2I847PW

Intel Ivy Bridge Celeron 1047UE (i3 / i7) Processor,
On Board 4GB DDR3 1333 MT/s,
2 x LAN, 2 x HDMI, USB, 2 x COM, 1 x VGA

All-In-One

Intel Mobile Ivy Bridge Celeron 1047UE 1.4GHz CPU, (i3 / i7 processor)

VGA, HDMI, PCIe mini card, PCIe, 160-pin connector

Multi-LAN Board, USB, Multi-COM

NO. 2I847PW_V0.2
Release date: JUN. 30. 2017

Contents

2I847PW

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User Manual edition 0.1, JUN. 30. 2017

Warning !

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

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

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

4. SATA interface does not support Hot SWAP function.

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

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

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

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

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

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

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

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

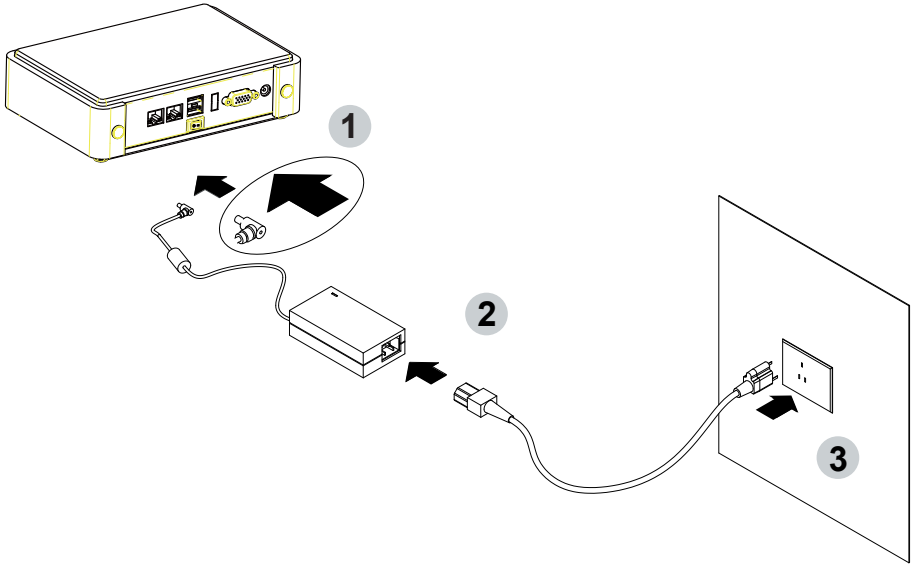
✱ Hardware Notice Guide

1. Before linking power supply with the motherboard, please attach DC-in adapter to the motherboard first. Then plug the adapter power to AC outlet.
   Always shut down the computer normally before you move the system unit or remove the power supply from the motherboard. Please unplug the DC-in adapter first and then unplug the adapter from the AC outlet.
   Please refer photo 1 as standard procedures.
2. In case of using DIRECT DC-in (without adapter), please check the allowed range for voltage & current of cables. And make sure you have the safety protection for outer issues such as short/broken circuit, overvoltage, surge, lightning strike.
3. In case of using DC-out to an external device, please make sure its voltage and current comply with the motherboard specification.
4. The total power consumption is determined by various conditions (CPU/motherboard type, device, application, etc.). Be cautious to the power cable you use for the system, one with UL standard will be highly recommended.
5. It's highly possible to burn out the CPU if you change/ modify any parts of the CPU cooler.
6. Please wear wrist strap and attach it to a metal part of the system unit before handling a component. You can also touch an object which is ground connected or attached with metal surface if you don't have wrist strap.
7. Please be careful to handle & don't touch the sharp-pointed components on the bottom of PCBA.
8. Remove or change any components 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-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.

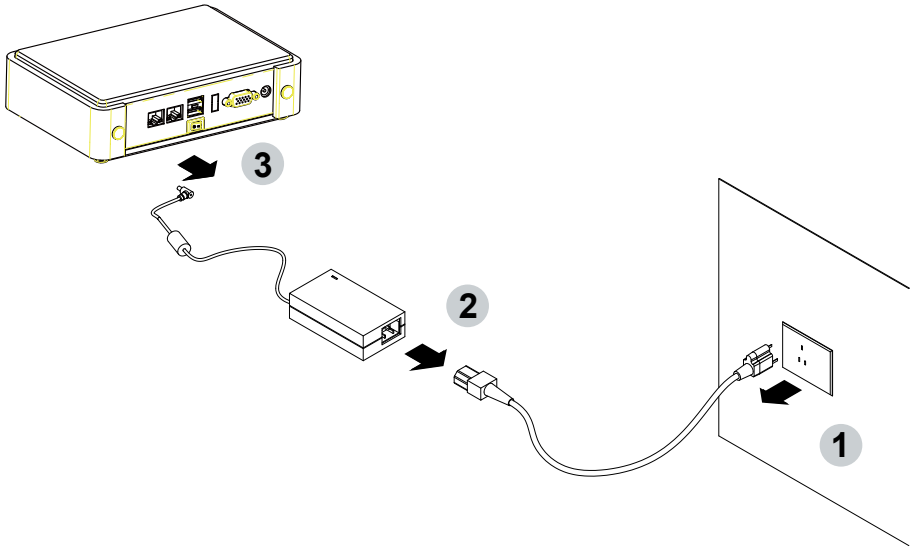
Remark 1:
Always insert / unplug the DC-in horizontally & directly to / from the motherboard. DO NOT twist, it is designed to fit snugly.
Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

The 2I847PW is a 2.5 inches form factor with LEX PICO Express® technology (160-pin expansion connectors) SBC Board. LEX PICO Express® is a board-to-board expansion capability provides cableless system and project-oriented IO options. 2I847PW's PICO Express® design & Evaluation carrier boards is also the ideal solution for embedded application developers to get up and running quickly on their customized carrier boards for different OEM / ODM projects.

The 2I847PW SBC board is with Intel Ivy Bridge 1047 / i7 ultra-low voltage processor paired with HM76 chipset and 4G DDR3 memory onboard. The 2I847PW integrates with Intel® HD graphics engine to support DX11, DX10.1, DX10, DX9, CRT / DVI / HDMI 1.3a. This integrated platform offers superb performance and PC specification in the industry. Despite the limited space of 2I847PW, it supports 2 COM ports, 1 port USB 3.0 and 5 ports of Hi-Speed USB 2.0 to enhance the host controller interface which will ensure the high performance level and flexible expansion. The 2I847PW supports two LAN ports of 10 / 100 / 1G Ethernet for various and seamless broadband connectivity. With Wake-On LAN function and the PXE function in BIOS, these are perfect control boards for networking devices. The expendable interfaces include one full size PCIe Mini card for PCIe and USB interface, one full size PCIe Mini card for mSATA, PCIe and USB interface

2I847PW's PICO Express® design & Evaluation carrier boards is also the ideal solution for embedded application developers to get up and running quickly on their customized carrier boards for different OEM / ODM projects.

1-1 Major Feature

1. Intel® Celeron® Processor 1047UE (2M Cache, 1.40 GHz) / Intel® Core™ i7-3517UE Processor (4M Cache, up to 2.80 GHz) with integrated GPU
2. Intel® HM76 Express Chipset
3. On board DDR3 4GB memory, data transfer rate of 1333MT/s / 1600MT/s
4. Support 2 x 10 / 100 / 1000 Mbps Intel LAN ports
5. Support DX11, DX10.1, DX10, DX9, and OGL 3.0
6. Support two channel HD audio
7. Support 2 x COM ports 1 x USB3.0 and 5 x USB 2.0
8. Support extended 2 x Mini PCIe card (2 x full size)
9. Support one SATA connector SATA 3.0 Data transfer rates up to 6.0 Gb/s (600 MB/s)
10. Hardware digital Input & Output, 4 x DI / 4 x DO
    Hardware Watch Dog Timer, 0~255 sec programmable
11. On board DC +9V~36V
12. PCB Dimension: 102 x 73 mm (2.5 inch)
13. Display interfaces include VGA & HDMI

1-2 Specification

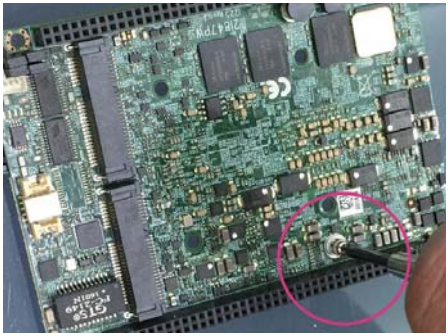
1. **CPU:** Intel® Celeron® Processor 1047UE (2M Cache, 1.40 GHz) / Intel® Core™ i7-3517UE Processor (4M Cache, up to 2.80 GHz)
2. **PCH chipset:** Intel® Panther Point HM76
3. **Memory:** DDR3 4GB Memory, data transfer rate of 1333MT/s / 1600MT/s
4. **Expansion Function**

PICO Express® 80-pin connector A	COM: 1 x RS232 or RS422 or RS485 USB: 4 x USB 2.0, 1 x USB 3.0 PS2: KB / MS Expansion: 1 x PCIe LED: HDD or LAN or Power LED Switch: Power / Reset
PICO Express® 80-pin connector B	Power: Wide Range DC-IN +9~36V Display: 1 x HDMI & 1 x VGA USB: 2 x USB 2.0 Audio: Line-out / Mic-in COM: 1 x RS232 or RS422 or RS485 LAN: 2 x Intel 10 / 100 / 1000 Mbps

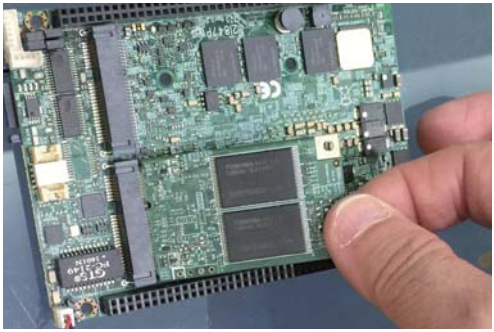
5. **SATA:** One SATA ports 3.0 Data transfer rates up to 6.0 Gb/s (600 MB/s)
6. **Sound:** HD Audio Specification 1.0 Two channel sound chipset
7. **WDT / DIO:** Hardware digital Input & Output, 4 x DI / 4 x DO
   Hardware Watch Dog Timer, 0~255 sec programmable
8. **Expansion interface:** one full size PCIe Mini card for PCIe and USB interface,
   one Full size PCIe Mini card for mSATA, PCIe and USB interface,
9. **BIOS:** AMI UEFI BIOS
10. **Dimension:** 102 x 73 mm (2.5 inch)
11. **Power:** On board DC +9V~36V

1-3 Installing the Mini PCI-e Card

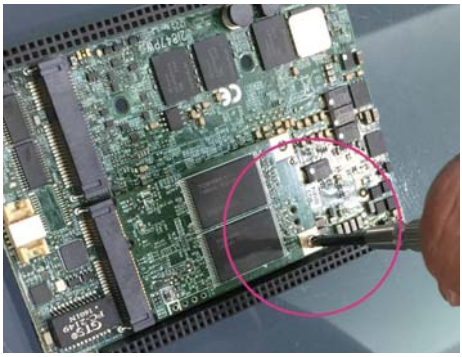
1. Unfasten the round-headed M2*6 screw for half size Mini PCI-e.



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.



Chapter-2

Hardware Installation

2-1 Unpacking Precaution

This chapter provides the information how to install the hardware of 2I847PW.
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 2I847PW. 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 2I847PW 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 2I847PW from electricity discharge.

