2I385A / 2I385CW

Intel Bay Trail-I E3815 / E3845 / E3825

(Single Core / Quad Core / Dual Core) CPU,

Intel Bay Trail-D J1900 (Quad Core) CPU,

DDR3L 1066 / 1333 MT/s,

2 x LAN / LVDS / Touch Screen / USB / COM

All-In-One
Intel Bay Trail-I E3815 / E3845 / E3825
(Single Core 1.46 GHz / Quad Core 1.91 GHz / Dual Core 1.33 GHz) CPU,
Intel Bay Trail-D J1900 (Quad Core 2.0 GHz) CPU,
2 x Intel GbE LAN, 2 x PCIe mini card slots,
VGA, Audio, SATA, USB, COM, LVDS, Touch Screen

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

Contents

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 outlet.
   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 outlet.
   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 VOID 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.

   Remark 1:
   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
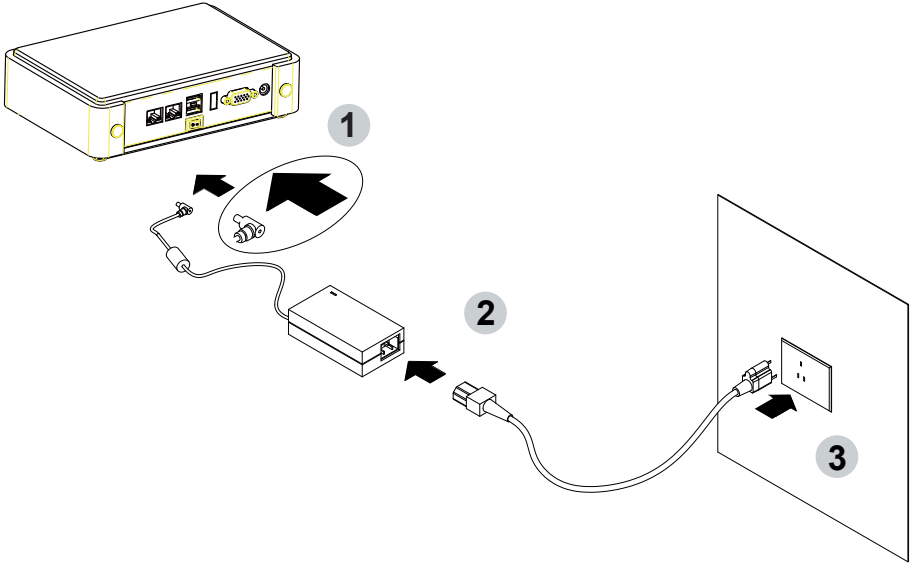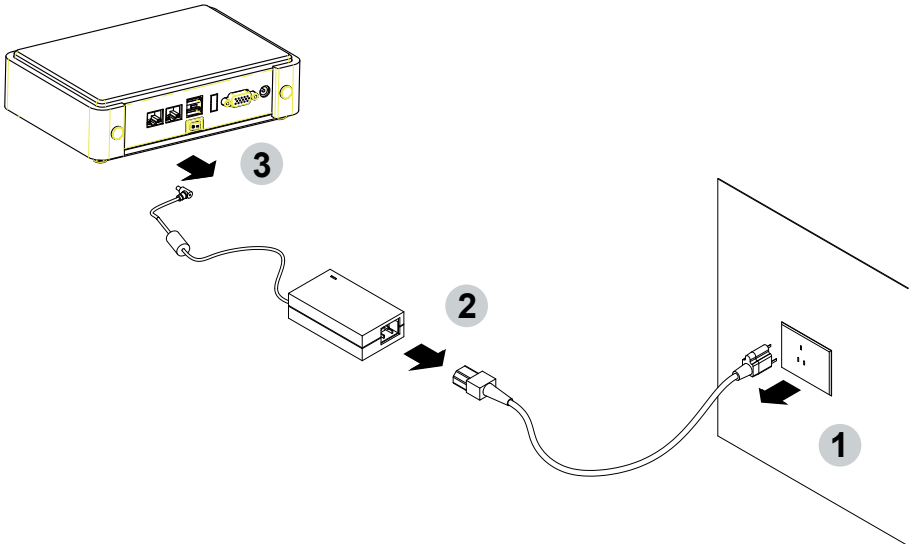
Chapter-1

General Information

The 2I385A/CW is a 2.5 inches form factor All-In-One Board. The board design combines all necessary input and output interfaces, which makes itself an ideal all-in-one control board for POS, Digital Signage and Automation application. Due to its compact size, 2I385A/CW is also the perfect platform for a whole range of small form factor and low-power devices, such as mobile PC or small panel PC

The 2I385A/CW All-In-One motherboard is with
Intel BayTrail-I E3815 1.46GHz / E3845 1.91GHz / E3825 1.33 GHz CPU / BayTrail-D J1900 2.0GHz (Single / Quad / Dual core processor), Intel BayTrail E3815 / E3845 / E3825 / J1900 chipset and BayTrail-I / BayTrail-D, Integrated Graphics chipset. This integrated platform offers superb performance and PC specification in the industry. Despite the limited space of 2I385A/CW, it supports 4 COM ports and 4 ports of Hi-Speed USB 2.0 to enhance the host controller interface which will ensure the high performance level and flexible expansion.

The 2I385A/CW supports two LAN ports of 10 / 100 / 1G Ethernet for various and seamless broadband connectivity. With Wake-On LAN function and the PXE function in BIOS, these are perfect control boards for networking devices. The built-in LAN is Intel I211AT LAN chipset for PCIe x 1 V2.1 interface, integrated 10 / 100 / 1000 transceiver.

The 2I385A/CW motherboard is built in with onboard DDR3L SDRAM 2GB / 4GB, J1900 / E3815 / E3845 / E3825 Memory DDR3 data transfer rate of 1066MT/s / 1333MT/s. The expendable interfaces include one full size PCIe Mini card for PCIe and USB interface, one half size PCIe Mini card for mSATA and USB interface.

The supported display interfaces include VGA and LVDS touch screen. The board has a small footprint of only 102 x 73 mm (2.5 inch) and advanced performance in both computing and graphics.

The All-In-One motherboard 2I385A/CW is fully compatible with industrial standards, plus technical enhancements and thousands of software applications developed for IBM PC/AT compatible computers. These control logic provides high-speed performance for the most advanced multi user and multitasking applications available today.

1-1 Major Feature

1. Intel BayTrail-I E3815 1.46GHz / E3845 1.91GHz / E3825 1.33 GHz SOC,

   Intel BayTrail-D J1900 2.0 GHz (Quad Core)

   (Single / Quad core / Dual Core)

2. Intel BayTrail-I / BayTrail-D Integrated Graphics chipset,

   E3815 400 MHz / E3845 542 MHz / E3825 533 MHz render clock frequency

3. On board DDR3L SDRAM 2GB / 4GB Memory,

   data transfer rate of 1066MT/s / 1333MT/s

4. Support 2 x 10 / 100 / 1000 Mbps Intel LAN ports

5. Support 4 x COM ports and 4 x USB 2.0

6. Support extended 2 x Mini PCIe card (full size & half size)

7. Support one SATA connector with independent DMA operation supported

8. Hardware digital Input & Output, 4 x DI / 4 x DO

   Hardware Watch Dog Timer, 0~255 sec programmable

9. DC +12V Input (2I385A) or Wide range DC input from +9V to +36V (±1V) (2I385CW)

10. PCB Dimension: 102 x 73 mm (2.5 inch)

11. Display interfaces include VGA & LVDS (24/48 bits)

12. USB interface Touch screen controller, support 4-, 5-, 8-

    wire Analog Resistive touch screen. Resolution is up to 2048 x 2048

1-2 Specification

1. **SOC:** Intel BayTrail-I E3815 1.46GHz / E3845 1.91GHz / E3825 1.33GHz,
    Intel BayTrail-D J1900 2.0 GHz (Quad Core)
    (Single / Quad / Dual core)

2. **Memory:** DDR3L SDRAM 2GB / 4GB Memory,
    data transfer rate of 1066MT/s / 1333MT/s

3. **Graphics:** Intel BayTrail-I / BayTrail-D Integrated Graphics chipset,
    E3815 400 MHz / E3845 542 MHz / E3825 533MHz / J1900 688MHz render clock
    frequency

4. **SATA:** One SATA connector with independent DMA operation supported

5. **LAN:** 2 x INTEL I211-AT / I210-IT (option) PCIE LAN of 10 / 100 / 1000 Mbps

6. **Serial Port:** External x 1 (RS232 or 422 or 485); internal x 3 (COM RS232 or 485)

7. **USB:** 4 x USB 2.0 (2 external + 2 internal)

8. **Sound:** ALC886 HD Audio Specification 1.0 Two channel sound chipset

9. **Audio Amplifier:** TPA2011D1 Class-D 2.5W/4Ω or 1.5W/8Ω chipset (2I385C)

10. **WDT/DIO:** Hardware digital Input & Output, 4 x DI / 4 x DO
    Hardware Watch Dog Timer, 0~255 sec programmable (2I385C)

11. **Expansion interface:** one full size PCIe Mini card for PCIe and
    USB interface, one half size PCIe Mini card for mSATA and USB interface

12. **BIOS:** Insyde UEFI BIOS

13. **Dimension:** 102 x 73 mm (2.5 inch)

14. **Power:** DC +12V Input (2I385A) or
    Wide range DC input from +9V to +36V (±1V) (2I385CW)

15. **LVDS:** 24 / 48 bits

16. **Touch function:** C8051F321 USB interface Touch screen controller,
    support 4-, 5-, 8- wire Analog Resistive touch screen.
    Resolution is up to 2048 x 2048

1-3 Installing the Mini PCI-e Card

1. Unfasten the round-headed M2*6 screw for half size Mini PCI-e.

2. Install a mSATA card at the angle of 45°. (The half size Mini PCI-e slot supports mSATA)
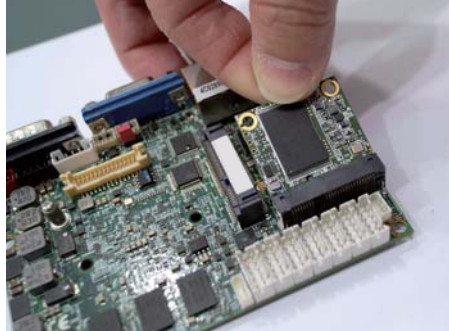
3. Fasten a round-headed M2*6 screw.

1-4 Directions for installing the Mini Card

1. Unscrew the screw on the board

2. Plug in the Mini Card in a 45 angle
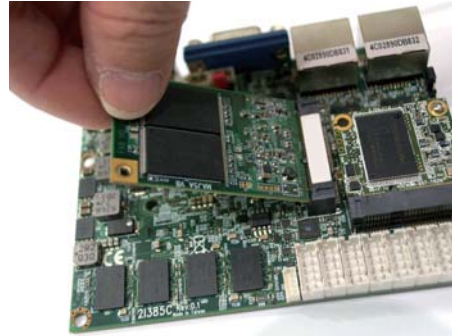
3. Gently push down the Mini Card and screw the screw back.

1-5 Packing List
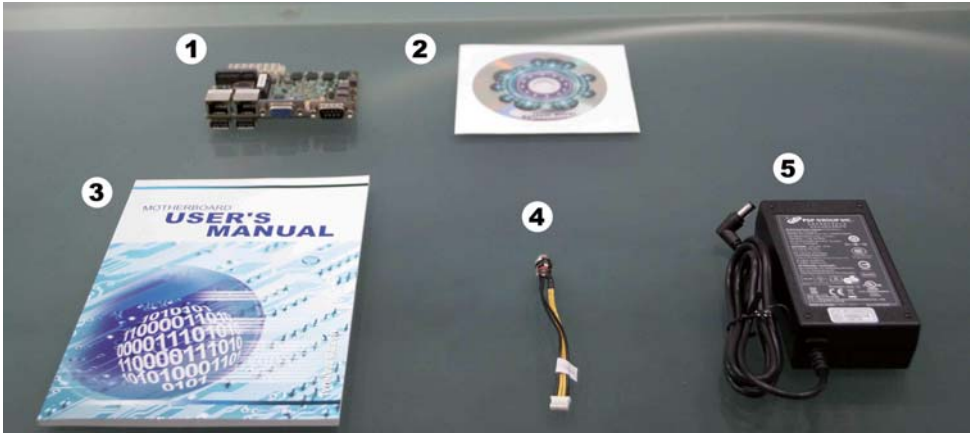
	Material Code	Description	Detail Specification	Quantity
1	7G1901-1500001-0	MB-2I385A-I44-001	LF,2I385A-I44,Rev.:001	1
2	6G8006-2347-0100	LEX Product Driver DVD	LF, Intel Baytrail Driver	1
3	6G8001-2192-0400	Manual	LF,M/B,2I385A/C	1
4	6G6003-7330-0100	Power Cable	LF,L=9cm,2.0 1*4/DC JK	1
5	6G5212-0301-0300	30W Power Adapter,12V/2.5A	LF,L Type,EA10301-M06,EDAC	1

**Optional accessories (items in addition to motherboard)
are not included in the standard packing.
Please contact your dealer to purchase the optional accessories.**

Chapter-2

Hardware Installation

2-1 Unpacking Precaution

This chapter provides the information how to install the hardware of 2I385A/2I385CW. Please follow section 1-5, 2-1 and 2-2 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 2I385A/2I385CW.
   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 2I385A/2I385CW 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 2I385A/2I385CW from electricity discharge. With reference to section 1-5
please check the delivery package again with following steps:

1. Unpack the 2I385A/2I385CW 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-2I385A/2I385CW
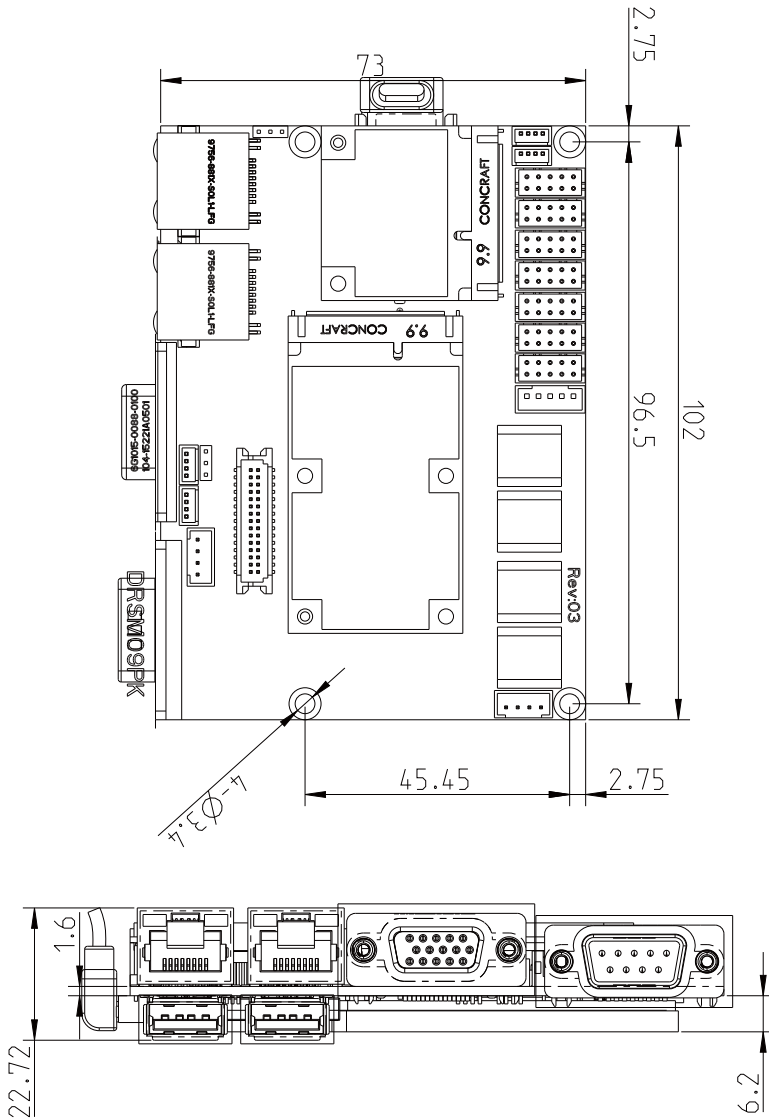
2-4 Layout-2I385A/2I385CW-Connector and Jumper
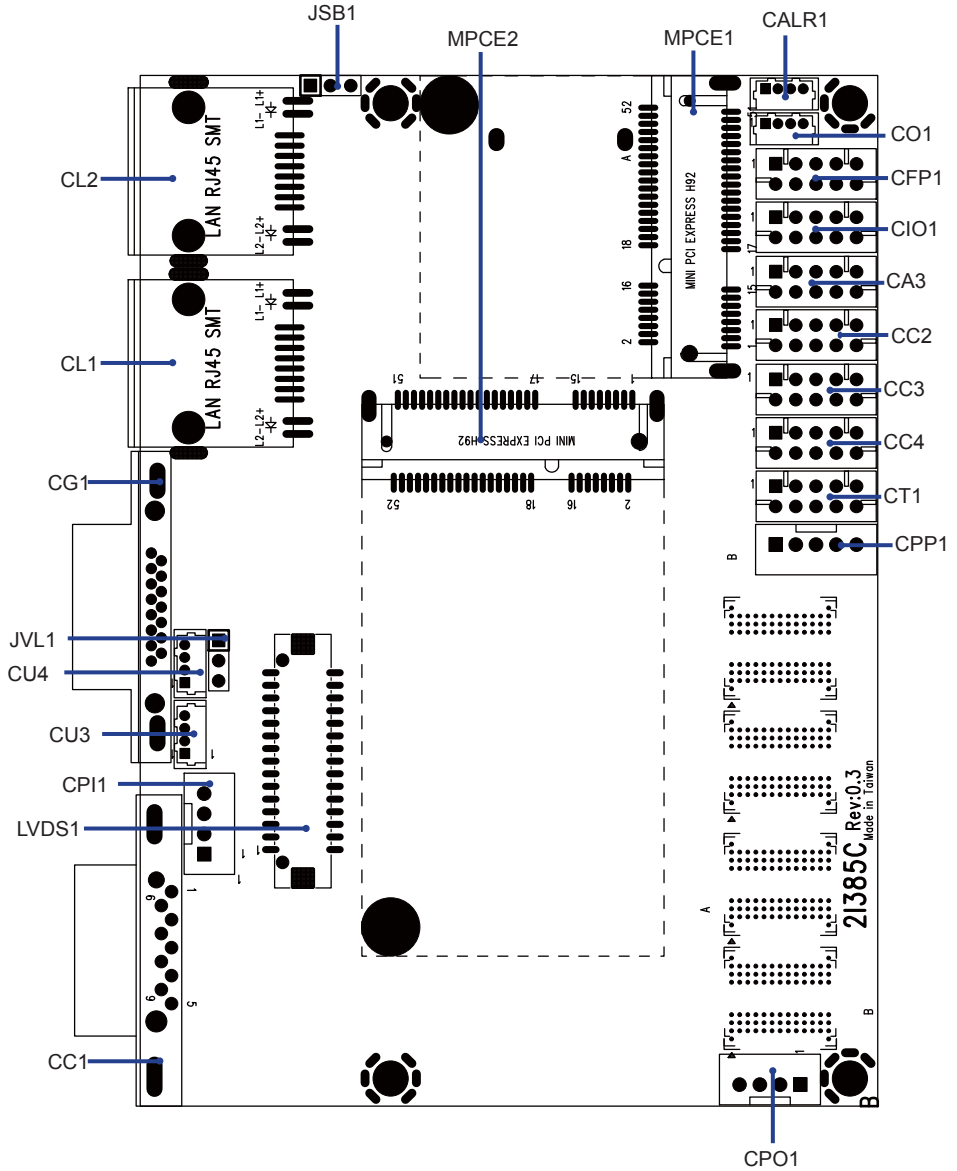
2-4-1 Layout-2I385A/2I385CW-Connector and Jumper Bottom

