

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**

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2I385A/2I385CW

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User Manual edition 0.1, SEP. 07. 2017

Warning !

1. Battery
Batteries on board are consumables.
The life time of them are not guaranteed.
2. Fless 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 from 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-Fair" 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.

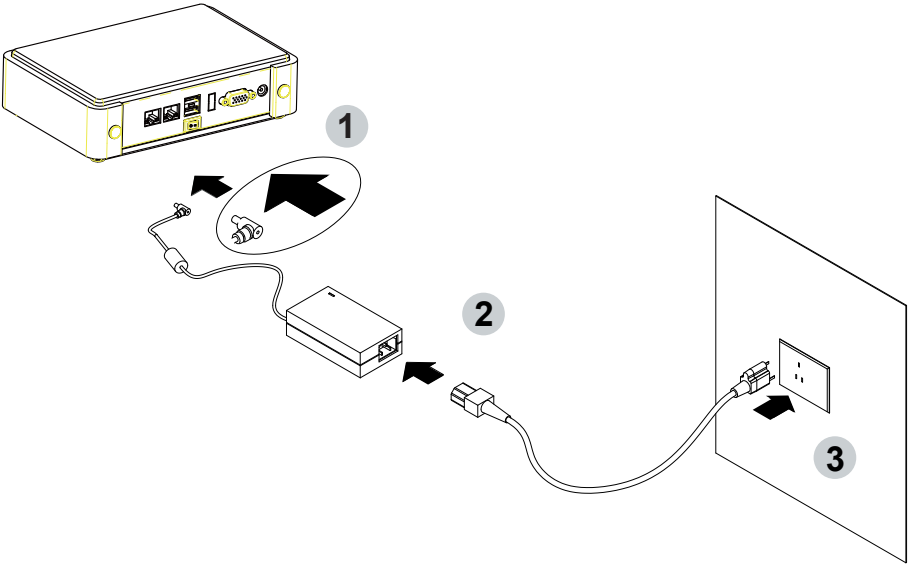
Remark 1:

Always insert/unplug the DC-in horizontally & directly to/from the motherboard. DO NOT twist, it is designed to fit snugly.

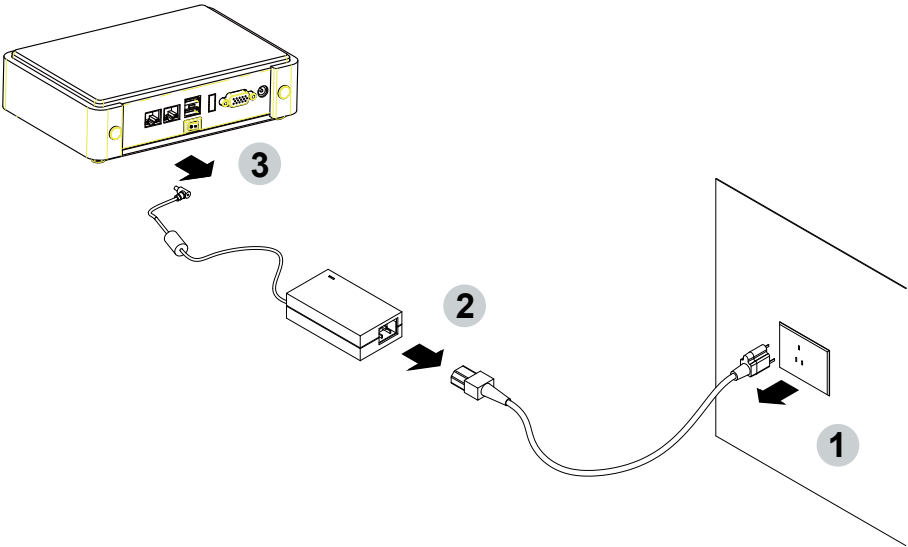
Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



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 ($\pm 1V$) (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

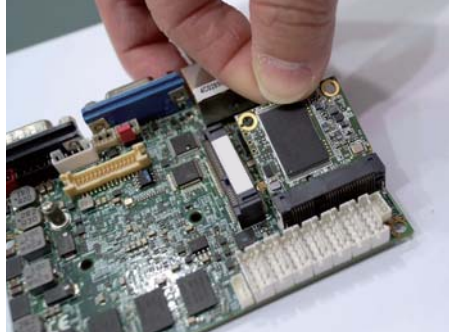
1. **SOC:** Intel BayTrail-I E3815 1.46GHz / E3845 1.91GHz / E3825 1.33GHz,
Intel BayTrail-D J1900 2.0 GHz (Quad Core)
(Single / Quad / Dual core)
2. **Memory:** DDR3L SDRAM 2GB / 4GB Memory,
data transfer rate of 1066MT/s / 1333MT/s
3. **Graphics:** Intel BayTrail-I / BayTrail-D Integrated Graphics 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/4 Ω or 1.5W/8 Ω 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 ($\pm 1V$) (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.

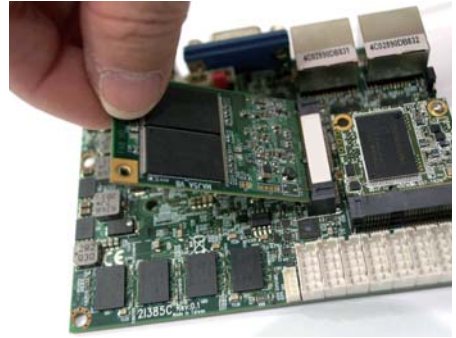


1-4 Directions for installing the Mini Card

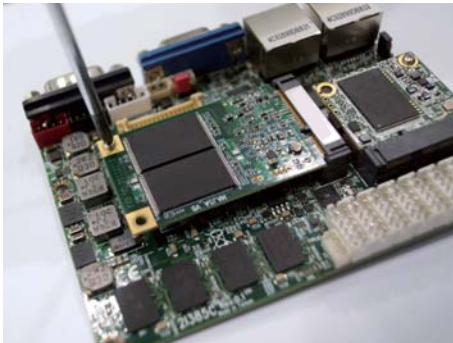
1. Unscrew the screw on the board



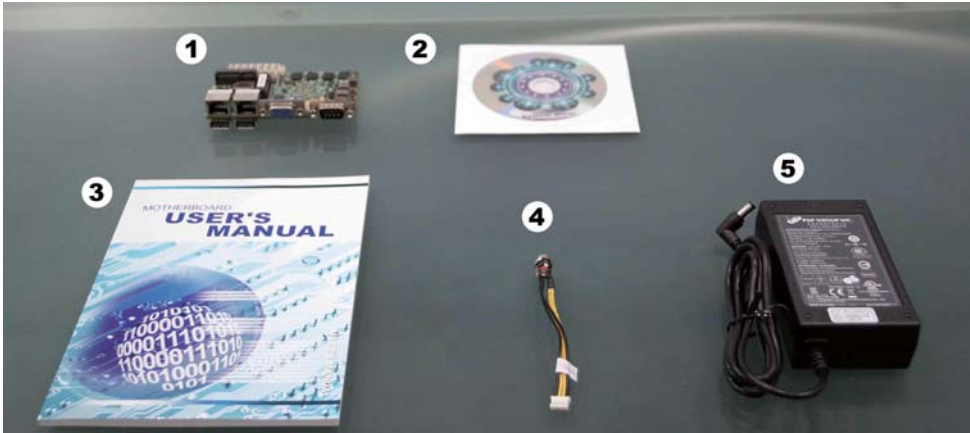
2. Plug in the Mini Card in a 45 angle



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

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

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

Chapter-2

Hardware Installation

2-1 Unpacking Precaution

This chapter provides the information how to install the hardware of 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-IN12 V 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:

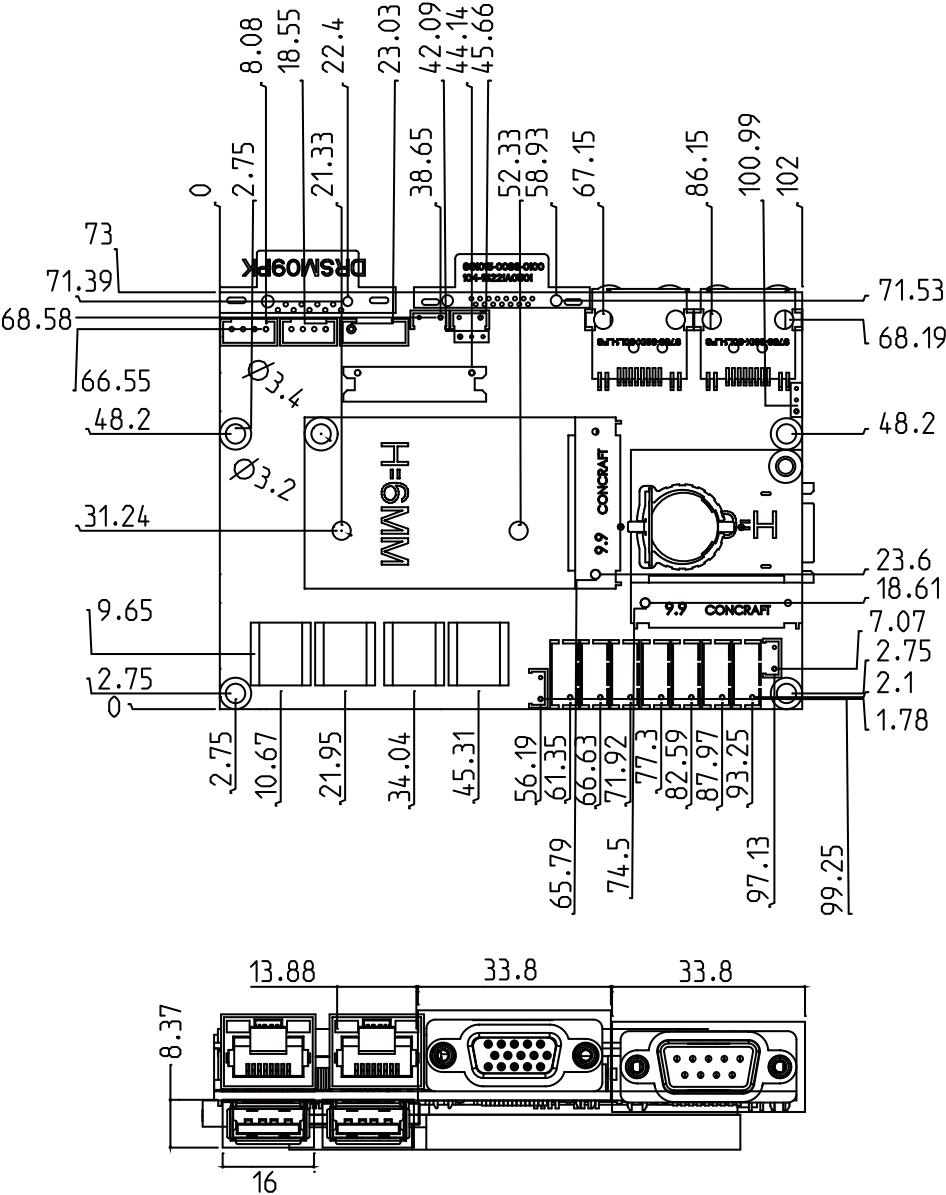
1. Ground yourself by a grounded wrist strap at all times when you handle the 2I385A/2I385CW.
Well secure the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please put on and connect the strap before handling the 2I385A/2I385CW for harmlessly discharge any static 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

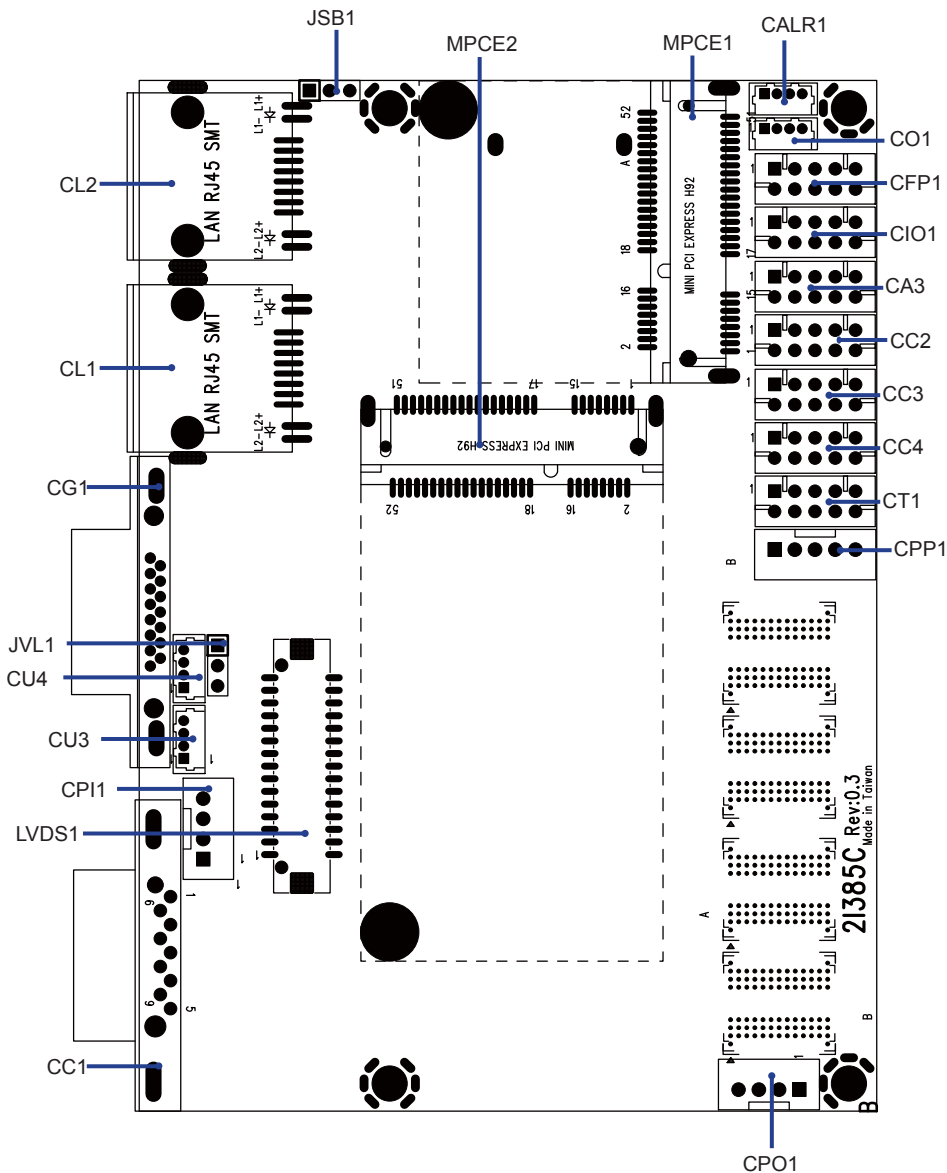
First of all, please follow all necessary steps of section 2-1 to protect 2I385A/2I385CW from electricity discharge. With reference to section 1-5 please check the delivery package again with following steps:

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.

