CI847A/C

Intel Ivy Bridge Celeron 1047UE / i7 DDR3 1333/1600 MT/s / LAN / DVI/ HDMI /Audio /USB / PCIe mini card

All-In-One
Intel Mobile Ivy Bridge Celeron 1047UE / i7
VGA, DVI, HDMI, LVDS, PCIe mini card
Multi-COM Board, Audio, LAN, SATA, USB

NO. CI847A/C_V0.1
Release date: Mar. 10. 2014

Contents

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User Manual edition 0.1, Mar. 10. 2014

Warning !

1. Battery

Battery on board is consumables. We doesn't guarantee the life time of it.

2. Fanless solution with HDD

Please be aware of specification & limitation for HDD when fanless solution is implemented.

3. We will not give further notification if there is any change about the product information and the manual.

4. SATA does not support Hot SWAP.

5. There would be ± 20% difference of WDT at room temperature.

6. Please make sure the voltage specification meet the requirement of the equipment before plugging into the power.

7. SSD has 2 types, commercial grade and industrial grade, which provide different read/write speed, operation temperature and life cycle. Please contact sales for further information before ordering.

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

9. Please avoid to approach the heat sink area and prevent being scalded when using the Fanless products.

10. If the users repair, modify or destroy any component of product unauthorized, We would not take responsibility or provide warranty.

11. DO NOT apply any other material onto the thermal pad in case reducing cooling performance.

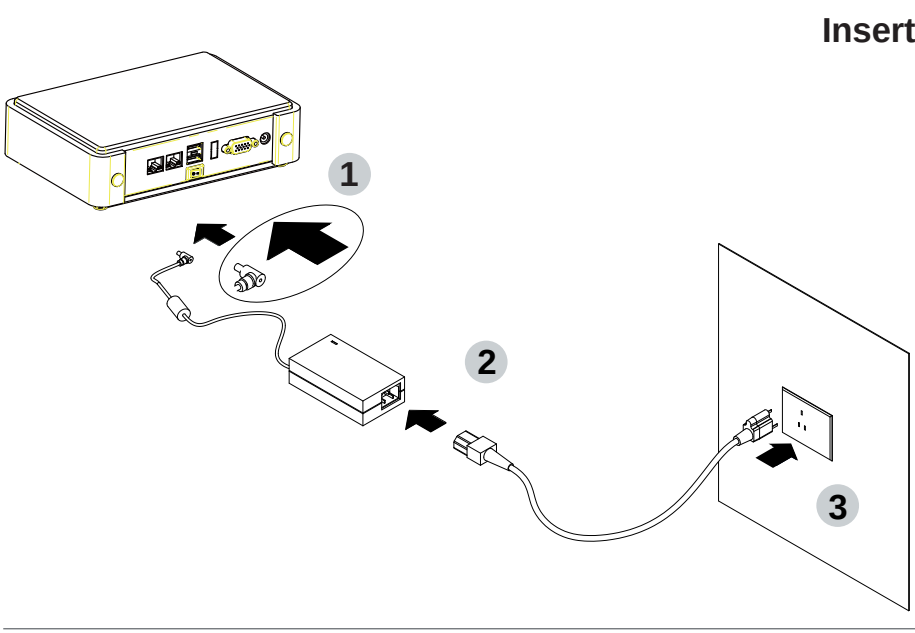
12. It is important to install a System Fan toward the CPU to prevent the possibility of overheating / system hang up issues from Cedar view-D series of motherboard or else customer is required to have well cooling system to dissipate heat from CPU.

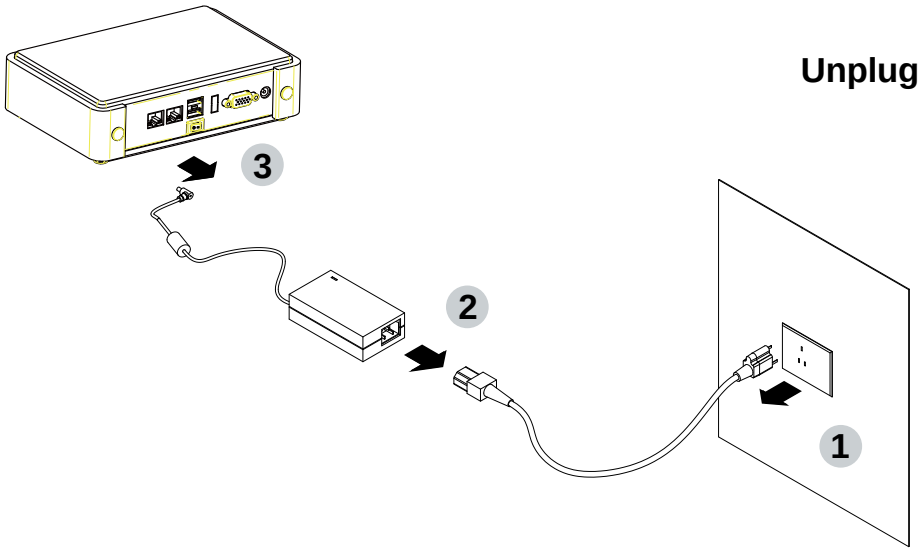
✻ Hardware Notice Guide

1. Before installing the power supply with this motherboard, please attach the 12V/DC (4 pin connector)of the adapter to motherboard first.
   After that, plug the adapter power to AC outlet.
   Always normally shut down the computer before you move the system unit or remove the power supply from the motherboard.
   Please unplug the 12V/DC (4 pin connector) of the adapter from motherboard first.
   Then unplug the adapter from the AC outlet.
   Please refer to procedure from the photo 1
2. There will be high possibility to burn out the CPU if you change/ modify any parts of the CPU cooler.
3. 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 that is of ground connection or with metal surface if you don't have wrist strap.
4. Please be careful when you handle this product. Pay attention to & don't touch the sharp-pointed components at the bottom PCB .
5. Please pay attention to this: Remove or change any components form the motherboard will VOID the warranty of the motherboard you purchased .
6. Before you install/remove any components or make any jumper setting on the motherboard, please make sure to disconnect the power first.
   (Please follow the instructions as of this guide)
7. Please only use single side Mini PCIe card, do not use the double side Mini PCIe card which is not suitable.
8. Please follow this instruction carefully when using the "POWERON after PWR-Fair" function.
   When the DC power adaptor runs out of power, unplug it from the DC current;
   when power returns plug it back in only after 5 seconds. If there is a power outage, unplug it from the AC current, when power returns plug it back in only after 30 seconds.
   Otherwise it will cause system locking or serious damage.

Remark 1:
Always insert/unplug the 12V/DC (4 pin connector) horizontally & directly from the motherboard.
DO NOT twist the 12V/DC (4 pin connector) gently, it is designed to fit snugly . Moreover, erratic pull / push testing with the DC Jack might cause the unpredictable damage to the component & system unit.

Photo 1





Chapter-1

General Information

The CI847A/C is All-In-One board which could apply to the use of Networking, POS or Automation Control Board. It is designed to combine all necessary input and output affects interfaces, which makes it to be ideal All-In-One control board for the demand of Networking, POS and Automation Control applications.

High-performance and power-efficient communication platform, the embedded motherboard of CI847A/C is specially designed for advanced POS systems where the economical use of power is in high demand. Also, the high performing CI847A/C comes with two DDR3 1066/1333 MHz SO-DIMM slots with up to 16GB memory and four SATA ports. This motherboard will ensure the high performance levels required for today's most popular POS/Automation control applications including POS, ATM, and Panel PC applications.

CI847A/C has Intel LAN chipset with 10/100/1000 Mbps Ethernet for seamless broadband connectivity. With the Wake-On LAN function and the PXE function in BIOS for Intel LAN chipset, it is perfect control board for networking devices.

CI847A/C also supports with multi-COM ports of five RS232 and one RS422/485/232 to meet the needs of connectivity for multiple COM ports. In addition, there are multi-ports of Hi-Speed USB 3.0/2.0 to enhance the host controller interface which will ensure the high performance level and flexible expansion. The CFast Card socket supports SATA interface 2.0. A single Flash chip holds the system BIOS, and you can change the Flash BIOS by the Utility Update.

The supported display interfaces include DVI-D, VGA, LVDS and HDMI.
With a small footprint of only 200 x 150 mm and advanced performance in both computing and graphics, this board meets the requirement of system developers in the gaming, POS, digital signage, and server market segment.

1-1 Major Feature

1. Mobile Ivy Bridge 1047UE / i7 Processor
2. IIntel® HM76 Express Chipset
3. DDR3 up to 16GB; data transfer rates of 1333MT/s and 1600 MT/s
4. 2 x Intel® Giga LAN
5. Support expanded PCI Gold finger, PCIe Mini card for PCIe x 1 and USB interface, PCIe Mini card for PCIe x1 or mSATA and USB interface
6. Support 2 SATA ports 3.0, 2 SATA ports 2.0.
7. CFast card for serial ATA interface 2.0. (Option)
8. Hardware digital Input & Output, 8 x DI / 8 x DO

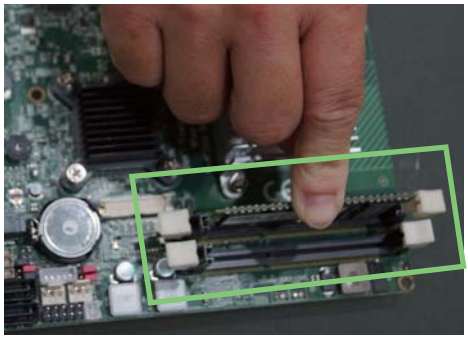
   Hardware Watch Dog Timer, 0~255 sec programmable
9. On board DC +12V
10. PCB Dimension: 200 x 150 mm (LEX Standard)
11. Support SIM card sockets
12. CI847C is with USB /COM interface Touch screen controller, support 4- , 5- , 8- wire Analog Resistive touch screen. Resolution is up to 2048 x 2048

1-2 Specification

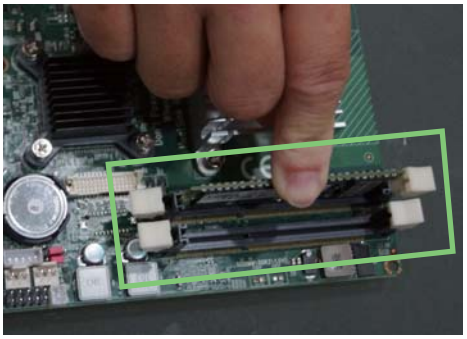
1. **CPU+Chipset:** Intel Chief River platform; the 2-chip platform consists of a Mobile Ivy Bridge 1047UE / i7 Processor and the Platform Controller Hub (PCH) Panther Point HM76 chipset.
2. **Memory:** 2 DDR3 SO-DIMM sockets support 2 channels of DDR3 memory with a maximum of 1 SO-DIMM per channel, single- and dual-channel memory organization modes, Memory DDR3 data transfer rates of 1333MT/s and 1600 MT/s
3. **VGA:** Intel Mobile Ivy Bridge 1047UE / i7 Processor Integrated Graphics
4. **SATA:** Integrated Serial ATA Host Controller Up to 6 SATA ports: 2 SATA ports 3.0 Data transfer rates up to 6.0 Gb/s (600 MB/s), 2 SATA ports 2.0 Data transfer rates up to 3.0 Gb/s (300 MB/s), 1 CFast card type I/II socket for serial ATA interface 2.0 (Option) 1 mini card socket for mSATA or on board NAND drive.
5. **LAN:** Intel 82579LM Gigabit Ethernet PHY & Intel 82574L PCIe LAN NIC
6. **Serial Port:** 5 x RS232 + 1 x RS485/422/232 half duplex operation, one port COM2 support RS422/485 or RS232 for jumper selectable, 4 serial ports for optional.
7. **USB:** External 3.0 x 2 / 2.0 x 2, Internal 2.0 x 5
8. **Sound:** Intel High Definition Audio Interface
9. **Audio Amplifier:** 2 channel Class AB Audio Amplifier, 2.2W/Ch (Typ.) into a 3Ω Load, 1.8W/Ch (Typ.) into a 4ΩLoad, 1.2 W/Ch (Typ.) into a 8ΩLoad (Option)
10. **WDT/DIO:** Hardware digital Input & Output, 8 x DI / 8 x DO / Hardware Watch Dog Timer, 0~255 sec programmable
11. **Expansion interface:** 1 PCI Gold finger, 1 PCIe Mini card for PCIe x1 and USB interface, 1 PCIe Mini card for PCIe x1 or mSATA and USB interface, 2 SIM card sockets (1 SIM card socket is option)
12. **BIOS:** AMI UEFI BIOS
13. **Dimension:** 200 x 150 mm (LEX Standard)
14. **Power:** On board DC +12V
15. **Power Consumption:** Please refer to Page. 93
16. **3G Wireless:** 3G SIM card reader
17. **LVDS:** 1 LVDS 2x15 pin (1.25mm) connector for 24bits/2ch LVDS interface
18. **Touch function:** CI847C: USB /COM interface Touch screen controller, support 4- , 5- , 8- wire Analog Resistive touch screen. Resolution is up to 2048 x 2048

1-3 Vertical SODIMM assembly guide

1. Install the memory into SODIMM.



2. Press down firmly to ensure the memory is locked.



Uninstall

1. Pull open both sides of the memory slot.

2. Take out the memory.

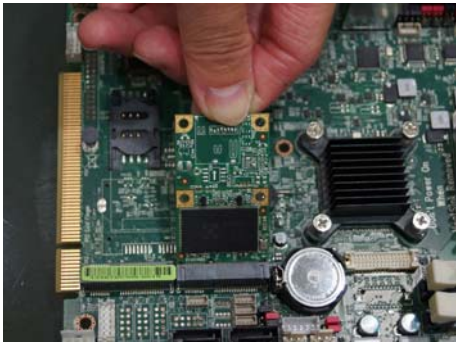
1-4 Installing the CFast

1. Install the CFast card into the CFast socket.

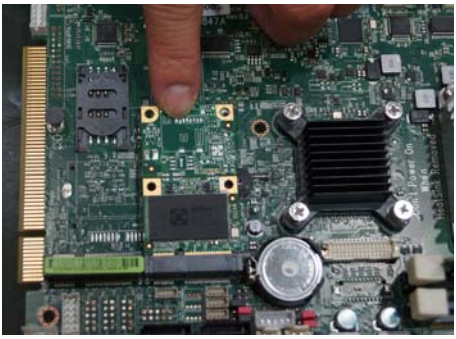
1-5 Directions for installing the Mini Card

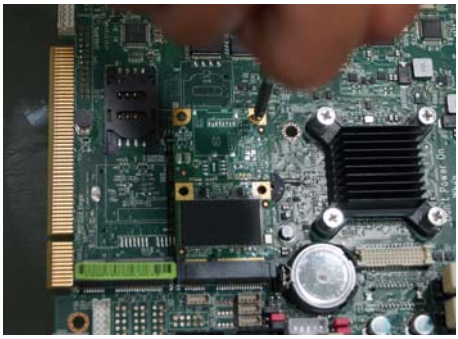
1. Unscrew the screw on the board

2. Plug in the Mini Card in a 45° angle

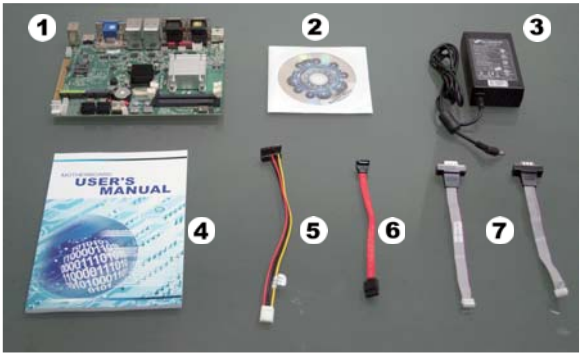


3. Gently push down the Mini Card and screw the screw back.





1-6 Packing List (CI847A/C)



	Material Code	Description	Detail Specification	Quantit
1	7G1901-1301001-0	MB-CI847A-6C-00-001	LF,CI847A-6C-00,Rev.:001	1
2	6G8006-2344-0100	DVD	LF,Intel Cedarview-M/D,Sandy Bridge	1
3	6G5212-1203-0200	120W Power Adapter,12V	LF,M4p/Lock,FSP120-AHAN1,FSP	1
4	6G8001-2179-0400	Manual	LF,M/B,CI847A/CI847C	1
5	6G6003-1009-0100	SATA Power Cable	LF,L=25cm,1*5/2.0 to 180° SATA 15p	1
6	6G6001-2203-0100	SATA DATA Cable (Red)	LF,L=25cm	1
7	6G6001-2005-0100	COM FK	LF,2.0 2*5P/DB9P,L=15cm	2

*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

This chapter provides the information how to install the hardware of CI847A/C. Please follow section 1-6, 2-1 and 2-2 to check the delivery package and unpack carefully. Please follow the jumper setting procedure.

