VC37/VG31

MAINBOARD MANUAL

Handling Precautions

Warning:
1. Static electricity may cause damage to the integrated circuits on the motherboard. Before handling any motherboard outside of its protective packaging, ensure that there is no static electric charge in your body.
2. There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer.
3. Discard used batteries according to the manufacturer's instructions.
4. Never run the processor without the heatsink properly and firmly attached. PERMANENT DAMAGE WILL RESULT!

Observe the following basic precautions when handling the motherboard or other computer components:

■ Wear a static wrist strap which fits around your wrist and is connected to a natural earth ground.

■ Touch a grounded or anti-static surface or a metal fixture such as a water pipe.

■ Avoid contacting the components on add-on cards, motherboards, and modules with the *golden fingers* connectors plugged into the expansion slot. It is best to handle system components by their mounting brackets.

The above methods prevent static build-up and cause it to be discharged properly.

Trademark

All trademarks mentioned in this manual are registered properly of the respective owners.

Handling Precautions

This manual may not, in whole or in part, be photocopied, reproduced, transcribed, translated, or transmitted in whatever form without the written consent of the manufacturer, except for copies retained by the purchaser for personal archival purposes.

Table of Contents

Chapter 3   BIOS Setup

Overview

The new microATX 1stMainboard® VC37/VG31 supports a full range of the latest generation Intel® Pentium®4 CPUs. The leading edge chipset Intel® 845GL GMCH (VC37) / 845G GMCH (VG31) was designed for coworking with Pentium® 4 in the mPGA478 CPU socket based on VRM 9.0 spec. and 400 MHz (VC37) / 533 MHz (VG31) FSB. Being built by the leading edge technology, the Intel Pentium® 4 processors provide a significant performance over previous Pentium® III processors. Onboard two DDR SDRAM sockets support DDR200/266 SDRAM for up to 2GB memory capacity. The ICH4 brings the ATA100 IDE performance and its high-speed interface further ensures that data transfer speeds are improved, especially for six USB 2.0 peripheral devices. The VC37 also features onboard audio with either 2-channel or 5.1-channel. The GMCH allows the board to connect with a flat panel monitor or a TV-out display via an ADD (AGP Digital Display) card that installed on the onboard DVO (VC37) / DVO & AGP (VG31) slot.

The board comes with a versatile range of I/O features such as 2 serial ports (one of them is a pinheader), 1 parallel port, 1 optional LAN, 1 PS/2 mouse and keyboard connector, 6 USB ports (two of them are in one pinheader), 1 media connector (front audio pinheader, Line-in, Line-out and Mic-in). Ample expansion is available through 3 PCI, 1 DVO (on VC37, it is optional) and 1 optional CNR (Communicating and Networking Riser) slot to meet the requirement for fully making use of the P4 CPU benefits in internet applicatons, video/3D graphics performance, and so forth.

Other key features are Remote On/Off, Auto Power Failure Recovery, integrated temperature monitoring and system fan control. Included also is a CD Pro with enhanced drivers.

Package Checklist

If you discover any item below was damaged or lost, please contact your vendor.

☑ The mainboard ☑ This user manual

☑ One FDD cable ☑ Software Drivers

☑ One ATA/100 cable

NOTE: CD Pro that contains patch files, onboard video/audio chip drivers, related online help and other useful information can be found in your mainboard package.

Please install it right after your Windows operating system installation is done. Place your CD Pro in the drive, an operating menu will appears in your monitor. Please select *Auto Installation*. It will automatically detect which software tools (patch files, drivers) that the mainboard needs. Press **OK** button to go through the whole installation procedure in a very straight forward and easy way. It also provides you with a custom way to select wanted patch files and software drivers that for onboard chips use. **The top menu of the CD Pro lists all the functions that allowed by this board.**

NOTE: CD Pro only includes USB 2.0 Beta driver. For a user who installs Windows XP/2000, Please link to Microsoft Windows Update (http://windowsupdate.microsoft.com/) to download the lastest USB 2.0 Driver. For a user who installs Windows 98SE/ME, please contact your vender for support.

The VC37/VG31 Mainboard

Optional CNR Slot

3 PCI Slots

Optional DVO (VC37)/ AGP/DVO (VG31) Slot

Integrated I/O Connectors

Intel 82801DB (ICH4)

Intel 845G (VG31)/ 845GL (VC37)

Primary/ Secondary IDE Connector

2 DDR DIMM Sockets

478-Pin CPU Socket

Floppy Drive Connector
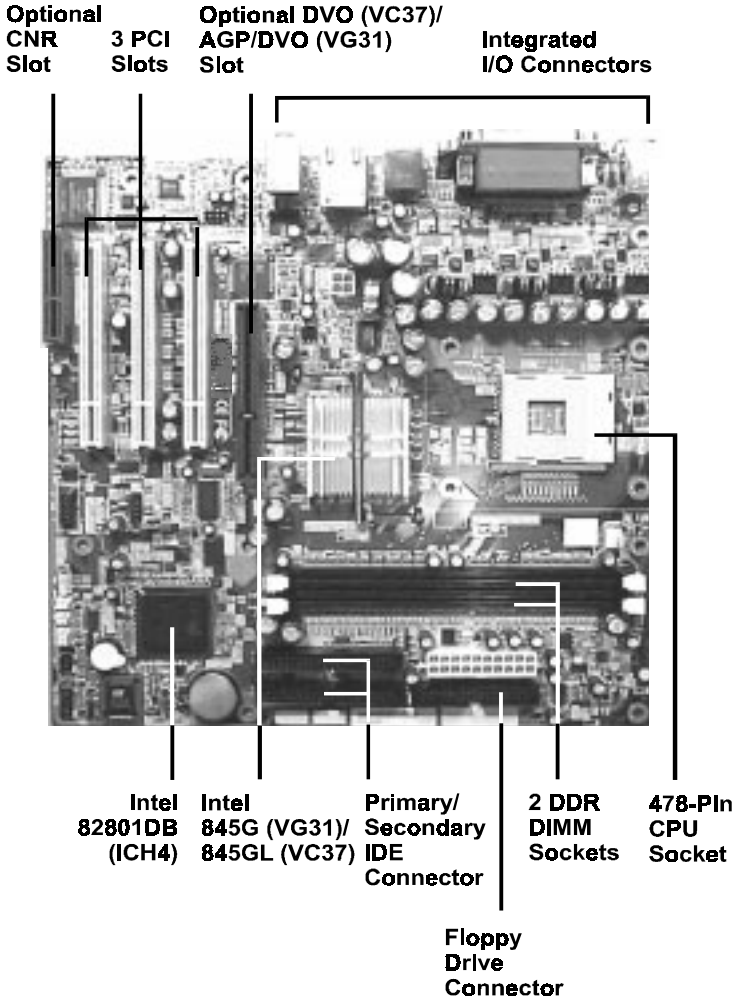
Main Features

■ Easy Installation

BIOS with support for Plug and Play, auto detection of IDE hard drives, LS-120 drives, IDE ZIP drives, Windows 98SE, Windows ME, Windows NT, Windows 2000, Windows XP, and OS/2.

■ Leading Edge Chipset

Intel® 845G (VG31)/845GL (VC37) supports integrated graphic (UMA only) features that of 32 bpp true color and flat panel monitors and TV-out display via 3rd party DVO devices. The ICH4 provides SMBus 2.0 support, 20-bit AC97 audio, 6 USB 2.0 ports, and Ultra ATA100 IDE performance between mainboard and peripheral devices.

■ Versatile Main Memory Support

Accepts up to 2 GB memory capacity via two non-ECC DDR DIMM sockets for allowing that from 64, 128, 256, 512MB with lightenning-fast DDR200/266 SDRAM. (Not support double-sided x 16 DDR DIMMs)

■ Flexible Processor Support

Onboard CPU 478-pin socket supports
 (VG31: 400/533MHz FSB) / (VC37: 400MHz FSB only)
Intel® Celeron CPU: 1.7/1.8/1.9 GHz (FSB 400MHz)
Intel® P4 CPU: 1.4 - 2.0 GHz (FSB 400MHz)and up*
Intel® P4 CPU: 1.6/1.8/2.0/2.26/2.4/2.53GHz (FSB 533MHz) and up*

(*: not test yet)

■ CNR (optional), AGP/DVO(optional) and PCI Expansion Slots

One optional CNR, one AGP (VG31) /one optional DVO (VC37), and three PCI Bus expansion slots provided the room to install a full range of add-on cards. The optional DVO slot that on VC37 allows ADD (AGP Digital Daughtor) cards that for TV-out, DVI output.