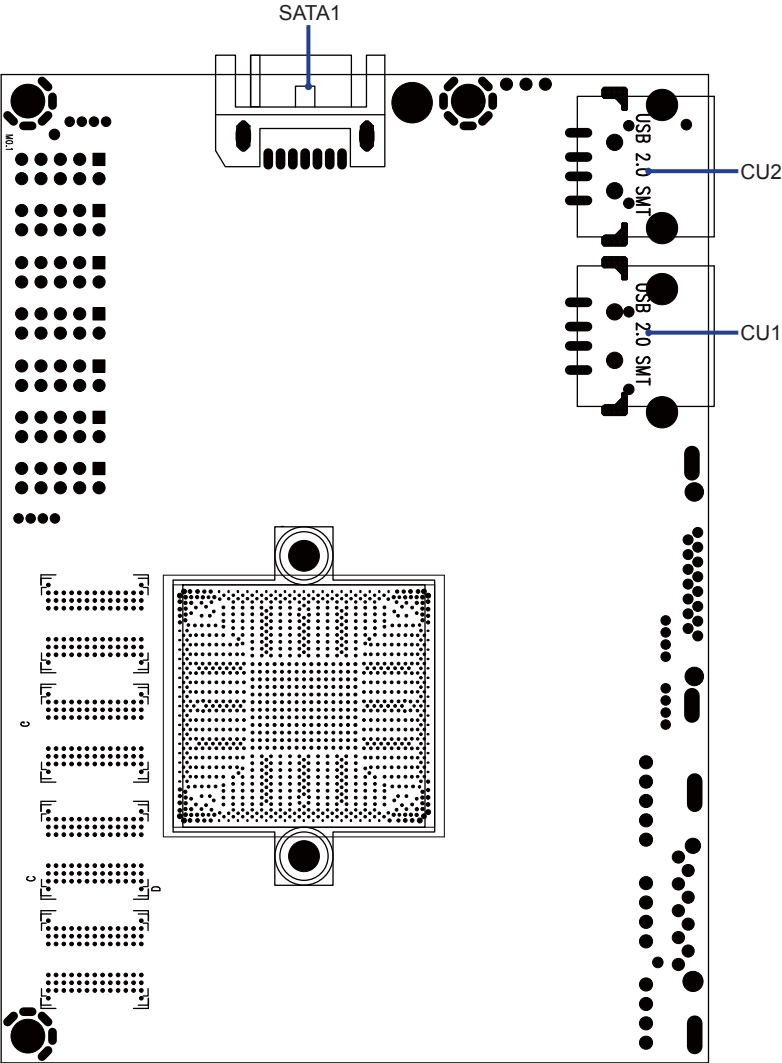
2-3 Dimension-2I385A/2I385CW



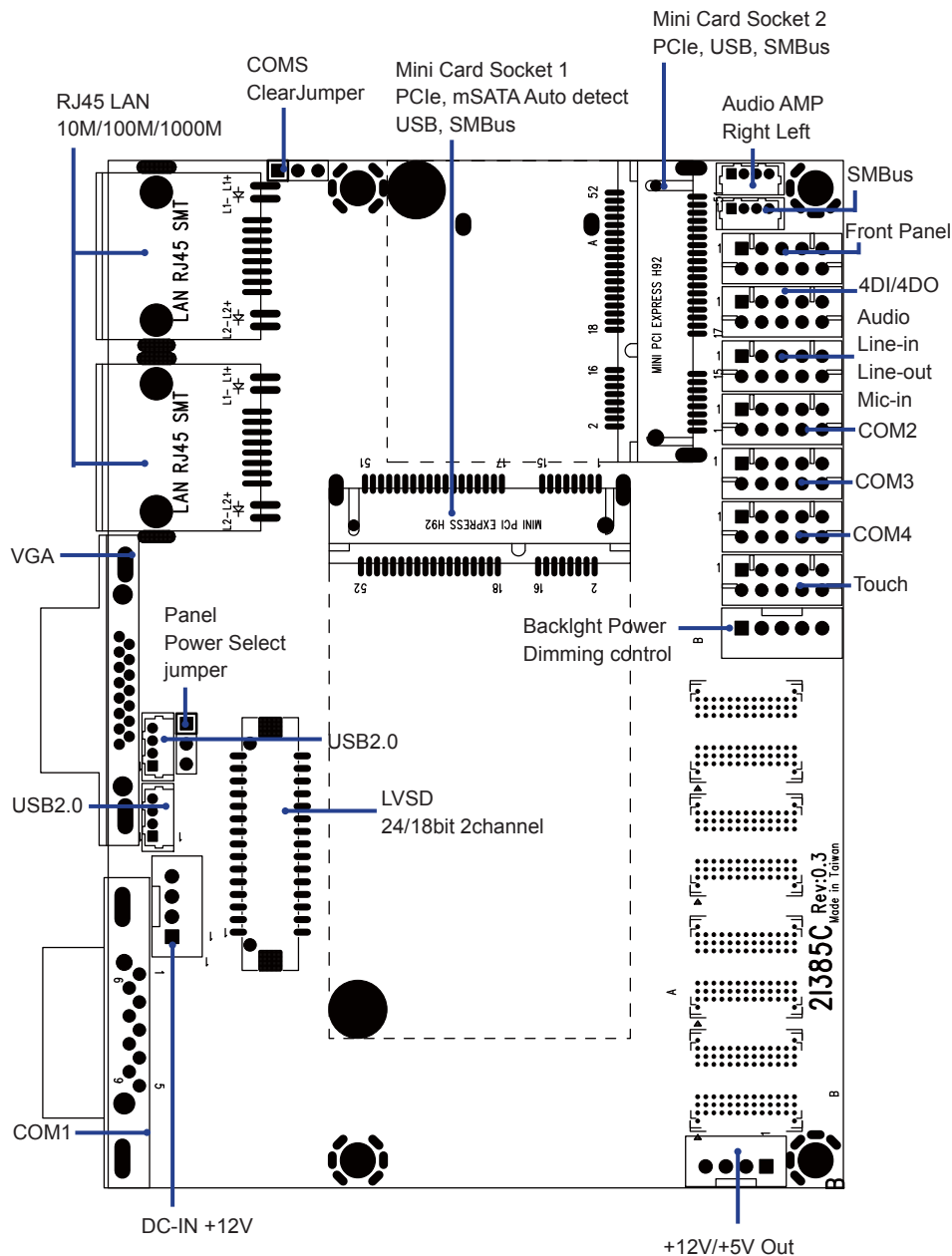
2-4 Layout-2I385A/2I385CW-Connector and Jumper



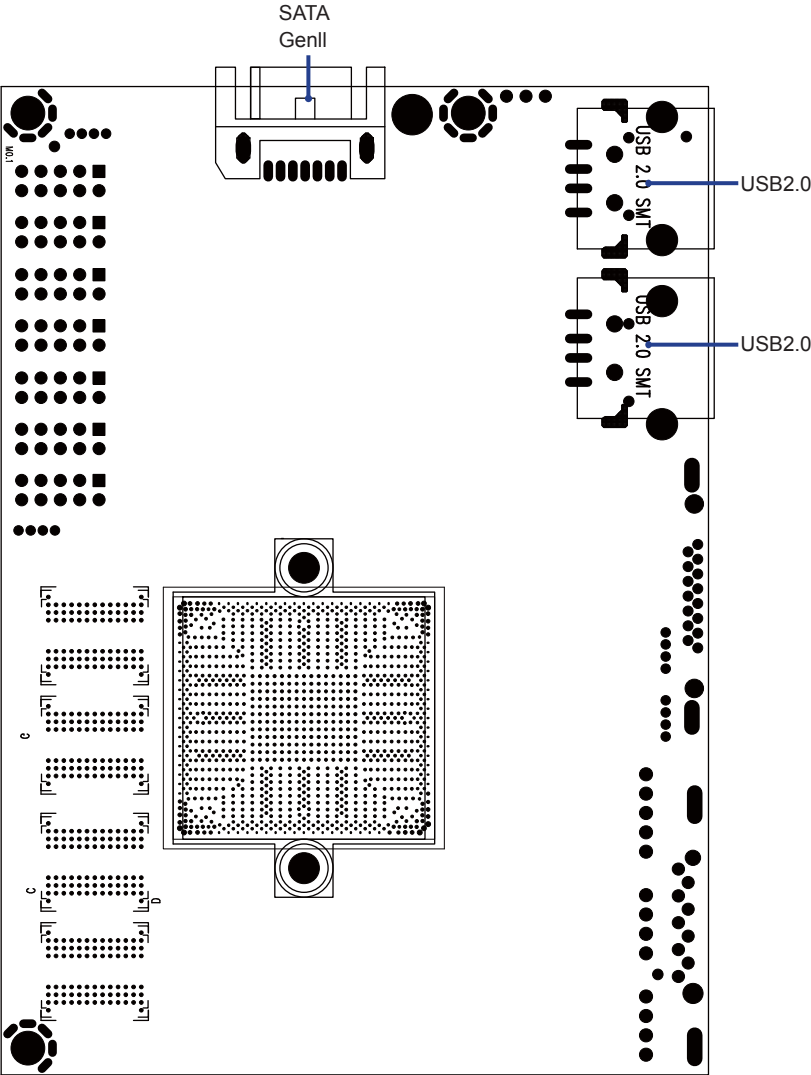
2-4-1 Layout-2I385A/2I385CW-Connector and Jumper Bottom



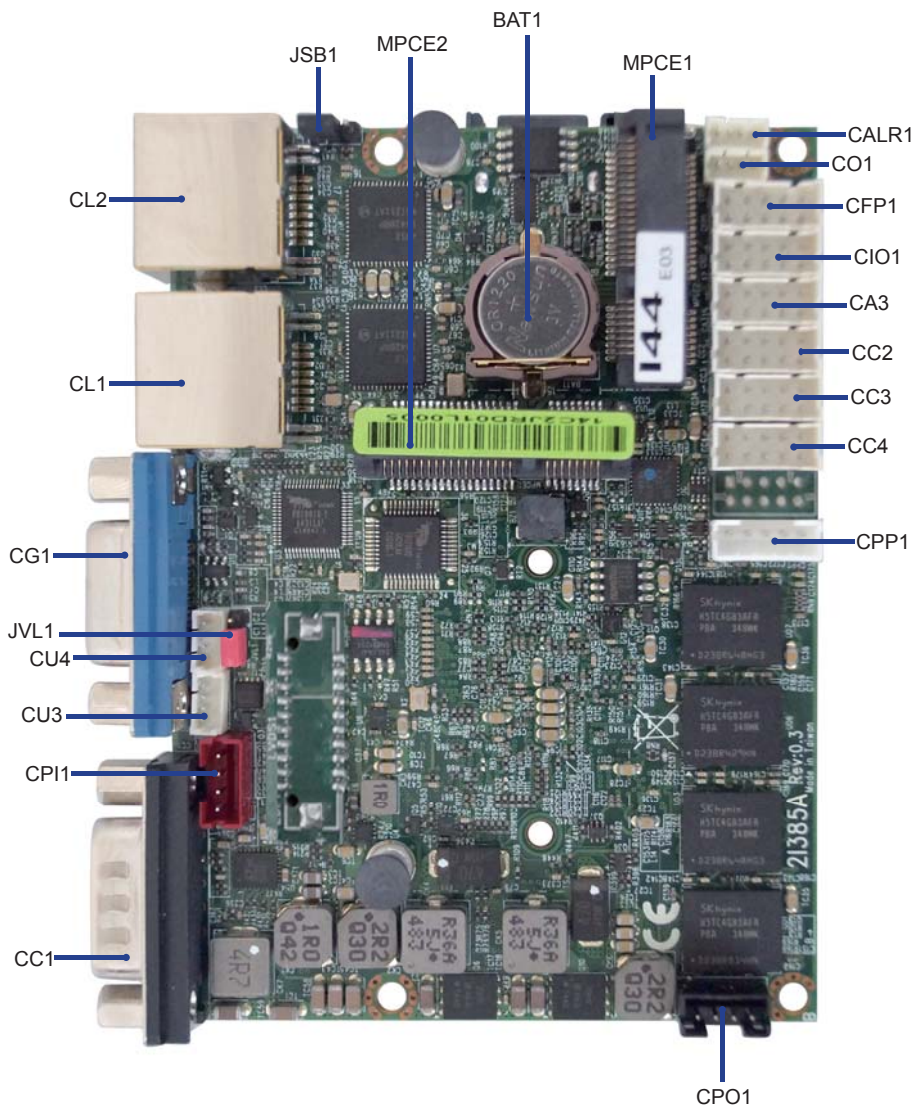
2-4-2 Layout-2I385A/2I385CW-Function MAP



