2I385EW

Intel Bay Trail-I E3825 / E3845
(Dual Core / Quad Core)CPU,
DDR3L 1066 / 1333 MT/s, 2 x LAN / LVDS /
Touch Screen / USB / COM

All-In-One eIO extension SBC
Intel Bay Trail-I E3825 / E3845 CPU, 2 x Intel GbE LAN,
2 x mini PCIe, VGA, Audio, SATA, USB, COM,
LVDS, Touch Screen, eIO, Wide Range DC-IN

CAUTION

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

NO. 2I385EW
Release date: Aug. 31 2017

Contents

User Manual edition 0.1, Aug. 31. 2017

Warning !

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

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

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

4. SATA interface does not support Hot SWAP function.

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

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

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

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

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

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

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

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

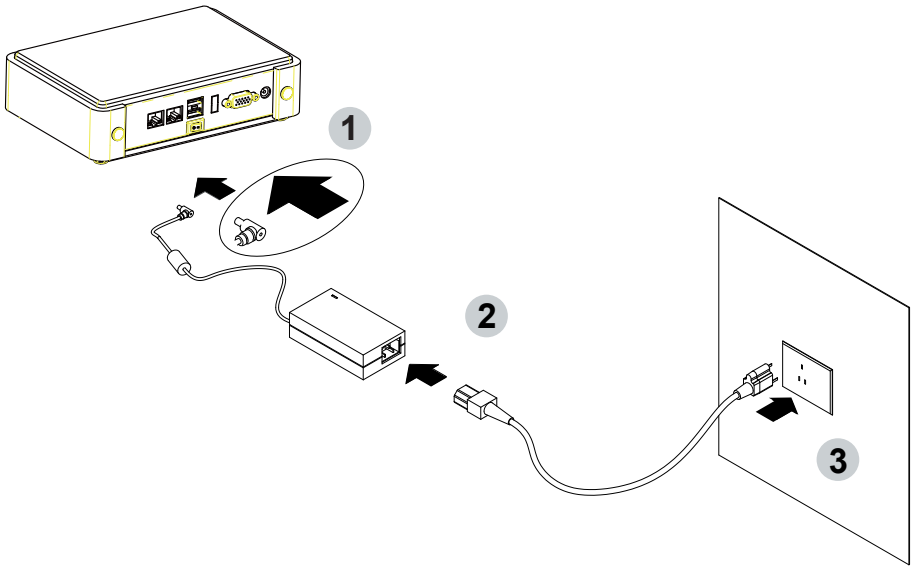
✻ Hardware Notice Guide

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

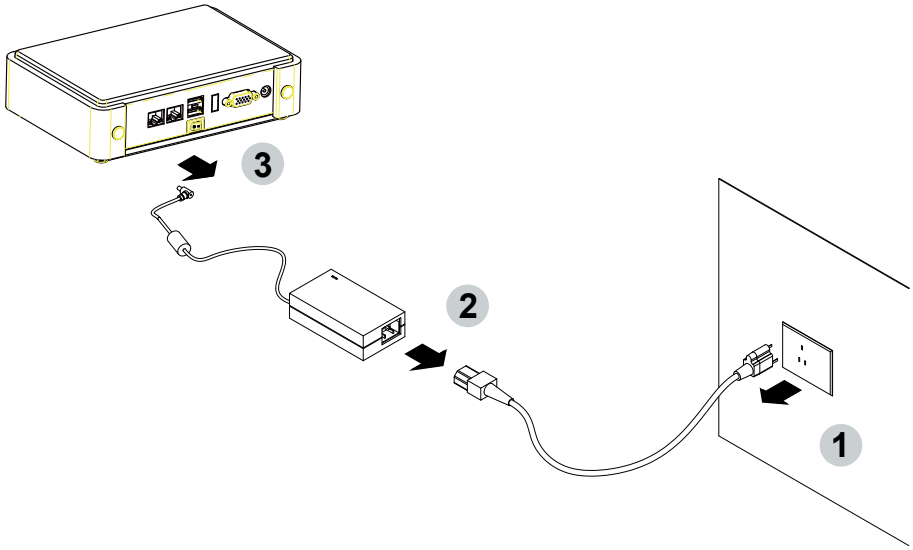
Remark 1:
Always insert/unplug the DC-in horizontally & directly to/from the motherboard. DO NOT twist, it is designed to fit snugly.
Moreover, erratic pull/push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

The 2I385EW is a 2.5 inches form factor All-In-One Board. The board design combines all necessary input and output interfaces, which makes itself an ideal all-in-one control board for POS, Digital Signage and Automation application. Due to its compact size, 2I385EW is also the perfect platform for a whole range of small form factor and low-power devices, such as mobile PC or small panel PC

The 2I385EW All-In-One motherboard is with Intel Bay Trail-I E3845 1.91GHz / E3825 & Bay Trail-D J1900 2.0GHz (Quad / Dual core processor), Intel Bay Trail E3845 / J1900 chipset and Bay Trail-I / Bay Trail-D, Integrated Graphics chipset. This integrated platform offers superb performance and PC specification in the industry. Despite the limited space of 2I385EW, it supports 4 COM ports and 4 ports of Hi-Speed USB 2.0 to enhance the host controller interface which will ensure the high performance level and flexible expansion. Especially 2I385EW with an eIO (2 x PCIe + USB) expansion function that offer the ideal platforms for high performance applications in Digital Signage, medical devices, POS/ Kiosk, gaming machines, automation, military & industrial facilities.

The 2I385EW 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 or I211AT LAN chipset for PCIe x 1 V2.1 interface, integrated 10 / 100 / 1000 transceiver.

The 2I385EW motherboard is built in with onboard DDR3L SDRAM 2GB/4GB, J1900 / E3845 Memory data transfer rate of 1066MT/s / 1333MT/s. The expendable interfaces include one full size PCIe Mini card for mSATA and USB interface, one half size PCIe Mini card for mSATA and USB interface. One eIO with 1 USB and 2 PCIe x 1 signal to add-on eIO cards.

The All-In-One motherboard 2I385EW is fully compatible with industrial standards, plus technical enhancements and thousands of software applications developed for IBM PC / AT compatible computers. These control logic provides high-speed performance for the most advanced multi user and multitasking applications available today

1-1 Major Feature

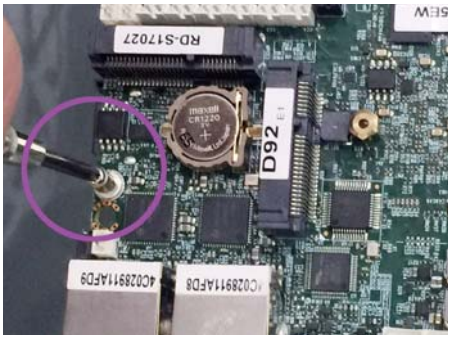
1. Intel Bay Trail-I E3845 1.91GHz SOC (Quad core), Intel Bay Trail-D J1900 2.0 GHz (Quad Core)
2. Intel Bay Trail-I / Bay Trail-D Integrated Graphics chipset, E3845 542 MHz / J1900 688 MHz render clock frequency
3. On board DDR3L SDRAM 2GB / 4GB Memory, data transfer rate of 1066MT/s / 1333MT/s
4. Support 2 x 10 / 100 / 1000 Mbps Intel LAN ports
5. Support 4 x COM ports and 4 x USB 2.0
6. Support extended 2 x Mini PCIe card (full size & half size) and 1 eIO with 1 USB and 2 PCIe x 1 siganl.
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 +9~36V
10. PCB Dimension: 102 x 73 mm (2.5 inch)

1-2 Specification

1. **SOC:** Intel Bay Trail-I E3845 1.91GHz / Intel Bay Trail-D J1900 2.0 GHz (Quad Core)
2. **Memory:** DDR3L SDRAM 2GB / 4GB Memory, data transfer rate of 1066MT/s / 1333MT/s
3. **Graphics:** Intel Bay Trail-I / Bay Trail-D Integrated Graphics chipset, E3845 542 MHz / J1900 688MHz render clock frequency
4. **SATA:** One SATA connector with independent DMA operation supported, signal shared with mSATA
5. **LAN:** 2 x INTEL I211-AT (J1900) / I210-IT (E3845) PCIe LAN of 10 / 100 / 1000 Mbps
6. **Serial Port:** External x 1 (RS232 or 422 or 485); internal x 1 (RS232 or 485) by hardware changed and internal x 2 (RS232 / 485 / 422) auto switch by BIOS
7. **USB:** 4 x USB 2.0 (2 external + 2 internal)
8. **Sound:** ALC886 HD Audio Specification 1.0 Two channel sound chipset
9. **WDT/DIO:** Hardware digital Input & Output, 4 x DI / 4 x DO Hardware Watch Dog Timer, 0~255 sec programmable.
10. **Expansion interface:** one full size PCIe Mini card for mSATA and USB interface, one half size PCIe Mini card for mSATA and USB interface. One eIO connector for 1 USB and 2 PCIe x1 for eIO cards.
11. **BIOS:** Insyde UEFI BIOS
12. **Dimension:** 102 x 73 mm (2.5 inch)
13. **Power:** On board DC +9~36V

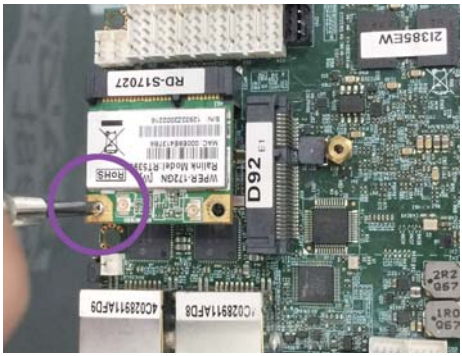
1-3 Installing the Mini PCI-e Card

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)

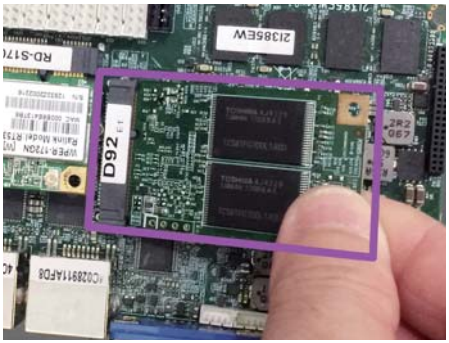
3. Fasten a round-headed M2*6 screw.



1-4 Directions for installing the Mini Card

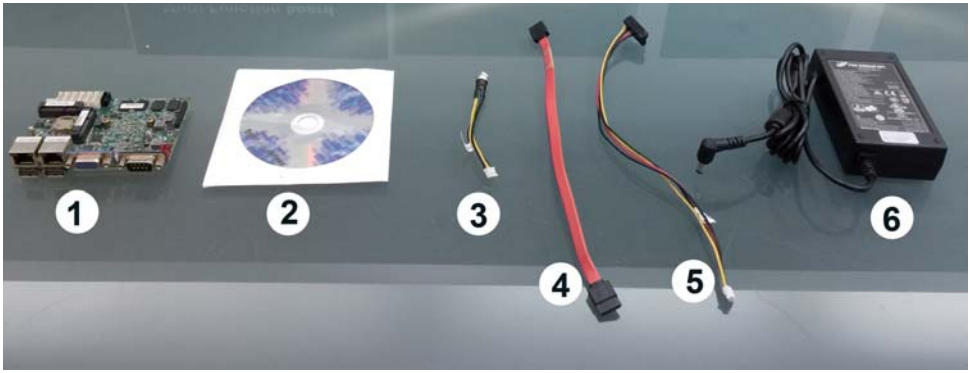
1. Unscrew the screw on the board

2. Plug in the Mini Card in a 45 angle



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

1-5 Packing List



	Material Code	Description	Detail Specification	Quantity
1	7G1901-1695001-0	MB-2I385EW-I44-001	LF,2I385EW-I44,Rev.:001	1
2	6G8006-2349-0100	LEX Product Driver DVD	LF,support Intel Baytrail Driver,Windows 7/8.1 32/64	1
3	6G6003-7330-0100	Power Cable	LF,L=9cm,2.0 1*4/DC JK	1
4	6G6001-2203-0100	SATA DATA Cable (Red)	LF,L=25cm	1
5	6G6003-1009-0100	SATA Power Cable	LF,L=25cm,1*5/2.0 to 180° SATA 15p	1

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

Chapter-2

Hardware Installation

2-1 Unpacking Precaution

This chapter provides the information how to install the hardware of 2I385EW.
Please follow section 1-5, 2-1 and 2-2 to check the delivery package and unpack carefully. Please follow the jumper setting procedure.

NOTE!

1. Do not touch the board or any other sensitive components without all necessary anti-static protection.
2. Please pay attention to the voltage limitation of DC-IN12V 5%.
   Overuse of DC-IN voltage limitation or change to another power adapter (not provided with this system) will VOID warranty.

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

1. Ground yourself by a grounded wrist strap at all times when you handle the 2I385EW.
   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 2I385EW 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 2I385EW from electricity discharge. With reference to section 1-5 please check the delivery package again with following steps:

1. Unpack the 2I385EW 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.

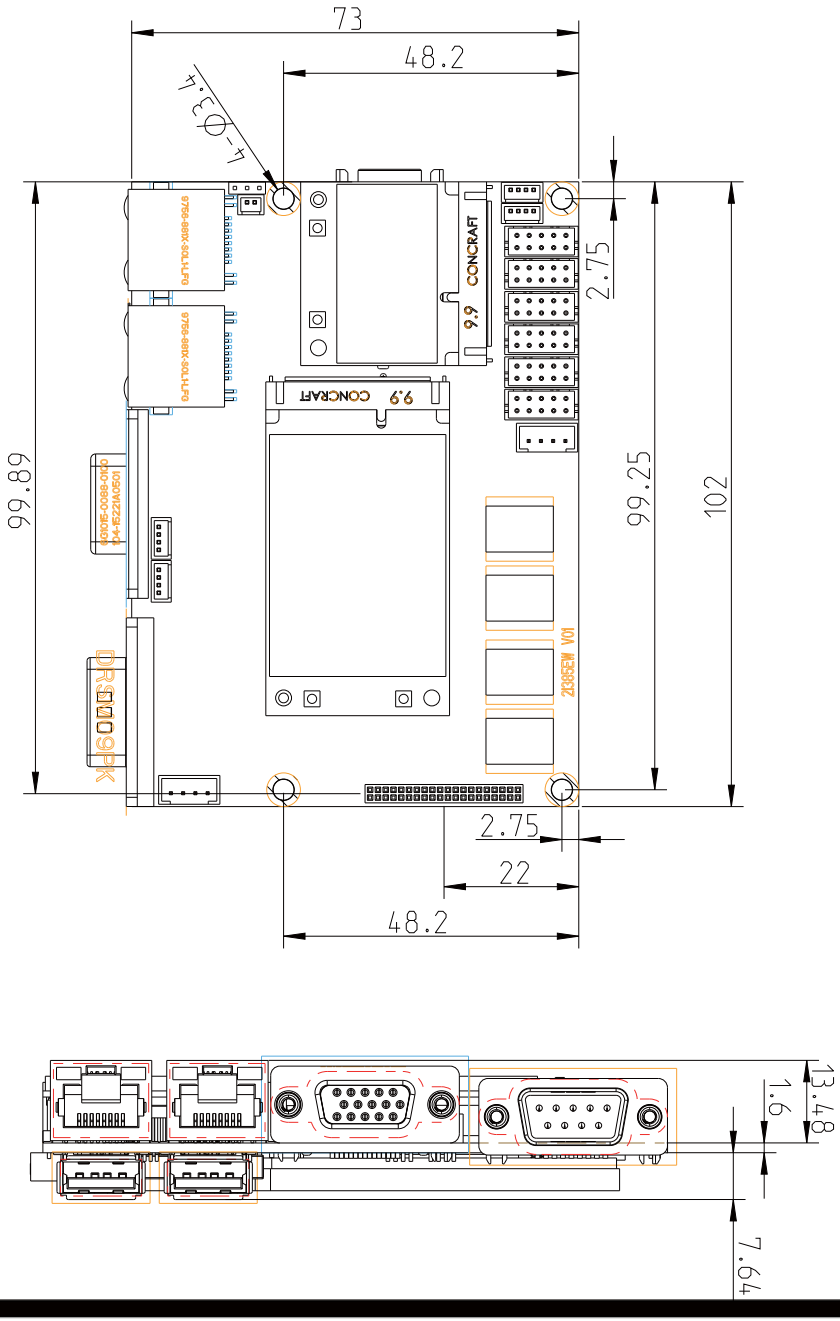
3. Is there any visible damage on the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT
   THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

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.

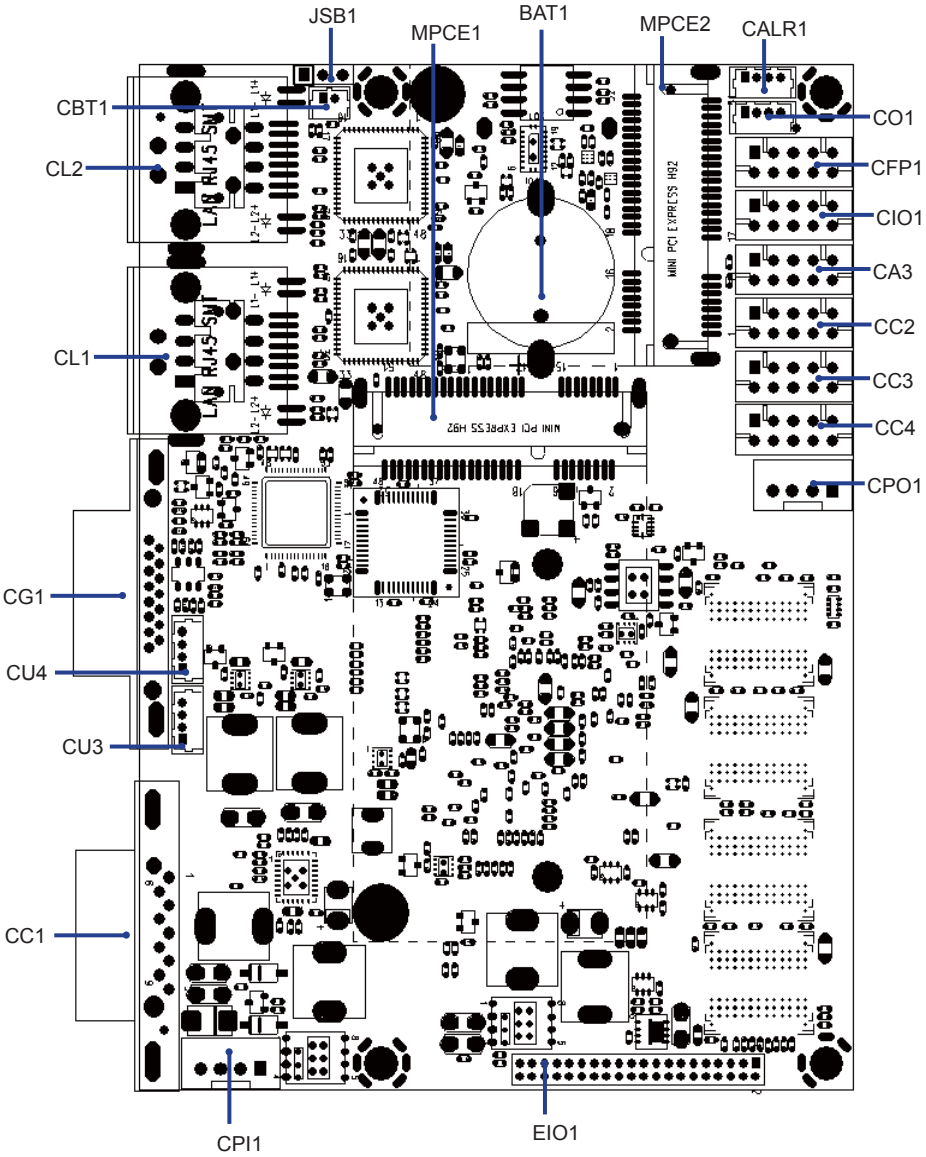
6. Please keep all necessary manual and driver disc in a good condition for future re-installation if you change your Operating System.

