# ECM-PNV

**Intel® Atom™ D510 Dual-Core 3.5" Micro Module with Intel® ICH8-M Chipset**

# User's Manual

**1$^{st}$ Ed – 14 July 2010**

## FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

## Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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## Disclaimer

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As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into body, or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

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To receive the latest version of the user's manual; please visit our Web site at:
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If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Avalue's products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from Avalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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Service: service@avalue.com.tw

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Avalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

# Contents

# 1. Getting Started

## 1.1 Safety Precautions

**Warning!**

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

**Caution!**

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

## 1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x 3.5" ECM-PNV Micro Module
- 1 x Quick Installation Guide for ECM-PNV
- 1 x AUX-032 daughter board
- 1 x DVD-ROM contains the followings:
  — User's Manual (this manual in PDF file)
  — Ethernet driver and utilities
  — VGA drivers and utilities
  — Audio drivers and utilities
- 1 x Cable set contains the followings:
  — 1 x Audio cable (12pin, 2.0mm pitch)
  — 2 x USB cable (10P/2.54mm-10P/2.0mm)
  — 1 x Serial ATA cable (7-pin, standard)
  — 1 x Serial ATA cable (15-pin, 2P/2.0mm)
- 1 x CPU & North Bridge Cooler

If any of the above items is damaged or missing, contact your retailer.

## 1.3 Document Amendment History

| Revision | Date | Comment |
|----------|------|---------|
| 1$^{st}$ | July 2010 | Initial Release |

## 1.4 Manual Objectives

This manual describes in detail the Avalue Technology ECM-PNV Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to interface with ECM-PNV series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

## 1.5 System Specifications

| System ⏷ | |
|---|---|
| **CPU** | Intel® Atom™ D510 Dual-Core 1.66GHz CPU or D410/ N450 1.66GHz CPU (Optional) |
| **FSB** | 533/ 667 MHz |
| **BIOS** | AMI 8Mbit Flash BIOS |
| **System Chipset** | Intel® ICH8-M |
| **I/O Chip** | ITE 8712F-KX |
| **System Memory** | One 200-pin SODIMM Supports Up to 2GB DDR2 667 SDRAM |
| **SSD** | One CompactFlash Type I/II Socket |
| **Watchdog Timer** | Reset: 1sec. ~ 65535min. and 1sec. or 1min./step |
| **Expansion** | 1 x Mini PCIe Card |
| **I/O ⏷** | |
| **MIO** | 2 x SATA, 4 x RS-232, 2 x RS-422/ 485, 1 x KB & Mouse (Optional) |
| **USB** | 6 x USB 2.0 |
| **DIO** | 16-bit General Purpose I/O for DI and DO |
| **Display ⏷** | |
| **Chipset** | Intel® Pineview Integrated, GMA3150 @ 400MHz (PNV D510/ D410) Intel® Pineview Integrated, GMA500 @ 200MHz (PNV N450) |
| **Resolution** | VGA Mode : Up to 2048 x 1536 @ 60Hz (PNV D510/D410) VGA Mode : Up to 1400 x 1050 @ 60Hz (PNV N450) |
| **Multiple Display** | CRT + LVDS |
| **LCD Interface** | Signal 18-bit LVDS for Rev. A1 Dual-channel 24-bit LVDS Via Daughter Board for Rev. B1 |
| **Audio ⏷** | |
| **Chipset** | Intel® ICH8-M |
| **AC97 Codec** | Realtek ALC888 Supports 5.1-CH HD Audio |
| **Audio Interface** | Mic-in, Line-in, Line-out |

**ECM-PNV**

| Ethernet ⏷ | |
|---|---|
| **LAN** | Dual Intel® 82574L Gigabit Ethernet |
| **Ethernet Interface** | 1000 Base-Tx Gigabit Ethernet Compatible |
| **Mechanical & Environmental ⏷** | |
| **Power Requirement** | +12V ~ +28V |
| **Power Type** | Single Power AT/ ATX |
| **Operation Temperature** | 0 ~ 60°C (32 ~ 140°F) |
| **Operating Humidity** | 0% ~ 90% Relative Humidity, Non-condensing |
| **Size ( L x W )** | 5.7" x 4" (146mm x 101mm) |
| **Weight** | 0.44lbs (0.2kg) |

## 1.6 Architecture Overview – Block Diagram

The following block diagram shows the architecture and main components of ECM-PNV.
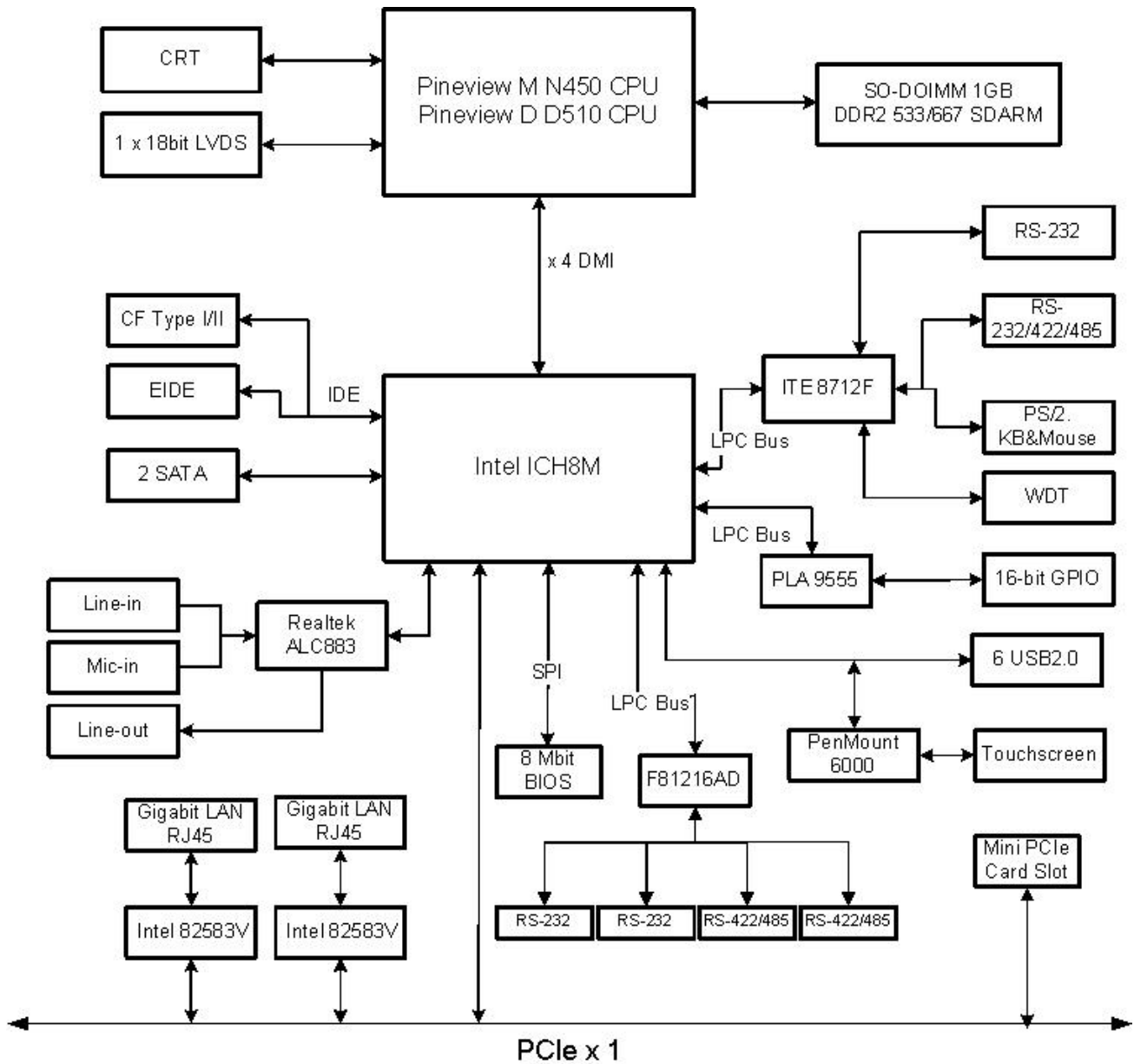
# 2. Hardware Configuration

## For Rev. A1

## 2.1 Product Overview
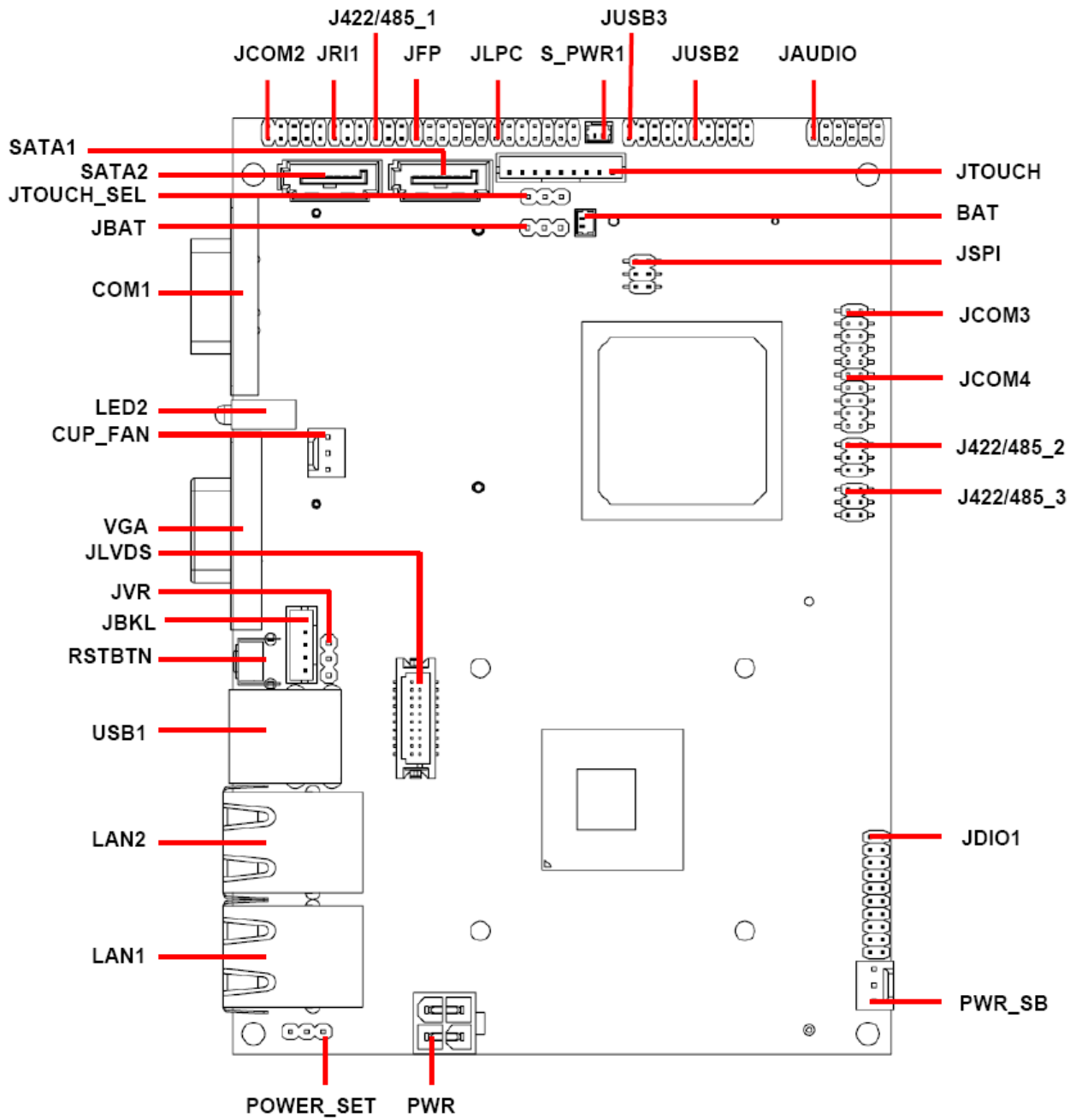
## 2.2 Installation Procedure

This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the SODIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.
4. Connect power supply to the board via the ATXPWR.
5. Turn on the power.
6. nter the BIOS setup by pressing the delete key during boot up. Use the "LOAD BIOS DEFAULTS" feature. The *Integrated Peripheral Setup* and the *Standard CMOS Setup* Window must be entered and configured correctly to match the particular system configuration.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

> **Note:** Make sure the heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause the system to hang or unstable

## 2.2.1    Main Memory

ECM-PNV provides one 200-pin SODIMM socket support up to DDR2 667 SDRAM. The total maximum memory size is 2GB.
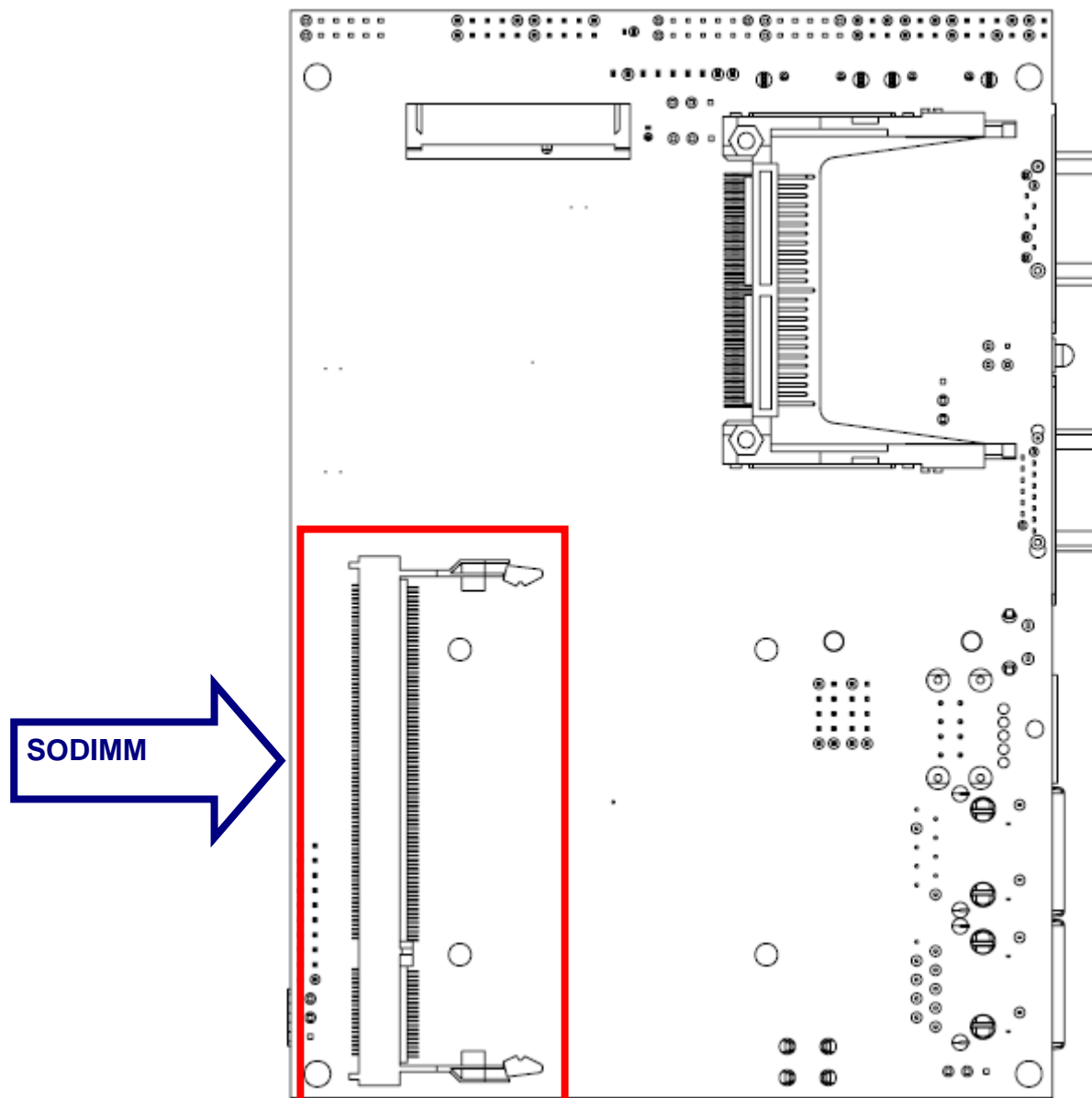


(Rear side)

Make sure to unplug the power supply before adding or removing SODIMMs or other system components. Failure to do so may cause severe damage to both the board and the components.

- Locate the SODIMM socket on the board.
- Hold two edges of the SODIMM module carefully. Keep away of touching its connectors.

**ECM-PNV**

- Align the notch key on the module with the rib on the slot.
- Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SODIMM module in with extra force as the SODIMM module only fit in one direction.
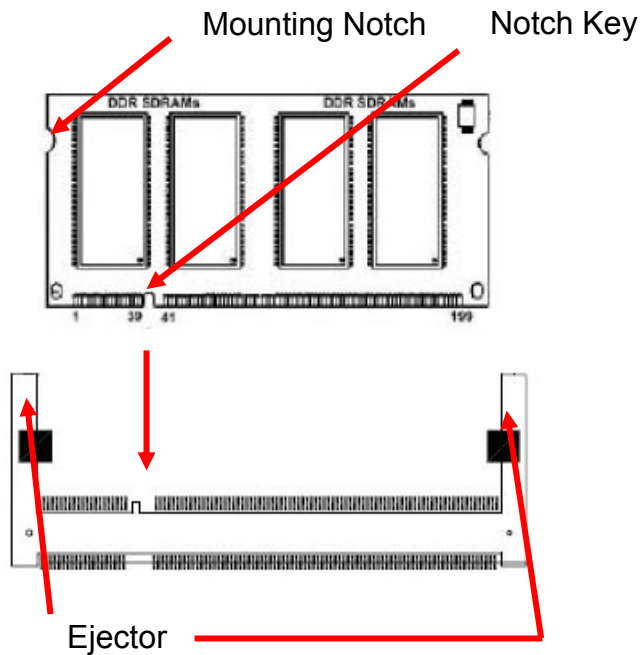


**200-pin DDR2 SODIMM**

- To remove the SODIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the SODIMM module.

**Note:**

(1) Please do not change any DDR3 SDRAM parameter in BIOS setup to increase your system's performance without acquiring technical information in advance.

(2) Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

## 2.3 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

### Jumpers

| Label | Function | Note |
|-------|----------|------|
| **JBAT** | Clear CMOS | 3 x 1 header, pitch 2.54 mm |
| **JFP** | Miscellaneous setting connector | 6 x 2 header, pitch 2.0 mm |
| **JRI1** | Serial port 1 pin 9 signal select | 3 x 2 header, pitch 2.0 mm |
| **JTOUCH_SEL** | Touch panel mode select | 3 x 1 header, pitch 2.54 mm |
| **POWER_SET** | Input power select | 3 x 1 header, pitch 2.54 mm |

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## Connectors

| Label | Function | Note |
| --- | --- | --- |
| **BAT** | Battery connector | 2 x 1 wafer, pitch 1.25 mm |
| **COM1** | Serial port 1 connector | D-sub 9-pin, male |
| **CPU_FAN** | CPU fan connector | 3 x 1 wafer, pitch 2.54 mm |
| **J422/485_1** | Serial port 1 in RS-422/485 mode | 3 x 2 header, pitch 2.0 mm |
| **J422/485_2** | Serial port 2 in RS-422/485 mode | 3 x 2 header, pitch 2.0 mm |
| **J422/485_3** | Serial port 3 in RS-422/485 mode | 3 x 2 header, pitch 2.0 mm |
| **JTOUCH** | Touch panel connector | 9 x 1 header, pitch 2.0 mm |
| **JAUDIO** | Audio connector | 6 x 2 header, pitch 2.0 mm |
| **JCOM2** | Serial port 2 connector | 5 x 2 header, pitch 2.0 mm |
| **JCOM3** | Serial port 3 connector | 5 x 2 header, pitch 2.0 mm |
| **JCOM4** | Serial port 4 connector | 5 x 2 header, pitch 2.0 mm |
| **JDIO** | General purpose I/O connector | 10 x 2 header, pitch 2.0 mm |
| **JLPC** | (Reserved for debug) | 7 x 2 header, pitch 2.0 mm |
| **JUSB2** | USB connector 2 & 3 | 5 x 2 header, pitch 2.0 mm |
| **JUSB3** | USB connector 6 & 7 | 5 x 2 header, pitch 2.0 mm |
| **JLVDS** | LVDS connector | 2 x 10 header, pitch 1.25mm |
| **JVR** | LCD backlight brightness adjustment | 3 x 1 header, pitch 2.54mm |
| **JBKL** | LCD inverter connector | 5 x 1 wafer, pitch 2.0mm |
| **LAN1** | RJ-45 Ethernet connector | |
| **LAN2** | RJ-45 Ethernet connector | |
| **LED2** | LED connector | |
| **PWR** | Power connector | 2 x 2 wafer, pitch 4.2 mm |
| **PWR_SB** | 5VSB connector in ATX | 3 x 1 wafer, pitch 2.54 mm |
| **S_PWR1** | SATA power connector | 2 x 1 wafer, pitch 2.0 mm |
| **SATA1** | Serial ATA connector 1 | |
| **SATA2** | Serial ATA connector 2 | |
| **RSTBTN** | Reset button | |
| **USB1** | USB connector 0 & 1 | Double Deck |
| **VGA** | VGA connector | D-sub 15-pin, female |

## 2.4 Setting Jumpers & Connectors

### 2.4.1 Clear CMOS (JBAT)
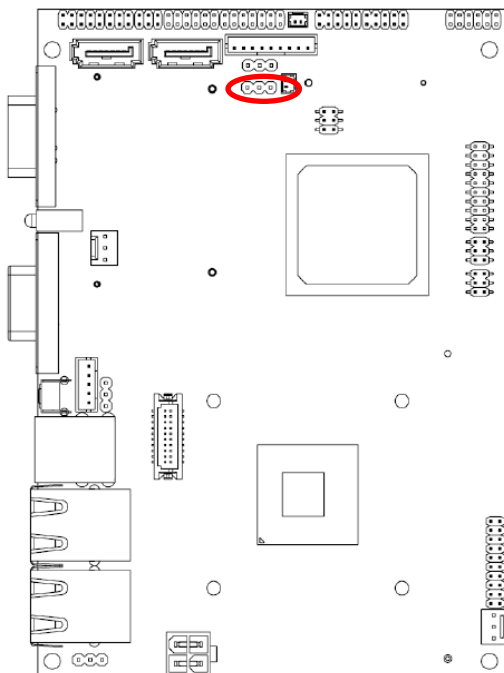


**Protect***
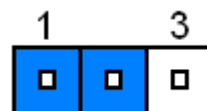


**Clear CMOS**
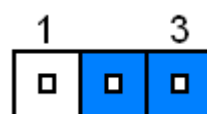


**\* Default**

### 2.4.2 Serial port 1 pin 9 signal select (JRI1)
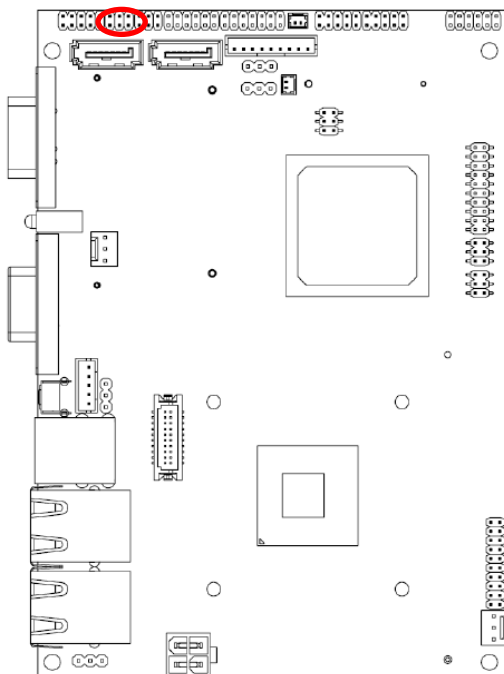


**Ring***
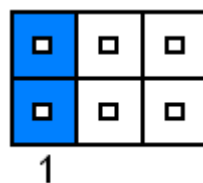


**+5V**
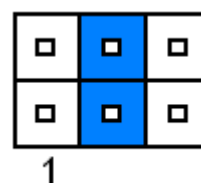


**+12V**
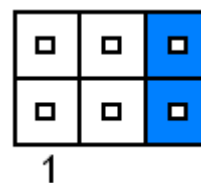


**\* Default**

**ECM-PNV**

## 2.4.3 Miscellaneous setting connector (JFP)
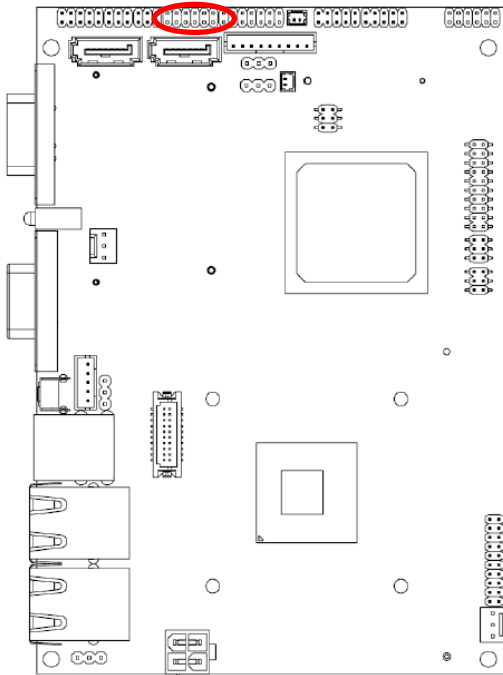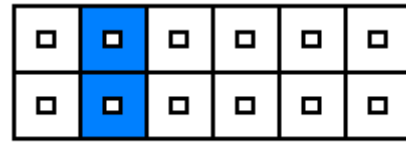




| Signal | | PIN |
|---|---|---|
| PWBT | | 1 |
| | | 2 |
| PWR MSEL | | 3 |
| | | 4 |
| PWR-LED | + | 5 |
| | - | 6 |
| HDD-LED | - | 7 |
| | + | 8 |
| CF SEL | | 9 |
| Short Slave | | 10 |
| COPEN# | | 11 |
| | | 12 |