■ Super Multi Input/Output (I/O) Support

Integrated Plug and Play multi-I/O chipset features two high-speed UART 16550 compatible serial ports, one parallel port, one game port, and one FDD connector.

■ Integrated Audio Subsystem

Onboard audio features included one SPDIF pinheader for digital audio resource output use. The onboard AC97 Codec chip has two options: either supports 2-channel or optional 5.1-channel audio feature. If the latter one onbaord, the Microphone/Line_In/Line_Out can be used as audio output.

■ Convenient Rear Panel USB Connection Support

Four USB ports integrated in the rear I/O panel and one USB pinheader for two USB ports to allow the connecting with either front or rear panel jacks in a convenient way and high-speed Plug and Play connection to the USB 2.0 compliant peripheral devices on the market.

■ Enhanced PCI Bus Master IDE Controller with Ultra DMA 33/66/100 Support

Integrated Enhanced PCI Bus Master IDE controller features two dual-channel connectors that up to four Enhanced IDE devices, including CD-ROM and Tape Backup Drives, as well as Hard Disk Drives supporting the new Ultra ATA 100 protocol. Standard PIO Mode 3, PIO Mode 4, DMA Mode 2, DMA Mode 4, UltraDMA-100 Mode 5 devices are also supported.

■ VC37 Onboard DVO Slot (optional)

The VC37 board has one optional DVO (Digital Video Output) slot for ADD (AGP Digital Display) cards that allow configurations for TV-out, DVI output. The VG31 board has one AGP slot for both ADD and AGP 4X card use.

■ LAN Support (optional)

Onboard optional LAN controller with one optional RJ45 jack integrated with other rear panel I/O connectors pvovides users with a convenient connection with network environment.

FIC Unique Innovation for Users (NOVUS) -
Enhanced Mainboard Features and System Support

■ BIOS Guardian

BIOS Guardian effectively acts as a fire-wall against viruses that can attack the BIOS while the system is running and by default is enabled.

WARNING:
BIOS Guardian must be disabled before reflash BIOS.

NOTE:
Please read Page 3-7 for detail information.

■ Easy Key

Instead of completing the multi-layered BIOS setup process these 3 Easy Key functions provide direct access to Sub-Menu when completing BIOS settings adjustments.

Easy-Keys are as follows:

Ctrl + c: To enter clock settings menu.
Ctrl + p: To load Performance Default settings and restart.
Ctrl + f: To load Fail-Safe Default settings and restart.

Installation Procedures

The mainboard has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. This chapter contains information on the various jumper settings on your mainboard.

To set up your computer, you must complete the following steps:

- n Step 1 - **Set system jumpers**
- n Step 2 - **Install memory modules**
- n Step 3 - **Install the Central Processing Unit (CPU)**
- n Step 4 - **Install expansion cards**
- n Step 5 - **Connect ribbon cables, cabinet wires, and power supply**
- n Step 6 - **Set up BIOS software**
- n Step 7 - **Install supporting software tools**

WARNING: Excessive torque may damage the mainboard. When using an electric screwdriver on the mainboard, make sure that the torque is set to the allowable range of 5.0 ~ 8.0kg/cm.

Mainboard components contain very delicate Integrated Circuit (IC) chips. To prevent static electricity from harming any of the sensitive components, you should follow the following precautions whenever working on the computer:

1. Unplug the computer when working on the inside.
2. Hold components by the edges and try not to touch the IC chips, leads, or circuitry.
3. Wear an anti-static wrist strap which fits around the wrist.
4. Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are separated from the system.

Quick Reference (from Page 2-2 to 2-4)
Mainboard Layout
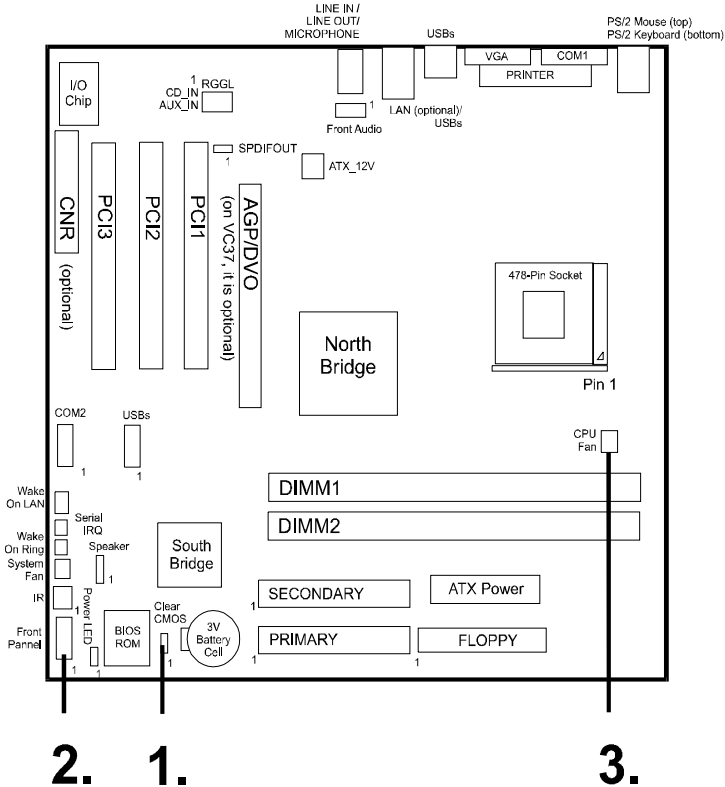
* **When link to Line_Out jack, please use a speaker that with amplifier.**

* **Connector Serial IRQ is for system integration use.**

1). Clear CMOS

JP3
(Clear CMOS)

1 □ 1 □

Enable
(Clear CMOS)

Disable
(Default)
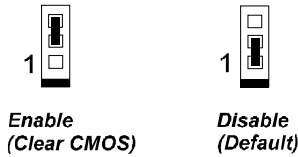
2). Front Panel Block Cable Connection

IR
(Intel spec.)

IRRX □ □ IRTX
GND □ □ VCC
□ NC
2 1

F_PNL
(Intel spec.)
9
□
(4) (1)
(3) (2)
+ +
2 1

PW_LED
(Power LED, 2/3 pins)
GND   3 pins
GND   2 pins
Power LED
1

SPK
(Speaker)
VCC
GND
GND
Speaker+
1
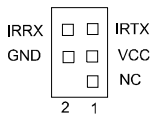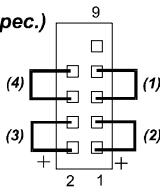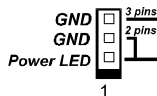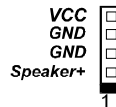
(4). **Power Button**   (1). **Reset Button**

(3). **Dual Power LED**   (2). **HDD LED**
(If use dual power LED,
green: Pin2, yellow: Pin4;
otherwise, Pin2 is positive,
Pin4 is negative.)

2 - 3

3). CPU Fan Installation

This connector is linked to the CPU fan. When the system is in some power saving mode, the CPU fan will turn off; when it reverts back to full on mode, the fan will turn back on. Without sufficient air circulation, the CPU may overheat resulting in damage to both the CPU and the mainboard.

Damage may occur to the mainboard and/or the CPU fan if these pins are used incorrectly. These are not jumpers, do not place jumper caps over these pins.

1). Set System Jumpers

Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. A **1** is written besides pin 1 on jumpers with three pins. To **set** a jumper, a black cap containing metal contacts is placed over the jumper pin/s according to the required configuration. A jumper is said to be **shorted** when the black cap has been placed on one or two of its pins.

> **NOTE:** Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.

Clear CMOS: JP3

The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data: (1) Turn off your computer (2) Place the jumper cap onto the pinpair 2-3 at least 6 seconds to enable CMOS clearance (3) Place the jumper cap onto the pinpair 1-2 to disable the effect of CMOS clearance (4) Turn on your computer until CMOS checksum error appears (5) Hold down the **Delete** key when boots (6) Enter the BIOS Setup to re-enter user preferences.

