2I268HW/2I268HB

Wafer I/O Connector board /
Industrial design / On board Memory

All-In-One
Intel Cedarview-M N2600/N2800, 1.6/1.86GHz
Wafer Connector, 2 x PCIe mini slots ,
Wide Range DC-IN, Li Battery Charger ,
Multi-display Board, Audio, LAN, SATA, USB, COM

NO. 2I268HW/HB_V0.2
Release date: Sep. 01. 2014

Contents

2I268HW / 2I268HB

User Manual edition 0.1, May. 15. 2014

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.

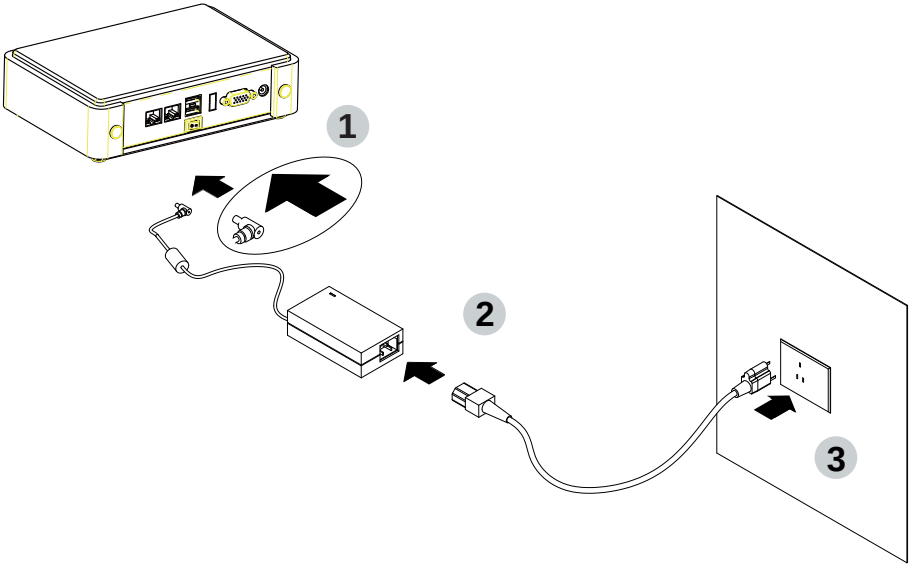
✻ Hardware Notice Guide

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.

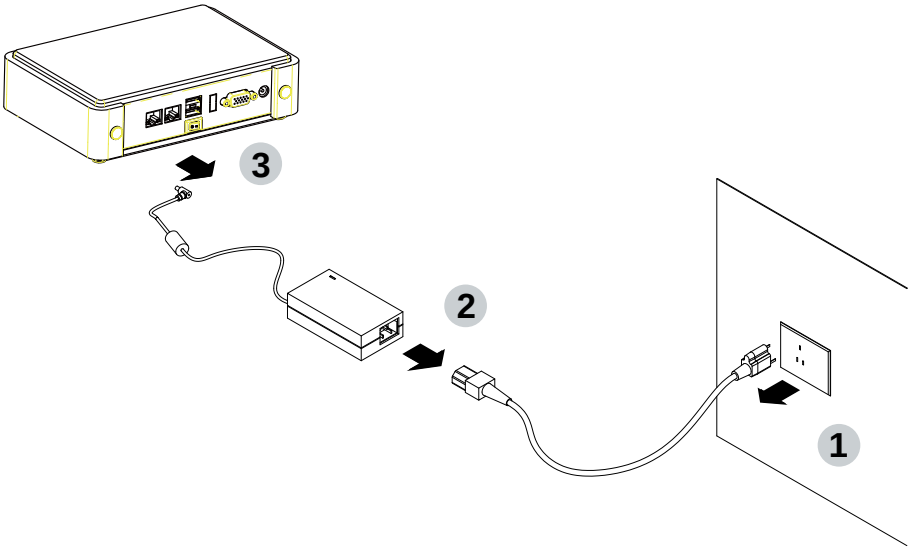
Remark 1:
Always insert/unplug the DC-in horizontally & directly to/from the motherboard. DO NOT twist, it is designed to fit snugly.
Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

2I268HW / 2I268HB is designed to provide the needs of variety of housing for industrial customers with all I/O Wafer design board. Unlike LEX's usual motherboard design, 2I268HW / 2I268HB has converted all the onboard I/Os to Wafer connectors in order collocate industrial customer's needs. 2I268HW / 2I268HB is the perfect platform for whole range of small form factor and low-power devices.

The 2I268HW / 2I268HB All-In-One motherboard is with
Intel Cedar view-M N2600 1.6GHz / N2800 1.86GHz CPU
(Dual core processor) + NM10 chipset and Intel Cedar view-M
Integrated Graphics chipset. This integrated Cedar View platform offers superb performance and PC specification in the industry. Despite the limited space of 2I268HW / 2I268HB, it supports 2 COM ports of RS232 (or RS485) 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.

2I268HW / 2I268HB is supported with one 10/100/1G Ethernet for 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 RTL8111F LAN chipset for PCIe x 1 interface, integrated 10/100/1000 transceiver.

The 2I268HW / 2I268HB motherboard is built in on board DDR3 SDRAM 2GB, N2600 / N2800 Memory DDR3 data transfer rate of 800MT/s / 1066MT/s and optional with On board SATA SSD 2/4/8/16/32/64---GBytes. The expendable interfaces include one full size PCIe Mini card for PCIe by one and USB interface, one full size PCIe Mini card for mSATA and USB interface.

The All-In-One motherboard 2I268HW / 2I268HB is fully compatible with industry 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

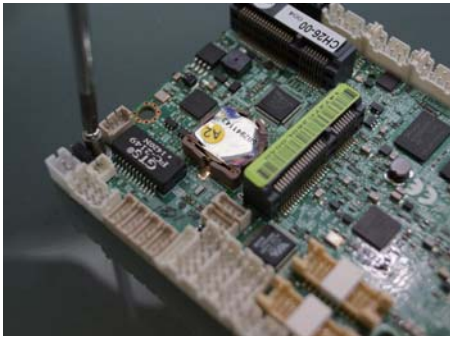
1. Intel Cedarview-M N2600 1.6GHz CPU / N2800 1.86GHz CPU
2. Intel Cedarview-M and NM10 chipset on board
3. Intel Cedarview-M Integrated Graphics chipset, N2600 400 MHz or N2800 640 MHz render clock frequency. Support Directx* 10.1 compliant Pixel Shader* v2.0 and OGL 3.0
4. On board DDR3 SDRAM 2GB, N2600 / N2800 Memory DDR3 data transfer rate of 800MT/s / 1066MT/s.
5. On board SSD 2/4/8/16/32/64 GBytes (Option)
6. Support 1 x 10 / 100 / 1000 Mbps Realtek LAN
7. Support extended 2 x Mini PCIe card (full size)
8. One SATA port with independent DMA operation supported
9. HDMI/DVI support resolution 1920 x 1200
10. Hardware digital Input & Output, 4 x DI / 4 x DO (Option)
    Hardware Watch Dog Timer, 0~255 sec programmable (Option)
11. On board DC +9V to +36V Wide range power supply
12. PCB Dimension: 102 x 73 mm (2.5 inch)
13. One 3G SIM card socket (Option)
14. USB interface Touch screen controller, support 4- , 5- , 8- wire Analog Resistive touch screen. Resolution is up to 2048 x 2048 (option).

1-2 Specification

1. **CPU:** Intel Cedarview-M N2600 / N2800
2. **Chipset:** Intel Cedarview-M and NM10
3. **Memory:** DDR3 SDRAM 2GB, N2600 / N2800 Memory
   DDR3 data transfer rate of 800MT/s / 1066MT/s.
4. **SATA:** One SATA port with independent DMA operation supported
5. **NAND flash memory (Option):** On board SATA SSD 2/4/8/16/32/64---GBytes (Option)
6. **LAN:** 1 x Realtek RTL8111F 10 / 100 / 1000 Mbps
7. **Serial Port:** Internal x 2
8. **USB:** USB 2.0 Internal x 5
9. **Sound:** Intel High Definition Audio Specification Rev.1.0 Compliant
10. **Audio Amplifier:** Two channel Class D Audio Amplifier.
    2.57W/Ch (Typ.) into a 4ΩLoad;1.46 W/Ch (Typ.) into a 8ΩLoad
11. **WDT/DIO:** Hardware digital Input & Output, 4 x DI / 4 x DO /
    Hardware Watch Dog Timer, 0~255 sec programmable
12. **Expansion interface:** One full size PCIe Mini card for PCIe by one and USB interface;
    One full size PCIe Mini card for mSATA and USB interface
13. **BIOS:** Award BIOS Version
14. **Dimension:** 102 x 73 mm (2.5 inch)
15. **Power:** On board DC +9V to +36V Wide range power supply For HW Model
16. **Power Consumption:** Please refer to Page. 74
17. **3G SIM Card:** 3G SIM card reader (Option)
18. **LVDS:** 18 bits LVDS
19. **Touch function:** USB interface Touch screen controller, support 4- , 5- , 8- wire Analog
    Resistive touch screen. Resolution is up to 2048 x 2048 (option).

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	7G1901-1246005-0	MB-2I268HW-CH26-00-005	LF,2I268HW-CH26-00,Rev.:005	1
2	6G8006-2347-0100	LEX Product Driver DVD	LF, Intel Baytrail Driver	1
3	6G6003-7324-0100	Power DIN Cable	LF,ATX-4P/DC5.5*2.5,L=44cm	1
4	6G8001-2189-0400	Manual	LF,M/B,2I268HB/2I268HW	1
5	6G5212-0601-0200	60W Power Adapter,12V/5A,2.5	LF,L Type,FSP060-DBAE1,FSP	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 2I268HW/HB. 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 2I268HW/HB.
   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 2I268HW/HB 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 2I268HW/HB from electricity discharge. With reference to section 1-4 please check the delivery package again with following steps:

1. Unpack the 2I268HW/HB 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.

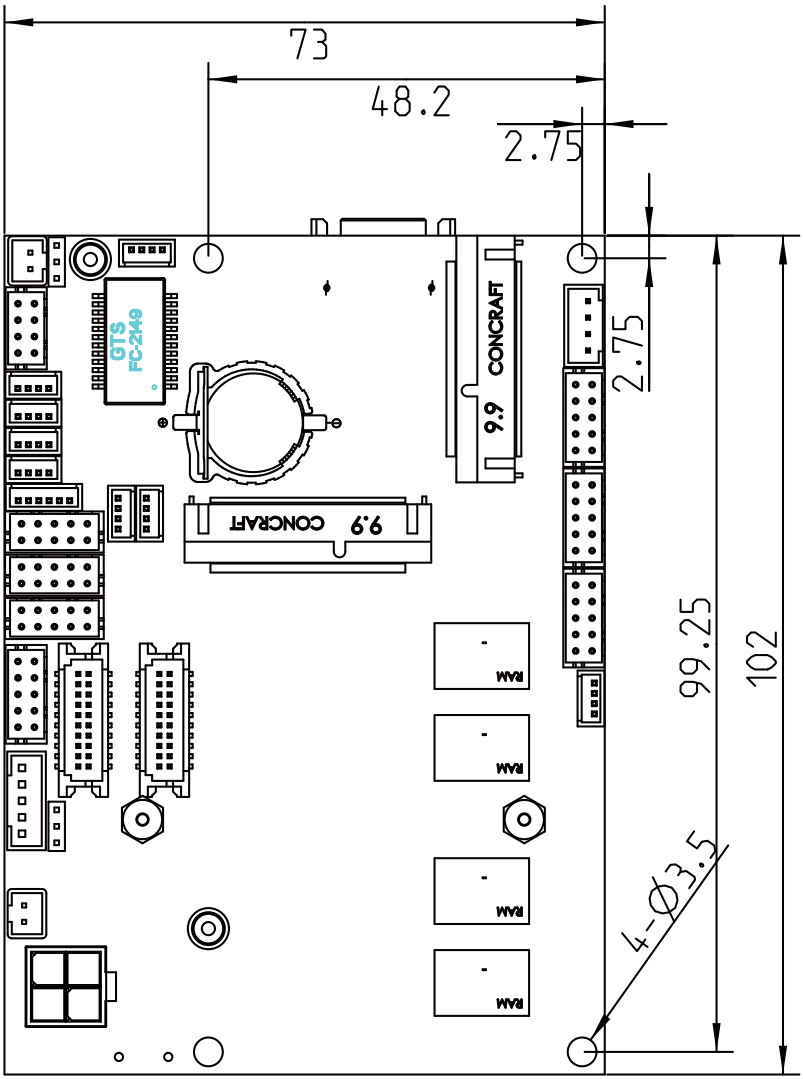
3. Is there any visible damage on the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT
   THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

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.

