

LV-673

Mini-ITX*express* Motherboard

User's Manual

Edition 1.1

2005/9/30



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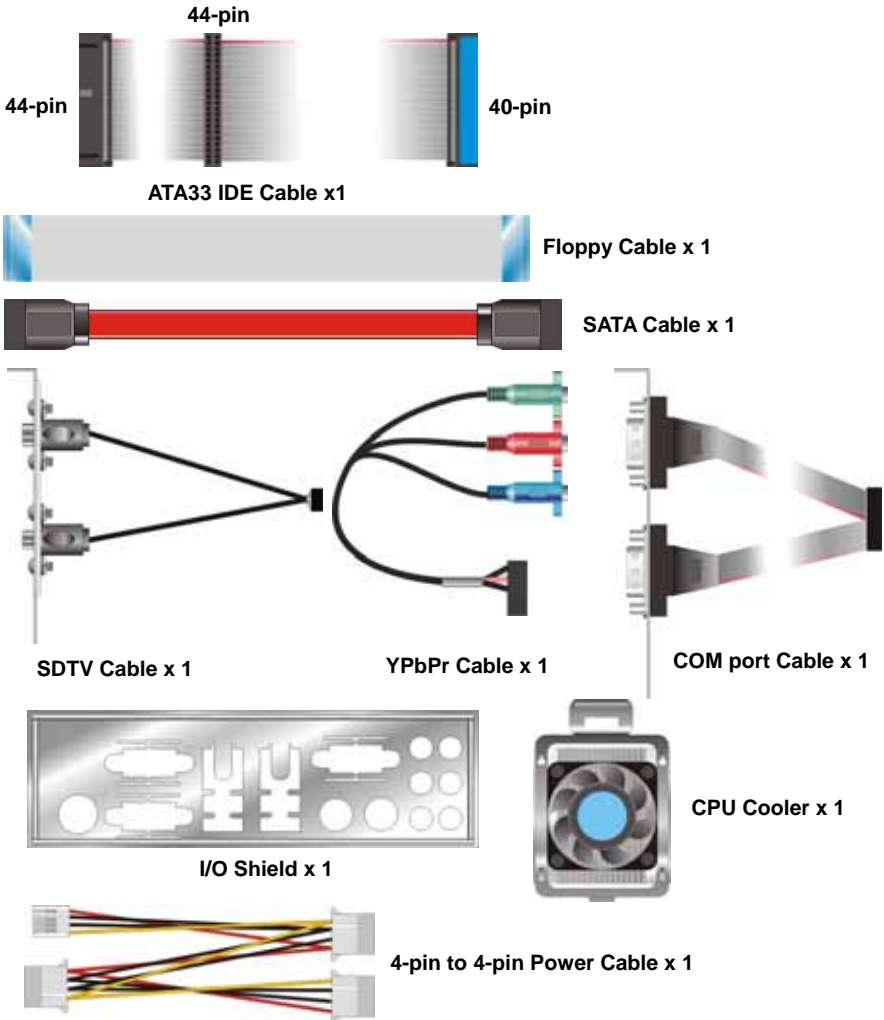
Packing List:

Please check the package content before you starting using the board.

Hardware:

LV-673 motherboard x 1

Cable Kit:



Printed Matters:

User's Manual x 1

Driver CD x 1

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Chapter 1 <Introduction>

1.1 <Product Overview>

LV-673 is the new generation of the Mini-ITX motherboard, with supporting last Intel Pentium M processors for 533MHz front side bus, Intel 915GM and ICH6-M chipset, integrated GMA900 graphics, DDR2 memory, REALTEK High Definition Audio, Serial ATA, PCI Express 16x interface and dual Gigabit LAN.

New Intel Pentium M Processor

The board supports last Intel Pentium M processors with 533MHz front side bus, 2MB L2 cache, to provide more powerful performance than before.

New features for Intel 915GM chipset

The board integrates Intel 915GM and ICH6-M chipset, to provide new generation of the mobile solution, supports Intel GMA900 graphics, DDR2 400/533 memory, built-in high speed mass storage interface of serial ATA, High Definition Audio with 7.1 channels surrounding sound.

All in One multimedia solution

Based on Intel 915GM and ICH6-M chipset, the board provides high performance onboard graphics, 18-bit dual channel LVDS interface, HDTV and 7.1 channels High Definition Audio, to meet the very requirement of the multimedia application.

Flexible Extension Interface

The board provides one PCI-Express 16x slots for graphics card, it also can support PCI-Express 1x for LAN card or other devices. The board also provides one PCMCIA Type II slot, CompactFlash Type I slot and one mini-PCI slot.

1.2 <Product Specification>

General Specification

| | |
|-----------------|--|
| Form Factor | Mini-ITX motherboard |
| CPU | Intel® Pentium M / Celeron M processors Package type: FC-PGA478 L2 Cache: 512KB/1MB/2MB Front side bus: 400/533MHz |
| Memory | 2 x 240-pin DDR2 400/533MHz SDRAM up to 2GB Up to 8GB/s of bandwidth with dual-channel interleaved mode Dual-Channel technology supported Unbuffered, none-ECC memory supported only |
| Chipset | Intel® 915GM (Northbridge) and ICH6-M (Southbridge) |
| BIOS | Phoenix-Award v6.00PG 4Mb PnP flash BIOS |
| Green Function | Power saving mode includes doze, standby and suspend modes. ACPI version 1.0 and APM version 1.2 compliant |
| Watchdog Timer | System reset programmable watchdog timer with 1 ~ 255 sec./min. of timeout value |
| Real Time Clock | Intel® ICH6-M built-in RTC with lithium battery |
| Enhanced IDE | UltraDMA33 IDE interface supports up to 2 ATAPI devices One 44-pin IDE port onboard One CompactFlash Type I socket on solder side |
| Serial ATA | Intel® ICH6-M integrates 2 Serial ATA interfaces Up to 150MB/s of transfer rate |

Multi-I/O Port

| | |
|---------------|--|
| Chipset | Intel® ICH6-M with Winbond® W83627THF controller |
| Serial Port | Two external and two internal RS-232 serial ports |
| USB Port | Six Hi-Speed USB 2.0 ports with 480Mbps of transfer rate |
| Parallel Port | None |
| Floppy Port | One slim type Floppy port |
| IrDA Port | One IrDA compliant Infrared interface supports SIR |
| K/B & Mouse | External PS/2 keyboard and mouse ports on rear I/O panel |
| GPIO | One 12-pin Digital I/O connector with 8-bit programmable I/O interface |
| Smart Fan | One CPU fan connectors for fan speed controllable |

VGA Display Interface

| | |
|--------------|--|
| Chipset | Intel® 915GM GMCH (Graphic Memory Controller Hub) |
| Frame Buffer | Up to 128MB shared with system memory |
| Display Type | CRT, LCD monitor with analog display Onboard 18-bit dual channel LVDS interface Onboard HDTV interface |
| Connector | External DB15 female connector on rear I/O panel Onboard 40-in LVDS connector Onboard 8-pin TV-out connector |

Ethernet Interface

| | |
|------------|---|
| Controller | Marvell E8053 PCI Express Gigabit Ethernet controller |
| Type | Triple speed 10/100/1000Base-T auto-switching Fast Ethernet Full duplex, IEEE802.3U compliant |
| Connector | Dual External RJ45 connectors with LED on rear I/O panel |

Audio Interface

| | |
|-----------|---|
| Chipset | Intel® ICH6M with Realtek® ALC880 codec Intel High Definition Audio compliance |
| Interface | 7.1 channels sound output |
| Connector | External Audio phone jack for Line-out, Line-in, MIC-in, Surround, Center and Backsurround Onboard audio connector with pin header (built-in amplifier for speaker out) Onboard CD-IN connector |

Expansive Interface

| | |
|-------------|---|
| PCI-Express | One 16x PCI-Express slot (compatible with 1x slot) Up to 8GB/s of transfer bandwidth Power supply: +3.3V, +12V |
| PCI | One Mini-PCI socket for TYPE III (32-bit, 33MHz) Power supply: +3.3V, +5V |
| PCMCIA | One PCMCIA Type II slot on solder side with RICOH R5C475II controller |

Power and Environment

| | |
|-------------------|--|
| Power Requirement | DC 12V input with external DC mini DIN or onboard 4-pin connector |
| Input Range | 10.5V ~ 13V |
| Dimension | 170 (L) x 170 (H) mm |
| Temperature | Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F) |

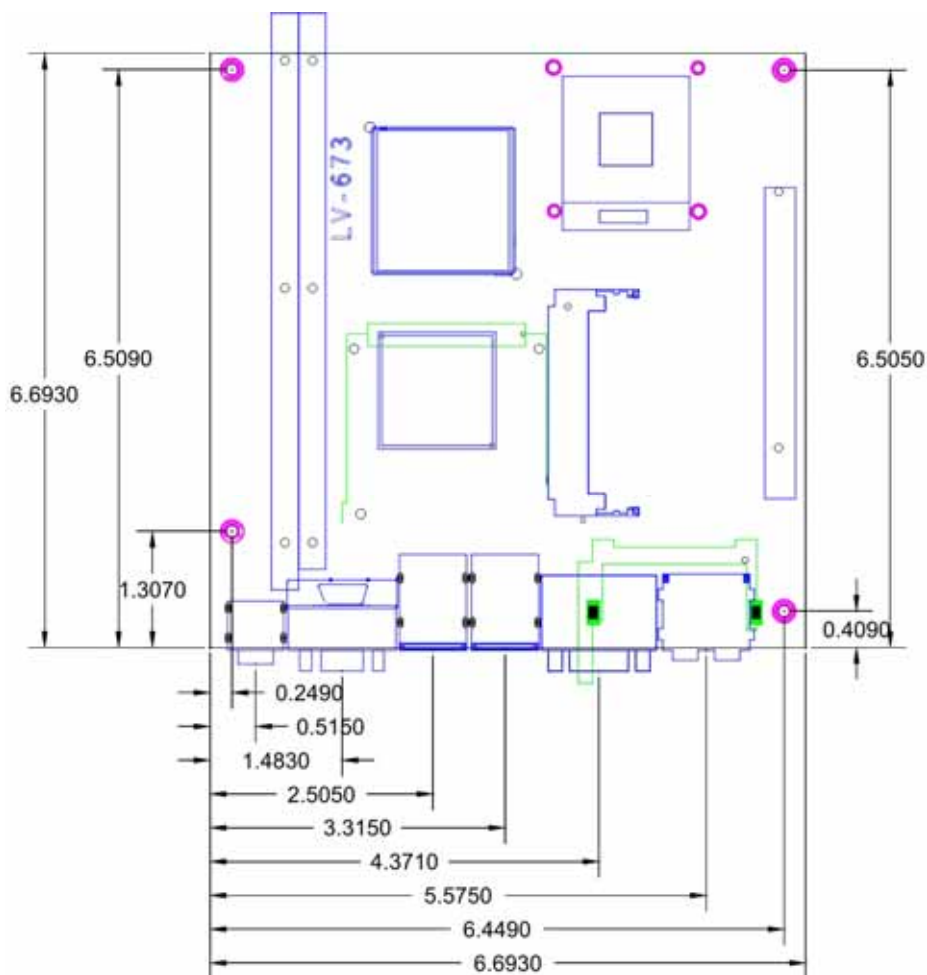
Ordering Code

| | |
|-------------------|---|
| LV-673 | Intel Pentium M platform with onboard VGA, HD audio, SATA USB2.0, LVDS, HDTV, PCI-Express, Mini-PCI, CF, PCMCIA 4 x COM |
| PCIE-SDVOD | PCI-Express add-on card for single DVI interface |