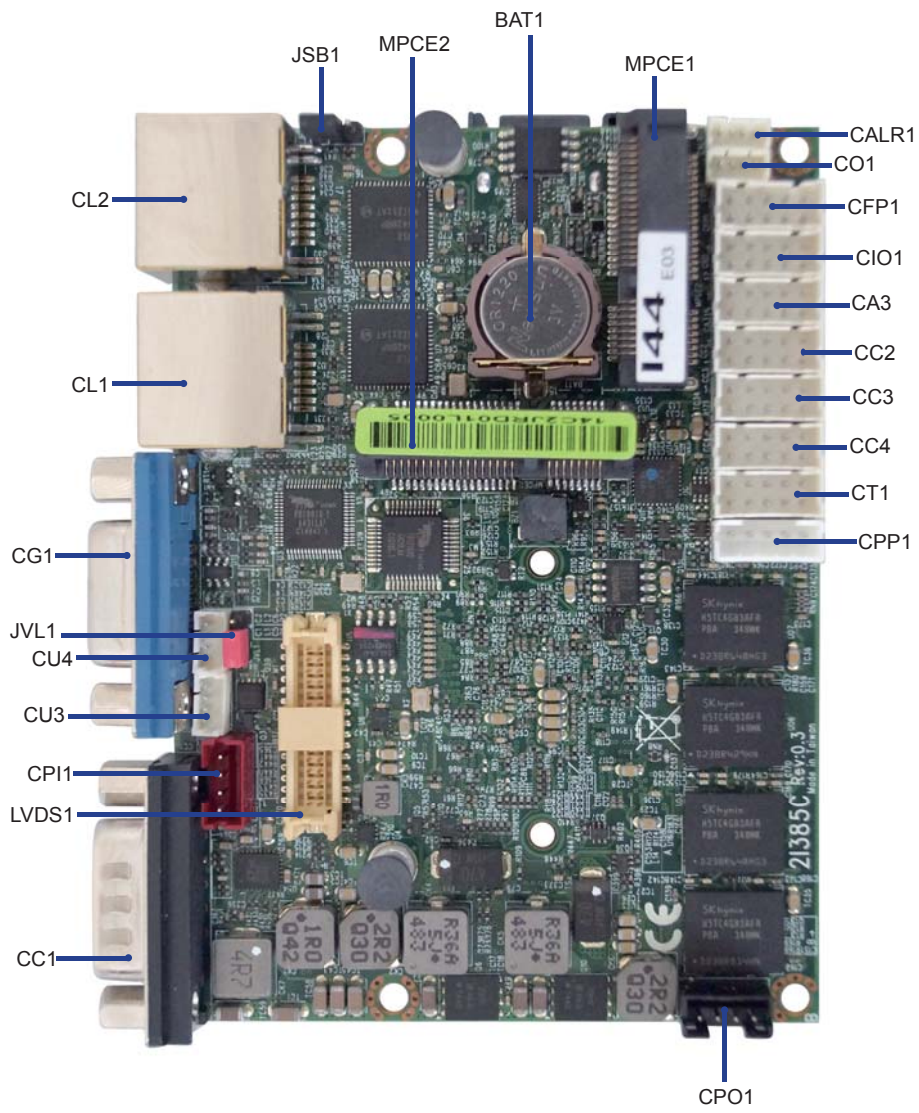
2-4-3 Layout-2I385A/2I385CW-Function MAP Bottom



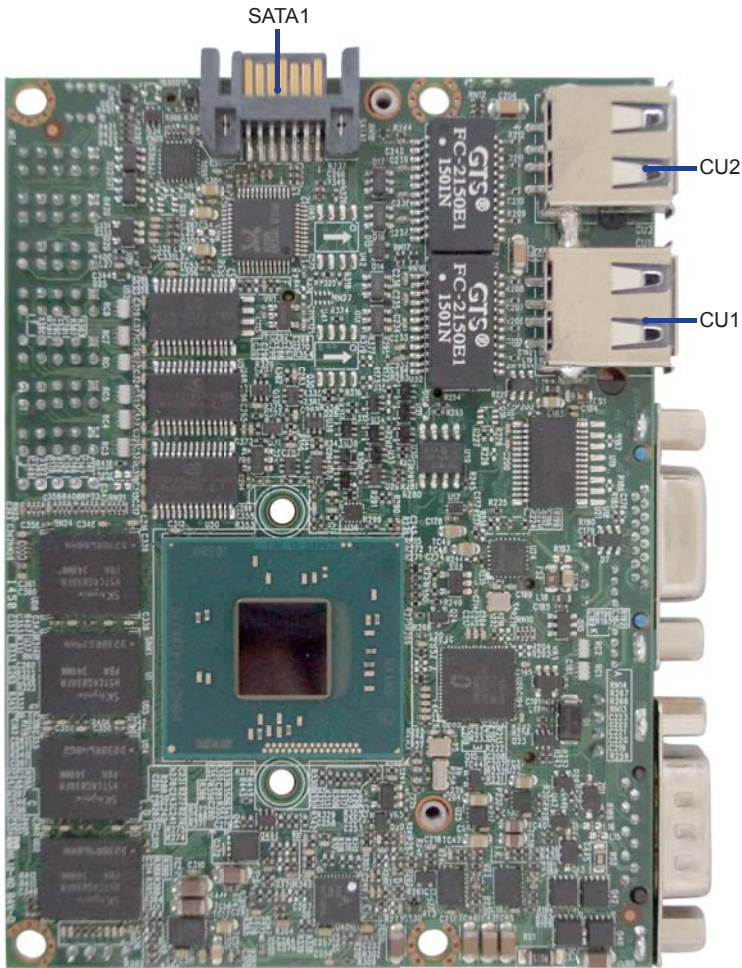
2-5 Diagram- 2I385A



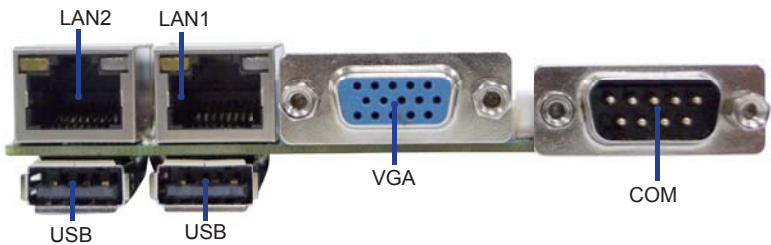
2-5-1 Diagram- 2I385CW



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.

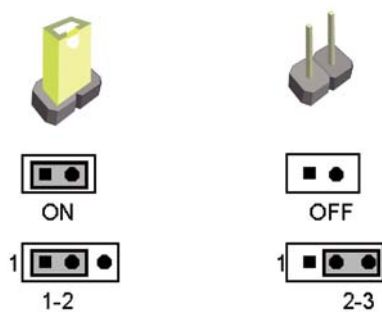


Figure 2.2

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 pin 2 of JSB1 to store the CMOS data.

To clear the CMOS, follow the procedures below:

- 1. Turn off the system and unplug teh AC power
- 2. Remove DC 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**

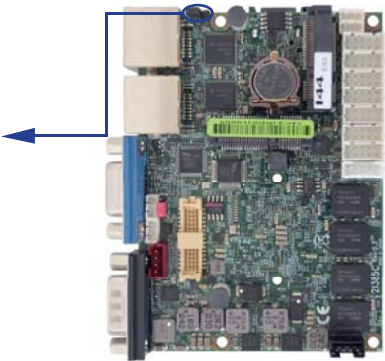
JSB1



*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: I²C Bus 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: USB2.0 Dual port Type A connector

CU2: USB2.0 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

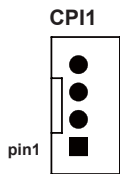
MPCE2: Half size mini card port 2 sockets 52pin

3-2 DC Power Input

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

PIN NO.	Description
1	GND
2	DC-IN
3	DC-IN
4	GND

Note: Very important check DC-in Voltage



3-3 CMOS Battery connector

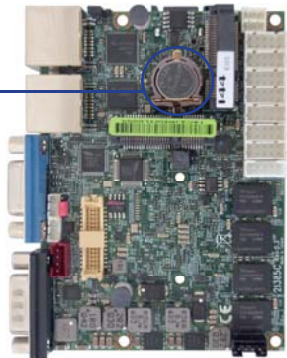
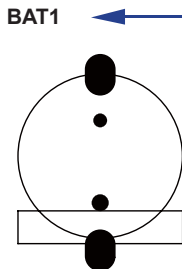
- BAT1: 3V Battery hold 2pin

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

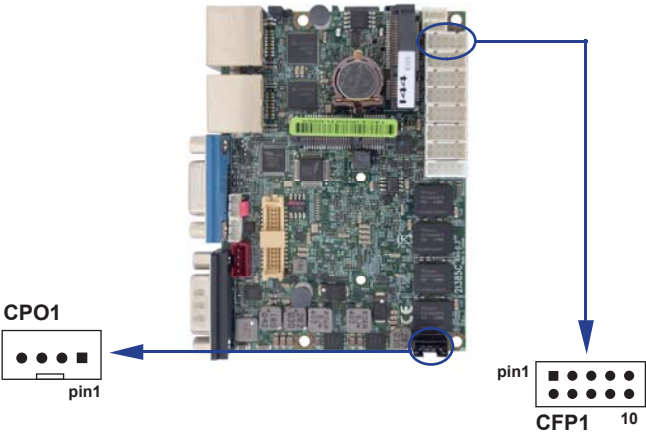


3-4 DC+12V /+5 Voltage Power output (4pin 2.0mm Wafer)(Black)

● CPO1: +12V/+5V DC voltage output

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

* Note: Attention! Check Device Power in spec



3-5 Front Panel Pin Header

● CFP1 Front Panel connector 2x5pin (2.0mm) wafer

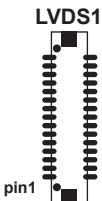
PIN NO.	Description	PIN NO.	Description
1	Power button pin	2	Power button GND
3	Reset pin	4	Reset GND
5	Power LED -	6	Power LED +
7	HDD LED-	8	HDD LED+
9	LAN LED-	10	LAN LED+

3-6 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.

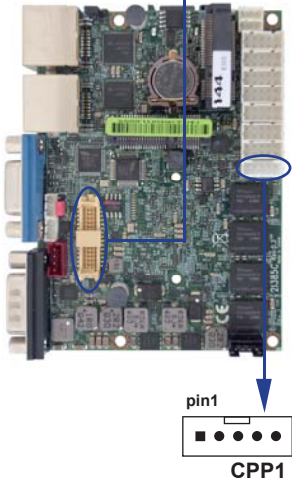


3-7 Panel Inverter power

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

PIN NO.	Description
1	+12V
2	GND
3	PWM dimming
4	ENBK1 (3.3V)
5	ENBK1 (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.



3-8 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.

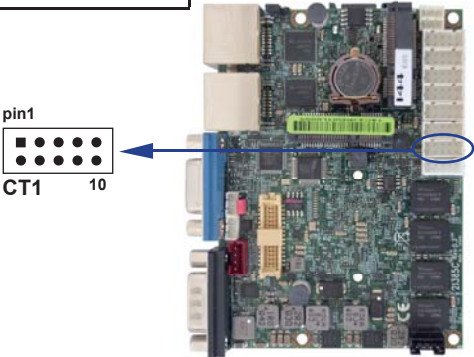
● For 4- wire type pin define

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



3-9 Audio interface

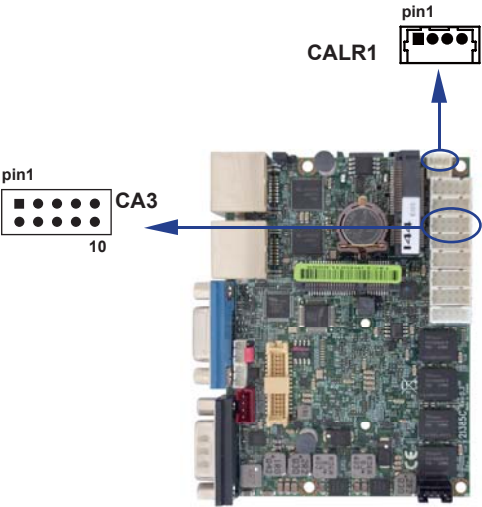
● CA3: Line-out/Line-in/Mic-in/SPDIF-out 2x5 pin (2.0mm) Wafer

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

3-10 Audio Amplifier

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

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



3-11 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: 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.