SATA1

USB 2.0 SMT — CU2

USB 2.0 SMT — CU1

2-4-2 Layout-2I385A/2I385CW-Function MAP

Mini Card Socket 2
PCIe, USB, SMBus

COMS
ClearJumper

Mini Card Socket 1
PCIe, mSATA Auto detect
USB, SMBus

Audio AMP
Right Left

RJ45 LAN
10M/100M/1000M

SMBus

Front Panel

LAN RJ45 SMT

L1– L1+

L2– L2+

LAN RJ45 SMT

L1– L1+

L2– L2+

MINI PCI EXPRESS H92

52

A

18

16

2

MINI PCI EXPRESS H92

51

17

15

1

52

18

16

2

4DI/4DO

Audio
Line-in
Line-out
Mic-in

COM2

COM3

COM4

Touch

VGA

Panel
Power Select
jumper

Backlght Power
Dimming control

B

USB2.0

USB2.0

LVSD
24/18bit 2channel

2I385C Rev:0.3
Made in Taiwan

A

B

COM1

6

9

5

9

5

DC-IN +12V

+12V/+5V Out

B

1

2-4-3 Layout-2I385A/2I385CW-Function MAP Bottom

SATA
GenII

USB 2.0 SMT

USB2.0

USB 2.0 SMT

USB2.0

2-5 Diagram- 2I385A

BAT1

JSB1

MPCE2

MPCE1

CALR1

CO1

CL2

CFP1

CIO1

CA3

CL1

CC2

CC3

CC4

CG1

CPP1

JVL1

CU4

CU3

CPI1

CC1

CPO1

2-5-1 Diagram- 2I385CW

Labels on diagram:

JSB1
MPCE2
BAT1
MPCE1
CL2
CL1
CG1
JVL1
CU4
CU3
CPI1
LVDS1
CC1
CALR1
CO1
CFP1
CIO1
CA3
CC2
CC3
CC4
CT1
CPP1
CPO1
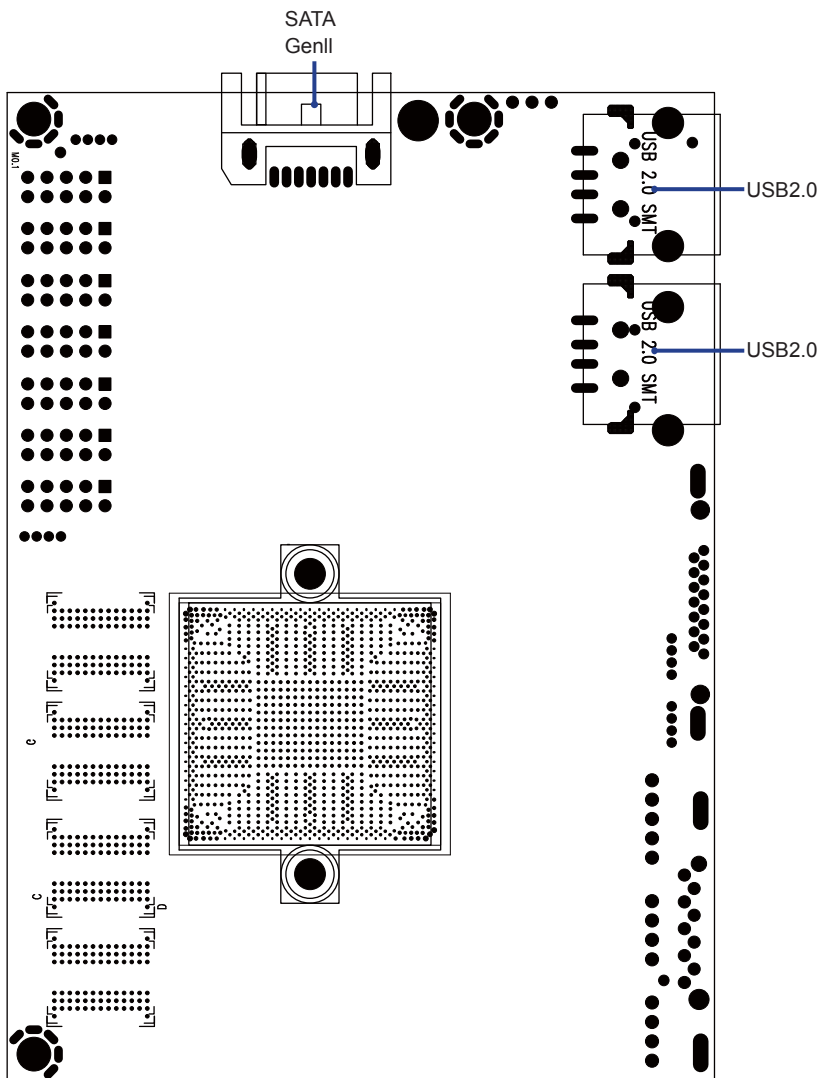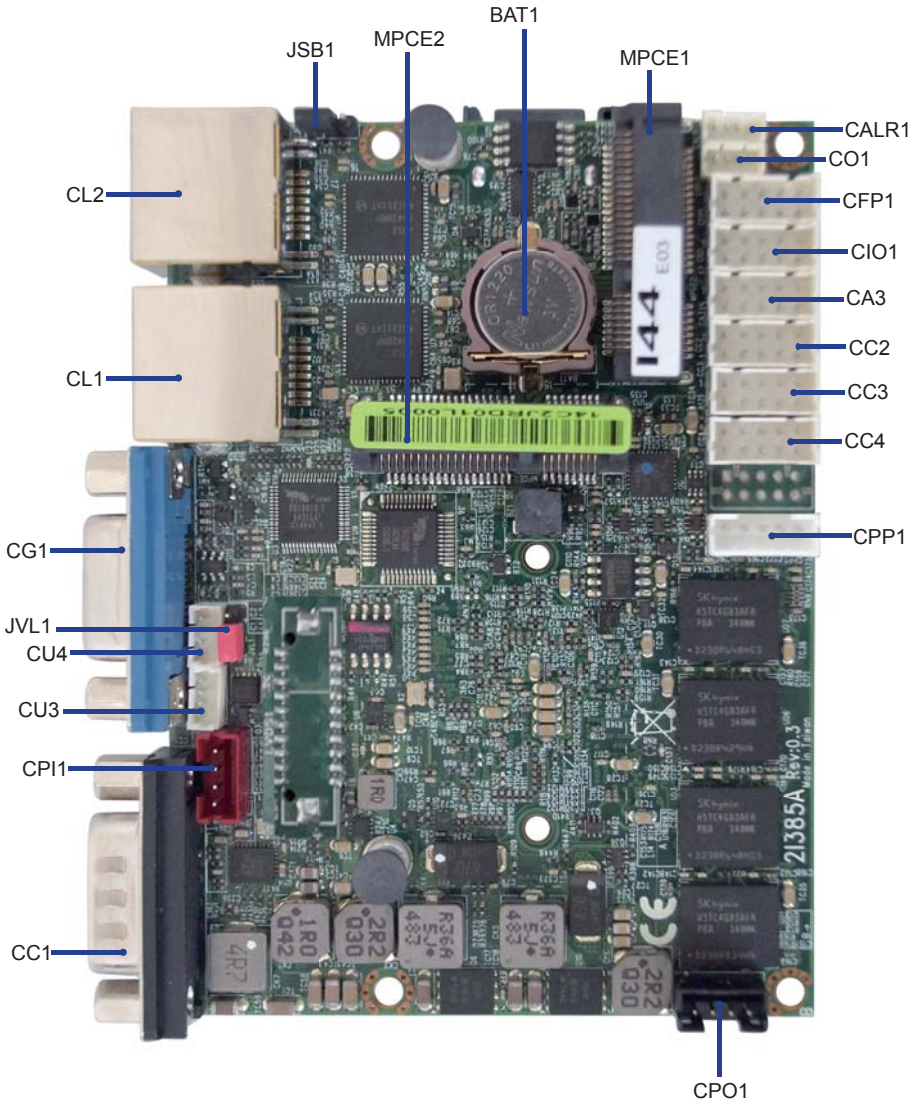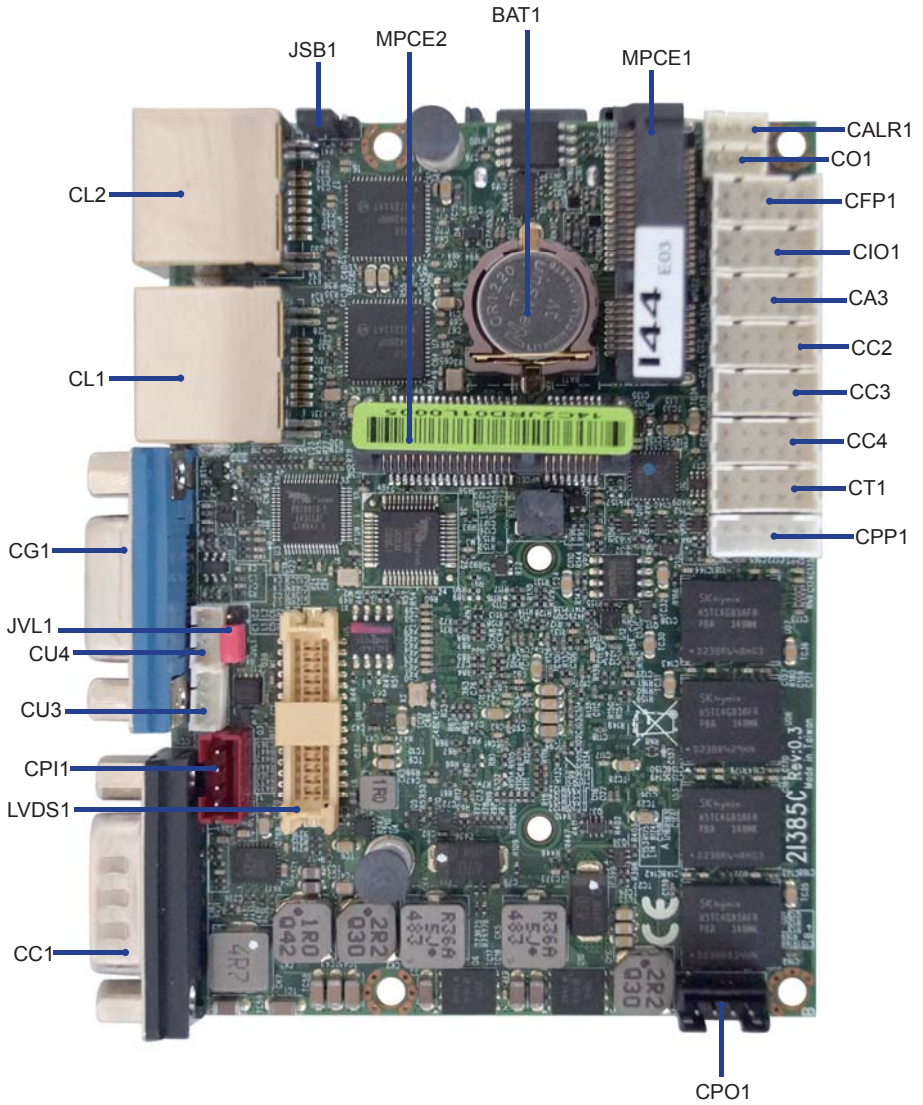
2-5-2 Bottom Side Diagram- 2I385A/2I385CW
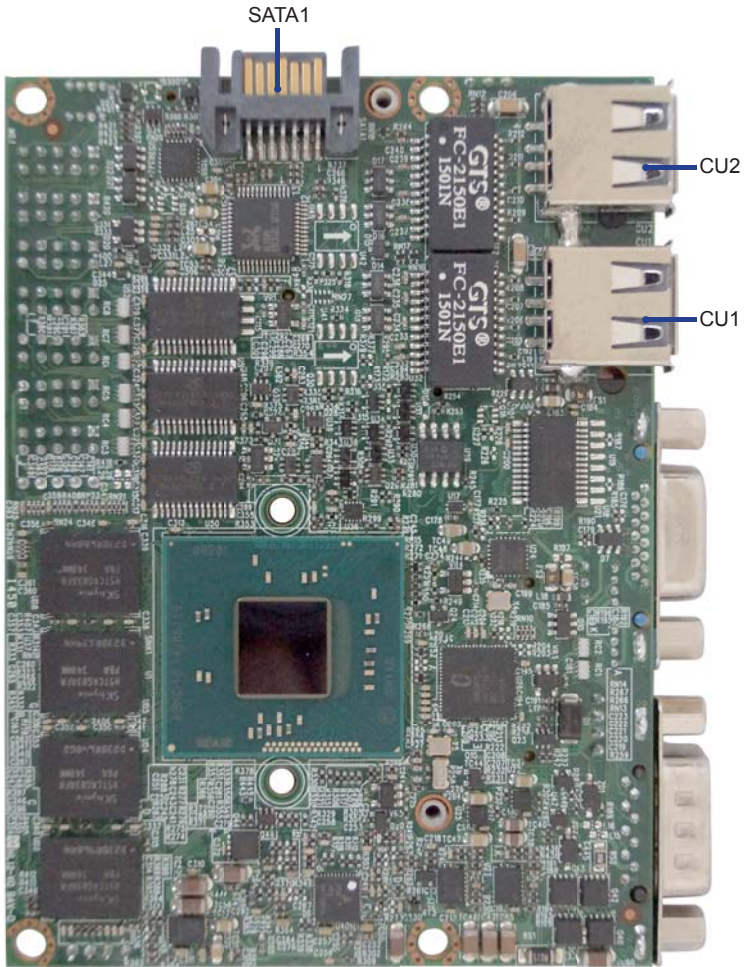
BACK Panel
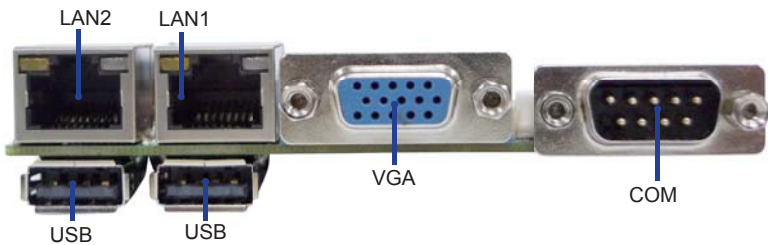
2-6 List of Jumpers

JSB1: CMOS DATA clear
JVL1: LCD Panel power select

2-7 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.
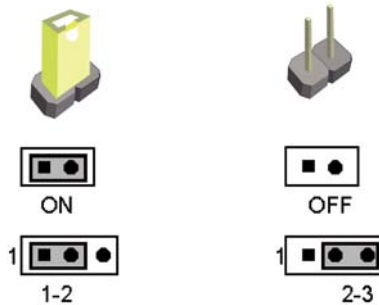
Figure 2.2

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 .

2-8 JSB1: CMOS Data Clear

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

Close Pin1 and Pin2 of JSB1 to store the CMOS data.

To clear the CMOS, follow the procedures below:

1. Turn off the system and unplug the AC power
2. Remove DC 12V power cable from DC 12V power connector
3. Locate JSB1 and close pin 1-2 for few seconds
4. Return to default setting by close pin 1-2
5. Connect DC 12V power cable back to DC 12V Power connector

JSB1	Description
*1-2	Normal set
2-3	CMOS data clear

Note: Do not clear CMOS unless

1. Troubleshooting

2. Forget password

3. You fail over-clocking system

JSB1

1 2 3

1 2 3

*Normal

COMS
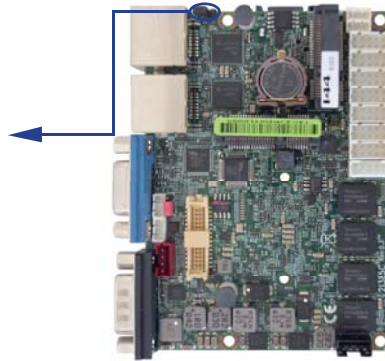
2-9 JVL1: LCD panel power select

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

Note: Attention! Check Device Power in spec.