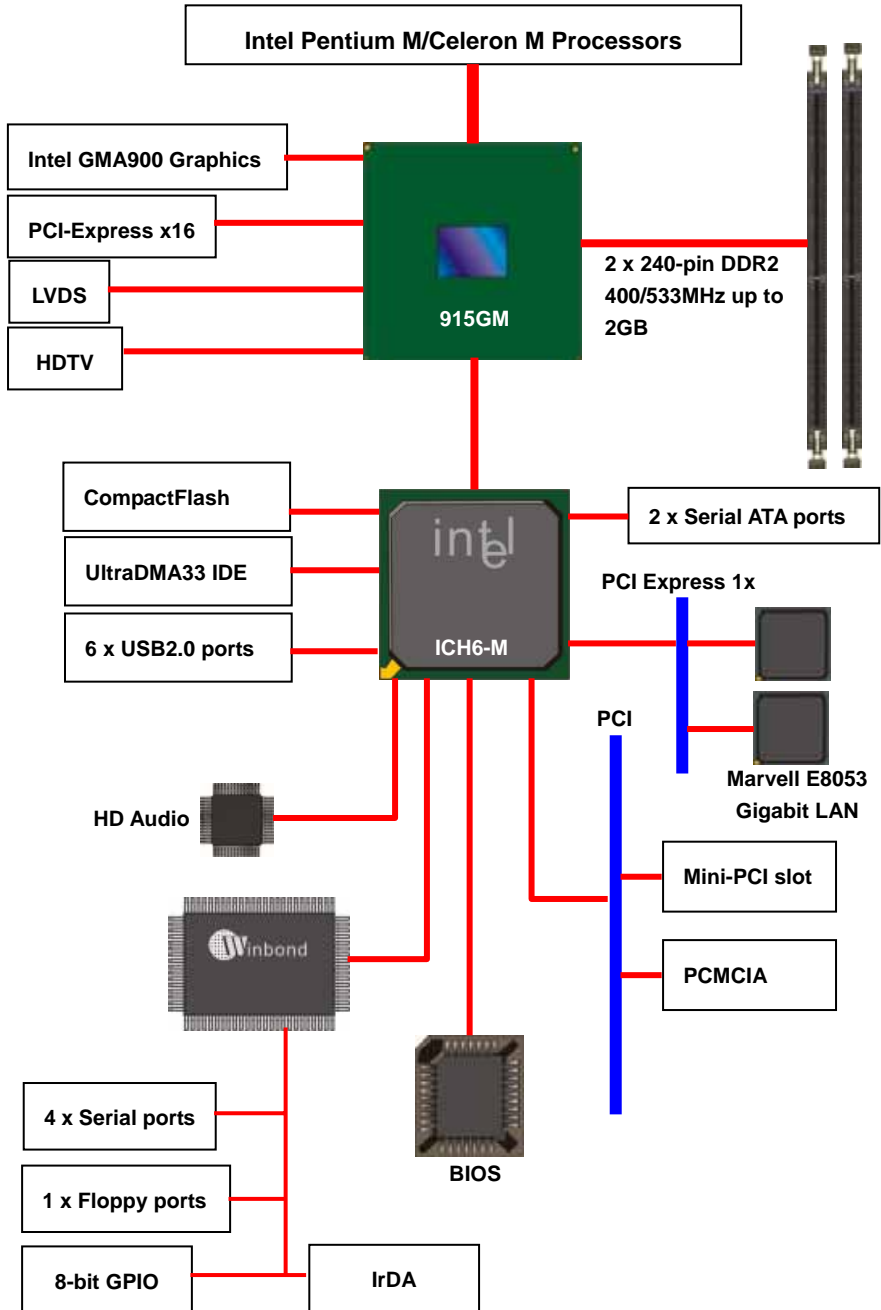
The specifications may be different as the actual production.

For further product information please visit the website at <http://www.anso.com>

1.3 <Mechanical Drawing>



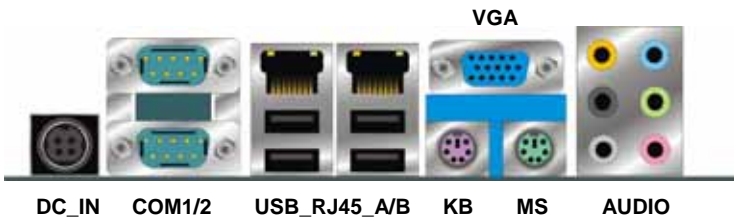
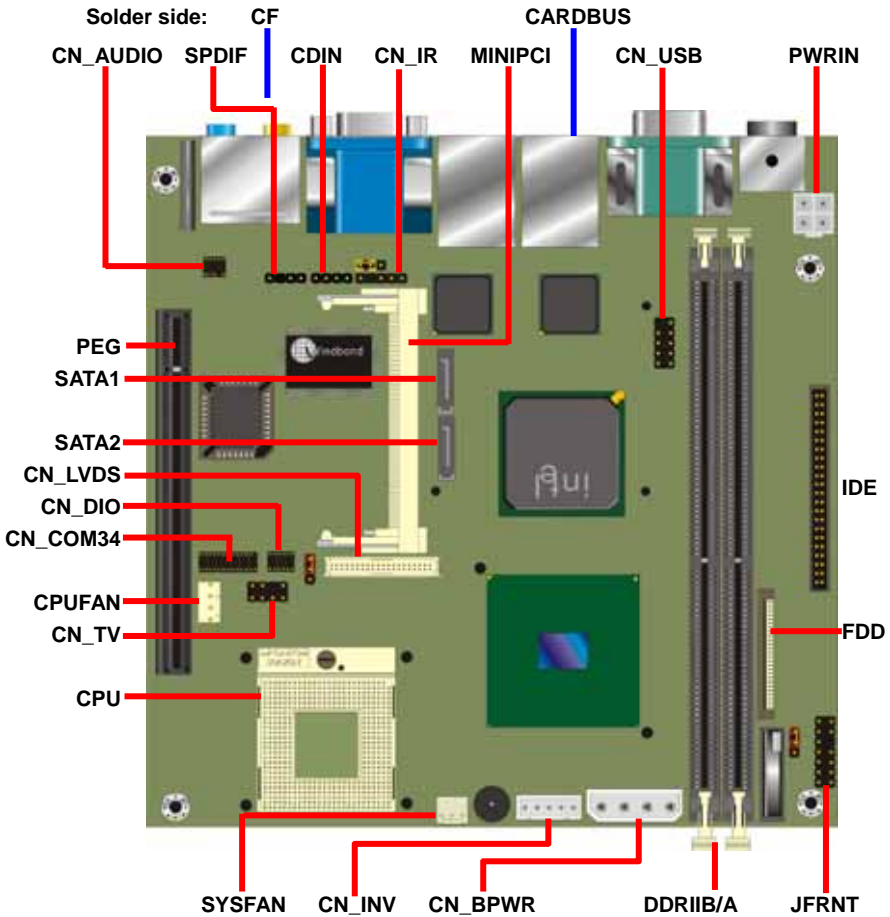
1.4 <Block Diagram>



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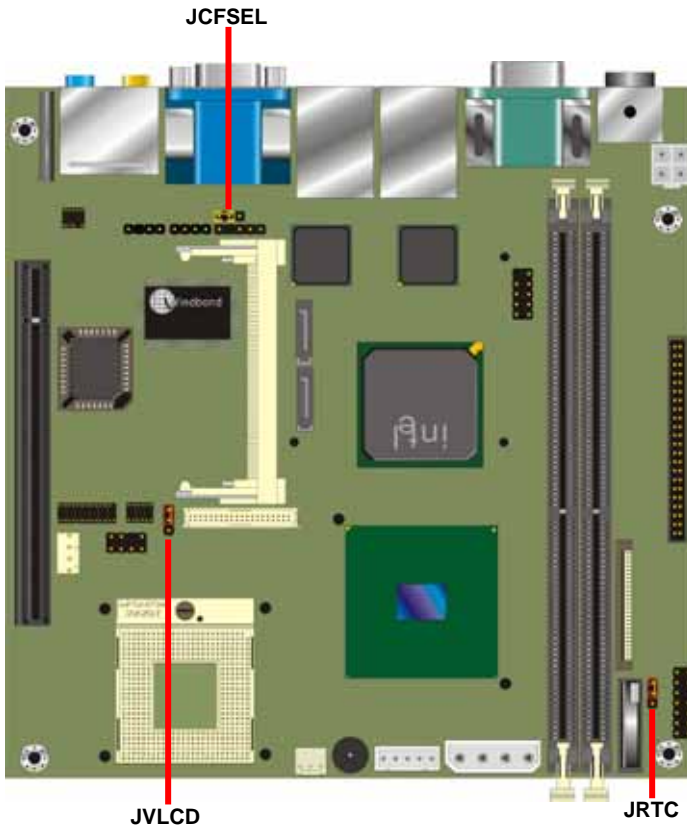
Chapter 2 <Hardware Setup>

2.1 <Connector Location>



2.2 <Jumper Location & Reference>

| Jumper | Function |
|--------|------------------------------|
| JRTC | CMOS Operating/Clear Setting |
| JCFSEL | CF with IDE mode selection |
| JVLCD | Panel Voltage Setting |