● 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)

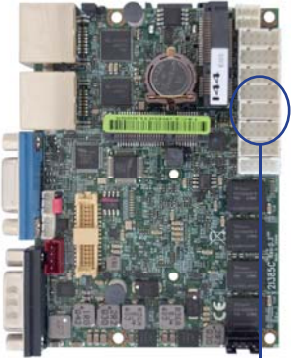
PIN NO.	Description	PIN NO.	Description
1	RS422 TX-	6	NC
2	RS422 TX+	7	NC
3	RS422 RX+	8	NC
4	RS422 RX-	9	NC
5	GND		

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



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

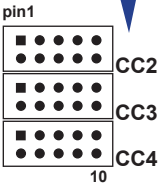
PIN NO.	Description	PIN NO.	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	+5V



● 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

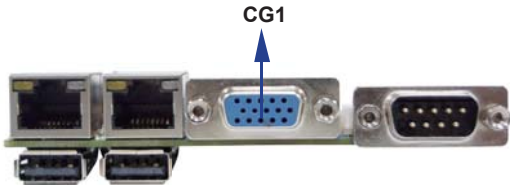
Note: 1. CC2/CC3 connector default RS232 function, OEM RS485
2. CC4 connector default RS485 function, OEM RS232
3. BIOS need setting to RS485 mode



3-12 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

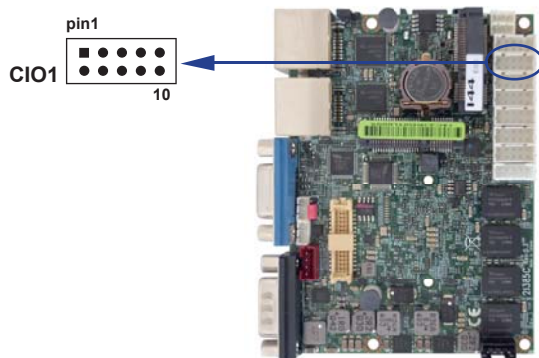


3-13 Digital Input / Output

• 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 10K Ω to +5V
2. If use need isolate circuit to control external device
3. F75111N-1 I²C bus address 0x9c



• WDT For F75111N I²C 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) VOH=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.

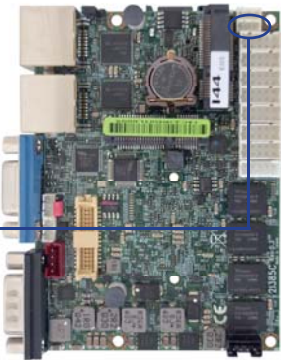
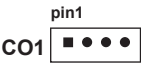
Note: If want to SDK support. Please contact to sales window.

Please refer to page 82 for APPENDIX C: F75111N I²C DIO DECICE

3-14 I²C Bus Interface

- CO1: I²C Bus 4pin (1.25mm)Wafer

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



3-15 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



3-16 USB Interface

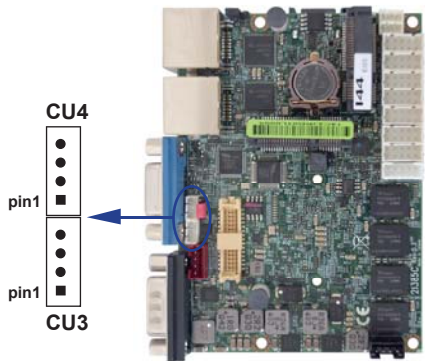
● CU1/CU2: USB2.0 Port Type A

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



● CU3/CU4: USB2.0 Port (1x4pin 1.25mm Wafer)

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

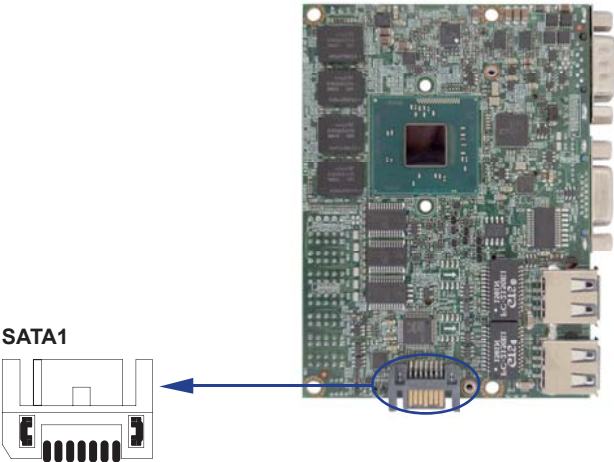


3-17 SATA Interface

• **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.



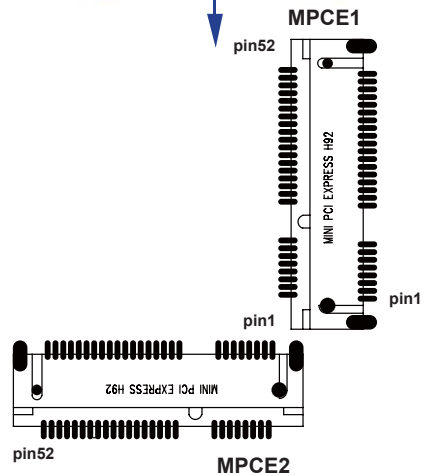
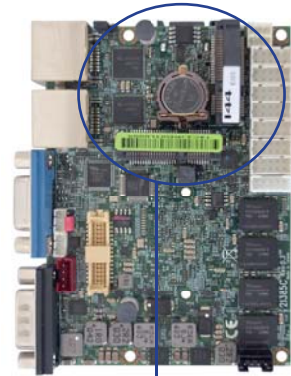
3-18 PCI Express Mini card

●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	KEY	KEY	KEY
17	NC	18	GND
19	NC	20	NC
21	GND	22	Reset
23	PCIe-RX-/mSATA-RX+	24	+3.3V
25	PCIe-RX+/mSATA-RX-	26	GND
27	GND	28	+1.5V
29	GND	30	SMB-CLK
31	PCIe-TX-/mSATA-TX-	32	SMB-DATA
33	PCIe-TX+/mSATA-TX+	34	GND
35	GND	36	USB-DATA-
37	GND	38	USB-DATA+
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	mSATA/PCIe detect	52	+3.3V



Note: 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.

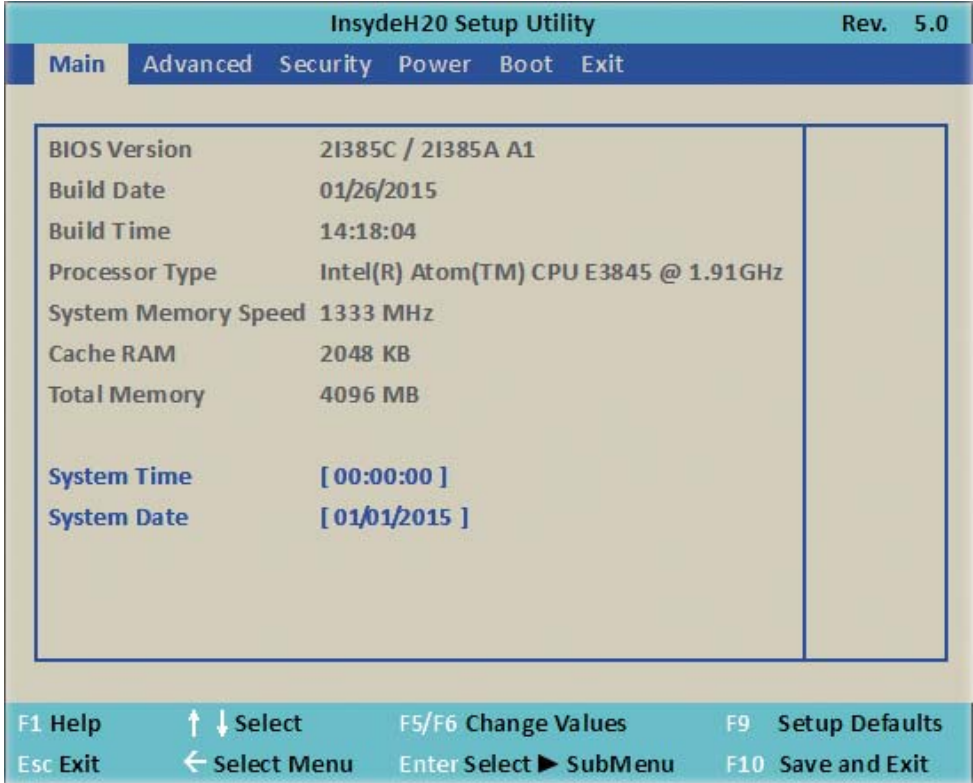
Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

4-1 Enter Setup

Power on the computer and press 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

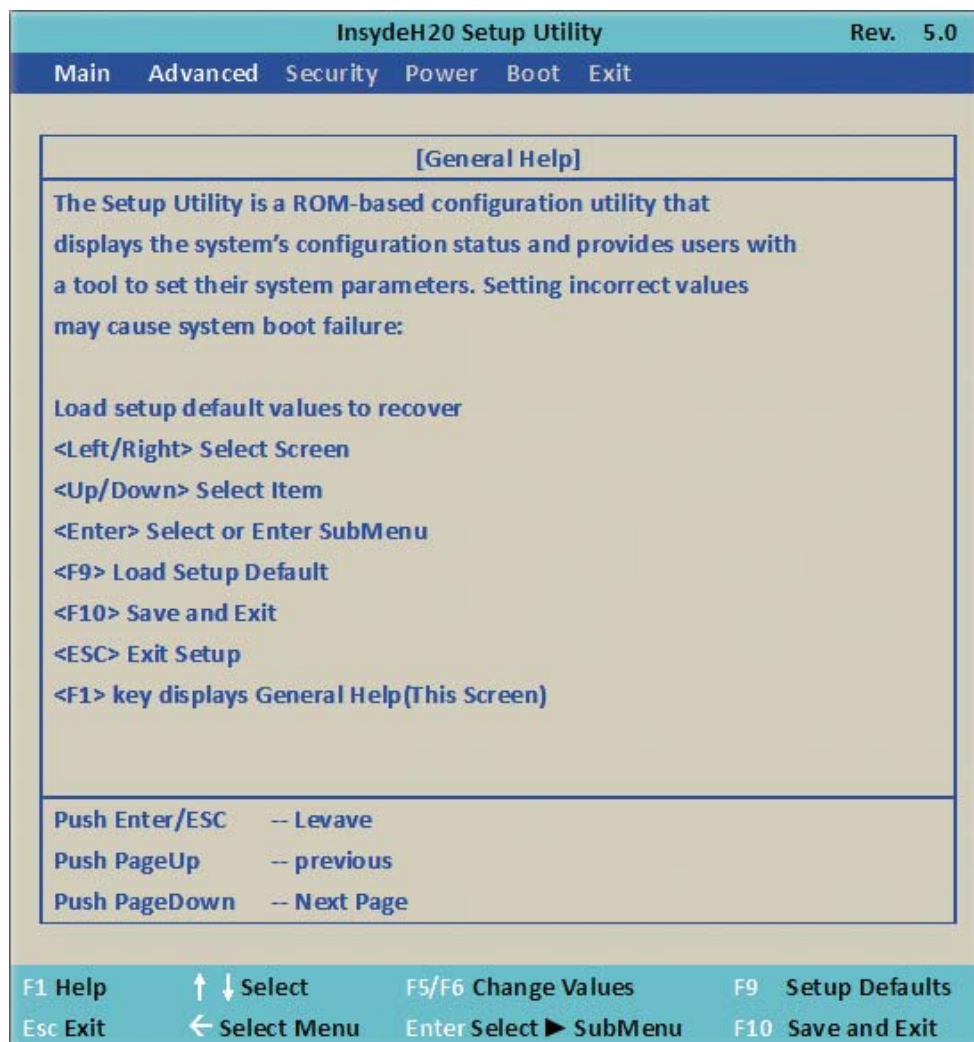


In the above BIOS Setup main menu of, you can see several options.

