1I385A

Intel Bay Trail-I E3825 (Dual Core) CPU,
DDR3L 1066 MT/s,
1 x LAN / Mini-PCIe / USB / COM

All-In-One

Intel Bay Trail-I E3825 (Dual Core 1.33 GHz) CPU,

1 x Intel GbE LAN, 1 x PCIe mini card slots, VGA,

3 x USB, 2 x COM, DC IN +5V

CAUTION

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

NO. 1I385A_V0.1
Release date: NOV. 24. 2016

Contents

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User Manual edition 0.1, Nov. 30. 2016

Warning !

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

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

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

4. SATA interface does not support Hot SWAP function.

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

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

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

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

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

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

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

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

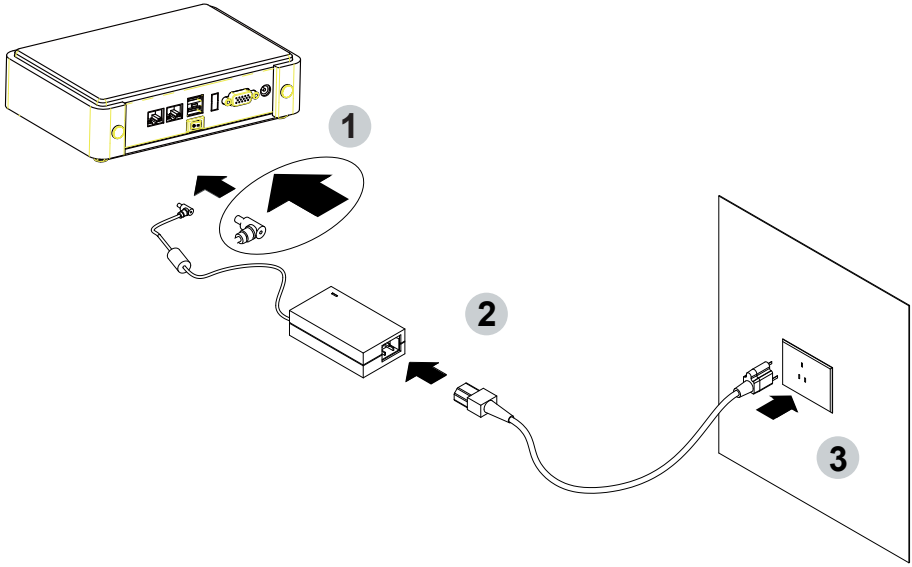
✱ Hardware Notice Guide

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

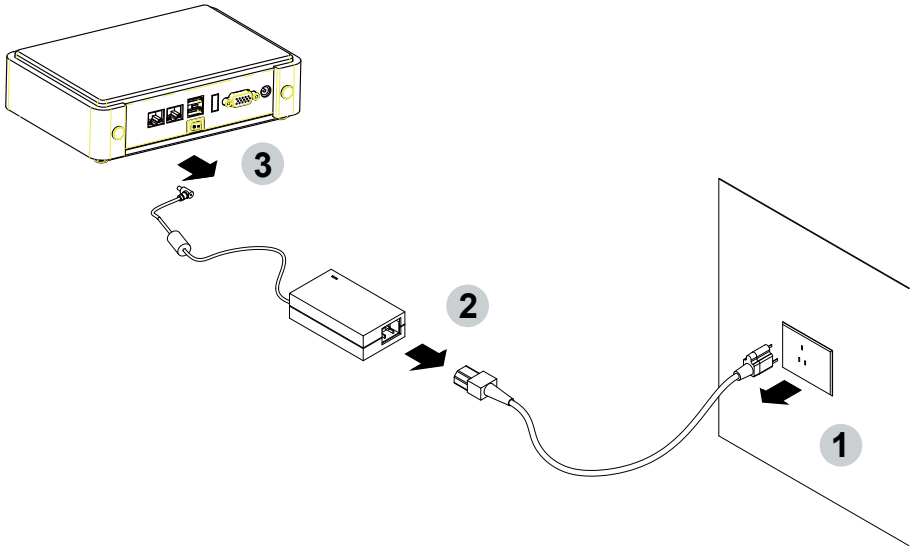
Remark 1:
Always insert / unplug the DC-in horizontally & directly to / from the motherboard. DO NOT twist, it is designed to fit snugly.
Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

The 1I385A is designed using 1.8 inches from factor and powered by Intel® Atom™ Bay Trail-I E3825 1.33GHz CPU (Dual-core processor) and Bay Trail-I Integrated Graphics chipset. E3825 processors which have low power features but also good performance computing, especially for multimedia capabilities compared to earlier generations. 1I385A motherboard is built in with onboard DDR3L SDRAM 2GB and up to 4GB Max. Memory DDR3 data transfer rate of 1066MT/s. The expendable interfaces include one full size PCIe Mini card for mSATA, PCIe and USB interface.

The 1I385A is a 1.8 inches compact size SBC with low power consumption (DC IN +5V) and high performance make these platforms well suited for many space-limited and thermally constrained market applications, such as healthcare, logistics, fleet management, digital signage and mobile security. The 1I385A supports one LAN ports of 10 / 100 / 1G Ethernet, one VGA port for display, USB3.0, 2 x USB 2.0, 4DI / DO and 2 COM ports.

1-1 Major Feature

1. Intel Bay Trail-I E3825 1.33GHz SOC (Dual core)
2. Intel Bay Trail-I Integrated Graphics chipset, 533MHz render clock frequency
3. On board DDR3L SDRAM 2GB (4GB Max) data transfer rate of 1066MT/s
4. Support 1 x 10 / 100 / 1000 Mbps Intel LAN ports
5. Support 2 x COM ports, 1 x USB 3.0 and 2 x USB 2.0
6. Support extended 1 x Mini PCIe card (full size)
7. Hardware digital Input & Output, 4 x DI / 4 x DO

   Hardware Watch Dog Timer, 0~255 sec programmable
8. On board DC IN +5V
9. PCB Dimension: 84 x 55 mm (1.8 inches)
10. Support VGA display

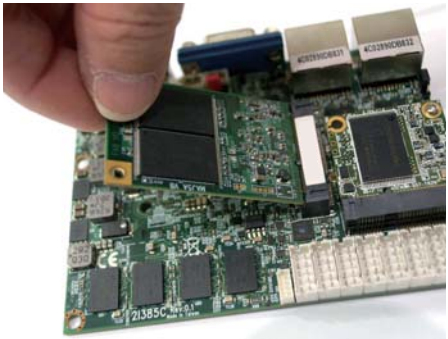
1-2 Specification

1. **SOC:** Intel Bay Trail-I E3825 1.33GHz (Dual core)
2. **Memory:** DDR3L SDRAM 2GB, data transfer rate of 1066MT/s
3. **Graphics:** Intel Bay Trail-I Integrated Graphics chipset,
   533MHz render clock frequency
4. **LAN:** 1 x INTEL I211-AT (option) / I210-IT LAN with 10 / 100 / 1000 Mbps
5. **Serial Port:** 2 x COM port (RS232 or 422 or 485) select by BIOS,
   1 x RS232 and 1 x RS485 by default
6. **USB:** 1 x USB 3.0 (internal), 2 x USB 2.0 (1 external + 1 internal)
7. **WDT / DIO:** Hardware digital Input & Output, 4 x DI / 4 x DO
   Hardware Watch Dog Timer, 0~255 sec programmable
8. **Expansion interface:** one full size PCIe Mini card for mSATA,
   PCIe and USB interface
9. **BIOS:** Insyde UEFI BIOS
10. **Dimension:** 84 x 55 mm (1.8 inches)
11. **Power:** On board DC IN +5V

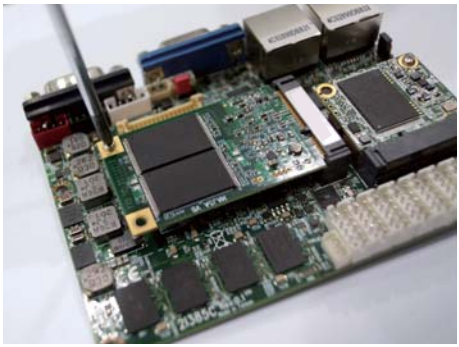
1-3 Directions for installing the Mini Card

1. Unscrew the screw on the board

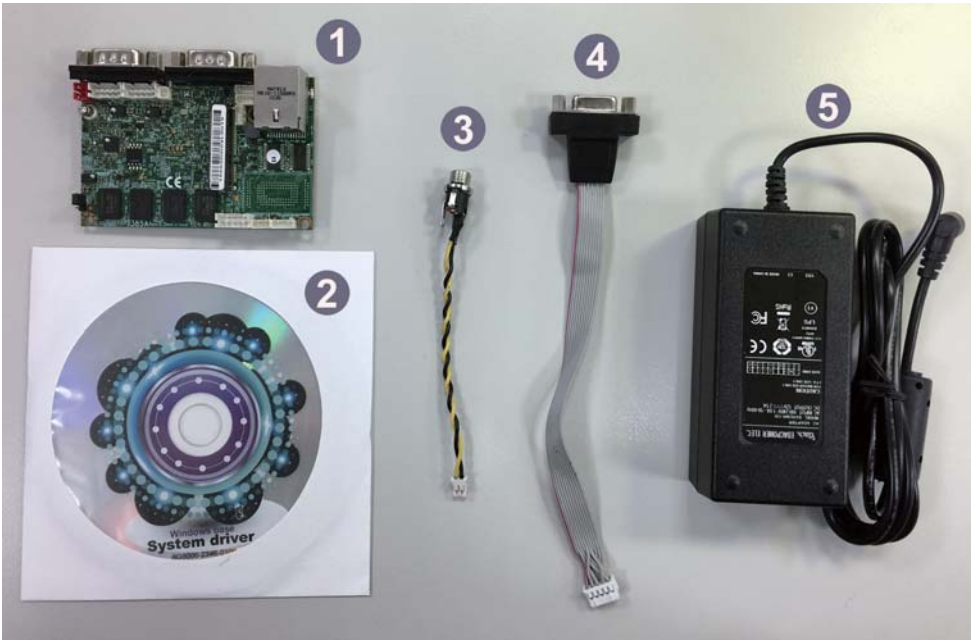
2. Plug in the Mini Card in a 45 angle



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



1-4 Packing List



	Material Code	Description	Detail Specification	Quantit
1	7G1901-1554002-0	MB-1I385A-I22-00-002	LF,1I385A-I22,Rev.:002	1
2	6G8006-2349-0100	LEX Product Driver DVD	LF, Intel Baytrail Driver,Windows 7/8.1 32/64	1
3	6G6003-7329-0100	Power Cable	LF,L=9cm,2.0 1*2/DC JK	1
4	6G6001-8404-0100	VGA FK	LF,L=15cm,2.0 2*5/ DB15pin,MI945/3V700D	1
5	6G5212-0252-0100	25W Power Adapter,5V/5A	LF,2.5/5.5/9.5,180' ,1000mm,FSP025-DPAN2,FSP	1

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

Chapter-2

Hardware Installation

2-1 Unpacking Precaution

This chapter provides the information how to install the hardware of 1I385A.
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-IN12V 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 1I385A.
   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 1I385A 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 1I385A from electricity discharge. With reference to section 1-5 please check the delivery package again with following steps:

1. Unpack the 1I385A 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.

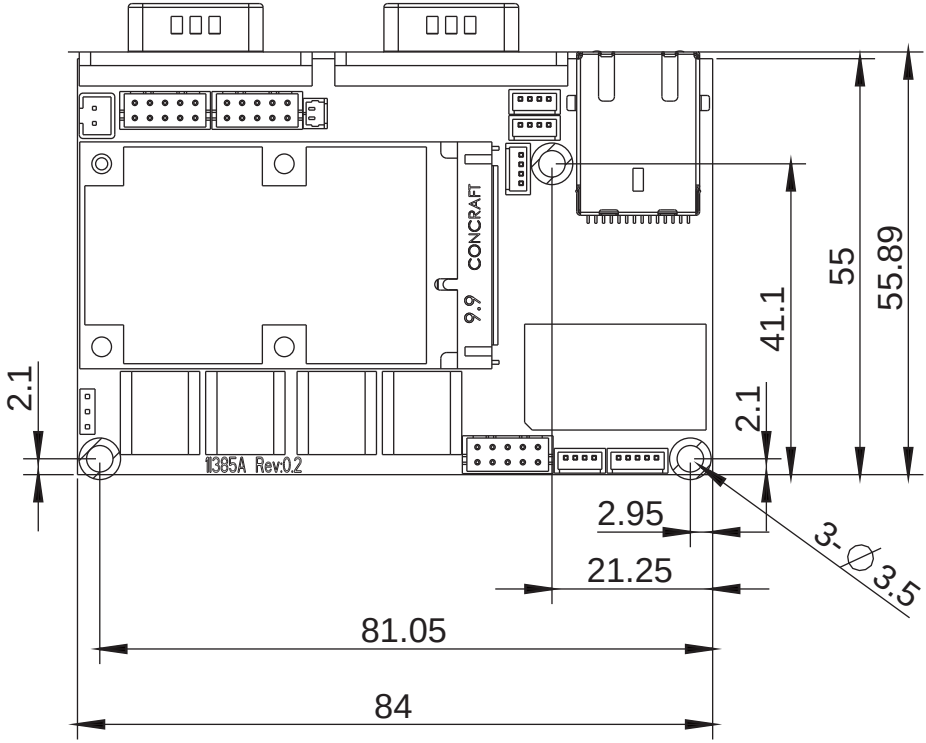
3. Is there any visible damage on the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT
   THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

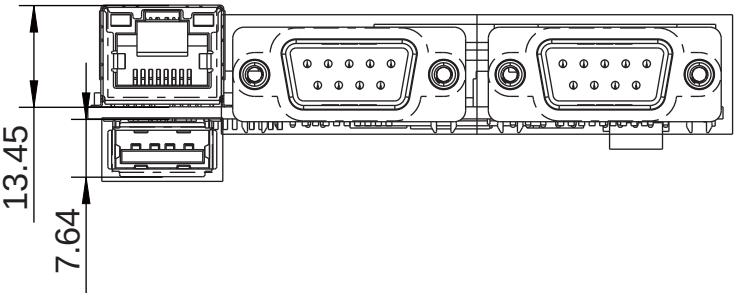
4. Check your optional parts (i.e. DDR, CF etc.), all necessary jumpers setting to jumper pin-set, and CMOS setup correctly.
   Please also refer to all information of jumper settings in this manual.

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.