**\* Default**
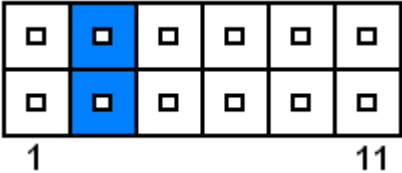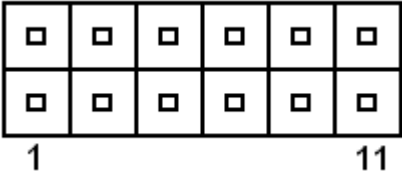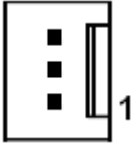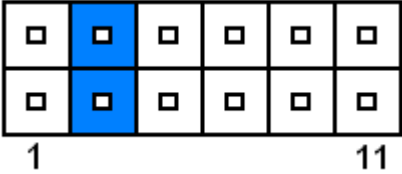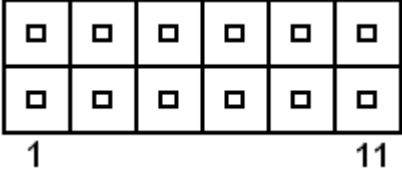
## 2.4.4 5VSB connector in ATX (PWR_SB)
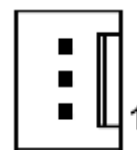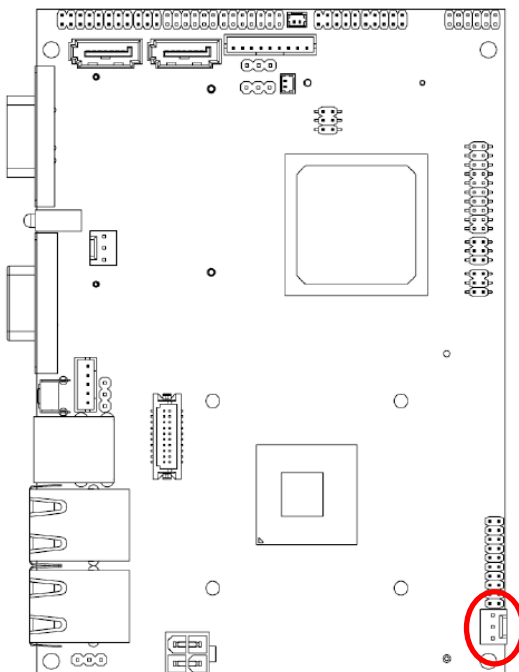




| Signal | PIN |
|---|---|
| ATX5VSB | 3 |
| GND | 2 |
| PSON | 1 |

## 2.3.4.1    Signal Description –AT/ATX mode & Input power type

| Input power type | Power-ON Mode | Description |
|---|---|---|
| **AT Type** | **AT Mode**<br>(PWR MSEL)<br> | Use AT type power input, and set the board in AT mode. |
| | **ATX Mode**<br>(PWR MSEL)<br> | Use AT type power input, and set the board in ATX mode. |
| **ATX Type**<br>(PWR_SB)<br> | **AT Mode**<br>(PWR MSEL)<br> | Use ATX type power input, and set the board in AT mode. |
| | **ATX Mode**<br>(PWR MSEL)<br> | Use ATX type power input, and set the board in ATX mode. |

## 2.4.5 Touch panel mode select (JTOUCH_SEL)



**4/ 8W**



**5W***



**\* Default**

## 2.4.6 Input power select (POWER_SET)
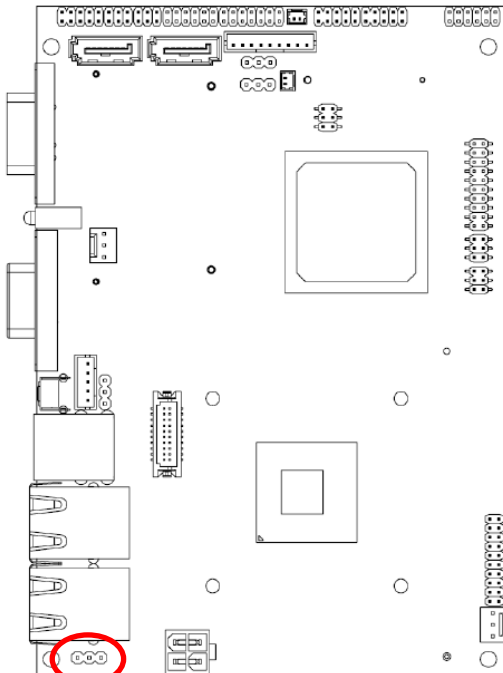


**15V~24V Input**
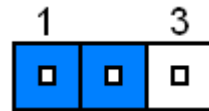


**14V~12V Input***
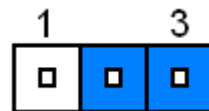


**\* Default**

## 2.4.7 Battery connector (BAT)
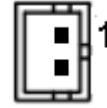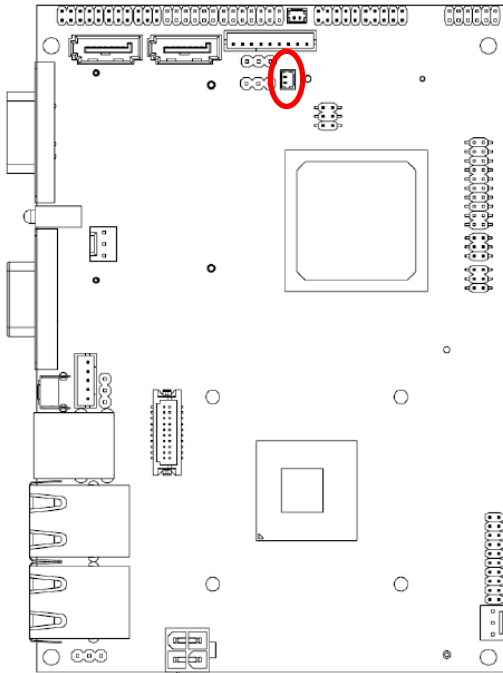


| Signal | PIN |
|--------|-----|
| BAT | 1 |
| GND | 2 |

## 2.4.8 CPU fan connector (CPU_FAN)
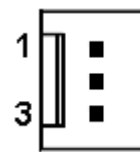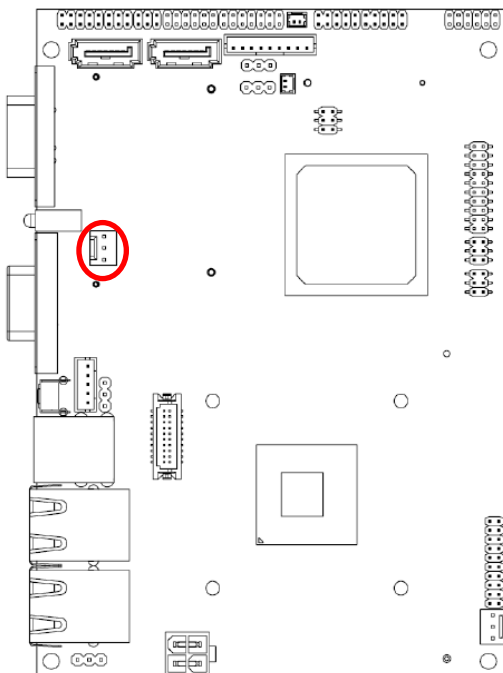


| Signal | PIN |
|--------|-----|
| GND | 1 |
| +12V | 2 |
| FAN_TAC1 | 3 |

### 2.4.9 Serial port 1/ 2/ 3 in RS-422/485 mode (J422/485_1/ J422/485_2/ J422/485_3)
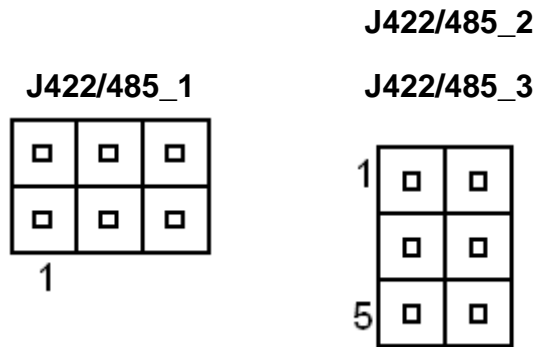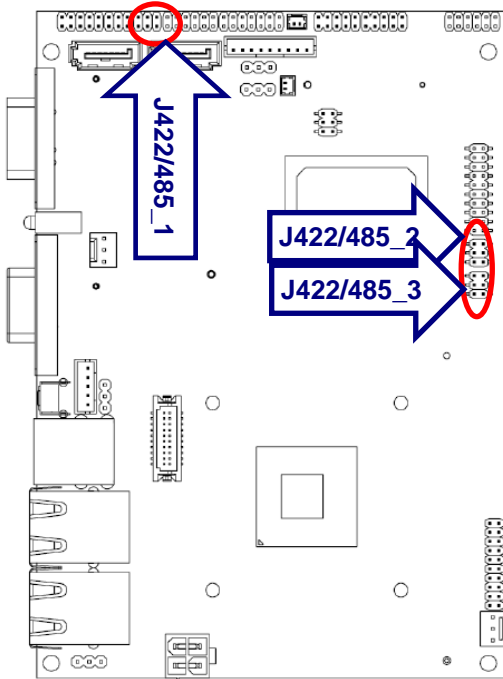


**J422/485_1**

**J422/485_2**

**J422/485_3**

| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| TX- | 1 | 2 | RX- |
| TX+ | 3 | 4 | RX+ |
| +5V | 5 | 6 | GND |

Note:

J422/485 is available after modifying the mode of COM2 in BIOS setting.

### 2.4.10 Audio connector (JAUDIO)
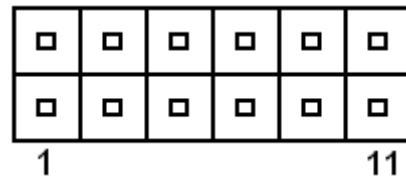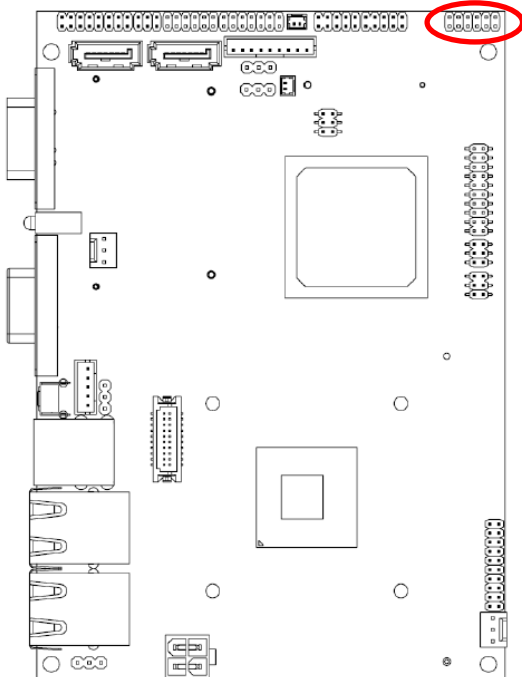


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| LINEOUT_R | 1 | 2 | LINEOUT_L |
| GND | 3 | 4 | GND |
| LINEIN_R | 5 | 6 | LINEIN_L |
| MIC-R | 7 | 8 | MIC-L |
| FRONT-JD | 9 | 10 | LINE1-JD |
| MIC1-JD | 11 | 12 | GND |

## 2.4.11  Serial port 2 connector (JCOM2)
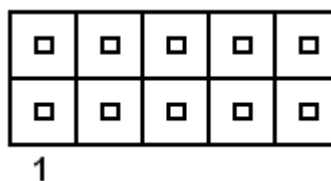
| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| DCD | 1 | 2 | RxD |
| TxD | 3 | 4 | DTR |
| GND | 5 | 6 | DSR |
| RTS | 7 | 8 | CTS |
| RI | 9 | 10 | NC |

## 2.4.12  Serial port 3/ 4 connector (JCOM3/ JCOM4)

JCOM3
JCOM4
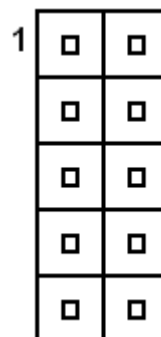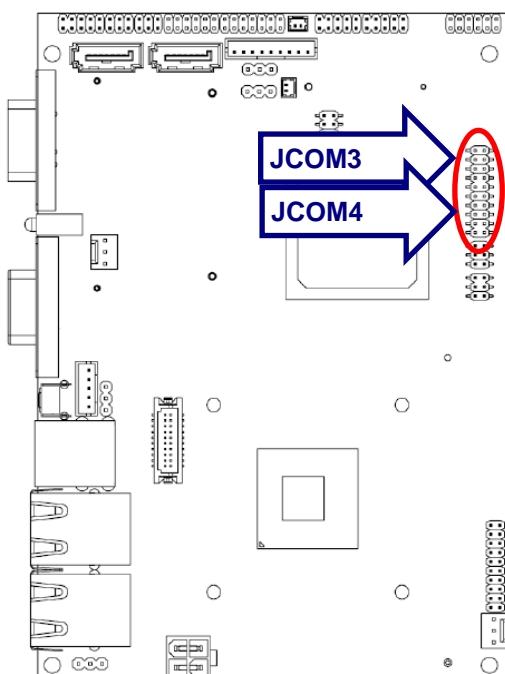
| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| DCD | 1 | 2 | RxD |
| TxD | 3 | 4 | DTR |
| GND | 5 | 6 | DSR |
| RTS | 7 | 8 | CTS |
| RI | 9 | 10 | NC |

**ECM-PNV**

## 2.4.13 General purpose I/O connector (JDIO)
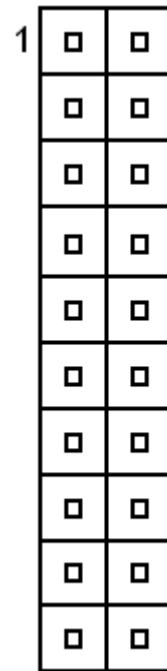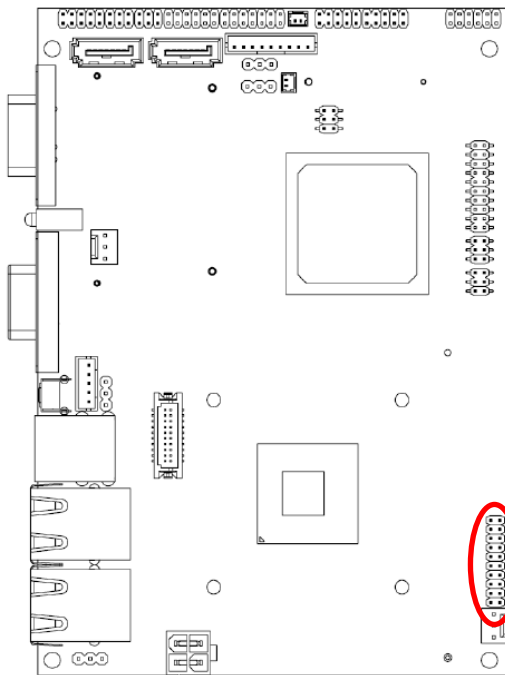
| Signal | PIN | PIN | Signal |
|---|---|---|---|
| DIO0 | 1 | 2 | DIO10 |
| DIO1 | 3 | 4 | DIO11 |
| DIO2 | 5 | 6 | DIO12 |
| DIO3 | 7 | 8 | DIO13 |
| DIO4 | 9 | 10 | DIO14 |
| DIO5 | 11 | 12 | DIO15 |
| DIO6 | 13 | 14 | DIO16 |
| DIO7 | 15 | 16 | DIO17 |
| SMB_CLK | 17 | 18 | SMB_DATA |
| GND | 19 | 20 | +5V |

## 2.4.14 Touch panel connector (JTOUCH)
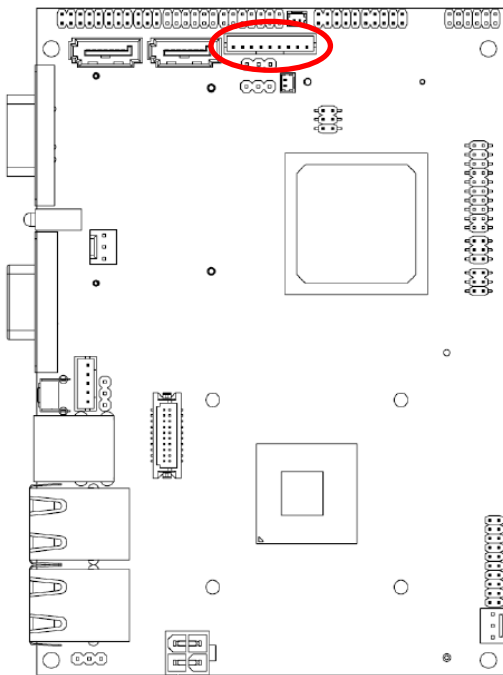


| PIN | 4-WIRE | 5-WIRE | 8-WIRE |
|-----|--------|--------|--------------|
| 1 | N/A | N/A | Right Sense |
| 2 | N/A | N/A | Left Sense |
| 3 | N/A | N/A | Bottom Sense |
| 4 | N/A | Sense | Top Sense |
| 5 | Right | LR | Right Excite |
| 6 | Left | LL | Left Excite |
| 7 | Bottom | UR | Bottom Excite |
| 8 | Top | UL | Top Excite |
| 9 | GND | GND | GND |

## 2.4.15 USB connector 2 & 3/ 6 & 7 (JUSB2/ JUSB3)
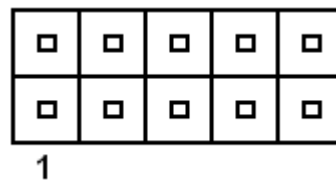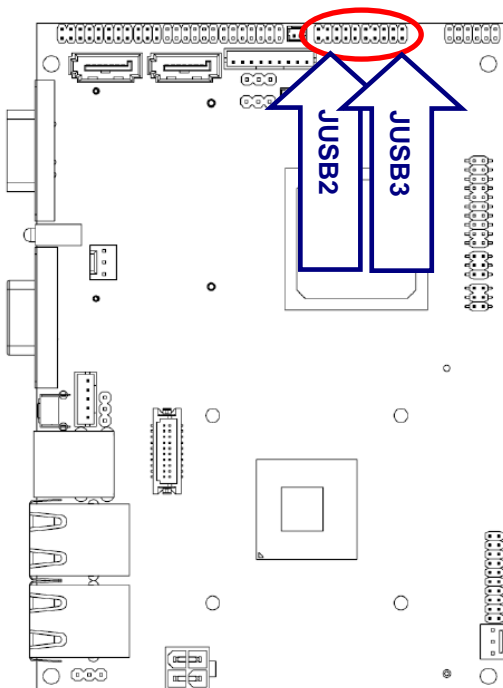


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| +5V | 1 | 2 | GND |
| N3/ N7 | 3 | 4 | GND |
| P3/ P7 | 5 | 6 | P2/ P6 |
| GND | 7 | 8 | N2/ N6 |
| GND | 9 | 10 | +5V |

## 2.4.16 LVDS connector (JLVDS)
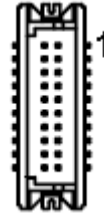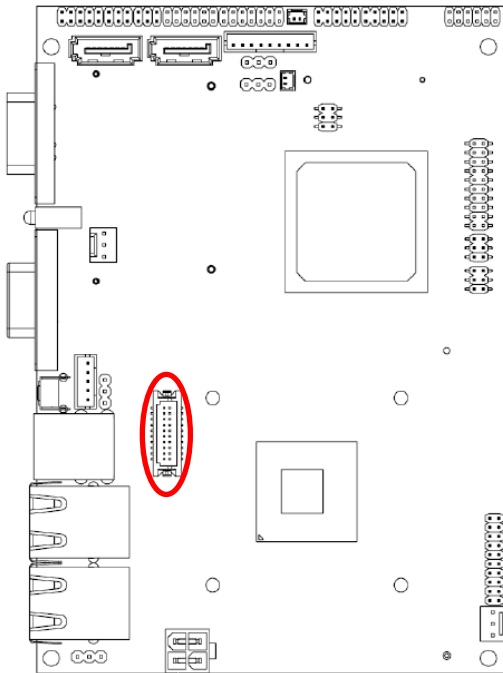


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| GND | 2 | 1 | GND |
| LVDS_0- | 4 | 3 | LVDS_0+ |
| LVDS_1- | 6 | 5 | LVDS_1+ |
| LVDS_2- | 8 | 7 | LVDS_2+ |
| NC | 10 | 9 | NC |
| LVDS_CLK- | 12 | 11 | LVDS_CLK+ |
| GND | 14 | 13 | GND |
| I_SCL | 16 | 15 | I_SDA |
| +5V | 18 | 17 | +3.3V |
| +5V | 20 | 19 | +3.3V |

## 2.4.17 SATA power connector (S_PWR1)
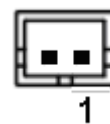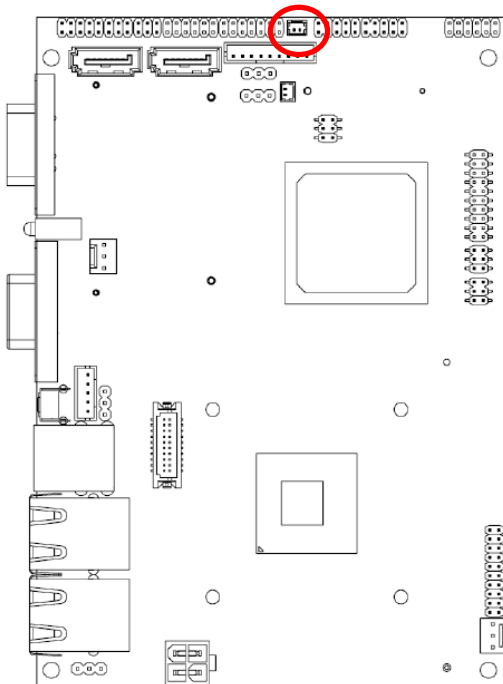


| Signal | PIN |
|--------|-----|
| SATA_PWR | 2 |
| GND | 1 |

**Note:**

SATA_PWR is +5V for SATA DOM uses.

