

User's Manual

Version 1.3

3.5" Embedded SBC Model Number IP-60580

Intel® Pentium® M Embedded SBC with LVDS, LAN, Audio & SSD



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Chapter 1. General Information

1.1 Introduction

The IP-60580 is a 3.5" embedded single board computer (SBC) based on Intel® architecture. The 852GM+ICH4 chipset supports a Pentium® M or Celeron M processor with 400MHz FSB. The memory supports DDR SO-DIMM socket up to 1GB. Through the Intel® 82562ET chipset, it can support one Ethernet port. The built-in 852GM chipset supports CRT and LVDS panel interface. Other features include a CompactFlash socket, one mini PCI slot for future expansion capabilities, four USB2.0 ports, three RS-232 and one RS-232/485 Serial port, one Parallel port, AC97 audio, watchdog timer and hardware system monitoring, etc.

1.2 Specifications

| General Functions | |
|----------------------------|---|
| System | |
| CPU | Onboard Intel® ULV Celeron® M, 600MHz/ LV Pentium® M /1.4GHz processors |
| BIOS | Award® 512KB Flash BIOS |
| System Chipset | Intel® 852GM + ICH4 |
| System Memory | 1 x 200-pin DDR SO-DIMM socket supports DDR 200/266/333 max up to 1GB |
| Power Management | APM 1.1 ACPI 1.0A supported |
| SSD | 50-pin CompactFlash™ type II socket |
| Watchdog Timer | 255 levels timer interval, (1 ~ 255 seconds) , setup by software. Jumper set up for system reset or IRQ |
| Expansion Interface | Mini PCI socket |
| Battery | Lithium 3V/200mAH |
| I/O | |
| I/O Chipset | Winbond® 83627HG |
| I/O Interface | 1 x E-IDE, 1 x PS/2 KB/Mouse, 3 x RS-232, 1 x RS-232/422/485, 1 x LPT |
| USB | 4 x USB ports, USB 2.0 compliant |
| Audio (Optional) | Realtek® AD1881A AC97 Codec (Mic. in & Speaker out) |
| Ethernet | |
| Chipset | Intel® 82562ET |
| Speed | 10/100Mbps |
| Interface | 1 x RJ-45 |
| Standard | IEEE 802.3u (100Base-T) protocol compatible |
| Display | |
| Chipset | Built-in Intel® 852GM |

Memory Size One RJ-45 connector

Resolution CRT mode: 1920 x 1440@ x 32bpp (85Hz), 1600 x 1200 x 32bpp (100Hz)
350-MHz integrated 24-bit RAMDAC that can drive a standard progressive scan analog monitor with pixel resolution up to 1600 x 1200 @85Hz & 2008 x 1536 & 75Hz

LCD/LVDS Interface LVDS simultaneous mode: 1024 x 768 @ 18-bpp (60Hz)

Dual Independent Display CRT/LVDS

Mechanical and Environmental

Dimension (L x W) 145mm (L) x 102mm(W) (5.7"L x 4"W)

Operating Temperature 0 ~ 60°C (32 ~ 140°F)

Operating Humidity 10% ~ 95% relative humidity, non-condensing

Power

Power Supply Voltage +5V ± 5%, supports single voltage

Power Consumption ULV Celeron® M 600MHz@1GB DDR 266 Max: +5V @ 3.5

Ordering Information

IP-6058B 3.5" SBC with Intel® LV Pentium® M 1.4GHz , LVDS, LAN, Audio & SSD (by order)

IP-6058C 3.5" SBC with Intel® ULV Celeron® M 600MHz, 512K cache, LVDS, LAN, Audio & SSD

IP-6058D 3.5" SBC with Intel® LV Celeron ® M 1GHz, 0cache, LVDS, LAN, Audio & SSD (by order)

Optional

DK-10230 Audio kit with Mic. in & Speak out

AW-R041 +12V ~ 24V power adapter kit

CB-IPOW29-00 Power cable 3.96mm to 4pin AT

CB-IUSB03-00 USB cable 3.96mm to 4 pin AT

CB-IOOIDE-00 IDE 44pin cable

CB-ICOM02-00 COM 2 cable

CB-ICOM03- 00 COM 3, COM 4 cable

CB-ILPT01-00 LPT cable

CB-IPS266-00 KB/MS cable

Included Parts (Ships with Product)

1 x IP-60580 SBC

1 x CD (Manual, Quick installation guide, Utility driver)

1 x KB+PS cable 6+6P (p/n: CB I606kP-00)

1 x Printer cable (p/n: CB-ILPT01-00)

1 x IDE cable (p/n:CB-I00IDE-00)

1 x I/O cable (p/n:CB-ICOM02-00)

1 x I/O cable (p/n: CB-ICOM03-00)

1 x 4P cable (p/n: CB-IPOW30-00)

1.3 Packaging

Please make sure that the following items have been included in the package before installation.

1. IP-60580 Embedded SBC
2. Quick Installation Guide
3. Cable: Please refer to Appendix B “Standard Cables”
4. CD-ROM that contains the following folders:
 - Manual
 - System Driver
 - Ethernet Driver
 - Utility Tools

If any item of above is missing or damaged, please contact your dealer or retailer from whom you purchased the MB-60580. Keep the box and carton for storage and shipping. After you unpack the goods, inspect and make sure the contents are intact. Do not plug the power adapter to the main board of IP-60580 if you find it appears damaged.

Note: Keep the IP-60580 in the original packaging until you start installation.

1.4 Precautions

Please make sure you properly ground yourself before handling the IP-60580 board or other system components. Electrostatic discharge can be easily damage the IP-60580 board.

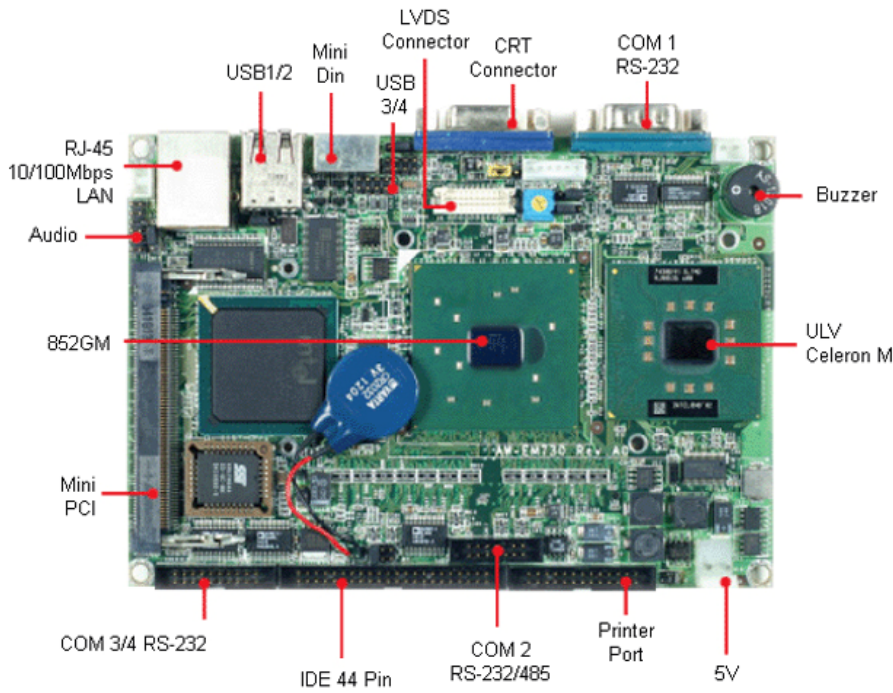
Do not remove the anti-static packing until you are ready to install the IP-60580 board.

Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the IP-60580 board by its edges and avoid touching the components.

1.5 Board Layout

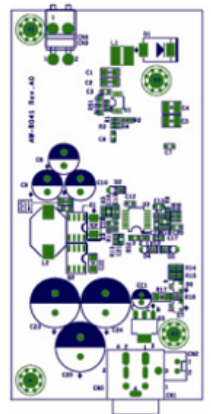
IP-60580 Front View



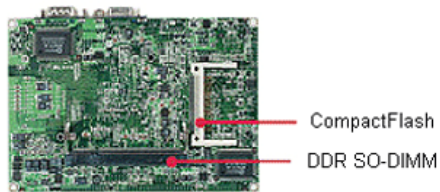
DK-10230 Audio Kit



AW-R041 Power Adapter Kit

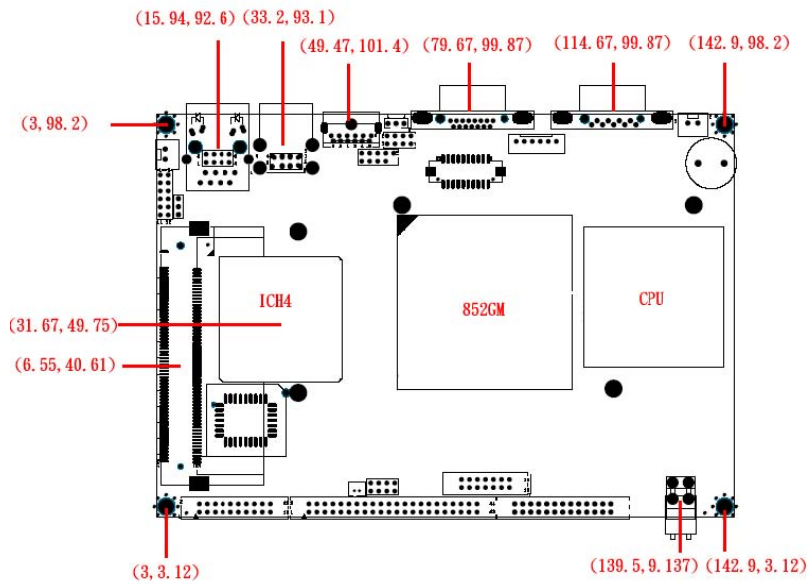


IP-60580 Rear View

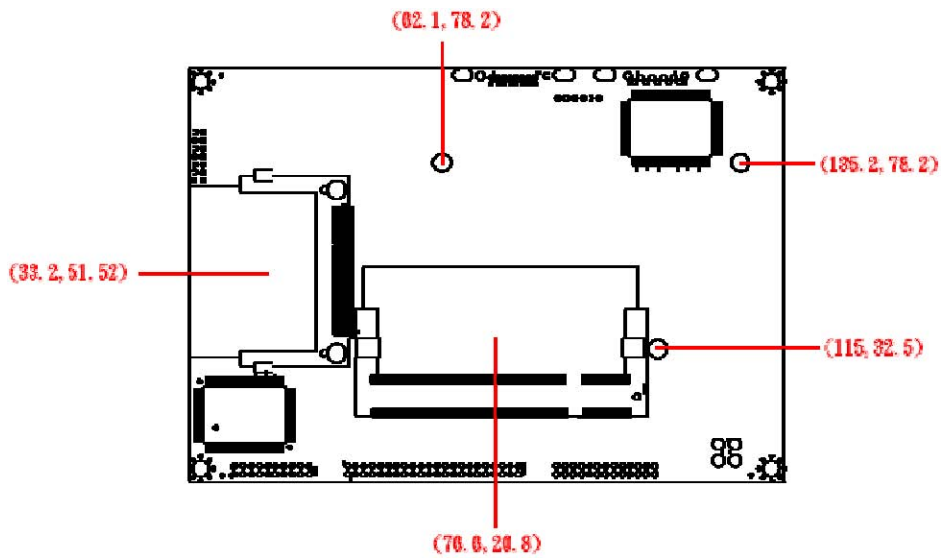


1.6 Board Dimensions

Front View



Rear View



Chapter 2. Connector/Switch Location and Configuration

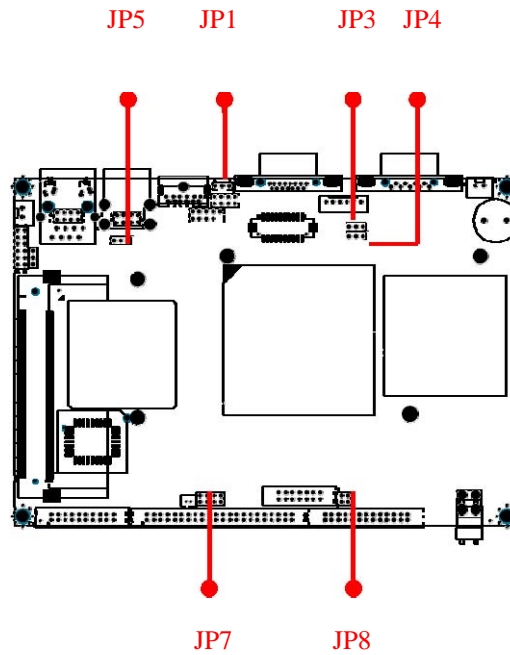
2.1 Connector/Jumper Location and Definitions

List of Connectors

| Connectors | Description | Connectors | Description |
|------------|------------------------|------------|----------------------|
| CN1 | VGA Connector (D-Sub) | CN13 | |
| CN2 | COM1 Connector (D-Sub) | CN14 | LVDS Connector |
| CN3 | +12V Input | CN15 | AC97 Connector |
| CN4 | Mini Din | CN16 | Mini PCI Socket |
| CN5 | | CN17 | COM2 Pin-Header |
| CN6 | Front Panel Connector | CN18 | Power Connector |
| CN7 | Inverter Connector | CN19 | COM3/4 Pin-Header |
| CN8 | USB Connector | CN20 | IDE Connector |
| CN9 | +5V Fan Connector | CN21 | LPT Pin-Header |
| CN10 | LAN Connector (RJ45) | CN22 | Compact Flash Socket |
| CN11 | USB Pin-Header | CN23 | DDR SO-DIMM |
| CN12 | | | |

List of Jumpers

| Jumper | Description |
|--------|------------------------------------|
| JP1 | Power On/Off Control |
| JP3 | Power Selection for Inverter |
| JP4 | LCD Panel Power Selection |
| JP5 | CMOS Jumper |
| JP7 | RS232/485 Jumper |
| JP8 | RS485 Terminal Jumper |
| VR1 | Adjust the brightness of backlight |



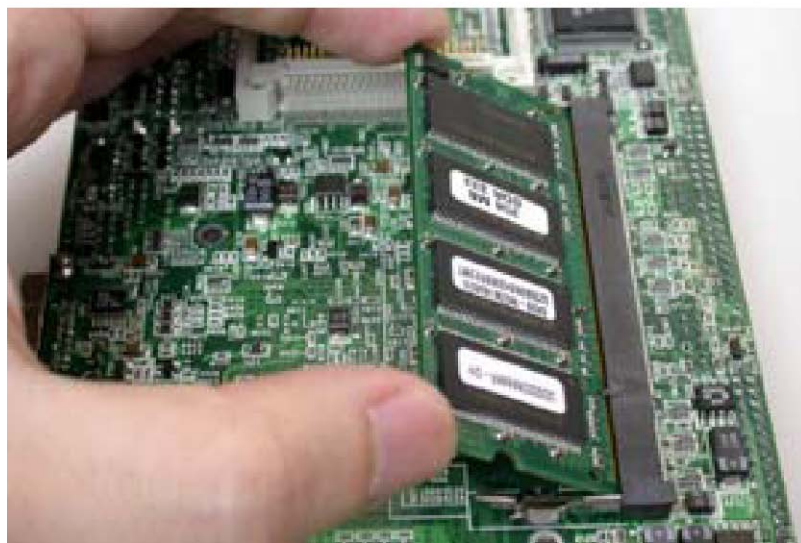
2.2 Installing Memory

To insert DIMM Memory:

The IP-60580 supports one SO-DIMM DDR socket, memory up to 1GB. Please make sure to insert registered DDR.