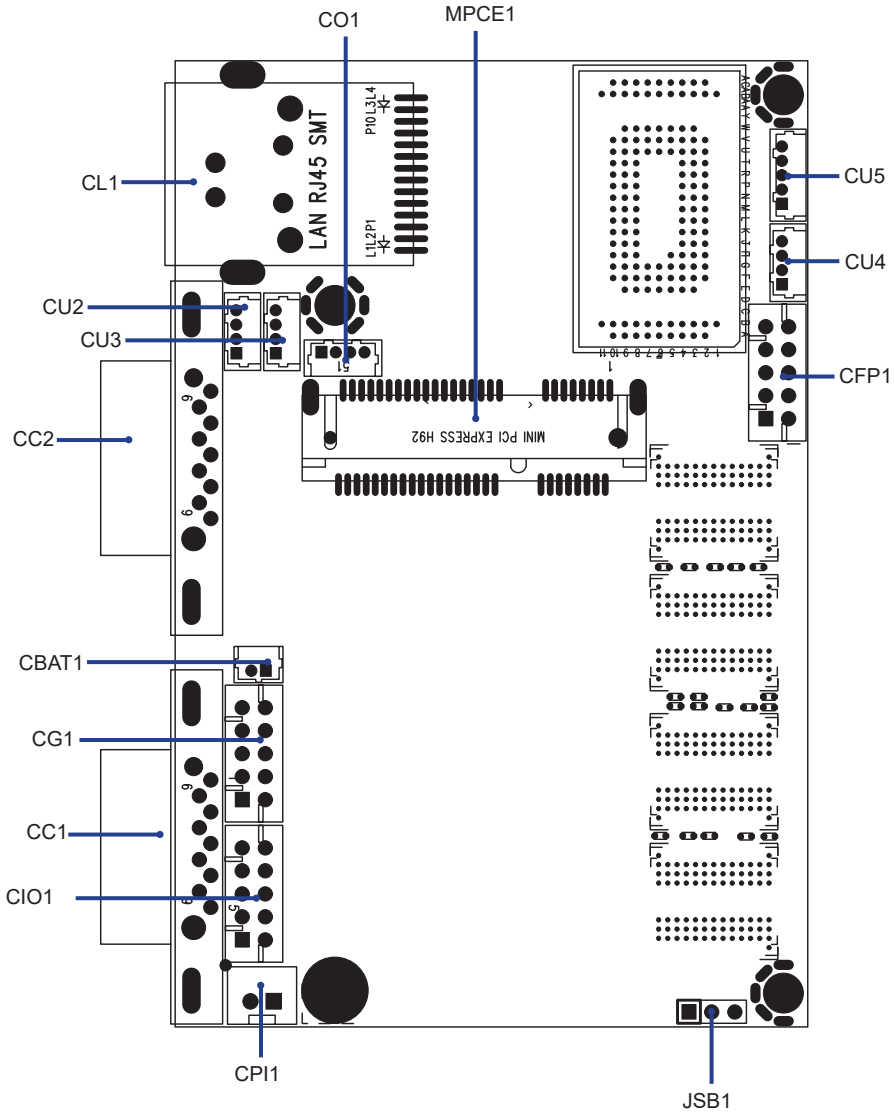
6. Please keep all necessary manual and driver disc in a good condition for future re-installation if you change your Operating System.

2-3 Dimension-1I385A

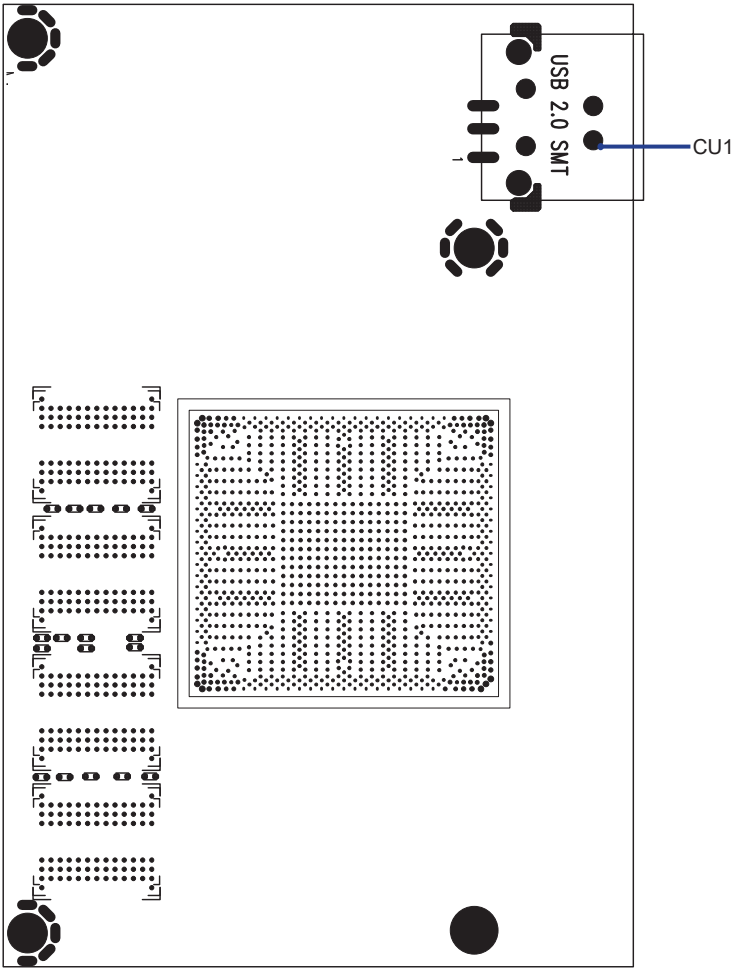




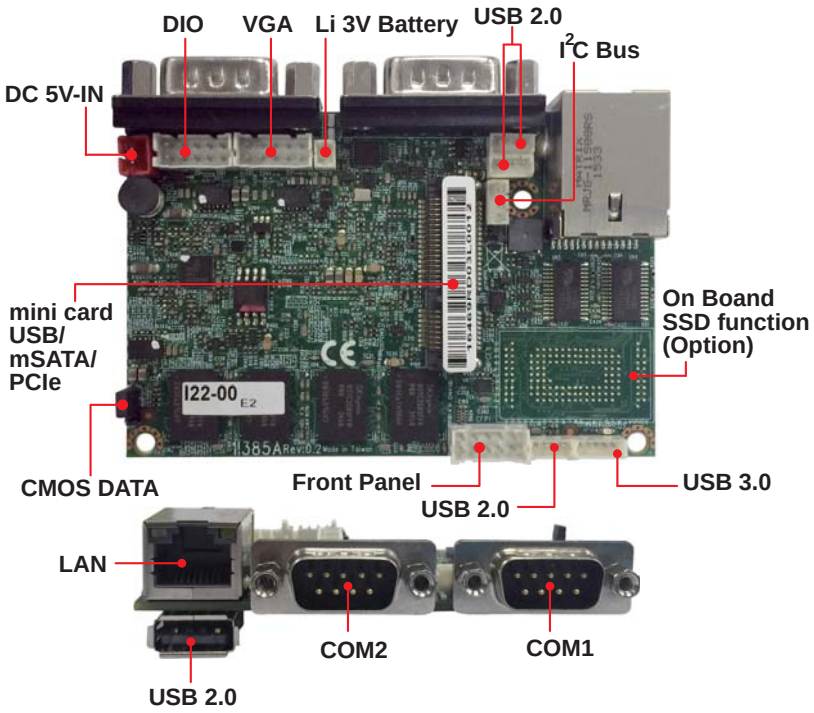
2-4 Layout-1I385A-Connector and Jumper



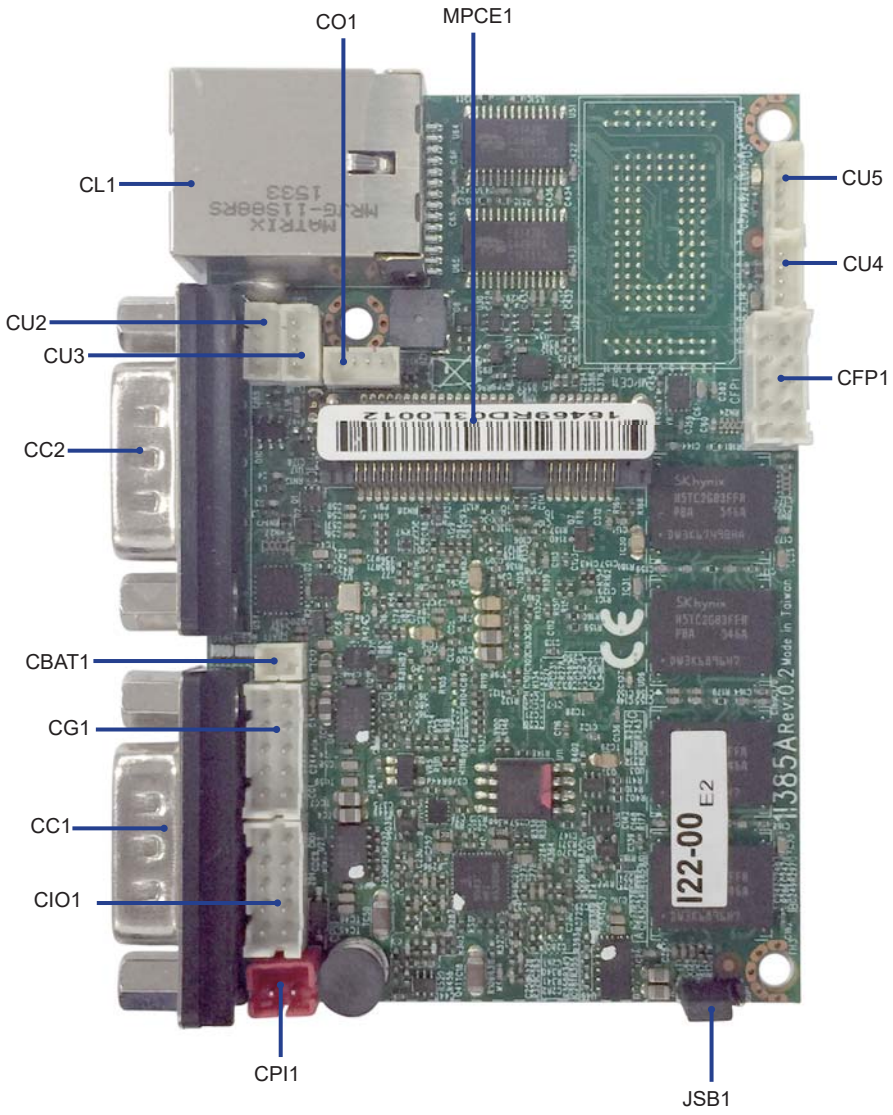
2-4-1 Layout-1I385A-Connector and Jumper Bottom



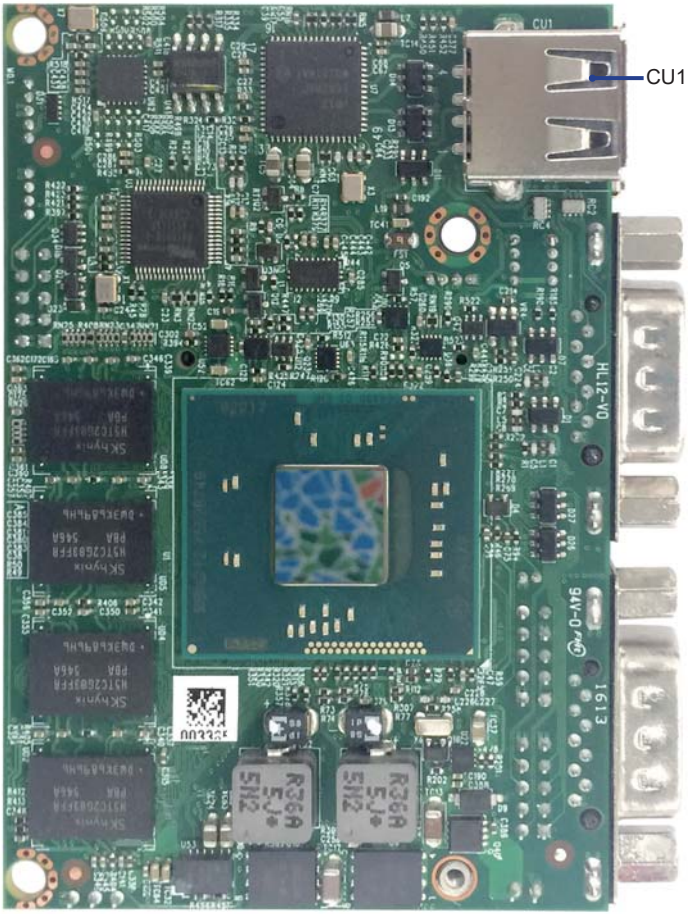
2-4-2 1I385A-Function MAP



2-5 Diagram- 1I385A



2-5-1 Bottom Side Diagram- 1I385A



BACK Panel

2-6 List of Jumpers

JSB1: CMOS DATA clear

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.