## 2.4.18    LCD Inverter Connector (JBKL)
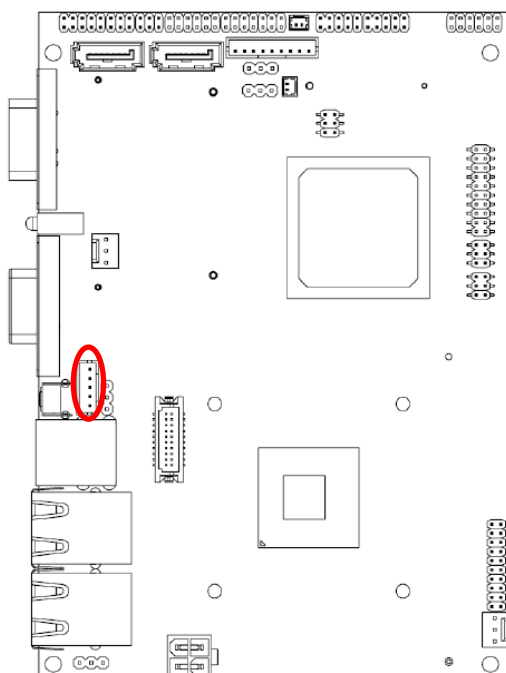


| Signal | PIN |
|--------|-----|
| +12V | 1 |
| GND | 2 |
| BLK_ON | 3 |
| BRIGHT | 4 |
| +5V | 5 |

**Note:**

For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **JVR**. Please see the **JVR** section for detailed circuitry information.

### 2.4.18.1    Signal Description – LCD Inverter Connector (JBKL)

| Signal | Signal Description |
|--------|--------------------|
| BRIGHT | Vadj = 0.75V ~ 4.25V (Recommended: 4.7KΩ, >1/16W) |
| BKL_ON | LCD backlight ON/OFF control signal |

**ECM-PNV**

## 2.4.19 LCD backlight brightness adjustment (JVR)
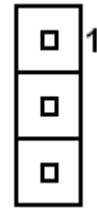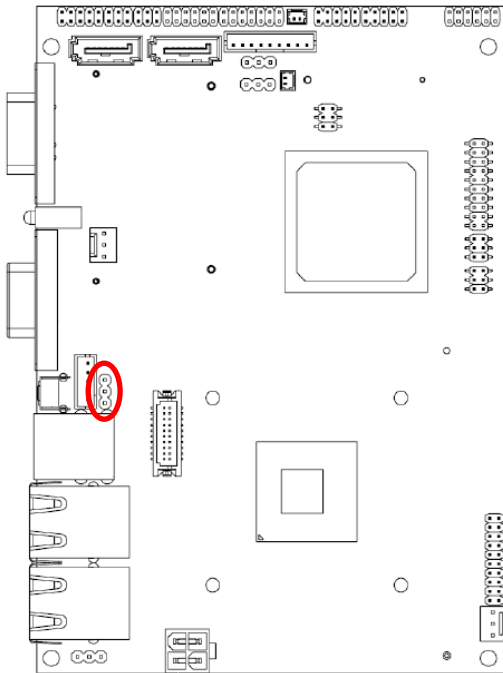


| Signal | PIN |
|--------|-----|
| +5V | 1 |
| BRIGHT | 2 |
| GND | 3 |
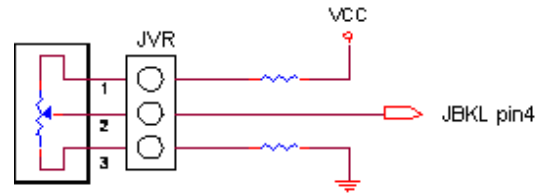


Variation Resistor

(Recommended: 4.7KΩ, >1/16W)

## 2.4.20 Power connector (PWR)
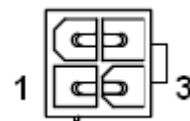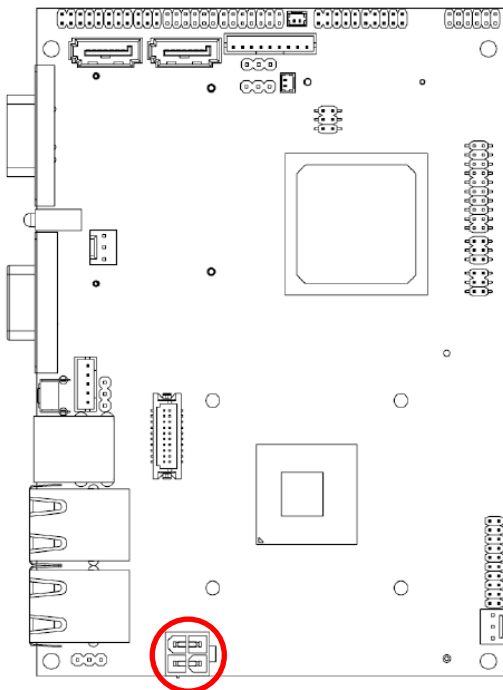


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| GND | 2 | 4 | VIN |
| GND | 1 | 3 | VIN |

## 2.4 Audio / USB Daughter Board User's Guide

### 2.4.1 Jumper and Connector Layout



### 2.4.2 Jumper and Connector List

## Connectors

| Label | Function | Note |
|---|---|---|
| **CN1, CN2** | USB connector | |
| **CN4** | Line out connector | Phone Jack |
| **CN5** | Line in connector | Phone Jack |
| **CN6** | Mic in connector | Phone Jack |
| **JAUDIO** | Audio connector | 6 x 2 header, pitch 2.0mm |
| **JP1** | 2.54mm USB connector | 5 x 2 header, pitch 2.54mm |
| **JP2** | 2.54mm USB connector | 5 x 2 header, pitch 2.54mm |
| **JP4** | 2.0mm USB connector | 5 x 2 header, pitch 2.0mm |
| **JP5** | 2.0mm USB connector | 5 x 2 header, pitch 2.0mm |
| **JP7** | TV / Audio connector | 8 x 2 header, pitch 2.54mm |

### 2.4.3 Setting Jumper and Connector

#### Audio Connector (JAUDIO)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| OUTR | 1 | 2 | OUTL |
| GND | 3 | 4 | GND |
| INR1 | 5 | 6 | INL1 |
| MICIN1 | 7 | 8 | AREF |
| FRONT-JD1 | 9 | 10 | LINE1-JD1 |
| MIC1-JD1 | 11 | 12 | GND |

#### 2.54mm USB Connector (JP1)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D1- | 3 | 4 | GND |
| D1+ | 5 | 6 | D2+ |
| GND | 7 | 8 | D2- |
| GND | 9 | 10 | +5V |

**Note:** Wrong USB cable configuration with your USB devices might cause your USB devices damaged.

#### 2.54mm USB Connector (JP2)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D3- | 3 | 4 | GND |
| D3+ | 5 | 6 | D4+ |
| GND | 7 | 8 | D4- |
| GND | 9 | 10 | +5V |

#### TV / Audio Connector (JP7)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| Mic In | 1 | 2 | Mic Bais |
| GND | 3 | 4 | GND |
| Line out L | 5 | 6 | Line out R |
| SPK L | 7 | 8 | SPK R |
| Line in L | 9 | 10 | Line in R |
| GND | 11 | 12 | NC |
| TVGND | 13 | 14 | NC |
| TVGND | 15 | 16 | COMP |

#### 2.0mm USB Connector (JP4)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D3- | 3 | 4 | GND |
| D3+ | 5 | 6 | D4+ |
| GND | 7 | 8 | D4- |
| GND | 9 | 10 | +5V |

#### 2.0mm USB Connector (JP5)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D1- | 3 | 4 | GND |
| D1+ | 5 | 6 | D2+ |
| GND | 7 | 8 | D2- |
| GND | 9 | 10 | +5V |

# 3. Hardware Configuration

## For Rev. B1

**ECM-PNV**

## 3.1 Product Overview
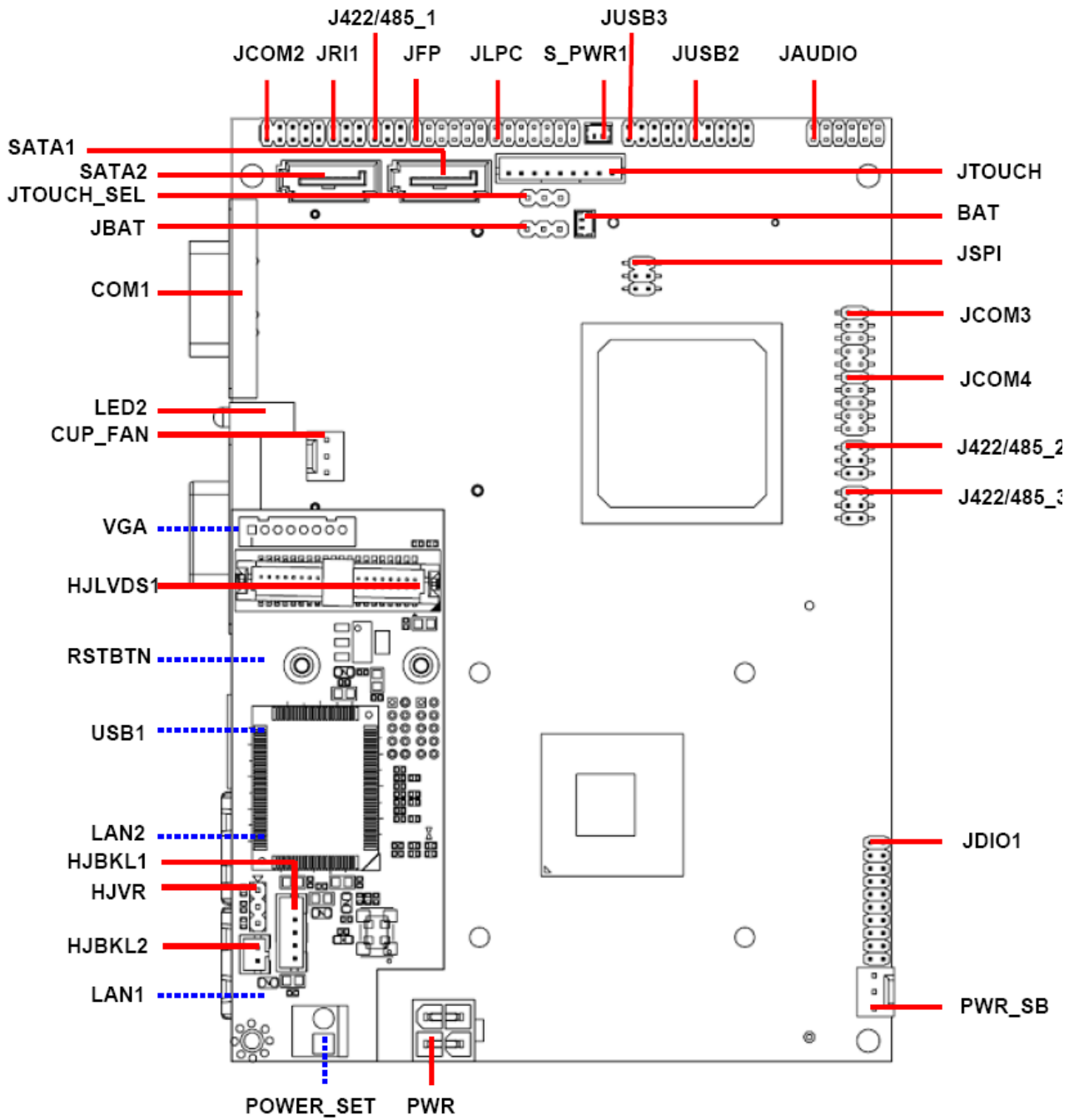
## 3.2 Installation Procedure

This chapter explains you the instructions of how to setup your system.

Turn off the power supply.

1    Insert the SODIMM module (be careful with the orientation).

2    Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.

3    Connect power supply to the board via the ATXPWR.

4    Turn on the power.

5    nter the BIOS setup by pressing the delete key during boot up. Use the "LOAD BIOS DEFAULTS" feature. The Integrated Peripheral Setup and the Standard CMOS Setup Window must be entered and configured correctly to match the particular system configuration.

6    If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

**Note:** Make sure the heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause the system to hang or unstable

**ECM-PNV**

### 3.2.1    Main Memory

ECM-PNV provides one 200-pin SODIMM socket support up to DDR2 667 SDRAM. The total maximum memory size is 2GB.
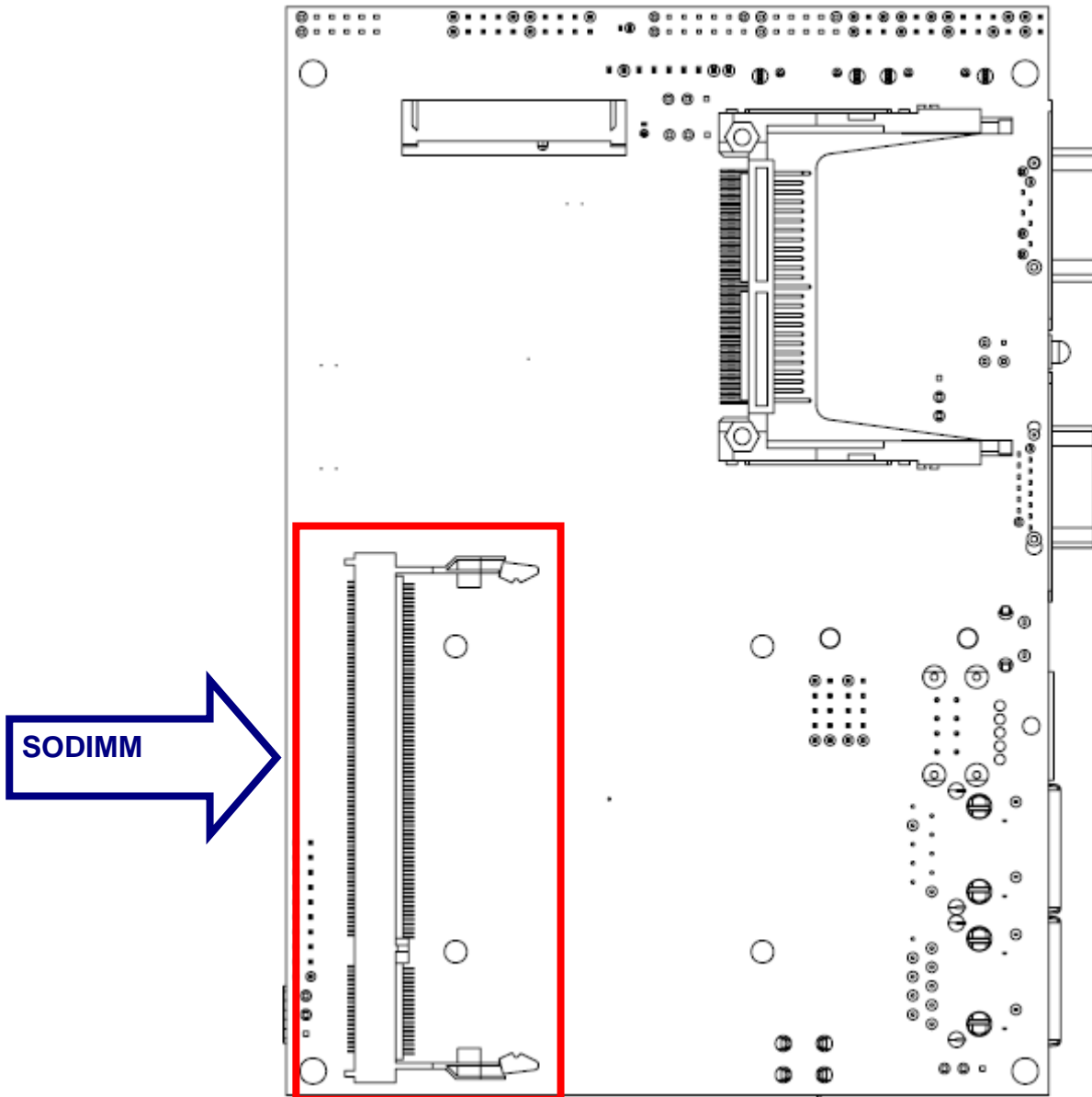


SODIMM

(Rear side)

Make sure to unplug the power supply before adding or removing SODIMMs or other system components. Failure to do so may cause severe damage to both the board and the components.

- Locate the SODIMM socket on the board.
- Hold two edges of the SODIMM module carefully. Keep away of touching its connectors.

- Align the notch key on the module with the rib on the slot.
- Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SODIMM module in with extra force as the SODIMM module only fit in one direction.

Mounting Notch        Notch Key

Ejector

**200-pin DDR2 SODIMM**

- To remove the SODIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the SODIMM module.

**Note:**

(3) Please do not change any DDR3 SDRAM parameter in BIOS setup to increase your system's performance without acquiring technical information in advance.

(4) Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

ECM-PNV

## 3.3 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

### Jumpers

| Label | Function | Note |
|---|---|---|
| JBAT | Clear CMOS | 3 x 1 header, pitch 2.54 mm |
| JFP | Miscellaneous setting connector | 6 x 2 header, pitch 2.0 mm |
| JRI1 | Serial port 1 pin 9 signal select | 3 x 2 header, pitch 2.0 mm |
| JTOUCH_SEL | Touch panel mode select | 3 x 1 header, pitch 2.54 mm |
| POWER_SET | Input power select | 3 x 1 header, pitch 2.54 mm |

## Connectors

| Label | Function | Note |
| --- | --- | --- |
| **BAT** | Battery connector | 2 x 1 wafer, pitch 1.25 mm |
| **COM1** | Serial port 1 connector | D-sub 9-pin, male |
| **CPU_FAN** | CPU fan connector | 3 x 1 wafer, pitch 2.54 mm |
| **J422/485_1** | Serial port 1 in RS-422/485 mode | 3 x 2 header, pitch 2.0 mm |
| **J422/485_2** | Serial port 2 in RS-422/485 mode | 3 x 2 header, pitch 2.0 mm |
| **J422/485_3** | Serial port 3 in RS-422/485 mode | 3 x 2 header, pitch 2.0 mm |
| **JTOUCH** | Touch panel connector | 9 x 1 header, pitch 2.0 mm |
| **JAUDIO** | Audio connector | 6 x 2 header, pitch 2.0 mm |
| **JCOM2** | Serial port 2 connector | 5 x 2 header, pitch 2.0 mm |
| **JCOM3** | Serial port 3 connector | 5 x 2 header, pitch 2.0 mm |
| **JCOM4** | Serial port 4 connector | 5 x 2 header, pitch 2.0 mm |
| **JDIO** | General purpose I/O connector | 10 x 2 header, pitch 2.0 mm |
| **JLPC** | (Reserved for debug) | 7 x 2 header, pitch 2.0 mm |
| **JUSB2** | USB connector 2 & 3 | 5 x 2 header, pitch 2.0 mm |
| **JUSB3** | USB connector 6 & 7 | 5 x 2 header, pitch 2.0 mm |
| **HJLVDS1** | LVDS connector | 2 x 20 header, pitch 1.25mm |
| **HJVR** | LCD backlight brightness adjustment | 3 x 1 header, pitch 2.54mm |
| **HJBKL1** | LCD inverter connector | 5 x 1 wafer, pitch 2.0mm |
| **HJBKL2** | LCD inverter connector | 2 x 1 wafer, pitch 2.0mm |
| **LAN1** | RJ-45 Ethernet connector | |
| **LAN2** | RJ-45 Ethernet connector | |
| **LED2** | LED connector | |
| **PWR** | Power connector | 2 x 2 wafer, pitch 4.2 mm |
| **PWR_SB** | 5VSB connector in ATX | 3 x 1 wafer, pitch 2.54 mm |
| **S_PWR1** | SATA power connector | 2 x 1 wafer, pitch 2.0 mm |
| **SATA1** | Serial ATA connector 1 | |
| **SATA2** | Serial ATA connector 2 | |
| **RSTBTN** | Reset button | |
| **USB1** | USB connector 0 & 1 | Double Deck |
| **VGA** | VGA connector | D-sub 15-pin, female |