To Insert a DIMM Memory: Please align the module with the socket key and press down until the levers at each end of the socket snap close up.

There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

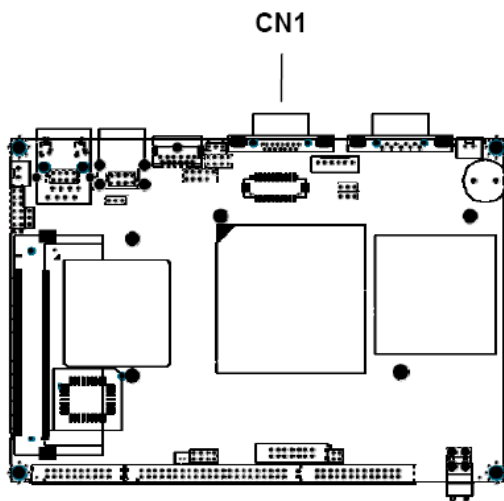


To Remove a DIMM Memory: To remove a DIMM, press down on the levers at both end of the module until the module pops out

2.3 Connector and Jumper Setting

CN1: VGA Connector

The IP-60580 supports a standard D-SUB VGA connector for CRT display.



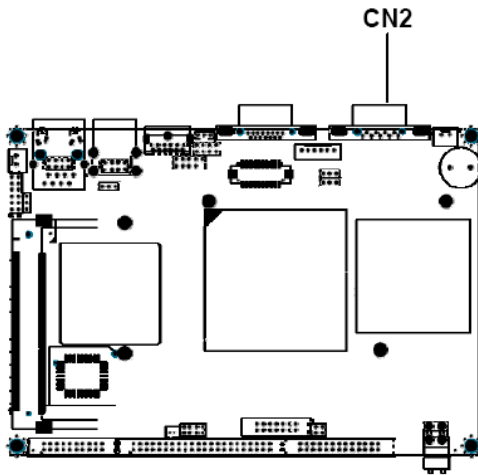
| Pin | Signal |
|-----|-----------|
| 1 | RED |
| 2 | GREEN |
| 3 | BLUE |
| 4 | NC |
| 5 | Ground |
| 6 | Ground |
| 7 | Ground |
| 8 | Ground |
| 9 | NC |
| 10 | Ground |
| 11 | NC |
| 12 | DDC Data |
| 13 | H-SYNC |
| 14 | V-SYNC |
| 15 | DDC Clock |

CN2, CN17, CN19: Serial Ports

The IP-60580 supports four serial ports: three RS-232 (COM1/COM3/COM4) and one RS-232/422/485 (COM2). The COM1 (CN2) is D-Sub connector and COM2/COM3/COM4 are pin header type. These ports allow user to connect serial devices such as mouse, keyboard or others. It needs the additional adapter cables to use the traditional DB-9 connector for COM2/COM3/COM4. The cable for COM2 is 14-pin, and the cable for COM3/COM4 is 10-pin.

The COM2 is designed to be the RS232 port; also it can be compliant with the RS-422/485 interface in the JP7.

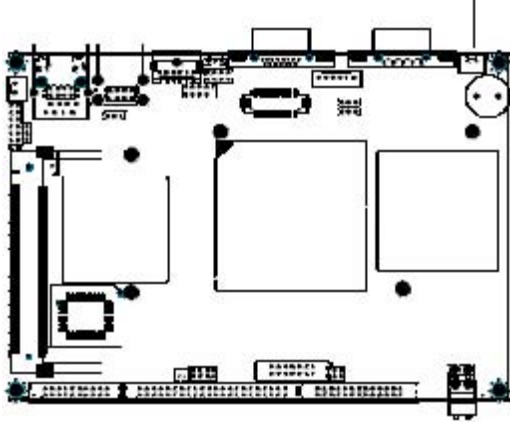
CN2: COM1 D-Sub Connector

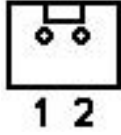


| Pin | Signal |
|-----|--------|
| 1 | DCD |
| 2 | RXD |
| 3 | TXD |
| 4 | DTR |
| 5 | Ground |
| 6 | DSR |
| 7 | RTS |
| 8 | CTS |
| 9 | RI |

CN3: +12V input Connector

The IP-60580 can support +12V power input. If +12V power is needed, we offer AW-R029 that is a +12V DC to +5V DC adapter. Please install & assemble the adapter, then connect the CN5 in AW-R029 to the IP-60580 CN3.

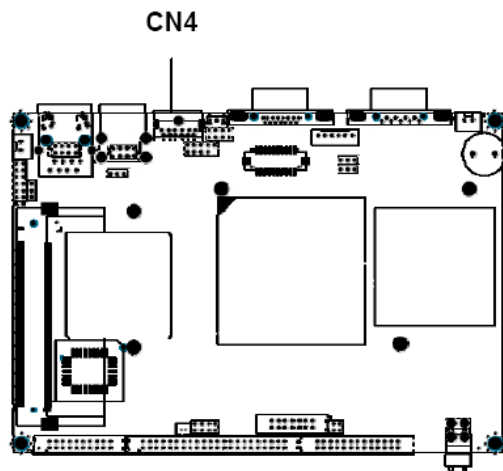


|  | |
|--|------------|
| Pin | Signal |
| 1 | +12V input |
| 2 | GND |

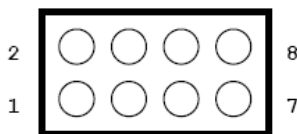
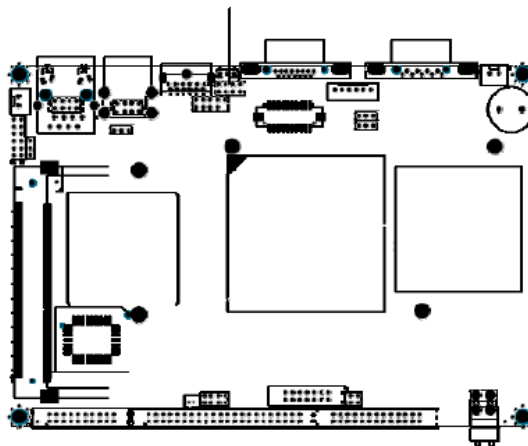
Note: If the backlight inverter CN7 and JP3 select +12V power input, then the CN3 must be shorted and connected to AW-R029.

CN4: PS/2 Mouse/Keyboard Connector (MINI DIN Jack)

The IP-60580 can support MINI DIN jack for PS/2 mouse or keyboard use.



| Pin | Signal |
|-----|---------|
| 1 | KB-DATA |
| 2 | MS-DATA |
| 3 | Ground |
| 4 | +5V |
| 5 | KB-CLK |
| 6 | MS-CLK |

CN6: Front Panel**CN6: Front Panel****CN6**

| Pin | Signal | Pin | Signal |
|-----|------------------|-----|-----------------------|
| 1 | Power LED+ (+5V) | 2 | Power LED- (GND) |
| 3 | IDE_LED+ (+5V) | 4 | IDE_LED- (ACTIVE) |
| 5 | POWER ON SWITCH+ | 6 | POWER ON SWITCH (GND) |
| 7 | RESET SWITCH+ | 8 | RESET SWITCH- (GND) |

Pin 1-2: the two pins connect to the case-mounted power LED.

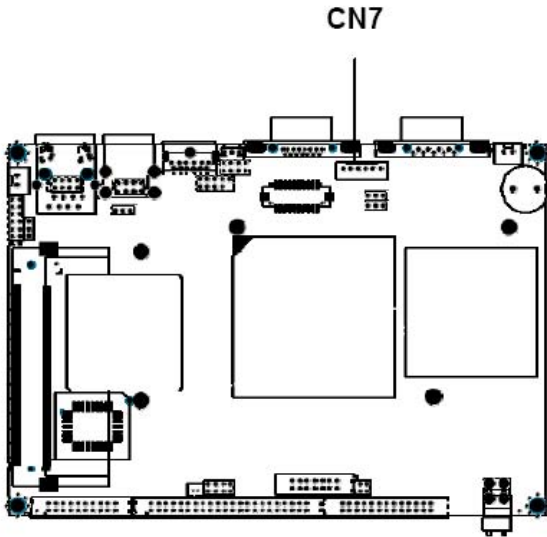
Pin 3-4: the two pins connect to the case-mounted HDD LED & indicate HDD active.

Pin 5-6: the two pins connect to case-mounted ATX power button.

Pin 7-8: the two pins connect to case-mounted reset switch for reboot function.

CN7: Inverter Connector

The IP-60580 can provide the power +12V or +5V for backlight inverter and brightness control through the inverter connector CN7.



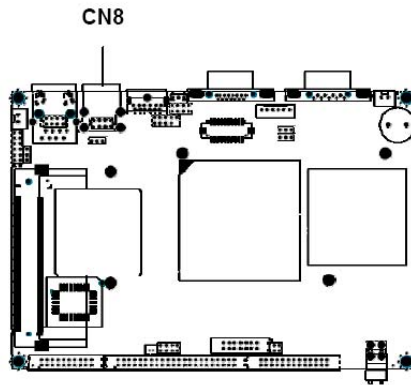
| Pin | Signal |
|-----|------------------|
| 1 | +12V/+5V |
| 2 | +12V/+5V |
| 3 | Ground |
| 4 | Ground |
| 5 | Backlight Enable |
| 6 | Brightness |

Note:

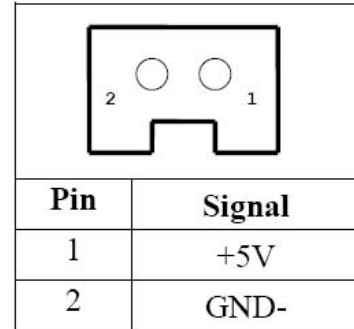
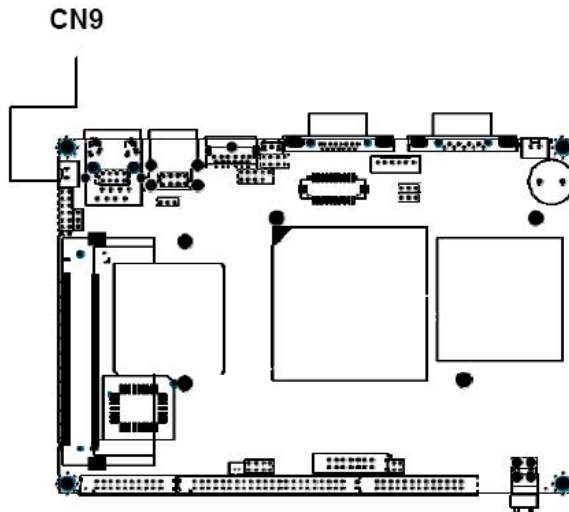
1. The power input (+12V or +5V) selection depends on the JP3, please refer to the JP3 setting to get more information.
2. To change the brightness, please adjust the VR1 on the AW-EM730 board.

CN8: USB2.0 Connector

The IP-60580 is equipped with two USB 2.0 (Universal Serial Bus) ports, which can support plug and play, hot attach/detach functions. It also can be backward compliant with USB 1.1 interface.

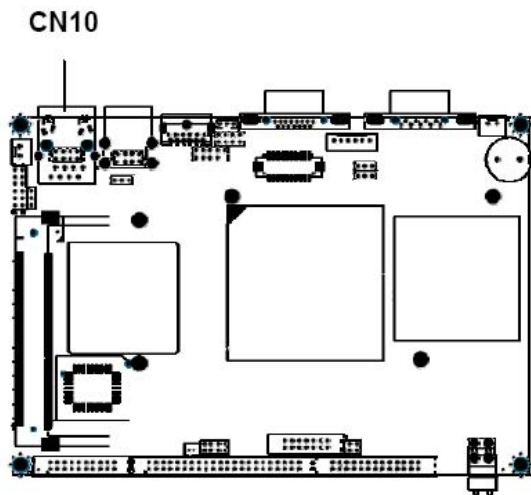


| Pin | Signal |
|-----|---------|
| 1 | 5VUSB0 |
| 2 | USBDT0- |
| 3 | USBDT0+ |
| 4 | Ground |
| 5 | 5VUSB0 |
| 6 | USBDT1- |
| 7 | USBDT1+ |
| 8 | Ground |

CN9: +5V Fan Connector**CN9: +5V Fan Connector**

CN10: RJ45 Connector

The IP-60580 is equipped with one RJ-45 connector. It can let the device to support 10Mbps and 100Mbps Ethernet.