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



Status Page Setup Menu/ Option Page Setup Menu

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

4-4 Menu Bars

There are six menu bars on top of BIOS screen:

Main To change system basic configuration

Advanced To change system advanced configuration

Security Password settings

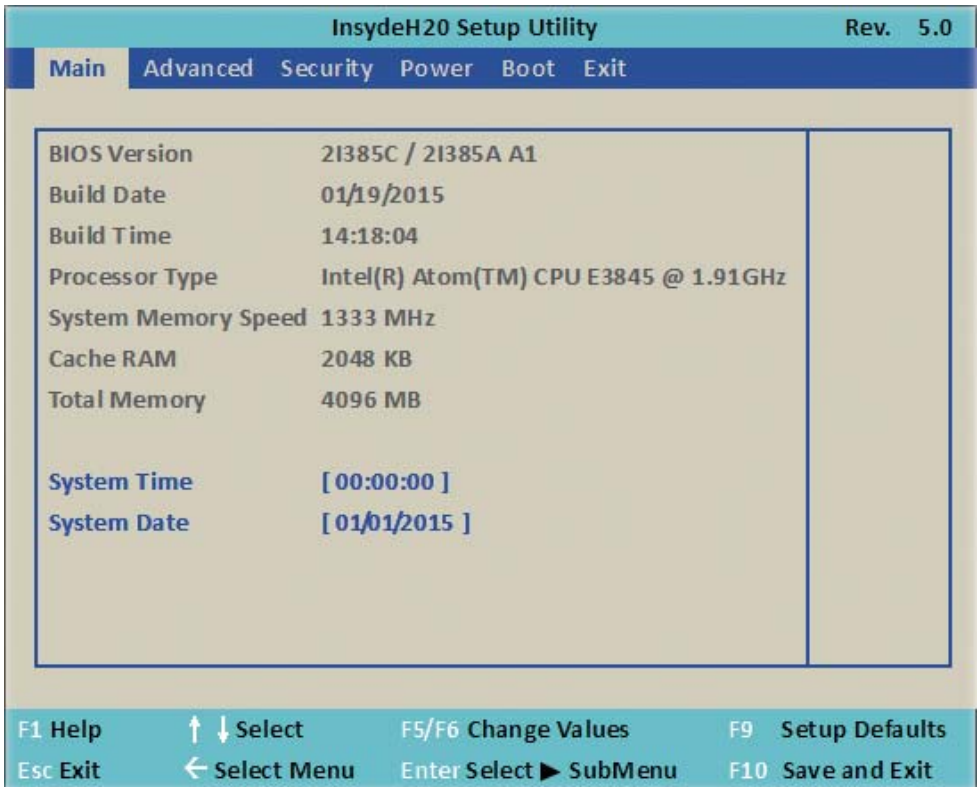
Power PME & Power button settings

Boot Exit Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar.

The selected one is highlighted.

4-5 Main



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

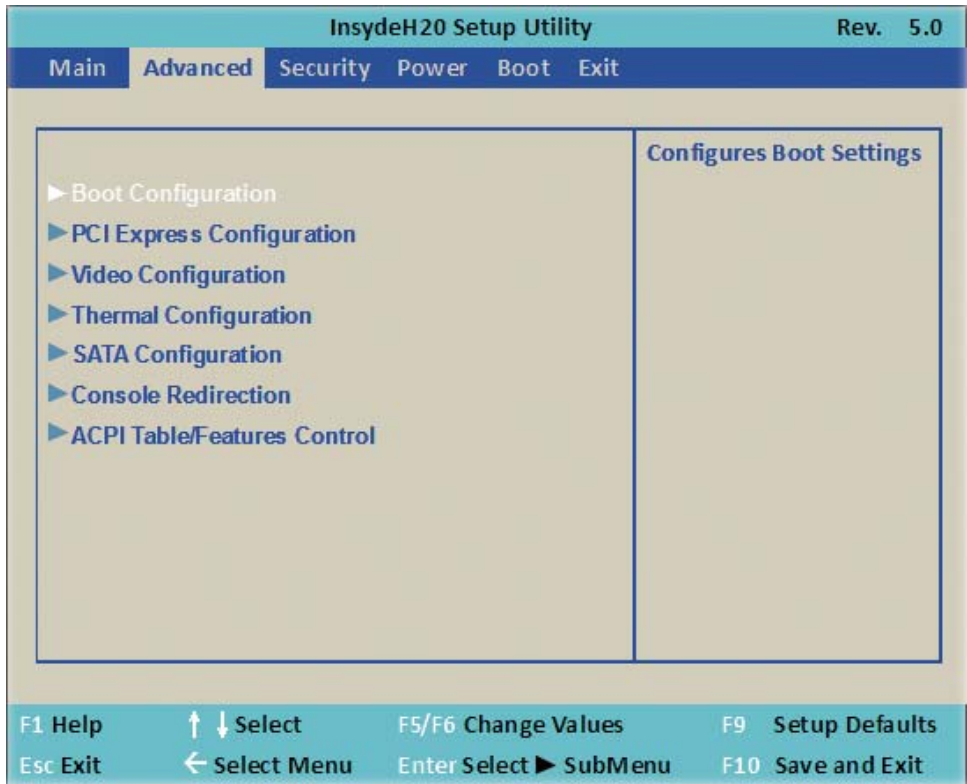
System Date

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

System Time

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

4-6 Advanced



Boot Configuration

Please refer section 4-6-1

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

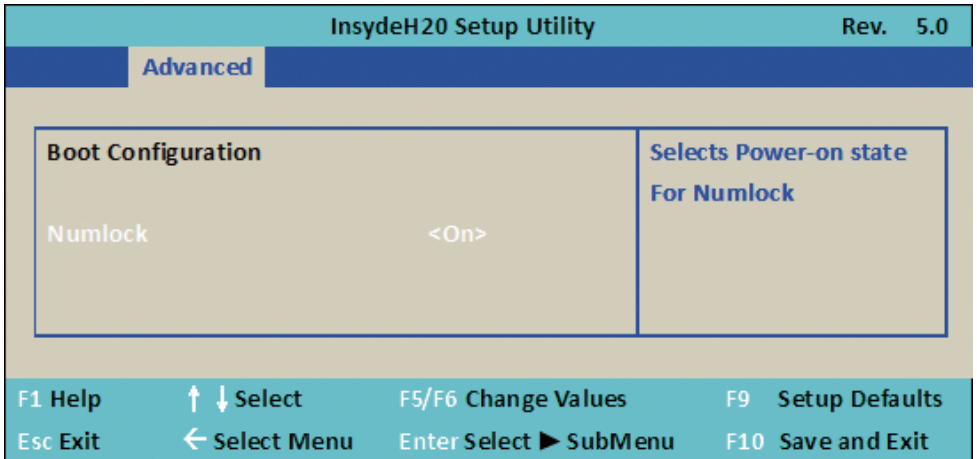
Console Redirection

Please refer section 4-6-6

ACPI Table/Features Control

Please refer section 4-6-7

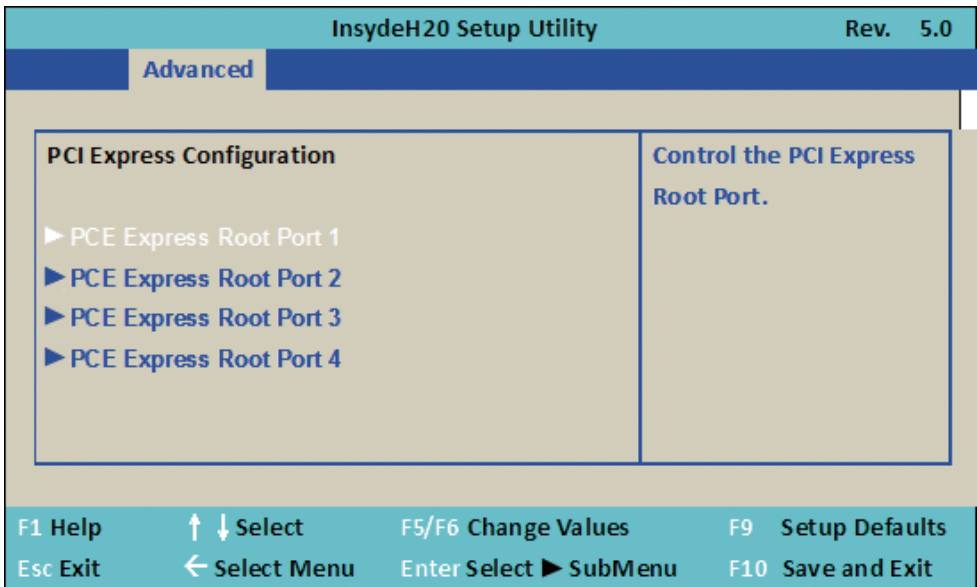
4-6-1 Boot Configuration



Numlock

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

4-6-2 PCI Express Configuration



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
Esc Exit	← Select Menu	Enter Select ► SubMenu
		F9 Setup Defaults
		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 DD11 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
Esc Exit	← Select Menu	Enter Select ► SubMenu
		F9 Setup Defaults
		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

InsydeH2O Setup Utility

Rev. 5.0

Advanced

Thermal Configuration Parameters

Critical Trip Point

Passive Trip Point

<110 °C>

<105 °C>

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>	ENABLED: Enables SATA Controller.	
Chipset SATA Mode	<IDE>		
SATA Speed	<Gen1>		
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

InsydeH2O 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
Esc Exit	← Select Menu	Enter Select ► SubMenu
		F9 Setup Defaults
		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
Esc Exit	← Select Menu	Enter Select ► SubMenu
		F9 Setup Defaults
		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
Supervisor Password		Not Install
Set Supervisor Password		Install or Change the password and the length of password must be greater than one character.
F1 Help	↑ ↓ Select	F5/F6 Change Values
Esc Exit	← Select Menu	Enter Select ► SubMenu
		F9 Setup Defaults
		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

InsydeH20 Setup Utility				Rev. 5.0
Main	Advanced	Security	Power	Boot Exit
Wake on LAN			<Disabled>	Determines the action take when the system power is off and a PCI Power Management Enable wake up event occurs.
Power Button			<Instant OFF>	
F1 Help	↑ ↓ Select	F5/F6 Change Values		F9 Setup Defaults
Esc Exit	← Select Menu	Enter Select ► SubMenu		F10 Save and Exit

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

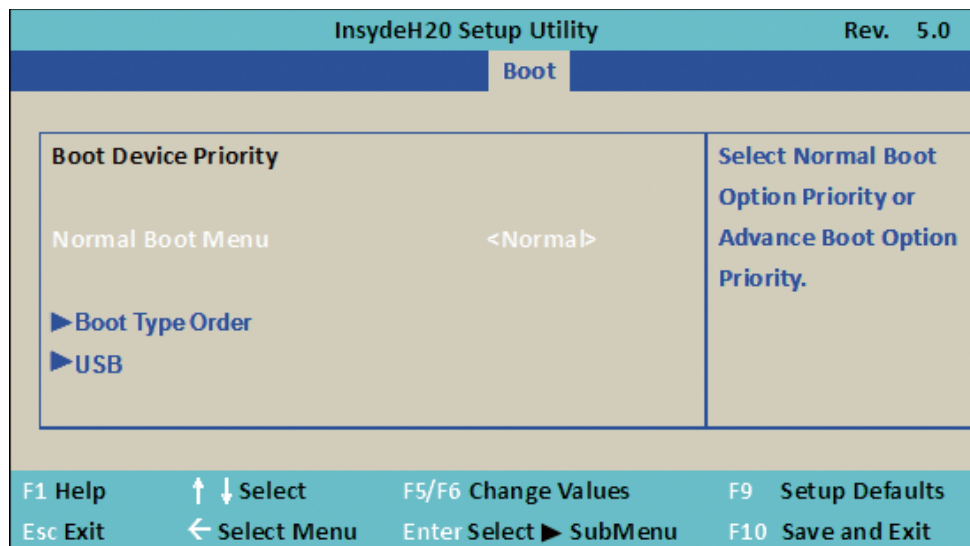
The optional settings are: Enabled(default), Disabled.

