2I385PW

Intel Bay Trail-I E3825/
E3845(Dual Core/Quad Core)CPU, On Board DDR3L,
2 x GbE LAN / USB / VGA / HDMI / COM

All-In-One Pico-Express ® CPU Board

Intel Bay Trail-I E3825/E3845, 1.33/1.91GHz

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

Multi-LAN Board , USB, Multi-COM, LVDS, Touch

NO. 2I385PW_V0.1
Release date: May. 14. 2016

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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.

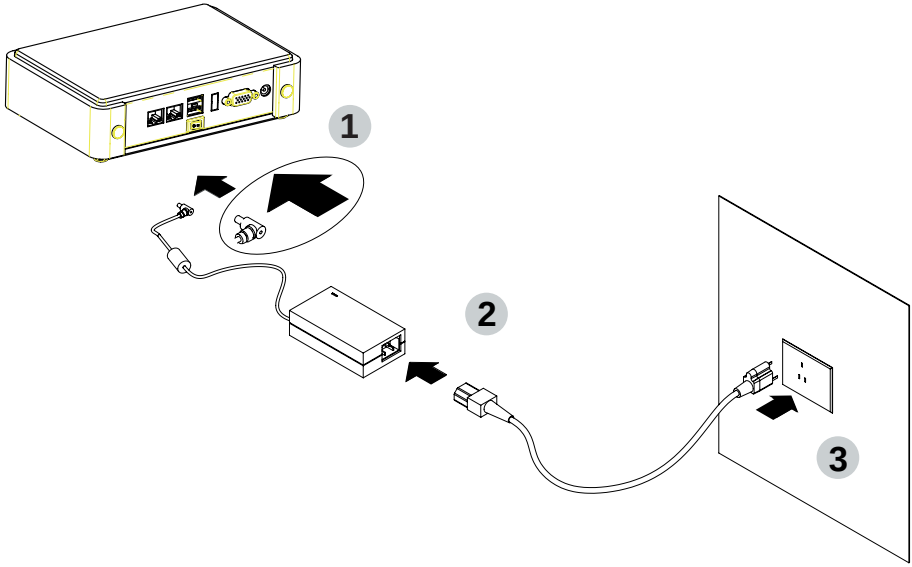
✱ Hardware Notice Guide

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.

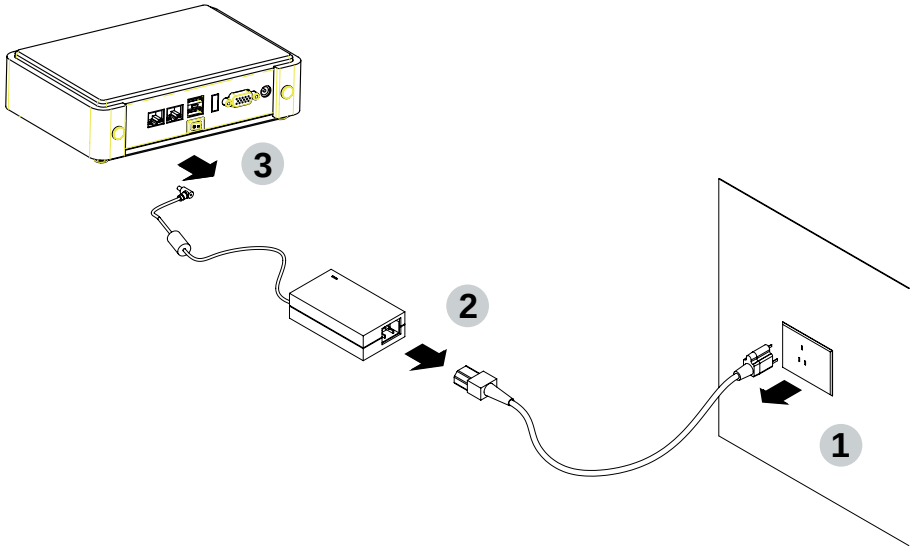
Remark 1:
Always insert/unplug the DC-in horizontally & directly to/from the motherboard. DO NOT twist, it is designed to fit snugly.
Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

The 2I385PW 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. 2I385PW'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 2I385PW SBC board is with Intel BayTrail-I E3825 1.33GHz / E3845 1.91GHz CPU (Daul / Quad core processor), Intel BayTrail-I E3825/E3845 chipset and BayTrail-I Integrated Graphics chipset. This integrated platform offers superb performance and PC specification in the industry. Despite the limited space of 2I385PW, it supports 4 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 2I385PW supports two LAN ports of 10/100/1G Ethernet for various and seamless broadband connectivity. With Wake-On LAN function and the PXE function in BIOS, these are perfect control boards for networking devices. The built-in LAN is Intel I210IT LAN chipset for PCIe x 1 V2.1 interface, integrated 10/100/1000 transceiver.

The 2I385PW motherboard is built in with onboard DDR3L SDRAM 2GB/4GB, E3825 / E3845 Memory DDR3 data transfer rate of 1066MT/s / 1333MT/s. The expendable interfaces include one full size PCIe Mini card for mSATA, PCIe and USB interface, one full size PCIe Mini card for mSATA interface.

The supported display interfaces include VGA and LVDS touch screen. LVDS and touch function only for E3845 model. The board has a small footprint of only 102 x 73 mm (2.5 inch) and advanced performance in both computing and graphics.

2I385PW'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 Bay-Trail-I E3825 1.33GHz / E3845 1.91GHz SOC (Daul / Quad core)
2. Intel Bay-Trail-I Integrated Graphics chipset, E3825 533 MHz /
   E3845 542 MHz render clock frequency
3. On board DDR3L SDRAM 2GB / 4GB Memory,
   data transfer rate of 1066MT/s / 1333MT/s
4. Support 2 x 10/100/1000 Mbps Intel LAN ports
5. Support 4 x COM ports 1 x USB3.0 and 5 x USB 2.0
6. Support extended 2 x Mini PCIe card (2 x full size)
7. Support one SATA connector with independent DMA operation supported
8. Hardware digital Input & Output, 4 x DI / 4 x DO
   Hardware Watch Dog Timer, 0~255 sec programmable
9. On board DC + 9V ~36V
10. PCB Dimension: 102 x 73 mm (2.5 inch)
11. Display interfaces include VGA & LVDS (24/48 bits), LVDS for E3845 model only.
12. COM interface Touch screen controller, support 4-, 5-, 8- wire Analog Resistive
    touch screen. Resolution is up to 2048 x 2048, Touch function for E3845 model only.

1-2 Specification

1. SOC: Intel Bay-Trail-I E3825 1.33GHz / E3845 1.91GHz (Daul / Quad core)
2. Memory: DDR3L SDRAM 2GB / 4GB Memory,
   data transfer rate of 1066MT/s / 1333MT/s
3. Graphics: Intel Bay-Trail-I Integrated Graphics chipset, E3825 533 MHz /
   E3845 542 MHz render clock frequency
4. Expansion Function

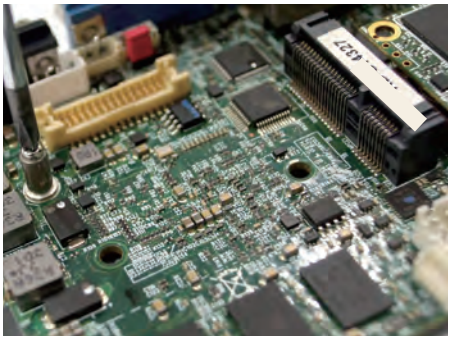
PICO Express® 80-pin connector A	COM	3 x RS232 or RS422 or RS485
	USB	4 x USB 2.0, 1 x USB 3.0
	PS2	KB / MS
	Expansion	1 x PCIe
	LED	HDD or LAN or Power LED
	Switch	Power / Reset

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

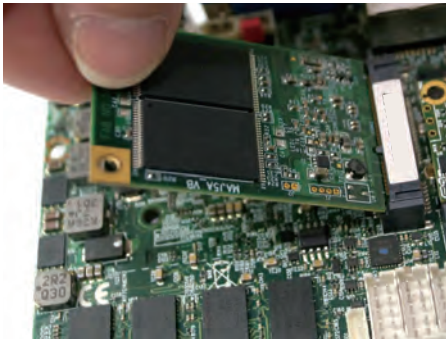
5. SATA: One SATA connector with independent DMA operation supported
6. Sound: ALC886 HD Audio Specification 1.0 Two channel sound chipset
7. Audio Amplifier: TPA2011D1 Class-D 2.5W/4Ω or 1.5W/8Ω chipset
8. WDT/DIO: Hardware digital Input & Output, 4 x DI / 4 x DO
   Hardware Watch Dog Timer, 0~255 sec programmable
9. Expansion interface: one full size PCIe Mini card for mSATA,
   PCIe and USB interface, one Full size PCIe Mini card for mSATA interface
10. BIOS: Insyde UEFI BIOS
11. Dimension: 102 x 73 mm (2.5 inch)
12. Power: On board DC +9V ~ 36V
13. LVDS: 24/48 bits (E3845)
14. Touch function: C8051F321 COM interface Touch screen controller,
    support 4-, 5-, 8- wire Analog Resistive touch screen.
    Resolution is up to 2048 x 2048 (E3845)

1-3 Directions for installing the Mini Card

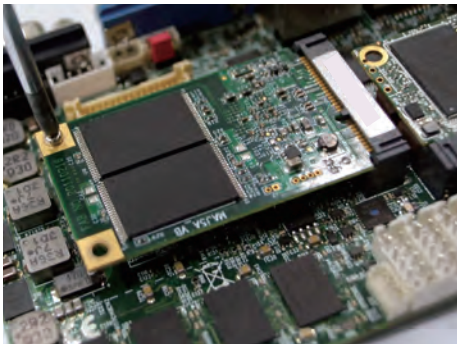
1. Unscrew the screw on the board



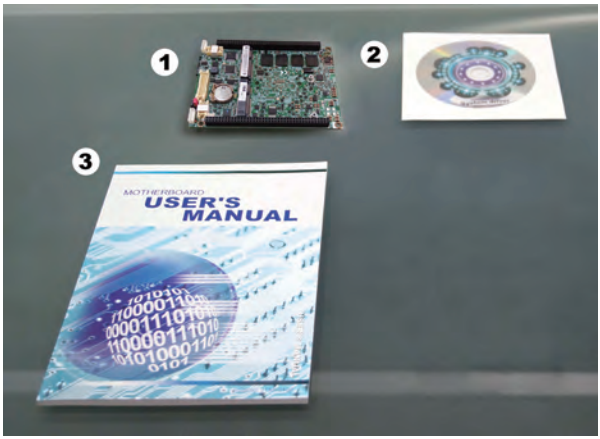
2. Plug in the Mini Card in a 45 angle



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



1-4 Packing List



	Material Code	Description	Detail Specification	Quantit
1	7G1901-1600001-0	MB-2I385PW-I44-001	LF,2I385PW-I44,Rev.:001	1
2	6G8006-2349-0100	LEX Product Driver DVD	LF, Intel Baytrail Driver,Windows 7/8.1 32/64	1
3	6G8001-2198-0400	Manual	LF,M/B,2I385PW	1

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

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

Chapter-2

Hardware Installation

2-1 Unpacking Precaution

This chapter provides the information how to install the hardware of 2I385PW.
Please follow section 1-4, 2-1 and 2-2 to check the delivery package and unpack carefully. Please follow the jumper setting procedure.

NOTE!

1. Do not touch the board or any other sensitive components without all necessary anti-static protection.
2. Please pay attention to the voltage limitation of DC-IN12 V 5 %.
   Overuse of DC-IN voltage limitation or change to another power adapter (not provided with this system) will VOID warranty.

You should follow these
steps to protect the board from the static electric
discharge whenever you handle the board:

1. Ground yourself by a grounded wrist strap at all times when you handle the 2I385PW. 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 2I385PW 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 2I385PW from electricity discharge. With reference to section 1-4 please check the delivery package again with following steps:

1. Unpack the 2I385PW 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.

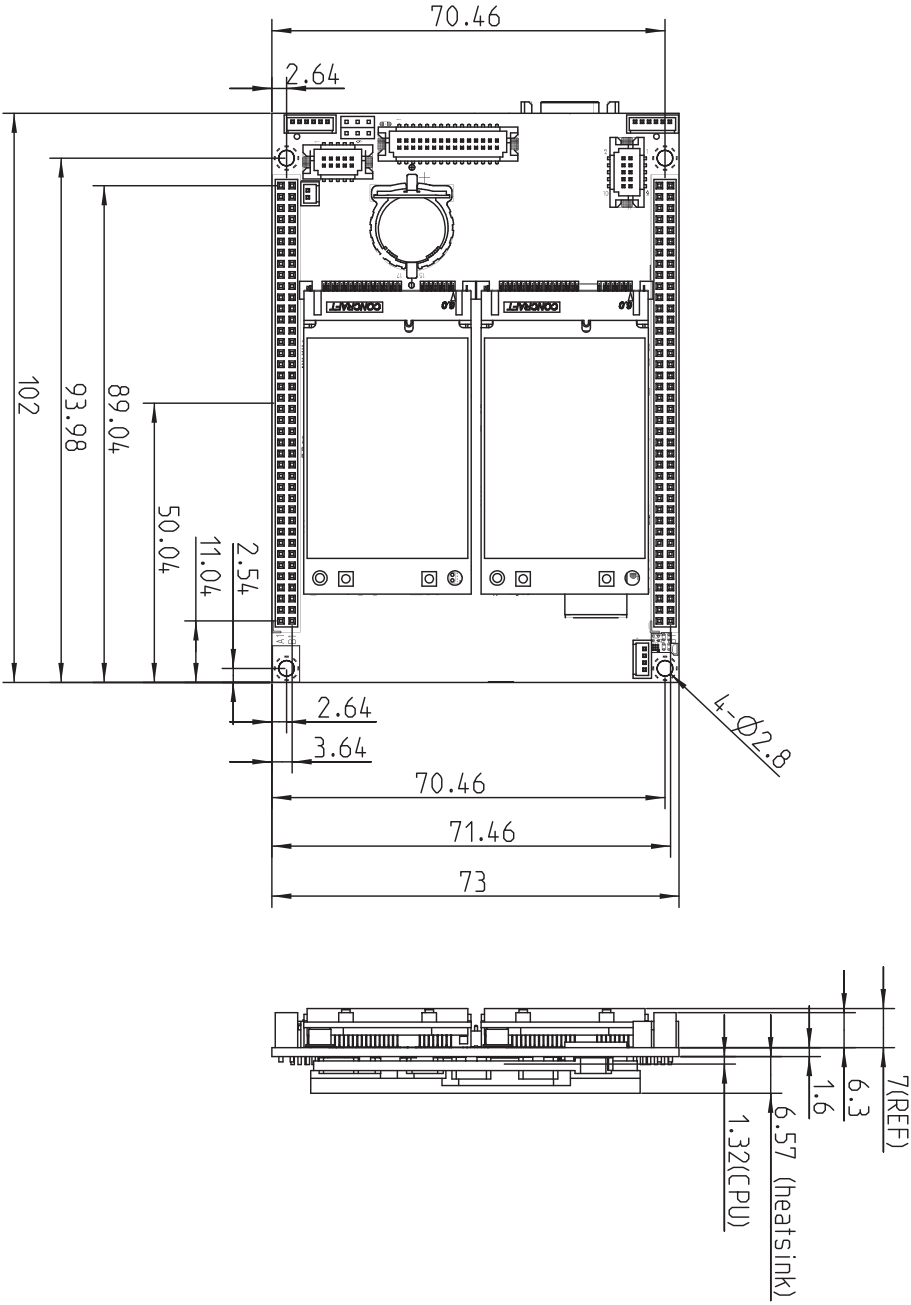
3. Is there any visible damage on the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT
   THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

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.

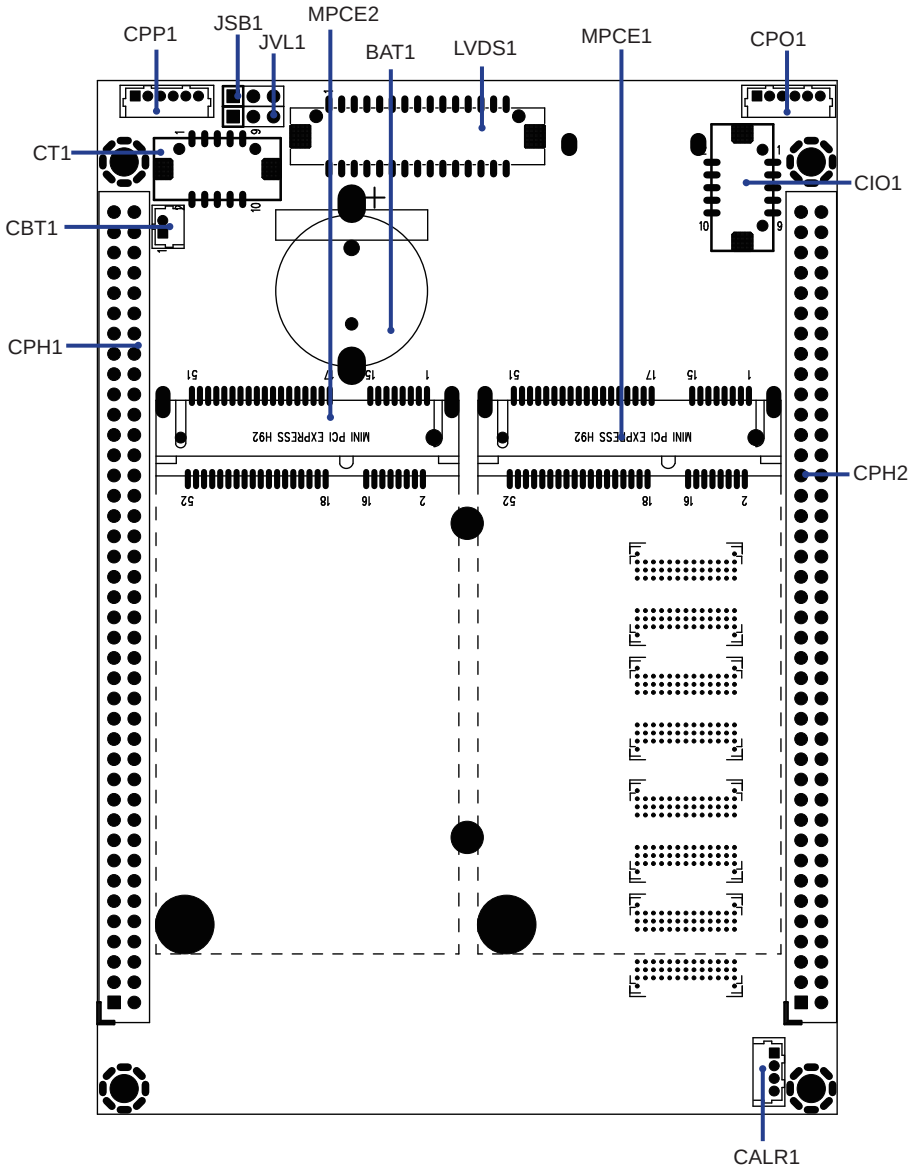
5. Check your external devices (i.e. Add-On-Card, Driver Type etc.) for complete add-in or connection and CMOS setup correctly.
   Please also refer to all information of connector connection in this manual.