2-3 Dimension-2I385EW



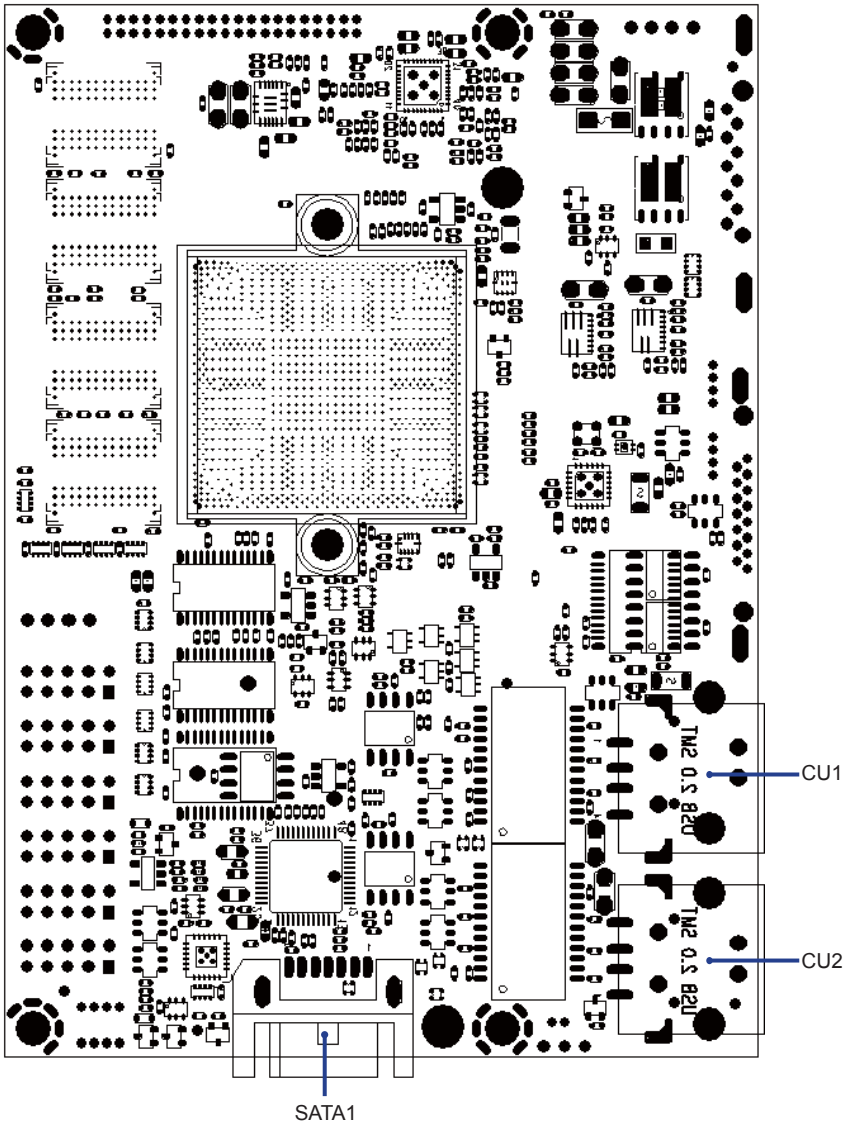
2-4 Layout-2I385EW-Connector and Jumper

TOP



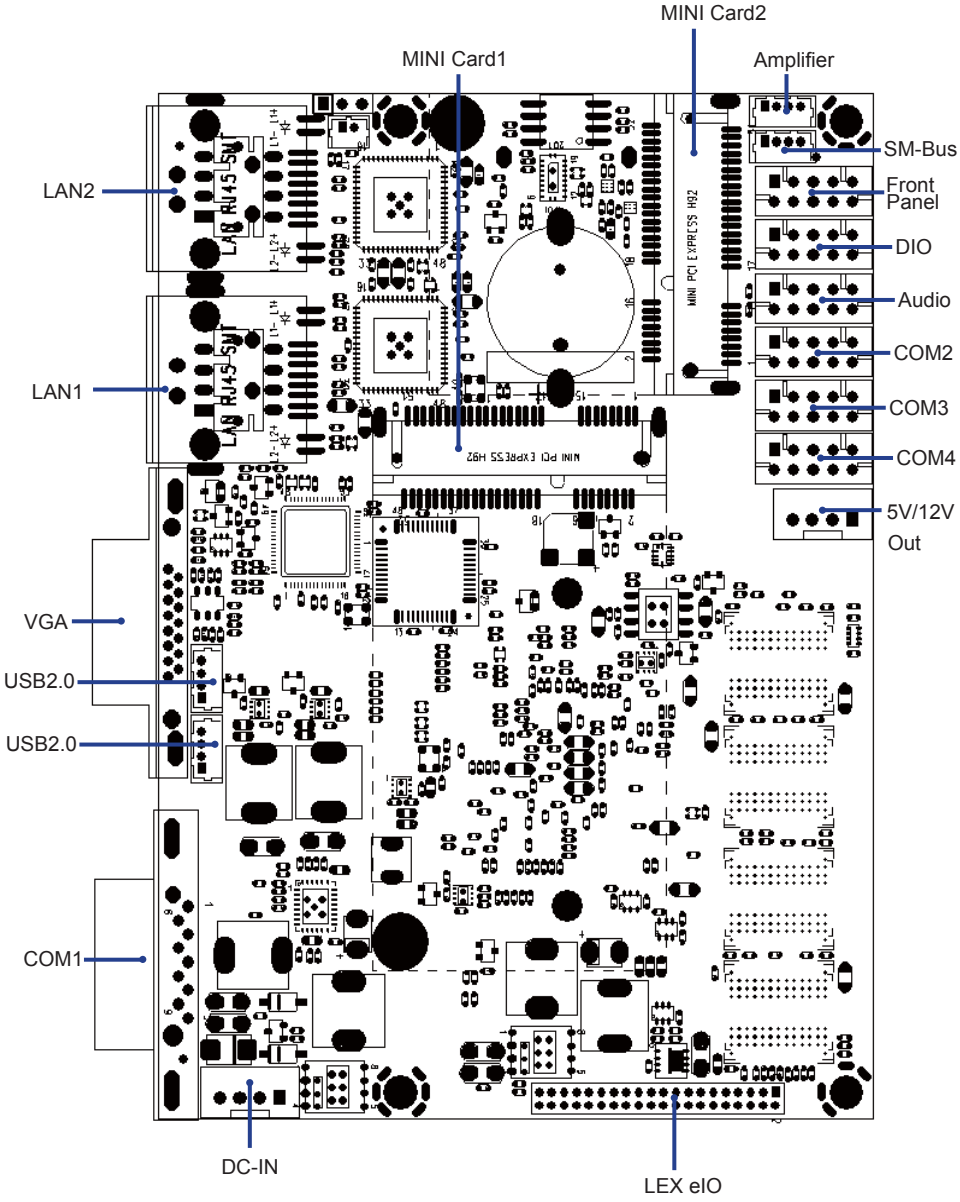
2-4-1 Layout-2I385EW-Connector and Jumper Bottom

BOT



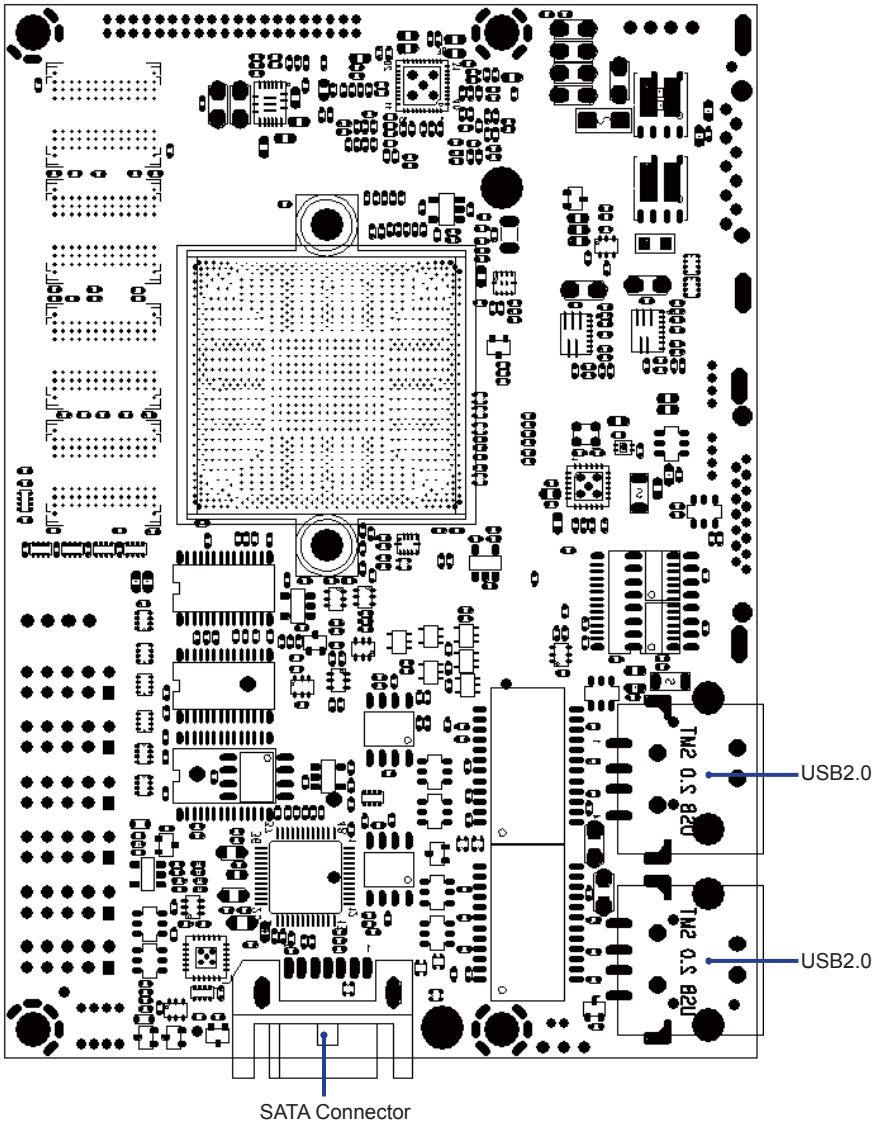
2-4-2 Layout-2I385EW-Function MAP

TOP



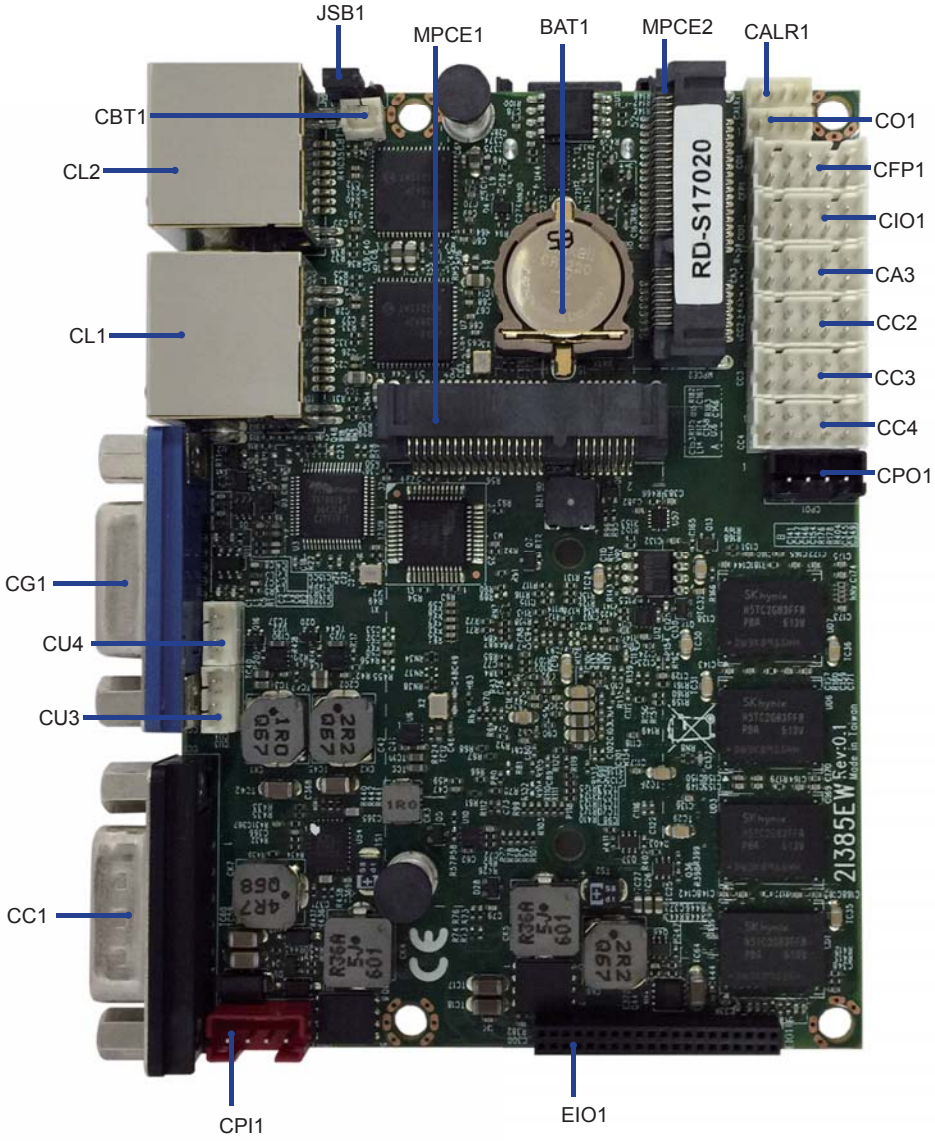
2-4-3 Layout-2I385EW-Function MAP Bottom

