

2I380A

Intel Bay Trail-I E3815/E3845

**(Single Core / Quad Core)CPU, On Board DDR3L 1066 /
1333 MT/s 2GB/4GB, LAN / HDMI /Audio /USB / COM/
PCIe mini card**

All-In-One

Intel Bay Trail-I E3815/E3845

**(Single Core 1.46 GHz / Quad Core 1.91 GHz)CPU,
1 x Intel GbE LAN , 2 x PCIe mini card slots ,
VGA, HDMI, Audio, SATA, USB, COM**

NO. 2I380A_V0.3

Release date: JAN. 15. 2015

Contents

2I380A	
Warning!.....	1
Hardware Notice Guide	2
CHAPTER 1 GENERAL INFORMATION	4
1-1 MAJOR FEATURE.....	5
1-2 SPECIFICATION	6
1-3 INSTALLING THE MINI PCI-E CARD	7
1-4 DIRECTIONS FOR INSTALLING THE MINI CARD	8
1-5 PACKING LIST	9
CHAPTER 2 HARDWARE INSTALLATION	10
2-1 UNPACKING PRECAUTION	10
2-2 UNPACKING CHECKUP	11
2-3 DIMENSION-2I380A	12
2-4 LAYOUT-2I380A	13
2-5 DIAGRAM-2I380A	14
2-5-1 BOTTOM SIDE DIAGRAM-2I380A	15
2-6 LIST OF JUMPERS	16
2-7 JUMPER SETTING DESCRIPTION	16
2-8 COMS DATA CLEAR	17
CHAPTER 3 CONNECTION	18
3-1 LIST OF CONNECTORS.....	18
3-2 DC POWER INPUT	19
3-3 COMS BATTERY CONNECTOR	19
3-4 DC POWER OUTPUT	20
3-5 FRONT PANEL PIN HEADER	20
3-6 POWER BUTTON AND LEDS	21
3-7 DISPLAY INTERFACE	21
3-8 AUDIO INTERFACE	22
3-9 I/O INTERFACE	23
3-10 DIGITAL INPUT / OUTPUT	24
3-10-1 IO DEVICE : F75111 UNDER WINDOWS	25
3-10-2 IO DEVICE : F75111 VB6 UNDER WINDOWS	28
3-10-3 IO DEVICE : F75111 UNDER LINUX	30
3-11 LAN INTERFACE	34
3-12 USB INTERFACE	35
3-13 SMBUS INTERFACE	36
3-14 PS2 KEYBOARD / MOUSE CONNECTOR	36
3-15 SATA INTERFACE	37
3-16 PCI EXPRESS MINI CARD	38

CHAPTER 4 INTRODUCTION OF BIOS	39
4-1 ENTER SETUP	39
4-2 BIOS MENU SCREEN & FUNCTION KEYS	40
4-3 GENERAL HELP	41
4-4 MENU BARS	41
4-5 MAIN	42
4-6 ADVANCED	43
4-6-1 BOOT CONFIGURATION	44
4-6-2 PCI EXPRESS CONFIGURATION	45
4-6-2-1 PCI EXPRESS ROOT PORT 1/2/3/4	46
4-6-2-2 PCIE PORT 1/2/3/4 SPEED	47
4-6-2-3 PCIE PORT 1/2/3/4 OPTION ROM	48
4-6-3 USB CONFIGURATION	49
4-6-4 VIDEO CONFIGURATION	50
4-6-5 THERMAL CONFIGURATION	51
4-6-6 SATA CONFIGURATION	52
4-6-7 CONSOLE REDIRECTION	53
4-6-8 ACPI TABLE / FETURES CONTROL	54
4-7 SECURITY	55
4-8 POWER	56
4-9 BOOT	57
4-9-1 LEGACY	58
4-10 EXIT	60
4-11 DEVICE MANAGER	61
4-11-1 SIO FINTEK8180U	62
CHAPTER 5 DRIVER INSTALLATION	64
5-1 INF INSTALL INTEL BAYTRAIL CHIPSET DRIVER (EXAMPLE FOR WIN8 64BIT)	67
5-2 VGA INSTALL INTEL BAYTRAIL VGA DRIVER (EXAMPLE FOR WIN8 64BIT)	69
5-3 SERIAL IO INSTALL DRIVER BAYTRAIL SERIAL IO DRIVER (FOR WINDOWS 7 ONLY)	71
5-4 XHCI INSTALL INTEL USB 3.0 XHCI DRIVER (FOR WINDOWS 7 ONLY)	73
5-5 HD AUDIO INSTALL HIGH DEFINITION AUDIO DRIVER (EXAMPLE FOR WIN 64BIT)	75
5-6 MBI INSTALL INTEL MBI DRIVER (FOR WIN 8/8.1 ONLY)	76
5-7 TXE LNSTALL INTEL TXE DRIVER	78
5-7-1 TXE INSTALL FOR WIN8/WIN8.1	78
5-7-2 TXE INSTALL FOR WIN7	80
5-8 HOW TO UPDATE INSYDE BIOS	82
APPENDIX A:POWER CONSUMPTION TEST	83
APPENDIX B:RESOLUTION LIST	84

Copyright

This manual is copyrighted and all rights are reserved. It does not allow any non authorization in copied, photocopied, translated or reproduced to any electronic or machine readable form in whole or in part without prior written consent from the manufacturer.

In general, the manufacturer will not be liable for any direct, indirect, special, incidental or consequential damages arising from the use of inability to use the product or documentation, even if advised of the possibility of such damages.

The manufacturer keeps the rights in the subject to change the contents of this manual without prior notices in order to improve the function design, performance, quality, and reliability. The author assumes no responsibility for any errors or omissions, which may appear in this manual, nor does it make a commitment to update the information contained herein.

Trademarks

Intel is a registered trademark of Intel Corporation.

Award is a registered trademark of Award Software, Inc.

All other trademarks, products and or product's name mentioned here are for identification purposes only, and may be trademarks and/or registered trademarks of their respective companies or owners.

© Copyright 2015

All Rights Reserved.

User Manual edition 0.1, JAN. 15. 2015

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.

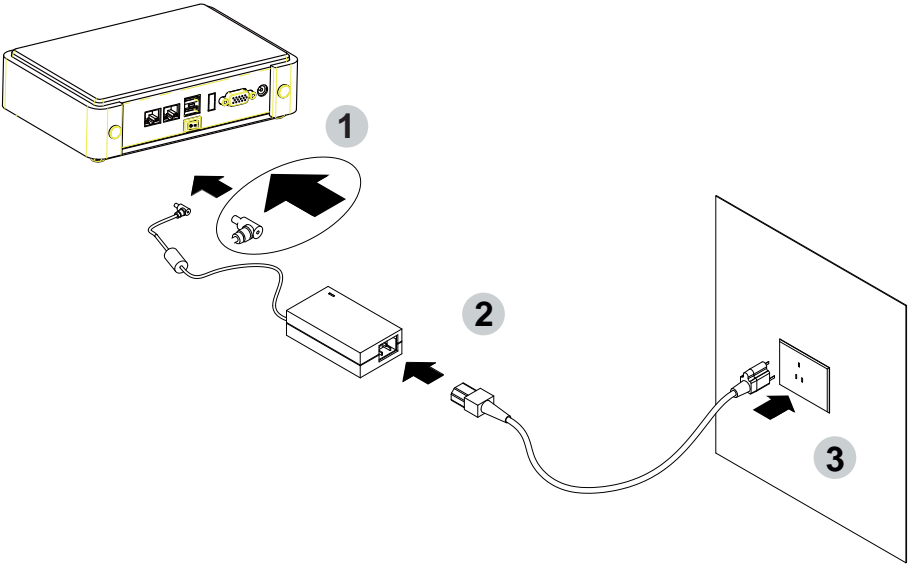
Remark 1:

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

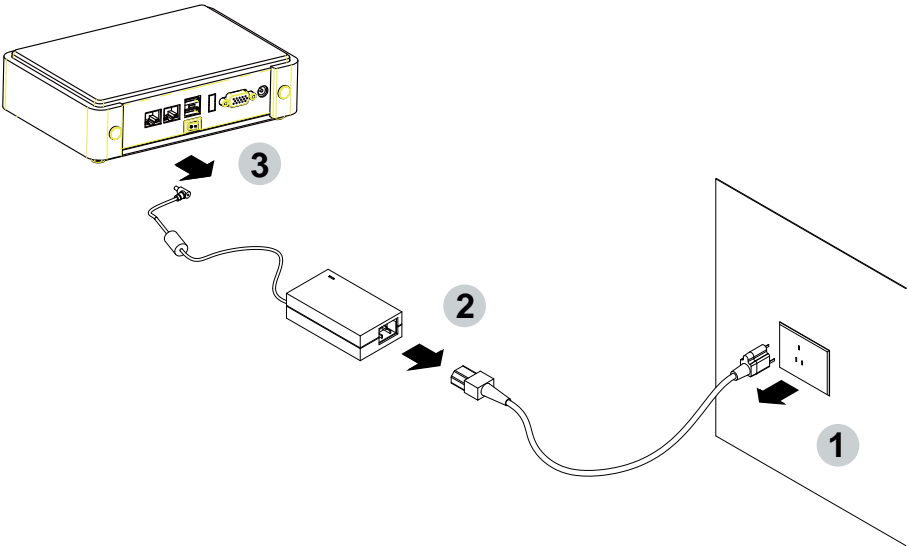
Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

The 2I380A is a 2.5-inch compact embedded system board that features Intel® Bay Trail SoC to support one super speed USB 3.0 port, and onboard memory 2GB/4GB SDRAM 1066/1333MHz.

High-performance and power-efficient communication platform, the embedded motherboard of 2I380A is specially designed for advanced embedded car PC or POS system applications where the economical use of power is in high demand. Also, there is a sizable on board DDR3L memory from 2I380A motherboards which will provide more stability to the system.

This motherboard will ensure the high performance levels required for today's most popular POS/Automation control applications including Embedded Car PC, POS, ATM, Kiosk and Panel PC applications.

The 2I380A integrates with Intel's 7th generation (Gen 7) graphics and media encode/decode engine, dual displays of CRT resolution up to 2560 x 1600, and HDMI 1080p. Besides, 2I380A has Intel LAN chipset with 10/100/1000 Mbps Ethernet for seamless broadband connectivity. With the Wake-On LAN function and the PXE function in BIOS for Intel LAN chipset, 2I380A also supports one COM port of RS232, it can option to RS422 or 485.

In addition, there are multi-ports of Hi-Speed USB 3.0 and USB 2.0 to enhance the host controller interface which will ensure the high performance level and flexible expansion. A single Flash chip holds the system BIOS, and you can change the Flash BIOS by the Utility Update. The 2I380A is All-In-One board which could apply to the use of Networking, POS or Automation Control Board.

It is designed to combine all necessary input and output affects interfaces, which makes it to be ideal All-In-One control board for the demand of Networking, POS and Automation Control applications. 2I380A is the perfect platform for a whole range of small form factor.

1-1 Major Feature

1. INTEL Atom Processor Baytrail-I E3845 / E3815
2. Onboard DDR3L 2GB/4GB; data transfer rates of 1066MT/s and 1333 MT/s
3. 1 x Intel® Giga LAN
4. On board SSD 2/4/8/16/32/64 GBytes (Option)
5. Support expanded PCIe Mini card for PClex1 and USB interface, (Full size) for PCB0.3
PCIe Mini card for PClex1 or mSATA Gen II Auto detect and USB interface (Half size) for PCB0.3
PCIe Mini card for PClex1 or mSATA Gen II Auto detect and USB interface (Full size) for PCB0.4
PCIe Mini card for PCIe x 1 or mSATA (default) and USB interface (Half size) for PCB0.4
6. Support up to 2 SATA ports (mSATA & SATA Connector)
7. Hardware digital Input & Output, 4 x DI / 4 x DO (option)
Hardware Watch Dog Timer, 0~255 sec programmable
8. DC +12V Input (2l380A) or option to Wide range DC input from +9V to +36V(±1V)
9. PCB Dimension: 102 x 73 mm

1-2 Specification

1. **CPU+Chipset:** INTEL Atom Processor Baytrail-I E3845 / E3815
2. **Memory:** Single Channel Onboard DDR3L 2GB/4GB,
data transfer rates of 1066/1333 MT/s
3. **VGA:** Intel Bay Trail-I Integrated Graphics chipset
4. **SATA:** Integrated Serial ATA Host Controller Up to 2 SATA ports: All ports support 2.0
Data transfer rates up to 3.0 Gb/s (600 MB/s).
5. **LAN:** Intel I211AT PCIe LAN NIC
6. **Serial Port:** 1 x RS232 (external) option to 422 or 485
7. **USB:** 1 x USB 3.0/2.0 (external) + 3 x USB 2.0 (external) onboard;
3 x USB 2.0 (internal) (2 x share with Mini card (2 USB wafer are option)
8. **Sound:** Intel High Definition Audio Interface
9. **WDT/DIO:** Hardware digital Input & Output, 4 x DI / 4 x DO (option)
Hardware Watch Dog Timer, 0~255 sec programmable
10. **Expansion interface:**
Support expanded PCIe Mini card for PClex1 and USB interface, (Full size) for PCB0.3
PCIe Mini card for PClex1 or mSATA Gen II Auto detect and USB interface (Half size) for PCB0.3
PCIe Mini card for PClex1 or mSATA Gen II Auto detect and USB interface (Full size) for PCB0.4
PCIe Mini card for PCIe x 1 or mSATA (default) and USB interface (Half size) for PCB0.4
11. **BIOS:** Insyde BIOS
12. **Dimension:** 102 x 73 mm
13. **Power:** DC +12V Input (2I380A) or option to Wide range
DC input from +9V to +36V($\pm 1V$)
14. **Power Consumption:** Please refer to Page. 84