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

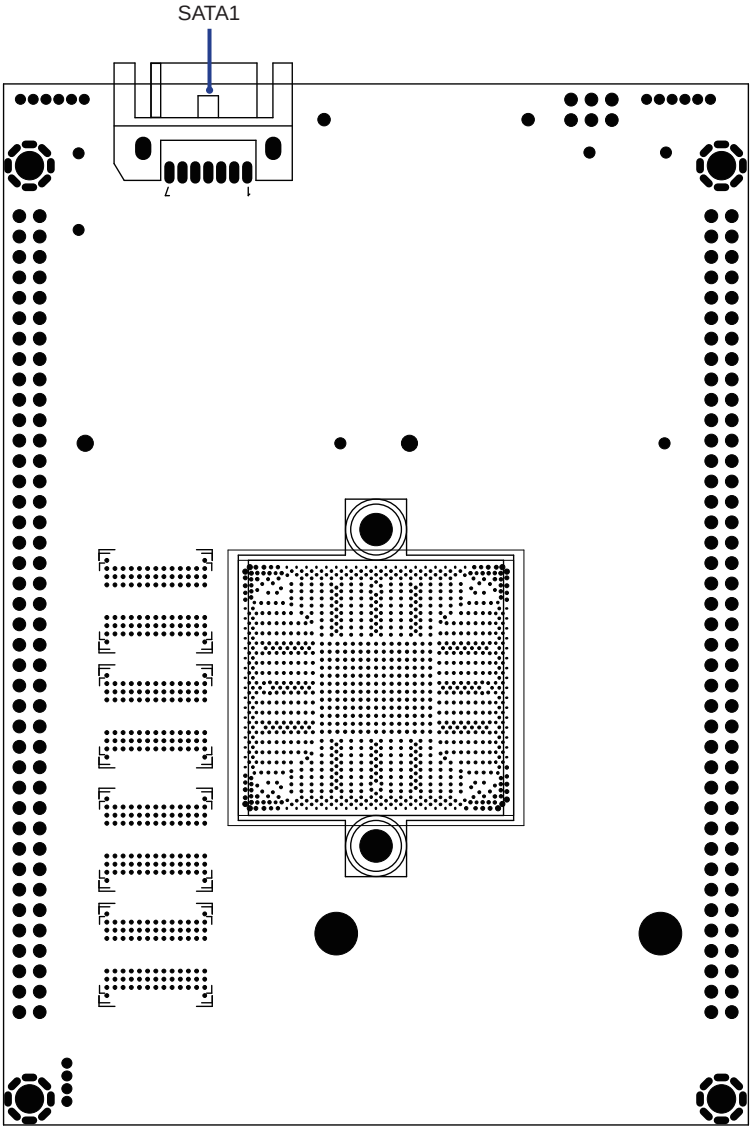
2-3 Dimension-2I385PW



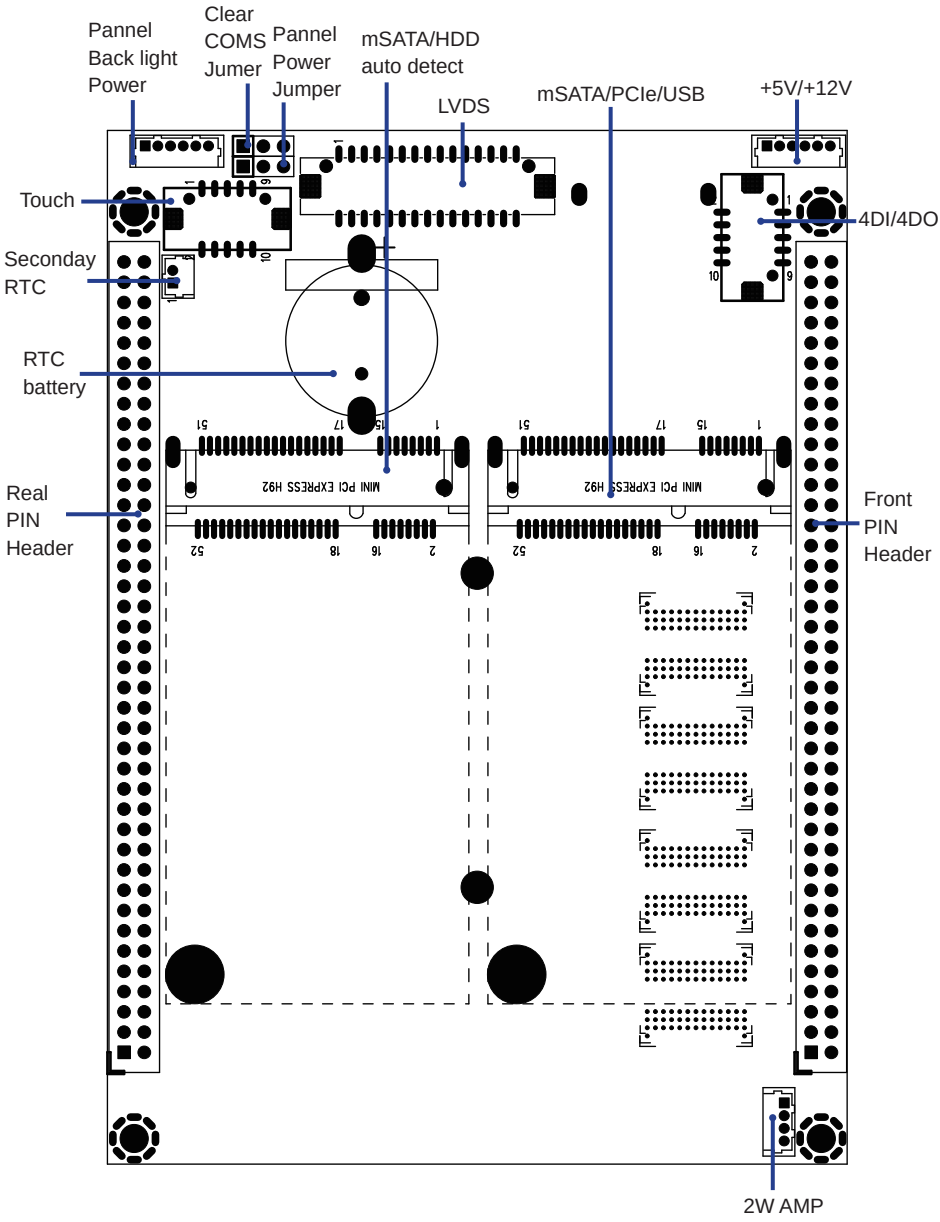
2-4 Layout-2I385PW-Connector MAP



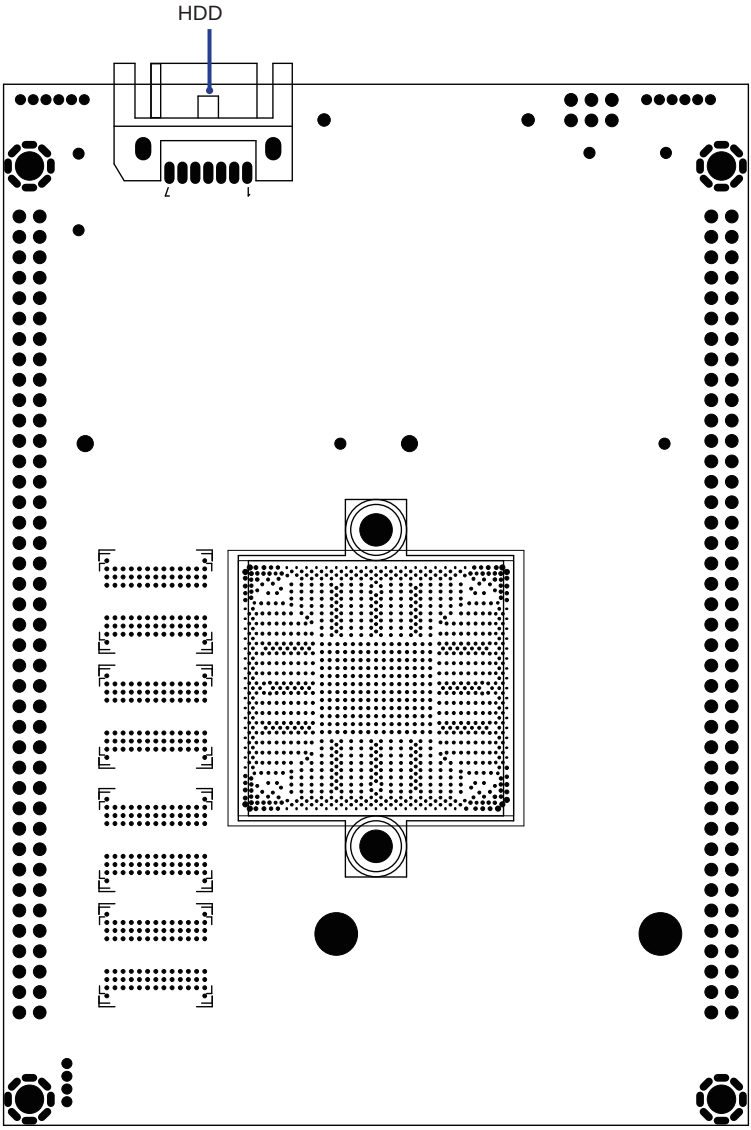
2-4-1 Layout-2I385PW-Connector MAP Bottom



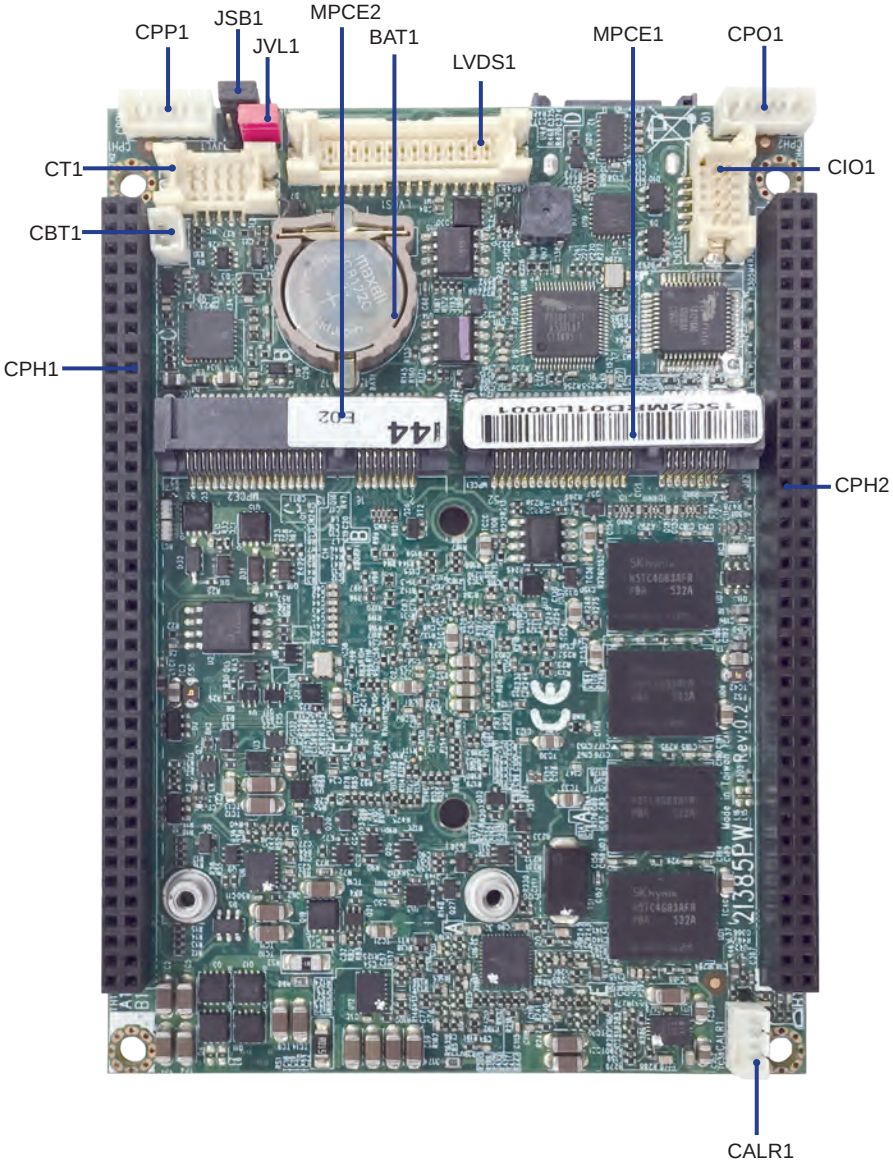
2-4-2 Layout-2I385PW-Function MAP



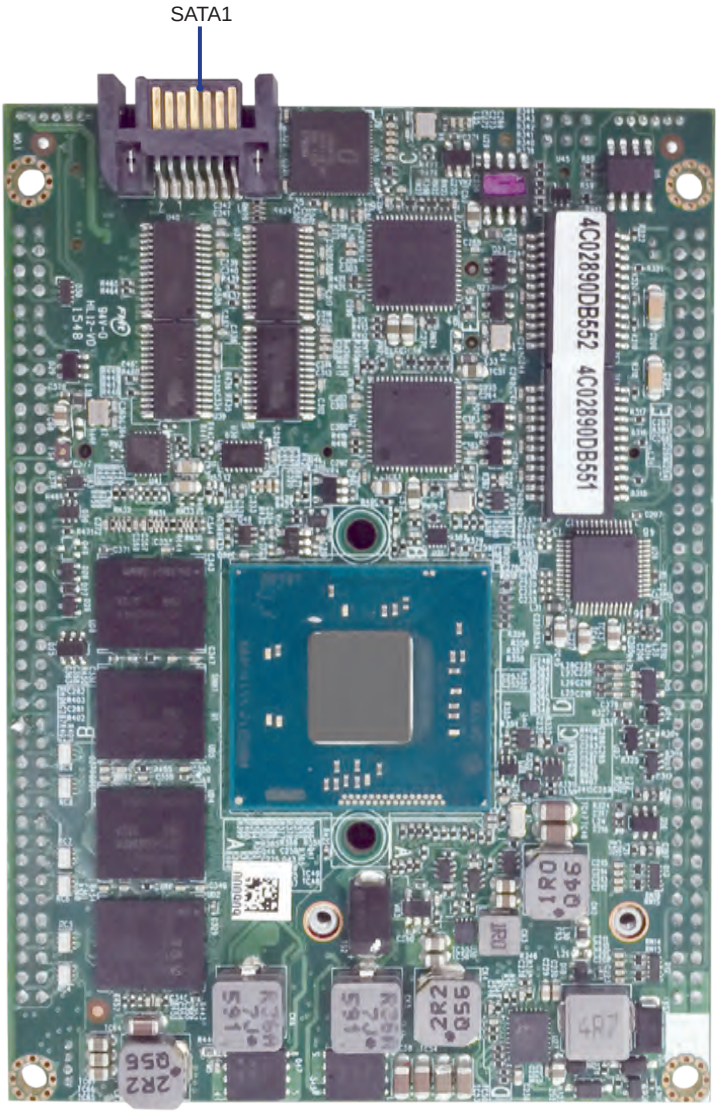
2-4-3 Layout-2I385PW-Function MAP Bottom



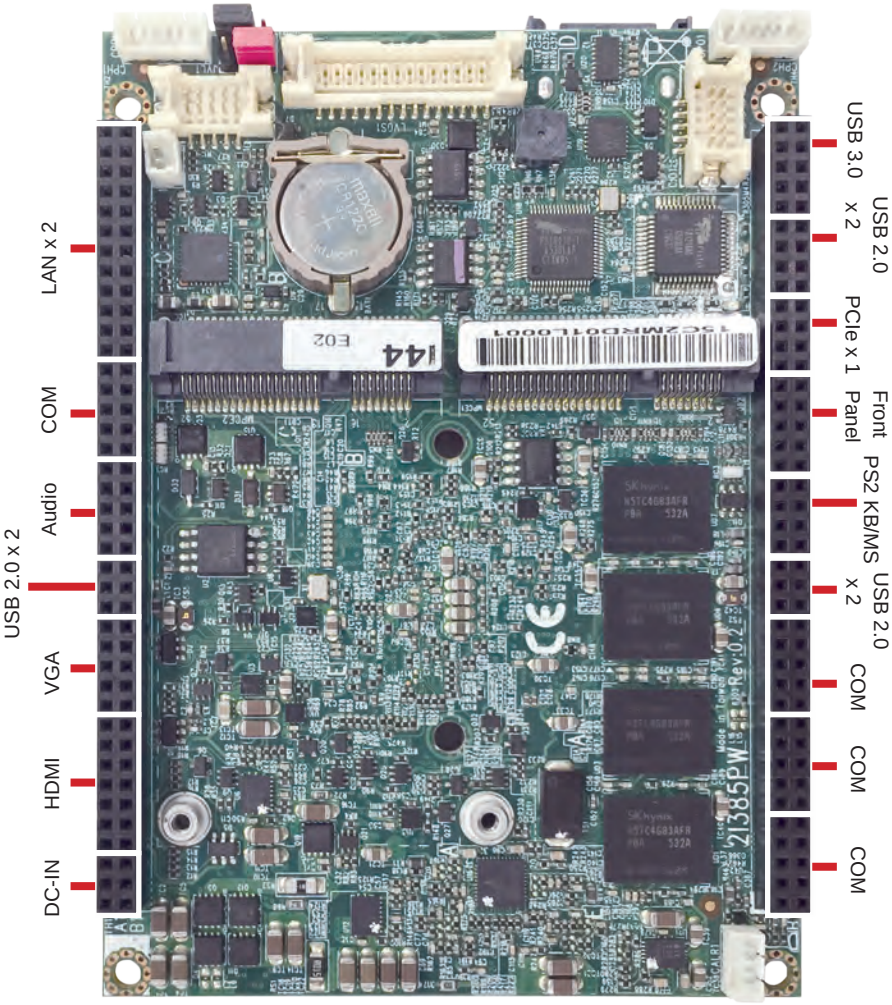
2-5 Diagram- 2I385PW



2-5-1 Bottom Side Diagram- 2I385PW



2-5-2 LEX PICO Express® 80-pin connector IO Interface Diagram



2-6 Quick List of jumper setting

● CPH1 2 x 40 Pin 2.00mm male:

Description	Pin 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

Description	Pin Number	Pin Number	Description
RI1/VCC	A28	B28	DTR1
LAN1_LED_SPEED_10	A29	B29	LAN1_LED_VCC
LAN1_D13_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
LAN1_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

Note: PIN A28 RI/VCC Need from Motherboard controlled.