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



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

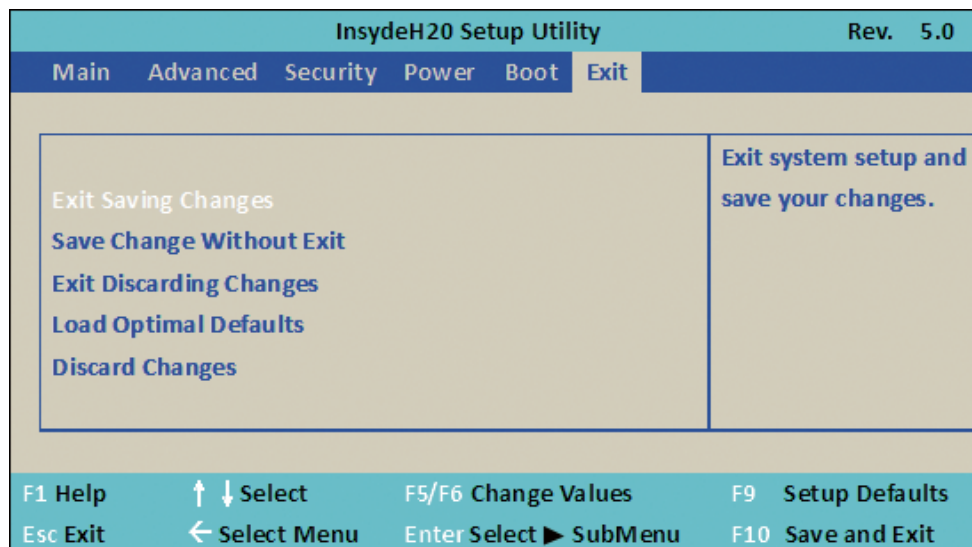
InsydeH20 Setup Utility		Rev. 5.0
Boot		
<div><div>Boot Type Order</div><div>USB</div><div>Hard Disk Drive</div><div>CD/DVD-ROM Drive</div><div>Others</div></div>		
F1 Help	↑ ↓ Select	F5/F6 Change Values
Esc Exit	← Select Menu	Enter Select ► SubMenu
		F9 Setup Defaults
		F10 Save and Exit

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



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

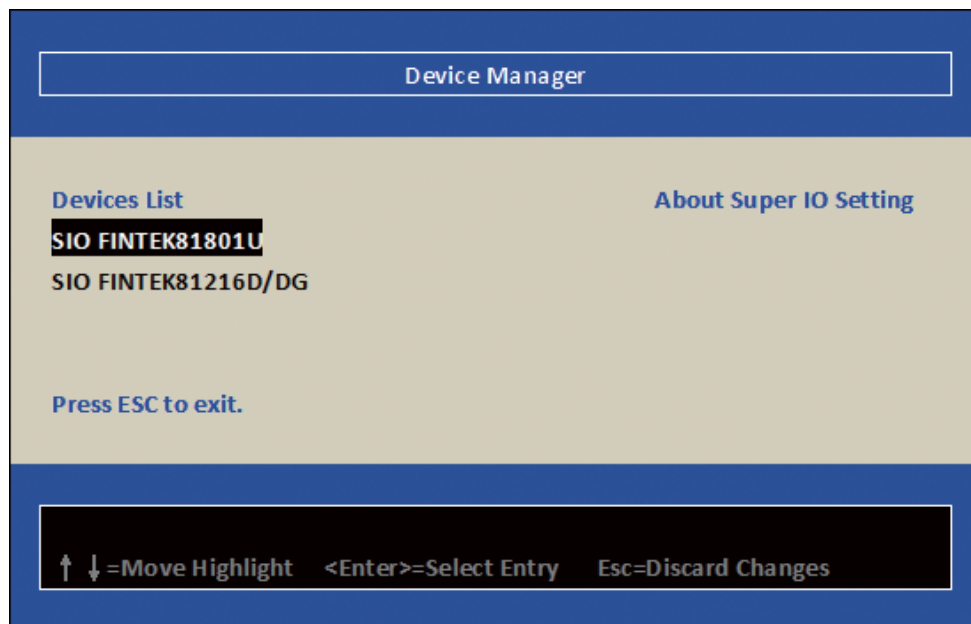
Use this item to restore the optimal default for all the setup options.

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



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 using options : Disable
Base I/O Address	<3F8>	No configuration
Interrupt	<IRQ4>	[Enable] User configuration [Auto]
Serial Mode	<RS232 driver>	EFI/OS chooses configuration
Serial Port 2	<Enable>	
Base I/O Address	<2F8>	
Interrupt	<IRQ3>	
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

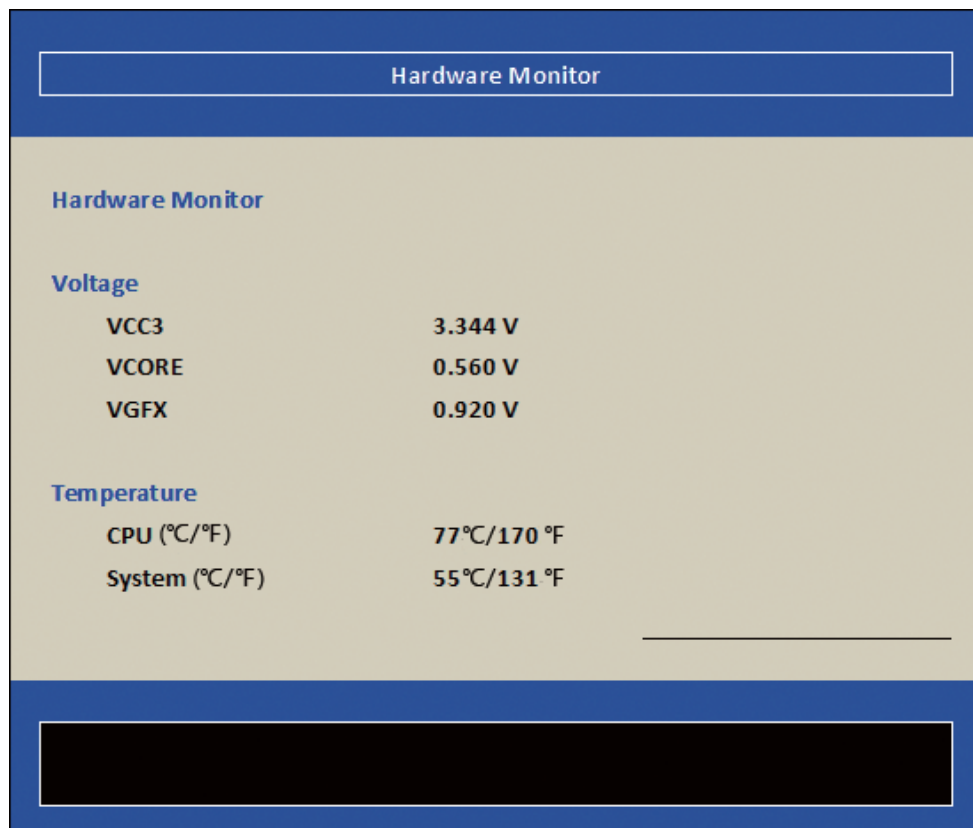
This item specifies whether your system will reboot after a power failure or interrupt occurs.

[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



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

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)

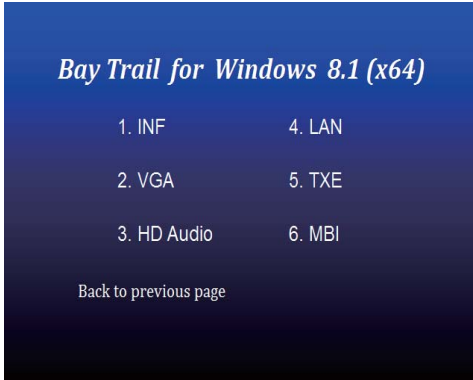
- | | |
|--------------|--------------|
| 1. INF | 5. HD Audio |
| 2. VGA | 6. LAN |
| 3. Serial IO | 7. TXE Patch |
| 4. xHCI | 8. TXE |

[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)



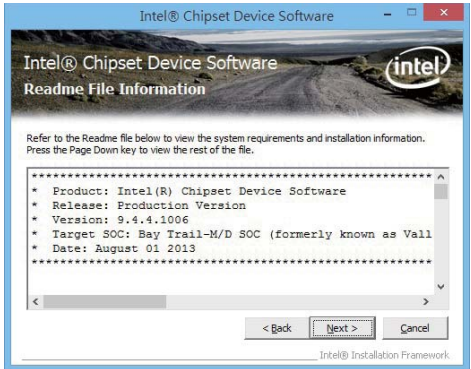
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "INF".



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

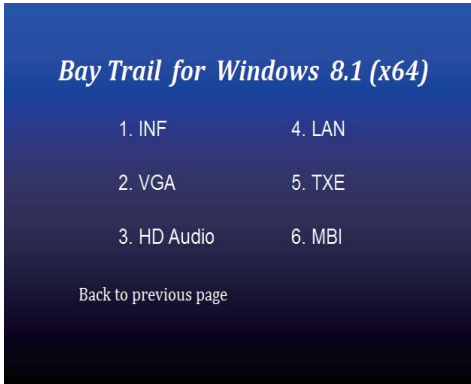
For Windows 7 64/32-bit,

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

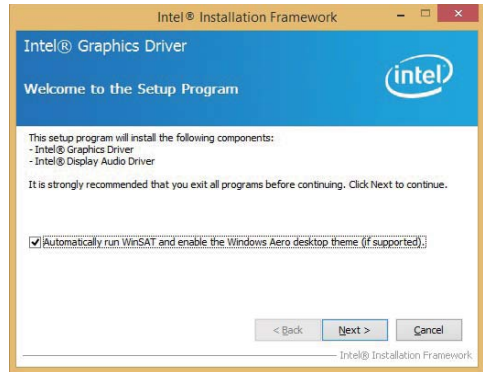
For Windows 8 / 8.1 32/64-bit

X:\driver\INTEL\BAY\INF\WIN_8_64\infinst_autol.exe

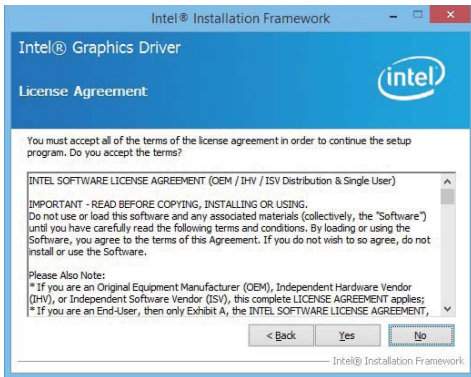
5-2 VGA Install Intel Baytrail VGA Driver (example for WIN8 64bit)



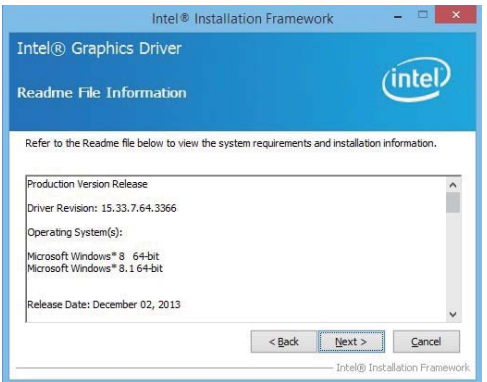
1. At the "AUTOMATIC DRIVER INSTALLATION menu"screen, click "VGA".



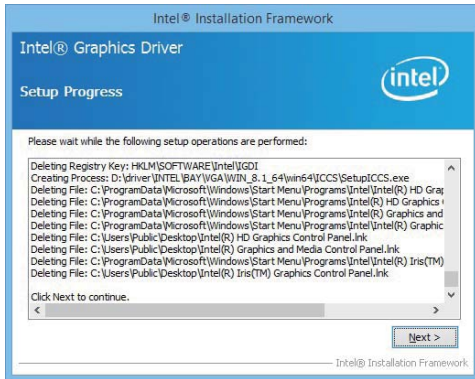
2. At the "Welcome to the Setup Program screen, Click "Next".



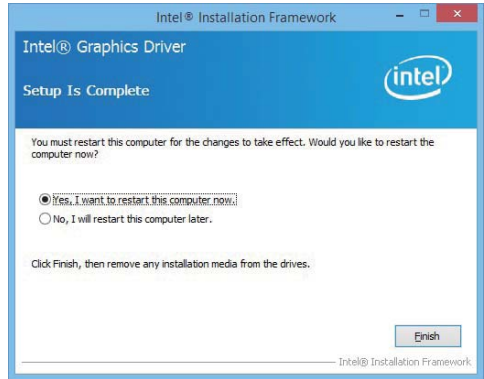
3. At the "License Agreement" screen, Click "Yes"



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-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

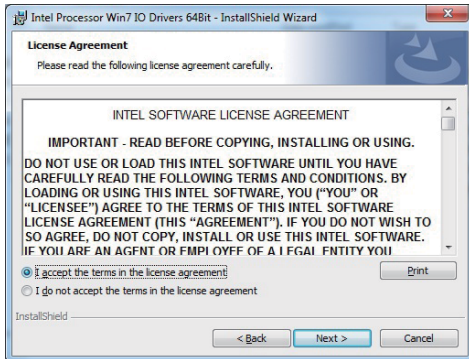
5-3 Serial IO Install Driver Baytrail Serial IO Driver (FOR Windows 7 only)



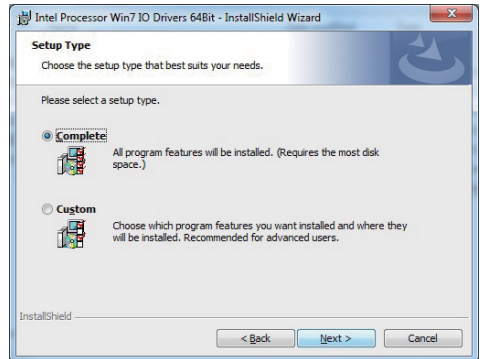
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "Serial IO".



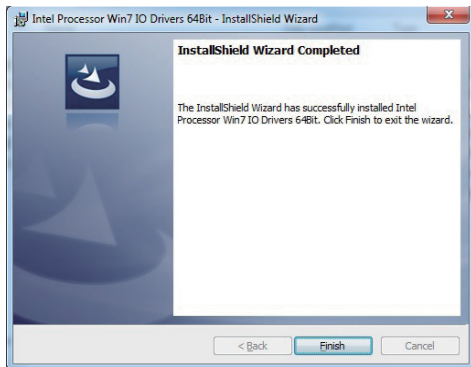
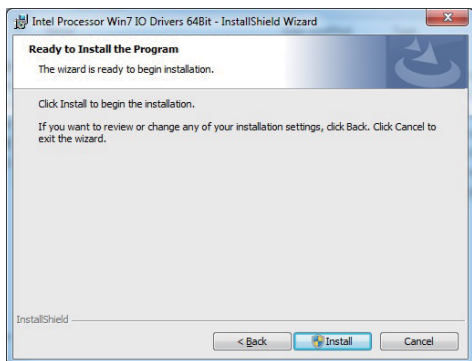
2. At the "Welcome to the Setup Programs screen, Click "Next".