2.3 <Connector Reference>

2.3.1 <Internal Connectors>

| Connector | Function | Remark |
|-----------|---|----------|
| CPU | Socket479 for CPU | Standard |
| DDRIIA/B | 240 -pin DDR2 SDRAM DIMM socket | Standard |
| IDE | 44-pin IDE connector | Standard |
| FDD | 26-pin slim type floppy connector | Standard |
| S_ATA1/2 | 7-pin Serial ATA connector | Standard |
| PWRIN | 4-pin power input connector | Standard |
| CN_BPWR | 4-pin power output connector | Standard |
| CN_AUDIO | 5 x 2-pin audio connector | Standard |
| SPDIF | 4-pin S/PDIF digital audio output connector | Standard |
| CDIN | 4-pin CD-ROM audio input connector | Standard |
| CN_DIO | 6 x 2-pin digital I/O connector | Standard |
| CN_USB | 5 x 2-pin USB connector | Standard |
| CPUFAN | 4-pin CPU cooler fan connector | Standard |
| SYSFAN | 3-pin system cooler fan connector | Standard |
| CN_LVDS | 20 x 2-pin LVDS connector | Standard |
| CN_INV | 5-pin LCD inverter connector | Standard |
| CN_IR | 5-pin IrDA connector | Standard |
| CN_COM34 | 10 x 2-pin COM3 & COM4 connector | Standard |
| CN_TV | 4 x 2-pin TV-out connector | Standard |
| JFRNT | 14-pin front panel switch/indicator connector | Standard |
| MINIPCI | Mini-PCI socket | Standard |
| PEG | PCI Express 16x/1x slot | Standard |
| CF | CompactFlash Type I socket | Standard |
| CARDBUS | PCMCIA Type II slot | Standard |

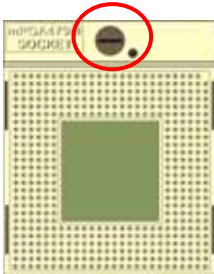
2.3.2 <External Connectors>

| Connector | Function | Remark |
|--------------|---------------------------------|----------|
| DC_IN | DC 12V input connector | Standard |
| COM1/2 | Serial port connector | Standard |
| USB_RJ45_A/B | Dual USB and RJ45 LAN connector | Standard |
| VGA | DB15 analog VGA connector | Standard |
| KB | PS/2 keyboard connector | Standard |
| MS | PS/2 mouse connector | Standard |
| AUDIO | Audio connectors | Standard |

2.4 <CPU and Memory Setup>

2.4.1 <CPU Setup>

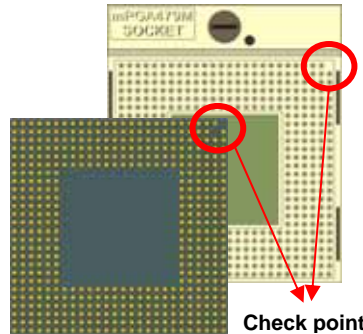
The board comes with the socket479 for Intel Pentium M/Celeron M processors, it supports new generation of Intel Pentium M processors with 533MHz of front side bus and 2MB L2 cache. Please follow the instruction to install the CPU properly.



1. Use the flat-type screw drive to unlock the CPU socket



Unlock way



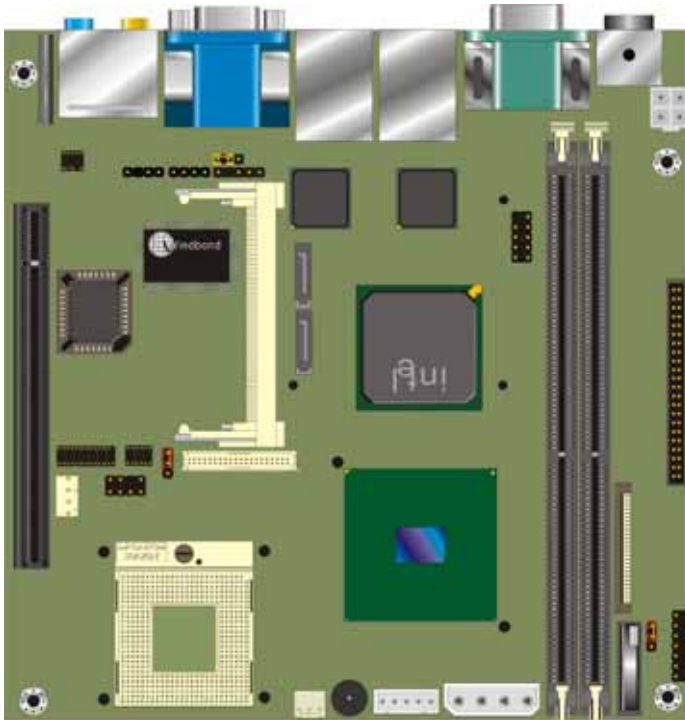
2. Follow the pin direction to install the processor on the socket



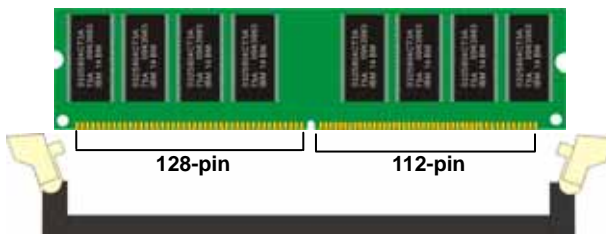
3. Lock the socket

2.4.2 <Memory Setup>

The board provides two 240-pin DDR2 DIMMs to support DDR2 400/533 memory modules up to 2GB of capacity. Non-ECC, unbuffered memory is supported only. While applying two same modules, dual channel technology is enabled automatically for higher performance.



DDR2IIB/A



Please check the pin number to match the socket side well before installing memory module.

2.5 <CMOS Setup>

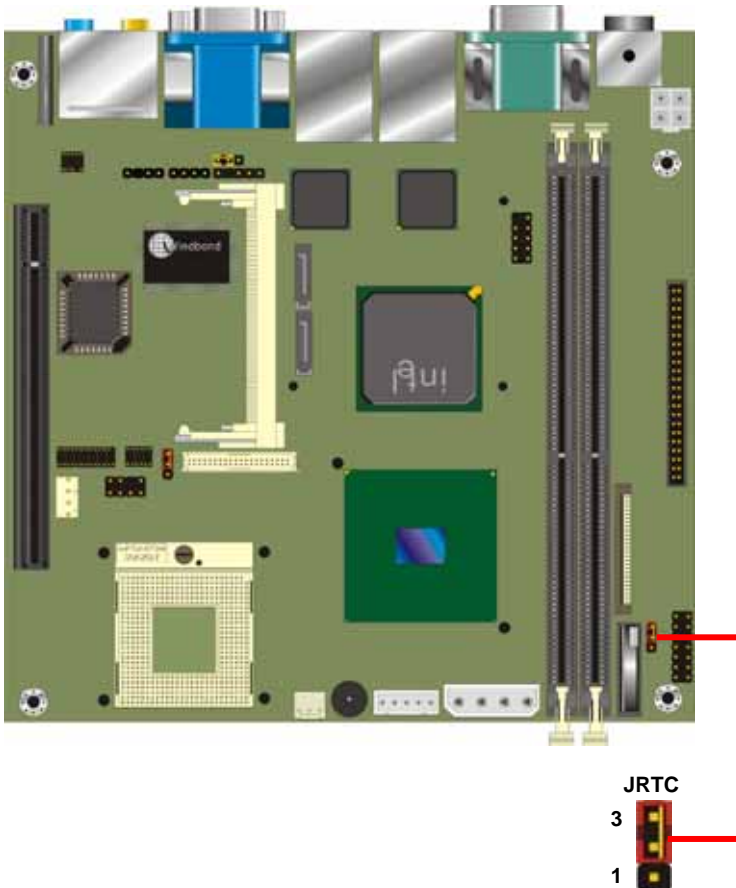
The board's data of CMOS can be setting in BIOS. If the board refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

Jumper: JRTC

Type: Onboard 3-pin jumper

| JRTC | Mode |
|------|------------------|
| 1-2 | Clear CMOS |
| 2-3 | Normal Operation |

Default setting



2.6 <Enhanced IDE Interface>

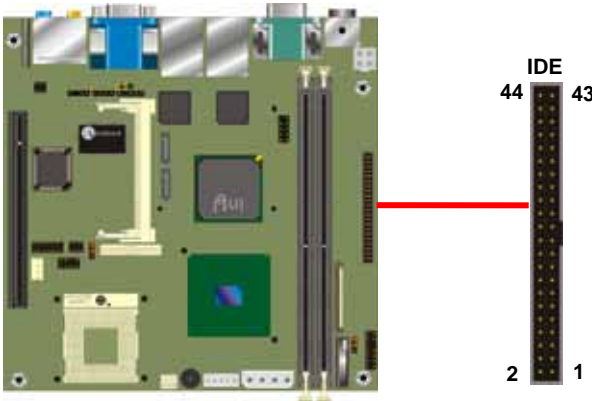
The board has one UltraDMA33 IDE interface to support up to 2 ATAPI devices, and one CompactFlash Type I socket on the solder side, with jumper **JCFSEL** for IDE master/slave mode selection.

