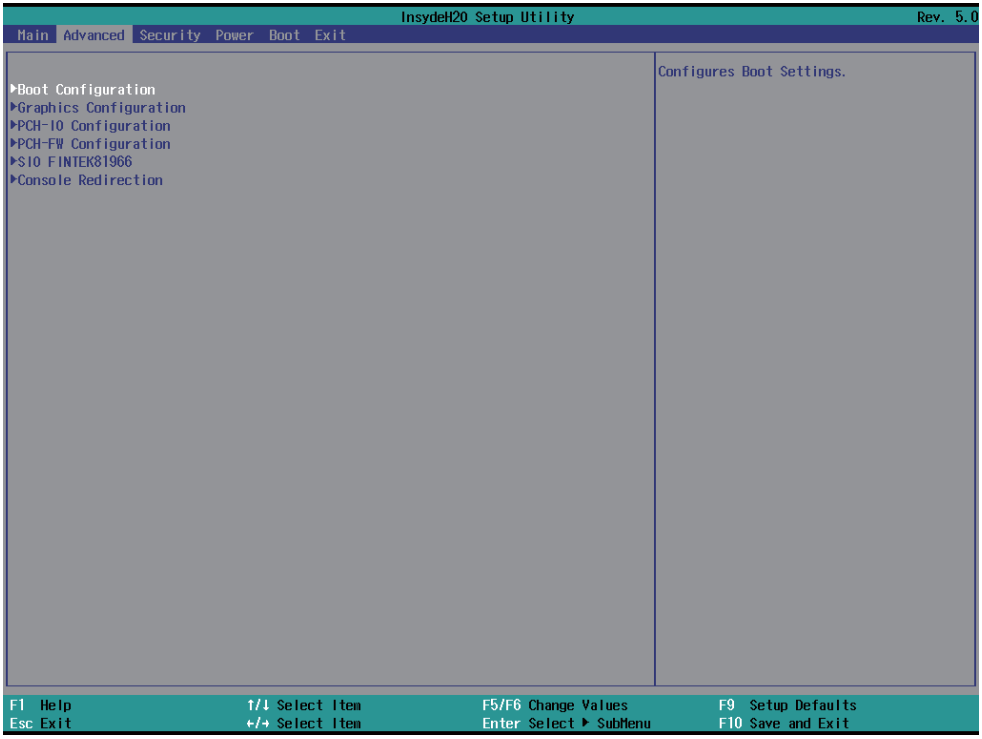
4-5 Main



Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.

System Date
Set the Date. Please use [Tab] to switch between data elements.
System Time
Set the Time. Please use [Tab] to switch between data elements.

4-6 Advanced



Boot Configuration

Please refer section 4-6-1

Graphics Configuration

Please refer section 4-6-2

PCH-IO Configuration

Please refer section 4-6-3

PCH-FW Configuration

Please refer section 4-6-4

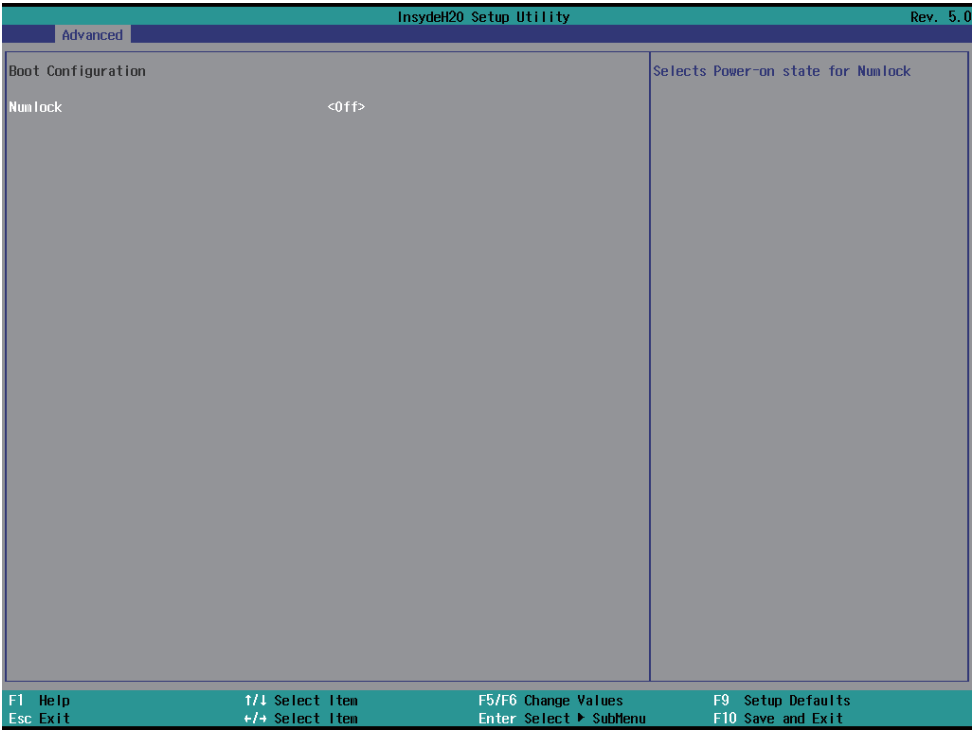
SIO FINTEK81966

Please refer section 4-6-5

Console Redirection

Please refer section 4-6-6

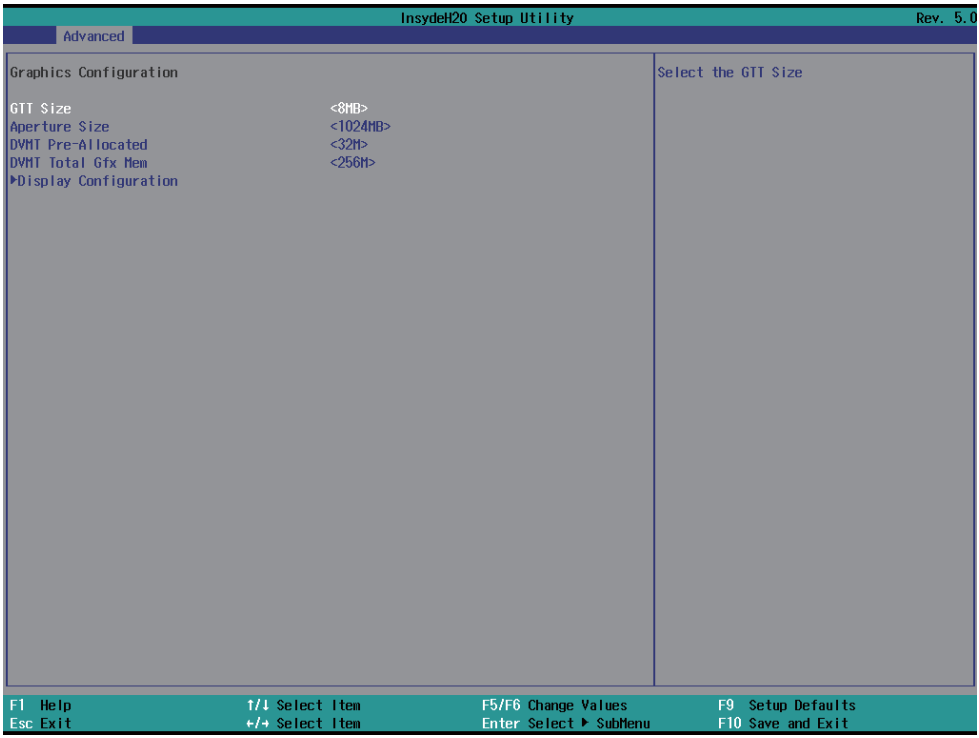
4-6-1 Boot Configuration



Numlock

Select Power-on state for Numlock, default is <Off>

4-6-2 Graphics Configuration



GTT Size

Graphics Translation Table Size. The optional settings are: 2MB, 4MB, 8MB (default)

Aperture Size

The optional settings are: 128MB, 256MB, 512MB, 1024MB (default), 2048MB

DVMT Pre-Allocated

Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.

The optional settings are: 16MB, 32MB (default), 64MB

DVMT Total Gfx Mem

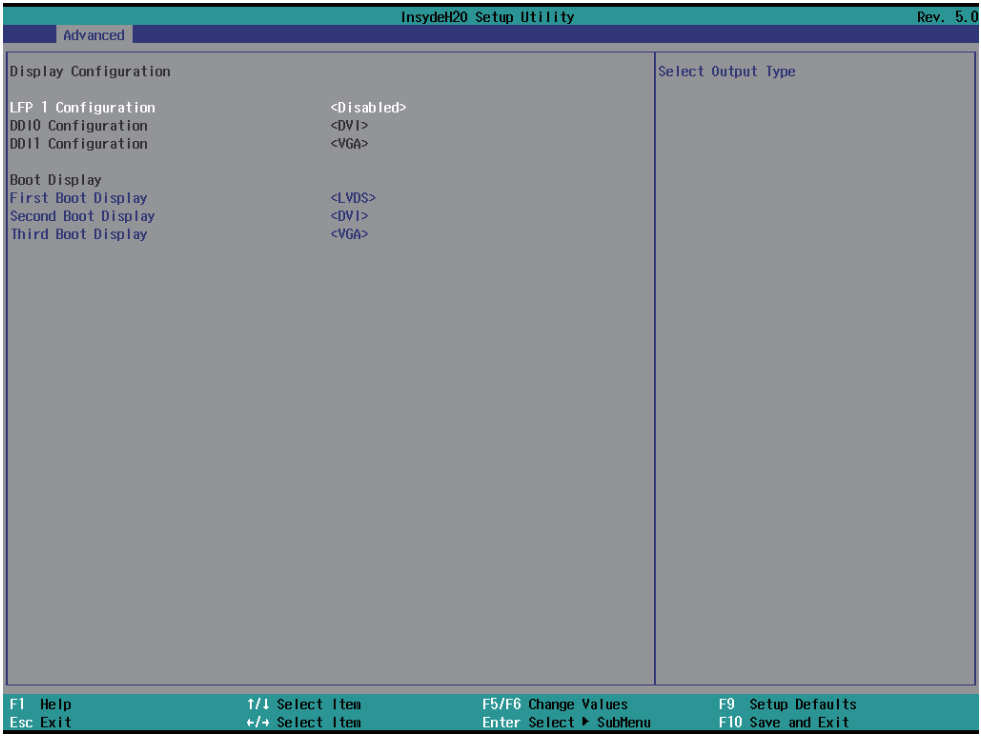
Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device

The optional settings are: 256MB (default), 128MB, MAX.