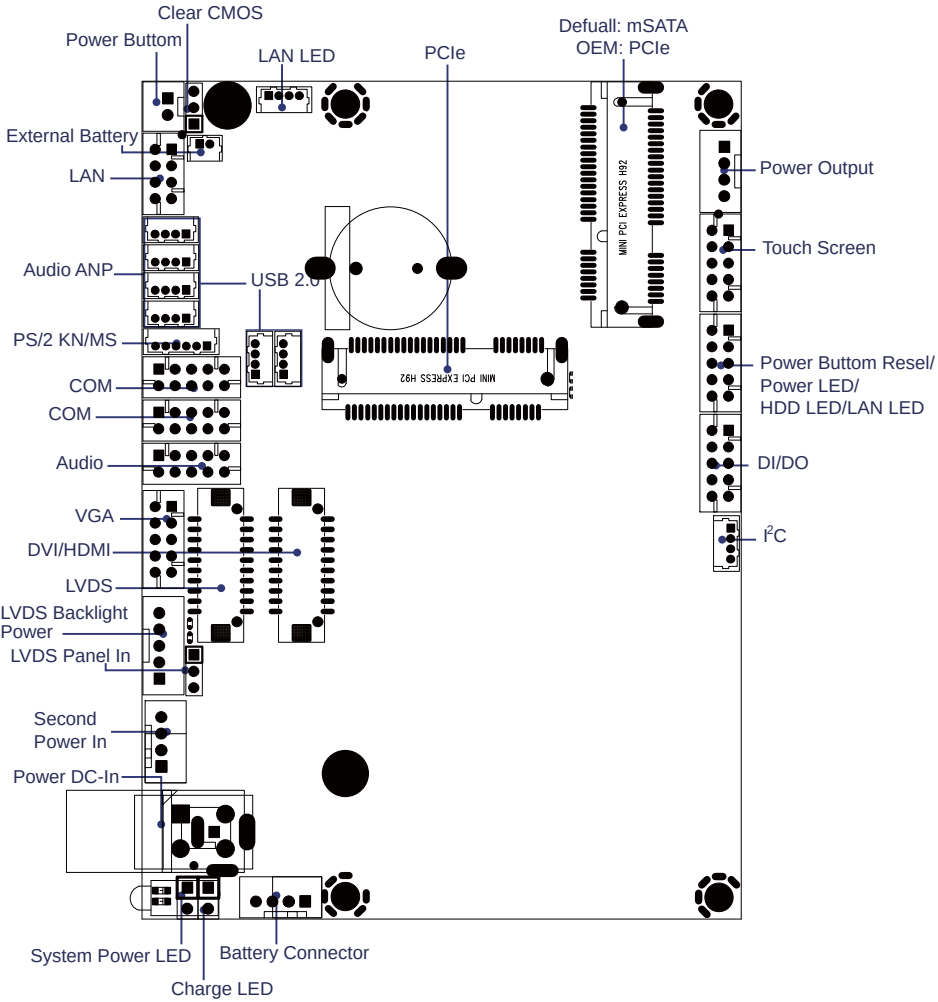
5. Check your external devices (i.e. Add-On-Card, Driver Type etc.) for complete add-in or connection and CMOS setup correctly.
   Please also refer to all information of connector connection in this manual.

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

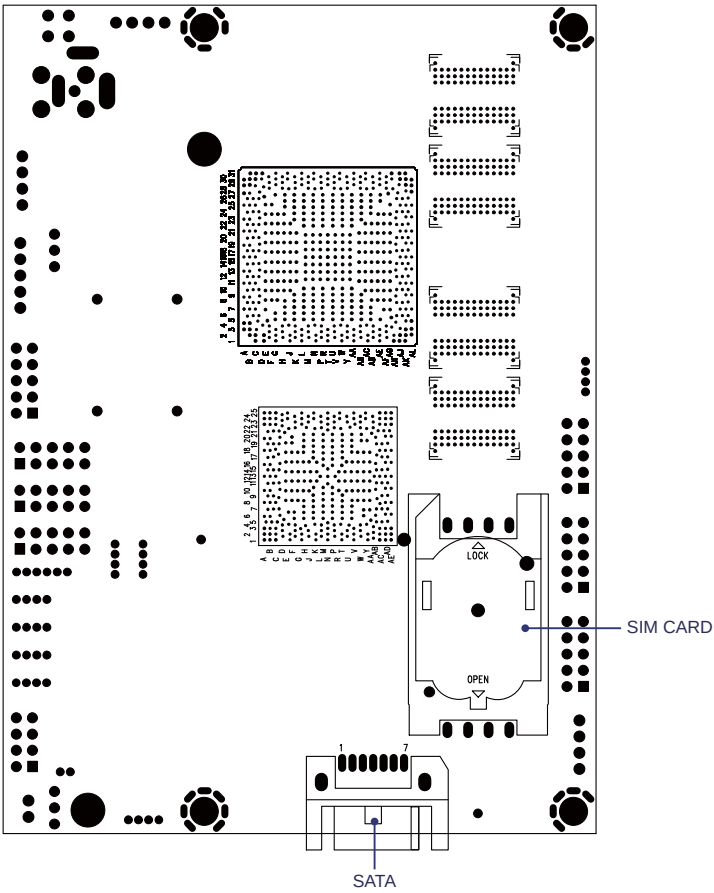
2-3 Dimension-2I268HW/HB



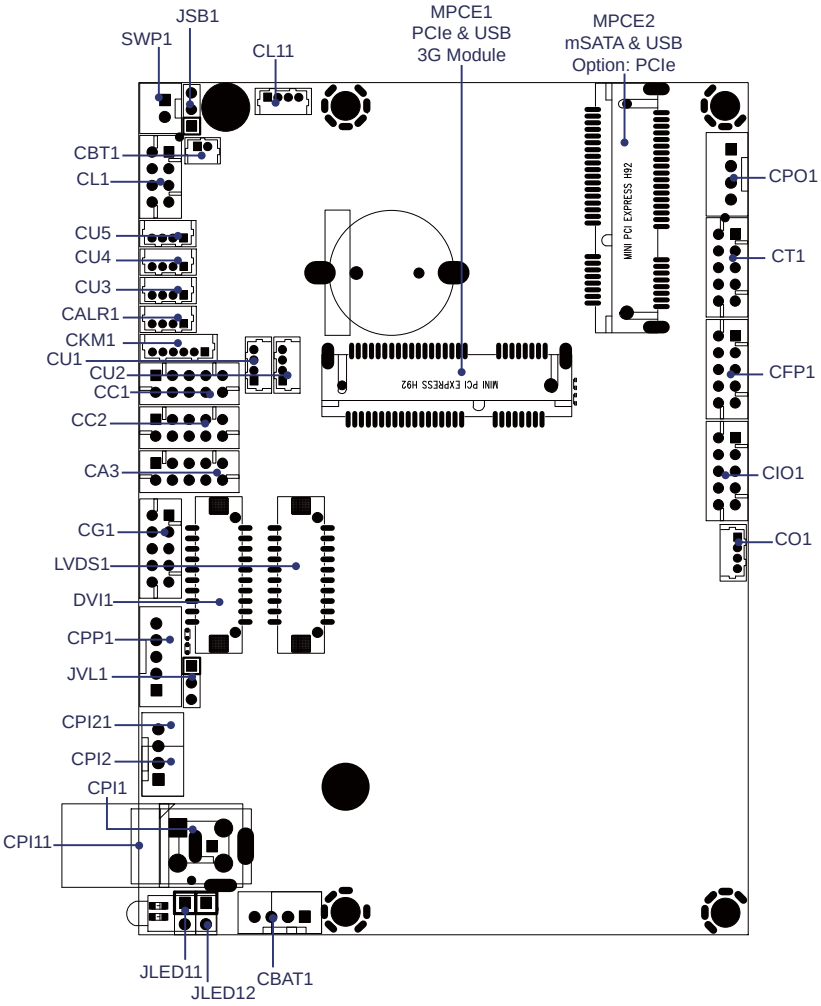
2-4 Layout-2I268HW/HB (Function)



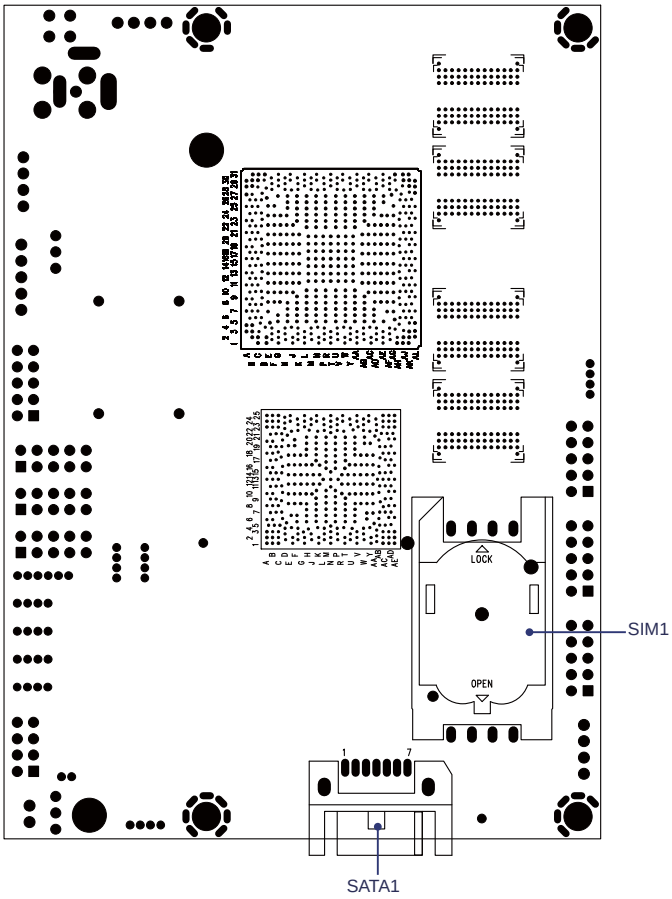
2-4-1 Layout-2I268HW/HB (Function Bottom)



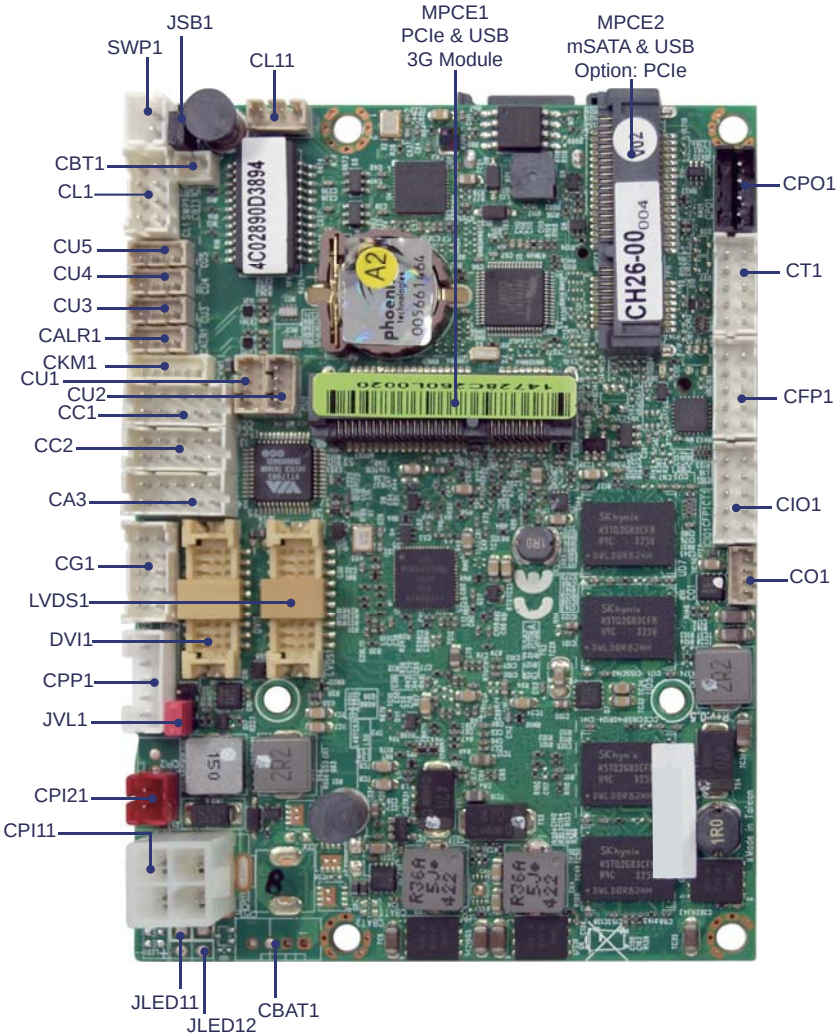
2-4-2 Layout-2I268HW/HB (Connect)