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



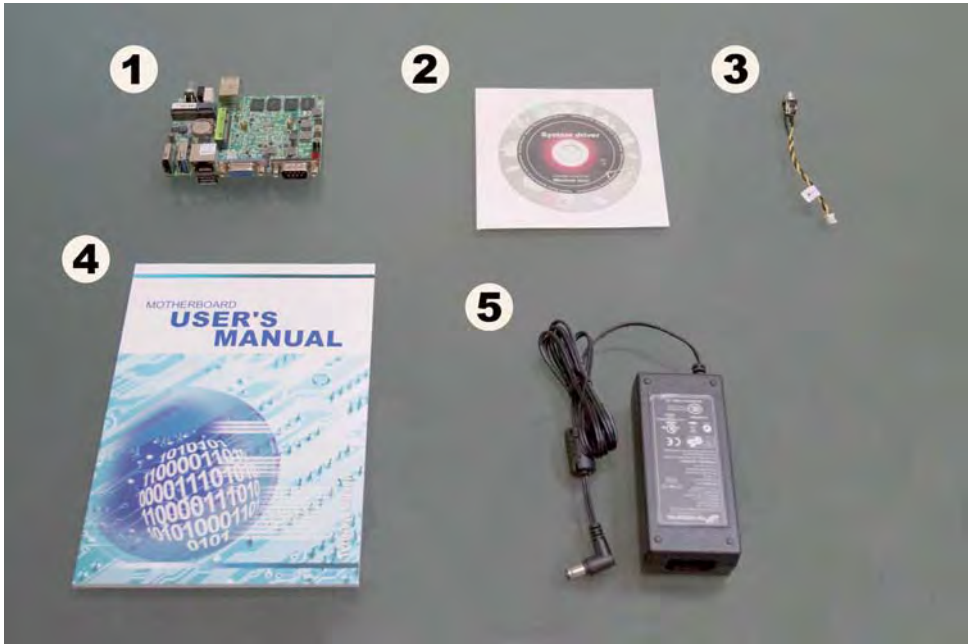
2. Plug in the Mini Card in a 45 angle



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



1-5 Packing List



	Material Code	Description	Detail Specification	Quantit
1	7G1901-1272001-0	MB-2I380A-I44-00-001	LF,2I380A-I44-00,Rev.:001	1
2	6G8006-2347-0100	LEX Product Driver DVD	LF, Intel Baytrail Driver	1
3	6G6003-7329-0100	Power Cable	LF,L=9cm,2.0 1*2/DC JK	1
4	6G8001-2188-0400	Manual	LF,M/B,2I380A	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 2I380A. 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:

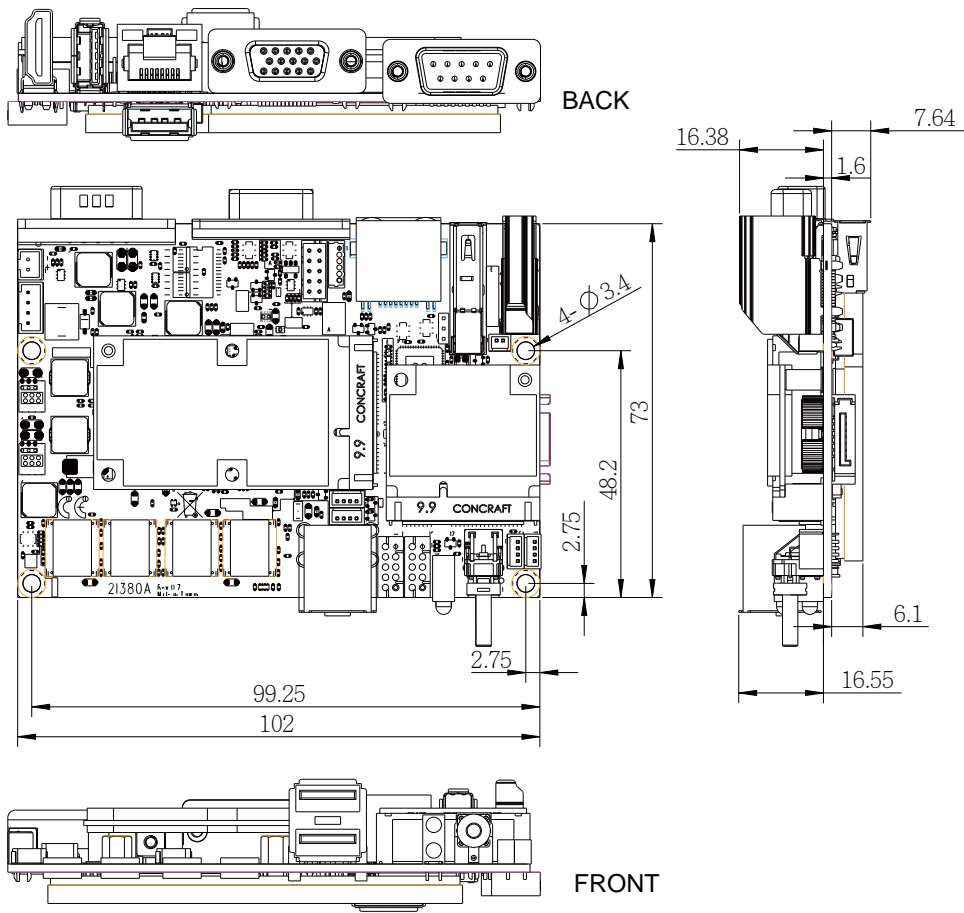
1. Ground yourself by a grounded wrist strap at all times when you handle the 2I380A.
Well secure the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please put on and connect the strap before handling the 2I380A for harmlessly discharge any static electricity 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

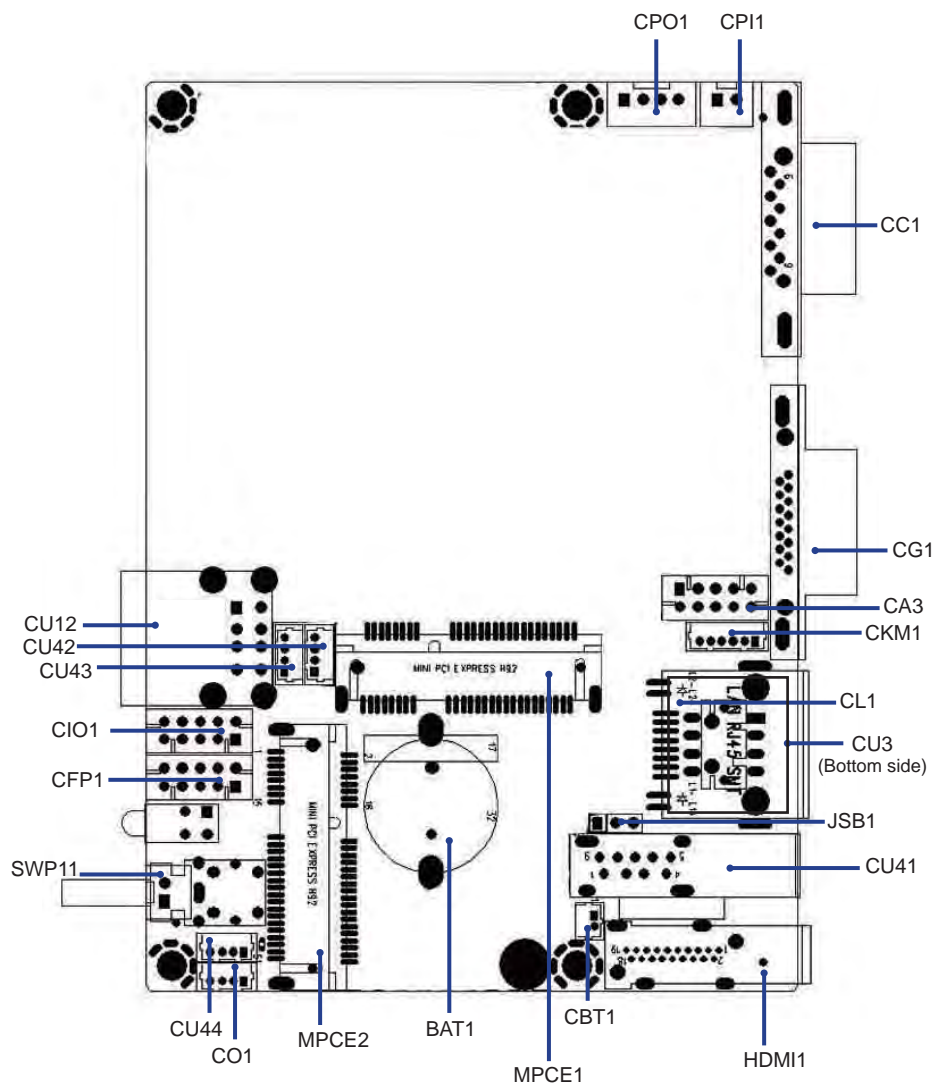
First of all, please follow all necessary steps of section 2-1 to protect 2I380A from electricity discharge. With reference to section 1-5 please check the delivery package again with following steps:

1. Unpack the 2I380A 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.

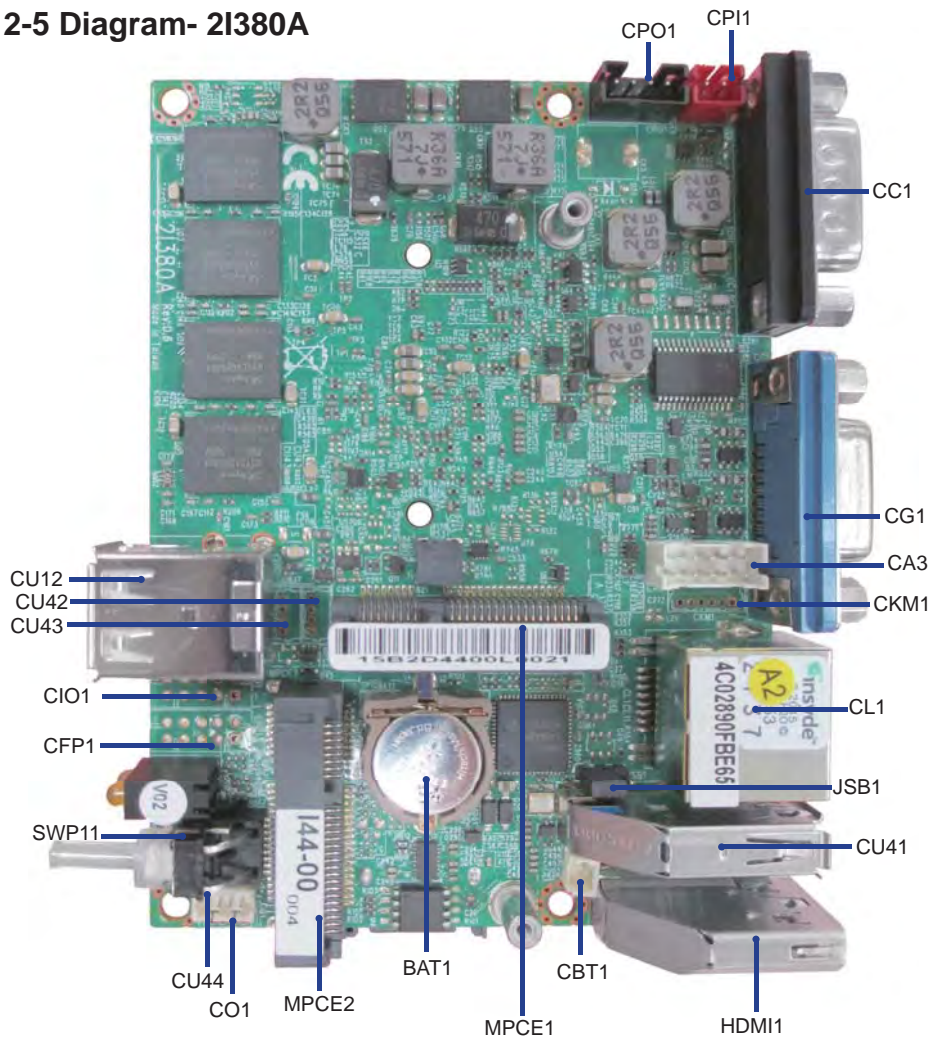
2-3 Dimension-2I380A



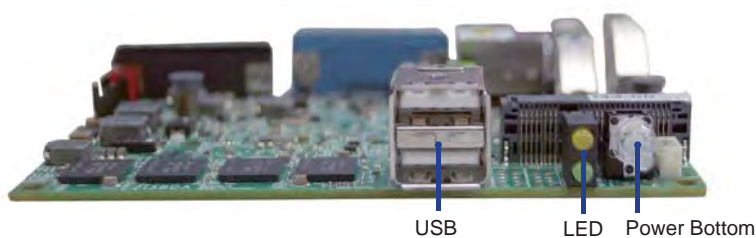
2-4 Layout-2I380A



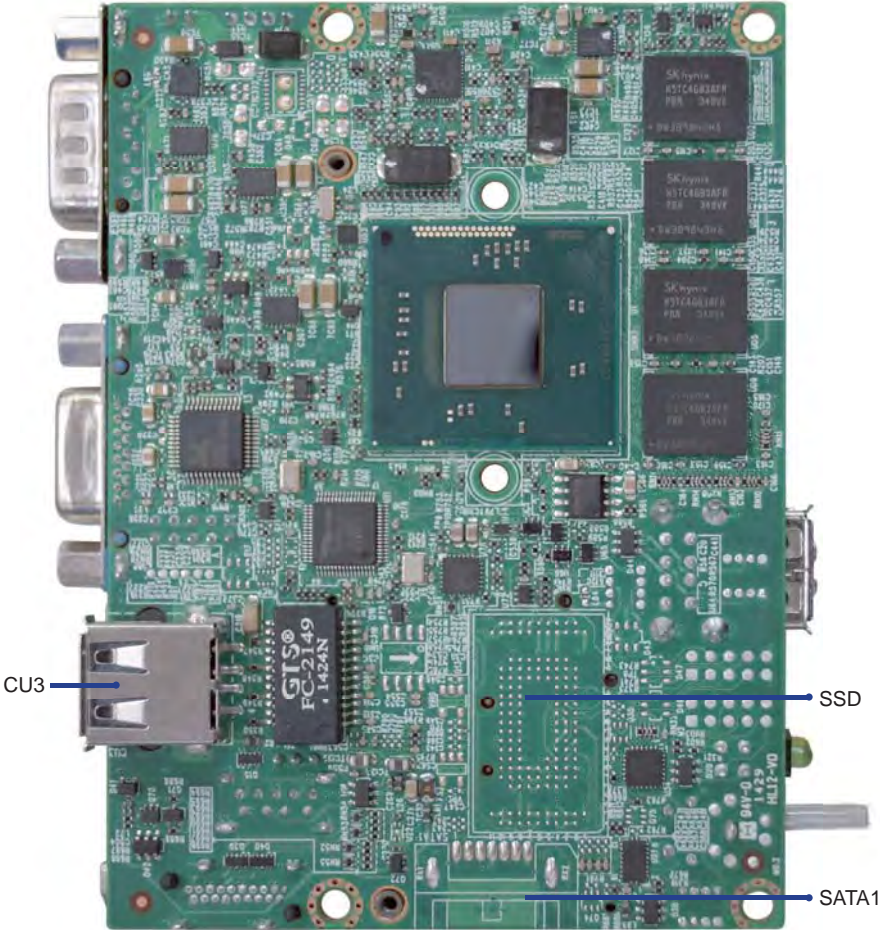
2-5 Diagram- 2I380A



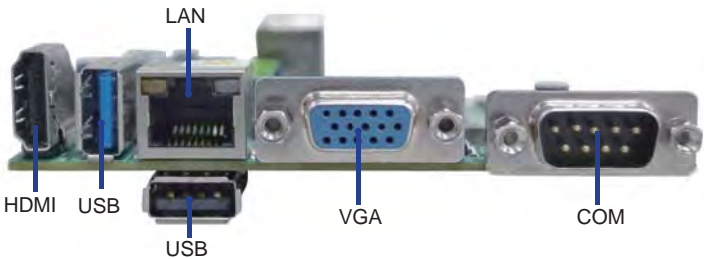
Front Panel- 2I380A



2-5-1 Bottom Side Diagram- 2I380A



BACK Panel- 2I380A



2-6 List of Jumpers

JSB1: CMOS clear 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 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 the AC power
- 2. Remove power cable from power connector
- 3. Locate JSB1 and close pin 2-3 for few seconds
- 4. Return to default setting by close pin 1-2
- 5. Connect power cable back to power connector

JSB1: CMOS DATA SET

JSB12	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



Clear Setting



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

CPI1: DC 12V-IN 1x2 pin (2.0mm) Red wafer connector
CPO1: +12V/+5V power output 1x4 pin (2.0mm) Black wafer connector
CFP1: FP port 2x5 pin (2.0mm) Wafer(Optional)
SWP1: PB SW 1x2pin (2.0mm) Wafer(Optional)
SWP11: Power Button and Power LED (Blue)
BAT1 : Li 3V battery holder
LED1: HDD & LAN-LED(Green & Yellow) share with CFP1
CG1: VGA DB15 Connector
CA3: Line-out/Line-in/Mic-in/SPDIF-out 2x5 pin (2.0mm) Wafer
CC1 : COM1 DB9 Connector
CIO1: DIO 2x5 pin (2.0mm) Wafer(Optional)
CO1: SMBus 1x4pin (1.25mm) Wafer(Optional)
CKM1: PS2 KB/MS port 1x6 pin (1.25mm) Wafer connectors(Optional)
CL1 : LAN port RJ45
CU12: USB2.0 Dual port Type A connector
CU1: USB 2.0 port 1x4pin (1.25mm) Wafer share with CU12(option)
CU2: USB 2.0 port 1x4pin (1.25mm) Wafer share with CU12(option)
CU3: USB 2.0 port Type A connector
CU41: USB3.0/2.0 One port Type A connector 90°
CU42: USB 2.0 port 1x4pin (1.25mm) Wafer share with MPCE1(Optional)
CU43: USB 2.0 port 1x4pin (1.25mm) Wafer share with MPCE2(Optional)
SATA1: One SATA connector 7pin(Optional)
MPCE1/MPCE2: Mini card port 1/2 sockets 52pin
HDMI1: Type A connector 90°
CBT1: 3V Battery 1x2pin (1.25mm) Wafer

3-2 DC power Input

● **CPI1 : DC -in Internal connector (1x2pin 2.0mm Wafer) (Red)**

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

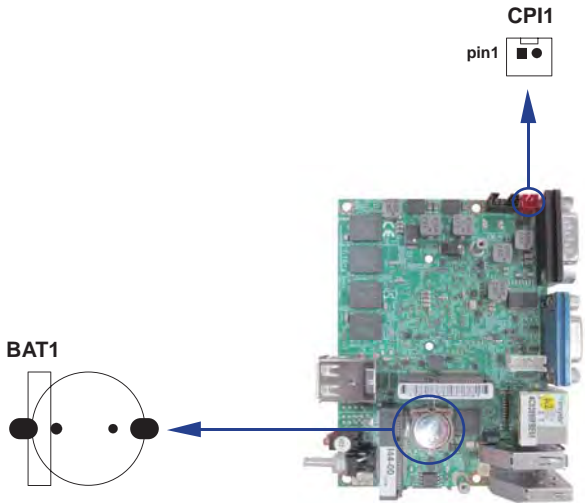
Note: 1. Very important check Dc-in Voltage
2. Mating connector: JST B2B-PH-KL or compatible
3. Cable housing: JST PHR-2 or compatible

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



● **CBT1: Ext. 3V Battery (1x2 pin 1.25mm Wafer)**

PIN NO.	Description
1	CATHODE(-)
2	ANOD(+)

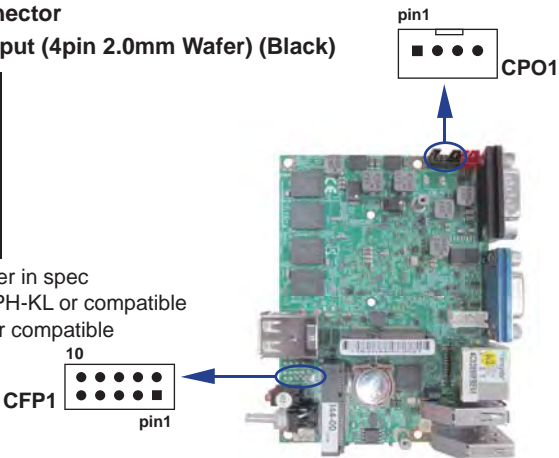
Note : 1. This connector for external 3V Li battery use.
2. CBT1 can work with BAT1 same time.
3. Li battery can use CR2032 type 3V / 220mAh.

3-4 DC Power output

- DC +12V/+5 Voltage output connector
CPO1: +12V/+5V DC voltage output (4pin 2.0mm Wafer) (Black)

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

- Note :
- 1. Attention! Check Device Power in spec
 - 2. Mating connector: JST B4B-PH-KL or compatible
 - 3. Cable housing: JST PHR-4 or compatible



3-5 Front Panel Pin Header

- CFP1 Front Panel Wafer 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+

- Note :
- 1. This connector is option, Share with LED2
 - 2. Mating connector: JST B10B-PHDSS or compatible
 - 3. Cable housing: JST PHDR-10VS or compatible

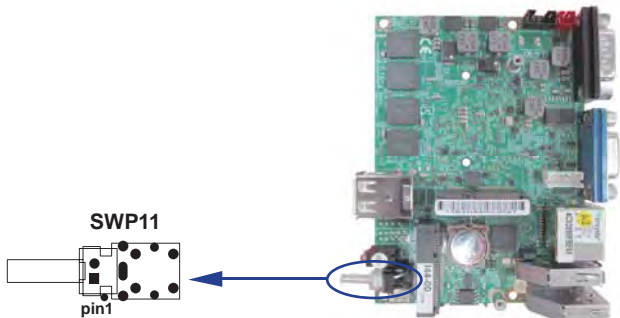
- SWP1 PB connector (1x2pin 2.0mm Wafer)

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

- Note :
- 1. Mating connector: JST B2B-PH-KL or compatible
 - 2. Cable housing: JST PHR-2 or compatible

3-6 Power Button and LEDs

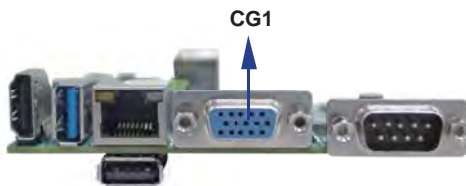
- SWP11: Power Button and Power LED (Blue LED)



3-7 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



● **HDMI1: HDMI Connector (Type A)**

PIN NO.	Description	PIN NO.	Description
1	TMDS DATA2+	2	GND
3	TMDS DATA2-	4	TMDS DATA1+
5	GND	6	TMDS DATA1-
7	TMDS DATA0+	8	GND
9	TMDS DATA0-	10	TMDS CLK+
11	GND	12	TMDS CLK-
13	NC	14	NC
15	DDC CLK	16	DDC DATA
17	GND	18	+5V
19	H.P. Detect		

*Note: HDMI support 1.3a Spec

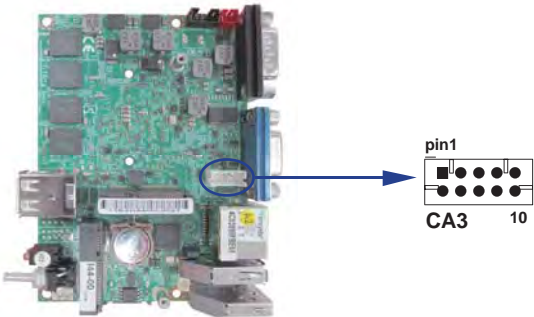


3-8 Audio interface

● **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

- Note :
- 1. Mating connector: JST B10B-PHDSS or compatible
 - 2. Cable housing: JST PHDR-10VS or compatible



3-9 I/O Interface

• COM ports

CC1 : Default support RS232 Mode COM1 conector (D-SUB 9pin)

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 : RS485 Mode COM1 conector (D-SUB 9pin)**

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 : RS422 Mode COM1 conector (D-SUB 9pin)**

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

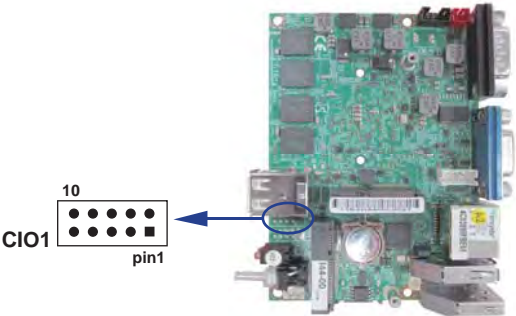


3-10 Digital Input / Output

● 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
 - 4. Mating connector: JST B10B-PHDSS or compatible
 - 5. Cable housing: JST PHDR-10VS or compatible



● 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) 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.

3-10-1 IO Device: F75111 under Windows

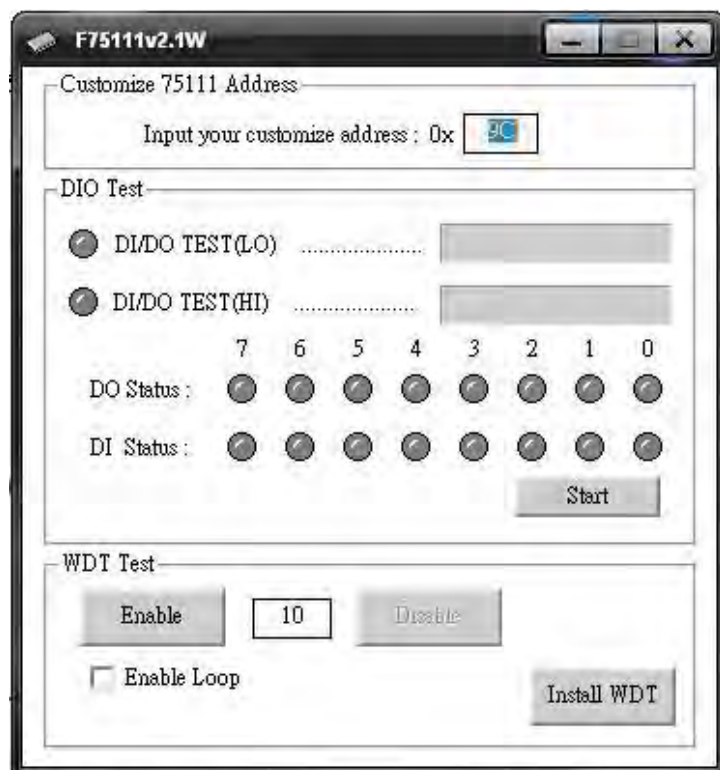
The Sample code source you can download from