Jumper: **JCFSEL**

Type: onboard 3-pin header

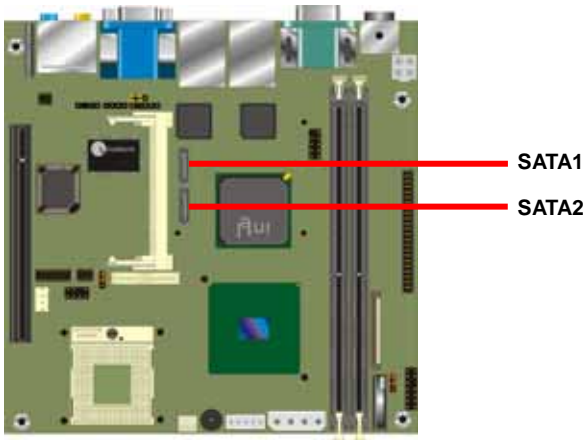
| JCFSEL | Mode |
|--------|--------|
| 1-2 | Master |
| 2-3 | Slave |

Default setting



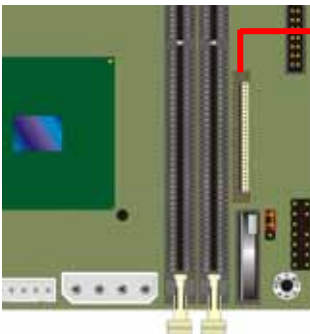
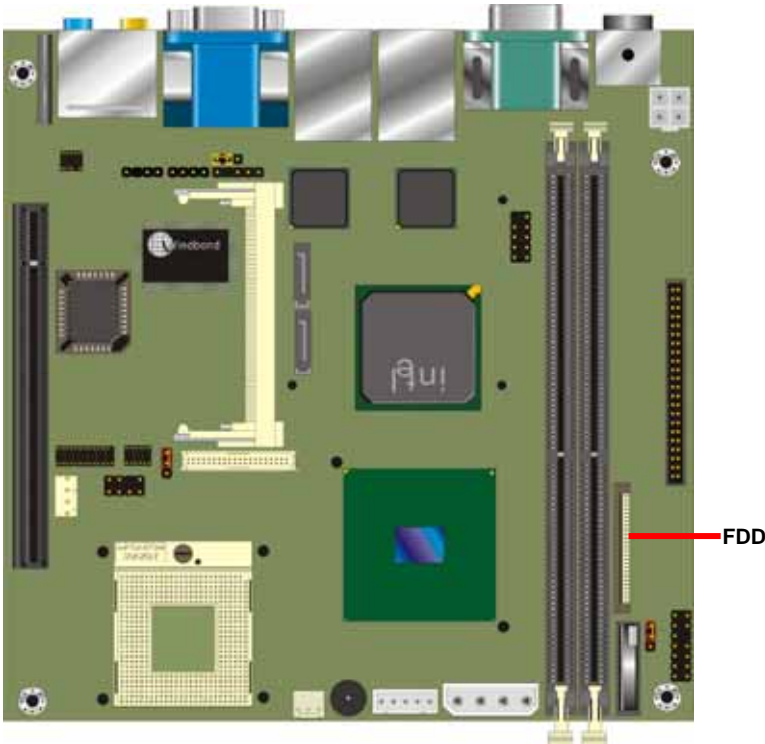
2.7 <Serial ATA Interface>

Based on Intel ICH6-M, the board provides two Serial ATA interfaces with up to 150MB/s of transfer rate.



2.8 <Floppy Port>

The board provides one slim type floppy port.



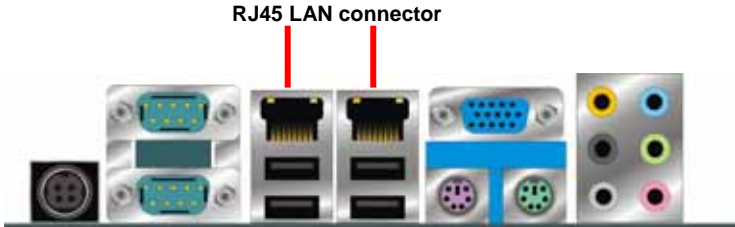
1. Lift up the brown plastic bar
2. Slot the cable in (Blue paste for brown bar side)
3. Press back the plastic bar



4. Lift up this plastic bar
5. Slot the cable in (Blue paste for outside)
6. Press back the plastic bar

2.9 <Ethernet Interface>

The board integrates with two Marvell E8053 PCI Express Gigabit Ethernet controllers, as the PCI Express 1x can speed up to 250MB/s of transfer rate instead of late PCI bus with 133MB/s of transfer rate. The Marvell E8053 supports triple speed of 10/100/100Base-T, with IEEE802.3 compliance and Wake-On-LAN supported.



2.10 <Onboard Display Interface>

Based on Intel 915GM chipset with built-in GMA (Graphic Media Accelerator) 900 graphics, the board provides one DB15 connector on rear external I/O port, and one 40-pin LVDS interface with 5-pin LCD backlight inverter connector. The board provides dual display function with clone mode and extended desktop mode for CRT and LCD. The board also provides DVO port on PCI Express slot to support DVI interface with add on card.

Notice: When you install any PCI Express Graphic card, the onboard graphics would be disabled automatically.

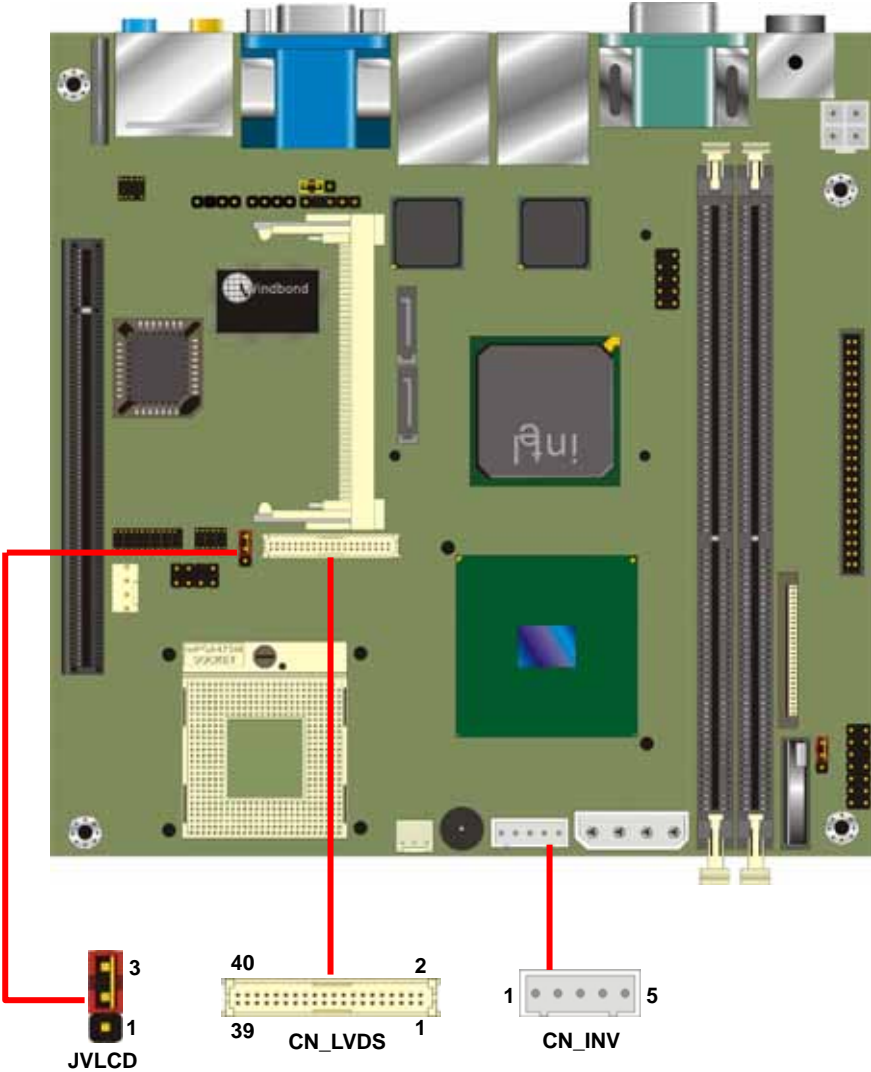
2.10.1 <Analog Display>

Please connect your CRT or LCD monitor with DB15 male connector to the onboard DB15 female connector on rear I/O port.



2.10.2 <Digital Display>

The board provides one 40-pin LVDS connector for 18-bit single/dual channel panels, supports up to 1600 x 1200 (UXGA) and 1920 x 1200 (WUXGA) of resolution, with one LCD backlight inverter connector and one jumper for panel voltage setting.



Connector: **CN_INV**

Type: 5-pin LVDS Power Header

| Pin | Description |
|-----|-------------|
| 1 | +12V |
| 2 | GND |
| 3 | GND |

| | |
|---|--------|
| 4 | GND |
| 5 | ENABKL |

Connector: **JVLCD**

Type: 3-pin Power select Header

| Pin | Description |
|-----|-------------|
| 1 | VCC |
| 2 | LCDVCC |
| 3 | VCC3 |

Connector: **CN_LVDS**

Type: onboard 40-pin connector for LVDS connector

Connector model: **HIROSE DF13-40S**

| Pin | Signal | Pin | Signal |
|-----|---------|-----|--------|
| 2 | LCDVCC | 1 | LCDVCC |
| 4 | GND | 3 | GND |
| 6 | ATX0- | 5 | BTX0- |
| 8 | ATX0+ | 7 | BTX0+ |
| 10 | GND | 9 | GND |
| 12 | ATX1- | 11 | BTX1- |
| 14 | ATX1+ | 13 | BTX1+ |
| 16 | GND | 15 | GND |
| 18 | ATX2- | 17 | BTX2- |
| 20 | ATX2+ | 19 | BTX2+ |
| 22 | GND | 21 | GND |
| 24 | ACLK- | 23 | N/C |
| 26 | ACLK+ | 25 | N/C |
| 28 | GND | 27 | GND |
| 30 | N/C | 29 | BCLK- |
| 32 | N/C | 31 | BCLK+ |
| 34 | GND | 33 | GND |
| 36 | LVDDCLK | 35 | N/C |
| 38 | LVDDDAT | 37 | N/C |
| 40 | N/C | 39 | N/C |

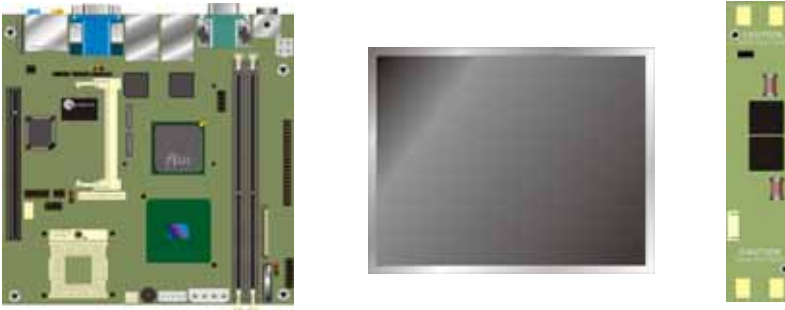
To setup the LCD, you need the component below:

1. A panel with LVDS interfaces.
2. An inverter for panel's backlight power.
3. A LCD cable and an inverter cable.

For the cables, please follow the pin assignment of the connector to make a cable, because every panel has its own pin assignment, so we do not provide a standard cable; please find a local cable manufacture to make cables.