1. Unpack the 2I847PW 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.

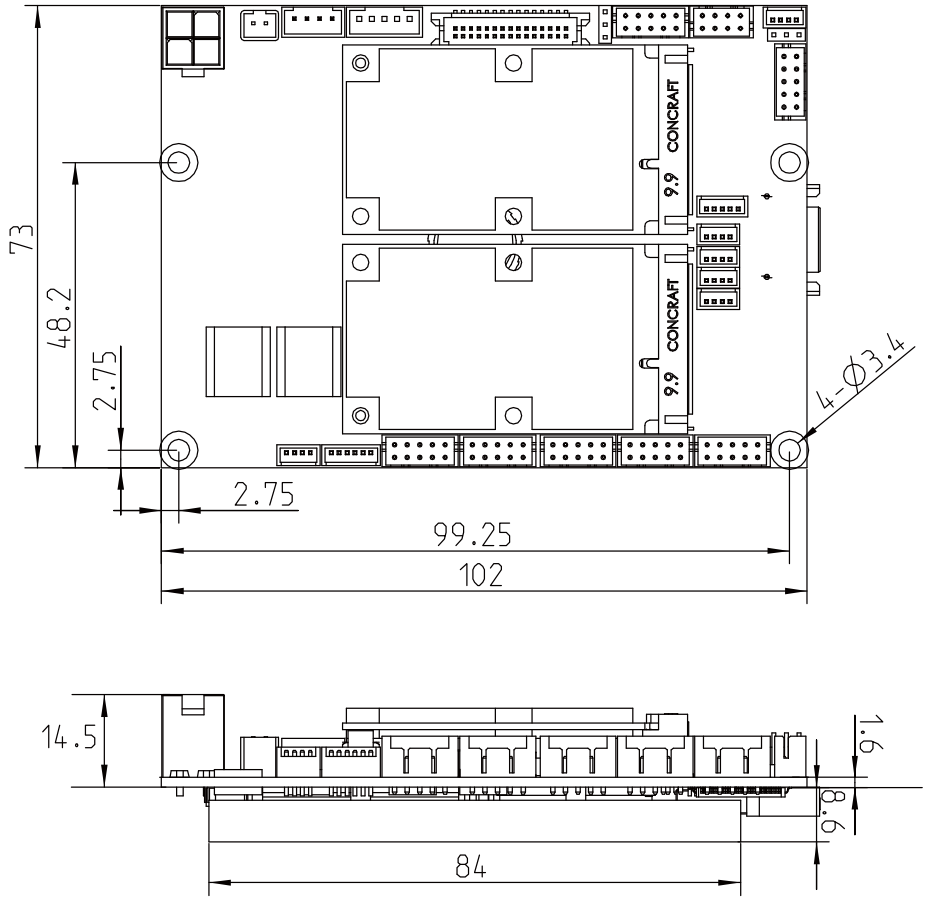
3. Is there any visible damage on the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT
   THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

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.

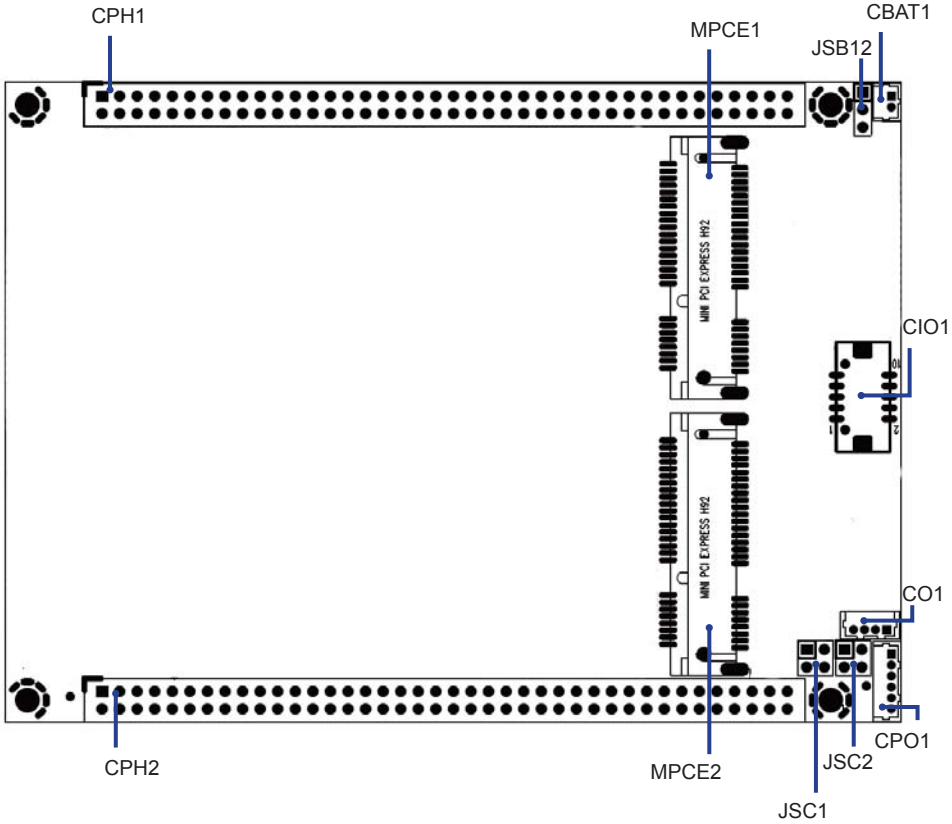
6. Please keep all necessary manual and driver disc in a good condition for future re-installation if you change your Operating System.

2-3 Dimension-2I847PW



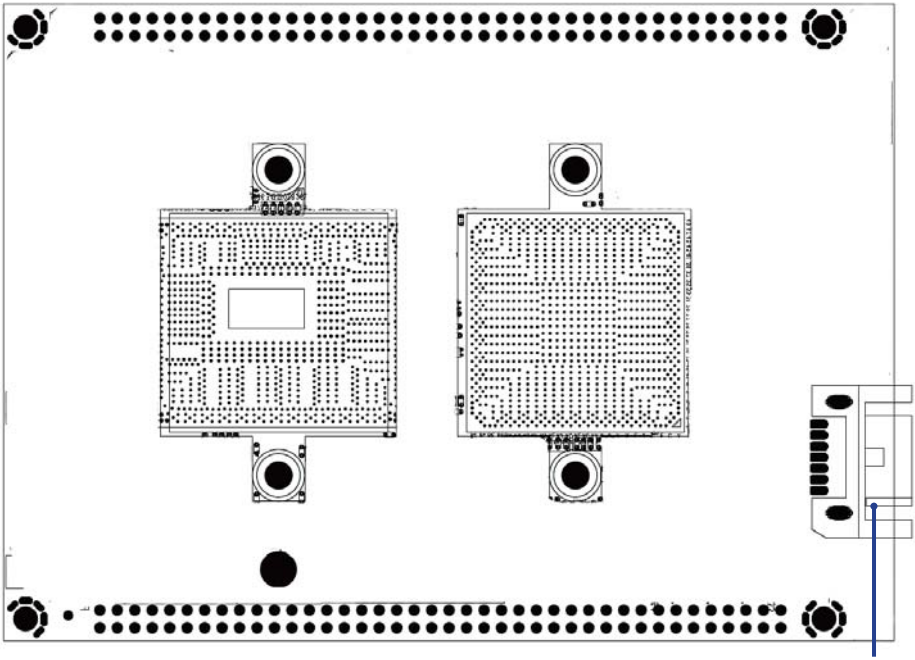
2-4 Layout-2I847PW

TOP

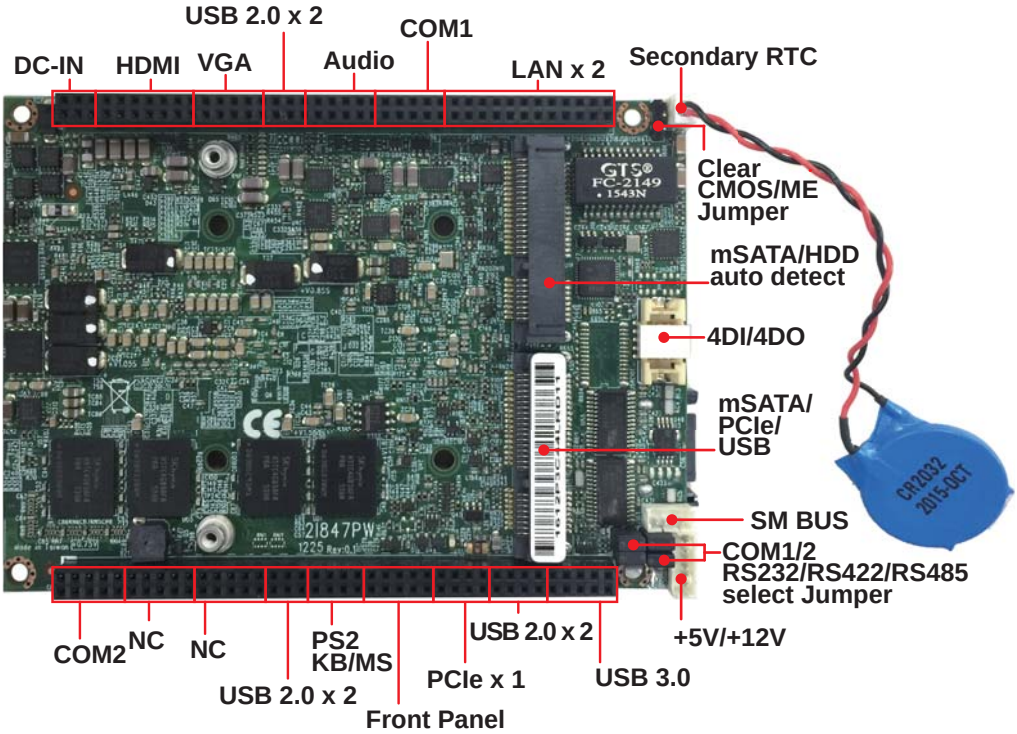


2-4-1 Layout-2I847PW

BOT

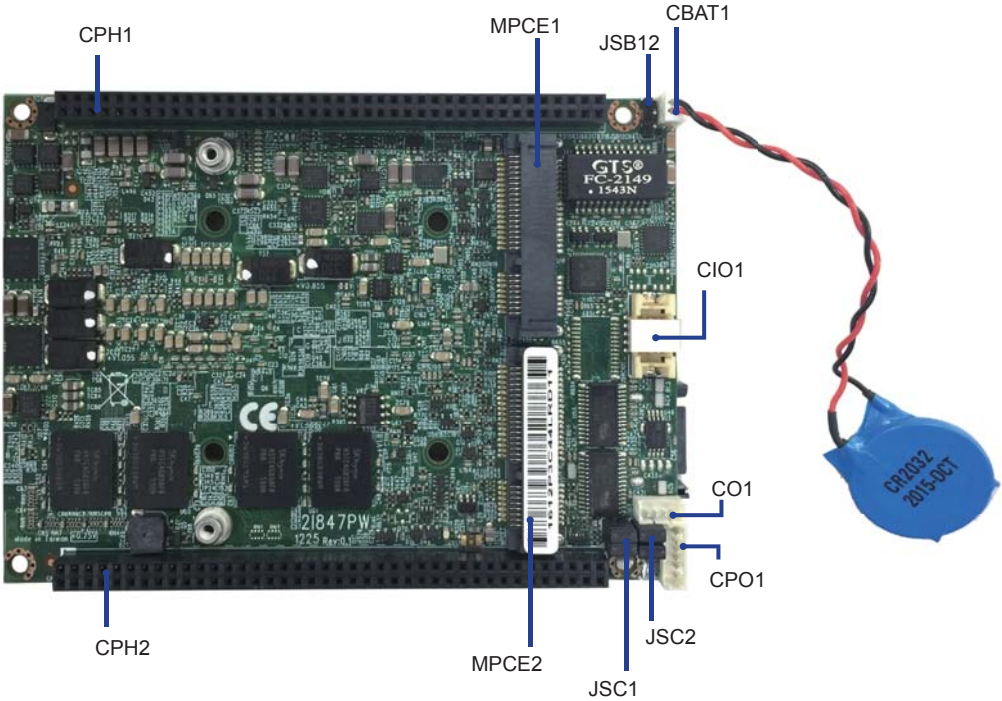


2-5 Funtion Map-2I847PW



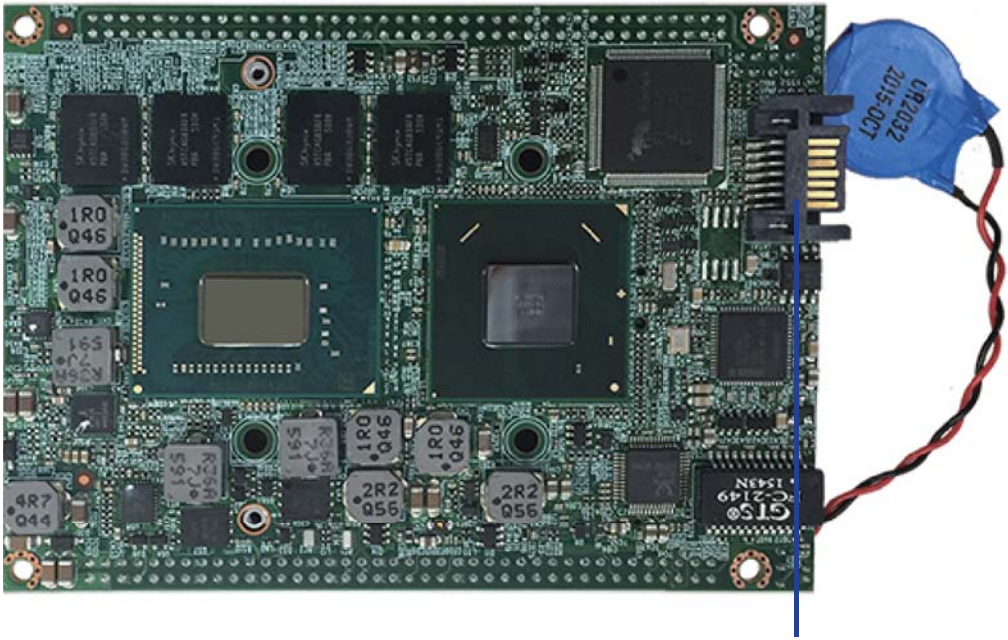
2-6 Diagram- 2I847PW

TOP



2-6-1 Diagram- 2I847PW

BOT



2-7 List of Jumpers

JSB12: CMOS and ME RTC clear select

JSC1 / JSC2: COM1 / COM2 RS232 / RS422 / RS485 select

2-8 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.