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

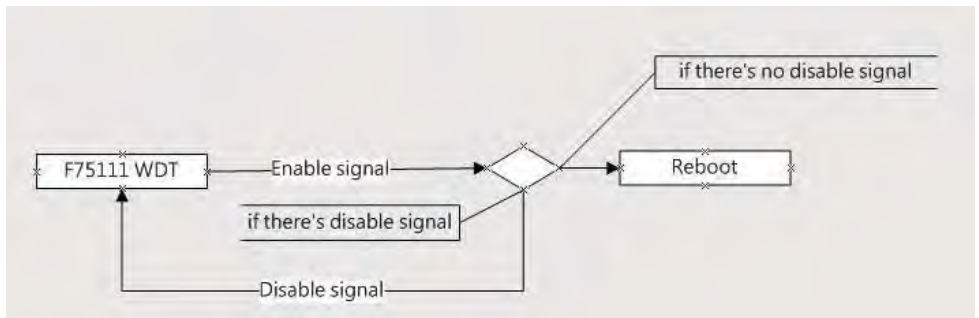
Binary file: F75111_DemoBin.rar

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 & 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  
}
```

3-10-2 IO Device: F75111 VB6 under Windows

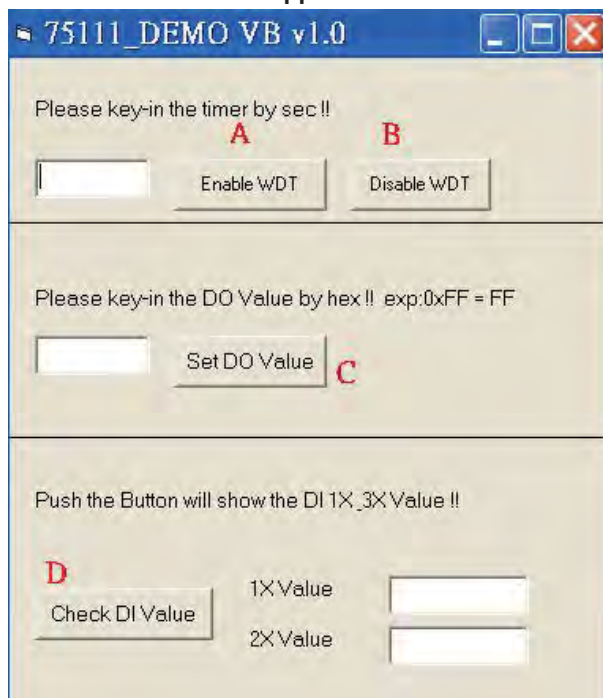
The Sample code source you can download from

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



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

3-10-3 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

F75111v2.0L

Customize F75111 Address : 0x

DIO Test

DI / DO Test (Low)

DI / DO Test (High)

7 6 5 4 3 2 1 0

DO Status ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

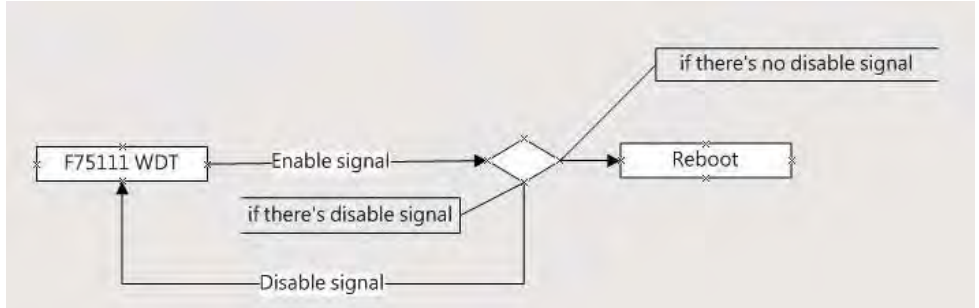
DI Status ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

WDT Test

☐ Enable Loop Test

WDT Stand by

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
}
```

3-11 LAN Interface

● **CL1 : 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

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

Back side con	RED LED	GREEN LED	YELLOW LED
Indicate	GIGA LAN Link(light)	100Mb LAN Link(light)	10Mb LAN Link(light)



● **LAN LED**

Intel I211AT

Speed	10 Mbps			100 Mbps			1000 Mbps		
Indicate	Back Side		Fornt Side	Back Side					Fornt Side
	Link Led	ACT Led	ACT Led	Link Led	ACT Led	Fornt Side ACT Led	Link Led	Back Side ACT Led	ACT Led
LAN light		Orange	Orange	Green	Orange	Orange	Red	Orange	Orange

3-12 USB Interface

● **CU12 Dual USB2.0 Port Type A**

PIN NO.	Description	PIN NO.	Description
1	+5V	5	+5V
2	P0_D-	6	P1_D-
3	P0_D+	7	P1_D+
4	GND	8	GND

● **CU1/CU2: USB2.0 port (1x4pin 1.25mm Wafer)**

PIN NO.	CU1 (1x4pin 1.25mm)	PIN NO.	CU2 (1x4pin 1.25mm)
1	+5V	5	+5V
2	P0_D-	6	P1_D-
3	P0_D+	7	P1_D+
4	GND	8	GND

- Note :
- 1. CU1 / CU2 share with CU12 USB signal
 - 2. Mating connector: MOLEX 53047-0610 or compatible
 - 3. Cable housing: MOLEX 51021-0600 or compatible

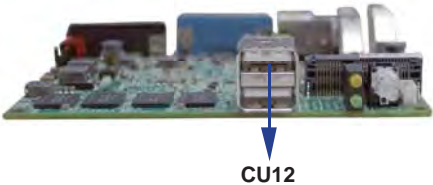
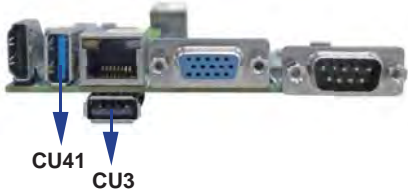
● **CU3 : USB 2.0 ports (USB Type A connector)**

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

● **CU41 : USB3.0/2.0 port(USB Type A connector 90°)**

PIN NO.	CU3/CU4(1x4pin 1.25mm)	PIN NO.	CU31/CU41(1x5pin 1.25mm)
1	+5V	5	USB3.0 RX-
2	USB 2.0 D-	6	USB3.0 RX+
		7	GND
3	USB 2.0 D+	8	USB3.0 TX-
4	GND	9	USB3.0 TX+

- Note: 1. USB 3.0 and USB 2.0 single connector



● **CU42/CU43/CU44: USB2.0 port (1x4pin 1.25mm Wafer)**

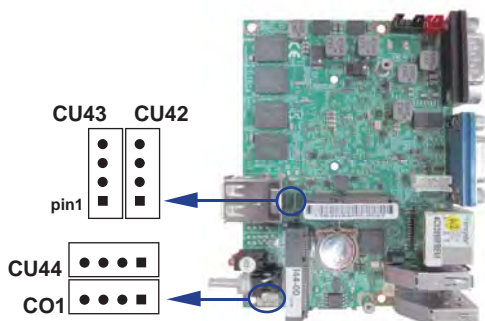
PIN NO.	Description
1	+5V
2	DATA -
3	DATA +
4	GND

Note : 1. CU42 / CU43 share with MPCE1 & MPCE2 USB signal
 2. Mating connector: MOLEX 53047-0610 or compatible
 3. Cable housing: MOLEX 51021-0600 or compatible

3-13 SMBus Interface

● **CO1:SMBus 4pin (1.25mm)Wafer**

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

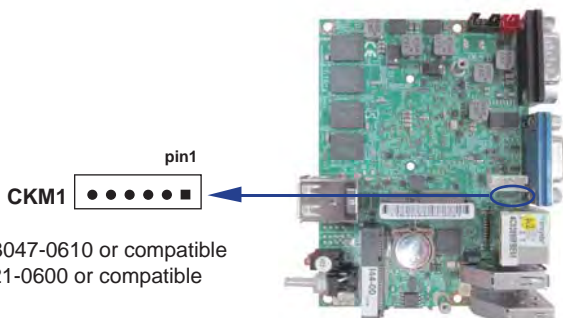


Note : 1. Mating connector: MOLEX 53047-0410 or compatible
 2. Cable housing: MOLEX 51021-0400 or compatible

3-14 PS2 Keyboard / Mouse connector

● **CKM1: KB/MS port (1x6pin 1.25mm Wafer)**

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



Note : 1. Mating connector: MOLEX 53047-0610 or compatible
 2. Cable housing: MOLEX 51021-0600 or compatible

3-15 SATA interface

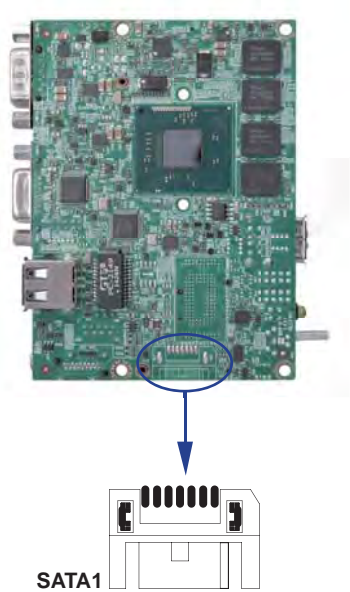
● **SATA1: SATA port 1x7pin Connector**

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

● **SSD use SATA port 2 channel(option)**

Note: 1. On board SSD for OEM option



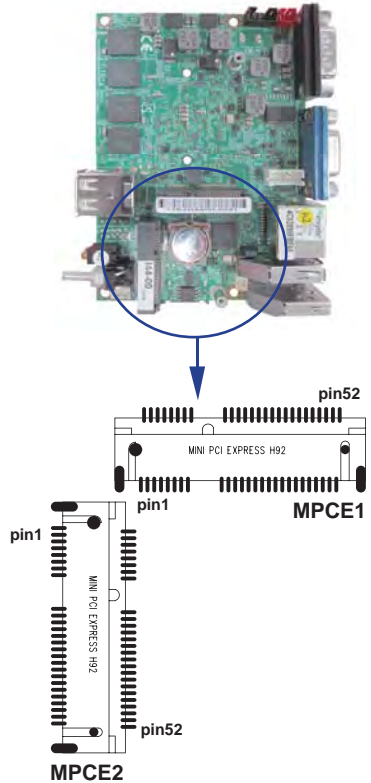
3-16 PCI Express Mini card

- 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



- Note: 1. MPCE1 used USB port 2(share with CU42),MPCE2 used HUB-USB port 2(Share with CU43)
2. Just only MPCE2 pin 23, 25, 31, 33 supported mSATA device and PCIe device alternatively.
3. MPCE2 Pin51 mSATA / PCIe auto detect function
4. If SSD present on the system, The MPCE2 mSATA interface will be remove.

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.

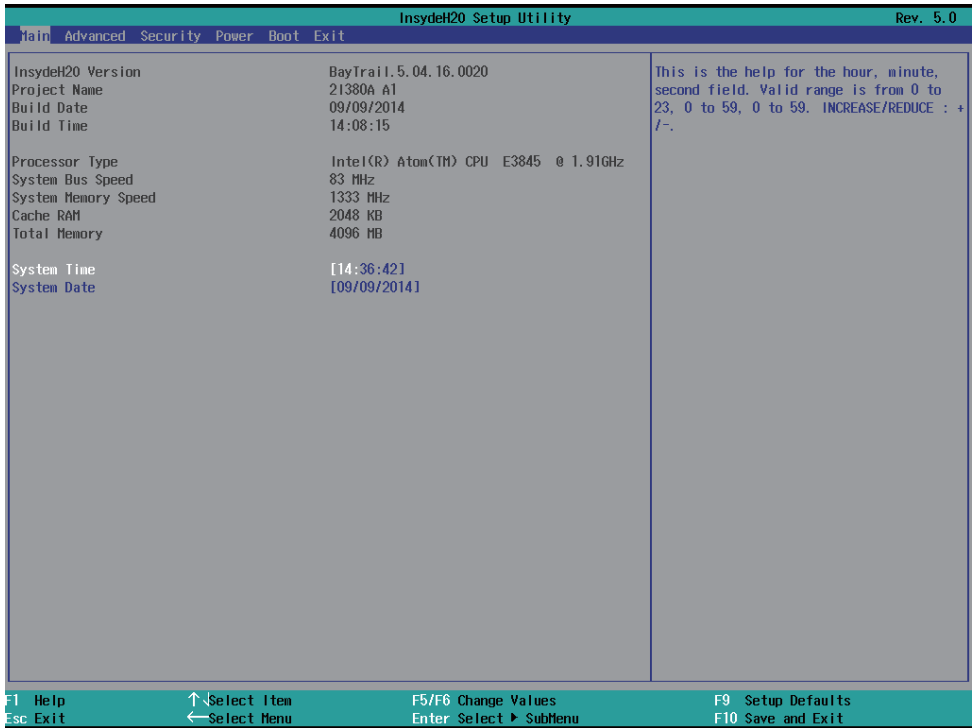
Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

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

4-2 BIOS Menu Screen & Function Keys



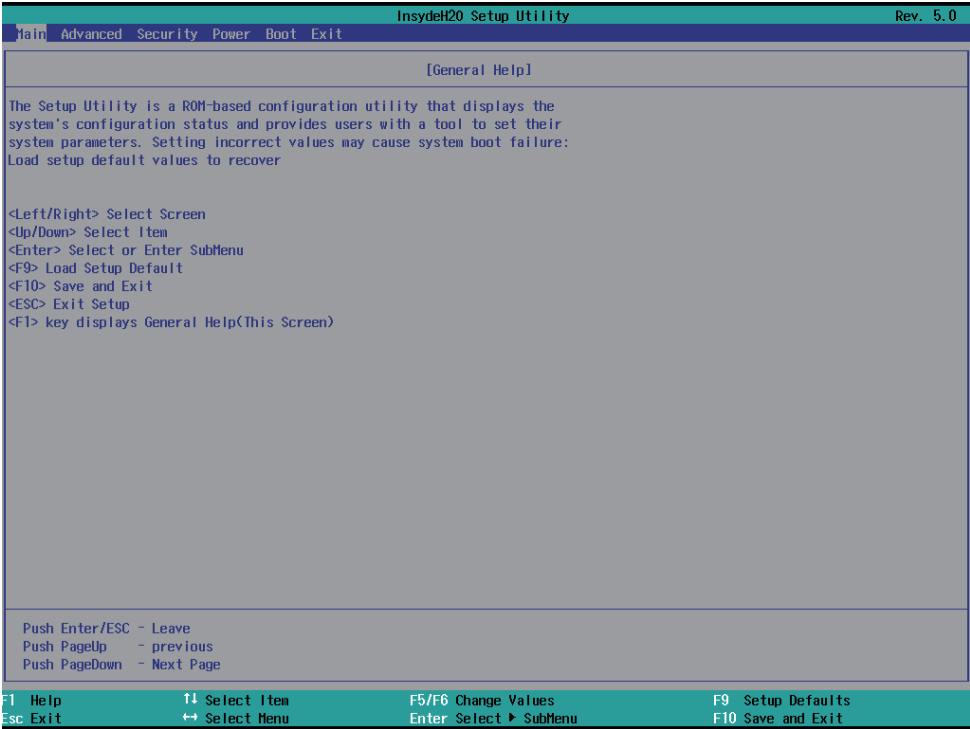
In the above BIOS Setup main menu of, you can see several options.