# 3.4 Setting Jumpers & Connectors

### 3.4.1 Clear CMOS (JBAT)
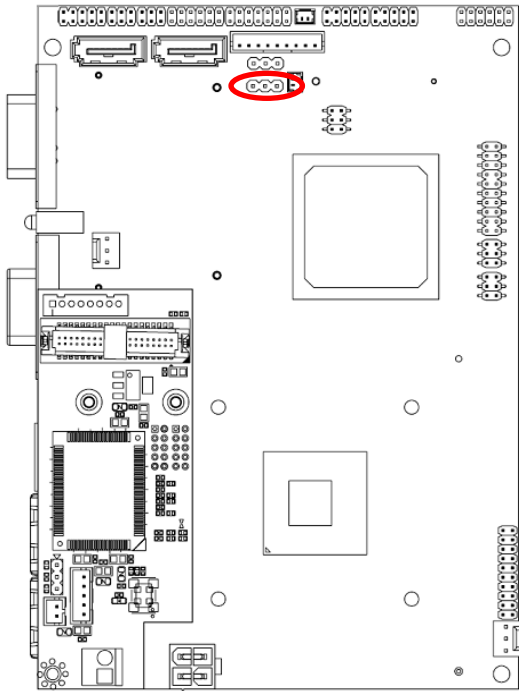


**Protect***
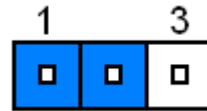


**Clear CMOS**
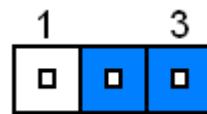


**\* Default**

### 3.4.2 Serial port 1 pin 9 signal select (JRI1)
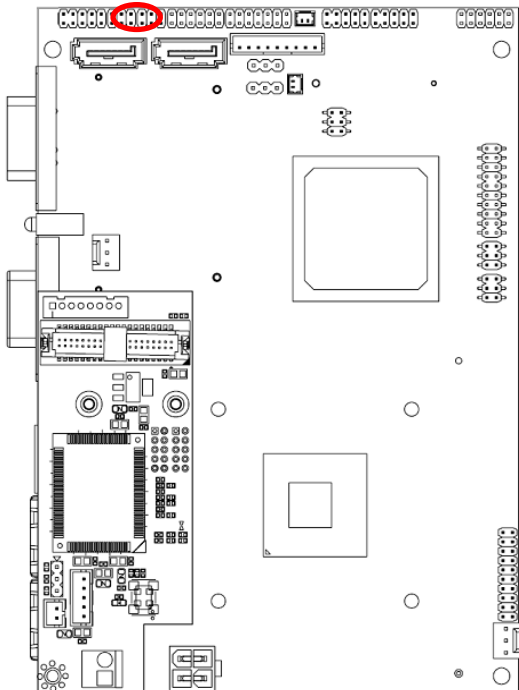


**Ring***
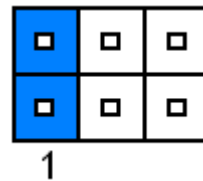


**+5V**
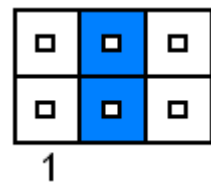


**+12V**
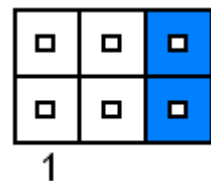


**\* Default**

### 3.4.3   Touch panel mode select (JTOUCH_SEL)
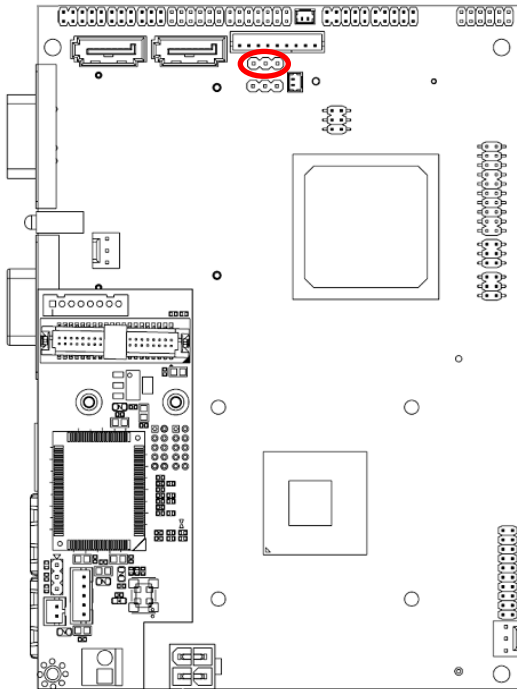


**4/ 8W**
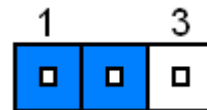


**5W***
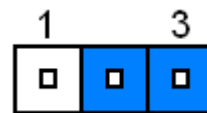


**\* Default**

### 3.4.4   Input power select (POWER_SET)
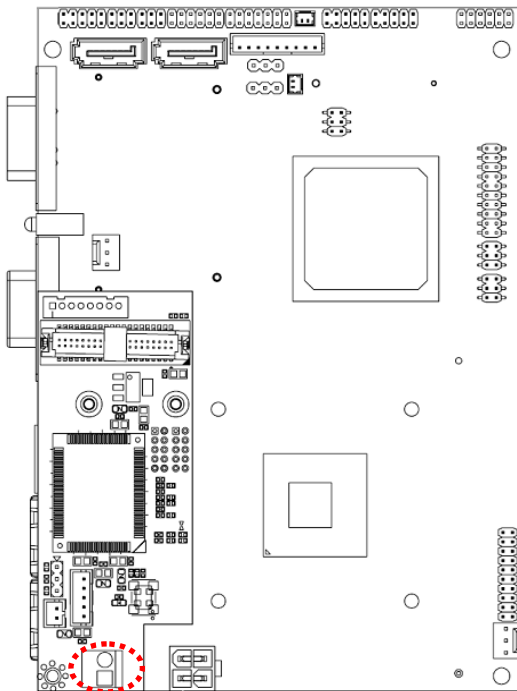


**15V~24V Input**
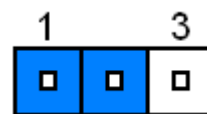


**14V~12V Input***
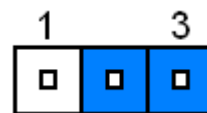


**\* Default**

**ECM-PNV**

### 3.4.5 Miscellaneous setting connector (JFP)
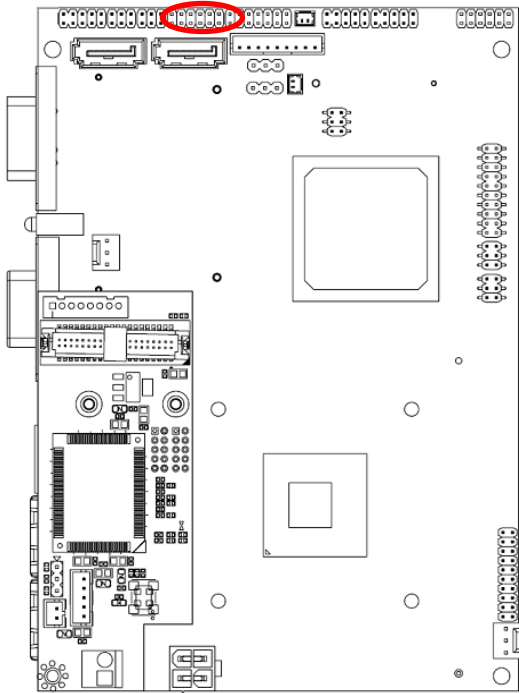


* Default
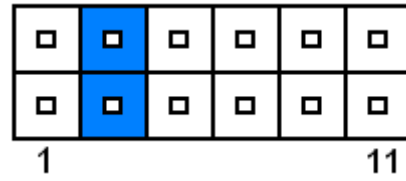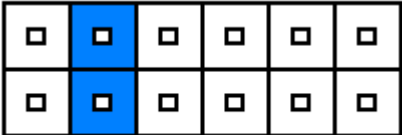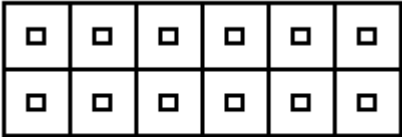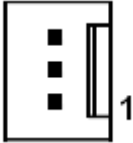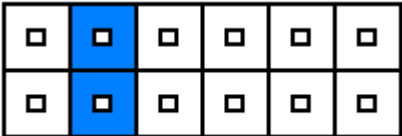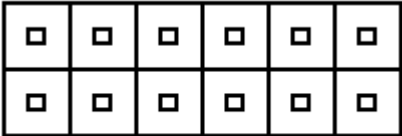
| Signal | | PIN |
|---|---|---|
| PWBT | | 1 |
| | | 2 |
| PWR MSEL | | 3 |
| | | 4 |
| PWR-LED | + | 5 |
| | - | 6 |
| HDD-LED | - | 7 |
| | + | 8 |
| CF SEL Short Slave | | 9 |
| | | 10 |
| COPEN# | | 11 |
| | | 12 |

### 3.4.6 5VSB connector in ATX (PWR_SB)
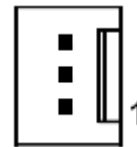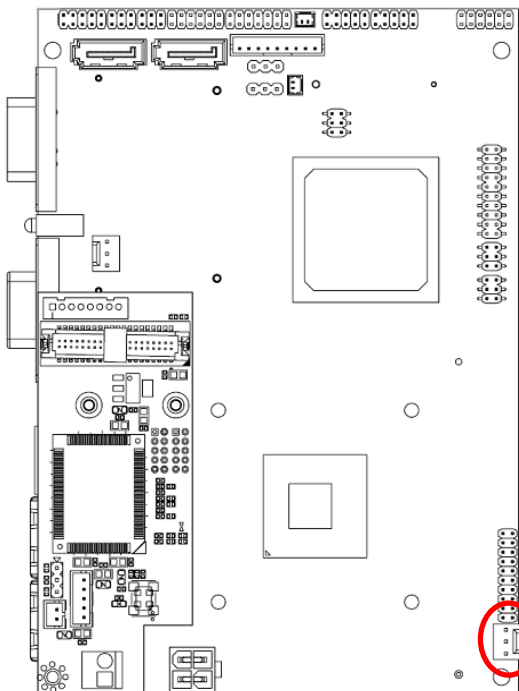


| Signal | PIN |
|---|---|
| ATX5VSB | 3 |
| GND | 2 |
| PSON | 1 |

### 3.4.6.1 Signal Description –AT/ ATX mode & Input power type

| Input power type | Power-ON Mode | Description |
|---|---|---|
| **AT Type** | **AT Mode**<br><br>(PWR MSEL)<br><br><br>1　　　　　　　11 | Use AT type power input, and set the board in AT mode. |
| | **ATX Mode**<br><br>(PWR MSEL)<br><br><br>1　　　　　　　11 | Use AT type power input, and set the board in ATX mode. |
| **ATX Type**<br>(PWR_SB)<br><br> | **AT Mode**<br><br>(PWR MSEL)<br><br><br>1　　　　　　　11 | Use ATX type power input, and set the board in AT mode. |
| | **ATX Mode**<br><br>(PWR MSEL)<br><br><br>1　　　　　　　11 | Use ATX type power input, and set the board in ATX mode. |

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### 3.4.7 Battery connector (BAT)
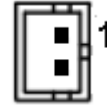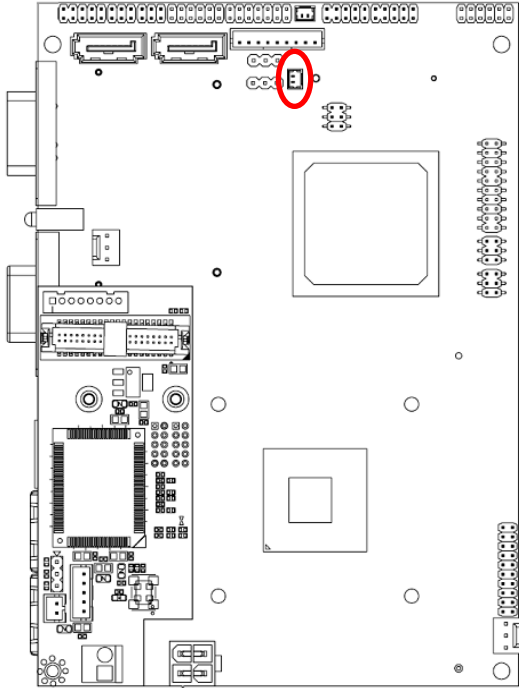


| Signal | PIN |
|--------|-----|
| BAT | 1 |
| GND | 2 |

### 3.4.8 CPU fan connector (CPU_FAN)
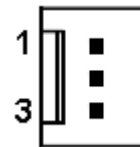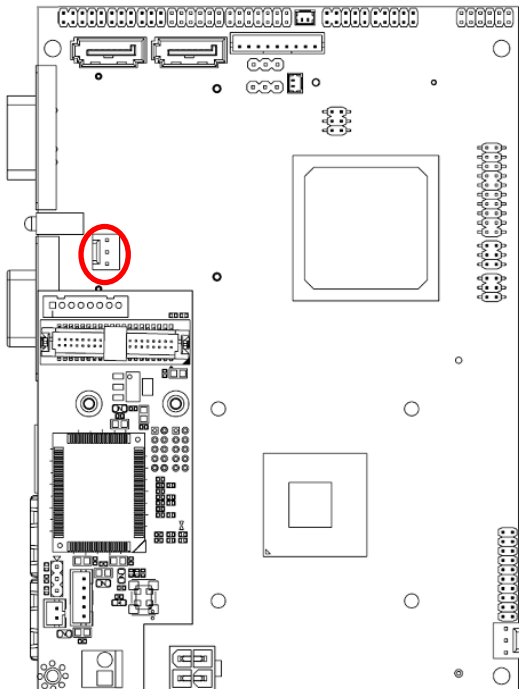


| Signal | PIN |
|--------|-----|
| GND | 1 |
| +12V | 2 |
| FAN_TAC1 | 3 |

### 3.4.9 Serial port 1/ 2/ 3 in RS-422/485 mode (J422/485_1/ J422/485_2/ J422/485_3)
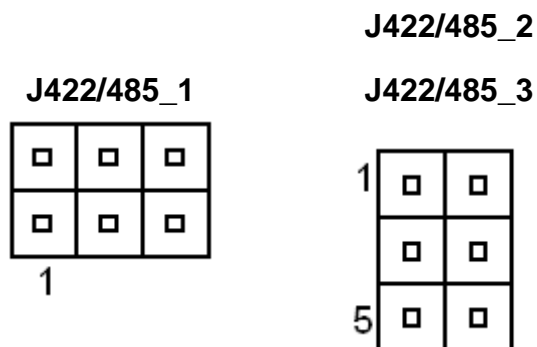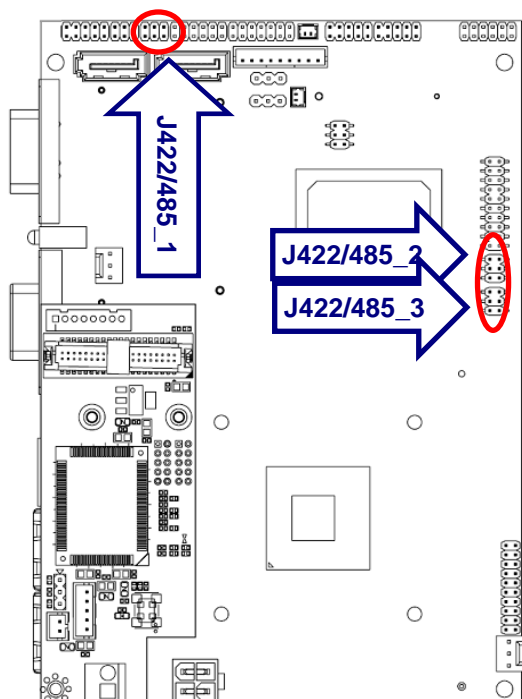


J422/485_2

J422/485_1

J422/485_3

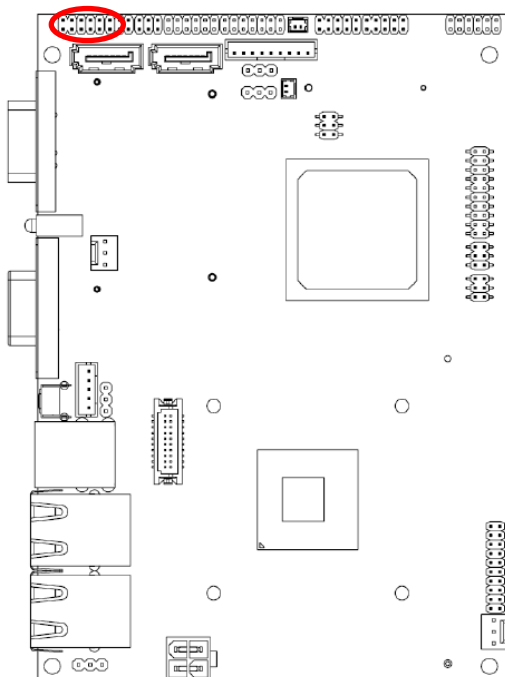| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| TX- | 1 | 2 | RX- |
| TX+ | 3 | 4 | RX+ |
| +5V | 5 | 6 | GND |

Note:

J422/485 is available after modifying the mode

of COM2 in BIOS setting.

### 3.4.10 Audio connector (JAUDIO)
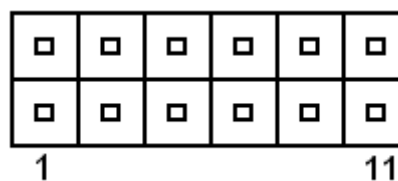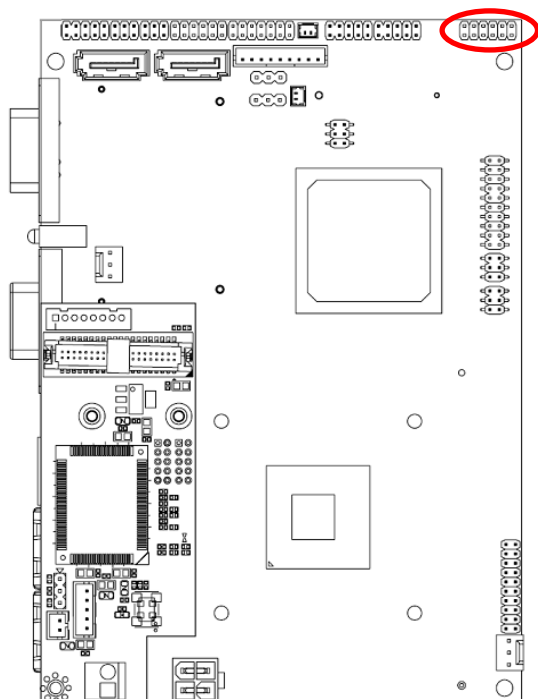


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| LINEOUT_R | 1 | 2 | LINEOUT_L |
| GND | 3 | 4 | GND |
| LINEIN_R | 5 | 6 | LINEIN_L |
| MIC-R | 7 | 8 | MIC-L |
| FRONT-JD | 9 | 10 | LINE1-JD |
| MIC1-JD | 11 | 12 | GND |

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### 3.4.11 Serial port 2 connector (JCOM2)
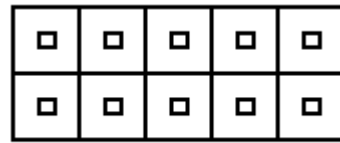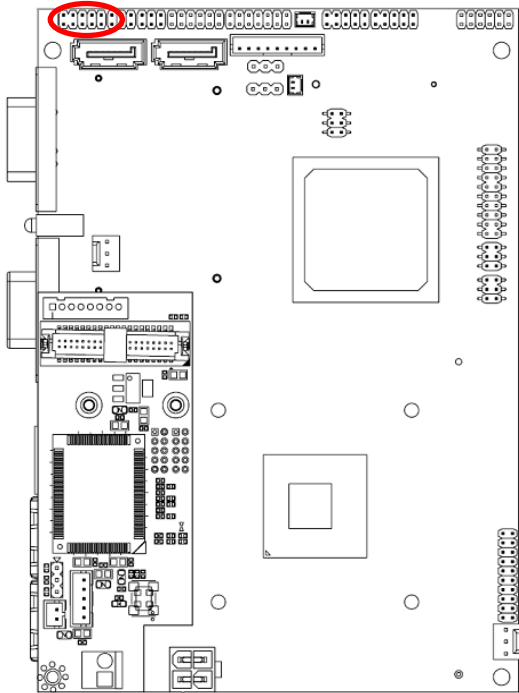
| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| DCD | 1 | 2 | RxD |
| TxD | 3 | 4 | DTR |
| GND | 5 | 6 | DSR |
| RTS | 7 | 8 | CTS |
| RI | 9 | 10 | NC |

## 3.4.12 Serial port 3/ 4 connector (JCOM3/ JCOM4)
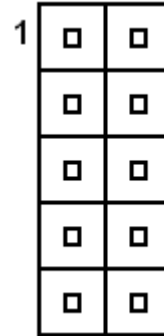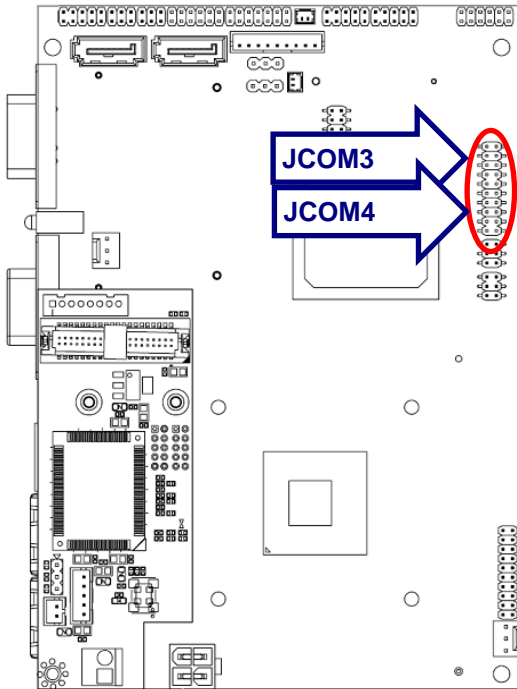


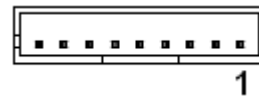| Signal | PIN | PIN | Signal |
|---|---|---|---|
| DCD | 1 | 2 | RxD |
| TxD | 3 | 4 | DTR |
| GND | 5 | 6 | DSR |
| RTS | 7 | 8 | CTS |
| RI | 9 | 10 | NC |

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### 3.4.13 General purpose I/O connector (JDIO)
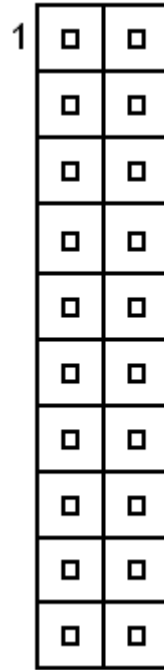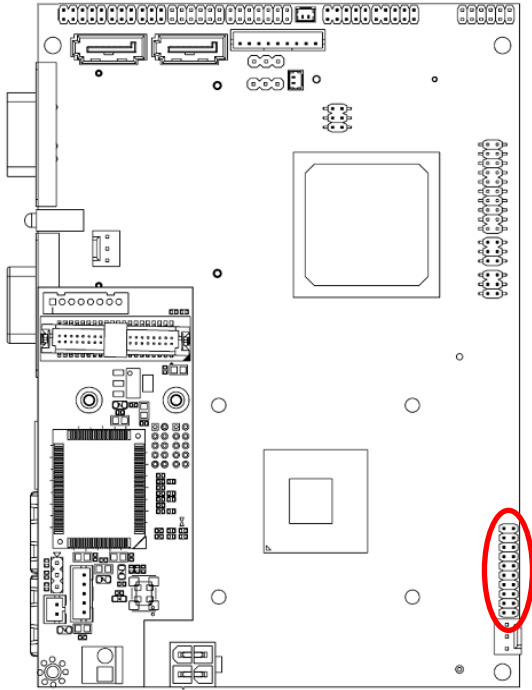


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| DIO0 | 1 | 2 | DIO10 |
| DIO1 | 3 | 4 | DIO11 |
| DIO2 | 5 | 6 | DIO12 |
| DIO3 | 7 | 8 | DIO13 |
| DIO4 | 9 | 10 | DIO14 |
| DIO5 | 11 | 12 | DIO15 |
| DIO6 | 13 | 14 | DIO16 |
| DIO7 | 15 | 16 | DIO17 |
| SMB_CLK | 17 | 18 | SMB_DATA |
| GND | 19 | 20 | +5V |

## 3.4.14 Touch panel connector (JTOUCH)
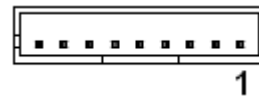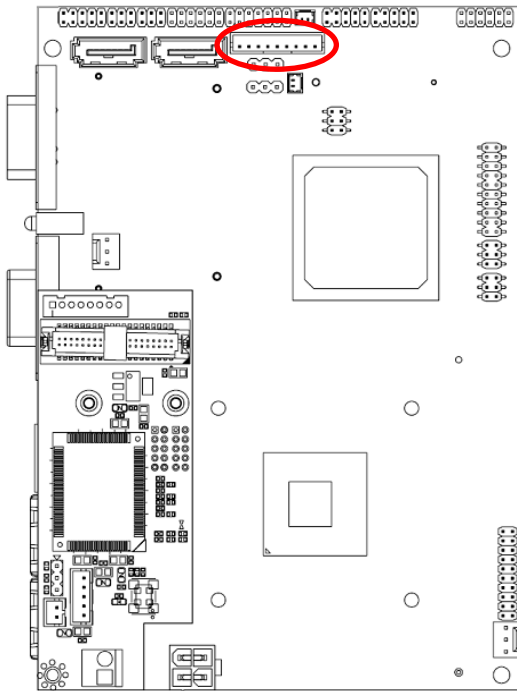


| PIN | 4-WIRE | 5-WIRE | 8-WIRE |
|-----|--------|--------|--------------|
| 1 | N/A | N/A | Right Sense |
| 2 | N/A | N/A | Left Sense |
| 3 | N/A | N/A | Bottom Sense |
| 4 | N/A | Sense | Top Sense |
| 5 | Right | LR | Right Excite |
| 6 | Left | LL | Left Excite |
| 7 | Bottom | UR | Bottom Excite |
| 8 | Top | UL | Top Excite |
| 9 | GND | GND | GND |

## 3.4.15 USB connector 2 & 3/ 6 & 7 (JUSB2/ JUSB3)
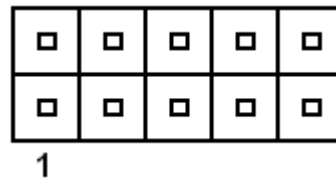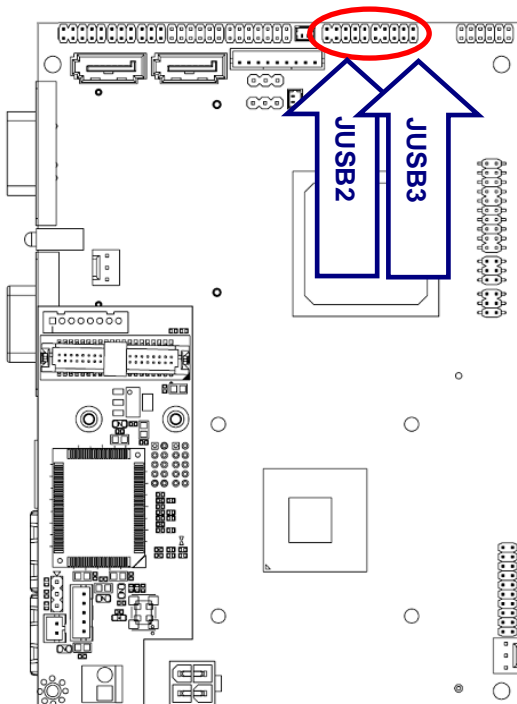