JVL1

+5V   *+3.3V
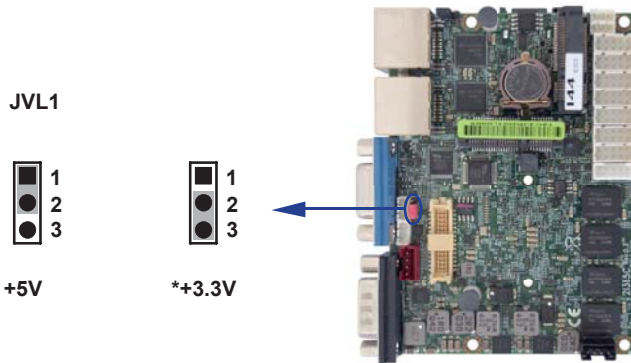
Chapter-3

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
CA3:	Line-out / Line-in / Mic-in / SPDIF-out 2x5 pin (2.0mm) Wafer
CALR1:	Amplifier Line-out Right / Left channel 4pin (1.25mm) wafer
CC1 :	COM1 DB9 Connector
CC2 :	COM 2x5pin (2.0mm) wafer
CC3 :	COM 2x5pin (2.0mm) wafer
CC4 :	COM 2x5pin (2.0mm) wafer
CFP1:	Front Panel connector 2x5pin (2.0mm) wafer
CG1:	VGA DB15 Connector
CIO1:	DIO 2x5 pin (2.0mm) Wafer
CL1 :	LAN port 1 RJ45 Connector
CL2 :	LAN port 2 RJ45 Connector
CL11 :	LAN port 1 RJ45 2x4 pin (2.0mm) wafer(option)
CL21 :	LAN port 2 RJ45 2x4 pin (2.0mm) wafer(option)
CO1:	SMBus 4pin (1.25mm) Wafer
CPI1:	DC 12V-IN 1x4 pin (2.0mm) Red wafer connector
CPP1:	Panel inverter power connector 1x5 pin (2.0mm) wafer
CPO1:	+12V / +5V power output 4 pin (2.0mm) Black wafer connector
CT1:	Touch screen device 2x5 pin (2.0mm) Wafer
CU1:	USB 2.0 Dual port Type A connector
CU2:	USB 2.0 Dual port Type A connector
CU3:	USB 2.0 port 4pin (1.25mm) Wafer
CU4:	USB 2.0 port 4pin (1.25mm) Wafer
LVDS1:	LVDS 2x15 pin (1.25mm) connector
SATA1:	One SATA connector 7pin
MPCE1 :	Full size mini card port 1 sockets 52pin
MPCE2 :	Half size mini card port 2 sockets 52pin

3-2 CMOS Battery connector

● **BAT1: 3V Battery hold 2pin**
  BAT1: Battery use Li 3V / 40mAh (CR1220)

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

BAT1
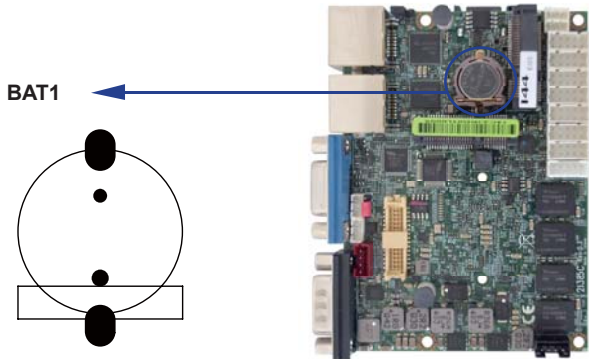
3-3 Audio interface

● **CA3: Line-out / Line-in / Mic-in / SPDIF-out 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	SPDIF-OUT
7	Line-in-L	8	+5V
9	Line-out-L	10	MIC-IN

3-4 Audio Amplifier

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

PIN NO.	Description
1	Left+
2	Left-
3	Right-
4	Right+
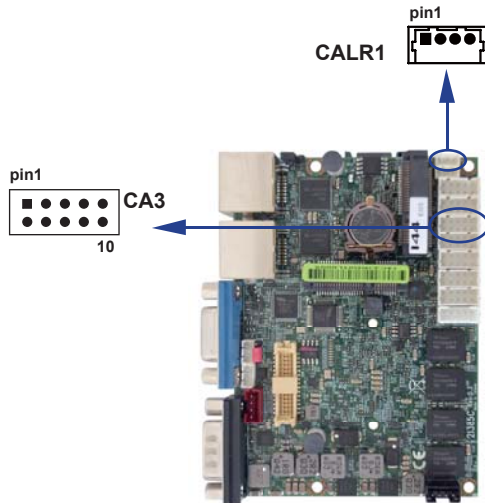
3-5 COM interface

● **CC1 COM1 DB9 Connector (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.

● **CC1 COM1 DB9 Connector (RS485 Mode)**

PIN NO.	Description	PIN NO.	Description
1	RS485 Data+	6	NC
2	RS485 Data-	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND		

Note : 1. Default BOM set to RS232 Mode
2. RS485 function for OEM BOM request

● **CC1 COM1 DB9 Connector (RS422 Mode)**

PIN NO.	Description	PIN NO.	Description
1	RS422 TX-	6	NC
2	RS422 TX+	7	NC
3	RS422 RX+	8	NC
4	RS422 RX-	9	NC
5	GND		

Note : 1. Default BOM set to RS232 Mode
2. RS422 function for OEM BOM request

CC1

● **CC2/3/4 COM2/3/4 2x5pin (2.0mm) wafer (RS232 Mode)**

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

● **CC2/3/4 COM2/3/4 2x5pin (2.0mm) wafer (RS485 Mode)**

PIN NO.	Description	PIN NO.	Description
1	RS485 Data-	2	RS485 Data+
3	NC	4	NC
5	GND	6	NC
7	NC	8	NC
9	NC	10	+5V
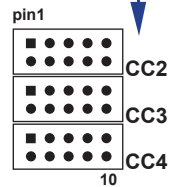
Note:

1. CC2 / CC3 / CC4 connector RS485 function for OEM BOM request
2. BIOS need setting to RS485 mode

3-6 Front Panel Pin Header

● **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+

pin1

CFP1
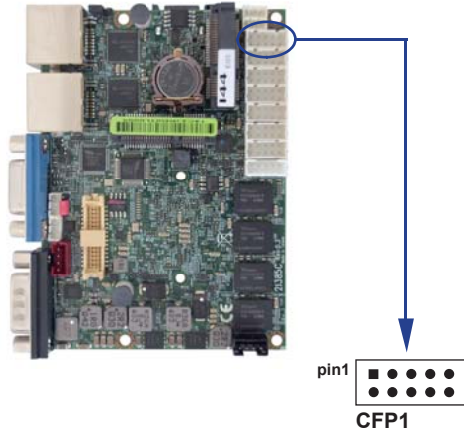
3-7 VGA Display interface

● **CG1: VGA Connector (DB15 pin)**

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

CG1
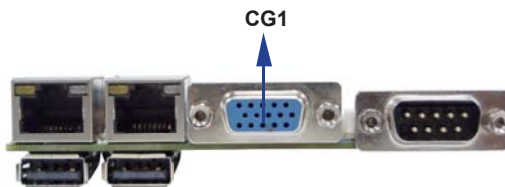
3-8 Digital Input / Output / Watch Dog Time

● 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

Note: 1. DI pin default pull up 10KΩ to +5V
　　　2. If use need isolate circuit to control external device
　　　3. F75111N-1 SMBus address 0x9c
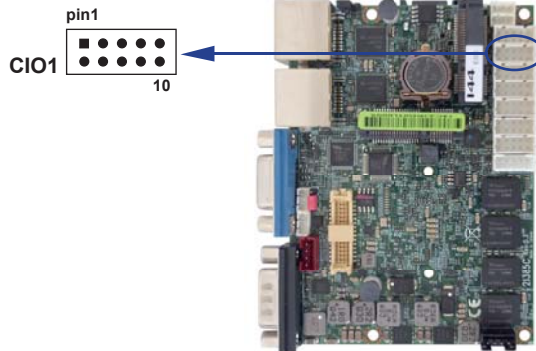
● **For F75111N SMBus watch dog timer device:**

DC spec:

Input low Voltage (VIL): +0.8 Max,

Input High Voltage (VIH): +2V Min

Output low Current (IOL): 10mA (Min) VOL=0.4V

Output High Current (IOH): -10mA (Min) VOL=2.4V

Watch Dog Time value 0~255 sec

The system will be issued reset. When WDT is enable the hardware start down

counter to zero. The reset timer have 10~20% tolerance upon the Temperature.

Note: If want to SDK support. Please contact to sales window.

3-8-1 IO Device: F75111 CIO Utility

The Sample code source you can download from

\<Google Drive\>
Source file: CIO_Utility_v3.0.7.2W_Src
Binary file: CIO_Utility_v3.0.7.2W_Bin_x86 CIO_Utility_v3.0.7.2W_Bin_x64
F75113 DLL: F75113.zip

\<FTP\>
Source file: CIO_Utility_v3.0.7.2W_Src
Binary file: CIO_Utility_v3.0.7.2W_Bin_x86 CIO_Utility_v3.0.7.2W_Bin_x64
F75113 DLL: F75113.zip

MB Support List

Ivybridge	Bay Trail	Apollo Lake	Skylake / Kabylake
2I847H 3I847A/D/CW/ NX/NM/HW 3I770A/CW CI847A/C CI770A/C	1I385A/H 1I386H 2I380A 2I385A/CW 2I380NX 2I385BW/EW/HW/PW 2I386EW 2I382A 2I382DW 3I380A/CW/NX ST385W/AW/CW	2I390CW 2I392CW 3I390AW 3I390NX 3I393NX PM390C	2I610DW/HW 2I612CW 3I610DW 3I612DW 3I170DW/HW/NX ST610W CI170A/C PM610DW PM170DW

Coffee Lake	Whiskey Lake	AMD	Card	Elkhart Lake
CI370DW	2I810D 3I810DW	3A100DW	CIO116-G E691A	2I640DW

How to use this Demo Application

Attention Please:You must be install vcredist_x86.exe when first time you run the F75111_DIO.exe DEMO AP, The vcredist_x86.exe include all required DLL file.

1. Press the select your test "2i2o", "4i4o", "4i4o*2", "F75111CIO116", "F75113CIO116", "8i+8o", "1i1o"

2. start test, select single mode or looptest

F75111 Layout Picture
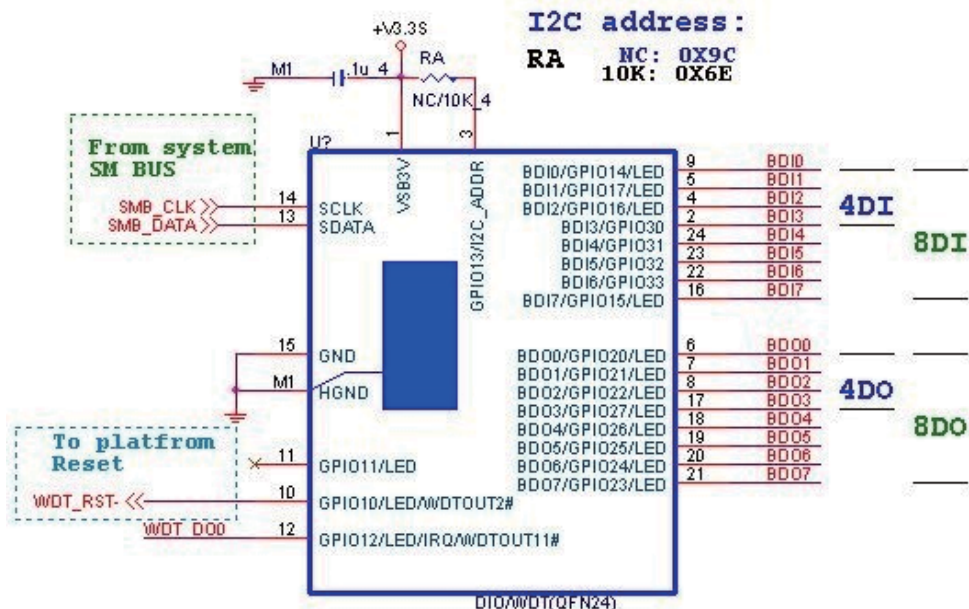
Introduction F75111

Initial Internal F75111 port address (0x9c)

define GPIO1X, GPIO2X, GPIO3X to input or output
and Enable WDT function pin

Set F75111 DI/DO (sample code as below Get Input value/Set output value)

DO: InterDigitalOutput(BYTE byteValue))
DI: InterDigitalInput()

PULSE mode
Sample to setting GP33, 32, 31, 30 output 1mS low pulse signal.

```
{
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_CONTROL,              0x00);
// This is setting low,Level output
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_WIDTH_CONTROL,       0x01);
// This selects the pulse width to 1mS
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_CONTROL_MODE,              0x0F);
// This is setting the GP33, 32, 31, 30 to output function.
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_Output_Data ,             0x0F);
// This is setting the GP33, 32, 31, 30 output data.
}
```

Initial internal F75111

```
void F75111::InitInternalF75111()

{
this->Write_Byte(F75111_INTERNAL_ADDR,GPIO1X_CONTROL_MODE,               0x00)
; //set GPIO1X to Input  function
this->Write_Byte(F75111_INTERNAL_ADDR,GPIO3X_CONTROL_MODE,               0x00)
; //set GPIO3X to Input  function
this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_CONTROL_MODE,               0xFF)
; //set GPIO2X to Output function
this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DRIVING,             0xFF)
; //set GPIO2X to Output Drving

this->Write_Byte(F75111_INTERNAL_ADDR,F75111_CONFIGURATION, 0x03);
//Enable WDT OUT function
}
```

Set output value

```
void F75111::InterDigitalOutput(BYTE byteValue)
{
BYTE byteData = 0;
byteData = (byteData & 0x01 )? byteValue + 0x01 : byteValue;
byteData = (byteData & 0x02 )? byteValue + 0x02 : byteValue;
byteData = (byteData & 0x04 )? byteValue + 0x04 : byteValue;
byteData = (byteData & 0x80 )? byteValue + 0x08 : byteValue;
byteData = (byteData & 0x40 )? byteValue + 0x10 : byteValue;
byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
byteData = (byteData & 0x10 )? byteValue + 0x40 : byteValue;
byteData = (byteData & 0x08 )? byteValue + 0x80 : byteValue;          // get value bit by bit

this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DATA,byteData);
// write byteData value via GPIO2X output pin
}
```

Get Input value

```
BYTE F75111::InterDigitalInput()
{
BYTE byteGPIO1X = 0;
BYTE byteGPIO3X = 0;
BYTE byteData   = 0;

this->Read_Byte(F75111_INTERNAL_ADDR,GPIO1X_INPUT_DATA,&byteGPIO1X) ;
// Get value from GPIO1X
this->Read_Byte(F75111_INTERNAL_ADDR,GPIO3X_INPUT_DATA,&byteGPIO3X) ;
// Get value from GPIO3X

byteGPIO1X = byteGPIO1X  & 0xF0;                      // Mask unuseful value
byteGPIO3X = byteGPIO3X  & 0x0F;                      // Mask unuseful value

byteData = ( byteGPIO1X & 0x10 )? byteData + 0x01 : byteData;
byteData = ( byteGPIO1X & 0x80 )? byteData + 0x02 : byteData;
byteData = ( byteGPIO1X & 0x40 )? byteData + 0x04 : byteData;
byteData = ( byteGPIO3X & 0x01 )? byteData + 0x08 : byteData;

byteData = ( byteGPIO3X & 0x02 )? byteData + 0x10 : byteData;
byteData = ( byteGPIO3X & 0x04 )? byteData + 0x20 : byteData;
byteData = ( byteGPIO3X & 0x08 )? byteData + 0x40 : byteData;
byteData = ( byteGPIO1X & 0x20 )? byteData + 0x80 : byteData;
// Get correct DI value from GPIO1X & GPIO3X

return byteData;
}
```

define F75111 pin in F75111.h

```
//-----------------------------------------------------------------------------------------------
#define   F75111_INTERNAL_ADDR              0x9C // OnBoard  F75111 Chipset
#define   F75111_EXTERNAL_ADDR              0x6E // External F75111 Chipset
//-----------------------------------------------------------------------------------------------
#define   F75111_CONFIGURATION              0x03 // Configure GPIO13 to WDT2 Function
//-----------------------------------------------------------------------------------------------
#define   GPIO1X_CONTROL_MODE               0x10 // Select Output Mode or Input Mode
#define   GPIO2X_CONTROL_MODE               0x20 // Select GPIO2X Output Mode or Input Mode
#define   GPIO3X_CONTROL_MODE               0x40 // Select GPIO3X Output Mode or Input Mode
//-----------------------------------------------------------------------------------------------
#define   GPIO1X_INPUT_DATA                 0x12 // GPIO1X Input Data Register
#define   GPIO3X_INPUT_DATA                 0x22 // GPIO2X Input Data Register
#define   GPIO3X_INPUT_DATA                 0x42 // GPIO3X Input Data Register
//-----------------------------------------------------------------------------------------------
#define   GPIO1X_OUTPUT_DATA                0x11 // GPIO1X Output Data Register
#define   GPIO2X_OUTPUT_DATA                0x21 // GPIO2X Output Data Register
#define   GPIO3X_OUTPUT_DATA                0x41 // GPIO3X Output Data Register
//-----------------------------------------------------------------------------------------------
#define   GPIO1X_OUTPUT_DRIVING             0x1B // Select GPIO1X Output Driving Enable
#define   GPIO2X_OUTPUT_DRIVING             0x2B // Select GPIO2X Output Driving Enable
#define   GPIO3X_OUTPUT_DRIVING             0x4B // Select GPIO3X Output Driving Enable
//-----------------------------------------------------------------------------------------------
#define   GPIO1X_PULSE_CONTROL              0x13 // GPIO1x Level/Pulse Control Register
                                                 // 0:Level Mode
                                                 // 1:Pulse Mode
#define   GPIO1X_PULSE_WIDTH_CONTROL  0x14 // GPIO1x Pulse Width Control Register
#define   GP1_PSWIDTH_500US                 0x00 // When select Pulse mode:500    us.
#define   GP1_PSWIDTH_1MS                   0x01 // When select Pulse mode:1      ms.
#define   GP1_PSWIDTH_20MS                  0x02 // When select Pulse mode:20     ms.
#define   GP1_PSWIDTH_100MS                 0x03 // When select Pulse mode:100    ms.
//-----------------------------------------------------------------------------------------------
#define   GPIO2X_PULSE_CONTROL              0x23 // GPIO2x Level/Pulse Control Register
                                                 // 0:Level Mode
                        // 1:Pulse Mode
#define   GPIO2X_PULSE_WIDTH_CONTROL  0x24  // GPIO2x Pulse Width Control Register
#define   GP2_PSWIDTH_500US                 0x00  // When select Pulse mode:500  us.
#define   GP2_PSWIDTH_1MS                   0x01  // When select Pulse mode:1      ms.
#define   GP2_PSWIDTH_20MS                  0x02  // When select Pulse mode:20     ms.
#define   GP2_PSWIDTH_100MS                 0x03  // When select Pulse mode:100  ms.
//-----------------------------------------------------------------------------------------------
#define   GPIO3X_PULSE_CONTROL              0x43 // GPIO3x Level/Pulse Control Register
                                                 // 0:Level Mode
                                                 // 1:Pulse Mode
#define   GPIO3X_Output_Data                0x41 // GPIO3x Output Data Register
#define   GPIO3X_PULSE_WIDTH_CONTROL  0x44 // GPIO3x Pulse Width Control Register
#define   GP3_PSWIDTH_500US                 0x00 // When select Pulse mode:500    us.
#define   GP3_PSWIDTH_1MS                   0x01 // When select Pulse mode:1      ms.
#define   GP3_PSWIDTH_20MS                  0x02 // When select Pulse mode:20     ms.
#define   GP3_PSWIDTH_100MS                 0x03 // When select Pulse mode:100    ms.
//-----------------------------------------------------------------------------------------------
```

