

**P4X400-A**  
**P4X400-AL**  
**Rev. A+**  
**System Board**  
**User's Manual**

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## Caution

To avoid damage to the system:

- Use the correct AC input voltage range.

To reduce the risk of electric shock:

- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to the battery manufacturer's instructions.

Joystick or MIDI port:

- Do not use any joystick or MIDI device that requires more than 10A current at 5V DC. There is a risk of fire for devices that exceed this limit.

## FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

## Notice

This user's manual contains detailed information about the system board. If, in some cases, some information doesn't match those shown in the multilingual manual, the multilingual manual should always be regarded as the most updated version. The multilingual manual is included in the system board package.

To view the user's manual, insert the CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click "User's Manual".

## System Board

This user's manual is for the P4X400-A and P4X400-AL system boards. The only difference between these boards is the P4X400-AL system board supports onboard LAN.

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# Chapter I - Introduction

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## I.1 Features and Specifications

### I.1.1 Features

#### Chipset

- VIA® P4X400 chipset
  - VT8754/VT8235CE

#### Processor

The system board is equipped with Socket 478 for installing one of the following supported processors.

- Intel® Pentium® 4 Processor with Hyper-Threading Technology - 533MHz FSB
- Intel® Pentium® 4 processor (478-pin)
  - 533MHz system data bus
  - 400MHz system data bus
- Intel® Celeron® processor (478-pin)
  - 400MHz system data bus



#### Note:

*Refer to section 1.2 and appendix A for more information on the Hyper-Threading Technology.*

#### System Memory

- Three 184-pin DDR DIMM sockets
- Supports up to 3GB using PC1600 (DDR200), PC2100 (DDR266), PC2700 (DDR333) or PC3200 (DDR400) unbuffered DDR SDRAM DIMM, 2.5V type

DIMMs	Memory Size	DIMMs	Memory Size
2MBx64	16MB	16MBx64	128MB
4MBx64	32MB	32MBx64	256MB
8MBx64	64MB	64MBx64	512MB

### Expansion Slots

The system board is equipped with 1 AGP slot and 5 PCI slots.

### AGP (Accelerated Graphics Port)

AGP is an interface designed to support high performance 3D graphics cards. It utilizes a dedicated pipeline to access system memory for texturing, z-buffering and alpha blending. The universal AGP slot supports AGP 8x with up to 2133MB/sec. bandwidth and AGP 4x with up to 1066MB/sec. bandwidth for 3D graphics applications. AGP in this system board will deliver faster and better graphics to your PC.

### Onboard Audio Features

- Supports Microsoft® DirectSound/DirectSound 3D
- AC'97 supported with full duplex, independent sample rate converter for audio recording and playback
- S/PDIF-in/out compressed digital output
- 6-channel audio output

### Onboard LAN Features (P4X400-AL only)

- Integrated LAN controller
- Integrated IEEE 802.3, 10BASE-T and 100BASE-TX compatible PHY
- 32-bit PCI master interface
- Integrated power management functions
- Full duplex support at both 10 and 100 Mbps
- Supports IEEE 802.3u auto-negotiation
- Supports wire for management

### Rear Panel I/O Ports (PC 99 color-coded connectors)

- Two USB 2.0/1.1 ports
- One RJ45 LAN port (P4X400-AL only)
- Two DB-9 serial ports
- One DB-25 parallel port
- One mini-DIN-6 PS/2 mouse port
- One mini-DIN-6 PS/2 keyboard port
- One game/MIDI port
- Three audio jacks: line-out, line-in and mic-in



## I/O Connectors

- Two connectors for 4 additional external USB 2.0/1.1 ports
- One front audio connector for external line-out and mic-in jacks
- Two internal audio connectors (AUX-in and CD-in)
- One 4-channel audio output connector
- One S/PDIF-in/out connector
- One connector for IrDA interface
- Two IDE connectors
- One floppy drive interface supports up to two 2.88MB floppy drives
- Two ATX power supply connectors
- One Wake-On-LAN connector
- CPU fan and chassis fan connectors

## PCI Bus Master IDE Controller

- Two PCI IDE interfaces support up to four IDE devices
- Supports ATA/33, ATA/66, ATA/100 and ATA/133 hard drives
- UDMA Modes 3, 4, 5 and 6 Enhanced IDE (data transfer rate up to 133MB/sec.)
- Bus mastering reduces CPU utilization during disk transfer
- Supports ATAPI CD-ROM, LS-120 and ZIP

## S/PDIF

S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog. S/PDIF is usually found on digital audio equipment such as a DAT machine or audio processing device. The S/PDIF connector on the system board sends surround sound and 3D audio signal outputs to amplifiers and speakers and to digital recording devices like CD recorders.

## 6-channel Audio

The 4-channel audio connector which supports four audio output signals: center channel, subwoofer, rear right channel and rear left channel; together with the line-in and mic-in jacks (at the rear panel) support 6-channel audio output.

### IrDA Interface

The system board is equipped with an IrDA connector for wireless connectivity between your computer and peripheral devices. The IRDA (Infrared Data Association) specification supports data transfers of 115K baud at a distance of 1 meter.

### USB Ports

The system board supports USB 2.0 and USB 1.1. USB 1.1 supports 12Mb/second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

### BIOS

- Award BIOS, Windows® 98/2000/ME/XP Plug and Play compatible
- Supports SCSI sequential boot-up
- Flash EPROM for easy BIOS upgrades
- Supports DMI 2.0 function
- 2Mbit flash memory

### Desktop Management Interface (DMI)

The system board comes with a DMI 2.0 built into the BIOS. The DMI utility in the BIOS automatically records various information about your system configuration and stores these information in the DMI pool, which is a part of the system board's Plug and Play BIOS. DMI, along with the appropriately networked software, is designed to make inventory, maintenance and troubleshooting of computer systems easier. Refer to chapter 4 for instructions on using the DMI utility.

## 1.1.2 Intelligence

### Dual Function Power Button

Depending on the setting in the "Soft-Off By PWRBTN" field of the Power Management Setup, this switch will allow the system to enter the Soft-Off or Suspend mode.

### Wake-On-Ring

This feature allows the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from an external modem or respond to calls from a modem PCI card that uses the PCI PME (Power Management Event) signal to remotely wake up the PC.



**Important:**

*If you are using a modem add-in card, the 5VSB power source of your power supply must support  $\geq 720\text{mA}$ .*

### Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port, via a PCI LAN card that uses the PCI PME (Power Management Event) signal or via a LAN card that uses the Wake-On-LAN connector. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.



**Important:**

*The 5VSB power source of your power supply must support  $\geq 720\text{mA}$ .*

### Wake-On-PS/2 Keyboard

This function allows you to use the PS/2 keyboard to wake up the system from the S5 state.

**Important:**

*The 5VSB power source of your power supply must support  $\geq 720\text{mA}$ .*

### Wake-On-USB Keyboard/Mouse

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

**Important:**

- If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support  $\geq 1.5\text{A}$ .*
- If you are using the Wake-On-USB Keyboard/Mouse function for 3 or more USB ports, the 5VSB power source of your power supply must support  $\geq 2\text{A}$ .*

### RTC Timer to Power-on the System

The RTC installed on the system board allows your system to automatically power-on on the set date and time.

### ACPI STR

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows® 98/2000/ME/XP supports the ACPI function. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® 98/2000/ME/XP without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire

operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.



**Important:**

*The 5VSB power source of your power supply must support  $\geq 1A$ .*

### AC Power Failure Recovery

When power returns after an AC power failure, you may choose to either power-on the system manually, let the system power-on automatically or return to the state where you left off before power failure occurs.

### Virus Protection

Most viruses today destroy data stored in hard drives. The system board is designed to protect the boot sector and partition table of your hard disk drive.

## 1.2 Hyper-Threading Technology Functionality Requirements

Enabling the functionality of Hyper-Threading Technology for your computer system requires **ALL** of the following platforms.

### Components:

- CPU - an Intel® Pentium® 4 Processor with HT Technology
- Chipset - an Intel® chipset that supports HT Technology
- BIOS - a BIOS that supports HT Technology and has it enabled
- OS - an operating system that includes optimizations for HT Technology

Please refer to Appendix A for information about enabling the functionality of the Hyper-Threading Technology. For more information on Hyper-Threading Technology, go to: [www.intel.com/info/hyperthreading](http://www.intel.com/info/hyperthreading).

## I.3 Package Checklist

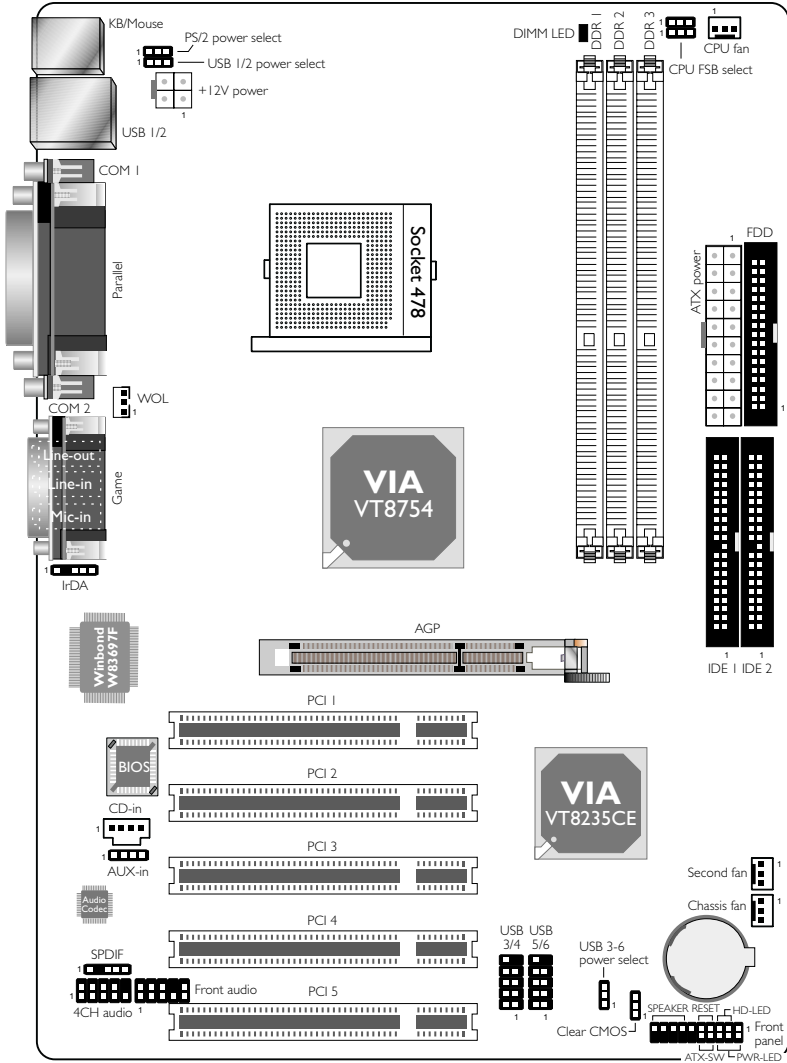
The system board package contains the following items:

- The system board
- A user's manual
- One IDE cable for ATA/33, ATA/66, ATA/100 or ATA/133 IDE drives
- One 34-pin floppy disk drive cable
- One "Mainboard Utility" CD