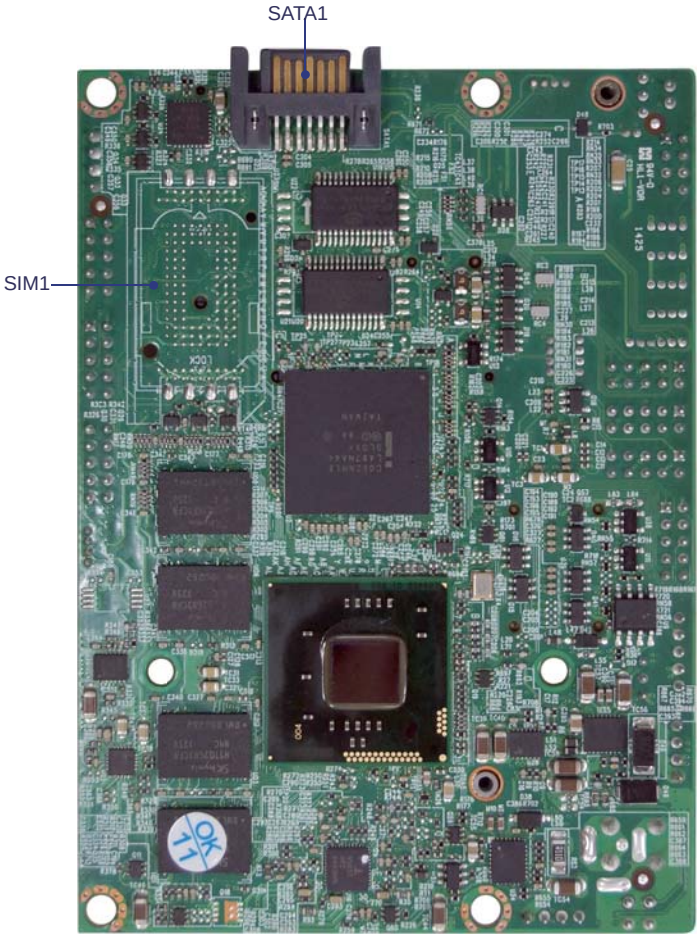
2-4-3 Layout-2I268HW/HB (Connect Bottom)



2-5 Diagram- 2I268HW/HB



2-5-1 Bottom Side Diagram- 2I268HW/HB



2-6 List of Jumpers

JSB1: CMOS Data set
JVL1: LCD Panel power select

2-7 Jumper Setting Description

A jumper is ON as a closed circuit with a plastic cap covering two pins. A jumper is OFF as an open circuit without the plastic cap. Some jumpers have three pins, labeled 1, 2, and 3. You could connect either pin 1 and 2 or 2 and 3.
The below figure 2.2 shows the examples of different jumper settings in this manual.

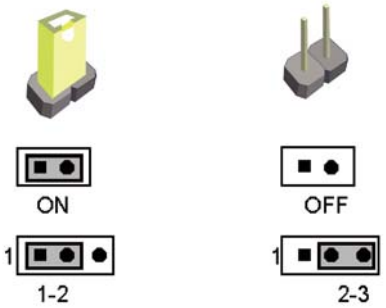


Figure 2.2

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

2-8 JSB1: CMOS Data Set

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 2-3 for few seconds
4. Return to default setting by openning pin 1-2
5. Connect DC 12V power cable back to DC 12V Power connector

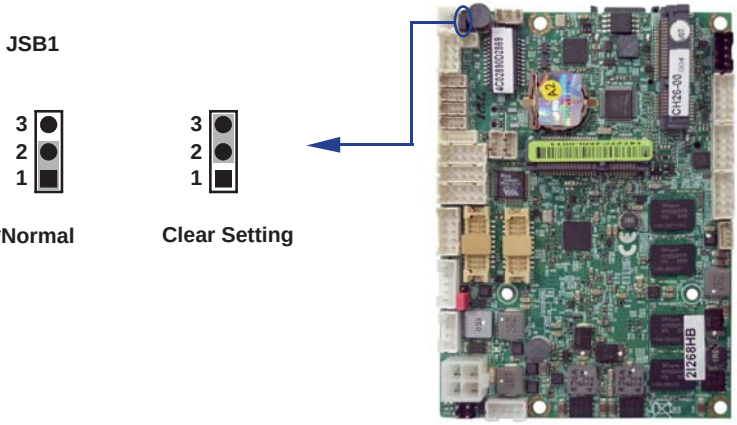
JSB12	Description
*1-2	Normal set
2-3	CMOS data clear

Note: Do not clear CMOS unless

1. Troubleshooting

2. Forget password

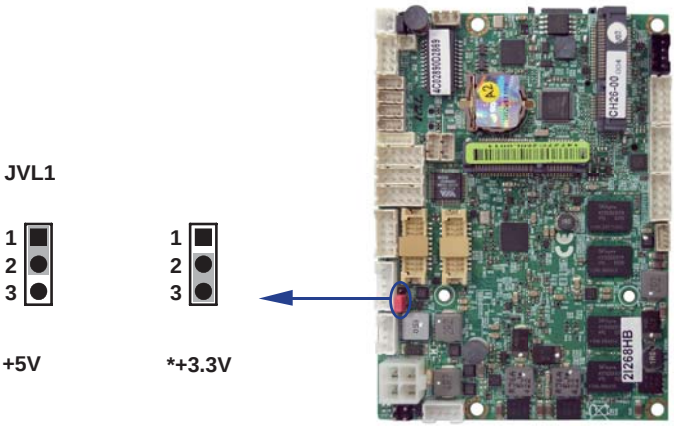
3. You fail over-clocking system



2-9 JVL1: LCD panel power select

JVL1	Description
1-2	+5V
*2-3	+3.3V

Note: Attention! Check Device 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

CPI1: DC 12V-IN Power Jack

CPI11: DC-In 2x2 pin (4.20mm) Wafer connector

CPI2: DC-In 2 pin (2.0mm) Wafer connector

CPI21: DC-In 4 pin (2.0mm) Wafer connector

CBAT1: Li Battery pack 4 pin (2.0mm) Wafer connector

BAT1: 3V CMOS Battery hold 2pin(CR1220)

CBT1: 3V CMOS Battery 2pin Wafer

CPO1: +12V/+5V power output 4 pin (2.0mm) Wafer

CFP1: FP port 2x5 pin (2.0mm) Wafer

SWP1: Power Button switch 2pin (2.0mm) Wafer

JLED11: Power LED 1x2 pin (2.0mm) Header.

JLED12: Charge LED 1x2 pin (2.0mm) Header.

CG1: VGA port 2x5 pin (2.0mm) Wafer

DVI1: DVI-D port 2x10pin Wafer

LVDS1: LVDS 18Bits 2x10 pin (1.25mm) connector

CPP1: Panel inverter power connector 1x5 pin (2.0mm) Wafer

CT1: Touch screen device 2x5 pin (2.0mm) Wafer

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

CALR1: Two Channel Speak out ports 4pin (1.25mm) Wafer

CC1 : COM1 2x5 pin (2.0mm) Wafer

CC2 : COM2 2x5 pin (2.0mm) Wafer

CIO1: One DIO 2x5 pin (2.0mm) Wafer

CO1: I^2C 4pin (1.25mm) Wafer

CKM1: PS2 KB/MS 6pin(1.25mm) Wafer

CL1: LAN port 2x4pin (2.0mm) Wafer

CL11: LAN port 1x4pin (1.25mm) Wafer

List of Connectors

CU1: USB1 port 4pin(1.25mm) Wafer

CU2: USB2 port 4pin(1.25mm) Wafer

CU3: USB3 port 4pin(1.25mm) Wafer

CU4: USB4 port 4pin(1.25mm) Wafer

CU5: USB5 port 4pin(1.25mm) Wafer

SATA1: One SATA connector 7pin

MPCE1/2: Two Mini card socket 52pin

SIM1: SIM card Read

3-2 DC -IN power connector

● CPI1: DC 12V-in power Jack

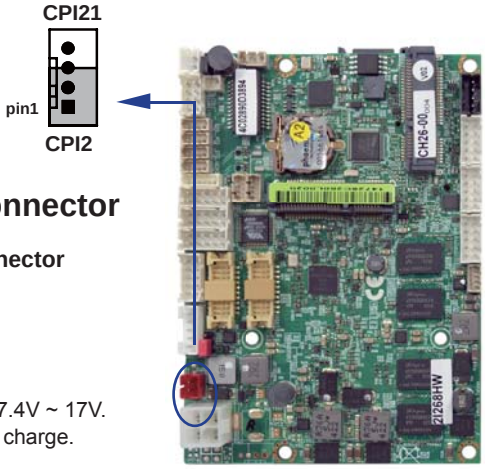
PIN NO.	Description
1,2	+12V DC-IN
3,4	GND

NOTE: 1. Very important check DC-in Voltage

● CPI11: DC 12V-in Internal connector (4pin ATX power 2.0mm) wafer

PIN NO.	Description
1.2	GND
3.4	+12V DC-IN

Note: Very important check DC-in Voltage



3-3 DC -IN secondary power connector

● CPI2: DC-in 2 (2.0mm) Wafer Internal connector

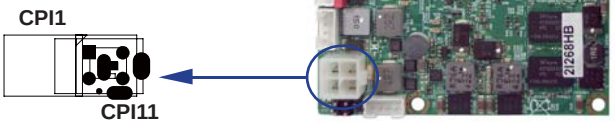
PIN NO.	Description
1	DC-IN(12V)
2	GND

Note: 1.For secondary DC-IN like to Battery pack 7.4V ~ 17V.
If it's less then 9V. the battery will not fully charge.
2. CPI2 share CPI21 connector

● CPI21: DC-in 1x4 (2.0mm) Wafer Internal connector

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

Note: 1.For secondary DC-IN like to Battery pack 7.4V ~ 17V
If it's less then 9V. the battery will not fully charge.
2. CPI2 share CPI21 connector



3-4 Battery IN power connector

- **CBAT1: Li Battery pack in 4 (2.0mm) Wafer Internal connector**

PIN NO.	Description
1	Battery +
2	GND
3	I^2C Clock
4	I^2C Clock

Note: 1. Support Li Battery pack 2S (Two serial cells)
7.4V ~8.4V and provide charger function
2. CBAT1 share CBAT2 connector
3. I^2C bus from Battery pack protect board to system I^2C bus