Introduction F75113
F75113 Layout Picture
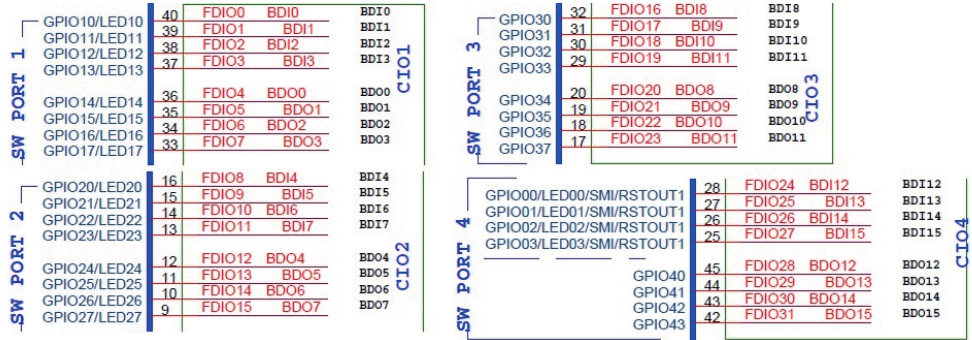
Base on 75113.Dll API function as below list

```
F75113_API bool _stdcall F75113_Init();
F75113_API BYTE                    F75113_GetDigital_Low_Input();
//BDI0-BDI7
F75113_API BYTE                    F75113_GetDigital_High_Input();
//BDI8-BDI15
F75113_API void                    F75113_SetDigital_Low_Output(BYTE byteValue);
//BDO0-BDO7
F75113_API void                    F75113_SetDigital_High_Output(BYTE byteValue);
//BDO8-BDO15


F75113_API void                    F75113_SetWDT_Enable(BYTE byteTimer);
//For the F75113 on board
F75113_API void                    F75113_SetWDT_Disable();
//For the F75113 on board
```

3-8-2 IO Device: F75111 CIO Utility under Linux

The Sample code source you can download from<Google Drive>
Source file: CIO_Utility_v3.2.1L_Src
Binary file: CIO_Utility_v3.2.1L_Bin_x64

<FTP>
Source file: CIO_Utility_v3.2.1L_Src
Binary file: CIO_Utility_v3.2.1L_Bin_x64

MB Support List

Ivybridge	Bay Trail	Apollo Lake	Skylake / Kabylake
2I847H 3I847A/D/CW /NX/NM/HW 3I770A/CW CI847A/C CI770A/C	1I385A/H 1I386H 2I380A 2I385A/CW 2I380NX 2I385BW/EW/HW/PW 2I386EW 2I382A 2I382DW 3I380A/CW/NX ST385W/AW/CW	2I390CW 2I392CW 3I390AW 3I390NX 3I393NX PM390C	2I610DW/HW 2I612CW 3I610DW 3I612DW 3I170DW/HW/NX ST610W CI170A/C PM610DW PM170DW

Coffee Lake	Whiskey Lake	AMD	Card	Elkhart Lake
CI370DW	2I810D 3I810DW	3A100DW	CIO116-G E691A	2I640DW

How to use this Demo Application

Before executing the program began, Please switch to the highest authority , continued second F75111 ,chmod 777 and root: \

Platform will detect intel/AMD , if not get SMbus signal show N/A
If get SMBUS1 / SMBUS2 F75111 / F75113 will show Sessuce, IC not get will show Fail,
Not get SMBUS1 / SMBUS2 signal will show N/A
1. Press the select your test F75111 or F75113

2. select your test SMBus1(CO1) / SMBus2(CO2) "2i2o", "4i4o", "4i4o*2", "CIO116",
   "8I(CIO1)+8O(CIO2)", "1I1O"

3. start button, select single mode or looptest

F75111 Layout Picture

Introduction
Initial Internal F75111 port address (0x9c)

define GPIO1X, GPIO2X, GPIO3X to input or output
and Enable WDT function pin

Set F75111 DI/DO (sample code as below Get Input value / Set output value)

DO: InterDigitalOutput(BYTE byteValue))
DI: InterDigitalInput()

PULSE mode
Sample to setting GP33, 32, 31, 30 output 1mS low pulse signal.

```
{
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_CONTROL,              0x00);
//This is setting low pulse output
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_WIDTH_CONTROL,       0x01);
//This selects the pulse width to 1mS
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_CONTROL_MODE,              0x0F);
//This is setting the GP33, 32, 31, 30 to output function.
this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_Output_Data ,              0x0F);
//This is setting the GP33, 32, 31, 30 output data.
}
```

Initial internal F75111

```
void F75111::InitInternalF75111()
{
this->Write_Byte(F75111_INTERNAL_ADDR,GPIO1X_CONTROL_MODE,      0x00);
//set GPIO1X to Input  function
this->Write_Byte(F75111_INTERNAL_ADDR,GPIO3X_CONTROL_MODE,      0x00);
//set GPIO3X to Input  function
this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_CONTROL_MODE,      0xFF);
//set GPIO2X to Output function

this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DRIVING,    0xFF);
//set GPIO2X to Output Drving

this->Write_Byte(F75111_INTERNAL_ADDR,F75111_CONFIGURATION,     0x03);
//Enable WDT OUT function
}
```

Set output value

```
void F75111::InterDigitalOutput(BYTE byteValue)
{
BYTE byteData = 0;
byteData = (byteData & 0x01 )? byteValue + 0x01 : byteValue;
byteData = (byteData & 0x02 )? byteValue + 0x02 : byteValue;
byteData = (byteData & 0x04 )? byteValue + 0x04 : byteValue;
byteData = (byteData & 0x80 )? byteValue + 0x08 : byteValue;
byteData = (byteData & 0x40 )? byteValue + 0x10 : byteValue;
byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
byteData = (byteData & 0x10 )? byteValue + 0x40 : byteValue;
byteData = (byteData & 0x08 )? byteValue + 0x80 : byteValue;          // get value bit by bit

this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DATA,byteData);
// write byteData value via GPIO2X output pin
}
```

Get Input value

```
 BYTE F75111::InterDigitalInput()
 {
BYTE byteGPIO1X = 0;
BYTE byteGPIO3X = 0;
BYTE byteData   = 0;

this->Read_Byte(F75111_INTERNAL_ADDR,GPIO1X_INPUT_DATA,&byteGPIO1X) ;
 // Get value from GPIO1X
this->Read_Byte(F75111_INTERNAL_ADDR,GPIO3X_INPUT_DATA,&byteGPIO3X) ;
 // Get value from GPIO3X

byteGPIO1X = byteGPIO1X  & 0xF0;                         // Mask unuseful value
byteGPIO3X = byteGPIO3X  & 0x0F;                         // Mask unuseful value

byteData = ( byteGPIO1X & 0x10 )? byteData + 0x01 : byteData;
byteData = ( byteGPIO1X & 0x80 )? byteData + 0x02 : byteData;
byteData = ( byteGPIO1X & 0x40 )? byteData + 0x04 : byteData;
byteData = ( byteGPIO3X & 0x01 )? byteData + 0x08 : byteData;

byteData = ( byteGPIO3X & 0x02 )? byteData + 0x10 : byteData;
byteData = ( byteGPIO3X & 0x04 )? byteData + 0x20 : byteData;
byteData = ( byteGPIO3X & 0x08 )? byteData + 0x40 : byteData;
byteData = ( byteGPIO1X & 0x20 )? byteData + 0x80 : byteData;
 // Get correct DI value from GPIO1X & GPIO3X

return byteData;
 }
```

define F75111 pin in F75111.h

```
//----------------------------------------------------------------------------
#define   F75111_INTERNAL_ADDR          0x9C // OnBoard  F75111 Chipset
#define   F75111_EXTERNAL_ADDR          0x6E // External F75111 Chipset
//----------------------------------------------------------------------------
#define   F75111_CONFIGURATION          0x03 // Configure GPIO13 to WDT2 Function
//----------------------------------------------------------------------------
#define   GPIO1X_CONTROL_MODE           0x10 // Select Output Mode or Input Mode
#define   GPIO2X_CONTROL_MODE           0x20 // Select GPIO2X Output Mode or Input Mode
#define   GPIO3X_CONTROL_MODE           0x40 // Select GPIO3X Output Mode or Input Mode
//----------------------------------------------------------------------------
#define   GPIO1X_INPUT_DATA             0x12 // GPIO1X Input Data Register
#define   GPIO3X_INPUT_DATA             0x22 // GPIO2X Input Data Register
#define   GPIO3X_INPUT_DATA             0x42 // GPIO3X Input Data Register
//----------------------------------------------------------------------------
#define   GPIO1X_OUTPUT_DATA            0x11 // GPIO1X Output Data Register
#define   GPIO2X_OUTPUT_DATA            0x21 // GPIO2X Output Data Register
#define   GPIO3X_OUTPUT_DATA            0x41 // GPIO3X Output Data Register
//----------------------------------------------------------------------------
#define   GPIO1X_OUTPUT_DRIVING         0x1B // Select GPIO1X Output Driving Enable
#define   GPIO2X_OUTPUT_DRIVING         0x2B // Select GPIO2X Output Driving Enable
#define   GPIO3X_OUTPUT_DRIVING         0x4B // Select GPIO3X Output Driving Enable
//----------------------------------------------------------------------------
#define   GPIO1X_PULSE_CONTROL          0x13 // GPIO1x Level/Pulse Control Register
                                             // 0:Level Mode
                                             // 1:Pulse Mode
#define   GPIO1X_PULSE_WIDTH_CONTROL    0x14 // GPIO1x Pulse Width Control Register
#define   GP1_PSWIDTH_500US             0x00 // When select Pulse mode:500   us.
#define   GP1_PSWIDTH_1MS               0x01 // When select Pulse mode:1     ms.
#define   GP1_PSWIDTH_20MS              0x02 // When select Pulse mode:20    ms.
#define   GP1_PSWIDTH_100MS             0x03 // When select Pulse mode:100   ms.
//----------------------------------------------------------------------------
#define   GPIO2X_PULSE_CONTROL          0x23 // GPIO2x Level/Pulse Control Register
                                             // 0:Level Mode
                                             // 1:Pulse Mode
#define   GPIO2X_PULSE_WIDTH_CONTROL    0x24 // GPIO2x Pulse Width Control Register
#define   GP2_PSWIDTH_500US             0x00 // When select Pulse mode:500   us.
#define   GP2_PSWIDTH_1MS               0x01 // When select Pulse mode:1     ms.
#define   GP2_PSWIDTH_20MS              0x02 // When select Pulse mode:20    ms.
#define   GP2_PSWIDTH_100MS             0x03 // When select Pulse mode:100   ms.
//----------------------------------------------------------------------------
#define   GPIO3X_PULSE_CONTROL          0x43 // GPIO3x Level/Pulse Control Register
                                             // 0:Level Mode
                                             // 1:Pulse Mode
#define   GPIO3X_Output_Data            0x41 // GPIO3x Output Data Register
#define   GPIO3X_PULSE_WIDTH_CONTROL    0x44 // GPIO3x Pulse Width Control Register
#define   GP3_PSWIDTH_500US             0x00 // When select Pulse mode:500   us.
#define   GP3_PSWIDTH_1MS               0x01 // When select Pulse mode:1     ms.
#define   GP3_PSWIDTH_20MS              0x02 // When select Pulse mode:20    ms.
#define   GP3_PSWIDTH_100MS             0x03 // When select Pulse mode:100   ms.
//----------------------------------------------------------------------------
```

3-8-3 IO Device: F75111 CIO Utility Console under linux

The Sample code source you can download from

<Google Drive>
Source file: CIO_Utility_Console_v1.4L_Src
Binary file: CIO_Utility_Console_v1.4L_Bin

<FTP>
Source file: CIO_Utility_Console_v1.4L_Src
Binary file: CIO_Utility_Console_v1.4L_Bin

MB Support List

Ivybridge	BayTrail	Apollo Lake	Skylake/Kabylake	Card
2I847H	1I385A/H	2I390CW	2I610DW/HW	CIO116-G
3I8347A/CW	1I386HW	2I390CW	2I610HW	E691A
3I847NX/NM	2I380A/NX	3I390AW	3I610DW	
3I847D(OEM)	2I382A	3I390D(OEM)	PM610DW	
3I847HW	2I385A/BW/CW/EW/HW/PW	3I390NX	ST610W	
CI847A/C	3I380A/CW/D/NX	3I393NX	3I170DW/HW/NX	
3I770A/CW	3I385AW/CW	PM390CW	CI170A/C	
CI770A/C	ST385W		PM170DW	

How to use this Demo Application

1. The program must control I/O device, when you use this you must change user to root, you can use this command "sudo su"
2. enter "./CIO_Utility_console -h"show help function
Example:
CIO_Utility_console --4i4o 1

F75111 Layout Picture

I2C address:
RA NC: 0X9C
10K: 0X6E

Introduction

Initial Internal F75111 port address (0x9c)

```
define GPIO1X, GPIO2X, GPIO3X to input or output
and Enable WDT function pin
```

Set F75111 DI/DO (sample code as below Get Input value / Set output value)

```
DO: InterDigitalOutput (BYTE byteValue))
DI: InterDigitalInput()
```

PULSE mode
Sample to setting GP33, 32, 31, 30 output 1mS low pulse signal.

```
{
  this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_CONTROL          0x00);
  //This is setting low pulse output
  this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_WIDTH_CONTROL, 0x01);
  //This selects the pulse width to 1mS
  this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_CONTROL_MODE,          0x0F);
  //This is setting the GP33, 32, 31, 30 to output function.
  this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_Output_Data ,          0x0F);
  //This is setting the GP33, 32, 31, 30 output data.
}
```

Initial internal F75111

```
void F75111::InitInternalF75111()
{
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO1X_CONTROL_MODE,      0x00); //set GPIO1X to Input  function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO3X_CONTROL_MODE,      0x00); //set GPIO3X to Input  function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_CONTROL_MODE,      0xFF); //set GPIO2X to Output function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DRIVING,    0xFF); //set GPIO2X to Output Drving
    this->Write_Byte(F75111_INTERNAL_ADDR,F75111_CONFIGURATION,     0x03); //Enable WDT OUT function
}
```

Set output value

```
void F75111::InterDigitalOutput(BYTE byteValue)
{
    BYTE byteData = 0;
    byteData = (byteData & 0x01 )? byteValue + 0x01 : byteValue;
    byteData = (byteData & 0x02 )? byteValue + 0x02 : byteValue;
    byteData = (byteData & 0x04 )? byteValue + 0x04 : byteValue;
    byteData = (byteData & 0x80 )? byteValue + 0x08 : byteValue;
    byteData = (byteData & 0x40 )? byteValue + 0x10 : byteValue;
    byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
    byteData = (byteData & 0x10 )? byteValue + 0x40 : byteValue;
    byteData = (byteData & 0x08 )? byteValue + 0x80 : byteValue;        // get value bit by bit

    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DATA,byteData);
    // write byteData value via GPIO2X output pin
}
```