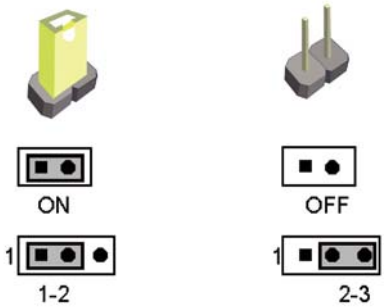


Figure 2.2

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 .

2-9 JSB12: CMOS Data SET

A battery must be used to retain the motherboard configuration in CMOS RAM.
Close Pin1 and pin 2 of JSB12 to store the CMOS data.

To clear the CMOS, follow the procedures below:

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

JSB12	Description
1-2	CMOS data clear
2-3	ME RTC data clear

Note: Normal work is open jumper

Note: Do not clear CMOS unless

1. Troubleshooting

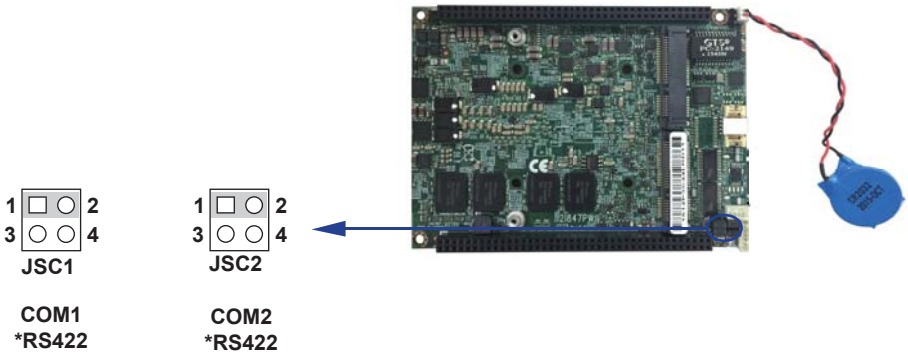
2. Forget password

3. You fail over-clocking system

2-10 JSC1 / JSC2: COM1 / COM2 RS232 / RS422 / RS485 select

JSC1 / JSC2	RS232	*RS422	RS485
1-2	Short	Short	Open
3-4	Open	Short	Open

Note: RS232 / RS422 / 485 setting by both H/W jumper and BIOS 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

CPH1:	2 x 40 Pin 2.00mm Male
CPH2:	2 x 40 Pin 2.00mm Male
CBAT1:	Li 3V battery 2pin (1.25mm) wafer
CPO1:	DC +5 / +12V output 1x6 pin (1.25mm) Black wafer connector
CIO1:	DI port 0~3, DO port 0~3 2x5 pin (2.0mm) wafer
CO1:	I^2C 4pin (1.25mm) wafer
SATA1:	SATA port 0 (Gen III) connectors 7pin
MPCE1 / MPCE2:	Mini card port 1/2 sockets 52pin

3-2 2 x 40 Pin 2.00mm Male

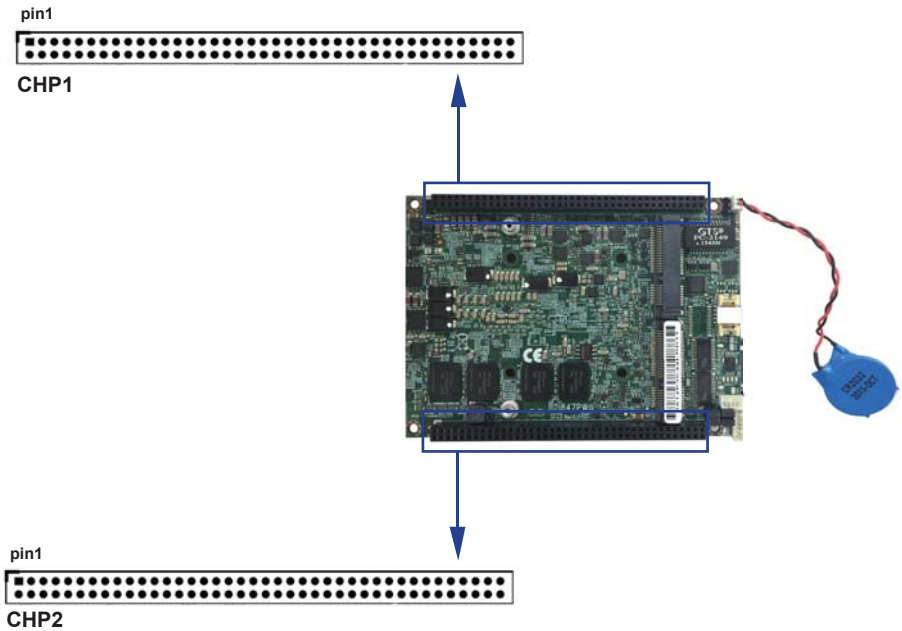
•CHP1: 2x40 Pin 2.00mm Male

Description	APin Number	Pin Number	Description
GND	A1	B1	VIN_VCC
GND	A2	B2	VIN_VCC
GND	A3	B3	GND
HDMI_VCC	A4	B4	HDMI_HPD
HDMI_DDC_DATA	A5	B5	HDMI_DDC_CLK
HDMI_CLK_N	A6	B6	HDMI_D0_N
HDMI_CLK_P	A7	B7	HDMI_D0_P
GND	A8	B8	GND
HDMI_D1_N	A9	B9	HDMI_D2_N
HDMI_D1_P	A10	B10	HDMI_D2_P
GND	A11	B11	GND
VGA_CLK	A12	B12	VGA_BLUE
V-SYNC	A13	B13	VGA_GREEN
H-SYNC	A14	B14	VGA_RED
VGA_DATA	A15	B15	GND
GND	A16	B16	GND
USB_P0_D-	A17	B17	USB_P0_D+
USB_P1_D-	A18	B18	USB_P1_D+
GND	A19	B19	GND
GND	A20	B20	USB_P01_VCC
LINE_OUT_R	A21	B21	LINE_IN_R
MIC_IN_R	A22	B22	MIC_IN_L
LINE_OUT_L	A23	B23	LINE_IN_L
GND	A24	B24	GND
DSR1	A25	B25	DCD1
RTS1	A26	B26	RXD1
CTS1	A27	B27	TXD1
RI1	A28	B28	DTR1
LAN1_LED_SPEED_10	A29	B29	LAN1_LED_VCC
LAN1_DI3_P	A30	B30	LAN1_DI3_N
LAN1_DI1_P	A31	B31	LAN1_DI1_N
LAN1_DI2_N	A32	B32	LAN1_DI2_P
LAN1_DI0_P	A33	B33	LAN1_DI0_N
LAN1_LED_SPEED_1000	A34	B34	LAN1_LED_SPEED_100
LAN2_LED_SPEED_10	A35	B35	LAN2_LED_VCC
LAN2_DI3_P	A36	B36	LAN2_DI3_N
LAN2_DI1_P	A37	B37	LAN2_DI1_N
LAN2_DI2_N	A38	B38	LAN2_DI2_P
LAN0_DI0_P	A39	B39	LAN2_DI0_N
LAN2_LED_SPEED_1000	A40	B40	LAN2_LED_SPEED_100

•CHP2: 2x40 Pin 2.00mm Male

Description	APin Number	Pin Number	Description
VCC	A1	B1	DTR2
CTS2	A2	B2	TXD2
RTS2	A3	B3	RXD2
DSR2	A4	B4	DCD2
GND	A5	B5	GND
NC	A6	B6	NC
NC	A7	B7	NC
NC	A8	B8	NC
NC	A9	B9	NC
GND	A10	B10	GND
NC	A11	B11	NC
NC	A12	B12	NC
NC	A13	B13	NC
NC	A14	B14	NC
GND	A15	B15	GND
USB_P2_D+	A16	B16	USB_P2_D-
USB_P3_D+	A17	B17	USB_P3_D-
GND	A18	B18	GND
PS2 KB/MS VCC	A19	B19	USB_P23_VCC
KB_CLK	A20	B20	KB_DATA
MS_CLK	A21	B21	MS_DATA
GND	A22	B22	GND
POWER SWITCH	A23	B23	RESET SWITCH
SMB_DATA	A24	B24	POWER_LED_N
SMB_CLK	A25	B25	HDD_LED_N
+V3.3S	A26	B26	LAN_LED_N
GND	A27	B27	GND
PCIE_TX_P	A28	B28	PCIE_TX_N
PCIE_RX_P	A29	B29	PCIE_TX_N
PCIE_CLK_P	A30	B30	PCIE_CLK_N
GND	A31	B31	GND
GND	A32	B32	RESET_+3.3V
USB_P4_D+	A33	B33	USB_P4_D-
USB_P5_D+	A34	B34	USB_P5_D-
USB3_P45_VCC	A35	B35	GND
GND	A36	B36	GND
USB3_TX_P	A37	B37	USB3_TX_N
GND	A38	B38	GND
USB3_RX_P	A39	B39	USB3_RX_N
GND	A40	B40	+V5S

Note: PIN A26, B40 offer 500mA. Do not use it to be power supply.

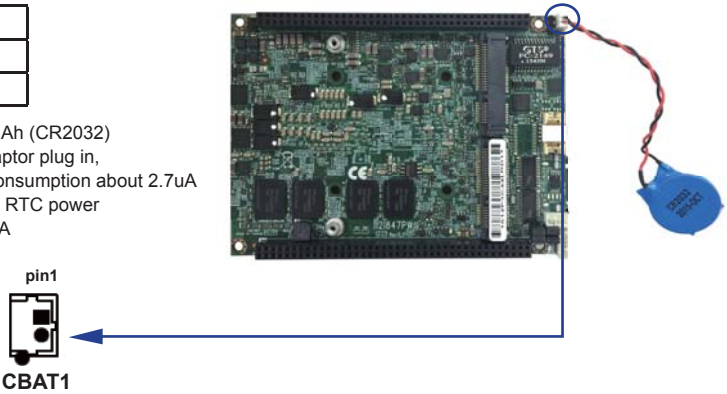

pin1
CHP1
pin1
CHP2

3-3 Battery Input

- **CBAT1: Battery use Li 3V / 220mAh (CR2032)**
  CBAT1: 3V Battery 2pin (1.25mm) wafer
  (1 X 2 pin 2.0mm Black wafer)

PIN NO.	Description
1	GND
2	VBAT *

Note: 1. Battery use Li 3V / 220mAh (CR2032)
2. When board without Adaptor plug in, this board power RTC consumption about 2.7uA
3. If adaptor always plug in RTC power consumption about 0.1uA



3-4 DC voltage output

- **CPO1: +12V / +5V DC voltage output (1 X 6 pin 1.25mm wafer)**

PIN NO.	Description
1	+5V
2	+5V
3	GND
4	GND
5	+12V*
6	+12V*

*Note: 1. DC in +12V by switch to DC-out voltage +12V, so DC in need stable +12V input

3-5 Digital Input / Output / Watch Dog Time

● CIO1: DIO 0~3 (2x5pin 2.0mm wafer)

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

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

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.