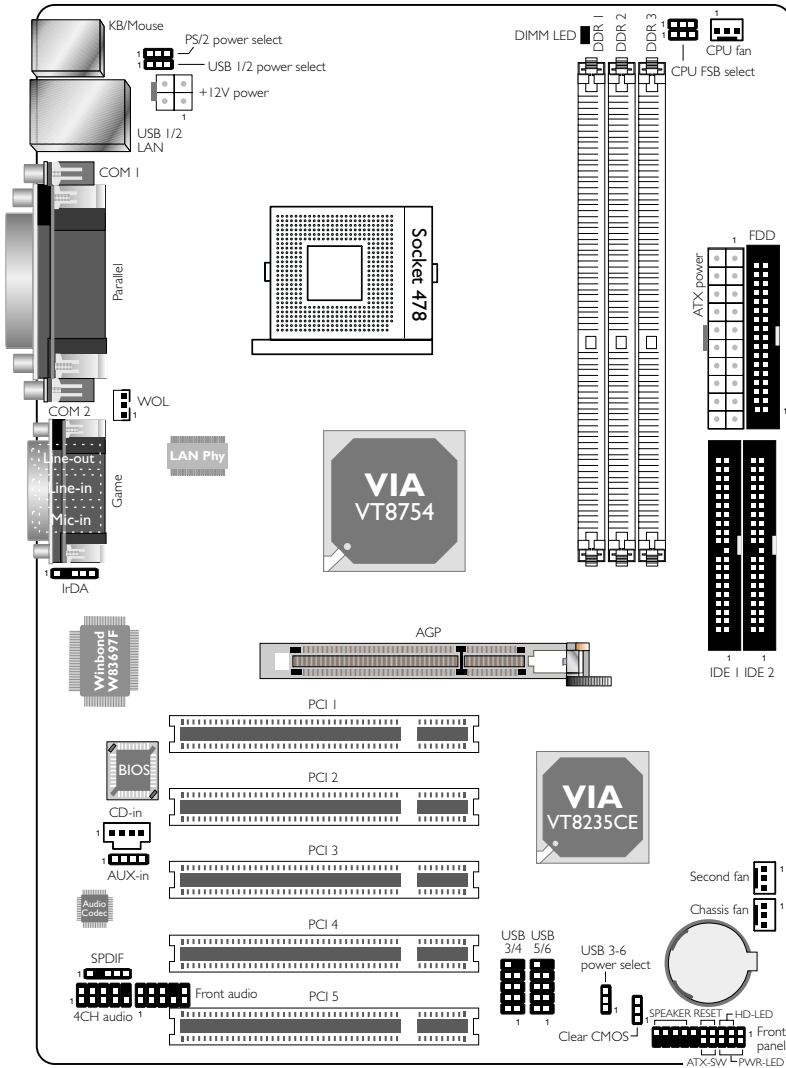
If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

# Chapter 2 - Hardware Installation

## 2.1 System Board Layout



P4X400-A



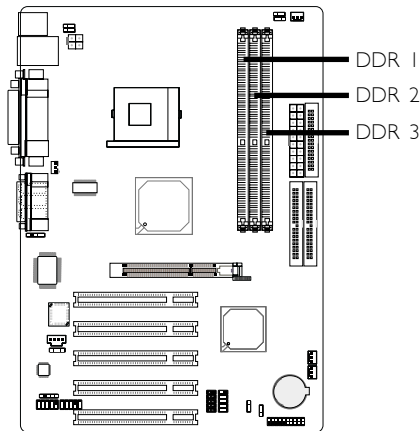
**P4X400-AL**  
(Supports onboard LAN)



**Warning:**

Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

## 2.2 System Memory

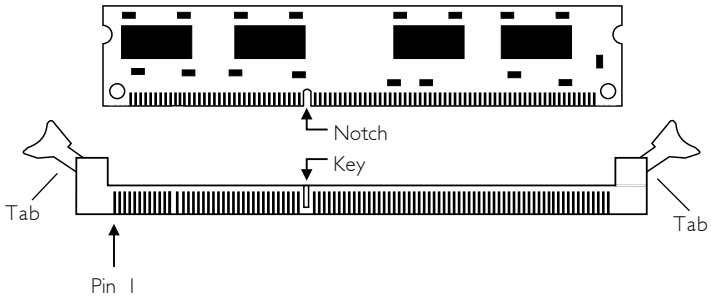


The system board is equipped with three 184-pin DDR DIMM sockets. DDR (Double Data Rate) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore providing two times faster data transfer.

Refer to chapter 1 (System Memory section) for detailed specification of the memory supported by the system board.

### 2.2.1 Installing the DIM Module

A DIM module simply snaps into a DIMM socket on the system board. Pin 1 of the DIM module must correspond with Pin 1 of the socket.



1. Pull the “tabs” which are at the ends of the socket to the side.
2. Position the DIMM above the socket with the “notch” in the module aligned with the “key” on the socket.
3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place.

## 2.3 CPU

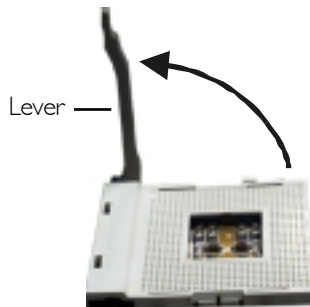
### 2.3.1 Overview

The system board is equipped with a surface mount 478-pin CPU socket. This socket is exclusively designed for installing an Intel processor.



### 2.3.2 Installing the CPU

1. Locate Socket 478 on the system board.
2. Unlock the socket by pushing the lever sideways, away from the socket, then lifting it up to a 90° angle. Make sure the socket is lifted to at least this angle otherwise the CPU will not fit in properly.



3. Position the CPU above the socket then align the gold mark on the corner of the CPU (designated as pin 1) with pin 1 of the socket.

**Important:**

*Handle the CPU by its edges and avoid touching the pins.*



— Gold mark



Pin 1

4. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

**Important:**

*Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.*



5. Once the CPU is in place, push down the lever to lock the socket. The lever should click on the side tab to indicate that the CPU is completely secured in the socket.



### 2.3.3 Installing the Fan and Heat Sink

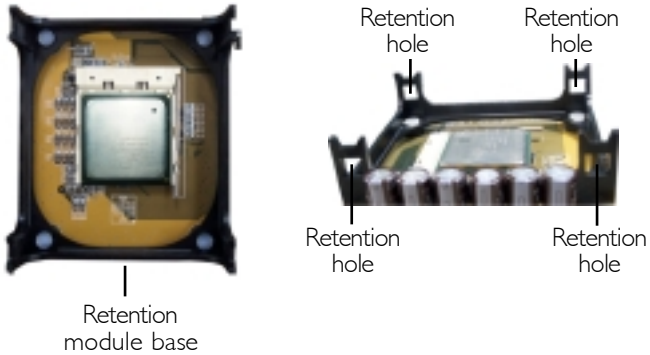
The CPU must be kept cool by using a CPU fan with heatsink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.



**Note:**

- Only use Intel® certified fan and heat sink.
- An Intel® boxed processor package contains a retention mechanism, heat sink, fan and installation guide. If the installation procedure in the installation guide differs from the one in this section, please follow the installation guide in the package.
- If you are installing a non-boxed processor, the heat sink, fan and retention mechanism assembly may look different from the one shown in this section but the procedure will more or less be the same.

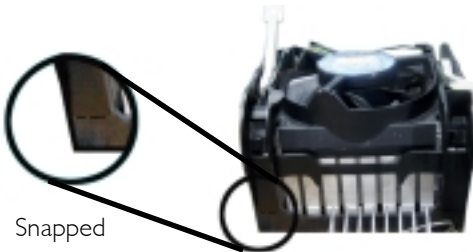
1. The system board comes with the retention module base already installed.



2. Position the fan / heat sink and retention mechanism assembly on the CPU, then align and snap the retention legs' hooks to the retention holes at the 4 corners of the retention module base.

**Note:**

*You will not be able to snap the hooks into the holes if the fan / heat sink and retention mechanism assembly did not fit properly onto the CPU and retention module base.*



- The retention levers at this time remains unlocked as shown in the illustration below.



- Move the retention levers to their opposite directions then push them down. This will secure the fan / heat sink and retention mechanism assembly to the retention module base.



**Note:**

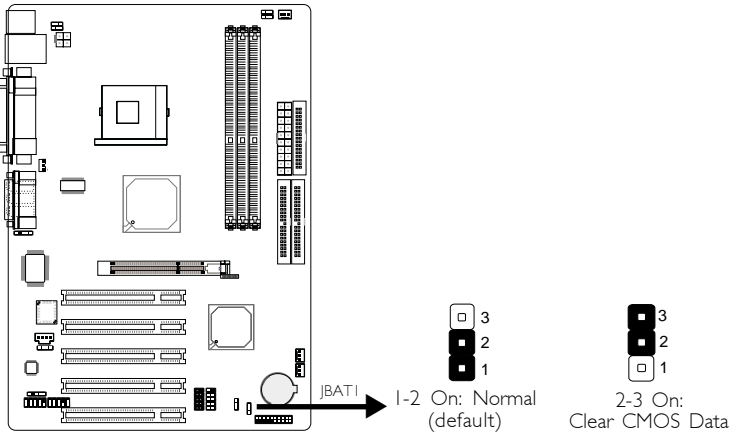
*You will not be able to push the lever down if the direction is incorrect.*



- Connect the CPU fan's cable connector to the CPU fan connector on the system board.

## 2.4 Jumper Settings

### 2.4.1 Jumper Settings for Clearing CMOS Data



If you encounter the following,

- CMOS data becomes corrupted.*
- You forgot the keyboard, supervisor or user password.*
- You are unable to boot-up the computer system because the processor's ratio/clock was incorrectly set in the BIOS.*

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

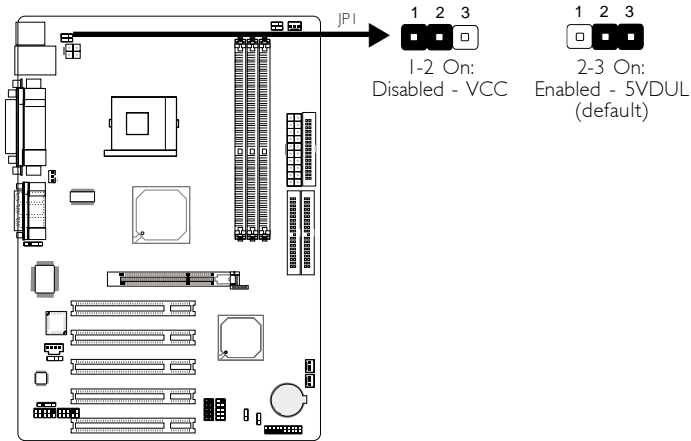
- Power-off the system and unplug the power cord.
- Set JBAT1 pins 2 and 3 to On. Wait for a few seconds and set JBAT1 back to its default setting, pins 1 and 2 On.
- Now power-on the system.

If your reason for clearing the CMOS data is due to incorrect setting of the processor's ratio/clock in the BIOS, please proceed to step 4.



4. After powering-on the system, press <Del> to enter the main menu of the BIOS.
5. Select the Frequency/Voltage Control submenu and press <Enter>.
6. Set the “CPU Clock Ratio” or “CPU Clock” field to its default setting or an appropriate frequency ratio or bus clock. Refer to the Frequency/Voltage Control section in chapter 3 for more information.
7. Press <Esc> to return to the main menu of the BIOS setup utility. Select “Save & Exit Setup” and press <Enter>.
8. Type <Y> and press <Enter>.

## 2.4.2 Jumper Settings for Selecting the PS/2 Power



This jumper is used to select the power for the PS/2 keyboard port.

### BIOS Setting:

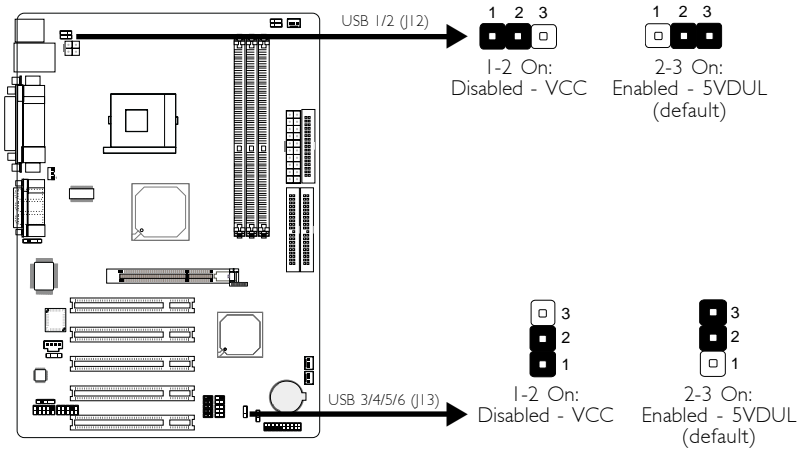
Selecting 5VDUL will allow you to use the Wake-On-PS/2 Keyboard function. "PS2KB Wakeup Select" ("IRQ/Event Activity Detect" field) in the Power Management Setup submenu of the BIOS must be set accordingly. Refer to chapter 3 for more information.



### Important:

*The 5VSB power source of your power supply must support  $\geq 720\text{mA}$ .*

### 2.4.3 Jumper Settings for Selecting the USB Power



These jumpers are used to select the power for the USB ports.