Enable
(Clear CMOS)

Disable
(Default)
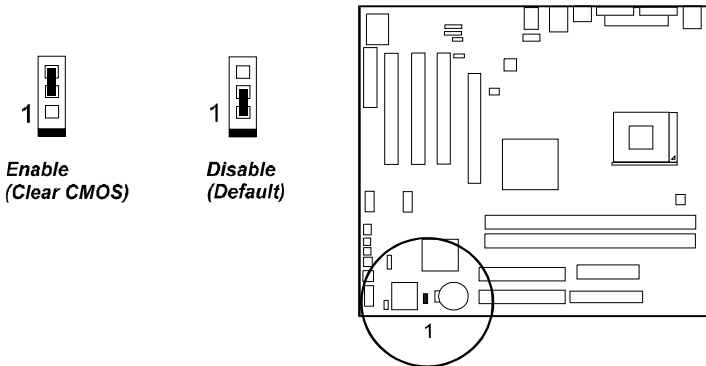
2). Install Memory Modules

1. Locate the DIMM slots on the mainboard.
2. Install the DIMM straight down into the DIMM slot using both hands.
3. The clip on both ends of the DIMM slot will close up to hold the DIMM in place when the DIMM reaches the slot bottom.
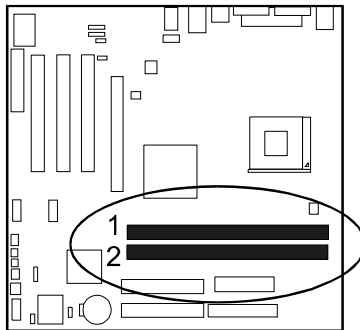
Press the clips with both hands to remove the DIMM.

NOTE:

Owing to the core chip specification, the board supports 2 DDR DIMMs, single-sided and/or double-sided **but not** double-sided x 16 DDR DIMMs.

It allows DDR 200/266 unregistered 184-pin **non-ECC** DDR SDRAM DIMMs.

3). Install the CPU

The mainboard has built-in Switching Voltage Regulator to support CPU Vcore autodetection. That is, It has the ability to detect and recognize the CPU voltage, clock, ratio and enables users to set up the CPU frequency from the BIOS Setup Screen. Users can adjust the frequency through Frequency / Voltage Control of the BIOS Setup Screen.
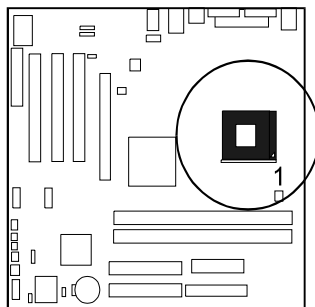
When you install your CPU on this mainboard, please use a power supply that designed and manufactured only for CPU use. Your CPU fansink combined with its retention module must be completely closed and firmly attached on the top of the processor.

To install the CPU, do the following:
1. Lift the lever on the side of the CPU socket.
2. Handle the chip by its edges and try not to touch any of the pins.
3. Place the CPU in the socket. Do not force the chip. The CPU should slide easily into the socket.
4. Swing the lever to the down position to lock the CPU in place.
5. Place the cooling fan with heatsink on top of the installed CPU.

NOTE: Users The CPU installing procedures should be:
1. Insert the CPU (with its fansink and retention module) on the socket.
2. Connect the 20-pin plug of the power supply
3. Connect the 4-pin plug of the power supply.
To remove the processor, please do it in reverse order.

4). Install Expansion Cards

This section describes how to connect an expansion card to one of your system expansion slots. Expansion cards are printed circuit boards that, when connected to the mainboard, increase the capabilities of your system. For example, expansion cards can provide video and sound capabilities. The mainboard features one optional CNR, one AGP/DVO, and three PCI bus expansion slots.
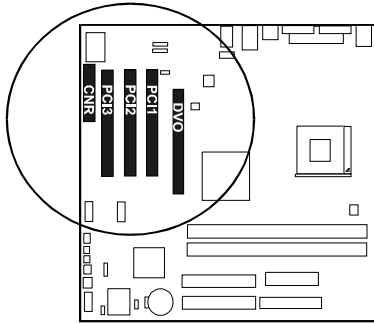
CAUTION: Make sure to unplug the power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both the mainboard and expansioncards.
Always observe static electricity precautions.
Please read Handling Precautions at the start of this manual.

To install an expansion card, follow the steps below:

1. Remove the computer chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the computer chassis. Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the computer chassis. Keep the slot cover mounting screw nearby.

3. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot.
4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this rocking" motion until the add on card is firmly seated inside the expansion slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely into the expansion slot.
6. Replace the computer system cover.
7. Setup the BIOS if necessary.
8. Install the necessary software drivers for the expansion card.

5). Connect Devices

Floppy Diskette Drive Connector

This connector provides the connection with your floppy disk drive.
The red stripe of the ribbon cable must be the same side with the Pin 1.
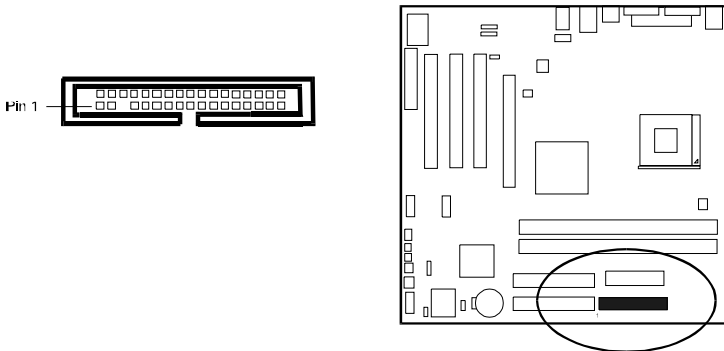
IDE Device Connectors

These two connectors are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives. The red stripe of the ribbon cable must be the same side with the Pin 1.
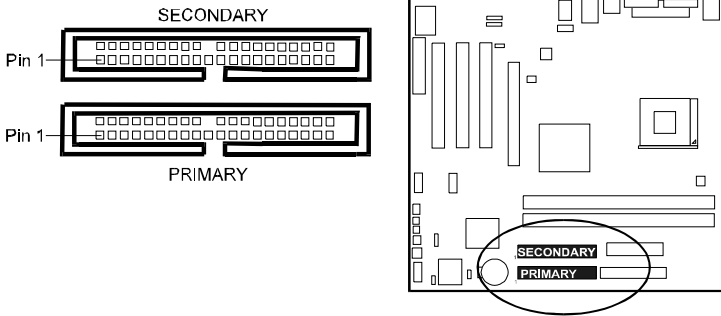
Power Connectors

The 20-pin male block connector is connected to the ATX power supply. The 4-pin male block connector is for the 12V power use. The connectors are linked with your ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.
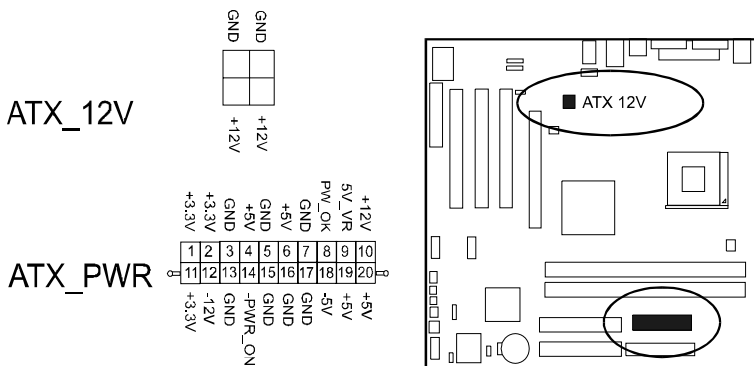
CD Audio-In Connectors

The connectors, CD_IN and AUX_IN, are for CD-ROM drive audio analog input use.
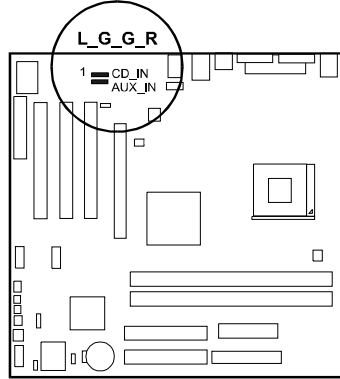
Front Panel Block, Power LED, IR, and Speaker Connector

This block connector includes the connectors for linking with Power LED (3-pin), HDD LED, power button, power/sleep/message waiting button, reset button on the front panel of the system case. Please identify polarities of plug wires for the case speaker and LEDs. Please ask vendor about this information when you buy them and install the system by yourself. The plug wires polarities of these buttons will not affect the function.

Front Panel
IR
3-Pin Power LED
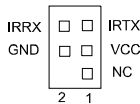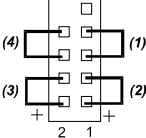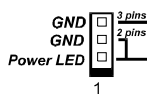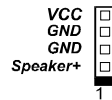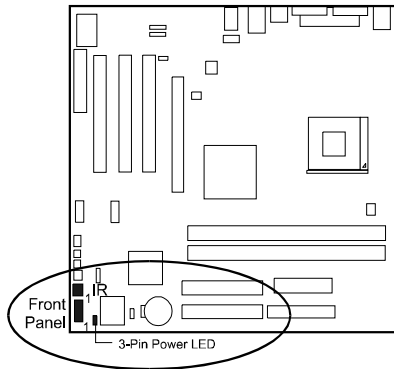
(1) Reset Switch is connected to the reset button. Push this switch to reboot the system instead of turning the power button off and on.