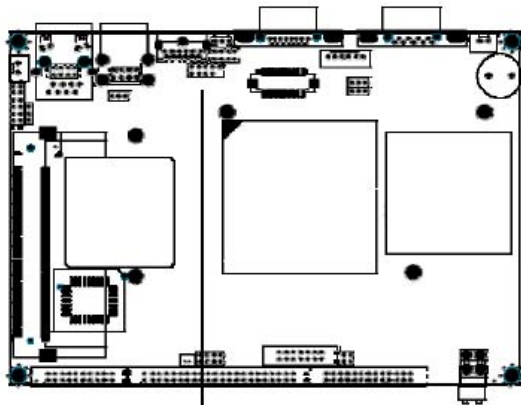
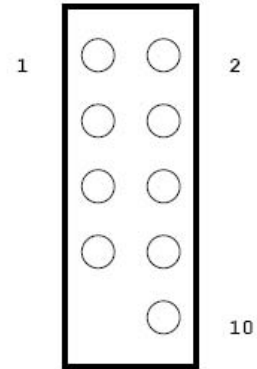


A diagram of an RJ45 connector. It shows a rectangular housing with eight pins. The pins are numbered 1 through 8 from right to left. The top-left pin is labeled 'D2' and has a yellow tab. The top-right pin is labeled 'D1' and has a green tab. The pins are arranged in two rows of four. The signal assignments for each pin are listed in the table below.

| Pin | Signal |
|-----|--------|
| 1 | TX0+ |
| 2 | TX0- |
| 3 | RX0+ |
| 4 | NC |
| 5 | NC |
| 6 | RX0- |
| 7 | NC |
| 8 | NC |

CN11: USB2.0 Pin-Header

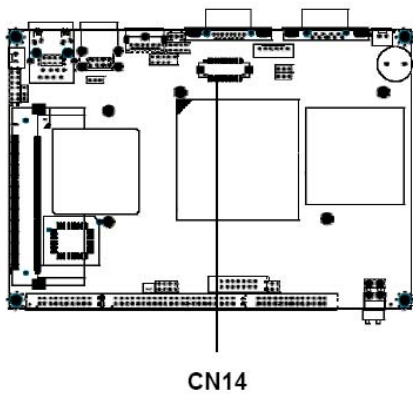
IP-60580 is equipped with USB2.0 pin header; it can support two more USB2.0 devices.

**CN11**

| Pin | Signal | Pin | Signal |
|-----|-------------|-----|-------------|
| 1 | USBVCC(+5V) | 2 | USBVCC(+5V) |
| 3 | USB2- | 4 | USB3- |
| 5 | USB2+ | 6 | USB3+ |
| 7 | GND | 8 | GND |
| 9 | KEY-Pin | 10 | GND |

CN14: LVDS Connector

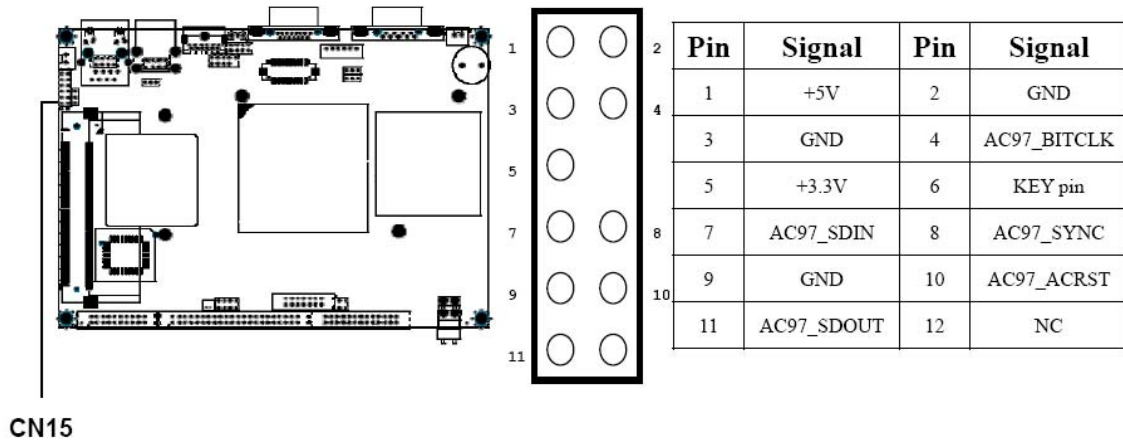
The IP-60580 supports LVDS output via a 20 pin connector for LVDS panel.



| Pin | Signal | Pin | Signal |
|-----|-----------|-----|-----------|
| 1 | VCC3/VCC5 | 2 | VCC3/VCC5 |
| 3 | GND | 4 | GND |
| 5 | RxIN0- | 6 | RxIN0+ |
| 7 | GND | 8 | RxIN1+ |
| 9 | RxIN1- | 10 | GND |
| 11 | RxIN2- | 12 | RxIN2+ |
| 13 | GND | 14 | CLKIN- |
| 15 | CLKIN+ | 16 | GND |
| 17 | RxIN3- | 18 | RxIN3+ |
| 19 | DDCPDATA | 20 | DDCPCLK |

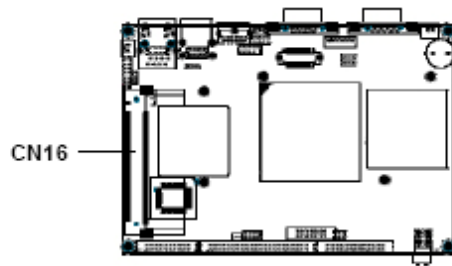
CN15: AC97 Connector

This IP-60580 supports AC97 function, the connector is designed as 12 pin for CD Audio cable that depends on the CD-ROM drive type.



Note: This MB-60580 function needs to be equipped with the AW-R031 module. Please refer to Appendix A to see the detail.

CN16: Mini PCI slot



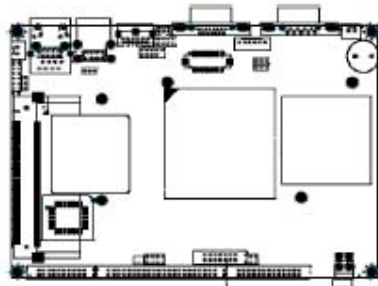
| Pin | Define | Pin | Define |
|-----|-----------|-----|-----------|
| 1 | TIP | 2 | RING |
| 3 | 8PMJ-33 | 4 | 8PMJ-13 |
| 5 | 8PMJ-63 | 6 | 8PMJ-23 |
| 7 | 8PMJ-73 | 8 | 8PMJ-43 |
| 9 | 8PMJ-83 | 10 | 8PMJ-53 |
| 11 | LED1_GRNP | 12 | LED2_YELP |
| 13 | LED1_GRNN | 14 | LED2_YELN |
| 15 | CHSGND | 16 | RESERVED |
| 17 | INTB/D# | 18 | 5V |
| 19 | 3.3V | 20 | INTA/C# |
| 21 | RESERVED | 22 | RESERVED |
| 23 | GND | 24 | 3.3VAUX |
| 25 | CLK | 26 | RST# |
| 27 | GND | 28 | 3.3V |
| 29 | REQ# | 30 | GNT# |
| 31 | 3.3V | 32 | GND |
| 33 | AD{31} | 34 | PME# |
| 35 | AD{29} | 36 | RESERVED |
| 37 | GND | 38 | AD{30} |
| 39 | AD{27} | 40 | 3.3V |

| | | | |
|-----|-------------|-----|-------------------|
| 41 | AD{25} | 42 | AD{28} |
| 43 | RESERVED | 44 | AD{26} |
| 45 | C/BE[3]# | 46 | AD{24} |
| 47 | AD{23} | 48 | IDSEL |
| 49 | GND | 50 | GND |
| 51 | AD{21} | 52 | AD{22} |
| 53 | AD{19} | 54 | AS{20} |
| 55 | GND | 56 | PAR |
| 57 | AD{17} | 58 | AD{18} |
| 59 | C/BE[2]# | 60 | AD{16} |
| 61 | IRDY# | 62 | GND |
| 63 | 3.3V | 64 | FRAME# |
| 65 | CLKRUN# | 66 | TRDY# |
| 67 | SERP# | 68 | STOP# |
| 69 | GND | 70 | 3.3V |
| 71 | PERP | 72 | DEVSEL# |
| 73 | CB/E[1] | 74 | GND |
| 75 | AD{14} | 76 | AD{15} |
| 77 | GND | 78 | AD{13} |
| 79 | AD{12} | 80 | AD{11} |
| 81 | AD{10} | 82 | GND |
| 83 | GND | 84 | AD{09} |
| 85 | AD{06} | 86 | C/BE[0]# |
| 87 | AD{07} | 88 | 3.3V |
| 89 | 3.3V | 90 | AD{06} |
| 91 | AD{05} | 92 | AD{04} |
| 93 | RESERVED | 94 | AD{02} |
| 95 | AD{03} | 96 | AD{00} |
| 97 | 5V | 98 | RESERVED_ WIP4 |
| 99 | AD{01} | 100 | RESERVED_ WIP4 |
| 101 | GND | 102 | GND |
| 103 | AC_SYNC | 104 | M66EN |
| 105 | AC_SDATA_IN | 106 | AC_SDATA_ OUT |
| 107 | AC BIT CLK | 108 | AC CODEC |

| | | | ID0# |
|-----|---------------------|-----|--------------------|
| 109 | AC_CODEC_ ID1# | 110 | AC_RESET# |
| 111 | MOD_AUDIO_ MOD | 112 | RESERVED |
| 113 | AUDIO_GND | 114 | GND |
| 115 | SYS_AUDIO_ OUT | 116 | SYS_AUDIO_ IN |
| 117 | SYS_AUDIO_ OUT G | 118 | SYS_AUDIO_ IN G |
| 119 | AUDIO_GND | 120 | AUDIO_GND |
| 121 | RESERVED | 122 | MPCIACT# |
| 123 | VCC5VA | 124 | 3.3VAUX |

CN17: COM2 RS-232/485 PIN-Header

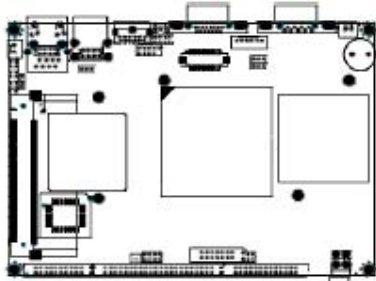
CN17: COM2 RS-232/485 PIN-Header



CN17

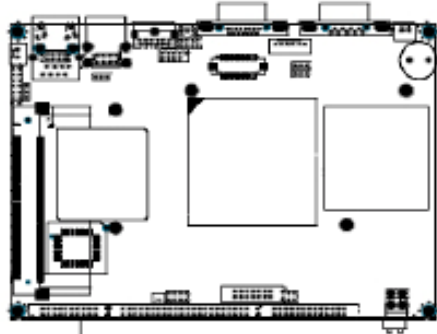
| Pin | Signal | Pin | Signal |
|-----|---------|-----|---------|
| 1 | DCD | 2 | DSR |
| 3 | RXD | 4 | RTS |
| 5 | TXD | 6 | CTS |
| 7 | DTR | 8 | RI |
| 9 | GND | 10 | NC |
| 11 | 485TXD+ | 12 | 485TXD- |
| 13 | 485RXD+ | 14 | 485RXD- |

CN18: Power connector



CN18

| Pin | Signal |
|-----|--------|
| 1 | GND |
| 2 | +5V |

CN19: COM3/4 Pin-Header

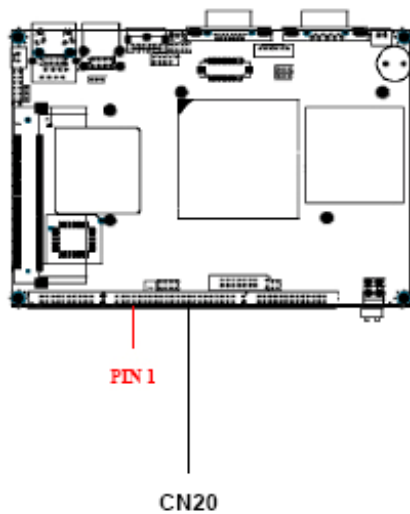
CN19

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | DCD3 | 2 | DSR3 |
| 3 | RXD3 | 4 | RTS3 |
| 5 | TXD3 | 6 | CTS3 |
| 7 | DTR3 | 8 | RI3 |
| 9 | Ground | 10 | NC |
| 11 | DCD4 | 12 | DSR4 |
| 13 | RXD4 | 14 | RTS4 |
| 15 | TXD4 | 16 | CTS4 |
| 17 | DTR4 | 18 | RI4 |
| 19 | Ground | 20 | NC |

CN19

CN20: IDE Connector

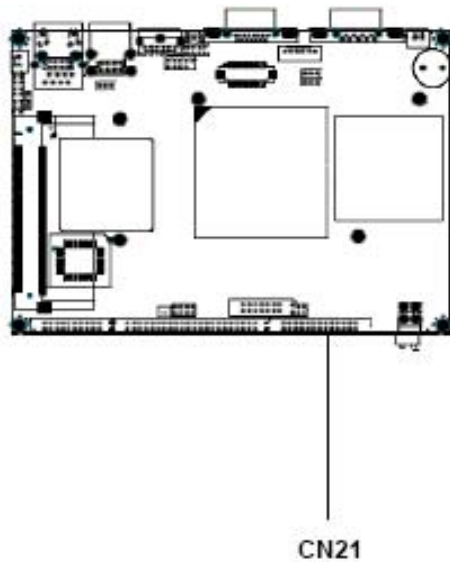
The IP-60580 is equipped with a 44 pin IDE connector. It can configure two hard disks via IDE cable, one can be Master mode on the primary IDE connector and the other can be Slave mode on the secondary IDE connector.



| Pin | Signal | Pin | Signal |
|-----|----------|-----|--------|
| 1 | RSTPIDE# | 2 | Ground |
| 3 | PDD7 | 4 | PDD8 |
| 5 | PDD6 | 6 | PDD9 |
| 7 | PDD5 | 8 | PDD10 |
| 9 | PDD4 | 10 | PDD11 |
| 11 | PDD3 | 12 | PDD12 |
| 13 | PDD2 | 14 | PDD13 |
| 15 | PDD1 | 16 | PDD14 |
| 17 | PDD0 | 18 | PDD15 |
| 19 | Ground | 20 | NC |
| 21 | PDDREQ | 22 | Ground |
| 23 | PDIOW# | 24 | Ground |
| 25 | PDIOR# | 26 | Ground |
| 27 | PDIORDY | 28 | Ground |
| 29 | PDDACK# | 30 | Ground |
| 31 | IRQ14 | 32 | V5P0 |
| 33 | PDA1 | 34 | PD66# |
| 35 | PDA0 | 36 | PDA2 |
| 37 | PDCS#1 | 38 | PDCS#3 |
| 39 | PIDELED | 40 | Ground |
| 41 | V5P0 | 42 | V5P0 |
| 43 | Ground | 44 | NC |