#### BIOS Setting:

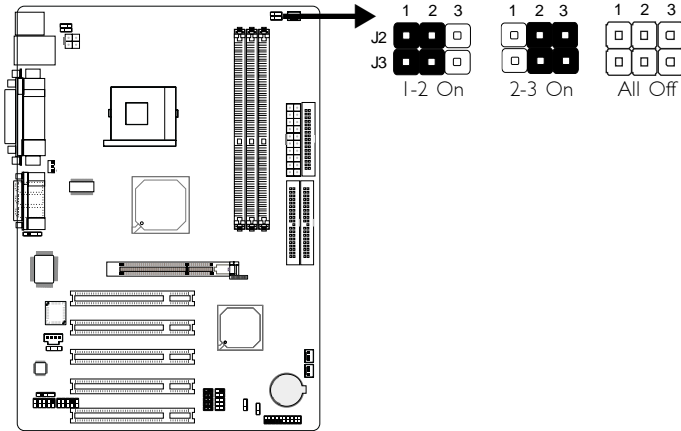
Selecting 5VDUL will allow you to use the Wake-On-USB Keyboard/Mouse function. "USB Resume From S3" ("IRQ/Event Activity Detect" field) in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.



#### Important:

- If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support  $\geq 1.5A$ .
- If you are using the Wake-On-USB Keyboard/Mouse function for 3 or more USB ports, the 5VSB power source of your power supply must support  $\geq 2A$ .

## 2.4.4 Jumper Settings for Selecting the CPU's Front Side Bus



	J2	J3
Auto	1-2 On	1-2 On
100MHz	2-3 On	2-3 On
133MHz	2-3 On	All Off
200MHz	All Off	2-3 On

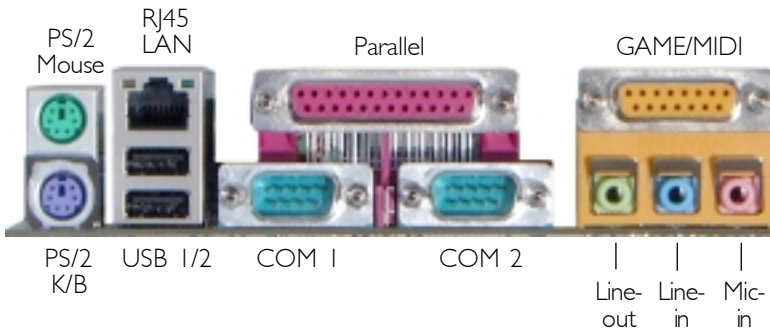
These jumpers are used to select the front side bus of the CPU installed on the system board. The default setting is Auto. The system will run according to the front side bus of the CPU installed on the system board.



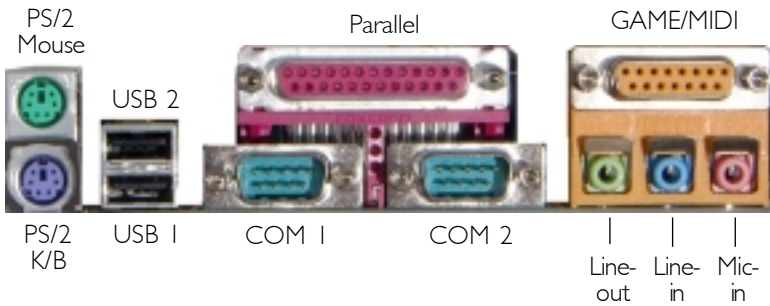
### Important:

- If you are using a CPU whose frequency has been locked by the manufacturer, overclocking will have no effect.
- Overclocking may result to the CPU's or system's instability and are not guaranteed to provide better system performance. If you are unable to boot your system due to overclocking, make sure to set these jumpers back to their default settings.

## 2.5 Rear Panel I/O Ports

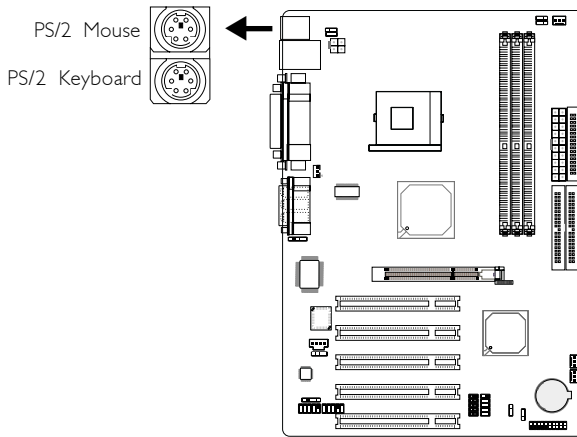


**P4X400-AL**



**P4X400-A**

## 2.5.1 PS/2 Mouse and PS/2 Keyboard Ports



The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location PS2-KBMS of the system board. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.



### **Warning:**

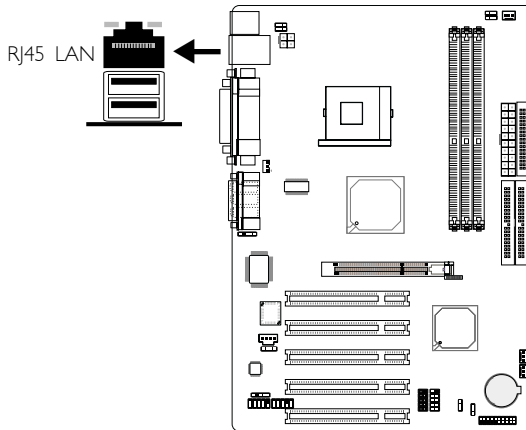
*Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.*

### Wake-On-PS/2 Keyboard

The Wake-On-PS/2 Keyboard function allows you to use a PS/2 keyboard to wake up the system from the S5 state. To use this function:

- **Jumper Setting:**  
JPI must be set to "2-3 On: Enabled". Refer to "Jumper Settings for Selecting the PS/2 Power" in this chapter for more information.
- **BIOS Setting:**  
"PS2KB Wakeup Select" ("IRQ/Event Activity Detect" field) in the Power Management Setup submenu of the BIOS must be set accordingly. Refer to chapter 3 for more information.

## 2.5.2 RJ45 Fast-Ethernet Port (P4X400-AL only)



The P4X400-AL system board is equipped with an onboard RJ45 fast-ethernet LAN port at location CN1 of the system board. It allows the system board to connect to a local area network by means of a network hub.

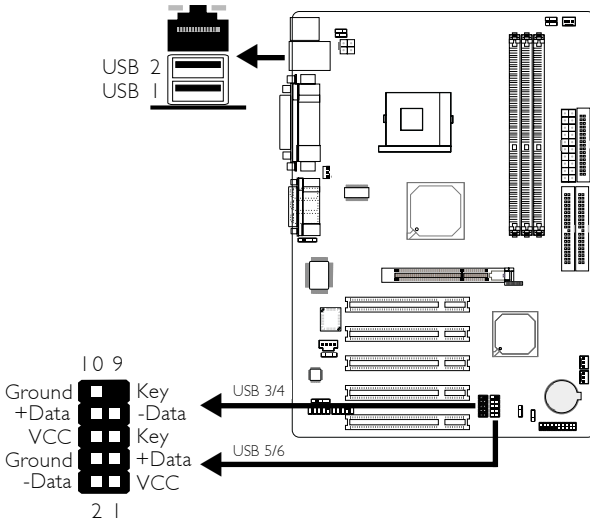
### BIOS Setting

Enable or disable the onboard LAN in the “Onboard LAN” (“VIA OnChip PCI Device” field) - Integrated Peripherals submenu of the BIOS. Refer to chapter 3 for more information.

### Driver Installation

Install the “VIA LAN Drivers”. Refer to chapter 4 for more information.

### 2.5.3 Universal Serial Bus Ports



The system board supports 6 USB 2.0/1.1 ports. Two onboard USB ports (Black) are at location CN1 of the system board.

JUSB1 (USB 3-4) and JUSB2 (USB 5-6) connectors allow you to connect 4 additional USB ports. The additional USB ports, which are mounted on card-edge brackets, will be provided as options. If you want to use the optional USB ports, install the card-edge bracket to the system chassis then insert the connector that is attached to the USB port cable to JUSB1 or JUSB2.

#### BIOS Setting

Enable or disable the USB ports in the "OnChip USB Controller" ("VIA OnChip PCI Device" field) - Integrated Peripherals submenu of the BIOS. If you are using USB 2.0 devices, set the "USB 2.0 Support" field to Enabled. Refer to chapter 3 for more information.

#### Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information.



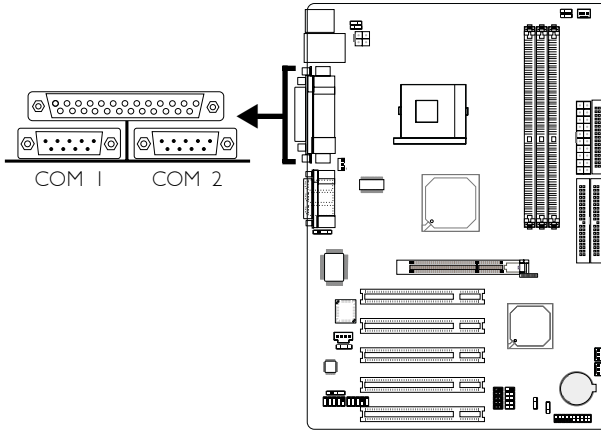
If you are using USB 2.0 devices, install the "VIA USB 2.0 Drivers". Refer to chapter 4 for more information.

### Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- **Jumper Setting:**  
J12 and/or J13 must be set to "2-3 On: Enabled". Refer to "Jumper Settings for Selecting the USB Power" in this chapter for more information.
- **BIOS Setting:**  
"USB Resume from S3" ("IRQ/Event Activity Detect" field) in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.

### 2.5.4 Serial Ports



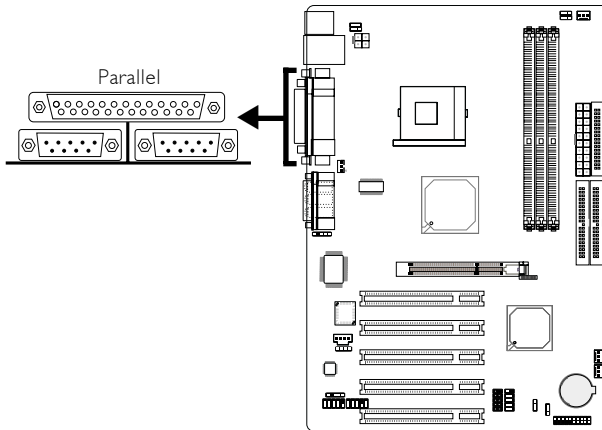
The system board is equipped with onboard serial ports (COM 1: J4 and COM 2: J6) - both in Teal/Turquoise color.

These ports are RS-232C asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

#### BIOS Setting

Select the serial ports' I/O address in the Integrated Peripherals submenu ("Super IO Device" field) of the BIOS. Refer to chapter 3 for more information.

## 2.5.5 Parallel Port



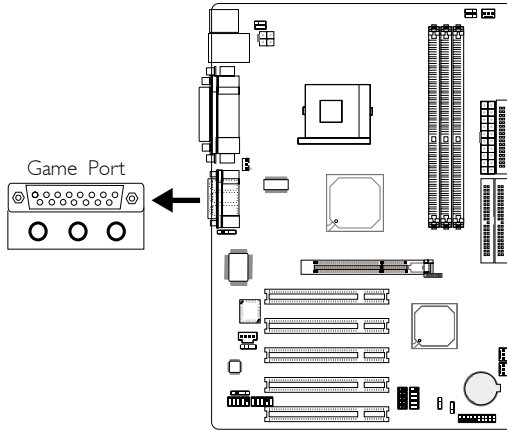
The system board has a standard parallel port (Burgundy) at location J5 for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP modes.

Setting	Function
SPP (Standard Parallel Port)	Allows normal speed operation but in one direction only.
ECP (Extended Capabilities Port)	Allows parallel port to operate in bidirectional mode and at a speed faster than the SPP's data transfer rate.
EPP (Enhanced Parallel Port)	Allows bidirectional parallel port operation at maximum speed.