BOT



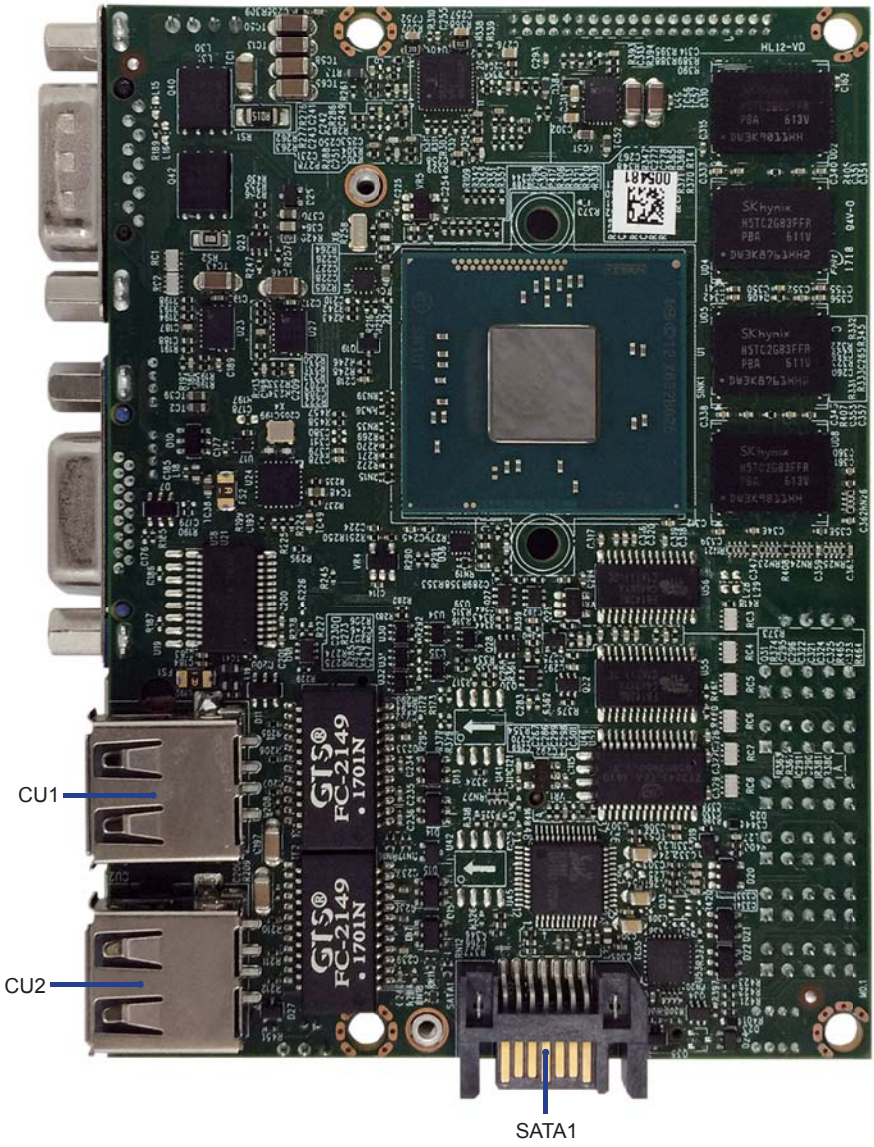
2-5 Diagram- 2I385EW

TOP

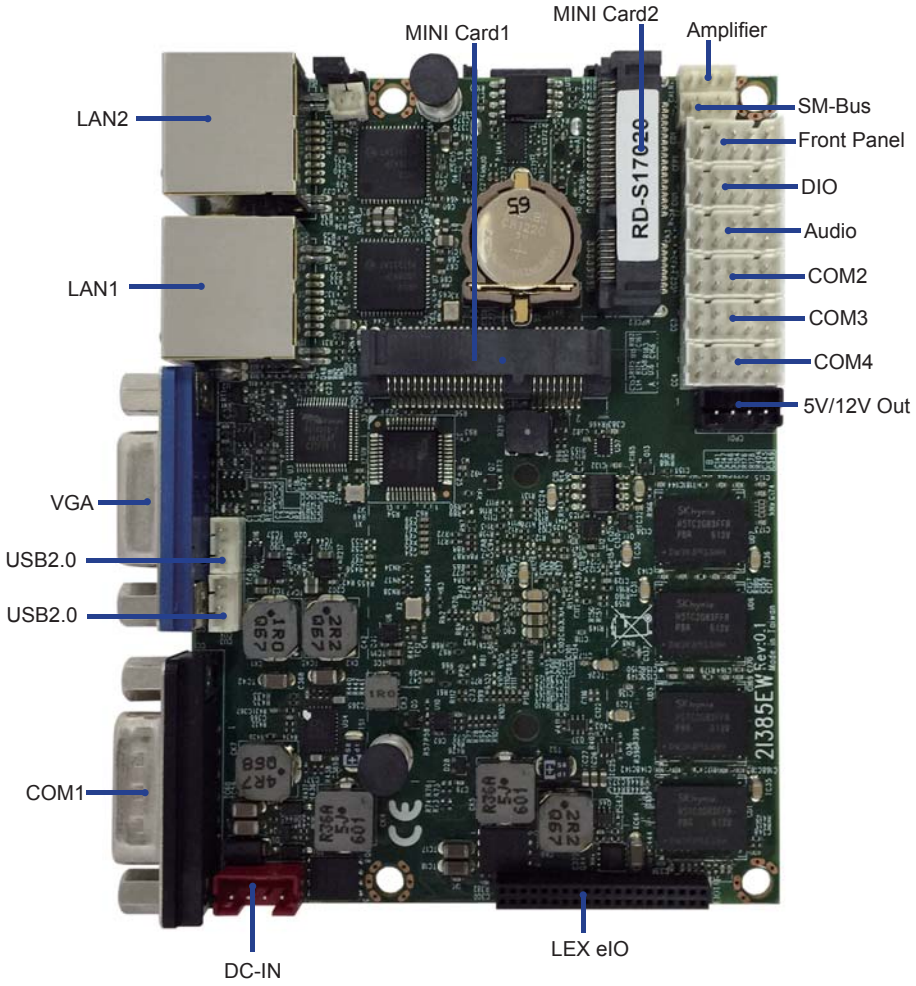


2-5-1 Diagram- 2I385EW

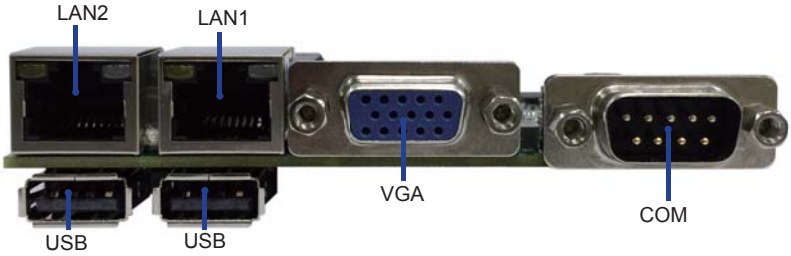
BOT



2-5-2 Function MAP- 2I385EW



BACK Panel



2-6 List of Jumpers

JSB1: CMOS DATA clear

2-7 Jumper Setting Description

A jumper is ON as a closed circuit with a plastic cap covering two pins. A jumper is OFF as an open circuit without the plastic cap. Some jumpers have three pins, labeled 1, 2, and 3. You could connect either pin 1 and 2 or 2 and 3.

The below figure 2.2 shows the examples of different jumper settings in this manual.

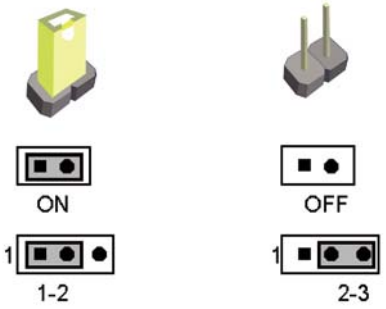


Figure 2.2

All jumpers already have its default setting with the plastic cap inserted as ON, or without the plastic cap as OFF. The default setting may be referred in this manual with a " * " symbol .

2-8 JSB1: CMOS DATA Clear

A battery must be used to retain the motherboard configuration in CMOS RAM.

Close Pin1 and pin 2 of JSB1 to store the CMOS data.

To clear the CMOS, follow the procedures below:

1. Turn off the system and unplug the AC power
2. Remove DC IN power cable from DC IN 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 IN power cable back to DC IN Power connector

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

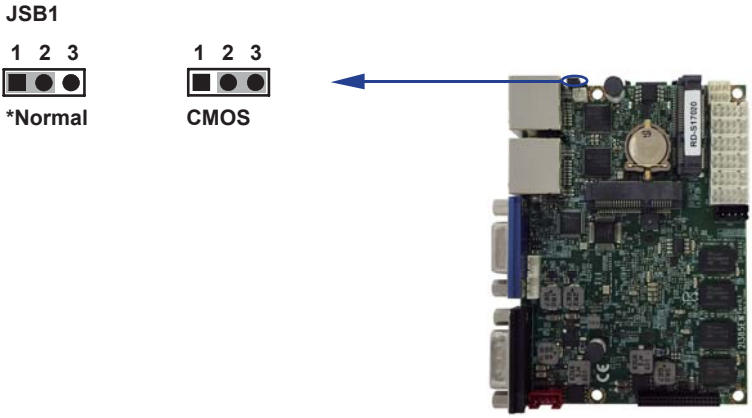
Note: Normal work is open jumper

Note: Do not clear CMOS unless

1. Troubleshooting

2. Forget password

3. You fail over-clocking system



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.

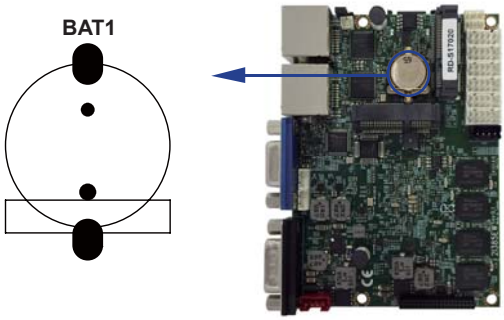
3-1 List of Connectors

BAT1:	Li 3V battery holder
CBT1:	Li 3V Battery 1x2pin (1.25mm) Wafer
CA3:	Line-out/Line-in/Mic-in/SPDIF-out 2x5 pin (2.0mm) Wafer
CALR1:	Amplifier Line-out Right/Left channel 4pin (1.25mm) wafer (option)
CC1 :	COM1 DB9 Connector
CC2 :	COM 2x5pin (2.0mm) wafer
CC3 :	COM 2x5pin (2.0mm) wafer
CC4 :	COM 2x5pin (2.0mm) wafer
CFP1:	Front Panel connector 2x5pin (2.0mm) wafer
CG1:	VGA DB15 Connector
CIO1:	DIO 2x5 pin (2.0mm) Wafer
CL1 :	LAN port 1 RJ45 Connector
CL2 :	LAN port 2 RJ45 Connector
CL11 :	LAN port 1 RJ45 2x4 pin (2.0mm) wafer(option)
CL21 :	LAN port 2 RJ45 2x4 pin (2.0mm) wafer(option)
CO1:	I2C Bus 4pin (1.25mm) Wafer
CPI1:	DC 12V-IN 1x4 pin (2.0mm) Red wafer connector
CPP1:	Panel inverter power connector 1x5 pin (2.0mm) wafer
CPO1:	+12V/+5V power output 4 pin (2.0mm) Black wafer connector
CU1:	USB2.0 Dual port Type A connector
CU2:	USB2.0 Dual port Type A connector
CU3:	USB 2.0 port 4pin (1.25mm) Wafer
CU4:	USB 2.0 port 4pin (1.25mm) Wafer
SATA1:	One SATA connector 7pin
MPCE1 :	Full size mini card port 1 sockets 52pin
MPCE2 :	Half size mini card port 2 sockets 52pin
EIO1:	eIO port 2x20 pin (1.27mm) Wafer

3-2 CMOS battery connector

- **BAT1: 3V Battery hold 2pin**
- **BAT1: Batter use Li 3V/40mA (CR1220)**

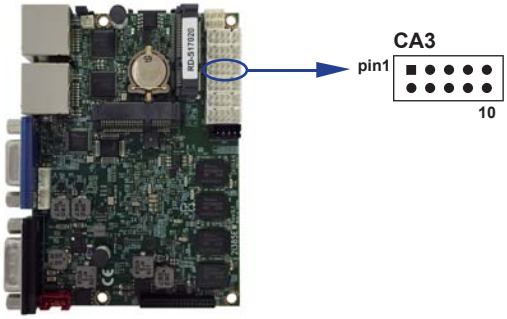
Note:
1.When board without Adaptor plug in, this board power RTC consumption 2.7uA
2.If adaptor always plug in RTC power consumption 0.1uA



3-3 Audio interface

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

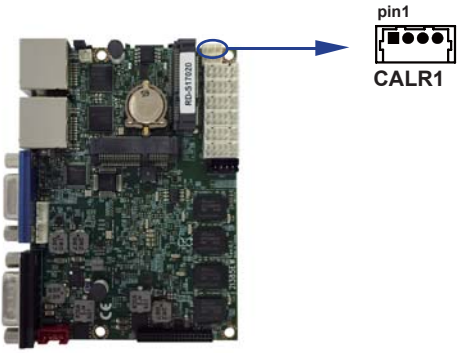
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Line-out-R	2	MIC-IN
3	Line-in-R	4	GND
5	GND	6	SPDIF-out
7	Line-in-L	8	+5V
9	Line-out-L	10	MIC-IN



3-4 Audio Amplifier (option)

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

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



3-5 COM interface

Note: The total pin9 RI can be modify to Power to supply device. The power voltage can be set +12V or +5V. The RI change Voltage function is OEM need change BOM. Default is RI signal.

● CC1 COM1 DB9 Connector (RS232 Mode)

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

Note: The pin9 RI can be modify to Power to supply device. The power voltage can be set +12V or +5V. The RI change Voltage function is OEM need change BOM. Default is RI signal.

- **CC1 COM1 DB9 Connector (RS485 Mode)**

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

Note: 1. Default BOM set to RS232 Mode
2. RS485 function for OEM BOM request

- **CC1 COM1 DB9 Connector (RS422 Mode)**

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

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

- **CC2 COM2 wafer connector (2x5pin 2.0mm) (RS232 Mode)**

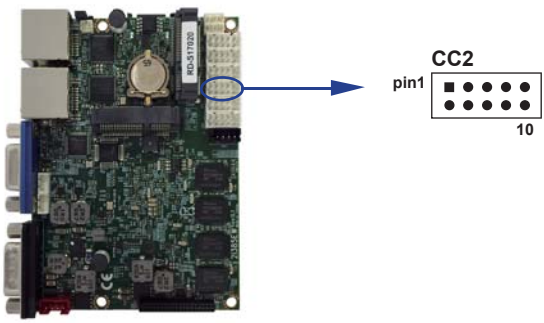
PIN NO.	Description	PIN NO.	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI/Voltage	10	+5V

Note: The pin9 RI can be modify to Power to supply device. The power voltage can be set +12V or +5V. The RI change Voltage function is OEM need change BOM. Default is RI signal.

- **CC2 COM2 wafer connector (2x5pin 2.0mm) (RS485 Mode)**

PIN NO.	Description	PIN NO.	Description
1	RS485 Data-	2	RS485 Data+
3	NC	4	NC
5	GND	6	NC
7	NC	8	NC
9	NC	10	+5V

Note: 1. CC2 connector RS485 function for OEM BOM request
2. BIOS need setting to RS485 mode



● **CC3/CC4 COM3, COM4 wafer connector (2x5pin 2.0mm) (RS232 Mode)**

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

Note: The pin9 RI can be modify to Power to supply device. The power voltage can be set +12V or +5V. The RI change Voltage function is OEM need change BOM. Default is RI signal.

● **CC3/CC4 COM3, COM4 wafer connector (2x5pin 2.0mm) (RS485 Mode)**

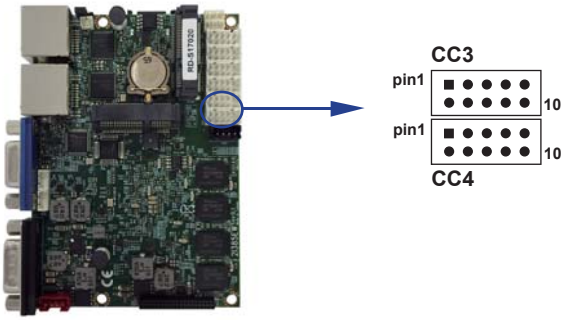
PIN NO.	Description	PIN NO.	Description
1	RS485 Data-	2	RS485 Data+
3	NC	4	NC
5	GND	6	NC
7	NC	8	NC
9	NC	10	+5V

Note: 1. BIOS need setting to RS485 mode.

● **CC3/CC4 COM3, COM4 wafer connector (2x5pin 2.0mm) (RS422 Mode)**

PIN NO.	Description	PIN NO.	Description
1	RS422 TX-	2	RS422 TX+
3	RS422 RX+	4	RS422 RX-
5	GND	6	NC
7	NC	8	NC
9	NC	10	+5V

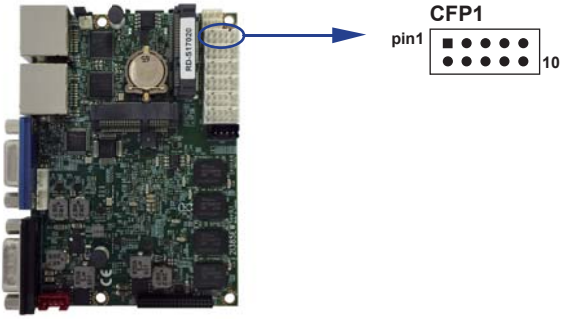
Note : 1. BIOS need setting to RS422 mode.



3-6 Front Panel Pin Header

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

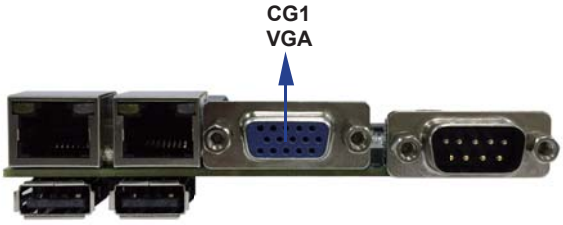
PIN NO.	Description	PIN NO.	Description
1	Power button pin	2	Power button GND
3	Reset pin	4	Reset GND
5	Power LED-	6	Power LED+
7	HDD LED-	8	HDD LED+
9	LAN LED-	10	LAN LED+



3-7 VGA Display interface

• CG1: VGA Connector (DB15 pin)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDC DATA
3	BLUE	8	GND	13	H-SYNC
4	NC	9	NC	14	V-SYNC
5	GND	10	GND	15	DDC CLOCK

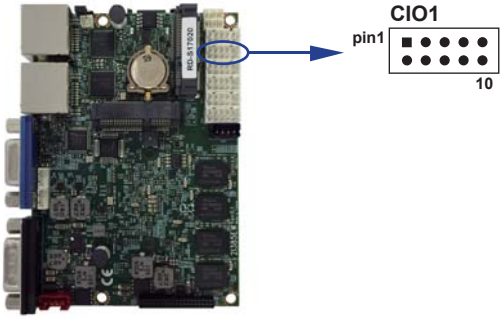


3-8 Digital Input / Output / Watch Dog Time

- 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 I²C bus address 0x9c



- **WDT For F75111N I²C watch dog timer device:**

DC spec :
Input low Voltage (VIL):+0.8 Max ,
Input High Voltage(VIH) : +2V Min
Output low Current (IOL):10mA (Min) VOL=0.4V
Output High Current (IOH):-10mA (Min) VOH=2.4V
Watch Dog Time value 0~255 sec
The system will be issued reset. When WDT is enable the hardware start down counter to zero.
The reset timer have 10~20% tolerance upon the Temperature.
Note: If want to SDK support. Please contact to sales window.