CN21: LPT Pin-Header

The IP-60580 supports one parallel port accessed through CN21. It needs a 26 pin cable to connect the DB-25 connector. The port is designed as LPT1 and can be changed to LPT2 or LPT3 by adjusting the Integrated Peripherals Setup in BIOS setting. You can also select the ECP/EPP mode via Integrated Peripherals Setup function in BIOS setting.





| Pin | Signal | Pin | Signal |
|-----|---------|-----|----------|
| 1 | PT_STB# | 14 | PTAFD# |
| 2 | PT_D0 | 15 | PTERROR# |
| 3 | PT_D1 | 16 | PTINT# |
| 4 | PT_D2 | 17 | PTSLIN# |
| 5 | PT_D3 | 18 | Ground |
| 6 | PT_D4 | 19 | Ground |
| 7 | PT_D5 | 20 | Ground |
| 8 | PT_D6 | 21 | Ground |
| 9 | PT_D7 | 22 | Ground |
| 10 | PTACK# | 23 | Ground |
| 11 | PTBUSY | 24 | Ground |
| 12 | PTPE | 25 | Ground |
| 13 | PTSLCT | 26 | Ground |

JP1: Power On/Off Control



| Setting | Define |
|--|------------------------|
|  1 2 3 | 1-2 By Power Button |
|  1 2 3 | 2-3 Instant ON |

JP3: (CN7 Pin1 ~ 2) Power Selection for Inverter



| Setting | Define |
|--|-------------|
|  1 2 3 | 1-2 +5V |
|  1 2 3 | 2-3 +12V |

Note: If the backlight inverter uses the optional +12V DC as its power input, then the JP3 must be shorted.

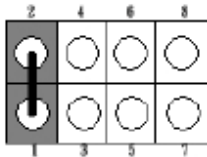
JP4: LCD Panel Voltage Select

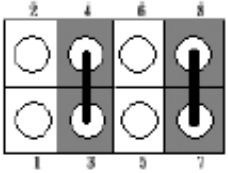
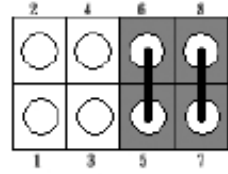
| Setting | Define |
|--|--------------|
|  1 2 3 | 1-2 +3.3V |
|  1 2 3 | 2-3 +5V |

JP5: CMOS Clear

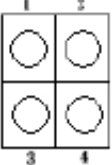
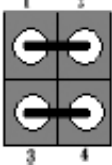
| Setting | Define |
|--|-----------------------------------|
|  1 2 3 | 1-2 Normal Status (Default) |
|  1 2 3 | 2-3 Clear CMOS |

JP7: COM2 RS-232/485 Selector (Default: RS-232)

| Setting | COM Ports |
|--|----------------------------|
|  1 2 3 4 5 6 7 8 | 1-2 (Default) RS-232 |

| | | |
|---|-----------------------|----------------------------------|
|  | <p>3-4</p> <p>7-8</p> | <p>RS-485</p> <p>(Two wire)</p> |
|  | <p>5-6</p> <p>7-8</p> | <p>RS-485</p> <p>(Four wire)</p> |

JP8: RS-485 terminal (120 ohm)

| Setting | |
|---|-----------------------|
|  | <p>NA</p> |
|  | <p>1-2</p> <p>3-4</p> |

VR1: Adjust the brightness of backlight



Chapter 3. BIOS Setup

The ROM chip of your IP-60580 board is configured with a customized Basic Input/Output System (BIOS) from Phoenix-Award BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required. CMOS RAM stores information for:

- Date and time
- Memory capacity of the main board
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery installed on the IP-60580 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also provides an easy way to reload the CMOS data when you replace the battery due to power loss.

3.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

- 1 Choose “Load Optimized Defaults” from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
- 2 Choose “Standard COS Features” from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
- 3 In the main menu, press F10 (“Save & Exit Setup”) to save your changes and reboot the system.

3.2 Entering the CMOS Setup Program

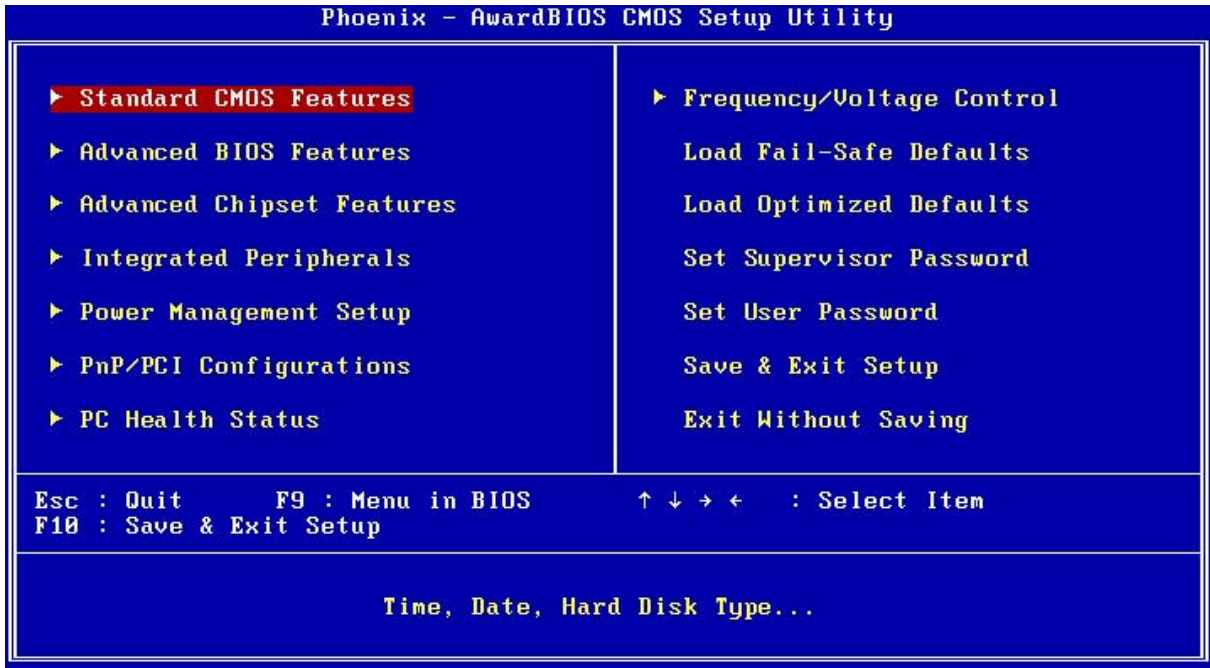
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Phoenix-Award Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

↓ Enter the CMOS Setup program's main menu as follows:

- 1 Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears: "Press DEL to enter SETUP"
- 2 Press the key to enter CMOS Setup program. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

In the main menu, press F10 ("Save & Exit Setup) to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

3.3 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

STANDARD CMOS FEATURES:

Configure the date & time, hard disk drive type, floppy disk drive type, primary display type and more

ADVANCED BIOS FEATURES:

Configure advanced system options such as enabling/disabling cache memory and shadow RAM

ADVANCED CHIPSET FEATURES:

Configure advanced chipset register options such DRAM timing

INTEGRATED PERIPHERALS:

Configure onboard I/O functions

POWER MANAGEMENT SETUP:

Configure power management features such as timer selects

PNP/PCI CONFIGURATION:

Configure Plug & Play IRQ assignments and PCI slots

PC HEALTH STATUS:

Configure the CPU speed and, if the optional Winbond W83627HF system monitor IC is installed, view system information

LOAD FAIL-SAFE DEFAULT:

Loads BIOS default values. Use this option as diagnostic aid if your system behaves erratically

LOAD OPTIMIZED DEFAULTS:

Loads optimized BIOS settings

SET SUPERVISORS & USER PASSWORD:

Configure the system so that a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter the COS Setup main menu, but you can not enter other menus in the CMOS Setup program.

SAVE & EXIT SETUP:

Save changes of values to CMOS and exit the CMOS setup program

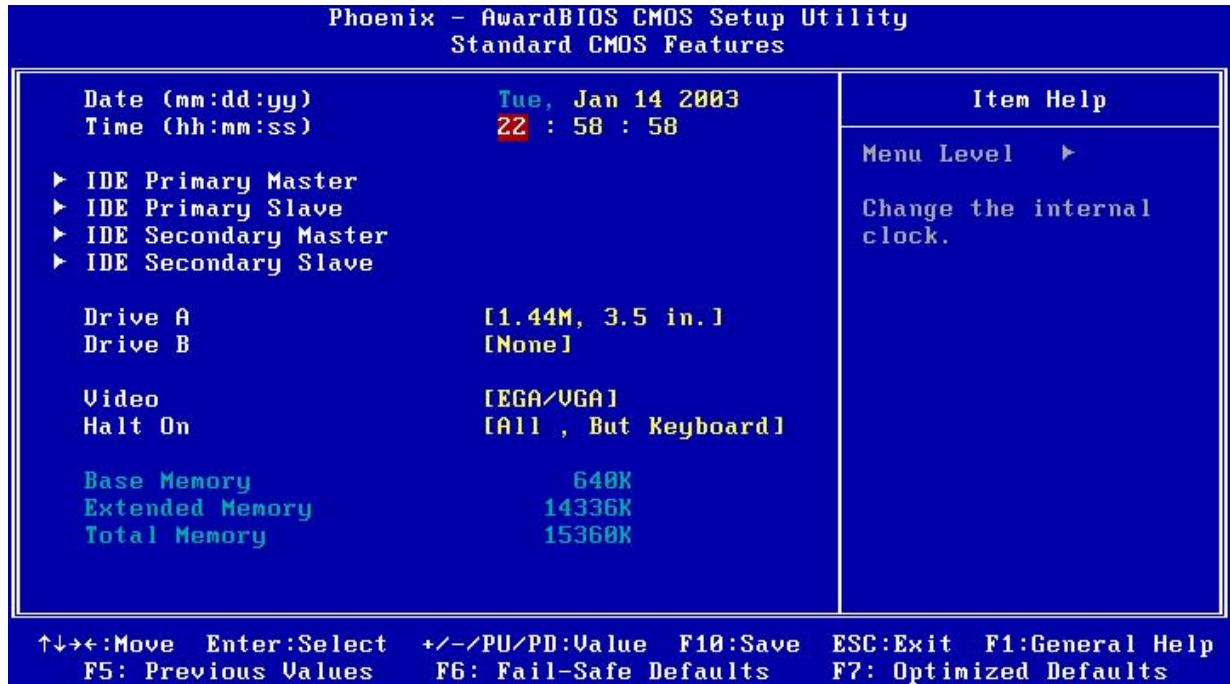
EXIT WITHOUT SAVING:

Abandon all CMOS changes and exit the CMOS setup program

3.4 Standard CMOS Features Setup

↓ Use the Standard CMOS Setup option as follows:

- 1 Choose "Standard CMOS Features" from the main menu. The following screen appears:
- 2 Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.



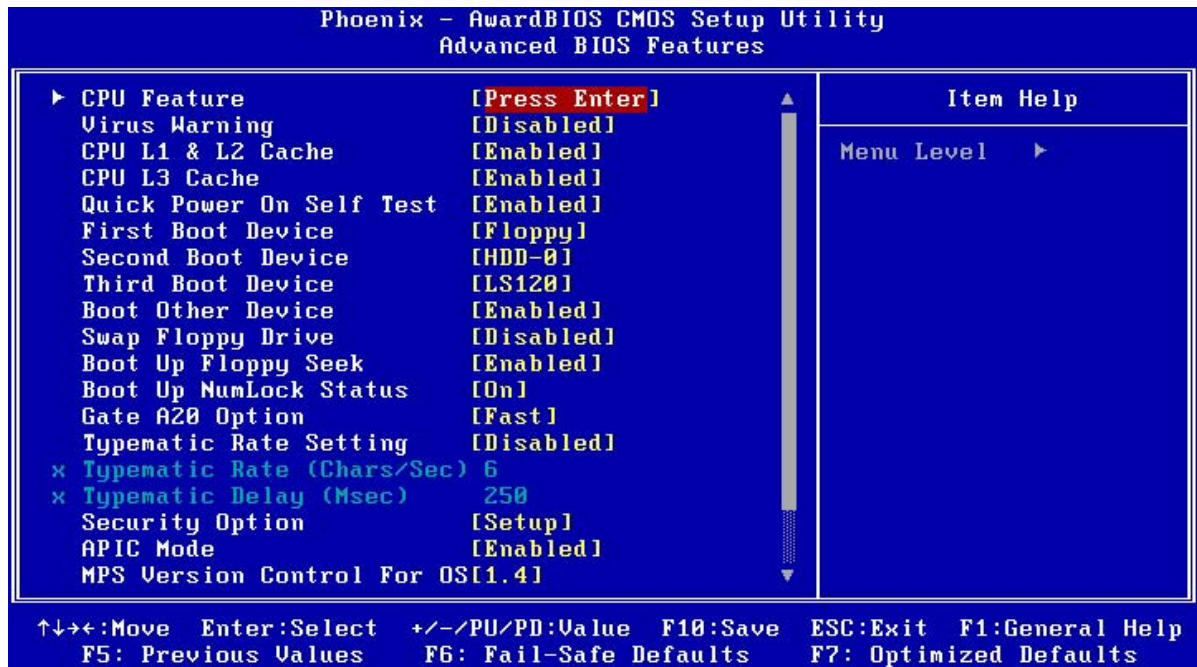
| Option | Description |
|------------------------|---|
| Date (mm:dd:yy) | Type the current date |
| Time (hour:min:sec) | Type the current time (24-hour clock) |
| Hard Disks | Choose from "Auto", "User", or "None" If your drive is not one of the predefined types, choose "User" and enter the following drive specifications: Cylinders, heads, Wpcom, L-Zone, sectors, and mode Consult the documentation received with the drive for the values that will give you optimum performance. |
| Video | Choose: EGA/VGA CGA 40 CGA 80 Mono |
| Halt On | Controls whether the system stops in case of an error detected during power up. Choose: All Errors No Errors All, But Keyboard (Default) All, But Diskette All, But Disk/Key |