### BIOS Setting

Select the parallel port's mode in the Integrated Peripherals submenu ("Super IO Device" field) of the BIOS. Refer to chapter 3 for more information.

## 2.5.6 Game/MIDI Port

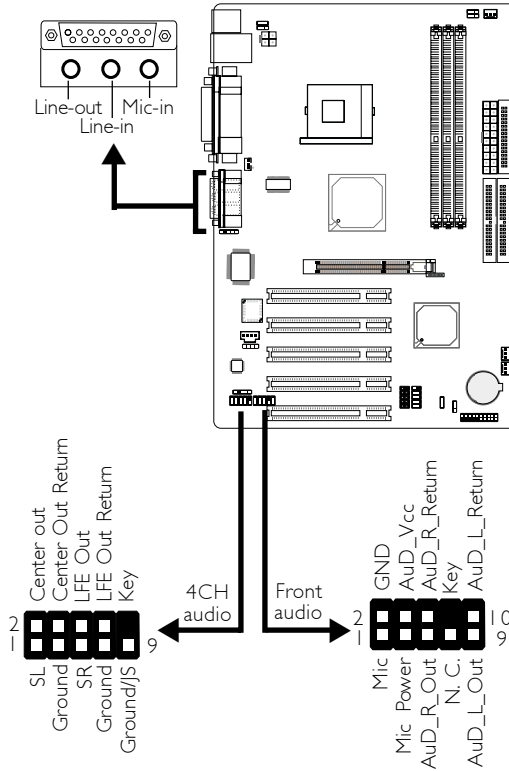


The Game/MIDI port is identical to that of a standard PC game adapter or game I/O port. Connect an analog joystick to the 15-pin D-sub connector (Gold) at location GAME1A of the system board. This port works well with any application that is compatible with the standard PC joystick.

### BIOS Setting

Configure the game port in the Integrated Peripherals submenu ("Super IO Device" field) of the BIOS. Refer to chapter 3 for more information.

## 2.5.7 Audio (Audio Jacks, 4-Channel Audio and Front Audio)



### Audio Jacks

The system board is equipped with 3 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

- **Line-out Jack (Lime - CN6)**

This jack is used to connect external speakers for audio output from the system board. Using this jack disables the front audio's line-out function.

- **Line-in Jack (Light Blue - CN7)**

This jack can be connected to the line-out jack of any external audio devices such as Hi-fi set, CD player, AM/FM radio tuner, synthesizer, etc. Connect a stereo cable from the line-out jack of your external device to this line-in jack.

- **Mic-in Jack (Pink - CN8)**

This jack is used to connect an external microphone. Use the C-Media application software to select between using this jack and the front audio's mic-in jack.

### Front Audio

The front audio connector (J9) provides you the option of connecting devices to the line-out and mic-in jacks at the front panel. Using this line-out jack disables the rear audio's line-out function. Use the C-Media application software to select between using this mic-in jack and the rear audio's mic-in jack.

Remove the jumper caps from pins 5-6 and pins 9-10 of J9 prior to connecting the front audio cable connector. Make sure pin 1 of the cable connector is aligned with pin 1 of J1. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

Pins 5-6 and 9-10 short  
(default)

The front audio is disabled.  
The rear audio is enabled.

Pins 5-6 and 9-10 open

The front audio is enabled.  
The rear audio is disabled.

### 4-Channel Audio

The 4-channel connector (J10) supports four audio output signals: center channel, subwoofer, rear right channel and rear left channel. The four audio output signals together with the line-in and mic-in jacks (at the rear panel) support 6-channel audio output.

One card-edge bracket, mounted with a rear jack and a center/subwoofer jack, will be provided as an option. Remove the jumper caps from pins 2-4 and pins 6-8 of J10 prior to connecting the audio cable connector. Make sure pin 1 of the cable connector is

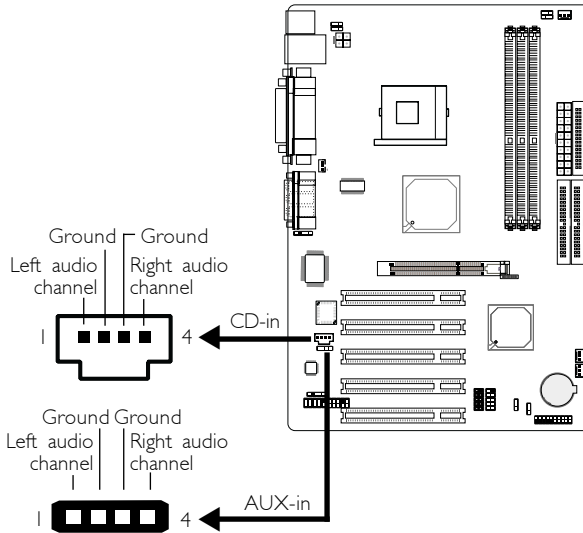
aligned with pin 1 of J10. If you are not using this connector, replace the jumper caps back to their original pin locations. Now install the card-edge bracket to the system chassis.

### Driver Installation

Install the “Audio Drivers” contained in the provided CD. The C-Media 3D Audio Configuration” program will automatically be installed. This application program will allow you to configure 2-channel, 4-channel and 6-channel audio modes as well as configure the audio effects. Refer to chapter 4 for more information.

## 2.6 I/O Connectors

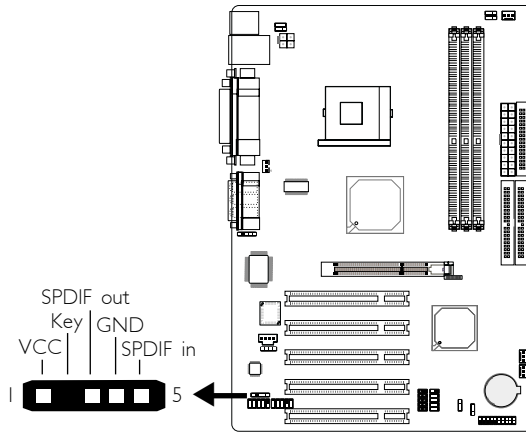
### 2.6.1 Internal Audio Connectors



The CD-in (J7) and AUX-in (J8) connectors are used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

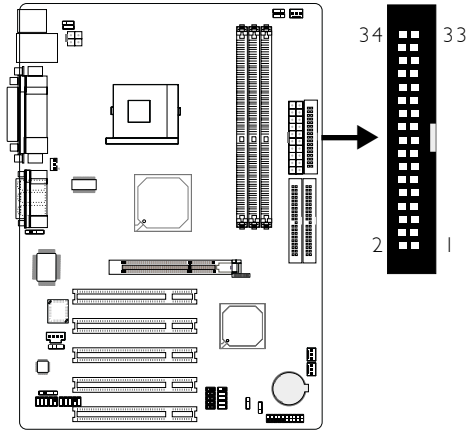


## 2.6.2 S/PDIF Connector



The system board is equipped with a S/PDIF connector. One card-edge bracket, mounted with S/PDIF ports, will be provided as an option. Install the card-edge bracket to the system chassis then connect the audio cable connector to J11. Make sure pin 1 of the audio cable connector is aligned with pin 1 of J11.

### 2.6.3 Floppy Disk Drive Connector



The system board is equipped with a shrouded floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the shrouded floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

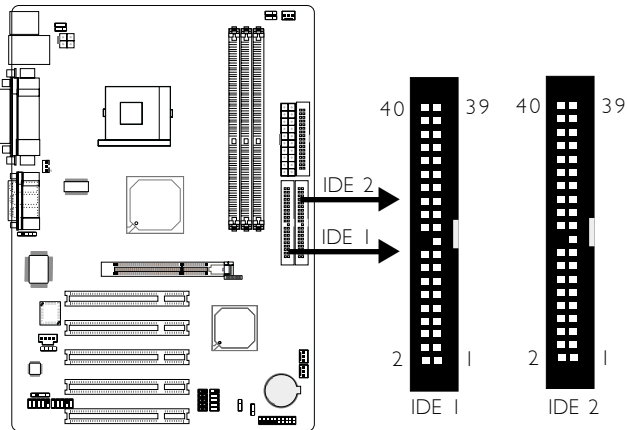
#### Connecting the Floppy Disk Drive Cable

Install one end of the floppy disk drive cable into the shrouded floppy disk header (FDD1) on the system board and the other end-most connector to the drive you want to designate as Drive A. If you are connecting another drive (Drive B), install the middle connector of the cable to the drive. The colored edge of the daisy chained ribbon cable should be aligned with pin 1 of FDD1.

#### BIOS Setting

Enable or disable this function in the Integrated Peripherals submenu ("Super IO Device" field) of the BIOS. Refer to chapter 3 for more information.

## 2.6.4 IDE Disk Drive Connector



The system board is equipped with two shrouded PCI IDE headers that will interface four Enhanced IDE (Integrated Drive Electronics) disk drives. To prevent improper IDE cable installation, each shrouded PCI IDE header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header:

Each IDE connector supports 2 devices, a Master and a Slave. Use an IDE ribbon cable to connect the drives to the system board. An IDE ribbon cable has 3 connectors on them, one that plugs into an IDE connector on the system board and the other 2 connect to IDE devices. The connector at the end of the cable is for the Master drive and the connector in the middle of the cable is for the Slave drive.

### Connecting the IDE Disk Drive Cable

Install one end of the IDE cable into the IDE 1 header on the system board and the other connectors to the IDE devices.

If you are adding a third or fourth IDE device, use another IDE cable and install one end of the cable into the IDE 2 header on the system board and the other connectors to the IDE devices.

**Note:**

*Refer to your disk drive user's manual for information about selecting proper drive switch settings.*

### Adding a Second IDE Disk Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives.

The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 and ATA/133 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

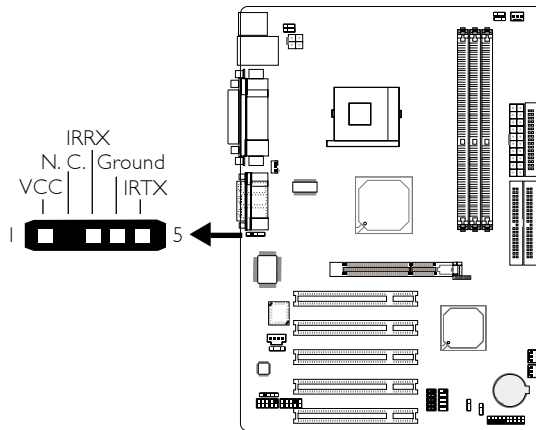
**Important:**

*If you encounter problems while using an ATAPI CD-ROM drive that is set in Master mode, please set the CD-ROM drive to Slave mode. Some ATAPI CD-ROMs may not be recognized and cannot be used if incorrectly set in Master mode.*

### BIOS Setting

Enable or disable the onboard primary or secondary IDE controller in the Integrated Peripherals submenu ("VIA OnChip IDE Device" field) of the BIOS. Refer to chapter 3 for more information.

## 2.6.5 IrDA Connector



Connect your IrDA cable to connector IRI on the system board.



### Note:

*The sequence of the pin functions on some IrDA cable may be reversed from the pin function defined on the system board. Make sure to connect the cable to the IrDA connector according to their pin functions.*

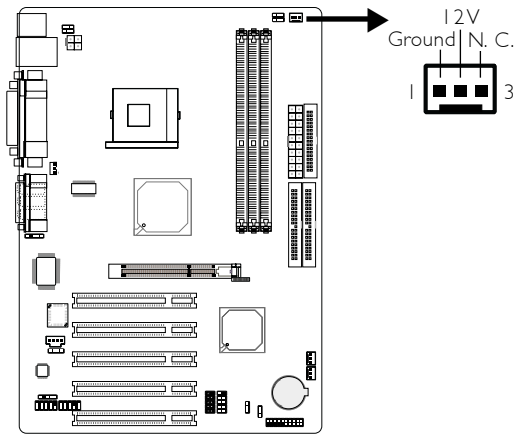
### BIOS Setting

Set "UART Mode Select" ("Super IO Device" field) in the Integrated Peripherals submenu of the BIOS to the type of IrDA standard supported by your device.