3-5 CMOS Battery in

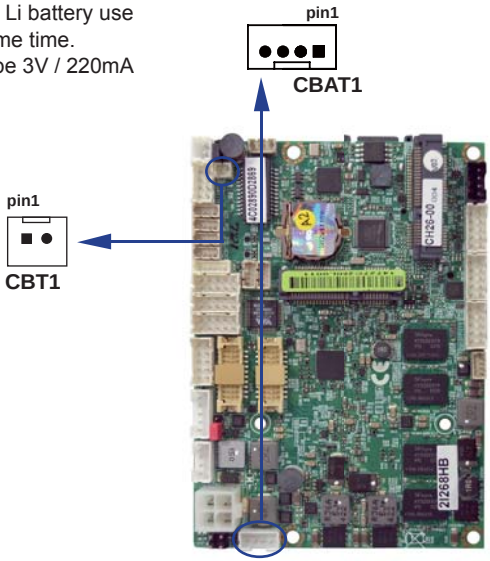
BAT1: 3V Battery holder 2pin

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

- **CBT1: 3V Battery 2pin (1.25mm) Wafer**

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

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

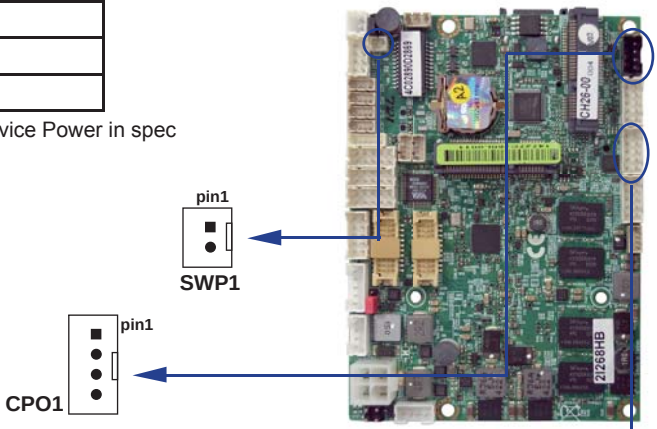


3-6 DC +5/+12V Voltage output connector

● CPO1: +12V/+5V DC voltage output 4pin (2.0mm) Wafer

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

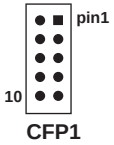
* Note: Attention! Check Device Power in spec



3-7 Front Panel control

● CFP1 FP connector (2x5pin 2.0mm wafer)

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



Note: CFP1 power button function same as SWP1

● SWP1 Power button connector (2pin 2.0mm wafer)

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

Note: CFP1 power button function same as SWP1

3-8 LED Power / Charger LED indicator

Power LED

● JLED11: Power LED 1x2 pin (2.0mm) Header.

PIN NO.	Description
1	Power +
2	Power -

Note: The JLED11 function same as pin1,2 of CFP1.

Charge LED

● JLED12: Charge LED 1x2 pin (2.0mm) Header.

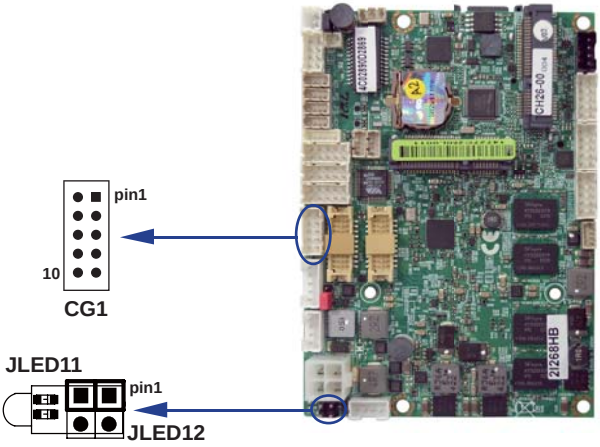
PIN NO.	Description
1	Charge LED +
2	Charge LED -

Note: While charging the LED is ON
When LED off indicator the battery capacity up to about 60% ~ 70%.

3-9 VGA port Connector

● CG1: VGA 2x5pin 2.0mm wafer connector

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

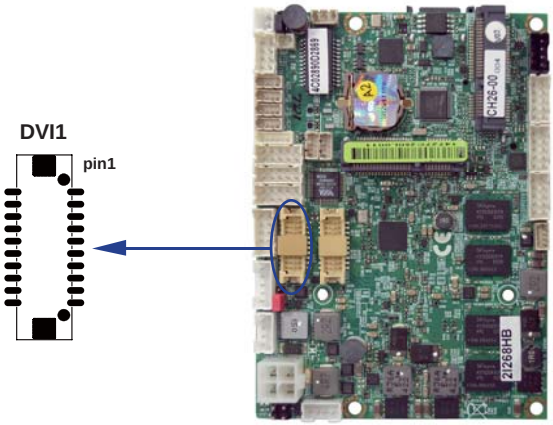


3-10 DVI-D port Connector

● **DVI-D: (2x10 pin 1.25mm wafer)**

PIN NO.	Description	PIN NO.	Description
1	DVI-DATA2-	2	Panel Backlight Power
3	DVI-DATA2+	4	Panel Backlight Power
5	DVI-DATA1-	6	GND
7	DVI-DATA1+	8	GND
9	DVI-DATA0-	10	GND
11	DVI-DATA0+	12	GND
13	DVI-CLOCK-	14	+5V
15	DVI-CLOCK+	16	+5V
17	DVI-DDC-CLK	18	+5V
19	DVI-DDC-DATA	20	Hot plug Detect

Note: 1. Attention! Check Device Power in spec
2. All single for TMDS difference single provide DVI-D or HDMI
3. Pin 14/16/18 provided DVI or HDMI DDC power
4. This connector can use CN040 connector board to external type as HDMI for OEM option
5. The socket can be eDP interface for eDP panel used, if eDP panel use, the PIN2 and Pin4 can offer +12V or +5V for panel backlight power. (OEM) (TBD)

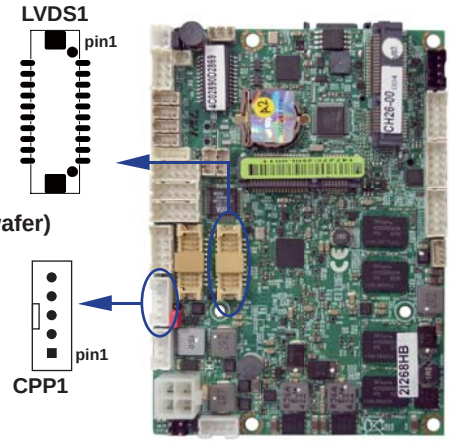


3-11 LVDS port Connector

● **LVDS1: 18bits LVDS interface from CDV chipset (2x10 pin 1.25mm wafer)**

PIN NO.	Description	PIN NO.	Description
1	Channel-DATA0+	2	+5V (OR +12V)
3	Channel-DATA0-	4	GND
5	Channel-DATA1+	6	GND
7	Channel-DATA1-	8	GND
9	Channel-DATA2+	10	GND
11	Channel-DATA2-	12	+LCD(5V or 3.3V)
13	Channel-DATA3+	14	+LCD(5V or 3.3V)
15	Channel-DATA3-	16	+LCD(5V or 3.3V)
17	Channel-CLK+	18	ENBKL (+3.3V)
19	Channel-CLK-	20	PWM dimming

Note : 1. Attention ! Check Device Power in spec
2. CDV-M N2600 /N2800 support LVDS 18Bits
3. Pin2 +5V power define by BOM for small size panel backlight power use
4. Pin12/14/16 provides LCD panel power set by JVL1: LVDS panel +5V/+3.3V Voltage select
5. Pin 18 Backlight enable output, Hi enable (+3.3V), Low disable (0V)
6. Pin 18 backlight dimming control .provided 200Hz / 275Hz / 380Hz / 20 KHz/25KHz and adjust PWM duty cycle by software program .
7. PWM duty cycle 100 % is Hi level +3.3V by power on default.



3-12 Panel backlight power

● **CPP1: Panel backlight power (5pin 2.0mm wafer)**

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

Note: 1. Attention ! Check Device Power in spec
2. Pin 3 backlight dimming control .provided 200Hz / 275Hz / 380Hz / 20 KHz/25KHz and adjust PWM duty cycle by software program .
3. PWM duty cycle 100 % is Hi level +3.3V by power on default.
4. Pin 4 Backlight enable output, Hi enable (+3.3V), Low disable (0V)
5. Pin 5 Backlight enable output, Hi enable (+5V), Low disable (0V)

3-13 Touch screen device

- CT1: Touch screen (2x5 pin 2.0mm wafer) Default use USB6 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: For eight wire type cable Pin 3 and Pin4 need short.

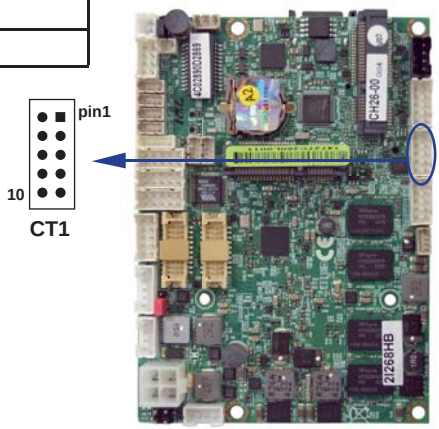
- **For 4- wire type pin define**

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: 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



3-14 Audio port

- **CA3: Audio port (2x5pin 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

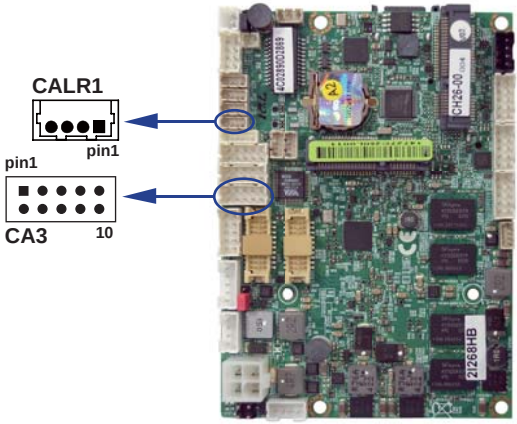
- **Audio Amplifier class D Two channel**

  2.57W/Ch (Typ.) into a 4ΩLoad

  1.46 W/Ch (Typ.) into a 8ΩLoad

- **CALR1: Audio Amplifier Line Out Right/Left (4pin 1.25mm wafer)**

PIN NO.	Description
1	LINE-OUT_L+
2	LINE-OUT_L-
3	LINE-OUT_R-
4	LINE-OUT_R+



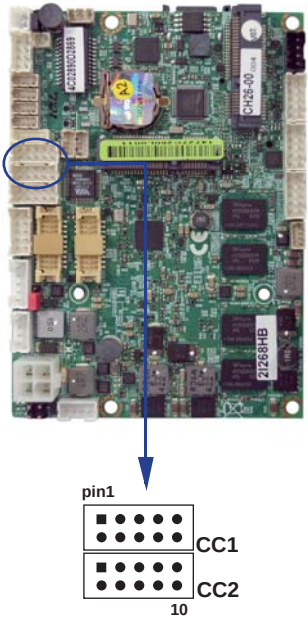
3-15 I/O port

- **Two RS232 ports (2x5pin 2.0mm Wafer)**

CC1: COM1 CC2: COM2

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

Note: 1. ALL COM wafer 2.0mm connector pin 10 provide +5V
2. Can supported TTL level by OEM.