- **CPH2 2 x 40 Pin 2.00mm male:**

Description	Pin Number	Pin Number	Description
RI2/VCC	A1	B1	DTR2
CTS2	A2	B2	TXD2
RTS2	A3	B3	RXD2
DSR2	A4	B4	DCD2
GND	A5	B5	GND
RI3/VCC	A6	B6	DTR3
CTS3	A7	B7	TXD3
RTS3	A8	B8	RXD3
DSR3	A9	B9	DCD3
GND	A10	B10	GND
RI4/VCC	A11	B11	DTR4
CTS4	A12	B12	TXD4
RTS4	A13	B13	RXD4
DSR4	A14	B14	DCD4
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

Description	Pin Number	Pin Number	Description
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

Note1: PIN A1,A6,A11 RI/VCC controlled by Motherboard. May not VCC combine with each COM ports.

Note2: PIN A26,B40 offer 500mA. Do not use it to be power supply.

2-7 List of Jumpers

JSB1: CMOS DATA clear
JVL1: LVDS panel power 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.

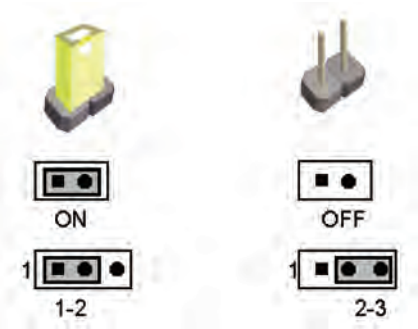


Figure 2.2

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 JSB1: CMOS Data Clear

A battery must be used to retain the motherboard configuration in CMOS RAM.
Close Pin1 and pin 2 of JSB1 to store the CMOS data.

To clear the CMOS,follow the procedures below:

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

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

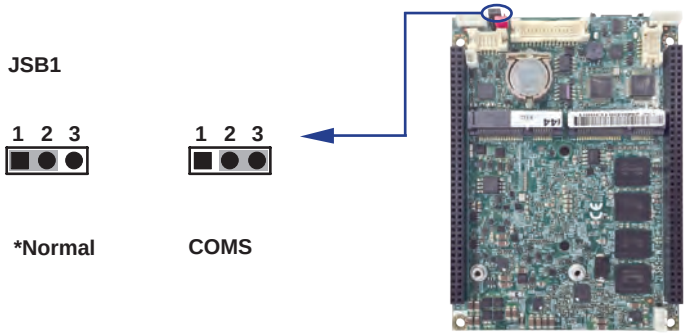
Note: Normal work is open jumper

Note: Do not clear CMOS unless

1. Troubleshooting

2. Forget password

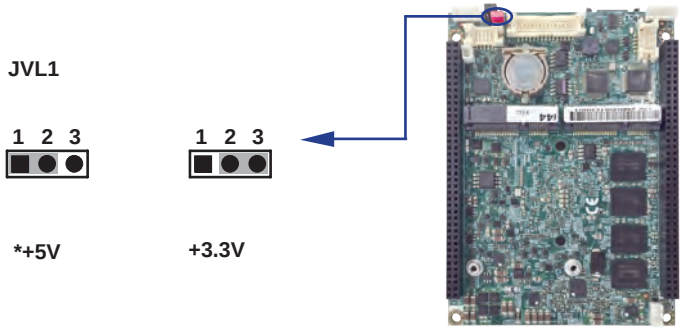
3. You fail over-clocking system



2-10 JVL1: LVDS panel power select

JSB1	Description
*1-2	+5V
2-3	+3.3V

Note: Attention! Check Panel Power in spec



Chapter-3

Connection

This chapter provides all necessary information of the peripheral's connections, switches and indicators. Always power off the board before you install the peripherals.

3-1 List of Connectors

BAT1: Li 3V battery holder

CBT1: Li 3V battery (1.25mm) Wafer

CIO1: DIO 2x5 pin (1.25mm) Wafer

CALR1: 2W Audio amplifier 4pin(1.25mm)Wafer

CPP1: Panel Inverter power 6pin(1.25mm)Wafer

CPO1: +12V/+5V power output 6 pin (1.25mm) wafer

CT1: Touch screen device 2x5 pin (1.25mm) Wafer

LVDS1: LVDS 2x15 pin (1.25mm) Socket

SATA1: One SATA connector 7pin

MPCE1: Full size mini card port 1 sockets 52pin

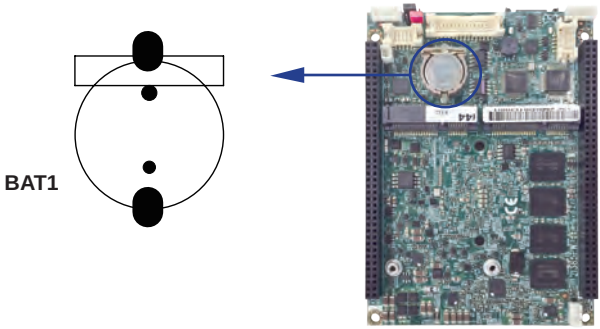
MPCE2: Full size mini card port 2 sockets 52pin

3-2 CMOS Battery connector

- **BAT1: 3V Battery hold 2pin**

  BAT1: Battery use Li 3V / 40mAh (CR1220)

Note: 1. When board without Adaptor plug in, this board power RTC consumption about 2.7uA
2. If adaptor always plug in RTC power consumption about 0.1uA

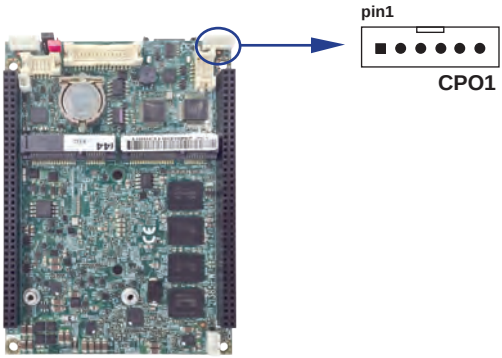


3-3 DC +12V/+5V Voltage Power Output (4pin 2.0mm Wafer)

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

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

* Note: Attention! Check Device Power in spec



3-4 Digital Input / Output

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

PIN NO.	Description	PIN NO.	Description
1	DI-0	2	DI-3
3	DI-1	4	DI-2
5	DI-2	6	DI-1
7	DI-3	8	DI-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.

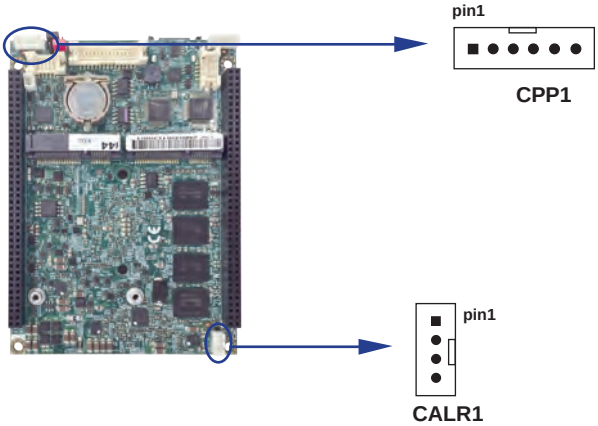
Please refer to page 76 for APPENDIX C: F75111N I^2C DIO DECICE

3-5 Panel Inverter power

- **CPP1: Panel Inverter power (6pin 1.2.0mm wafer)**

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

Note: 1. CPP1 PIN 3 and LVDS1 PIN1 is same signal.
2. Pin 3 back light dimming controls,
provided 200Hz / 275Hz / 380Hz / 20KHz / 25KHz /100Hz
and adjust PWM duty cycle by software program.



3-6 Audio port

- **CALR1: 2W Audio amplifier (4pin 1.25mm wafer)**

PIN NO.	Description
1	AMP LEFT +
2	AMP LEFT -
3	AMP RIGHT -
4	AMP RIGHT +

3-7 Touch screen

- **CT1: Touch screen (2x5 pin 1.25mm wafer) COM interface**

- **For 8- wire type pin define**

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

Note: 1. For eight wire type cable Pin 3 and Pin4 need short.

- **For 4- wire type pin define**

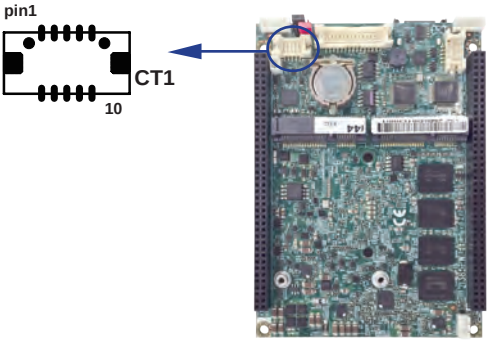
PIN NO.	Description	PIN NO.	Description
1	Bottom	2	N/A
3	N/A	4	Top
5	Right	6	N/A
7	Left	8	N/A
9	GND	10	NC

Note: 1. For four wire type cable Pin 3 and Pin4 need short.

- **For 5- wire type pin define**

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

The Touch upstream can be changed to USB interface, but CU6 will be removed.

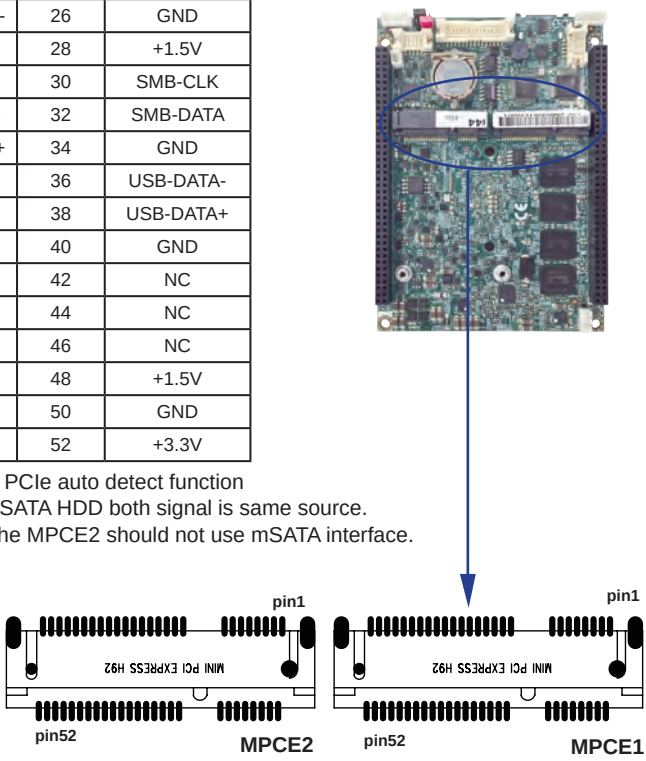


3-8 PCI Express Mini card

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

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	RST-
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	NC	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	mSATA-Detect	52	+3.3V

Note: MPCE1 Pin51 mSATA / PCIe auto detect function
mSATA of MPCE2 and SATA HDD both signal is same source.
So, If SATA HDD use, the MPCE2 should not use mSATA interface.



3-9 LVDS Connector

● LVDS1: LVDS interface (2x15 pin 1.25mm wafer)

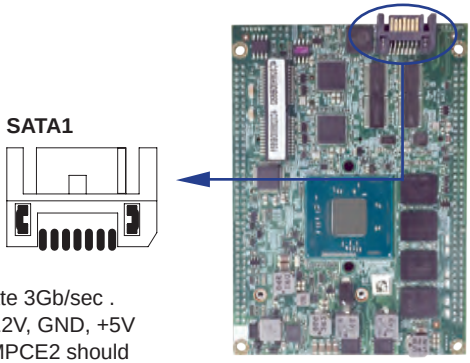
PIN NO.	Description	PIN NO.	Description
1	PWM dimming	2	+5V
3	+LCD(5V or 3.3V)	4	+LCD(5V or 3.3V)
5	Channel-1-DATA3+	6	Channel-0-DATA3+
7	Channel-1-DATA3-	8	Channel-0-DATA3-
9	Channel-0-DATA2+	10	Channel-0-CLK+
11	Channel-0-DATA2-	12	Channel-0-CLK-
13	GND	14	GND
15	Channel-0-DATA1+	16	Channel-0-DATA0+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

Note: 1. LVDS interface support 18/24bits two channel.
2. JVL1: LVDS panel +5V/+3.3V (default) Voltage select.
3. LVDS1 PIN 1 for panel backlight dimming control.
4. Pin 1 back light dimming control.
Provided 200Hz / 275Hz / 380 Hz/ 20KHz / 25KHz /100Hz and adjust PWM duty cycle by software program.

3-10 SATA Interface

● SATA1: SATA port 1x7pin Connector

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

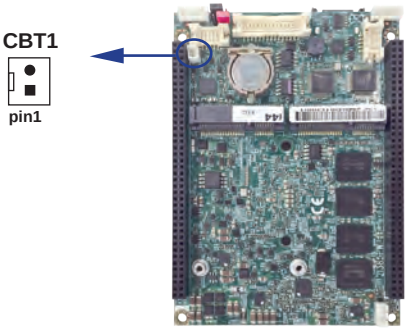


Note: 1. SATA1 support SATA 2.0 spec update 3Gb/sec .
2. CPO1 provide SATA HDD power +12V, GND, +5V
3. if SATA device use on SATA1, the MPCE2 should not use mSATA interface.

3-11 Second Li 3V battery

● **CBT1: Second Li 3V battery (1.25mm) Wafer**

PIN NO.	Description
1	Battery GND
2	Battery VCC



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

Location	CKTS	PITCH	Brand Name	Mating connector	Cable housing
CBT1	1X2 2Pin	1.25mm	MOLEX	53047-0210	51021-0200
CIO1	2x5 10Pin	1.25mm	HIROSE	DF13-10DS-1.25C	DF13-10DP-1.25V
CPP1	1x6 6Pin	1.25mm	MOLEX	53047-0610	51021-0600
CALR1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CPO1	1x6 5Pin	1.25mm	MOLEX	53047-0610	51021-0600
CT1	2x5 10Pin	1.25mm	HIROSE	DF13-10DS-1.25C	DF13-10DP-1.25V
CO1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
LVDS1	2x15 30Pin	1.25mm	HIROSE	DF13-30DS-1.25C	DF13-30DP-1.25V

Chapter-4

Introduction of BIOS

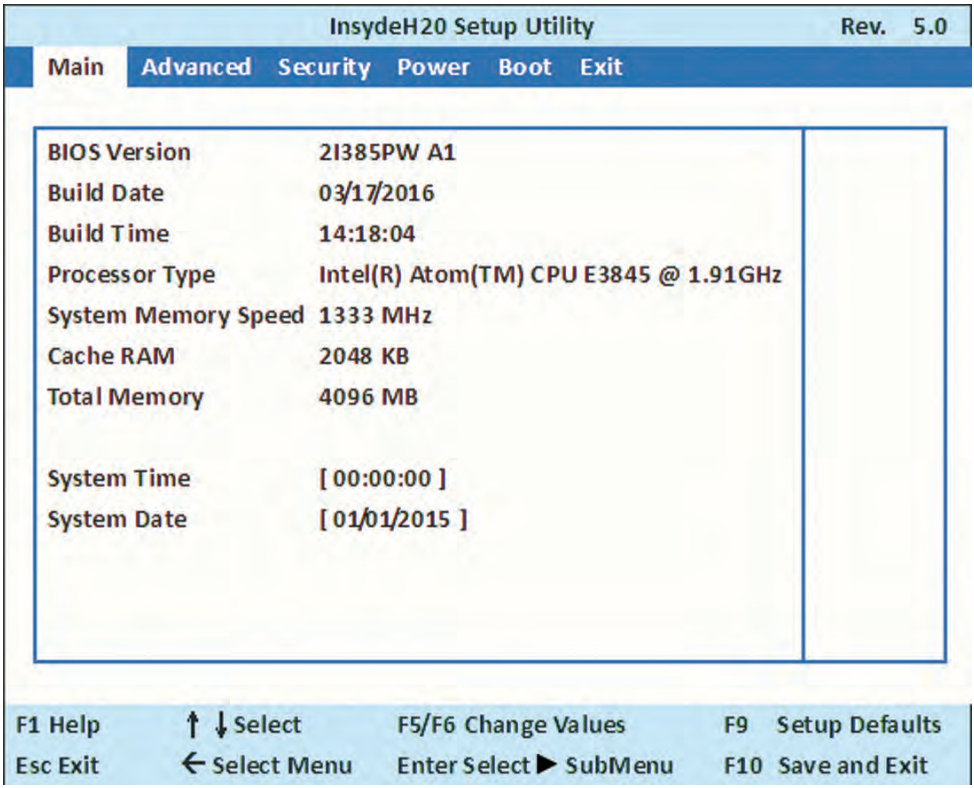
The BIOS is a program located in the Flash Memory on the motherboard.
This program is a bridge between motherboard and operating system.
When you start the computer, the BIOS program gains control.
The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary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