### Driver Installation

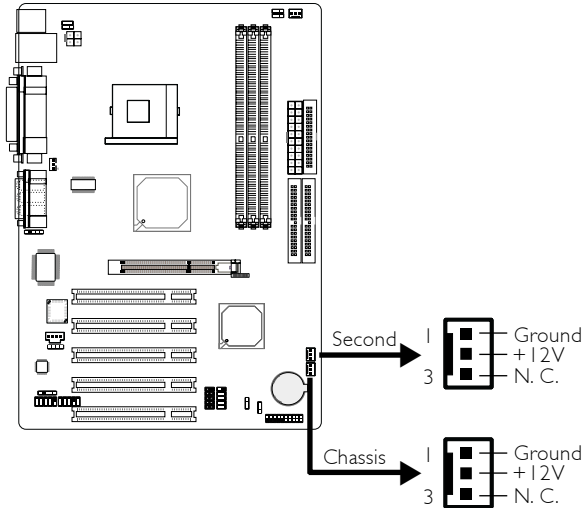
You may need to install the proper drivers in your operating system to use the IrDA function. Refer to your operating system's manual or documentation for more information.

## 2.6.6 CPU Fan Connector



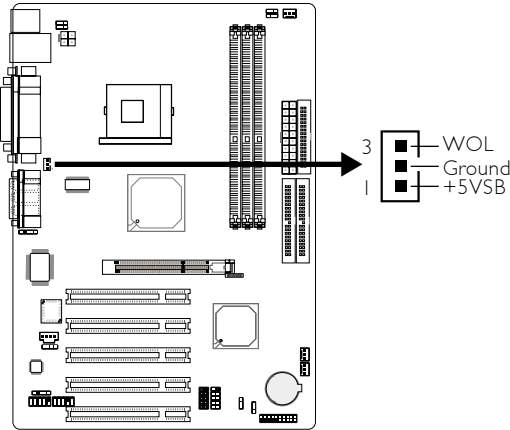
The CPU must be kept cool by using a fan with heat sink. Connect the CPU fan to the 3-pin fan connector at location CPU\_FAN1 on the system board.

## 2.6.7 Chassis Fan and Second Fan Connectors



The chassis fan connector (SYS\_FAN1) and second fan connector (PWR\_FAN1) are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

## 2.6.8 Wake-On-LAN Connector



Your LAN card package should include a cable. Connect one end of the cable to the wakeup header on the card and the other end to location WOLI on the system board. The network will detect Magic Packet and assert a wakeup signal to power-up the system. Refer to the add-in card's manual for details. Note: Your LAN card must support the remote wake up function.

**Important:**

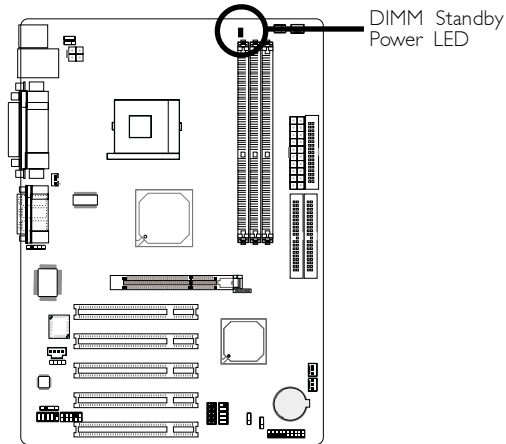
*The 5VSB power source of your power supply must support  $\geq 720\text{mA}$ .*

**BIOS Setting**

To use the Wake-On-LAN function, "Resume On LAN/Ring" ("IRQ/Event Activity Detect" field) in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.



## 2.6.9 DIMM Standby Power LED



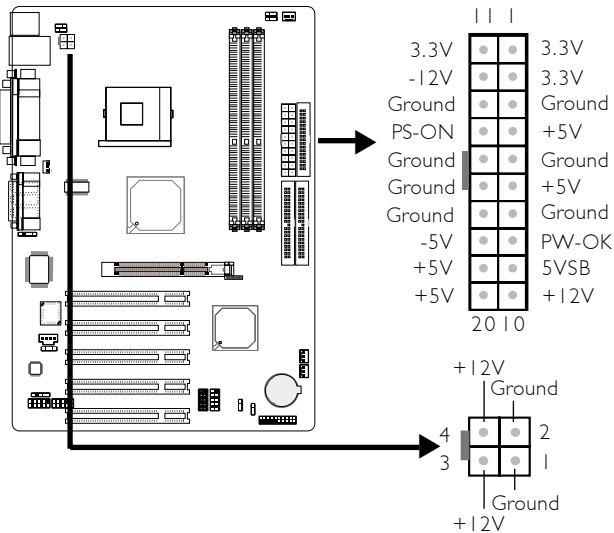
The DIMM Standby Power LED will turn red when the system's power is on or when it is in the Suspend state (Power On Suspend or Suspend to RAM). It will not light when the system is in the Soft-Off state.



**Important:**

*Lighted LED serves as a reminder that you must power-off the system then turn off the power supply's switch or unplug the power cord prior to installing any memory modules.*

## 2.6.10 Power Connectors

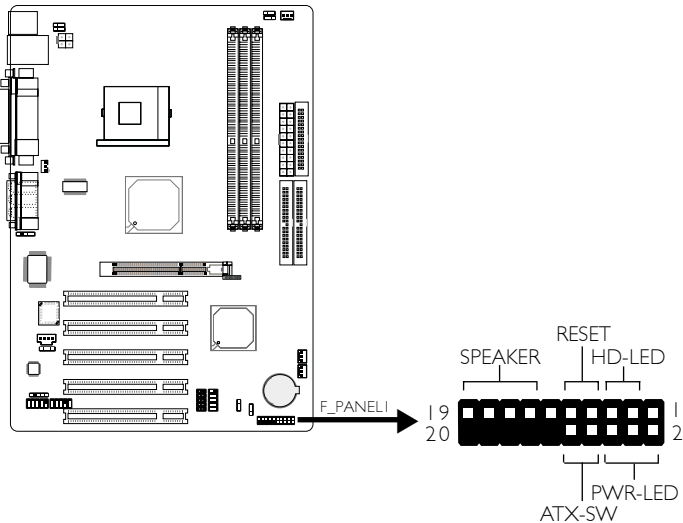


We recommend that you use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. Connect the ATX12V power supply's 20-pin ATX main power connector and 4-pin +12V power connector to ATXPPOWER and ATXPI respectively.

The 4-pin +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM).

The system board requires a minimum of 250 Watt power supply to operate. Your system configuration (amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, use a 300 Watt (or greater) power supply.

## 2.6.11 Front Panel Connectors



### HD-LED: Primary/Secondary IDE LED

This LED will light when the hard drive is being accessed.

### RESET: Reset Switch

This switch allows you to reboot without having to power off the system thus prolonging the life of the power supply or system.

### SPEAKER: Speaker Connector

This connects to the speaker installed in the system chassis.

### ATX-SW: ATX Power Switch

Depending on the setting in the BIOS setup, this switch is a "dual function power button" that will allow your system to enter the Soft-Off or Suspend mode. Refer to "Soft-Off By PWRBTN" in the Power Management Setup (Chapter 3).

**PWR-LED: Power/Standby LED**

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

**Note:**

*If your system did not boot-up and the Power/Standby LED did not light after it was powered-on, it may indicate that the CPU or memory module was not installed properly. Please make sure they are properly inserted into their corresponding socket.*

	Pin	Pin Assignment
<b>HD-LED</b> (Primary/Secondary IDE LED)	3 5	HDD LED Power HDD
<b>Reserved</b>	14 16	N. C. N. C.
<b>ATX-SW</b> (ATX power switch)	8 10	PWRBT+ PWRBT-
<b>Reserved</b>	18 20	N. C. N. C.
<b>RESET</b> (Reset switch)	7 9	Ground H/W Reset
<b>SPEAKER</b> (Speaker connector)	13 15 17 19	Speaker Data N. C. Ground Speaker Power
<b>PWR-LED</b> (Power/Standby LED)	2 4 6	LED Power (+) LED Power (+) LED Power (-) or Standby Signal

# Chapter 3 - Award BIOS Setup Utility

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## 3.1 The Basic Input/Output System

The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the following message will appear on the screen:

Press DEL to enter setup

If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

When you press <Del>, the main menu screen will appear:



### 3.1.1 Standard CMOS Features

Use the arrow keys to highlight "Standard CMOS Features" and press <Enter>. A screen similar to the one on the next page will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

#### 3.1.1.1 Date

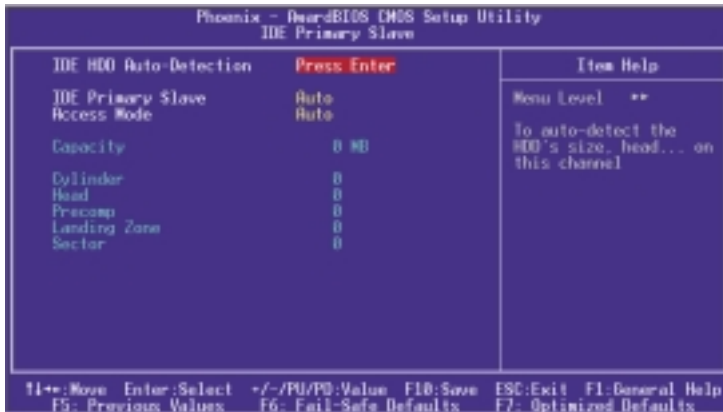
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1990 to 2098.

#### 3.1.1.2 Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

### 3.1.1.3 IDE Primary Master, IDE Primary Slave, IDE Secondary Master and IDE Secondary Slave

Move the cursor to the “IDE Primary Master”, “IDE Primary Slave”, “IDE Secondary Master” or “IDE Secondary Slave” field, then press <Enter>.



The settings on the screen are for reference only. Your version may not be identical to this one.

#### IDE HDD Auto Detection

Detects the parameters of the drive. The parameters will automatically be shown on the screen.

#### IDE Primary Master/Slave and IDE Secondary Master/Slave

If you wish to define your own drive type manually, select “Manual”. The drive type information should be included in the documentation from your hard disk vendor. If you select “Auto”, the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive. If a hard disk has not been installed, select “None”.

#### Access Mode

For hard drives larger than 528MB, you would typically select the LBA type. Certain operating systems require that you select Normal or Large. Please check your operating system’s manual or Help desk on which one to select.

### Capacity

Displays the approximate capacity of the disk drive. Usually the size is slightly greater than the size of a formatted disk given by a disk checking program.

### Cylinder

This field displays the number of cylinders.

### Head

This field displays the number of read/write heads.

### Precomp

This field displays the number of cylinders at which to change the write timing.

### Landing Zone

This field displays the number of cylinders specified as the landing zone for the read/write heads.

### Sector

This field displays the number sectors per track.

#### 3.1.1.4 Drive A and Drive B

These fields identify the types of floppy disk drives installed.

<i>None</i>	No floppy drive is installed
<i>360K, 5.25 in.</i>	5-1/4 in. standard drive; 360KB capacity
<i>1.2M, 5.25 in.</i>	5-1/4 in. AT-type high-density drive; 1.2MB capacity
<i>720K, 3.5 in.</i>	3-1/2 in. double-sided drive; 720KB capacity
<i>1.44M, 3.5 in.</i>	3-1/2 in. double-sided drive; 1.44MB capacity
<i>2.88M, 3.5 in.</i>	3-1/2 in. double-sided drive; 2.88MB capacity



### 3.1.1.5 Video

This field selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type. The default setting is EGA/VGA.

<i>EGA/VGA</i>	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA and PGA monitor adapters.
<i>CGA 40</i>	Color Graphics Adapter. Power up in 40-column mode.
<i>CGA 80</i>	Color Graphics Adapter. Power up in 80-column mode.
<i>Mono</i>	Monochrome adapter. Includes high resolution monochrome adapters.

### 3.1.1.6 Halt On

This field determines whether the system will stop if an error is detected during power up. The default setting is All Errors.

<i>No Errors</i>	The system boot will not stop for any errors detected.
<i>All Errors</i>	The system boot will stop whenever the BIOS detects a non-fatal error.
<i>All, But Keyboard</i>	The system boot will not stop for a keyboard error; it will stop for all other errors.
<i>All, But Diskette</i>	The system boot will not stop for a disk error; it will stop for all other errors.
<i>All, But Disk/Key</i>	The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

### 3.1.1.7 Base Memory

Displays the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard or 640K for systems with 640K or more memory installed on the motherboard.