Display Configuration

Please refer section 4-6-2-1

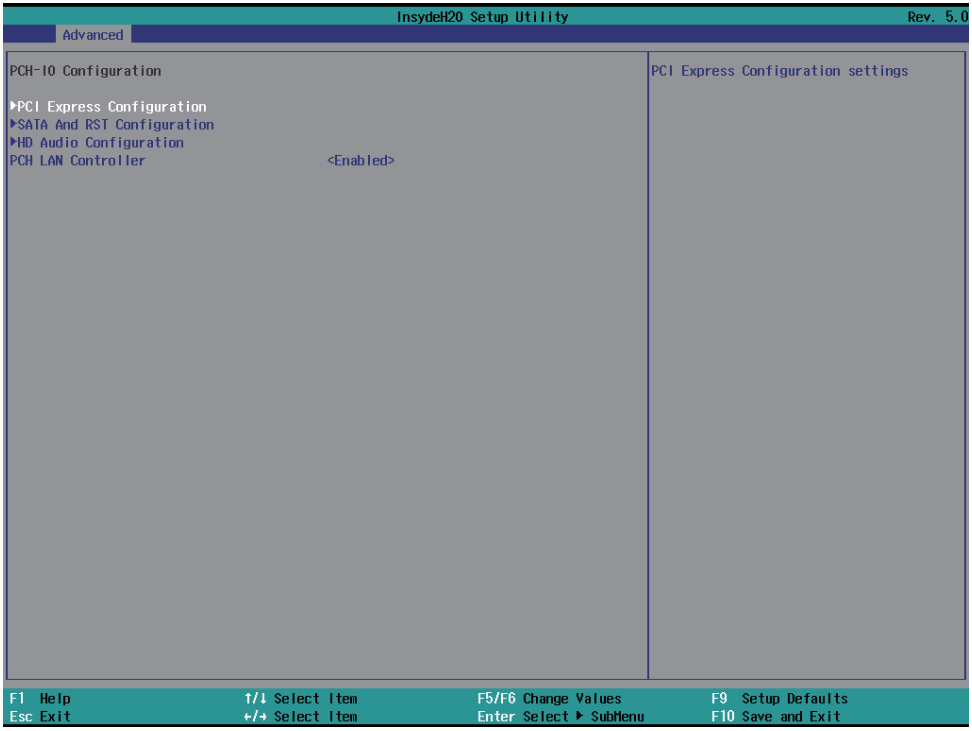
4-6-2-1 ► Display Configuration



LFP 1 Configure to LVDS Panel, default is Disabled
The Panel resolution supported are below:
640 x 480 18bit
800 x 600 18bit
1024 x 768 18bit (default)
800 x 480 18bit
1024 x 600 18bit
1280 x 800 18bit
1366 x 768 18bit
800 x 600 24bit
1024 x 768 24bit
1280 x 800 24bit
1366 x 768 24bit
1280 x 1024 48bit
1440 x 900 48bit
1600 x 1200 48bit
1920 x 1080 48bit

Boot Display
To select the displays priority to LVDS, DVI or VGA

4-6-3 PCH-IO Configuration



PCI Express Configuration

Please refer section 4-6-3-1

SATA And RST Configuration

Please refer section 4-6-3-2

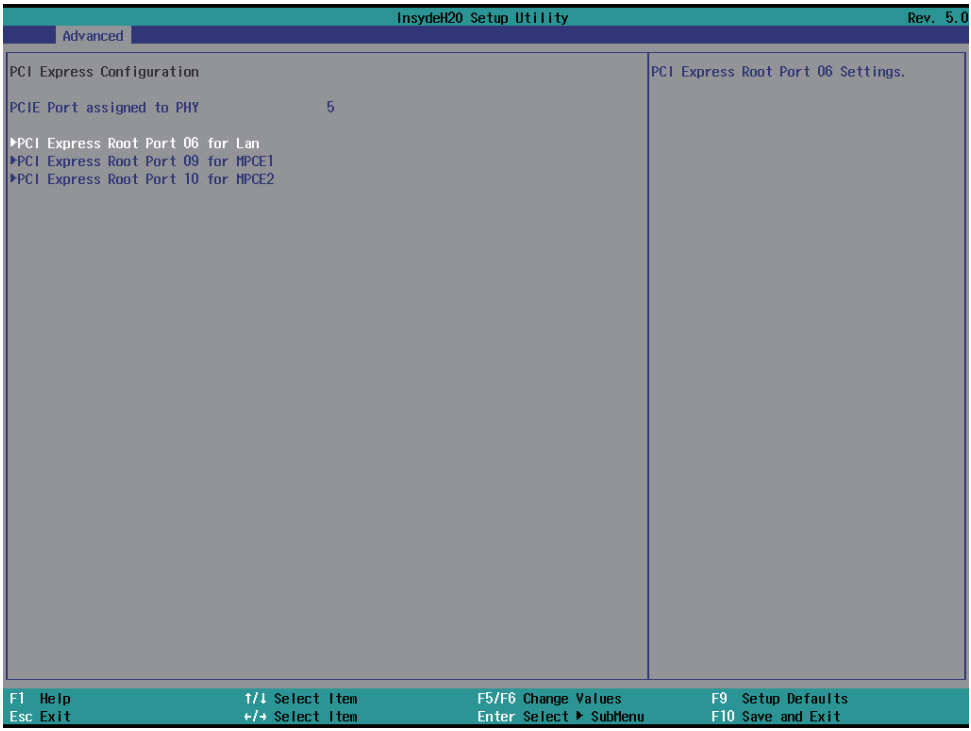
HD Audio Configuration

Please refer section 4-6-3-3

PCH LAN Controller

To enable/disable onboard NICs.