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

4-1 Enter Setup

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

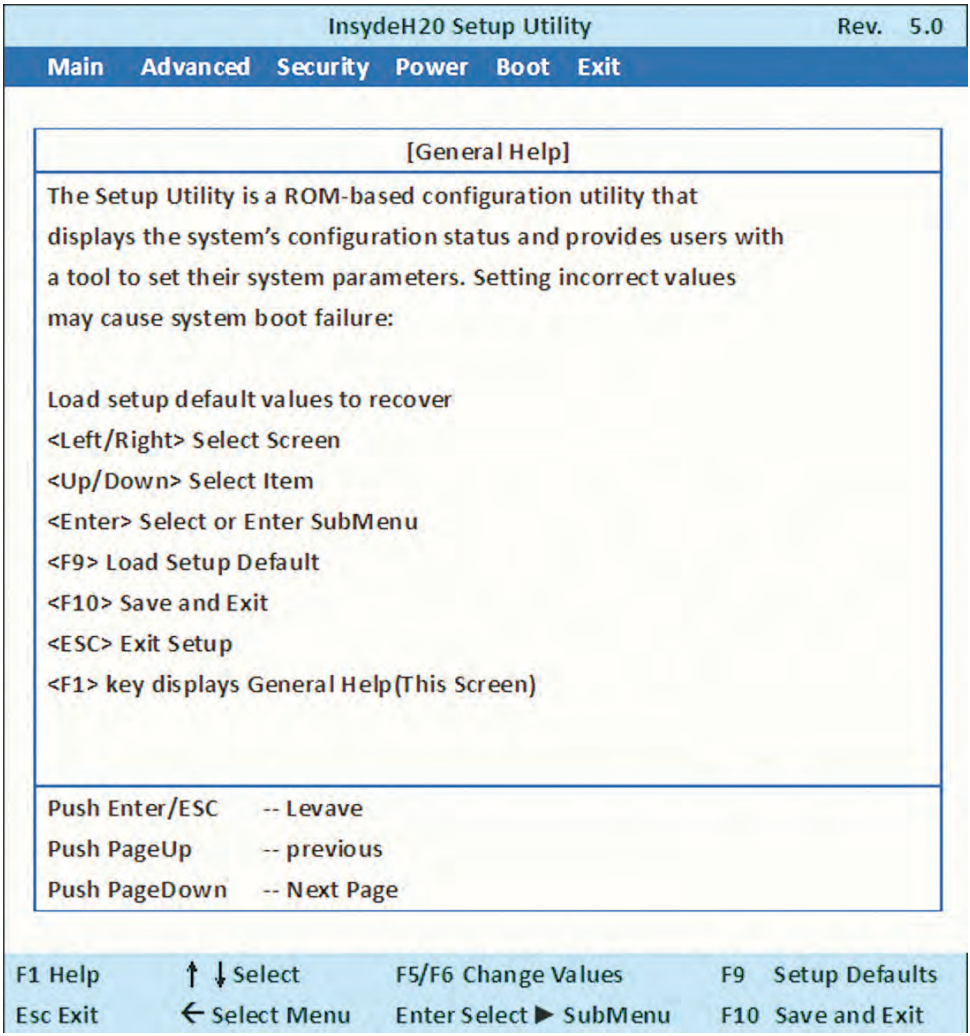
4-2 BIOS Menu Screen & Function Keys



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

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

4-3 Getting Help



Status Page Setup Menu/ Option Page Setup Menu

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

4-4 Menu Bars

There are six menu bars on top of BIOS screen:

Main To change system basic configuration

Advanced To change system advanced configuration

Security Password settings

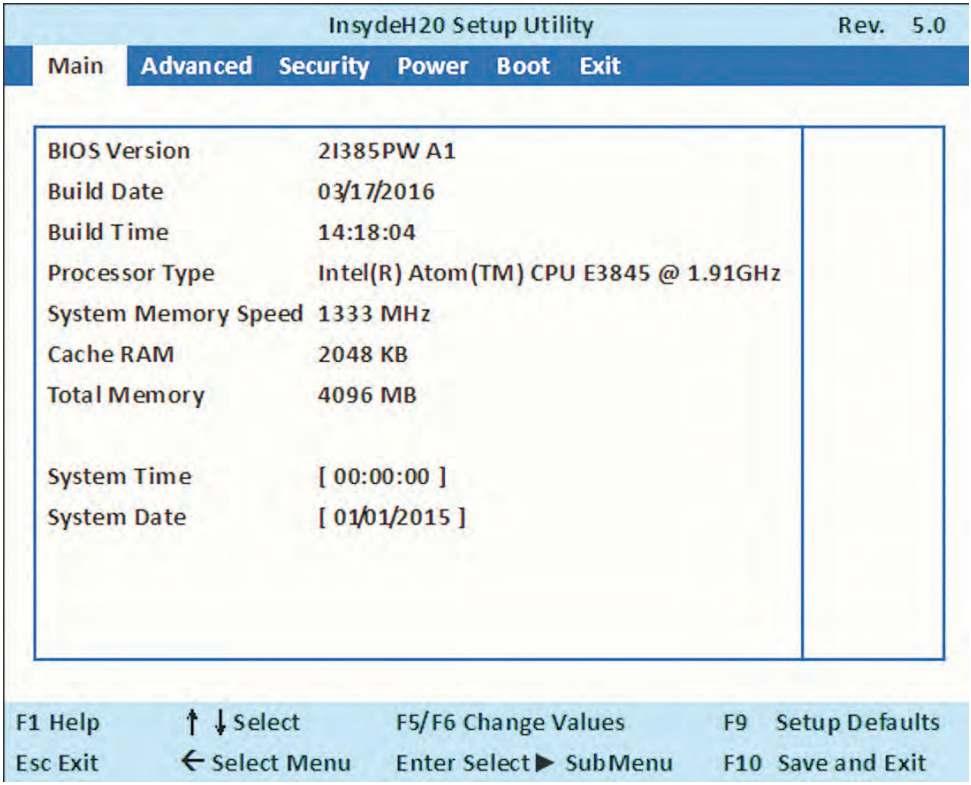
Power PME & Power button settings

Boot Exit Save setting, loading and exit options.

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

The selected one is highlighted.

4-5 Main



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

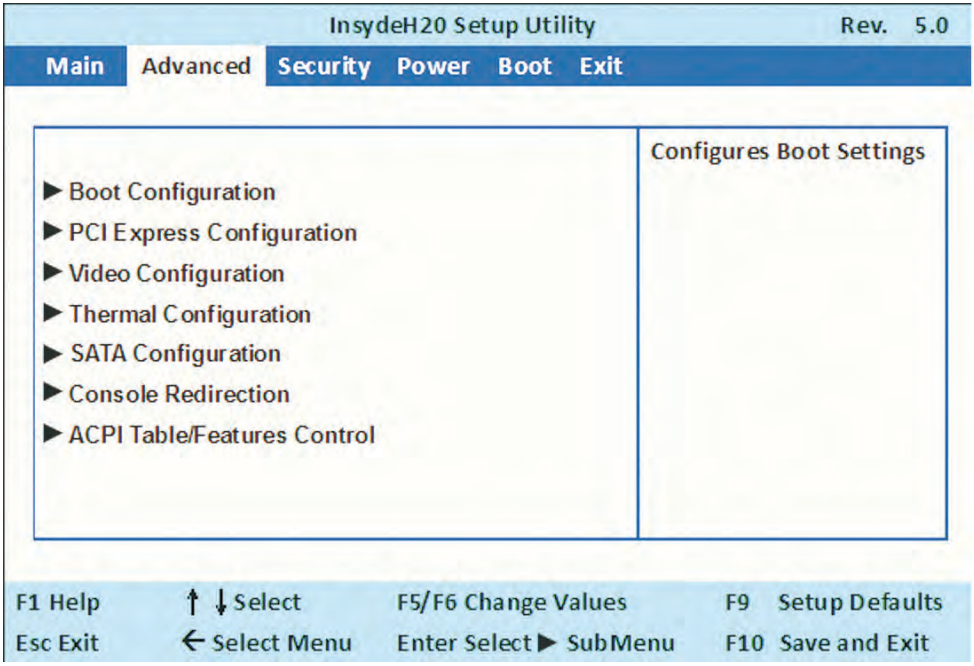
System Date

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

System Time

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

4-6 Advanced



Boot Configuration

Please refer section 4-6-1

PCI Express Configuration

Please refer section 4-6-2

Video Configuration

Please refer section 4-6-3

Thermal Configuration

Please refer section 4-6-4

SATA Configuration

Please refer section 4-6-5

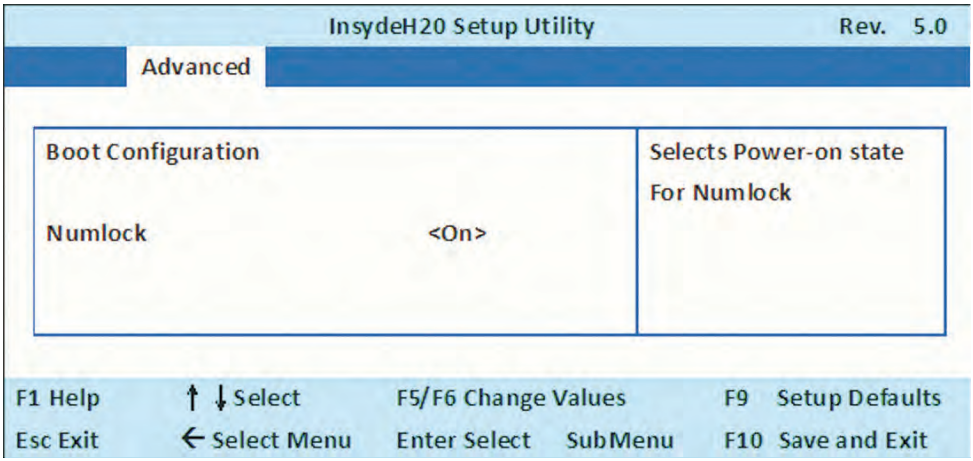
Console Redirection

Please refer section 4-6-6

ACPI Table/Features Control

Please refer section 4-6-7

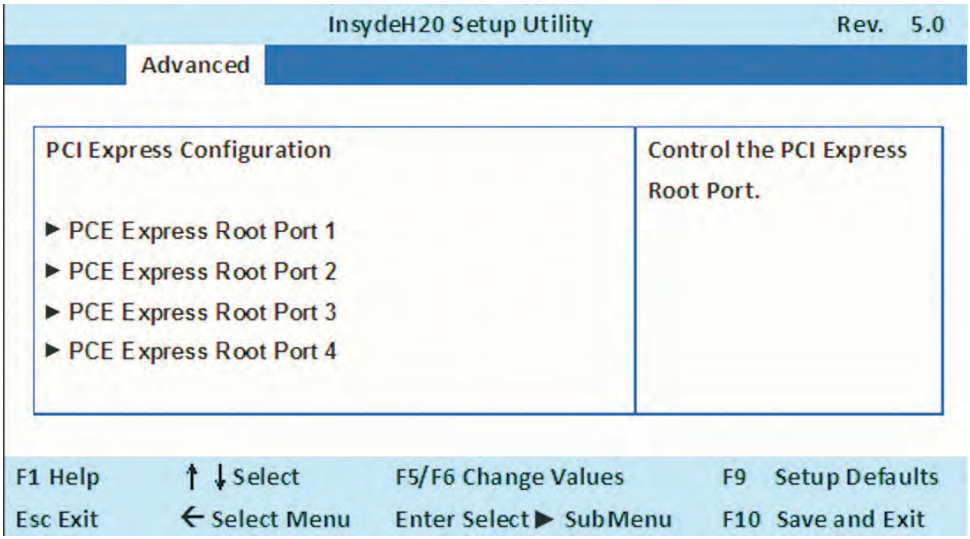
4-6-1 Boot Configuration



Numlock

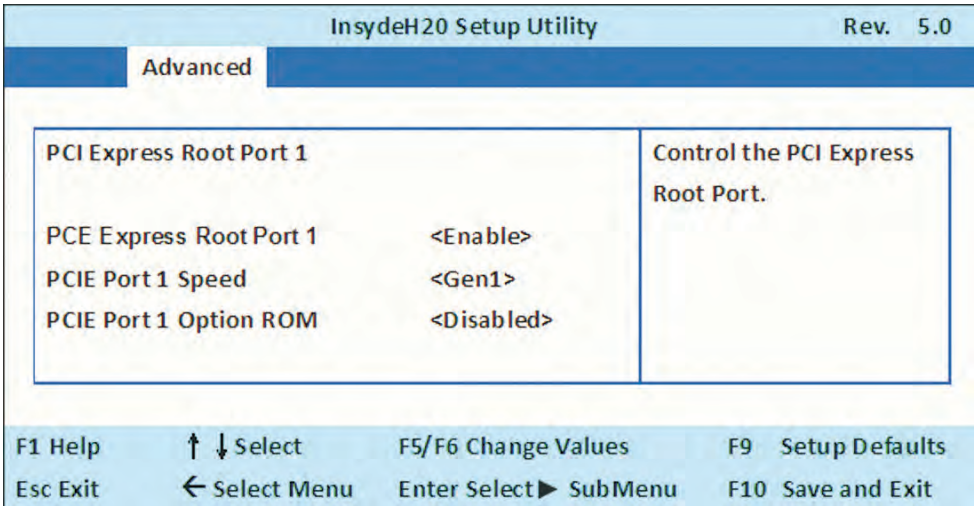
Select Power-on state for Numlock, default is <ON>

4-6-2 PCI Express Configuration



PCIe 1/2/3/4 configuration settings

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



Control the PCI Express Root Port.

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

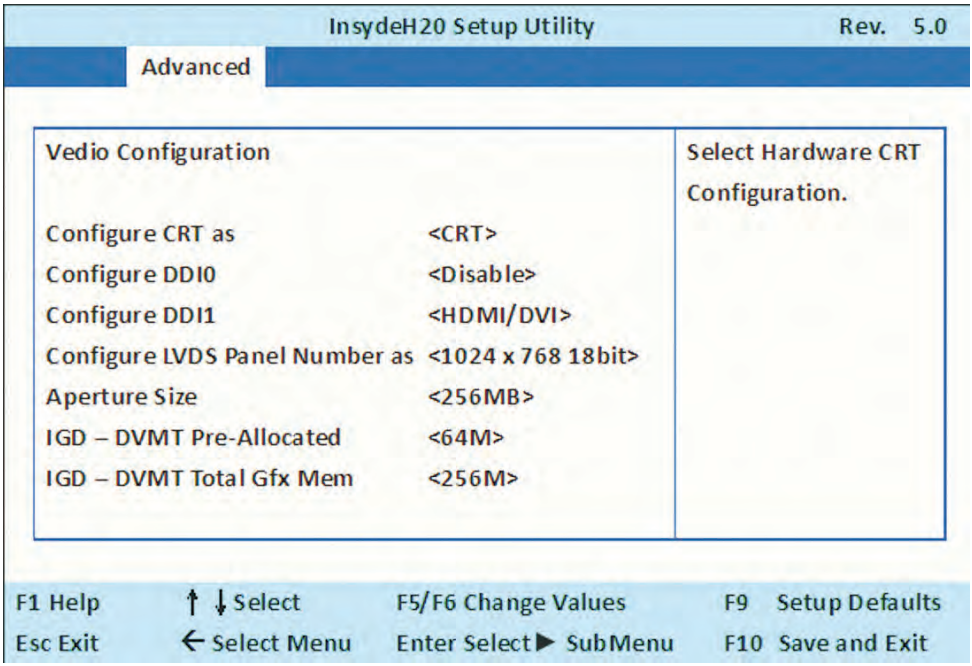
Select PCI Express port speed.

The optional settings are: Gen1(default), Gen2

Select PCIE TXE ROM support

The optional settings are: Disabled(default), Enabled

4-6-3 Video Configuration



Configure CRT as

This item allows CRT function do auto display or fixed as CRT: Default, CRT

Note: Default is likely auto display.

Configure DDI0

This item allows Digital Display Interface “DDI0” to be LVDS or disable LVDS, Disable

Note: If no LVDS on this platform, this item will be inactive and change gray item.

Configure DDI1

This item allows Digital Display Interface “DDI1” to be HDMI/DVI or disable HDMI/DVI, Disable

Configure LVDS Panel Number as

The Panel resolution supported are below:

640 x 480 18bit

800 x 600 18bit

1024 x 768 18bit (default)

800 x 480 18bit

1024 x 600 18bit

1280 x 800 18bit

1366 x 768 18bit

800 x 600 24bit

1024 x 768 24bit

1280 x 800 24bit

1366 x 768 24bit

1280 x 1024 48bit

1440 x 900 48bit

1600 x 1200 48bit

1920 x 1080 48bit

Note: If no LVDS on this platform, this item will be inactive and change gray item.

Aperture Size

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

IGD - DVMT Pre-Allocated

Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.