2-1 Unpacking Precaution

The CI847A/C board has been well packed with
an anti-static bag to protect its sensitive components and circuitry from damage due to static electric discharge.

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 CI847A/C.
   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 CI847A/C 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 CI847A/C from electricity discharge. With reference to section 1-6 / 1-7 / 1-8, please check the delivery package again with following steps:

1. Unpack the CI847A/C 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.

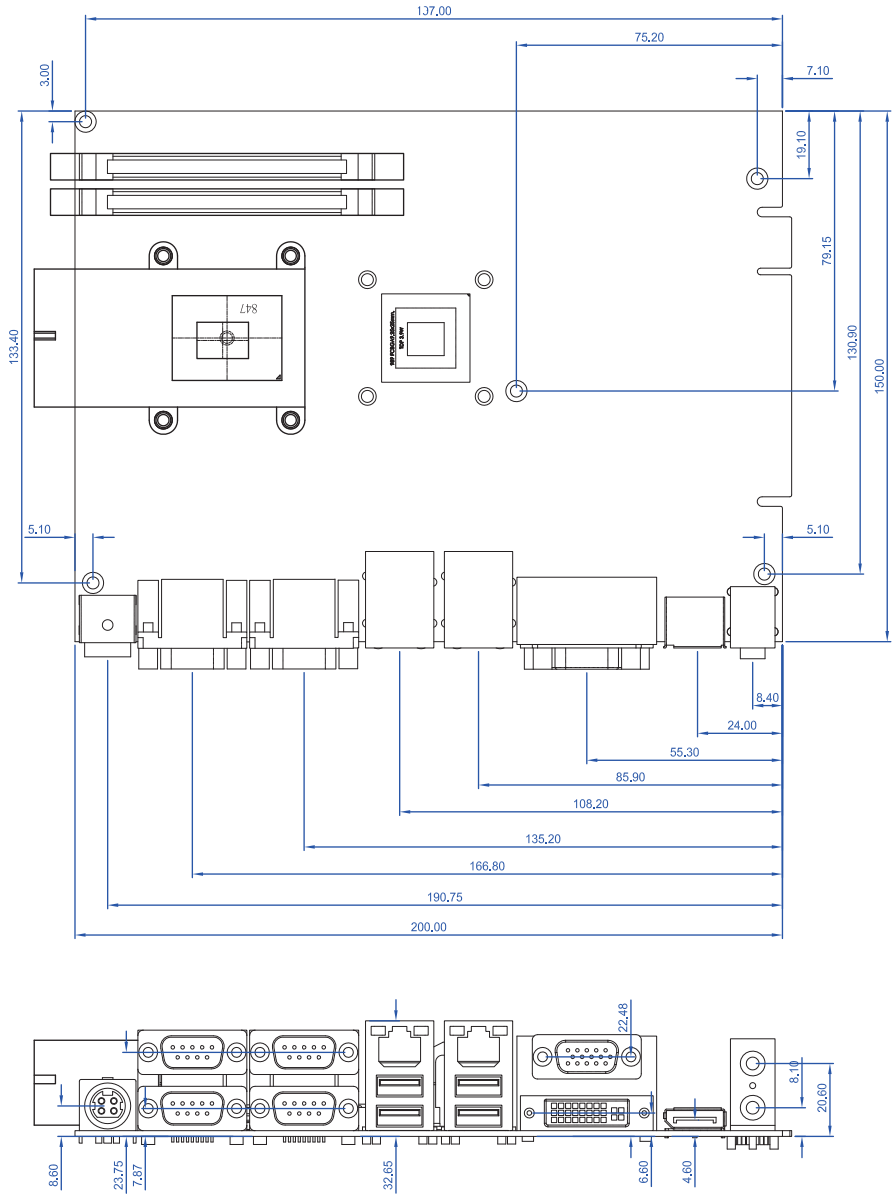
3. Is there any visible damage on the board?
   DO NOT CONTINUE TO INSTALL THIS BOARD! CONTACT
   THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.

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.

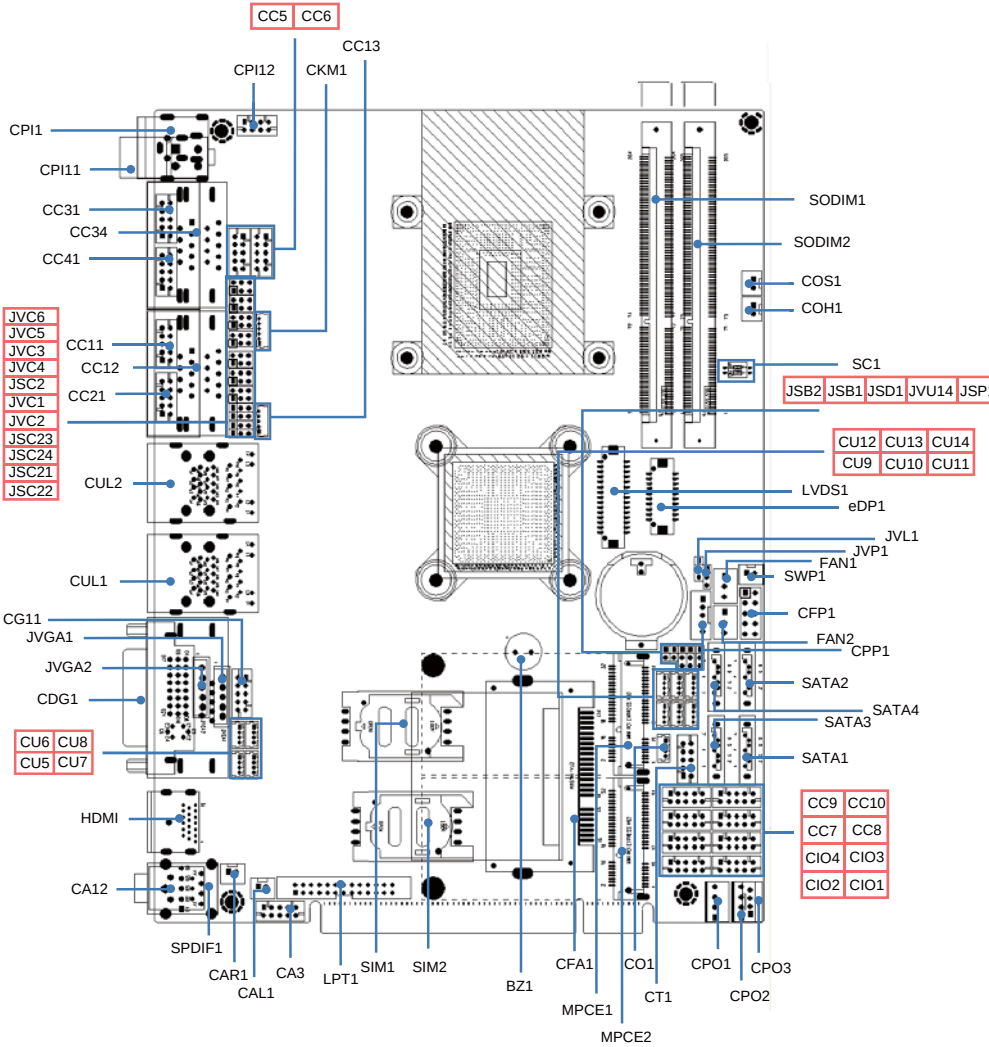
5. Check your external devices (i.e. Add-On-Card, Driver Type etc.)
   for complete add-in or connection and CMOS setup correctly.
   Please also refer to all information of connector connection in this manual.

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

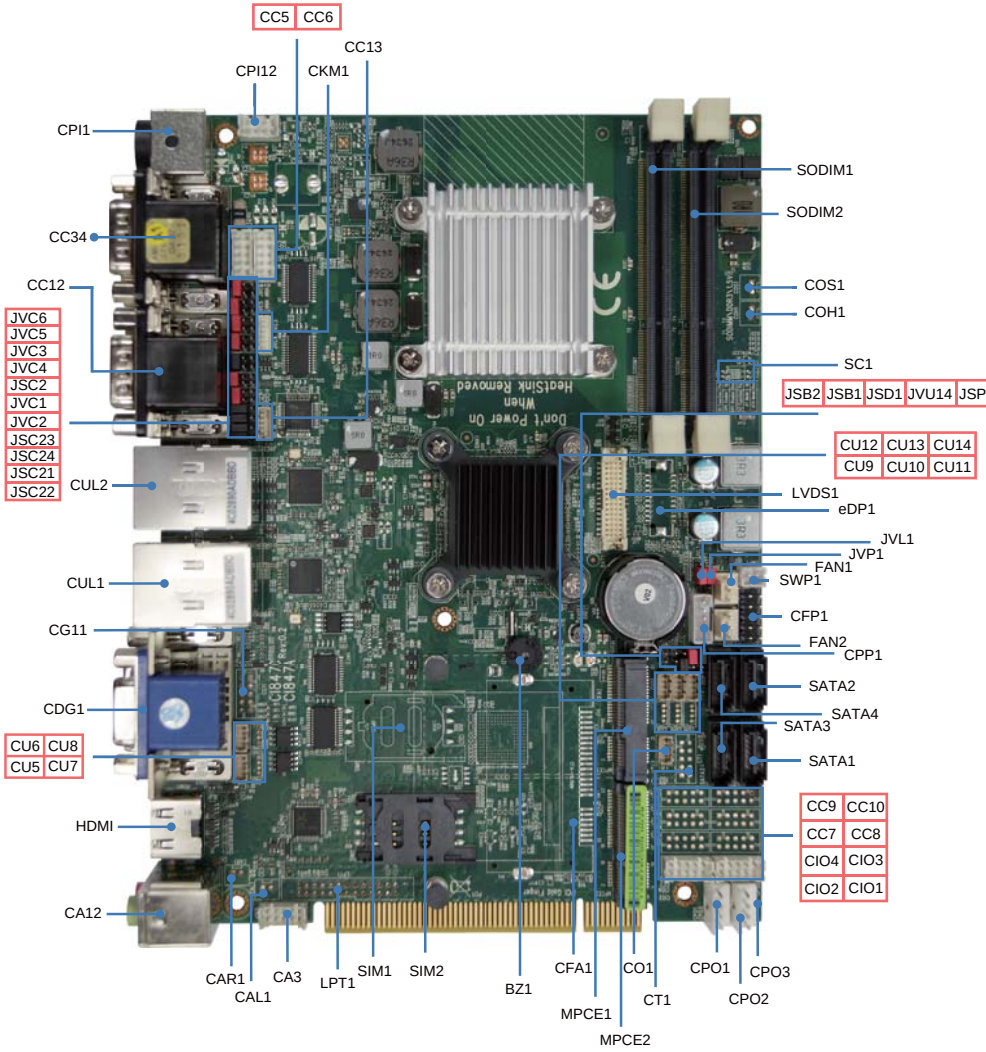
2-3 Dimension 200 x 150 mm - CI847A/C



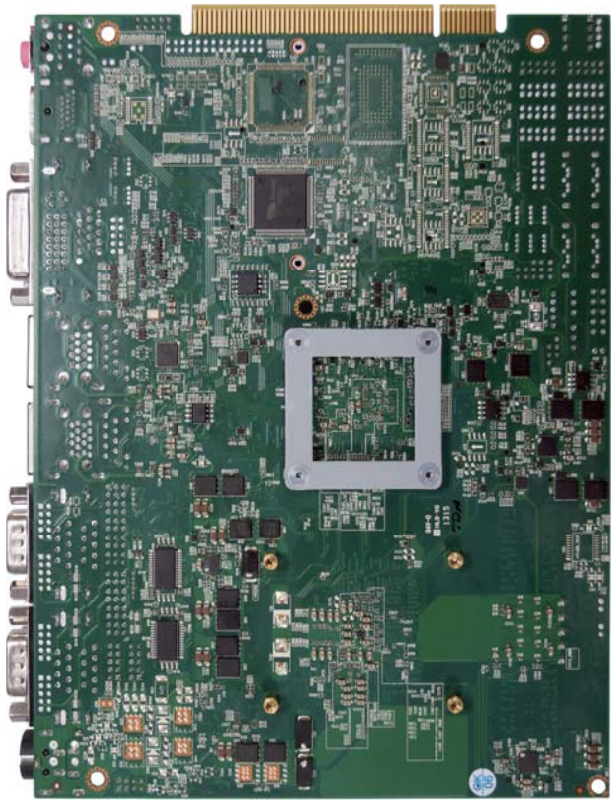
2-4 Layout - CI847A/C



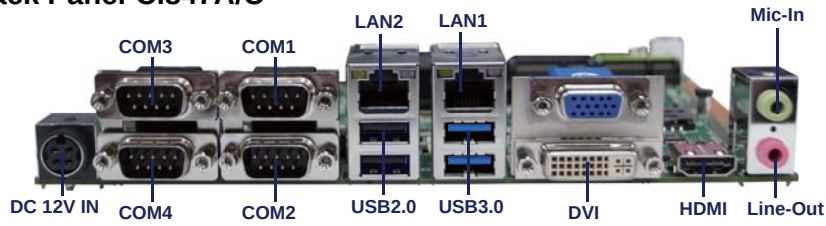
2-5 Diagram- CI847A/C



2-5-1 Bottom Side Diagram- CI847A/C



Back Panel-CI847A/C



2-6 Install Memory

This motherboard provides one 204-pin Small Outline Dual In-line Memory Module (SODIMM) socket for memory expansion available maximum to of 2GB/4GB/8GB DDR3 SDRAM.
DDR3 clock supports: DDR3 1333/1600MT/S

Valid Memory Configurations

DIMM1	System Accept or Not	Total Memory
		Max.
DS/SS	Accept	8GB

DS: Double Sided DIMM **SS: Single Sided DIMM**

NOTE!
The detected memory size is less than actual installed memory size since some memory has been allocated for system use.
That's how PC works with system memory.

Please refer to page 7 for installation of memory module.

NOTE!

When you install SODIMM module fully into the SODIMM socket, the eject tab should be locked into the SODIMM module very firmly and fit into its indention on both sides.

WARNING!

Once you hear " Beep Beep Beep" sounds after turning on the power , please check if the DRAM is installed properly or not.

2-7 List of Jumpers

JSB1: CMOS clear select

JSB2 : ME RTC clear select

JSC2,JSC21/22/23/24: COM2 RS232/RS422/RS485 select

JSD1: DPC Duty select

JSP1: ATX / AT Power type select

JVC1: COM1 voltage select

JVC2: COM2 voltage select

JVC3: COM3 voltage select

JVC4: COM4 voltage select

JVC5: COM5 voltage select

JVC6: COM6 voltage select

JVL1: LCD Panel power select

JVP1: LVDS Panel Inverter power select

JVU14: USB14 voltage select

2-8 Jumper Setting Description

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

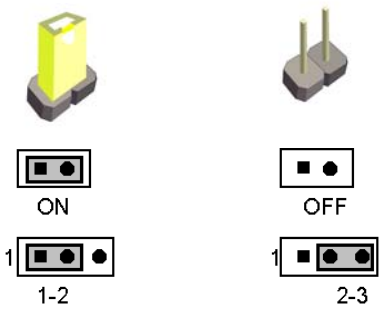


Figure 2.2

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

2-9 CMOS Data Clear

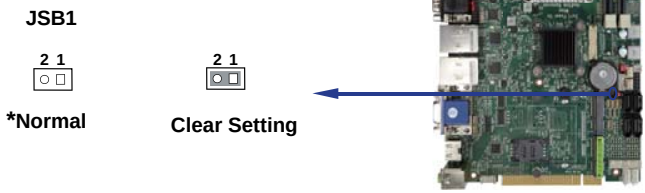
A battery must be used to retain the motherboard configuration in CMOS RAM. Close Pin1 and pin 2 of JSB1 to store the CMOS data.