3. After you have finished with the Standard CMOS Features program, press the <ESC> key to return to the main menu.

3.5 Advanced BIOS Features Setup

↓ Use the Advanced BIOS Features Setup option as follows:

1. Choose “Advanced BIOS Features Setup” from the main menu. The following screen appears:



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDN keys. Press the <F1> “Help” key for information on the available options:

| Option | Description |
|--------------------------------|--|
| Virus Warning | When enabled, any attempt to write to the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus-free, bootable floppy disk to reboot and clean your system. The default setting is Disabled. |
| CPU L1 & L2 Cache | This field is used to speed up the memory access. Enable the external cache for better performance. |
| First/Second/Third Boot Device | The BIOS attempts to load the operating system from the devices in the sequence selected in these items. Choose: HDD-0, LS-120, USB FDD..... |

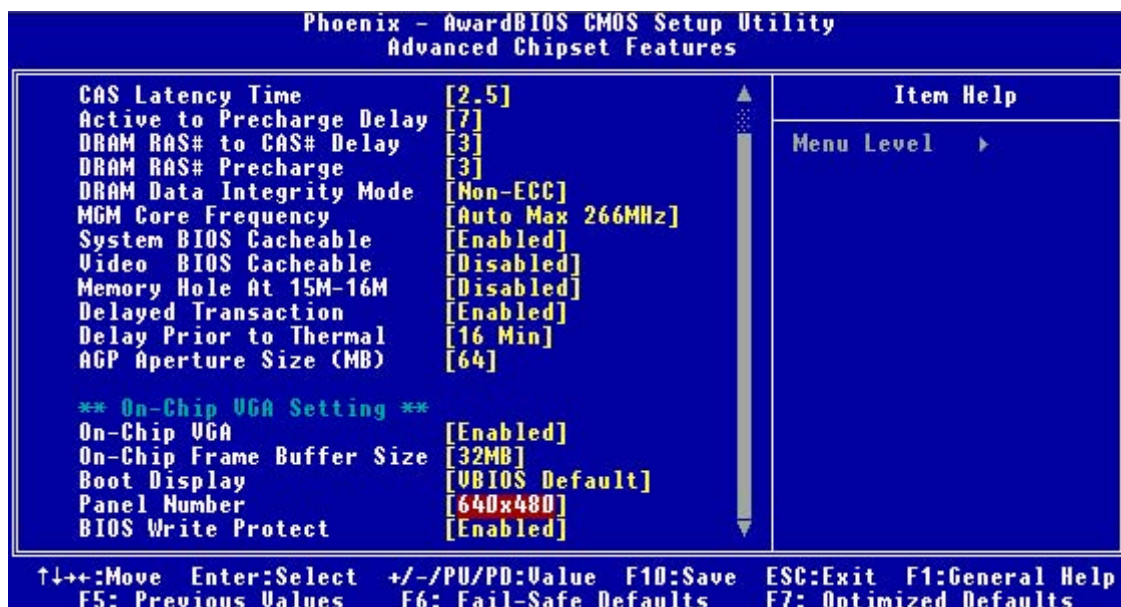
| | |
|---------------------------|---|
| Boot Other Device | Enable other device bootable not selected above. |
| OS Select for DRAM > 64MB | Set to OS/2 if your system is using OS/2 and has a memory size of more than 64MB |
| Quick Power On Self-Test: | Will enable you to cancel some checking item and increase the speed when you open the machine. |
| Gate A20 Option | This entry allows you to select how gate A20 is handled. Gate A20 is a device use to address memory above 1MB. Initially, gate A20 was handled via the keyboard controller. |

Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20. *Fast*. The chipset controls Gate A20. *Normal* [o mom the keyboard controls Gate A20. APIC Mode Leave this field in its default setting, must be Enabled.

3.6 Advanced Chipset Features Setup

↓ Use the Advanced Chipset Features Setup option as follows:

- 1 Choose "Advanced Chipset Features Setup" from the main menu. The following screen appears;
- 2 Move between items and select values by using the arrow keys. Modify the selected fields using the PnUP/PgDN Keys. For information on the various options, press



| | |
|---|---|
| <p><F1> key . Option DRAM Timing Control</p> | <p>Description This field is used to select the timing of the DRAM.</p> <p>DRAM timing Configure X – CAS Latency TimeX – Active to Precharge Delay < By SPD> 2 5</p> |
|---|---|

| | |
|----------------------------------|--|
| | <p>X- DRAM RAS # to CAS# Delay 2 X – DRAM RAS# Precharge 2</p> |
| <p>DRAM Data Integrity Mode</p> | <p>Choose ECC or Non –ECC</p> |
| <p>CAS Latency Time</p> | <p>This field is used to select the local memory clock periods.</p> |
| <p>Active to Precharge Delay</p> | <p>Provide parameter of SDRAM for reference.</p> |
| <p>DRAM RAS# to CAS# Delay</p> | <p>Control the command order and start the cycle time for read/write command by SDRAM</p> |
| <p>DRAM RAS# Precharge</p> | <p>This field controls RAS# precharge (in local memory clocks)</p> |
| <p>System BIOS Cacheable</p> | <p>Choose Enabled or Disabled. When enabled, caching of the system BIOS at F0000h-FFFFFh, enhancing system performance. However, if any program writes to this memory area, a system error may result.</p> |
| <p>Video BIOS Cacheable</p> | <p>Choose Enabled or Disabled. When Enable this option to allow caching of the Video BIOS.</p> |
| <p>Memory Hole At 15M-16M</p> | <p>Choose Enabled or Disabled. You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it can not be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirement.</p> |
| <p>AGP Aperture Size (MB)</p> | <p>This field is relevant to the memory-mapped graphics data of the AGP card installed in your system. Leave this in its default setting.</p> |
| <p>On-Chip VGA</p> | <p>On-Chip VGA function. Default is enabled.</p> |

| | |
|---------------------------|--|
| On-Chip Frame Buffer Size | The system memory size of On-Chip VGA. Default is 32MB. |
| Boot Display | Select CRT, LFP, CRT+LFP display. |
| Panel Number | Select the panel resolution. Choose 640*480, 800*600 or 1024*768 LVDS. |
| BIOS Write Protect | Select enabled or disabled. When enabled, the BIOS can be updated. |

3.7 Integrated Peripherals

↓ **Use the Integrated Peripherals Setup option as follows:**

- 1 Choose "Integrated Peripherals Setup" from the main menu. The following screen appears:
- 2 Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

| Option | Description |
|-----------------------|---|
| Onboard Device | |
| USB Controller | Enabled the onboard USB. You can further configure the onboard USB in the “USB 2.0 controller” and ‘USB Keyboard Support” fields. Disables the onboard USB. |
| USB2.0 Controller | If you are using USB2.0, this field must be set to Enabled. |
| AC97 Audio | Auto Select this option when using the onboard audio codec. |

Disabled Selects this option when using a PCI sound card.

Super IO Device

| | |
|-----------------------|--|
| Power ON Function | Password, Hot Key, Any Key, Button Only, Keyboard 98 |
| KB Power ON Password | User define |
| Hot KEY Power ON | User define |
| Onboard Serial Port 1 | 3F8/IRQ4、2F8/IRQ3、3E8/IRQ4、2E8/IRQ3、AUTO |
| Onboard Serial Port 2 | 3F8/IRQ4、2F8/IRQ3、3E8/IRQ4、2E8/IRQ3、AUTO |
| Onboard Parallel Port | 37//IRQ7、278/IRQ5、3BC/IRQ7 |
| Parallel Port Mode | SPP/EPP/ECP/ECP+EPP |
| EPP Mode Select | EPP1.7 |
| ECP Mode Use DMA | 3 |
| Power After PWR-Fail | Off/On/Former-Sts |

POWER ON Function

The power button will not function once a keyboard password has been set in this field. You must type the correct password to power-on the system. If you forgot the password, turn off the system and remove the battery. Wait for a few seconds and install it back before powering-on the system.

IR Mode Select

This field is used to select the type of IrDA standard supported by your IrDA device. For better transmission of data, your IrDA peripheral device must be within a 30° angle and within a distance of 1 meter. Rx/D, Tx/D Active The options are Hi, Lo; Lo, Hi; Lo, Lo; and Hi, Hi.

UR2 Duplex Mode

Half Data is completely transmitted before receiving data. Full Transmits and receives data simultaneously.

Onboard Parallel Port

378/IRQ7, 3BC/IRQ7, 278/IRQ5 Selects the I/O address and IRQ for the onboard parallel port.

Disabled Disables the onboard parallel port.

Parallel Port Mode

The options are SPP, EPP, ECP and ECP+EPP. These apply to a standard specification and will depend on the type and speed of your device. Refer to your peripheral's manual for the best option.

SPP

Allows normal speed operation but in one direction only.

ECP (Extended Capabilities Port)

Allow parallel port to operate in bidirectional modes and at a speed faster than the normal mode's data transfer rate.

EPP (Enhanced Parallel Port)

Allows bidirectional parallel ports to operate at maximum speed. If you selected EPP, the "EPP Mode Select" field is configurable. If you selected ECP, the "ECP

Mode Use DMA: field is configurable. If you selected ECP+EPP, both “EPP Mode Select: and “ECP Mode Use DMA” are configurable.

PWRON after PWR-Fail

This function allows you to setup the system whether you want restart or shut down the machine after the powers interrupt. Off: Remain system closed when you restart the power On: when restart the power it will remain the status that power is not interrupt. Former-Sts: The system will back to the status that power is not interrupt.

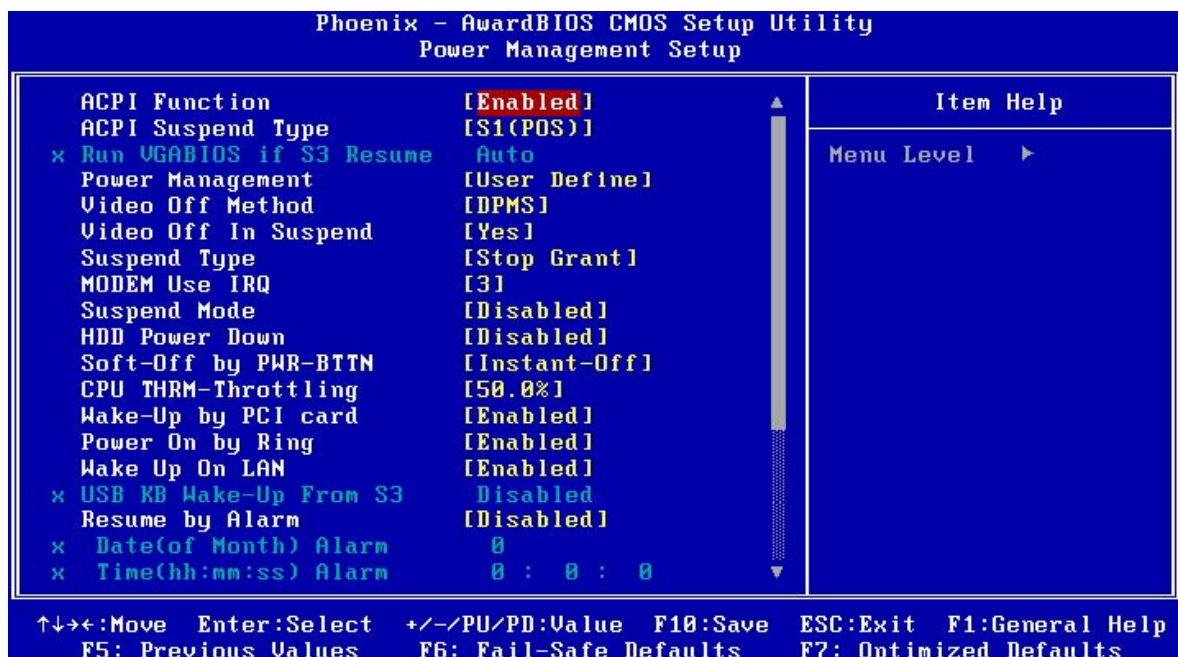
Watch Dog Timer Select You can set up the watchdog timer.

3.8 Power Management Setup

The Power Management Setup controls the board's “green” features. To save energy these features shut down the video display and hard disk drive.