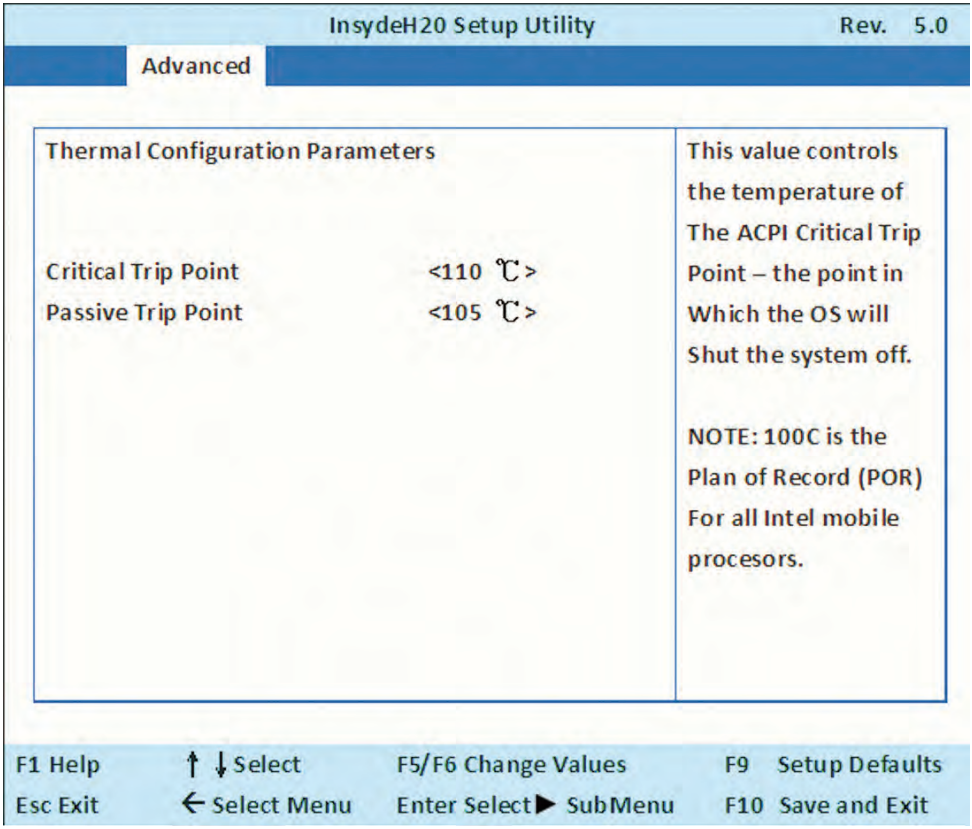
The optional settings are: 64(default)/96/128/160/192/224/256/288/320/352/384/416/448/480/512MB

IGD - DVMT Total Gfx Mem

Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device

The optional settings are:128M, 256M(default), MAX

4-6-4 Thermal Configuration



Thermal Configuration Parameters

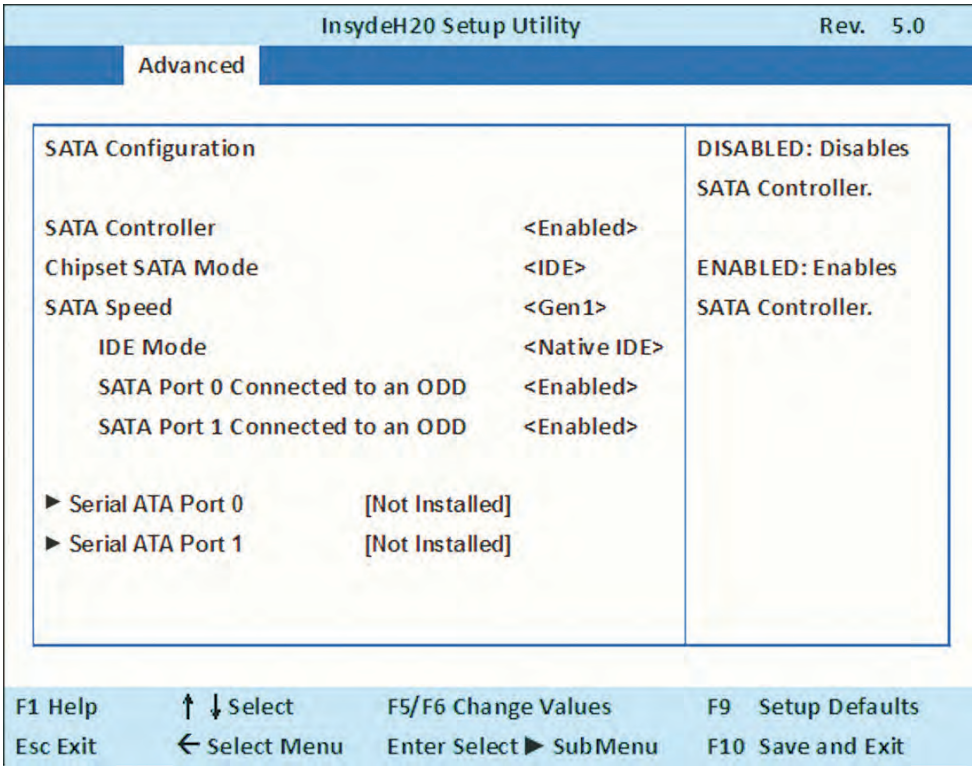
This Value controls the temperature of the ACPI Critical Trip Point, the point in which the OS will shutdown the system.

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



SATA Controller

Use this item to Enable or Disable SATA Device.

The optional settings are: Enabled(default) or Disabled

Chipset SATA Mode

Determine how SATA controller(s) operate.

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

SATA Speed

Indicates the maximum speed the SATA controller can support.

The optional settings: Gen1, Gen2(default).

IDE Mode

Legacy IDE or Native IDE MODE,

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

SATA Port 0 Connected to an ODD

Use this item to Enable or Disable SATA Port0 ODD function

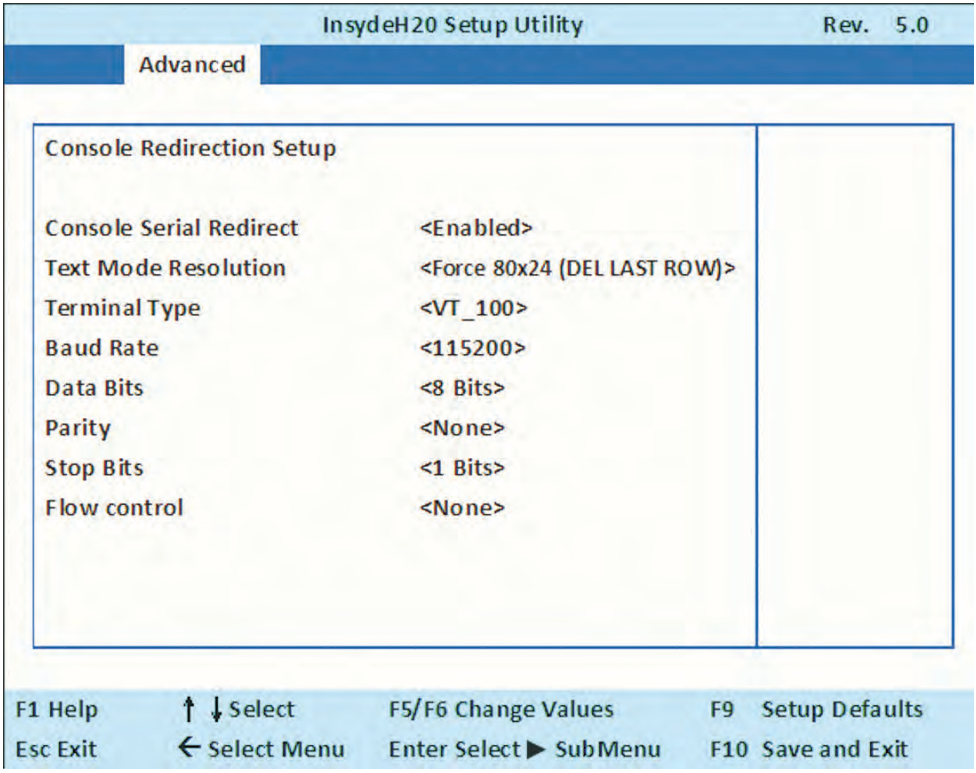
The optional settings are: Enabled(default) or Disable

SATA Port 1 Connected to an ODD

Use this item to Enable or Disable SATA Port1 ODD function

The optional settings are: Enabled(default) or Disable

4-6-6 Console Redirection



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

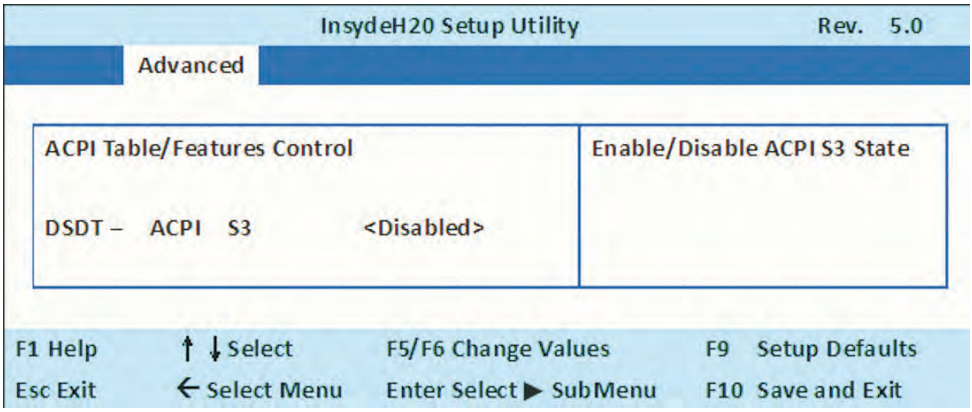
Stop Bits

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

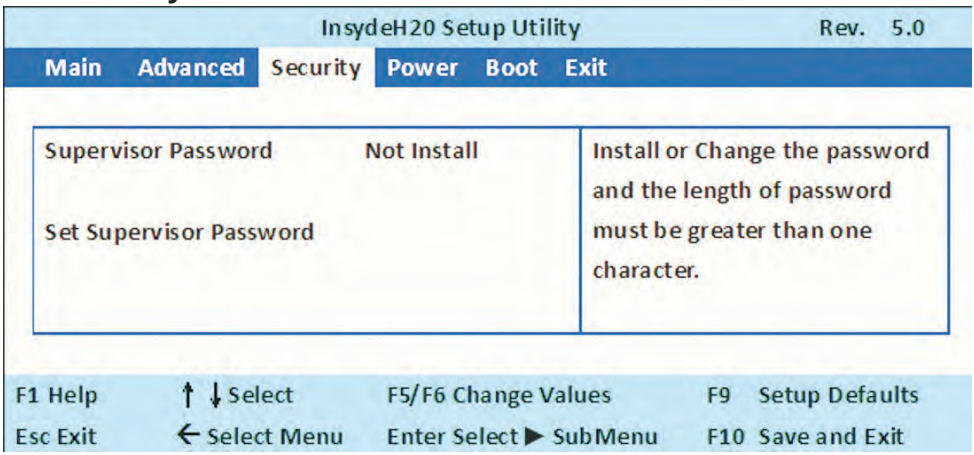


ACPI Table/Features Control

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

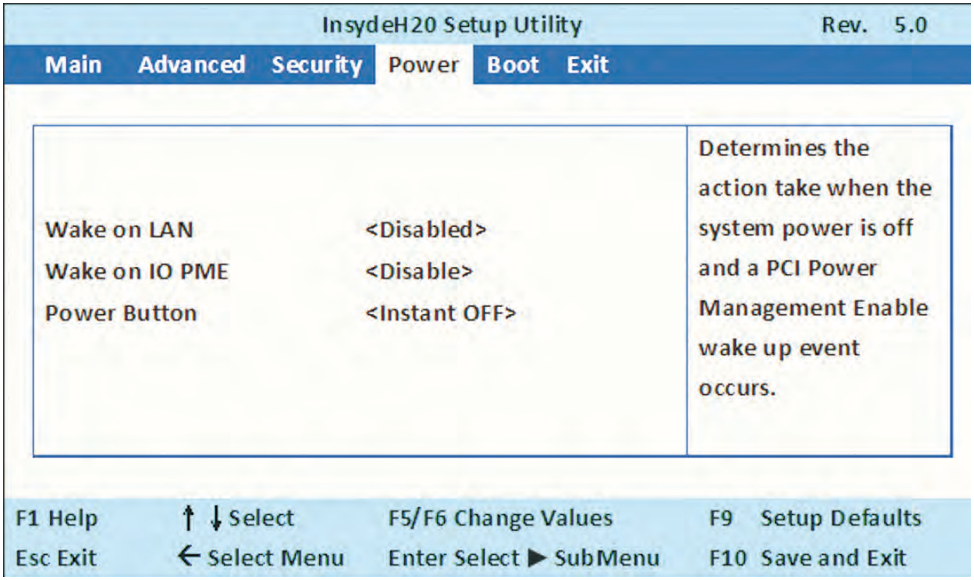


Supervisor Password

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)

Wake on IO PME

Determines the action taken when the system power is off and the use PS2 KB/MS to Enable wake up event occurs.

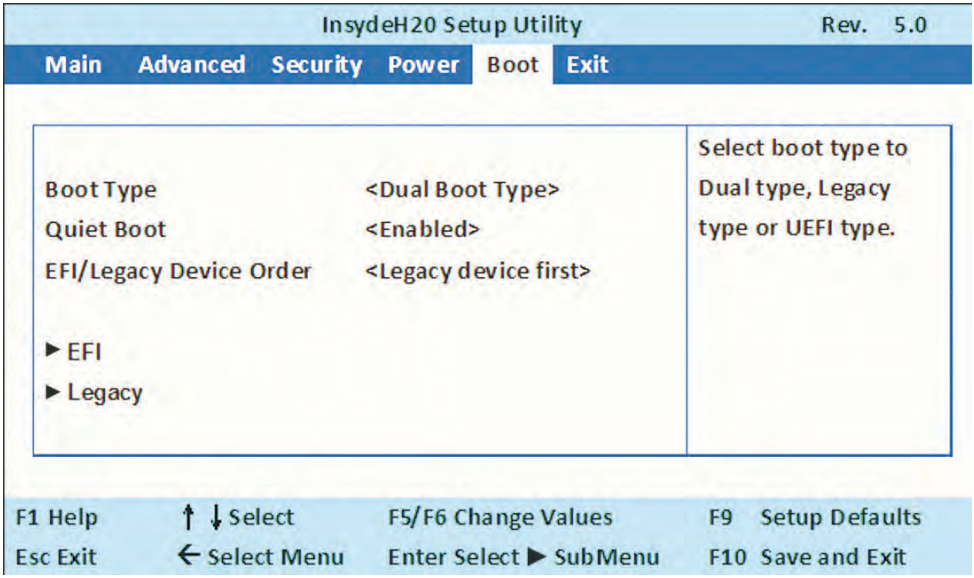
The optional settings: Enabled, Disabled (default)

Power Button

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

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

4-9 Boot



Boot type

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

Quiet Boot

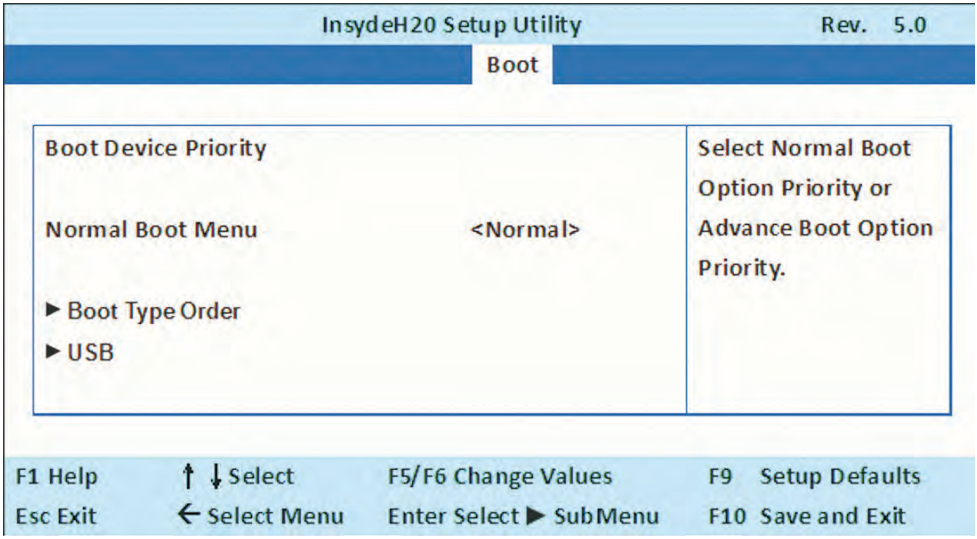
The optional settings are: Enabled(default), Disabled.

EFI / Legacy Device order

Determine EFI device first or legacy device first.

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

4-9-1 Legacy

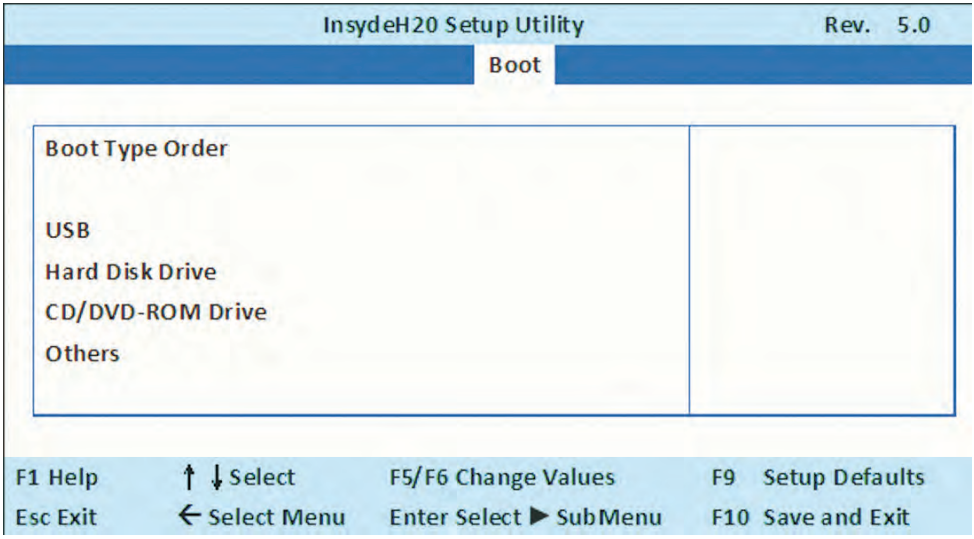


Normal Boot Menu

Select Normal Boot option priority or Advance Boot option priority.