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

JSB1: CMOS Data Clear

JSB1	Description
*open	Normal Set
short	CMOS Data clear

Note：Normal work is open jumper



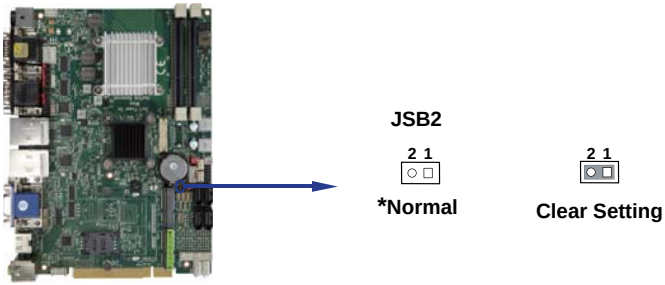
2-10 JSB2：ME RTC Data clear

A battery must be used to retain the motherboard configuration in ME RAM.
Close Pin1 and pin 2 of JSB2 to store the ME data.

To clear the ME,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 BAT1 and Remove Li battery
4. Locate JSB2 and close pin 1-2 for few seconds
5. Return to default setting by openning pin 1-2
6. Install Li battery to BAT1 connector
7. Connect DC 12V power cable back to DC 12V Power connector

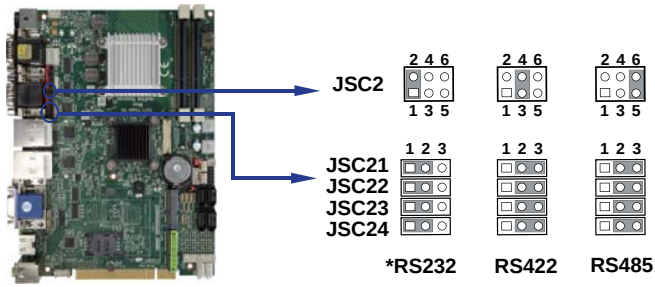
JSB2	Description
*open	Normal set
short	CMOS data clear

Note：Normal work is open jumper



2-11 JSC2,JSC21/22/23/24: COM2 RS232/RS422/RS485 select

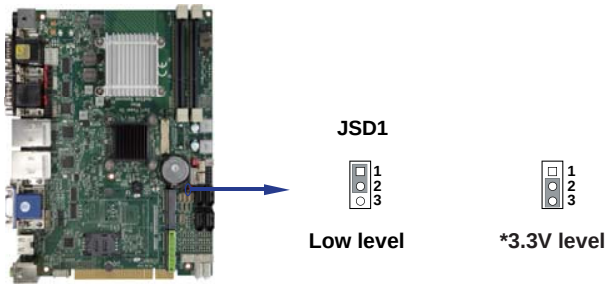
JSC2	JSC21	JSC22	JSC23	JSC24	Descripion
*1-2	*1-2	*1-2	*1-2	*1-2	RS232
3-4	2-3	2-3	2-3	2-3	RS422
5-6	2-3	2-3	2-3	2-3	RS485



2-12 JSD1：DPC Duty set

JSD1	DESCRIPION
1-2	Low 0% (Low level)
*2-3	Hi 100% (3.3V level)

Note：For Panel backlight dimming default active set

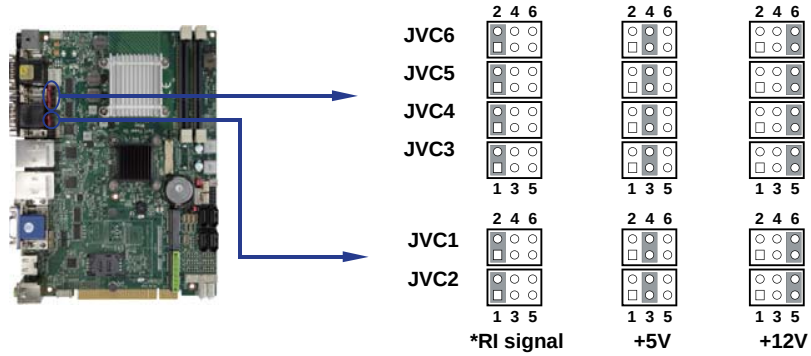


2-13 COM port pin9 select RI signal or Voltage source

JVC1: COM1 PIN9 select JVC2: COM2 PIN9 select
JVC3: COM3 PIN9 select JVC4: COM4 PIN9 select
JVC5: COM5 PIN9 select JVC6: COM6 PIN9 select

JVC1/2/3/4/5/6	Descripion
*1-2	COM port pin9 use RI signal
3-4	COM port pin9 use +5V voltage
5-6	COM port pin9 use +12V voltage

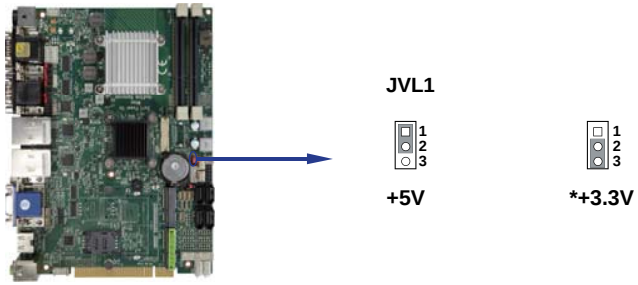
Note：1. Note：Attention ! Check Device Power in spec
2. If want to use +5V/+12V need check system power design spec



2-14 JVL1：LCD panel power select

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

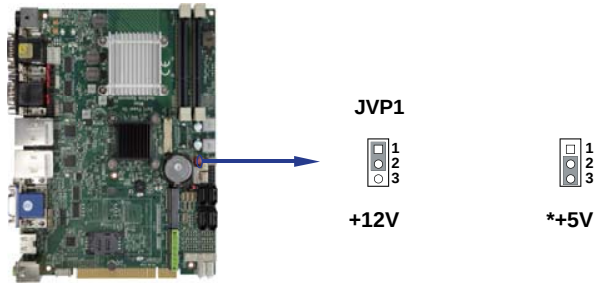
Note：Attention ! Check Device Power in spec



2-15 JVP1：LVDS panel Inverter power select

JVP1	Descripion
1-2	+12V
*2-3	+5V

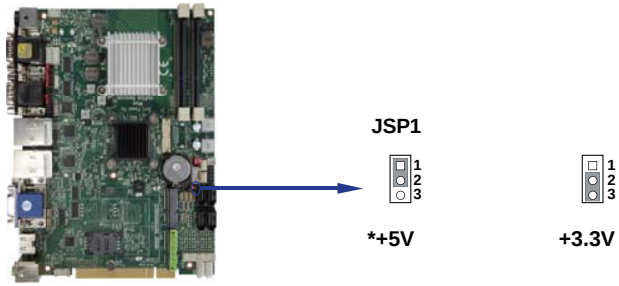
Note：Attention ! Check Device Power in spec



2-16 JSP1: AT/ATX power select

JSP1	Descripion
*1-2	ATX power mode
2-3	AT power mode

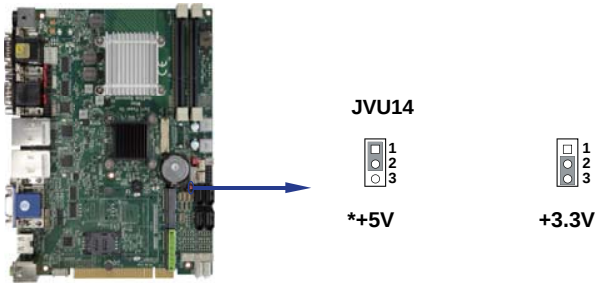
Note: BIOS PCI PME wakeup need set to enable.



2-17 JVU14 : USB Port 14 Voltage select

JVU14	Descripion
*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 DIN external connector (4pin mini din connector)

CPI11: DC 12V-in internal connector (2x2pin 4.2mm ATX connector).(Option)

CPI12: DC-in 2x4 pin (2.0mm) wafer connector.

BAT1 : Li 3V battery holder

CPO1: DC +5/+12V output connector (2.5mm) wafer.

CPO2: DC +5/+12V output connector (2.5mm) wafer.

CPO3: DC +5/+12V output 1x4 pin(2.0mm) wafer. (Option)

CFP1: Front panel port 2x5 pin (2.54mm) wafer.

SWP1: Power On/Off switch wafer.

FAN1: CPU fan 1x3 pin (2.54mm) wafer.

FAN2: System fan 1x3 pin (2.54mm) wafer.

CDG1: DVI-D (down side) / VGA (Up side) DB15p connector.

CG11: VGA port 2x5 pin (2.0mm) wafer. (Option)

HDMI1: HDMI type A connector.

eDP1: Embedded display-port 2x10pin (1.25mm) wafer.(TBD)

LVDS1: LVDS 2x15 pin (1.25mm) connector.

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

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

CA12: Mic-in (down side) / Line out (up side) phone jack.

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

CAL1: Amplifier Line-out Left channel 2pin (2.0mm) wafer. (Option)

CAR1: Amplifier Line-out Right channel 2pin (2.0mm) wafer. (Option)

SPDIF1: SPDIF audio output connector.

CC12: COM1 (up side) / COM2 (down side) dual DB9p connector.

CC11: COM1 2x5pin (2.0mm) wafer (The location share with CC12). (Option)

CC13: COM1 1x5pin (1.25mm) wafer.

List of Connectors

CC2: COM2 DB9p connector (The location share with CC12).

CC21: COM2 2x5pin (2.0mm) wafer (The location share with CC12). (Option)

CC34: COM3 (up side)/COM4 (down side) dual DB9p connector.

CC31: COM3 2x5pin (2.0mm) wafer (The location share with CC34). (Option)

CC4: COM4 DB9p connector (The location share with CC34).

CC41: COM4 2x5pin (2.0mm) wafer (The location share with CC34). (Option)

CC5: COM5 2x5pin (2.0mm) wafer.

CC6: COM6 2x5pin (2.0mm) wafer.

CC7: COM7 2x5pin (2.0mm) wafer. (Option)

CC8: COM8 2x5pin (2.0mm) wafer. (Option)

CC9: COM9 2x5pin (2.0mm) wafer. (Option)

CC10: COM10 2x5pin (2.0mm) wafer. (Option)

LPT1: LPT 2x13 pin (2.0mm) wafer. (Option)

CIO1: DI port 0 ~ 3, DO port 0 ~ 3 2x5 pin (2.0mm) wafer.

CIO2: DI port 4 ~ 7, DO port 4 ~ 7 2x5 pin (2.0mm) wafer.

CIO3: DI port 8 ~11, DO port 8 ~ 11 2x5 pin (2.0mm) wafer(TBD)

CIO4: DI port 12 ~15, DO port 12 ~ 15 2x5 pin (2.0mm) wafer(TBD).

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

CKM1: KB/MS port 1x6 pin (1.25mm) wafer connector.

CUL1: USB port 3.0/2.0 1/2 and LAN2 RJ45 connector.

CUL2: USB port 2.0 3/4 and LAN1 RJ45 connector.

CU5: USB port 2 4pin(1.25mm) wafer.

CU6: USB port 3 4pin(1.25mm) wafer.

CU7: USB port 7 4pin(1.25mm) wafer. (Option)

CU8: USB port 8 4pin(1.25mm) wafer. (Option)

CU9: USB port 9 4pin(1.25mm) wafer. (The port share with touch device)

CU10: USB port 10 4pin(1.25mm) wafer. (The port share with MPCE1)

CU11: USB port 11 4pin(1.25mm) wafer. (The port share with MPCE2)

CU12: USB port 12 4pin(1.25mm) wafer.

CU13: USB port 13 4pin(1.25mm) wafer.

List of Connectors

CU14: USB port 14 4pin(1.25mm) wafer.

SATA1: SATA port 1 (Gen III) connectors 7pin.

SATA2: SATA port 2 (Gen III) connectors 7pin.

SATA3: SATA port 3 connectors 7pin.

SATA4: SATA port 4 connectors 7pin.

CFA1: CFast card socket 7+17pin. (Option)

MPCE1: Mini card port 1 sockets 52pin.

MPCE2: Mini card port 2 sockets 52pin.

SIM1: SIM port 1 card socket.

SIM2: SIM port 2 card socket. (Option)

SODIM1/2: SO-DIM DDR3 1.5V DRAM Socket

PCI1: PCI / PCIe interface gold finger

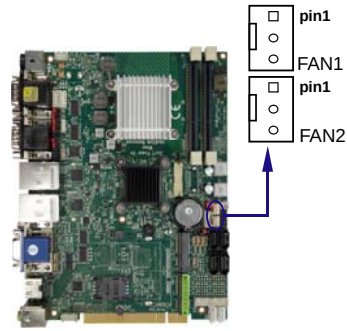
SC1: CPC & Control mode switch. (Option)

3-2 FAN Connector

- **FAN1：CPU FAN connector (3pin 2.5mm wafer)**
- **FAN2: System FAN connector (3pin 2.5mm wafer)**

PIN NO.	Description
1	GND
2	+12V
3	FAN speed detect

Note: DC in +12V by switch to FAN power +12V, so DC in need stable +12V input



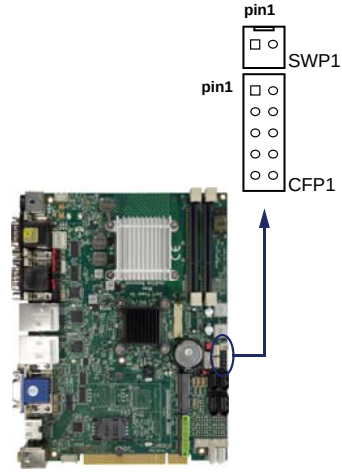
3-3 Front Panel connector

- **CFP1 Front panel connector (2x5pin 2.54mm 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+

- **SWP1 PB connector (2pin 2.0mm wafer)**

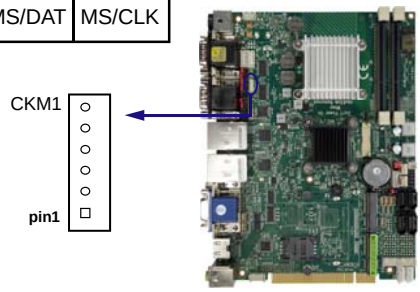
PIN NO.	Description
1	Power button pin
2	Power button GND



3-4 PS2 KB/MS

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

PIN NO.	1	2	3	4	5	6
Description	+5V	KB/DAT	KB/CLK	GND	MS/DAT	MS/CLK

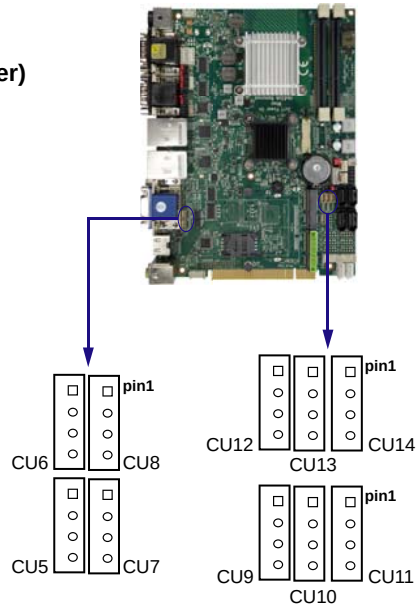


3-5 USB Interface

- **CU5/6/7/8/9/10/11/12/13**
  USB5/6/7/8/9/10/11/12/13Port (4pin 1.25mm Wafer)

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

Note: 1. CU7and CU8 no connector
2. The CU10 share with MPCE1 (no connector).
3. The CU11 share with MPCE2 (no connector).
4. The CU9 share with touch device (no connector).
5. CU10,CU11 pin can support +12V by OEM