LCD Installation Guide:

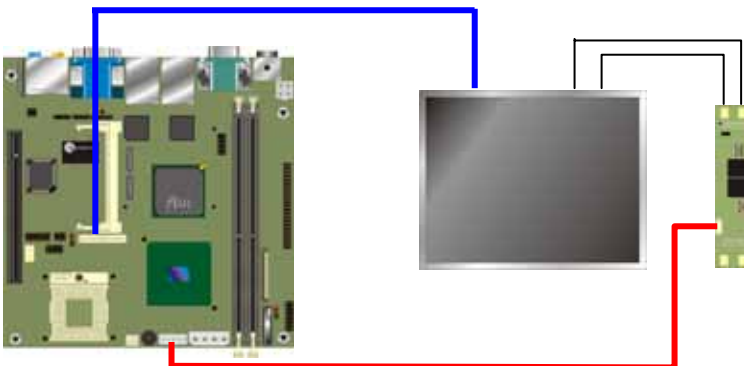
1. Preparing the **LV-673, LCD panel** and the **backlight inverter**.



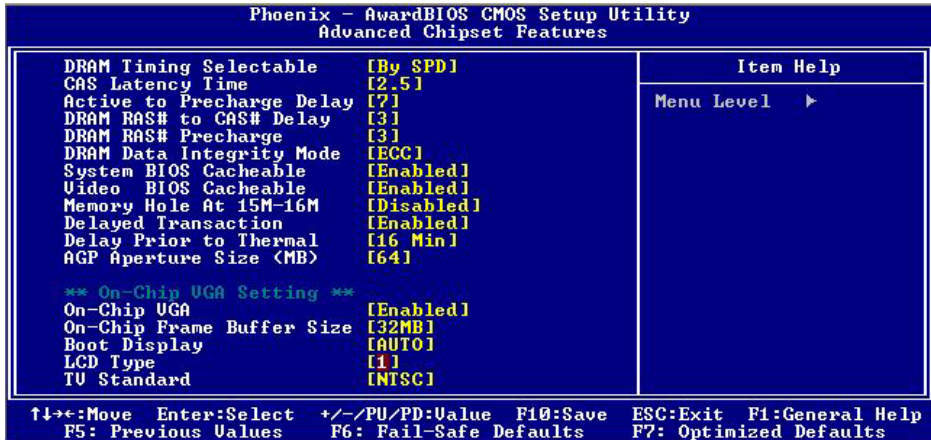
2. Please check the datasheet of the panel to see the voltage of the panel, and set the jumper **JVLCD** to +5V or +3.3V.
3. You would need a LVDS type cable.



4. To connect all of the devices well.



After setup the devices well, you need to select the LCD panel type in the BIOS.



The panel type mapping is list below:

| BIOS panel type selection form | | | |
|--------------------------------|---------------|--------------|----------------------|
| Single channel | | Dual channel | |
| NO. | Output format | NO. | Output format |
| 1 | 640 x 480 | 9 | 1024 x 768 |
| 2 | 800 x 600 | 10 | 1280 x 768 |
| 3 | 1024 x 768 | 11 | 1280 x 1024 |
| 4 | 1280 x 768 | 12 | 1366 x 768 |
| 5 | 1280 x 1024 | 13 | 1400 x 1050 @ 108Mhz |
| 6 | | 14 | 1400 x 1050 @ 122Mhz |
| 7 | | 15 | 1600 x 1200 |
| 8 | | 16 | 1920 x 1200 |

2.10.3 <HDTV Interface>

The board provides one HDTV interface up to 1024 x 768 resolution by NTSC/PAL supported, for three output types with Composite, S-Video and Component (YPbPr).

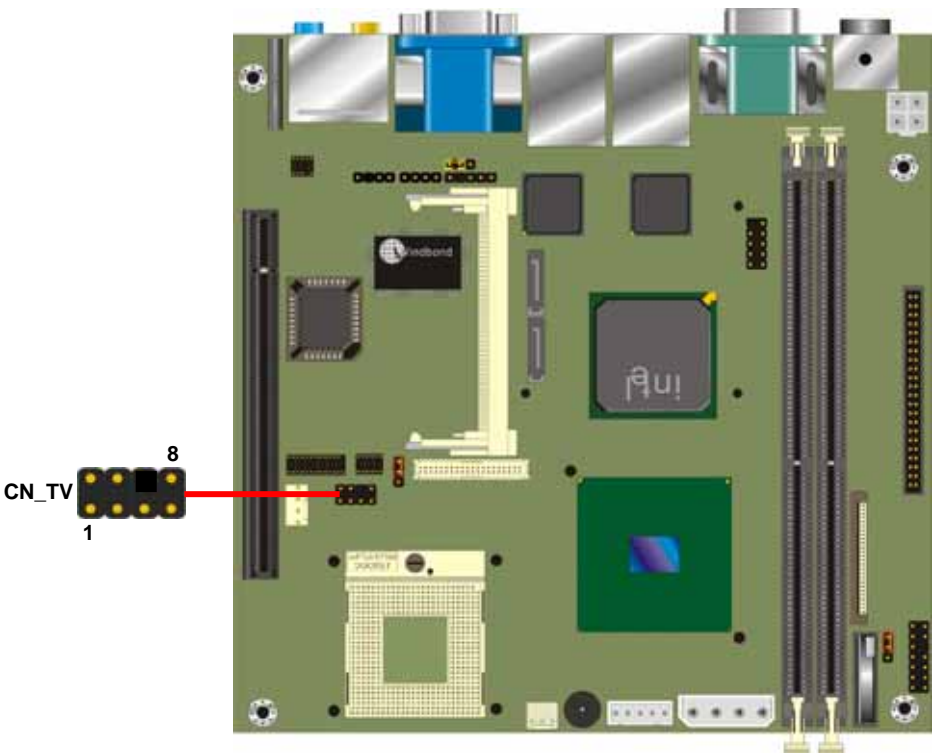
Connector: **CN_TV**

Connector type: 8-pin header TV-out connector (pitch = 2.54mm)

| Pin Number | Assignment | Pin Number | Assignment |
|------------|--------------|------------|------------|
| 1 | GND | 2 | S-Video/Y |
| 3 | S-video/Pr | 4 | GND |
| 5 | GND | 6 | GND |
| 7 | Composite/Pb | 8 | GND |

Notice1: This connector is for both S-Video/Composite and YPbPr outputs; please use attached two cables in the package for SDTV or HDTV devices.

Notice2: S-Video and Composite can not be used at the same time.



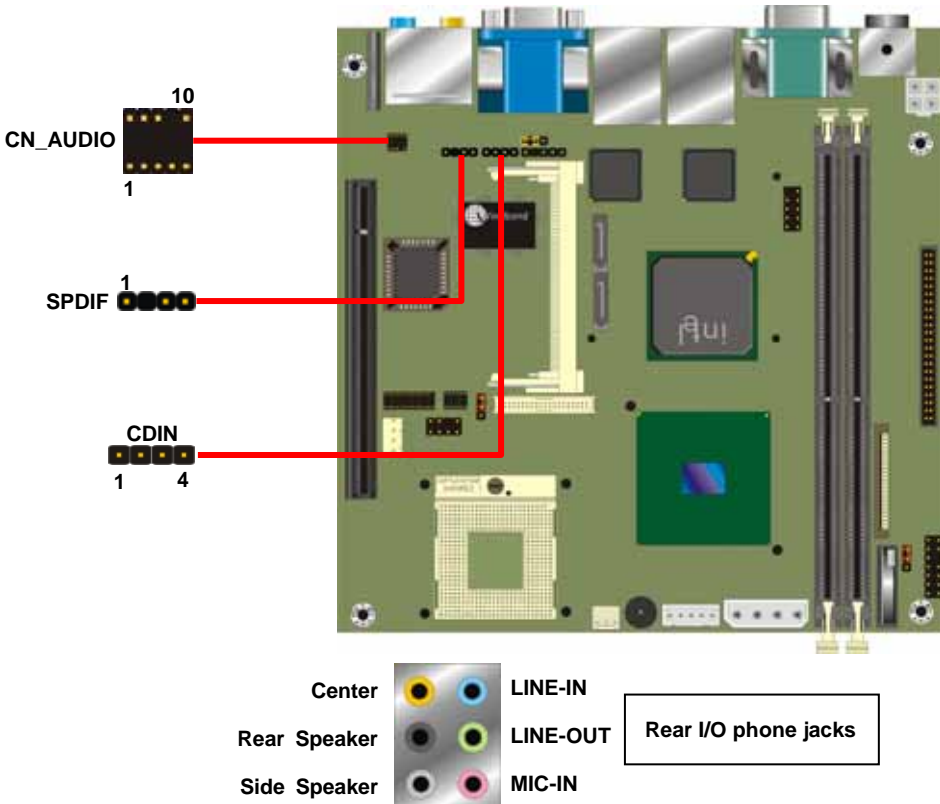
2.11 <Integrated Audio Interface>

The board integrates onboard audio interface with REALTEK ALC880 codec, with Intel next generation of audio standard as High Definition Audio, it offers more vivid sound and other advantages than former AC97 audio compliance.

The main specifications of ALC880 are:

- **High-performance DACs with 100dB S/N ratio**
- **8 DAC channels support 16/20/24-bit PCM format for 7.1 audio solution**
- **16/20/24-bit S/PDIF-OUT supports 44.1K/48K/96kHz sample rate**
- **Compatible with AC'97**
- **Meets Microsoft WHQL/WLP 2.0 audio requirements**

The board provides 7.1 channels audio phone jacks on rear I/O port, and amplified speaker out and Line-in/MIC-in ports for front I/O panel through optional cable.