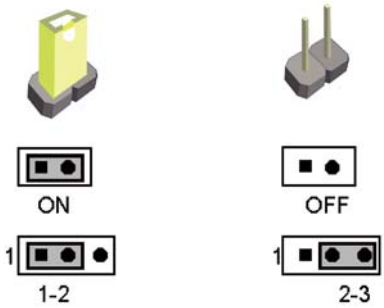


Figure 2.2

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 5V power cable from DC 5V 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 5V power cable back to DC 5V Power connector

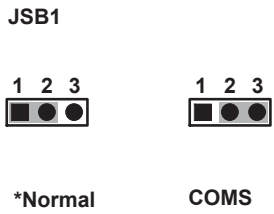
JSB1	Description
*1-2	Normal set
2-3	CMOS data clear

Note: Do not clear CMOS unless

1. Troubleshooting

2. Forget password

3. You fail over-clocking system



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

CBAT1 : Li 3V Battery 1x2pin (1.25mm) Wafer

CG1 : VGA 2x5pin (2.0mm) Wafer

CC1 : COM1 DB9 Connector

CC2 : COM2 DB9 Connector

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

CIO1 : DIO 2x5pin (2.0mm) Wafer

CL1 : LAN port 1 RJ45 Connector

CO1 : I^2C Bus 1x4pin (1.25mm) Wafer

CPI1 : DC 5V-IN 1x2pin (2.0mm) Red wafer connector

CU1 : USB 2.0 Type A connector

CU2 : USB 2.0 port 1x4pin (1.25mm) Wafer

CU3 : USB 2.0 port 1x4pin (1.25mm) Wafer

CU4 : USB 2.0 port 1x4pin (1.25mm) Wafer(USB signal share with mini card)

CU5 : USB 3.0 port 1x5pin (1.25mm) Wafer

MPCE1 : Full size mini card port 1 sockets 52pin

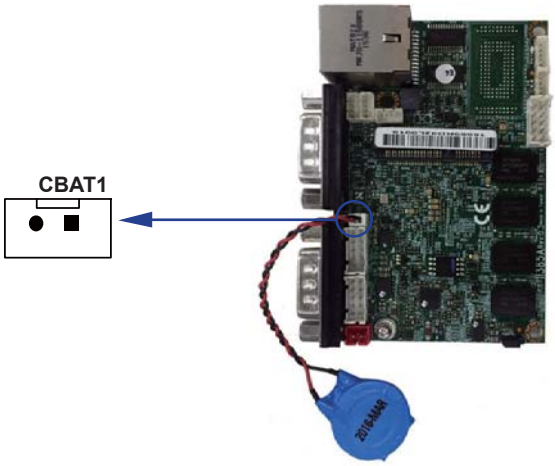
3-2 CMOS Battery connector

● **3V Battery wafer connector (1x2pin 1.25mm)**

PIN NO.	Description
1	GND
2	+3V

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

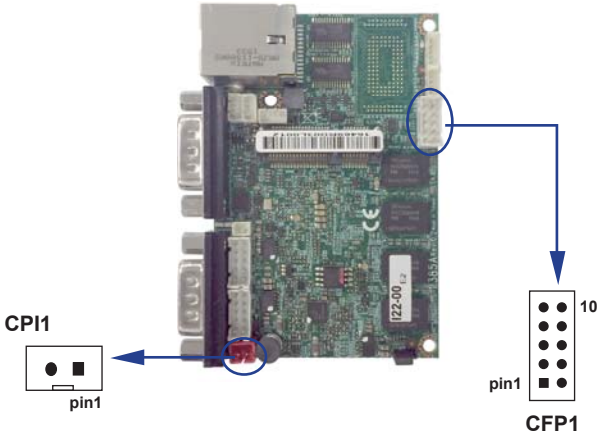


3-3 DC Power Input

- **CPI1: DC-in (Red) Wafer connector (1x2 2.0mm)**

PIN NO.	Description
1	DC-IN(5V)
2	GND

Note: Very important check Dc-in Voltage.



3-4 Front Panel Pin Header

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

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

3-5 COM interface

COM1/2 RS232 or RS485 or RS422 form BIOS select.
COM1 default support RS232.
COM2 default support RS485.

● CC1/CC2 COM1/2 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
5	GND		

● CC1/CC2 COM1/2 DB9 Connector (RS485 Mode)

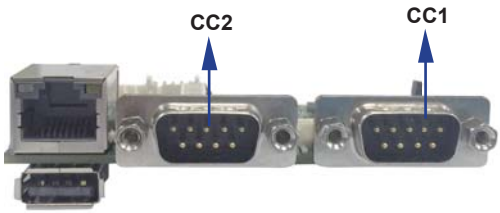
PIN NO.	Description	PIN NO.	Description
1	RS485 Data+	6	NC
2	RS485 Data-	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND		

Note: 1. BIOS need setting to RS485 mode.

● CC1/CC2 COM1/2 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		

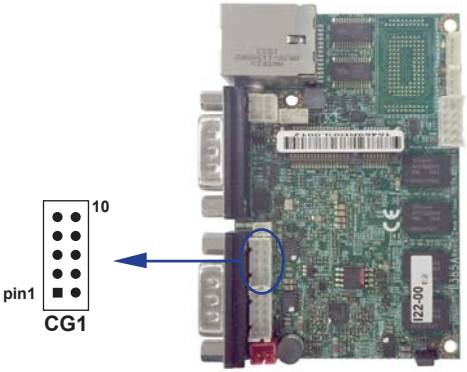
Note : 1. BIOS need setting to RS422 mode.



3-6 VGA Display interface

CG1: VGA Connector (2 x 5 pin 2.0mm)

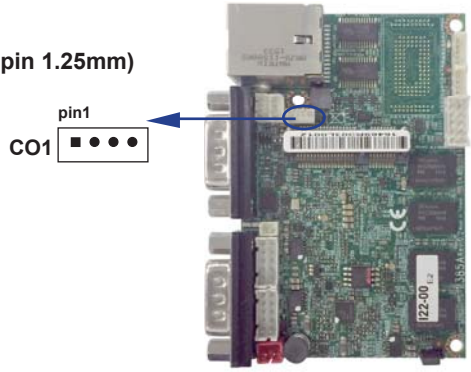
PIN NO.	Description	PIN NO.	Description
1	BLUE	2	GND
3	GND	4	DDC CLOCK
5	GREEN	6	V-SYNC
7	GND	8	H-SYNC
9	RED	10	DDC DATA



3-7 I^{2}C Bus Interface

● **CO1: I^{2}C Bus wafer connector(1x4pin 1.25mm)**

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

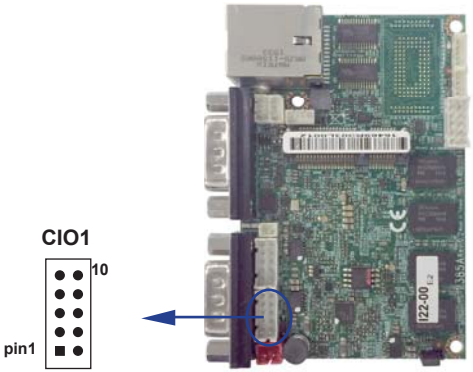


3-8 Digital Input / Output/ Watch Dog Time

- CIO1 DIO 0—3 wafer connector (2x5pin 2.0mm wafer)

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

Note: 1. DI pin default pull up 10KΩ to +5V
2. If use need isolate circuit to control external device
3. F75111N-1 I^2C bus address 0x9c



- **WDT For F75111N I^2C 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 71 for APPENDIX C: F75111N I^2C DIO DECICE

3-9 LAN Interface

- **CL1: 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

- **RJ45 LAN Connector--- LED signal define**

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

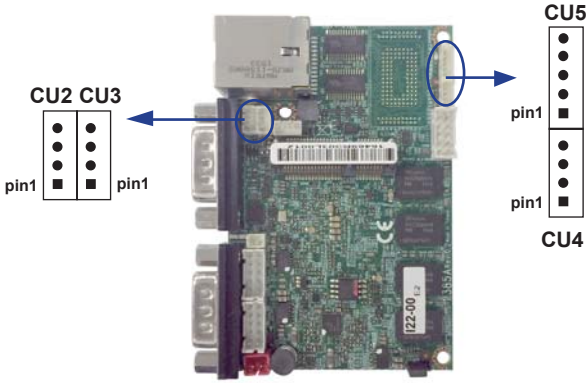
3-10 USB Interface

- **CU1: USB2.0 Port Type A connector**

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

- **CU2/CU3/CU4: USB2.0 wafer connector (1x4pin 1.25mm)**

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



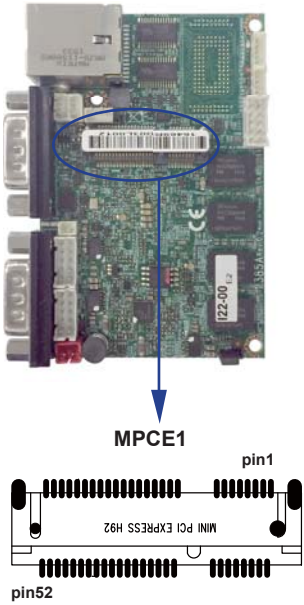
- **CU5: USB3.0 wafer connector (1x5pin 1.25mm)**

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

3-11 PCI Express Mini card

- **MPCE1: Support mSATA , USB and PCIe by one Interface (Mini card socket 52pin)**
  MPCE1 : Full size mini card(H:6.8)

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

3-12 Connector wafer of Compatible Brand and part number list

Location	CKTS	PITCH	Brand Name	Mating connector	Cable housing
CG1	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
CO1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU2	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU3	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU4	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU5	1x5 5Pin	1.25mm	MOLEX	53047-0510	51021-0500
CPI1	1x2 2Pin	2.0mm	JST	B2B-PH-KL	PHR-2
CBAT1	1x2 2Pin	1.25mm	MOLEX	53047-0210	51021-0200

Chapter-4

Introduction of BIOS

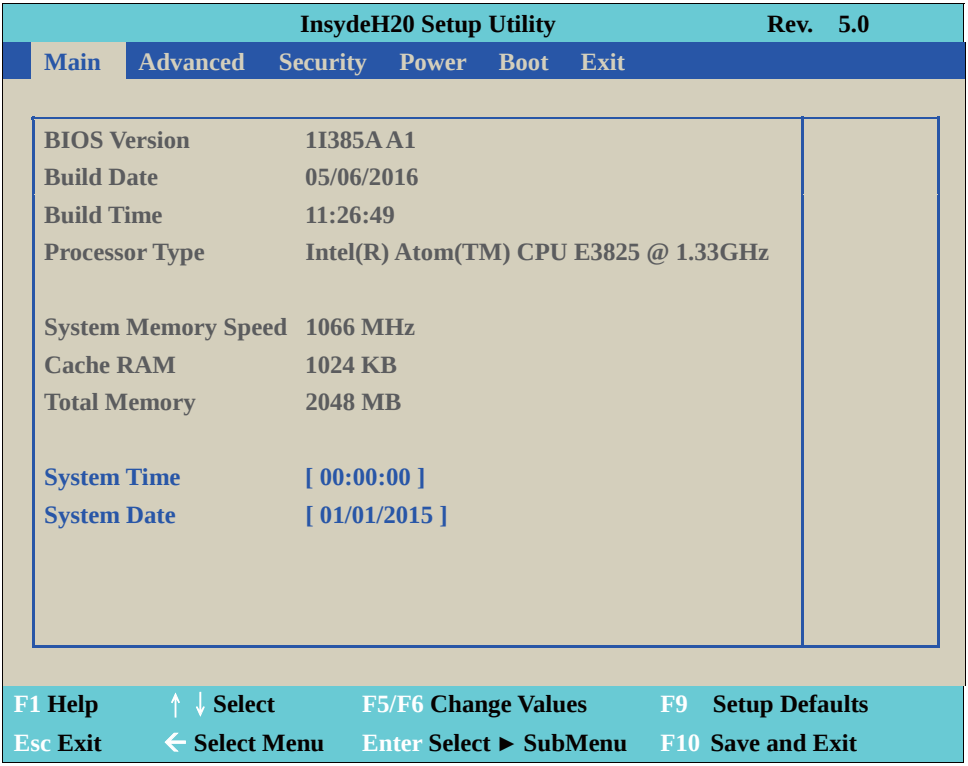
The BIOS is a program located in the Flash Memory on the motherboard.
This program is a bridge between motherboard and operating system.
When you start the computer, the BIOS program gains control.
The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all thenecessary hardware,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

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

4-1 Enter Setup

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

4-2 BIOS Menu Screen & Function Keys



IIn 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

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

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

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

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

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

Status Page Setup Menu/ Option Page Setup Menu

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

4-4 Menu Bars

There are six menu bars on top of BIOS screen:

Main To change system basic configuration

Advanced To change system advanced configuration

Security Password settings

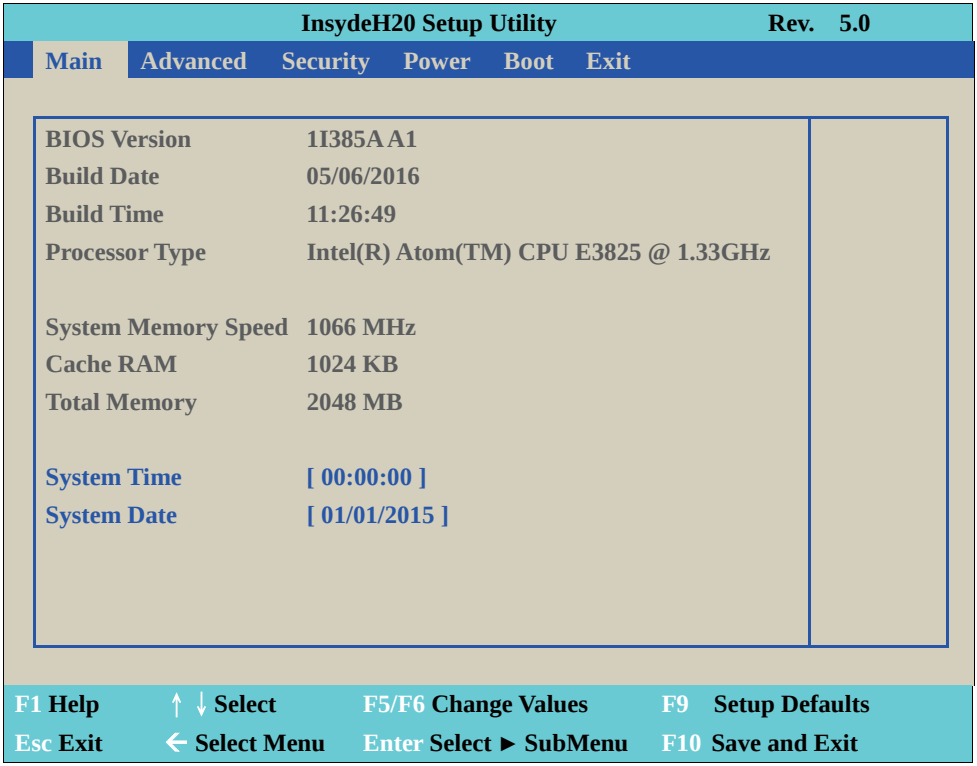
Power PME & Power button settings

Boot Exit Save setting, loading and exit options.

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

The selected one is highlighted.