4-6-3-1 ► PCI Express Configuration



PCI Express Root Port 06 for Lan

Please refer section 4-6-3-1-1

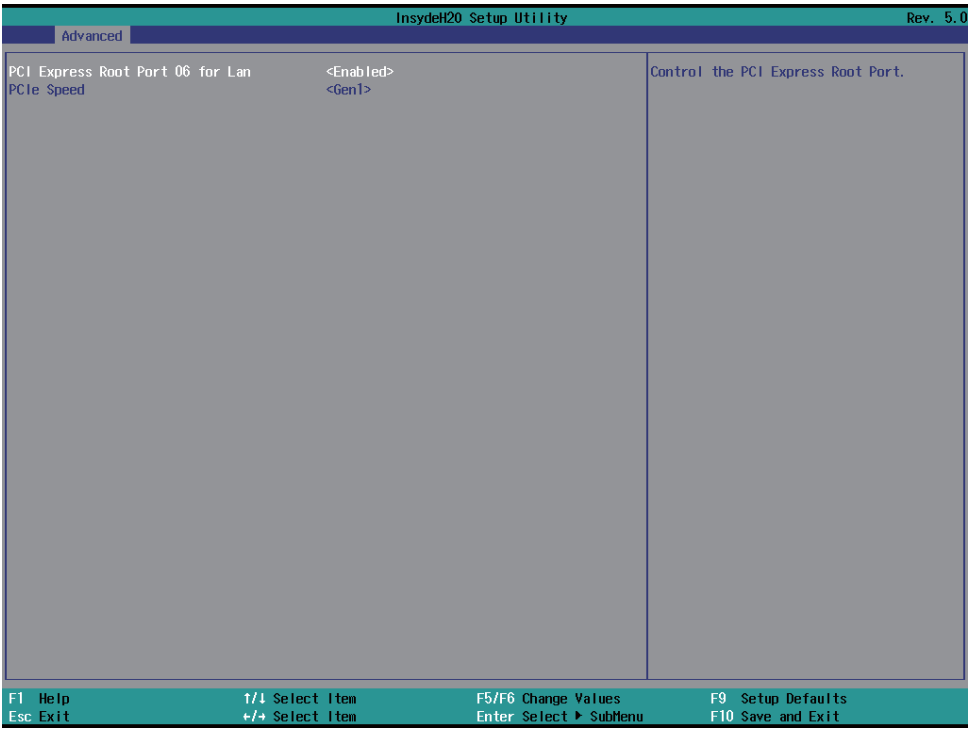
PCI Express Root Port 09 for MPCE1

Please refer section 4-6-3-1-2

PCI Express Root Port 10 for MPCE2

Please refer section 4-6-3-1-3

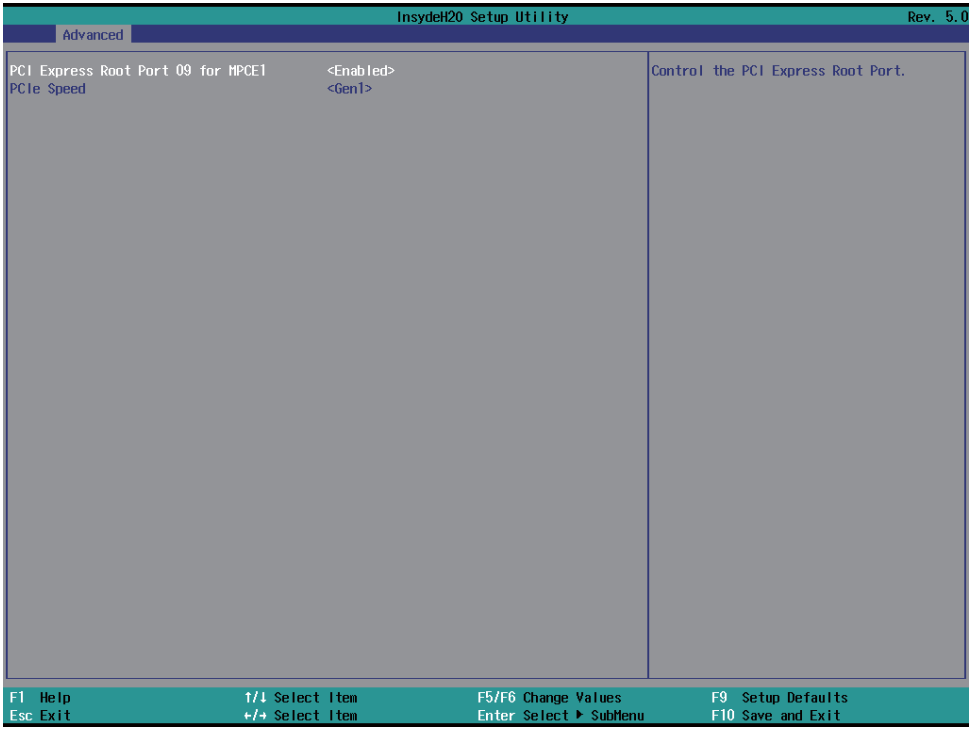
4-6-3-1-1 ► PCI Express Root Port 06 for Lan



PCI Express Root Port 06 for Lan
The optional settings are: Enabled (default), Disabled.

Select PCI Express port speed.
The optional settings are: Auto, Gen1 (default), Gen2, Gen3

4-6-3-1-2 ► PCI Express Root Port 09 for MPCE1



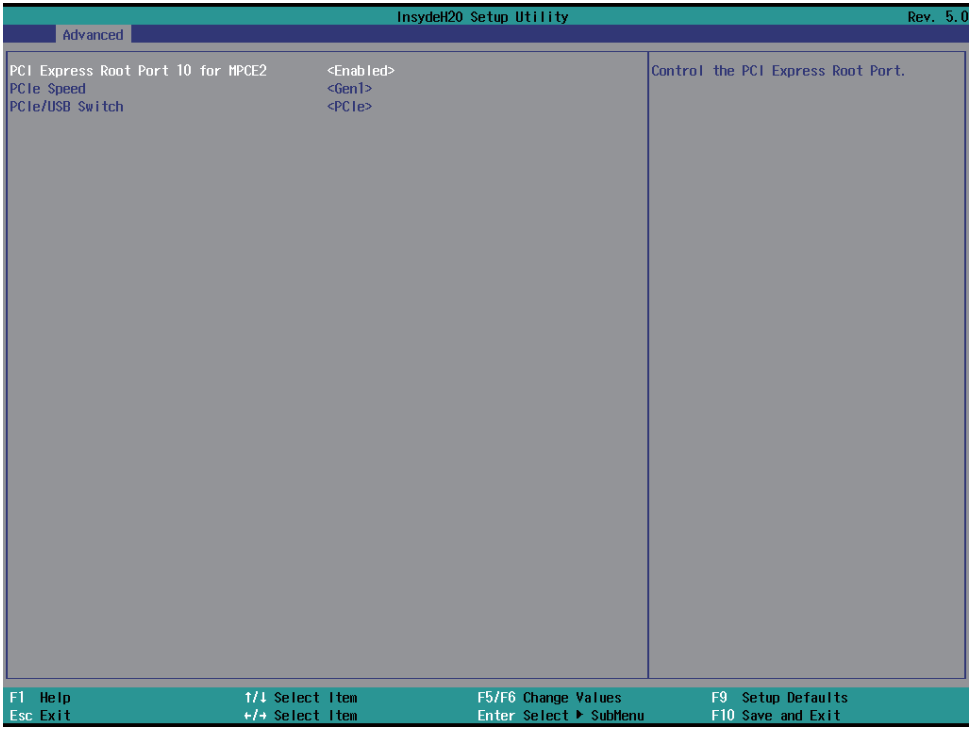
PCI Express Root Port 09 for MPCE1

The optional settings are: Enabled (default), Disabled.

Select PCI Express port speed.

The optional settings are: Auto, Gen1 (default), Gen2, Gen3

4-6-3-1-3 ► PCI Express Root Port 10 for MPCE2



PCI Express Root Port 10 for MPCE2

The optional settings are: Enabled(default), Disabled.

Select PCI Express port speed.

The optional settings are: Auto, Gen1(default), Gen2, Gen3

PCI / USB Switch

To select support PCIe(default) or USB3.0

4-6-3-2 ► SATA And RST Configuration

```
InsydeH20 Setup Utility                                                Rev. 5.0
Advanced

SATA And RST Configuration                          Enable/Disable SATA Device.

SATA Controller(s)                  <Enabled>
SATA Mode Selection                 <AHCI>

Serial ATA Port 0                   Empty
  Port 0                            <Enabled>
  SATA Device Type                  <Hard Disk Drive>
Serial ATA Port 1                   Empty
  Port 1                            <Enabled>
  SATA Device Type                  <Hard Disk Drive>
Serial ATA Port 2                   Empty
  Port 2                            <Enabled>
  SATA Device Type                  <Hard Disk Drive>

F1  Help        ↑/↓ Select Item     F5/F6 Change Values        F9  Setup Defaults
Esc Exit        ←/→ Select Item     Enter Select ► SubMenu     F10 Save and Exit
```

SATA Controller

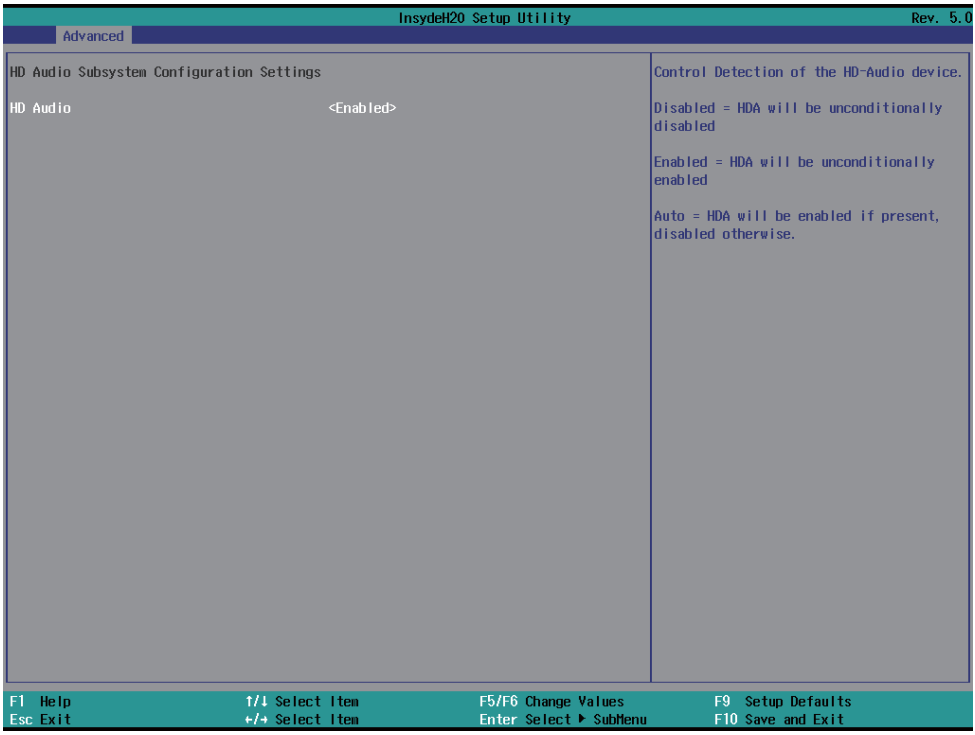
Use this item to Enable or Disable SATA Device.

The optional settings are: Enabled(default) or Disabled

SATA Mode Selection

Support AHCI Mode only.

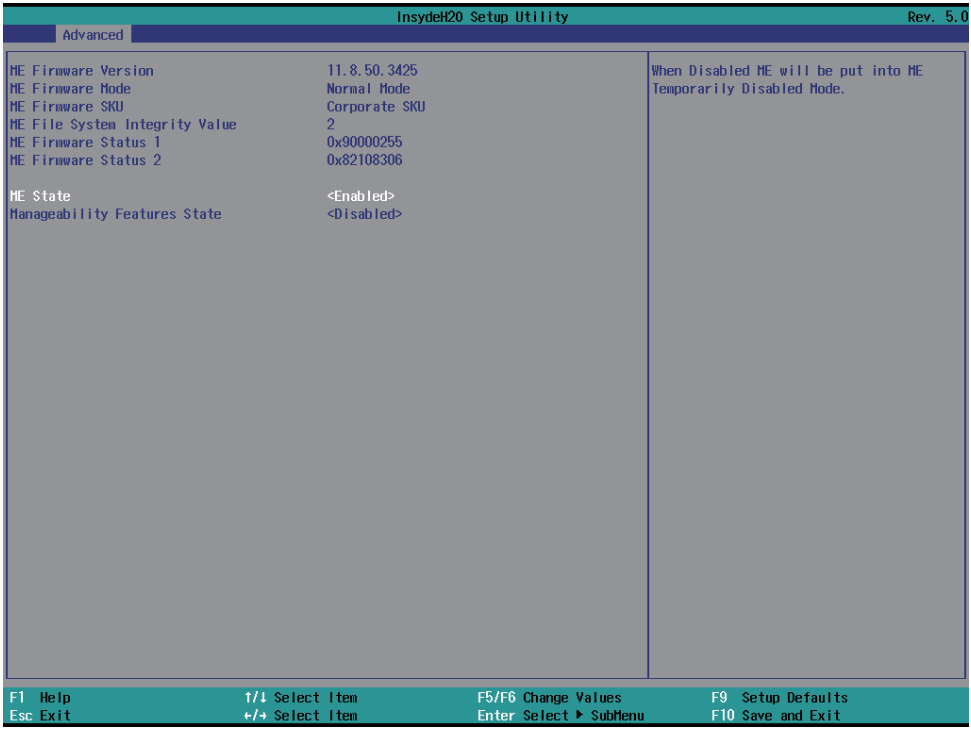
4-6-3-3 ► HD Audio Configuration



HD-Audio Supported.