The optional settings: Normal(default), Advance

4-9-2 Boot Type Order

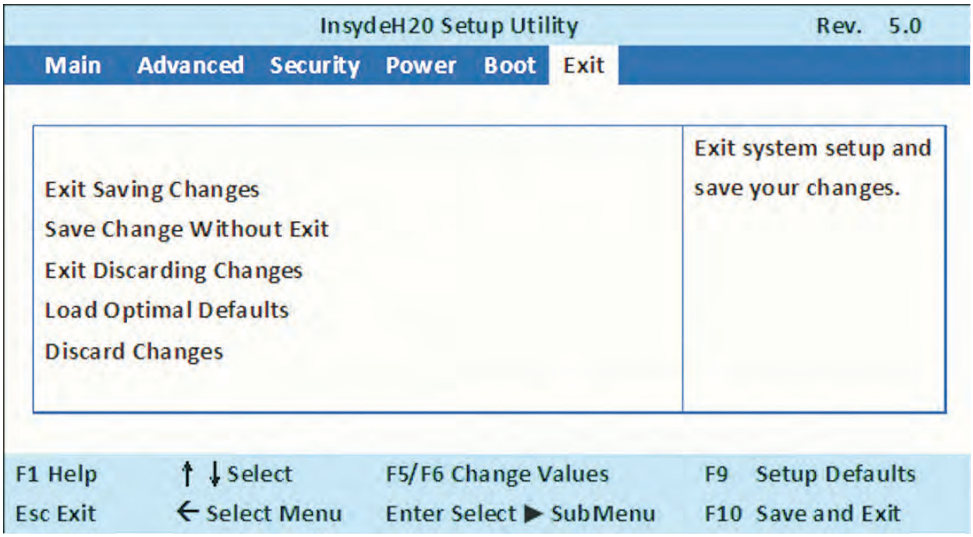


Boot Type Order

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

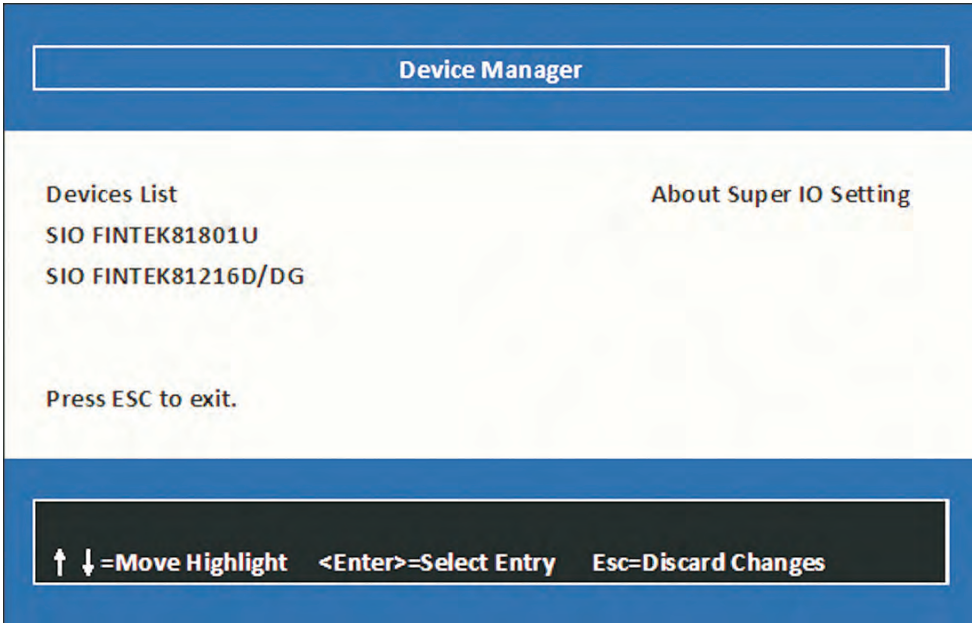
Use this item to restore the optimal default for all the setup options.

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



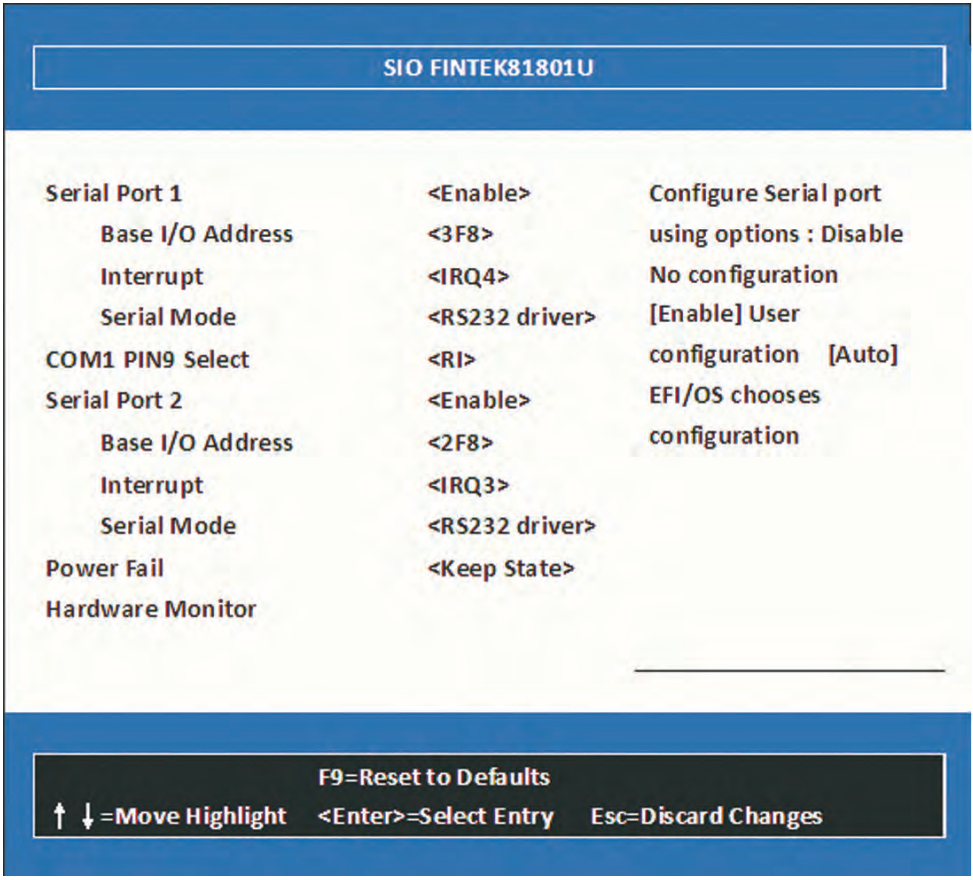
Serial Port 1/2 Configuration

Please refer section 4-11-1

Serial Port 3/4/5/6 Configuration

Please refer section 4-11-2

4-11-1 SIO FINTEK81801U



Serial Port 1/2

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

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

Serial Port 1 Base IO Address / Interrupt / Serial Mode

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

The optional settings are:

IO=3F8h; IRQ=4 (default)

IO=3E8h; IRQ=3,4

IO=2E8h; IRQ=3,4

IO=2F8h; IRQ=3,4

Serial Port 2 Base IO Address / Interrupt / Serial Mode

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

The optional settings are:

IO=2F8h; IRQ=3(default)

IO=2E8h; IRQ=3,4

IO=3E8h; IRQ=3,4

IO=3F8h; IRQ=3,4

Serial Mode

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

RS485 driver : When hardware select to RS485 mode,
please enter to RS485 driver. It is the auto flow function for RS485.

Power Failure

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

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

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

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

COM1 PIN9 Select

This item specifies whether your COM1 device pin9 have what kind of signal or voltage.

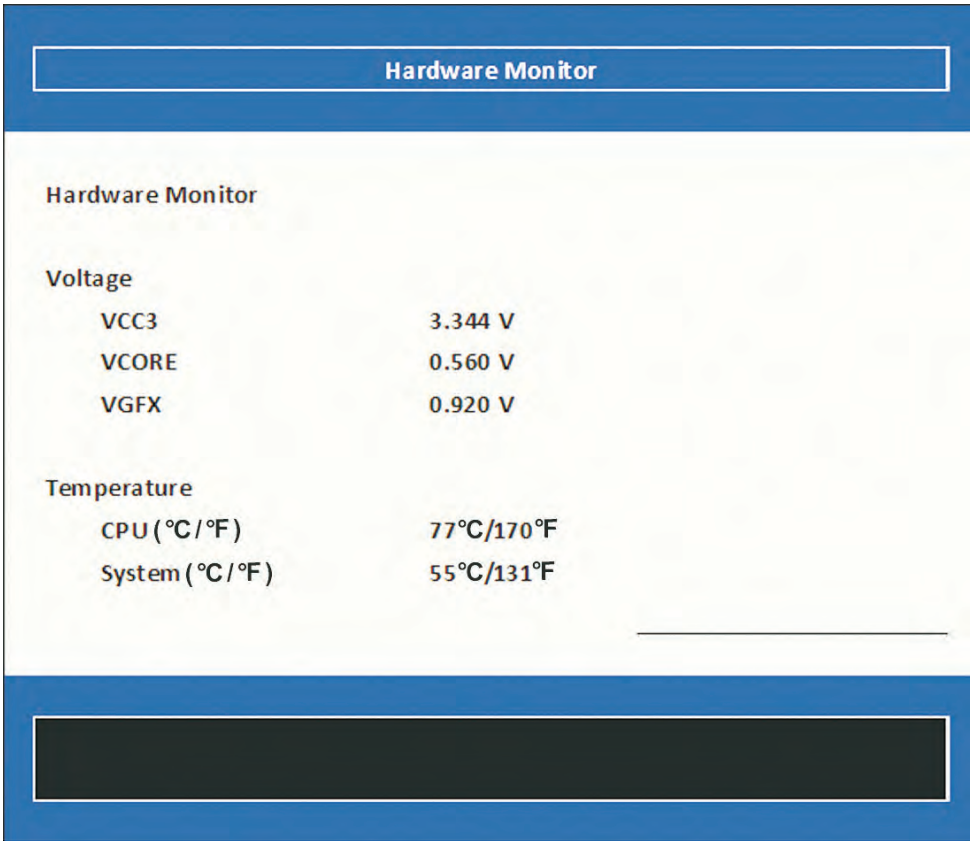
[RI]. COM1 PIN9 use RI signal.

[+5V] COM1 PIN9 use +5V/0.7A output.

[+12V] COM1 PIN9 use +12V/0.7A output.

Note: Please avoid put system into power failure state suddenly, otherwise,
it will make about 11V peak 100ms on PIN9.

4-11-2 Hardware Monitor

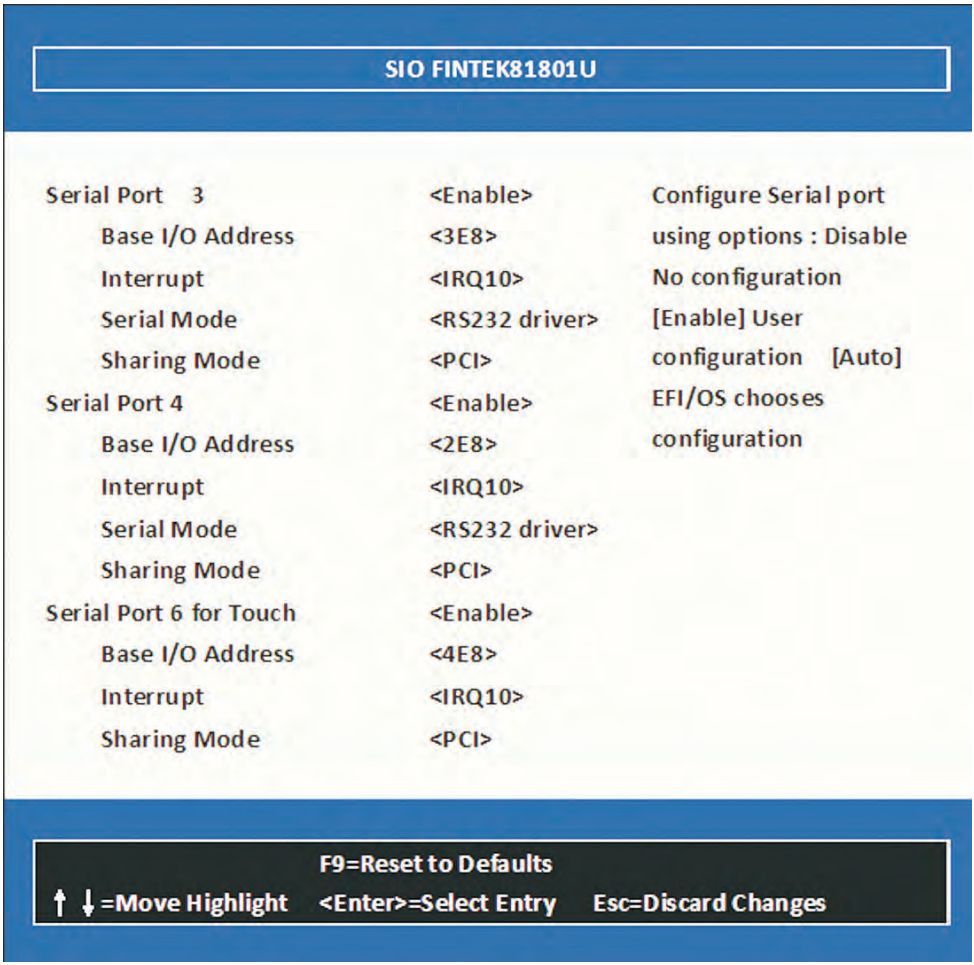


Press [Enter] to view PC health status.

This section shows the status of your CPU, Fan, and overall system.

This is only available when there is Hardware Monitor function onboard.

4-11-3 SIO FINTEK81216D/DG



Serial Port 3/4

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

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

Serial Port 3 Base IO Address / Interrupt

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

The optional settings are:

IO=3E8h; IRQ=10 (default)

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

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

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

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

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

Serial Port 4 Base IO Address / Interrupt

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

The optional settings are:

IO=2E8h; IRQ=10(default)

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

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

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

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

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

Serial Mode

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

RS485 driver : When hardware select to RS485 mode, please enter to RS485 driver.

It is the auto flow function for RS485.

Serial Port 6 for Touch Base IO Address / Interrupt

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

The optional settings are:

IO=4E8h; IRQ=10(default)

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

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

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

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

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

Sharing Mode

This item is OS serial port with sharing mode issue.

If use Linux OS this item should be ISA mode

If use Windows OS this item should be PCI mode

Note: Windows don’t set to ISA mode.

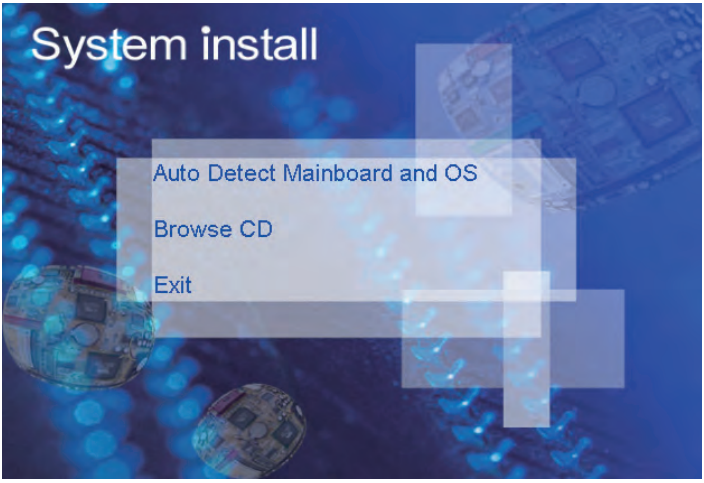
Chapter-5

DRIVER INSTALLATION

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

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

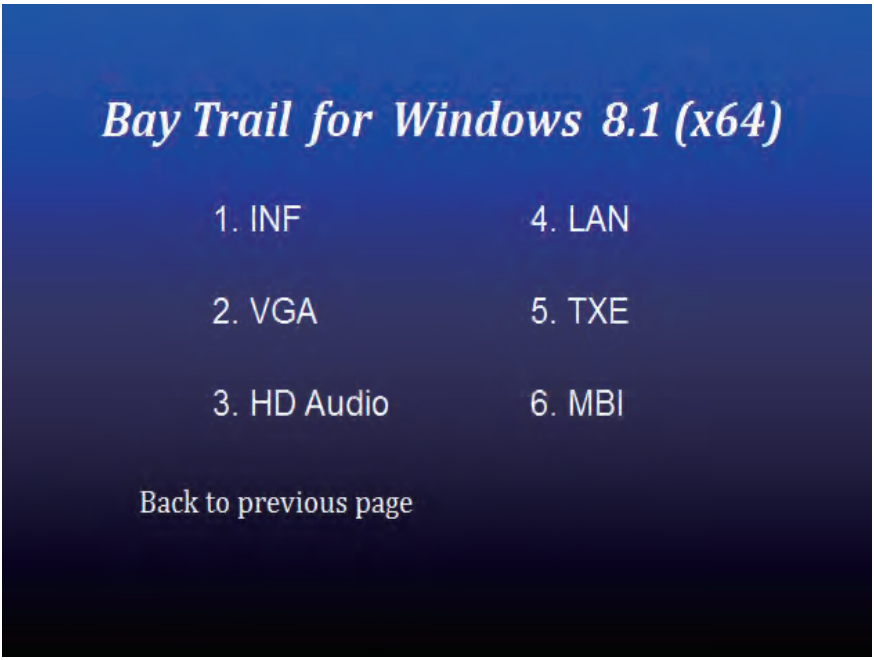
Insert the DVD into your DVD-ROM drive and the SYSTEM INSTALL menu should appear as below. If the menu does not appear, double-click MY COMPUTER and double-click DVD-ROM drive or click START, click RUN, and type X:\SETUP.EXE
(assuming your DVD-ROM drive is X).



Make your selection from SYSTEM INSTALL menu:

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

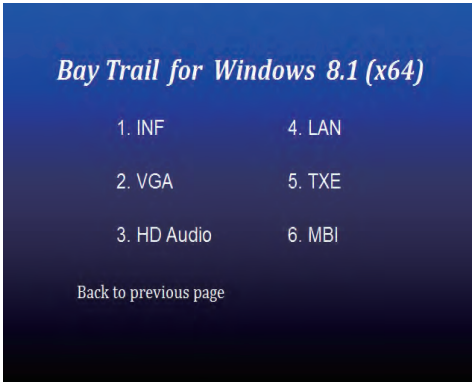
AUTOMATIC DRIVER INSTALLATION menu



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:

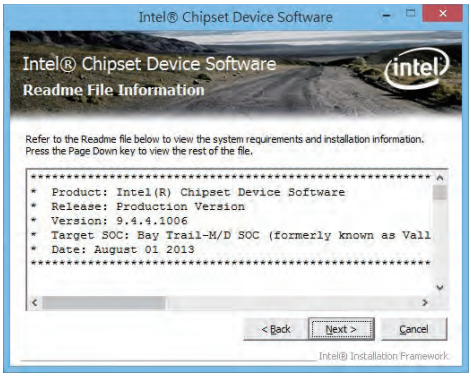
5-1 INF Install Intel Baytrail Chipset Driver (example for WIN8 64bit)



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,

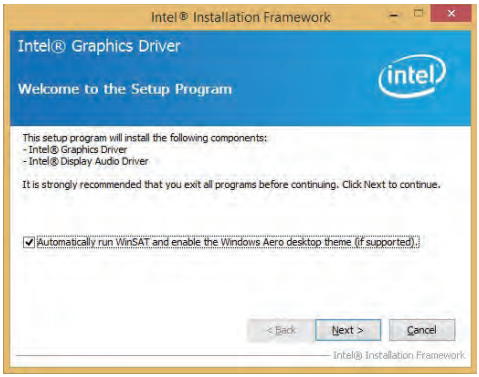
X:\driver\INTEL\BAY\INF\WIN7\infinst_autol.exe

For Windows 8 / 8.1 32/64-bit

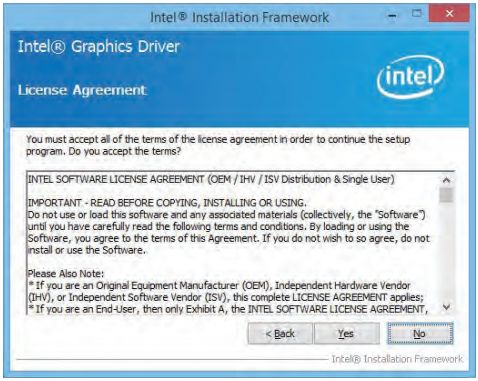
X:\driver\INTEL\BAY\INF\WIN_8_64\infinst_autol.exe

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

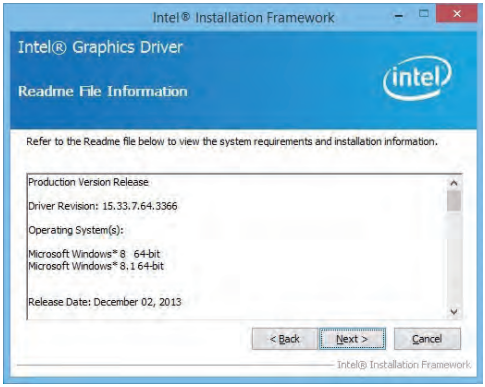
1. At the"AUTOMATIC DRIVER INSTALLATION menu"screen, click "VGA".