Appendix C: F75111N I²C DIO device

3-5-1 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

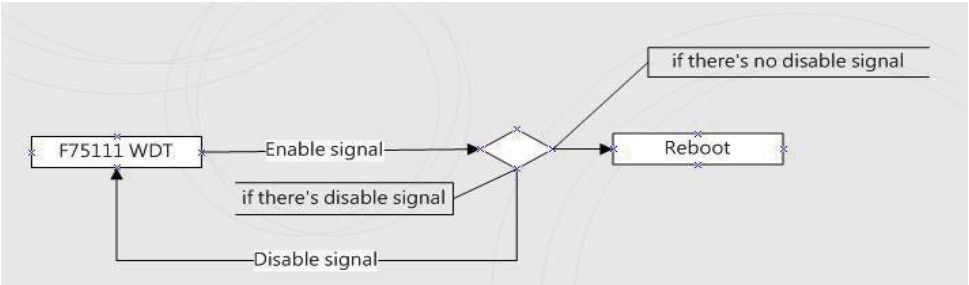
How to use this Demo Application

1.Boot Ms-Dos Operating System

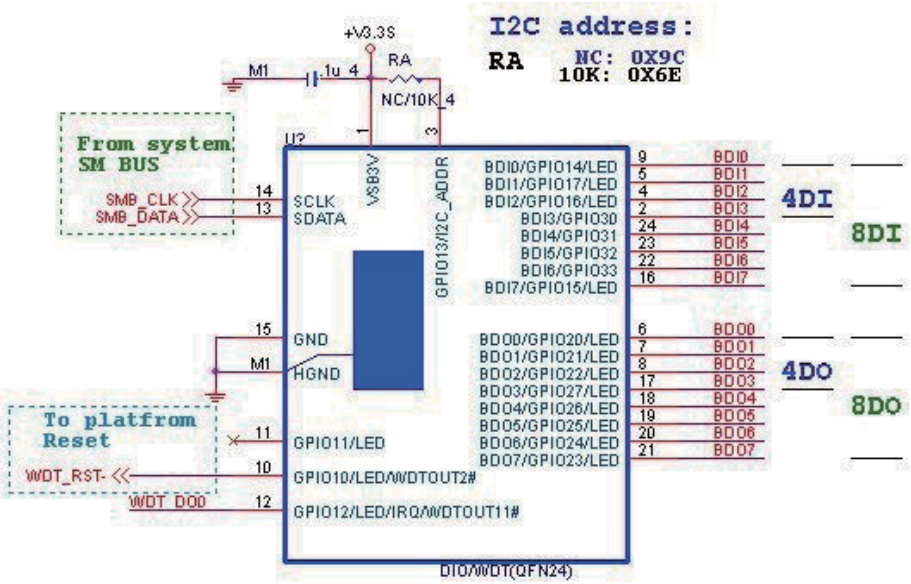
2.execute "75WDT.EXE" binary file

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;
  }
```

3-5-2 IO Device: F75111 under Windows

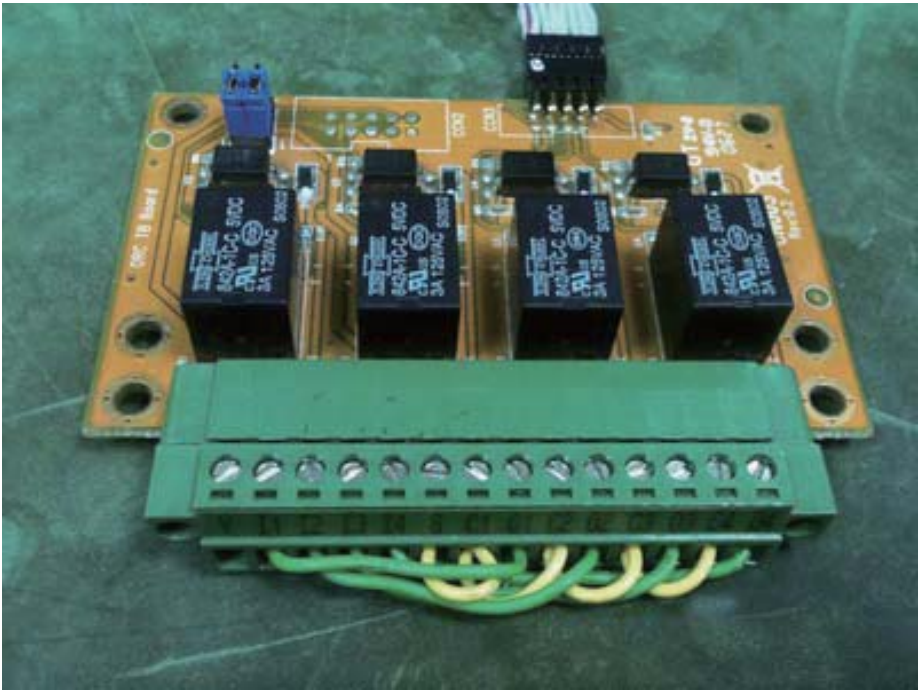
The Sample code source you can download from

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

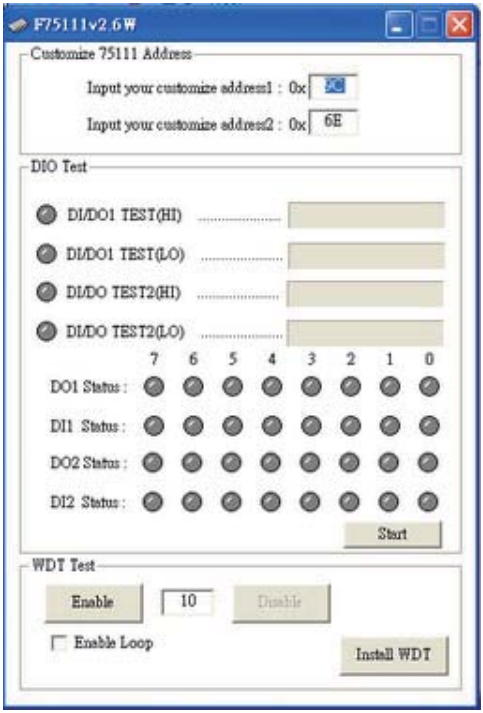
We do the demo test with a test tool which DIx connect to DOx with Relay.



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

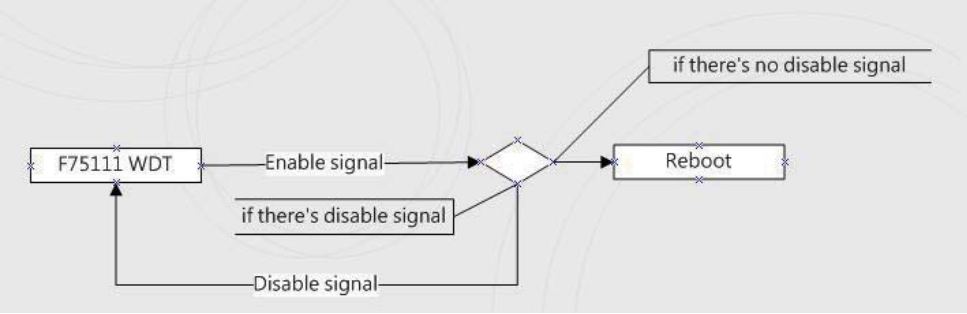
2. Press the "Enable" button to test WDT function

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  **



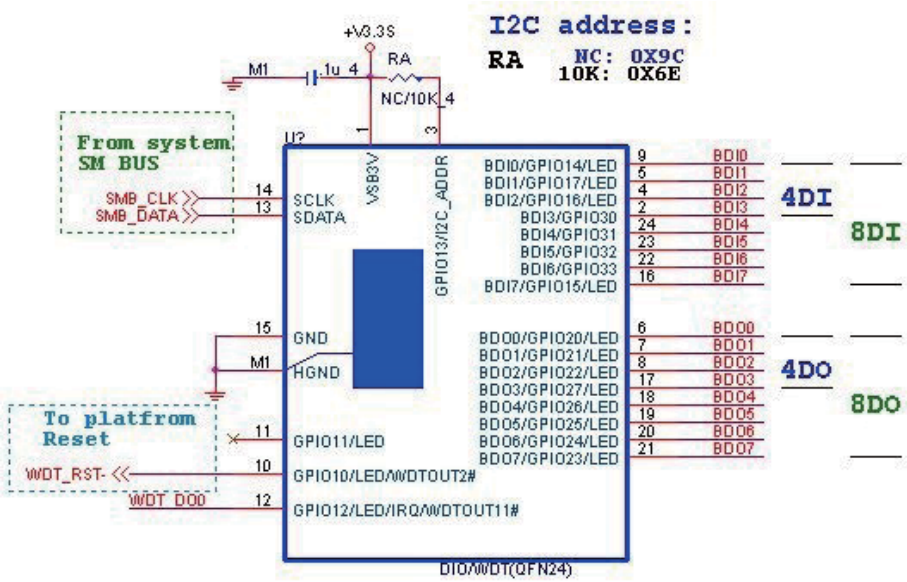
p.s.

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.
```

3-5-3 IO Device: F75111 VB6 under Windows

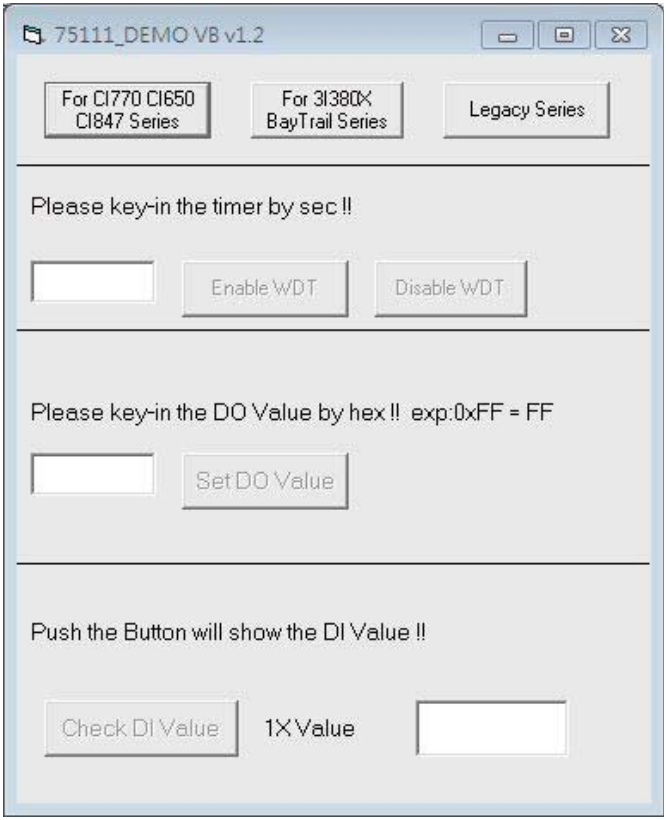
The Sample code source you can download from

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

Binary file: 75111_VB_Src1.2.rar

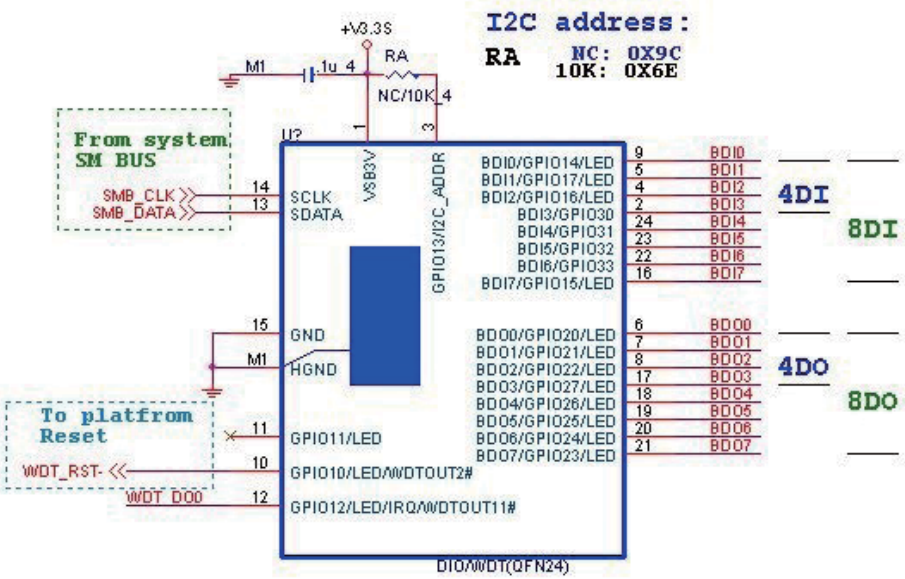
USERNAME & PASSWORD: sf

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
```

3-5-4 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"

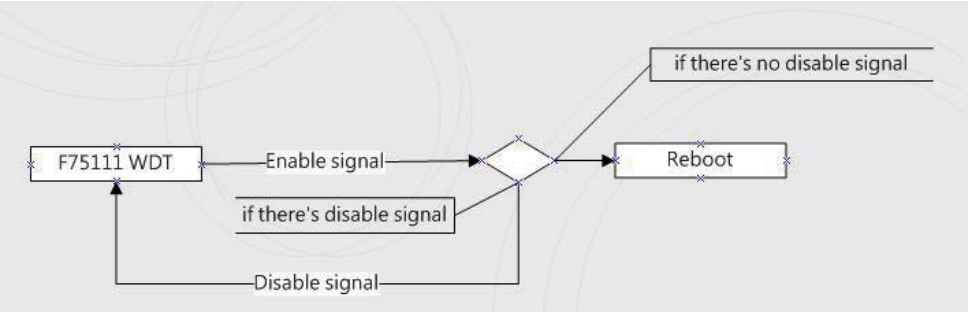
1. cd F75111

1. make

1. src/f75111 // execute the binary file

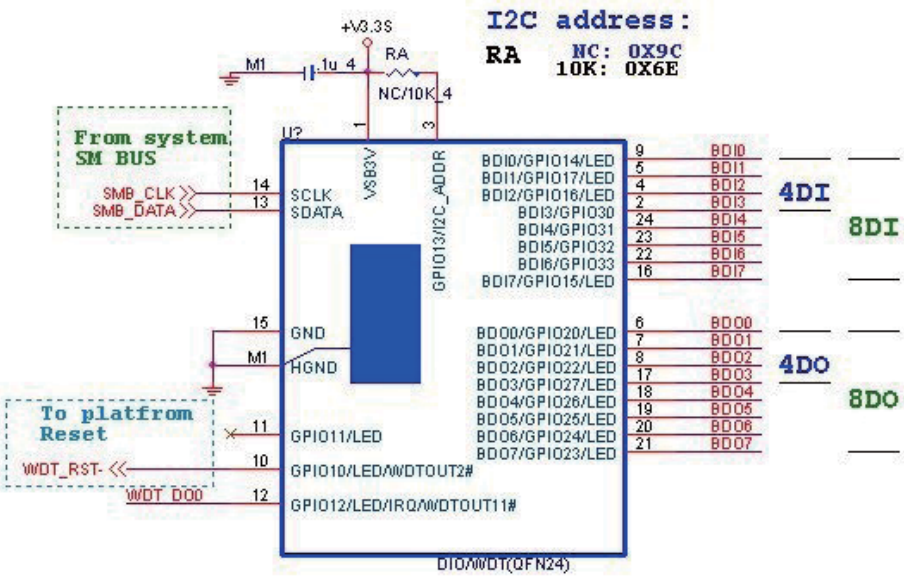
How to use this Demo Application

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   ();
```