We will explain these options step by step in the following pages of this

chapter, but let us first see a short description of the function keys you may use here:

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

4-3 Getting Help



Status Page Setup Menu/Option Page Setup Menu

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

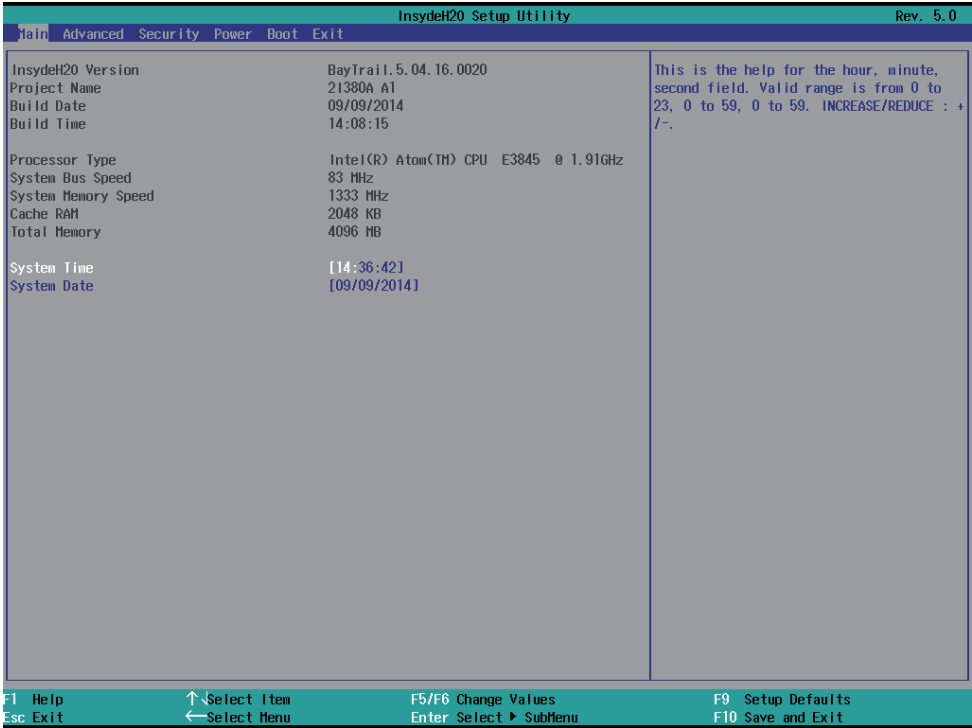
4-4 Menu Bars

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.

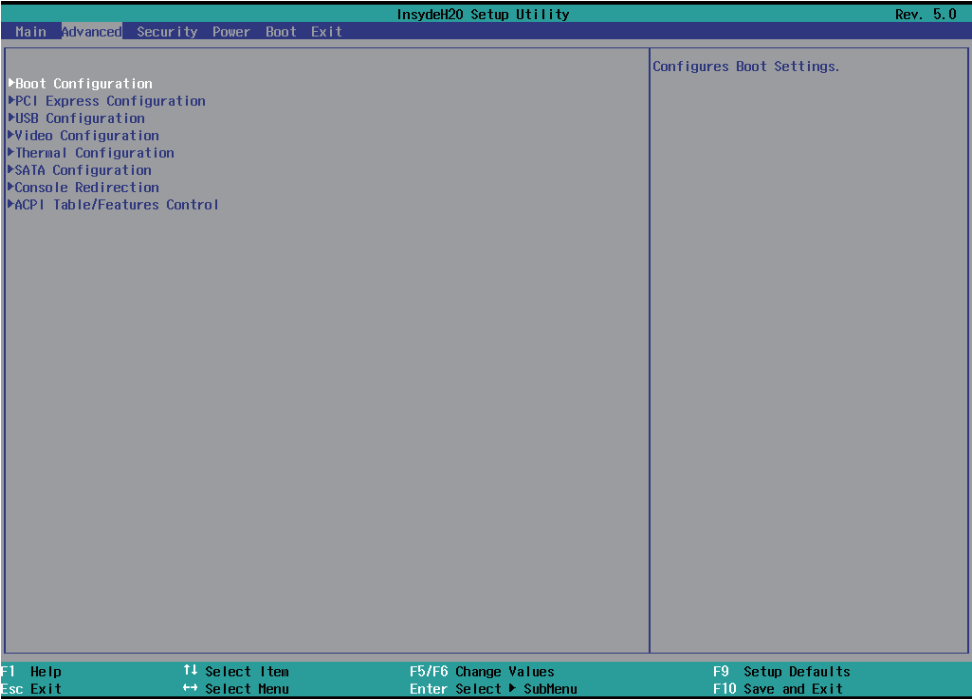
System Date

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

USB Configuration

Please refer section 4-6-3

Video Configuration

Please refer section 4-6-4

Thermal Configuration

Please refer section 4-6-5

SATA Configuration

Please refer section 4-6-6

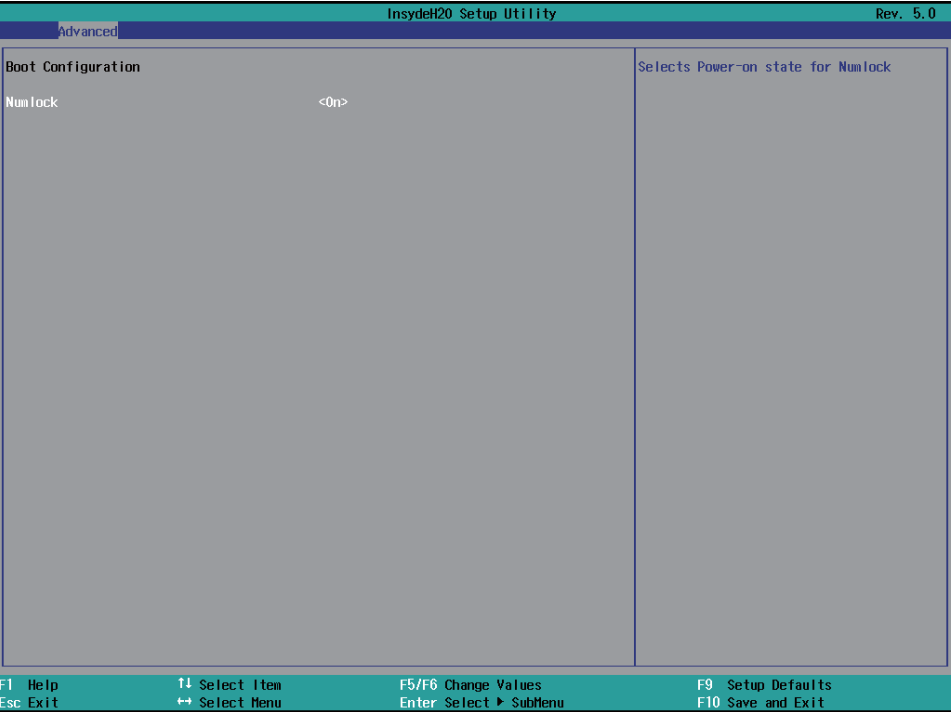
Console Redirection

Please refer section 4-6-7

ACPI Table/Fetures Control

Please refer section 4-6-8

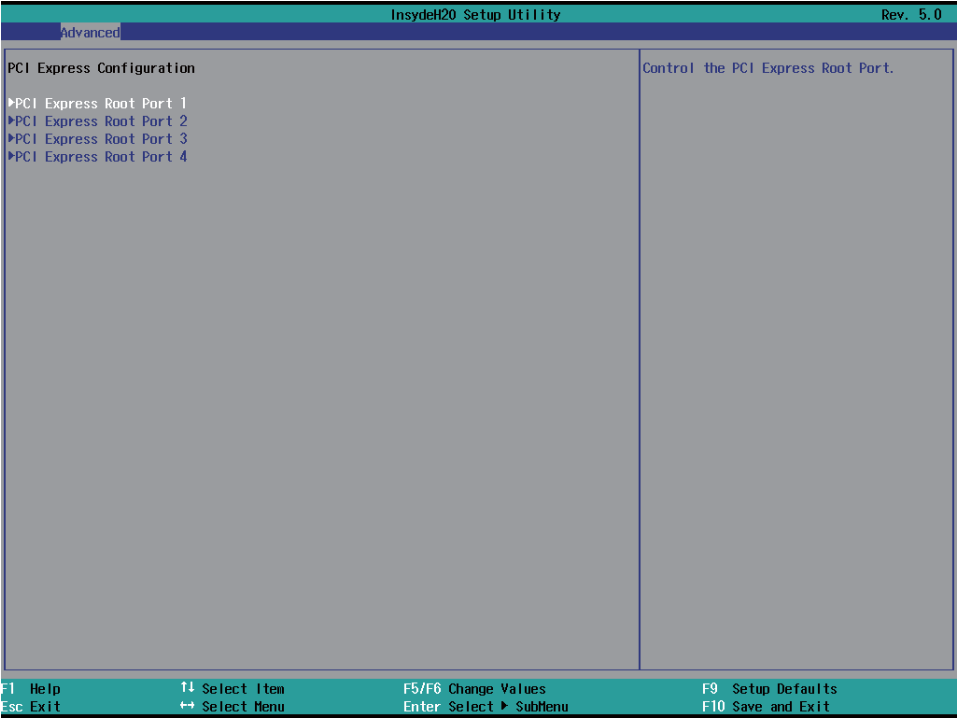
4-6-1 Boot Configuration



Numlock

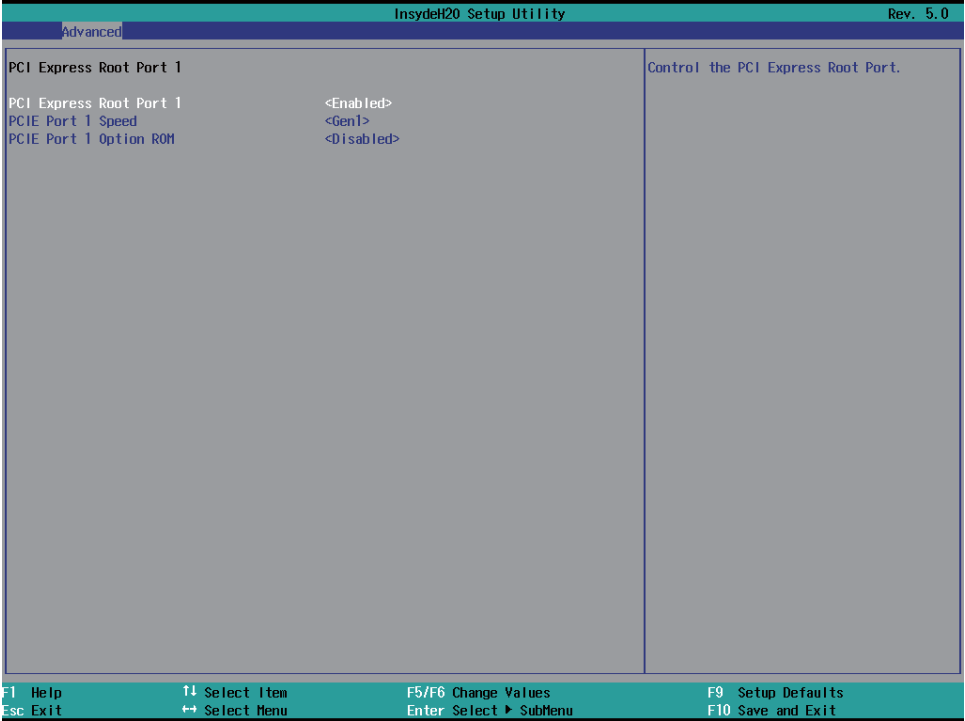
Select Power-on state for Numlock, default is <ON>

4-6-2 PCI Express Configuration



PCIe 1/2/3/4 configuration settings

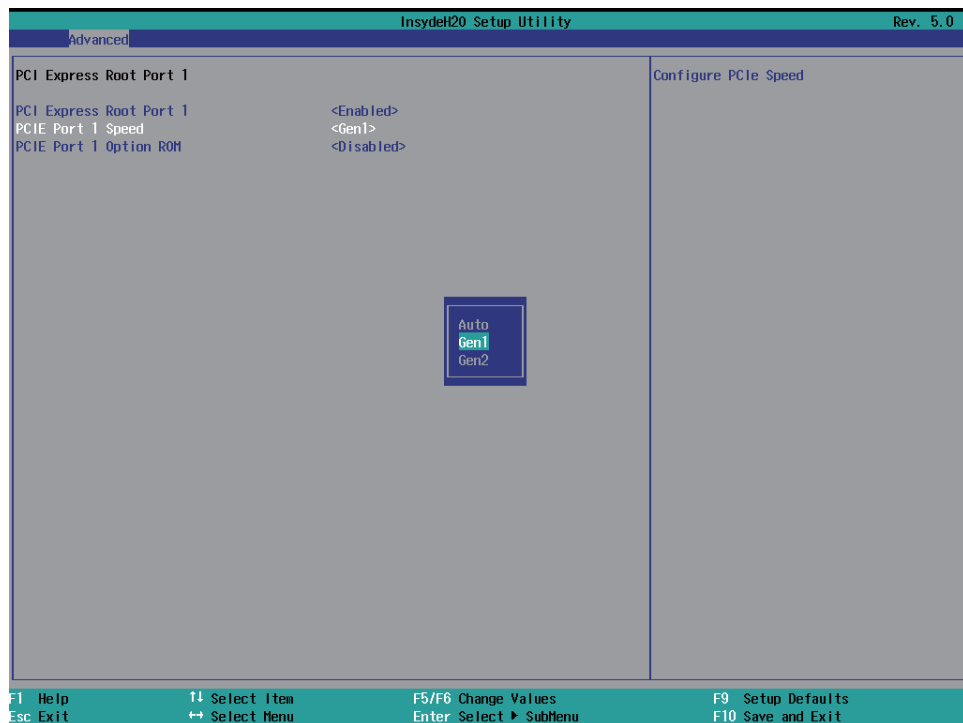
4-6-2-1 ► PCI Express Root Port 1/2/3/4



Control the PCI Express Root Port.