Please refer to page 30 for APPENDIX C: F75111N I²C DIO DECICE

3-8-1 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

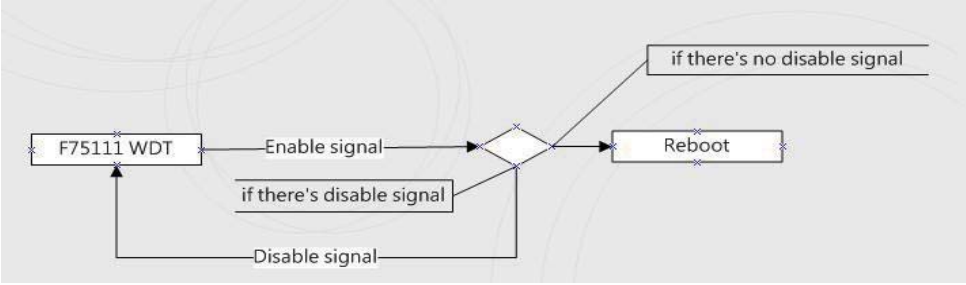
How to use this Demo Application

1.Boot Ms-Dos Operating System

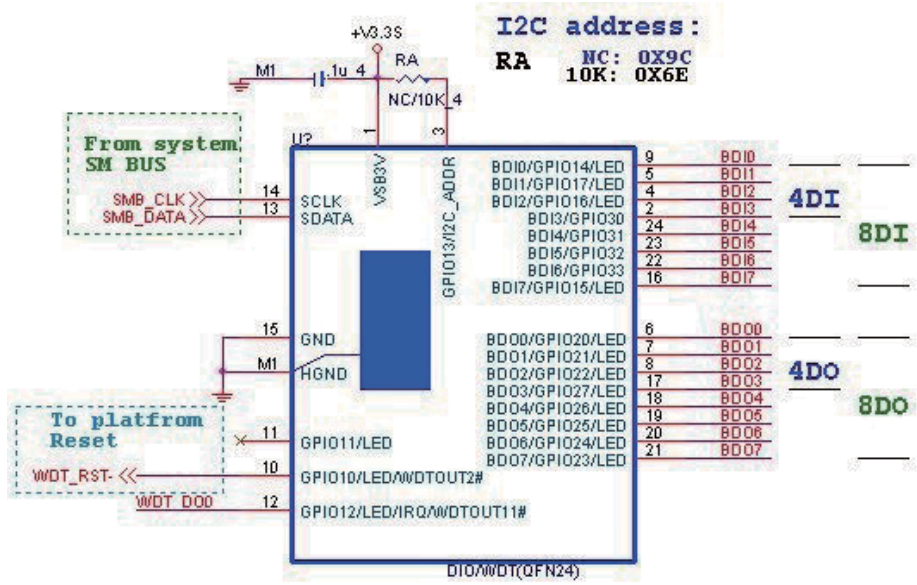
2.execute "75WDT.EXE" binary file

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;
  }
```

3-8-2 IO Device: F75111 under Windows

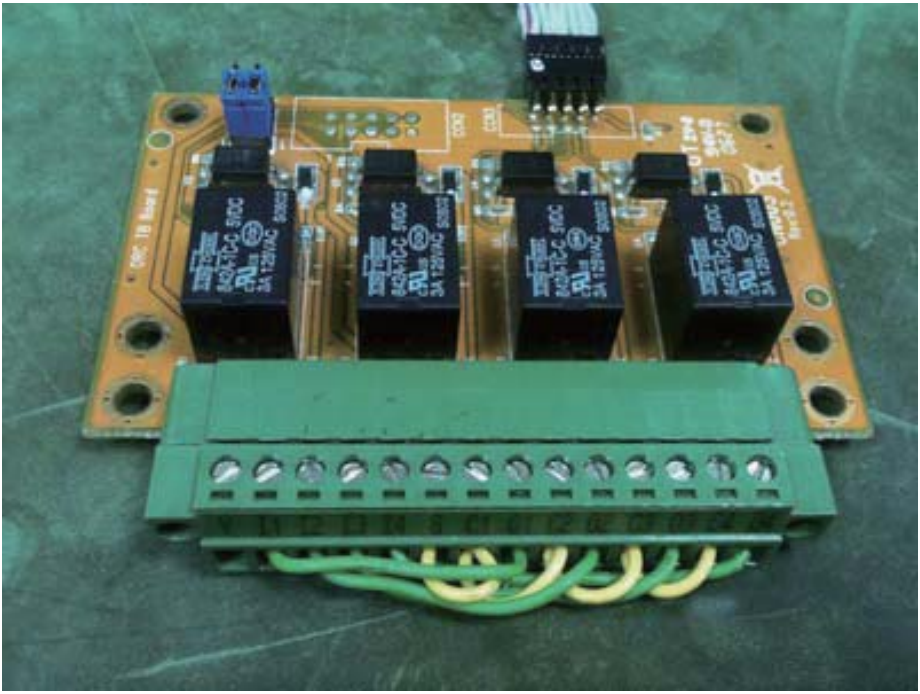
The Sample code source you can download from

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

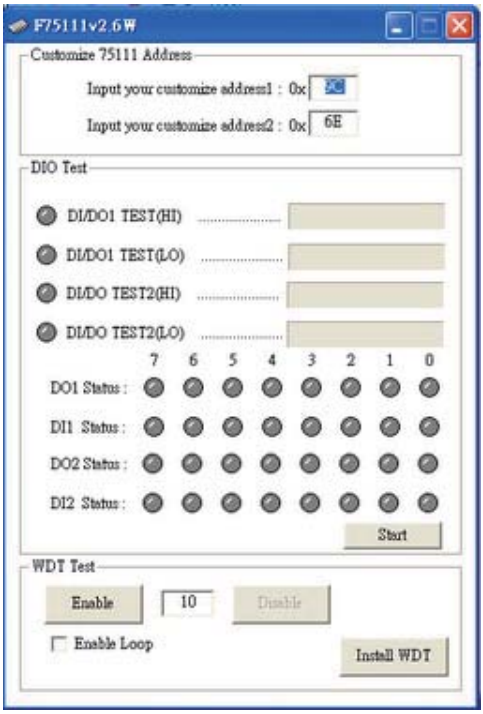
We do the demo test with a test tool which DIx connect to DOx with Relay.



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

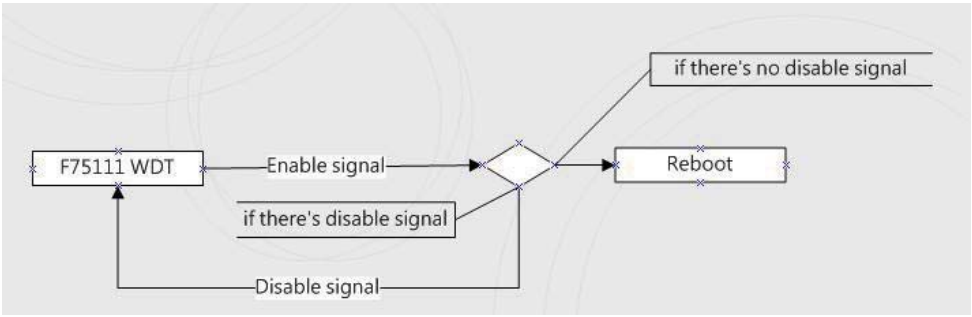
2. Press the "Enable" button to test WDT function

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** 



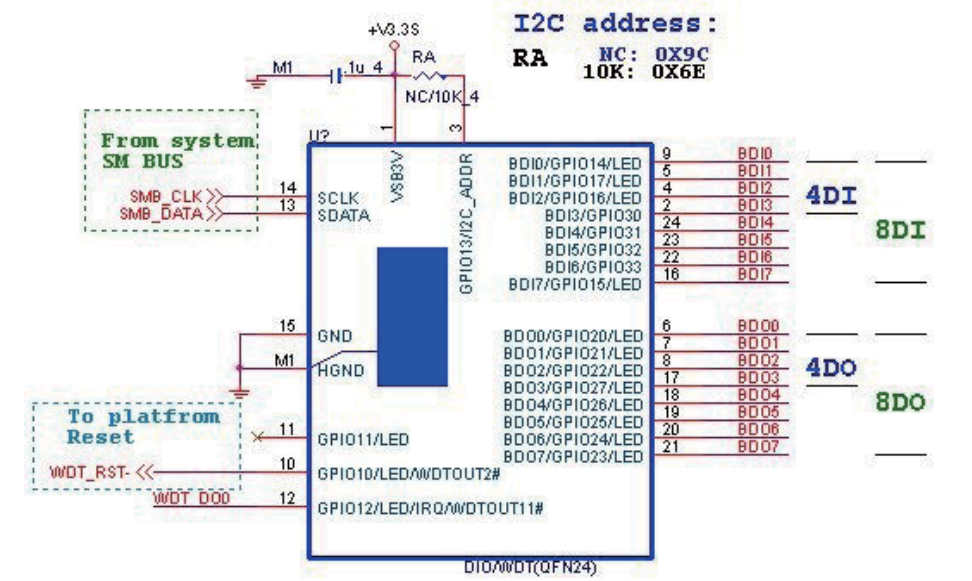
p.s.

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.
```

3-8-3 IO Device: F75111 VB6 under Windows

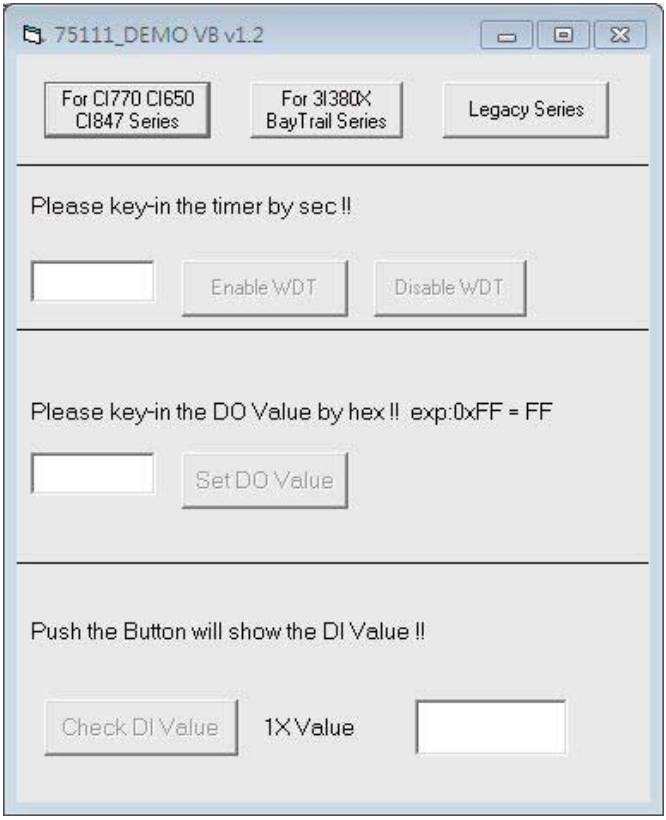
The Sample code source you can download from

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

Binary file: 75111_VB_Src1.2.rar

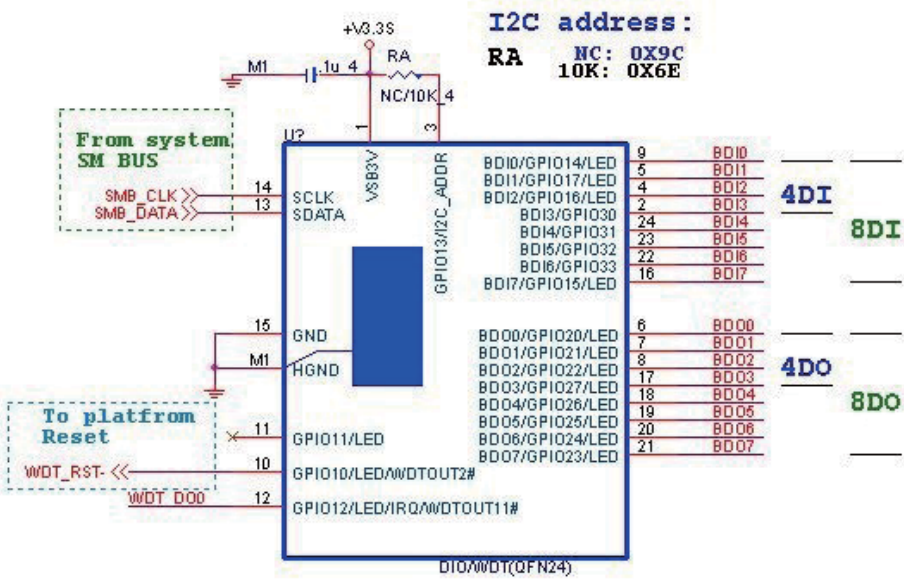
USERNAME & PASSWORD: sf

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
```

3-8-4 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

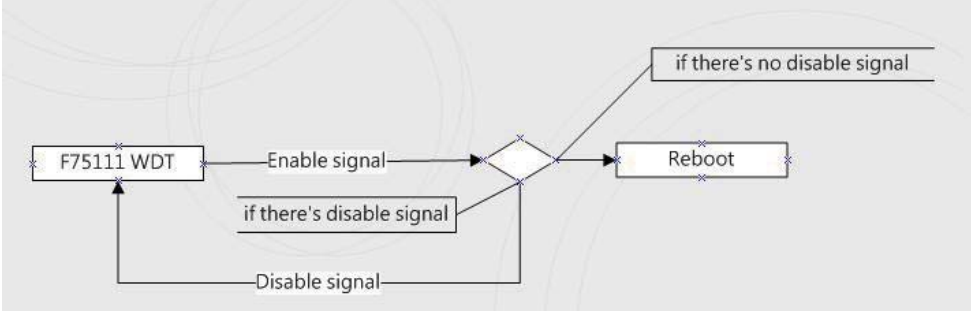
(add an option 'pkg-config --libs gtk+-2.0 gthread-2.0' in "Project->Build Option->Linker Setting->Other linker option")

2. Compile source code with "make"

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

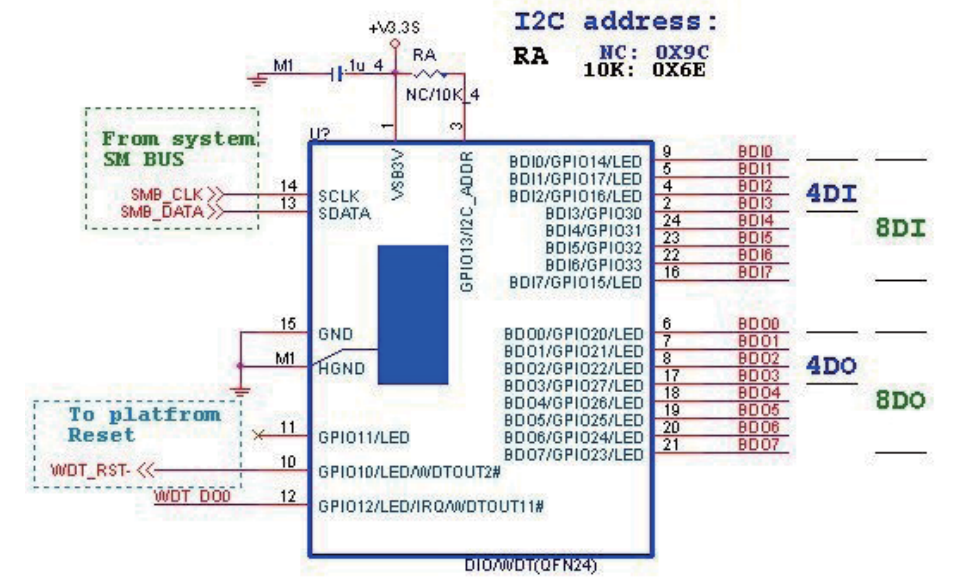
How to use this Demo Application

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 (second 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   ();
```

3-9 LAN Interface

● CL1/CL2: RJ45 LAN port Giga/100Mb (RJ45 Jack)

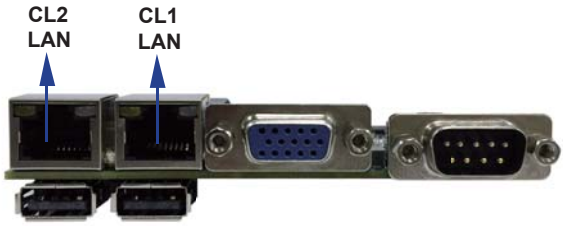
PIN NO.	Description	PIN NO.	Description
1	TR0-/TX+	5	TR2-/NC
2	TR0+/TX-	6	TR2+/RX-
3	TR1-/RX+	7	TR3-/NC
4	TR1+/NC	8	TR3+/NC

● CL11/CL21: LAN port Giga/100Mb 2x5pin (2.0mm) wafer (option)

PIN NO.	Description	PIN NO.	Description
1	TR0-/TX+	2	TR0+/TX-
3	TR2+/NC	4	TR1+/RX-
5	TR1-/RX+	6	TR2-/NC
7	TR3-/NC	8	TR3+/NC

● RJ45 LAN Connector---LED define Giga/100/10MB Connector

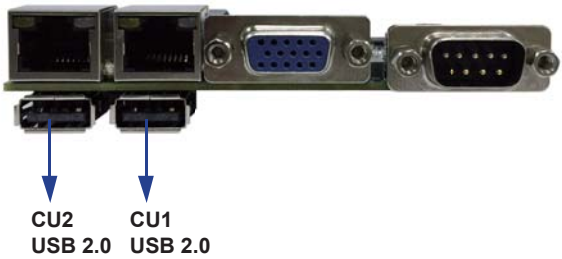
SPEED		10 Mbps			100 Mbps			1000 Mbps		
Indicate	Side	Back		Front	Back		Front	Back		Front
	LED	Link	ACT	ACT	Link	ACT	ACT	Link	ACT	ACT
LAN Light			Orange	Orange	Green	Orange	Orange	Red	Orange	Orange



3-10 USB Interface

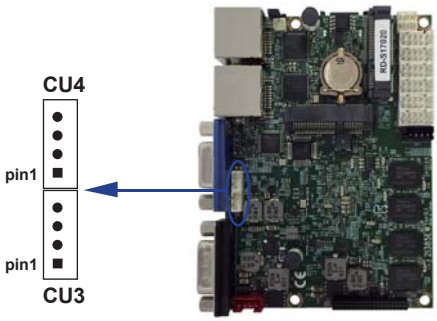
- **CU1/CU2: USB2.0 Port Type A**

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



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

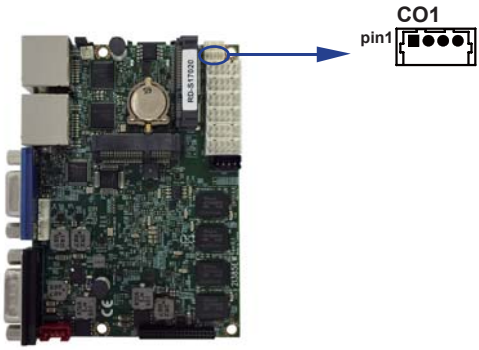
PIN NO.	Description
1	+5V
2	DATA -
3	DATA +
4	GND



3-11 I²C Bus Interface

● CO1: I²C Bus 4pin (1.25mm) Wafer

PIN NO.	Description
1	+3.3V
2	GND
3	I²C Clock
4	I²C DATA

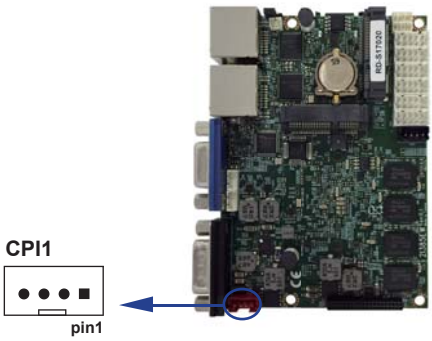


3-12 DC Power Input

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

PIN NO.	Description
2,3	DC-IN (12V)
1,4	GND

Note: 1.Very important check DC-in Voltage type for 12V or 9~36V model spec

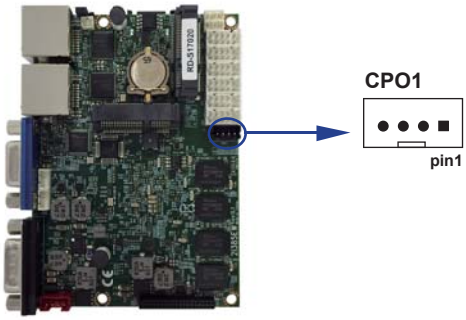


3-13 DC +12V/+5 Voltage Power Output (4pin 2.0mm Wafer) (Black)

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

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

* Note: Attention! Check Device Power in spec

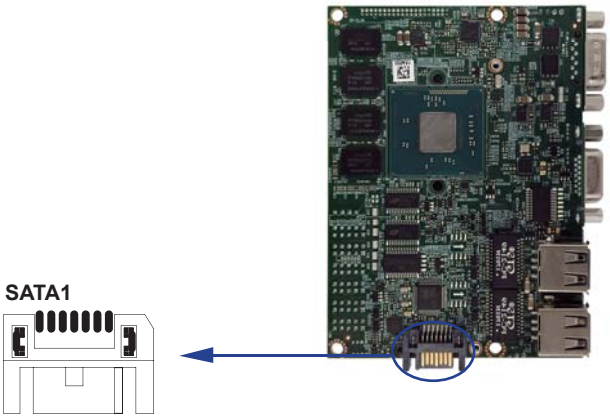


3-14 SATA Interface

- **SATA1: SATA Port 1x7pin connector**

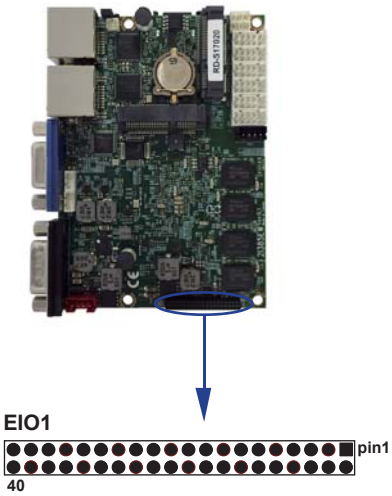
PIN NO.	Description
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

Note: 1. SATA1 support SATA 2.0 spec update 3Gb/sec.
2. CPO1 provide SATA HDD power +12V, GND, +5V
3. The SATA signal share with mSATA of MPCE1, but just one can be worked in same time.