(2) HDD LED is connected to the IDE device indicator. This LED will blink when the hard disk drives are activated.

(3) Power (Single and Dual) /Sleep LED
Please refer to the tables below for the representations of LED states.
There is another 3-Pin Power LED connector on board for some cases that with a 3-pin plug.

Single-Color (2, 3 Pins)

LED	Meaning	State
Off	Off	S4/S5
On	Full On	S0
Flash	Sleep	S1/S3

Dual-Color

LED	Meaning	State
Off	Off	S4/S5
Green	Full On	S0
Yellow	Sleep	S1/S3

(4) Power Button is connected with power button. Push this switch allows the system to be turned on and off rather than using the power supply button.

IR is a pinheader that is used for linking with your ID device to allow transmission of data to another system that also supports the IR feature.

Speaker is connected with the case speaker.

Fan Connectors

The two connectors, CPU_FAN, SYS_FAN are linked to the CPU fan, case fan, respectively. CHIP_FAN can be used either with the case fan or North Bridge chip fan. For preventing the system and chip from overheat damage, the fans on this board will keep running when the system in suspend mode.
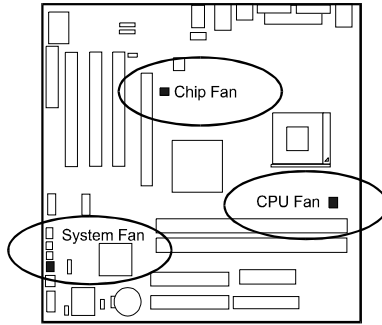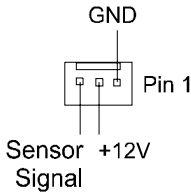
Wake-On-Lan Connector

This 3-pin connector allows the remove servers to manage the system that installed this mainboard via your network adapter which also supports WOL.
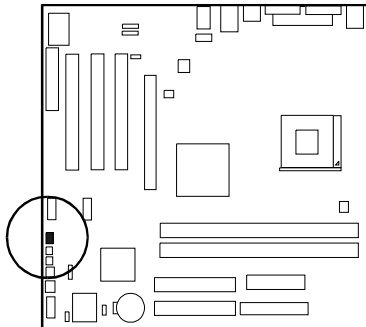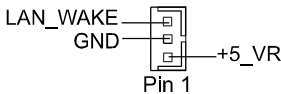
Wake-On-Ring Connector

The 2-pin connector allows you to link with your modem card which outputs a WOR singal; the system can be turned on from the power-off status by a remote phone call via the modem card.

```
GND ──┤□│
 RI ──┤□│
      Pin 1
```
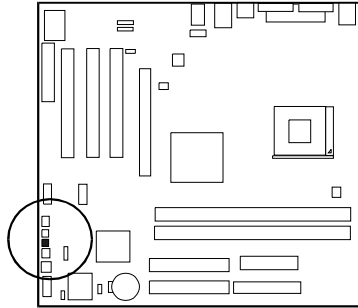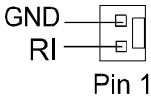
⚠ **CAUTION:** Improper orientation of SPDIF connection may cause damage of your device.

SPDIF Out Connector

The mainboard equipped one 1x3 pinheader. It is used for SPDIF digital audio output.

```
Vcc
SPDIF
GND
┌─┬─┬─┐
│□│□│□│ Pin 1
└─┴─┴─┘
```

SPDIFOUT
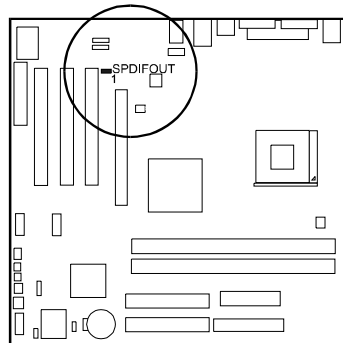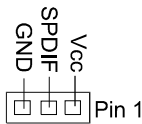
Serial IRQ Connector

This 2-pin connector is used for some system integration use.

GND
SERIRQ
Pin 1
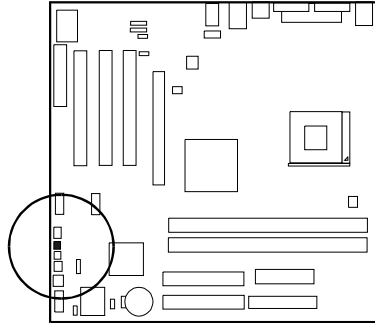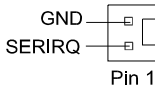
PS/2 Keyboard and Mouse Connector

These two 6-pin female (PS/2 keyboard is purple color and PS/2 mouse is green color) connectors are used for your PS/2 keyboard and PS/2 mouse.

PS/2 Mouse

PS/2 Keyboard

Reserved — Clock
Vcc — GND
Reserved — Data
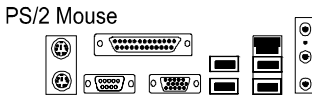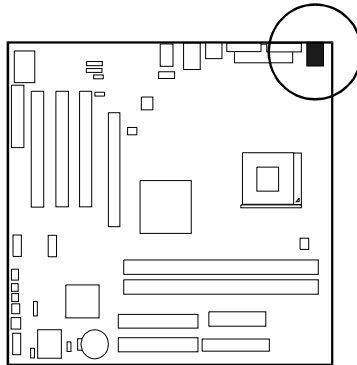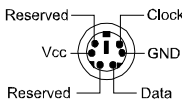
Universal Serial Bus Connectors

These two black connectors integrated on the edge of the board are used for linking with USB peripheral devices. This board also provides two extra USB ports for either linking with front or rear USB sockets of system cases. Please note that your operating system must support USB features.
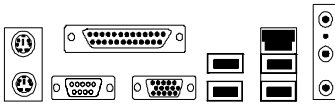
4 USBs

The figure below is the pin assignment of the USB pinheader.
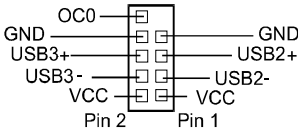
USB
(Intel Spec.)
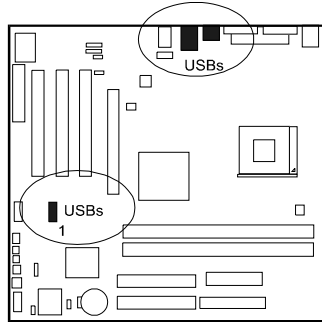
NOTE: CD Pro only includes USB 2.0 Beta driver. For a user who installs Windows XP/2000, Please link to Microsoft Windows Update (http://windowsupdate.microsoft.com/) to download the lastest USB 2.0 Driver. For a user who installs Windows 98SE/ME, please contact your vender for support.

Serial Port Connectors

COM1 (9-pin D-sub male connector with teal color) and COM2 (9-pin male connector) allow you to connect with your devices that use serial ports, such as a serial mouse or an external modem.

COM1

PIN8 - DSR		PIN9 - GND
PIN6 - RTS		PIN7 - DTR
PIN4 - CTS		PIN5 - TXD
PIN2 - RI		PIN3 - RXD
	2 1	PIN1 - DCD
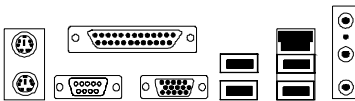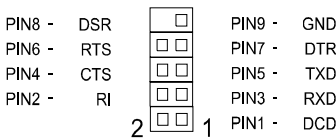
COM2
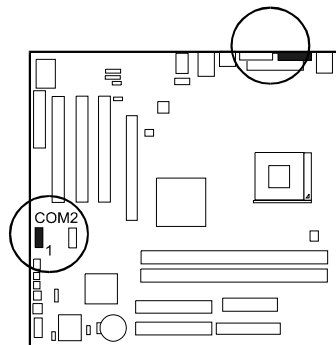
Printer Connector

This 25-pin D-Sub female burgundy-colored connector is attached to your printer.
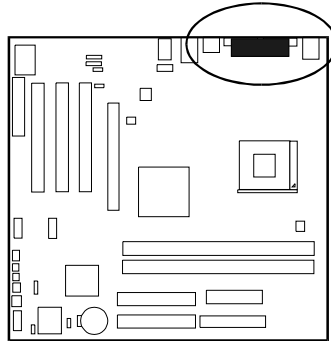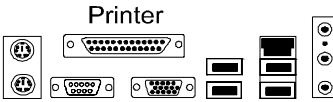
Audio I/O Jacks

LINE_OUT (lime) can be connected to headphones or preferably powered speakers. LINE_IN (light blue) allows tape players or other audio sources to be recorded by your computer or played through the LINE_OUT. MIC_IN (pink) allows microphones to be connected for audio input.
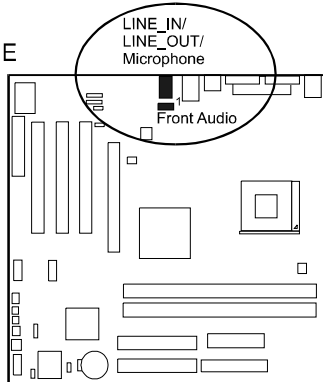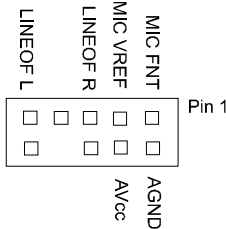
NOTE: If your mainboard has 5.1-channel audio option, the LINE_IN, LINE_OUT, MICROPHONE jacks will be the 5.1-channel audio output.