3-6 I^2C BUS

• CO1: I^2C Bus 4pin (1.25mm) Wafer

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

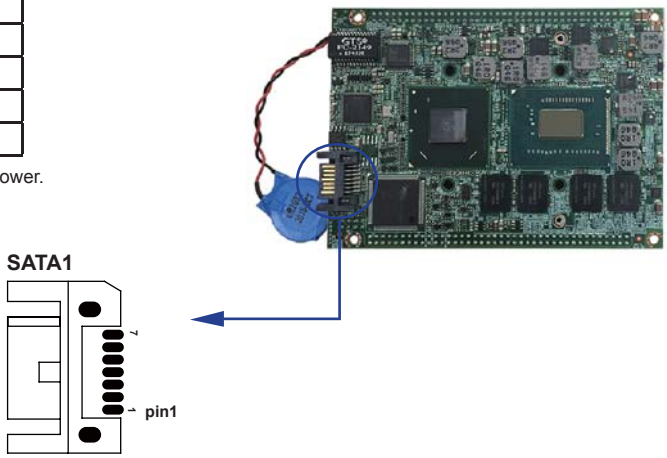
NOTE: 1. Mating connector: MOLEX 53047-0410 or compatible
2. Cable housing: MOLEX 51021-0400 or compatible

3-7 SATA port

• SATA1: SATA connector (7pin wafer)

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

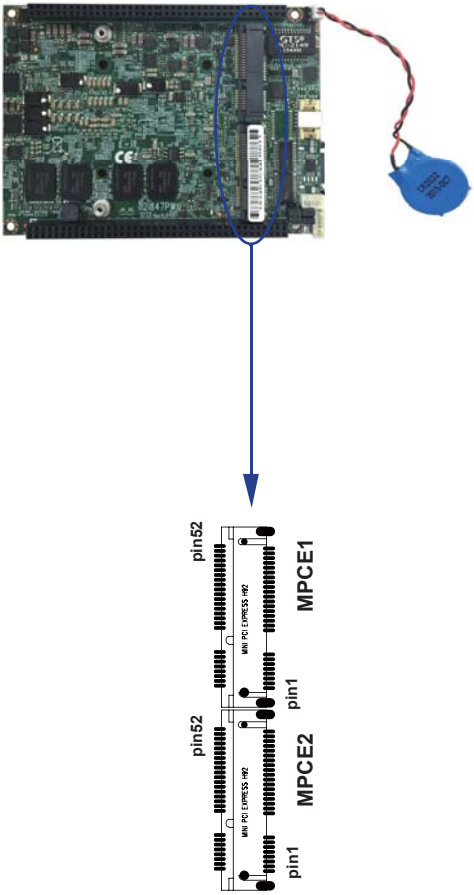
Note: CPO1 provide SATA HDD power.



3-8 Mini card

- **MPCE1: Full size mini card (Mini card socket 52pin)**
  MPCE2: Full size mini card (Mini card socket 52pin)

PIN NO.	Description	PIN NO.	Description
1	NC (Wake up)	2	+3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	NC (CLKREQ-)	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	PRST-
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	NC (mSATA detect)	52	+3.3V



Note: 1. MPCE1: Default support USB / PCIe interface
2. MPCE2: Default support USB / PCIe interface / mSATA 3.0 (auto detect)

Chapter-4

Introduction of BIOS

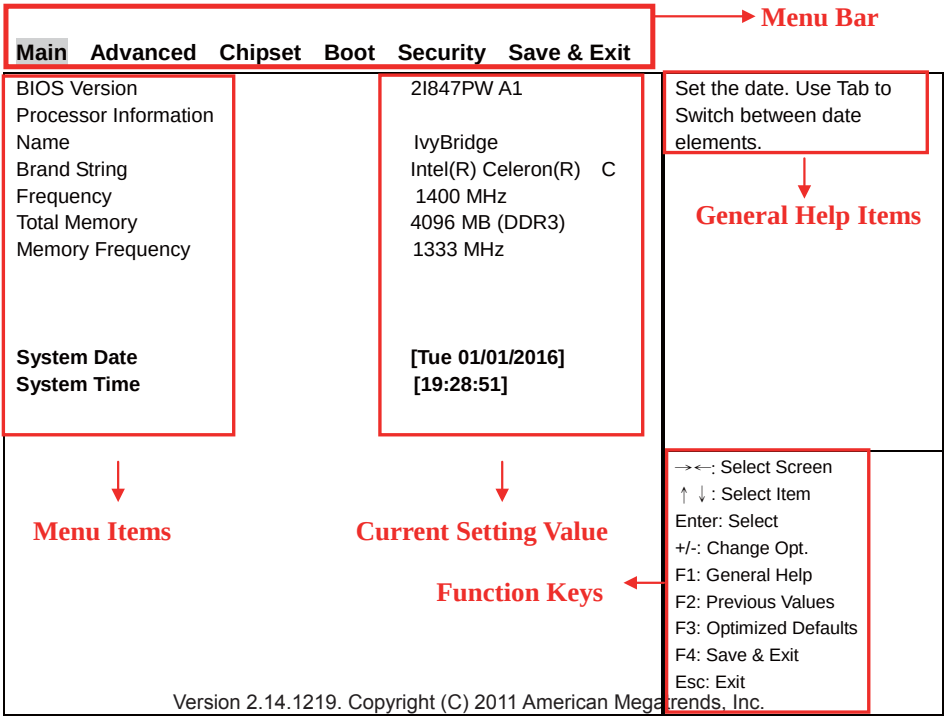
The BIOS is a program located in the Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gains control. The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary 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.

4-1 Enter Setup

Power on the computer and press <Del> key immediately to enter Setup.
If the message disappears before your respond but you still wish to enter Setup, restart the system by turning it OFF then ON. You may also restart the system by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the proper time and the system does not boot, an error message will display and you will be asked to

4-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen



4-3 Function Keys

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

- Press ←→ (left, right) to select screen;
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<–> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous value.
- [F3]: Optimized defaults.
- [F4]: Save & exit.
- Press <Esc> to quit the BIOS Setup.

4-4 Getting Help

Main Menu
The on-line description of the highlighted setup function is displayed at the top right corner the screen.

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>.

4-5 Menu Bars

There are six menu bars on top of BIOS screen:
Main To change system basic configuration
Advanced To change system advanced configuration
Chipset To change chipset configuration
Boot To change boot settings
Security Password settings
Save & 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.

4-6 Main

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

BIOS Version	2I847PW A1	Set the date. Use Tab to Switch between date elements.
Processor Information		
Name	IvyBridge	
Brand String	Intel(R) Celeron(R) C	
Frequency	1400 MHz	
Total Memory	4096 MB (DDR3)	
Memory Frequency	1333 MHz	
System Date	**[Tue 01/01/2016]**	
System Time	**[19:28:51]**	
		→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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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.

4-7 Advanced

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

►ACPI Settings ►S5 RTC Wake Settings ►CPU Configuration ►SATA Configuration ►USB Configuration ►SMART Settings ►F71869 Super IO Configuration ►F71869 H/W Monitor ►Serial Port Console Redirection ►Network Stack	System ACPI Parameters. →←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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ACPI Settings

Please refer section 1-7-1

S5 RTC Wake Settings

Please refer section 1-7-2

CPU Configuration

Please refer section 1-7-3

SATA Configuration

Please refer section 1-7-4

USB Configuration

Please refer section 1-7-5

SMART Settings

Please refer section 1-7-6

F71869 Super IO Configuration

Please refer section 1-7-7

F71869 H/W Monitor

Please refer section 1-7-8

Serial Port Console Redirection

Please refer section 1-7-9

Network Stack

Please refer section 1-7-10

4-7-1 ACPI Settings

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

ACPI Settings Enable ACPI AUTO Configuration **[Disabled]** Enable Hibernation **[Enabled]** ACPI Sleep State **[S1 only(CPU Stop C..)]**	Enables or Disables BIOS ACPI Auto Configuration. →←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Enable ACPI Auto Configuration

This item allows you to Enabled / Disabled the Advanced Configuration and Power Management (ACPI).

Enable Hibernation

This item allows you to Enabled/Disabled the Hibernate feature.

ACPI Sleep State

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

The optional settings: Suspend Disabled / S1 only (CPU Stop Clock) / S3 only (Suspend to RAM) / Both S1 and S3 available for OS choose from.

4-7-2 S5 RTC Wake Settings

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

Wake system with Fixed Time	**[Disabled]**	Enable or disable System wake
Wake system with Dynamic Time	**[Disabled]**	
		→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Wake system with Fixed Time

Use this item to Enable or Disable system wake on alarm event. When set as Enabled, system will wake on the hour / min / sec specified.

Wake system with Dynamic Time

Use this item to Enable or Disable system wake on alarm event. When set as Enabled, system will wake on the current time + Increase minute(s).

4-7-3 CPU Configuration

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

CPU Configuration		Nunber of cores to enable in each processor package.
Intel(R) Celeron(R) CPU 1047UE @ 1.40GHz		
CPU Signature	306a9	
Microcode Path	10	
Max CPU Speed	1400 MHz	
Min CPU Speed	800 MHZ	
CPU Speed	1400 MHZ	
Processor Cores	2	
Intel HT Technology	Not Supported	
Intel VT-x Technology	Supported	
Intel SMX Technology	Not Supported	
64-bit	Supported	
L1 Data Cache	32 KB x 2	→←: Select Screen
L1 Code Cache	32 KB x 2	↑ ↓ : Select Item
L2 Cache	256 KB x 2	Enter: Select
L3 Cache	2048 KB	+/-: Change Opt.
		F1: General Help
Active Processor Cores	**[All]**	F2: Previous Values
Execute Disable Bit	**[Enabled]**	F3: Optimized Defaults
Intel Virtualization Technology	**[Disabled]**	F4: Save & Exit
		Esc: Exit

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Active Processor Cores

Use this item to select number of cores to enable in each processor package.

Execute Disable Bit

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)
The optional settings are: Disabled, Enabled.

Intel Virtualization Technology

When set as Enabled, a VHM can utilize the additional hardware capabilities provided by Vanderpool Technology.
The optional settings: Enabled, Disabled.

4-7-4 SATA Configuration

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

SATA Controller(s)	**[Enabled]**	Enable or disable SATA Device.
SATA Mode Selection	**[IDE]**	
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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SATA Controller(s)

Use this item to Enable or Disable SATA Device.

SATA Mode Selection

Determine how SATA controller(s) operate.

The optional settings are: IDE Mode, AHCI Mode.

4-7-4-1 SATA Mode Selection-AHCI Mode

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

SATA Controller(s)	**[Enabled]**	Enable or disable SATA Device.
SATA Mode Selection	**[IDE]**	
SATA Controller Speed	**[Gen3]**	
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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SATA Controller Speed

Indicates the maximum speed the SATA controller can support.
The optional settings: Gen1, Gen2, Gen3.