- **CU14: USB14 port (4pin 1.25mm Wafer)**

PIN NO.	Description
1	+5V or +3.3V
2	USB DATA -
3	USB DATA +
4	GND

Note: 1.PIN 1 Voltage select from JVU14

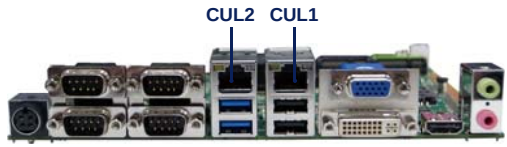
3-6 LAN / USB interface

- **CUL1 / CUL2 (Up side) :LAN Giga/100Mb (RJ45 Jack)**

PIN NO	Description	PIN NO.	Description
1	TD0-/TX+	5	TR2-/NC
2	TD0+/TX-	6	TD2+/RX-
3	TD1-/RX+	7	TD3-/NC
4	TD1+/NC	8	TD3+/NC

- **RJ45 LAN Connector--- LED define Giga/100MB Connector**

Back side con	RED LED	GREEN LED	ORANGE LED
Indicate	GIGA LAN Link(light)	100Mb LAN Link(light)	Active LED Link(Blink)



- **CUL1/CUL2 (Down side): USB3.0/2.0 (Type A jack)**

PIN NO.	Description	PIN NO.	Description
		1	USB3.0 TX+
1	+5V		
2	USB 2.0 D-	2	USB3.0 TX-
		3	GND
3	USB 2.0 D+	4	USB3.0 RX+
4	GND		
		5	USB3.0 RX-

Note： 1. USB 3.0 and USB 2.0 combo Type A Jack
2. CUL2 USB 2.0 only use port 3 and 4
3. CUL1 USB 3.0 port 1 and 2, USB2.0 port 1 and 2
4. USB3.0/2.0 Keyboard and Mouse use CUL1 can pitch Some OS install
And wake up Keyboard and Mouse can't work issue

LAN LED

Intel 82574L / 82579LM

Speed	10 Mbps			100 Mbps			1000 Mbps		
Indicate	Back Side		Fornt Side	Back Side		Fornt Side	Back Side		Fornt Side
	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led
LAN light		Orange	Orange	Green	Orange	Orange	Red	Orange	Orange

3-7 I/O Interface

- **COM ports (COM1~COM6 from support I/O)**
COM2 default support RS232/RS422/RS485 mode
COM1/3/4/5/6 default support RS232 mode

- **RS232 Mode connector (D-SUB 9pin)**
CC12: COM1 (up side) / COM2 (down side) port connector
CC34: COM3 (up side) / COM4 (down side) port connector
CC2: COM2 Single port connector. (The location share with CC12)
CC4: COM4 Single port connector. (The location share with CC34)

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: 1. Pin 9 RI and Voltage setting only for COM 1/2/3/4/5/6 ports
JVC1 for COM1,JVC2 for COM2 , JVC3 for COM3,JVC4 for COM4
2. COM2 default support RS232/RS422/RS485 by JSC2/21/22/23/24 selected.

- **RS485 Mode connector (D-SUB 9pin)**

CC12: COM1 (up side) / COM2 (down side) port connector
CC34: COM3 (up side) / COM4 (down side) port connector
CC2: COM2 Single port connector. (The location share with CC12)(Option)
CC4: COM4 Single port connector. (The location share with CC34)(Option)

PIN NO.	Description	PIN NO.	Description
1	RS485 TX-	6	NC
2	RS485 TX+	7	NC
3	NC	8	NC
4	NC	9	RI/VOLTAGE
5	GND		

Note: 1. COM2 default support RS232/RS422/RS485 by JSC2/21/22/23/24 selected.
2. COM1/3/4/5/6 Default RS232 , RS485 / 422 by OEM bom

- **RS422 Mode connector (D-SUB 9pin)**

CC12: COM1 (up side) / COM2 (down side) port connector
CC34: COM3 (up side) / COM4 (down side) port connector
CC2: COM2 Single port connector. (The location share with CC12)(Option)
CC4: COM4 Single port connector. (The location share with CC34)(Option)

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	RI/VOLTAGE
5	GND		

Note: 1. COM2 default support RS232/RS422/RS485 by JSC2/21/22/23/24 selected.
2. COM1/3/4/5/6 Default RS232 , RS485 / 422 by OEM bom

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

CC11: COM1 CC21: COM2
CC31: COM3 CC41: COM4
CC5: COM5 CC6: COM6

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

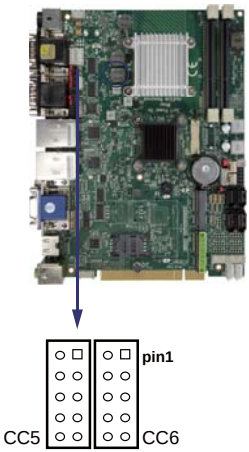
Note: 1. CC11, CC21 share with CC12 connector for OEM
2. CC31, CC41 share with CC34 connector for OEM
3. The Pin 9 Voltage set by JVC1/2/3/4/5/6

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

CC11: COM1 CC21: COM2
CC31: COM3 CC41: COM4
CC5: COM5 CC6: COM6

PIN NO.	Description	PIN NO.	Description
1	RS485 TX-	2	RS485 TX+
3	NC	7	NC
5	GND	6	NC
7	NC	8	NC
9	RI/ Voltage	10	NC

Note: 1. CC11, CC21 share with CC12 connector for OEM
2. CC31, CC41 share with CC34 connector for OEM
3. The Pin 9 Voltage set by JVC1/2/3/4/5/6



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

CC11: COM1 CC21: COM2
CC31: COM3 CC41: COM4
CC5: COM5 CC6: COM6

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

Note: 1. CC11, CC21 share with CC12 connector for OEM
2. CC31, CC41 share with CC34 connector for OEM
3. The Pin 9 Voltage set by JVC1/2/3/4/5/6

- **CC13: COM1 RS232 port (5pin 1.25mm Wafer)**

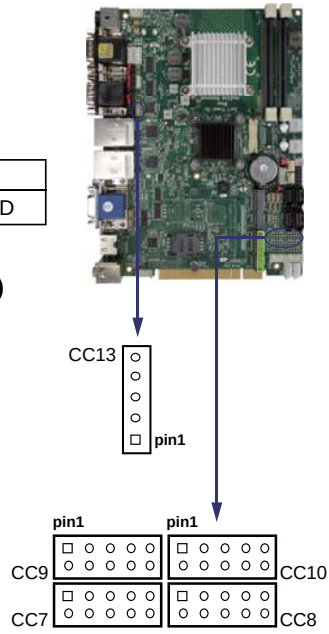
PIN NO.	1	2	3	4	5
Description	+5V	GND	RTS	TXD	RXD

Note: All signals are RS232 level.

- **COM ports (COM7~COM10 from OXPCIe954) (Option)**
- **RS232 mode ports (2x5pin 2.0mm Wafer)**

CC7: COM7 CC8: COM8
CC9: COM9 CC10: COM10

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



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

CC7: COM7 CC8: COM8
CC9: COM9 CC10: COM10

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

3-8 Audio interface

The CI847A / CI847C has an on-board AC'97 3D sound interface. There are the connectors of LINE OUT, MIC-IN connectors. The MIC-IN Jack header are for audio sound input. The LINE-OUT connector is a 4-pin Jack for audio sound output.

- **CA12: Up side Line out (3.5mm phone jack)**

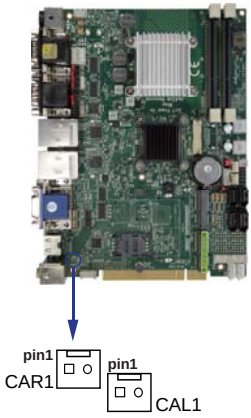
PIN NO.	1	2	3	4	5
Description	GND	Line OUT-L	NC	NC	Line OUT-R

- **CA12: Down side Mic in (3.5mm phone jack)**

PIN NO.	1	2	3	4	5
Description	GND	MIC-IN	NC	NC	MIC-IN

- **CA12: Down side Mic in (3.5mm phone jack)**

PIN NO.	Description	PIN NO.	Description
1	Line-out-R	2	MIC-IN
3	Line-in-R	4	GND
5	GND	6	GND
7	Line-in-L	8	NC
9	Line-out-L	10	MIC-IN



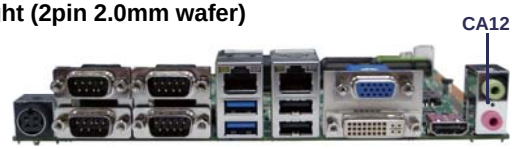
- **SPDIF1: SPDIF photo output connector.(SPDIF jack) (Option)**

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

Note: Share CA12 location , by OEM

- **Audio Amplifier class AB Two channel 2W/ch (Option)**
- **CAR1：Audio Amplifier Line Out Right (2pin 2.0mm wafer)**

PIN NO.	Description
1	LINE-OUT_R+
2	LINE-OUT_R-



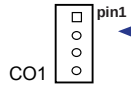
- **CAL1：Audio Amplifier Line Out Left (2pin 2.0mm wafer)**

PIN NO.	Description
1	LINE-OUT_L+
2	LINE-OUT_L-

3-9 I²C Bus Interface

- **CO1：I²C(SM) bus connector (4 pin 1.25mm wafer)**

PIN NO.	1	2	3	4
Description	+3.3V	GND	SMB_CLK	SMB_DATA



3-10 Digital Input / Output / Watch Dog Time

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

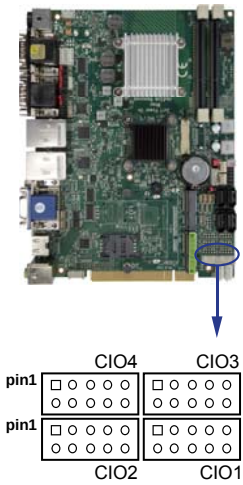
PIN NO.	Description	PIN NO.	Description
1	DI-0	2	DO-3
3	DI-1	4	DO-2
5	DI-2	6	DO-1
7	DI-3	8	DO-0
9	GND	10	+5V

Note：1. The system default 8DI and 8DO
2. DI pin default pull up 10KΩ to +5V
3. If use need isolate circuit to control external device
4. F75111N-1 I²C bus address 0x9c

- **CIO2 DIO 4 ~ 7 (2x5pin 2.0mm wafer)**

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

Note: 1. The system default 8DI and 8DO
2. DI pin default pull up 10KΩ to +5V
3. If use need isolate circuit to control external device
4. F75111N-1 I²C bus address 0x9c



- **CIO3 DIO 8 ~ 11 (2x5pin 2.0mm wafer) (TBD)**

PIN NO.	Description	PIN NO.	Description
1	DI-8	2	DO-11
3	DI-9	4	DO-10
5	DI-10	6	DO-9
7	DI-11	8	DO-8
9	GND	10	+5V

Note: 1. CIO3 is option function
2. DI pin default pull up 10KΩ to +5V
3. If use need isolate circuit to control external device
4. F75111N-2 I²C bus address 0x6e

- **CIO4 DIO 12 ~ 15 (2x5pin 2.0mm wafer) (TBD)**

PIN NO.	Description	PIN NO.	Description
1	DI-12	2	DO-15
3	DI-13	4	DO-14
5	DI-14	6	DO-13
7	DI-15	8	DO-12
9	GND	10	+5V

Note: 1. CIO4 is option function
2. DI pin default pull up 10KΩ to +5V
3. If use need isolate circuit to control external device
4. F75111N-2 I^2C bus address 0x6e

For F75111N I^2C watch dog timer device：

DC spec：

Input low Voltage (VIL)：+0.8 Max

Input High Voltage (VIH)：+2V Min

Output low Current (IOL)：10mA (Min) VOL=0.4V

Output High Current (IOH)：-10mA (Min) VOH=2.4V

Watch Dog Time value 0~255 sec

The system will be issued reset.

When WDT is enable the hardware start down counter to zero.

The reset timer have 10~20% tolerance upon the Temperature.

Note：If want to SDK support. Please contact to sales window.

3-10-1 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

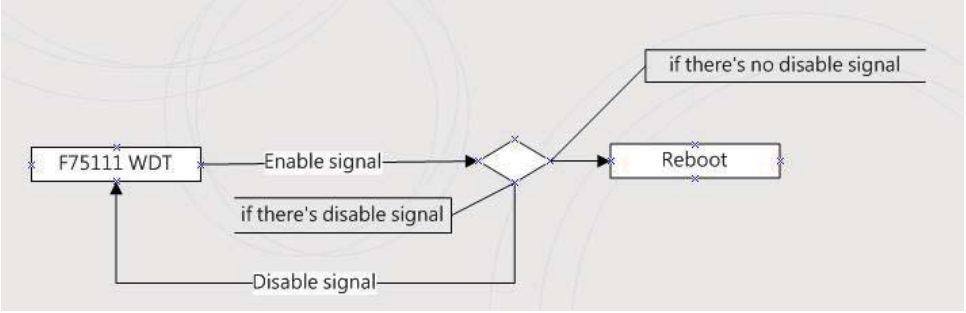
How to use this Demo Application

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

Enable Watch Dog Timer

```
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
```

Disable Watch Dog Timer

```
WriteI2CByte(I2CADDR, WDT_TIMER_CTL, 0x00);
```

Time Pause for mini seconds

```
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;
  }
```

3-10-2 IO Device: F75111 under Windows

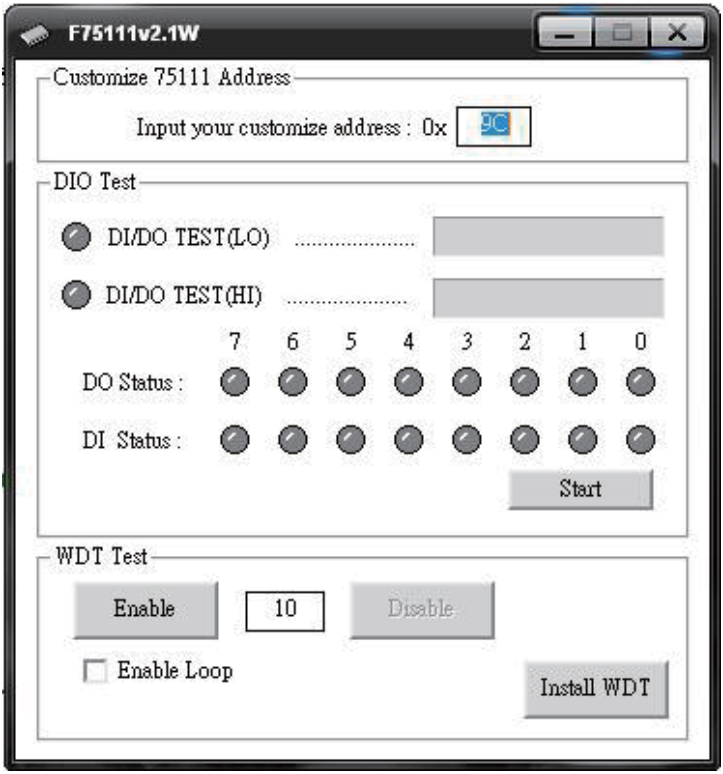
The Sample code source you can download from

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

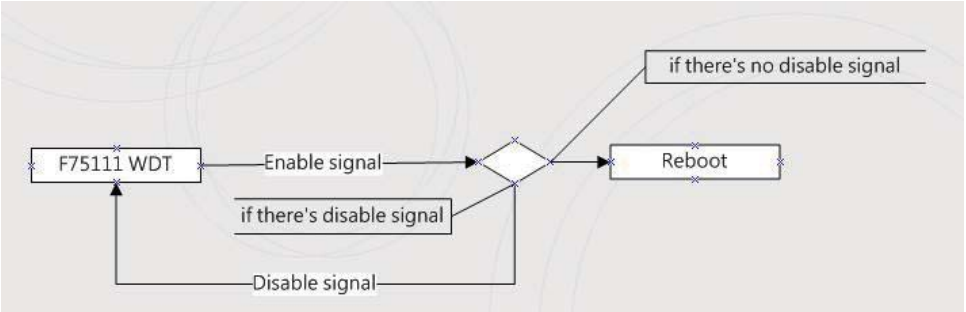
Binary file: F75111_DemoBin.rar

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.
}
```

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
}
```