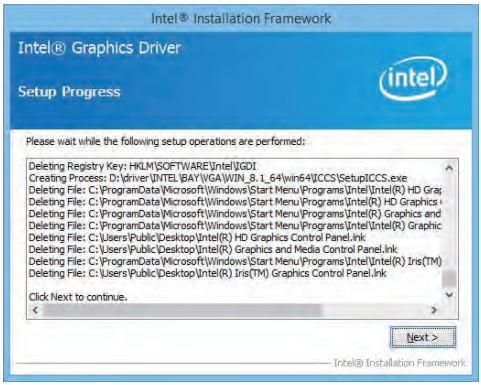
2. At the "Welcome to the Setup Program screen, Click "Next".

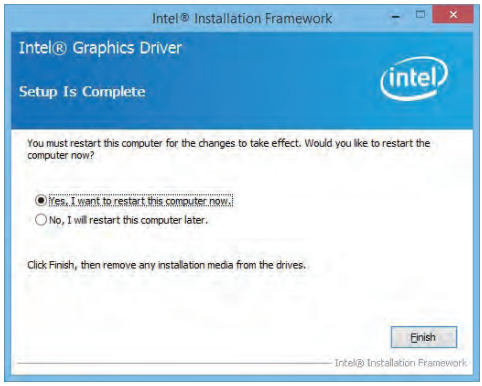


3. At the "License Agreement" screen, Click "Yes"



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





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

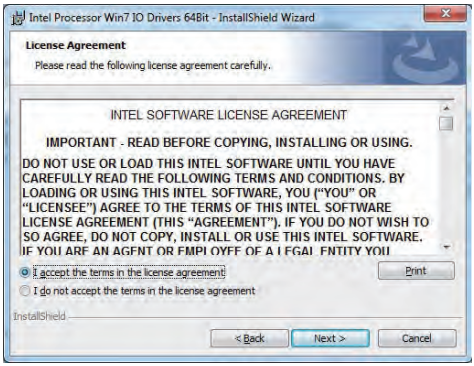
6. Click "Finish" to restart computer

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

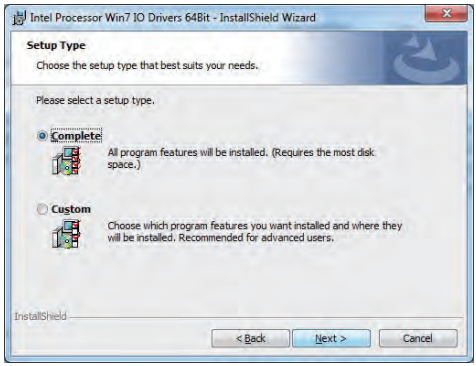
5-3 Serial IO Install Driver Baytrail Serial IO Driver
(FOR Windows 7 only)

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

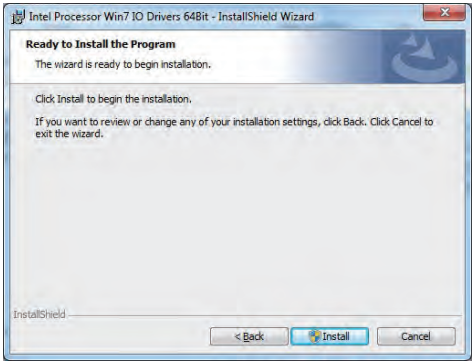
2. At the "Welcome to the Setup Programscreen, Click "Next".



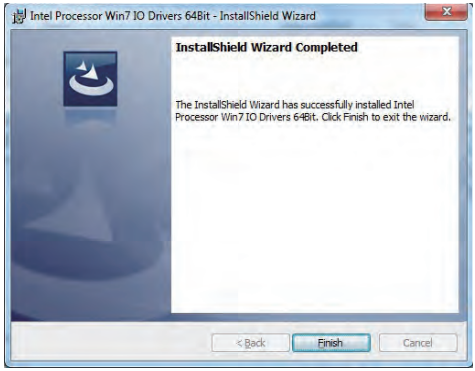
3. At the "License Agreement" screen, Click "Yes"



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



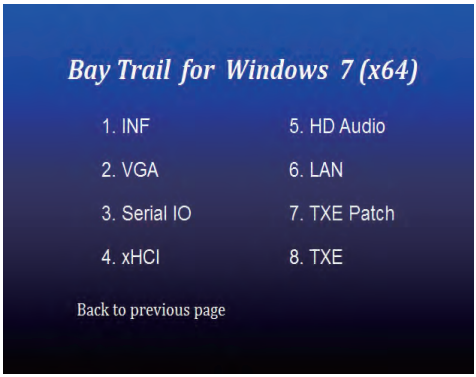
5. At the "Ready to install the program" screen, Click "Install"



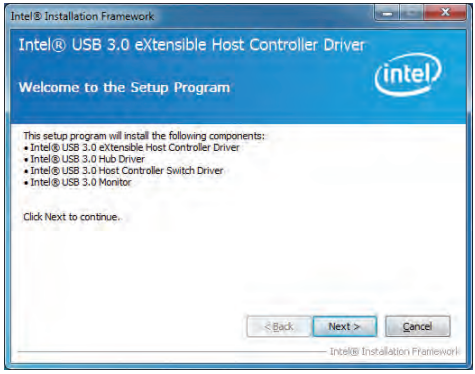
6. Click "Finish" and restart computer

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)



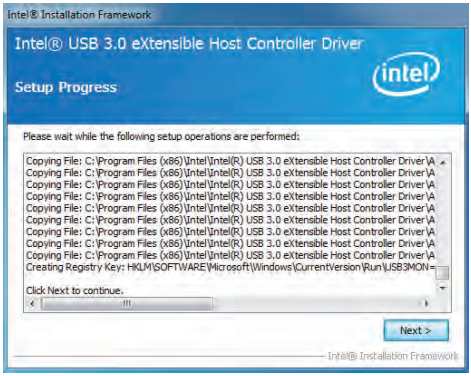
1. At the"AUTOMATIC DRIVER INSTALLATION menu" screen, click "xHCI".



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".