3-15 LEX eIO connector.

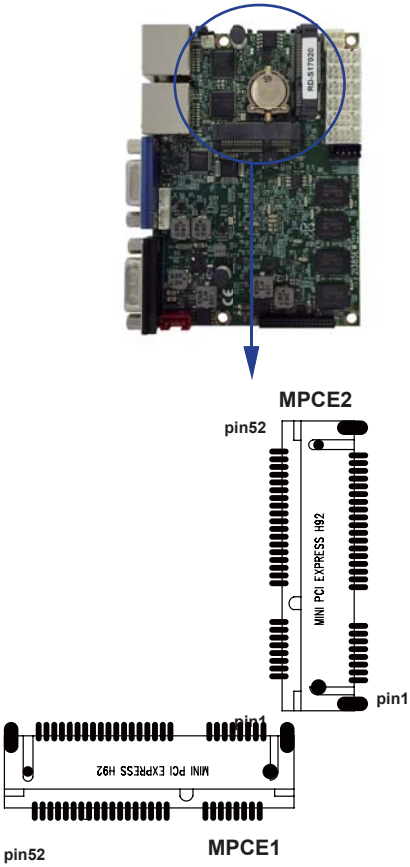
PIN	Description	PIN	Description
1	+12V	2	+12V
3	GND	4	RESET
5	PCIe_TX0_P	6	RESERVED
7	PCIe_TX0_N	8	GND
9	GND	10	PCIe_P0_RX_N
11	PCIe_CLK0_P	12	PCIe_P0_RX_P
13	PCIe_CLK_0_N	14	GND
15	GND	16	PCIe_P1_RX_N
17	PCIe_TX1_P	18	PCIe_P1_RX_P
19	PCIe_TX1_N	20	GND
21	GND	22	RESERVED
23	PCIe_CLK1_P	24	RESERVED
25	PCIe_CLK1_N	26	GND
27	GND	28	SMB_CLK
29	USB_P	30	SMB_DATA
31	USB_N	32	GND
33	GND	34	SLP_S3_N
35	+12V	36	RESERVED
37	+12V	38	GND
39	+12V	40	+12V



3-16 PCI Express Mini card

- **MPCE1/MPCE2: Support USB and PCIe by one Interface (Mini card socket 52pin)**
  MPCE1: Full size mini card
  MPCE2: Half size mini card

PIN NO.	Description	PIN NO.	Description
1	NC	2	+3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	NC	8	NC
9	GND	10	NC
11	PCIe-CLK-	12	NC
13	PCIe-CLK+	14	NC
15	GND	16	NC
KEY			
17	NC	18	GND
19	NC	20	NC
21	GND	22	Reset
23	PCIe-RX-/mSATA-RX+	24	+3.3V
25	PCIe-RX+/mSATA-RX-	26	GND
27	GND	28	+1.5V
29	GND	30	SMB-CLK
31	PCIe-TX-/mSATA-TX-	32	SMB-DATA
33	PCIe-TX+/mSATA-TX+	34	GND
35	GND	36	USB-DATA-
37	GND	38	USB-DATA+
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	mSATA/PCIe detect	52	+3.3V



Note:
1. MPCE1 Pin51 mSATA/PCIe auto detect function, The mSATA signal share with SATA of SATA1, but just one can be worked in same time.
2. MPCE1 can select to PCIe signal (BOM control), the PCIe signal default support EIO1.
3. MPCE2 can select to PCIe signal (BOM control), the PCIe signal default support EIO1.

3-17 Connector wafer of Compatible Brand and part number list

Location	CKTS	PITCH	Brand Name	Mating connector	Cable housing
CA3	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CALR1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CC2	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CC3	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CC4	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CFP1	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CIO1	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CL11	2x4 8Pin	2.0mm	JST	B8B-PHDSS	PHDR-08VS
CL21	2x4 8Pin	2.0mm	JST	B8B-PHDSS	PHDR-08VS
CO1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CPI1	1x4 4Pin	2.0mm	JST	B4B-PH-KL	PHR-4
CPP1	1x5 5Pin	2.0mm	JST	B5B-PH-KL	PHR-5
CPO1	1x4 4Pin	2.0mm	JST	B4B-PH-KL	PHR-4
CU3	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU4	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
EIO1	2x20 40Pin	1.27mm			

Chapter-4

Introduction of BIOS

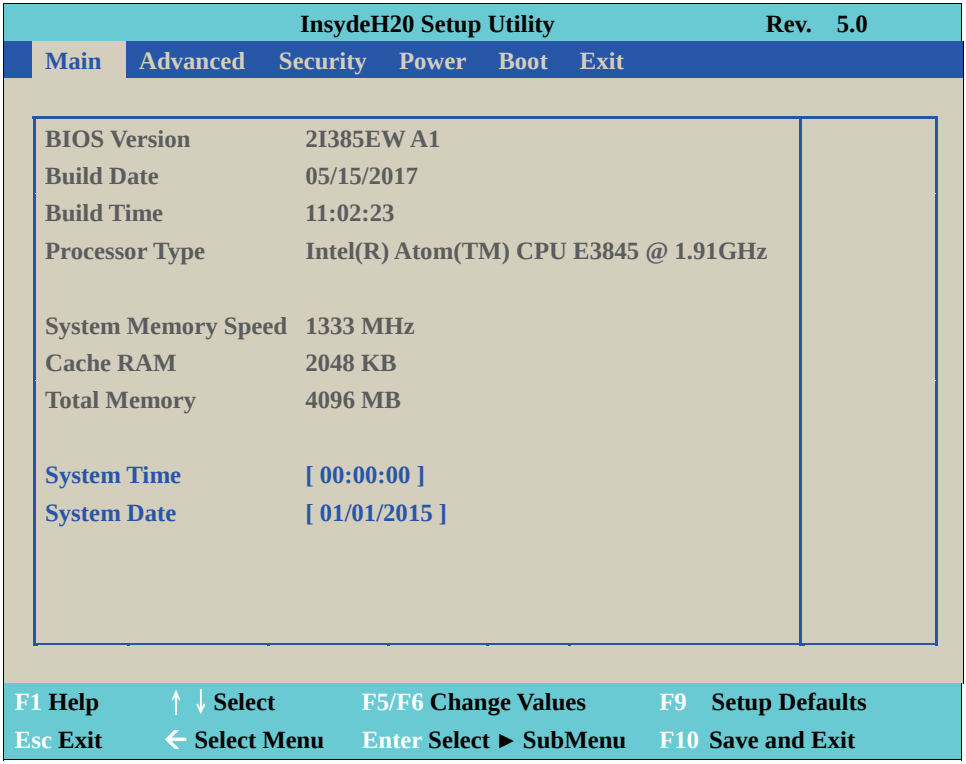
The BIOS is a program located in the Flash Memory on the motherboard.
This program is a bridge between motherboard and operating system.
When you start the computer, the BIOS program gains control.
The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary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

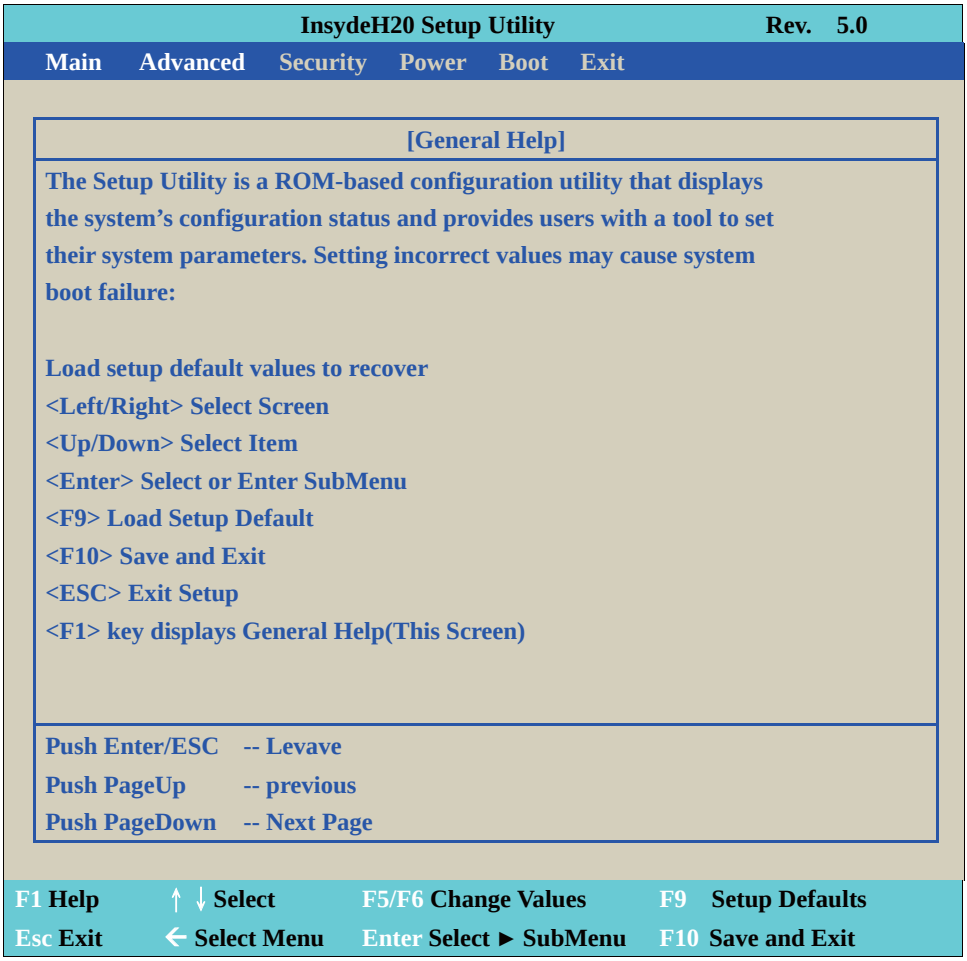
4-2 BIOS Menu Screen & Function Keys



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 <+>/<–> or <F5>/<F6> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F9]: Optimized defaults.
- [F10]: Save & Exit.
- Press <Esc> to quit the BIOS Setup.

4-3 Getting Help



Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a 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

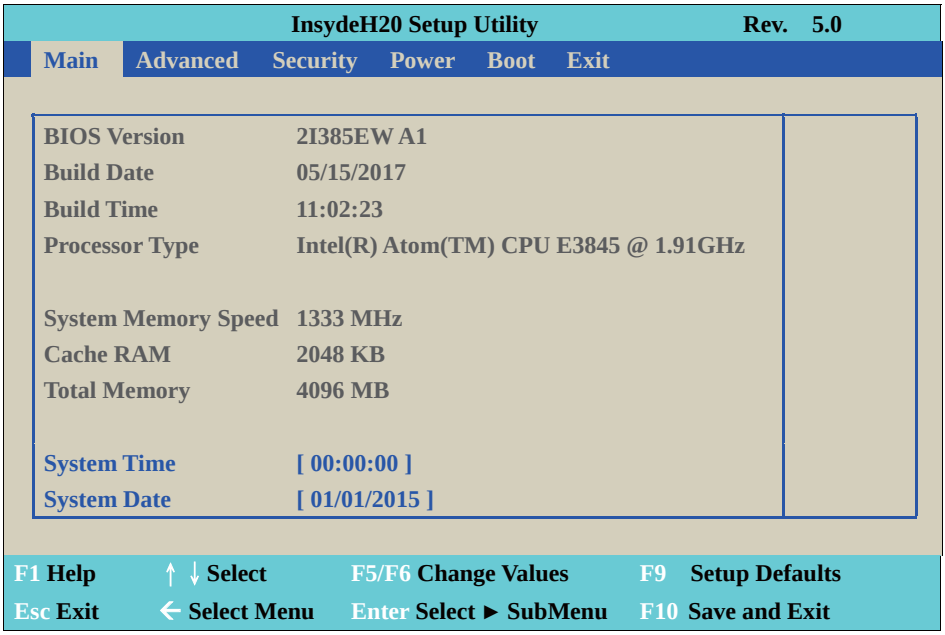
Power PME & Power button settings

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.

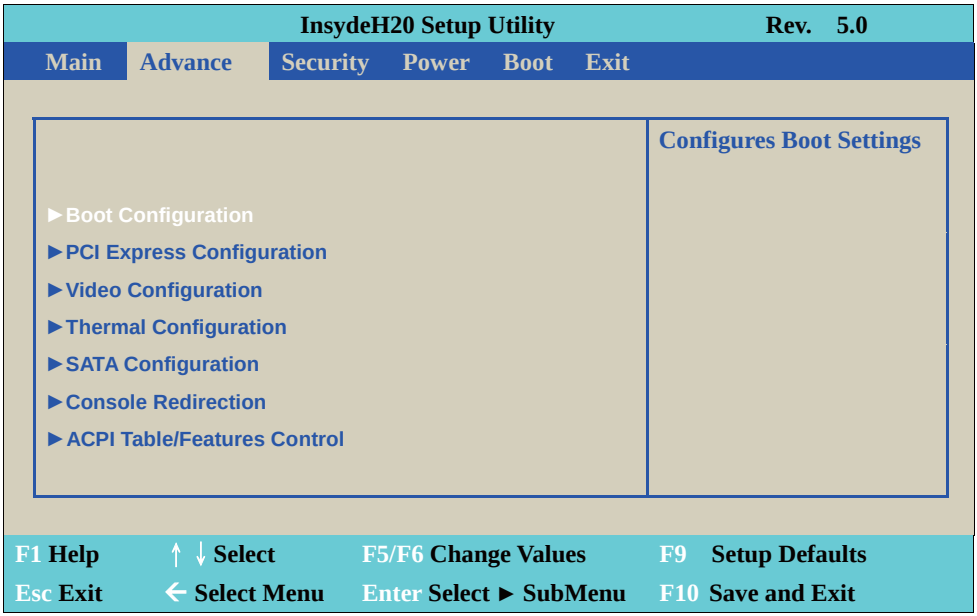
System Date

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

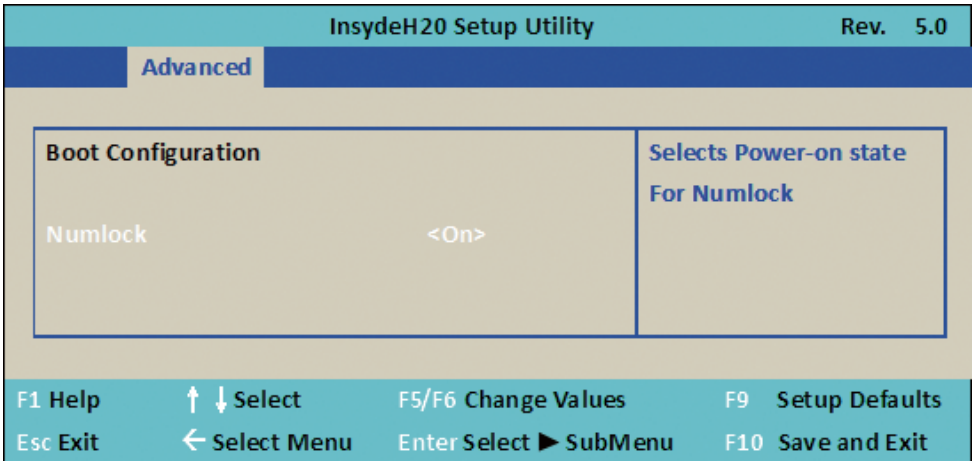
Thermal Configuration
Please refer section 4-6-4

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

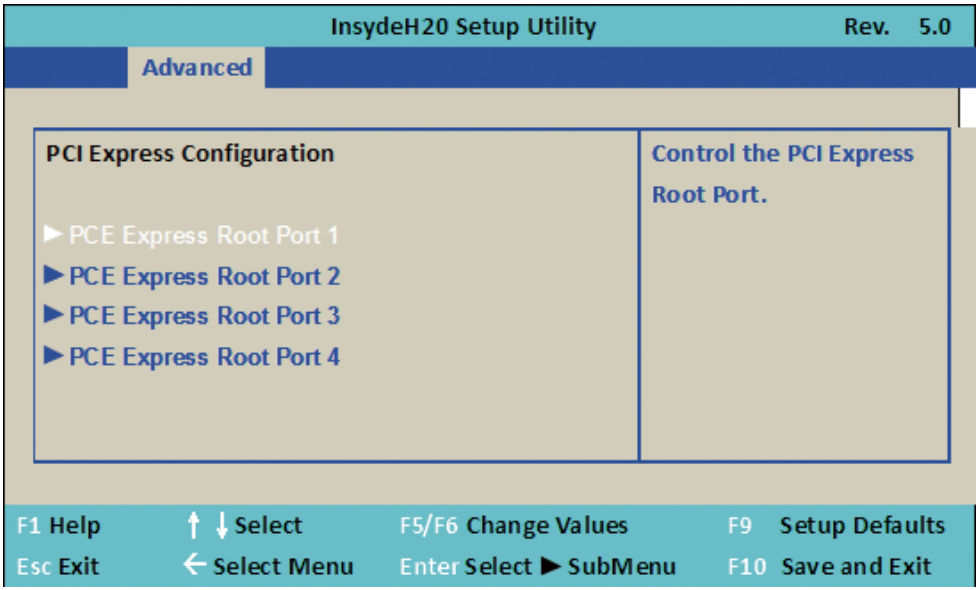
4-6-1 Boot Configuration



Numlock

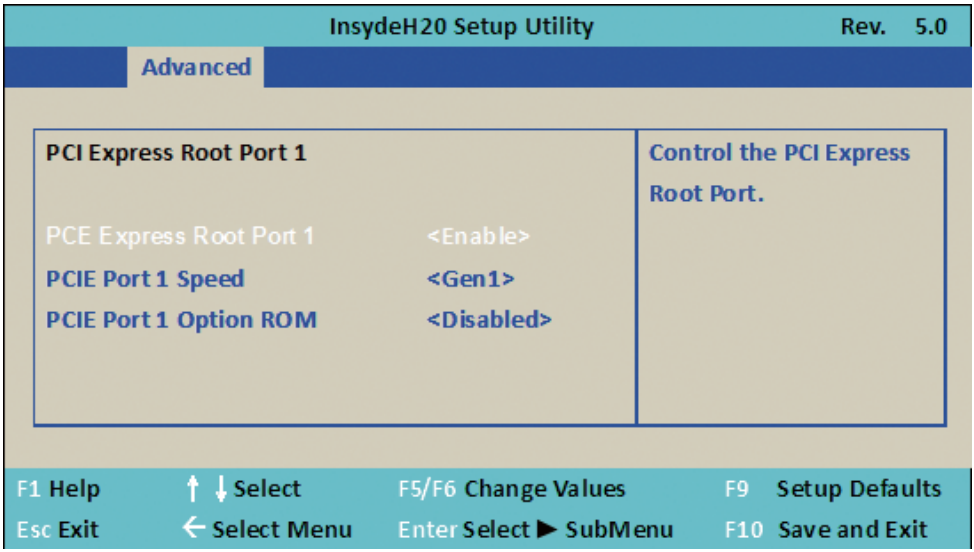
Select Power-on state for Numlock, default is <ON>

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.