Connector: CN_AUDIO

Type: 10-pin (2 x 5) 1.27mm x 2.54mm-pitch header

| Pin | Description | Pin | Description |
|-----|-------------|-----|----------------|
| 1 | MIC_L | 2 | Ground |
| 3 | MIC_R | 4 | Ground |
| 5 | Speaker_R | 6 | MIC Detect |
| 7 | SENSE | 8 | N/C |
| 9 | Speaker_L | 10 | Speaker Detect |

Connector: CDIN

Type: 4-pin header (pitch = 2.54mm)

| Pin | Description |
|-----|-------------|
| 1 | CD – Left |
| 2 | Ground |
| 3 | Ground |
| 4 | CD – Right |

Connector: SPDIF

Type: 4-pin header (pitch = 2.54mm)

| Pin | Description |
|-----|-------------|
| 1 | +5V |
| 2 | N/C |
| 3 | SPDIFOUT |
| 4 | GND |

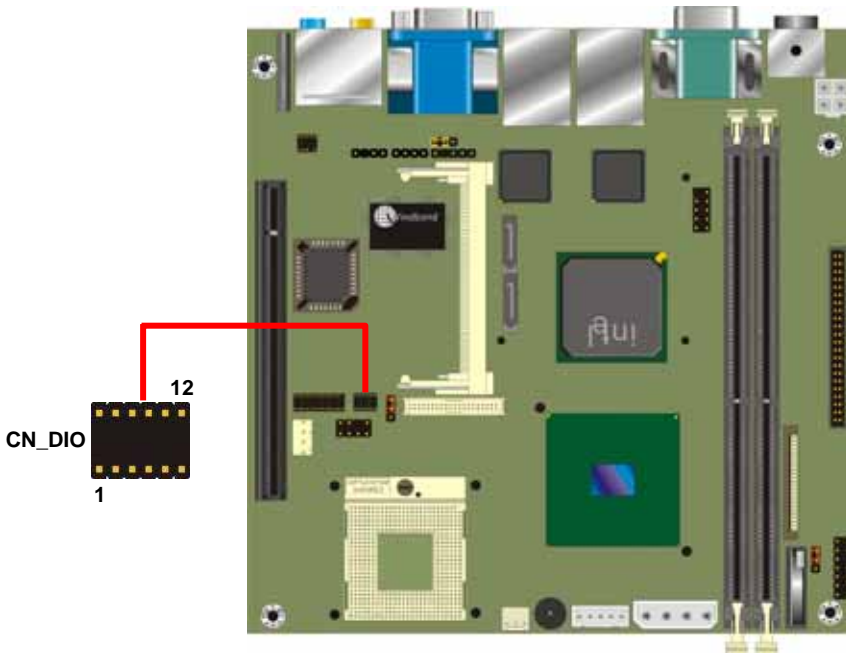
2.12 <GPIO Interface>

The board provides a programmable 8-bit digital I/O interface; you can use this general purpose I/O port for system control like POS or KIOSK.

Connector: **CN_DIO**

Type: 12-pin (6 x 2) 1.27mm x 2.54mm-pitch header

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | Ground | 2 | Ground |
| 3 | GP10 | 4 | GP14 |
| 5 | GP11 | 6 | GP15 |
| 7 | GP12 | 8 | GP16 |
| 9 | GP13 | 10 | GP17 |
| 11 | VCC | 12 | +12V |



2.13 <Power Supply>

2.13.1 <Power Input>

The board requires DC 12V input with 4-pin mini DIN connector on rear I/O panel, or onboard 4-pin ATX2.0 12V connector, the input voltage range is from 10.5V to 13V, for the input current, please take a reference of the power consumption report on appendix.

Connector: **PWRIN**

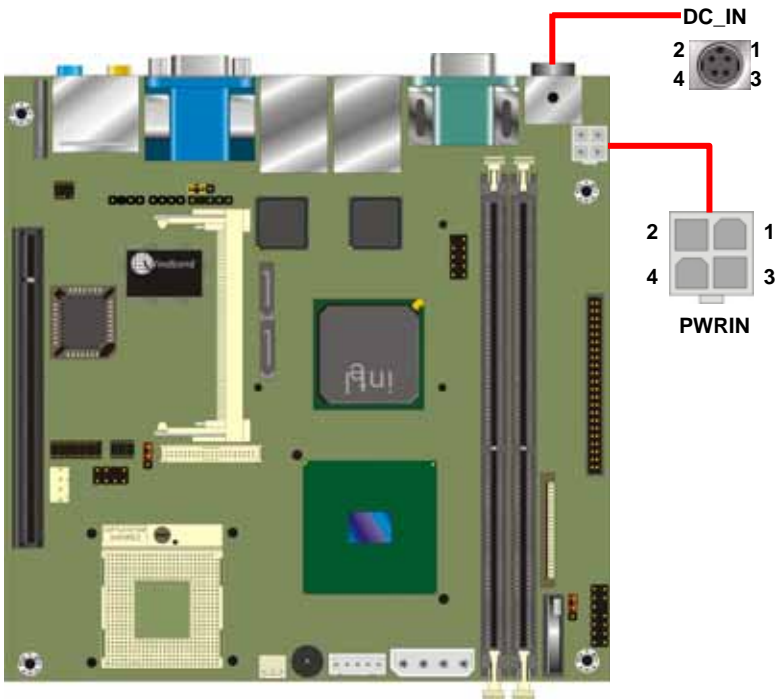
Type: 4-pin standard ATX2.0 +12V power connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | Ground | 2 | Ground |
| 3 | +12V | 4 | +12V |

Connector: **DC_IN**

Type: 4-pin DC power connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | +12V | 2 | +12V |
| 3 | Ground | 4 | Ground |



2.13.2 <Power Output>

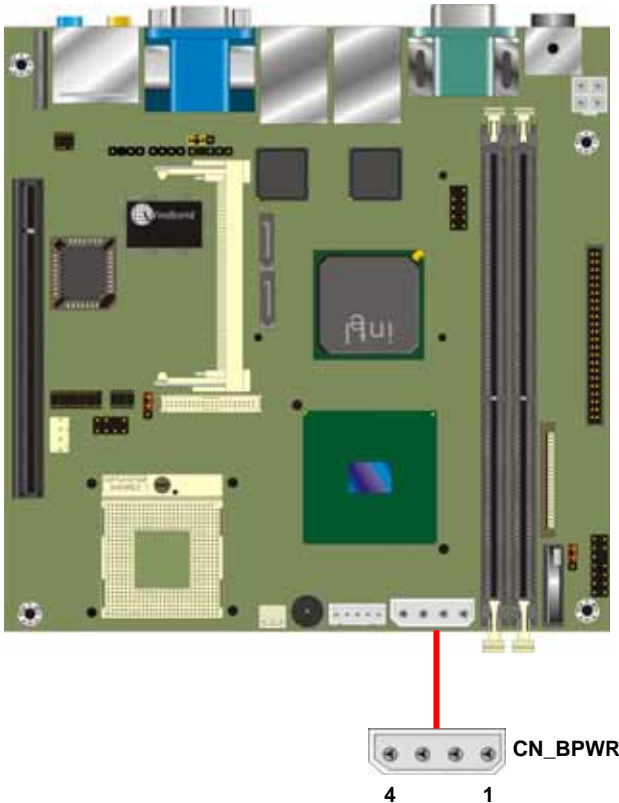
The board provides one 4-pin AT connector for +5V/+12V output for powering your HDD, CDROM or other devices.

Connector: **CN_BPWR**

Type: 4-pin P-type connector for +5V/+12V **output**

| Pin | Description | Pin | Description | Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|-----|-------------|-----|-------------|
| 1 | +5V | 2 | Ground | 3 | Ground | 4 | +12V |

Note: Maximum output voltage: 12V/5A & 5V/3A



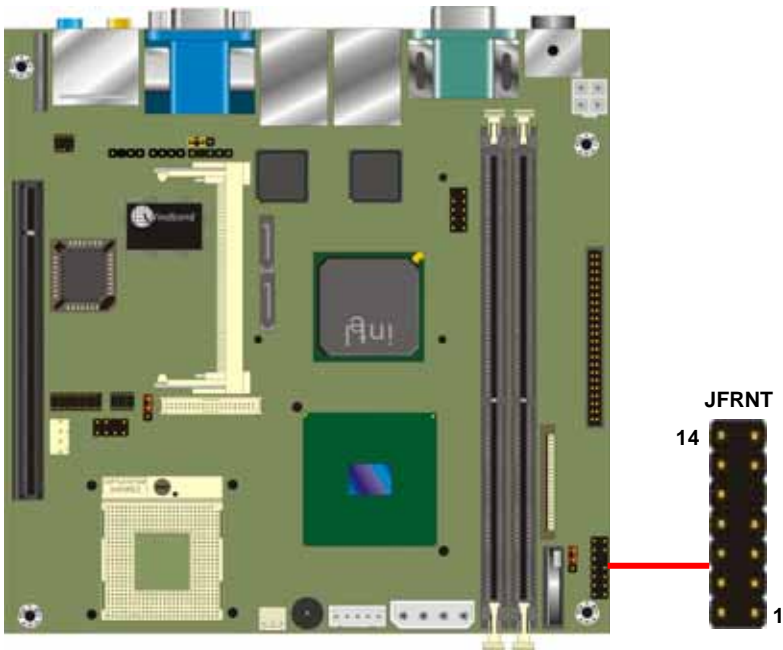
2.14 <Switch and Indicator>

The **JFRNT** provides front control panel of the board, such as power button, reset and beeper, etc. Please check well before you connecting the cables on the chassis.

Connector: **JFRNT**

Type: onboard 14-pin (2 x 7) 2.54-pitch header

| Function | Signal | PIN | | Signal | Function |
|--------------|--------|-----|----|--------|-----------|
| IDE LED | VCC | 1 | 2 | VCC | Power LED |
| | Active | 3 | 4 | N/C | |
| Reset | Reset | 5 | 6 | GND | Speaker |
| | GND | 7 | 8 | VCC | |
| N/C | | 9 | 10 | N/C | |
| Power Button | PWRBT | 11 | 12 | N/C | |
| | 5VSB | 13 | 14 | SPKIN | |



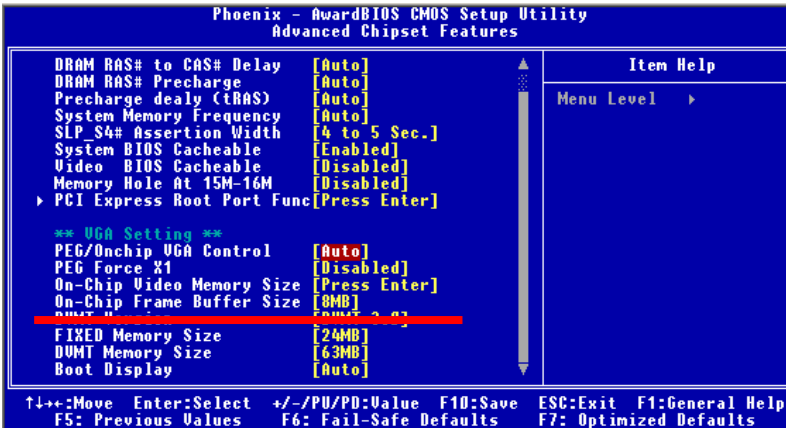
Chapter 3 <System Setup>

3.1 <Video Memory Setup>

Based on Intel® 915GM chipset with GMA (Graphic Media Accelerator) 900, the board supports Intel® DVMT (Dynamic Video Memory Technology) 3.0, which would allow the video memory to be allocated up to 128MB.