Get Input value

```
BYTE F75111::InterDigitalInput()
{
    BYTE byteGPIO1X = 0;
    BYTE byteGPIO3X = 0;
    BYTE byteData   = 0;
    this->Read_Byte(F75111_INTERNAL_ADDR,GPIO1X_INPUT_DATA,&byteGPIO1X) ;  // Get value from GPIO1X
    this->Read_Byte(F75111_INTERNAL_ADDR,GPIO3X_INPUT_DATA,&byteGPIO3X) ; // Get value from GPIO3X

    byteGPIO1X = byteGPIO1X  & 0xF0;                        // Mask unuseful value
    byteGPIO3X = byteGPIO3X  & 0x0F;                        // Mask unuseful value

    byteData = ( byteGPIO1X & 0x10 )? byteData + 0x01 : byteData;
    byteData = ( byteGPIO1X & 0x80 )? byteData + 0x02 : byteData;
    byteData = ( byteGPIO1X & 0x40 )? byteData + 0x04 : byteData;
    byteData = ( byteGPIO3X & 0x01 )? byteData + 0x08 : byteData;

    byteData = ( byteGPIO3X & 0x02 )? byteData + 0x10 : byteData;
    byteData = ( byteGPIO3X & 0x04 )? byteData + 0x20 : byteData;
    byteData = ( byteGPIO3X & 0x08 )? byteData + 0x40 : byteData;
    byteData = ( byteGPIO1X & 0x20 )? byteData + 0x80 : byteData; // Get correct DI value from GPIO1X & GPIO3X

    return byteData;
}
```

define F75111 pin in F75111.h

```
//----------------------------------------------------------------------------------------------------------------
#define   F75111_INTERNAL_ADDR              0x9C   // OnBoard  F75111 Chipset
#define   F75111_EXTERNAL_ADDR              0x6E   // External F75111 Chipset
//----------------------------------------------------------------------------------------------------------------
#define   F75111_CONFIGURATION              0x03   // Configure GPIO13 to WDT2 Function
//----------------------------------------------------------------------------------------------------------------
#define   GPIO1X_CONTROL_MODE               0x10   // Select Output Mode or Input Mode
#define   GPIO2X_CONTROL_MODE               0x20   // Select GPIO2X Output Mode or Input Mode
#define   GPIO3X_CONTROL_MODE               0x40   // Select GPIO3X Output Mode or Input Mode
//----------------------------------------------------------------------------------------------------------------
#define   GPIO1X_INPUT_DATA                 0x12   // GPIO1X Input Data Register
#define   GPIO3X_INPUT_DATA                 0x22   // GPIO2X Input Data Register
#define   GPIO3X_INPUT_DATA                 0x42   // GPIO3X Input Data Register
//----------------------------------------------------------------------------------------------------------------
#define   GPIO1X_OUTPUT_DATA                0x11   // GPIO1X Output Data Register
#define   GPIO2X_OUTPUT_DATA                0x21   // GPIO2X Output Data Register
#define   GPIO3X_OUTPUT_DATA                0x41   // GPIO3X Output Data Register
//----------------------------------------------------------------------------------------------------------------
#define   GPIO1X_OUTPUT_DRIVING             0x1B   // Select GPIO1X Output Driving Enable
#define   GPIO2X_OUTPUT_DRIVING             0x2B   // Select GPIO2X Output Driving Enable
#define   GPIO3X_OUTPUT_DRIVING             0x4B   // Select GPIO3X Output Driving Enable
//----------------------------------------------------------------------------------------------------------------
#define   GPIO1X_PULSE_CONTROL              0x13   // GPIO1x Level/Pulse Control Register
                                                   // 0:Level Mode
                                                   // 1:Pulse Mode
#define   GPIO1X_PULSE_WIDTH_CONTROL 0x14          // GPIO1x Pulse Width Control Register
#define   GP1_PSWIDTH_500US                 0x00   // When select Pulse mode:        500us.
#define   GP1_PSWIDTH_1MS                   0x01   // When select Pulse mode:        1ms.
#define   GP1_PSWIDTH_20MS                  0x02   // When select Pulse mode:        20ms.
#define   GP1_PSWIDTH_100MS                 0x03   // When select Pulse mode:        100ms.
//----------------------------------------------------------------------------------------------------------------
#define   GPIO2X_PULSE_CONTROL              0x23   // GPIO2x Level/Pulse Control Register
                                                   // 0:Level Mode
                                                   // 1:Pulse Mode
#define   GPIO2X_PULSE_WIDTH_CONTROL 0x24          // GPIO2x Pulse Width Control Register
#define   GP2_PSWIDTH_500US                 0x00   // When select Pulse mode:        500us.
#define   GP2_PSWIDTH_1MS                   0x01   // When select Pulse mode:        1ms.
#define   GP2_PSWIDTH_20MS                  0x02   // When select Pulse mode:        20ms.
#define   GP2_PSWIDTH_100MS                 0x03   // When select Pulse mode:        100ms.
//----------------------------------------------------------------------------------------------------------------
#define   GPIO3X_PULSE_CONTROL              0x43   // GPIO3x Level/Pulse Control Register
                                                   // 0:Level Mode
                                                   // 1:Pulse Mode
#define   GPIO3X_Output_Data                0x41   // GPIO3x Output Data Register
#define   GPIO3X_PULSE_WIDTH_CONTROL 0x44          // GPIO3x Pulse Width Control Register
#define   GP3_PSWIDTH_500US                 0x00   // When select Pulse mode:        500     us.
#define   GP3_PSWIDTH_1MS                   0x01   // When select Pulse mode:        1       ms.
#define   GP3_PSWIDTH_20MS                  0x02   // When select Pulse mode:        20      ms.
#define   GP3_PSWIDTH_100MS                 0x03   // When select Pulse mode:        100     ms.
//----------------------------------------------------------------------------------------------------------------
```

3-9 LAN Interface

● **CL1 / CL2: RJ45 LAN port Giga / 100Mb(RJ45 Jack)**

PIN NO.	Description	PIN NO.	Description
1	TR0-/TX+	5	TR2-/NC
2	TR0+/TX-	6	TR2+/RX-
3	TR1-/RX+	7	TR3-/NC
4	TR1+/NC	8	TR3+/NC

● **CL11 / CL21: LAN port Giga / 100Mb 2x5pin (2.0mm) wafer**

PIN NO.	Description	PIN NO.	Description
1	TR0-/TX+	2	TR0+/TX-
3	TR2+/NC	4	TR1+/RX-
5	TR1-/RX+	6	TR2-/NC
7	TR3-/NC	8	TR3+/NC

● **RJ45 LAN Connector--- LED define Giga / 100 / 10MB Connector**

SPEED		10 Mbps			100Mbps			1000 Mbps		
Indicate	Side	Back		Front	Back		Front	Back		Front
	LED	Link	ACT	ACT	Link	ACT	ACT	Link	ACT	ACT
LAN Light			Orange	Orange	Green	Orange	Orange	Red	Orange	Orange

CL2   CL1

3-10 SMBus Interface

● **CO1: SMBus 4pin (1.25mm)Wafer**

PIN NO.	Description
1	+3.3V
2	GND
3	SMBus Clock
4	SMBus DATA

pin1

CO1
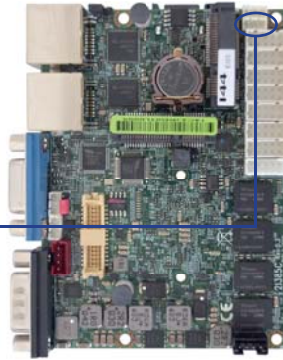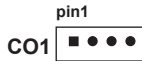
3-11 DC Power Input

● **CPI1: DC-in 1x4 (2.0mm) Wafer Internal connector (Red)**

PIN NO.	Description
2,3	DC-IN (12V)
1,4	GND

Note: Very important check Dc-in Voltage

CPI1
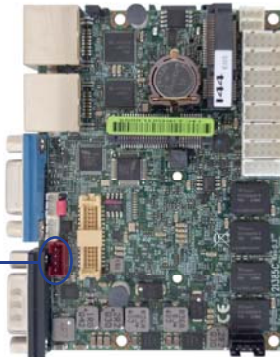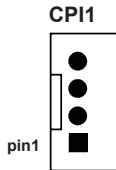
pin1

3-12 Panel Inverter power

● **CPP1: Panel Inverter power (5pin 2.0mm wafer)**

PIN NO.	Description
1	+12V
2	GND
3	PWM dimming
4	ENBKL (3.3V)
5	ENBKL (5V)

Note: 1. JVP1 Inverter Voltage select
      2. CPP1 PIN 3 and LVDS1 PIN1 is same signal.
      3. Pin 3 back light dimming control,
         Provided 200Hz / 275Hz / 380Hz / 20KHz / 25KHz
         and adjust PWM duty cycle by software program.

pin1

CPP1
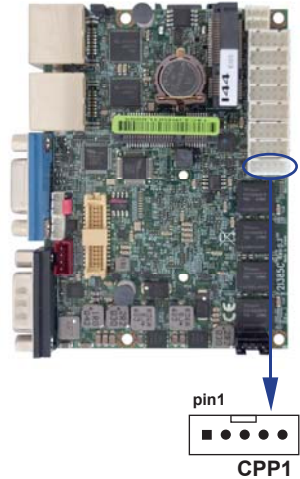
3-13 DC+12V / +5 Voltge Power output (4pin 2.0mm Wafer)(Black)

● **CPO1: +12V/+5V DC voltage output**

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

* Note: Attention! Check Device Power in spec

CPO1

pin1
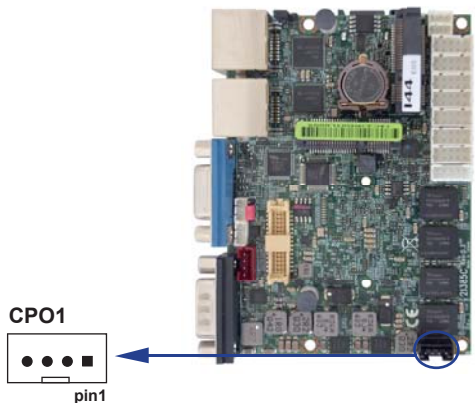
3-14 Touch screen device

● CT1: Touch screen (2x5 pin 2.0mm wafer) USB interface.

● **For 8-wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	Bottom	2	Bottom Sense
3	Top Sense	4	Top
5	Right	6	Right Sense
7	Left	8	Left Sense
9	GND	10	NC

Note: For eight wire type cable Pin 3 and Pin4 need short.

● **For 4-wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	Bottom	2	N/A
3	N/A	4	Top
5	Right	6	N/A
7	Left	8	N/A
9	GND	10	KEY

Note: For four wire type cable Pin 3 and Pin4 need short.

● **For 5-wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	UR(H)	2	N/A
3	Sense	4	UL(Y)
5	LR(X)	6	N/A
7	LL(L)	8	N/A
9	GND	10	KEY

pin1

CT1   10
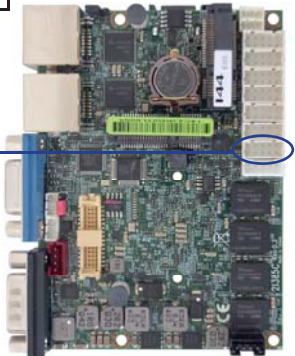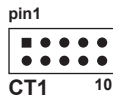
3-15 USB Interface

● **CU1/CU2: USB 2.0 Port Type A**

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

CU2   **CU1**

● **CU3 / CU4: USB 2.0 Port (1x4pin 1.25mm Wafer)**

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

CU4

pin1

pin1

CU3
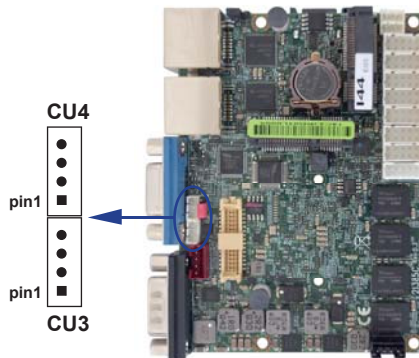
3-16 LVDS Connector

● **LVDS1: LVDS interface (2x15pin 1.25mm wafer)**

PIN NO.	Description	PIN NO.	Description
1	PWM dimming	2	+5V
3	+LCD(5V or 3.3V)	4	+LCD(5V or 3.3V)
5	Channel-1-DATA3+	6	Channel-0-DATA3+
7	Channel-1-DATA3-	8	Channel-0-DATA3-
9	Channel-0-DATA2+	10	Channel-0-CLK+
11	Channel-0-DATA2-	12	Channel-0-CLK-
13	GND	14	GND
15	Channel-0-DATA1+	16	Channel-0-DATA0+
17	Channel-0-DATA1-	18	Channel-0-DATA0-
19	GND	20	GND
21	+LCD(5V or 3.3V)	22	+LCD(5V or 3.3V)
23	Channel-1-DATA2+	24	Channel-1-CLK+
25	Channel-1-DATA2-	26	Channel-1-CLK-
27	Channel-1-DATA1+	28	Channel-1-DATA0+
29	Channel-1-DATA1-	30	Channel-1-DATA0-

Note: 1. LVDS interface support 18 / 24bits two channel.
2. JVL1: LVDS panel +5V / +3.3V (default) Voltage select.
3. LVDS1 PIN 1 for panel backlight active.
4. Pin 1 back light dimming control.
   Provided 200Hz / 275Hz / 380 Hz / 20KHz / 25KHz
   and adjust PWM duty cycle by software program.

LVDS1

pin1
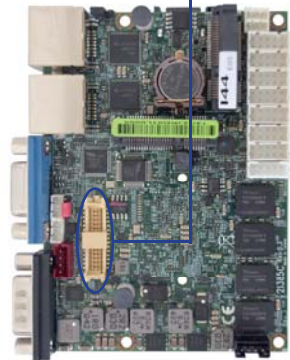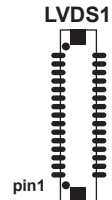
3-17 SATA Interface

● **SATA1: SATA Port 1x7pin connector**

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

Note: 1. SATA1 support SATA 2.0 spec update 3Gb/sec.
    2. CPO1 provide SATA HDD power +12V, GND, +5V
    3. The SATA signal share with mSATA of MPCE1, but just one can be worked in same time.

SATA1
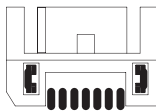
3-18 PCI Express Mini card

●**MPCE1 / MPCE2: Support USB and PCIe by one Interface (Mini card socket 52pin)**

MPCE1: Full size mini card

MPCE2: Half size 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	NC
9	GND	10	NC
11	PCIe-CLK-	12	NC
13	PCIe-CLK+	14	NC
15	GND	16	NC
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

MPCE1

pin52

MINI PCI EXPRESS H92

pin1

pin1

MPCE2

MINI PCI EXPRESS H92

pin52
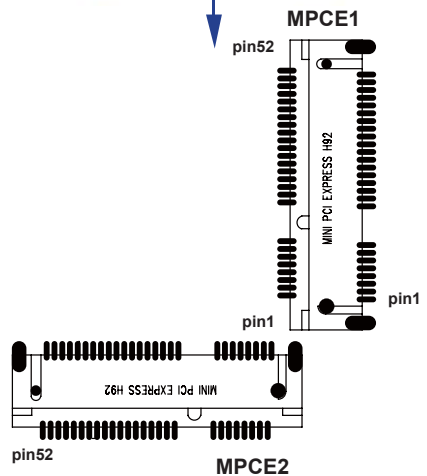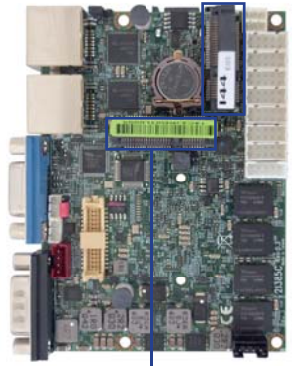
Note: MPCE1 Pin51 mSATA / PCIe auto detect function

The mSATA signal share with SATA of SATA1, but just one can be worked in same time.

3-19 Connector wafer of Compatible Brand and part number list

Location	CKTS	PITCH	Brand Name	Mating connector	Cable housing
CA3	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CALR1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CC2	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CC3	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CC4	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CFP1	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CIO1	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CL11	2x4 8Pin	2.0mm	JST	B8B-PHDSS	PHDR-08VS
CL21	2x4 8Pin	2.0mm	JST	B8B-PHDSS	PHDR-08VS
CO1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CPI1	1x4 4Pin	2.0mm	JST	B4B-PH-KL	PHR-4
CPP1	1x5 5Pin	2.0mm	JST	B5B-PH-KL	PHR-5
CPO1	1x4 4Pin	2.0mm	JST	B4B-PH-KL	PHR-4
CT1	2x5 10Pin	2.0mm	GND	B10B-PHDSS	PHDR-10VS
CU3	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU4	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
LVDS1	2x15 30Pin	1.25mm	HIROSE	DF13-30DS-1.25C	DF13-30DP-1.25V

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. You may also restart the system by
simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.

4-2 BIOS Menu Screen & Function Keys

```
                         InsydeH20 Setup Utility              Rev.  5.0

  Main   Advanced   Security   Power   Boot   Exit


   BIOS Version            2I385C / 2I385A A1
   Build Date              01/26/2015
   Build Time              14:18:04
   Processor Type          Intel(R) Atom(TM) CPU E3845 @ 1.91GHz
   System Memory Speed     1333 MHz
   Cache RAM               2048 KB
   Total Memory            4096 MB


   System Time             [ 00:00:00 ]
   System Date             [ 01/01/2015 ]




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

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 <+>/<–> keys when you want to modify the BIOS parameters for the active option.

● [F1]: General help.

● [F2]: Previous value.

● [F3]: Optimized defaults.

● [F4]: Save & Reset.

● Press <Esc> to quit the BIOS Setup.

4-3 Getting Help

```
                          InsydeH20 Setup Utility                    Rev.  5.0
    Main    Advanced   Security   Power   Boot   Exit


                                 [General Help]

    The Setup Utility is a ROM-based configuration utility that
    displays the system's configuration status and provides users with
    a tool to set their system parameters. Setting incorrect values
    may cause system boot failure:


    Load setup default values to recover
    <Left/Right> Select Screen
    <Up/Down> Select Item
    <Enter> Select or Enter SubMenu
    <F9> Load Setup Default
    <F10> Save and Exit
    <ESC> Exit Setup
    <F1> key displays General Help(This Screen)



    Push Enter/ESC     -- Levave
    Push PageUp        -- previous
    Push PageDown      -- Next Page