4-5 Main



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

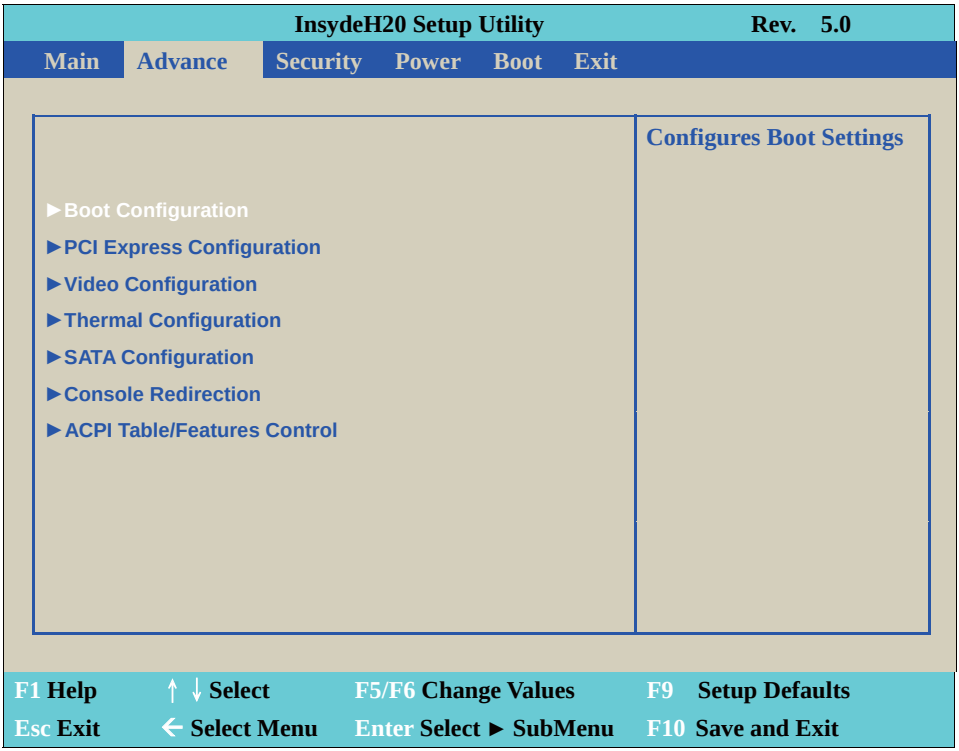
System Date

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

System Time

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

4-6 Advanced



Boot Configuration

Please refer section 4-6-1

PCI Express Configuration

Please refer section 4-6-2

Video Configuration

Please refer section 4-6-3

Thermal Configuration

Please refer section 4-6-4

SATA Configuration

Please refer section 4-6-5

Console Redirection

Please refer section 4-6-6

ACPI Table/Features Control

Please refer section 4-6-7

4-6-1 Boot Configuration

InsydeH20 Setup Utility			Rev. 5.0
Advance			
Boot Configuration			Selects Power-on state For Numlock
Numlock	<On>		
F1 Help	↑ ↓ Select	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	← Select Menu	Enter Select ► SubMenu	F10 Save and Exit

Numlock

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

4-6-2 PCI Express Configuration

InsydeH20 Setup Utility			Rev. 5.0
Advance			
PCI Express Configuration			Control the PCI Express Root Port.
►PCE Express Root Port 1			
►PCE Express Root Port 2			
F1 Help	↑ ↓ Select	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	← Select Menu	Enter Select ► SubMenu	F10 Save and Exit

PCIe 1/2 configuration settings

4-6-2-1 ► PCI Express Root Port 1/2

InsydeH20 Setup Utility		Rev. 5.0
Advance		
PCI Express Root Port 1		Control the PCI Express Root Port.
PCE Express Root Port 1	<Enable>	
PCIE Port 1 Speed	<Gen1>	
PCIE Port 1 Option ROM	<Disabled>	

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

Control the PCI Express Root Port.

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

Select PCI Express port speed.

The optional settings are: Gen1(default), Gen2

Select PCIE TXE ROM support

The optional settings are: Disabled(default), Enabled

4-6-3 Video Configuration

InsydeH20 Setup Utility		Rev. 5.0
Advance		
Vedio Configuration		Select Hardware CRT Configuration.
Configure CRT as	<Enabled>	
Aperture Size	<256MB>	
IGD – DVMT Pre-Allocated	<64M>	
IGD – DVMT Total Gfx Mem	<256M>	

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

Configure CRT Panel Number as

Enable or disable CRT function.

The optional settings are: Enabled(default) or Disabled

Aperture Size

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

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)/128 / 256 / 512M

IGD - DVMT Total Gfx Mem

Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device. The optional settings are:128M, 256M (default), MAX

4-6-4 Thermal Configuration

InsydeH20 Setup Utility		Rev. 5.0
Advance		
Thermal Configuration Parameters		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.
Critical Trip Point	<110 ℃>	
Passive Trip Point	<105 ℃>	

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
Advance		
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

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

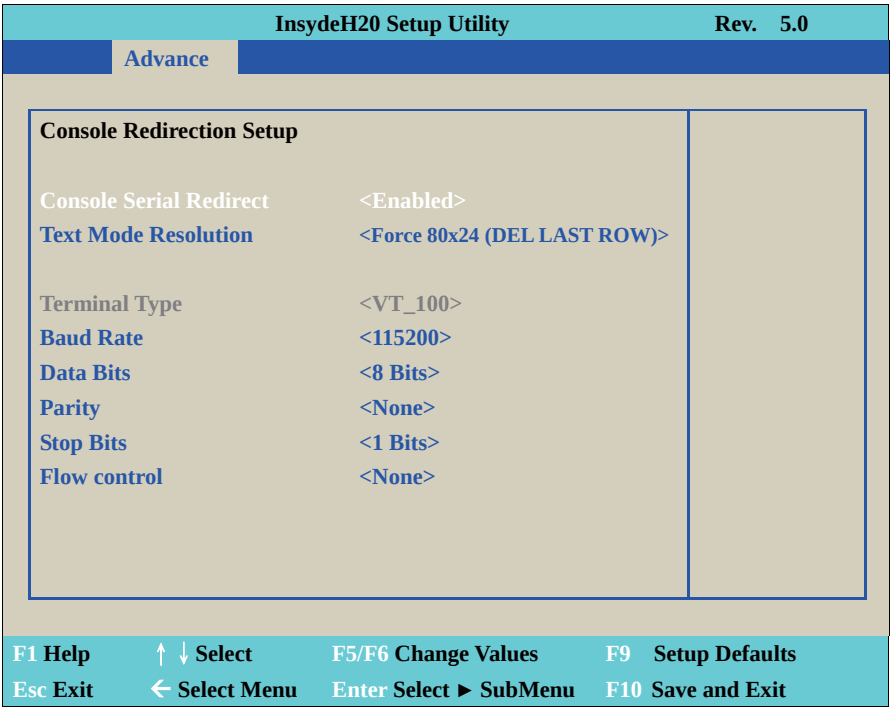
The optional settings are: Enabled(default) or Disable

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

4-6-6Console 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)

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

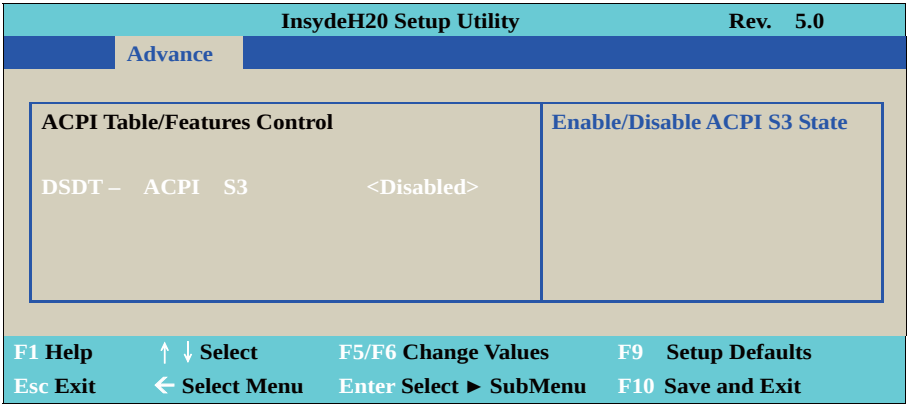
Stop Bits

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

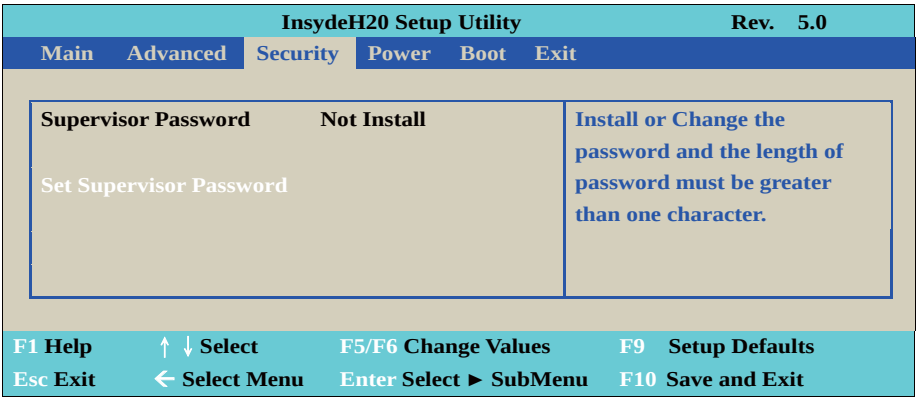


ACPI Table/Features Control

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

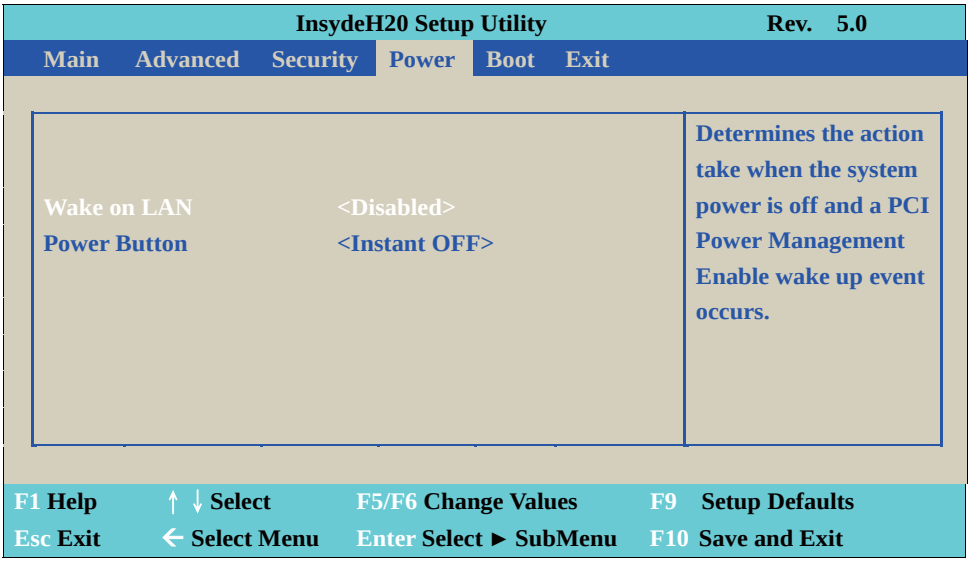


Supervisor Password

To set up an Supervisor password

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

4-8 Power



Wake on LAN

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

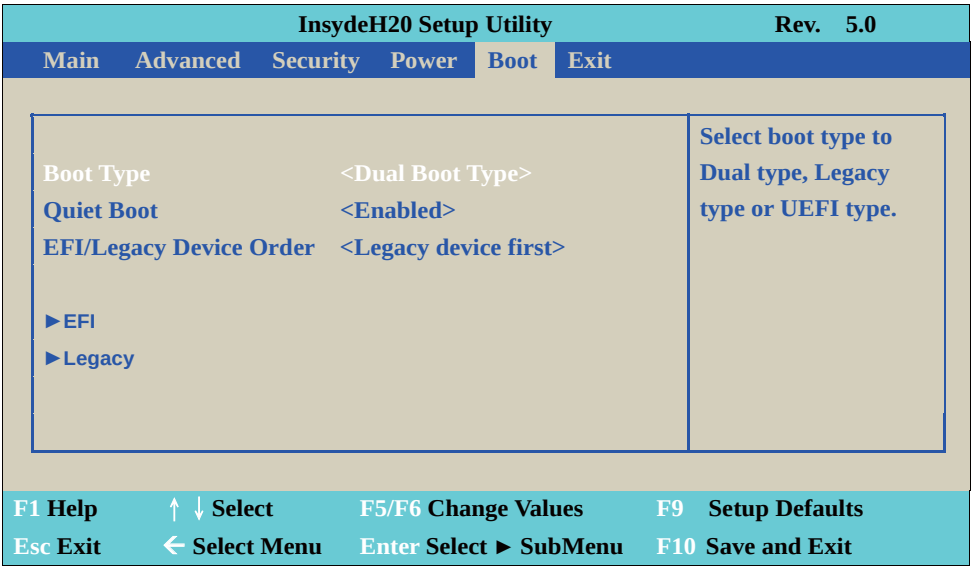
The optional settings: Enabled, Disabled (default)

Power Button

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

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

4-9 Boot



Boot type

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

Quiet Boot

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

EFI / Legacy Device order

Determine EFI device first or legacy device first.

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

4-9-1 Legacy

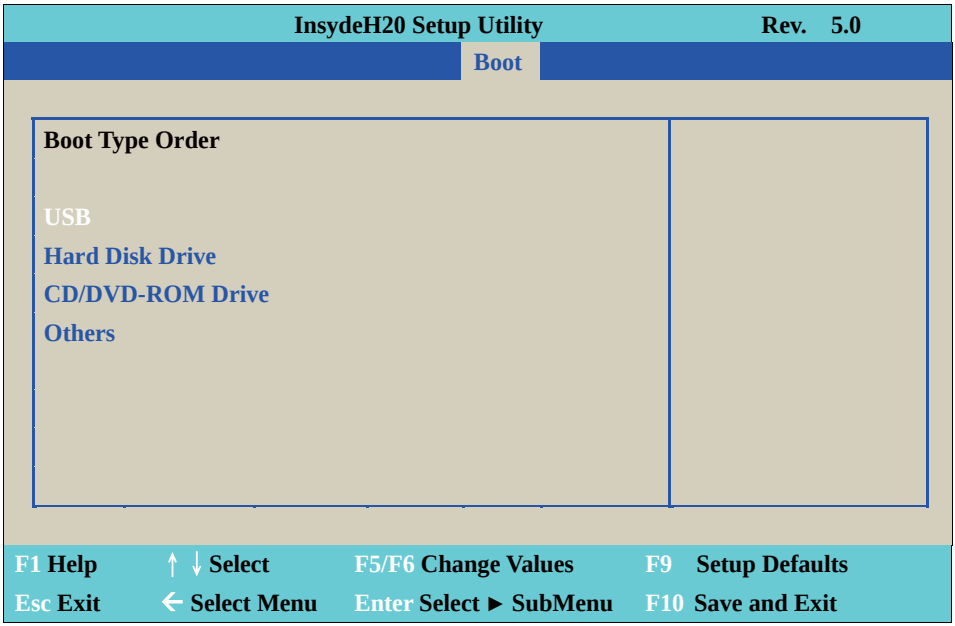
InsydeH20 Setup Utility		Rev. 5.0
	Boot	
Boot Device Priority		Select Normal Boot Option Priority or Advance Boot Option Priority.
Normal Boot Menu	<Normal>	
►Boot Type Order		
►USB		
F1 Help ↑↓ Select	F5/F6 Change Values	F9 Setup Defaults
Esc Exit ← Select Menu	Enter Select ► SubMenu	F10 Save and Exit

Normal Boot Menu

Select Normal Boot option priority or Advance Boot option priority.