Optional LAN Connector

The optional RJ45 LAN jack is used for the LAN cable plug.
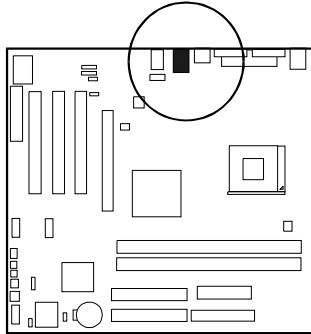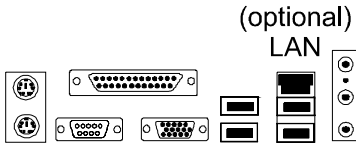
This Page Left Blank for Note

**Chapter 2
Installation
Procedures**

BIOS Setup

The mainboard comes with the chip that Award BIOS that contains the ROM Setup information of your system. (This chip serves as an interface between the processor and the rest of the mainboard components.) This section explains the information contained in the Setup program and tells you how to modify the settings according to your system configuration.

CMOS Setup Utility

```
Phoenix - AwardBIOS CMOS Setup Utility

  ► Standard CMOS Features        ► Frequency/Voltage Control
  ► Advanced BIOS Features          Load Fail-Safe Defaults
  ► Advanced Chipset Features       Load Optimized Defaults
  ► Integrated Peripherals          Set Supervisor Password
  ► Power Management Setup          Set User Password
  ► PnP/PCI Configurations          Save & Exit Setup
  ► PC Health Status               Exit Without Saving

  Esc :  Quit                      ↑ ↓  → ←  : Select Item
  F10 :  Save & Exit Setup

                 Time, Date, Hard Disk Type ...
```

The Setup utility program allows updates to the mainboard configuration settings. The BIOS setup values will be saved in the CMOS. It is executed when the user changes system configuration; user changes system backup battery; or the system detects a configuration error and asks the user to run the Setup program. Use the arrow keys to select and press **Enter** to run the selected program.

Standard CMOS Setup

```
           CMOS Setup Utility - Copyright (c) 1984-2000 Award Software
                          Standard CMOS Features

   Date  (mm:dd:yy)      Fri.,  March 22   2002         Item Help
   Time  (hh:mm:ss)      16 :  3  :  57
                                               Menu Level  ►
  ► IDE Primary Master
  ► IDE Primary Slave                          Change the day, month,
  ► IDE Secondary Master                       year and century
  ► IDE Secondary Slave

   Drive A              1.44M,  3.5 in.
   Drive B              None
   Floppy 3 Mode Support  Disabled

   Video                EGA/VGA
   Halt On              All Errors

   Base Memory            640K
   Extended Memory      48128K
   Total Memory         49152K

  ↑↓→←  Move   Enter : Select   +/-/PU/PD:Value   F10 : Save   ESC : Exit  F1 : General Help
        F5 : Previous Values       F6 : Fail-Safe Defaults     F7 : Optimized Defaults
```

The Standard CMOS Setup screen is displayed above. Each item may have
one or more option settings. The system BIOS automatically detects memory
size, thus no changes are necessary. Use the arrow keys to highlight the item
and then use **PgUp** or **PgDn** keys to select the value you want in each item.

Date

To set the date, highlight the *Date* field and then press **Page Up/Page
Down** or **+/-** keys to set the current date. Follow the month, day and year
format.

Time

To set the time, highlight the *Time* field and then press **Page Up/Page Down**
or **+/-** keys to set the current time. Follow the hour, minute, and second
format.

Hard Disks

This field records the specifications for all non-SCSI hard drives installed in the system. The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks, the first of which is the *Master* and the second is the *Slave*.

Hard Disk Configurations

Capacity:	The hard disk size. The unit is Bytes.
Cylinder:	The cylinder number of the hard disk.
Head:	The read/write head number of hard disk.
Precomp:	The cylinder number at which the disk drive changes the write current.
Landing Zone:	The cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked.
Sector:	The sector number of each track defined on the hard disk.

Drive A / Drive B

This field records the types of floppy drives installed in the system. To enter the configuration value for a particular drive, highlight its corresponding field and then select the drive type using the **left-** or **right-arrow** key.

Floppy 3 Mode Support

This is a Japanese standard floppy type drive. The standard stores 1.2MB in a 3.5 inch diskette.

Video

Set this field to the type of video display card installed in the system.

Halt On

This field determines which types of errors will cause the system to halt.

Advanced BIOS Features

```
            Phoenix - AwardBIOS CMOS Setup Utility
                    Advanced BIOS Features

   Virus Warning                Disabled  │        Item Help
   CPU L1 & L2 Cache            Enabled   │
   Quick Power On Self Test     Enabled   │   Menu Level  ►
 ► Hard Disk Boot Priority      Press Enter │
   First Boot Device            Floppy    │   Allows you to choose
   Second Boot Device           CDROM     │   the VIRUS warning
   Third Boot Device            Hard Disk │   feature for IDE Hard
   Boot Other Device            Enabled   │   Disk boot sector
   Swap Floppy Seek             Disabled  │   protection. If this
   Boot Up Floppy Seek          Enabled   │   function is enabled
   Boot Up NumLock Status       On        │   and someone attempt to
   Gate A20 Option              Fast      │   write data into this
   Typematic Rate Setting       Disabled  │   area, BIOS will show
 X Typematic Rate (Chars/Sec)   6         │   a warning message on
 X Typematic Delay (Msec)       250       │   screen and alarm beep
   Security Option              Setup     │
   APIC Mode                    Disabled  │
   MPS Version Control For OS   1.4       │
   OS Select For DRAM > 64MB    Non-OS2   │

 ↑↓→←  Move   Enter : Select   +/-/PU/PD:Value  F10 : Save  ESC : Exit  F1 : General Help
        F5 : Previous Values     F6 : Fail-Safe Defaults    F7 : Optimized Defaults
```

Virus Warning
This feature allows users to enable the computer virus warning for IDE hard disk boot sector protection. If enabled, BIOS will show a warning message and alrm will beep whenever someone write data into this area. The options are: Enabled, Disabled.

CPU L1 & L2 Cache
When enabled, improves the system performance. Disable this item when testing or trouble-shooting. The options are: Enabled, Disabled.

Quick Power On Self Test
When enabled, allows the BIOS to bypass the extensive memory test. The options are: Enabled, Disabled.

Hard Disk Boot Priority
This feature will auto detect all hard disks of bootable device on the system. It also allows users to select hard disk device booting priority.

First/Second/Third Boot Device
This feature allows user to select the boot device priority. The options are: Floppy, LS120, Hard Disk, CDROM, ZIP100, LAN, Disabled.

Boot Other Device

This feature allows user to select the boot device priority.
The options are: Enabled, Disabled.

Swap Floppy Drive

Allows you to switch the order in which the operating system accesses the floppy drives during boot up.
The options are: Enabled, Disabled.

Boot Up Floppy Seek

When enabled, assigns the BIOS to perform floppy diskette drive tests by issuing the time-consuming seek commands.
The options are: Enabled, Disabled.

Boot Up Numlock Status

When set to On, allows the BIOS to automatically enable the Num Lock Function when the system boots up. The options are: On, Off.

Gate A20 Option

When set at Fast, allows a faster access response under Protected mode.
The options are: Fast, Normal.

Typematic Rate Setting

The term typematic means that when a keyboard key is held down, the character is repeatedly entered until the key is released.
The options are: Disabled, Enabled.

Typematic Rate (Chars/Sec)

This feature is available only if the above item, Typematic Rate Setting, is set at Enabled. Sets the rate of a character repeat when the key is held down. The options are: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

This feature is available only if the item, Typematic Rate Setting, is set at Enabled. Sets the delay time before a character is repeated.
The options are: 250, 500, 750, 1000 millisecond.