↓ Use the Power Management Setup option as follows:

1. Choose “Power Management Setup” from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected field the PgUP/PgDN keys. For information on the various options, press <F1> key.

| Option | Description |
|---|--|
| ACPI Function | This function should be enabled only in operating systems that support ACPI. Currently, only Windows 98SE/2000/ME/XP supports this function. When this field is enabled, the system will ignore the settings in the "Suspend Mode" and "HDD Power Down" fields. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3 (STR)" in the field below. |
| ACPI Suspend Type | This field is used to select the type of Suspend mode. S1 (POS) Enables the Power On Suspend function. S3 (STR) Enables the Suspend to RAM function. You can further configure this function by setting. |
| The "Run VGABIOS if S3 Resume" and "USB KB Wake-up From S3" fields. Run VGABIOS if S3 Resume | When this field is set to Auto, the system will initialize the VGA BIOS when it wakes up from the S3 state. This can be configured only if the "ACPI Suspend Type" field is set to " S3 (STR)" |
| Power Management | This field allows you to select the type (or degree) of power saving by changing the length of idle time that |

| | |
|------------------|--|
| | elapses before the "Suspend Mode" and "HDD Power Down" field is activated. Min Saving Minimum power saving time for the " Suspend Mode" and "HDD Power Down" =15min. Max Saving Maximum power saving time for the "Suspend Mode" and "HDD Power Down"=1 min. User Define Allows you to set the power saving time in the "Suspend Mode" and "HDD Power Down" field. |
| Video Off Method | This determines the manner in which the monitor is blanked. V/H SYNC + Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer. |

| | |
|----------------------|---|
| Bland Screen | This option only writes blanks to the video buffer. DPMS initializes display power management signaling. Use this option if your video board supports it. Video Off In Suspend This field is used to activate the video off feature when the system enters the Suspend mode. |
| Suspend Mode | When the system enters the Suspend mode, the CPU and onboard peripherals will be shut off. |
| HDD Power Down | This is selectable only when the power management filed is set to user define. When the system enters the HDD power down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active. |
| Soft-Off by PWR-BTTN | This field allows you to select the method of powering off you system. Delay 4 sec. regardless of whether the power management function is enable or disabled, if the power button is pushed and released in less than 4 sec, the system enter the suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally "hit" or pushed the power button. Push and release again in less than 4 sec to restore. Pushing the power button for more than 4 seconds will power off the system. |
| Instant-off | Pressing and then releasing the power button at once will immediatly power off your system. |
| Resume on PCI Event | Enable this field should be set to enabled only if your PCI |

| | |
|--|--|
| | card such as LAN card or modem card uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card or PCI card will cause the system to wake up. Refer to the Disable The system will not wake up despite access to the PCI card. |
|--|--|

| | |
|-----------------|---|
| Wake up on LAN | If you are using a LAN card that supports the remote wake up function, set this field to Enabled. The will allow the network to remotely wake up a soft power down (Soft-off) PC. However, if your system is in the suspend mode, you can wake up the system only through an IRQ or DMA interrupt. |
| Resume By Alarm | Enabled when enabled, you can set the date and time you would like the soft power down (Soft-off) PC to power –on in the “Date (of Month) Alarm” and “Time (hh:mm:ss) Alarm” fields. However, if the system is accessed by incoming calls or the network (Resume On Ring/LAN) that prior to the date and time set in these fields, the system will give priority to the incoming calls or network. Disabled Disables the automatic power-on function. (Default) |

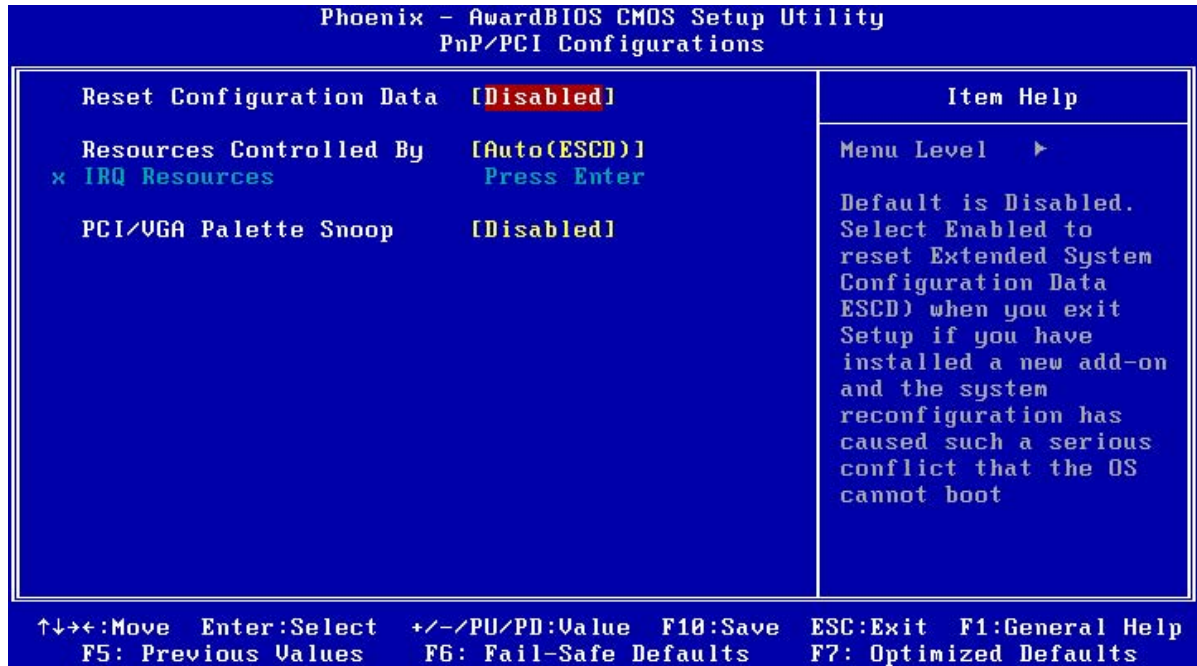
3. After you have finished with the Power Management Setup, press the <ESC> key to return to the main menu.

3.9 PNP/PCI Configuration

This option is used to configure Plug and Play assignments and route PCI interrupts to designated ISA interrupts.

↓ Use the PNP/PCI Configuration Setup option as follows:

1. Choose “PNP/PCI Configuration Setup” from the main menu, the following screen appears.



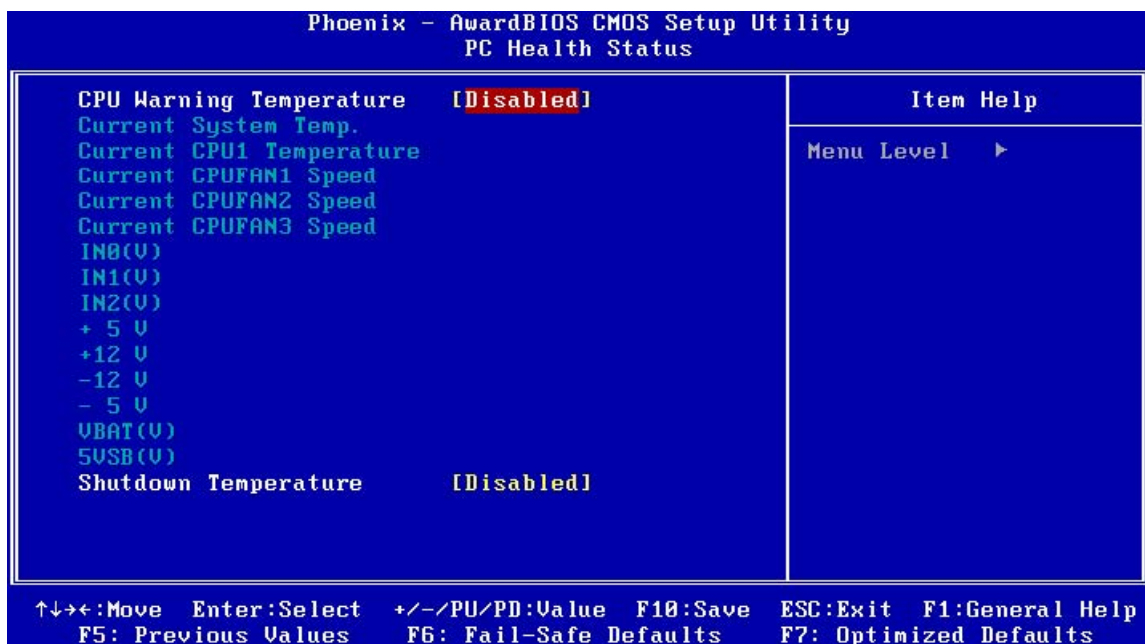
2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.

| Option | Description |
|--------------------------|---|
| PNP OS installed | NO: BIOS program will adjust all the set up by itself YES: When you install the system that support plug & play, press <YES> |
| Reset Configuration Data | Enabled The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configure data Disabled The BIOS will not reset the configuration data Resources controlled by the Award plug and play BIOS has the capability to automatically configure all of the boot and plug and play compatible devices. Auto (ESCD) The system will automatically detect the settings for you. Manual choose the specific IRQ in the " IRQ Resources" field. |
| PCI/VGA Palette Snoop | This field determines whether the MPEG ISA/VESA VGA cards a work with PCI/VGA or not Enable MPEG ISA/VESA VGA cards work with PCI/VGA Disabled MPEG ISA/VESA VGA card does not work with PCI/VGA |

3. Please press the <ESC> key to return the main menu after finishing with the PNP/PCI Configuration Setup.

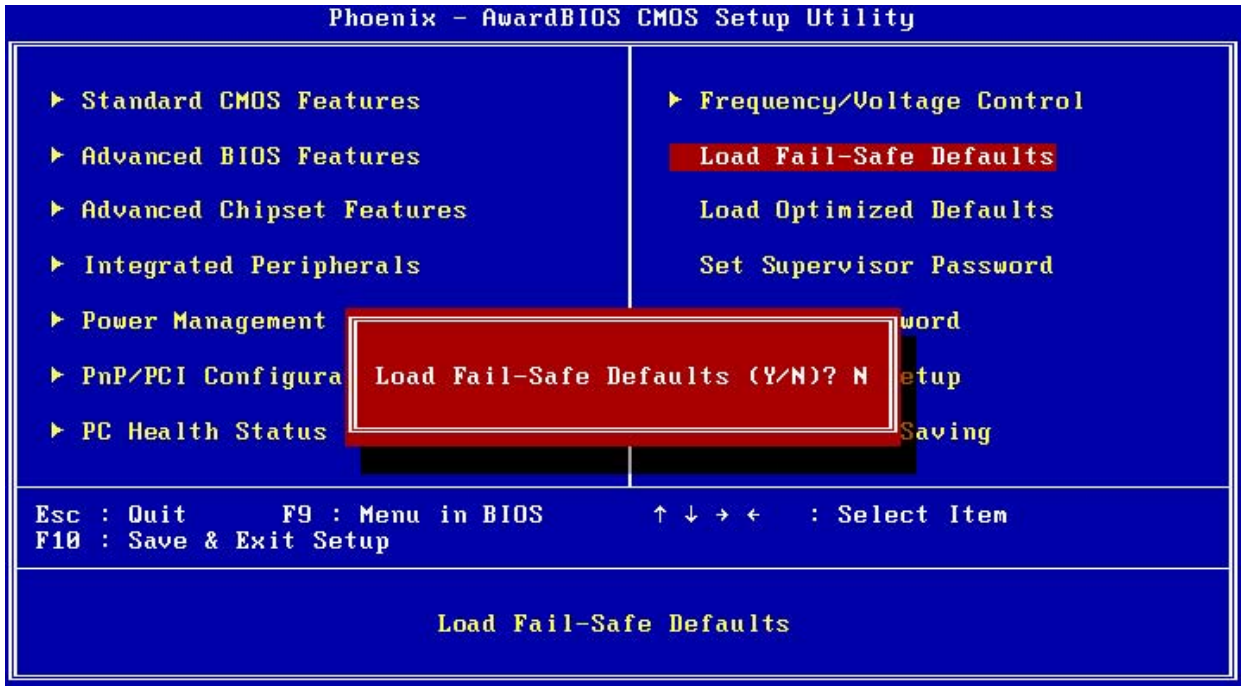
3.10 PC Health Status Configuration Setup

Choose “PC Health Status Configuration Setup” from the main menu, the following screen appears:



3.11 Load Fail-Safe Defaults

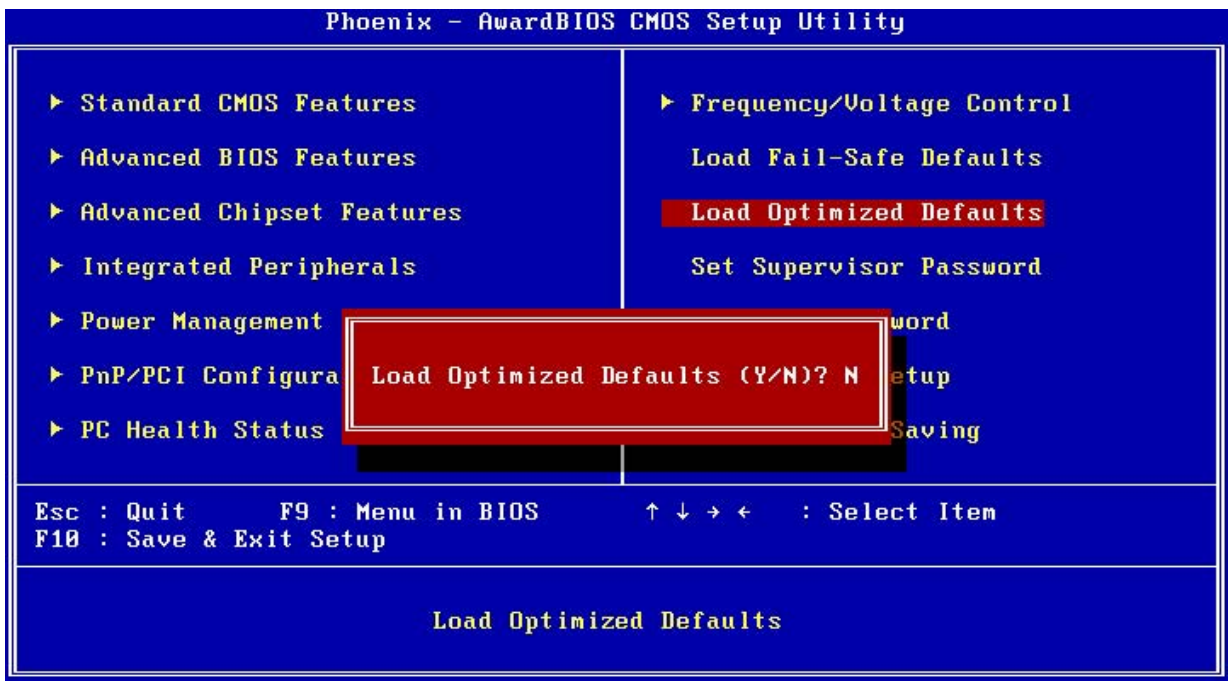
This option loads the troubleshooting default values permanently stored in the BIOS ROM. This is useful if you are having problems with the main board and need to debug or troubleshoot the system. The loaded default settings do not affect the Standard CMOS Setup screen.



To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the BIOS default values. Press the <Y> key and then press <Enter> if you want to load the BIOS default.

3.12 Load Optimized Defaults

This option loads optimized settings stored in the BIOS ROM. The auto-configured settings do not affect the Standard CMOS Setup screen.