4-7-5 USB Configuration

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

USB Configuration		Enables Legacy USB support AUTO option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications.
USB Devices:		
1 Keyboard, 1 Mouse, 2 Hubs		
Legacy USB Support	**[Enabled]**	
USB3.0 Support	**[Enabled]**	
XHCI Hand-off	**[Enabled]**	→←: Select Screen
EHCI Hand-off	**[Disabled]**	↑ ↓: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		Esc: Exit

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Legacy USB Support

Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications.

USB3.0 Support

Use this item to turn on/off USB3.0 Controller support.
The optional settings are: Enabled, Disabled.

XHCI Hand-off

This is a workaround for OSes without XHCI handoff support. The XHCI ownership change should be claimed by XHCI driver.
The optional settings are: Enabled, Disabled..

EHCI Hand-off

This is a workaround for OSes without EHCI handoff support. The EHCI ownership change should be claimed by EHCI driver.
The optional settings are: Enabled, Disabled.

4-7-6 SMART Settings

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

SMART Settings SMART Self Test **[Disabled]**	Run SMART Self Test on all HDDs during POST.
	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

SMART Self Test

Run Smart Self Test on all HDDs during POST.

The optional settings are: Disabled, Enabled.

4-7-7 F71869 Super IO Configuration

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

F71869 Super IO Configuration F71869 Super IO Chip F71869 ►Serial Port 1 Configuration ►Serial Port 2 Configuration Power Failure **[Keep last state]**	Set Parameters of Serial Port 1(COMA)
	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

Serial Port 1 Configuration

Please refer section 1-7-7-1

Serial Port 2 Configuration

Please refer section 1-7-7-1

Power Failure

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

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

[Bypass mode] Restores the system to the bypass mode.

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

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

4-7-7-1 ►Serial Port 1 Configuration

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

Serial Port 1 Configuration		Enable or Disable Serial Port (COM)
Serial Port	**[Enabled]**	
Device Settings	IO=3F8h; IRQ=4;	
Change Settings	**[AUTO]**	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit
COM1 422/485 control flow	**[Disabled]**	

Serial Port

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

The optional settings are: Enabled, Disabled.

Device Settings

Serial Port 1 IO=3F8h; IRQ=4;

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings are:

AUTO

IO=3F8h; IRQ=4;

IO=3F8h; IRQ=3,4,5,6,7,10,11,12;

IO=2F8h; IRQ=3,4,5,6,7,10,11,12;

IO=3E8h; IRQ=3,4,5,6,7,10,11,12;

IO=2E8h; IRQ=3,4,5,6,7,10,11,12;

COM1 422 / 485 control flow

Use this item to enable or disable serial port (COM) Auto flow

The optional settings are: Enabled, Disabled.

4-7-7-2 ►Serial Port 2 Configuration

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

Serial Port 2 Configuration		Enable or Disable Serial Port (COM)
Serial Port	**[Enabled]**	
Device Settings	IO=2F8h; IRQ=3;	
Change Settings	**[AUTO]**	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit
COM2 422/485 control flow	**[Disabled]**	

Serial Port

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

The optional settings are: Enabled, Disabled.

Device Settings

Serial Port 2 IO=2F8h; IRQ=3;

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings are:

AUTO

IO=2F8h; IRQ=3;

IO=3F8h; IRQ=3,4,5,6,7,10,11,12;

IO=2F8h; IRQ=3,4,5,6,7,10,11,12;

IO=3E8h; IRQ=3,4,5,6,7,10,11,12;

IO=2E8h; IRQ=3,4,5,6,7,10,11,12;

COM2 422 / 485 control flow

Use this item to enable or disable serial port (COM) Auto flow

The optional settings are: Enabled, Disabled.

4-7-8 F17869 H/W Monitor

F17869 H/W Monitor

Press [Enter] to view PC health status.

This section shows the status of your CPU, Fan, and overall system. This is only available when there is Hardware Monitor function onboard.

4-7-9 Serial Port Console Redirection

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

Console Redirection	**[Disabled]**	Console Redirection Enable or Disable.
►Console Redirection Settings		
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

Console Redirection

Use this item to enable or disable Console Redirection.

The optional settings are: Enabled, Disabled.

4-7-10 Network Stack

Main **Advanced** **Chipset** **Boot** **Security** **Save & Exit**

Network stack	**[Disabled Link]**	Enable/Disable UEFI network stack.
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

Network Stack

Enable / Disable UEFI network stack.

The optional settings are: Disable Link, Enable.

4-8 Chipset

Main Advanced Chipset Boot Security Save & Exit

►PCH-IO Configuration ►System Agent (SA) Configuration	PCH Parameters
	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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PCH-IO Configuration

Please refer section 1-8-1

System Agent (SA) Configuration

Please refer section 1-8-2

4-8-1 ►PCH-IO Configuration

Main Advanced Chipset Boot Security Save & Exit

Intel PCH SKU Name	HM76	PCI Express Configuration settings
Intel PCH Rev ID	04/C1	
►PCI Express Configuration		
►USB Configuration		
►PCH Azalia Configuration		
Wake on LAN	**[Disabled]**	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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PCI Express Configuration

Please refer section 1-8-1-1

USB Configuration

Please refer section 1-8-1-2

PCH Azalia Configuration

Please refer section 1-8-1-3

Wake on LAN

Use this item to enable or disable integrated LAN to wake the system.

4-8-1-1 ► PCI Express Configuration

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

Main Advanced Chipset Boot Security Save & Exit

PCI Express Configuration ►Mini PCIe 1 ►Mini PCIe 2 ►PCI Express Root Port 5	PCI Express Configuration settings →←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Mini PCIe 1

Please refer section 1-8-1-1-1

Mini PCIe 2

Please refer section 1-8-1-1-1

PCI Express Root Port 5

Please refer section 1-8-1-1-1

4-8-1-1-1 ►Mini PCIe 1/2

Main Advanced Chipset Boot Security Save & Exit

PCI Express Root Port 3/4/5	**[Enabled]**	Enable or disable PCI Express Unsupported Request Reporting.
PCIe Speed	**[Gen1]**	
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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PCI Express Root Port 3 / 4 / 5

Control the PCI Express Root Port.

The optional settings are: Enabled, Disabled.

PCIe Speed

Select PCI Express port speed.

The optional settings are: Auto, Gen1, Gen2.

4-8-1-2 ►USB Configuration

Main Advanced Chipset Boot Security Save & Exit

USB Configuration		Enable or disable XHCI Pre-Boot Driver support.
XHCI Pre-Boot Driver	**[Enabled]**	
xHCI Mode	**[Smart Auto]**	
HS Port #1 Switchablex	**[Enabled]**	→←: Select Screen
HS Port #2 Switchablex	**[Enabled]**	↑ ↓ : Select Item
HS Port #3 Switchablex	**[Enabled]**	Enter: Select
HS Port #4 Switchablex	**[Enabled]**	+/-: Change Opt.
xHCI Streams	**[Enabled]**	F1: General Help
EHCI1	**[Enabled]**	F2: Previous Values
EHCI2	**[Enabled]**	F3: Optimized Defaults
USB Ports Per-Port Disable Control	**[Disabled]**	F4: Save & Exit
		Esc: Exit

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XHCI Pre-Boot Driver

Use this item to enable or disable XHCI Pre-Boot Driver Support.

xHCI Mode

Mode of operation of xHCI controller.

The optional settings are: SamrtAuto, Auto, Enabled, Disabled.

Please refer section 1-8-1-2-1

EHCI1 / EHCI2

Use this item to enable or disable USB EHCI (USB 2.0) support. One EHCI controller must always be enabled.

The optional settings are: Enabled, Disabled.

USB Port Pre-Port Disable Control

Use this item to control each of the USB ports (0~13) disabling.

The optional settings are: Disabled, Enabled.

4-8-1-2-1 xHCI Mode

Main Advanced Chipset Boot Security Save & Exit

USB Configuration		Enable or disable XHCI Pre-Boot Driver support.
XHCI Pre-Boot Driver	**[Enabled]**	
xHCI Mode	**[Smart Auto]**	
HS Port #1 Switchable	**[Enabled]**	→←: Select Screen
HS Port #2 Switchable	**[Enabled]**	↑ ↓ : Select Item
HS Port #3 Switchable	**[Enabled]**	Enter: Select
HS Port #4 Switchable	**[Enabled]**	+/-: Change Opt.
xHCI Streams	**[Enabled]**	F1: General Help
EHCI1	**[Enabled]**	F2: Previous Values
		F3: Optimized Defaults
EHCI2	**[Enabled]**	F4: Save & Exit
		Esc: Exit
USB Ports Per-Port Disable Control	**[Disabled]**	

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HS Port #1 Switchable
HS Port #2 Switchable
HS Port #3 Switchable
HS Port #4 Switchable

Always for HS port switching between xHCI and EHCI. If disabled, port is routed to EHCI. If HS port is routed to xHCI, the corresponding SS port is enabled.
The optional settings are: Disabled, Enabled.

xHCI Streams

Use this item to enable or disable xHCI Maximum Primary Stream Array Size.
The optional settings are: Disabled, Enabled.

4-8-1-3 ►PCH Azalia Configuration

Main Advanced Chipset Boot Security Save & Exit

PCH Azalia Congiguration		Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled Enabled = Azalia will be unconditionally Enabled Auto = Azalia will be enabled if present, disabled otherwise.
Azalia	**[Auto]**	
Azalia Internal HDMI Codec	**[Enabled]**	
Azalia HDMI Codec	**[Enabled]**	
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Azalia

Use this item to enable, disable or auto control detection of the Azalia device.

Azalia Dcoking Support

Use this item to enable or disable Audio Controller of Azalia Docking.

4-8-2 ►System Agent (SA) Configuration

Main Advanced Chipset Boot Security Save & Exit

System Agent Bridge Name	IvyBridge	Config Graphics Settings.
System Agent RC Version	1.2.0.0	
►Graphics Configuration		
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Graphics Configuration

Please refer section 1-8-2-1

4-8-2-1 ►Graphics Configuration

Main Advanced Chipset Boot Security Save & Exit

Graphics Configuration		Graphics turbo IMON current values supported (14-31)
IGFX VBIOS Version	2170	
IGfx Frequency	350 MHz	
Aperture Size	**[256MB]**	
DVMT Pre-Allocated	**[64M]**	
DVMT Total Gfx Mem	**[256M]**	→←: Select Screen
►LCD Control		↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Aperture Size

The optional settings are: 128MB, 256MB, 512MB.

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: 32 / 64 / 96 / 128 / 160 / 192 / 224 / 256 / 288 / 320 / 352 / 384 / 416 / 448 / 480 / 512 / 1024M

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, MAX.

LCD Control

Please refer section 1-8-2-1-1

4-8-2-1-1 ►LCD Control

Main Advanced Chipset Boot Security Save & Exit

Graphics Configuration		Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display
Primary IGFX Boot Display	**[CRT]**	
Secondary IGFX Boot Display	**[HDMI]**	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Primary IGFX Boot Display

Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

The optional settings are: VBIOS Default, CRT.

Secondary IGFX Boot Display

The optional settings are: VBIOS Default, HDMI.

4-9 Boot

Main Advanced Chipset Boot Security Save & Exit

Boot Configuration		Select the keyboard NumLock state.
Bootup NumLock State	**[On]**	
Quiet Boot	**[Enabled]**	
CSM16 Module Version	07.69	
GateA20 Active	[Upon Request]	
Boot Option Priorities		
►CSM parameters		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Bootup NumLock State

Use this item to select keyboard NumLock State.

The optional settings are: On, Off.

Quiet Boot

The optional settings are: Enabled, Disabled.

Gate A20 Active

UPON REQUEST-GA20 can be disabled using BIOS services.

ALWAYS-do not allow disabling GA20.

CSM parameters

Please refer section 1-9-1

4-9-1 CSM parameters

Main Advanced Chipset Boot Security Save & Exit

Boot option filter	**[Legacy only]**	This option controls what devices system can boot to
Launch PXE OpROM policy	**[Do not launch]**	
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Boot option filter

This option controls what devices system can boot to.

The optional settings are: UEFI and Legacy, legacy only, UEFI only.

Launch PXE OpROM policy

This option controls the execution of UEFI and Legacy PXE OpROM.

The optional settings are: Do not launch, UEFI only, Legacy only.

4-10 Security

Main Advanced Chipset Boot Security Save & Exit

Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator right. The password length must be in the following range: Minimum length 3 Maximum length 20 Administrator Password User Password	Set Administrator Password →←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Administrator Password & User Password

To set up an administrator password:

1. Select Administrator / User 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 20 characters.
3. Hit [Enter] key to submit.