- **Two RS485 ports (2x5pin 2.0mm Wafer)**

CC1: COM1 CC2: COM2

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

Note: 1. Default BOM set to RS232 Mode
2. Option RS485 function for OEM BOM request
3. BIOS need setting to RS485 mode

- **Two RS422 ports (2x5pin 2.0mm Wafer)**

CC1: COM1 CC2: COM2

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

Note: 1. Default BOM set to RS232 Mode
2. Option RS422 function for OEM BOM request
3. BIOS need setting to RS485 mode
4. ALL COM port wafer 2.0mm connector pin 10 provide +5V

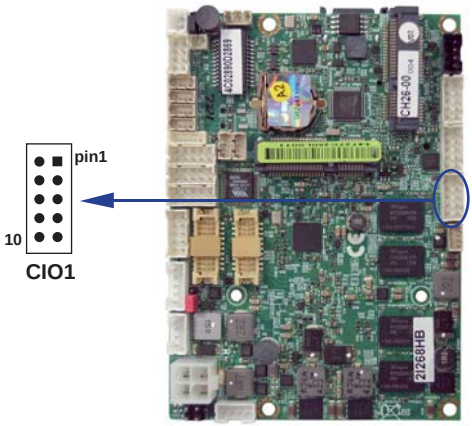
3-16 DIO

4DI & 4DO

- **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. All DI-0~3 external pull Hi 10KΩ to +V5S
2. If want connect to out side device,
suggest use Isolator component like photo coupler or Relay
3. All pin can porting to DI function but need provide push pull VIL +0.8 , VIH +2V
4. All pin can porting to DO function, pin need define to push pull or OD (to refer SDK)s
5. ALL Signal pin are 5V Tolerance



- **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: Please refer to "Manual" for sample code for detail description

3-16-1 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

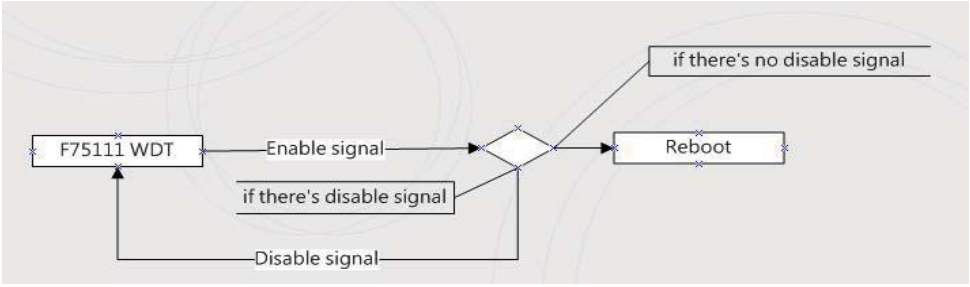
How to use this Demo Application

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



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;
  }
```

3-16-2 IO Device: F75111 under Windows

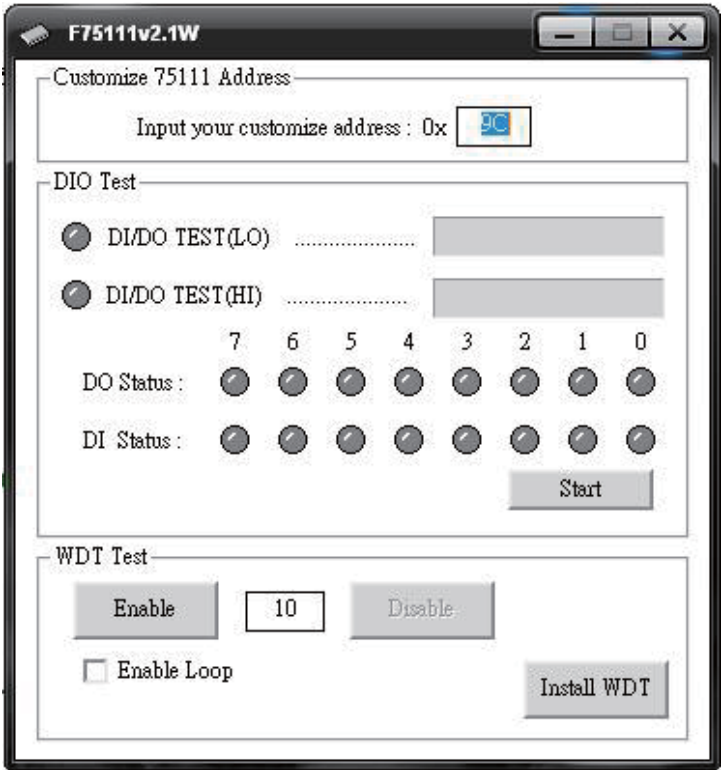
The Sample code source you can download from

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

Binary file: F75111_DemoBin.rar

USERNAME & PASSWORD: sf

How to use this Demo Application



1. Press the "Start" button to test DIO function

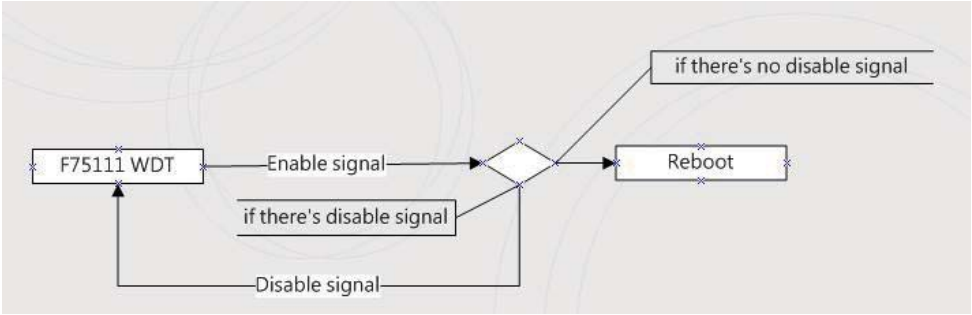
2. Press the "Enable" button to test WDT function

3. Press the "Disable" button to disable WDT

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

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

6. If WDT enable, system icon will be  **. if disable, system icon will be** 



p.s.
f75111 send "F75111_SetWDTEnable(BYTE byteTimer)" including a parameter "timer",
if there's no disable signal (F75111_SetWDTDisable()) to stop it before timer countdown to 0, System will reboot.
if there's disable signal received, resent Enable WDT signal, for a loop to prevent from reboot

Introduction

Initial Internal F75111 port address (0x9c)

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

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

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

Enable/Disable WDT

Enable : F75111_SetWDTEnable (BYTE byteTimer)
Disable: F75111_SetWDTDisable ()

PULSE mode

Sample to setting GP33, 32, 31, 30 output 1mS low pulse signal.

```
{
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_CONTROL,              0x00);  //This is setting low pulse output
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_WIDTH_CONTROL,  0x01);  //This selects the pulse width to 1mS
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_CONTROL_MODE,              0x0F);  //This is setting the GP33, 32, 31, 30 to output function.
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_Output_Data ,              0x0F);  //This is setting the GP33, 32, 31, 30 output data.
}
```

Sample to setting GP33, 32, 31, 30 output 1mS low pulse signal.

```
void F75111::InitInternalF75111()
{
   this->Write_Byte(F75111_INTERNAL_ADDR,GPIO1X_CONTROL_MODE  ,0x00);      //set GPIO1X to Input  function
   this->Write_Byte(F75111_INTERNAL_ADDR,GPIO3X_CONTROL_MODE  ,0x00);      //set GPIO3X to Input  function
   this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_CONTROL_MODE  ,0xFF);      //set GPIO2X to Output function

   this->Write_Byte(F75111_INTERNAL_ADDR,F75111_CONFIGURATION, 0x03);          //Enable WDT OUT function
}
```

Set output value

```
void F75111::InterDigitalOutput(BYTE byteValue)
{
    BYTE byteData = 0;
    byteData = (byteData & 0x01 )? byteValue + 0x01 : byteValue;
    byteData = (byteData & 0x02 )? byteValue + 0x02 : byteValue;
    byteData = (byteData & 0x04 )? byteValue + 0x04 : byteValue;
    byteData = (byteData & 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
}
```

3-16-3 IO Device: F75111 VB6 under Windows

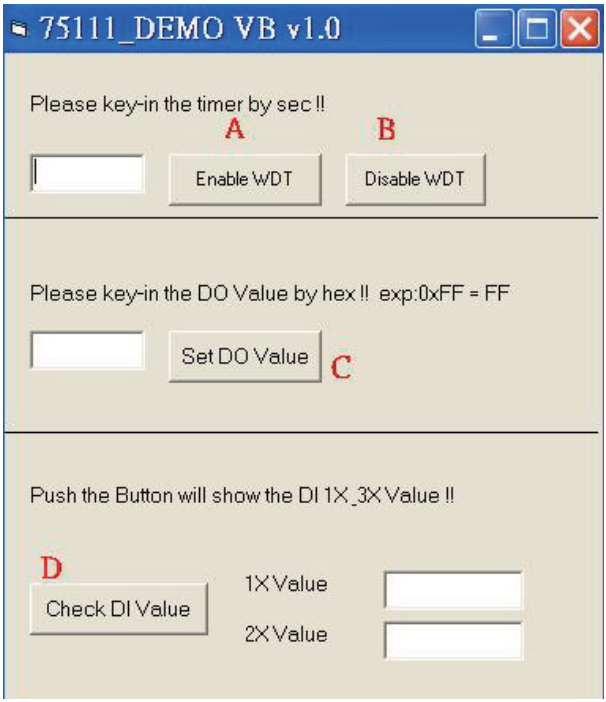
The Sample code source you can download from

Source file: 75111_VB_v10.rar http://tprd.info/lexwiki/index.php/IO_Device:F75111_VB6

Binary file: 75111_VB_Src.rar

USERNAME & PASSWORD: sf

How to use this Demo Application



A Function - Enable WDT timer ,Key-in the value by seconds then system will reboot after value which you key-in in left text box !!

B Function - Disable WDT timer ,Push down the button then WDT timer value will be clear !!

C Function - Set DO Value ,Key-in the DO value by hex then push the button !!

D Function - Check DI Value ,The right side two text box will display DI 1X & 2X Value when you push down the button!!

SDK Function Introduction

Function EnableWDT

```
Function EnableWDT(timer As Integer)

Call 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)

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

End Function
```

Function CheckDIValue

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

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

DI1Xhex = Hex(GPIO1X)
DI3Xhex = Hex(GPIO3X)

Text3.Text = "0x" + DI1Xhex
Text4.Text = "0x" + DI3Xhex

End Function
```

3-16-4 IO Device: F75111 under linux

The Sample code source you can download from

Source file: F75111v2.0L.tar.gz http://tprd.info/lexwiki/index.php/IO_Device:F75111_under_linux

Binary file: F75111v2.0LBin.tar.gz

USERNAME & PASSWORD: sf

How to compile source code

1. Compile source code with Code::Blocks

download and install the Code::Block with command "apt-get install codeblocks"

Open an exist project(F75111.cbp) in Code::Blocks, click the compile button

(add an option 'pkg-config --libs gtk+-2.0 gthread-2.0' in "Project->Build Option->

Linker Setting->Other linker option")

2. Compile source code with "make"

1.cd F75111

1.make

1.src/f75111 // execute the binary file

How to use this Demo Application

1. Press the "Start" button to test DIO function

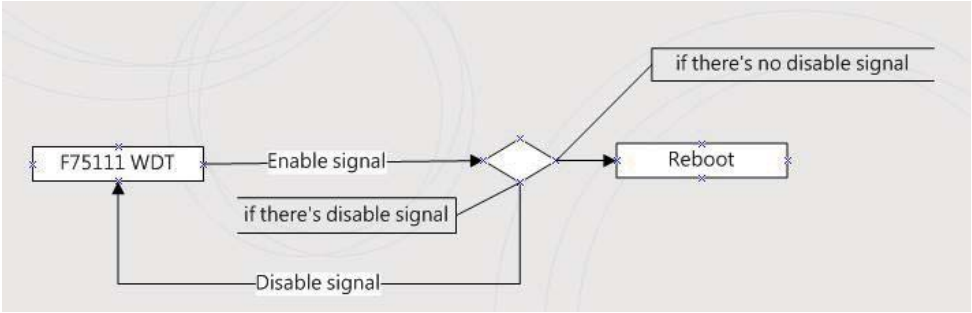
2. Press the "Enable" button to test WDT function

3. Press the "Disable" button to disable WDT

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

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

6. If WDT enable, system icon will be blinking.



p.s.
f75111 send "F75111_SetWDTEnable(BYTE byteTimer)" including a parameter "timer",
if there's no disable signal (F75111_SetWDTDisable()) to stop it before timer countdown to 0, System will reboot.
if there's disable signal received, resent Enable WDT signal, for a loop to prevent from reboot p.s.