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| +5V | 1 | 2 | GND |
| N3/ N7 | 3 | 4 | GND |
| P3/ P7 | 5 | 6 | P2/ P6 |
| GND | 7 | 8 | N2/ N6 |
| GND | 9 | 10 | +5V |

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### 3.4.16 LVDS connector (HJLVDS1)
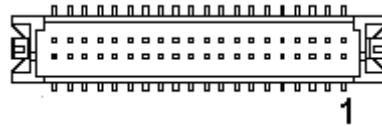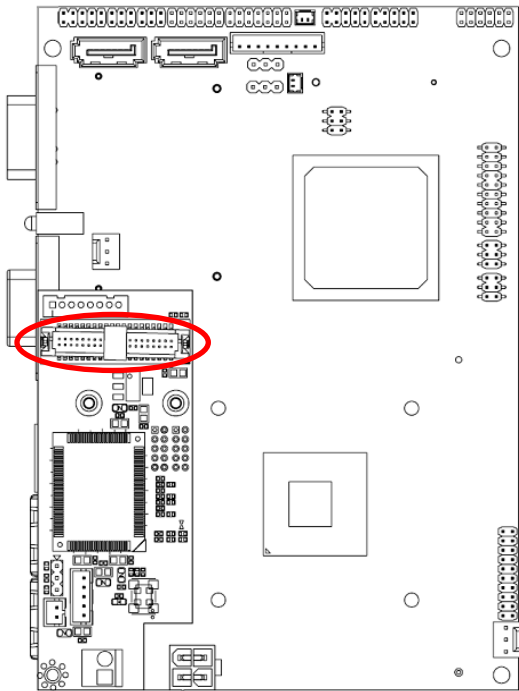


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| +5V | 2 | 1 | +3.3V |
| +5V | 4 | 3 | +3.3V |
| SPDATA | 6 | 5 | SPCLK |
| GND | 8 | 7 | GND |
| YA0P | 10 | 9 | YA1P |
| YA0M | 12 | 11 | YA1M |
| GND | 14 | 13 | GND |
| YA2P | 16 | 15 | YA3P |
| YA2M | 18 | 17 | YA3M |
| GND | 20 | 19 | GND |
| YA4P | 22 | 21 | YA5P |
| YA4M | 24 | 23 | YA5M |
| GND | 26 | 25 | GND |
| YA6P | 28 | 27 | YA7P |
| YA6M | 30 | 29 | YA7M |
| GND | 32 | 31 | GND |
| CLK1P | 34 | 33 | CLK2P |
| CLK1M | 36 | 35 | CLK2M |
| GND | 38 | 37 | GND |
| +12V | 40 | 39 | +12V |

### 3.4.17    LCD Inverter Connector (HJBKL1/ HJBKL2)
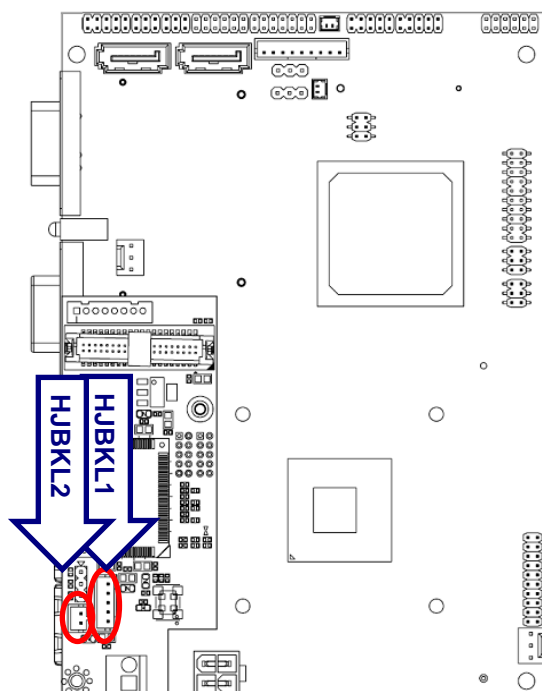


**HJBKL1**

**HJBKL2**
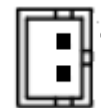
| Signal | PIN |
|---|---|
| +12V | 1 |
| GND | 2 |
| BLK_ON | 3 |
| BRIGHT | 4 |
| +5V | 5 |

| Signal | PIN |
|---|---|
| +12V | 1 |
| GND | 2 |

**Note:**
For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **HJVR**. Please see the **HJVR** section for detailed circuitry information.

### 3.4.17.1 Signal Description – LCD Inverter Connector (HJBKL1)

| Signal | Signal Description |
|---|---|
| BRIGHT | Vadj = 0.75V ~ 4.25V (Recommended: 4.7KΩ, >1/16W) |
| BKL_ON | LCD backlight ON/OFF control signal |

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### 3.4.18 LCD backlight brightness adjustment (HJVR)
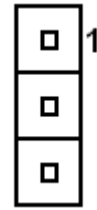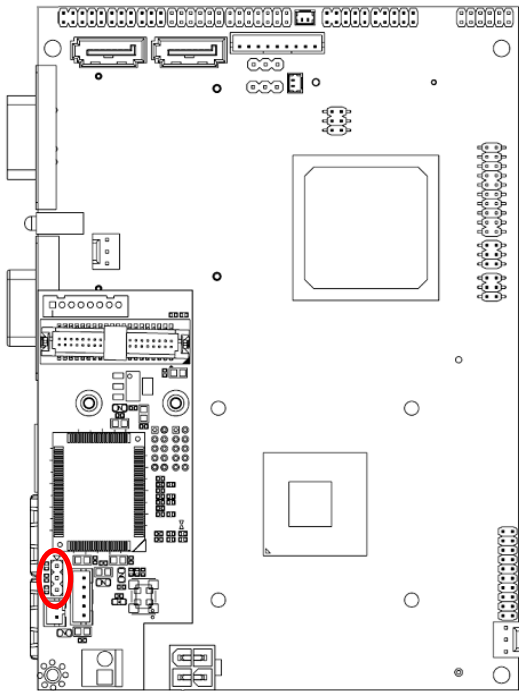


| Signal | PIN |
|--------|-----|
| +5V    | 1   |
| BRIGHT | 2   |
| GND    | 3   |
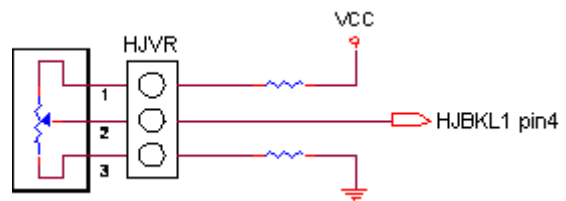


Variation Resistor

(Recommended: 4.7KΩ, >1/16W)

### 3.4.19 Power connector (PWR)
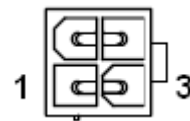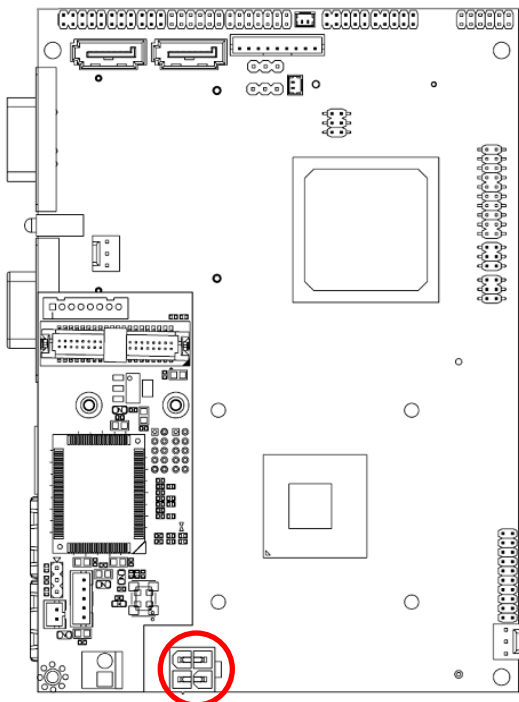


| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| GND    | 2   | 4   | VIN    |
| GND    | 1   | 3   | VIN    |

## 3.4.20 SATA power connector (S_PWR1)
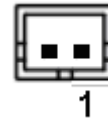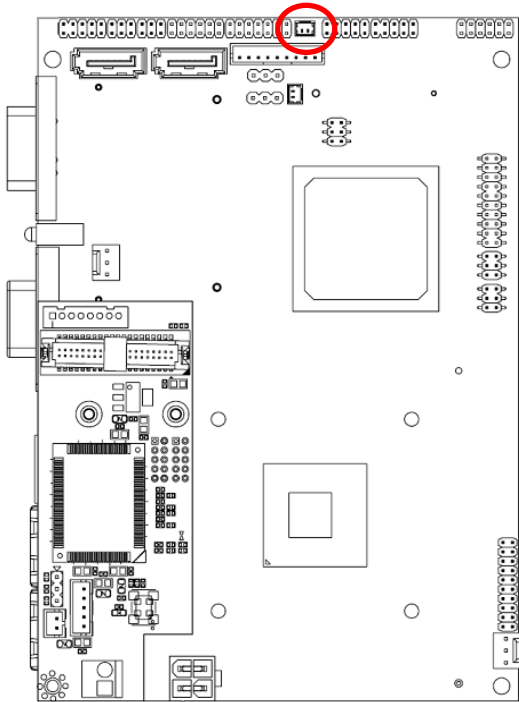


| Signal | PIN |
|----------|-----|
| SATA_PWR | 2 |
| GND | 1 |

**Note:**

SATA_PWR is +5V for SATA DOM uses.

## 3.5 Audio / USB Daughter Board User's Guide

### 3.5.1 Jumper and Connector Layout



### 3.5.2 Jumper and Connector List

## Connectors

| Label | Function | Note |
|---|---|---|
| **CN1, CN2** | USB connector | |
| **CN4** | Line out connector | Phone Jack |
| **CN5** | Line in connector | Phone Jack |
| **CN6** | Mic in connector | Phone Jack |
| **JAUDIO** | Audio connector | 6 x 2 header, pitch 2.0mm |
| **JP1** | 2.54mm USB connector | 5 x 2 header, pitch 2.54mm |
| **JP2** | 2.54mm USB connector | 5 x 2 header, pitch 2.54mm |
| **JP4** | 2.0mm USB connector | 5 x 2 header, pitch 2.0mm |
| **JP5** | 2.0mm USB connector | 5 x 2 header, pitch 2.0mm |
| **JP7** | TV / Audio connector | 8 x 2 header, pitch 2.54mm |

## 3.5.3 Setting Jumper and Connector

### Audio Connector (JAUDIO)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| OUTR | 1 | 2 | OUTL |
| GND | 3 | 4 | GND |
| INR1 | 5 | 6 | INL1 |
| MICIN1 | 7 | 8 | AREF |
| FRONT-JD1 | 9 | 10 | LINE1-JD1 |
| MIC1-JD1 | 11 | 12 | GND |

### 2.54mm USB Connector (JP1)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D1- | 3 | 4 | GND |
| D1+ | 5 | 6 | D2+ |
| GND | 7 | 8 | D2- |
| GND | 9 | 10 | +5V |

**Note:** Wrong USB cable configuration with your USB devices might cause your USB devices damaged.

### 2.54mm USB Connector (JP2)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D3- | 3 | 4 | GND |
| D3+ | 5 | 6 | D4+ |
| GND | 7 | 8 | D4- |
| GND | 9 | 10 | +5V |

### TV / Audio Connector (JP7)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| Mic In | 1 | 2 | Mic Bais |
| GND | 3 | 4 | GND |
| Line out L | 5 | 6 | Line out R |
| SPK L | 7 | 8 | SPK R |
| Line in L | 9 | 10 | Line in R |
| GND | 11 | 12 | NC |
| TVGND | 13 | 14 | NC |
| TVGND | 15 | 16 | COMP |

### 2.0mm USB Connector (JP4)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D3- | 3 | 4 | GND |
| D3+ | 5 | 6 | D4+ |
| GND | 7 | 8 | D4- |
| GND | 9 | 10 | +5V |

### 2.0mm USB Connector (JP5)

| Signal | PIN | PIN | Signal |
|---|---|---|---|
| +5V | 1 | 2 | GND |
| D1- | 3 | 4 | GND |
| D1+ | 5 | 6 | D2+ |
| GND | 7 | 8 | D2- |
| GND | 9 | 10 | +5V |

# 4. BIOS Setup

## 4.1    Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

## 4.2    Starting Setup

The AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> immediately after switching the system on, or
By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

**Press DEL to enter SETUP**

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

**Press F1 to Continue, DEL to enter SETUP**

## 4.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

| Button | Description |
|---|---|
| ↑ | Move to previous item |
| ↓ | Move to next item |
| ← | Move to the item in the left hand |
| → | Move to the item in the right hand |
| Esc key | Main Menu -- Quit and not save changes into CMOS<br>Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |
| PgUp key | Increase the numeric value or make changes |
| PgDn key | Decrease the numeric value or make changes |
| + key | Increase the numeric value or make changes |
| - key | Decrease the numeric value or make changes |
| F1 key | General help, only for Status Page Setup Menu and Option Page Setup Menu |
| (Shift) F2 key | Change color from total 16 colors.   F2 to select color forward, (Shift) F2 to select color backward |
| F3 key | Calendar, only for Status Page Setup Menu |
| F4 key | Reserved |
| F5 key | Restore the previous CMOS value from CMOS, only for Option Page Setup Menu |
| F6 key | Load the default CMOS value from BIOS default table, only for Option Page Setup Menu |
| F7 key | Load the default |
| F8 key | Reserved |
| F9 key | Reserved |
| F10 key | Save all the CMOS changes, only for Main Menu |

- **Navigating Through The Menu Bar**
  Use the left and right arrow keys to choose the menu you want to be in.

**Note:** Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**
  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>.   A "➢" pointer marks all sub menus.

## 4.4   Getting Help

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> or the F1 key again.

## 4.5   In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

## 4.6    BIOS setup

Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

### 4.6.1  Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.

```
                         BIOS SETUP UTILITY
 Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

 System Overview                                 Use [ENTER], [TAB]
 _____             or [SHIFT-TAB] to
 AMIBIOS                                          select a field.
 Version    :08.00.16
 Build Date:07/06/10                             Use [+] or [-] to
 ID         :3830-100                            configure system Time.

 Processor
 Intel(R) Atom(TM) CPU D510   @ 1.66GHz
 Speed      :255MHz
 Count      :255

 System Memory                                   ←    Select Screen
 Size       :1014MB                              ↑↓   Select Item
                                                 +-   Change Field
 System Time                    [16:06:14]       Tab  Select Field
 System Date                    [Tue 01/01/2002] F1   General Help
                                                 F10  Save and Exit
                                                 ESC  Exit

          v02.68 (C)Copyright 1985-2009, American Megatrends, Inc.
```

#### 4.6.1.1    System Date

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

#### 4.6.1.2    System Time

Use the system Date option to set the system date. Manually enter the day, month and year.

**Note:** The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

### 4.6.2  Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

```
                        BIOS SETUP UTILITY
        Advanced

   Advanced Settings                            Configure CPU

   WARNING: Setting wrong values in below sections
            may cause system to malfunction.

   ▶ CPU Configuration
   ▶ IDE Configuration
   ▶ SuperIO Configuration
   ▶ ACPI Configuration
   ▶ AHCI Configuration
   ▶ USB Configuration              ←      Select Screen
   ▶ APM Configuration              ↑↓     Select Item
                                    +-     Change Option
                                    F1     General Help
                                    F10    Save and Exit
                                    ESC    Exit


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```

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#### 4.6.2.1　CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

```
                        BIOS SETUP UTILITY
        Advanced

 Configure advanced CPU settings                Disabled for WindowsXP
 Module Version:3F.1B

 Manufacturer:Intel
 Intel(R) Atom(TM) CPU D510   @ 1.66GHz
 Frequency    :1.66GHz
 FSB Speed    :666MHz
 Cache L1     :48 KB
 Cache L2     :1024  KB
 Ratio Actual Value:10

 Max CPUID Value Limit        [Disabled]
 Execute-Disable Bit Capability [Enabled]      ←    Select Screen
 Hyper Threading Technology   [Enabled]        ↑↓   Select Item
                                               +-   Change Option
                                               F1   General Help
                                               F10  Save and Exit
                                               ESC  Exit

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```

| Item | Options | Description |
|---|---|---|
| **Max CPUID Value Limit** | Disabled, Enabled | This item allows you to limit CPUID maximum value. |
| **Execute-Disable Bit Capability** | Disabled, Enabled | This item allows you to enable or disable the No-Execution page protection technology. |
| **Hyper Threading Technology** | Disabled, Enabled | This item allows you to enable or disable Intel® Hyper Threading technology. |

## 4.6.2.2    IDE Configuration

```
                              BIOS SETUP UTILITY
      Advanced

 IDE Configuration                                        Options

 ATA/IDE Configuration          [Enhanced]          Disabled
   Configure SATA as            [IDE]               Compatible
                                                    Enhanced
 ▶ Primary IDE Master          : [Not Detected]
 ▶ Primary IDE Slave           : [Not Detected]
 ▶ Secondary IDE Master        : [Not Detected]
 ▶ Secondary IDE Slave         : [Not Detected]
 ▶ Third IDE Master            : [Not Detected]
 ▶ Third IDE Slave             : [Not Detected]
 ▶ Fourth IDE Master           : [Not Detected]
 ▶ Fourth IDE Slave            : [Not Detected]        ←    Select Screen
                                                       ↑↓   Select Item
 Hard Disk Write Protect        [Disabled]             +-   Change Option
 IDE Detect Time Out (Sec)      [35]                    F1   General Help
 ATA(PI) 80Pin Cable Detection  [Host & Device]        F10  Save and Exit
                                                       ESC  Exit


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```

| Item | Options | Description |
|---|---|---|
| **ATA/ IDE Configuration** | Disabled, Compatible, Enhanced | This can be configured as Disabled, Compatible or Enhanced. |
| **Configure SATA as** | IDE, RAID, AHCI | Use the configure SATA as BIOS option to configure the SATA port as an IDE drive, a SATA drive (AHCI mode) or a SATA drive in a RAID configuration. |
| **Primary/ Secondary/ Third/ Fourth IDE Master** | Disabled, Enabled | Use the IDE Master and IDE Slave configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system. |
| **Primary/ Secondary/ Third/ Fourth IDE Slave** | Disabled, Enabled | Use the IDE Master and IDE Slave configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system. |
| **Hard Disk Write Protect** | Disabled, Enabled | Disable/ Enable device write protection. This will effective only if device is accessed through BIOS. |
| **IDE Detect Time Out (Sec)** | 0/ 5/ 10/ 15/ 20/ 25/ 30/ 35 | This allows you to select the time out value for detecting ATA/ ATAPI devices. |

| | Host & Device, | |
|---|---|---|
| **ATA (PI) 80Pin Cable Detection** | Host, | This item allows you to select ATA cable detection mode. |
| | Device | |

## 4.6.2.3  Super IO Configuration

You can use this item to set up or change the Super IO configuration for FDD controllers, parallel ports and serial ports.

```
                         BIOS SETUP UTILITY
    Advanced

 Configure ITE8712/F81216 Super IO Chipset          Allows BIOS to Select
                                                     Serial Port1 Base
 Serial Port1 Address          [3F8/IRQ4]            Addresses.
 Serial Port2 Address          [2F8/IRQ3]
   Serial Port2 TYPE           [232]

 Serial Port3 Address          [3E8]
   Serial Port3 IRQ            [10]
 Serial Port4 Address          [2E8]
   Serial Port4 IRQ            [10]
 Serial Port5 Address          [2F0]
   Serial Port5 IRQ            [11]
   Serial Port5 TYPE           [422]                 ←     Select Screen
 Serial Port6 Address          [2E0]                 ↑↓    Select Item
   Serial Port6 IRQ            [11]                   +-    Change Option
   Serial Port6 TYPE           [422]                 F1    General Help
                                                     F10   Save and Exit
                                                     ESC   Exit




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```

| Item | Options | Description |
|---|---|---|
| **Serial Port 1/ 2/ 3/ 4/ 5/ 6 Address** | Disabled, 3F8, 2F8, 3E8, 2E8, 2F0, 2E0 | This item allows you select serial port 1 ~ 6 of base addresses. |
| **Serial Port 2/ 5/ 6 Type** | 422, 485 | This item allows you select serial port 2/ 5/ 6 of type. |
| **Serial Port 3/ 4/ 5/ 6 IRQ** | 4/ 9/ 10/ 11 | This item allows you select serial port 3 ~ 6 of IRQ. |

### 4.6.2.4    Hardware Health Configuration

This section allows you to control H/W monitoring.

```
                    BIOS SETUP UTILITY
     Advanced

 Hardware Health Configuration                    Enables Hardware
                                                  Health Monitoring
 H/W Health Function        [Enabled]             Device.

 CPU Temperature Sensor     :25°C/77°F
 SYS Temperature Sensor     :31°C/87°F

 Fan1 Speed                 :8881 RPM

 VSB                        :5.192 V
 VCORE                      :1.152 V
 VDDR                       :1.824 V
 VCC                        :5.080 V          ←     Select Screen
 VGFX                       :1.056 V          ↑↓    Select Item
 +1.5V                      :1.488 V          +-    Change Option
 +1.05V                     :1.056 V          F1    General Help
 VCC3                       :3.312 V          F10   Save and Exit
 VBAT                       :3.168 V          ESC   Exit


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```

### 4.6.2.5    ACPI Settings

You can use this item to set up ACPI Configuration. Please refer to 4.5.2.5.1 ~ 4.5.2.5.3 for more details.