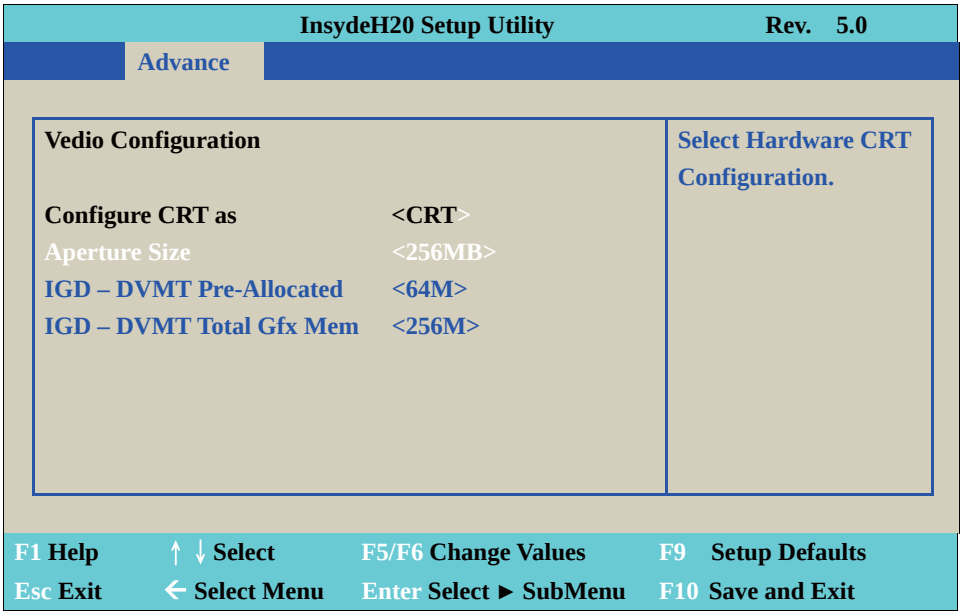
Select PCI Express port speed.

The optional settings are: Gen1(default), Gen2

Select PCIE TXE ROM support

The optional settings are: Disabled(default), Enabled

4-6-3 Video Configuration



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.

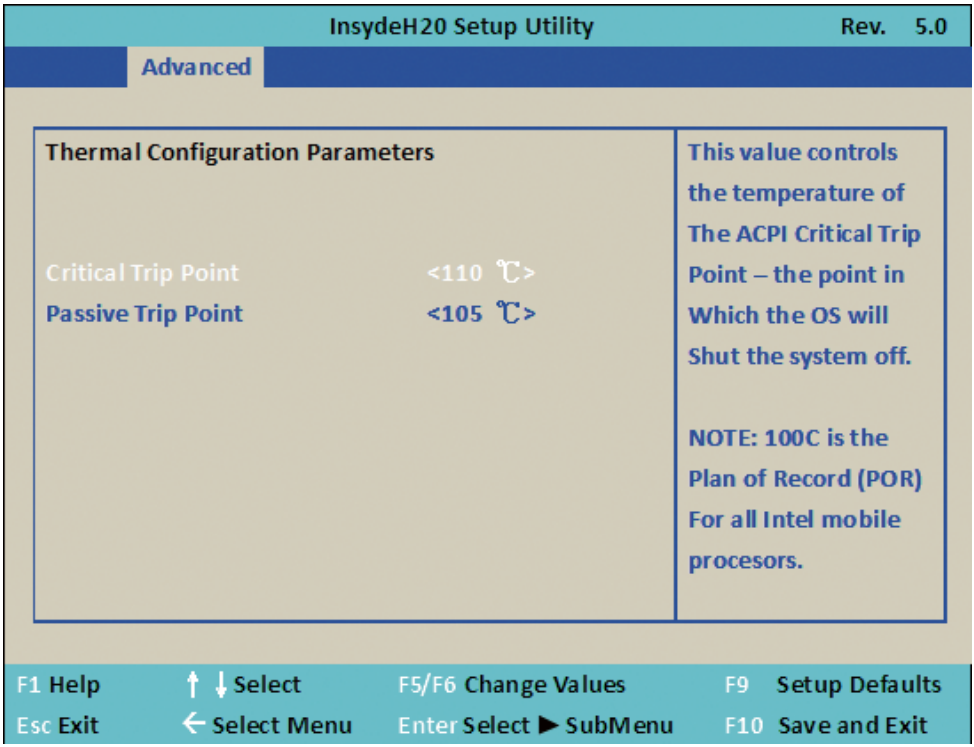
The optional settings are: 64(default)/96/128/160/192/224/256/288/320/352/384/416/448/480/512MB

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

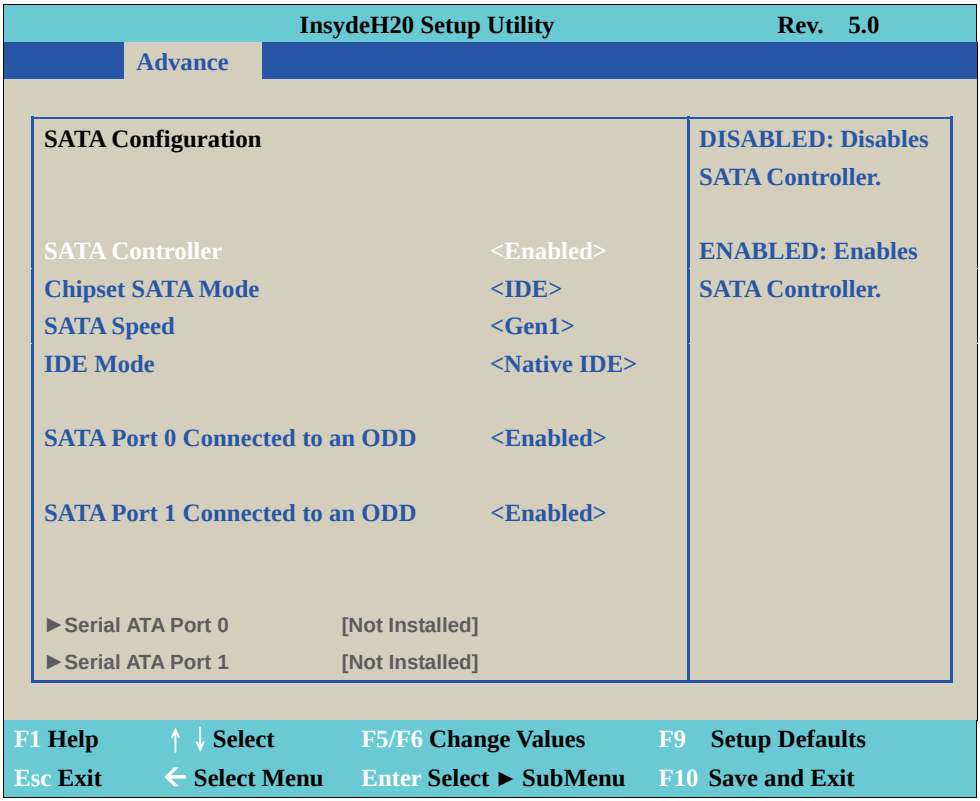
This Value controls the temperature of the ACPI Critical Trip Point, the point in which the OS will shutdown the system.

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

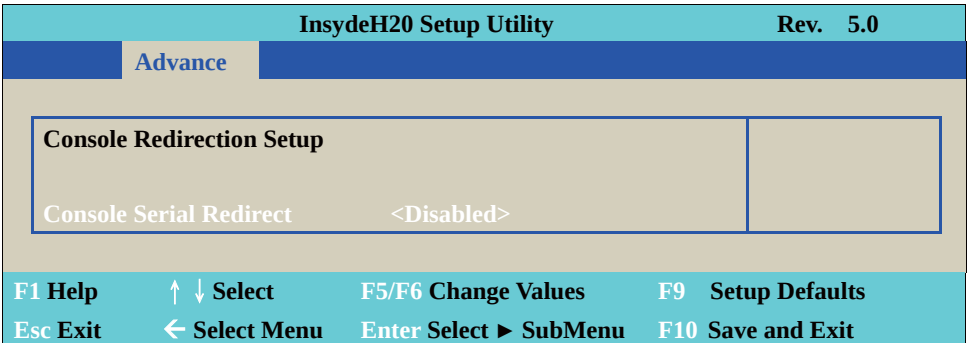
Legacy IDE or Native IDE MODE,

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

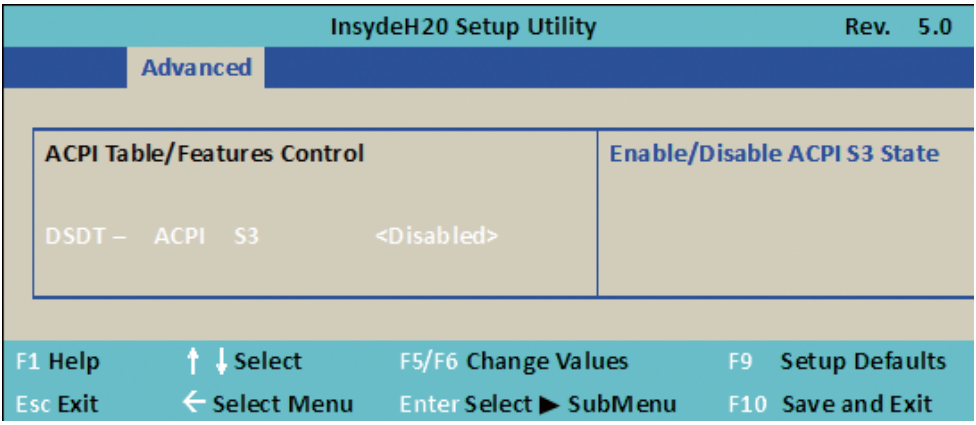
SATA Port 1 Connected to an ODD
Use this item to Enable or Disable SATA Port1 ODD function
The optional settings are: Enabled(default) or Disable

4-6-6Console Redirection



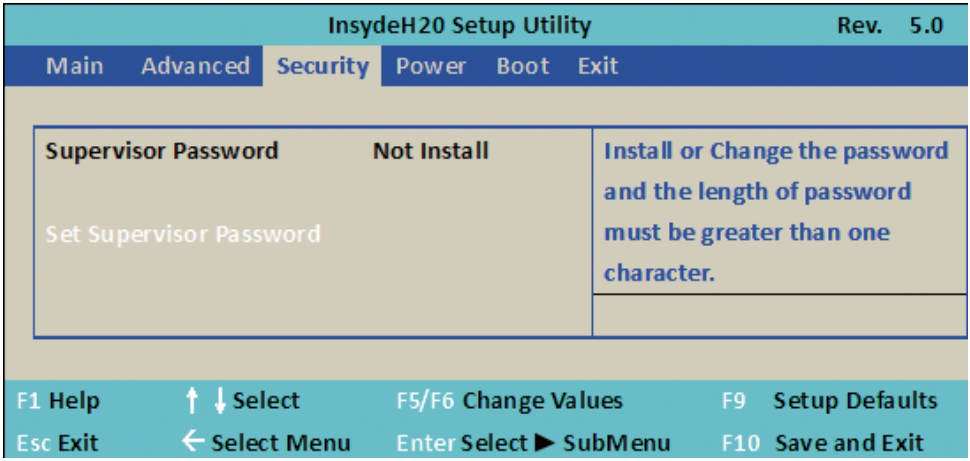
Console Serial Redirect
Use this item to enable or disable Console Redirection.
The optional settings are: Enabled, Disabled(default).

4-6-7 ACPI Table/Features Control



ACPI Table/Features Control
Select ACPI sleep state the system will enter when the SUSPEND button is pressed.
The optional settings: DSDT - ACPI S3 (Suspend to RAM), Enabled or Disabled(default)

4-7 Security

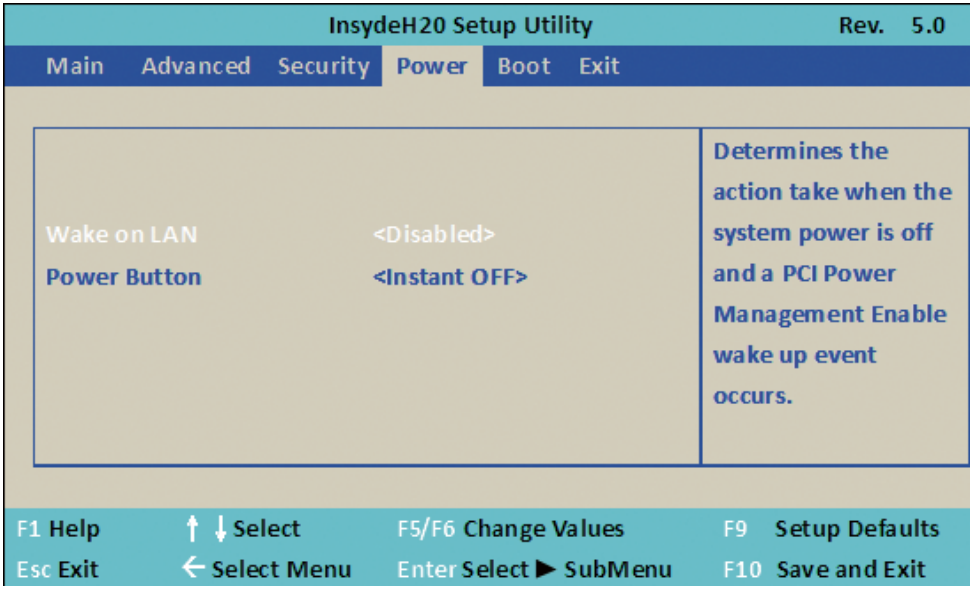


Supervisor Password

To set up an Supervisor password

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

4-8 Power



Wake on LAN

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

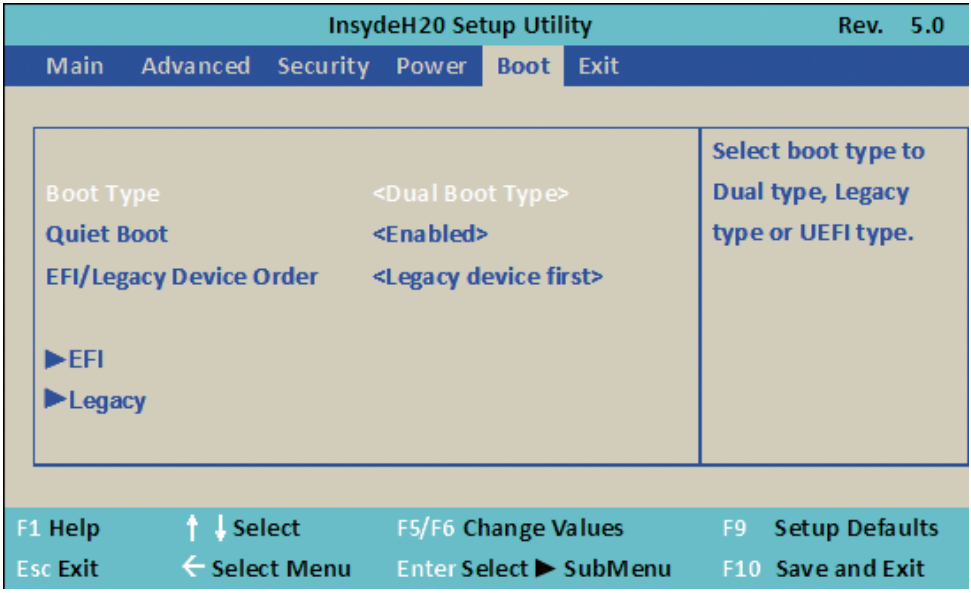
The optional settings: Enabled, Disabled(default)

Power Button

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

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

4-9 Boot



Boot type

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

Quiet Boot

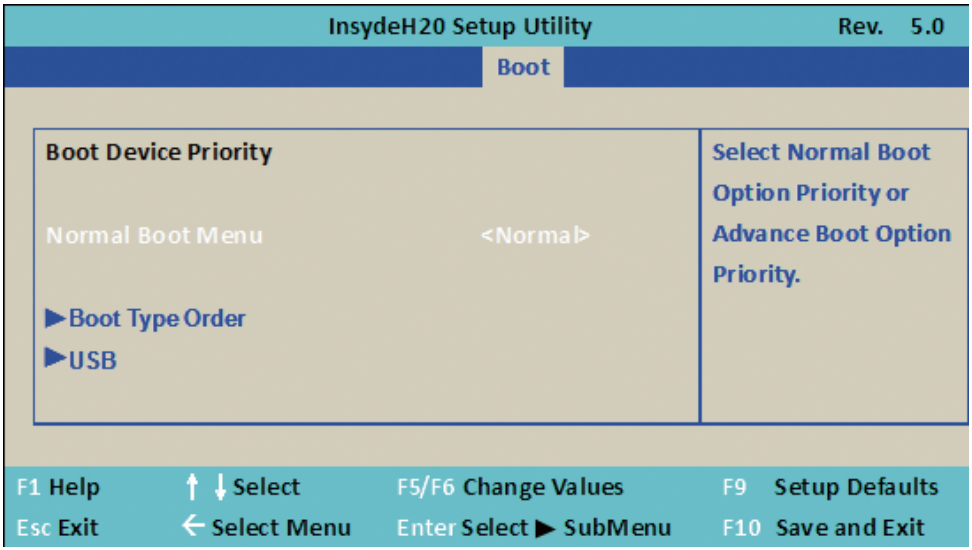
The optional settings are: Enabled(default), Disabled.