The optional settings: Normal(default), Advance

4-9-2 Boot Type Order

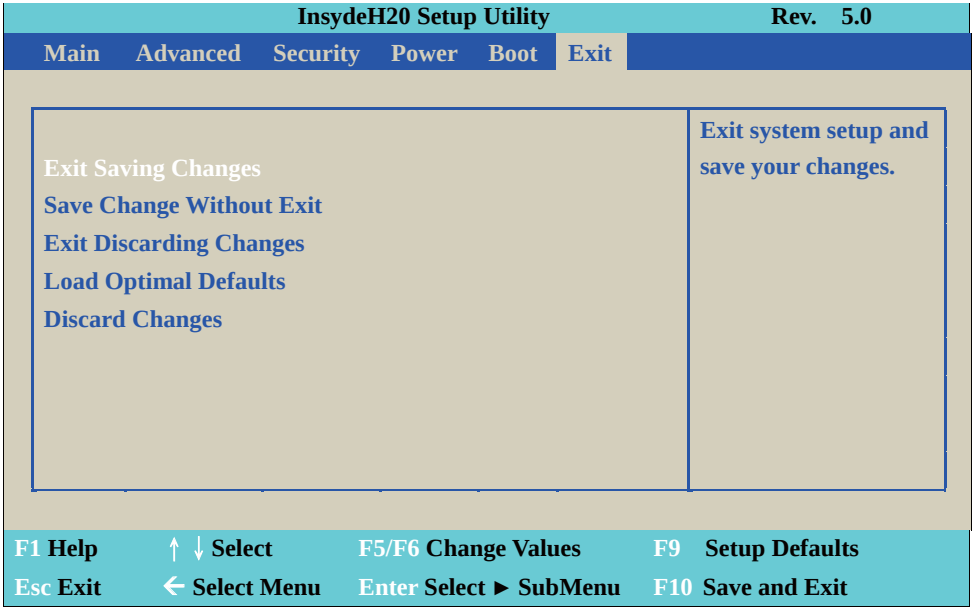


Boot Type Order

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

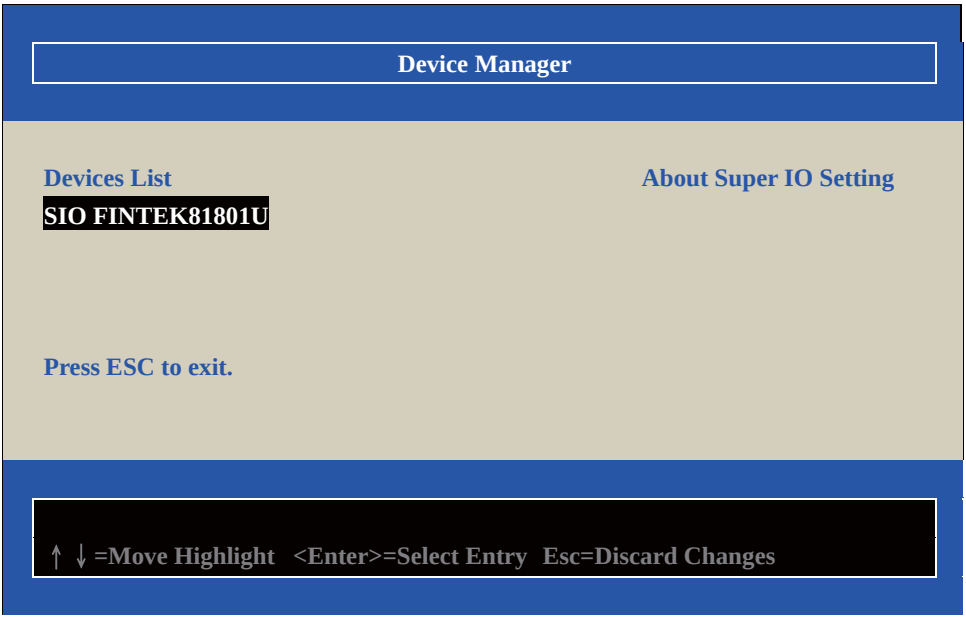
Use this item to restore the optimal default for all the setup options.

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

4-11-1 SIO FINTEK81801U

SIO FINTEK81801U

Serial Port 1	**<Enable>**	Configure Serial port using options : Disable No configuration [Enable] User configuration [Auto] EFI/OS chooses configuration
Base I/O Address	<3F8>	
Interrupt	<IRQ4>	
Serial Mode	<RS232 driver >	
Serial Port 2	<Enable>	
Base I/O Address	<2F8>	
Interrupt	<IRQ3>	
Serial Mode	<RS485 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

Serial Port1 RS232 driver(default) : When Device Manager select to RS485 or RS422 mode, please enter to RS485 driver or RS422 driver, RS485 driver is the auto flow.

Serial Port2 RS485 driver(default) : When Device Manager select to RS232 or RS422 mode, please enter to RS232 driver or RS422 driver, RS485 driver is the auto flow.

Note.COM1/2 RS232/RS485/RS422 mode by BIOS select auto flow.

Power Failure

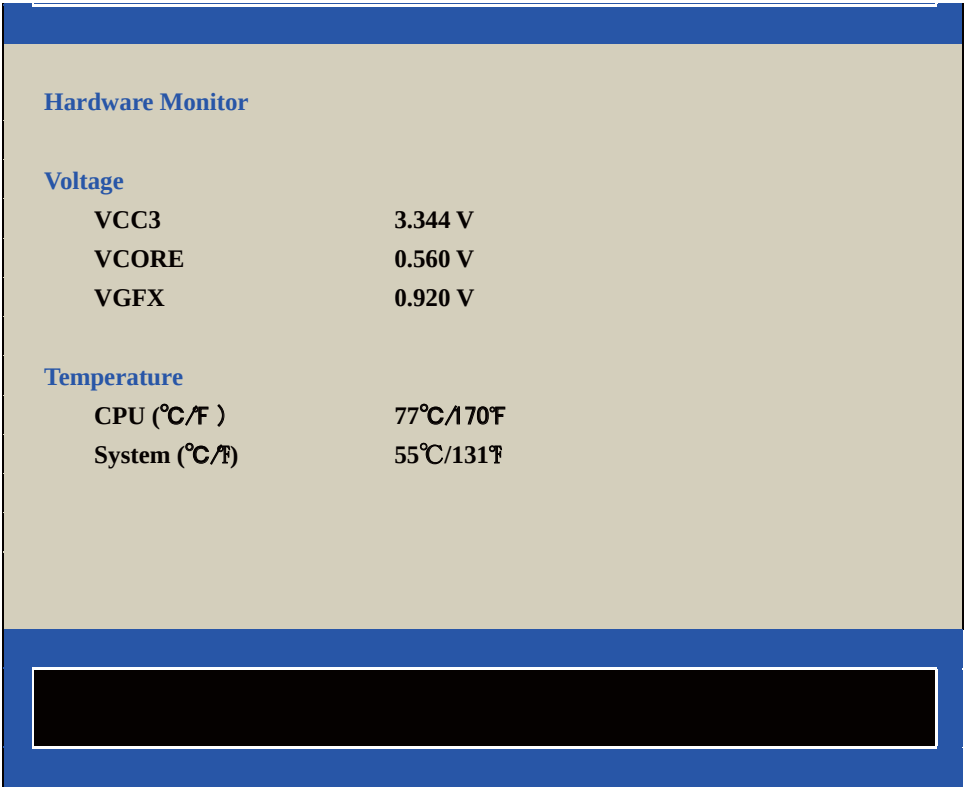
This item specifies whether your system will reboot after a power failure or interrupt occurs.

[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.

Chapter-5

DRIVER INSTALLATION

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

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

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

Make your selection from SYSTEM INSTALL menu:

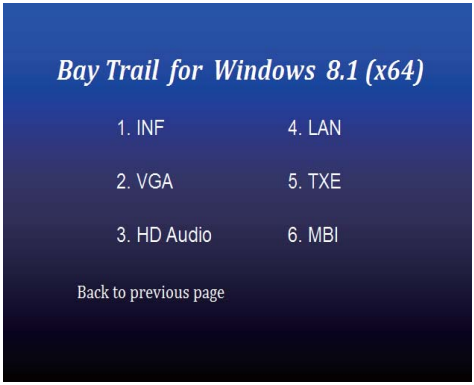
1. Auto Detect Main board and OS to AUTOMATIC DRIVER INSTALLATION menu
2. Browse DVD to view the contents of the DVD
3. Exit to exit SYSTEM INSTALL menu

AUTOMATIC DRIVER INSTALLATION menu

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:

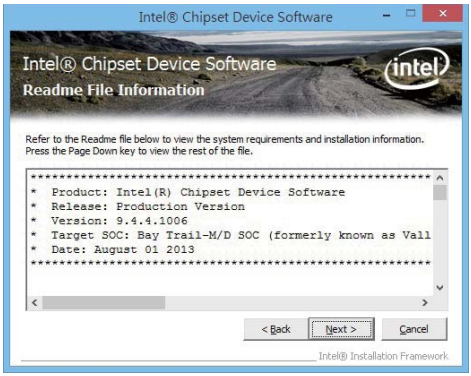
5-1 INF Install Intel Baytrail Chipset Driver (example for WIN8 64bit)



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,

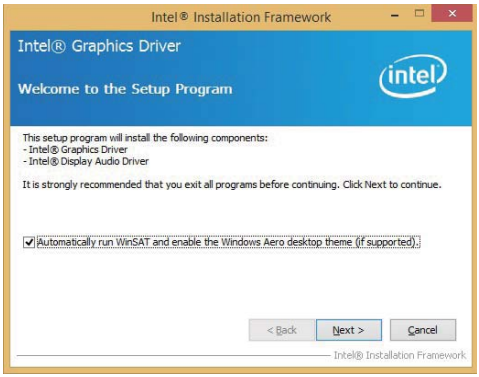
X:\driver\INTEL\BAY\INF\WIN7\infinst_autol.exe

For Windows 8 / 8.1 32/64-bit

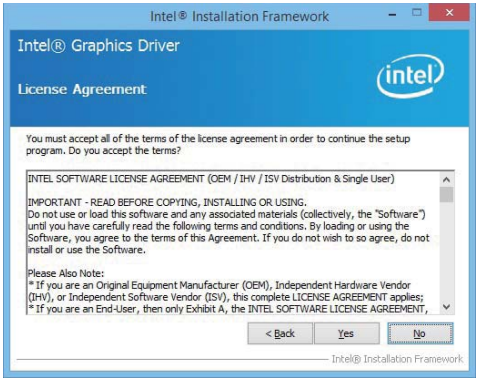
X:\driver\INTEL\BAY\INF\WIN_8_64\infinst_autol.exe

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

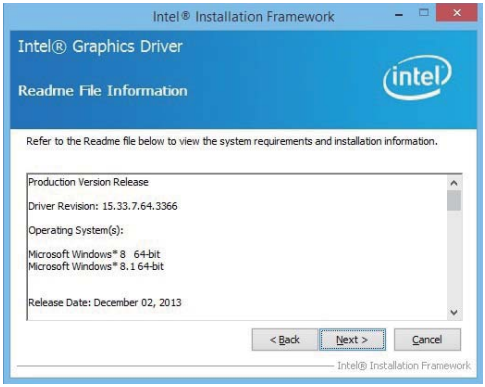
1. At the"AUTOMATIC DRIVER INSTALLATION menu"screen, click "VGA".



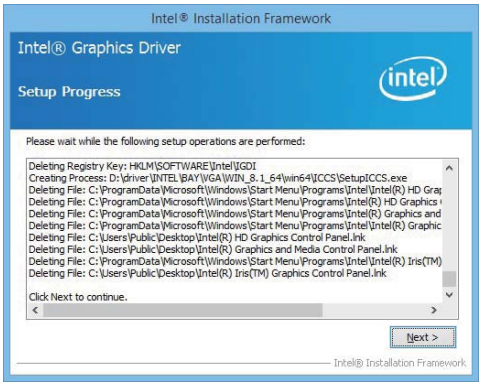
2. At the "Welcome to the Setup Program screen, Click "Next".

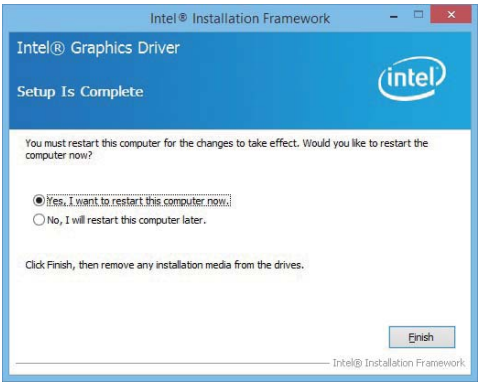


3. At the "License Agreement" screen, Click "Yes"



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





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

6. Click "Finish" to restart computer

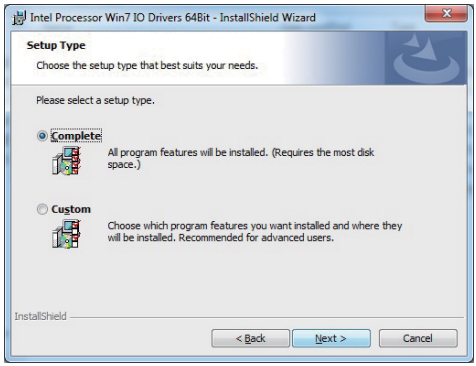
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32-bit,
X:\driver\INTEL\BAY\VGA\WIN_7_32\Setup.exe
For Windows 7 64-bit
X:\driver\INTEL\BAY\VGA\WIN_7_64\Setup.exe
For Windows 8 / Windows 8.1 32-bit
X:\ \driver\INTEL\BAY\VGA\WIN_8_32\Setup.exe
For Windows 8 / Windows 8.1 64-bit
X:\driver\INTEL\BAY\VGA\WIN_8_64\Setup.exe

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

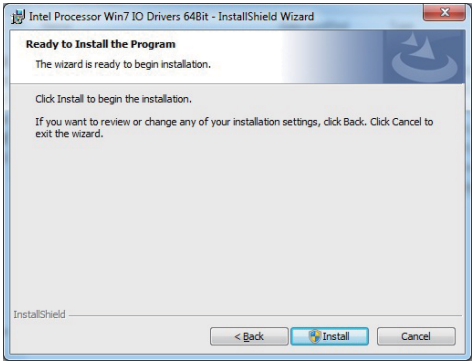
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "Serial IO".