The optional settings are: Enabled(default) or Disabled

4-6-4 PCH-FW Configuration



ME State
The optional settings are: Enabled(default) or Disabled

Manageability Features State
The optional settings are: Enabled or Disabled(default)

4-6-5 SIO FINTEK81966

```
InsydeH20 Setup Utility                                                Rev. 5.0
Advanced

Serial Port A                          <Enable>
  Base I/O Address                     <3F8>
  Interrupt                            <IRQ4>
  Mode                                 <RS232>
Serial Port B                          <Enable>
  Base I/O Address                     <2F8>
  Interrupt                            <IRQ3>
  Mode                                 <RS232>
Serial Port C                          <Enable>
  Base I/O Address                     <3E8>
  Interrupt                            <IRQ10>
  Mode                                 <RS232>
Serial Port D                          <Enable>
  Base I/O Address                     <2E8>
  Interrupt                            <IRQ10>
  Mode                                 <RS232>
Serial Port E                          <Enable>
  Base I/O Address                     <4F8>
  Interrupt                            <IRQ10>
  Mode                                 <RS232>
Serial Port F                          <Enable>
  Base I/O Address                     <4E8>
  Interrupt                            <IRQ10>
  Mode                                 <RS232>
Power loss setting                     <Keep Last State>
▶Hardware Monitor

Configure Serial port using options :
[Disable] No Configuration [Enable] User
Configuration [Auto] EFI/OS chooses
configuration

F1  Help   ↑/↓ Select Item   F5/F6 Change Values      F9  Setup Defaults
Esc Exit   ←/→ Select Item   Enter Select ▶ SubMenu   F10 Save and Exit
```

Serial Port 1/2/3/4/5/6
Use this item to enable or disable serial port.
The optional settings are: Enabled(default), Disabled.

Serial Port A Base IO Address / Interrupt / Serial Mode
Use this item to select an optimal setting for super IO device.
The optional settings are:
IO=3F8h; IRQ=4 (default)
IO=3E8h; IRQ=3,4
IO=2E8h; IRQ=3,4
IO=2F8h; IRQ=3,4

Serial Port B Base IO Address / Interrupt / Serial Mode
Use this item to select an optimal setting for super IO device.
The optional settings are:
IO=2F8h; IRQ=3(default)
IO=2E8h; IRQ=3,4
IO=3E8h; IRQ=3,4
IO=3F8h; IRQ=3,4

Serial Port C Base IO Address / Interrupt
Use this item to select an optimal setting for super IO device.
The optional settings are:
IO=3E8h; IRQ=10 (default)
IO=2F8h; IRQ=3,4,5,6,7,9,10,11
IO=2E8h; IRQ=3,4,5,6,7,9,10,11
IO=3F8h; IRQ=3,4,5,6,7,9,10,11
IO=4F8h; IRQ=3,4,5,6,7,9,10,11
IO=4E8h; IRQ=3,4,5,6,7,9,10,11

Serial Port D Base IO Address / Interrupt
Use this item to select an optimal setting for super IO device.
The optional settings are:
IO=2E8h; IRQ=10(default)
IO=2F8h; IRQ=3,4,5,6,7,10,11
IO=3F8h; IRQ=3,4,5,6,7,10,11
IO=3E8h; IRQ=3,4,5,6,7,10,11
IO=4F8h; IRQ=3,4,5,6,7,10,11
IO=4E8h; IRQ=3,4,5,6,7,10,11

Serial Port E Base IO Address / Interrupt
Use this item to select an optimal setting for super IO device.
The optional settings are:
IO=4F8h; IRQ=10(default)
IO=2E8h; IRQ=3,4,5,6,7,10,11
IO=2F8h; IRQ=3,4,5,6,7,10,11
IO=3F8h; IRQ=3,4,5,6,7,10,11
IO=3E8h; IRQ=3,4,5,6,7,10,11
IO=4E8h; IRQ=3,4,5,6,7,10,11

Serial Port F Base IO Address / Interrupt
Use this item to select an optimal setting for super IO device.
The optional settings are:
IO=4E8h; IRQ=10(default)
IO=2E8h; IRQ=3,4,5,6,7,10,11
IO=2F8h; IRQ=3,4,5,6,7,10,11
IO=3F8h; IRQ=3,4,5,6,7,10,11
IO=3E8h; IRQ=3,4,5,6,7,10,11
IO=4F8h; IRQ=3,4,5,6,7,10,11

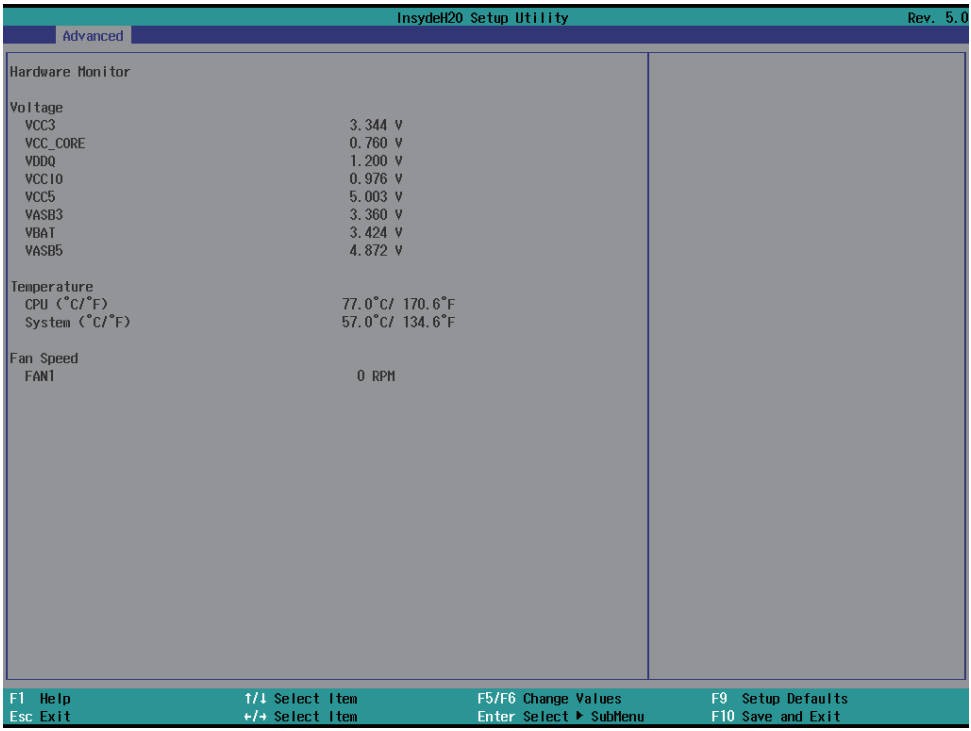
Mode
RS232(default) / RS485 / RS422

Power Loss setting
This item specifies whether your system will reboot after a power failure or interrupt occurs.

[Keep Last state]	Restores the system to the status before power failure or interrupt occurred.
[Always on]	Leaves the computer in the power on state.
[Always off]	Leaves the computer in the power off state.

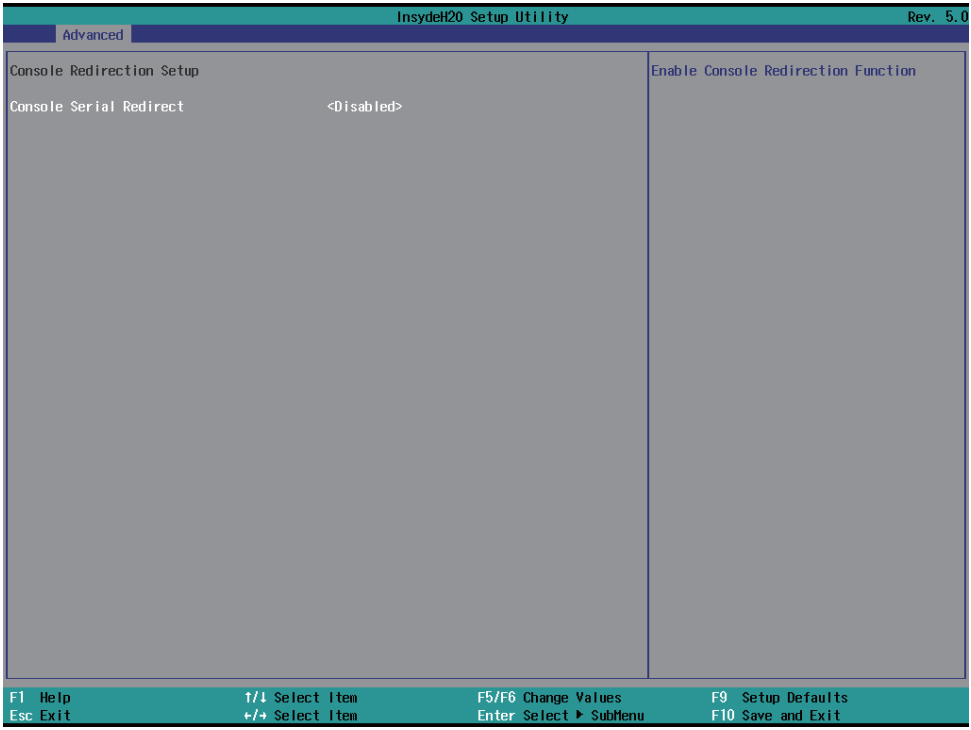
Hardware Monitor
Please refer section 4-6-5-1