```
                    BIOS SETUP UTILITY
     Advanced

 ACPI Settings                                    General ACPI
                                                  Configuration settings
 ▶ General ACPI Configuration
 ▶ Advanced ACPI Configuration
 ▶ Chipset ACPI Configuration




                                              ←     Select Screen
                                              ↑↓    Select Item
                                              Enter Go to Sub Screen
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit


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```
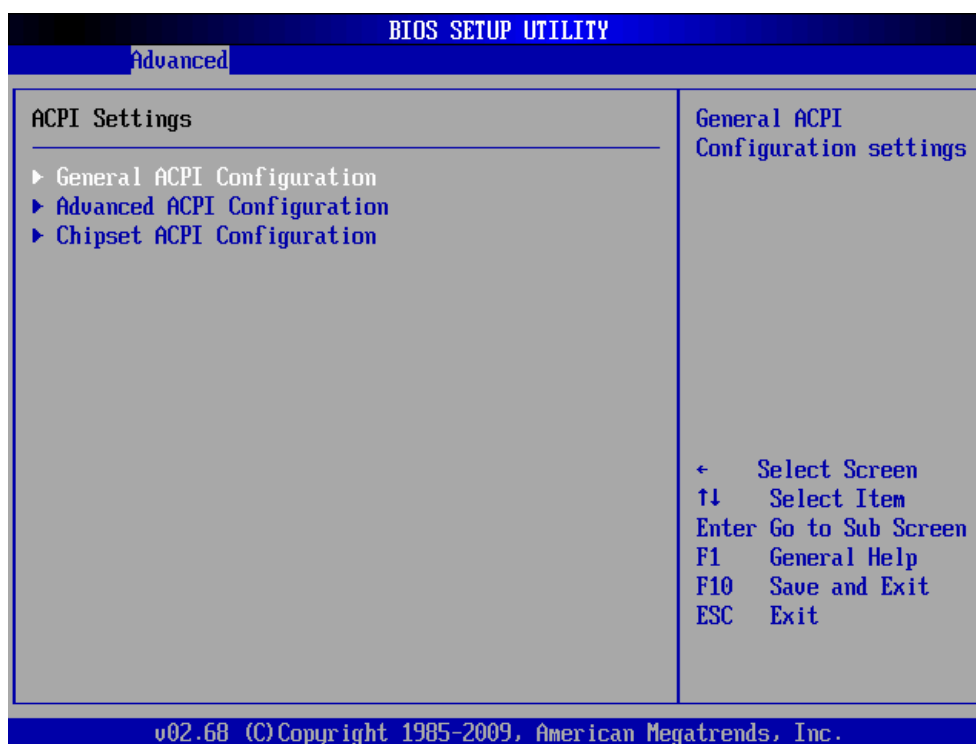
**ECM-PNV**

## 4.6.2.5.1    General ACPI Configuration

```
                        BIOS SETUP UTILITY
    Advanced

General ACPI Configuration                         Select the ACPI
                                                   state used for
Suspend mode                    [Auto]             System Suspend.
Repost Video on S3 Resume       [No]




                                                   ←     Select Screen
                                                   ↑↓    Select Item
                                                   +-    Change Option
                                                   F1    General Help
                                                   F10   Save and Exit
                                                   ESC   Exit


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```
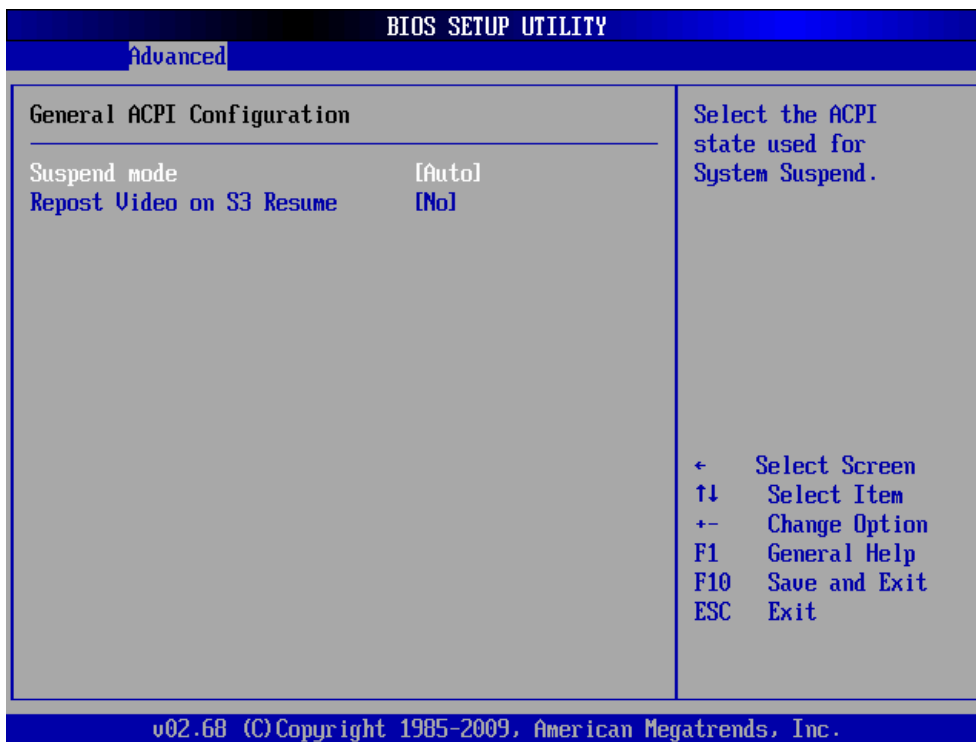
| Item | Options | Description |
|------|---------|-------------|
| **Suspend Mode** | S1 (POS), S3 (STR), Auto | Select the ACPI states used for system suspend. |
| **Repost Video on S3 Resume** | No, Yes | This item allows you to invoke VA BIOS POST on S3/ STR resume. |

## 4.6.2.5.2    Advanced ACPI Configuration

```
                            BIOS SETUP UTILITY
    Advanced

  Advanced ACPI Configuration                        Enable RSDP pointers
                                                      to 64-bit Fixed System
  ACPI Version Features          [ACPI v1.0]          Description Tables.
  ACPI APIC support              [Enabled]            Different ACPI version
  AMI OEMB table                 [Enabled]            has some addition.
  Headless mode                  [Disabled]




                                                      ←    Select Screen
                                                      ↑↓   Select Item
                                                      +-   Change Option
                                                      F1   General Help
                                                      F10  Save and Exit
                                                      ESC  Exit


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```

| Item | Options | Description |
|------|---------|-------------|
| **ACPI Version Features** | ACPI v1.0, ACPI v2.0, ACPI v3.0 | This item allows you enable RSDP pointers to 64-bit fixed system description tables. |
| **ACPI APIC support** | Enabled, Disabled | Include APIC table pointer to RSDT pointer list. |
| **AMI OEMB table** | Enabled, Disabled | Include OEMB table pointer to R(x)SDT pointer list. |
| **Headless mode** | Disabled, Enabled | Enable/ Disable Headless operation mode through ACPI. |

## 4.6.2.5.3 Chipset ACPI Configuration

```
                      BIOS SETUP UTILITY
   Advanced

 South Bridge ACPI Configuration                      Options

 Energy Lake Feature          [Disabled]      Enabled
 APIC ACPI SCI IRQ            [Disabled]      Disabled
 High Performance Event Timer [Enabled]
 HPET Memory Address          [FED00000h]




                                              ←    Select Screen
                                              ↑↓   Select Item
                                              +-   Change Option
                                              F1   General Help
                                              F10  Save and Exit
                                              ESC  Exit



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```
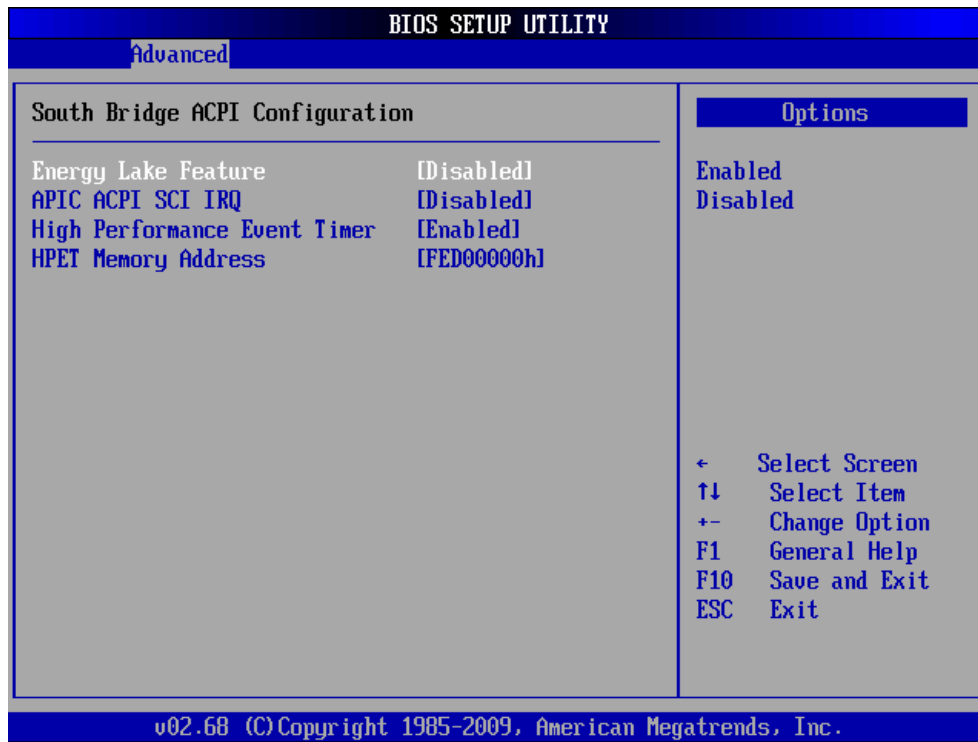
| Item | Options | Description |
|---|---|---|
| **Energy Lake Feature** | Disabled, Enabled | This item allows selecting energy lake feature mode. |
| **APIC ACPI SCI IRQ** | Disabled, Enabled | This item allows to enable/ disable APIC ACPI SCI IRQ. |
| **High Performance Event Timer** | Disabled, Enabled | This section helps to set high performance event timer. |
| **HPET Memory Address** | FES00000h, FES01000h, FES02000h | This item allows selecting HPET memory address. |

### 4.6.2.6 AHCI Configuration

While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.

```
                      BIOS SETUP UTILITY
     Advanced

  AHCI Settings                              While entering setup,
                                             BIOS auto detects the
  ▶ AHCI Port0 [Not Detected]                presence of IDE
  ▶ AHCI Port1 [Not Detected]                devices. This displays
  ▶ AHCI Port2 [Not Detected]                the status of auto
                                             detection of IDE
                                             devices.



                                             ←    Select Screen
                                             ↑↓   Select Item
                                             Enter Go to Sub Screen
                                             F1   General Help
                                             F10  Save and Exit
                                             ESC  Exit


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```

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## 4.6.2.6.1    AHCI Port0

```
                        BIOS SETUP UTILITY
    Advanced

  AHCI Port0                                      Select the type
                                                  of device connected
  Device   :Not Detected                          to the system.

  SATA Port0                    [Auto]
  S.M.A.R.T.                    [Enabled]




                                                  ←    Select Screen
                                                  ↑↓   Select Item
                                                  +-   Change Option
                                                  F1   General Help
                                                  F10  Save and Exit
                                                  ESC  Exit


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```

| Item | Options | Description |
|------|---------|-------------|
| **SATA Port0** | Auto, Not Installed | Serial port 0 mode select. |
| **S.M.A.R.T.** | Disabled, Enabled | Select the smart monitoring, analysis, and reporting technology. |

**4.6.2.6.2 AHCI Port1**

```
                        BIOS SETUP UTILITY
     Advanced

   AHCI Port1                               Select the type
                                            of device connected
   Device   :Not Detected                   to the system.

   SATA Port1              [Auto]
   S.M.A.R.T.              [Enabled]




                                            ←    Select Screen
                                            ↑↓   Select Item
                                            +-   Change Option
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit



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```
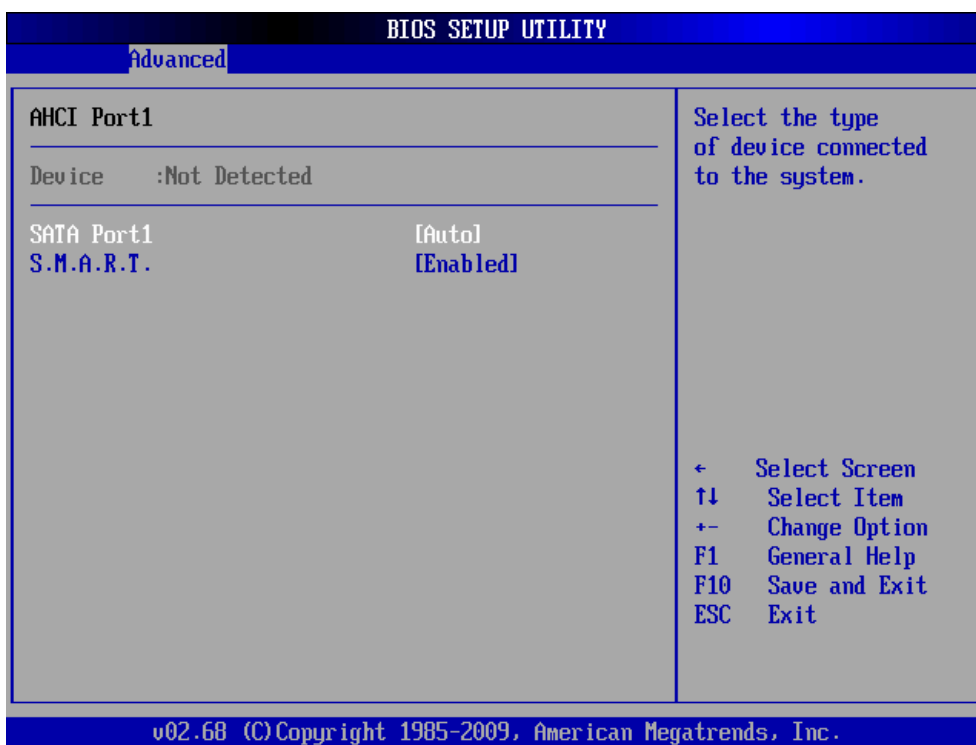
| Item | Options | Description |
|------|---------|-------------|
| **SATA Port1** | Auto, Not Installed | Serial port 1 mode select. |
| **S.M.A.R.T.** | Disabled, Enabled | Select the smart monitoring, analysis, and reporting technology. |

### 4.6.2.6.3      AHCI Port2

```
                        BIOS SETUP UTILITY
     Advanced

  AHCI Port2                                        Select the type
                                                    of device connected
  Device    :Not Detected                           to the system.

  SATA Port2                     [Auto]
  S.M.A.R.T.                     [Enabled]




                                                 ←    Select Screen
                                                 ↑↓   Select Item
                                                 +-   Change Option
                                                 F1   General Help
                                                 F10  Save and Exit
                                                 ESC  Exit



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```
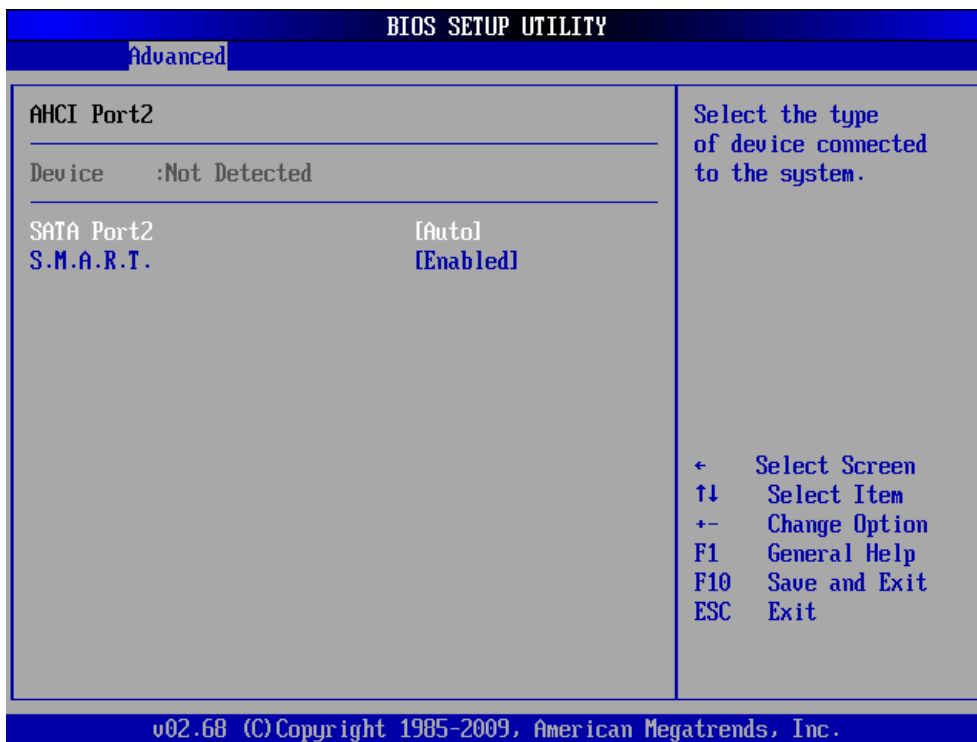
| Item | Options | Description |
|---|---|---|
| **SATA Port2** | Auto, Not Installed | Serial port 2 mode select. |
| **S.M.A.R.T.** | Disabled, Enabled | Select the smart monitoring, analysis, and reporting technology. |

### 4.6.2.7    USB Configuration

The USB configuration menu is used to read USB configuration information and configure the USB setting.



| Item | Options | Description |
|------|---------|-------------|
| **Legacy USB Support** | Enabled, Disabled, Auto | Use the Legacy USB Support BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system. |
| **USB 2.0 Controller Mode** | HiSpeed (480Mbps), FullSpeed (12Mpbs) | This item allows you to select HiSpeed (480Mbps) or FullSpeed (12Mpbs). |
| **BIOS EHCI Hand-Off** | Enabled, Disabled | This is a workaround for OSs without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver. |
| **Hotplug USB FDD Support** | Enabled, Disabled, Auto | A dummy FDD devices is created that will be associated with the hotplugged FDD later. Auto option creates this dummy device only if there is no USB present. |

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## 4.6.2.7.1　USB Mass Storage Device Configuration

```
                          BIOS SETUP UTILITY
     Advanced

 USB Mass Storage Device Configuration           Number of seconds
                                                 POST waits for the
 USB Mass Storage Reset Delay   [20 Sec]         USB mass storage
                                                 device after start
    Device #1         Generic STORAGE DEVICE     unit command.
    Emulation Type           [Auto]
    Device #2         Generic STORAGE DEVICE
    Emulation Type           [Auto]
    Device #3         Generic STORAGE DEVICE
    Emulation Type           [Auto]


                                                 ←    Select Screen
                                                 ↑↓   Select Item
                                                 +-   Change Option
                                                 F1   General Help
                                                 F10  Save and Exit
                                                 ESC  Exit


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```

| Item | Options | Description |
|---|---|---|
| **USB Mass Storage Reset Delay** | 10, 20, 30, 40 sec. | Number of sends POST wait for the USB mass device after start unit command. |
| **Device #1/ #2/ #3 Emulation Type** | Auto, Floppy, Forced FDD, Hard-Disk, CD-ROM. | This item allows you to set up mass storage devices. |

### 4.6.2.8 APM Configuration

The APM Configuration menu allows the advanced power management options to be configured.

```
                            BIOS SETUP UTILITY
     Advanced

    APM Configuration                                    Enable or disable
    _____                  APM.
    Power Management/APM           [Enabled]
    Power Button Mode              [On/Off]
    Restore on AC Power Loss by IO [Power Off]


    Resume On Ring                 [Disabled]
    Resume On PCIE                 [Disabled]
    Resume On RTC Alarm            [Disabled]


                                                    ←    Select Screen
                                                    ↑↓   Select Item
                                                    +-   Change Option
                                                    F1   General Help
                                                    F10  Save and Exit
                                                    ESC  Exit


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```

| Item | Options | Description |
|------|---------|-------------|
| **Power Management/ APM** | Enabled, Disabled | This item helps to select power management mode. |
| **Power Button Mode** | On/ Off, Suspend | This section allows you to select power button mode. |
| **Restore on AC Power Loss by IO** | Power On, Power Off, Last State | Use this to set up the system response after a power failure. |
| **Resume On Ring** | Disabled, Enabled | Use the Resume on Ring BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system is roused by an incoming call on modem. |
| **Resume On PCIE** | Disabled, Enabled | Use the Resume on PCIE BIOS option to enable activity on the PCIE signal to rouse the system from a suspend or standby state. |
| **Resume On RTC Alarm** | Disabled, Enabled | Use the Resume on RTC Alarm option to specify the time the system should be roused from a suspend state. |

### 4.6.3 PCI/ PnP

Use the PCI/ PnP menu to configure advanced PCI and PnP settings.

```
                        BIOS SETUP UTILITY
  Main    Advanced   PCIPnP    Boot    Security   Chipset   Exit

  Advanced PCI/PnP Settings                    ▲   Clear NVRAM during
                                                   System Boot.
  WARNING: Setting wrong values in below sections
           may cause system to malfunction.

  Clear NVRAM                    [No]
  Plug & Play O/S                [No]
  PCI Latency Timer              [64]
  Allocate IRQ to PCI VGA        [Yes]
  Palette Snooping               [Disabled]
  PCI IDE BusMaster              [Enabled]
  OffBoard PCI/ISA IDE Card      [Auto]
                                                 ←     Select Screen
  IRQ3                           [Available]    ↑↓    Select Item
  IRQ4                           [Available]    +-    Change Option
  IRQ5                           [Available]    F1    General Help
  IRQ7                           [Available]    F10   Save and Exit
  IRQ9                           [Available]    ESC   Exit
  IRQ10                          [Available]
  IRQ11                          [Available]  ▼

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```

| Item | Options | Description |
|---|---|---|
| **Clear NURAM** | No, Yes | Set this value to force the BIOS to clear the Non-volatile Random Access Memory (NVRAM). The Original and Fail-Safe default setting is No. |
| **Plug & Play O/S** | No, Yes | When set No, BIOS configures all the device in the system. When set to Yes and if you still a Plug and Play operating system, the operating system configures the plug and Play device not required for boot. |
| **PCI Latency Timer** | 32, 64, 96, 128, 160, 192, 224, 248 | Value in units of PCI clocks for PCI device latency timer register. |
| **Allocate IRQ to PCI VGA** | No, Yes | When set to Yes will assigns IRQ to PCI VGA card if card requests IRQ. When set to No will not assign IRQ to PCI VGA card even if card requests an IRQ. |
| **PaletteSnooping** | Disabled, Enabled | This item designed to solve problems caused by some non-standard VGA card. |

| | | |
|---|---|---|
| **PCI IDE BusMaster** | Disabled, Enabled | When set to enabled BIOS uses PCI busmastering for reading/ writing to IDE drives. |
| **OffBoard PCI/ ISA IDE Card** | Auto, PCI Slot 1/ 2/ 3/ 4/ 5/ 6 | Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card. When set to auto will works for most PCI IDE cards. |
| **IRQ3/ 4/ 5/ 7/ 9/ 10/ 11** | Available, Reserved | Use the IRQ# address to specify what IRQs can be assigned to a particular peripheral device. |

### 4.6.4 Boot

Use the Boot menu to configure system boot options.

## 4.6.4.1    Boot settings Configuration

```
                    BIOS SETUP UTILITY
                         Boot

 Boot Settings Configuration                    Allows BIOS to skip
                                                certain tests while
 Quick Boot                   [Enabled]         booting. This will
 Quiet Boot                   [Disabled]        decrease the time
 AddOn ROM Display Mode       [Force BIOS]      needed to boot the
 Bootup Num-Lock              [On]              system.
 PS/2 Mouse Support           [Auto]
 Wait For 'F1' If Error       [Enabled]
 Hit 'DEL' Message Display    [Enabled]
 Interrupt 19 Capture         [Disabled]


                                                ←    Select Screen
                                                ↑↓   Select Item
                                                +-   Change Option
                                                F1   General Help
                                                F10  Save and Exit
                                                ESC  Exit


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```

| Item | Options | Description |
|---|---|---|
| Quick Boot | Disabled, Enabled | Use the quick boot BIOS option to make the computer speed up the boot process. |
| Quiet Boot | Disabled, Enabled | Use the quiet boot BIOS option to select the screen display when the system boots. |
| AddOn ROM Display Mode | Force BIOS, Keep Curren | The AddOn ROM Display Mode option allows add-on ROM (read-only memory) messages to be displayed. |
| Bootup Num-Lock | On, Off | The Bootup Num-Lock BIOS option allows the number Lock setting to be modified during boot up. |
| PS/2 Mouse Support | Disabled, Enabled, Auto | This select support for PS/w mouse. |
| Wait For 'F1' if Error | Disabled, Enabled | When set to enable, the system waits for the F1 key to be pressed when error occurs. This allows option ROM to trap interrupt19. |
| Hit 'DEL' Message Display | Disabled, Enabled | This displays 'Press <DEL> to run Setup> in POST. |
| Interrupt 19 Capture | Disabled, Enabled | This allows option ROMs to trap interrupt19. |

### 4.6.4.2 Boot device priority

Use the Boot Device Priority menu to specify the boot sequence from the available devices.