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

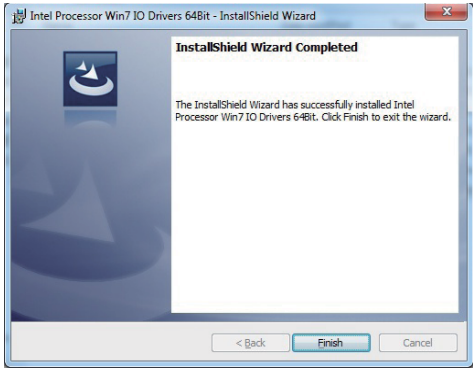
3. At the "License Agreement" screen, Click "Yes"



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



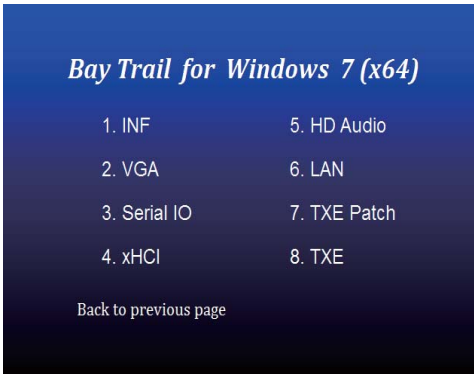
5. At the "Ready to install the program" screen, Click "Install"



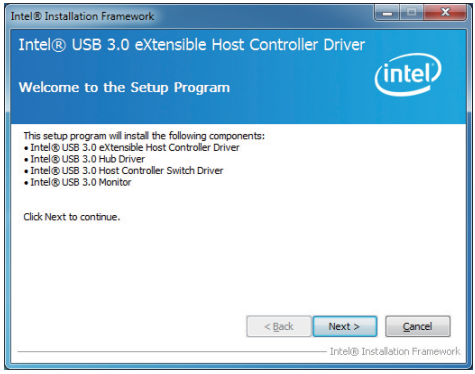
6. Click "Finish" and restart computer

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

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

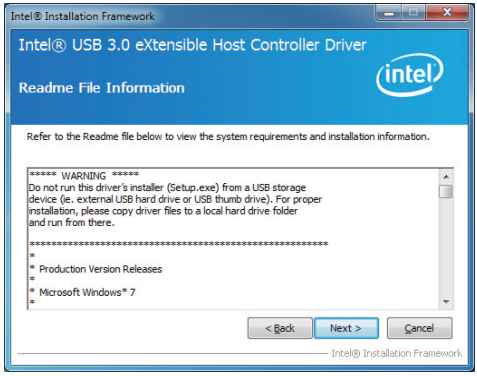


1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "xHCI".

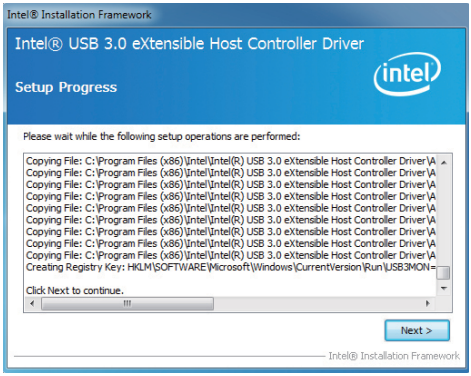


2. At the "Welcome to the Setup Program screen, Click "Next".

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



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



Intel® USB 3.0 eXtensible Host Controller Driver

Setup Progress

Please wait while the following setup operations are performed:

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

Click Next to continue.
```

Intel® USB 3.0 eXtensible Host Controller Driver

Setup Is Complete

You must restart this computer for the changes to take effect. Would you like to restart the computer now?

● Yes, I want to restart this computer now.
○ No, I will restart this computer later.

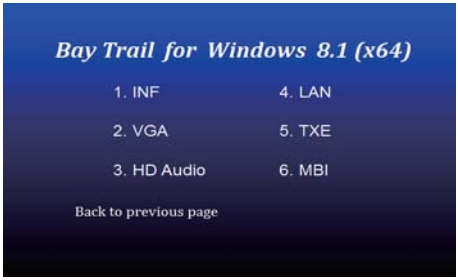
Click Finish, then remove any installation media from the drives.

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

6. Click "Finish" to restart computer

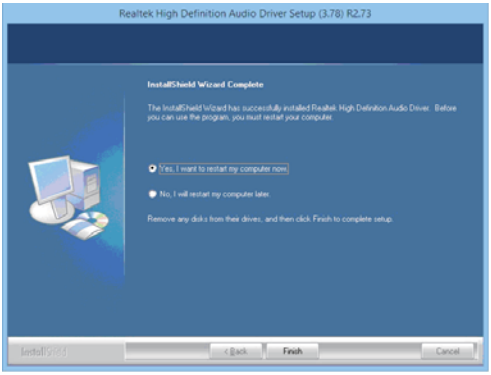
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32 / 64-bit,
X:\driver\INTEL\BAY\XHCI\Driver_Installer\Setup.exe

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



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

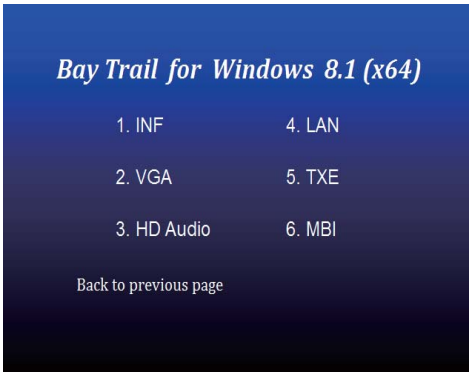
2. Click "Next".



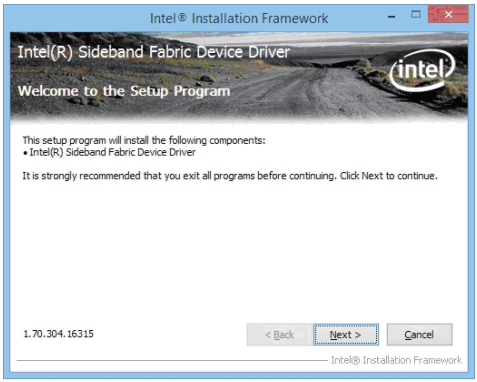
3. Click "Finish" to restart computer

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

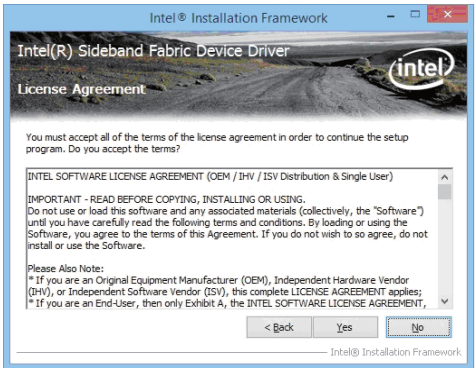
5-6 MBI Install Intel MBI Driver (FOR Win 8/8.1 only)



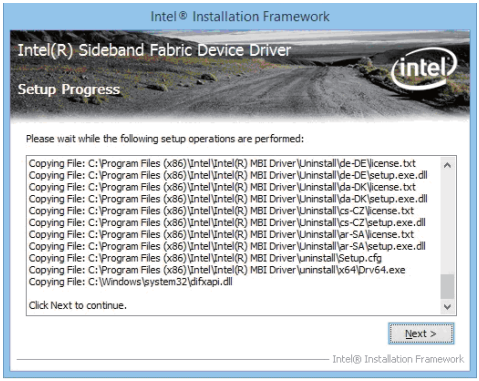
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "HD Audio"



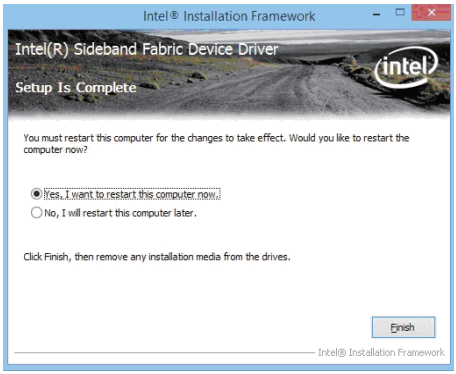
2. At the "Welcome to the Setup Program screen, Click "Next".



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



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



5. Click "Finish" to restart computer

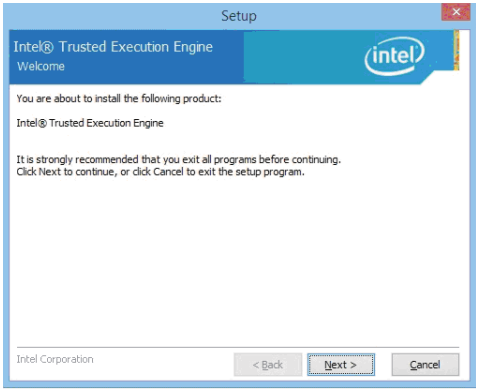
NOTE: SYSTEM INSTALL will auto detect file path

For Windows 8/8.1 32 / 64-bit,

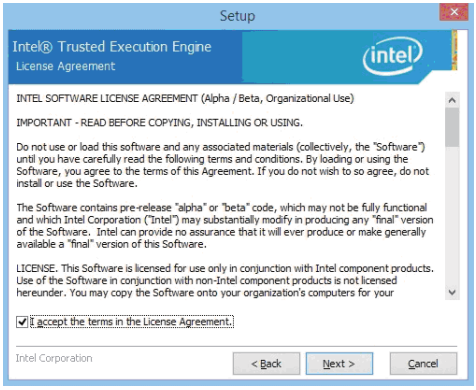
X:\driver\INTEL\BAY\MBI\Setup.exe

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

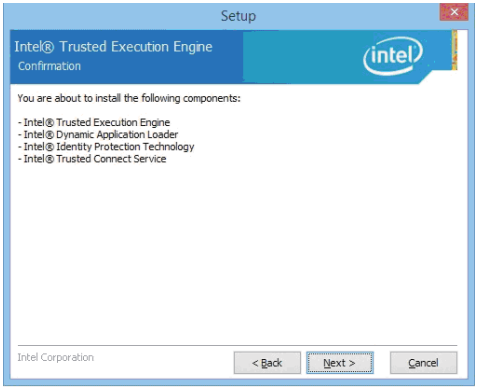
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE"



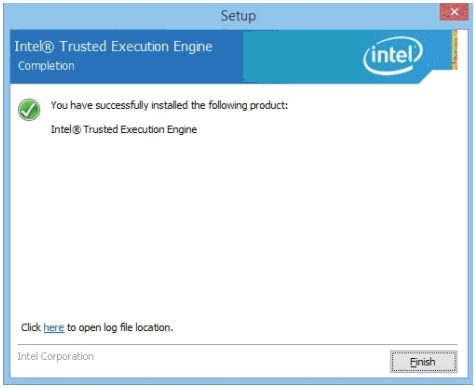
2. At the "Setup" screen, Click "Next".



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

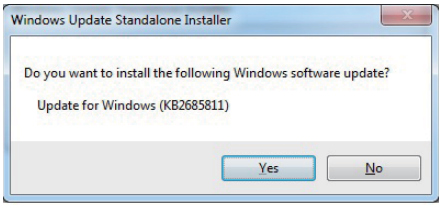
For Windows 8.1 32 / 64-bit,

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

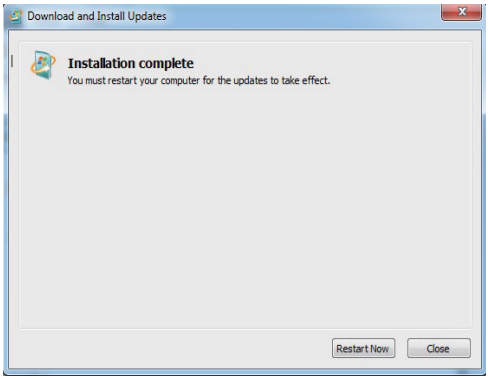
5-7-2 TXE Install for WIN7

Please install PXE Patch first.

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

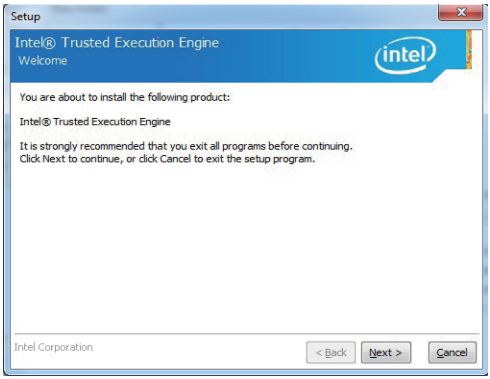


2. At the "Windows Update" screen, Click "Yes".



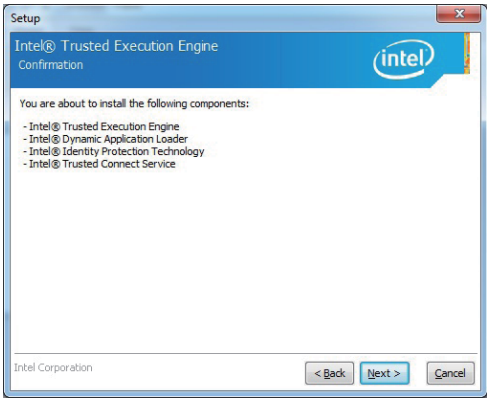
3. Click "Finish" & restart computer

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

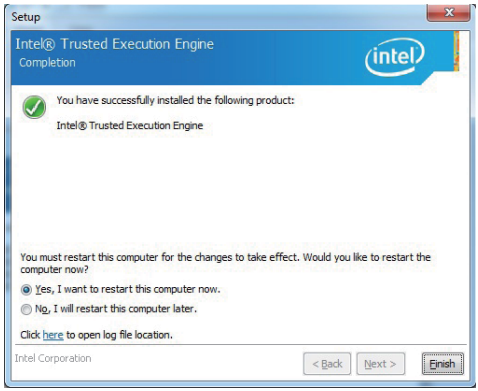


5. At the "TXE Setup" screen, Click "Next".

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 1I385ACA2.ROM –BIOS -ALL

1I385ACA2.ROM is the file name of the latest BIOS.

It may be 1I385ACA1.ROM or 1I385ACA2.ROM, etc.

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

By Bay Trail series mainboard, please type

X:\: H2OFFT-D.EXE 1I385ACA2.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	E3825 1.33 Ghz
Memory	DDR3L 1066 2GB
Operating System	Windows 7 / SP1
Test Program	3D Mark 06
mSATA	32GB

Test Result for reference only !

Processor	Power off	Start up		Operation Maximum	Shut down Maximum	In Put Voltage
		Maximum	Stable			
E3825	0.06A	1.01A	0.69A	1.52A	1.0A	5V

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

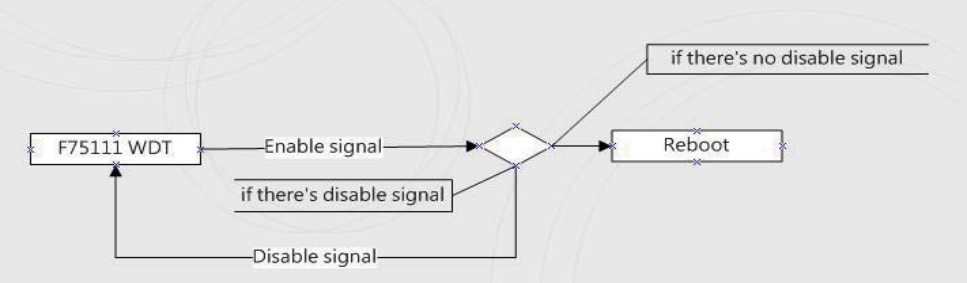
How to use this Demo Application

1.Boot Ms-Dos Operating System

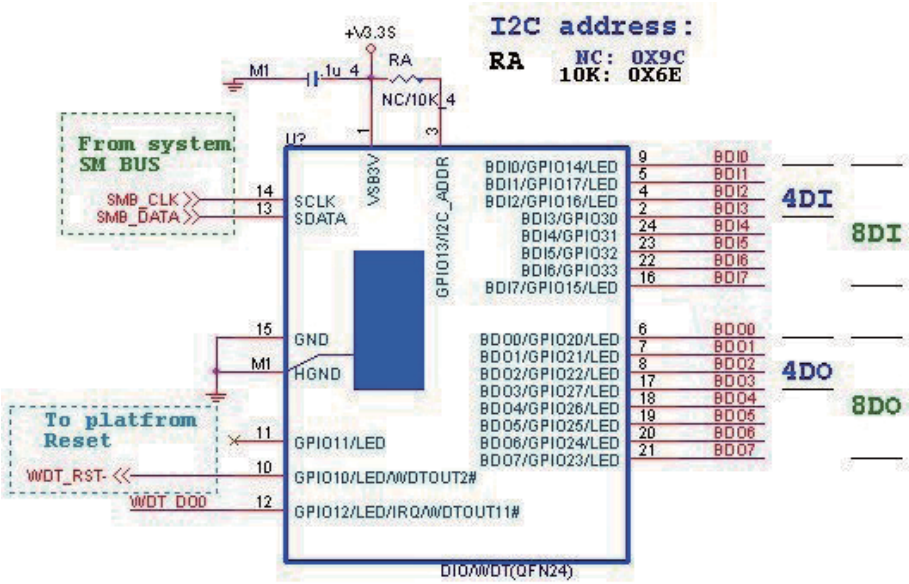
2.execute "75WDT.EXE" binary file

3.Input 1 to Enable WDT timer or input 0 to Disable it.

4.input numbers of second for chip countdown and Reset Computer



F75111 Layout Picture



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

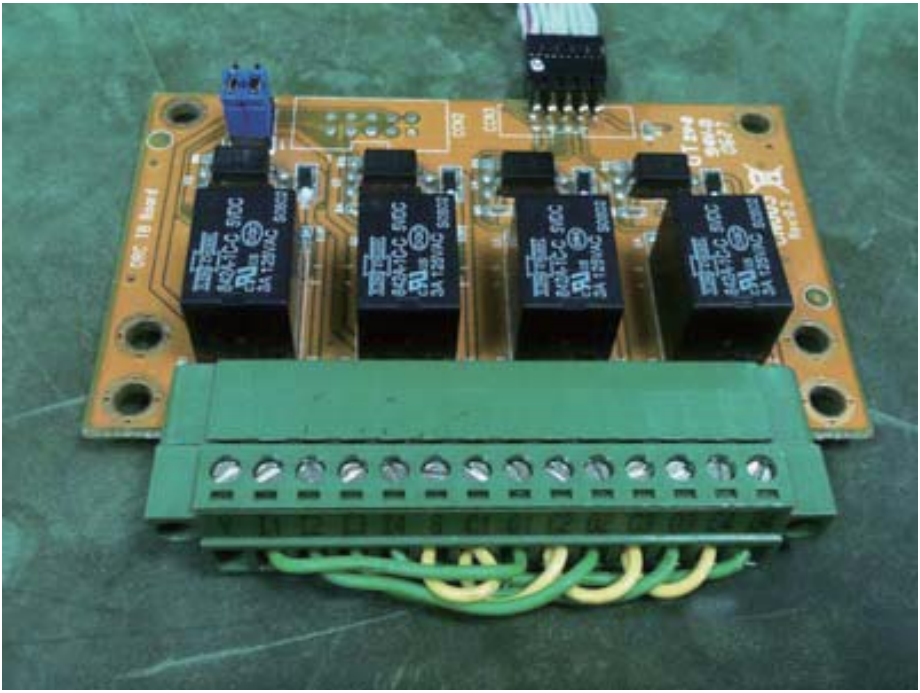
The Sample code source you can download from

Source file: F75111_DIO_Src_v2.8W(32bit).zip http://tprd.info/lexwiki/index.php/IO_Device:F75111

Binary file: F75111_DIO_Bin_v2.8W(32bit).zip

USERNAME & PASSWORD: sf

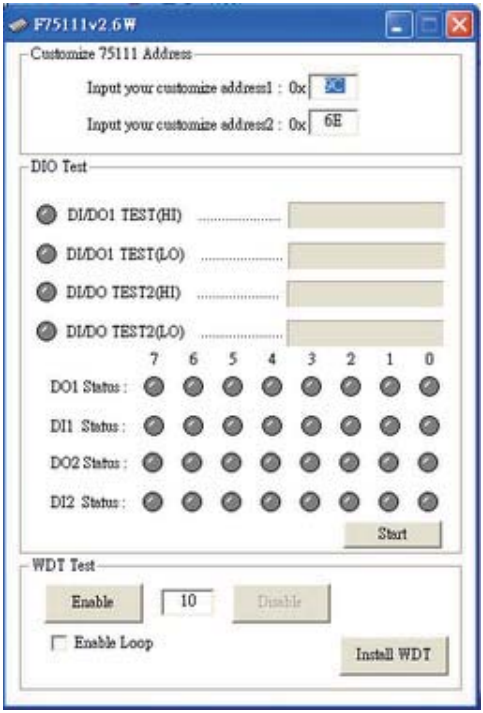
We do the demo test with a test tool which DIx connect to DOx with Relay.



How to use this Demo Application

one F75111

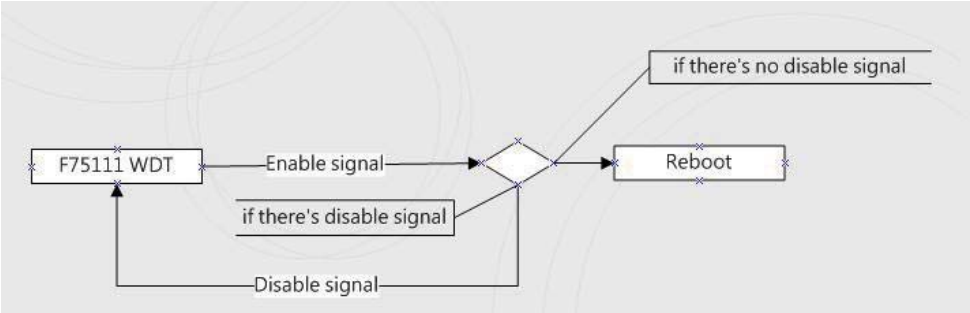
two F75111



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

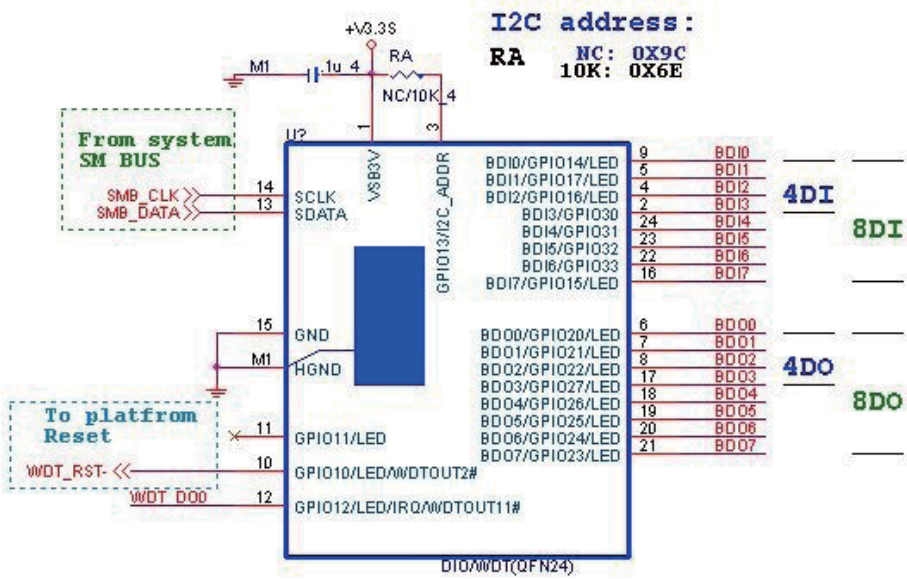
WARNING: win7 system architecture, use the system administrator to open DIO utility

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

F75111 Layout Picture



Introduction

Initial Internal F75111 port address (0x9c)

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

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

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

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.
}
```