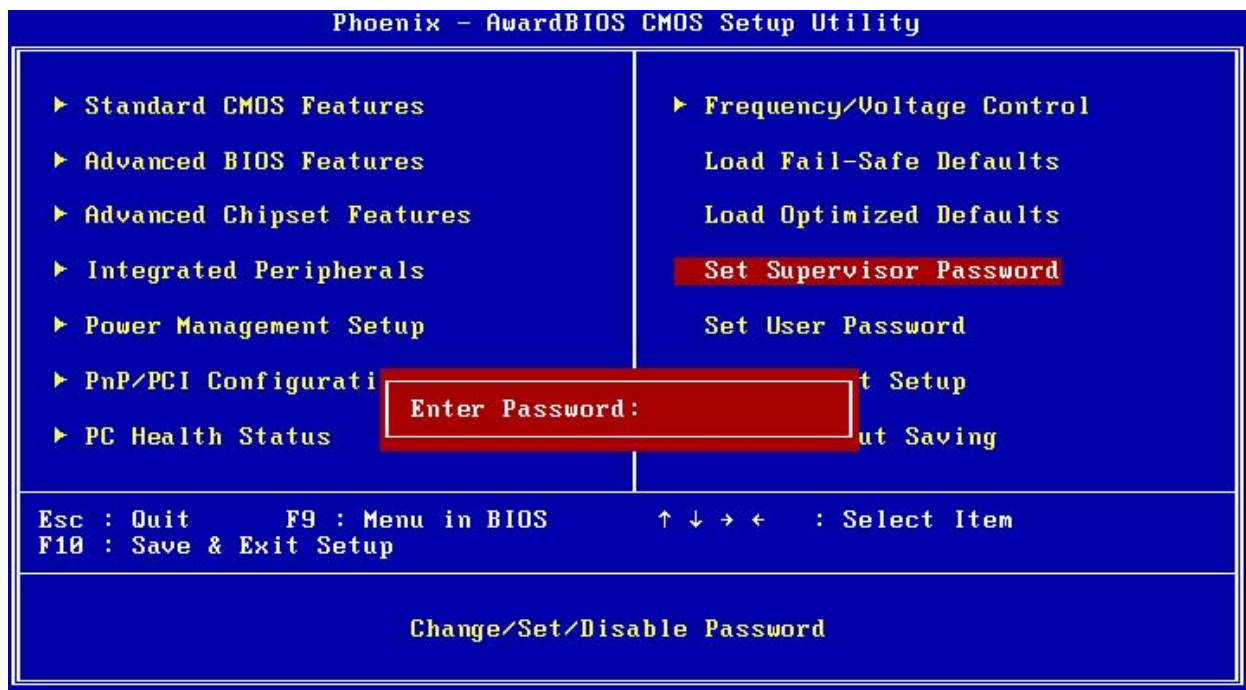
To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Optimized Default Values. Press the <Y> key and then press <Enter> if you want to load the SETUP default.

3.13 Supervisor/User Password

The password options let you prevent unauthorized system boot-up or unauthorized use of CMOS setup. The Supervisor Password allows both system and CMOS Setup program access; the User Password allows access to the system and the CMOS Setup Utility main menu.

The password functions are disabled by default. You can use these options to enable a password function or, if a password function is already enabled, change the password.

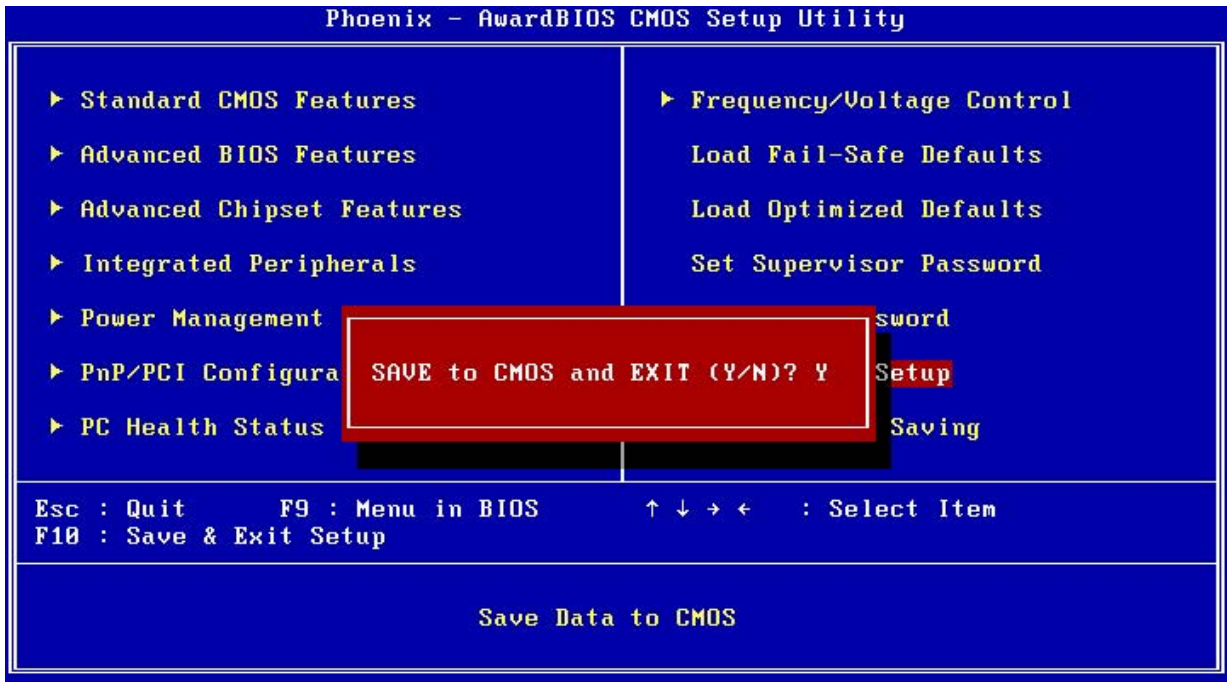
To change a password, first choose a password option from the main menu and enter the current password. Then type your new password at the prompt. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after entering the password. At the Next Prompt, confirm the new password by typing it and pressing <Enter> again.



After you use this option to enable a password function, use the “Security Option” in “BIOS Feature Setup” to specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program.

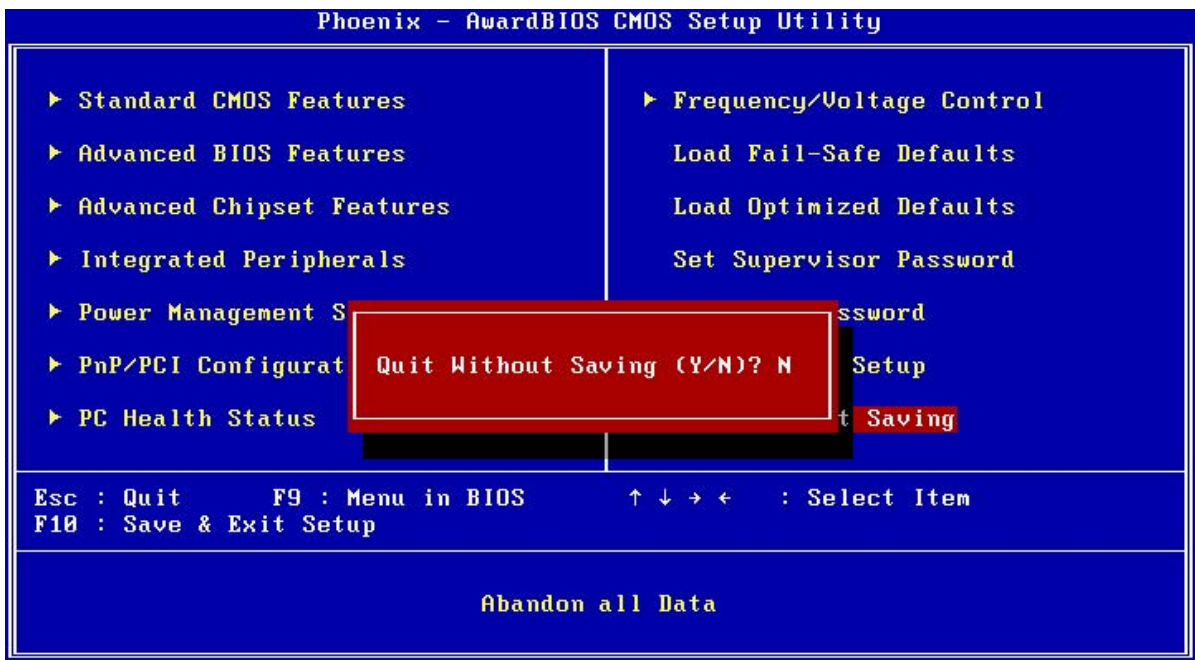
3.14 Save and Exit Setup

This function automatically saves all CMOS values before exiting Setup.



3.15 Exit Without Saving

Use this function to exit Setup without saving the CMOS value.



Chapter 4. Software & Driver Utility

The operation system and driver installation procedure must be performed first.

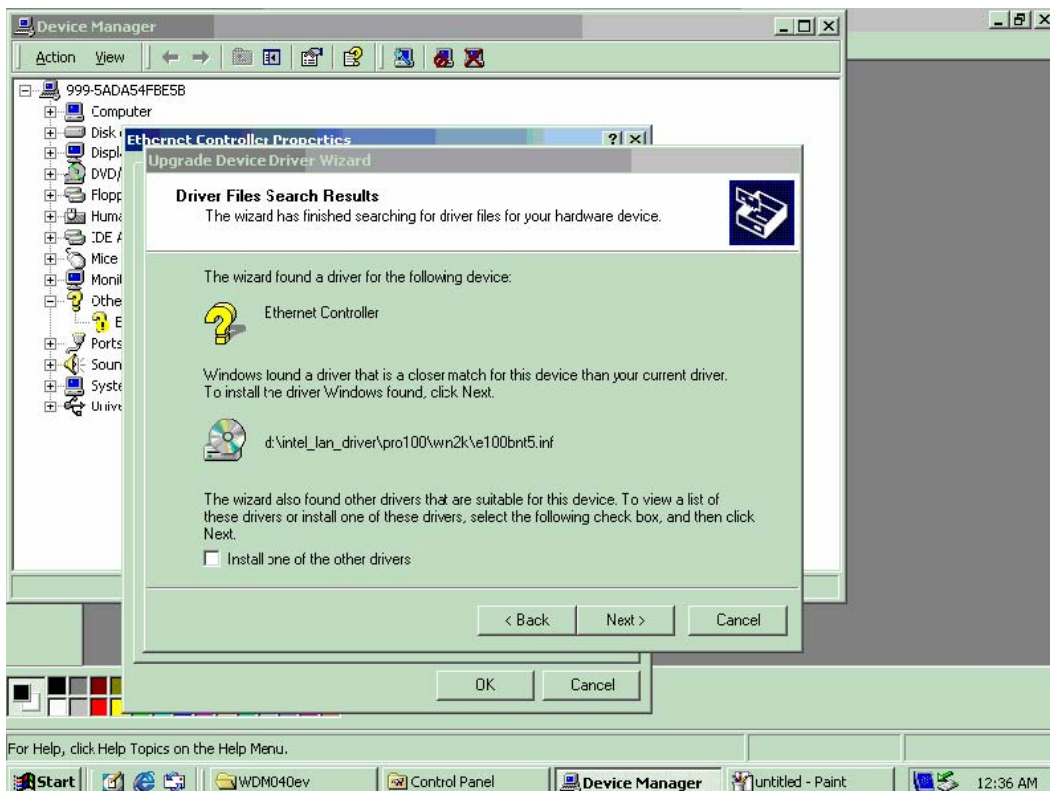
4.1 Operation System Installation

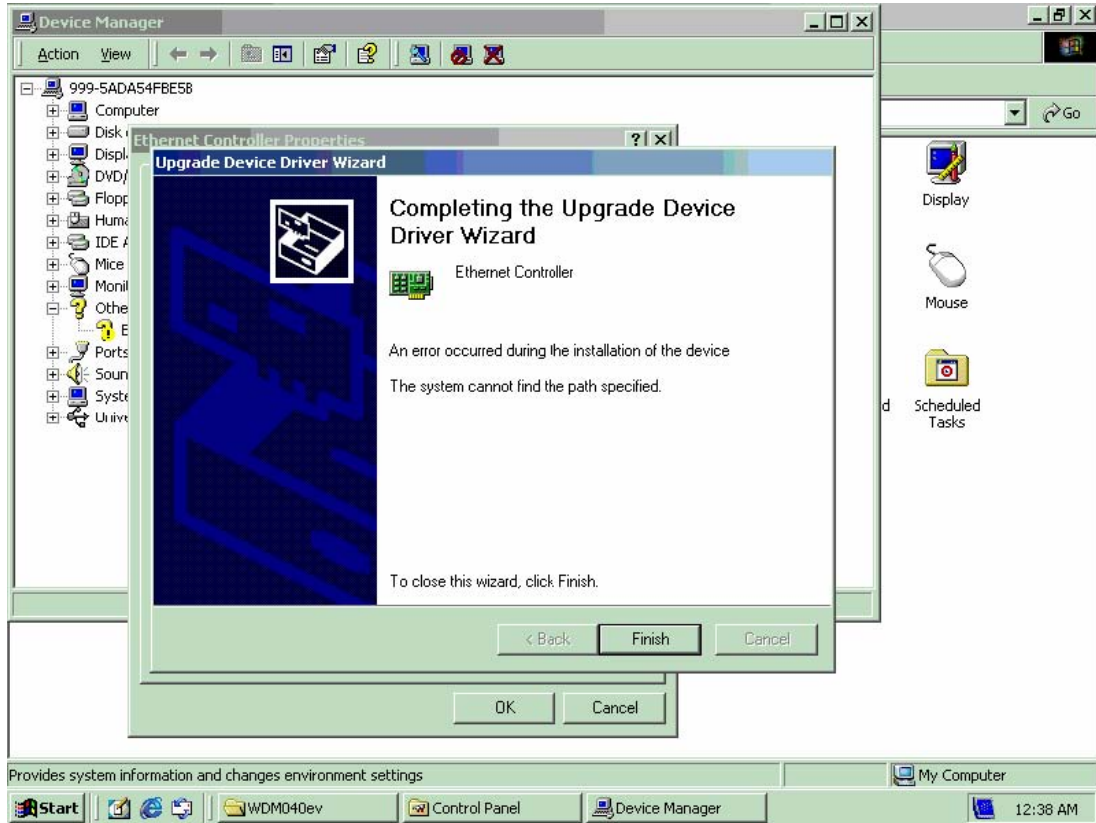
The IP-60580 supports Windows 2000 SP4, Windows XP SP2 and Linux operation system. Please install the OS first after setup the hardware.