To support DVMT, you need to install the Intel GMA 900 Driver with supported OS.

BIOS Setup:



On-Chip Video Memory Size: This option combines three items below for setup.

On-Chip Frame Buffer Size:

This item can let you select video memory which been allocated for legacy VGA and SVGA graphics support and compatibility. The available option is **1MB** and **8MB**.

Fixed Memory Size:

This item can let you select a static amount of page-locked graphics memory which will be allocated during driver initialization. Once you select the memory amount, it will be no longer available for system memory.

DVMT Memory Size:

This item can let you select a maximum size of dynamic amount usage of video memory, the system would configure the video memory depends on your application, this item is strongly recommend to be selected as **MAX DVMT**.

Fixed + DVMT Memory Size:

You can select the fixed amount and the DVMT amount at the same time for a guaranteed video memory and additional dynamic video memory, please check the table below for available setting.

| System Memory | On-Chip Frame Buffer Size | Fixed Memory Size | DVMT Memory Size | Total Graphic Memory |
|---------------|---------------------------|-------------------|------------------|----------------------|
| 128MB~255MB | 1MB | 32MB | 0MB | 32MB |
| | 1MB | 0MB | 32MB | 32MB |
| | 8MB | 32MB | 0MB | 32MB |
| | 8MB | 0 | 32MB | 32MB |
| 256MB~511MB | 1MB | 64MB | 0MB | 64MB |
| | 1MB | 0 | 64MB | 64MB |
| | 1MB | 128MB | 0MB | 128MB |
| | 1MB | 0 | 128MB | 128MB |
| | 1MB | 64MB | 64MB | 128MB |
| | 8MB | 64MB | 0MB | 64MB |
| | 8MB | 0 | 64MB | 64MB |
| | 8MB | 128MB | 0MB | 128MB |
| | 8MB | 0 | 128MB | 128MB |
| | 8MB | 64MB | 64MB | 128MB |
| 512MB upper | 1MB | 64MB | 0 | 64MB |
| | 1MB | 0 | 64MB | 64MB |
| | 1MB | 128MB | 0 | 128MB |
| | 1MB | 0 | 128MB | 128MB |
| | 1MB | 64MB | 64MB | 128MB |
| | 8MB | 64MB | 0 | 64MB |
| | 8MB | 0 | 64MB | 64MB |
| | 8MB | 128MB | 0 | 128MB |
| | 8MB | 0 | 128MB | 128MB |
| 8MB | 64MB | 64MB | 128MB | |

Notice:

1. The On-Chip Frame Buffer Size would be included in the Fixed Memory.

Please select the memory size according to this table.

Chapter 4 <BIOS Setup>

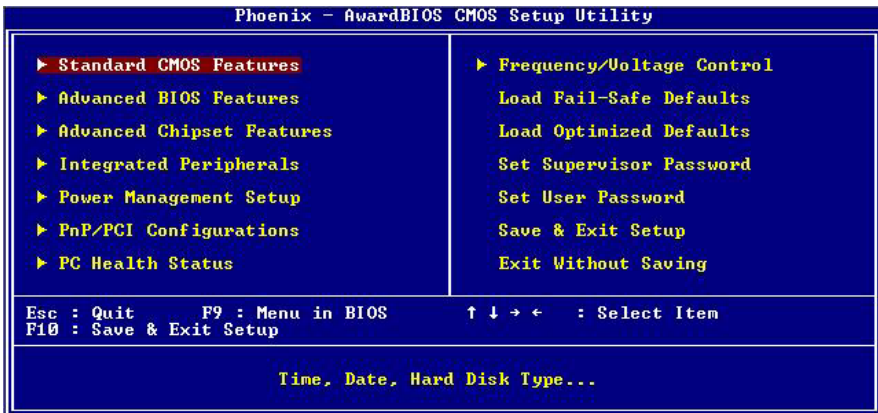
The motherboard uses the Award BIOS for the system configuration. The Award BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The BIOS provides critical low-level support for the system central processing, memory and I/O sub-systems.

The BIOS setup program of the single board computer let the customers modify the basic configuration setting. The settings are stored in a dedicated battery-backed memory, NVRAM, retains the information when the power is turned off. If the battery runs out of the power, then the settings of BIOS will come back to the default setting.

The BIOS section of the manual is subject to change without notice and is provided here for reference purpose only. The settings and configurations of the BIOS are current at the time of print, and therefore they may not be exactly the same as that displayed on your screen.

To activate CMOS Setup program, press key immediately after you turn on the system. The following message "Press DEL to enter SETUP" should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed as **Figure 4-1**. You can use arrow keys to select your function, press <Enter> key to accept the selection and enter the sub-menu.

Figure 4-1 CMOS Setup Utility Main Screen



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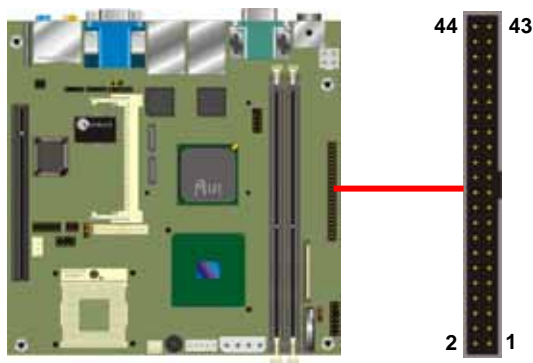
Appendix A <I/O Port Pin Assignment>

A.1 <IDE Port>

Connector: IDE1

Type: 44-pin (22 x 2) box header

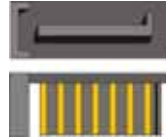
| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | Reset | 2 | Ground |
| 3 | D7 | 4 | D8 |
| 5 | D6 | 6 | D9 |
| 7 | D5 | 8 | D10 |
| 9 | D4 | 10 | D11 |
| 11 | D3 | 12 | D12 |
| 13 | D2 | 14 | D13 |
| 15 | D1 | 16 | D14 |
| 17 | D0 | 18 | D15 |
| 19 | Ground | 20 | N/C |
| 21 | REQ | 22 | Ground |
| 23 | -IOW | 24 | Ground |
| 25 | -IOR | 26 | Ground |
| 27 | IORDY | 28 | Ground |
| 29 | DACK | 30 | Ground |
| 31 | IDEIRQ | 32 | IDE32 |
| 33 | A1 | 34 | P66DET |
| 35 | A0 | 36 | A2 |
| 37 | -CS1 | 38 | -CS3 |
| 39 | -HD LED1 | 40 | Ground |
| 41 | +5V | 42 | +5V |
| 43 | Ground | 44 | Ground |



A.2 <Serial ATA Port>

Connector: **SATA1/2**

Type: 7-pin wafer connector

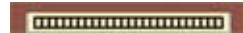


| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----|------------|------------|-----|------------|------------|-----|
| GND | RSATA_TXP1 | RSATA_TXN1 | GND | RSATA_RXN1 | RSATA_RXP1 | GND |

A.3 <Floppy Port>

Connector: **FDD**

Type: 26-pin connector



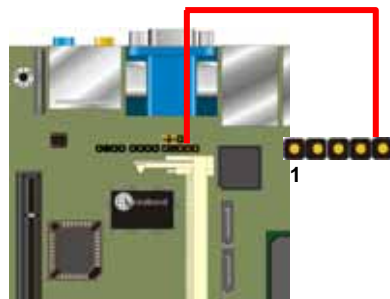
| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | INDEX |
| 3 | VCC | 4 | DRV0 |
| 5 | VCC | 6 | DSKCHG |
| 7 | DRV1 | 8 | N/C |
| 9 | MTR1 | 10 | MTR0 |
| 11 | RPM | 12 | DIR |
| 13 | N/C | 14 | STEP |
| 15 | Ground | 16 | WRITE DATA |
| 17 | Ground | 18 | WRITE GATE |
| 19 | N/C | 20 | TRACK 0 |
| 21 | N/C | 22 | WRPTR |
| 23 | Ground | 24 | RDATA- |
| 25 | Ground | 26 | SEL |

A.4 <IrDA Port>

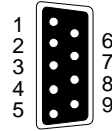
Connector: **CN_IR**

Type: 5-pin header for SIR Ports

| Pin | Description |
|-----|-------------|
| 1 | VCC |
| 2 | N/C |
| 3 | IRRX |
| 4 | Ground |
| 5 | IRTX |



A.5 <Serial Port>



Connector: **COM1/COM2**

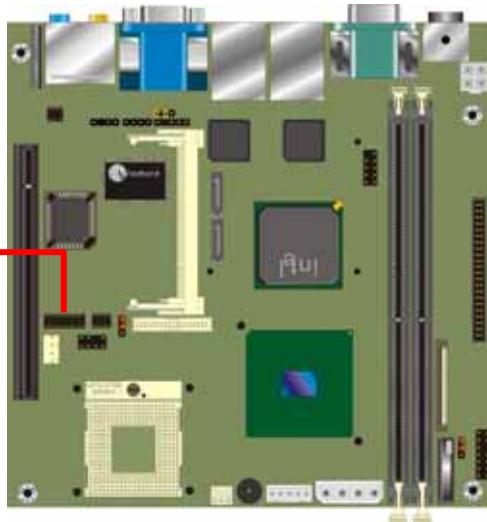
Type: 9-pin D-sub male connector on bracket

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | DCD | 6 | DSR |
| 2 | SIN | 7 | RTS |
| 3 | SO | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | Ground | | |

Connector: **CN_COM34**

Type: 20-pin (10 x 2) 1.27mm x 2.54mm-pitch header

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | DCD | 2 | RXD |
| 3 | TXD | 4 | DTR |
| 5 | GND | 6 | DSR |
| 7 | RTS | 8 | CTS |
| 9 | RI | 10 | N/C |
| 11 | DCD | 12 | RXD |
| 13 | TXD | 14 | DTR |
| 15 | GND | 16 | DSR |
| 17 | RTS | 18 | CTS |
| 19 | RI | 20 | N/C |