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 & 0x80 )? byteValue + 0x08 : byteValue;
    byteData = (byteData & 0x40 )? byteValue + 0x10 : byteValue;
    byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
    byteData = (byteData & 0x10 )? byteValue + 0x40 : byteValue;
    byteData = (byteData & 0x08 )? byteValue + 0x80 : byteValue;                    // get value bit by bit

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

Get Input value

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

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

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

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

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

    return byteData;
}
```

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
}
```

define F75111 pin in F75111.h

```
//-----------------------------------------------------------------------------------------------------
#define    F75111_INTERNAL_ADDR                                    0x9C   //  OnBoard  F75111 Chipset
#define    F75111_EXTERNAL_ADDR                                    0x6E   //  External F75111 Chipset
//-----------------------------------------------------------------------------------------------------
#define    F75111_CONFIGURATION                                    0x03   //  Configure GPIO13 to WDT2 Function
//-----------------------------------------------------------------------------------------------------
#define    GPIO1X_CONTROL_MODE                                     0x10   //  Select Output Mode or Input Mode
#define    GPIO2X_CONTROL_MODE                                     0x20   //  Select GPIO2X Output Mode or Input Mode
#define    GPIO3X_CONTROL_MODE                                     0x40   //  Select GPIO3X Output Mode or Input Mode
```

```
//-----------------------------------------------------------------------------------------------------
#define   GPIO1X_INPUT_DATA                          0x12  //  GPIO1X Input
#define   GPIO3X_INPUT_DATA                          0x42  //  GPIO3X Input
//-----------------------------------------------------------------------------------------------------
#define   GPIO2X_OUTPUT_DATA                         0x21  //  GPIO2X Output
//-----------------------------------------------------------------------------------------------------
#define   GPIO1X_PULSE_CONTROL                       0x13  //  GPIO1x Level/Pulse Control Register
                                                           //  0:Level Mode
                                                           //  1:Pulse Mode
#define   GPIO1X_PULSE_WIDTH_CONTROL                 0x14  //  GPIO1x Pulse Width Control Register
#define   GP1_PSWIDTH_500US                          0x00  //  When select Pulse mode: 500 us.
#define   GP1_PSWIDTH_1MS                            0x01  //  When select Pulse mode: 1 ms.
#define   GP1_PSWIDTH_20MS                           0x02  //  When select Pulse mode: 20 ms.
#define   GP1_PSWIDTH_100MS                          0x03  //  When select Pulse mode: 100 ms.
//-----------------------------------------------------------------------------------------------------
#define   GPIO2X_PULSE_CONTROL                       0x23  //  GPIO2x Level/Pulse Control Register
                                                           //  0:Level Mode
                                                           //  1:Pulse Mode
#define   GPIO2X_PULSE_WIDTH_CONTROL                 0x24  //  GPIO2x Pulse Width Control Register
#define   GP2_PSWIDTH_500US                          0x00  //  When select Pulse mode: 500 us.
#define   GP2_PSWIDTH_1MS                            0x01  //  When select Pulse mode: 1 ms.
#define   GP2_PSWIDTH_20MS                           0x02  //  When select Pulse mode: 20 ms.
#define   GP2_PSWIDTH_100MS                          0x03  //  When select Pulse mode: 100 ms.
//-----------------------------------------------------------------------------------------------------
#define   GPIO3X_PULSE_CONTROL                       0x43  //  GPIO3x Level/Pulse Control Register
                                                           //  0:Level Mode
                                                           //  1:Pulse Mode
#define   GPIO3X_Output_Data                         0x41  //  GPIO3x Output Data Register
#define   GPIO3X_PULSE_WIDTH_CONTROL                 0x44  //  GPIO3x Pulse Width Control Register
#define   GP3_PSWIDTH_500US                          0x00  //  When select Pulse mode: 500 us.
#define   GP3_PSWIDTH_1MS                            0x01  //  When select Pulse mode: 1 ms.
#define   GP3_PSWIDTH_20MS                           0x02  //  When select Pulse mode: 20 ms.
#define   GP3_PSWIDTH_100MS                          0x03  //  When select Pulse mode: 100 ms.
//-----------------------------------------------------------------------------------------------------
#define   WDT_TIMER_RANGE                            0x37  //  0-255 (secord or minute program by WDT_UNIT)
#define   WDT_CONFIGURATION                          0x36  //  Configure WDT Function
#define   WDT_TIMEOUT_FLAG                           0x40  //  When watchdog timeout.this bit will be set to 1.
#define   WDT_ENABLE                                 0x20  //  Enable watchdog timer
#define   WDT_PULSE                                  0x10  //  Configure WDT output mode
                                                           //  0:Level Mode
                                                           //  1:Pulse Mode

#define   WDT_UNIT                                   0x08  //  Watchdog unit select.
                                                           //  0:Select second.
                                                           //  1:Select minute.

#define   WDT_LEVEL                                  0x04  //  When select level output mode:
                                                           //  0:Level low
                                                           //  1:Level high

#define   WDT_PSWIDTH_1MS                            0x00  //  When select Pulse mode: 1 ms.
#define   WDT_PSWIDTH_20MS                           0x01  //  When select Pulse mode: 20 ms.
#define   WDT_PSWIDTH_100MS                          0x02  //  When select Pulse mode: 100 ms.
#define   WDT_PSWIDTH_4000MS                         0x03  //  When select Pulse mode: 4 s.
```