3-10-3 IO Device: F75111 VB6 under Windows

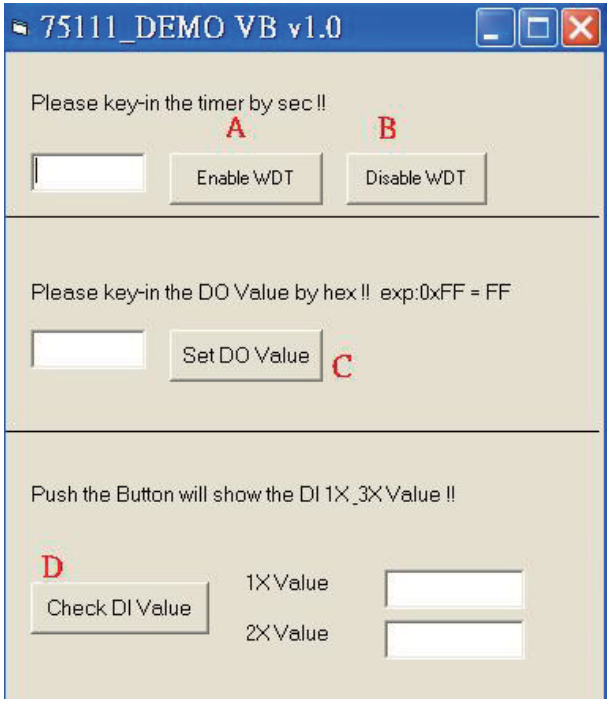
The Sample code source you can download from

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
```

3-10-4 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")

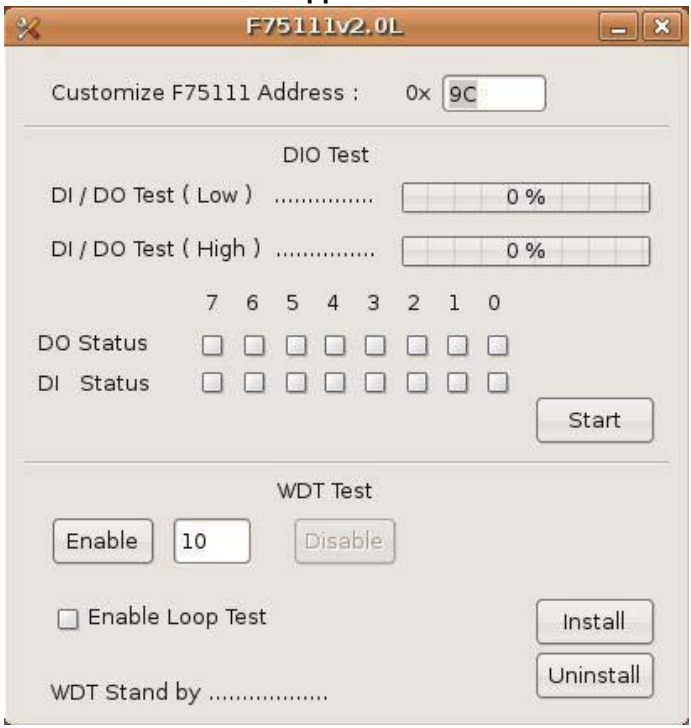
2. Compile source code with "make"

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

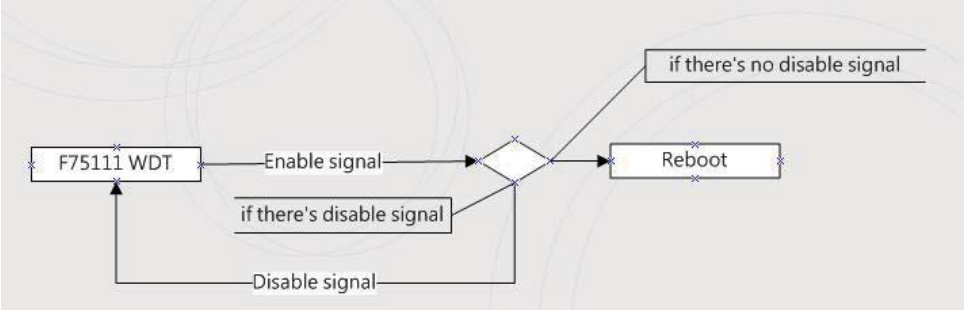
2. Press the "Enable" button to test WDT function

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

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
}
```

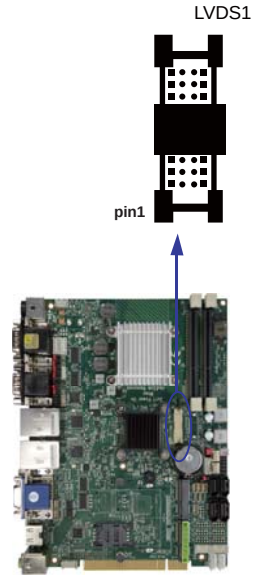
Disable WatchDog

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

3-11 LVDS Interface Connector

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

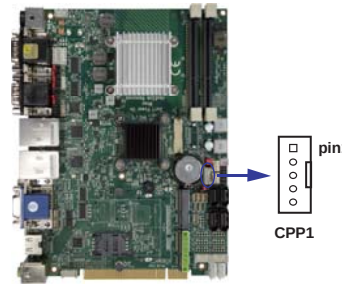
PIN NO.	Description	PIN NO.	Description
1	PWM dimming	2	+5V
3	+LCD(5V or 3.3V)	4	+LCD(5V or 3.3V)
5	Channel-1-DATA3+	6	Channel-0-DATA3+
7	Channel-1-DATA3-	8	Channel-0-DATA3-
9	Channel-0-DATA2+	10	Channel-0-CLK+
11	Channel-0-DATA2-	12	Channel-0-CLK-
13	GND	14	GND
15	Channel-0-DATA1+	16	Channel-0-DATA0+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



Note: 1. LVDS interface support 18/24bits two channel .
2. JVL1: LVDS panel +5V/+3.3V Voltage select
3. LVDS1 PIN 1 for panel backlight active, default Hi or Low by JSD1 jumper setting.
4. Pin 1 back light dimming control .provided 200Hz / 275Hz / 380Hz / 20KHz /25KHz and adjust PWM duty cycle by software program .

- **CPP1: Panel Inverter power (5pin 2.0mm wafer)**

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



Note: 1. JVP1 Inverter Voltage select
2. CPP1 PIN 3 and LVDS1 PIN1 is same signal. Default active setup by JSD1
3. Pin 3 back light dimming control .provided 200Hz / 275Hz / 380Hz / 20KHz /25KHz and adjust PWM duty cycle by software program

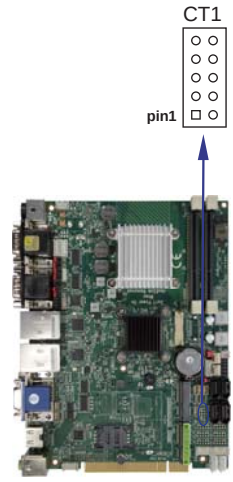
3-12 Touch screen device

- **CT1：Touch screen (2x5 pin 2.0mm wafer) (Option)**
  Default use USB interface, can change COM interface By OEM BOM .

- **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	KEY

Note: 1. For eight wire type cable Pin 3 and Pin4 need short.
2. Touch controller use USB port 9



- **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	KEY

Note: 1. For four wire type cable Pin 3 and Pin4 need short.
2. Touch controller use USB port 9

- **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	KEY

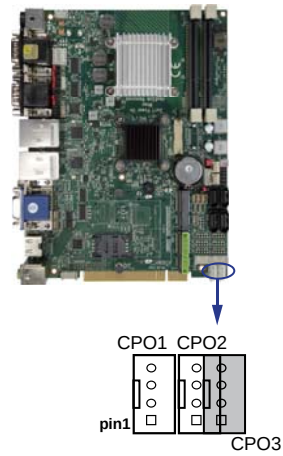
Note: 1. Touch controller use USB port 9

3-13 DC Power output

- **CPO1/CPO2: +12V/+5V DC voltage output (4pin 2.54mm Wafer)**

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

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



- **CPO3: +12V/+5V DC voltage output (4pin 2.0mm Wafer)**

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

*Note: 1. DC in +12V by switch to DC-out voltage +12V, so DC in need stable +12V input
2. CPO3 connector share with CPO2 connector .

3-14 DC Power input

- **CPI1: DC 12V-IN external Connector (4pin mini din connector)**

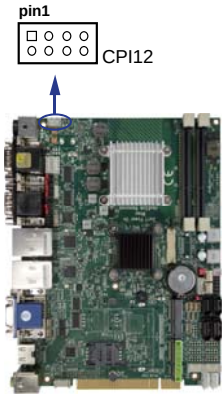
PIN NO.	Description
1,2	+12V DC-IN
3,4	GND

Note: DC in from adapter plug in

- **CPI11: DC 12V-IN Internal Connector (2x2pin 4.2mm ATX ⊞ connector)**

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

Note: This connector share with CPI1 for OEM



- **CPI12: DC-IN Internal Connector (Option) (2 X 4 pin 2.0mm Wafer)**

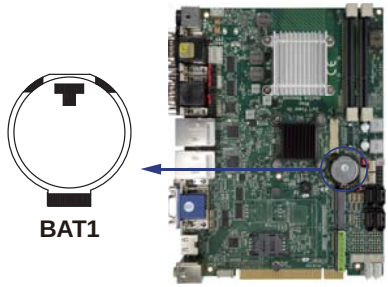
PIN NO.	Description	PIN NO.	Description
1	DC-IN	2	DC-IN
3	DC-IN	4	DC-IN
5	NC / Control	6	GND
7	GND	8	GND

Note: DC in from adapter plug in

3-15 Battery Input

- **BAT1：3V Battery hold 2pin**
  BAT1：Battery use Li 3V / 220mAh (CR2032)

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



3-16 HDMI Connector

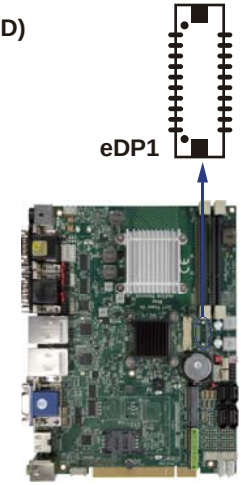
- **HDMI1: HDMI Connector (Type A)**

PIN NO.	Description	PIN NO.	Description	PIN NO.	Description	PIN NO.	Description
1	TMDS2(p)	2	GND	3	TMDS2(n)	4	TMDS1(p)
5	GND	6	TMDS1(n)	7	TMDS0(p)	8	GND
9	TMDS0(n)	10	TMDS CLK(p)	11	GND	12	TMDSCLK(n)
13	NC	14	NC	15	DDC CLK	16	DDC DATA
17	GND	18	+5V	19	HPD		

*Note: HDMI support 1.3a apec.

- **eDP1:Embedded display-port 2x10pin (1.25mm) wafer.(TBD)**

PIN NO.	Description	PIN NO.	Description
1	eDP-TX0-	2	+12V or +5V
3	eDP-TX0+	4	+12V or +5V
5	eDP-TX1-	6	GND
7	eDP-TX1+	8	GND
9	eDP-TX2-	10	GND
11	eDP-TX2+	12	GND
13	eDP-TX3-	14	LCD Power
15	eDP-TX3+	16	LCD Power
17	eDP-AUX+	18	LCD Power
19	eDP-AUX-	20	eDP-HPD



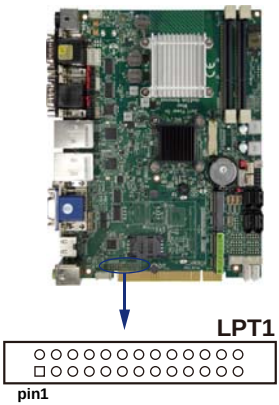
Note: 1. All signal from CPU eDP interface.
2. LCD Power pin from JVL1 LCD panel +5V/+3.3V Voltage select
3. Backlight Power refer CPP1
4. This function is for OEM panel only.

3-17 LPT interface

- **LPT1 : LPT interface (Line Print Terminal) (Option) (2x13 pin 2.0mm wafer).**

PIN NO.	Description	PIN NO.	Description
1	STROBE#	2	AUTO FROM FEED#
3	DATA0	4	ERROR#
5	DATA1	6	INITIALIZE
7	DATA2	8	PRINTER SELECT LN#
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	ACKNOWLEDGE	20	GND
21	BUSY	22	GND
23	PARER EMPTY	24	NC
25	PRINTER SELECT	26	NC

Note: BOM default haven't this function by OEM



3-18 Display & Touch interface

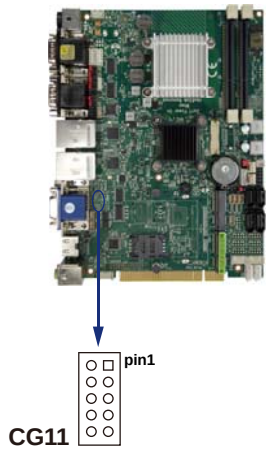
- **CDG1: DVI connector down side (DB Connector)**

PIN NO.	Description	PIN NO.	Description	PIN NO.	Description
1	Data 2-	9	Data 1-	17	Data 0-
2	Data 2+	10	Data 1+	18	Data 0+
3	GND	11	GND	19	GND
4	NC	12	NC	20	NC
5	NC	13	NC	21	NC
6	I^2C-CLK	14	+5V	22	GND
7	I^2C-DATA	15	GND	23	CLK+
8	NC	16	DVI-DETECT	24	CLK-

*Note: DVI support DVI-D 12Bit only

- **CDG1: VGA DB15 Connector Up side (D-SUB 15PIN)**

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



- **CG11: VGA wafer (2x5pin 2.0mm wafer) (Option)**

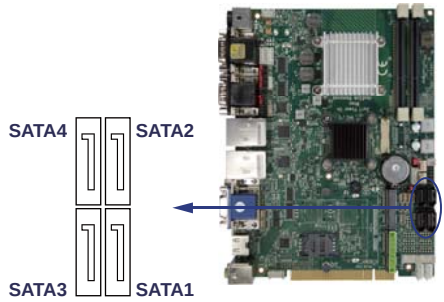
PIN NO.	Description	PIN NO.	Description
1	BULE	2	GND
3	GND	4	DDC CLOCK
5	GREEN	6	V-SYNC
7	GND	8	H-SYNC
9	RED	10	DDC DATA

*Note: VGA signal CG11 share with CDG1 VGA

3-19 SATA interface

- **SATA interface (7pin 180°SATA wafer)**
  SATA1, SATA2: The two SATA connectors
  SATA3, SATA4: The two SATA connectors

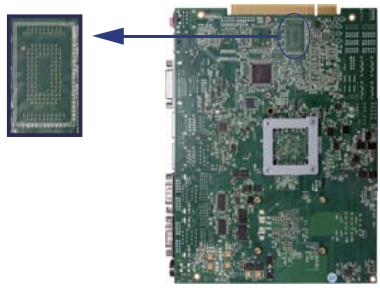
PIN NO.	Description
1	GND
2	DATA TX+
3	DATA TX-
4	GND
5	DATA RX-
6	DATA RX+
7	GND



Note: 1. SATA1 and SATA2 support SATA 3.0 spec update 6Gb/sec .
2. SATA3 and SATA4 support SATA 2.0 spec update 3Gb/sec .
3. COP1 and COP2 provide SATA HDD power +12V,GND ,+5V

3-20 SSD use at SATA6 channel (TBD)

Note：1.On board SSD for OEM option
2. The function share with mSATA

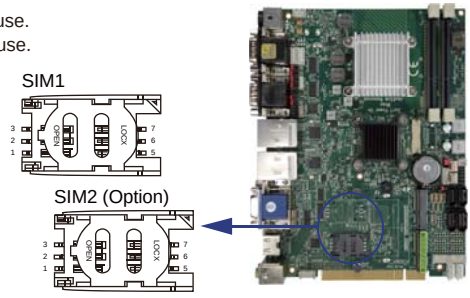


3-21 SIM Socket (SIM2 is Option)

- **SIM1,SIM2：SIM card socket pin define is follow ISO 7816-2 smart card standard.**

PIN NO.	Description	PIN NO.	Description
1	Vcc	5	GND
2	RST	6	Vpp
3	CLK	7	DATA
4	RUF	8	RUF

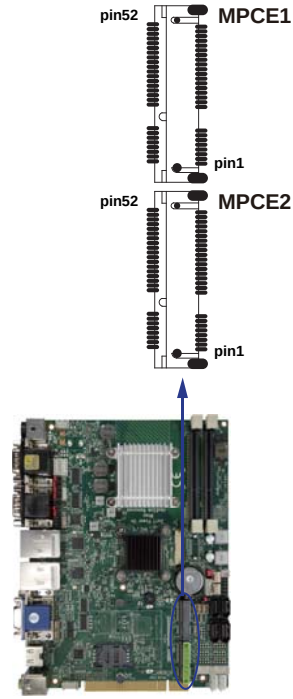
Note: 1. MPCE1 Pin 8, 10,12,14,16 for SIM1 card reader use.
2. MPCE2 Pin 8, 10,12,14,16 for SIM2 card reader use.