A.6 <VGA Port>

Connector: **VGA**

Type: 15-pin D-sub female connector on bracket

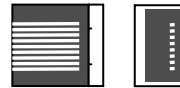


| Pin | Description | Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|-----|-------------|
| 1 | RED | 6 | Ground | 11 | N/C |
| 2 | GREEN | 7 | Ground | 12 | VCC |
| 3 | BLUE | 8 | Ground | 13 | HSYNC |
| 4 | N/C | 9 | N/C | 14 | VSYNC |
| 5 | Ground | 10 | Ground | 15 | 5VCLK |

A.7 <LAN Port>

Connector: **RJ45/2**

Type: RJ45 connector with LED on bracket



| Pin | 1 | 2 | 3 | 4 | 5 |
|-------------|-------|-------|-------|-------|----|
| Description | TRD0+ | TRD0- | TRD1+ | TRD1- | NC |

| Pin | 6 | 7 | 8 | 9 | 10 |
|-------------|----|-------|-------|-------|-------|
| Description | NC | TRD2+ | TRD2- | TRD3+ | TRD3- |

A.8 < USB Interface >

Connector: **CN_USB**

Type: 10-pin (5 x 2) header for dual USB Ports



| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | Data0- | 4 | Data1- |
| 5 | Data0+ | 6 | Data1+ |
| 7 | Ground | 8 | Ground |
| 9 | Ground | 10 | NC |

Appendix B <Flash BIOS>

B.1 <Flash Tool>

The board is based on Award BIOS and can be updated easily by the BIOS auto flash tool. You can download the tool online at the address below:

<http://www.phoenix.com/en/home/>

File name of the tool is "awdf flash.exe", it's the utility that can write the data into the BIOS flash chip and update the BIOS.

B.2 <Flash BIOS Procedure>

1. Please make a bootable floppy disk.
2. Get the last .bin files you want to update and copy it into the disk.
3. Copy awardflash.exe to the disk.
4. Power on the system and flash the BIOS. (Example: C:/ awardflash XXX.bin)
5. Restart the system.

Appendix C <System Resources>

C1.<I/O Port Address Map>

| | |
|-----------------------|---|
| [00000000 - 0000000F] | Direct memory access controller |
| [00000000 - 00000CF7] | PCI bus |
| [00000010 - 0000001F] | Motherboard resources |
| [00000020 - 00000021] | Programmable interrupt controller |
| [00000022 - 0000003F] | Motherboard resources |
| [00000040 - 00000043] | System timer |
| [00000044 - 0000005F] | Motherboard resources |
| [00000060 - 00000060] | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| [00000061 - 00000061] | System speaker |
| [00000062 - 00000063] | Motherboard resources |
| [00000064 - 00000064] | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| [00000065 - 0000006F] | Motherboard resources |
| [00000070 - 00000073] | System CMOS/real time clock |
| [00000074 - 0000007F] | Motherboard resources |
| [00000080 - 00000090] | Direct memory access controller |
| [00000091 - 00000093] | Motherboard resources |
| [00000094 - 0000009F] | Direct memory access controller |
| [000000A0 - 000000A1] | Programmable interrupt controller |
| [000000A2 - 000000BF] | Motherboard resources |
| [000000C0 - 000000DF] | Direct memory access controller |
| [000000E0 - 000000EF] | Motherboard resources |
| [000000F0 - 000000FF] | Numeric data processor |
| [00000170 - 00000177] | Secondary IDE Channel |
| [000001F0 - 000001F7] | Primary IDE Channel |
| [00000274 - 00000277] | ISAPNP Read Data Port |
| [00000279 - 00000279] | ISAPNP Read Data Port |
| [000002E8 - 000002EF] | Communications Port (COM4) |
| [000002F8 - 000002FF] | Communications Port (COM2) |
| [00000376 - 00000376] | Secondary IDE Channel |
| [000003B0 - 000003BB] | Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family |

| | |
|-----------------------|--|
| [000003C0 - 000003DF] | Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family |
| [000003E8 - 000003EF] | Communications Port (COM3) |
| [000003F0 - 000003F5] | Standard floppy disk controller |
| [000003F6 - 000003F6] | Primary IDE Channel |
| [000003F7 - 000003F7] | Standard floppy disk controller |
| [000003F8 - 000003FF] | Communications Port (COM1) |
| [00000400 - 000004BF] | Motherboard resources |
| [000004D0 - 000004D1] | Motherboard resources |
| [00000500 - 0000051F] | Intel(R) 82801FB/FBM SMBus Controller - 266A |
| [00000A79 - 00000A79] | ISAPNP Read Data Port |
| [00000D00 - 0000FFFF] | PCI bus |
| [0000C000 - 0000C0FF] | Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller |
| [0000C000 - 0000CFFF] | Intel(R) 82801FB/FBM PCI Express Root Port - 2660 |
| [0000D000 - 0000D0FF] | Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller #2 |
| [0000D000 - 0000DFFF] | Intel(R) 82801FB/FBM PCI Express Root Port - 2662 |
| [0000E000 - 0000E007] | Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family |
| [0000E100 - 0000E11F] | Intel(R) 82801FB/FBM USB Universal Host Controller - 2658 |
| [0000E200 - 0000E21F] | Intel(R) 82801FB/FBM USB Universal Host Controller - 2659 |
| [0000E300 - 0000E31F] | Intel(R) 82801FB/FBM USB Universal Host Controller - 265A |
| [0000E400 - 0000E41F] | Intel(R) 82801FB/FBM USB Universal Host Controller - 265B |
| [0000F000 - 0000F00F] | Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653 |

C2.<Memory Address Map>

| | |
|-----------------------|--|
| [00000000 - 0009FFFF] | System board |
| [000A0000 - 000BFFFF] | Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family |
| [000A0000 - 000BFFFF] | PCI bus |
| [000C0000 - 000DFFFF] | PCI bus |
| [000D2000 - 000D3FFF] | System board |
| [000E0000 - 000EFFFF] | System board |
| [000F0000 - 000F7FFF] | System board |
| [000F8000 - 000FBFFF] | System board |
| [000FC000 - 000FFFFF] | System board |
| [00100000 - 3F6DFFFF] | System board |
| [3F6E0000 - 3F6FFFFF] | System board |
| [3F700000 - FEBFFFFF] | PCI bus |
| [C0000000 - CFFFFFFF] | Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family |
| [D0000000 - D00FFFFF] | Intel(R) 82801FB/FBM PCI Express Root Port - 2660 |
| [D0020000 - D0023FFF] | Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller |
| [D0100000 - D01FFFFF] | Intel(R) 82801FB/FBM PCI Express Root Port - 2662 |
| [D0120000 - D0123FFF] | Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller #2 |
| [D0200000 - D027FFFF] | Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family |
| [D0280000 - D02BFFFF] | Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family |
| [D02C0000 - D02C3FFF] | Microsoft UAA Bus Driver for High Definition Audio |
| [D02C4000 - D02C43FF] | Intel(R) 82801FB/FBM USB2 Enhanced Host Controller - 265C |
| [E0000000 - EFFFFFFF] | Motherboard resources |
| [FEC00000 - FEC00FFF] | System board |
| [FED13000 - FED1DFFF] | System board |
| [FED20000 - FED8FFFF] | System board |
| [FEE00000 - FEE00FFF] | System board |
| [FFB00000 - FFB7FFFF] | System board |
| [FFB80000 - FFBFFFFF] | Intel(r) 82802 Firmware Hub Device |
| [FFF00000 - FFFFFFFF] | System board |

C3.<System IRQ & DMA Resources>

DMA:

- 2 Standard floppy disk controller
- 4 Direct memory access controller

IRQ:

- (ISA) 0 System timer
- (ISA) 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
- (ISA) 3 Communications Port (COM2)
- (ISA) 4 Communications Port (COM1)
- (ISA) 5 Communications Port (COM3)
- (ISA) 6 Standard floppy disk controller
- (ISA) 8 System CMOS/real time clock
- (ISA) 9 Microsoft ACPI-Compliant System
- (ISA) 10 Communications Port (COM4)
- (ISA) 13 Numeric data processor
- (ISA) 14 Primary IDE Channel
- (ISA) 15 Secondary IDE Channel
- (PCI) 9 Intel(R) 82801FB/FBM PCI Express Root Port - 2660
- (PCI) 9 Intel(R) 82801FB/FBM PCI Express Root Port - 2662
- (PCI) 9 Intel(R) 82801FB/FBM USB Universal Host Controller - 2658
- (PCI) 9 Intel(R) 82801FB/FBM USB Universal Host Controller - 2659
- (PCI) 9 Intel(R) 82801FB/FBM USB Universal Host Controller - 265A
- (PCI) 9 Intel(R) 82801FB/FBM USB Universal Host Controller - 265B
- (PCI) 9 Intel(R) 82801FB/FBM USB2 Enhanced Host Controller - 265C
- (PCI) 9 Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller
- (PCI) 9 Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller #2
- (PCI) 9 Microsoft UAA Bus Driver for High Definition Audio
- (PCI) 9 Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
- (PCI) 11 Intel(R) 82801FB/FBM SMBus Controller - 266A

The GPIO' can be programmed with the MSDOS debug program using simple IN/OUT commands.The following lines show an example how to do this.

GPIO0.....GPIO7 bit0.....bit7

```
-o 4E 87                ;enter configuration
-o 4E 87
-o 4E 29
-o 4E 40                ;enale GPIO function
-o 4E 07
-o 4E 07                ;enable GPIO configuration
-o 4E F0
-o 4F xx                ;set GPIO as input/output; set '1' for input,'0'for output
-o 4E F1
-o 4F xx                ;if set GPIO's as output,in this register its value can be set
```

Optional :

```
-o 4E F2
-o 4F xx                ; Data inversion register ; '1' inverts the current valus of the
                        bits ,'0' leaves them as they are
-o 4E 30
-o 4F 01                ; active GPIO's
```

For further information ,please refer to Winbond W83627THF datasheet.

Contact Information

Any advice or comment about our products and service, or anything we can help you please don't hesitate to contact with us. We will do our best to support you for your products, projects a

Annso Technology Co., Ltd

| | | |
|---------|---|-------------|
| Address | The south faces industry area of Xia Gang Fu Hai road, Chang'an Town,Dongguan City, Guangdong, China | |
| TEL | +86-769-81666360 | 81666395-97 |
| FAX | +86-769-81666306 | |
| Website | http://www.annso.com | |
| E-mail | sales@annso.com.cn | |