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

4-6-2-2 ► PCIE Port 1/2/3/4 Speed



Select PCI Express port speed.

The optional settings are: Gen1(default), Gen2

4-6-2-3 ► PCIE Port 1/2/3/4 Option ROM



Select PCIE TXE ROM support

The optional settings are: Disabled(default), Enabled

4-6-3 USB Configuration

Advanced

InsydeH20 Setup Utility

Rev. 5.0

USB Configuration

xHCI Mode

<Best Auto>

XHCI Controller

<Enabled>

EHCI Controller

<Enabled>

Mode of operation of xHCI controller.

F1 Help

Esc Exit

↑ Select Item

← Select Menu

F5/F6 Change Values

Enter Select ► SubMenu

F9 Setup Defaults

F10 Save and Exit

XHCI Mode

Mode of operation of xHCI controller.

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

4-6-4 Video Configuration

InsydeH20 Setup Utility		Rev. 5.0
Advanced		
Video Configuration		
Logo & SCU Resolution	<1024 x 768>	
PAVC		
Aperture Size	<LITE Mode>	
IGD - DVMT Pre-Allocated	<256MB>	
IGD - DVMT Total Gfx Mem	<64M>	
Configuration Logo & Setup Utility Resolution		

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

Logo & SCU Resolution 1024 x 768(Default) , 800 x 600 , 640 x480

PAVC

The function is setting the display quality,

The optional settings are: Disabled, LITE Mode(default), SERPENT Mode

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

4-6-5 Thermal Configuration

Advanced

InsydeH20 Setup Utility

Rev. 5.0

Thermal Configuration Parameters

Critical Trip Point <110 °C>

Passive Trip Point <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 processors.

F1 Help

↑↓ Select Item

F5/F6 Change Values

F9 Setup Defaults

Esc Exit

↔ Select Menu

Enter Select ► Submenu

F10 Save and Exit

Thermal Configuration Parameters

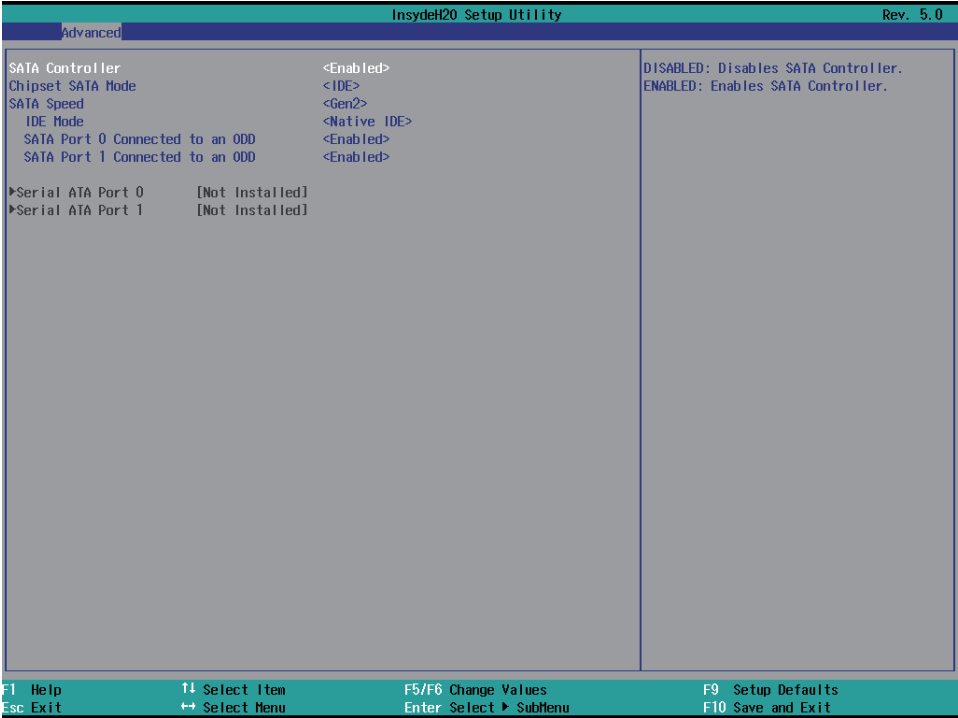
This Value controls the temperature of the ACPI Critical Trip Point, the point in which the OS will shutdown the system.

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°

4-6-6 SATA Configuration



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

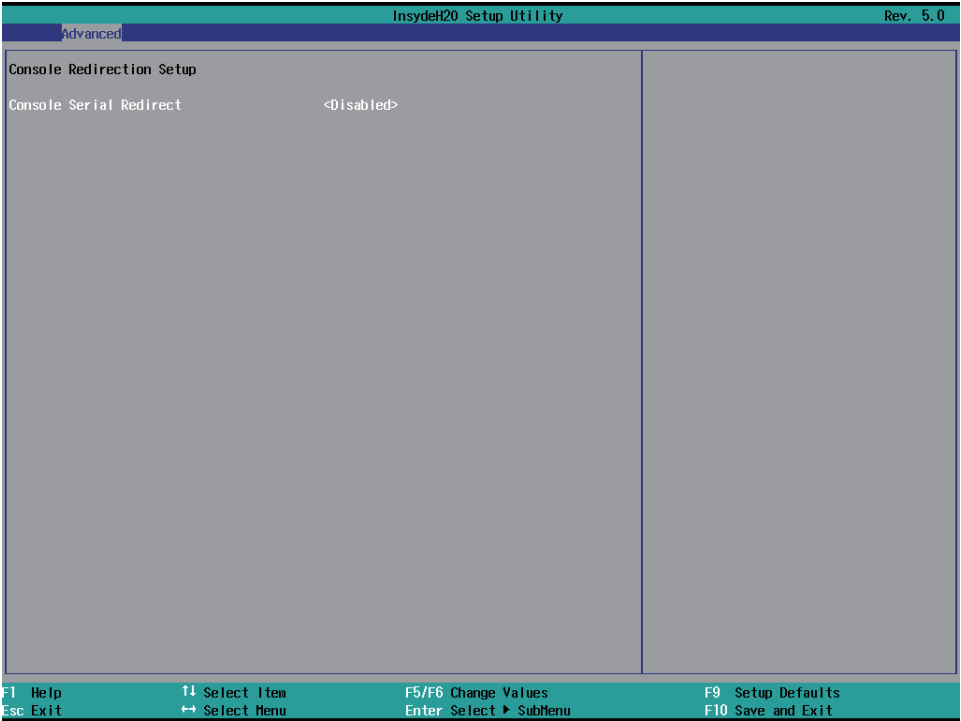
Use this item to Enable or Disable SATA Port0 ODD function
The optional settings are:: Enabled(default) or Disable

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

4-6-7 Console Redirection



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) (default)

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

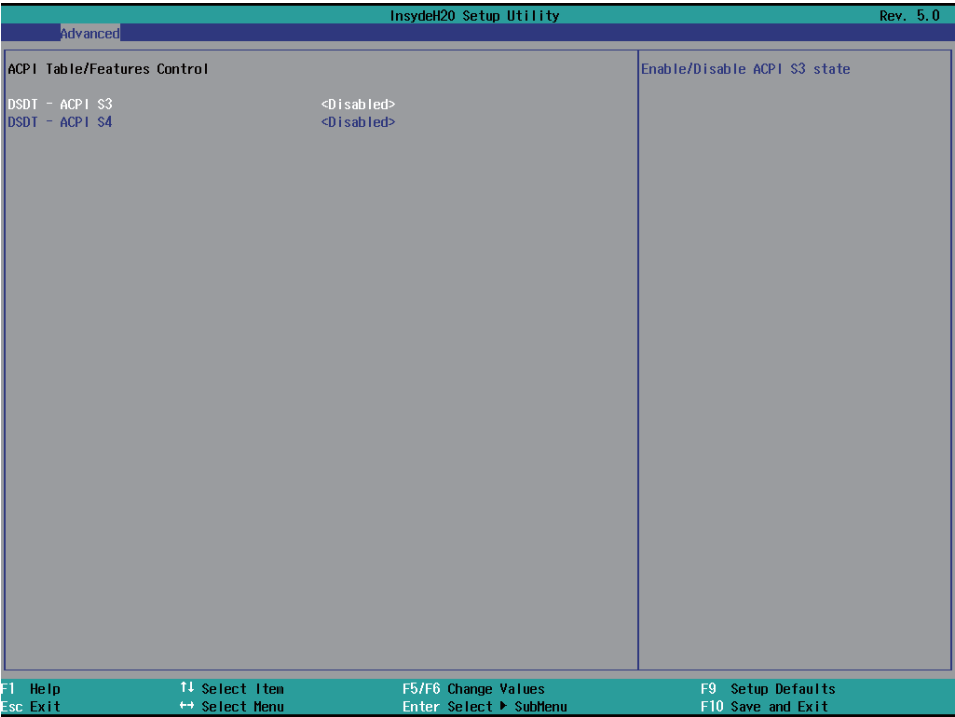
Stop Bits

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

Flow Control

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

4-6-8 ACPI Table/Fetures Control

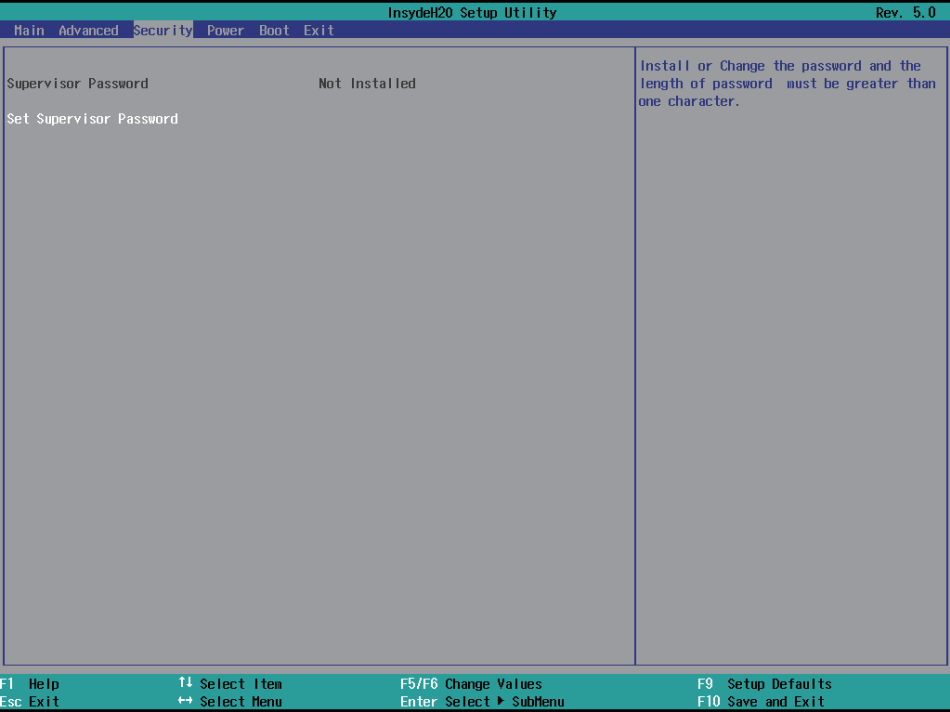


ACPI Table/Features Control

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)
DSDT – ACPI S4 (Suspend to Disk), Enabled or Disabled(default)

4-7 Security

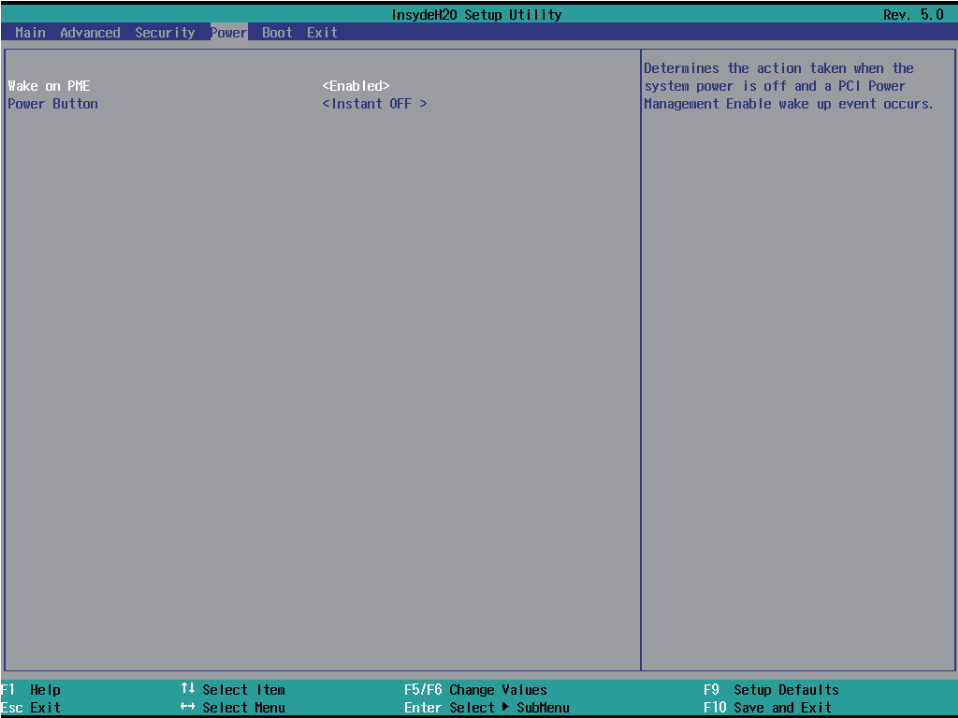


Supervisor Password

To set up an Supervisor password

1. Select Supervisor Password.
The screen then pops up an Create New Password dialog.
2. Enter your desired password that is no less than 3 characters and no more than 10 characters.
3. Hit [Enter] key to submit.