#### 3.1.1.8 Extended Memory

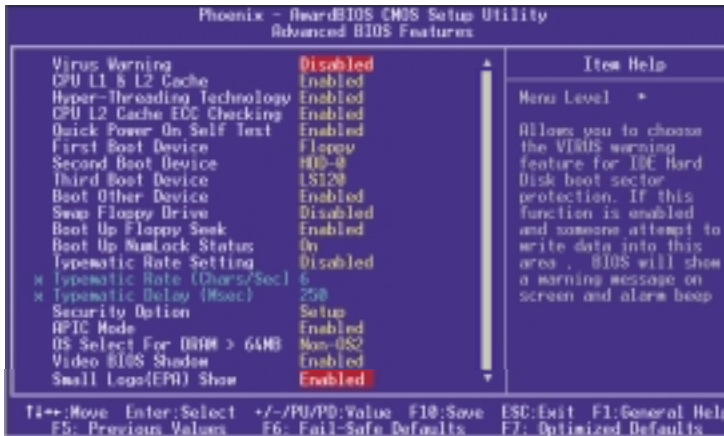
Displays the amount of extended memory detected during boot-up.

#### 3.1.1.9 Total Memory

Displays the total memory available in the system.

### 3.1.2 Advanced BIOS Features

The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



The settings on the screen are for reference only. Your version may not be identical to this one.

#### 3.1.2.1 Virus Warning

This field protects the boot sector and partition table of your hard disk drive. When this field is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive. If an attempt is made to write to the boot sector or partition table of the hard disk drive, the BIOS will halt the system and an error message will appear.

After seeing the error message, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this

## Award BIOS Setup Utility

field. Also, disable this field if you are installing or running certain operating systems like Windows® 98/2000/ME/XP or the operating system may not install nor work.

### 3.1.2.2 CPU L1 & L2 Cache

This field speeds up the memory access. The default value is enabled.

### 3.1.2.3 Hyper-Threading Technology (for Intel® Pentium® 4 Processor with Hyper-Threading Technology)

This field is used to enable the functionality of the Intel® Pentium® 4 Processor with Hyper-Threading Technology and will appear only when using this processor:

### 3.1.2.4 CPU L2 Cache ECC Checking

The processors supported by the system board come with built-in Level 2 cache. By default, ECC is enabled to check the Level 2 cache. If you are not using this function, set this field to Disabled.

### 3.1.2.5 Quick Power On Self Test

This field speeds up Power On Self Test (POST) after you power on the system. When Enabled, the BIOS will shorten or skip some check items during POST.

### 3.1.2.6 First Boot Device, Second Boot Device, Third Boot Device and Boot Other Device

Select the drive to boot first, second and third in the "First Boot Device" "Second Boot Device" and "Third Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected. Set "Boot Other Device" to Enabled if you wish to boot from another device.

### 3.1.2.7 Swap Floppy Drive

When this field is enabled and the system is booting from the floppy drive, the system will boot from drive B instead of drive A. When this option is disabled and the system is booting from the floppy drive, the system will boot from drive A. You must have two floppy drives to use this function.

### 3.1.2.8 Boot Up Floppy Seek

When enabled, the BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. Note that the BIOS cannot distinguish between 720K, 1.2M, 1.44M and 2.88M drive types as they are all 80 tracks. When disabled, the BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360KB.

### 3.1.2.9 Boot Up NumLock Status

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

### 3.1.2.10 Typematic Rate Setting

*Disabled* Continually holding down a key on your keyboard will cause the BIOS to report that the key is down.

*Enabled* The BIOS will not only report that the key is down, but will first wait for a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys. You can then select the typematic rate and typematic delay in the "Typematic Rate (Chars/Sec)" and "Typematic Delay (Msec)" fields below.

### 3.1.2.11 Typematic Rate (Chars/Sec)

This field allows you to select the rate at which the keys are accelerated.

### 3.1.2.12 Typematic Delay (Msec)

This field allows you to select the delay between when the key was first depressed and when the acceleration begins.

### 3.1.2.13 Security Option

This field determines when the system will prompt for the password - everytime the system boots or only when you enter the BIOS setup. Set the password in the Set Supervisor/User Password submenu.

*System* The system will not boot and access to Setup will be denied unless the correct password is entered at the prompt.

*Setup* The system will boot, but access to Setup will be denied unless the correct password is entered at the prompt.

### 3.1.2.14 APIC Mode

Leave this field in its default setting.

### 3.1.2.15 OS Select for DRAM > 64MB

This field allows you to access the memory that is over 64MB in OS/2. The options are: Non-OS2 and OS2.

### 3.1.2.16 Video BIOS Shadow

Determines whether video BIOS will be copied to RAM. Video Shadow will increase the video speed. Note that some graphics boards require that this option be disabled. The default value is Enabled.

*Enabled* Video shadow is enabled.

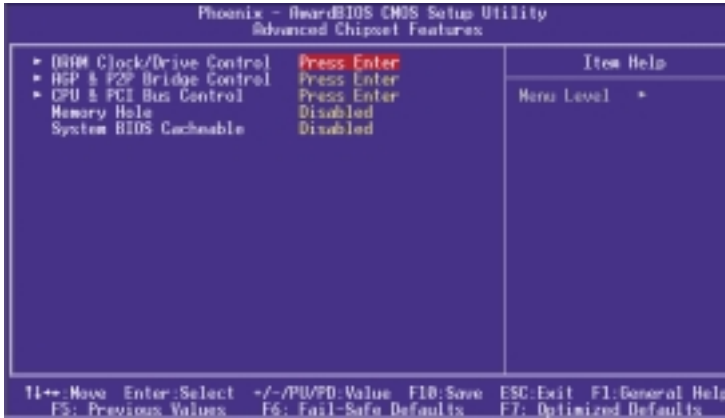
*Disabled* Video shadow is disabled.

### 3.1.2.17 Small Logo(EPA) Show

*Enabled* The EPA logo will appear during system boot-up.

*Disabled* The EPA logo will not appear during system boot-up.

### 3.1.3 Advanced Chipset Features

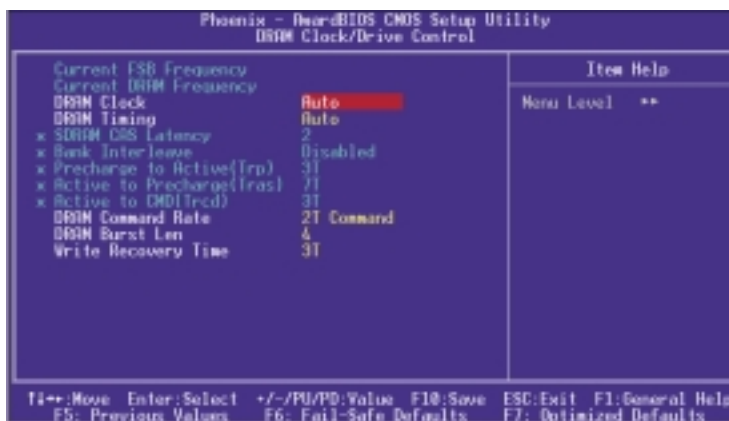


The settings on the screen are for reference only. Your version may not be identical to this one.

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources. **These items should not be altered unless necessary.** The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered some incompatibility or that data was being lost while using your system.

## 3.1.3.1 DRAM Clock/Drive Control

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

### Current FSB Frequency

This field shows the detected FSB of the CPU.

### Current DRAM Frequency

This field shows the detected frequency of the DRAM.

### DRAM Clock

This field is used to select the clock speed of the DIMM.

*Auto*                      The system will run according to the information in the EEPROM. The EEPROM on the DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type, memory size, memory speed, etc. This option is the default setting because it provides the most stable condition for the system.

*DDR 200MHz*            The memory clock speed will run at 200MHz.

*DDR 266MHz*            The memory clock speed will run at 266MHz.



*DDR 333MHz* The memory clock speed will run at 333MHz.

*DDR 400MHz* The memory clock speed will run at 400MHz.

### DRAM Timing

This field is used to select the timing of the DRAM.

*Auto* The EEPROM on a DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type, memory size, memory speed, etc. When this option is selected, the system will run according to the information in the EEPROM. This option is the default setting because it provides the most stable condition for the system.

*Manual* If you want better performance for your system other than the one by "Auto", select "Manual" then select the appropriate options in the "SDRAM CAS Latency" to "Active to CMD (Trcd)" fields. The system will run according to the settings in these fields.

### SDRAM CAS Latency

This field is used to select the clock cycles for the CAS latency.

#### Bank Interleave

The options are 2 Bank, 4 Bank and Disabled.

#### Precharge to Active (Trp)

The options are 2T and 3T.

#### Active to Precharge (Tras)

The options are 5T and 6T.

#### Active to CMD (Trcd)

The options are 2T and 3T.

#### DRAM Command Rate

The options are 1T Command and 2T Command.

### DRAM Burst Len

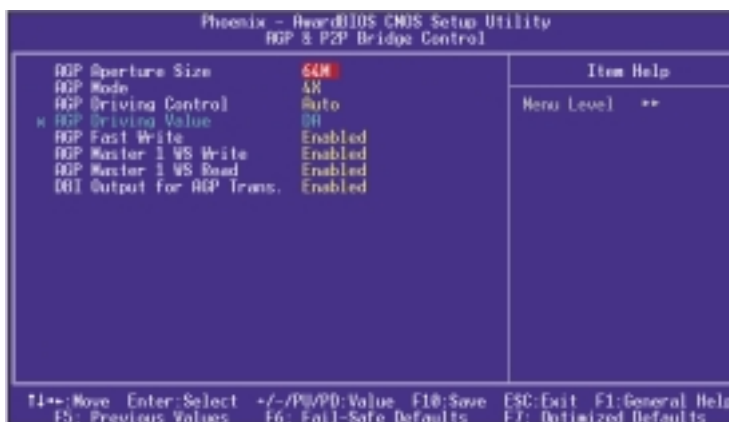
The options are 4 and 8.

### Write Recovery Time

The options are 2T and 3T.

### 3.1.3.2 AGP & P2P Bridge Control

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

### AGP Aperture Size

This field is relevant to the memory-mapped graphics data of the AGP card installed in your system.

### AGP Mode

This field is used to select the AGP mode of the AGP card installed on the system board.

### AGP Driving Control

Set this field to Manual only if there are compatibility problems with some AGP cards. When set to Manual, select a value in the "AGP Driving Value" field.

### AGP Driving Value

This field is used to select a value for the AGP Driving control. We recommend that you leave this field in its default setting.

### AGP Fast Write

Select Enabled to support the AGP Fast Write function.

### AGP Master I WS Write

Set this field to Enabled to add one clock tick to AGP write operations.

### AGP Master I WS Read

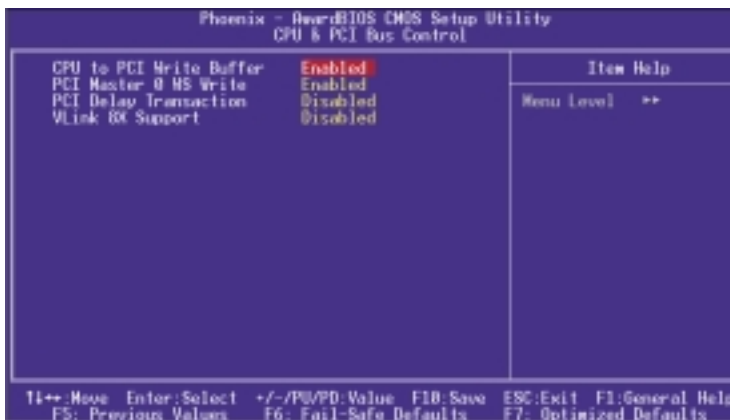
Set this field to Enabled to add one clock tick to AGP read operations.

### DBI Output for AGP Trans.

This field, when enabled, will provide better stability to the entire system. The default is Enabled.

#### 3.1.3.3 CPU & PCI Bus Control

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

### CPU to PCI Write Buffer

- Enabled* Writes from the CPU to the PCI bus are buffered to offset the speed difference between the CPU and PCI bus.
- Disabled* Writes are not buffered therefore the CPU must wait until the write cycle is complete before starting another write cycle.

### PCI Master 0 WS Write

When enabled, writes to the PCI bus are executed with zero wait state.