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

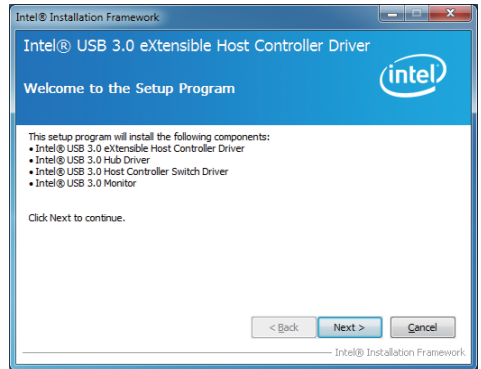
For Windows 7 64-bit

X:\driver\INTEL\BAY\SERIALIO\Win7_64Bit.msi

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



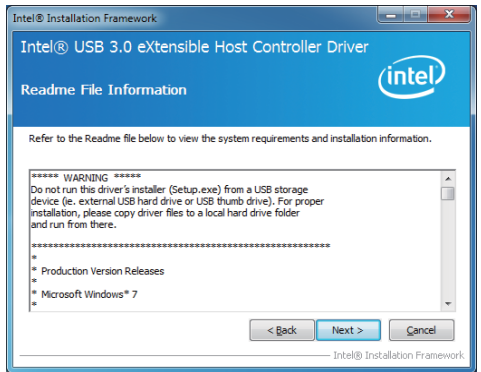
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, Click "USB 3.0"



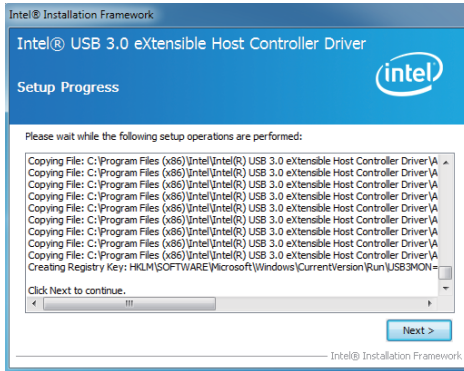
2. At the "Intel® USB 3.0 extensible Host Controller Driver" screen, Click "Next".



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



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



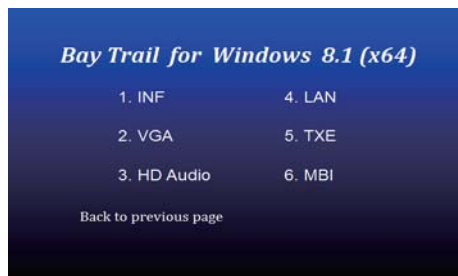
5. At the "Setup Progress" screen, Click "Next". 6. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path

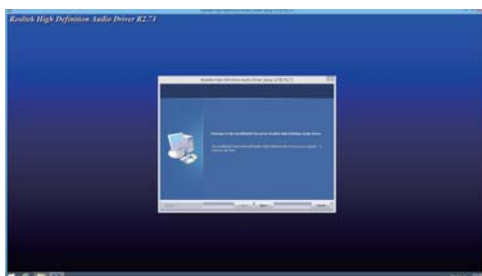
For Windows 7 32 / 64-bit,

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

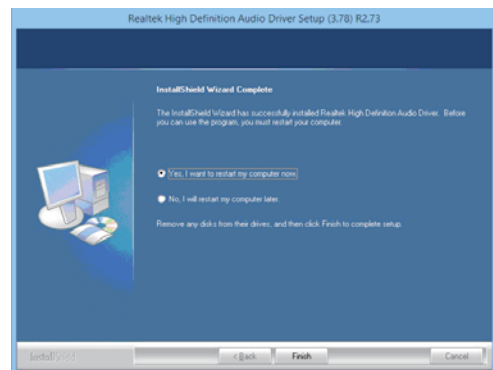
5-5 HD Audio Install High Definition Audio Driver (example for WIN8 64bit)



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



2. Click "Next".



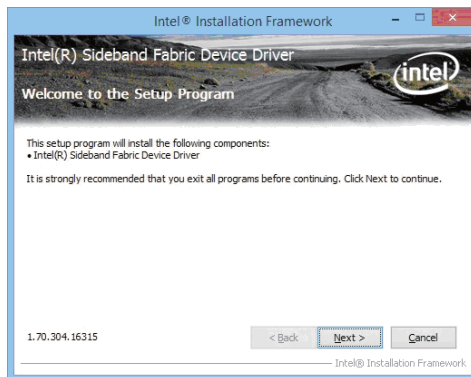
3. Click "Finish" to restart computer

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)



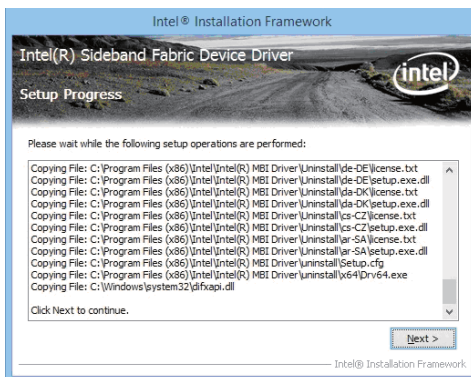
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "HD Audio"



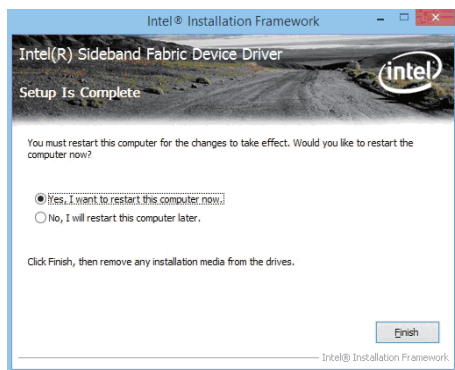
2. At the "Welcome to the Setup Program screen, Click "Next".



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



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



5. Click "Finish" to restart computer

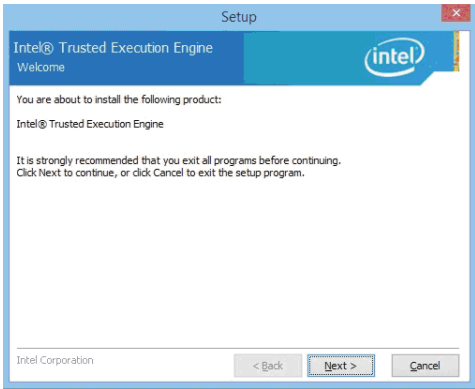
NOTE: SYSTEM INSTALL will auto detect file path

For Windows 8/8.1 32 / 64-bit,

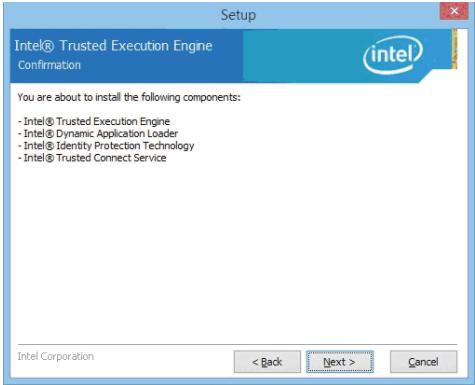
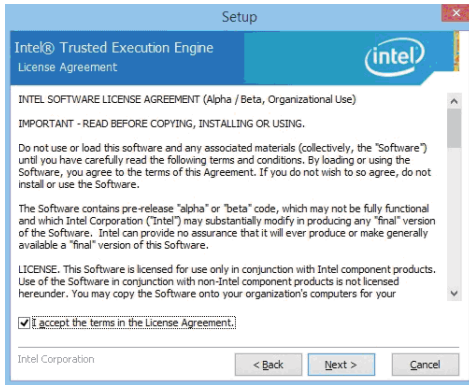
X:\driver\INTEL\BAY\MBI\Setup.exe

5-7 TXE Install Intel TXE driver

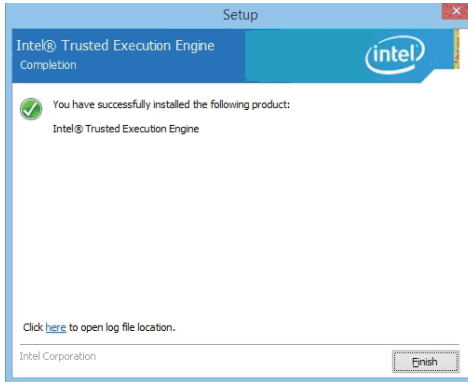
5-7-1 TXE Install for WIN8/WIN8.1



1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE" 2. At the "Setup" screen, Click "Next".



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,

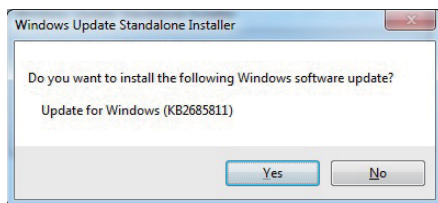
X:\driver\INTEL\BAY\TXE\WIN_8\SetupTXE.exe

For Windows 8.1 32 / 64-bit,

X:\driver\INTEL\BAY\TXE\WIN_8.1\SetupTXE.exe

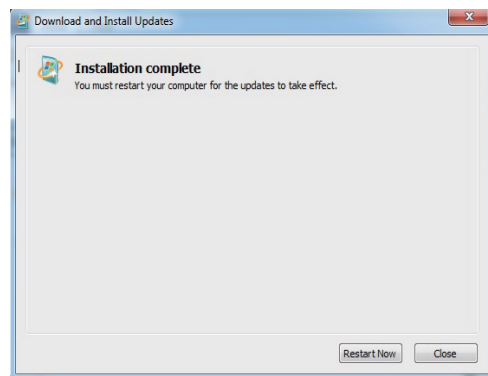
5-7-2 TXE Install for WIN7

Please install PXE Patch first.



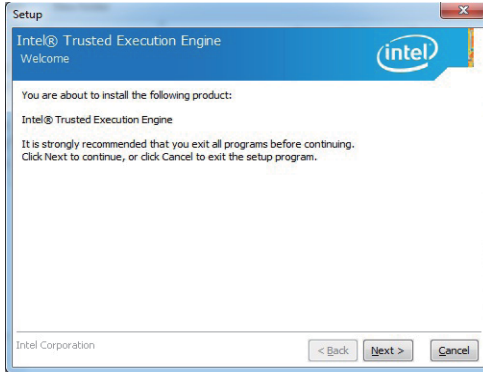
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE Patch "

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

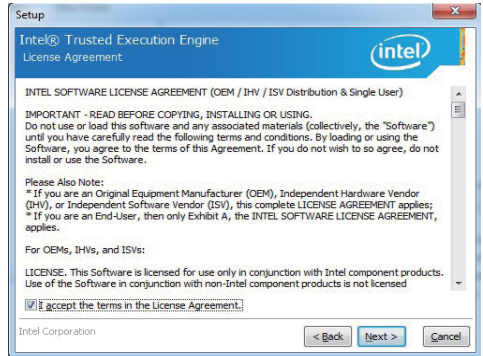


3. Click "Finish" & restart computer

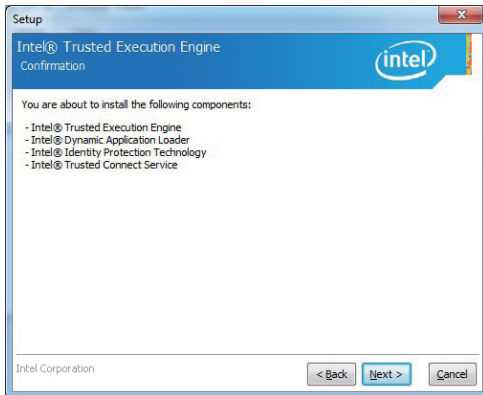
4. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE "



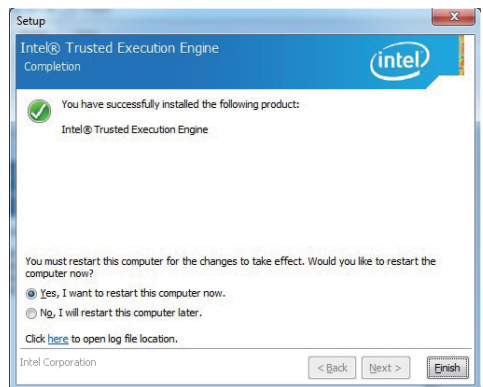
5. At the "TXE Setup" screen, Click "Next".