Introduction

IO function In file SMBus.c

```
void SMBusIoWrite(BYTE byteOffset,BYTE byteData)
{
    outb( byteData , m_SMBusMapIoAddr + byteOffset);
}

BYTE SMBusIoRead(BYTE byteOffset)
{
    DWORD dwAddrVal;

    dwAddrVal = inb(m_SMBusMapIoAddr + byteOffset);
    return (BYTE)(dwAddrVal & 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
}
```

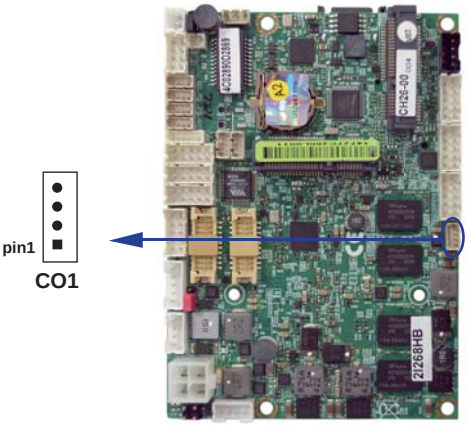
Disable WatchDog

```
void F75111_SetWDTDisable ()
{
   WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,0x00);                         // Disable WatchDog
}
```

3-17 I²C Bus

- **CO1: I²C Bus 4pin (1.25mm)Wafer**

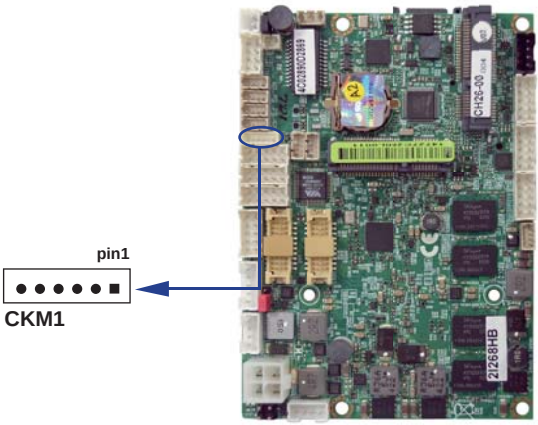
PIN NO.	Description
1	+3.3V
2	GND
3	I²C Clock
4	I²C DATA



3-18 PS2 Keyboard / Mouse connector

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

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



3-19 LAN port

● CL1 : LAN1 port Giga /100Mb(2x4pin 2.0mm wafer)

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

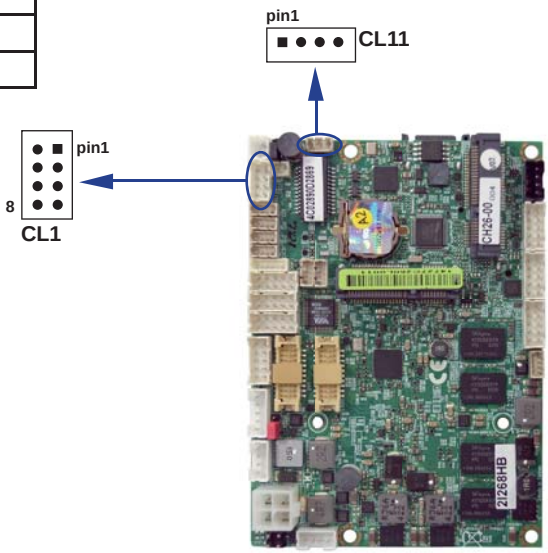
● RJ45 jack to CL1 wafer

RJ45 PIN	CL1 PIN	Description	RJ45 PIN	CL1 PIN	Description
1	2	TR0+/TX+	5	6	TR2-/NC
2	1	TR0-/TX-	6	5	TR1-/RX-
3	4	TR1+/RX+	7	8	TR3+/NC
4	3	TR2+/NC	8	7	TR3-/NC

Note: 1. CL1 pin connector to RJ45 describer table
2. RJ45 PIN to CL1 cable check table

● CL11: LAN1 LED indicator (1X4pin 1.25mm Wafer)

PIN NO.	Description
1	+3.3V
2	Speed 10M
3	Speed 100M
4	Speed 1000M



3-20 USB port

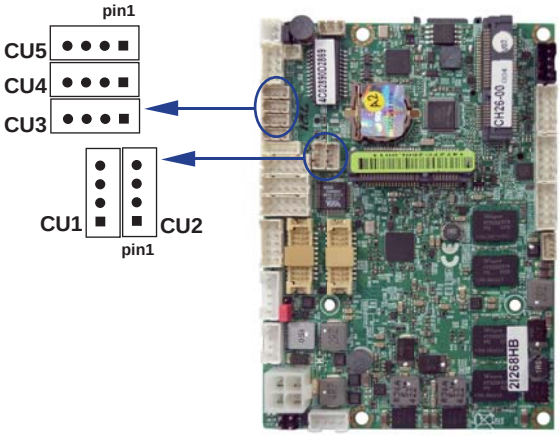
- **Internal USB connector (4pin 1.25mm Wafer)**

  CU1/CU2: USB 1/2 ports

  CU3/CU4: USB3/4

  CU5: USB5

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

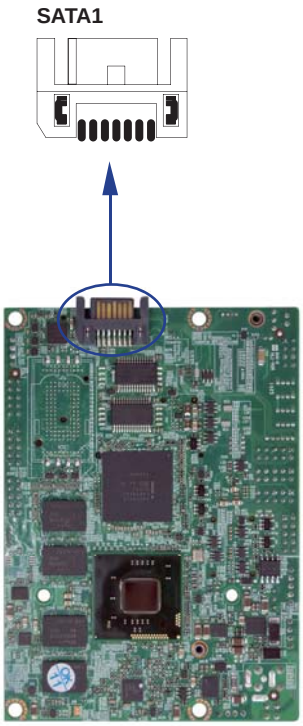


3-21 SATA port

- **SATA1: SATA connector (7pin wafer)**

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

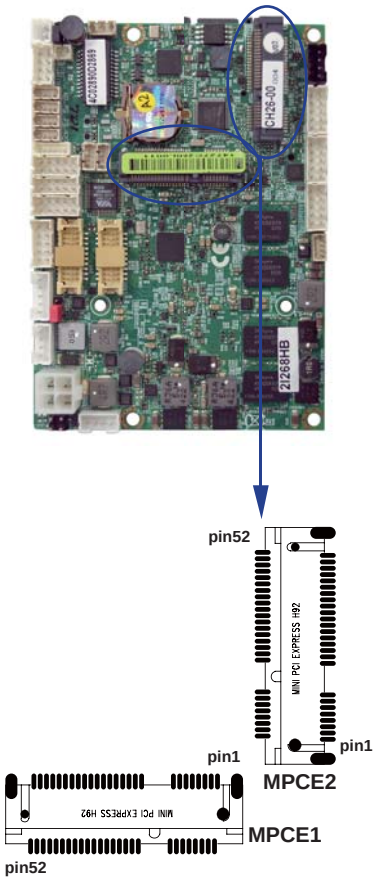
Note: CPO1 provide SATA HDD power.



3-22 Mini card & SIM card

- **MPCE1: Full size mini card (Mini card socket 52pin)**
  MPCE2: Full size mini card (Mini card socket 52pin)
  SIM1 : SIM card reader socket

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



Note: 1. MPCE1: Default support USB / PCIe interface
2. MPCE2: Default support USB / mSATA, mSATA port share on board SSD driver.
mSATA can change to PCIe function by OEM.
3. SIM1 for SIM card reader socket provide for MPCE1 port use.
SIM1 socket share with on board SSD

Chapter-4

Introduction of BIOS

The BIOS is a program located in the Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gains control. The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary hardware, it detects the entire hardware devices and configures the parameters of the hardware synchronization. After these tasks are completed, BIOS will give control of the computer back to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate with, it is the key factor of system stability and of ensuring your system performance at best.

4-1 Enter Setup

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

4-2 Getting Help

Main Menu

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

Status Page Setup Menu/Option Page Setup Menu

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

4-3 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu has twelve setup functions and two exit choices. Use arrow keys to select among these items. Press <Enter> to accept or enter the sub-menu.

Phoenix-AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ PC Health Status
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PnP/PCI Configurations	Exit Without Saving
Esc : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Time. Date, Hard Disk Type …	

Standard CMOS Features

This Menu is for basic system configurations.

Advanced BIOS Features

This menu is to set the Advanced Features available in your system.

Advanced Chipset Features

This menu is to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

This menu is to specify your settings for integrated peripherals.

Power Management Setup

This menu is to specify your settings for power management.

PnP/PCI configurations
This entry appears if your system supports PnP/PCI.

PC Health Status
This entry shows your PC health status.

Load Optimized Defaults
Use this menu to load the BIOS default values for optimal system performances.

Set Supervisor/User Password
This menu is to set User and Supervisor Passwords.

Save & Exit Setup
Save CMOS values modified to CMOS and exit setup.

Exit Without Saving
Abandon all the CMOS values modified and exit setup.

4-4 Standard CMOS Features
The items in Standard CMOS Setup Menu are divided into several categories. Each category includes none, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want to modify with this item.

Phoenix - AwardBIOS CMOS Setup Utility

Standard CMOS Features

		Item Help
Date (mm:dd:yy)	Sat, Jun 1 2009	Menu Level ►
Time (hh:mm:ss)	0 : 0 : 0	
►IDE Channel 0 Master	[None]	Change the day. Month, year and century
►IDE Channel 1 Master	[None]	
Video	[EGA/VGA]	
Halt On	[No Errors]	
Base Memory	640K	
Extended Memory	2086912K	
Total Memory	2087936K	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually. If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

Video

The setting controls the type of video adapter used for the primary monitor of the system.
Settings are: EGA/VGA (default), CGA 40, CGA 80 and Mono.

Halt On

The setting determines whether the system will stop if an error is detected at boot.

Settings are:	All Errors:	The system stops when any error is detected.
	No Errors (default):	The system doesn't stop for any detected error.
	All, But Keyboard:	The system doesn't stop for a keyboard error.

4-5 Advanced BIOS Features

Phoenix – AwardBIOS CMOS Setup Utility

Advanced BIOS Features

			Item Help
	► Hard Disk Boot Priority	[Press Enter]	Menu Level ►
	► USB Boot Priority	[Press Enter]	
	Virus Warning	[Disabled]	
	Hyper-Threading	[Enabled]	
	Quick Power On Self Test	[Enabled]	
	First Boot Device	[USB-FDD]	
	Second Boot Device	[CDROM]	
	Third Boot Device	[Hard Disk]	
	Boot Other Device	[Enabled]	
	Boot Up NumLock Status	[On]	
	Gate A20 Option	[Fast]	
	Typematic Rate Setting	[Disabled]	
x	Typematic Rate (Chars/Sec)	6	
x	Typematic Delay (Msec)	250	
	OS Select For DRAM > 64MB	[Non-OS2]	
	HDD S.M.A.R.T Capability	[Disabled]	
	Full Screen LOGO Show	[Enabled]	
	Small Logo(EPA) Show	[Disabled]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Hard Disk Boot Priority

Please refer section. 4-5-1

USB Boot Priority

Please refer section. 4-5-2

Virus Warning

The Virus Warning feature can help you to protect IDE Hard Disk boot sector.
If this function is enabled, BIOS will show a warning message on screen and alarm beep when someone attempts to write data into this area without permission.

Disabled (default) No warning message appears when anything attempts to access the boot sector or hard disk partition table.

Enabled Activate automatically when the system boots up. The system will show the warning message if anything attempts to access the boot sector of hard disk partition table.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer.
If this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled (default) Enable quick POST

Disabled Normal POST

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
Settings are: Hard Disk, CDROM, USB-Device, USB-FDD, LAN and Disabled

Boot Other Device

Setting the option to Enabled allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

Boot Up NumLock Status

On (default) Keypad is numeric keys.

Off Keypad is arrow keys.

Gate A20 Option

Normal The A20 signal is controlled by keyboard controller or chipset hardware.

Fast (default) The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Set the number of times a second to repeat a keystroke when you hold the key down.
Settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec)

Set the delay time after the key is held down before is begins to repeat the keystroke.
Settings are 250, 500, 750, and 1000.

OS Select For DRAM > 64MB

Allows OS2 to be used with >64MB or DRAM. Settings are Non-OS/2 (default) and OS2.
Set to OS/2 if using more than 64MB and running OS/2

4-5-1 Hard Disk Boot Priority

Phoenix – AwardBIOS CMOS Setup Utility

Hard Disk Boot Priority

1. Ch1 S. : XXX-XXXXX 2. Ch2 P. : XXX-XXXXX 3. Bootable Add-in Cards	Item Help Menu Level ►

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Ch1 S/Ch2 P

It allows you to set the priority for hard disk boot. When you press enter,
the selections shows the current hard disks used in your system

Bootable Add-in Cards

that is relevant to other boot sources media such as SCSI cards and LAN cards.