### PCI Delay Transaction

When enabled, this function frees up the PCI bus for other PCI masters during the PCI-to-ISA transactions. This allows PCI and ISA buses to be used more efficiently and prevents degradation of performance on the PCI bus when ISA accesses are made.

### VLink 8X Support

This field is used to enable the 8X speed of VLink.

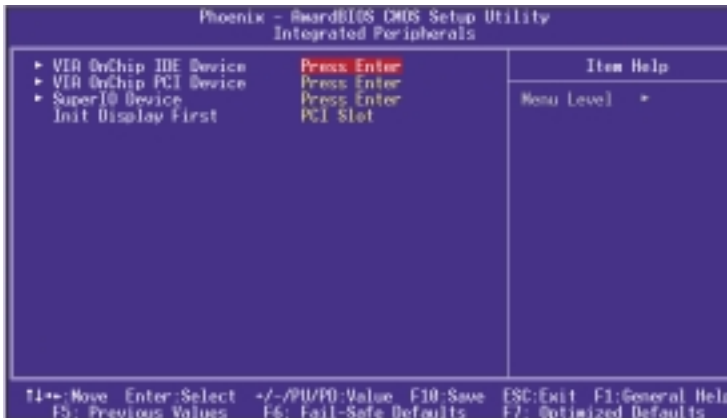
#### 3.1.3.4 Memory Hole

This field is used to select the memory area that must not be addressed to the ISA bus.

#### 3.1.3.5 System BIOS Cacheable

When this field is enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFFH are cached, provided that the cache controller is enabled. The larger the range of the Cache RAM, the higher the efficiency of the system.

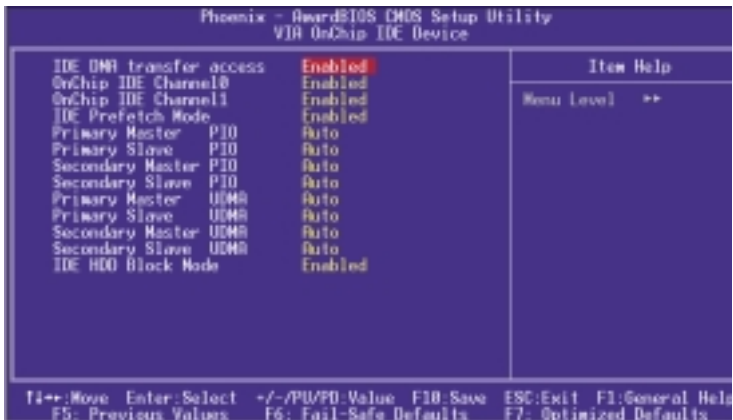
### 3.1.4 Integrated Peripherals



The settings on the screen are for reference only. Your version may not be identical to this one.

#### 3.1.4.1 VIA OnChip IDE Device

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

### IDE DMA Transfer Access

The options are Enabled and Disabled.

### OnChip IDE Channel 0 and OnChip IDE Channel 1

These fields allow you to enable or disable the primary and secondary IDE controller. The default is Enabled. Select Disabled if you want to add a different hard drive controller.

### IDE Prefetch Mode

This allows data and addresses to be stored in the internal buffer of the chip, thus reducing access time. Enable this field to achieve better performance.

### IDE Primary Master/Slave PIO and IDE Secondary Master/Slave PIO

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

- Auto*                    The BIOS will automatically set the system according to your hard disk drive's timing.
- Mode 0-4*              You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

### IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA

These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM.

- Auto*                    The BIOS will automatically detect the settings for you.
- Disabled*              The BIOS will not detect these categories.

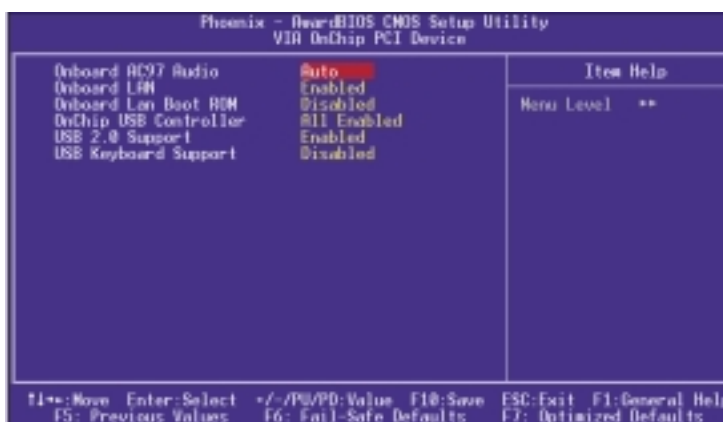
### IDE HDD Block Mode

*Enabled* The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

*Disabled* The IDE HDD uses the standard mode.

#### 3.1.4.2 VIA OnChip PCI Device

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

### Onboard AC97 Audio

*Auto* Select this option when using the onboard audio codec.

*Disabled* Select this option when using a PCI sound card.

### Onboard LAN (P4X400-AL only)

*Enabled* Enables the onboard LAN.

*Disabled* Disables the onboard LAN.

### Onboard LAN Boot ROM (P4X400-AL only)

Enable this field if you wish to use the boot ROM (instead of a disk drive) to boot-up the system and access the local area network directly.

If you wish to change the boot ROM's settings, type the <Shift> and <F10> keys simultaneously when prompted during boot-up. Take note: you will be able to access the boot ROM's program (by typing <Shift> + <F10>) only when this field is enabled.

### OnChip USB Controller

This field is used to select the USB ports you want Enabled.

### USB 2.0 Support

If you are using USB 2.0, this field must be set to Enabled.

### USB Keyboard Support

If you are using a USB keyboard under DOS, set this field to Enabled.



### 3.1.4.3 Super IO Device

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

#### Onboard FDC Controller

- Enabled* Enables the onboard floppy disk controller.
- Disabled* Disables the onboard floppy disk controller.

#### Onboard Serial Port 1 and Onboard Serial Port 2

- Auto* The system will automatically select an I/O address for the onboard serial port 1 and serial port 2.
- 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3* Allows you to manually select an I/O address for the onboard serial port 1 and serial port 2.
- Disabled* Disables the onboard serial port 1 and/or serial port 2.

### UART Mode Select

To use the IrDA function, follow the steps below.

1. Connect your IrDA cable to connector IR1 on the system board.
2. Set the "UART Mode Select" field to the type of IrDA standard supported by your IrDA peripheral/device.
3. Set the "Rx/D Tx/D Active", "IR Transmission Delay", "UR2 Duplex Mode" and "Use IR Pins" fields appropriately.

### RxD, Tx/D Active

The options are Hi, Lo; Lo, Hi; Lo, Lo; and Hi, Hi.

### IR Transmission Delay

If this option is Enabled, transmission of data will be slower. This is recommended when you encounter transmission problem with your device. The options are: Enabled and Disabled.

### UR2 Duplex Mode

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

### Use IR Pins

The options are IR-Rx2Tx2 and Rx/D2, Tx/D2.

### 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 standard specifications 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)”**

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

#### **“EPP (Enhanced Parallel Port)”**

Allows bidirectional parallel port operation at maximum speed.

### EPP Mode Select

This is used to select the EPP mode.

### ECP Mode Use DMA

This is used to select the DMA channel used for the parallel port.

### Game Port Address

This field is used to select the game port's address. The options are 201, 209 and Disabled.

### Midi Port Address

This field is used to select the MIDI port's address. If you have selected the MIDI port's address, you may select its IRQ in the “Midi Port IRQ” field.

### Midi Port IRQ

This field is used to select the MIDI port's IRQ.

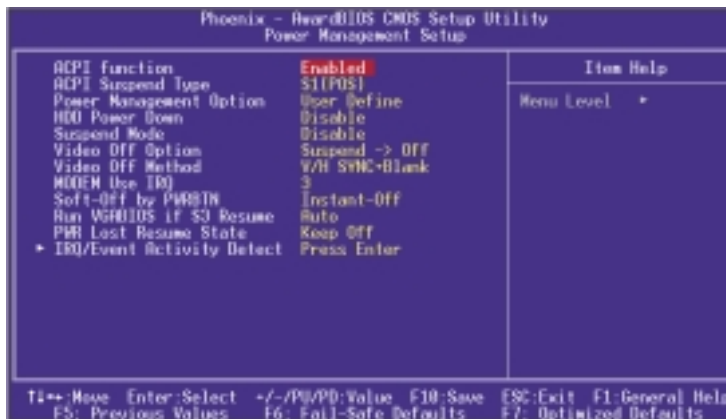
#### 3.1.4.4 Init Display First

This field is used to select whether to initialize the AGP or PCI first when the system boots.

- |                 |  |
|-----------------|--|
| <i>AGP</i>      | When the system boots, it will first initialize the AGP. |
| <i>PCI Slot</i> | When the system boots, it will first initialize PCI.     |

### 3.1.5 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy.



The settings on the screen are for reference only. Your version may not be identical to this one.

#### 3.1.5.1 ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98/2000/ME/XP supports this function. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the "ACPI Suspend Type" field.

#### 3.1.5.2 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. If you are using the Windows® 98 operating system, refer to "Using the Suspend to RAM Function" in appendix A for more information.

### 3.1.5.3 Power Management Option

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" field is activated.

<i>Min Saving</i>	Minimum power saving time for Suspend mode = 1 hr.
<i>Max Saving</i>	Maximum power saving time for Suspend mode = 1 min.
<i>User Define</i>	Allows you to set the power saving time in the "Suspend Mode" field.

### 3.1.5.4 HDD Power Down

After the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

### 3.1.5.5 Suspend Mode

This is selectable only when the Power Management field is set to User Define. When the system enters the Suspend mode according to the power saving time selected, the CPU and onboard peripherals will be shut off.

### 3.1.5.6 Video Off Option

<i>Always On</i>	The system BIOS will never turn off the screen.
<i>Suspend -&gt; Off</i>	The screen is off when the system is in the Suspend mode.

### 3.1.5.7 Video Off Method

This determines the manner in which the monitor is blanked.

<i>VIH SYNC + Blank</i>	This will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
<i>Blank Screen</i>	This only writes blanks to the video buffer.
<i>DPMS Support</i>	Initializes display power management signaling. Select this if your video board supports it.

### 3.1.5.8 MODEM Use IRQ

This field is used to set an IRQ channel for the modem installed in your system.

### 3.1.5.9 Soft-Off by PWRBTN

This field allows you to select the method of powering off your system.

*Delay 4 Sec* Regardless of whether the Power Management field is enabled or disabled, if the power button is pushed and released in less than 4 sec, the system enters 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 immediately power off your system.

### 3.1.5.10 Run VGABIOS if S3 Resume

When this field is set to Auto, the system will initialize the VGA BIOS from the S3 state.

### 3.1.5.11 PWR Lost Resume State

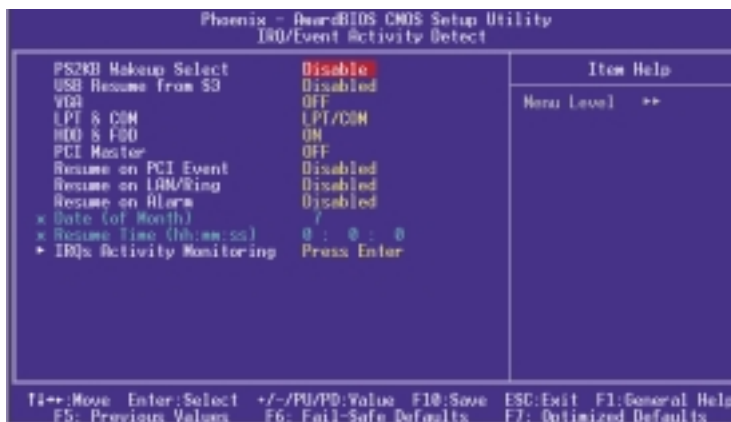
*Keep Off* When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

*Turn On* When power returns after an AC power failure, the system will automatically power-on.

*Last State* When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

## 3.1.5.12 IRQ/Event Activity Detect

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

## PS2KB Wakeup Select

*Password* To use a password to wake up the system, select this option then press <Enter>. Enter your password. You can enter up to 5 characters. Type in exactly the same password to confirm, then press <Enter>.

**Important:**

*If you forgot the password, you must power-off the system, unplug the power cord and clear the CMOS data. Follow the steps in the "Jumper Settings for Clearing CMOS Data" section in chapter 2.*

*Ctrl+F1* Use the <Ctrl> and <F1> keys to wake up the system.