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	DDR3 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)

Appendix C: F75111N I²C DIO device

1-1 IO Device:F75111 under DOS

The Sample code source you can download from

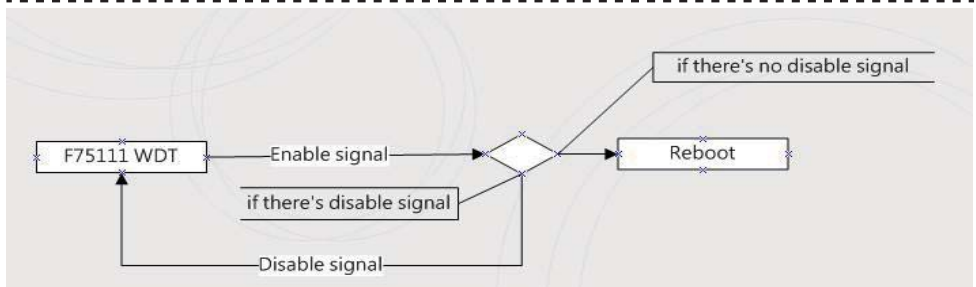
Source file: F75111_Dos_Src.rar http://tprd.info/lexwiki/index.php/IO_Device:F75111_under_DOS

Binary file: F75111_Dos_Bin.rar

USERNAME & PASSWORD: sf

How to use this Demo Application

- 1.Boot Ms-Dos Operating System
- 2.execute "75WDT.EXE" binary file
- 3.Input 1 to Enable WDT timer or input 0 to Disable it.
- 4.input numbers of second for chip countdown and Reset Computer



Introduction

How to use this Demo Application

```
WriteI2CByte(I2CADDR, CONFIG, 0x03); //Set Watch Dog Timer function
WriteI2CByte(I2CADDR, WDT_TIMER, timer); //Set Watch Dog Timer range from 0-255.
WriteI2CByte(I2CADDR, WDT_TIMER_CTL, 0x73); //Enable Watch Dog Timer in second and pulse mode
```

How to use this Demo Application

```
WriteI2CByte(I2CADDR, WDT_TIMER_CTL, 0x00);
```

How to use this Demo Application

```
void pause(int time)
{
    asm mov ah,0h;    //Ah = 00 Read System Time Counter
    asm int 1ah;      //read time from Time Counter and store it in DX register
    asm add dx,time;
    asm mov bx,dx;
    label:
    asm int 1ah;
    asm cmp bx,dx;
    asm jne label;
}
```

1-2 IO Device: F75111 under Windows

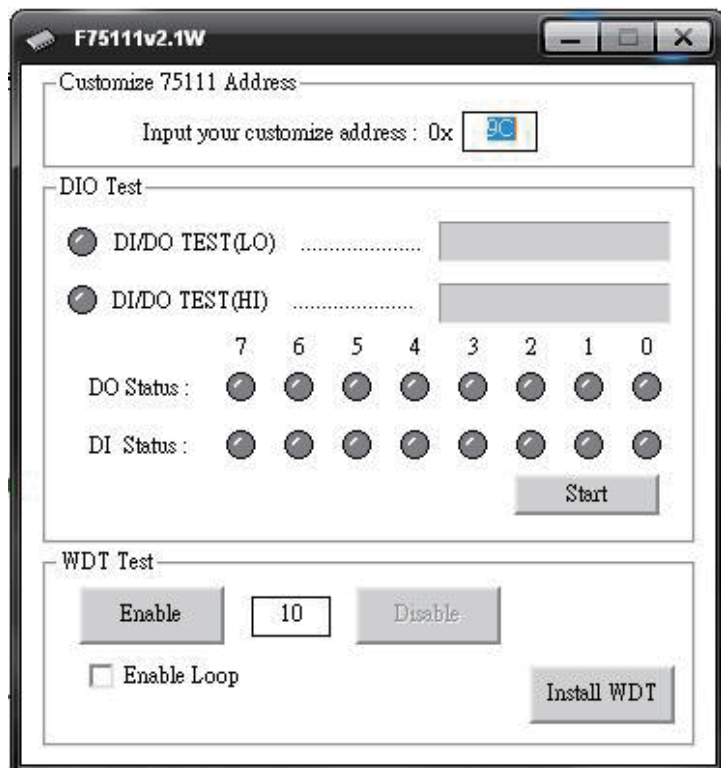
The Sample code source you can download from



Source file: F75111_DIOSrc.rar http://tprd.info/lexwiki/index.php/IO_Device:F75111

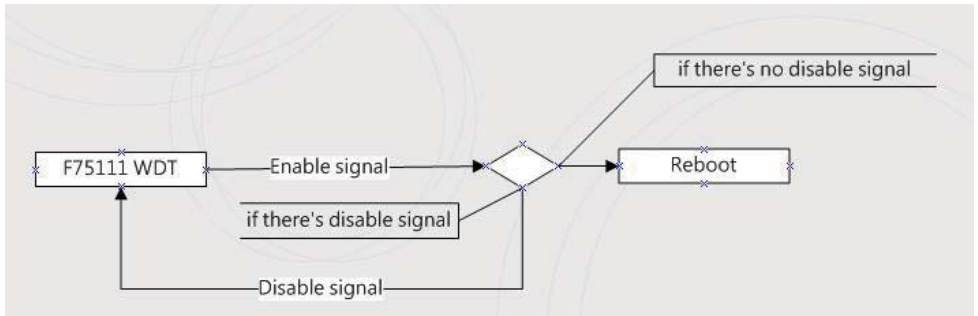
Binary file: F75111_DemoBin.rar

USERNAME & PASSWORD: sf

How to use this Demo Application



1. Press the "Start" button to test DIO function
2. Press the "Enable" button to test WDT function
3. Press the "Disable" button to disable WDT
4. Check the "Enable Loop" box and press "Enable" to do WDT loop test
5. Press "Install WDT" to set the system to autorun this application when booting, press again to remove this application when booting.
6. If WDT enable, system icon will be  . if disable, system icon will be 



p.s.
 f75111 send "F75111_SetWDTEnable(BYTE byteTimer)" including a parameter "timer",
 if there's no disable signal (F75111_SetWDTDisable()) to stop it before timer countdown to 0, System will reboot.
 if there's disable signal received, resent Enable WDT signal, for a loop to prevent from reboot

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()

Enable/Disable WDT

Enable : F75111_SetWDTEnable (BYTE byteTimer)
 Disable: F75111_SetWDTDisable ()

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.
}
  
```

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

```

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,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 & 0x08 )? 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;
}
```

Enable WatchDog

```
void F75111_SetWDTEnable (BYTE byteTimer)
{
    WriteByte(F75111_INTERNAL_ADDR,WDT_TIMER_RANGE ,byteTimer);           // set WatchDog range and timer
    WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,WDT_TIMEOUT_FLAG | WDT_ENABLE | WDT_PULSE | WDT_PSWIDTH_100MS);
                                                                           // Enable WatchDog, Setting WatchDog configure
}
```

Disable WatchDog

```
void F75111_SetWDTDisable ()  
{  
    WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,0x00);    // Disable WatchDog  
}
```

1-3 IO Device: F75111 VB6 under Windows

The Sample code source you can download from

Source file: **75111_VB_v10.rar** http://tprd.info/lexwiki/index.php/IO_Device:F75111_VB6

Binary file: **75111_VB_Src.rar**

USERNAME & PASSWORD: **sf**

How to use this Demo Application

75111_DEMO VB v1.0

Please key-in the timer by sec !!

A **B**

Enable WDT Disable WDT

Please key-in the DO Value by hex !! exp:0xFF = FF

Set DO Value **C**

Push the Button will show the DI 1X_3X Value !!

D

Check DI Value 1X Value 2X Value

A Function - Enable WDT timer ,Key-in the value by seconds then system will reboot after value which you key-in in left text box !!

B Function - Disable WDT timer ,Push down the button then WDT timer value will be clear !!

C Function - Set DO Value ,Key-in the DO value by hex then push the button !!

D Function - Check DI Value ,The right side two text box will display DI 1X & 2X Value when you push down the button!!

SDK Function Introduction

Function EnableWDT

```
Function EnableWDT(timer As Integer)
```

```
Call Writel2CByte(&H3, &H3)
```

```
Call Writel2CByte(&H37, timer)
```

```
Call Writel2CByte(&H36, &H73)
```

```
End Function
```

Function DisableWDT

```
Function DisableWDT()
```

```
Call Writel2CByte(&H36, &H0)
```

```
End Function
```

Function SetDOValue

```
Function SetDOValue(dovalue As Integer)
```

```
Call Writel2CByte(&H23, &H0)
```

```
Call Writel2CByte(&H20, &HFF)
```

```
Call Writel2CByte(&H2B, &HFF)
```

```
Call Writel2CByte(&H21, dovalue)
```

```
End Function
```

Function CheckDIValue

```
Function CheckDIValue()
```

```
Dim GPIO1X As Integer
```

```
Dim GPIO3X As Integer
```

```
Dim DI1Xhex As String
```

```
Dim DI3Xhex As String
```

```
Call Readl2CByte(&H12, GPIO1X)
```

```
Call Readl2CByte(&H42, GPIO3X)
```

```
DI1Xhex = Hex(GPIO1X)
```

```
DI3Xhex = Hex(GPIO3X)
```

```
Text3.Text = "0x" + DI1Xhex
```

```
Text4.Text = "0x" + DI3Xhex
```

```
End Function
```

1-4 IO Device: F75111 under linux

The Sample code source you can download from

Source file: F75111v2.0L.tar.gz http://tprd.info/lexwiki/index.php/IO_Device:F75111_under_linux

Binary file: F75111v2.0LBin.tar.gz

USERNAME & PASSWORD: sf

How to compile source code

1. Compile source code with Code::Blocks

download and install the Code::Block with command "apt-get install codeblocks"

Open an exist project(F75111.cbp) in Code::Blocks, click the compile button

(add an option 'pkg-config --libs gtk+-2.0 gthread-2.0' in "Project->Build Option->Linker Setting->Other linker option")

2. Compile source code with "make"

```
1.cd F75111
```

```
1.make
```

```
1.src/f75111 // execute the binary file
```

How to use this Demo Application

Customize F75111 Address : 0x 9C

DIO Test

DI / DO Test (Low) 0 %

DI / DO Test (High) 0 %

7 6 5 4 3 2 1 0

DO Status ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

DI Status ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Start

WDT Test

Enable 10 Disable

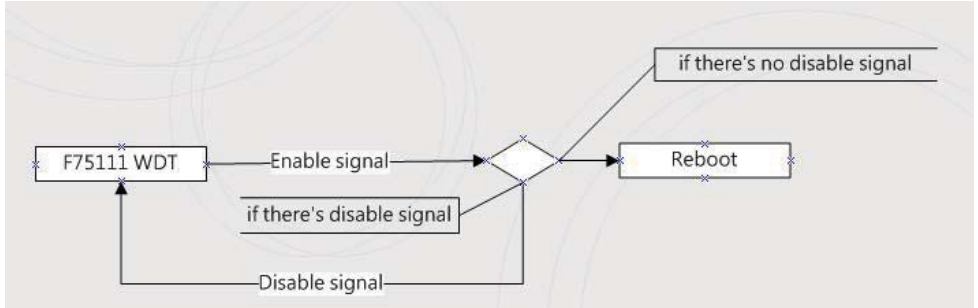
☐ Enable Loop Test

WDT Stand by

Install

Uninstall

1. Press the "Start" button to test DIO function
2. Press the "Enable" button to test WDT function
3. Press the "Disable" button to disable WDT
4. Check the "Enable Loop" box and press "Enable" to do WDT loop test
5. Press "Install" to set the system to autorun this application when booting, press "Uninstall" to remove this application when booting.
6. If WDT enable, system icon will be blinking.



p.s.
 f75111 send "F75111_SetWDTEnable(BYTE byteTimer)" including a parameter "timer",
 if there's no disable signal (F75111_SetWDTDisable()) to stop it before timer countdown to 0, System will reboot.
 if there's disable signal received, resent Enable WDT signal, for a loop to prevent from reboot p.s.

Introduction

IO function In file SMBus.c

```

void SMBusIoWrite(BYTE byteOffset,BYTE byteData)
{
    outb( byteData , m_SMBusMapIoAddr + byteOffset);
}

BYTE SMBusIoRead(BYTE byteOffset)
{
    DWORD dwAddrVal;

    dwAddrVal = inb(m_SMBusMapIoAddr + byteOffset);
    return (BYTE)(dwAddrVal & 0xFF);
}
  
```

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,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 & 0x08 )? byteValue + 0x08 : byteValue;
    byteData = (byteData & 0x10 )? byteValue + 0x10 : byteValue;
    byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
    byteData = (byteData & 0x40 )? byteValue + 0x40 : byteValue;
    byteData = (byteData & 0x80 )? 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;
}
```

Enable WatchDog

```
void F75111_SetWDTEnable (BYTE byteTimer)
{
    WriteByte(F75111_INTERNAL_ADDR, WDT_TIMER_RANGE ,byteTimer);           // set WatchDog range and timer
    WriteByte(F75111_INTERNAL_ADDR, WDT_CONFIGURATION, WDT_TIMEOUT_FLAG | WDT_ENABLE | WDT_PULSE | WDT_PSWIDTH_100MS);
                                                                                   // Enable WatchDog, Setting WatchDog configure
}
```

Disable WatchDog

```
void F75111_SetWDTDisable ()
{
    WriteByte(F75111_INTERNAL_ADDR, WDT_CONFIGURATION, 0x00);           // Disable WatchDog
}
```