4-8 Power



Wake on PME

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



Boot type

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

Quiet Boot

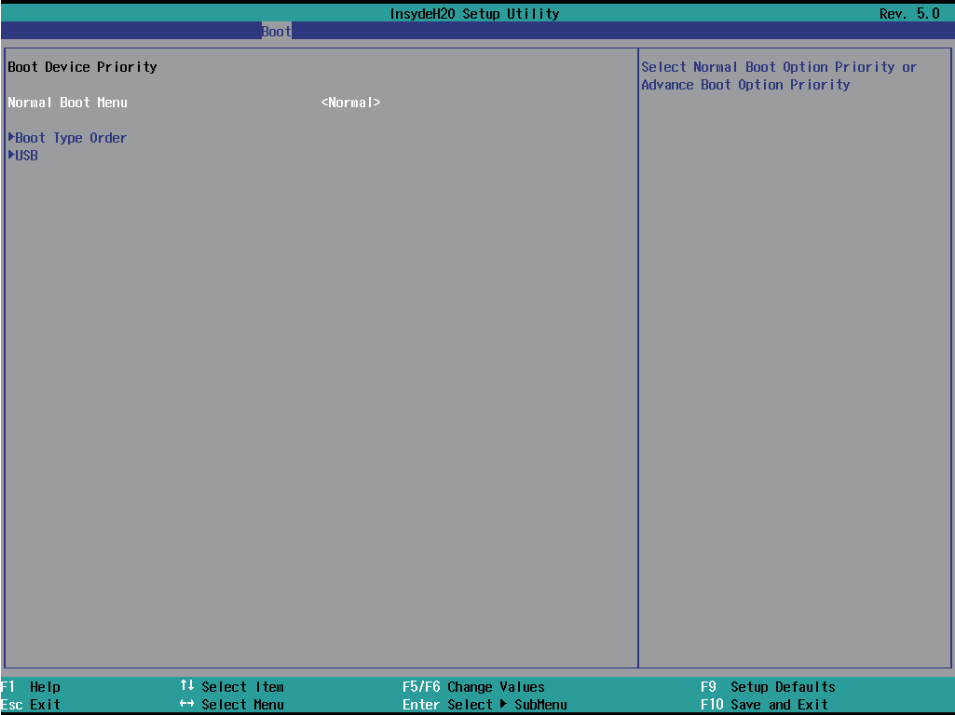
The optional settings are: Enabled(default), Disabled.

EFI / Legacy Device order

Determine EFI device first or legacy device first.

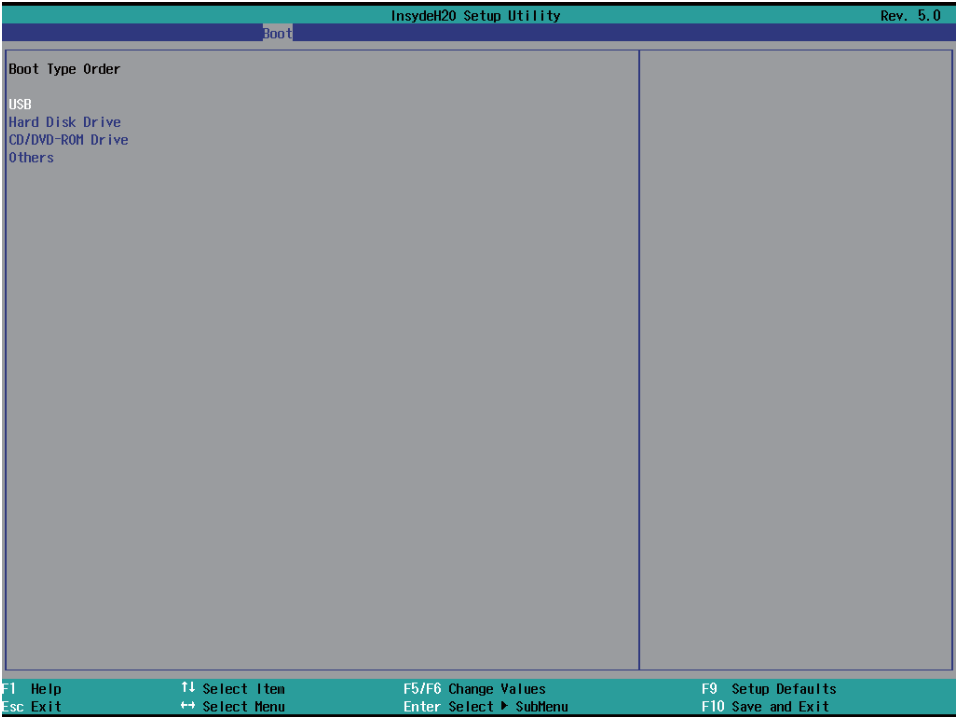
The optional settings: EFI device first, Legacy device first(default), smart mode

4-9-1 Legacy



Normal Boot Menu

Select Normal Boot option priority or Advance Boot option priority.
The optional settings: Normal(default), Advance

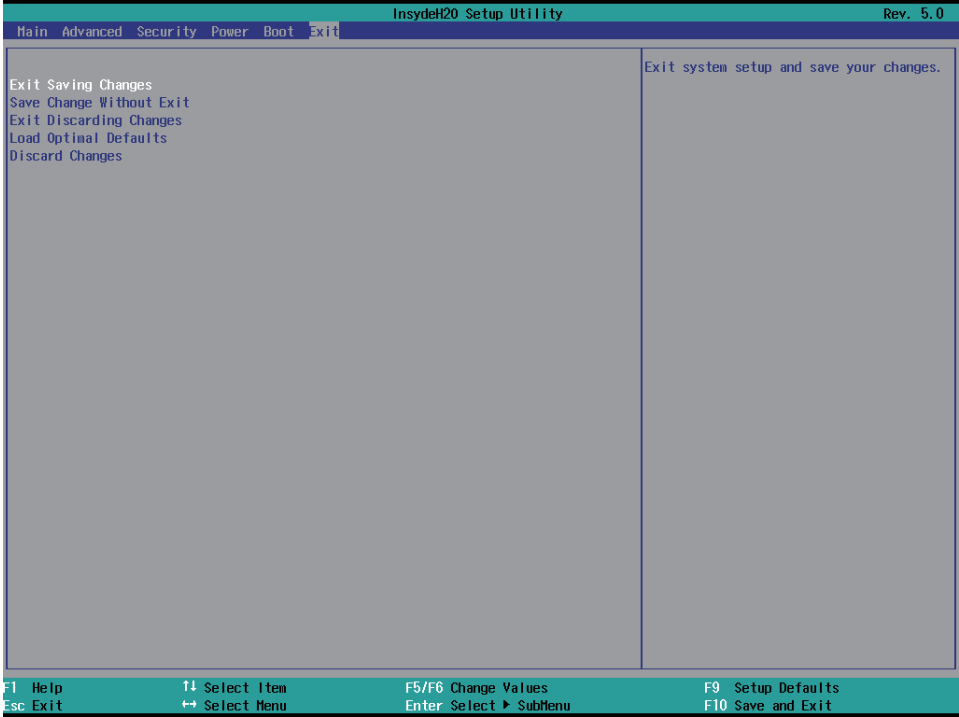


Boot Type Order

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.

Discare Changes

Use this item to cancel all the setup options.

4-11 Device Manager

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



Serial Port 1 Configuration

Please refer section 4-11-1

[illegible]

Serial Port 1

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

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=3F8h; IRQ=3,4

IO=2E8h; IRQ=3,4

IO=2F8h; IRQ=3,4

IO=3E8h; 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.

Hardware Monitor

Hardware Monitor

Hardware Monitor

Voltage

VCC33.392 V

VCCORE0.792 V

V GFX0.856 V

Temperature

CPU (°C/°F)52°C/125°F

System (°C/°F)50°C/122°F

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.

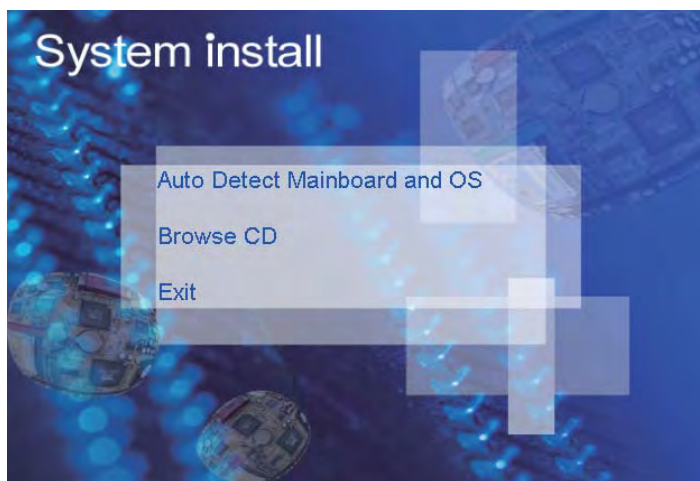
Chapter-5

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)

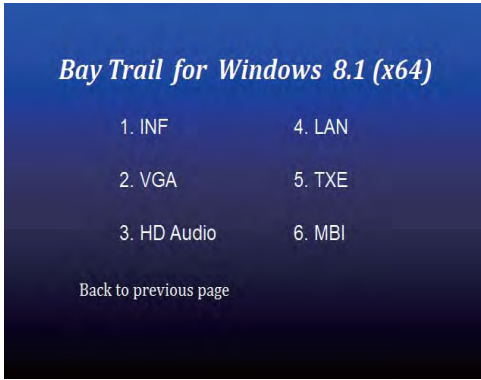
- | | |
|--------------|--------------|
| 1. INF | 5. HD Audio |
| 2. VGA | 6. LAN |
| 3. Serial IO | 7. TXE Patch |
| 4. xHCI | 8. TXE |

[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" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path

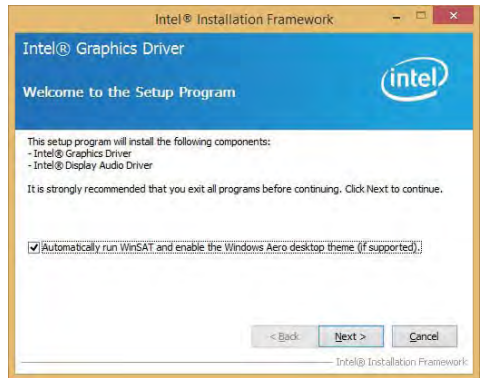
For Windows 7 64/32-bit,

X:\driver\INTEL\BAY\INFWIN7\infinst_autol.exe

For Windows 8 / 8.1 32/64-bit

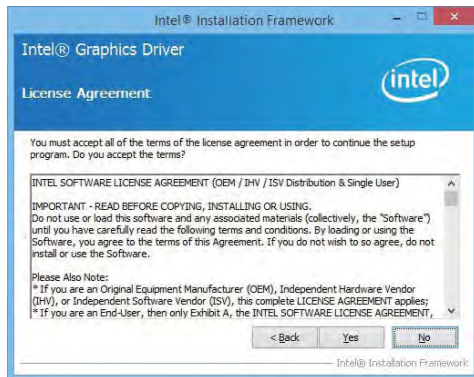
X:\driver\INTEL\BAY\INFWIN_8_64\infinst_autol.exe

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

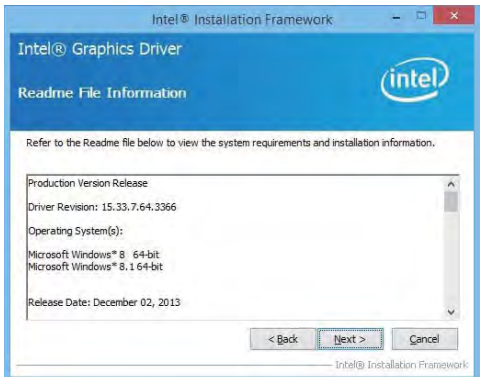


1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "VGA".

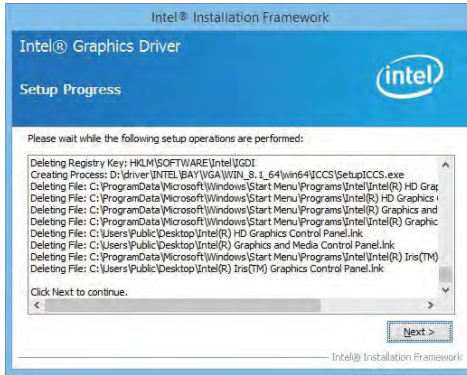
2. At the "Welcome to the Setup Program screen, Click "Next".



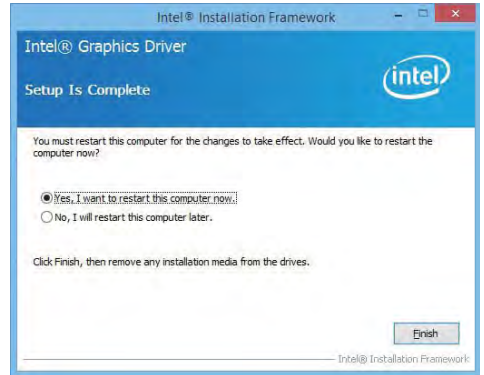
3. At the "License Agreement" screen, Click "Yes".



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

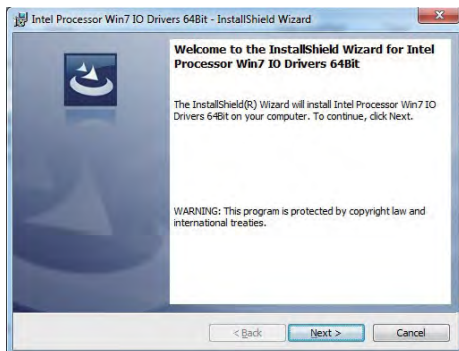
For Windows 8 / Windows 8.1 64-bit

X:\driver\INTEL\BAY\VGA\WIN_8_64\Setup.exe

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



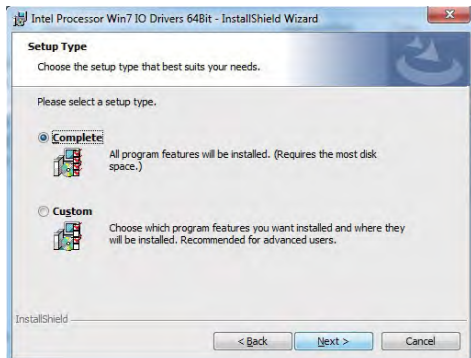
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "Serial IO".