4-6-5-1 ► Hardware Monitor



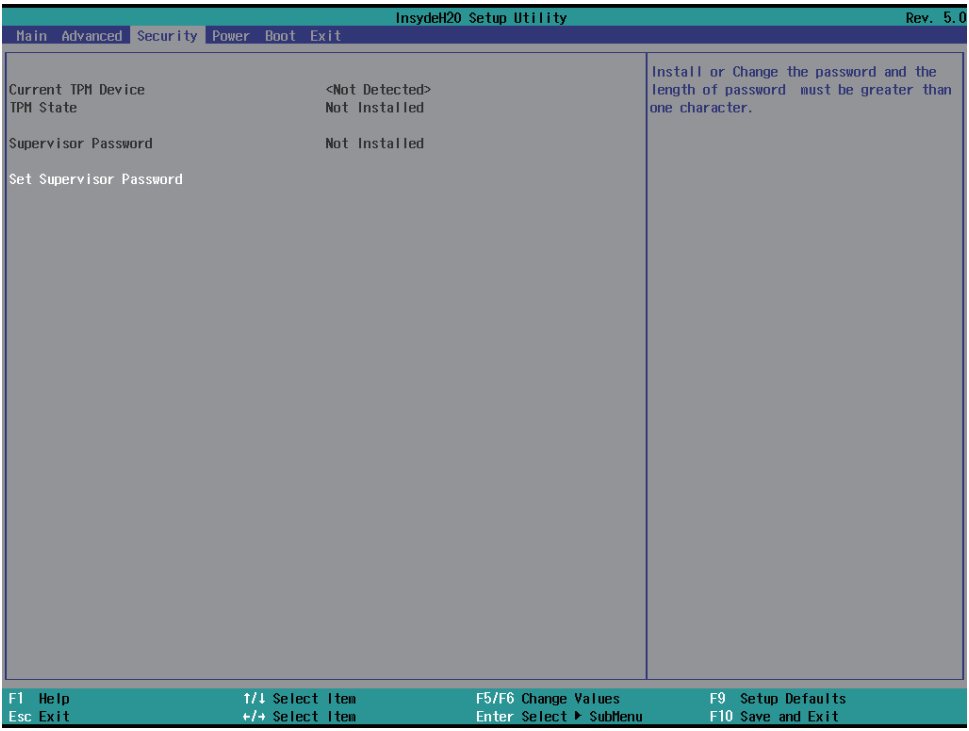
Press [Enter] to view PC health status.
This section shows the status of your CPU, Fan, and overall system.
This is only available when there is Hardware Monitor function onboard.

4-6-6 Console Redirection



Console Serial Redirect
Use this item to enable or disable Console Redirection.
The optional settings are: Enabled, Disabled(default).

4-7 Security



Supervisor Password

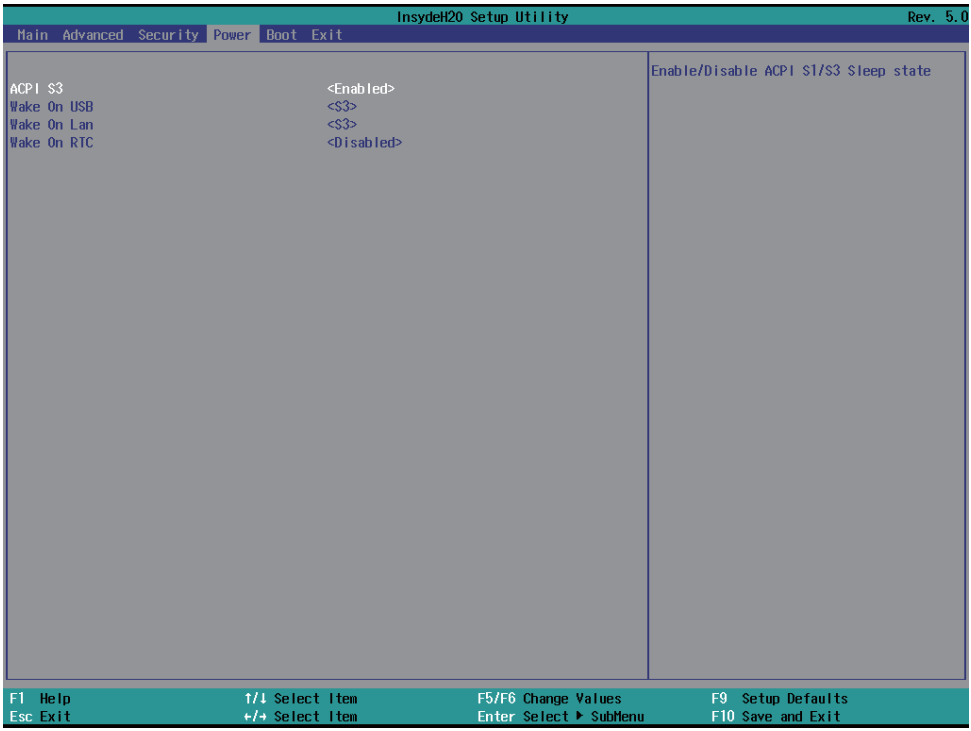
To set up an Supervisor password

1. Select Supervisor Password.

The screen then pops up an Create New Password dialog.

2. Enter your desired password that is no less than 3 characters and no more than 10 characters.
3. Hit [Enter] key to submit.

4-8 Power



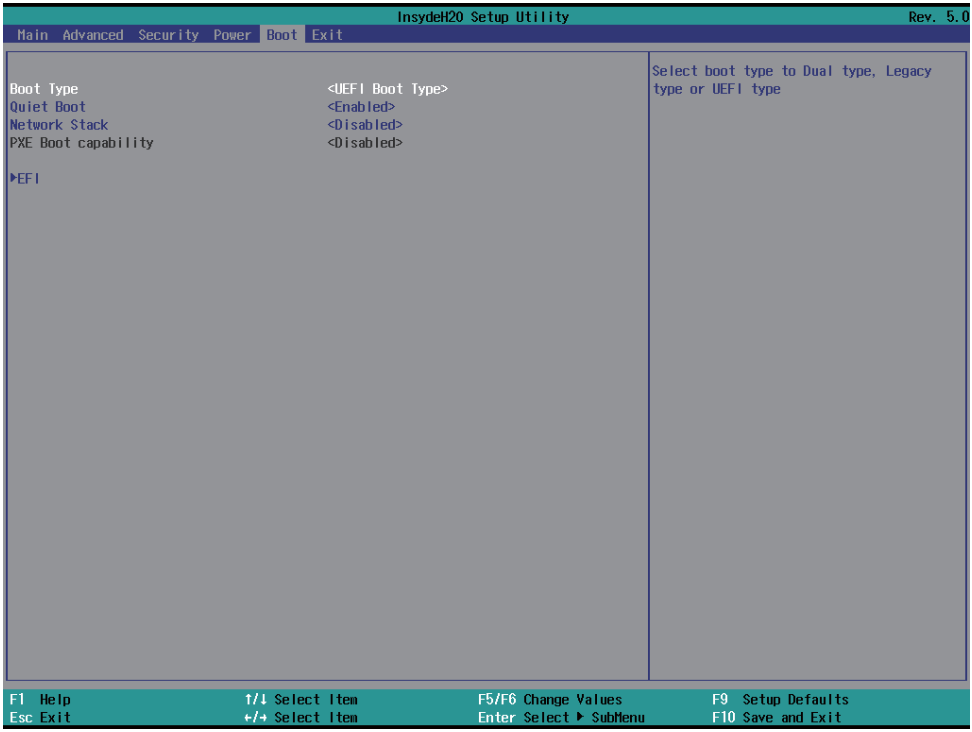
ACPI S3
Select ACPI sleep state (S3) supported
The optional settings: Enabled, Disabled(default)

Wake On USB
Wake on USB from Mouse or Keyboard interrupt signal when system in S3 state
The optional settings: S3(default), Disabled

Wake On LAN
Wake on LAN from LAN1 when system in S3 S5, or both of them state
The optional settings: S3(default), S5, S3/S5, Disabled

Wake On RTC
To select an alarm event to wake on a specific day/hour/min./sec.
The optional settings: Disabled(default), By Every Day, By Day of Month