```
                    BIOS SETUP UTILITY
                         Boot

 Boot Device Priority                          Specifies the boot
─────────────────────────────────────         sequence from the
                                               available devices.
 1st Boot Device           [USB:Generic STORAG]
 2nd Boot Device           [USB:Generic STORAG]   A device enclosed in
                                               parenthesis has been
                                               disabled in the
                                               corresponding type
                                               menu.


                                               ←     Select Screen
                                               ↑↓    Select Item
                                               +-    Change Option
                                               F1    General Help
                                               F10   Save and Exit
                                               ESC   Exit


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```

### 4.6.4.3 Hard Disk Drives

Use the Hard Disk Drives menu to specify the boot sequence of the available HDDs.

```
                    BIOS SETUP UTILITY
                         Boot

 Hard Disk Drives                              Specifies the boot
─────────────────────────────────────         sequence from the
                                               available devices.
 1st Drive                 [USB:Generic STORAG]




                                               ←     Select Screen
                                               ↑↓    Select Item
                                               +-    Change Option
                                               F1    General Help
                                               F10   Save and Exit
                                               ESC   Exit


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```

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#### 4.6.4.4 Removable Drives

Use the Removable Drives menu to specify the boot sequence of the available FDDs.

```
                    BIOS SETUP UTILITY
                         Boot

  Removable Drives                            Specifies the boot
  ────────────────────────────────────       sequence from the
  1st Drive                [USB:Generic STORAG]  available devices.
  2nd Drive                [USB:Generic STORAG]




                                             ←     Select Screen
                                             ↑↓    Select Item
                                             +-    Change Option
                                             F1    General Help
                                             F10   Save and Exit
                                             ESC   Exit


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```

### 4.6.5 Security

Use the Security menu to set system and user password.

```
                    BIOS SETUP UTILITY
  Main   Advanced   PCIPnP   Boot   Security   Chipset   Exit

  Security Settings                           Install or Change the
  ────────────────────────────────────       password.
  Supervisor Password :Not Installed
  User Password       :Not Installed

  Change Supervisor Password
  Change User Password
  Clear User Password

  Boot Sector Virus Protection   [Disabled]


                                             ←     Select Screen
                                             ↑↓    Select Item
                                             Enter Change
                                             F1    General Help
                                             F10   Save and Exit
                                             ESC   Exit


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```

## 4.6.5.1 Change Supervisor/ User Password

Provides for either installing or changing the password.

```
                    BIOS SETUP UTILITY
  Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

  Security Settings                              Install or Change the
                                                 password.
  Supervisor Password :Not Installed
  User Password       :Not Installed

  Change Supervisor Password
  Change User Password
  Clear User Password
                        ┌──────────────────────────┐
  Boot Sector Virus Prote│ Enter New Password    [    ]│
                        └──────────────────────────┘

                                             ←    Select Screen
                                             ↑↓   Select Item
                                             Enter Change
                                             F1   General Help
                                             F10  Save and Exit
                                             ESC  Exit

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```

```
                    BIOS SETUP UTILITY
  Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

  Security Settings                              Install or Change the
                                                 password.
  Supervisor Password :Not Installed
  User Password       :Not Installed

  Change Supervisor Password
  Change User Password
  Clear User Password
                        ┌──────────────────────────┐
  Boot Sector Virus Prote│ Enter New Password    [    ]│
                        └──────────────────────────┘

                                             ←    Select Screen
                                             ↑↓   Select Item
                                             Enter Change
                                             F1   General Help
                                             F10  Save and Exit
                                             ESC  Exit

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```

#### 4.6.5.2 Clear User Password

Use the Clear User Password to clean a user password.

```
                        BIOS SETUP UTILITY
  Main     Advanced    PCIPnP    Boot    Security    Chipset     Exit

  Security Settings                                    Immediately clears the
  ──────────────────────                               User password.
  Supervisor Password :Not Installed
  User Password       :Not Installed

  Change Supervisor Password
  Change User Password
  Clear User Password          Clear User Password?

  Boot Sector Virus Protect

                               [Ok]    [Cancel]

                                                     ←     Select Screen
                                                     ↑↓    Select Item
                                                     Enter Go to Sub Screen
                                                     F1    General Help
                                                     F10   Save and Exit
                                                     ESC   Exit


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```

#### 4.6.5.3 Boot Sector Virus Protection

The boot sector virus protection will warm if any program tries to write to the boot sector.

### 4.6.6 Advanced Chipset Settings

Use the chipset menu to access the Northbridge and Southbridge configuration menus.

```
                        BIOS SETUP UTILITY
  Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

  Advanced Chipset Settings                       Configure North Bridge
                                                  features.
  WARNING: Setting wrong values in below sections
           may cause system to malfunction.

  ▶ North Bridge Configuration
  ▶ South Bridge Configuration


                                                  ←      Select Screen
                                                  ↑↓     Select Item
                                                  Enter  Go to Sub Screen
                                                  F1     General Help
                                                  F10    Save and Exit
                                                  ESC    Exit



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```

## 4.6.6.1　North Bridge Configuration

```
                    BIOS SETUP UTILITY
                                        Chipset

 North Bridge Chipset Configuration                    Options

   PCI MMIO Allocation: 4GB To 3072MB          Auto
 DRAM Frequency              [Auto]            667 MHz
 Configure DRAM Timing by SPD  [Enabled]       800 MHz

 Initate Graphic Adapter      [IGD]
 Internal Graphics Mode Select  [Enabled, 8MB]

 PEG Port Configuration

 ▶ Video Function Configuration

                                              ←     Select Screen
                                              ↑↓    Select Item
                                              +-    Change Option
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit


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```

| Item | Option | Description |
|---|---|---|
| **DRAM Frequency** | Auto, 667MHz, 800MHz | This item allows you to manually change DRAM frequency. |
| **Configure DRAM Timing by SPD** | Disabled, Enabled | This item allows you to enable or disable by DRAM SPD. |
| **Initate Graphic Adapter** | IGD, PEG/IGD | This item allows you to select which graphics controller to use as the primary boot device. |
| **Internal Graphics Mode Select** | Disabled, Enabled 32MB, Enabled 64MB, Enabled 128MB | This option determines the amount of system memory that can be used by the internal graphics device. |
| **PEG Port Configuration** | Disabled, Enabled | Use the PEG Port option to enable or disable the PCI Express port. |

## 4.6.6.1.1 Video Function Configuration

```
                            BIOS SETUP UTILITY
                                            Chipset

Video Function Configuration                          Options

DVMT Mode Select           [DVMT Mode]        Fixed Mode
  DVMT/FIXED Memory        [256MB]            DVMT Mode

Boot Display Device        [VBIOS-Default]
Flat Panel Type            [1024x768]
Spread Spectrum Clock      [Disabled]


                                              ←    Select Screen
                                              ↑↓   Select Item
                                              +-   Change Option
                                              F1   General Help
                                              F10  Save and Exit
                                              ESC  Exit


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```
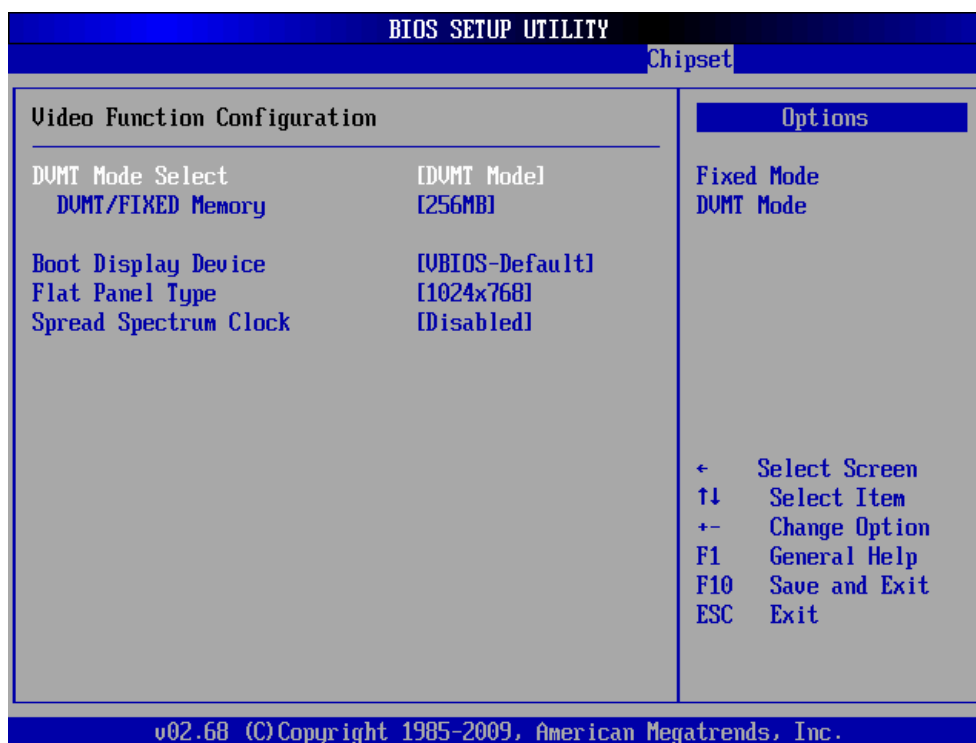
| Item | Option | Description |
|---|---|---|
| **DVMT Mode Select** | Fixed Mode, DVMT Mode, Combo Mode | Displays the active system memory mode. |
| **DVMT/ FIXED Memory** | 64MB, 128MB, Maximum DVMT | Specifies the amount of DVMT/ FIXED system memory to allocate for video memory. |
| **Boot Display Device** | VBIOS-Default, CRT, LVDS, CRT+LVDS | Select boot display device at post stage. |

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| | | |
|---|---|---|
| **Flat Panel Type** | 640 x 480,<br>800 x 600,<br>1024 x 768,<br>1024 x 600,<br>1024 x 576,<br>800 x 480,<br>1280 x 720,<br>1280 x 768,<br>800 x 600,<br>1024 x 600,<br>1024 x 768,<br>1024 x 768,<br>1024 x 768,<br>1280 x 800,<br>1280 x 600,<br>1366 x 768 | This item allows you to select which panel resolution you want. |
| **Spread Spectrum Clock** | Disabled,<br>Enabled | This item allows you to enable or disable spread spectrum clock. |

### 4.6.6.2 South Bridge Configuration

```
                              BIOS SETUP UTILITY
                                            Chipset

  South Bridge Chipset Configuration                    Options

  USB Functions               [10 USB Ports]    Disabled
  USB 2.0 Controller          [Enabled]         2 USB Ports
  HDA Controller              [Enabled]         4 USB Ports
  SMBUS Controller            [Enabled]         6 USB Ports
  OnBoard LAN Boot            [Disabled]        8 USB Ports
                                                10 USB Ports

  PCIE Ports Configuration
    PCIE Port 0               [Auto]
    PCIE Port 1               [Auto]
    PCIE Port 2               [Auto]            ←    Select Screen
    PCIE High Priority Port   [Disabled]        ↑↓   Select Item
                                                +-   Change Option
    PCIE Port 0 IOxAPIC Enable  [Disabled]      F1   General Help
    PCIE Port 1 IOxAPIC Enable  [Disabled]      F10  Save and Exit
    PCIE Port 2 IOxAPIC Enable  [Disabled]      ESC  Exit


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```
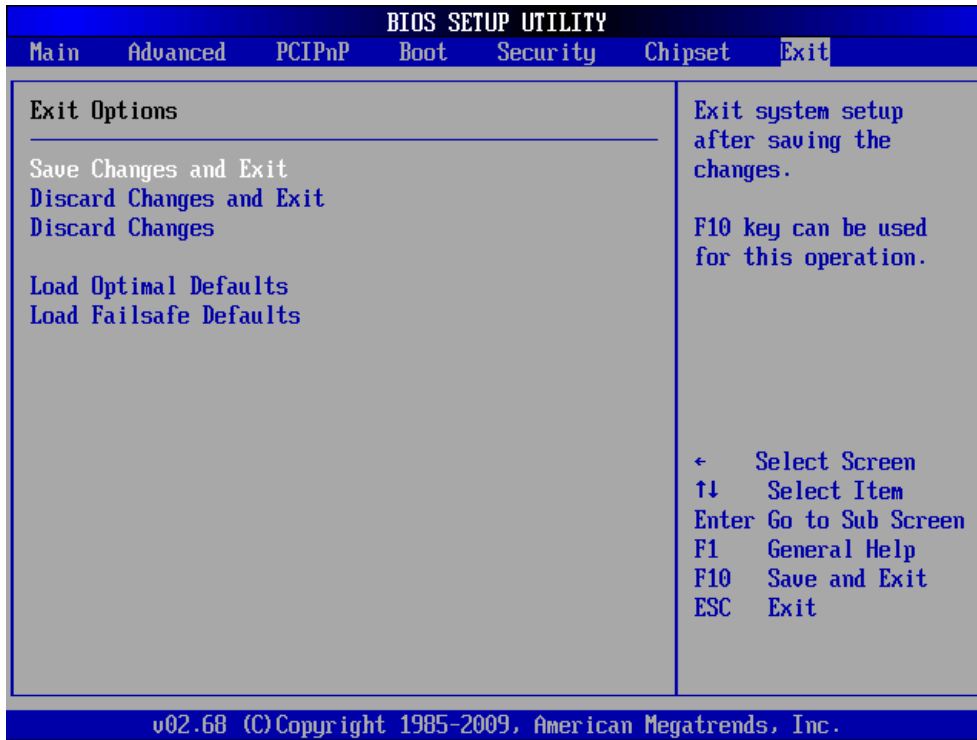
| Item | Option | Description |
|---|---|---|
| **USB Functions** | Disables, 2/ 4/ 6/ 8/ 10 USB Ports | This option enables the number of USB ports desired or disables the USB function. |
| **USB 2.0 Controller** | Disabled, Enabled | This option is disabled by default. |
| **HAD Controller** | Disabled, Enabled | This option is used to enable the southbridge high definition audio controller. |
| **SMBUS Controller** | Disabled, Enabled | This option is enabled by default. |
| **OnBoard LAN Boot** | Disabled, Enabled | This item helps to set onboard LAN boot mode. |
| **PCIE Port 0/ 1/ 2** | Disabled, Enabled, Auto | This section allows selecting PCIE port 0/ 1/ 2 mode. |
| **PCIE High Priority Port** | Disabled, Enabled, Auto | This item helps to set PCIE high priority port. |
| **PCIE Port 0/ 1/ 2 IOxAPIC Enable** | Disabled, Enabled | This helps to enabled or disabled PCIE port 0/ 1/ 2 IOxAPIC. |

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### 4.6.7 Exit Options
Use the Exit menu to load default BIOS values, optional failsafe values and to save configuration changes.

```
                    BIOS SETUP UTILITY
  Main   Advanced   PCIPnP   Boot   Security   Chipset   Exit

  Exit Options                              Exit system setup
  ──────────────────────────               after saving the
  Save Changes and Exit                     changes.
  Discard Changes and Exit
  Discard Changes                           F10 key can be used
                                            for this operation.
  Load Optimal Defaults
  Load Failsafe Defaults



                                            ←    Select Screen
                                            ↑↓   Select Item
                                            Enter Go to Sub Screen
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit


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```

#### 4.6.7.1 Save changes and exit
Use the save changes and reset option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

```
                    BIOS SETUP UTILITY
  Main   Advanced   PCIPnP   Boot   Security   Chipset   Exit

  Exit Options                              Exit system setup
  ──────────────────────────               after saving the
  Save Changes and Exit                     changes.
  Discard Changes and Exit
  Discard Changes                           F10 key can be used
                                            for this operation.
  Load Optimal D
  Load Failsafe  ┌──────────────────────────────────┐
                 │ Save configuration changes and exit setup? │
                 │                                  │
                 │   [Ok]            [Cancel]       │
                 └──────────────────────────────────┘
                                            ct Screen
                                            ↑↓   Select Item
                                            Enter Go to Sub Screen
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit


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```
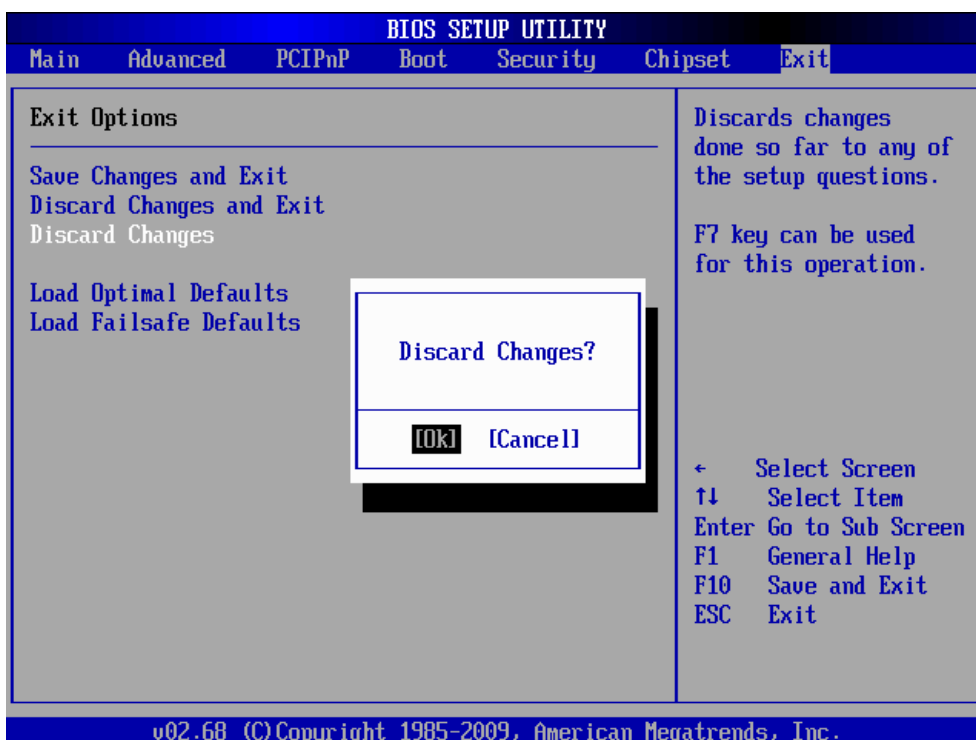
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### 4.6.7.2    Discard Changes and Exit

Use the Discard changes and Exit option to exit the system without saving the changes made to the BIOS configuration setup program.

```
                       BIOS SETUP UTILITY
  Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

  Exit Options                                     Exit system setup
  ─────────────────────────────────               without saving any
  Save Changes and Exit                            changes.
  Discard Changes and Exit
  Discard Changes                                  ESC key can be used
                                                   for this operation.
  Load Optimal Defaul
  Load Failsafe Defau
                    Discard changes and exit setup?


                            [Ok]      [Cancel]
                                                      Select Screen
                                                  ↑↓  Select Item
                                                  Enter Go to Sub Screen
                                                  F1    General Help
                                                  F10   Save and Exit
                                                  ESC   Exit


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```

### 4.6.7.3    Discard Changes

Use the Discard Changes option to discard the changes and remain in the BIOS configuration setup program.

```
                       BIOS SETUP UTILITY
  Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

  Exit Options                                     Discards changes
  ─────────────────────────────────               done so far to any of
  Save Changes and Exit                            the setup questions.
  Discard Changes and Exit
  Discard Changes                                  F7 key can be used
                                                   for this operation.
  Load Optimal Defaults
  Load Failsafe Defaults
                            Discard Changes?


                            [Ok]   [Cancel]
                                                  ←   Select Screen
                                                  ↑↓  Select Item
                                                  Enter Go to Sub Screen
                                                  F1    General Help
                                                  F10   Save and Exit
                                                  ESC   Exit


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```

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### 4.6.7.4    Load Optimal Default

Use the Load Optimal Defaults option to load the optimal default values for each of the parameters on the setup menus. F9 key can be used for this operation.



### 4.6.7.5    Load Failsafe Defaults

Use the Load Failsafe Defaults option to load failsafe default values for each of the parameters on the Setup menus. F8 key can be used for this operation.



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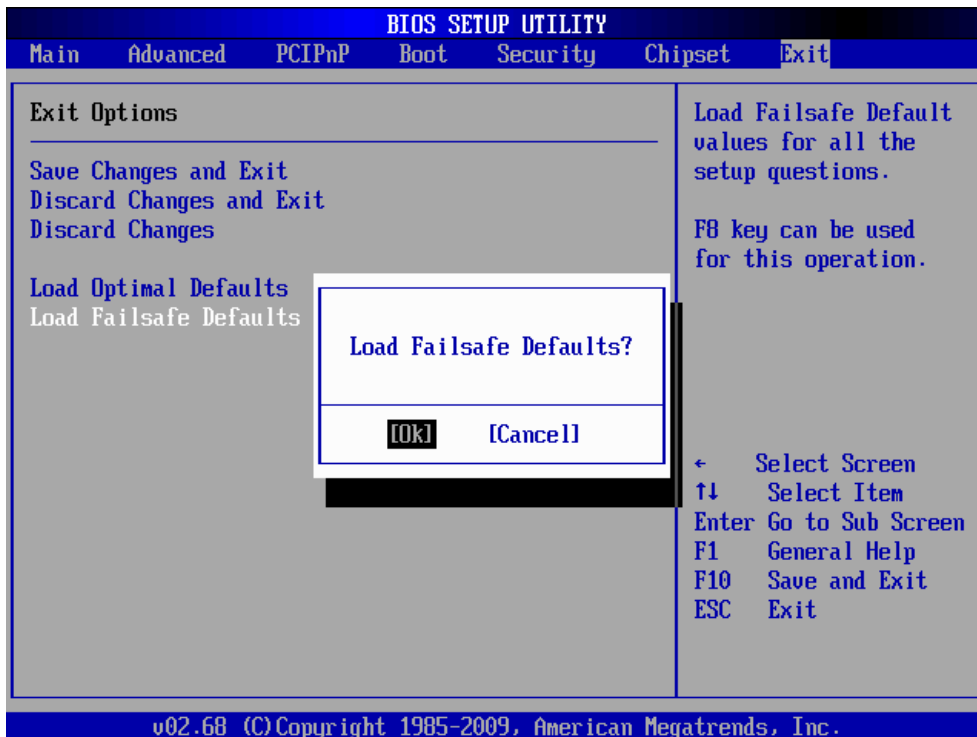
# 5. Drivers Installation

**Note**: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

## 5.1 Install Display Driver (For Intel QM57)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\Driver_Video\Intel\Pineview**.

**Note:** The installation procedures and screen shots in this section are based on Windows XP operation system.
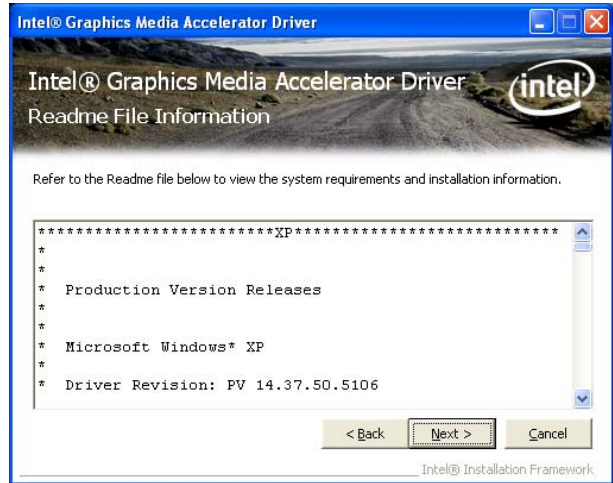
**Step 3.** Click **Next**.