4-11 Save & Exit

Main Advanced Chipset Boot Security Save & Exit

Save Changes and Reset Restore Defaults Boot Override	Reset the system after saving the changes.
	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Save Changes and Reset

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

Restore Defaults

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

Chapter-5

DRIVER INSTALLATION

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

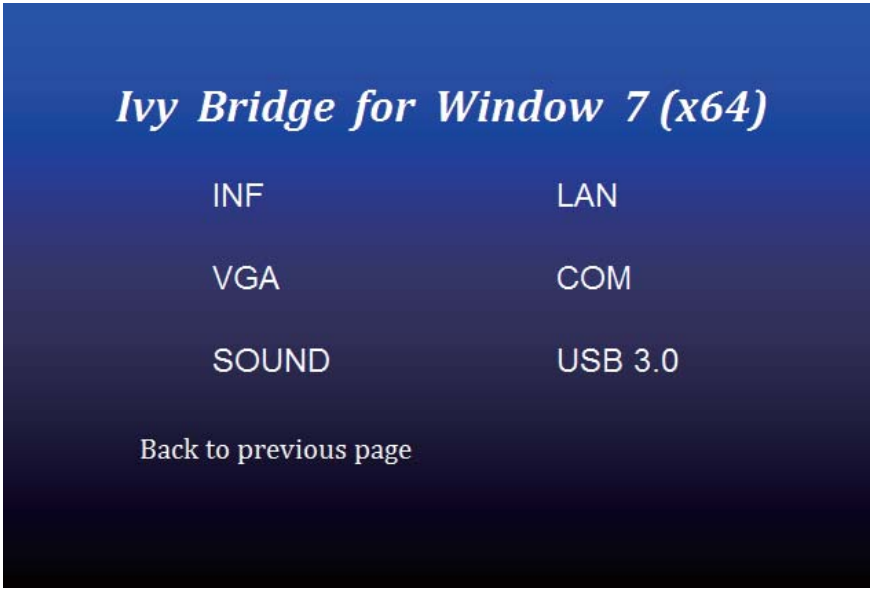
SYSTEM INSTALL Supports Windows XP/Windows 7/Windows 8/8.1

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

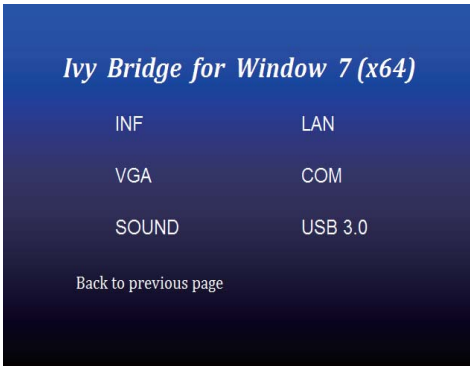
AUTOMATIC DRIVER INSTALLATION menu



1. INF install Intel Ivy Bridge chipset driver
2. VGA install onboard VGA driver
3. SOUND install VIA HD Audio Codec driver
4. LAN to the LAN driver Readme file
5. COM to the COM driver Readme file
6. USB 3.0 install Intel USB 3.0 extensible Host Controller driver

Each selection is illustrated below:

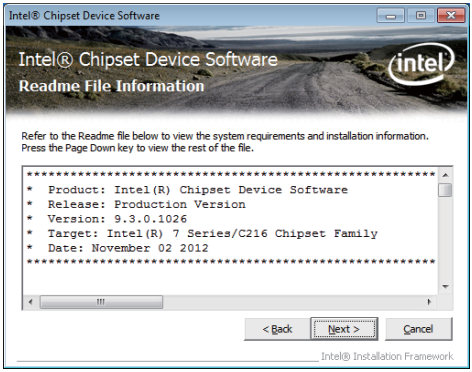
5-1 INF Install Intel Ivy Bridge Chipset Driver



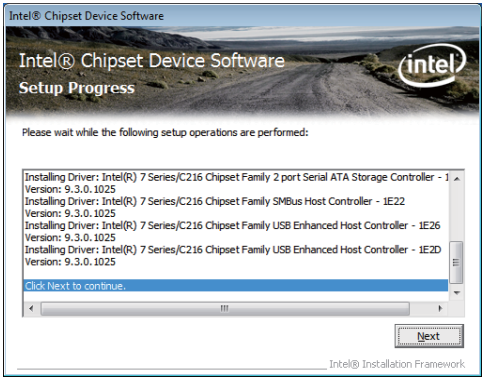
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "INF".

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

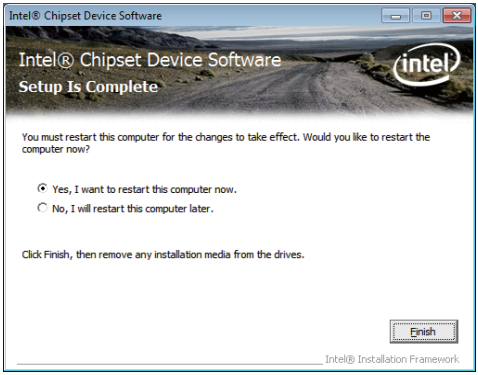
3. At the "License Agreement" screen, click "Yes"



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 XP 64/32-bit, Windows 7 64/32-bit and windows 8 64/32-bit

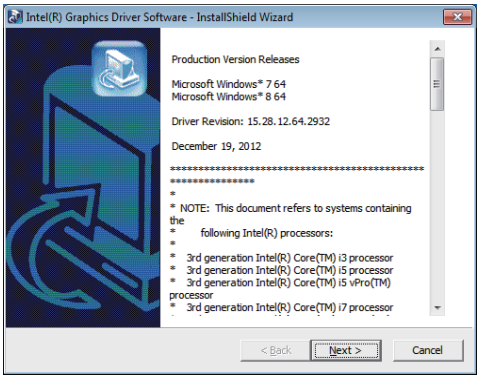
X:\driver\INTEL\IVY_SAN\inf\infinst_autol.exe

For Windows 8.1 64/32-bit

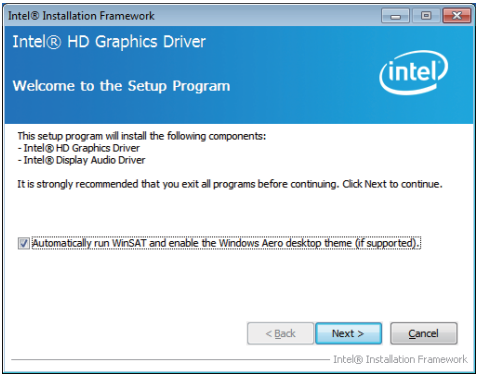
X:\driver\INTEL\IVY_SAN\inf\WIN8.1\Setup.exe

5-2 VGA Install Intel Ivy Bridge VGA Driver

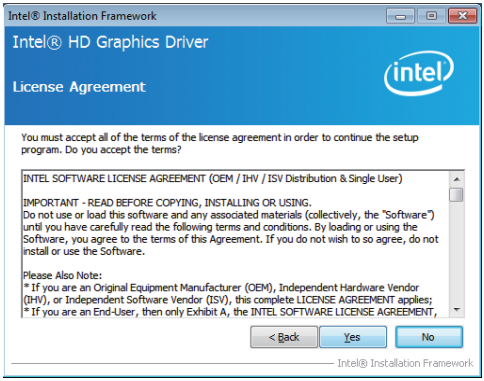
1. At the"AUTOMATIC DRIVER INSTALLATION menu"screen, click "VGA".



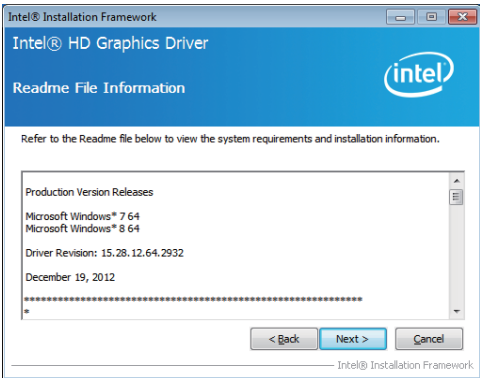
2. At the "Intel® HD Graphics Driver" screen, Click "Next".



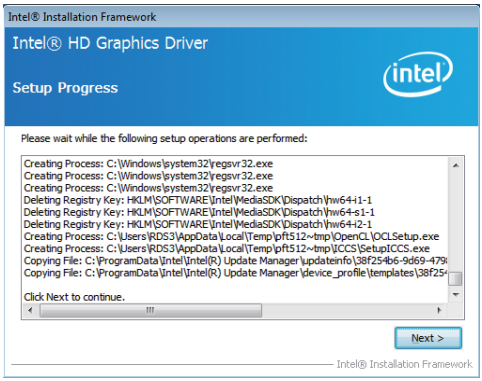
3. At the "Welcome to the Setup Program" screen, Click "Next".



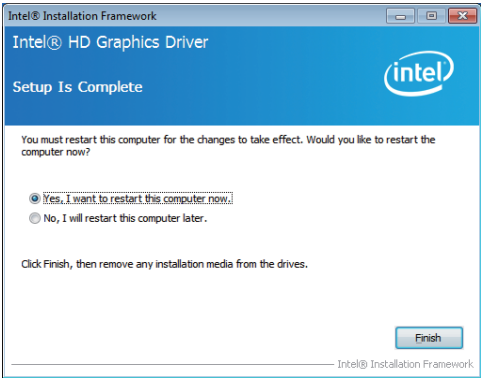
4. At the "License Agreement" screen, Click "Yes".



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



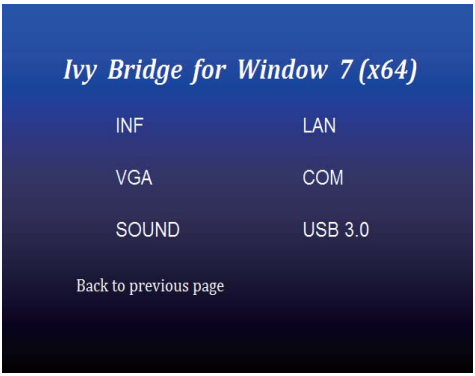
6. At the "Setup Progress" screen, Click "Next".



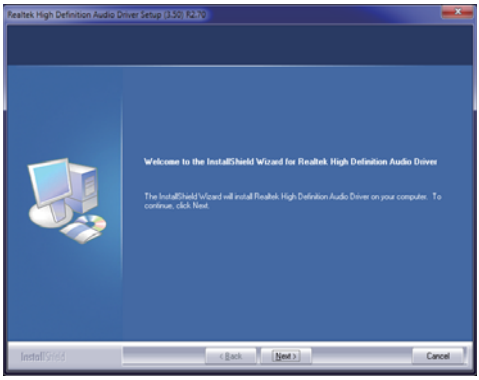
7. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path
For Windows XP 64bit
X:\driver\INTEL\IVY_SAN\vga\winxp64\winxp64_145110.exe
For Windows XP 32bit
X:\driver\INTEL\IVY_SAN\vga\winxp\winxp_145110.exe
For Windows 7 64bit and Windows 8 64bit
X:\driver\INTEL\IVY_SAN\vga\ WIN_7_8_64\ win64_152812.exe
For Windows 7 32bit and Windows 8 32bit
X:\driver\INTEL\IVY_SAN\vga\ WIN_7_8_32\ win32_152812.exe
For Windows 8.1 64bit
X:\driver\INTEL\IVY_SAN\vga\WIN8.1\IVY\x64\ Setup.exe
For Windows 8.1 32bit
X:\driver\INTEL\IVY_SAN\vga\WIN8.1\IVY\x86\Setup.exe

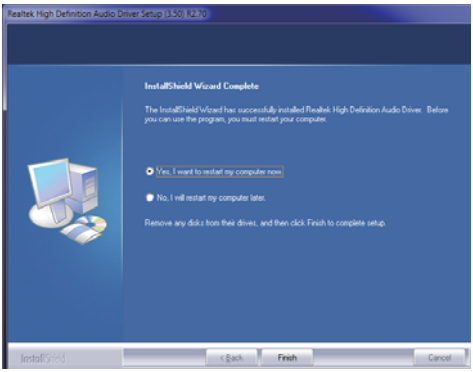
5-3 SOUND Install Realtek High Definition Audio Driver



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



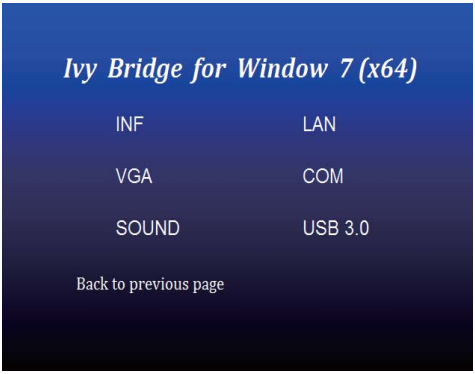
2. Click "Next".