EFI/Legacy Device order

Determine EFI device first or legacy device first.

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

4-9-1 Legacy

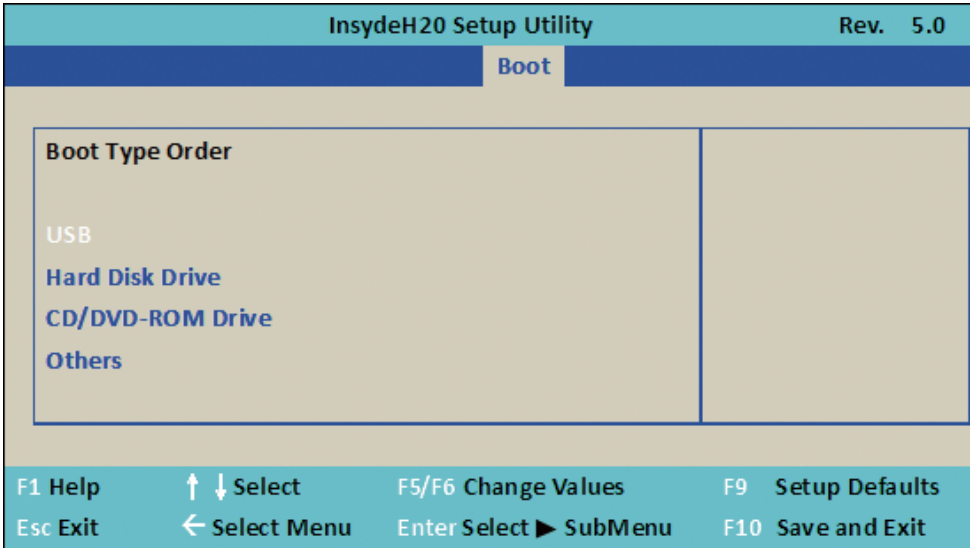


Normal Boot Menu

Select Normal Boot option priority or Advance Boot option priority.

The optional settings: Normal(default), Advance

4-9-2 Boot Type Order

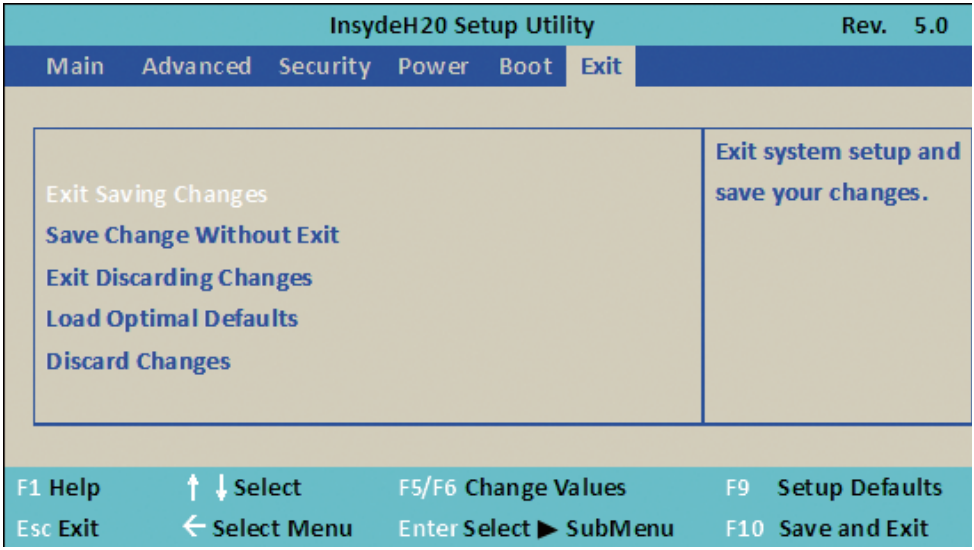


Boot Type Order

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

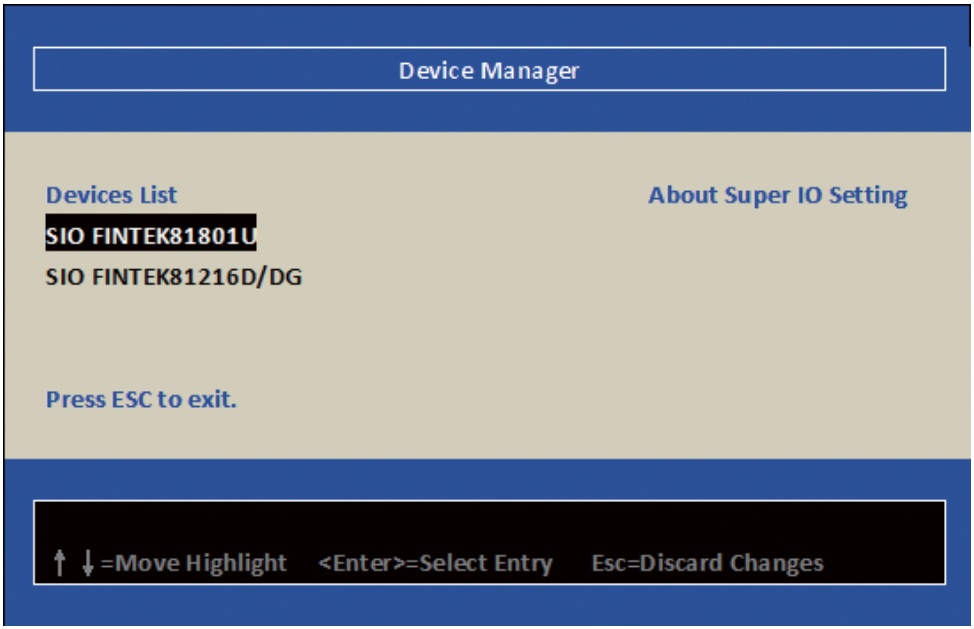
Use this item to restore the optimal default for all the setup options.

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



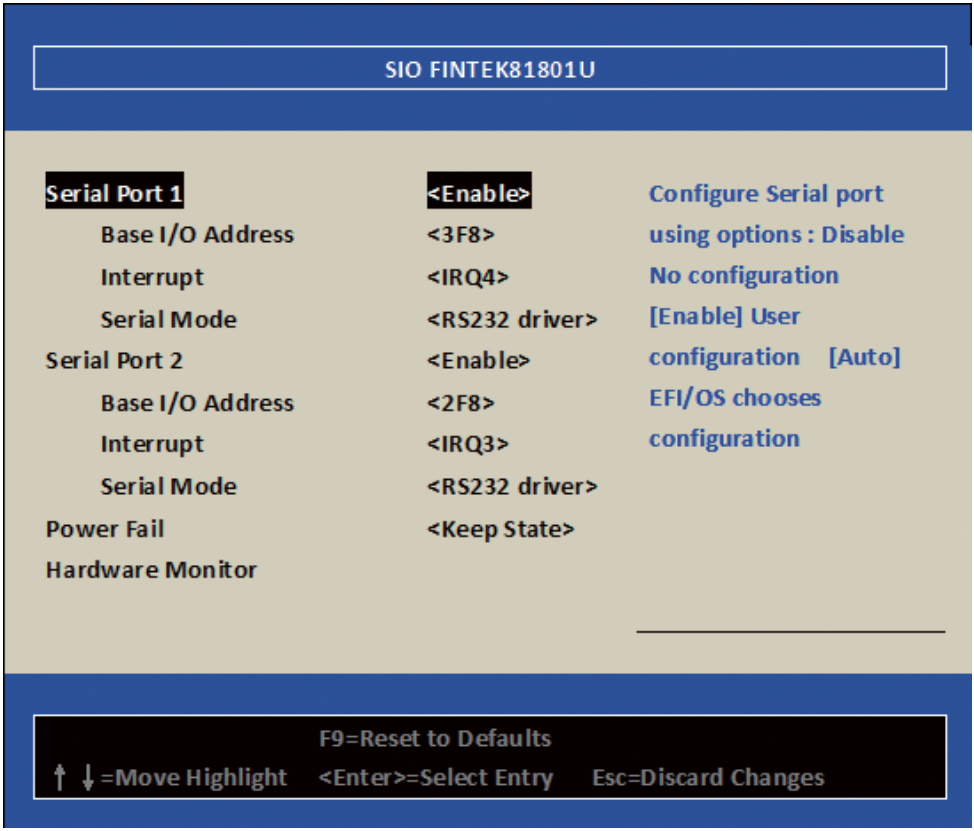
Serial Port 1/2 Configuration

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

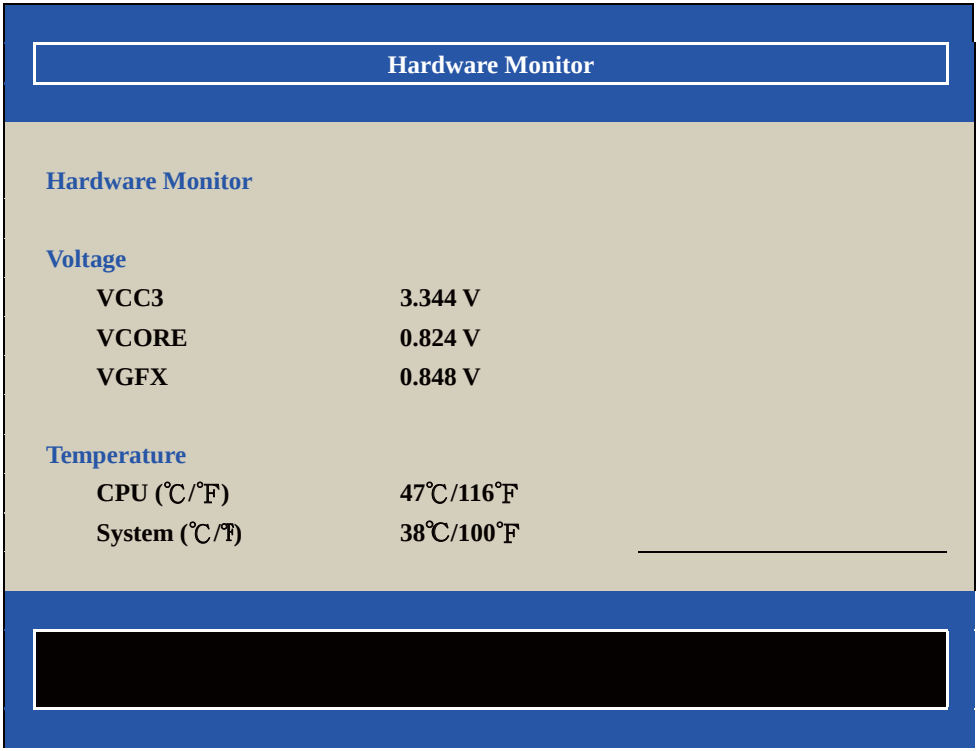
This item specifies whether your system will reboot after a power failure or interrupt occurs.

[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.

4-11-2 Hardware Monitor

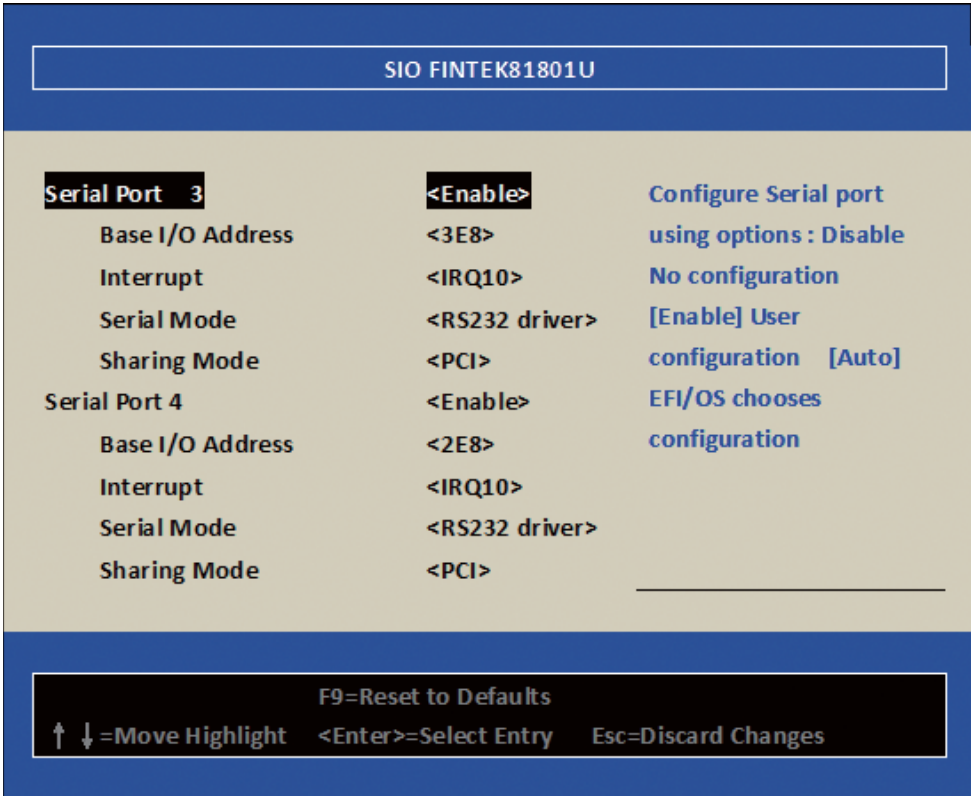


Press [Enter] to view PC health status.

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).
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.
Note : COM3,4 RS232/RS485/RS422 mode by BIOS select auto flow.

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:

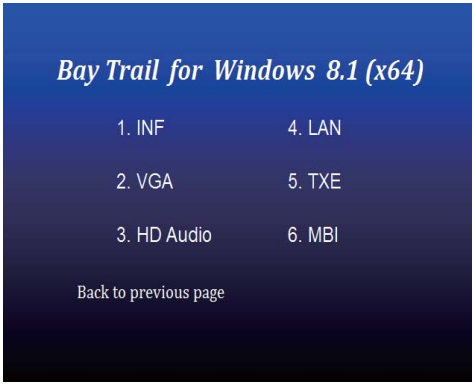
1. Auto Detect Main board and OS to AUTOMATIC DRIVER INSTALLATION menu
2. Browse DVD to view the contents of the DVD
3. Exit to exit SYSTEM INSTALL menu

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:

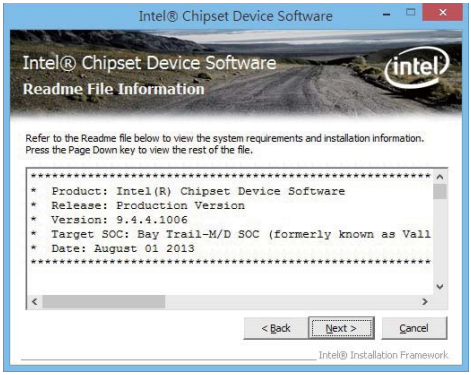
5-1 INF Install Intel Baytrail Chipset Driver (example for WIN8 64bit)



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,

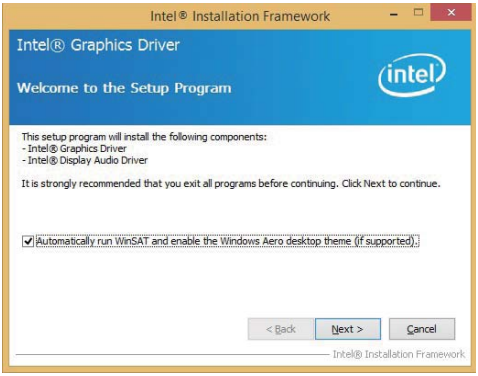
X:\driver\INTEL\BAY\INF\WIN7\infinst_autol.exe

For Windows 8 / 8.1 32/64-bit

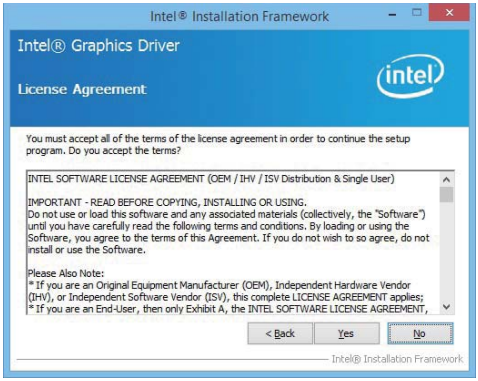
X:\driver\INTEL\BAY\INF\WIN_8_64\infinst_autol.exe

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

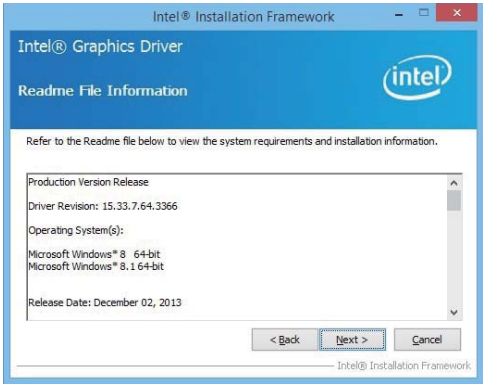
1. At the"AUTOMATIC DRIVER INSTALLATION menu"screen, click "VGA".