**Step1.** Click **Next**.
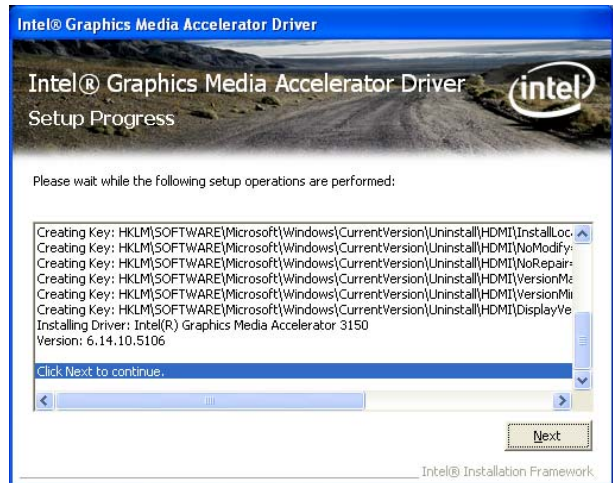
**Step 4.** Click **Next**.
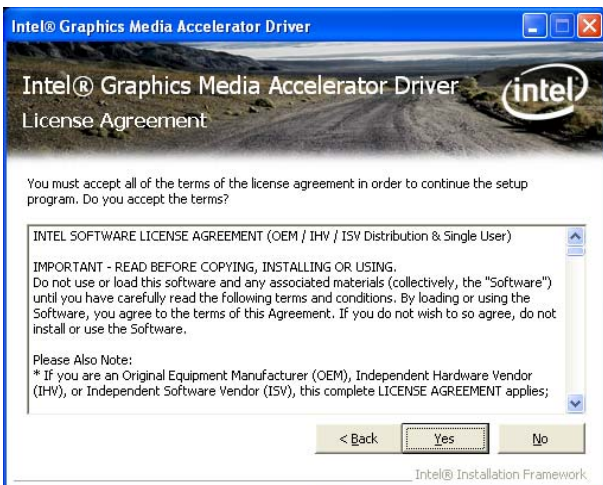
**Step 2.** Click **Yes**.

**Step 5.** Click **Finish** to complete setup.

## 5.2    Install Audio Driver (For Realtek ALC888)

Insert the Supporting CD-ROM to
CD-ROM drive, and it should show the
index page of Avalue's products
automatically. If not, locate Index.htm and
choose the product from the menu left, or
link to **\Driver_Audio\Realtek \ALC888.**

> **Note:** The installation procedures and
> screen shots in this section are
> based on Windows 2000 operation
> system.

**Step 1.** Locate 「\Driver_Audio\Intel\
ALC888\setup.exe 」.
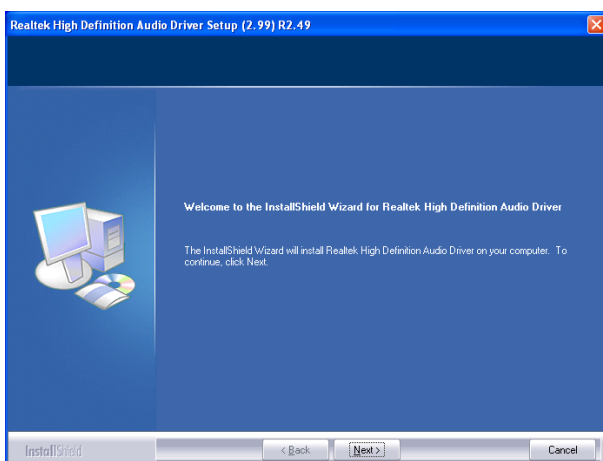


**Step 2.** Click **Next**.
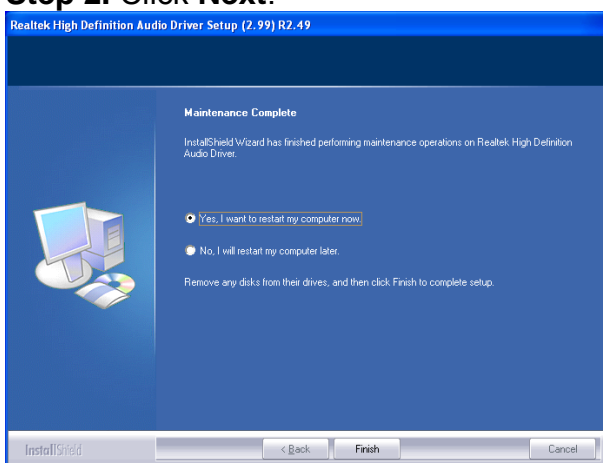


**Step 3.** Click **Finish** to complete the setup.

## 5.3 Install Ethernet Driver (For Intel 82574L)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **D:\Driver_Gigabit\Intel\ 82574L**.

**Note:** The installation procedures and screen shots in this section are based on Windows XP operation system.



**Step 3.** Click **Next** to run the installation.
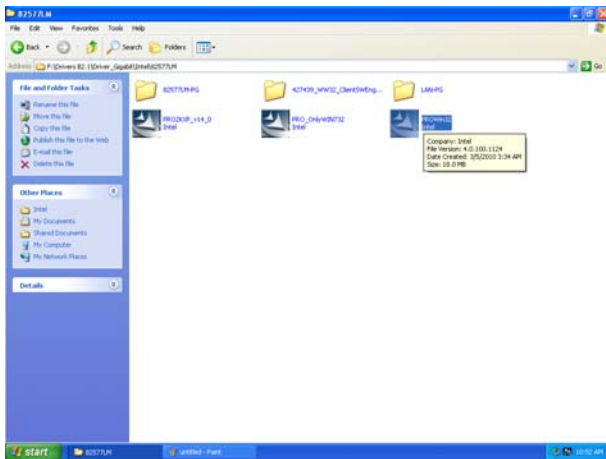


**Step 1.** Locate 「\Driver_Gigabit\Intel\ 82574L」and choose your system OS.
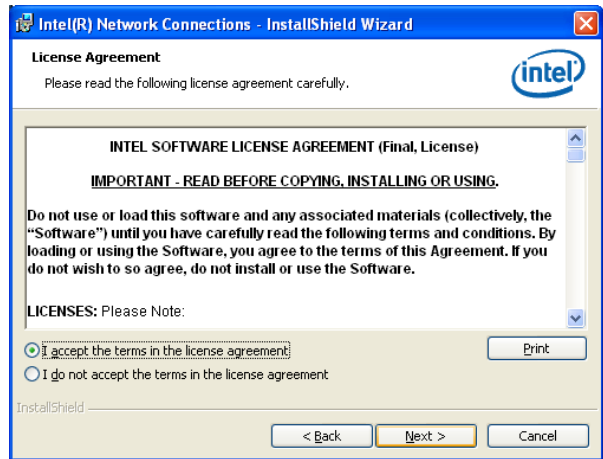


**Step 4.** Click **Accept** to continue.
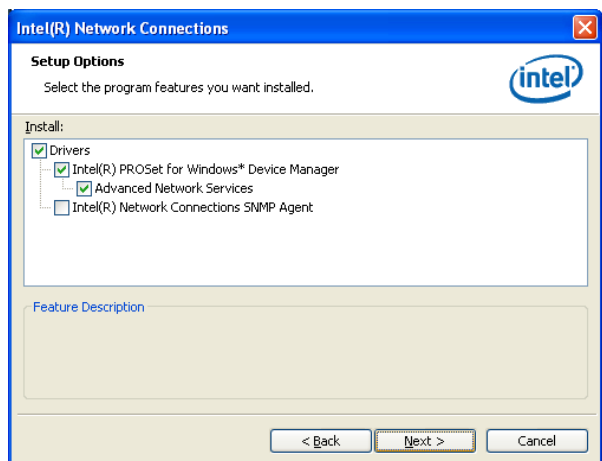


**Step 2.** Click **Next**.
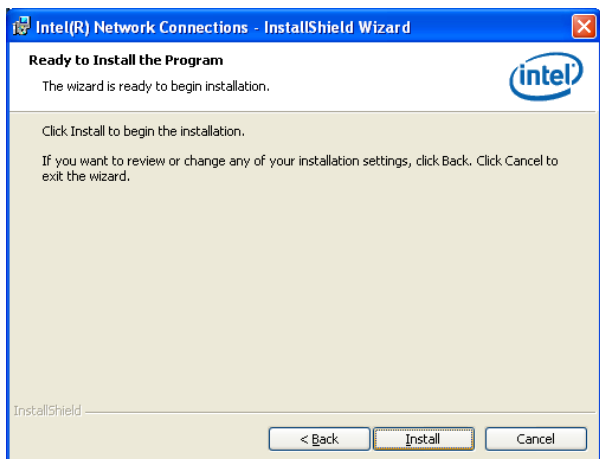


**Step 5.** Click **Next**.

**Step 5.** Click **Install** to next step.
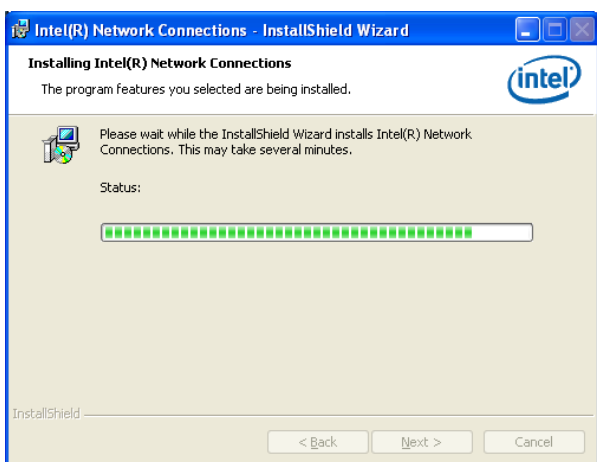


**Step 6.** Click **Next** to next step.
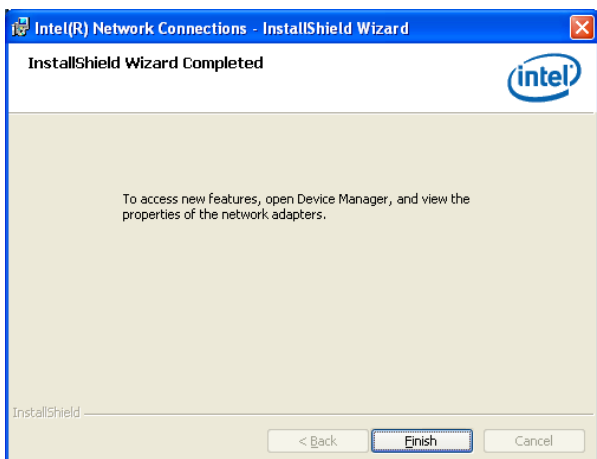


**Step 7.** Click **Finish** to complete the setup.
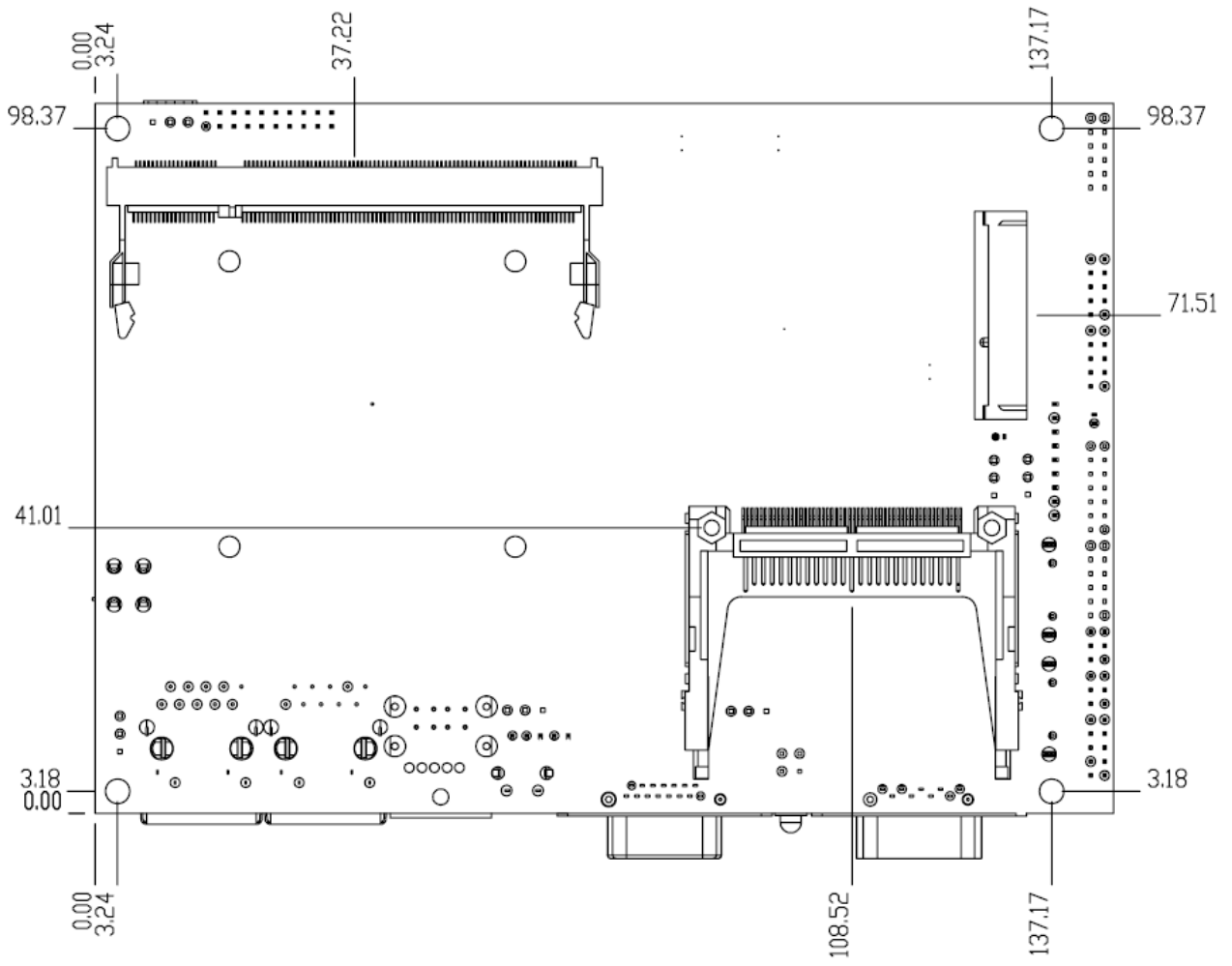
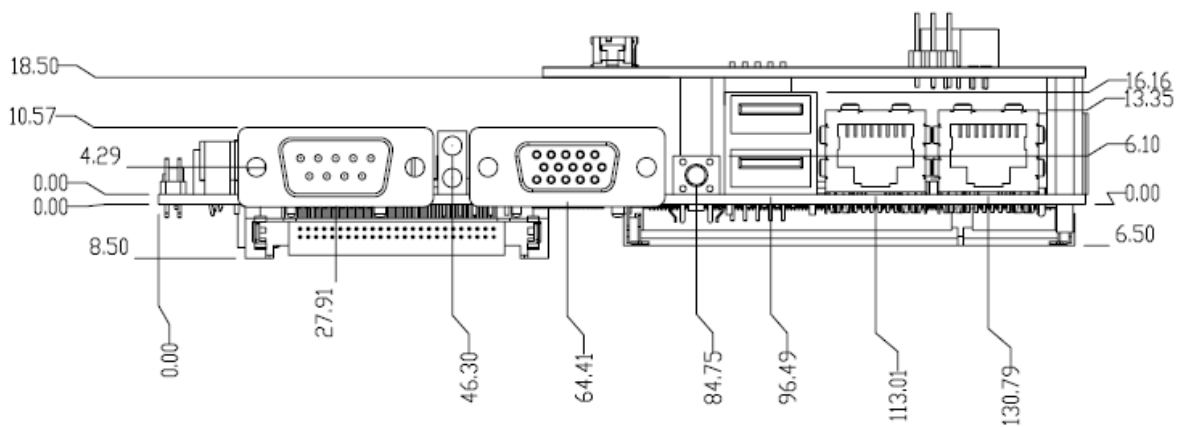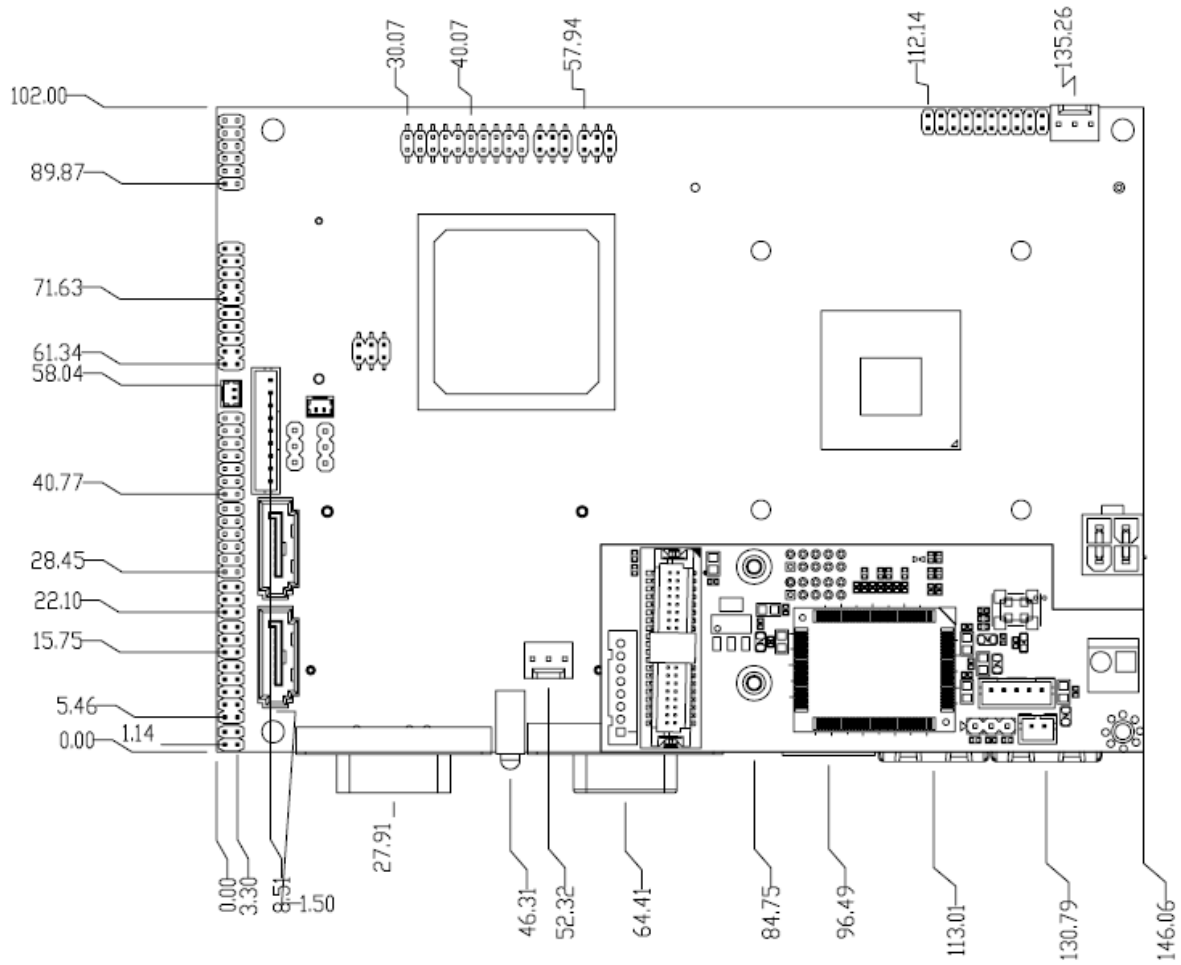# 6. Mechanical Drawing

## For Rev. A1
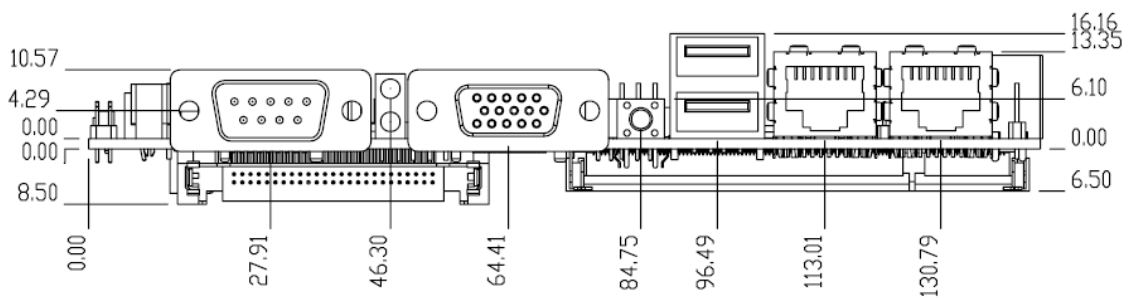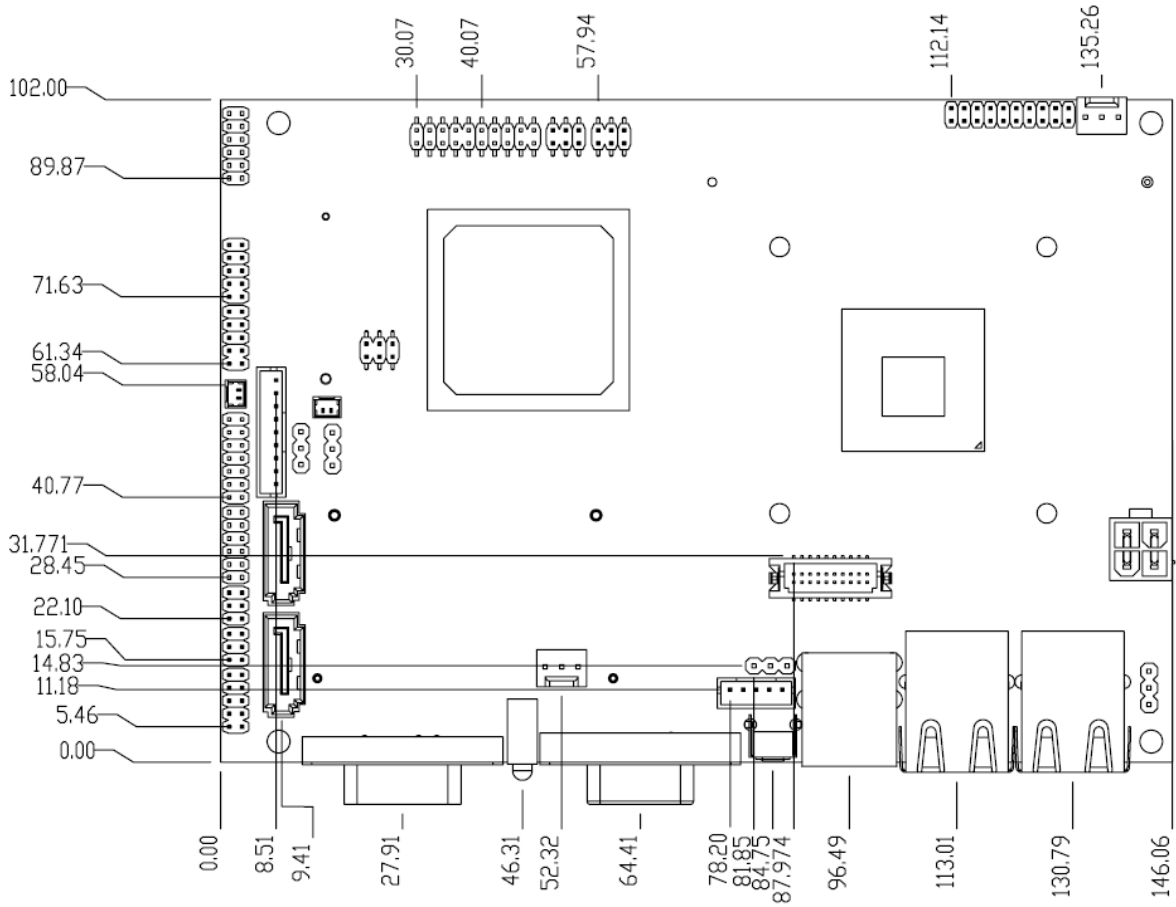
Unit: mm

**ECM-PNV**



Unit: mm

# 7. Mechanical Drawing

## For Rev. B1

**ECM-PNV**



Unit: mm

98.37    0.00 3.24    37.22    137.17    98.37

71.51

41.01

3.18
0.00

0.00
3.24

108.52

137.17

3.18

Unit: mm