4-9 Boot



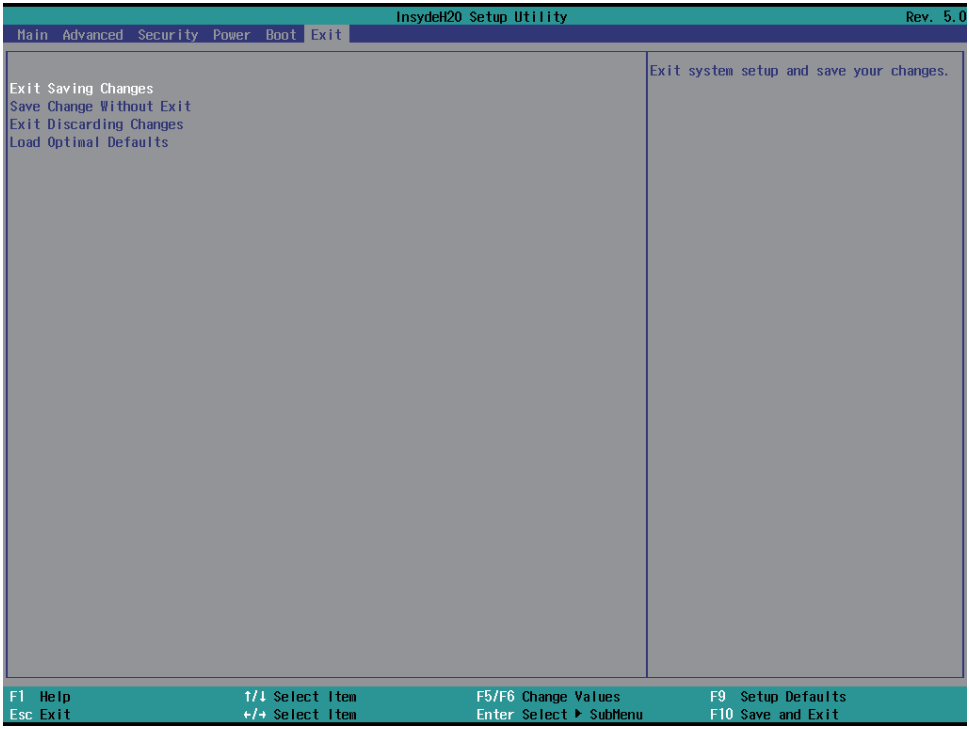
Boot type
Select boot type for Dual type ,Legacy boot type or UEFI boot type, default is UEFI boot type

Quiet Boot
The optional settings are: Enabled(default), Disabled.

Network Stack
Enabled for PXE function, default is disabled.

EFI
Determine which EFI storage device for booting, this item will not show on this page if there is no any storage device found.

4-10 EXIT



Exit Saving Changes
This item allows user to reset the system after saving the changes.

Save Change Without Exit
This item allows user to saving the changes but doesn't restart.

Exit Discard Changes
This item allows user restart the system but no saving the changes

Load Optimal Default
Use this item to restore the optimal default for all the setup options.

Chapter-5

DRIVER INSTALLATION

There is a system installation DVD in the package. This DVD does not only include all the drivers you need but also some other free application programs and utility programs.
In addition, this DVD also includes an auto detect software telling you which hardware is installed and which driver is needed so that your system can function properly. We call this auto detect software SYSTEM INSTALL.

SYSTEM INSTALL Supports Windows 10 (32bit / 64bit) / Windows 8 / 8.1(32bit / 64bit) / Windows 7(32bit / 64bit)

Insert the DVD into your DVD-ROM drive and the SYSTEM INSTALL menu should appear as below. If the menu does not appear, double-click MY COMPUTER and double-click DVD-ROM drive or click START, click RUN, and type X:\SETUP.EXE
(assuming your DVD-ROM drive is X).

Make your selection from SYSTEM INSTALL menu:

1. Auto Detect Main board and OS to AUTOMATIC DRIVER INSTALLATION menu
2. Browse DVD to view the contents of the DVD
3. Exit to exit SYSTEM INSTALL menu

AUTOMATIC DRIVER INSTALLATION menu

1. INF Install Intel Skylake or Kaby Lake chipset driver
2. VGA Install onboard VGA driver
3. HD Audio Install HD Audio Codec driver
4. ME Tool Install Intel Management Engine driver
5. LAN To the LAN driver Readme file
6. Items for Windows 7
6-1. KMDF Install windows update package (FOR Win 7 only)
6-2. ME Tool Install Intel Management Engine driver
6-3. USB 3.0 Install Intel USB 3.0 driver (FOR Win 7 only)
6-4. TPM 2.0 Install Intel TPM 2.0 driver (FOR Win 7 only) note 1

note 1: For Windows 7 Ultimate and i7 CPU only

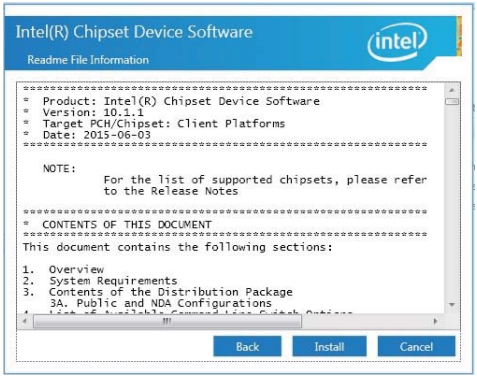
Each selection is illustrated below:

5-1 INF Install Intel Skylake Kaby Lake Chipset Driver (example for WIN10 64bit)

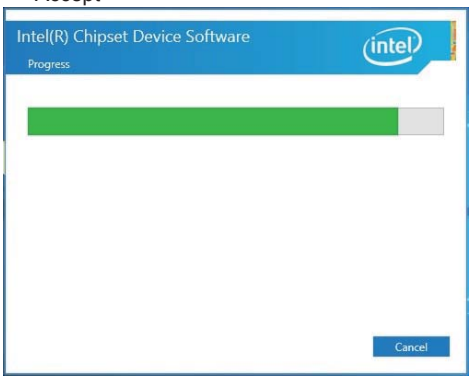
1. At the "AUTOMATIC DRIVER INSTALLATION menu"screen, click "INF".

2. At the "Intel® Chipset Device Software" screen, click "Next".

3. At the "License Agreement" screen, click "Accept"



4. At the "Readme File Information" screen, click "Install"



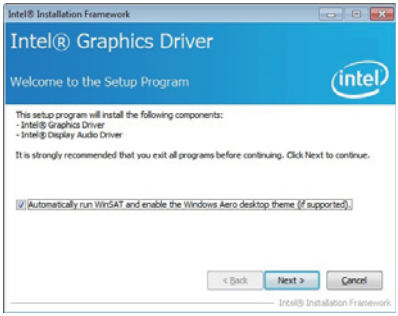
5. Progressing

NOTE: SYSTEM INSTALL will auto detect file path X:\driver\sky_lake\INF\SetupChipset.exe

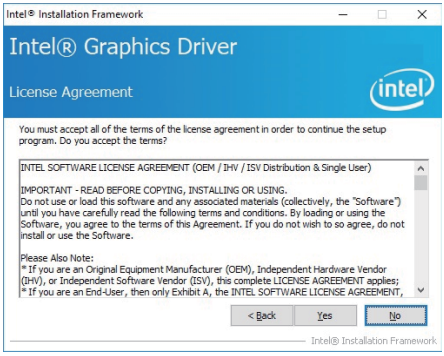
6. Click "Restart Now" then to restart the computer.

5-2 VGA Install Intel Skylake & Kaby Lake VGA Driver (example for WIN10 64bit)

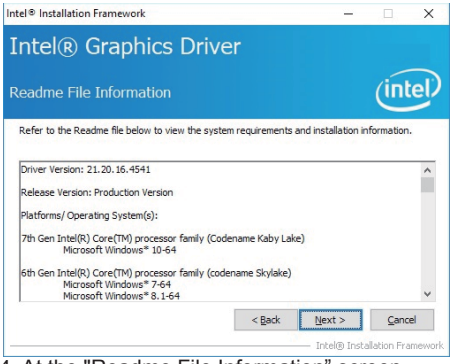
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "VGA".



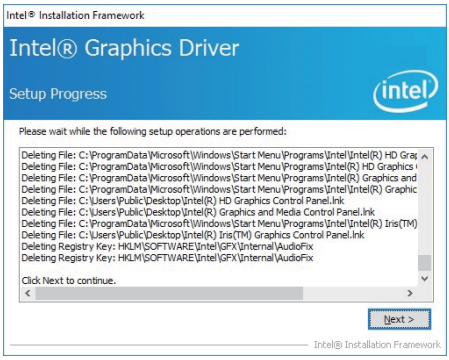
2. At the "Welcome to the Setup Programscreen, Click "Next".



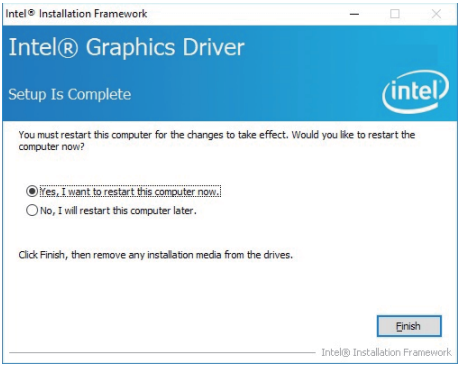
3. At the "License Agreement" screen, Click "Yes"



4. At the "Readme File Information" screen, Click "Next"



5. At the "Setup Progress" screen, Click "Next".

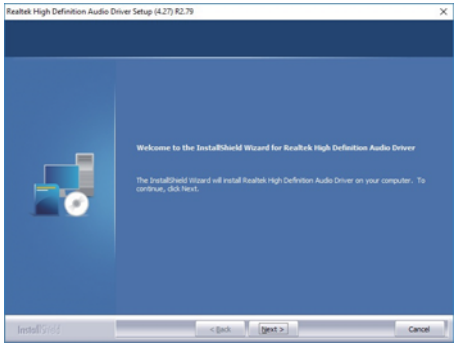


6. Click "Finish" to restart the computer

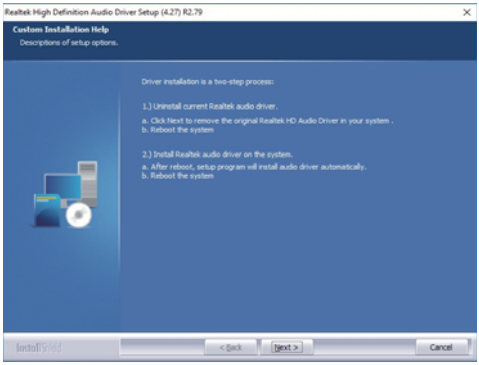
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 64-bit
X: \driver\sky_lake\VGA\X64\Setup.exe
For Windows 32-bit
X:\driver\sky_lake\VGA\X86\Setup.exe

5-3 HD Audio Install High Definition Audio Driver (example for WIN10 64bit)

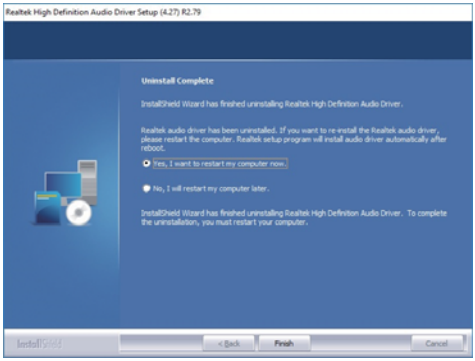
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "HD Audio".