4-5-2 USB Boot Priority

Phoenix – AwardBIOS CMOS Setup Utility

USB Boot Priority

1. USB HDD0 : XXX-XXXXX 2. USB HDD1 : XXX-XXXXX	Item Help Menu Level ►

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

USB HDD0/USB HDD1

It allows you to set the priority for USB storage boot. When you press enter,
the selections shows the current USB storage used in your system

4-6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Phoenix – AwardBIOS CMOS Setup Utility

Advanced Chipset Features

System BIOS Cacheable	[Enabled]	Item Help
►PCI Express Root Port Func	[Press Enter]	Menu Level ►
** VGA Setting **		
On-Chip Fram Buffer Size	[8MB]	
DVMT Mode	[Enable]	
Total GFX Memory	[128MB]	
Boot Display	[Auto]	
Panel Number	[1024 X 768 18bit]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Settings are: Enabled (default) and Disabled.

PCI Express Root Port Func

Please refer to section 4-6-1

On-chip Frame Buffer Size

This item allows you to select on-chip buffer size

The item choice: 1MB, 4MB, 8MB (default), 16MB, 32MB, 48MB, 64MB

DVMT Mode

This item allows you to select the DVMT mode.

The choice: Disabled, Enabled

Total GFX Memory

This item allows you to select the graphics memory size.

The memory size choice: 128MB (default), 256MB, 384MB, MAX

Boot Display

This item allows you to select the display device.

Display Device: Auto (default), CRT, HDMI/DVI, LVDS, CRT+HDMI/DVI

Panel Number

This item allows you to select the panel resolution

1. 640 X 480 18bit
2. 800 X 600 18bit *
3. 1024 X 768 18bit * (default)
4. 800 X 480 18bit
5. 1024 X 600 18bit
6. 1280 X 800 18bit
7. 1366 X 768 18bit

4-6-1 PCI Express Root Port Func

Phoenix – AwardBIOS CMOS Setup Utility

PCI Express Root Port Func

		Item Help
PCI Express Port 1	[Auto]	Menu Level ►
PCI Express Port 2	[Auto]	
PCI Express Port 3	[Auto]	
PCI Express Port 4	[Auto]	
PCI-E Compliancy Mode	[v1.0a]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

PCI Express Port 1/2/3/4

These items are Disable, Enable and Auto (default) for port 1 to port 4 of PCIe device.

Note: Port 1 to port 6 will all disables, if you select "Disable" on Port 1 item.

PCI-E Compliancy Mode

This item determines PCI Express bus in mode?

V1.0a (default) it's compliant PCI Express in v1.0a specification.

V1.0 it's compliant PCI Express in v1.0 specification.

4-7 Integrated Peripherals

Phoenix – AwardBIOS CMOS Setup Utility

Integrated Peripherals

		Item Help
►OnChip IDE Device	[Press Enter]	Menu Level ►
►Super IO Device	[Press Enter]	
►USB Device Setting	[Press Enter]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

OnChip IDE Device Function
Please refer to section 4-7-1

Super IO Device Function
Please refer to section 4-7-2

USB Device Setting
Please refer to section 4-7-3

4-7-1 OnChip IDE Device Function

Phoenix – AwardBIOS CMOS Setup Utility

OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
IDE DMA transfer access	[Enabled]	Menu Level ►
IDE Primary Master PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
SATA Mode	[IDE]	
LEGACY Mode Support	[Disabled]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

IDE HDD Block Mode
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Disabled, Enabled (default).

Primary/Secondary Master/Slave PIO
The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto (default), Mode 0, Mode 1, Mode 2, Mode 3 and Mode 4.

Primary/Secondary Master/Slave UDMA
Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver)You're your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support.
Settings are: Auto(default) , Disabled.

4-7-2 Super IO Function

Phoenix – AwardBIOS CMOS Setup Utility

Super IO Function

Onboard Serial Port 1	[3F8/IRQ4]	Item Help
COM1 422/485 flow control	[Disabled]	Menu Level ►
Onboard Serial Port 2	[2F8/IRQ3]	
COM2 422/485 flow control	[Disabled]	
PWRON After PWR-Fail	[Former-Sts]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Onboard Serial Port 1&2

Select an address and corresponding interrupt for the first and the second serial ports.

Settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

COM1/2 422/485 flow control

This item allows you to disable or enable RS422 or RS485 function on COM 1/2, if you need.

PWRON After PWR-fail

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

Settings are: Off: Leaves the computer in the power off state.

On: Leaves the computer in the power on state.

Former-Sts: Restores the system to the status before power failure or interrupt occurred(Defualt).

4-7-3 USB Device Function

Phoenix – AwardBIOS CMOS Setup Utility

USB Device Function

USB 1.0 Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	Menu Level ►
USB Operation Mode	[High Speed]	
USB Keyboard Function	[Enabled]	
USB Mouse Function	[Enabled]	
USB Storage Function	[Enabled]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

USB 1.0 Controller

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB peripherals.

Settings are: Enabled (default), Disabled.

USB 2.0 Controller

Select Enabled if your system contains a Enhanced Serial Bus (USB) controller and you have a USB peripherals.

Settings are: Enabled (default), Disabled.

USB Operation Mode

High speed:

If USB device was high speed device, then it operated on high speed mode. If USB device was full/low speed device, then it operated on full/low speed mode.

Full/Low Speed: All of USB device operated on full/low speed mode.

USB Keyboard Function/ USB MOUSE Function/USB Storage Function

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard or USB mouse and USB storage.

Settings are: Enabled (default), Disabled.

4-8 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use.

Phoenix – AwardBIOS CMOS Setup Utility

Power Management Setup

		Item Help
► PCI Express PM Function	[Press Enter]	Menu Level ►
ACPI Function	[Enabled]	
ACPI Suspend Type	[S1(POS)]	
Power Management	[User Define]	
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-Off]	
AT Mode Function	[Disabled]	
Resume by Alarm	[Disabled]	
x Date(of Month) Alarm	0	
x Time(hh:mm:ss) Alarm	0 : 0 : 0	
** Reload Global Timer Events **		
Primary IDE 0	[Disabled]	
Primary IDE 1	[Disabled]	
Secondary IDE 0	[Disabled]	
Secondary IDE 1	[Disabled]	
FDD,COM,LPT Port	[Disabled]	
PCI PIRQ[A-D]#	[Disabled]	
HPET Support	[Enabled]	
HPET Mode	[32-bit mode]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

PCI Express PM Function

Please refer to section 4-8-1

ACPI Function

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

Video Off Method

This determines the manner in which the monitor is blanked.

DPMS (default) Initial display power management signaling.

Blank Screen This option only writes blanks to the video buffer.

V/H SYNC+Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Video Off in Suspend

This determines the manner in which the monitor is blanked.

Yes Video will off.

No Video always On.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

The settings are: 3(default), 4, 5, 7, 9, 10, 11, NA.

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm

You can choose which month the system will boot up. Set to 0, to boot every day.

Time(hh:mm:ss) Alarm

You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work

4-8-1 PCI Express PM Function

Phoenix – AwardBIOS CMOS Setup Utility

PCI Express PM Function

►PCI Express PME	[Enabled]	Item Help
		Menu Level ►

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

PCI Express PME

This item allows you to wake-up system, when PME event has presence.

4-9 PnP/PCI Configuration Setup

This section describes how to configure the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at the speed the CPU itself keeps when CPU communicates with its own special components. This section covers some very technical items and we strongly recommended that only experienced users should make any change to the default settings.

Phoenix – AwardBIOS CMOS Setup Utility

PnP/PCI Configurations

	Init Display First	[PCI Slot]	Item Help
	Reset Configuration Data	[Disabled]	Menu Level ►
	Resources Controlled By	[Auto(ESCD)]	
x	IRQ Resources	Press Enter	
	PCI/VGA Palette Snoop	[Disabled]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled.

Resource Controlled By

The Award Plug and Play BIOS can automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95/98. If you set this field to "manual", choose a specific resource by going into each sub menu that follows this field (a sub menu is preceded by a ">"). Settings are: Auto(ESCD) (default) or Manual.

IRQ Resources

Please refer section. 4-9-1

PCI/VGA Palette Snoop

Leave this field at Disabled. The settings are Enabled or Disabled.

4-9-1 IRQ Resources

When resources are controlled manually, each system interrupt is assigned a type, depending on the type of device using the interrupt.

Phoenix – AwardBIOS CMOS Setup Utility

IRQ Resources

			Item Help
IRQ-3	assigned to	[PCI Device]	Menu Level ►
IRQ-4	assigned to	[PCI Device]	Legacy ISA for devices Compliant with the original PC AT bus specification, PCI/ ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.
IRQ-5	assigned to	[PCI Device]	
IRQ-7	assigned to	[PCI Device]	
IRQ-9	assigned to	[PCI Device]	
IRQ-10	assigned to	[PCI Device]	
IRQ-11	assigned to	[PCI Device]	
IRQ-12	assigned to	[PCI Device]	
IRQ-14	assigned to	[PCI Device]	
IRQ-15	assigned to	[PCI Device]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

4-10 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.

Phoenix – AwardBIOS CMOS Setup Utility

PC Health Status

		Item Help
VCC3V	3.31V	Menu Level ►
Vcore	0.97V	
VGFX	0.86V	
VBS3V	3.29V	
CPU Temp.	47°C	
System Temp.	56°C	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Current CPU Temperature/Current System Temp

Vcore/VGFX/VBS3V/VBAT

This will show the CPU/Graphics/FAN/System voltage chart.

4-11 Load Optimized Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

```
Load Optimized Defaults ( Y/N )? N
```

Press <Y> to load the default values that are factory settings for optimal system operation performance.

4-12 Set Supervisor/ User Password

You can set supervisor password, user password, or both. The differences are:

Supervisor password: You can enter the setup menus and change the options.

User password: You can enter the setup menus but do not have the right to change the options. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed will clear any previous password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection without entering password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm if you want to disable the password. Once the password is disabled, the system will boot and you can enter Setup menus freely.

PASSWORD DISABLED.

When a password has been enabled, you have to enter it every time before you enter the Setup. This prevents an unauthorized person from changing any part of your system configuration.

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.