3-22 Mini card

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

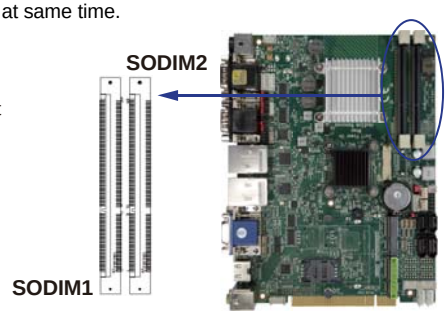
PIN NO.	Description	PIN NO.	Description
1	NC	2	+3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	NC	8	SIM Power
9	GND	10	SIM Data
11	PCIe-CLK-	12	SIM CLK
13	PCIe-CLK+	14	SIM Reset
15	GND	16	SIM RFU
KEY	KEY	KEY	KEY
17	NC	18	GND
19	NC	20	NC
21	GND	22	RST-
23	PCIe-RX-/mSATA-RX+	24	+3.3V
25	PCIe-RX+/mSATA-RX-	26	GND
27	GND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



Note: 1. MPCE 1 used USB port 10, MPCE2 used USB port 11.
2. MPCE1 Pin 8, 10,12,14,16 for SIM1 card reader use.
3. MPCE2 Pin 8, 10,12,14,16 for SIM2 card reader use.
4. Just only MPCE1 pin23, 25, 31, 33 supported mSATA device and PCIe device alternatively.
5. Pin51 mSATA / PCIe auto detect function
6. mSATA use system SATA port 6 , the port share with on board NANADrive
This port only choice one device can't work at same time.

3-23 SODIMM socket

Note : 1. SODIM1/2: SO-DIM DDR3 1.5V DRAM Socket
2. Support un-buffer type module

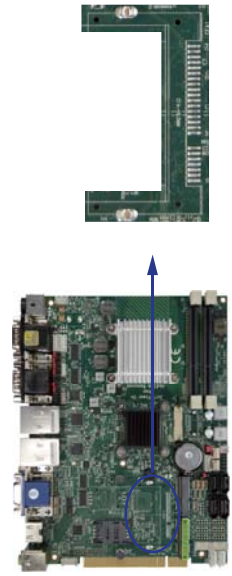


3-24 CFast card Reader and SATA (Option)

- **CFA1: CFA Socket For SATA Interface (24pin CFA Socket)**

PIN NO.	Description
S1	GND
S2	SATA TX+
S3	SATA TX-
S4	GND
S5	SATA RX-
S6	SATA RX+
S7	GND
PC1	GND(Card Detect In)
PC2	GND
PC3	NC
PC4	NC
PC5	NC
PC6	NC
PC7	GND
PC8	NC(LED Out)
PC9	NC(LED Out)
PC10	NC
PC11	NC
PC12	NC
PC13	+3.3V
PC14	+3.3V
PC15	GND
PC16	GND
PC17	GND(Card Detect Out)

Note：CFA1 use SATA port 5



3-25 Solt expand interface

Note : 1. Support expand PCI 2.2 gold finger define
2. some pin special define can support PCIe by one
3. use riser card can expand to PCI or PCIe slots

3-26 PCI Gold Finger PIN Define

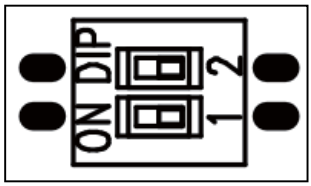
PIN NO.	Description	PIN NO.	Description
A1	NC	A32	NC
A2	+12V	A33	+3.3V
A3	+5V	A34	NC
A4	+5V	A35	GND
A5	+5V	A36	NC
A6	NC	A37	GND
A7	NC	A38	NC
A8	+5V	A39	+3.3V
A9	BUF_PLT_RST#	A40	SMB_CLK
A10	+5V	A41	SMB_DATA
A11	PCIE_RXP_A	A42	GND
A12	GND	A43	NC
A13	GND	A44	NC
A14	+3.3A	A45	+3.3V
A15	NC	A46	NC
A16	+5V	A47	NC
A17	NC	A48	GND
A18	GND	A49	NC
A19	P_PME#	A52	NC
A20	NC	A53	+3.3V
A21	+3.3V	A54	NC
A22	CLK_PCIE_BP	A55	NC
A23	CLK_PCIE_BN	A56	GND
A24	GND	A57	NC
A25	NC	A58	NC
A26	NC	A59	+5V
A27	+3.3V	A60	+5V
A28	PCIE_RXP_B	A61	+5V
A29	PCIE_RXN_B	A62	+5V
A30	GND		
A31	NC		

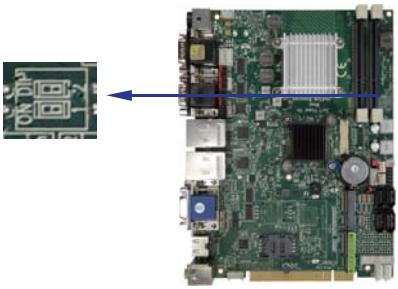
PIN NO.	Description	PIN NO.	Description
B1	NC	B32	NC
B2	NC	B33	NC
B3	GND	B34	GND
B4	NC	B35	NC
B5	+5V	B36	+3.3V
B6	+5V	B37	NC
B7	NC	B38	GND
B8	NC	B39	NC
B9	CLK_PCIE_AP	B40	NC
B10	CLK_PCIE_AN	B41	+3.3V
B11	PCIE_RXN_A	B42	NC
B12	PCIE_TXN_A	B43	+3.3V
B13	PCIE_TXP_A	B44	NC
B14	NC	B45	NC
B15	GND	B46	GND
B16	NC	B47	NC
B17	GND	B48	NC
B18	NC	B49	GND
B19	+5V	B52	NC
B20	NC	B53	NC
B21	NC	B54	+3.3V
B22	GND	B55	NC
B23	PCIE_TXN_B	B56	NC
B24	PCIE_TXP_B	B57	GND
B25	+3.3V	B58	NC
B26	NC	B59	+5V
B27	NC	B60	+5V
B28	GND	B61	+5V
B29	NC	B62	+5V
B30	NC		
B31	+3.3V		

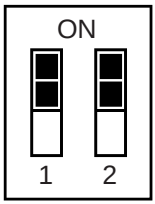
3-27 CPC-Car Power Control (Option)

- **SC1 CPC & Control mode switch.**

  SC1: Board Top view







1		2	
CPC function		Mode select	
Up	CPC Enabled	Up	Auto
Down	CPC Disabled	Down	Manual

Note: 1. If CPC was disabled which have not under low voltage protection and timing delay function and power output continually until the out of car battery.
2. In Auto Mode. Can't setting OS Delay off timer.
3. Default, CPC function enabled, Mode is Auto
4. It need reset power when switch setting finish.

Please appendix A to get more detail CPC function information!

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.

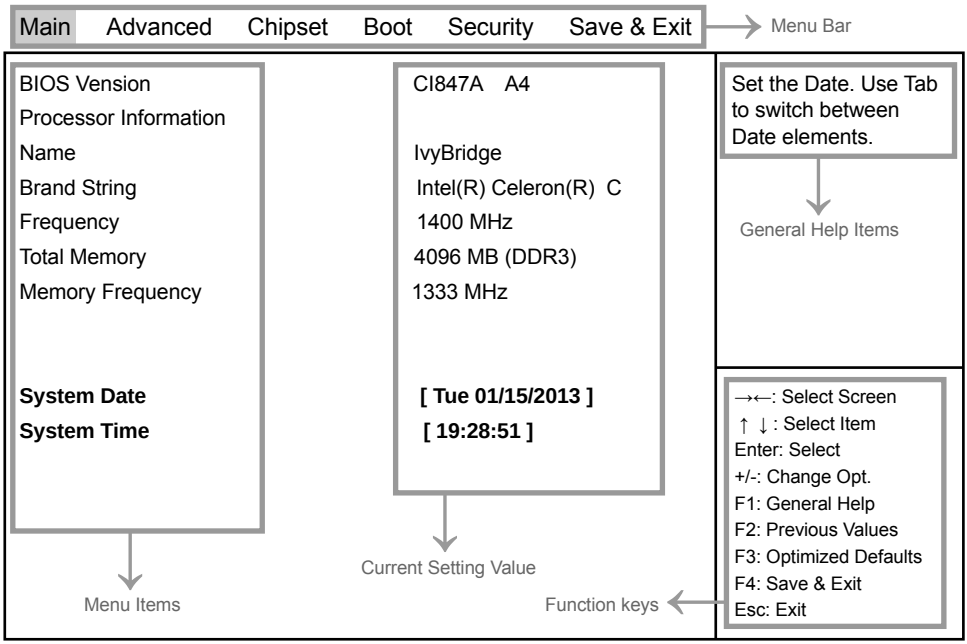
In the BIOS Setup main menu, you can see several options. We will explain these options in the following pages. First, let us see the function keys you may use here:

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 BIOS Menu Screen

The following diagram show a general BIOS menu screen



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4-3 Function Keys

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

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

4-4 Getting Help

Main Menu

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

Status Page Setup Menu/ Option Page Setup Menu

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

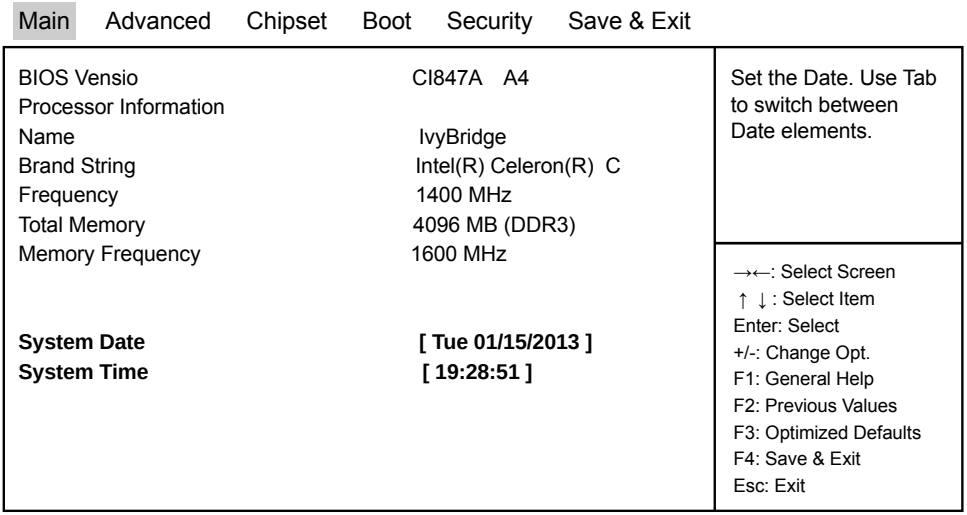
4-5 Menu Bars

There are six menu bars on top of BIOS screen:

Main To change system basic configuration
Advanced To change system advanced configuration
Chipset To change chipset configuration
Boot To change boot settings
Security Password settings
Save & Exit Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar.
The selected one is highlighted.

4-6 Main



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

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

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

4-7 Advanced

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

►ACPI Settings ►S5 RTC Wake Settings ►CPU Configuration ►SATA Configuration ►USB Configuration ►SMART Settings ►F71869 Super IO Configuration ►F71869 H/W Monitor ►F81216 Second Super IO Super IO Configuration ►Serial Port Console Redirection ►Network Stack	System ACPI Parameters →←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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ACPI Settings
Please refer section 4-7-1

S5 RTC Wake Settings
Please refer section 4-7-2

CPU Configuration
Please refer section 4-7-3

SATA Configuration
Please refer section 4-7-4

USB Configuration
Please refer section 4-7-5

SMART Settings
Please refer section 4-7-6

F71869 Super IO Configuration
Please refer section 4-7-7

F71869 H/W Monitor
Please refer section 4-7-8

F81216 Second Super IO Configuration
Please refer section 4-7-9

Serial Port Console Redirection
Please refer section 4-7-10

Network Stack
Please refer section 4-7-11

4-7-1 ACPI Settings

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

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

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

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

ACPI Sleep State
Select ACPI sleep state the system will enter when the SUSPEND button is pressed. The optional settings: Suspend Disabled / S1 only(CPU Stop Clock) / S3 only (Suspend to RAM) / Both S1 and S3 available for OS choose from.

4-7-2 S5 RTC Wake Settings

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

Wake system with Fixed Time	**[Disabled]**	Enable or disable System wake on alarm event. When enable, System will wake on the hr :: min :: sec specified
Wake system with Dynamic Time	**[Disabled]**	
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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

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

4-7-3 CPU Configuration

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

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

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

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

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

4-7-4 SATA Configuration

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

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

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SATA Controller(s)
Use this item to Enable or Disable SATA Device.

SATA Mode Selection
Determine how SATA controller(s) operate.
The optional settings are: IDE Mode, AHCI Mode

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

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

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

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

4-7-5 USB Configuration

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

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

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

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

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

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

4-7-6 SMART Settings

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

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

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SMART Self Test
Run Smart Self Test on all HDDs during POST.
The optional settings are: Disabled, Enabled.

4-7-7 F71869 Super IO Configuration

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

F71869 Super IO Configuration		Set Parameters of Serial Port 0(COMA)
F71869 Super IO Chip	F71869	
►Serial Port 1 Configuration		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit
►Serial Port 2 Configuration		
Power Failure	**[Keep last state]**	

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Serial Port 1 Configuration
Please refer section 4-7-8-1

Serial Port 2 Configuration
Please refer section 4-7-8-1

Power Failure
This item specifies whether your system will reboot after a power failure or interrupt occurs.
[Keep last state] Restores the system to the status before power failure or interrupt occurred.
[Bypass mode] Restores the system to the bypass mode.
[Always on] Leaves the computer in the power on state.
[Always off] Leaves the computer in the power off state.

4-7-7-1 ►Serial Port 1 Configuration & Serial Port 2 Configuration

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

Serial Port 1~2 Configuration		Enable or Disable Serial Port (COM)
Serial Port	**[Enabled]**	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit
Device Settings	IO=3F8h; IRQ=4;	
Change Settings	**[AUTO]**	
COM1 422/485 control flow	**[Disabled]**	

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Serial Port
Use this item to enable or disable serial port (COM).
The optional settings are: Enabled, Disabled.

Device Settings
Serial Port 1 IO=3F8h; IRQ=4;
Serial Port 2 IO=2F8h; IRQ=3;

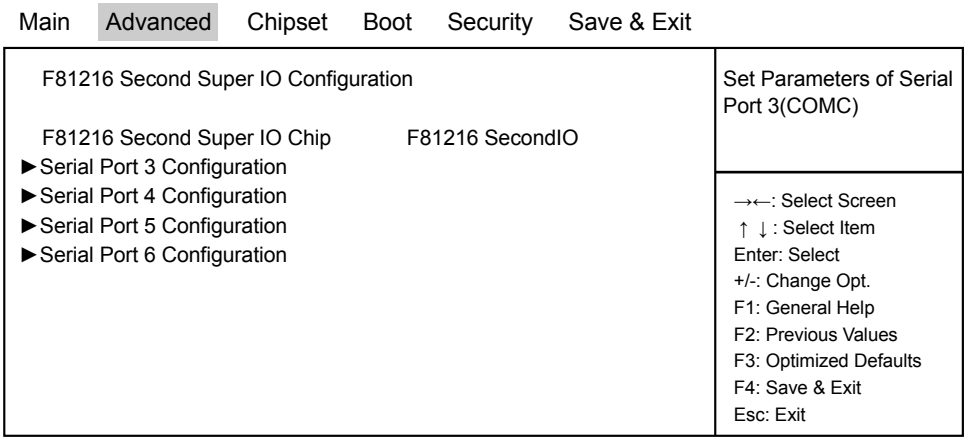
Change Settings
Use this item to select an optimal setting for super IO device.
The optional settings are:
AUTO
IO=3F8h; IRQ=4;
IO=3F8h; IRQ=3,4,5,6,7,10,11,12;
IO=2F8h; IRQ=3,4,5,6,7,10,11,12;
IO=3E8h; IRQ=3,4,5,6,7,10,11,12;
IO=2E8h; IRQ=3,4,5,6,7,10,11,12;

COM1~2 422/485 control flow
Use this item to enable or disable serial port (COM) Auto flow
The optional settings are: Enabled, Disabled.