2. Click "Next".



3. Click "Next"

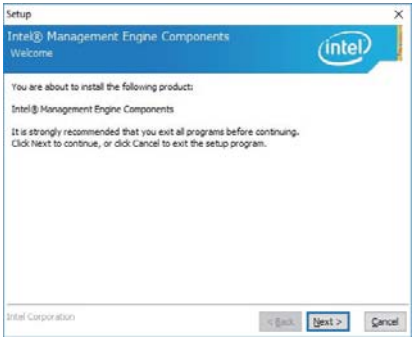


4. Click "Finish" then to restart the computer.

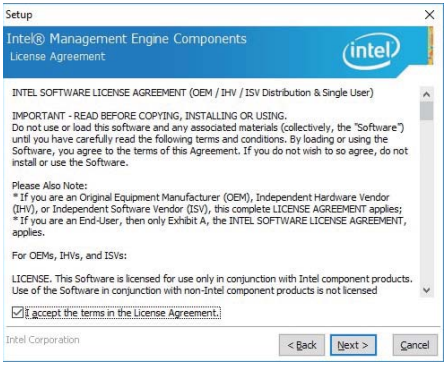
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 64-bit,
X:\driver\sky_lake\Audio\0006-64bit_Win7_Win8_Win81_Win10_R279
For Windows 32-bit
X: \driver\sky_lake\Audio\Win7_Win8_Win81_R273

5-4 ME Tool Install Intel USB 3.0 ME Driver (example for WIN10 64bit)

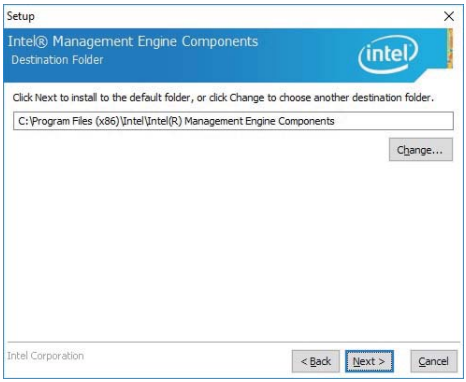
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "ME Tool".



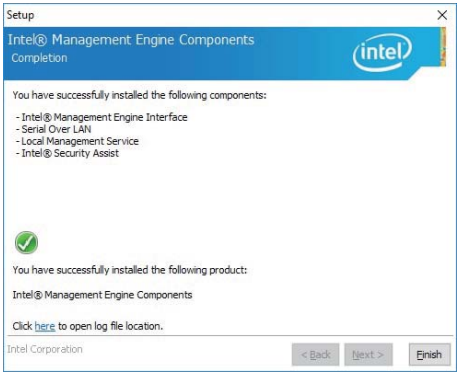
2. At the "Welcome to the Setup Program screen, Click "Next".



3. At the "License Agreement" screen, Click "☑" "Next"



4. At the "Destination Folder" screen, Click "Next"

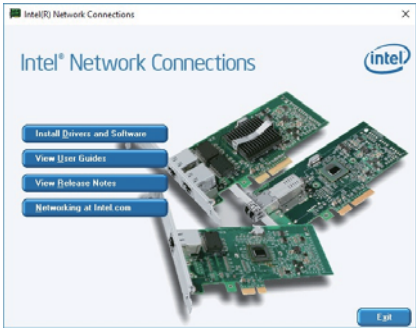


5. Click "Finish" to finish the setup

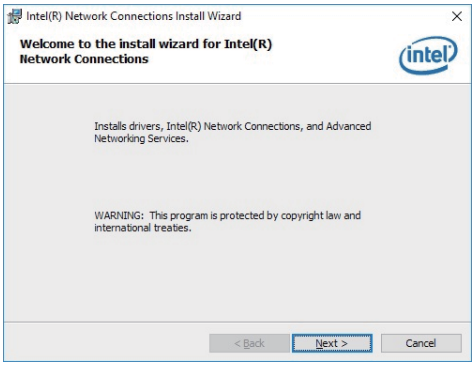
NOTE: SYSTEM INSTALL will auto detect file path X: \driver\sky_lake\ME\SetupME

5-5 LAN Install LAN Driver (example for WIN10 64bit)

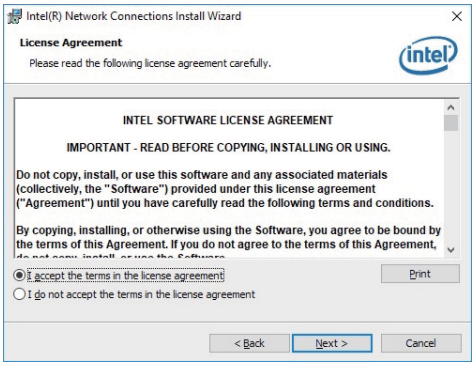
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "LAN".



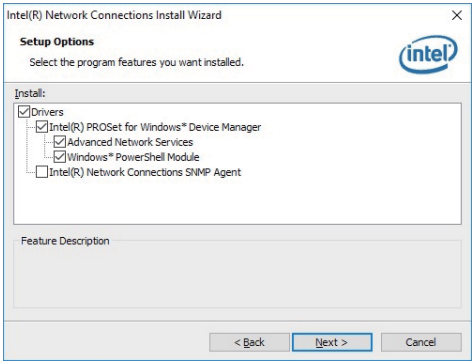
2. At the "Intel Network Connections" screen, Click "Install Drivers and Software".



3. Click "Next"

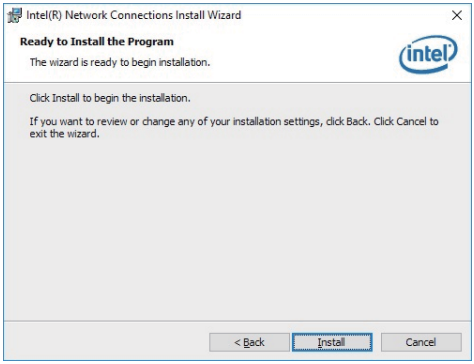


4. At the "License Agreement" screen, Click "☑" "Next"

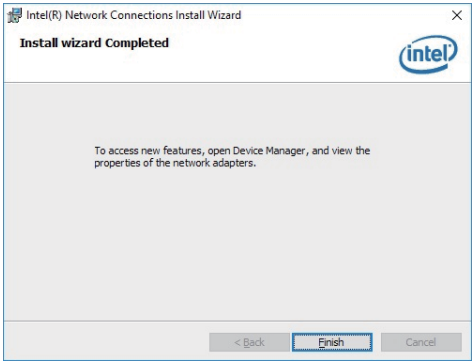


5. Click "Next"

6. Click



7. Click "Install"



6. Click "Finish" to finish the setup.

3. Click "Finish" to restart computer
NOTE: SYSTEM INSTALL will auto detect file path
X:\driver\sky_lake\LAN\Autorun.exe

5-6 Items for Windows 7 installation

Note : Before Windows 7 installation, USB 3.0 Driver MUST rebuild in a new DVD or in a pen-drive. Please following the steps as below

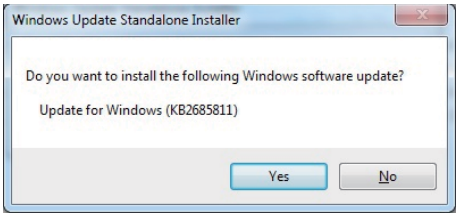
step1 Create a folder X:/win7/boot & X:/win7/install X:/win7/image
step2 unzip usb3.0 driver to X:/win7/usb3.0
step3 Copy the files on the disc D:\sources\install.wim D:\sources\boot.wim to X:/win7/image
step4 Open cmd as your system administrator
step5 Perform the following steps

```
=====================================================================
dism /Mount-Wim /Wimfile:C:\win7\image\boot.wim /index:2 /Mountdir:C:\win7\boot
dism /image:C:\win7\boot /add-driver /driver:C:\win7\usb3.0 /Recurse /ForceUnsigned
dism /unmount-wim /mountdir:C:\win7\boot /commit
dism /Mount-Wim /Wimfile:C:\win7\image\boot.wim /index:1 /Mountdir:C:\win7\boot
dism /image:C:\win7\boot /add-driver /driver:C:\win7\usb3.0 /Recurse /ForceUnsigned
dism /unmount-wim /mountdir:C:\win7\boot /commit
dism /Mount-Wim /Wimfile:C:\win7\image\install.wim /index:1 /Mountdir:C:\win7\install
dism /image:C:\win7\boot /add-driver /driver:C:\win7\usb3.0 /Recurse /ForceUnsigned
dism /unmount-wim /mountdir:C:\win7\install /commit
=====================================================================
```