Chapter 3
BIOS Setup

Security Option

Allows you to set the security level of the system.
The options are: Setup, System.

APIC Mode

Allows you to decide if the system enters the APIC (Advanced Programmable Interrupt Controller) mode or not for more IRQs can be released.
The options are: Enabled, Disabled.

MPS Version Control For OS

When two CPUs onboard (not this board) this feature allows you to select MPS (Multi-Processor Spec.) version control for OS when logo test executes. The options are: 1.1, 1.4.

OS Select For DRAM > 64MB

If your operating system (OS) is OS/2, select the option OS2. Otherwise, stay with the default setting Non-OS2.
The options are: Non-OS2, OS2.

HDD S.M.A.R.T. Capability

S.M.A.R.T. stands for Self-Monitoring and Analysis Reporting Technology which allows your hard disk drive to report any read/write errors and issues a warning with LDCM installed.
The options are: Disabled, Enabled.

Report No FDD For WIN 95

When the field under the Standard CMOS Setup Menu for Drive A and/or Drive B is set at None, users must set this field is set at Yes for it to function properly. Otherwise, set at No, even if field for Drive A and/or Drive B is set at None, system will still detect and recognize of a floppy drive(s).
The options are: Yes, No.

BIOS Guardian

It allows the system to prevent computer viruses. Users will need to disable it to update BIOS. The options are: Enabled, Disabled.

NOTE: Please disable this BIOS feature about BIOS Guardian before you start to reflash BIOS.

BIOS Guardian and Reflash BIOS

BIOS Guardian by default is enabled, thus effectively acts as a firewall against viruses that can attack the BIOS while the system is running. It must be disabled before reflash BIOS.

The steps below show you how to off and on BIOS Guardian when reflash BIOS:

1. Press **Del** key while booting. Go to *CMOS Setup Utility* menu.
2. Go to *Advanced BIOS Features* submenu.
3. Set the feature *BIOS Guardian* at Disabled.
4. Save the setting and exit. The system restarts.
5. POST screen holds. A message about BIOS Guardian shows.
6. Press Space bar.
7. Reflash BIOS. Restart the system after complete it.
8. POST screen holds. A message about BIOS Guardian shows.
9. Press **G** key. The feature BIOS Guardian will be enabled again.

Advanced Chipset Features
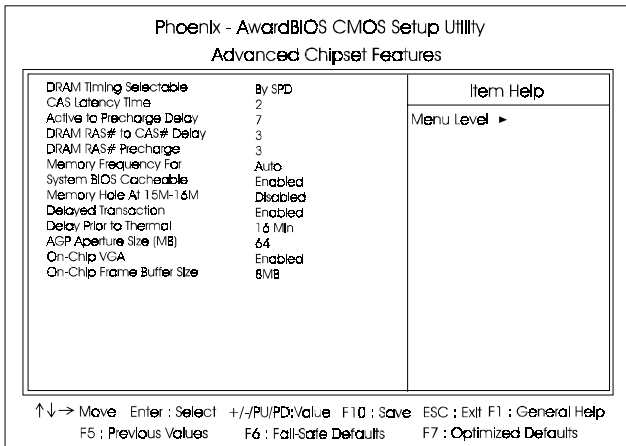
DRAM Timing Selectable

This feature allows user to select the way to set DRAM timing.
The options are: Manual, By SPD.

CAS Latency Time

This feature allows user to select the CAS latency time, when any SDRAM DIMM installed. The options are: 2, 2.5, 3.

Active to Precharge Delay

This feature allows user to set Active to Precharge Delay, if any SDRAM installed. The options are: 7, 6, 5.

DRAM RAS# to CAS# Delay

The feature allows user to set the delay time that from the DRAM RAS# active to CAS#. The options are: 3, 2.

DRAM RAS# Precharge

The feature allows user to set the DRAM RAS# Precharge Time.
The options are: 3, 2.

Memory Frequency For

This feature allows users to set the memory frequency.

System BIOS Cacheable

Setting at Enabled will allow the caching of the BIOS ROM F0000H-FFFFFH, resulting in better system performance. It may cause system error when some programd try to access the memory area.
The options are: Disabled, Enabled.

Delayed Transaction

Setting at Eanbled will abort the current PCI master cycle and to accept the new PCI master request, it reaccepts the original PCI master and returns the PCI data phase to the original PCI master. It will enhance the system performance. The options are: Disabled, Enabled.

AGP Aperature Size (MB)

It allows user to select the main memory frame size of AGP use.
The options are: 4, 8, 16, 32, 64, 128, 256.

Memory Hole At 15M-16M

When set at Enabled, the memory hole at 15MB address will be relocated to the 15M-16MB address range of the ISA or PCI cycle when the CPU accesses the 15M-16MB address area. When set at Disabled, the memory hole at 15MB address will be treated as a DRAM cycle when the CPU accesses the 15M-16MB address area. The options are: Disabled, Enabled.

Delay Prior to Thermal

It allows user to select the Delay Prior to Thermal.
The options are: 4 Min, 8 Min, 16 Min, 32 Min.

AGP Aperature Size (MB)

It allows user to select the main memory frame size of AGP use.
The options are: 4, 8, 16, 32, 64, 128, 256.

On-Chip VGA

It allows user to disable the onchip video function.
The options are: Enabled, Disabled.

On-Chip Frame Buffer Size

It allows user to select the main memory frame size of AGP use.
The options are: 1MB, 8MB.

Integrated Peripherals
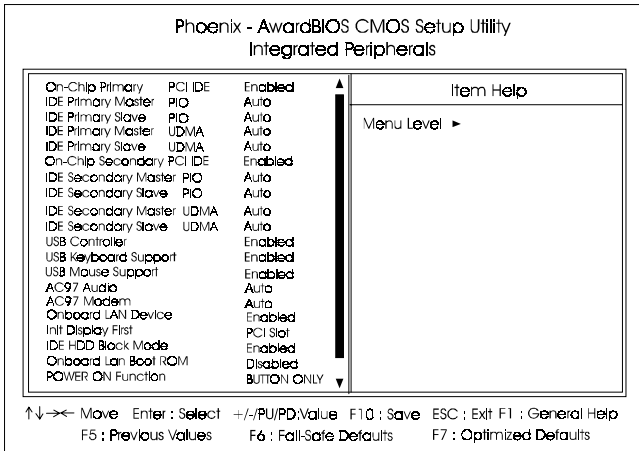
On-Chip Primary PCI IDE

When enabled, it allows you to use the onboard primary PCI IDE.
The options are: Enabled, Disabled.

IDE Primary Master PIO

Allows an automatic or a manual configuration of the PCI primary IDE hard drive (master) mode. The options are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary Slave PIO

Allows an automatic or a manual configuration of the PCI primary IDE hard drive (slave) mode. The options are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary Master UDMA

Allows an automatic configuration of the PCI primary IDE hard drive (master) mode if Ultra DMA is supported both on the motherboard and the hard disk. The options are: Auto, Disabled.

IDE Primary Slave UDMA

Allows an automatic configuration of the PCI primary IDE hard drive (slave) mode if Ultra DMA is supported both on the motherboard and the hard disk. The options are: Auto, Disabled.

On-Chip Secondary PCI IDE

When enabled, it allows you to use the onboard secondary PCI IDE. The options are: Enabled, Disabled.

IDE Secondary Master PIO

Allows an automatic or a manual configuration of the PCI secondary IDE hard drive (master) mode. The options are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Secondary Slave PIO

Allows an automatic or a manual configuration of the PCI secondary IDE hard drive (slave) mode. The options are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Secondary Master UDMA

Allows an automatic configuration of the PCI secondary IDE hard drive (master) mode if Ultra DMA is supported both on the motherboard and the hard disk. The options are: Auto, Disabled.

IDE Secondary Slave UDMA

Allows an automatic configuration of the PCI secondary IDE hard drive (slave) mode if Ultra DMA is supported both on the motherboard and the hard disk. The options are: Auto, Disabled.

USB Controller

Disable this option if you are not using the onboard USB feature. The options are: Disabled, Enabled.

USB Keyboard Support

When a USB keyboard is installed, please set at Enabled. The options are: Disabled, Enabled.

AC97 Audio

This feature auto detects if you use an AMR card that with a CODEC to enable or disable the AC97 audio function. The options are: Auto, Disabled.

AC97 Modem

This feature auto detects if you use an AMR card that with a CODEC to enable or disable the AC97 modem function. The options are: Auto, Disabled.