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

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

```
                    InsydeH20 Setup Utility                Rev.  5.0

   Main   Advanced  Security  Power  Boot  Exit

   BIOS Version          2I385C / 2I385A A1
   Build Date            01/19/2015
   Build Time            14:18:04
   Processor Type        Intel(R) Atom(TM) CPU E3845 @ 1.91GHz
   System Memory Speed   1333 MHz
   Cache RAM             2048 KB
   Total Memory          4096 MB


   System Time           [ 00:00:00 ]
   System Date           [ 01/01/2015 ]




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

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
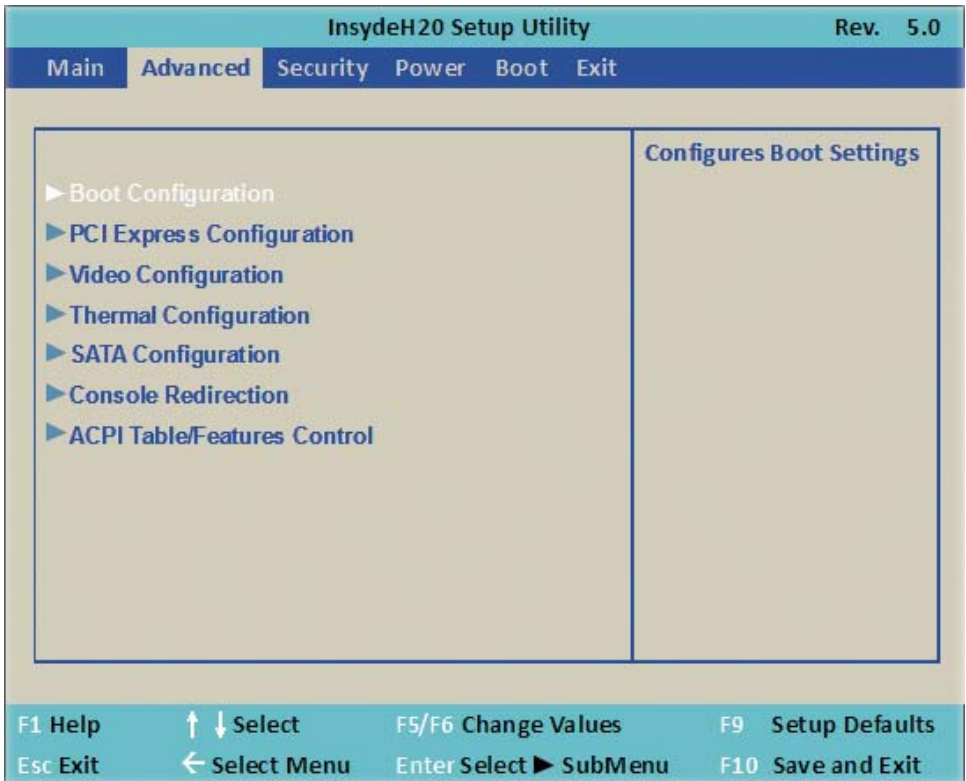
Boot Configuration

Please refer section 4-6-1

PCI Express Configuration

Please refer section 4-6-2

Video Configuration

Please refer section 4-6-3

Thermal Configuration

Please refer section 4-6-4

SATA Configuration

Please refer section 4-6-5

Console Redirection

Please refer section 4-6-6

ACPI Table/Features Control

Please refer section 4-6-7

4-6-1 Boot Configuration

InsydeH20 Setup Utility	Rev. 5.0

Advanced

Boot Configuration	Selects Power-on state
	For Numlock
Numlock <On>	

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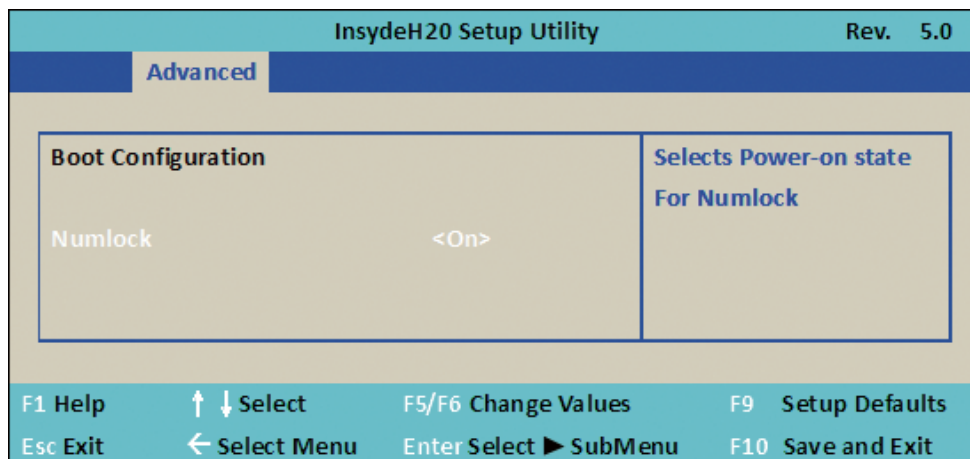
Numlock

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

4-6-2 PCI Express Configuration

InsydeH20 Setup Utility	Rev. 5.0

Advanced

PCI Express Configuration	Control the PCI Express
	Root Port.
▶ PCE Express Root Port 1	
▶ PCE Express Root Port 2	
▶ PCE Express Root Port 3	
▶ PCE Express Root Port 4	

F1 Help	↑↓ Select	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	← Select Menu	Enter Select ▶ SubMenu	F10 Save and Exit
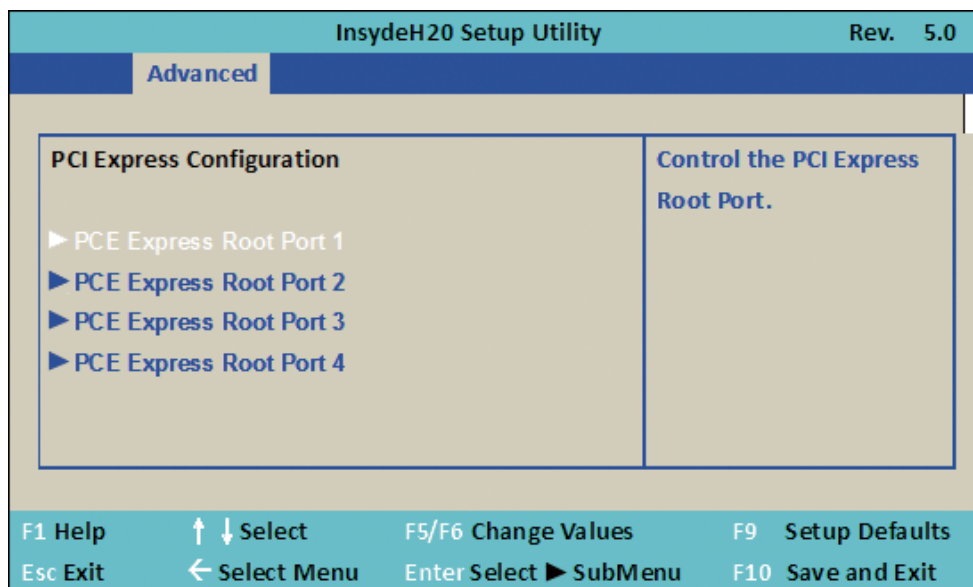
PCIe 1/2/3/4 configuration settings

4-6-2-1 ► PCI Express Root Port 1/2/3/4

InsydeH20 Setup Utility	Rev. 5.0

Advanced

PCI Express Root Port 1 | Control the PCI Express Root Port.

PCE Express Root Port 1   <Enable>
PCIE Port 1 Speed   <Gen1>
PCIE Port 1 Option ROM   <Disabled>

F1 Help	↑↓ Select	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	← Select Menu	Enter Select ► SubMenu	F10 Save and Exit
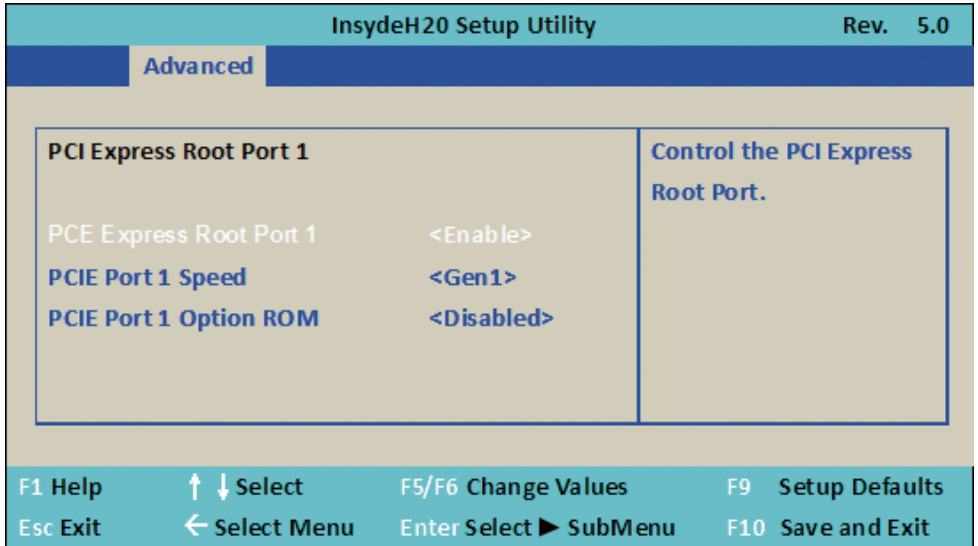
Control the PCI Express Root Port.

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

Select PCI Express port speed.

The optional settings are: Gen1(default), Gen2

Select PCIE TXE ROM support

The optional settings are: Disabled(default), Enabled

4-6-3 Video Configuration

InsydeH20 Setup Utility		Rev. 5.0

Advanced

Vedio Configuration		Select Hardware CRT
		Configuration.
Configure CRT as	\<CRT>	
Configure DDI1 as	\<LVDS>	
Configure LVDS Panel Number as	\<1024 x 768 18bit>	
Aperture Size	\<256MB>	
IGD – DVMT Pre-Allocated	\<64M>	
IGD – DVMT Total Gfx Mem	\<256M>	

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

Configure LVDS Panel Number as

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

Aperture Size

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

IGD - 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: 64(default)/96/128/160/192/224/256/288/320/352/384/416/448/480/512MB

IGD - 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:128M, 256M(default), MAX

4-6-4 Thermal Configuration

InsydeH20 Setup Utility	Rev. 5.0

Advanced

Thermal Configuration Parameters

Critical Trip Point   <110 ℃>

Passive Trip Point   <105 ℃>

This value controls the temperature of The ACPI Critical Trip Point – the point in Which the OS will Shut the system off.

NOTE: 100C is the Plan of Record (POR) For all Intel mobile procesors.

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

Thermal Configuration Parameters

This Value controls the temperature of the ACPI Critical Trip Point, the point in which the OS will

shutdown the system.

Critical Trip point is the shutdown temperature, the default value is 110˚

The CPU frequency will auto reduce when cpu temperature arrived to passive Trip point.

The default of the passive trip point is 105˚

4-6-5 SATA Configuration

```
                    InsydeH20 Setup Utility              Rev.   5.0
   Advanced

   SATA Configuration                              DISABLED: Disables
                                                   SATA Controller.
   SATA Controller                    <Enabled>
   Chipset SATA Mode                  <IDE>        ENABLED: Enables
   SATA Speed                         <Gen1>       SATA Controller.
      IDE Mode                        <Native IDE>
      SATA Port 0 Connected to an ODD <Enabled>
      SATA Port 1 Connected to an ODD <Enabled>

   ? Serial ATA Port 0    [Not Installed]
   ? Serial ATA Port 1    [Not Installed]


 F1 Help          ↑↓ Select      F5/F6 Change Values    F9   Setup Defaults
 Esc Exit         ← Select Menu   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

Chipset SATA Mode

Determine how SATA controller(s) operate.

The optional settings are: IDE Mode(default), AHCI Mode.

SATA Speed

Indicates the maximum speed the SATA controller can support.

The optional settings: Gen1, Gen2(default).

IDE Mode

Legacy IDE or Native IDE MODE,

The optional settings: Legacy IDE or Native IDE(default)

SATA Port 0 Connected to an ODD

Use this item to Enable or Disable SATA Port0 ODD function

The optional settings are: Enabled(default) or Disable

SATA Port 1 Connected to an ODD

Use this item to Enable or Disable SATA Port1 ODD function

The optional settings are: Enabled(default) or Disable

4-6-6 Console Redirection

InsydeH20 Setup Utility	Rev. 5.0

Advanced

Console Redirection Setup

Console Serial Redirect	<Enabled>
Text Mode Resolution	<Force 80x24 (DEL LAST ROW)>
Terminal Type	<VT_100>
Baud Rate	<115200>
Data Bits	<8 Bits>
Parity	<None>
Stop Bits	<1 Bits>
Flow control	<None>

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

Console Serial Redirect

Use this item to enable or disable Console Redirection.

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

Text Mode Resolution

The optional settings are: Force 80x25

Force 80x24(DEL FIRST ROW)

Force 80x24(DEL LAST ROW)

Baud Rate

The optional settings are: 115200(default) , 57600 , 38400 , 19200 , 9600 , 4800 , 2400 , 1200

Data Bits

The optional settings are: 8 Bits(default) , 7 Bits

Parity

The optional settings are: None(default) , Even , Odd

Stop Bits

The optional settings are: 1 Bit(default) , 2 Bits

Flow Control

The optional settings are: None(default) , RTS/CTS , XON/XOFF

4-6-7 ACPI Table/Features Control

InsydeH20 Setup Utility	Rev. 5.0
Advanced	

ACPI Table/Features Control	Enable/Disable ACPI S3 State
DSDT – ACPI S3 \<Disabled\>	

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

ACPI Table/Features Control

Select ACPI sleep state the system will enter when the SUSPEND button is pressed.

The optional settings: DSDT - ACPI S3 (Suspend to RAM), Enabled or Disabled(default)

4-7 Security

InsydeH20 Setup Utility	Rev. 5.0
Main **Advanced** **Security** **Power** **Boot** **Exit**	

Supervisor Password Not Install	Install or Change the password and the length of password must be greater than one character.
Set Supervisor Password	

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

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

Wake on LAN

Determines the action taken when the system power is off and the PCI power management Enable wake up event occurs.

The optional settings: Enabled, Disabled(default)

Power Button

Instant OFF(default) : The system will be turn off directly when push the power button.

Delay 4 sec : The system will be turn off when push the power button for 4 sec.

4-9 Boot

```
                        InsydeH20 Setup Utility                    Rev.   5.0
    Main    Advanced    Security    Power    Boot    Exit


                                                            Select boot type to
                                                            Dual type, Legacy
    Boot Type                    <Dual Boot Type>           type or UEFI type.
    Quiet Boot                   <Enabled>
    EFI/Legacy Device Order      <Legacy device first>


    ▶EFI
    ▶Legacy




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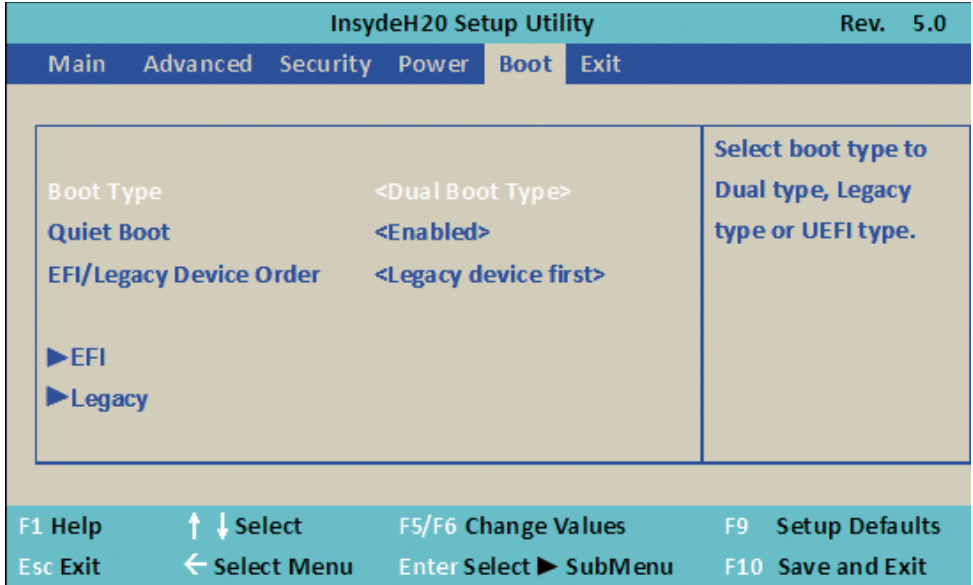
Boot type

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

Quiet Boot

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

EFI / Legacy Device order

Determine EFI device first or legacy device first.

The optional settings: EFI device first, Legacy device first(default), smart mode

4-9-1 Legacy

InsydeH20 Setup Utility	Rev. 5.0

Boot

Boot Device Priority

Normal Boot Menu   <Normal>

▶Boot Type Order
▶USB

Select Normal Boot Option Priority or Advance Boot Option Priority.

F1 Help	↑↓ Select	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	← Select Menu	Enter Select ▶ SubMenu	F10 Save and Exit
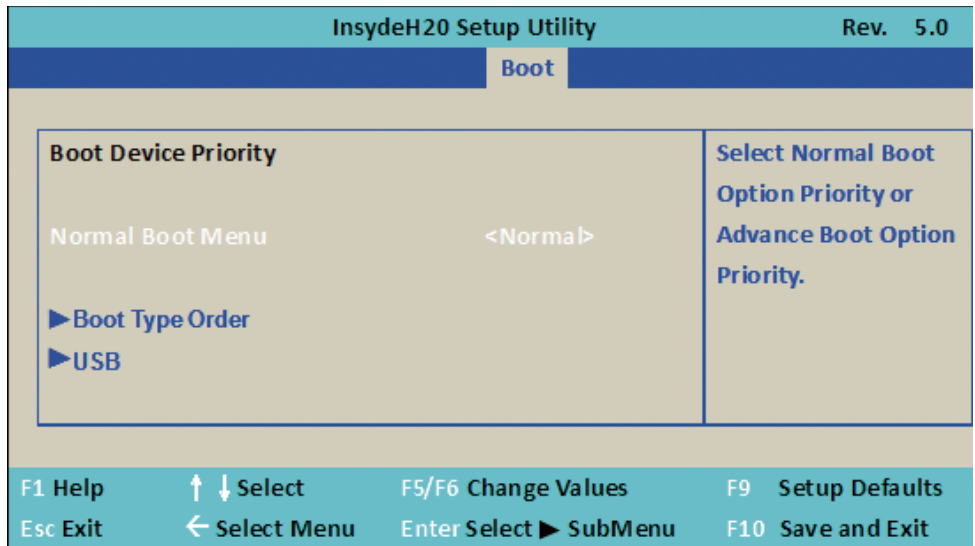
Normal Boot Menu

Select Normal Boot option priority or Advance Boot option priority.

The optional settings: Normal(default), Advance

4-9-2 Boot Type Order