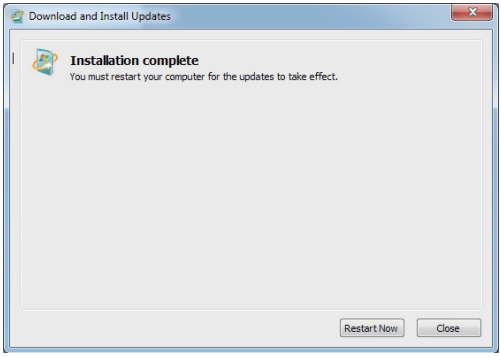
step6 copy X:/win7/image/install.wim X:/win7/image/boot.wim D:\sources\
step7 Reburn the disc

5-6-1 KMDF Install Windows Update package (FOR Win 7 only)

1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "KMDF"



2. Click "Yes"

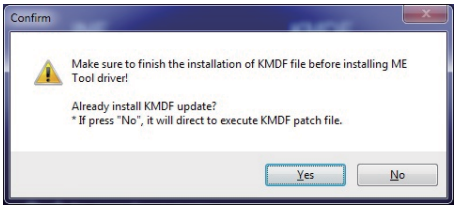


3. Click "Restart Now" to restart the computer

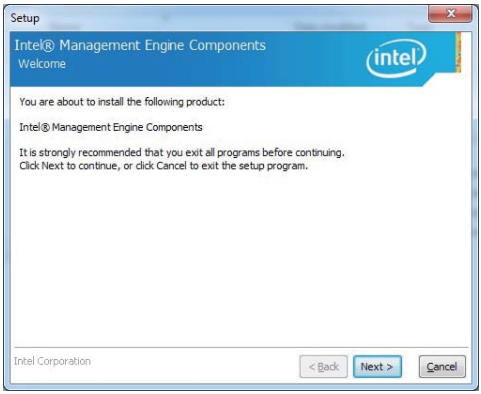
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 64-bit,
X:\driver\sky_lake\ME\KMDF_Win7\kmdf-1.11-Win-6.1-x64
For Windows 7 32-bit,
X:\driver\sky_lake\ME\KMDF_Win7\kmdf-1.11-Win-6.1-x86

5-6-2 ME Tool Install Intel ME Tool driver for WIN7
Please install KMDF file first.

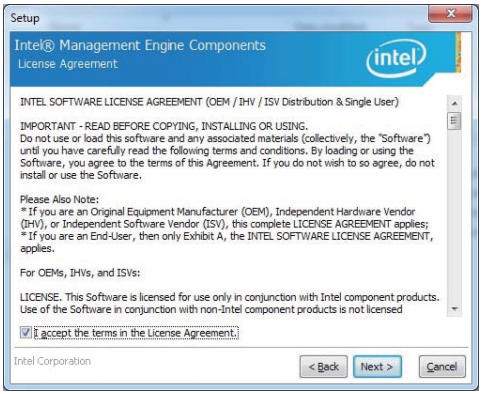
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "ME Tool"



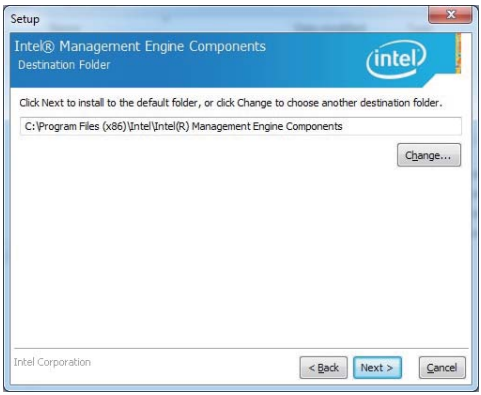
2. Click "Yes". KMDF file must being installed before ME Tool installation.



3. Click "Next".

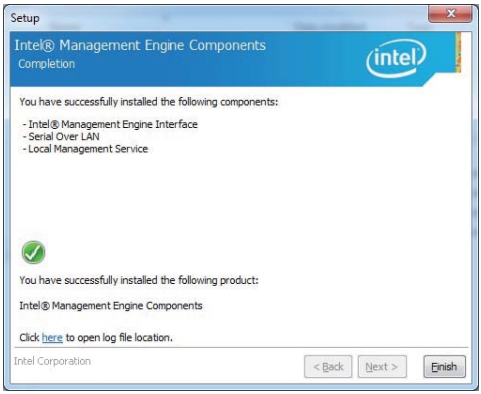


4. Accept the terms and Click "Next".



5. Click "Next".

NOTE: SYSTEM INSTALL will auto detect file path X: \driver\sky_lake\ME\SetupME



6. Click "Finish" to finish the setup.

5-6-3 USB 3.0 Install for WIN7

1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "USB 3.0".

Intel® USB 3.0/3.1 eXtensible Host Controller Driver

Welcome to the Setup Program

This setup program will install the following components:

- Intel® USB 3.0/3.1 eXtensible Host Controller Driver
- Intel® USB 3.0/3.1 Hub Driver
- Intel® USB 3.0 Monitor

Click Next to continue.

2. Click "Next".

Intel® USB 3.0/3.1 eXtensible Host Controller Driver

License Agreement

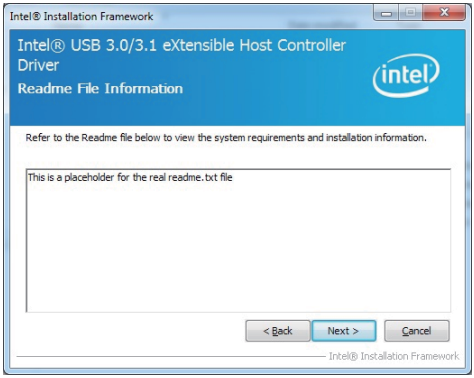
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?

INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)

IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.

Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
* If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT,

3. Click "Yes".



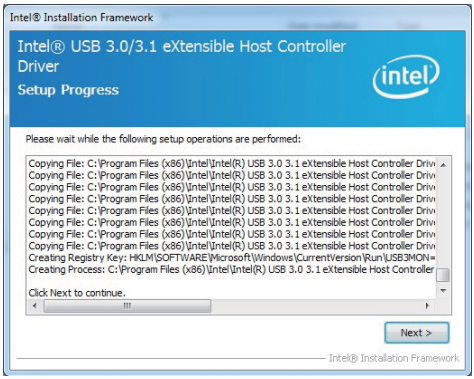
Intel® USB 3.0/3.1 eXtensible Host Controller Driver

Readme File Information

Refer to the Readme file below to view the system requirements and installation information.

This is a placeholder for the real readme.txt file

4.Click "Next ".



Intel® USB 3.0/3.1 eXtensible Host Controller Driver

Setup Progress

Please wait while the following setup operations are performed:

```
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Copying File: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller Driv
Creating Registry Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run\USB3MON=
Creating Process: C:\Program Files (x86)\Intel\Intel(R) USB 3.0 3.1 eXtensible Host Controller

Click Next to continue.
```

5. Click "Next".

Intel® USB 3.0/3.1 eXtensible Host Controller Driver

Setup Is Complete

The setup program successfully installed the following components:

- Intel® USB 3.0/3.1 eXtensible Host Controller Driver
- Intel® USB 3.0/3.1 Hub Driver
- Intel® USB 3.0 Monitor

Click Finish to complete the setup process.

6. Click "Finish" to finish the setup.

NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32 / 64-bit,
X:\driver\sky_lake\USB 3.0\Setup.exe

5-6-4 TPM 2.0

For Windows 7 Ultimate and i7 CPU only

5-7 How to update Insyde BIOS

Under DOS Mode

STEP 1. Prepare a bootable disc.
(Storage device could be USB FDD or USB pen drive.)

STEP 2. Copy utility program to your bootable disc. You may download it from our website.

STEP 3. Copy the latest BIOS for your LEX motherboard from our website to your bootable disc.

STEP 4. (Here take 3I610CW as an example, please enter your motherboard's name)
Insert your bootable disc into X: (X could be C:, A: or others.
It depends on which type of storage device you use.)

Start the computer and type

X:\: H2OFFT-D.EXE 3I610CW.ROM –BIOS -ALL

3I610CW.ROM is the file name of the latest BIOS.

It may be 3I610CW.ROM or 3I610CW.ROM, etc.

Please leave one space between .ROM & -BIOS -ALL

By Bay Trail series mainboard, please type

X:\: H2OFFT-D.EXE 3I610CW.ROM –BIOS -ALL

-BIOS : Flash BIOS region

-ALL : Flash all

STEP 5. Press ENTER and the BIOS will be updated,
Computer will restart automatically.

Appendix B: Resolution list

640 x 480 x (256 / 16bit / 32bit)
800 x 600 x (256 / 16bit / 32bit)
1024 x 768 x (256 / 16bit / 32bit)
1152 x 864 x (256 / 16bit / 32bit)
1280 x 600 x (256 / 16bit / 32bit)
1280 x 720 x (256 / 16bit / 32bit)
1280 x 768 x (256 / 16bit / 32bit)
1280 x 800 x (256 / 16bit / 32bit)
1280 x 960 x (256 / 16bit / 32bit)
1280 x 1024 x (256 / 16bit / 32bit)
1400 x 1050 x (256 / 16bit / 32bit)
1440 x 900 x (256 / 16bit / 32bit)
1600 x 900 x (256 / 16bit / 32bit)
1600 x 1200 x (256 / 16bit / 32bit)
1680 x 1050 x (256 / 16bit / 32bit)
1920 x 1080 x (256 / 16bit / 32bit)
1920 x 1200 x (256 / 16bit / 32bit)