4.2 Device Driver Installation

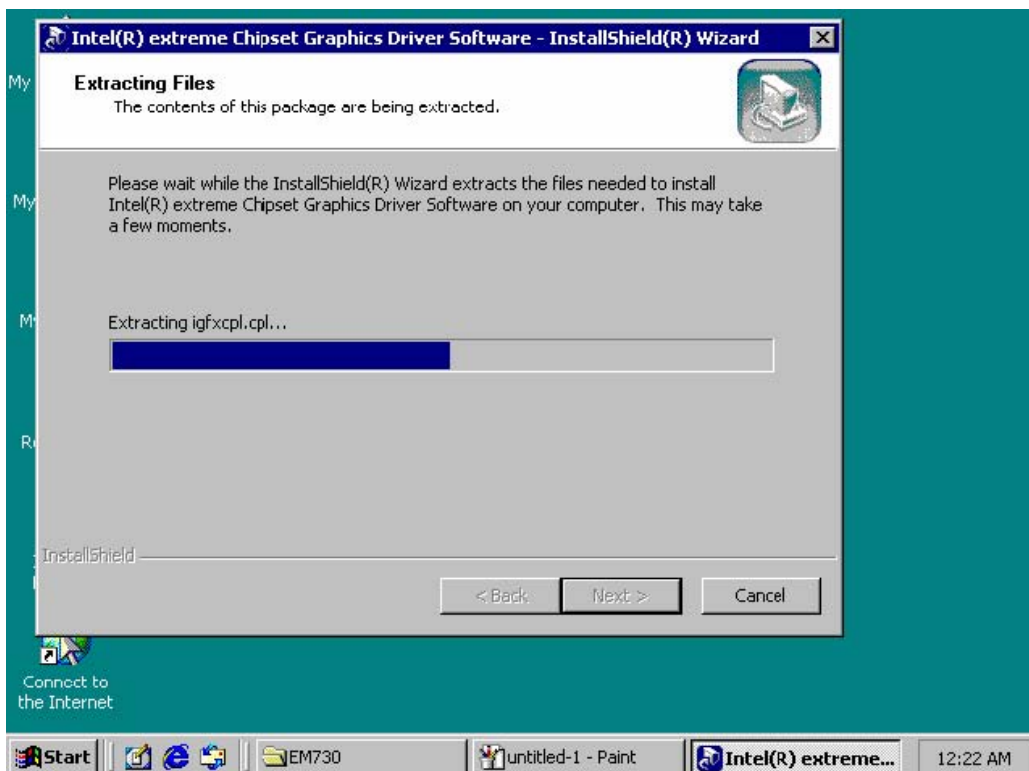
It supports one 10/100 Ethernet Controller by using Intel® 82562ET.

4.2.1. Intel 82562ET Ethernet



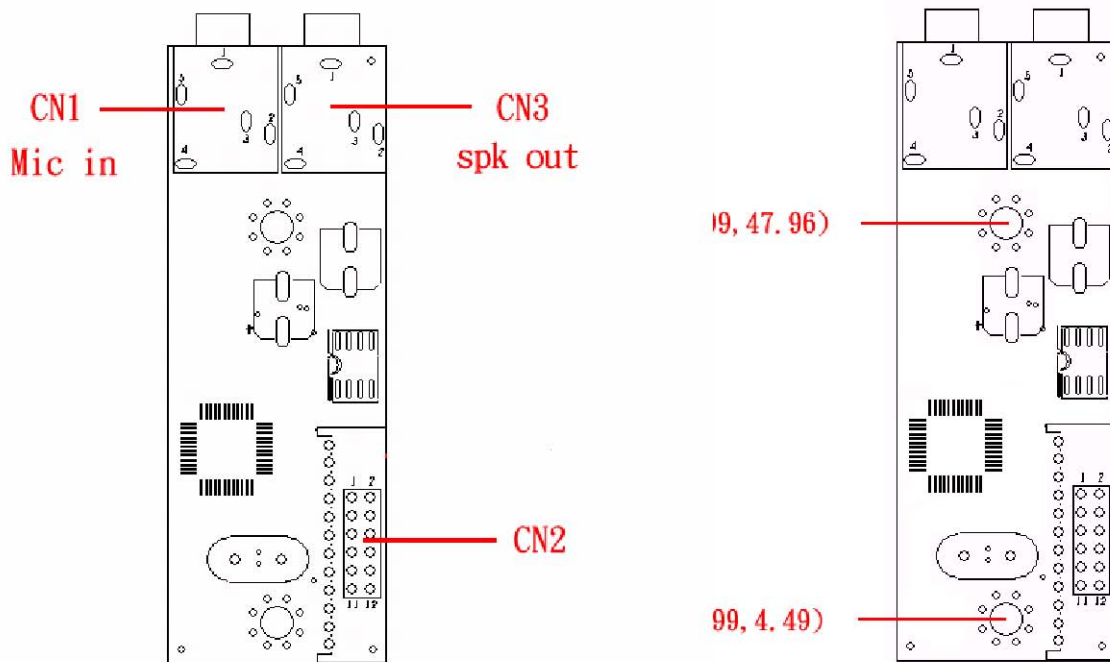


4.2.2. CRT and LVDS Driver



Appendix A: Optional Module

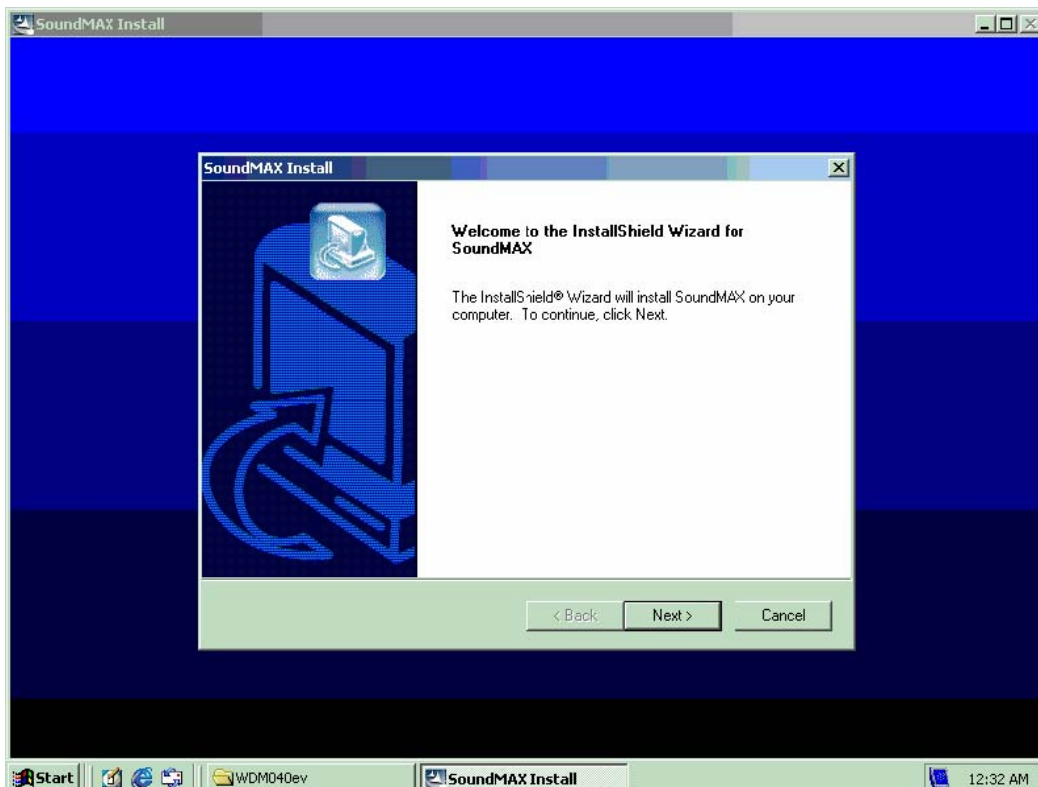
1. AC97 Audio Kit (SPK Out, MIC In)



In Millimeters
 DIMENSIONS
 L: 67.94
 W: 23.98
 h: 16.61



Install Audio Driver (need Option AW-R031 Audio Module)

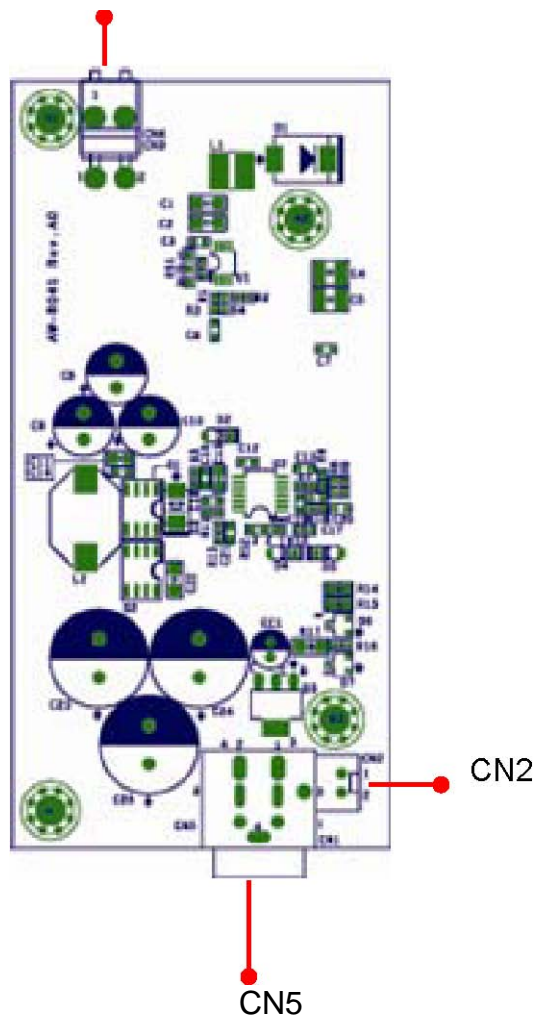


2. +12~24V Power adapter Kit

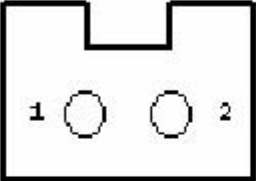
We offer the AW-R041 that is a +12V~+24V to +5V DC output adapter. If +12V~+24 power input is needed, please assemble the power cable of IP-60580 CN3 and AW-R041 CN2.

AW-R041 Layout

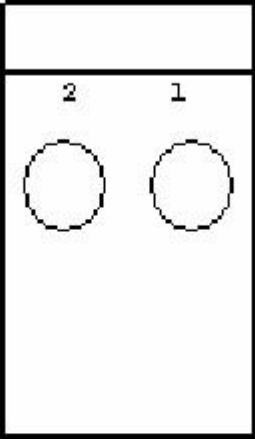
CN4



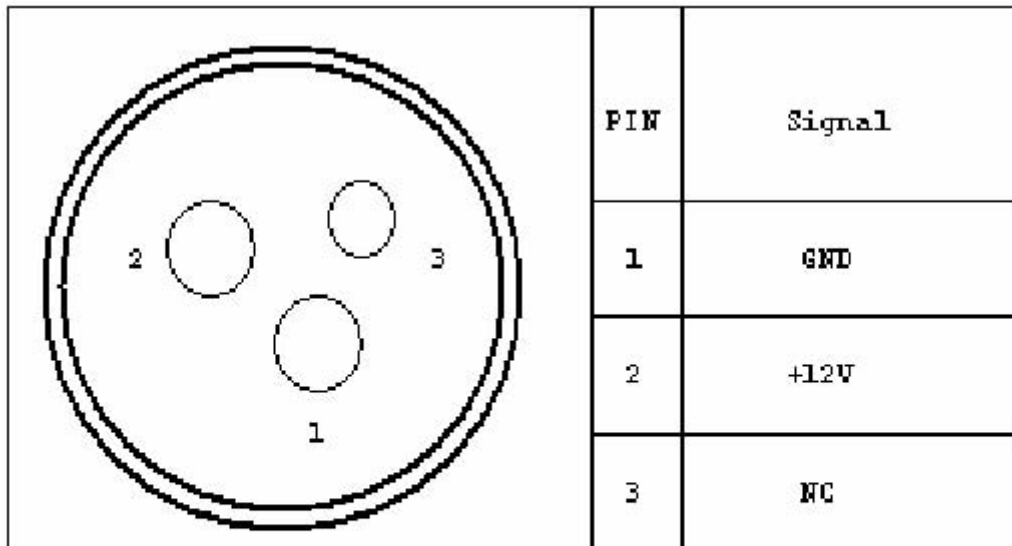
CN2: +12V Output Connector

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

CN4: +5V Output Connector

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

CN5: +12V Input Power Jack



Appendix B: Optional Cable List

| Part No. | Cable Description | IP-60580 Connector |
|--------------|-------------------------------|--------------------|
| CB-IPOW29-00 | Power cable 3.96mm to 4pin AT | CN18 |
| CB-IUSB03-00 | USB Cable 2*5 2mm | CN11 |
| CB-IOOIDE-00 | IDE 44pin Cable | CN20 |
| CB-ICOM03-00 | COM3, COM4 Cable | CN19 |
| CB-ICOM02-00 | COM2 Cable | CN17 |
| CB-ILPT01-00 | LPT Cable | CN21 |
| CB-IPS266-00 | KB/MS Cable | CN4 |



Revision History

| Version | Date | Description |
|---------|------------|---|
| Ver 1.0 | 2005/10/19 | Initial |
| Ver 1.1 | 2005/12/15 | Add VR1 explanation |
| Ver 1.2 | 2006/03/20 | Modify the BIOS setting of LVDS display & add AW-R041 power adapter description |
| Ver 1.3 | 2006/03/22 | Add mini PCI slot pin definition |