```
                      InsydeH20 Setup Utility                Rev.   5.0

                                    Boot


    Boot Type Order


    USB
    Hard Disk Drive
    CD/DVD-ROM Drive
    Others




   F1 Help          ↑ ↓ Select      F5/F6 Change Values    F9   Setup Defaults
   Esc Exit         ← Select Menu    Enter Select ▶ SubMenu  F10  Save and Exit
```
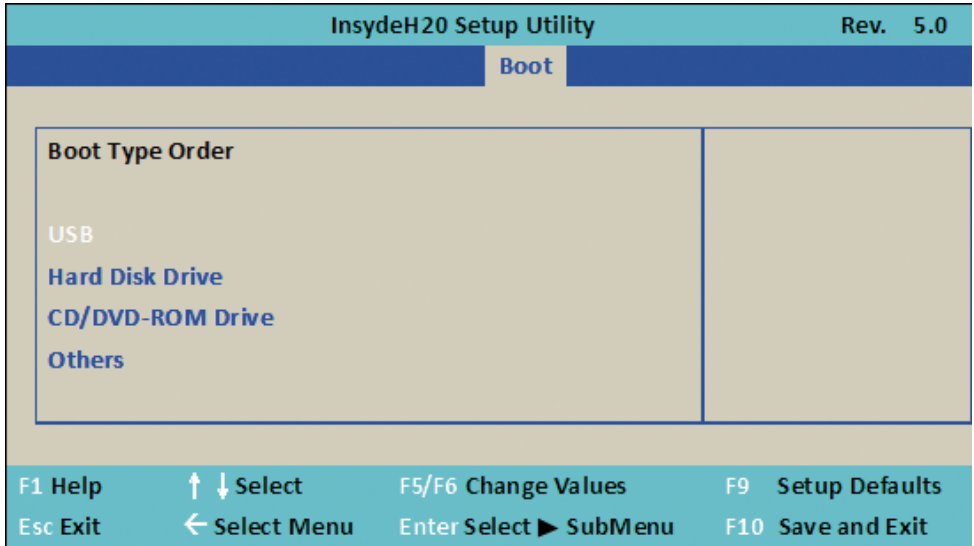
Boot Type Order

Setting the boot type priority.

The default settings is 1.USB drive 2.Hard Disk Drive 3.CD/DVD ROM drive   4.Others

4-10 EXIT

```
                    InsydeH20 Setup Utility              Rev.  5.0
   Main   Advanced   Security   Power   Boot   Exit


                                              Exit system setup and
                                              save your changes.
   Exit Saving Changes
   Save Change Without Exit
   Exit Discarding Changes
   Load Optimal Defaults
   Discard Changes




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

Exit Saving Changes

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

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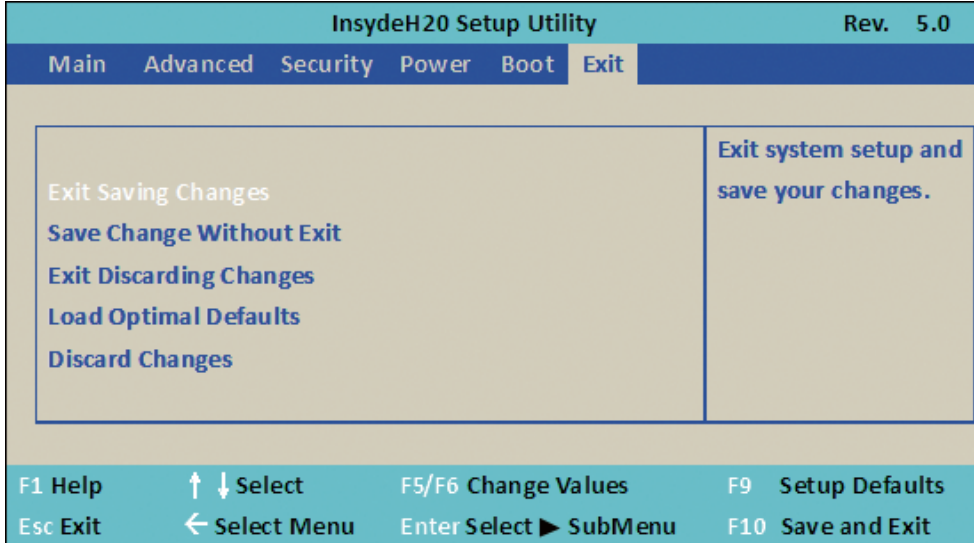
This item allows user to saving the changes but doesn't restart.

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.

Discard Changes

Use this item to cancel all the setup options.

4-11 Device Manager

Please press the key F10 when boot up to go into the Device Manager menu

```
                        Device Manager

    Devices List                      About Super IO Setting
    SIO FINTEK81801U
    SIO FINTEK81216D/DG



    Press ESC to exit.



    ↑ ↓=Move Highlight   <Enter>=Select Entry   Esc=Discard Changes
```
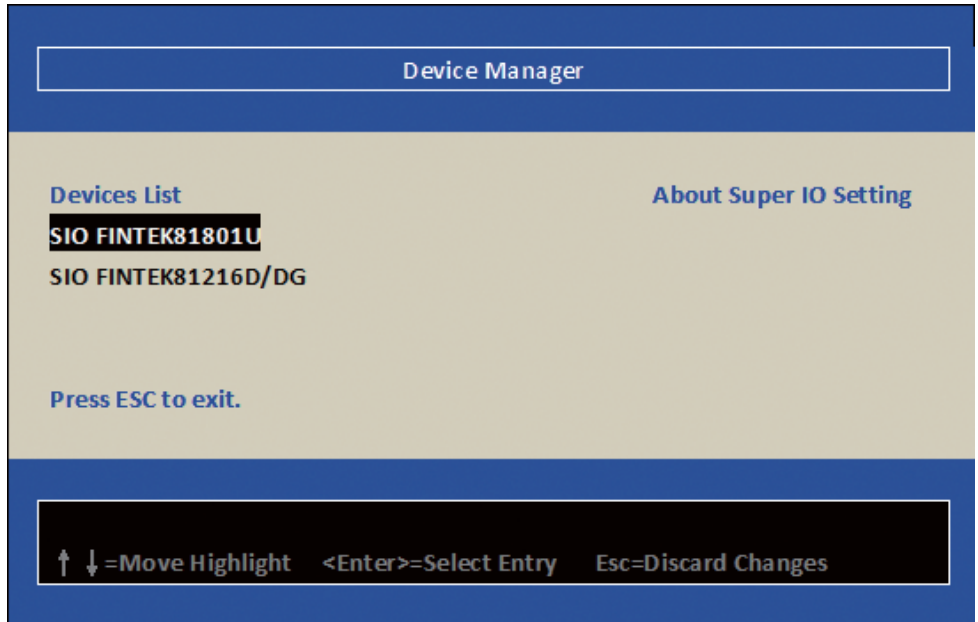
Serial Port 1/2 Configuration
Please refer section 4-11-1

Serial Port 3/4/5/6 Configuration
Please refer section 4-11-2

4-11-1 SIO FINTEK81801U

```
                        SIO FINTEK81801U

Serial Port 1              <Enable>        Configure Serial port
    Base I/O Address       <3F8>           using options : Disable
    Interrupt              <IRQ4>          No configuration
    Serial Mode            <RS232 driver>  [Enable] User
Serial Port 2              <Enable>        configuration    [Auto]
    Base I/O Address       <2F8>           EFI/OS chooses
    Interrupt              <IRQ3>          configuration
    Serial Mode            <RS232 driver>
Power Fail                 <Keep State>
Hardware Monitor
                                           _____


                        F9=Reset to Defaults
    ↑ ↓=Move Highlight   <Enter>=Select Entry   Esc=Discard Changes
```

Serial Port 1/2

Use this item to enable or disable serial port (COM1 or COM2).

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

Serial Port 1 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 2 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 Mode

RS232 driver(default) : When hardware select to RS232 or RS422 mode,

please enter to RS232 driver.

RS485 driver : When hardware select to RS485 mode,

please enter to RS485 driver. It is the auto flow function for RS485.

Power Failure

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

[Keep state] Restores the system to the status before power failure or interrupt occurred. (default)

[Always on] Leaves the computer in the power on state.

[Always off] Leaves the computer in the power off state.

4-11-2 Hardware Monitor

Hardware Monitor

Voltage

VCC3	3.344 V
VCORE	0.560 V
VGFX	0.920 V

Temperature

CPU (℃/℉)	77℃/170 ℉
System (℃/℉)	55℃/131 ℉

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.

4-11-3 SIO FINTEK81216D/DG

```
                        SIO FINTEK81801U

Serial Port    3             <Enable>         Configure Serial port
    Base I/O Address         <3E8>            using options : Disable
    Interrupt                <IRQ10>          No configuration
    Serial Mode              <RS232 driver>   [Enable] User
    Sharing Mode             <PCI>            configuration    [Auto]
Serial Port 4                <Enable>         EFI/OS chooses
    Base I/O Address         <2E8>            configuration
    Interrupt                <IRQ10>
    Serial Mode              <RS232 driver>
    Sharing Mode             <PCI>


                 F9=Reset to Defaults
   ↑ ↓ =Move Highlight   <Enter>=Select Entry   Esc=Discard Changes
```

Serial Port 3/4

Use this item to enable or disable serial port (COM3, COM4, COM6 for Touch).

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

Serial Port 3 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=3,4,5,6,7,10,11
IO=2E8h; IRQ=3,4,5,6,7,10,11
IO=3F8h; 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 4 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 Mode

RS232 driver: When hardware select to RS232 or RS422 mode, (COM1 to COM3 default RS232)

please enter to RS232 driver.

RS485 driver : When hardware select to RS485 mode,

please enter to RS485 driver. It is the auto flow function for RS485. (COM4 default RS485)

Sharing Mode

This item is OS serial port with sharing mode issue.

If use Linux OS this item should be ISA mode

If use Windows OS this item should be PCI mode

Note: Windows don't set to ISA mode.

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 7(32bit/64bit) / Windows 8/8.1(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).
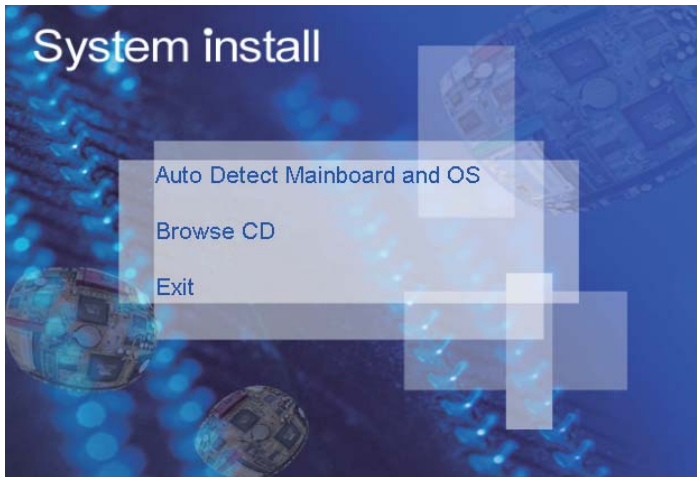
Make your selection from SYSTEM INSTALL menu:

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

Bay Trail for Windows 8.1 (x64)

1. INF   4. LAN

2. VGA   5. TXE

3. HD Audio   6. MBI

Back to previous page

Bay Trail for Windows 7 (x64)

1. INF
2. VGA
3. Serial IO
4. xHCI

5. HD Audio
6. LAN
7. TXE Patch
8. TXE

Back to previous page

1. INF   Install Intel Baytrail chipset driver
2. VGA   Install onboard VGA driver
3. Serial IO   Install Serial IO driver (FOR Win 7 only)
4. xHCI   Install Intel USB 3.0 xHCI driver (FOR Win 7 only)
5. HD Audio   Install HD Audio Codec driver
6. MBI   Install MBI driver (FOR Win 8/8.1 only)
7. LAN   To the LAN driver Readme file
8. TXE Patch   Install Intel TXE patch (FOR Win 7 only)
9. TXE   Install Intel TXE driver
Each selection is illustrated below:

5-1 INF Install Intel Baytrail Chipset Driver (example for WIN8 64bit)
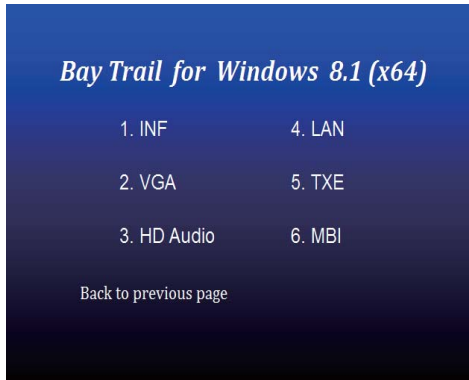
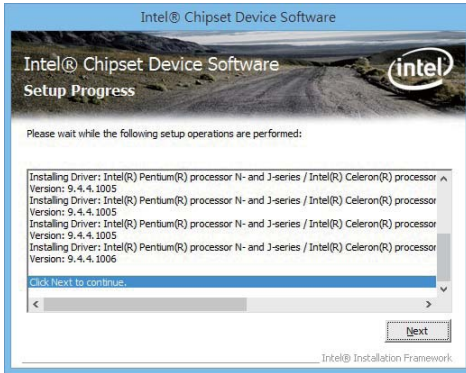**1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "INF".**

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

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

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

5. Click "Next"

6. Click "Finish" & restart computer.

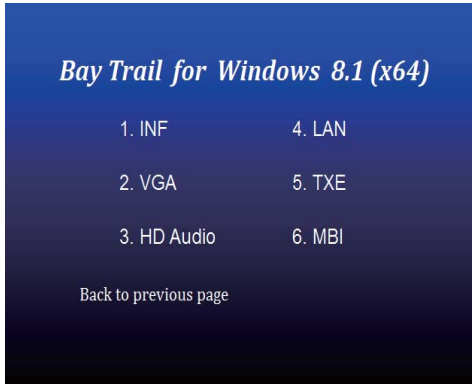**NOTE: SYSTEM INSTALL will auto detect file path**

For Windows 7 64/32-bit,

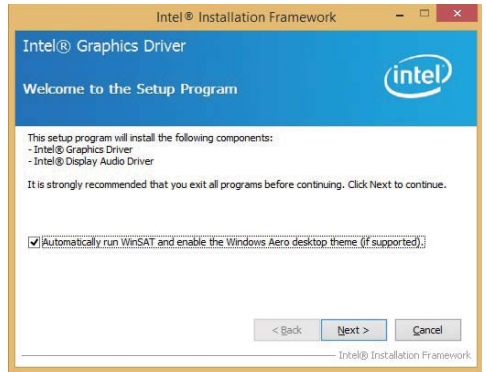**X:\driver\INTEL\BAY\INF\WIN7\infinst_autol.exe**

For Windows 8 / 8.1 32/64-bit
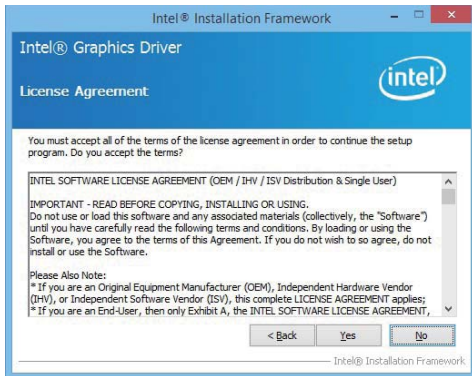
X:\driver\INTEL\BAY\INF\WIN_8_64\infinst_autol.exe

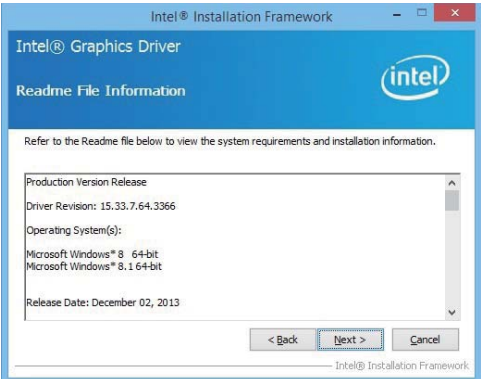## 5-2 VGA Install Intel Baytrail VGA Driver (example for WIN8 64bit)

Bay Trail for Windows 8.1 (x64)

1. INF   4. LAN

2. VGA   5. TXE

3. HD Audio   6. MBI

Back to previous page

Intel® Installation Framework

Intel® Graphics Driver

Welcome to the Setup Program

This setup program will install the following components:
- Intel® Graphics Driver
- Intel® Display Audio Driver

It is strongly recommended that you exit all programs before continuing. Click Next to continue.

☑ Automatically run WinSAT and enable the Windows Aero desktop theme (if supported).