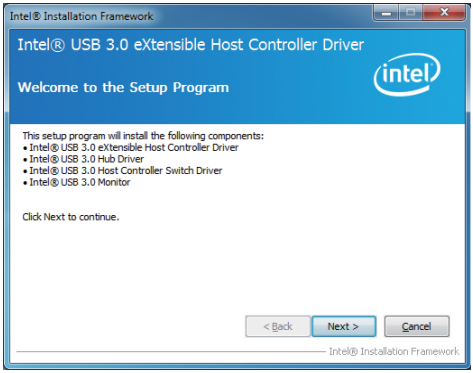
3. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path
For Windows XP 32/64 bit
X:\driver\INTEL\IVY_SAN\SOUND\WDM_R270.exe
For Windows 7 32/64 bit and Windows 8 32/64 bit
X:\driver\INTEL\IVY_SAN\SOUND\Vista_Win7_Win8_R270.exe
For Windows 8.1 32bit
X:\driver\INTEL\IVY_SAN\SOUND\Win8.1\32bit_Win7_Win8_Win81_R273.exe
For Windows 8.1 64bit
X:\driver\INTEL\IVY_SAN\SOUND\Win8.1\64bit_Win7_Win8_Win81_R273.exe

5-4 USB 3.0 Install Intel USB 3.0 extensible Host Controller Driver

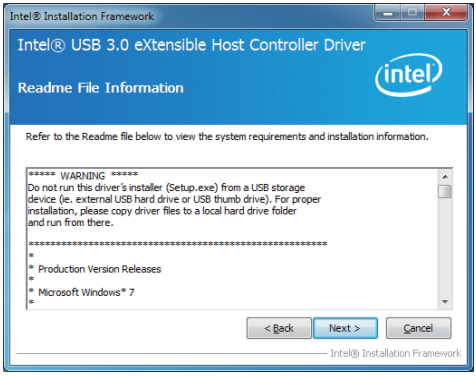


1. At the"AUTOMATIC DRIVER INSTALLATION menu" screen, Click "USB 3.0

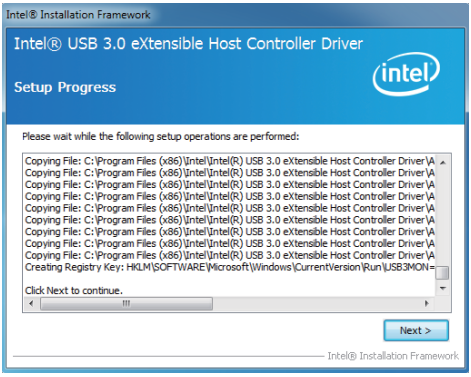


2. At the "Intel® USB 3.0 extensible Host Controller Driver" screen, Click" Next.

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



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



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.
```

5. Click "Next".

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.

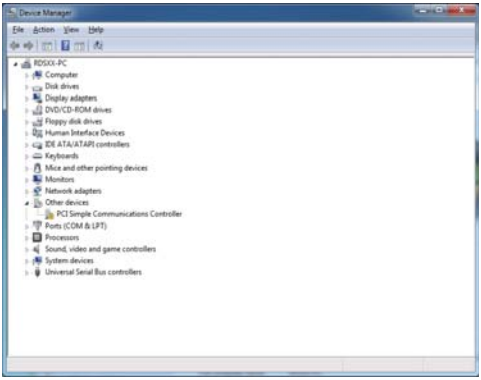
6. Click "Finish" to restart computer

NOTE: The path of the file

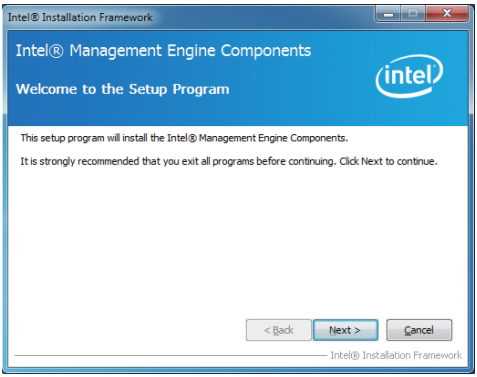
For Windows 7 32/64-bit

X:\driver\INTEL\IVY_SAN\USB3_0\INTEL\Setup.exe

5-5 ME Install Intel Management Engine Interface Driver



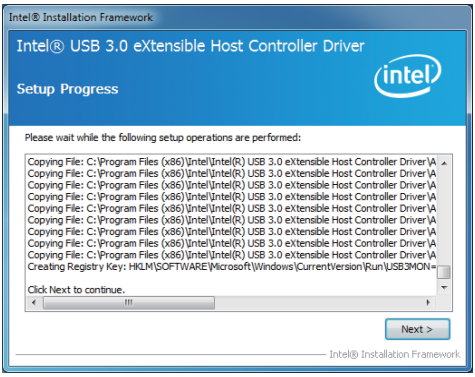
1. Plaese Check Device Manager
   "PCI Simple Communications Controllers"



This setup program will install the Intel® Management Engine Components.

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

2. At the "Intel® Management Engine
   Components" screen, Click" Next".

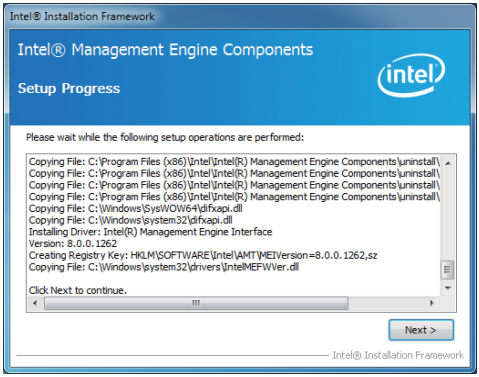


Please wait while the following setup operations are performed:

```
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.
```

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

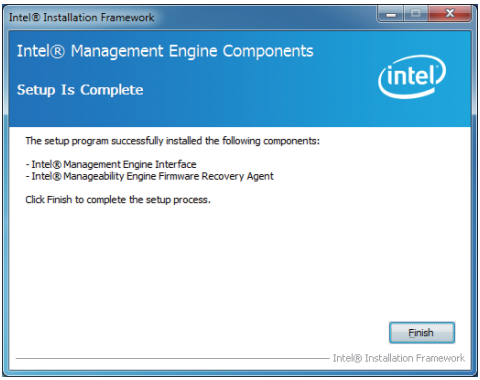


Please wait while the following setup operations are performed:

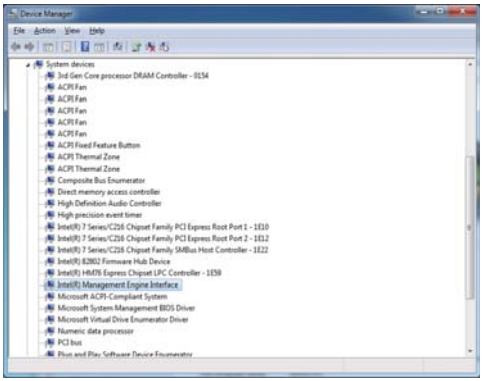
```
Copying File: C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\uninstall\
Copying File: C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\uninstall\
Copying File: C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\uninstall\
Copying File: C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\uninstall\
Copying File: C:\Windows\SysWOW64\difxapi.dll
Copying File: C:\Windows\system32\difxapi.dll
Installing Driver: Intel(R) Management Engine Interface
Version: 8.0.0.1262
Creating Registry Key: HKLM\SOFTWARE\Intel\AMT\MEIVersion=8.0.0.1262,sz
Copying File: C:\Windows\system32\drivers\IntelMEFWVer.dll

Click Next to continue.
```

4. Click "Next".



5. Click "Finish".



6. Plaese Check Device Manager
"PCI Simple Communications Controllers"

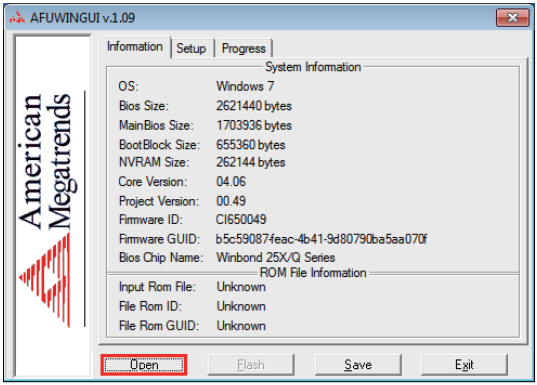
NOTE: The path of the file

For Windows XP 32/64 bit and Windows 7 32/64-bit

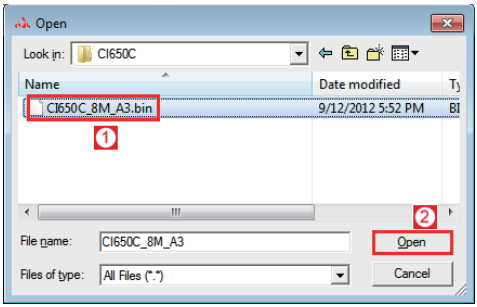
X:\driver\INTEL\ME TOOL\MEI-Only Installer\MEISetup.exe

5-6 How to update AMI BIOS

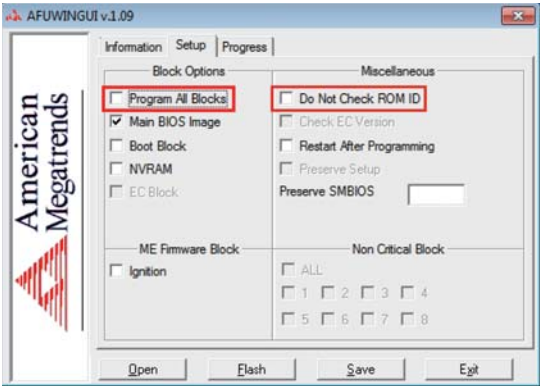
Step 1. To run afuwingui.exe then click "Open"



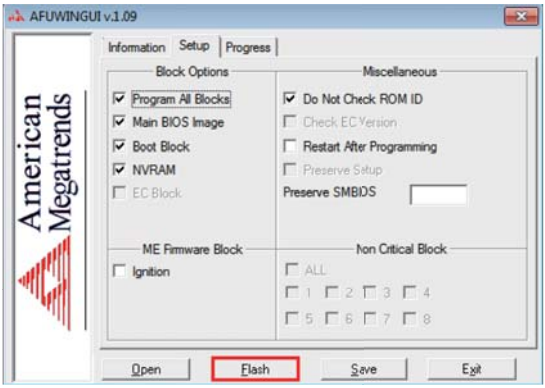
Step 2. Click the new version BIOS (download from the website)



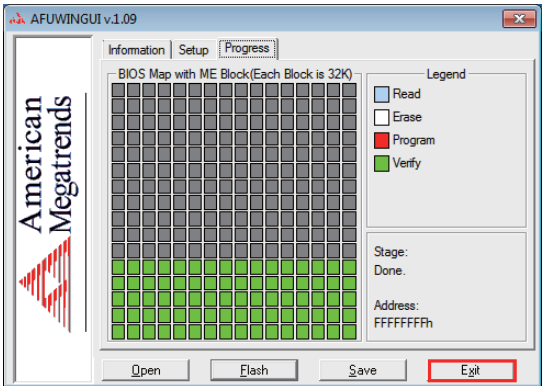
Step 3. Choose "ProgramAll Blocks" and "Do Not Check ROM ID"



Step 4. Click "Flash"



Step 5. Click "Exit" and restart computer.



5-7 How to update Insyde BIOS

Under DOS Mode

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

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

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

STEP 4. (Here take 2I847PW 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 2I847PWA2.ROM –BIOS -ALL

2I847PWA2.ROM is the file name of the latest BIOS.

It may be 2I847PWA1.ROM or 2I847PWA2.ROM, etc.

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

By Bay Trail series mainboard, please type

X:\: H2OFFT-D.EXE 2I847PWA2.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	Intel Celeron 1047UE 1.4 Ghz
SDRAM	DDR3 1333 4GB
Operating System	Windows 7 SP1
Test Program	3D Mark 06
HDD 2.5" SATA	Slim Type HDD
mSATA	32GB

Test Result for reference only !

Hard Disk	Power off	Start up		Operation	Shut down	In Put
		Maximum	Stable	Maximum	Maximum	Voltage
Slim Type HDD	0.05A	1.4A	0.7A	1.84A	1.08A	12V
	0.05A	0.71A	0.4A	0.94A	0.57A	24V
mSATA	0.05A	1.15A	0.62A	1.74A	1.03A	12V
	0.05A	0.61A	0.35A	0.9A	0.57A	24V

The power consumption depends on your device choice!

Appendix B: Resolution list

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