Onboard LAN Device

This function offers the capability of disabling the onbaord LAN device. The options are: Enabled, Disabled.

Init Display First

When you install an AGP VGA card and a PCI VGA card on the board, this feature allows you to select the first initiation of the monitor display from which card. The options are: PCI Slot, AGP.

IDE HDD Block Mode

When enabled, the system executes read/write requests to hard disk in block mode. The options are: Enabled, Disabled.

Onboard Lan Boot Rom

It allows users to decide whether to invoke the boot ROM of the onboard Lan chip. The options are: Enabled, Disabled.

Onboard Lan Device

This feature allows users to enable or disable the onboard Lan device.
The options are: Enabled, Disabled.

Onboard Lan Boot ROM

This feature allows users to enable or disable the onboard Lan boot ROM
to boot system. The options are: Enabled, Disabled.

POWER ON Function

Allows you to set the method for powering-on the system. The default
option of *BUTTON ONLY* allows system power-on using the standard
system case mounted ON/OFF switch. The option of *Keyboard 98* allows
power-on by pressing Power key on a standard 98 keyboard.
The options are: BUTTON ONLY, Keyboard 98.

Onboard FDC Controller

When enabled, the floppy diskette drive (FDD) controller is activated.
The options are: Enabled, Disabled.

Onboard Serial Port 1/2

If the serial port 1/2 uses the onboard I/O controller, you can modify your
serial port parameters. If an I/O card needs to be installed, COM3 and
COM4 may be needed. The options are: Disabled, 3F8/IRQ4, 2F8/IRQ3,
3E8/IRQ4, 2E8/IRQ3.

UART Mode Select

Allows you to select the IR modes if the serial port 2 is used as an IR port.
Set at Standard, if you use COM2 as the serial port as the serial port,
instead as an IR port. The options are: IrDA, ASKIR, Normal.

UR2 Duplex Mode

Allows you to select the IR modes.
The options are: Half, Full.

TxD , RxD Polarity Active

This feature is available only if the item, UART 2 Mode, is set at ASKIR or
HPSIR. The feature allows you to select the active signals of the reception
end and the transmission end. This is for technician use only.
The options are: Hi, Lo; Hi, Hi; Lo, Hi; Lo, Lo.

Use IR Pins

Allows you to select IR pin mode.
The options are: RxD2, TxD2; IR-Rx2Tx2.

Onboard Parallel Port

Allows you to select from a given set of parameters if the parallel port uses the onboard I/O controller.
The options are: Disabled, 378/IRQ7, 278/IRQ5, 3BC/IRQ7.

Parallel Port Mode

Allows you to connect with an advanced printer via the port mode it supports. The options are: SPP, EPP1.9+SPP, ECP, EPP1.9+ECP, PRINTER, EPP1.7+SPP, EPP1.7+ECP.

ECP Mode Use DMA

This feature allows you to select Direct Memory Access (DMA) channel.
The options are: 1, 3.

Chapter 3
BIOS Setup

Power Management Setup

```
Phoenix - AwardBIOS CMOS Setup Utility
          Power Management Setup

  ACPI Function            Enabled      ▲        Item Help
  ACPI Suspend Type        S1(POS)
X Run VGABIOS If S3 Resume Auto              Menu Level  ►
  Power Management         User Define
  Video Off Method         DPMS
  Video Off In Suspend     Yes
  Suspend Type             Stop Grant
  MODEM Use IRQ            3
  Suspend Mode             Disabled
  HDD Power Down           Disabled
  Soft-Off by PWR-BTTN     Instant-Off
  PWRON AfterPWR-Fail      Former-Sts
  CPU THRM-Throttling      50.0%
  Wake-Up by PCI card      Enabled
  Power On by Ring         Enabled
  Wake Up On LAN           Enabled
X USB KB Wake-Up From S3   Disabled
  Resume by Alarm          Disabled
X   Date (of Month) Alarm  0            ▼

↑↓→ Move  Enter : Select  +/-/PU/PD:Value  F10 : Save  ESC : Exit F1 : General Help
   F5 : Previous Values    F6 : Fail-Safe Defaults    F7 : Optimized Defaults
```

ACPI Function

This item allows you to disable the ACPI function.
The options are: Enabled, Disabled.

ACPI Suspend Type

This item allows you to select suspend mode when the system in ACPI mode. The options are: S1 (POS), S3 (PTR), S1&S3.

Run VGABIOS if S3 Resume

This feature allows you to decide the way if VGA BIOS should be called when the system resumes from S3 state if the above feature is set at S3 (PTR) or S1&S3. The options are Auto, Yes, No.

Power Management

This item allows you to adjust the power management features.
Select User Define for configuring your own power management features.
Min Saving initiates all predefined timers in their minimum values. Max Saving, on the other hand, initiates maximum values.
The options are: User Define, Min Saving, Max Saving.

Video Off Method

The option *Blank Screen* allows the BIOS to blank off screen display by turning off the red-green-blue signals. The option *V/H SYNC+Blank* allows the BIOS to blank off screen display by turning off the V-Sync and H-Sync signals sent from add-on VGA card. The option *DPMS* allows the BIOS to blank off screen display by your add-on VGA card which supports DPMS (Display Power Management Signaling function).
The options are: Blank Screen, V/H SYNC+Blank, DPMS.

Video Off In Suspend

The option allows you to select VGA status when the system goes to suspend mode. The options are: No, Yes.

Suspend Type

The option allows you to select the suspend type that supported by the chipset. The options are: Stop Grant, PwrOn Suspend.

MODEM Use IRQ

This feature allows you to select the IRQ# to meet your modem IRQ#.
The options are: NA, 3, 4, 5, 7, 9, 10, 11.

Suspend Mode

When disabled, the system will not enter Suspend mode. The specified time option defines the idle time the system takes before it enters Suspend mode. The options are: Disable, 1, 2, 4, 8, 10, 20, 30, 40 Min, 1 Hour.

HDD Power Down

The option lets the BIOS turn the HDD motor off when system is in Suspend mode. Selecting 1 Min..15 Min allows you define the HDD idle time before the HDD enters the Power Saving Mode.
The options 1 Min..15 Min will not work concurrently. When HDD is in the Power Saving Mode, any access to the HDD will wake the HDD up.
The options are: Disabled, 1 Min..15 Min.

Soft-Off by PWR-BTTN

The selection Delay 4 Sec. will allow the system shut down after 4 seconds after the power button is pressed. The selection Instant-Off will allow the system shut down immediately once the power button is pressed.
The settings are: Instant-Off, Delay 4 Sec.

**Chapter 3
BIOS Setup**

Soft-Off by PWR-BTTN

The selection Delay 4 Sec. will allow the system shut down after 4 seconds after the power button is pressed. The selection Instant-Off will allow the system shut down immediately once the power button is pressed.
The settings are: Delay 4 Sec, Instant-Off.

PWRON After PWR-Fail

When the system is shut down owing to the power failure, the system will not be back to power on by itself. This feature allows you to set the system back to which power status of the system when the system power is resumed. The options are: Former-Sts, On, Off.

CPU THRM-Throttling

When thermal override condition occur, this item allows users to determine the duty cycle of the throttling.
The options are: 87.5%, 75.0%, 62.5, 50.0%, 37.5%, 25.0%, 12.5%.

Wake-Up by PCI card

When set at Enabled, any PCI-PM event awakes the system from a PCI-PM controlled state. The options are Disabled, Enabled.

Power On by Ring

An incoming call via modem awakes the system from its soft-off mode.
The options are Disabled, Enabled.

Wake Up On LAN

When set at Enabled, an input signal comes from the other client/server on the LAN awakes the system from a soft off state if connected over LAN.
The options are Disabled, Enabled.

USB KB Wake-Up From S3

When set at Enabled, it allows USB keyboard to activate the system from ACPI S3 power saving mode. The options are Disabled, Enabled.

Resume by Alarm

This feature allows you to set the when the system being turned on from the system power-off status.
The options are: Enabled, Disabled.

Date (of Month) Alarm

This feature allows you to set the day of the alarm starts when the RTC Alarm Resume From Soft Off is set to be Enabled. The options are: 0, 1..31.

Time (hh:mm:ss) Alarm

If an ATX power supply is installed and when RTC Alarm Resume is Enabled, this feature allows you to set the time of the alarm starts when the RTC Alarm Resume From Soft Off is set to be Enabled.

The options are: hh (*hour*) - 0, 1, 2,.., 23; mm (*minute*) - 0, 1, 2,..,59; ss (*second*) - 0, 1, 2,..,59.

Primary IDE 0

When the primary master HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.

The options are: Disabled , Enabled.

Primary IDE 1

When the primary slave HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.