1-3 IO Device: F75111 VB6 under Windows

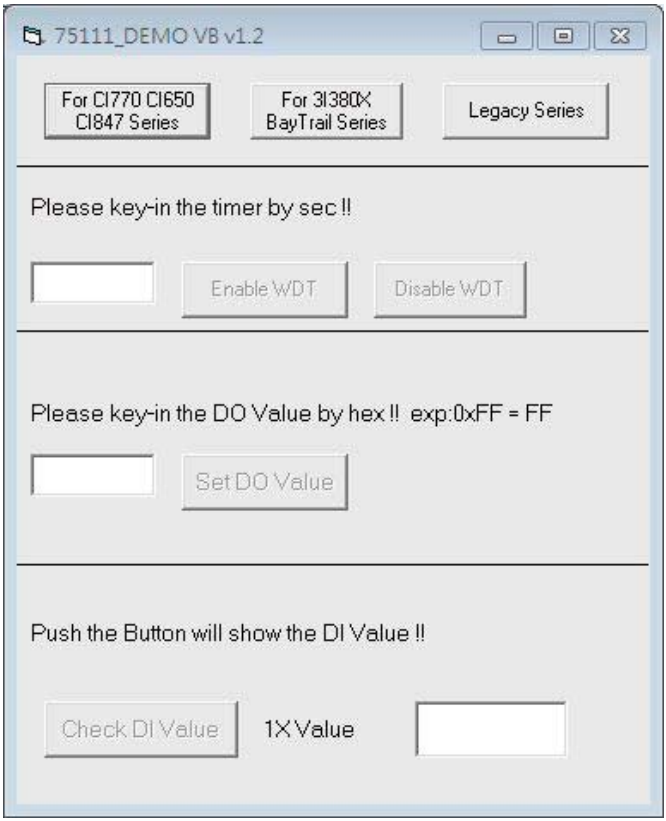
The Sample code source you can download from

Source file: 75111_VB_v1.2.rar http://tprd.info/lexwiki/index.php/IO_Device:F75111_VB6

Binary file: 75111_VB_Src1.2.rar

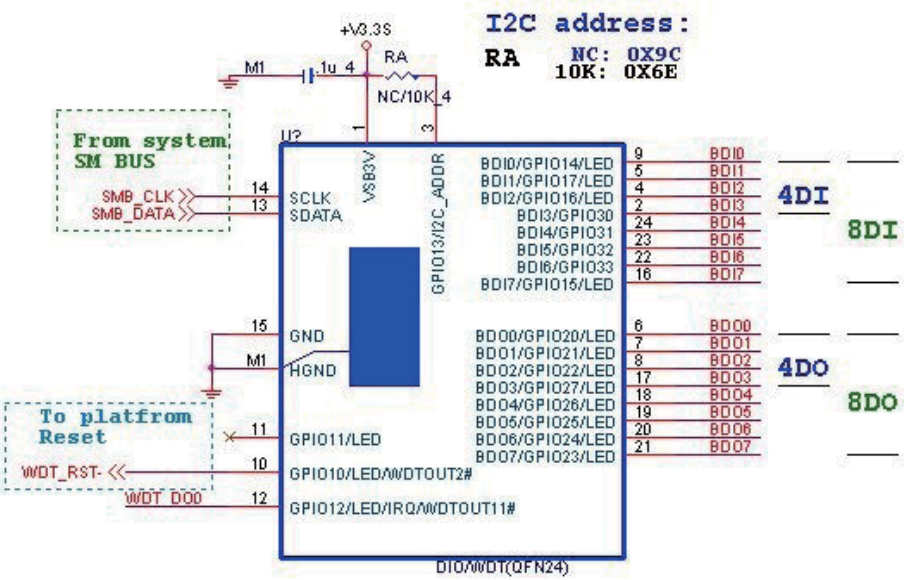
USERNAME & PASSWORD: sf

How to use this Demo Application



- **A Function - Choose your motherboard model**
- **B Function - Enable WDT timer ,Key-in the value by seconds then system will reboot after value which you key-in in left text box !!**
- **C Function - Disable WDT timer ,Push down the button then WDT timer value will be clear !!**
- **D Function - Set DO Value ,Key-in the DO value by hex then push the button !!**
- **E Function - Check DI Value ,The right side two text box will display DI 1X & 2X Value when you push down the button!!**

F75111 Layout Picture



SDK Function Introduction

Function EnableWDT

```
Function EnableWDT(timer As Integer)

Call WriteI2CByte(&H3, &H3)
Call WriteI2CByte(&H37, timer)
Call WriteI2CByte(&H36, &H73)

  End Function
```

Function DisableWDT

```
Function DisableWDT()

Call WriteI2CByte(&H36, &H0)

  End Function
```

Function SetDOValue

```
Function SetDOValue(dovalue As Integer)

Dim Data As Integer
Dim Value As Integer

Data = 0
Value = dovalue

If (Value And &H1) <> 0 Then
   Data = Data + &H1
End If

If (Value And &H2) <> 0 Then
   Data = Data + &H2
End If

If (Value And &H4) <> 0 Then
   Data = Data + &H4
End If

If (Value And &H80) <> 0 Then
   Data = Data + &H8
End If

If (Value And &H40) <> 0 Then
   Data = Data + &H10
End If

If (Value And &H20) <> 0 Then
   Data = Data + &H20
End If

If (Value And &H10) <> 0 Then
   Data = Data + &H40
End If

If (Value And &H8) <> 0 Then
   Data = Data + &H80
End If

Call WriteI2CByte(&H23, &H0)
Call WriteI2CByte(&H20, &HFF)
Call WriteI2CByte(&H2B, &HFF)
Call WriteI2CByte(&H21, Data)

End Function
```

Function CheckDIValue

```
Function CheckDIValue()
Dim GPIO1X     As Integer
Dim GPIO3X     As Integer
Dim DI1Xhex    As String
Dim DI3Xhex    As String

Dim Data As Long

Data = 0

Call ReadI2CByte(&H12, GPIO1X)
Call ReadI2CByte(&H42, GPIO3X)

GPIO1X = GPIO1X And &HF0
GPIO3X = GPIO3X And &HF

If (GPIO1X And &H10) <> 0 Then
   Data = Data + &H1
End If

If (GPIO1X And &H80) <> 0 Then
   Data = Data + &H2
End If

If (GPIO1X And &H40) <> 0 Then
   Data = Data + &H4
End If

If (GPIO3X And &H1) <> 0 Then
   Data = Data + &H8
End If

If (GPIO3X And &H2) <> 0 Then
   Data = Data + &H10
End If

If (GPIO3X And &H4) <> 0 Then
   Data = Data + &H20
End If

If (GPIO3X And &H8) <> 0 Then
   Data = Data + &H40
End If

If (GPIO1X And &H20) <> 0 Then
   Data = Data + &H80
End If

DI1Xhex = Hex(Data)

Text3.Text = "0x" + DI1Xhex

End Function
```

1-4 IO Device: F75111 under linux

The Sample code source you can download from

Source file: F75111v2.4L_SRC.tar.gz http://tprd.info/lexwiki/index.php/IO_Device:F75111_under_linux

Binary file: F75111v2.4L_BIN.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

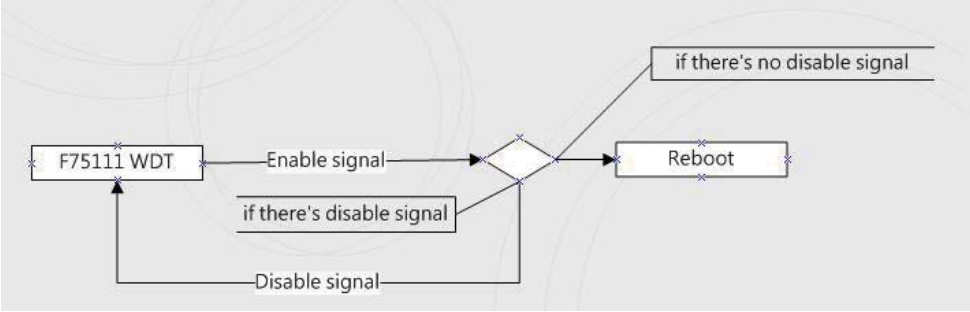
(add an option 'pkg-config --libs gtk+-2.0 gthread-2.0' in "Project->Build Option->Linker Setting->Other linker option")

2. Compile source code with "make"

1. cd F75111
1. make
1. src/f75111 // execute the binary file

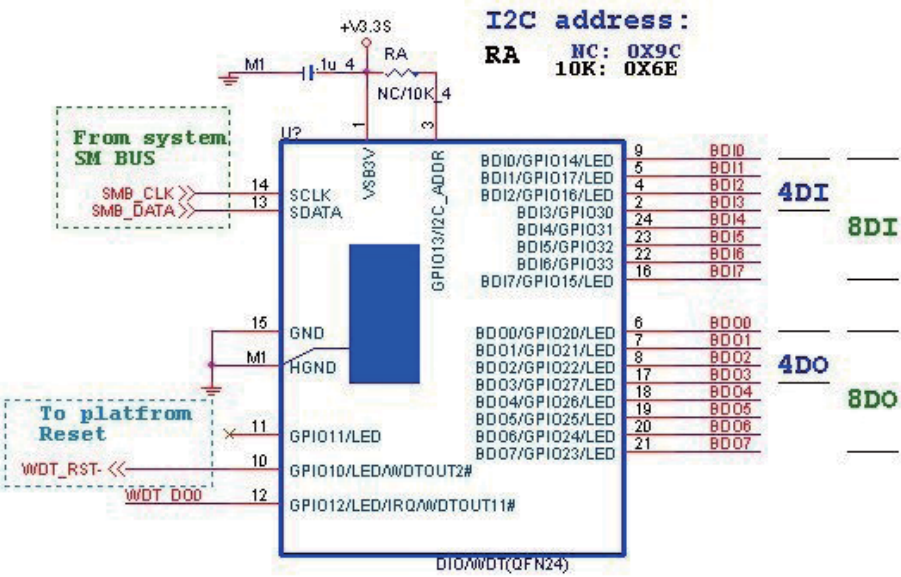
How to use this Demo Application

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.

F75111 Layout Picture



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 & 0x0FF);
}
```

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 & 0x80 )? byteValue + 0x08 : byteValue;
    byteData = (byteData & 0x40 )? byteValue + 0x10 : byteValue;
    byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
    byteData = (byteData & 0x10 )? byteValue + 0x40 : byteValue;
    byteData = (byteData & 0x08 )? byteValue + 0x80 : byteValue;                    // get value bit by bit

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

Get Input value

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

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

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

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

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

    return byteData;
}
```

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
}
```

```
//-----------------------------------------------------------------------------------------------------------
#define F75111_INTERNAL_ADDR                                    0x9C    //      OnBoard  F75111 Chipset
#define F75111_EXTERNAL_ADDR                                    0x6E    //      External F75111 Chipset
//-----------------------------------------------------------------------------------------------------------
#define F75111_CONFIGURATION                                    0x03    //      Configure GPIO13 to WDT2 Function
//-----------------------------------------------------------------------------------------------------------
#define GPIO1X_CONTROL_MODE                                     0x10    //      Select Output Mode or Input Mode
#define GPIO2X_CONTROL_MODE                                     0x20    //      Select GPIO2X Output Mode or Input Mode
#define GPIO3X_CONTROL_MODE                                     0x40    //      Select GPIO3X Output Mode or Input Mode
//-----------------------------------------------------------------------------------------------------------
#define GPIO1X_INPUT_DATA                                       0x12    //      GPIO1X Input
#define GPIO3X_INPUT_DATA                                       0x42    //      GPIO3X Input
//-----------------------------------------------------------------------------------------------------------
#define GPIO2X_OUTPUT_DATA                                      0x21    //      GPIO2X Output
//-----------------------------------------------------------------------------------------------------------
#define GPIO2X_OUTPUT_DRIVING                                   0x2B    //      Select GPIO2X Output Mode or Input Mode
//-----------------------------------------------------------------------------------------------------------
#define WDT_TIMER_RANGE                                         0x37    //      0-255 (secord or minute program by WDT_UNIT)
//-----------------------------------------------------------------------------------------------------------
#define                 WDT_CONFIGURATION                       0x36    //      Configure WDT Function
#define                 WDT_TIMEOUT_FLAG                        0x40    //      When watchdog timeout.this bit will be set to 1.
#define                 WDT_ENABLE                              0x20    //      Enable watchdog timer
#define                 WDT_PULSE                               0x10    //      Configure WDT output mode
                                                                                        //      0:Level  Mode
                                                                                        //      1:Pulse  Mode
#define                 WDT_UNIT                                0x08    //      Watchdog unit select.
                                                                                        //      0:Select second.
                                                                                        //      1:Select minute.
#define                 WDT_LEVEL                               0x04    //      When select level output mode:
                                                                                        //      0:Level low
                                                                                        //      1:Level high
#define                 WDT_PSWIDTH_1MS                         0x00    //      When select Pulse mode: 1 ms.
#define                 WDT_PSWIDTH_20MS                        0x01    //      When select Pulse mode: 20 ms.
#define                 WDT_PSWIDTH_100MS                       0x02    //      When select Pulse mode: 100 ms.
#define                 WDT_PSWIDTH_4000MS                      0x03    //      When select Pulse mode:  4 s.
//-----------------------------------------------------------------------------------------------------------
typedef struct F75111_Address
{
    BYTE bAddress;
}F75111_Address;
F75111_Address m_F75111;

bool            F75111_Init();
BYTE            F75111_GetDigitalInput ();
void            F75111_SetDigitalOutput(BYTE byteValue);

BYTE            F75111_GetWDTMode();
void            F75111_SetWDTMode(BYTE dwvalue);

void            F75111_SetWDTEnable    (BYTE byteTimer);
void            F75111_SetWDTDisable   ();
```