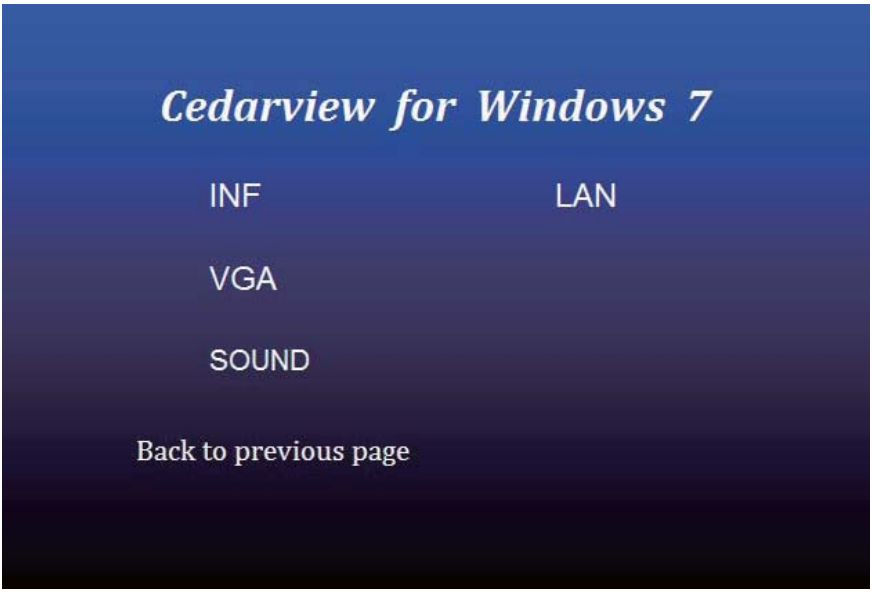
SYSTEM INSTALL Supports Windows Win7

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

From SYSTEM INSTALL MENU you may make 3 selections:

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

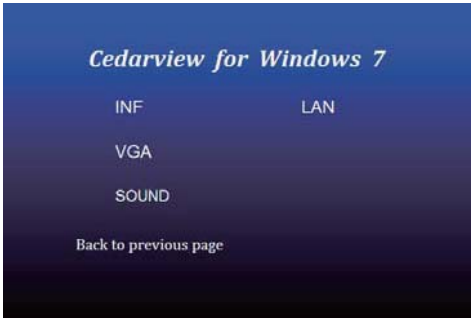
AUTOMATIC DRIVER INSTALLATION menu



1. INF install Intel Cedarview chipset driver
2. VGA install onboard VGA driver
3. SOUND install VIA HD Audio Codec driver
4. LAN to the LAN driver Readme file

Each selection is illustrated below:

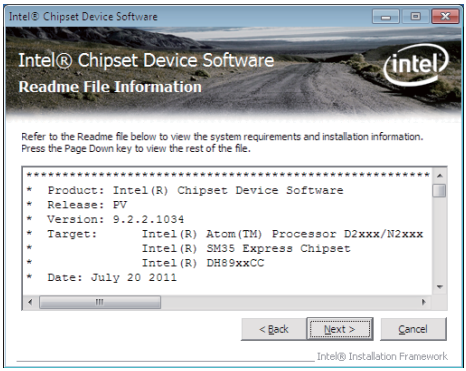
5-1 INF Install Intel Cedarview Chipset Driver



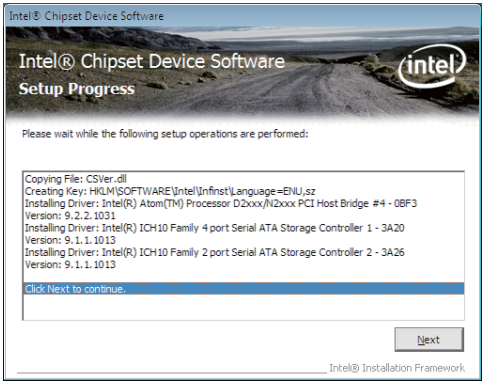
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "INF".

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

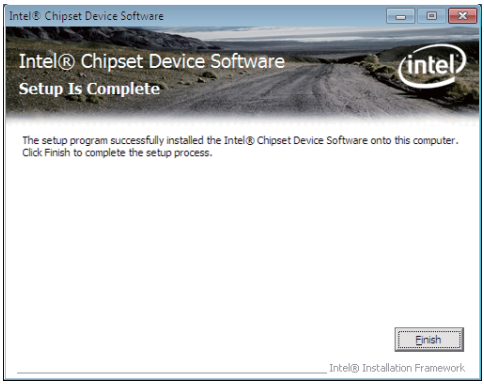
3. At the "License Agreement" screen, click "Yes"



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



5. Click "Next"



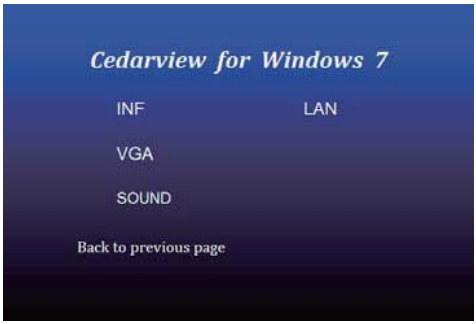
6. Click "Finish" to restart computer

NOTE: SYSTEM INSTALL will auto detect file path

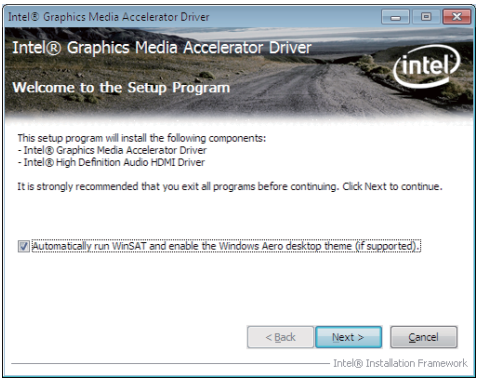
X:\driver\INTEL\D2700\inf\infinst_autol.exe

This driver supports Windows XP 64/32-bit and Windows 7 64/32-bit.

5-2 VGA Install Intel Cedarview VGA Driver



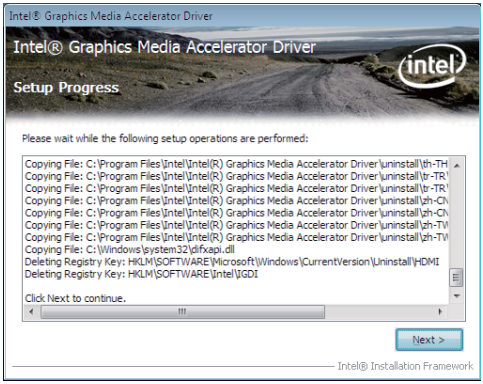
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "VGA".



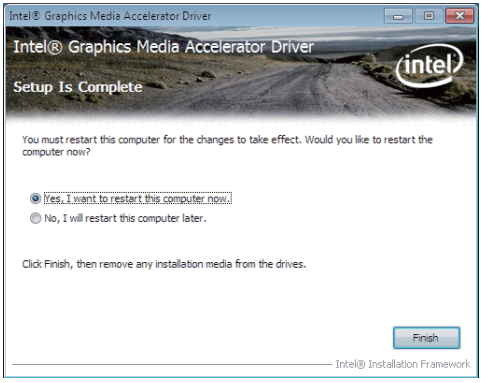
2. At the "Intel® Graphics Media Accelerator Driver" screen, click "Next".

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

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



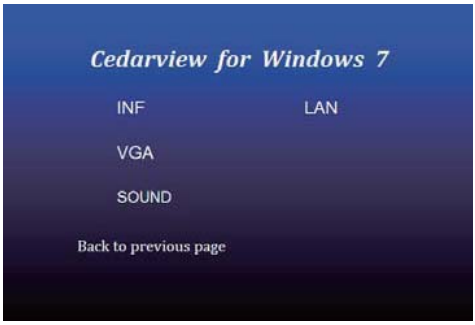
5. Click "Next".



6. Click "Finish" to restart computer

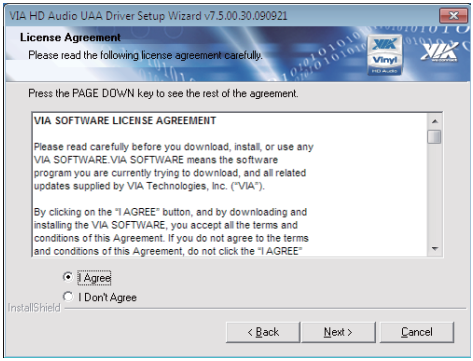
NOTE: The path of the file
For WINDOWS 7 32-bit
x:\driver\INTEL\D2700\vga\Win7_32\Setup.exe
The Cedarview VGA driver does not supported Windows XP 32/64-bit and Windows 7 64-bit.

5-3 SOUND Install VIA HD Audio Codec Driver

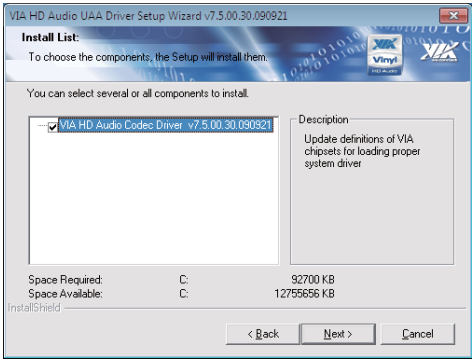


1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, Click "SOUND".

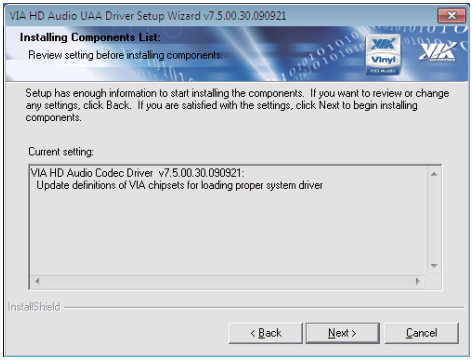
2. Click "Next".



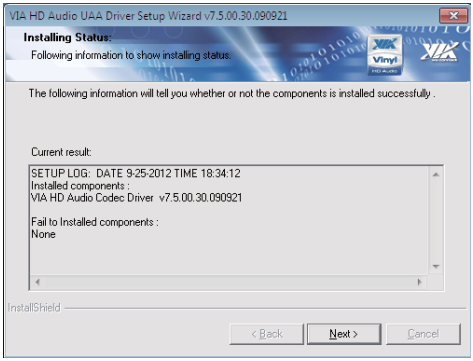
3. Click "Next"



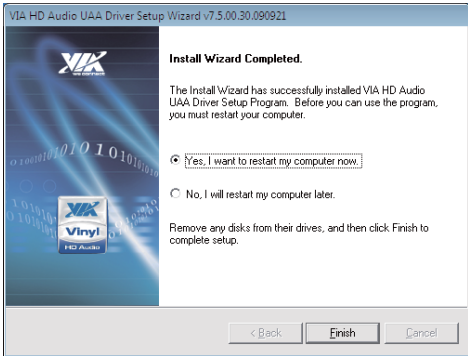
4. Click "Next" to install the driver.
It might take a few minutes.



5. Click "Next"



6. Click "Next"



7. Click "Finish" to restart computer.

NOTE: The path of the file
For Windows XP 32/64 bit and Windows 7 32/64-bit
X:\driver\INTEL\I945\SOUND\VIAHDAudV7500a_Setup.exe

5-4 HOW TO UPDATE BIOS

Under DOS Mode

STEP 1. Prepare a bootable disc.

(Storage device could be USB FDD, CF card, or USB pen drive.)

STEP 2. Copy utility program to your bootable disc. You may copy it from DRIVER CD X:\Dirver\bios\AWDFLASH.EXE or download it from our web site.

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

STEP 4. (Here take 2I268H 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:\ Awdflash 2I268Hxx.BIN /SN/PY/WB/CC/R

2I268Hxx.BIN is the file name of the latest BIOS.

It may be 2I268HA1.BIN or 2I268HA2.BIN, etc.

Please leave one space between .BIN & /SN/PY/WB/CC/R

By 2I268HW/HB series mainboard, pls type

X:\Awdflash 2I268Hxx.BIN /SN/PY/WB/CC/R

SN : don't save the current BIOS data

PY : renew the current BIOS data

WB : always programming Boot Block

CC : clear the current CMOS data

R : restart computer

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

Computer will restart automatically.

Appendix A: Power Consumption Test

Condition

Item	Spec
CPU	Intel Atom N2600 1.6Ghz
SDRAM	DDR3 1333 / 2GB
Operating System	Windows 7 / SP1
Test Program	3D Mark 03
HDD 3.5" SATA	Standard HDD
HDD 2.5" SATA	Slim Type HDD
mSATA	half size 16GB

Test Result for reference only !

Hard Disk	Power off	Start up		Operation Maximum	Shut down Maximum	In Put Voltage
		Maximum	Stable			
Standard HDD	0.07A	2.36A	1.33A	N/A	1.34A	9V
	0.04A	2.30A	1.06A	1.72A	1.35A	12V
	0.03A	1.01A	0.53A	0.72A	0.66A	24V
	0.03A	0.77A	0.41A	0.54A	0.51A	32V
Slim Type HDD	0.08A	1.32A	0.97A	1.43A	1.37A	9V
	0.06A	0.92A	0.70A	0.99A	0.91A	12V
	0.04A	0.48A	0.37A	0.50A	0.46A	24V
	0.04A	0.37A	0.27A	0.37A	0.36A	32V
mSATA	0.05A	1.27A	0.91A	1.36A	1.22A	9V
	0.04A	0.85A	0.61A	0.92A	0.87A	12V
	0.03A	0.44A	0.32A	0.45A	0.42A	24V
	0.03A	0.33A	0.25A	0.35A	0.32A	32V

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)