4-7-8 F17869 H/W Monitor

F17869 H/W Monitor
Press [Enter] to view PC health status.
This section shows the status of your CPU, Fan, and overall system.
This is only available when there is Hardware Monitor function onboard.

4-7-9 F81216 Second Super IO Configuration



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Serial Port 3 Configuration
Please refer section 4-7-9-1

Serial Port 4 Configuration
Please refer section 4-7-9-1

Serial Port 5 Configuration
Please refer section 4-7-9-1

Serial Port 6 Configuration
Please refer section 4-7-9-1

4-7-9-1 Serial Port 3~6 Configuration

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

Serial Port 3~6 Configuration		Enable or Disable Serial Port (COM)
Serial Port	**[Enabled]**	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit
Device Settings	IO=260h; IRQ=11;	
Change Settings	**[AUTO]**	
COM3 422/485 control flow	**[Disabled]**	

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Serial Port
Use this item to enable or disable serial port (COM).
The optional settings are: Enabled, Disabled.

Device Settings
Serial Port 3 IO=260h; IRQ=11;
Serial Port 4 IO=268h; IRQ=11;
Serial Port 5 IO=270h; IRQ=11;
Serial Port 6 IO=278h; IRQ=11;

Change Settings
Use this item to select an optimal setting for super IO device.
The optional settings are:
AUTO
IO=260h; IRQ=11;
IO=260h; IRQ=10,11,12;
IO=268h; IRQ=10,11,12;
IO=270h; IRQ=10,11,12;
IO=278h; IRQ=10,11,12;

COM3~6 422/485 control flow
Use this item to enable or disable serial port (COM) Auto flow
The optional settings are: Enabled, Disabled.

4-7-10 Serial Port Console Redirection

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

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

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Console Redirection
Use this item to enable or disable Console Redirection.
The optional settings are: Enabled, Disabled.

4-7-11 Network Stack

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

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

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Network Stack
Enable/Disable UEFI network stack.
The optional settings are: Disable Link, Enable.

4-8 Chipset

Main Advanced Chipset Boot Security Save & Exit

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

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PCH-IO Configuration
Please refer section 4-8-1

System Agent (SA) Configuration
Please refer section 4-8-2

4-8-1 ►PCH-IO Configuration

Main Advanced Chipset Boot Security Save & Exit

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

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PCI Express Configuration
Please refer section 4-8-1-1

USB Configuration
Please refer section 4-8-1-2

PCH Azalia Configuration
Please refer section 4-8-1-3

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

4-8-1-1 ► PCI Express Configuration

Main Advanced Chipset Boot Security Save & Exit

PCI Express Configuration ►Mini PCIe 1 ►Mini PCIe 2 ►PCI Express x1 ►PCI Express x1	PCI Express Configuration settings →←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Mini PCIe 1
Please refer section 4-8-1-1-1

Mini PCIe 2
Please refer section 4-8-1-1-1

PCI Express x 1
Please refer section 4-8-1-1-2

PCI Express x 1
Please refer section 4-8-1-1-2

4-8-1-1-1 ► Mini PCIe 1/2

Main Advanced Chipset Boot Security Save & Exit

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

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PCI Express Root Port 3/4
Control the PCI Express Root Port.
The optional settings are: Enabled, Disabled.

PCIe Speed
Select PCI Express port speed.
The optional settings are: Auto, Gen1, Gen2.

4-8-1-1-2 ► PCI Express x 1

Main Advanced Chipset Boot Security Save & Exit

PCI Express Root Port 7/8	**[Enabled]**	Control the PCI Express Root Port.
PCIe Speed	**[Gen1]**	→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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PCI Express Root Port 7/8
Control the PCI Express Root Port.
The optional settings are: Enabled, Disabled.

PCIe Speed
Select PCI Express port speed.
The optional settings are: Auto, Gen1, Gen2.

4-8-1-2 ►USB Configuration

Main Advanced Chipset Boot Security Save & Exit

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

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

xHCI Mode
Mode of operation of xHCI controller.
The optional settings are: Smart Auto, Enabled, Disabled.

HS Port #1 Switchable

HS Port #2 Switchable

HS Port #3 Switchable

HS Port #4 Switchable
Always for HS port switching between xHCI and EHCI. If disabled, port is routed to EHCI.
If HS port is routed to xHCI, the corresponding SS port is enabled.
The optional settings are: Disabled, Enabled.

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

EHCI1/ EHCI2
Use this item to enable or disable USB EHCI (USB 2.0) support.
One EHCI controller must always be enabled.
The optional settings are: Enabled, Disabled.

USB Port Pre-Port Disable Control
Use this item to control each of the USB ports (0~13) disabling.
The optional settings are: Disabled, Enabled.

4-8-1-3 ►PCH Azalia Configuration

Main Advanced Chipset Boot Security Save & Exit

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

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

Azalia Internal HDMI Codec
Use this item to enable or disable internal HDMI codec for Azalia.

Azalia HDMI Codec
Use this item to enable or disable internal HDMI codec Port for Azalia.

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

Main Advanced Chipset Boot Security Save & Exit

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

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Graphics Configuration
Please refer section 4-8-2-1

4-8-2-1 ►Graphics Configuration

Main Advanced Chipset Boot Security Save & Exit

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

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

DVMT Pre-Allocated
Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.
The optional settings are: 32/64/96/128/160/192/224/256/288/320/352/384/416/448/480/512/1024M

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

LCD Control
Please refer section 4-8-2-1-1

4-8-2-1-1 ►LCD Control

Main Advanced Chipset Boot Security Save & Exit

Graphics Configuration		Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display
Primary IGFX Boot Display	**[CRT]**	
Secondary IGFX Boot Display	**[LVDS]**	
LCD Panel Type	**[1024x768 LVDS1]**	
Panel Color Depth	**[18 Bit]**	
		→←: Select Screen ↑ ↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit Esc: Exit

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Primary IGFX Boot Display
Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.
The optional settings are: VBIOS Default, CRT, HDMI, LVDS, DVI.

Secondary IGFX Boot Display
The optional settings are: Disabled, CRT, HDMI, LVDS, DVI.

LCD Panel Type

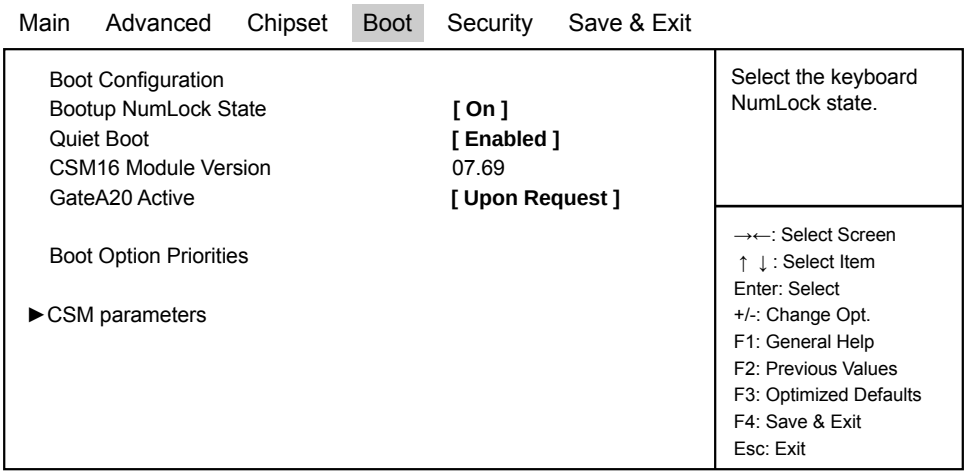
This item allows you to select the panel resolution

1.	VBIOS Default	
2.	1024 X 600	LVDS
3.	800 X 600	LVDS
4.	1024 X 768	LVDS1
5.	1280 X 1024	LVDS
6.	1440 X 1050 (RB)	LVDS1
7.	1440 X 1050	LVDS2
8.	1600 X 1200	LVDS
9.	1366 X 768	LVDS
10.	1680 X 1050	LVDS
11.	1920 X 1200	LVDS
12.	1440 X 900	LVDS
13.	1600 X 900	LVDS
14.	1024 X 768	LVDS2
15.	1280 X 800	LVDS
16.	1920 X 1080	LVDS
17.	2048 X 1536	LVDS

Panel Color Depth

Use this item to select the LFP Panel Color Depth 18Bit or 24Bit.

4-9 Boot



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Bootup NumLock State

Use this item to select keyboard NumLock State.

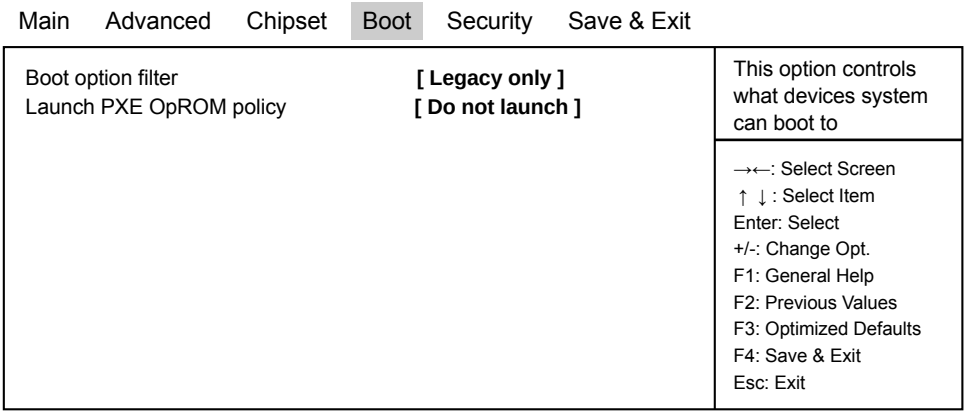
The optional settings are: On, Off.

Quiet Boot
The optional settings are: Enabled, Disabled.

Gate A20 Active
UPON REQUEST- GA20 can be disabled using BIOS services.
ALWAYS- do not allow disabling GA20.

CSM parameters
Please refer section 4-9-1

4-9-1 CSM parameters



Boot option filter
This option controls what devices system can boot to.
The optional settings are: UEFI and Legacy, legacy only, UEFI only.

Launch PXE OpROM policy
This option controls the execution of UEFI and Legacy PXE OpROM.
The optional settings are: Do not launch, UEFI only, Legacy only.

4-10 Security

Main Advanced Chipset Boot Security Save & Exit

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

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Administrator Password & User Password

To set up an administrator / User password:

1. Select Administratorr / User Password.
   The screen then pops up an Create New Password dialog.
2. Enter your desired password that is no less than 3 characters and no more than 20 characters.
3. Hit [Enter] key to submit.

4-11 Save & Exit

Main Advanced Chipset Boot Security Save & Exit

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

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Save Changes and Reset

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

Restore Defaults

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

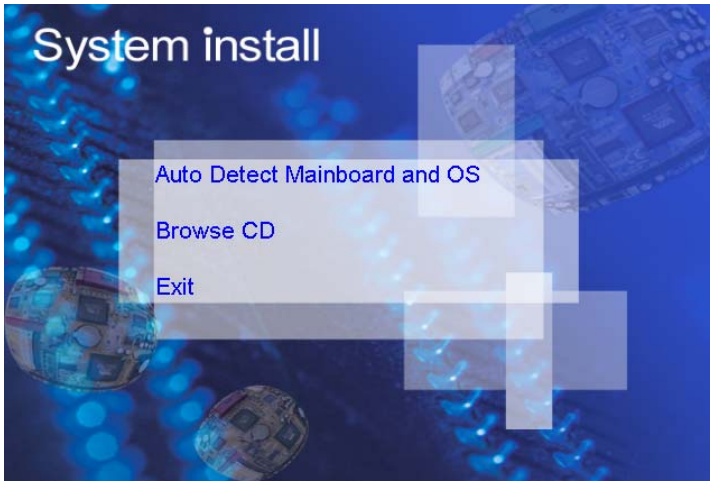
Chapter 5

DRIVER INSTALLATION

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

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

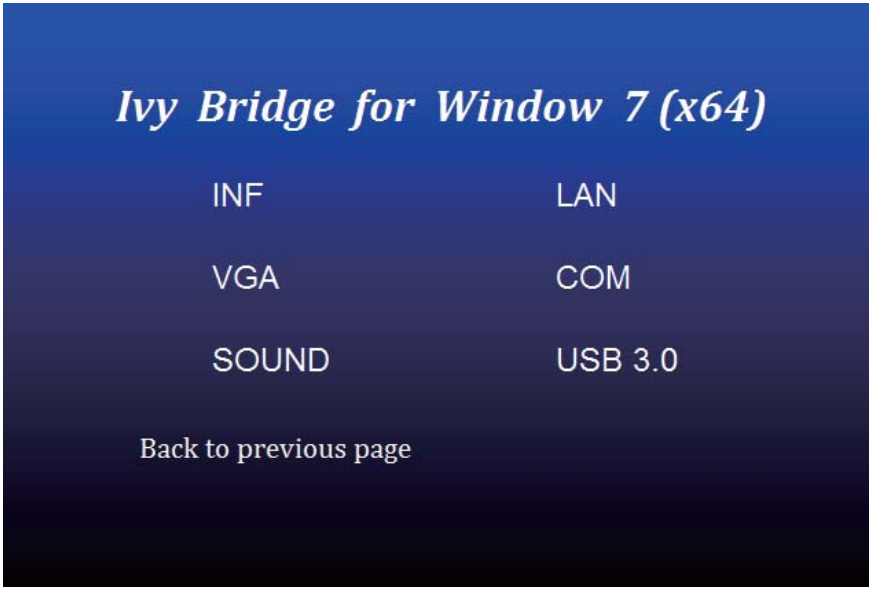
Insert the DVD into your DVD-ROM drive and the SYSTEM INSTALL menu should appear as below. If the menu does not appear, double-click MY COMPUTER and double-click DVD-ROM drive or click START, click RUN, and type X:\SETUP.EXE
(assuming your DVD-ROM drive is X).