< Back   Next >   Cancel

Intel® Installation Framework

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

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

Intel® Installation Framework

Intel® Graphics 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,

< Back   Yes   No

Intel® Installation Framework

Intel® Installation Framework

Intel® Graphics Driver

Readme File Information

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

Production Version Release

Driver Revision: 15.33.7.64.3366

Operating System(s):

Microsoft Windows* 8 64-bit
Microsoft Windows* 8.1 64-bit

Release Date: December 02, 2013

< Back   Next >   Cancel

Intel® Installation Framework
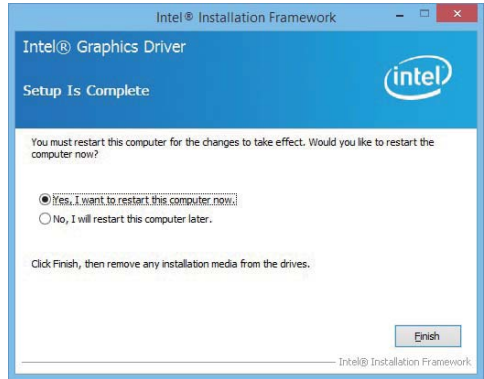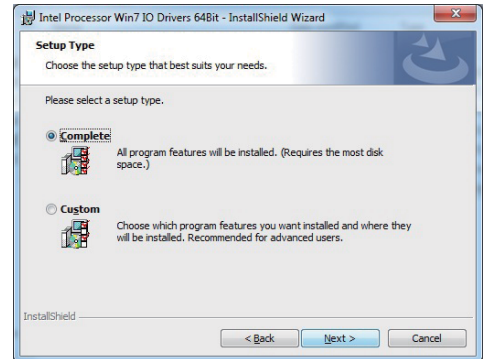
3. At the "License Agreement" screen, Click "Yes"

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

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

6. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32-bit,
X:\driver\INTEL\BAY\VGA\WIN_7_32\Setup.exe
For Windows 7 64-bit
X:\driver\INTEL\BAY\VGA\WIN_7_64\Setup.exe
For Windows 8 / Windows 8.1 32-bit
X:\ \driver\INTEL\BAY\VGA\WIN_8_32\Setup.exe
For Windows 8 / Windows 8.1 64-bit
X:\driver\INTEL\BAY\VGA\WIN_8_64\Setup.exe

5-3 Serial IO Install Driver Baytrail Serial IO Driver
(FOR Windows 7 only)

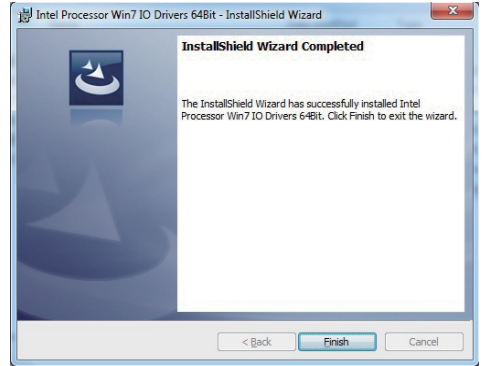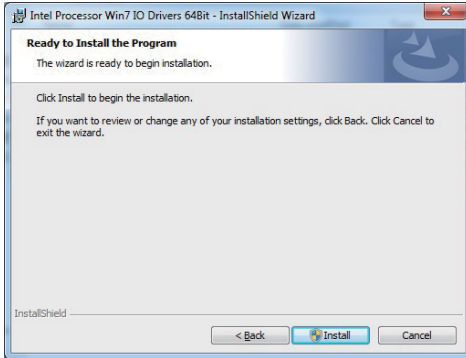**1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "Serial IO".**

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

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

**4. At the "Setup type" screen, select "complete" and Click "Next".**

5. At the "Ready to install the program" screen,
Click "Install"

6. Click "Finish" and restart computer

NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32-bit,
X:\driver\INTEL\BAY\SERIALIO\WIN7_32Bit.msi
For Windows 7 64-bit
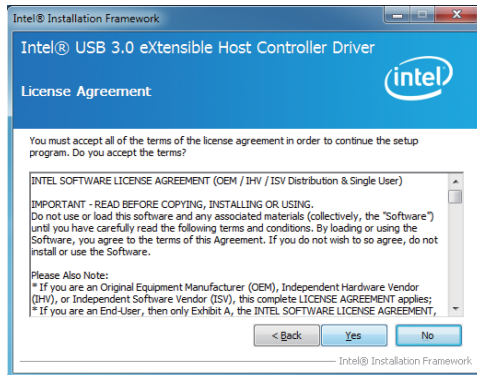**X:\driver\INTEL\BAY\SERIALIO\Win7_64Bit.msi**

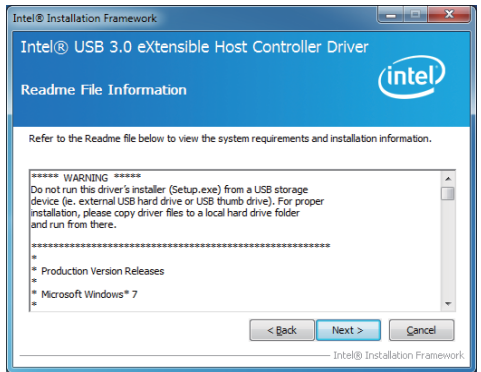# 5-4 xHCI Install Intel USB 3.0 xHCI Driver (FOR Windows 7 only)

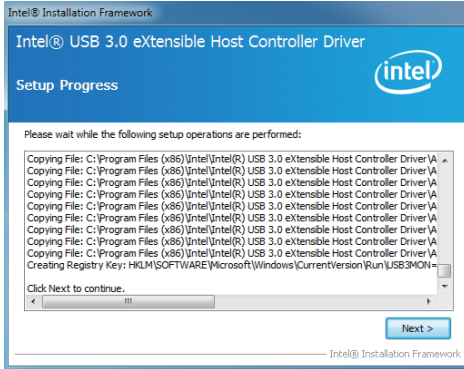1. At the"AUTOMATIC DRIVER INSTALLATION menu" screen, Click "USB 3.0
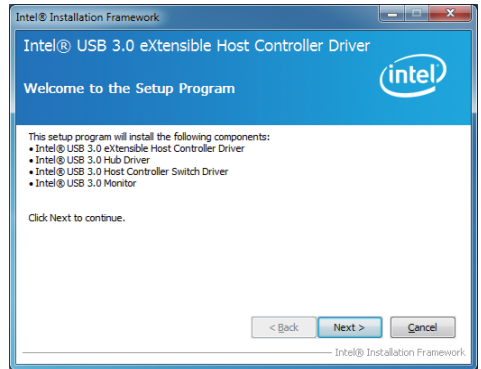
2. At the "Intel® USB 3.0 extensible Host Controller Driver" screen, Click" Next.

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

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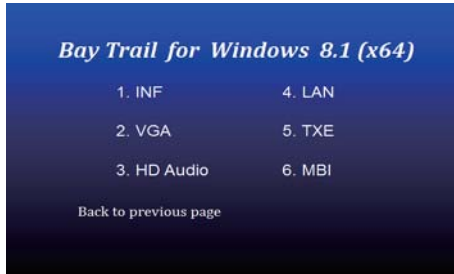
5. At the "Setup Progress" screen, Click "Next".

6. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path

For Windows 7 32 / 64-bit,

X:\driver\INTEL\BAY\XHCI\Driver_Installer\Setup.exe

5-5 HD Audio Install High Definition Audio Driver
(example for WIN8 64bit)

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

2. Click "Next".

3. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32 / 64-bit, Windows 8/8.1 32 / 64-bit
X:\driver\INTEL\BAY\SOUND\Win7_Win8_Win81_R273.exe

5-6 MBI Install Intel MBI Driver (FOR Win 8/8.1 only)

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

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

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

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

5. Click "Finish" to restart computer

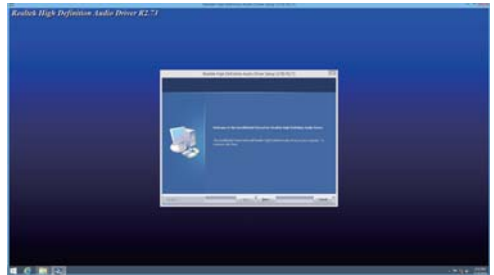**NOTE: SYSTEM INSTALL will auto detect file path**
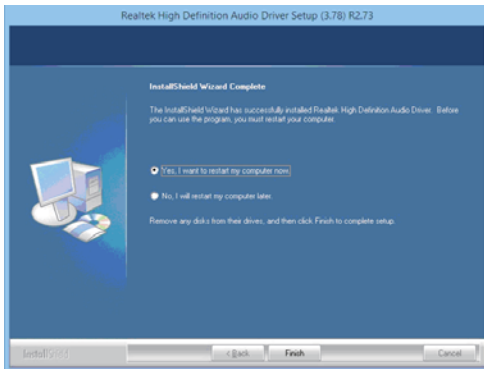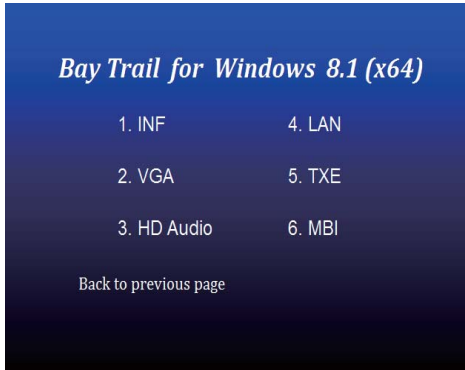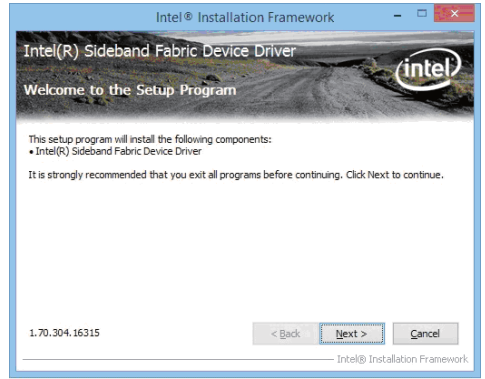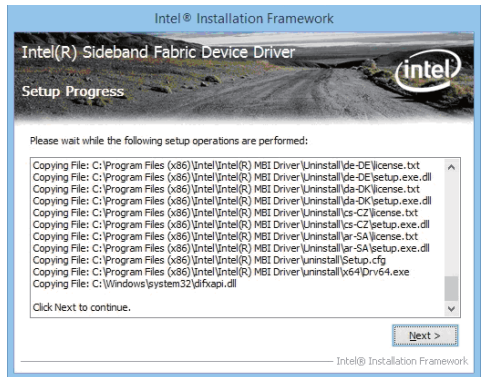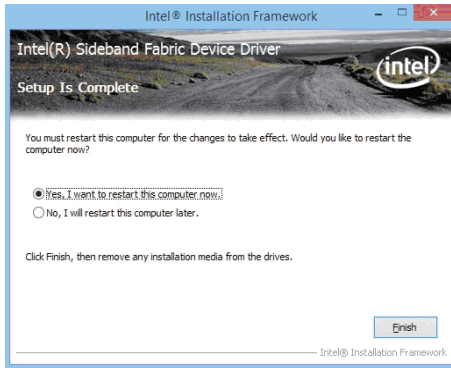**For Windows 8/8.1 32 / 64-bit,**
X:\driver\INTEL\BAY\MBI\Setup.exe
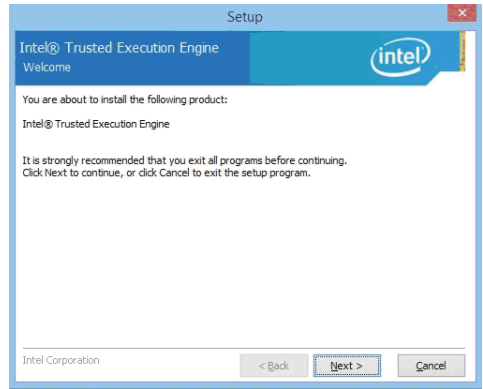
5-7 TXE Install Intel TXE driver
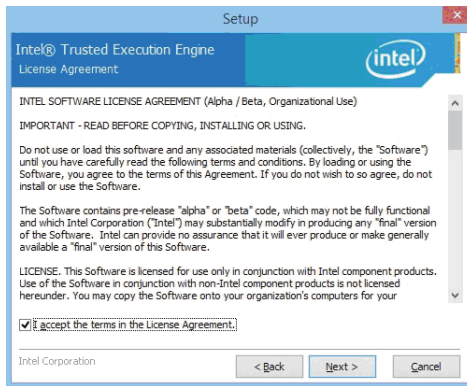# 5-7-1 TXE Install for WIN8/WIN8.1

Bay Trail for Windows 8.1 (x64)

1. INF   4. LAN

2. VGA   5. TXE

3. HD Audio   6. MBI

Back to previous page

Setup

Intel® Trusted Execution Engine
Welcome

You are about to install the following product:

Intel® Trusted Execution Engine

It is strongly recommended that you exit all programs before continuing.
Click Next to continue, or click Cancel to exit the setup program.

Intel Corporation   < Back   Next >   Cancel

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

2. At the "Setup" screen, Click "Next".

Setup

Intel® Trusted Execution Engine
License Agreement

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☑ I accept the terms in the License Agreement.

Intel Corporation   < Back   Next >   Cancel

Setup

Intel® Trusted Execution Engine
Confirmation

You are about to install the following components:

- Intel® Trusted Execution Engine
- Intel® Dynamic Application Loader
- Intel® Identity Protection Technology
- Intel® Trusted Connect Service

Intel Corporation   < Back   Next >   Cancel

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

4. Click "Next".

5. Click "Finish" & restart computer

NOTE: SYSTEM INSTALL will auto detect file path
For Windows 8 32 / 64-bit,
X:\driver\INTEL\BAY\TXE\WIN_8\SetupTXE.exe
For Windows 8.1 32 / 64-bit,
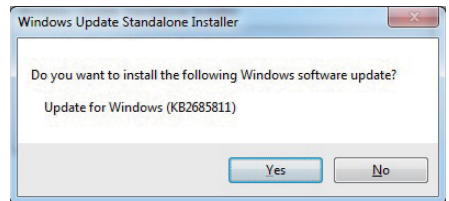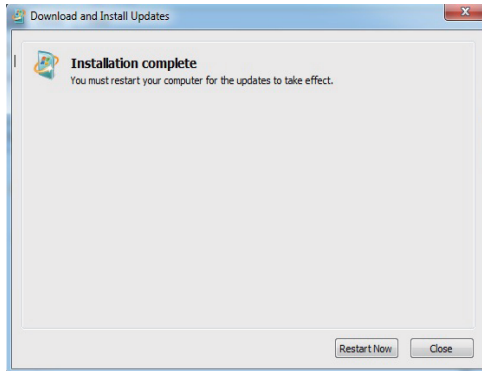**X:\driver\INTEL\BAY\TXE\WIN_8.1\SetupTXE.exe**

5-7-2 TXE Install for WIN7
Please install PXE Patch first.

Bay Trail for Windows 7 (x64)

1. INF	5. HD Audio
2. VGA	6. LAN
3. Serial IO	7. TXE Patch
4. xHCI	8. TXE

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Windows Update Standalone Installer

Do you want to install the following Windows software update?

Update for Windows (KB2685811)

Yes   No

1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE Patch "

2. At the "Windows Update" screen, Click "Yes".

Download and Install Updates

Installation complete
You must restart your computer for the updates to take effect.

Restart Now   Close

Bay Trail for Windows 7 (x64)

1. INF	5. HD Audio
2. VGA	6. LAN
3. Serial IO	7. TXE Patch
4. xHCI	8. TXE

Back to previous page

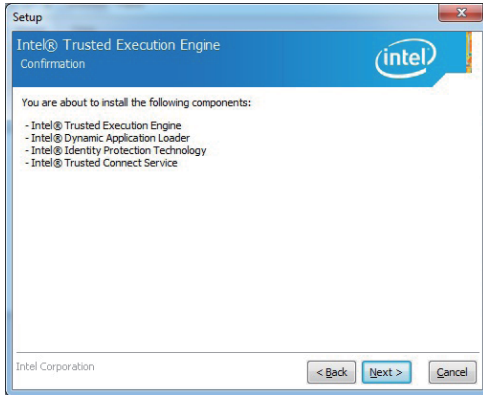**3. Click "Finish" & restart computer**

4. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE "
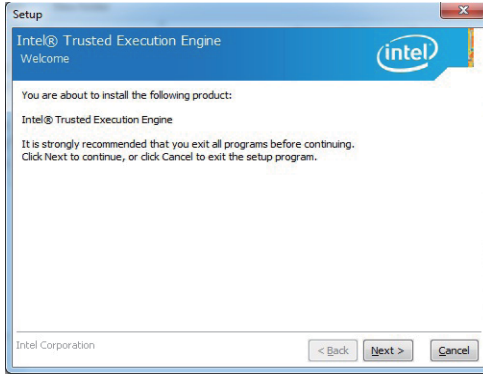
5. At the "TXE Setup" screen, Click "Next".

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

7. Click "Next".
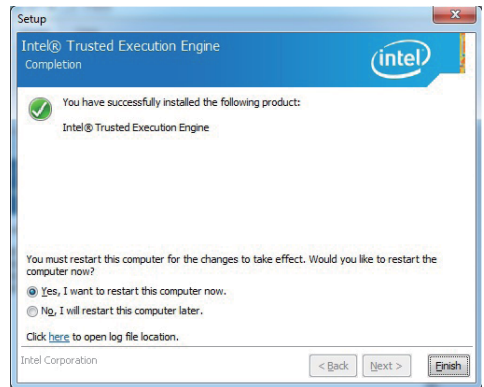
8. Click "Finish" & restart computer

NOTE: SYSTEM INSTALL will auto detect file path

For Windows 7 32 / 64-bit,

TXE Patch

X:\driver\INTEL\BAY\TXE\WIN_7\kmdf-1.11-Win-6.1-x86.msu

X:\driver\INTEL\BAY\TXE\WIN_7\kmdf-1.11-Win-6.1-x64.msu

TXE

X:\driver\INTEL\BAY\TXE\WIN_7\SetupTXE.exe

X:\driver\INTEL\BAY\TXE\WIN_7\SetupTXE.exe

5-8 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 2I385AC 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 2I385ACA2.ROM –BIOS -ALL

2I385ACA2.ROM is the file name of the latest BIOS.

It may be 2I385ACA1.ROM or 2I385ACA2.ROM, etc.

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

By Bay Trail series mainboard, please type

X:\: H2OFFT-D.EXE 2I385ACA2.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 A: Power Consumption Test

Condition (2I385A/CW--E3815)

Item	Spec
CPU	Atom E3815 1.46 Ghz
Memory	DDR3L 1066 2GB
Operating System	Windows 7 / SP1
Test Program	3D Mark 06
HDD 2.5" SATA	Slim Type HDD
mSATA	24GB/32GB

Test Result for reference only !

Model Name	Storage	Power off	Start up		Operation Maximum	Shut down Maximum	In Put Voltage
			Maximum	Stable			
2I385A	Slim Type HDD	0.10A	0.75A	0.51A	0.89A	0.69A	12V
	mSATA	0.10A	0.59A	0.49A	0.76A	0.58A	12V
2I385CW	Slim Type HDD	0.14A	0.91A	0.67A	0.99A	0.78A	12V
		0.09A	0.47A	0.33A	0.52A	0.40A	24V
	mSATA	0.14A	0.78A	0.61A	0.84A	0.66A	12V
		0.09A	0.42A	0.31A	0.46A	0.35A	24V

The power consumption depends on your device choice!

Condition (2I385A/CW--E3845)

Item	Spec
CPU	Atom E3845 1.91 Ghz
Memory	DDRL 1333 4GB
Operating System	Windows 7 / SP1
Test Program	3D Mark 06
HDD 2.5" SATA	Slim Type HDD
mSATA	24GB/32GB

Test Result for reference only !

Model Name	Storage	Power off	Start up		Operation Maximum	Shut down Maximum	In Put Voltage
			Maximum	Stable			
2I385A	Slim Type HDD	0.10A	0.96A	0.66A	1.13A	0.80A	12V
	mSATA	0.09A	0.81A	0.55A	1.06A	0.72A	12V
2I385CW	Slim Type HDD	0.14A	1.06A	0.68A	1.22A	0.90A	12V
		0.09A	0.57A	0.35A	0.63A	0.47A	24V
	mSATA	0.14A	0.95A	0.62A	1.10A	0.82A	12V
		0.09A	0.50A	0.32A	0.57A	0.42A	24V

The power consumption depends on your device choice!

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)