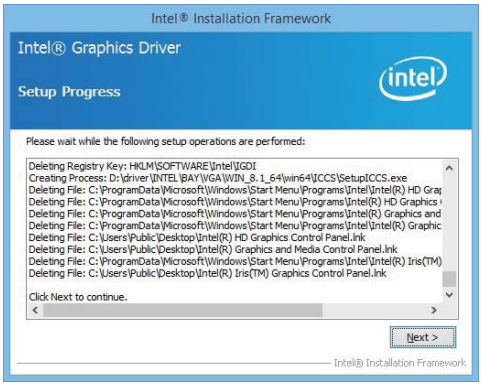
2. At the "Welcome to the Setup Program screen, Click "Next".



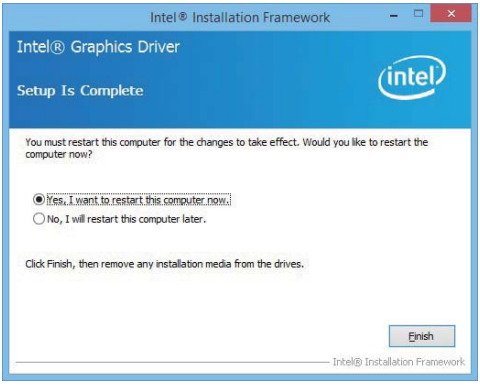
3. At the "License Agreement" screen, Click "Yes"



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



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



6. Click "Finish" to restart computer

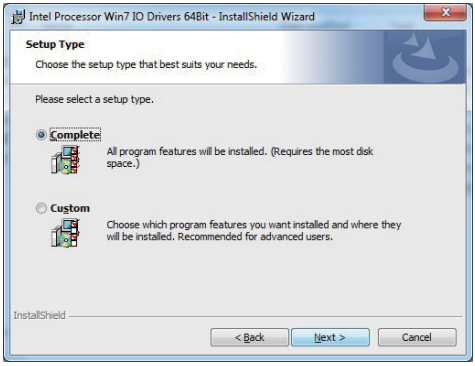
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32-bit,
X:\driver\INTEL\BAY\VGA\WIN_7_32\Setup.exe
For Windows 7 64-bit
X:\driver\INTEL\BAY\VGA\WIN_7_64\Setup.exe
For Windows 8 / Windows 8.1 32-bit
X:\ \driver\INTEL\BAY\VGA\WIN_8_32\Setup.exe
For Windows 8 / Windows 8.1 64-bit
X:\driver\INTEL\BAY\VGA\WIN_8_64\Setup.exe

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

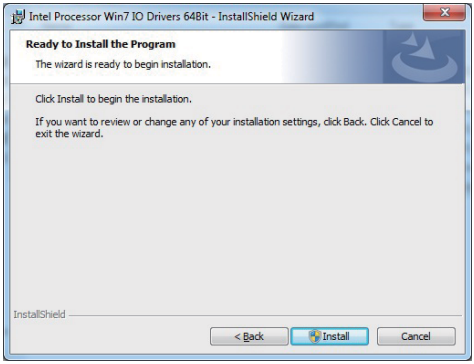
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "Serial IO".

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

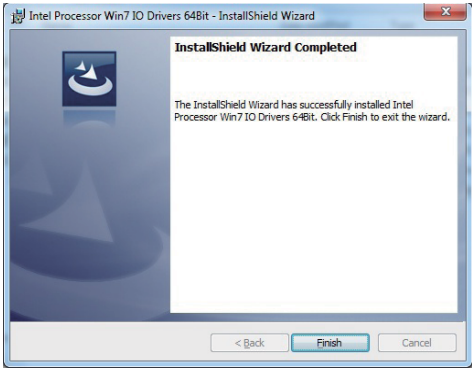
3. At the "License Agreement" screen, Click "Yes"



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



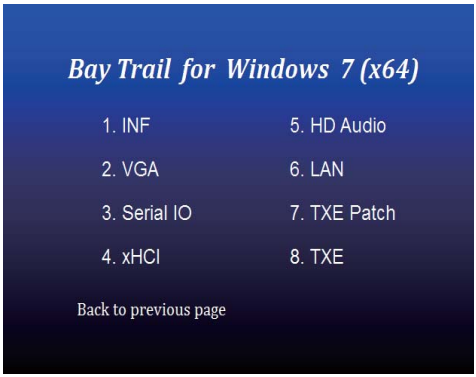
5. At the "Ready to install the program" screen, Click "Install"



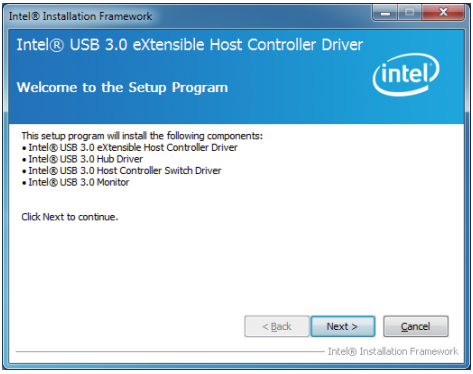
6. Click "Finish" and restart computer

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

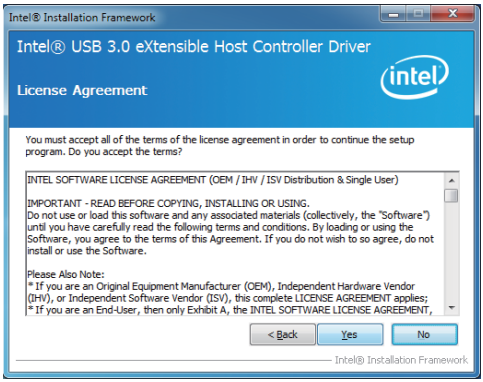
5-4 xHCI Install Intel USB 3.0 xHCI Driver (FOR Windows 7 only)



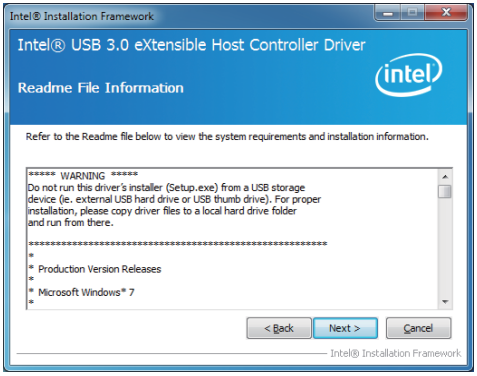
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "xHCI".



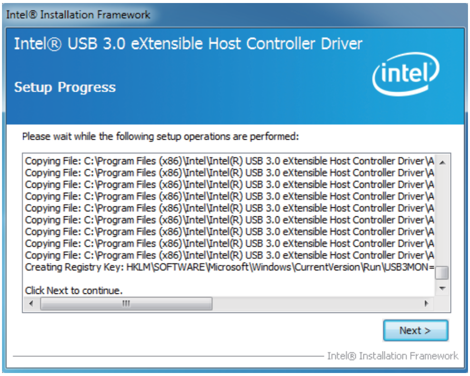
2. At the "Welcome to the Setup Programscreen, Click "Next".



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



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



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

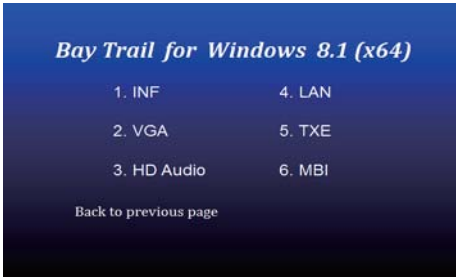
6. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path

For Windows 7 32 / 64-bit,

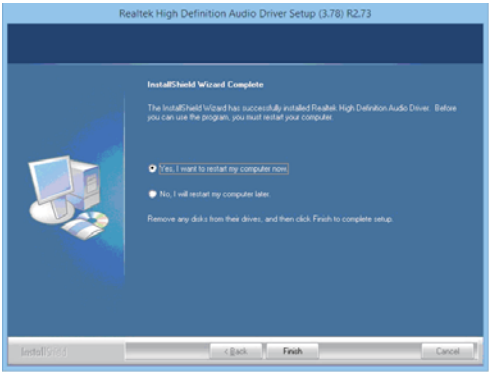
X:\driver\INTEL\BAY\XHCI\Driver_Installer\Setup.exe

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".

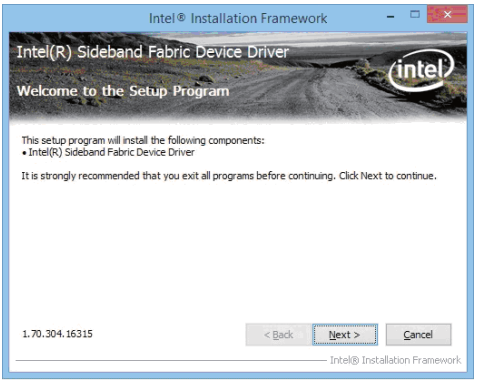


3. Click "Finish" to restart computer

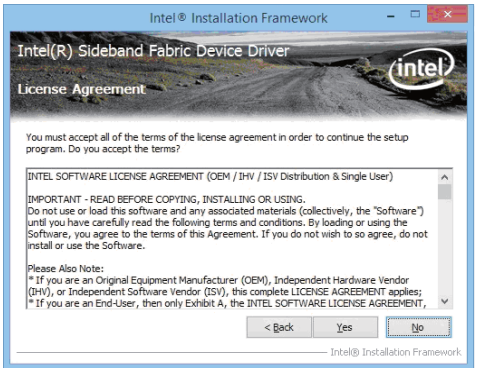
NOTE: SYSTEM INSTALL will auto detect file path
For Windows 7 32 / 64-bit, Windows 8/8.1 32 / 64-bit
X:\driver\INTEL\BAY\SOUND\Win7_Win8_Win81_R273.exe

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

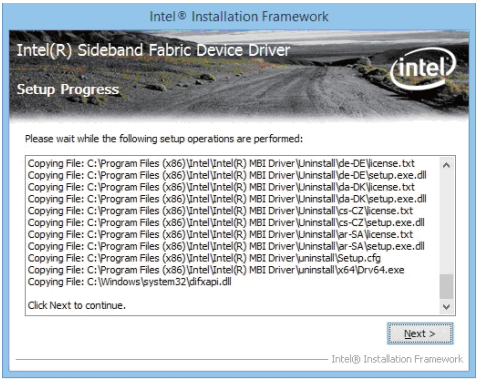
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "HD Audio"



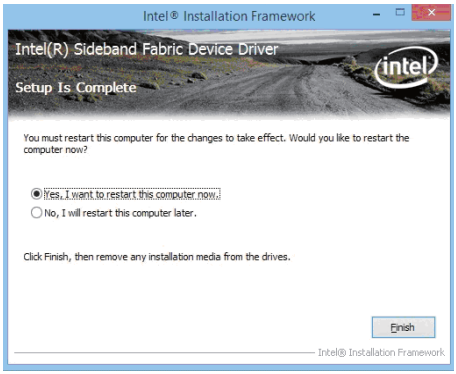
2. At the "Welcome to the Setup Program screen, Click “Next”.



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

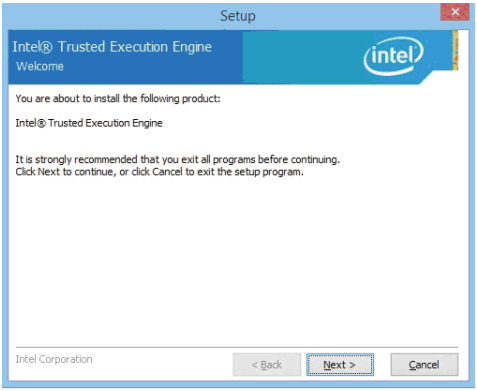
For Windows 8/8.1 32 / 64-bit,

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

5-7 TXE Install Intel TXE driver

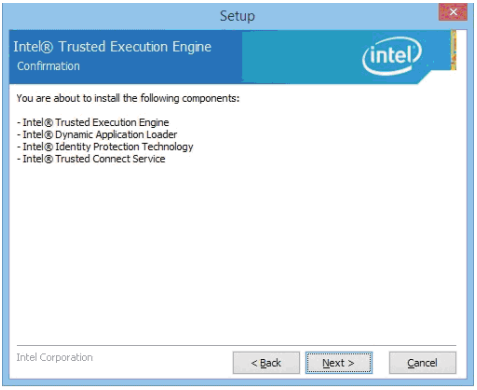
5-7-1 TXE Install for WIN8/WIN8.1

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

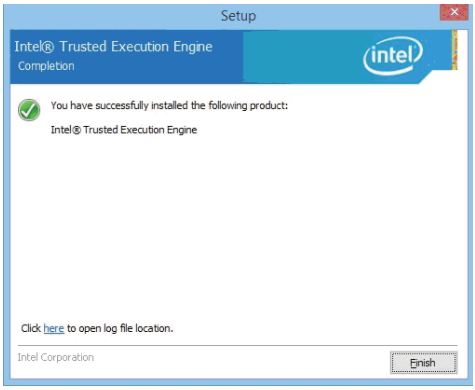


2. At the "Setup" screen, Click "Next".

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



4. Click "Next".



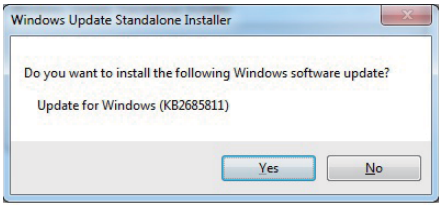
5. Click “Finish” & restart computer

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

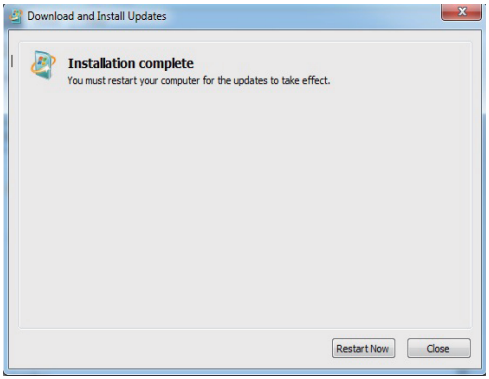
5-7-2 TXE Install for WIN7

Please install PXE Patch first.

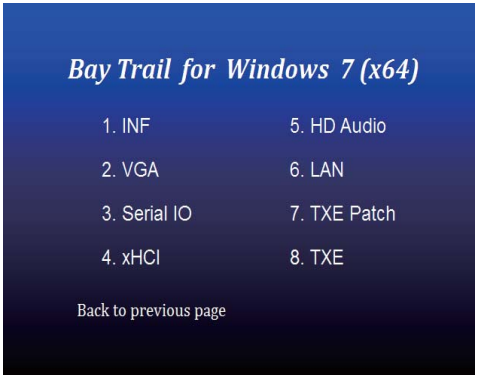
1. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE Patch "



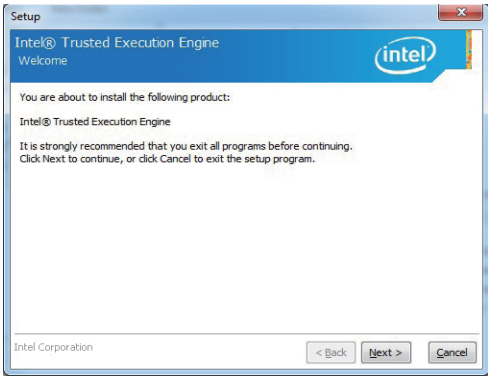
2. At the "Windows Update" screen, Click "Yes".



3. Click "Finish" & restart computer

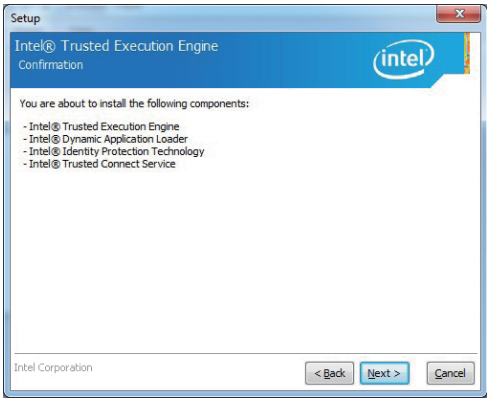


4. At the "AUTOMATIC DRIVER INSTALLATION menu", click "TXE "

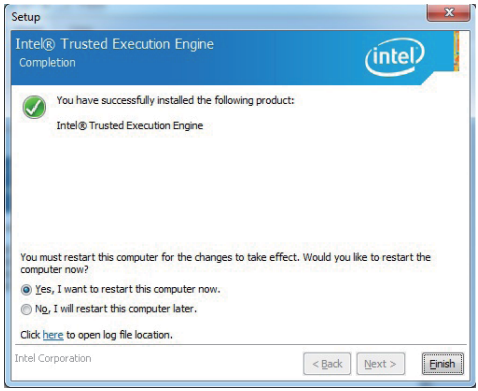


5. At the "TXE Setup" screen, Click "Next".

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 2I385EW 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 2I385EWA2.ROM –BIOS -ALL

2I385EWA2.ROM is the file name of the latest BIOS.

It may be 2I385EWA1.ROM or 2I385EWA2.ROM, etc.

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

By Bay Trail series mainboard, please type

X:\: H2OFFT-D.EXE 2I385EWA2.ROM –BIOS -ALL

-BIOS : Flash BIOS region

-ALL : Flash all

STEP 5. Press ENTER and the BIOS will be updated,
Computer will restart automatically.

Appendix A: Power Consumption Test

Condition

Item	Spec
CPU	Atom E3845 1.91 Ghz & Celeron J1900 1.99 Ghz
Memory	DDR3L 4GB & DDR3L 2GB
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	Processor	Power off	Start up		Operation Maximum	Shut down Maximum	In Put Voltage
			Maximum	Stable			
HDD 2.5" SATA	E3845	0.13A	1.09A	0.71A	1.45A	0.90A	12V
		0.10A	0.56A	0.37A	0.76A	0.49A	24V
	J1900	0.13A	1.00A	0.68A	1.53A	0.94A	12V
		0.10A	0.54A	0.35A	0.78A	0.49A	24V
mSATA	E3845	0.13A	0.95A	0.66A	1.14A	0.83A	12V
		0.10A	0.50A	0.36A	0.60A	0.43A	24V
	J1900	0.13A	0.98A	0.65A	1.30A	0.88A	12V
		0.10A	0.51A	0.35A	0.68A	0.46A	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)