Make your selection from SYSTEM INSTALL menu:

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

AUTOMATIC DRIVER INSTALLATION menu



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

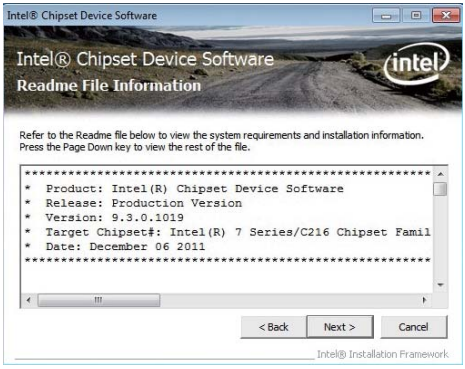
Each selection is illustrated below:

5-1 INF Install Intel Ivy Bridge Chipset Driver

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

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

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



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

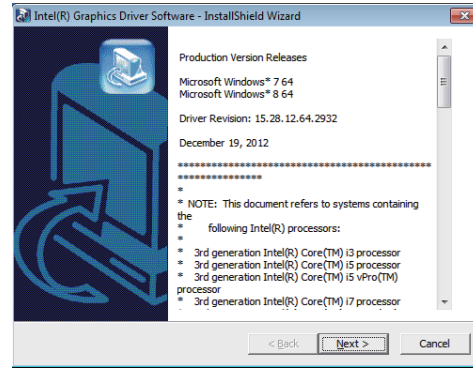
5. Click "Next"

6. Click "Finish" to restart computer.

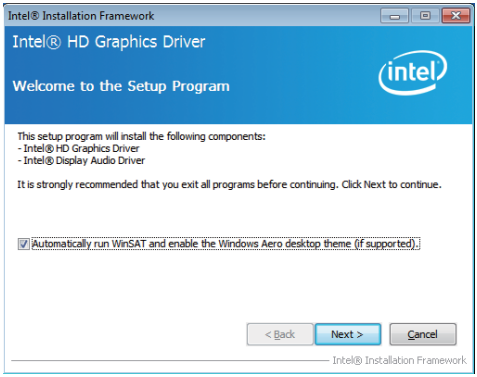
NOTE: SYSTEM INSTALL will auto detect file path
For Windows XP 64/32-bit, Windows 7 64/32-bit and windows 8 64/32-bit
X:\driver\INTEL\IVY_SAN\inf\infinst_autol.exe
For Windows 8.1 64/32-bit
X:\driver\INTEL\IVY_SAN\inf\WIN8.1\Setup.exe

5-2 VGA Install Intel Ivy Bridge VGA Driver

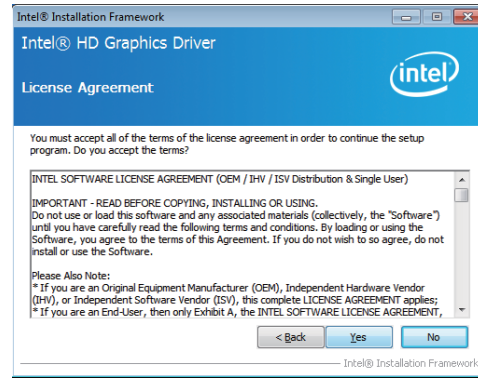
1. At the "AUTOMATIC DRIVER INSTALLATION menu" screen, click "VGA".



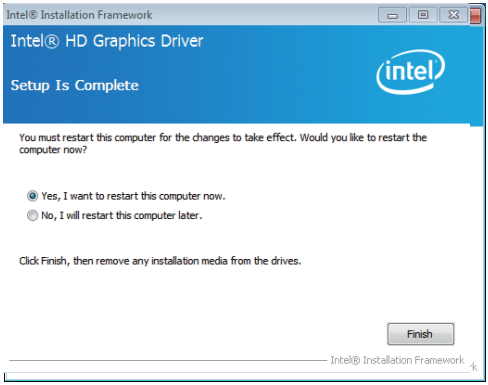
2. At the "Intel® HD Graphics Driver" screen, click "Next".



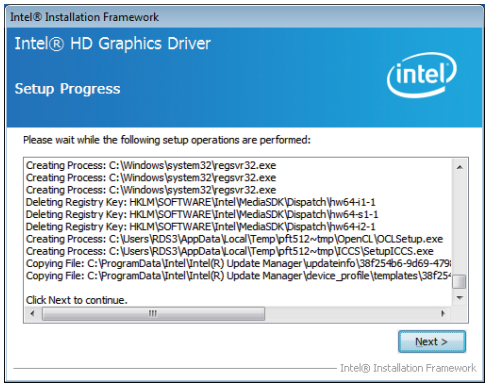
3. At the "Welcome to the Setup Program ” screen, Click “Next”.



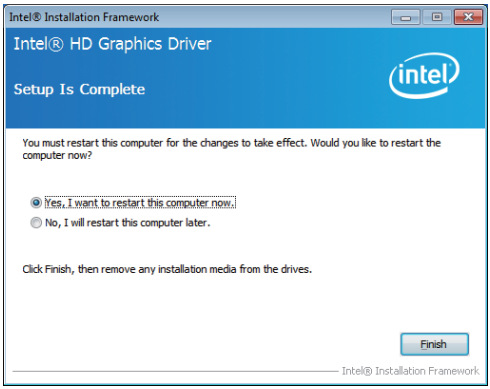
4. At the "License Agreement” screen, Click “Yes” .



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



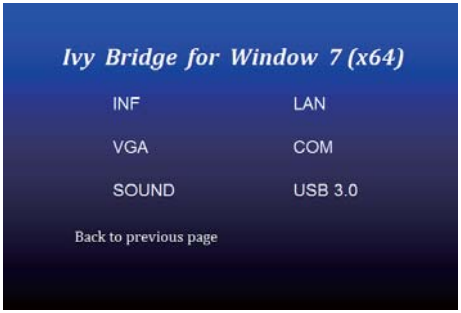
6. At the "Setup Progress" screen, Click "Next".



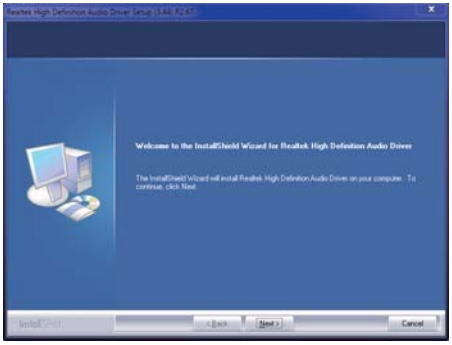
7. Click "Finish" to restart computer

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

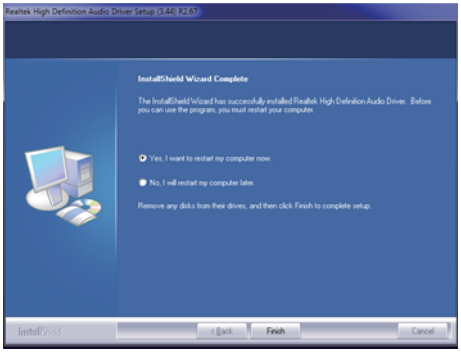
5-3 SOUND Install Realtek High Definition Audio Driver



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



2. Click "Next".

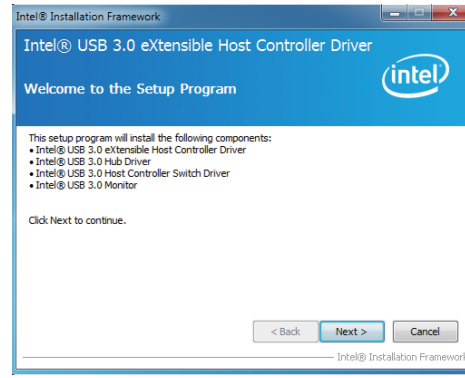


3. Click "Finish" to restart computer

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

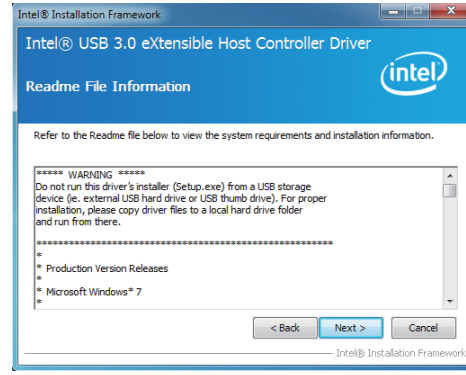
5-4 USB 3.0 Install Intel USB 3.0 extensible Host Controller Driver

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

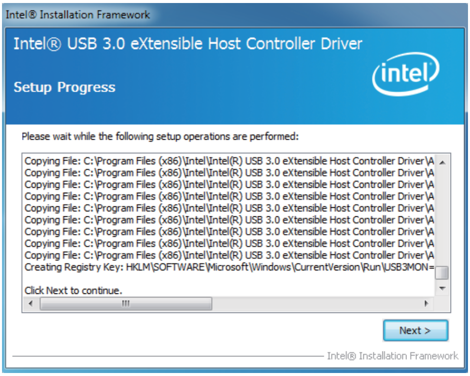


2. At the "Intel® USB 3.0 extensible Host Controller Driver" screen, Click" Next.

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



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

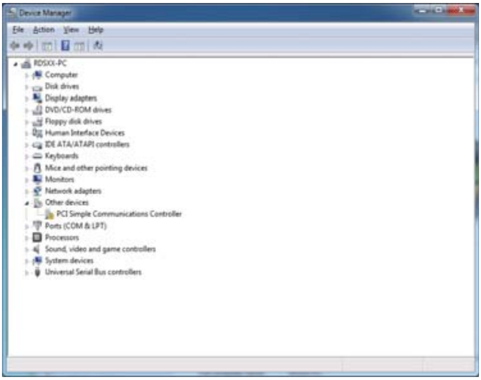


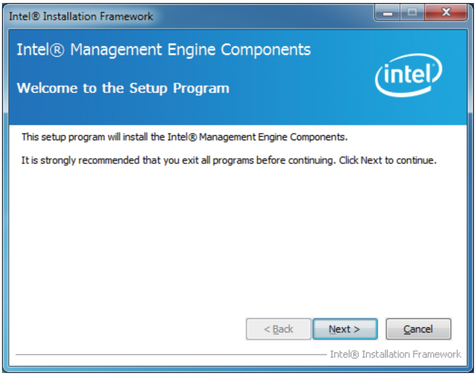
5. Click "Next"

6. Click "Finish" to restart computer

NOTE: The path of the file
For Windows 7 32/64-bit
X:\driver\INTEL\IVY_SAN\USB3_0\INTEL\Setup.exe

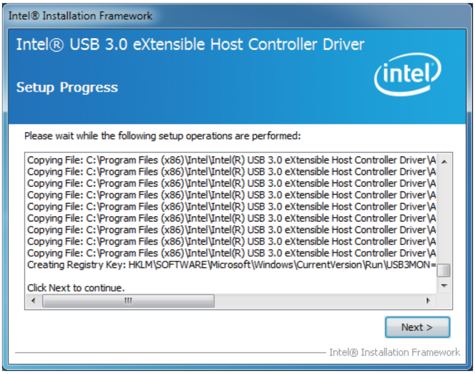
5-5 ME Install Intel Management Engine Interface Driver

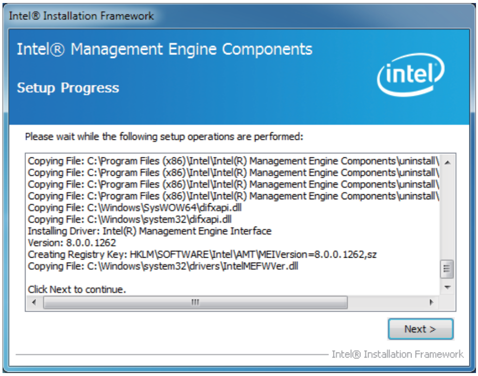




1. Plaese Check Device Manager "PCI Simple Communications Controllers"

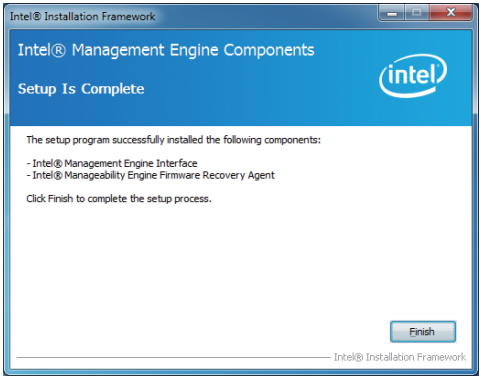
2. At the "Intel® Management Engine Components" screen, Click" Next.



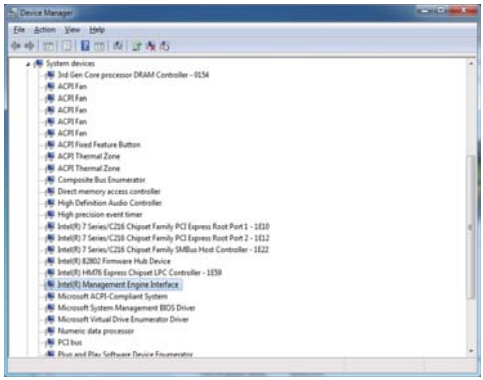


3. At the "Setup Progress" screen, Click "Next".

4. Click "Next".



5. Click “Finish”.

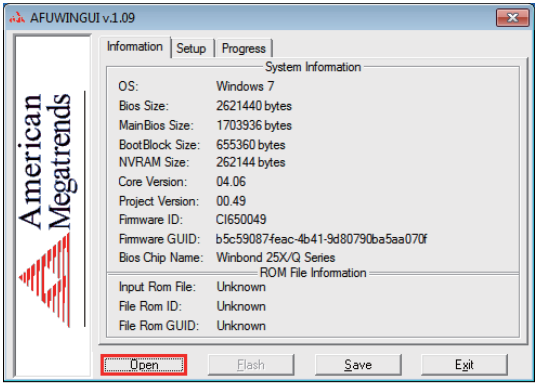


6. Plaese Check Device Manager ”PCI Simple Communications Controllers”

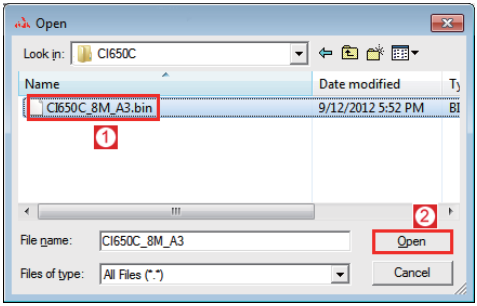
NOTE: The path of the file
For Windows XP 32/64 bit and Windows 7 32/64-bit
X:\driver\INTEL\ME TOOL\MEI-Only Installer\MEISetup.exe

5-6 How to update AMI BIOS

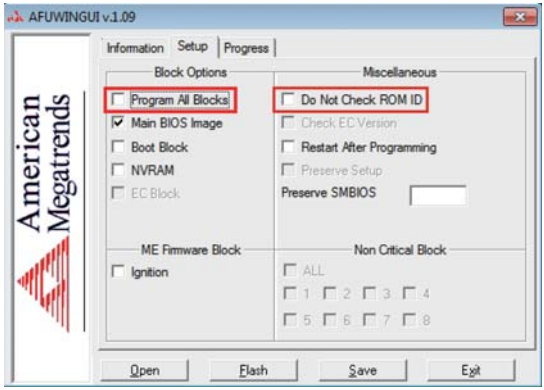
Step 1. To run afuwingui.exe then click "Open"



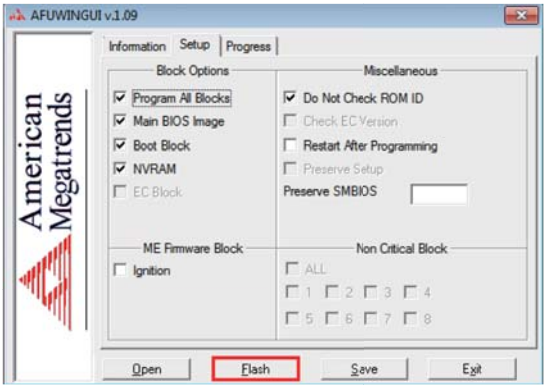
Step 2. Click the new version BIOS (download from the website)



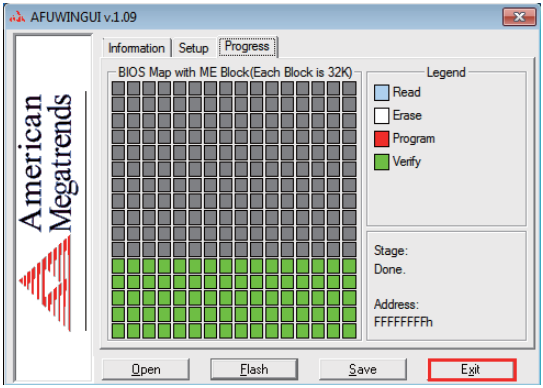
Step 3. Choose "ProgramAll Blocks" and "Do Not Check ROM ID"



Step 4. Click "Flash"



Step 5. Click "Exit" and restart computer.



Appendix A: Power Consumption Test

Condition

Item	Spec
CPU	Intel Celeron 1047UE 1.4 Ghz
SDRAM	DDR3 1333 / 4GB x 2
Operating System	Windows 7 / SP1
Test Program	3D Mark 11 Advanced Edition
HDD 3.5" SATA	Standard HDD
HDD 2.5" SATA	Slim Type HDD

Test Result for reference !

Hard Disk	Power off	Start up		Operation Maximum	Shut down Maximum
		Maximum	Stable		
Standard HDD	0.10A	2.88A	1.35A	2.33A	1.56A
Slim Type HDD	0.10A	1.61A	1.00A	1.99A	1.35A

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)