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.
```

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.

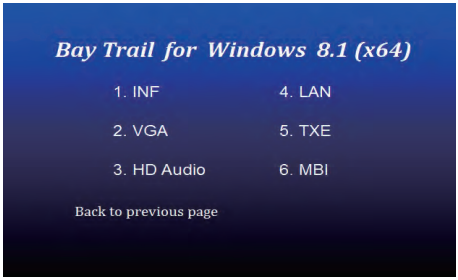
Click Finish, then remove any installation media from the drives.

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

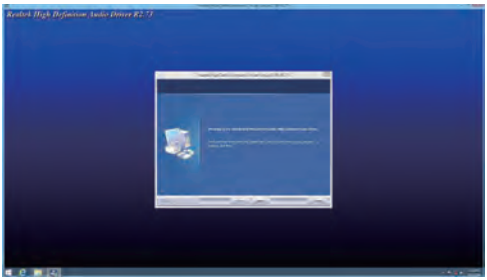
6. Click "Finish" to restart computer

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"



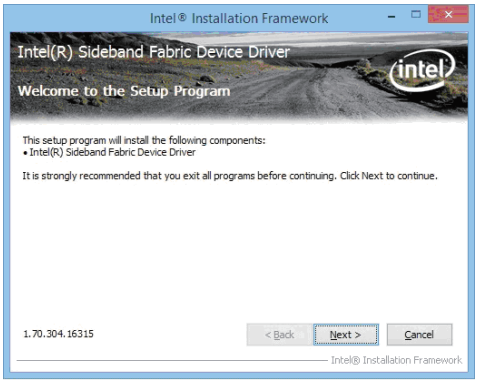
2. Click "Next".

3. Click "Finish" to restart computer

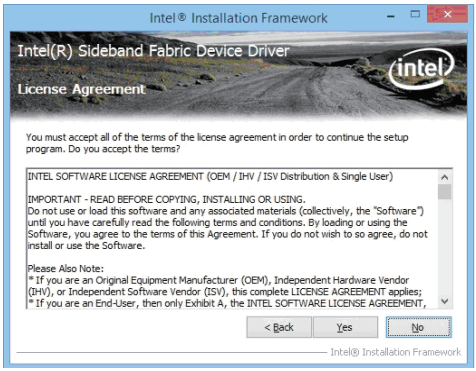
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32 / 64-bit, Windows 8/8.1 32 / 64-bit
X:\driver\INTEL\BAY\SOUND\Win7_Win8_Win81_R273.exe

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

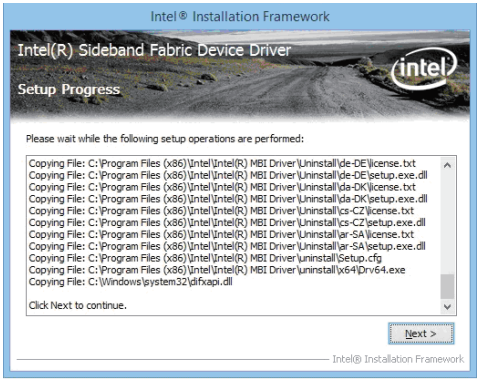
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "HD Audio"



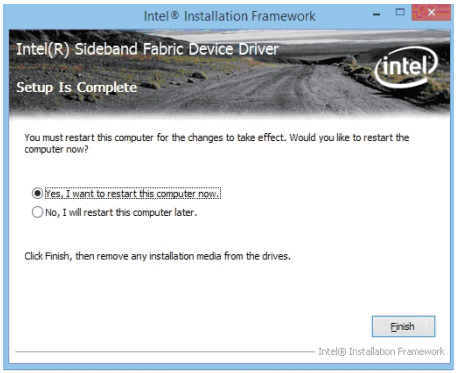
2. At the "Welcome to the Setup Program screen, Click “Next”.



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



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



5. Click "Finish" to restart computer

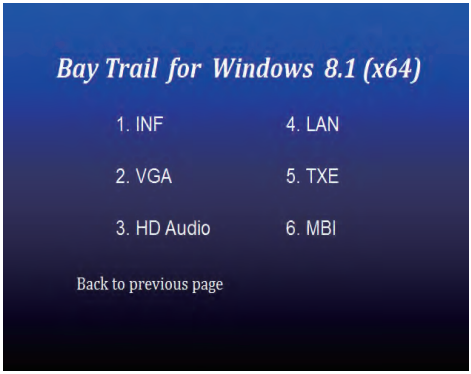
NOTE: SYSTEM INSTALL will auto detect file path

For Windows 8/8.1 32 / 64-bit,

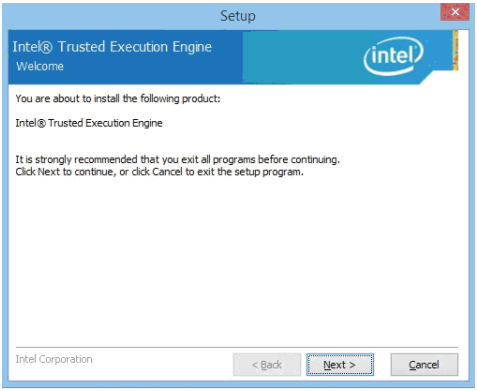
X:\driver\INTEL\BAY\MBI\Setup.exe

5-7 TXE Install Intel TXE driver

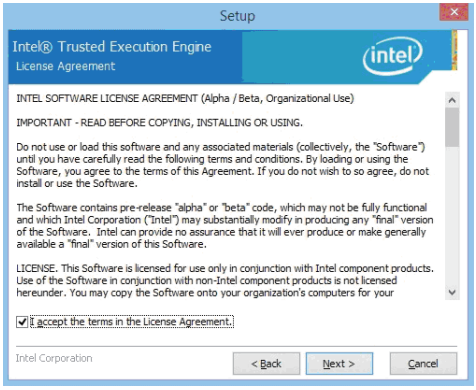
5-7-1 TXE Install for WIN8/WIN8.1



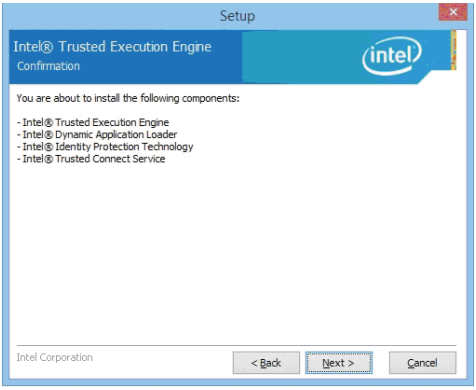
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE"



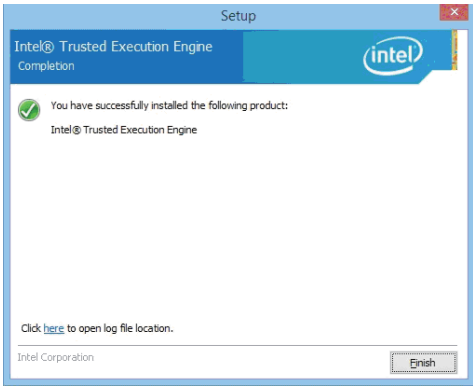
2. At the "Setup" screen, Click "Next".



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,

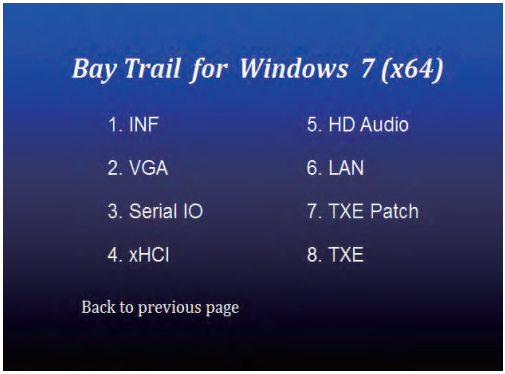
X:\driver\INTEL\BAY\TXE\WIN_8\SetupTXE.exe

For Windows 8.1 32 / 64-bit,

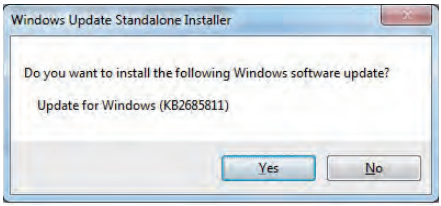
X:\driver\INTEL\BAY\TXE\WIN_8.1\SetupTXE.exe

5-7-2 TXE Install for WIN7

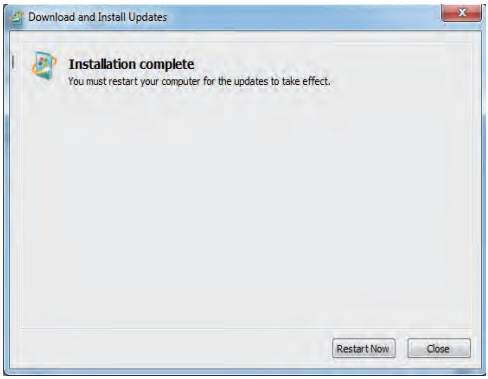
Please install PXE Patch first.



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

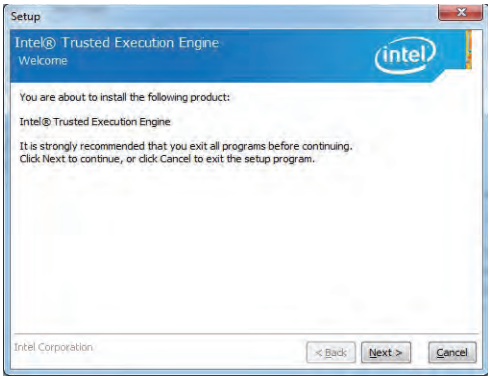


2. At the "Windows Update" screen, Click "Yes".



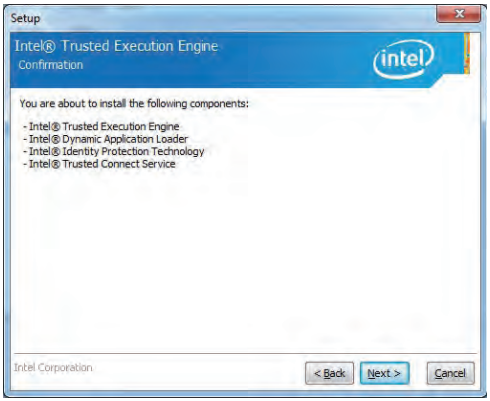
3. Click "Finish" & restart computer

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

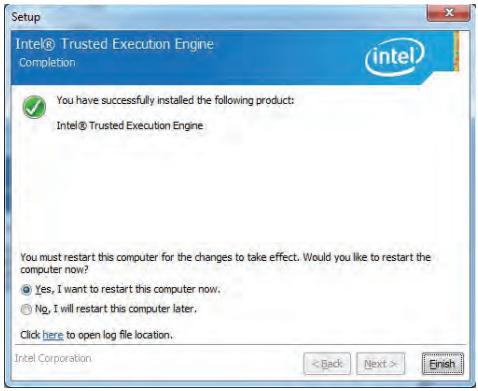


5. At the "TXE Setup" screen, Click "Next".

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 2I385PW 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 2I385PA2.ROM –BIOS -ALL

2I385PA2.ROM is the file name of the latest BIOS.

It may be 2I385PA1.ROM or 2I385PA2.ROM, etc.

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

By Bay Trail series mainboard, please type

X:\: H2OFFT-D.EXE 2I385PA2.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: 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 B: 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

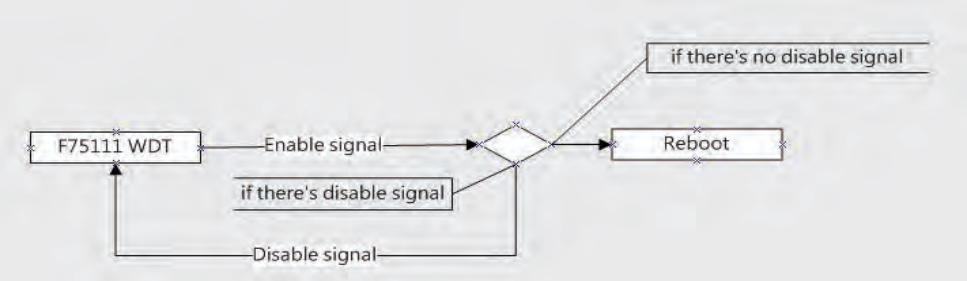
How to use this Demo Application

1.Boot Ms-Dos Operating System

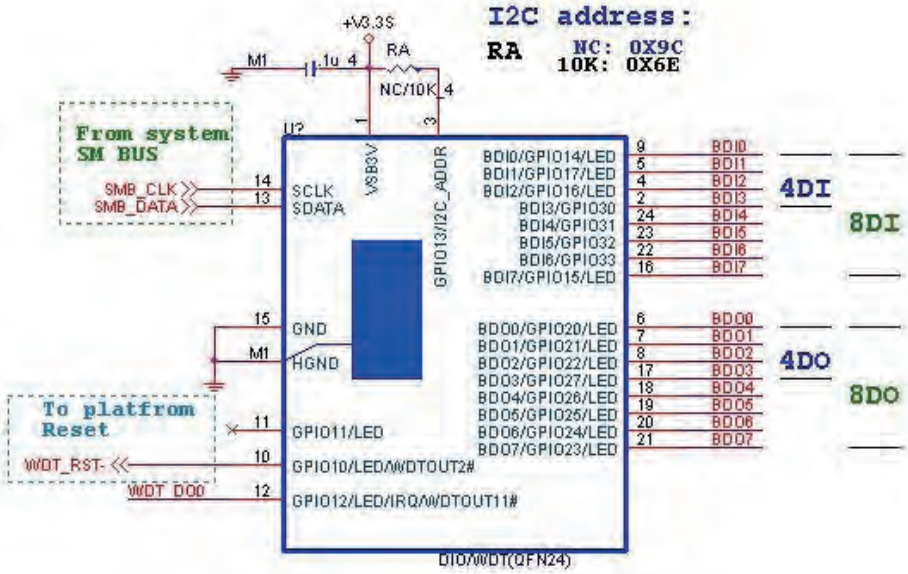
2.execute "75WDT.EXE" binary file

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

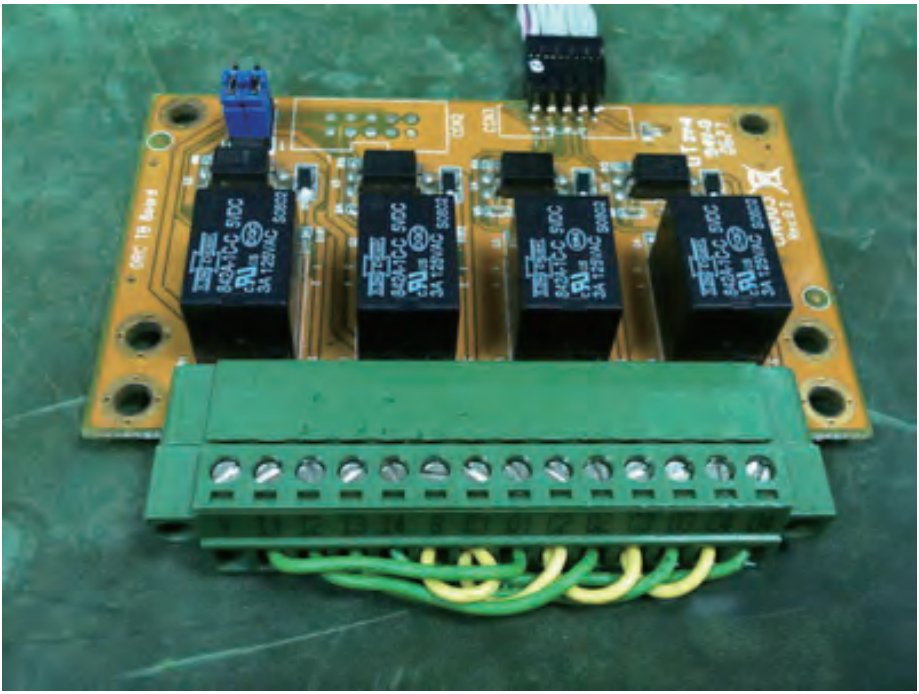
Source file: F75111_DIO_Src_v2.7W(32bit).zip / F75111_DIO_Src_v2.7W(64bit).zip

Binary file: F75111_DIO_Bin_v2.7W(32bit).zip / F75111_DIO_Bin_v2.7W(64bit).zip

USERNAME & PASSWORD: sf

http://tprd.info/lexwiki/index.php/IO_Device:F75111

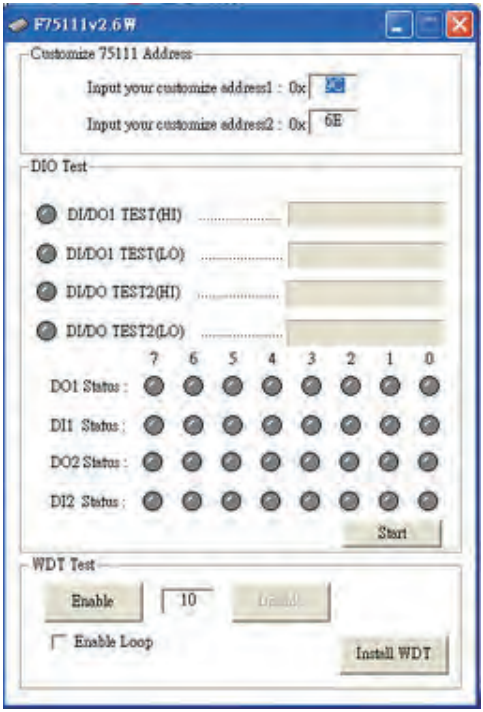
We do the demo test with a test tool which DIx connect to DOx with Relay.



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

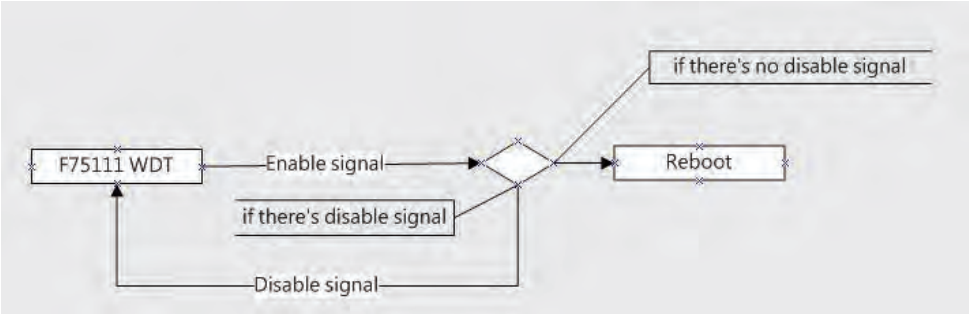
2. Press the "Enable" button to test WDT function

3. Press the "Disable" button to disable WDT

4. Check the "Enable Loop" box and press "Enable" to do WDT loop test

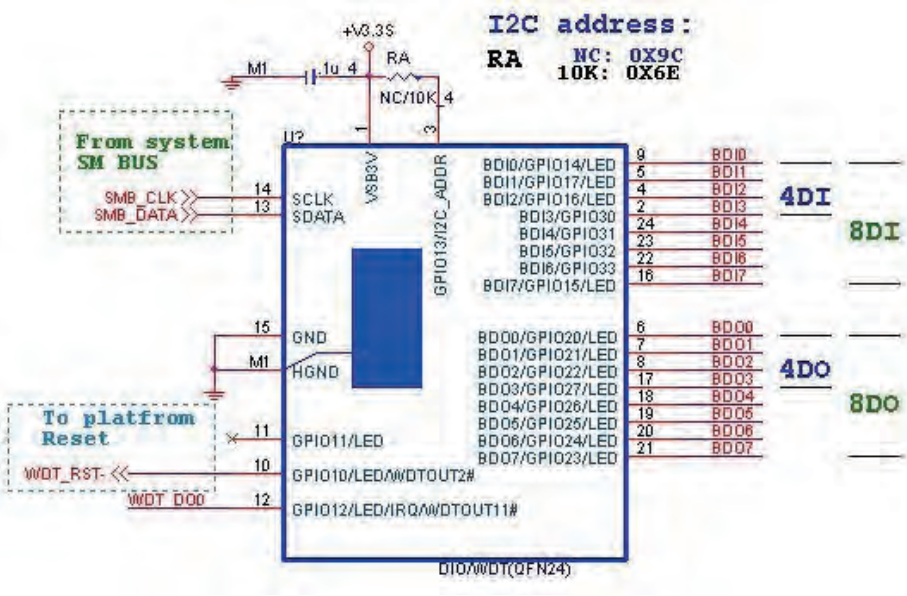
5. Press "Install WDT" to set the system to autorun this application when booting, press again to remove this application when booting.

**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

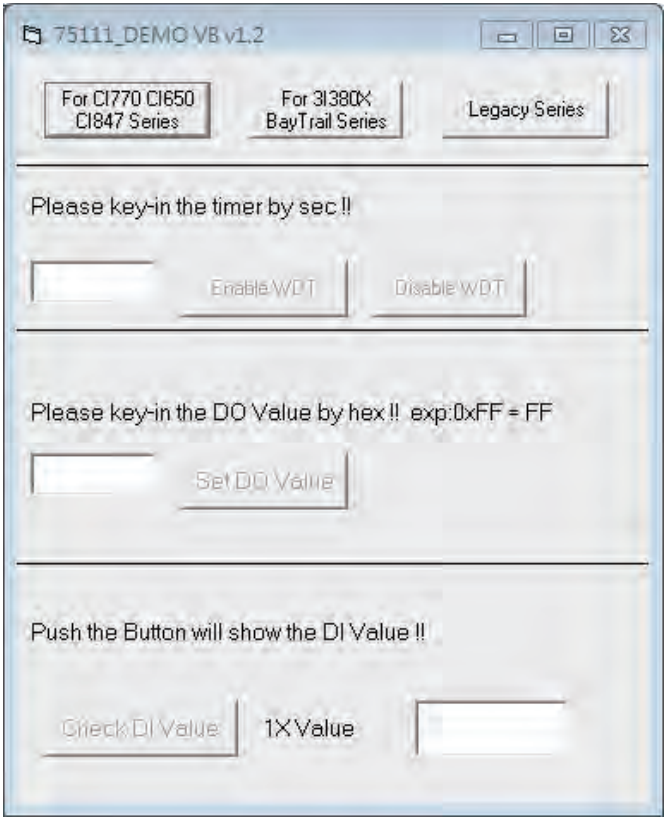
The Sample code source you can download from

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

Binary file: 75111_VB_Src1.2.rar

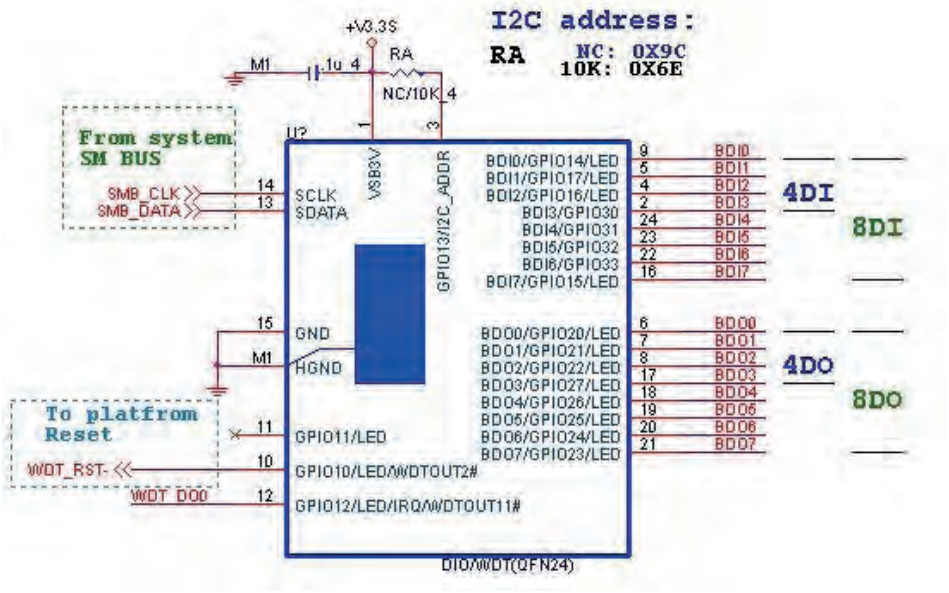
USERNAME & PASSWORD: sf

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: F75111v2.3L_SRC.tar.gz http://tprd.info/lexwiki/index.php/IO_Device:F75111_under_linux

Binary file: F75111v2.3L_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")

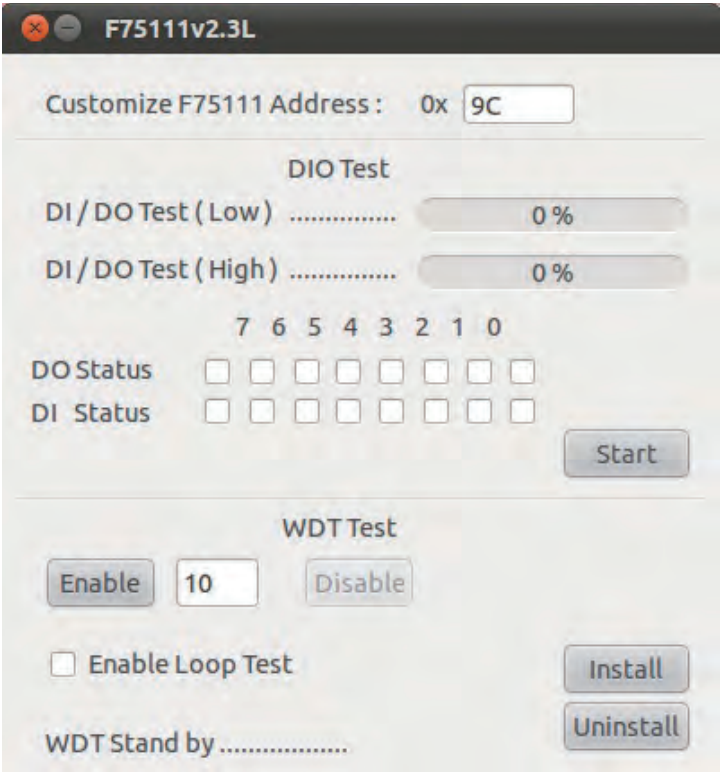
2. Compile source code with "make"

1. cd F75111

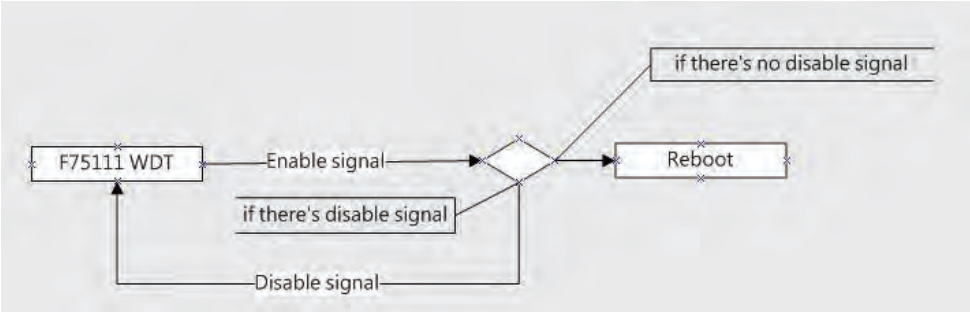
1. make

1. src/f75111 // execute the binary file

How to use this Demo Application

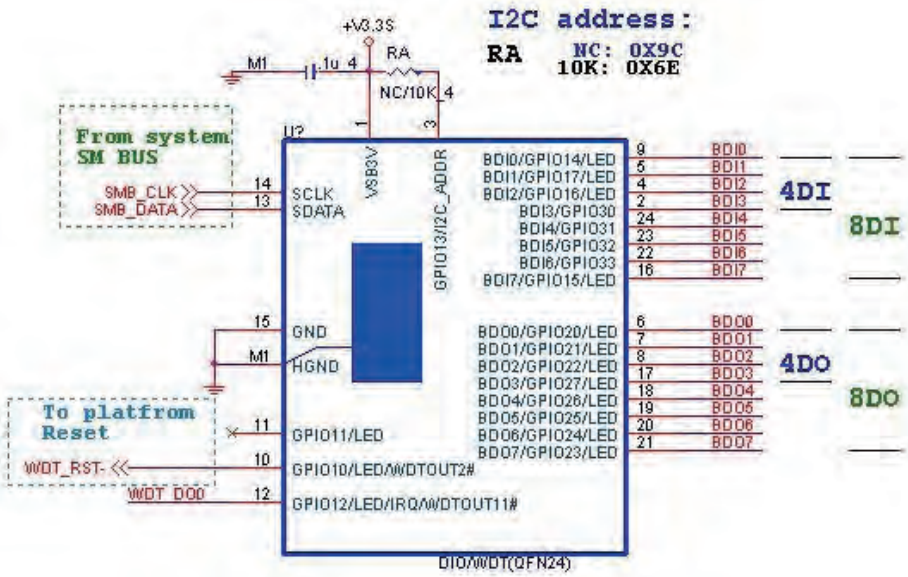


1. Press the "Start" button to test DIO function
2. Press the "Enable" button to test WDT function
3. Press the "Disable" button to disable WDT
4. Check the "Enable Loop" box and press "Enable" to do WDT loop test
5. Press "Install" to set the system to autorun this application when booting, press "Uninstall" 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   ();
```