The options are: Disabled, Enabled.

Secondary IDE 0

When the secondary master HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.

The options are: Disabled, Enabled.

Secondary IDE 1

When the secondar slave HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.

The options are: Disabled, Enabled.

FDD, COM, LPT Port

When FDD, COM, or LPT is working, the system timer will be reloaded and the system will not be into the suspend mode.

The options are: Disabled, Enabled.

PCI PIRQ[A-D]#

When the PCI PIRQ[A-D]# has been alerted, the system timer will be reloaded and the system will not be into the suspend mode.

The options are: Disabled, Enabled.

PnP/PCI Configurations
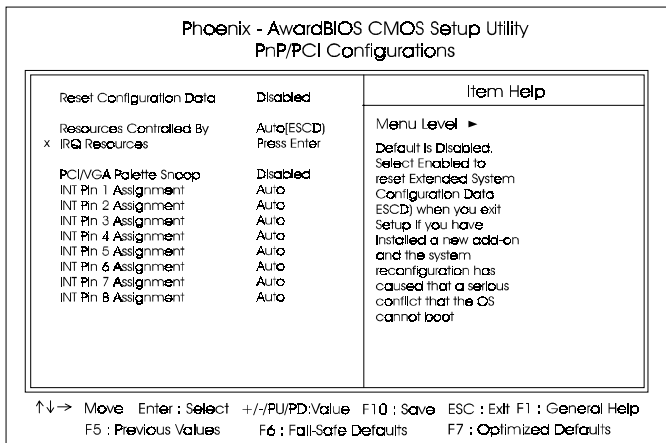
Reset Configuration Data

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

Resources Controlled By

If set at Auto, the BIOS arranges all system resources. If there exists conflict, select Manual. The options are: Auto (ESCD), Manual.

If the manual options, after the featrue IRQ Resources being pressed, of **IRQ-3/4/5/7/9/10/11/12/14/15 Assigned To** are: PCI Device, Reserved. When resources were controlled manually, assign each system interrupt a type, depending on each device type to use the interrupt.

PCI/VGA Palette Snoop

Set this feature to be enabled if any ISA adapter card installed in the system requires the VGA palette snoop function.

The options are: Disabled, Enabled.

INT Pin 1/2/3/4/5/6/7/8 Assignment

This feature allows you to assign the PCI IRQ numbers for PCI slots. Selecting the default, Auto, allows the PCI controller to automatically allocate the IRQ numbers. The options are: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.

PC Health Status

```
          Phoenix - AwardBIOS CMOS Setup Utility
                    PC Health Status
┌──────────────────────────────────┬──────────────────┐
│ Shutdown Temperature    Disabled  │     Item Help    │
│ CPU Temperature                   │                  │
│ System Temperature                │  Menu Level  ►   │
│ Ambient Temperature               │                  │
│ VCore (From VID)                  │                  │
│ +2.5V                             │                  │
│ Vccp                              │                  │
│ +3.3V                             │                  │
│ +5V                               │                  │
│ +12V                              │                  │
│ HVcc                              │                  │
│ +1.5V                             │                  │
│ +1.8V                             │                  │
│ Current CPU Fan Speed             │                  │
│ Current SYS Fan Speed             │                  │
│                                   │                  │
├──────────────────────────────────┴──────────────────┤
│ ↑↓→ Move  Enter : Select  +/-/PU/PD:Value  F10 : Save  ESC : Exit  F1 : General Help │
│      F5 : Previous Values    F6 : Fail-Safe Defaults    F7 : Optimized Defaults      │
└──────────────────────────────────────────────────────┘
```
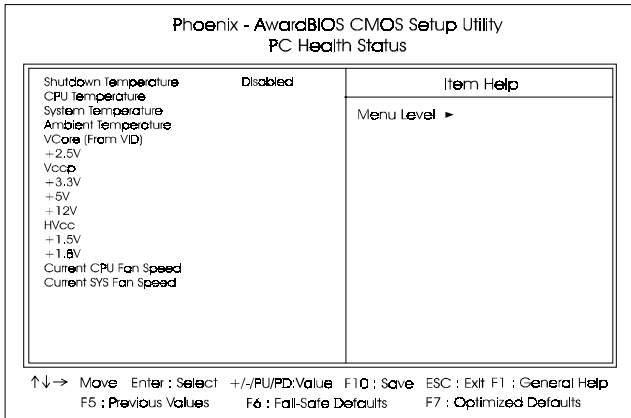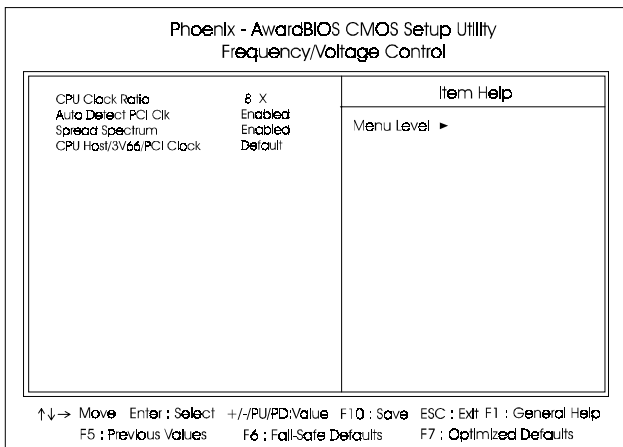
Shutdown Temperature

This feature helps to shutdown the system when the system temperature is as high as the selected temperature to prevent from the overheat problem. The option list presents all the temperatures that supported by the board and Disabled.

CPU Temperature / System Temperature / Ambient Temperature / Vcore (Fom VID) / Vccp / +3.3V / +5V / +12V / HVcc / +1.5V / +1.8V / Current CPU FAN Speed / Current SYS FAN Speed

These items allow end users and technicians to monitor data provided by the BIOS on this mainboard. It is not user-configurable.

Frequency/Voltage Control

```
Phoenlx - AwardBIOS CMOS Setup Utility
              Frequency/Voltage Control

  CPU Clock Ratio          8  X           Item Help
  Auto Detect PCI Clk      Enabled
  Spread Spectrum          Enabled     Menu Level  ►
  CPU Host/3V66/PCI Clock  Default




  ↑↓→  Move  Enter : Select  +/-/PU/PD:Value  F10 : Save  ESC : Exit  F1 : General Help
      F5 : Previous Values      F6 : Fail-Safe Defaults     F7 : Optimized Defaults
```

CPU Clock Ratio

This feature allows you to enter the supported frequency mulitplier for CPU host clock.

Auto Detect PCI Clk

When enabled, BIOS will detect the PCI slot. If no any device in, BIOS will auto disable its clock. The options are: Enabled, Disabled.

Spread Spectrum

This feature allows you to enable the spread Spectrum function.
The options are: Enabled, Disabled.

CPU Host/3V66/PCI Clock

This feature allows you to select the combinations of CPU, onboard devices (such as AGP bus, South Bridge) that runs with 66MHz frequency, and PCI clock frequency. The default setting, Default, will detect your CPU/3V66/PCI clock frequency automatically. If you set a unappropriate option which leads to a booting problem, keep pressing the Insert key until the display appears will solve it. The options lists all combinations that provided by the system BIOS.

Load Fail-Safe Defaults

This submenu is selected to diagnose the problem after the computer boots, if the computer will not boot. These settings do not give optimal performance.

Load Optimized Defaults

This submenu is selected for default settings which provide the best system performance.

Supervisor/User Password

To enable the Supervisor/User passwords, select the item from the Standard CMOS Setup. You will be prompted to create your own password. Type your password up to eight characters and press Enter. You will be asked to confirm the password. Type the password again and press Enter. To disable password, press Enter twice when you are prompted to enter a password. A message appears, confirming the password is disabled.

Under the BIOS Feature Setup, if *Setup* is selected under the Security Option field and the Supervisor/User Password is enabled, you will be prompted password every time you try to enter the CMOS Setup Utility. If *System* is selected and the Supervisor/User Password is enabled, you will be requested to enter the Password every time when you reboot the system or enter the CMOS Setup utility.

Save and Exit Setup

After you have made changes under Setup, press Esc to return to the main menu. Move cursor to Save and Exit Setup or press F10 and then press Y to change the CMOS Setup. If you did not change anything, press Esc again or move cursor to Exit Without Saving and press Y to retain the Setup settings. The following message will appear at the center of the screen to allow you to save data to CMOS and exit the setup utility: **SAVE to CMOS and EXIT (Y/N)?**

Exit without Saving

If you select this feature, the following message will appear at the center of the screen to allow you to exit the setup utility without saving CMOS modifications: **Quit Without Saving (Y/N)?**