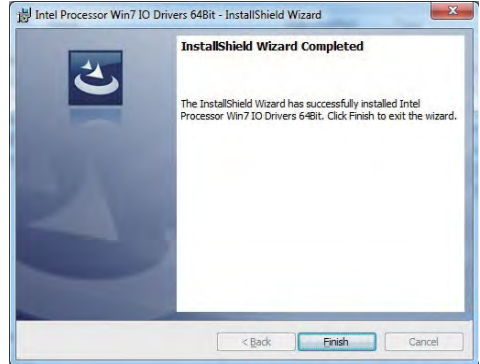
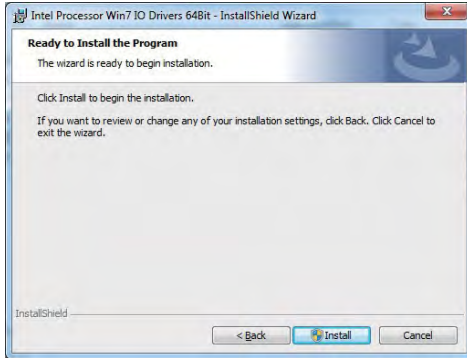
2. At the "Welcome to the Setup Program screen, Click "Next".



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

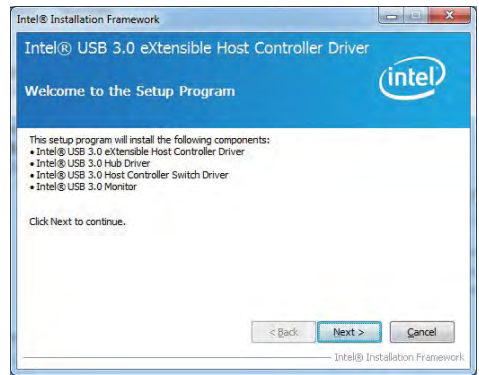
For Windows 7 64-bit

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 "xHCI".



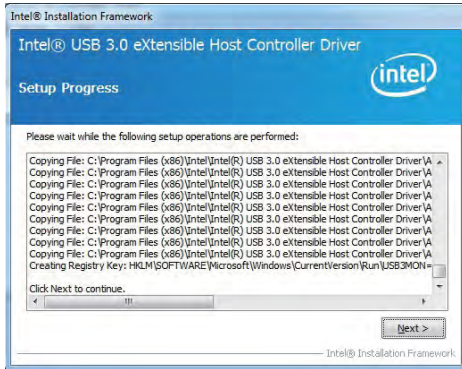
2. At the "Welcome to the Setup Program screen, Click "Next".



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



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



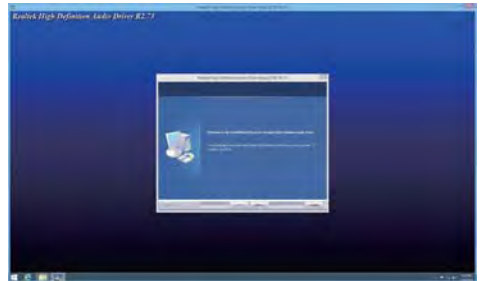
5. At the "Setup Progress" screen
Click "Next".



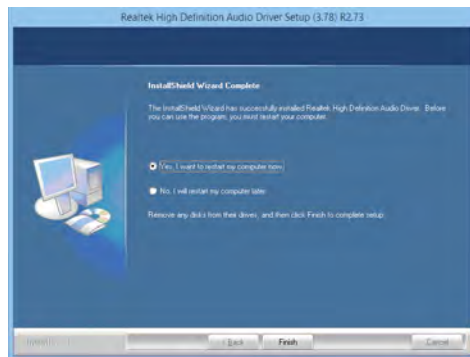
6. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32 / 64-bit,
X:\driver\INTEL\BAY\XHCN\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".



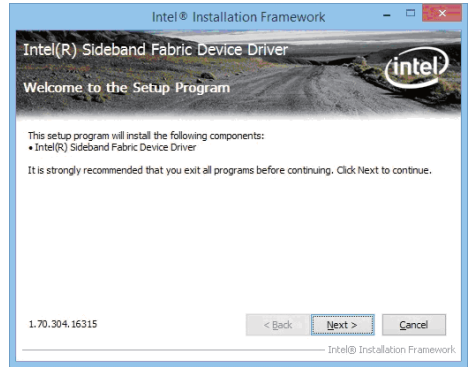
3. Click "Finish" to restart computer

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

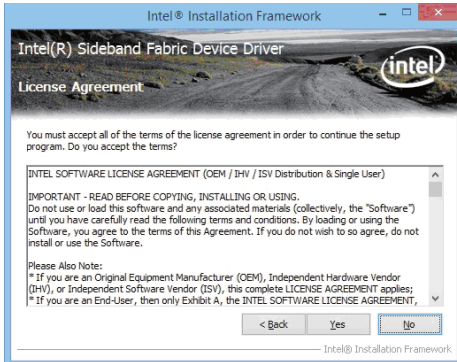
5-6 MBI Install Intel MBI Driver (FOR Win 8/8.1 only)



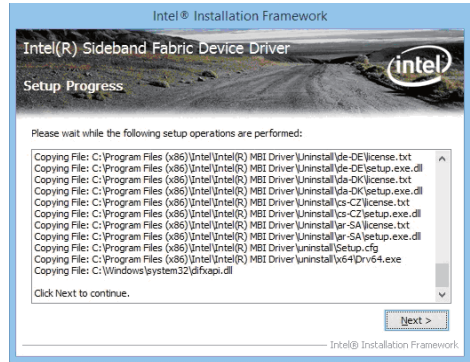
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "HD Audio"



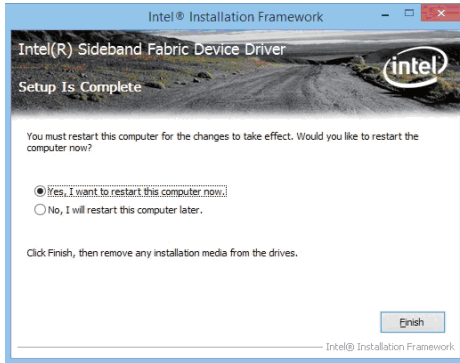
2. At the "Welcome to the Setup Program screen, Click "Next".



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,

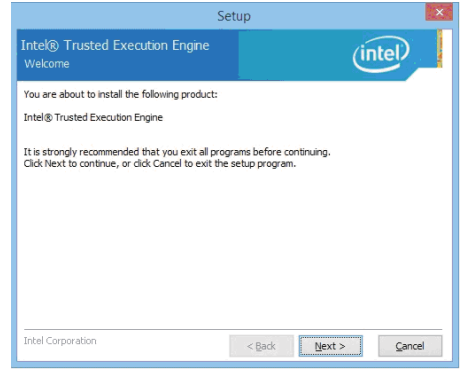
X:\driver\INTEL\BAY\MB\Setup.exe

5-7 TXE Install Intel TXE driver)

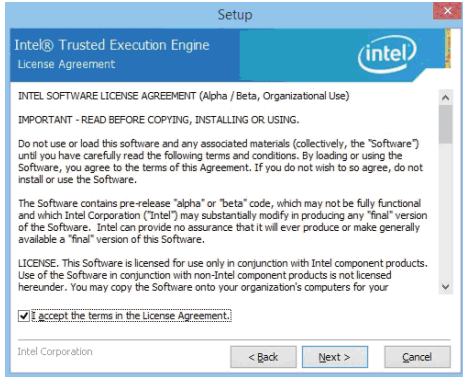
5-7-1 TXE Install for WIN8/WIN8.1



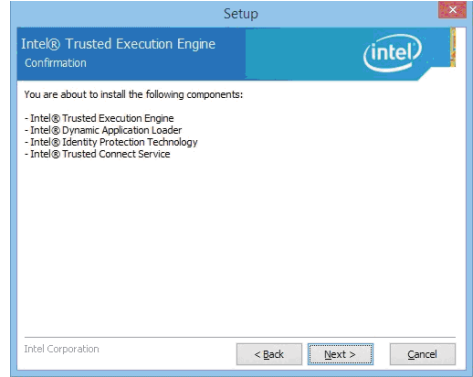
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE"



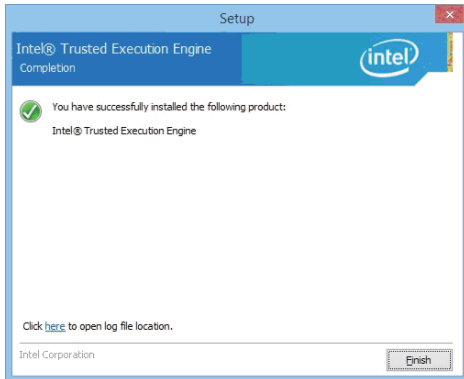
2. At the "Setup" screen, Click "Next".



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,

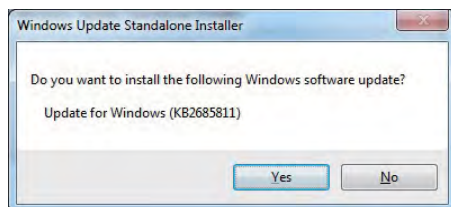
X:\driver\INTEL\BAY\TXE\WIN_8.1\SetupTXE.exe

5-7-2 TXE Install for WIN7

Please install PXE Patch first



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



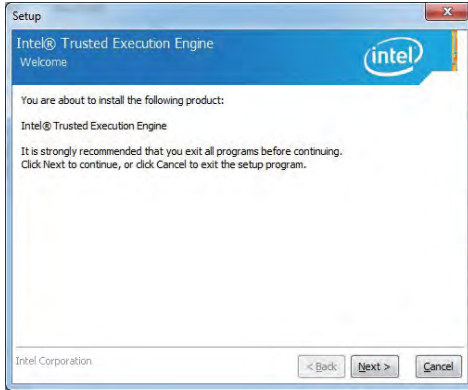
2. At the "Windows Update" screen, Click "Yes"



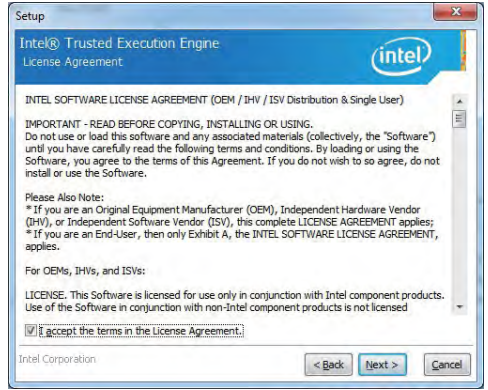
3. Click "Finish" & restart computer



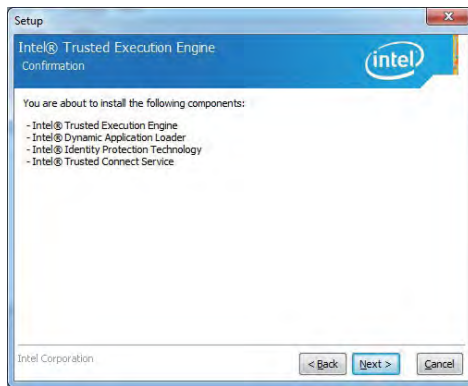
4. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE "



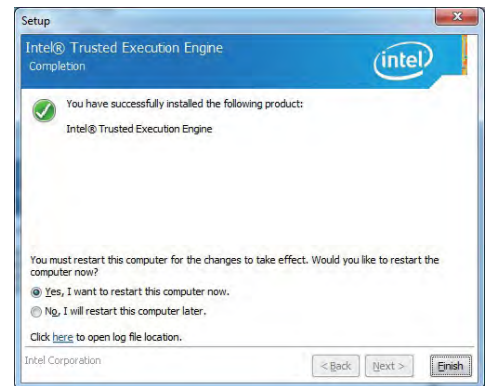
5. At the "TXE Setup" screen, Click "Next".



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 and latest BIOS to your bootable disc.

You may download it from our website.

STEP 3. (Here take 2I380A 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 2I380AA2.ROM -BIOS -ALL

2I380AA2.ROM is the file name of the latest BIOS.

It may be 2I380AA1.ROM or 2I380AA2.ROM, etc.

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

By Bay Trail series mainboard, please type

X:\H2OFFT-D.EXE 2I380AA2.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

Item	Spec
CPU	Atom E3845 1.91 Ghz
SDRAM	4GB DDR3L 1333
Operating System	Windows 7 / SP1
Test Program	3D Mark 06
HDD 3.5" SATA	Standard HDD
HDD 2.5" SATA	Slim Type HDD
mSATA	32GB

Test Result for reference !

Hard Disk		Power off	Start up		Operation Maximum	Shut down Maximum	In Put Voltage
			Maximum	Stable			
E3845	Slim Type HDD	0.03A	0.81A	0.44A	1.02A	0.7A	12V
	mSATA	0.03A	0.67A	0.42A	0.88A	0.58A	12V

The power consumption depends on your device choice!

Item	Spec
CPU	Atom E3815 1.46 Ghz
SDRAM	2GB DDR3L 1066
Operating System	Windows 7 / SP1
Test Program	3D Mark 06
HDD 3.5" SATA	Standard HDD
HDD 2.5" SATA	Slim Type HDD
mSATA	32GB

Test Result for reference !

Hard Disk		Power off	Start up		Operation Maximum	Shut down Maximum	In Put Voltage
			Maximum	Stable			
E3815	mSATA	0.03A	0.53A	0.38A	0.64A	0.48A	12V

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)