*Disabled* Disables the keyboard password function.



### USB Resume from S3

This function, when enabled, allows you to use a USB keyboard or USB mouse to wake up a system that is in the S3 (STR - Suspend To RAM) state.

### VGA

When set to On, the system will respond and wake up to any VGA activity.

### LPT & COM

Select the port you would like the system to respond and wake up when an event occurs on that port.

### HDD & FDD

When set to On, the system will respond and wake up to any hard drive or floppy drive activity.

### PCI Master

When set to On, the system will respond and wake up to any PCI or bus master activity.

### Resume on PCI Event

Set this field to Enabled if your PCI card such as LAN card or modem card uses the PCI PME (Power Management Event) signal to remotely wake up the PC. Refer to the card's documentation for more information.

### Resume On LAN/Ring

This field allows you to enable the Wake-On-LAN and Wake-On-Ring function. When enabled, it will remotely wake up the system via the network. or via an external modem.

### Resume on 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)" and "Resume Time (hh:mm:ss)" fields. However, if the system is being accessed by incoming calls or the network 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)

### Date (of Month)

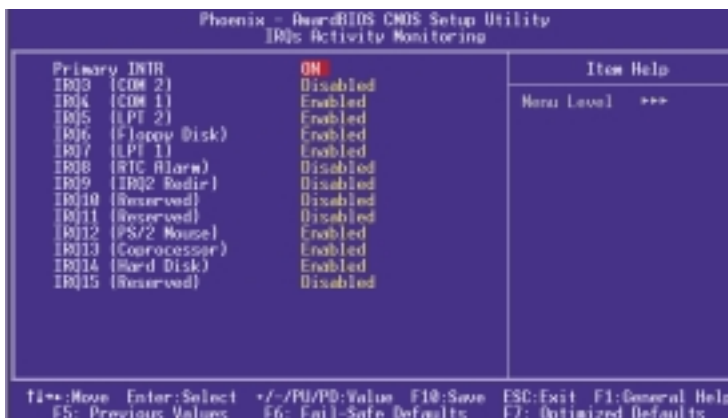
- 0* The system will power-on everyday according to the time set in the "Resume Time (hh:mm:ss)" field.
- 1-31* Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Resume Time (hh:mm:ss)" field.

### Resume Time (hh:mm:ss)

This is used to set the time you would like the system to power-on. If you want the system to power-on everyday as set in the "Date (of Month)" field, the time set in this field must be later than the time of the RTC set in the Standard CMOS Features submenu.

### IRQs Activity Monitoring

Move the cursor to this field and press <Enter>. The following screen will appear:

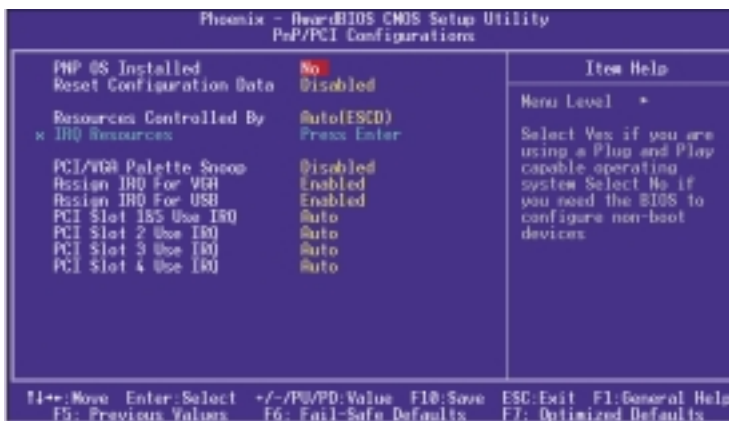


The settings on the screen are for reference only. Your version may not be identical to this one.

When the "Primary INTR", and "IRQ3" - "IRQ15" fields are enabled, access to the specified IRQ will cause the system to wake up completely from the power management mode. When disabled, the system will not wake up from the power management mode despite access to the specified IRQ.

### 3.1.6 PnP/PCI Configurations

This section shows how to configure the PCI bus system. It covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



The settings on the screen are for reference only. Your version may not be identical to this one.

#### 3.1.6.1 PNP OS Installed

The default setting is “No”. The BIOS will detect the Plug and Play devices for some compatible resources.

#### 3.1.6.2 Reset Configuration Data

*Enabled* The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.

*Disabled* The BIOS will not reset the configuration data.

#### 3.1.6.3 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 resources in the “IRQ Resources” field.

#### 3.1.6.4 IRQ Resources

Move the cursor to this field and press <Enter>. The "IRQ-3" to "IRQ-15" fields will appear. Set each system interrupt to either PCI Device or Reserved.

#### 3.1.6.5 PCI/VGA Palette Snoop

This field determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not. The default value is Disabled.

*Enabled* MPEG ISA/VESA VGA cards work with PCI/VGA.

*Disabled* MPEG ISA/VESA VGA cards does not work with PCI/VGA.

#### 3.1.6.6 Assign IRQ for VGA

When Enabled, the system automatically assigns an IRQ for the VGA card installed. Your VGA card will need an IRQ only when using the video capture function of the card. If you are not using this function and a new device requires an IRQ, you can set this field to Disabled. The IRQ (previously occupied by the VGA card) will be available for your new device.

#### 3.1.6.7 Assign IRQ for USB

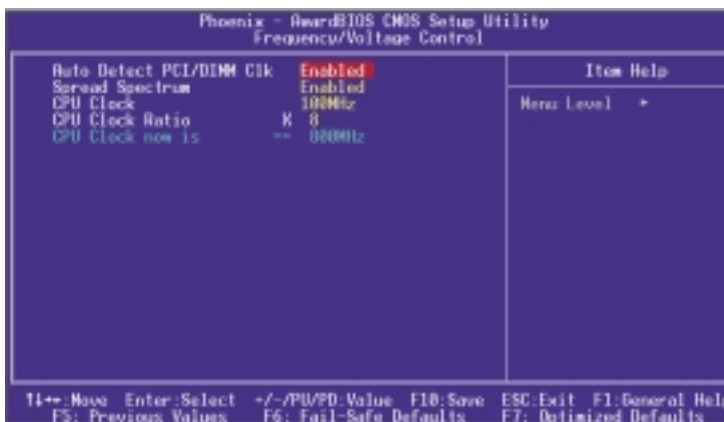
When Enabled, the system automatically assigns an IRQ for the USB device connected to your system. However, if you are not using USB devices and a new device requires an IRQ, set this field to Disabled. The IRQ previously occupied by the USB device will be available for the new device.

#### 3.1.6.8 PCI Slot 1&5 Use IRQ to PCI Slot 4 Use IRQ

By default, an IRQ is automatically assigned to the PCI devices that are installed in the PCI slots.

If a PCI device has not been assigned an IRQ, you must manually assign an IRQ for the device. During system boot-up, you will see "NA" for the device that does not have an IRQ assigned.

### 3.1.7 Frequency/Voltage Control



The settings on the screen are for reference only. Your version may not be identical to this one.

#### 3.1.7.1 Auto Detect PCI/DIMM Clk

When enabled, the system will automatically send clock signals to existing PCI or DIMM devices.

#### 3.1.7.2 Spread Spectrum

Leave this field in its default setting. Do not alter this setting unless advised by an engineer or technician.

#### 3.1.7.3 CPU Clock

This field provides several options for selecting the external system bus clock of the CPU. The available options allow you to adjust the CPU's bus clock in 1MHz increment. The default setting is "100MHz".



**Important:**

*Overclocking may result in the processor's or system's instability and is not guaranteed to provide better system performance.*

### 3.1.7.4 CPU Clock Ratio

This field is used to select the CPU's frequency ratio.



**Important:**

*The frequency ratio of some processors may have been locked by the manufacturer. If you are using this kind of processor, setting an extended ratio for the processor will have no effect. The system will instead use its factory default ratio.*

If, in the "CPU Clock" or "CPU Clock Ratio" field, you selected an option other than the default setting and is unable to boot up the system, there are 2 methods of booting up the system and going back to its default setting.

Method 1:

Clear the CMOS data by setting JBAT1 to 2-3 On. All fields in the BIOS Setup will automatically be set to their default settings.

Method 2:

Press the <Insert> key and power button simultaneously, then release the power button first. Keep-on pressing the <Insert> key until the power-on screen appears. This will allow the system to boot according to the FSB of the processor. Now press the <Del> key to enter the main menu of the BIOS. Select "Frequency/Voltage Control" and set the "CPU Clock" or "CPU Clock Ratio" field to its default setting or an appropriate bus clock or ratio.



**Note:**

*Use a PS/2 or AT (requires a DIN to mini DIN adapter) keyboard for method 2.*

### 3.1.7.5 CPU Clock Now Is

This field will show the CPU clock based on the settings in the "CPU Clock" and "CPU Clock Ratio" fields.

### 3.1.8 Load Fail-Safe Defaults

The “Load Fail-Safe Defaults” option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press <Enter>.



If you want to proceed, type <Y> and press <Enter>. The default settings will be loaded.



### 3.1.9 Load Optimized Defaults

The “Load Optimized Defaults” option loads optimized settings from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>.

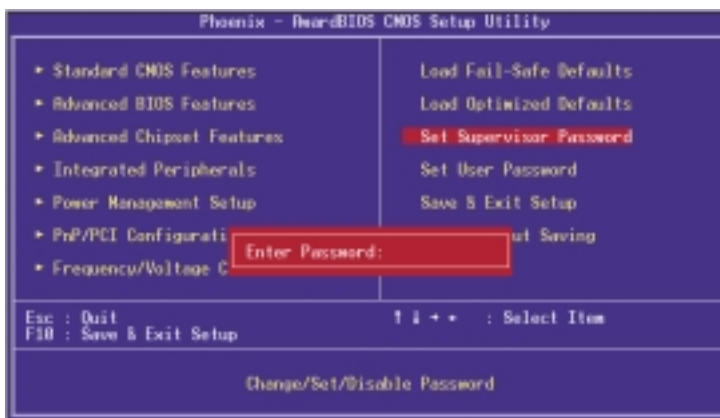


Type <Y> and press <Enter> to load the Setup default values.

### 3.1.10 Set Supervisor Password

If you want to protect your system and setup from unauthorized entry, set a supervisor's password with the "System" option selected in the Advanced BIOS Features. If you want to protect access to setup only, but not your system, set a supervisor's password with the "Setup" option selected in the Advanced BIOS Features. You will not be prompted for a password when you cold boot the system.

Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>.



Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

### 3.1.11 Set User Password

If you want another user to have access only to your system but not to setup, set a user's password with the "System" option selected in the Advanced BIOS Features. If you want a user to enter a password when trying to access setup, set a user's password with the "Setup" option selected in the Advanced BIOS Features.

Using user's password to enter Setup allows a user to access only "Set User Password" that appears in the main menu screen. Access to all other options is denied.

Use the arrow keys to highlight "Set User Password" and press <Enter>.



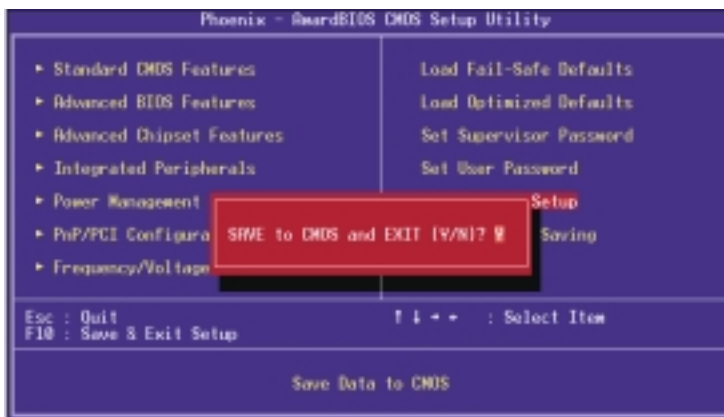
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set User Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

### 3.1.12 Save & Exit Setup

When all the changes have been made, highlight “Save & Exit Setup” and press <Enter>.



Type “Y” and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot. You will once again see the initial diagnostics on the screen. If you wish to make additional changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

### 3.1.13 Exit Without Saving

When you do not want to save the changes you have made, highlight "Exit Without Saving" and press <Enter>.

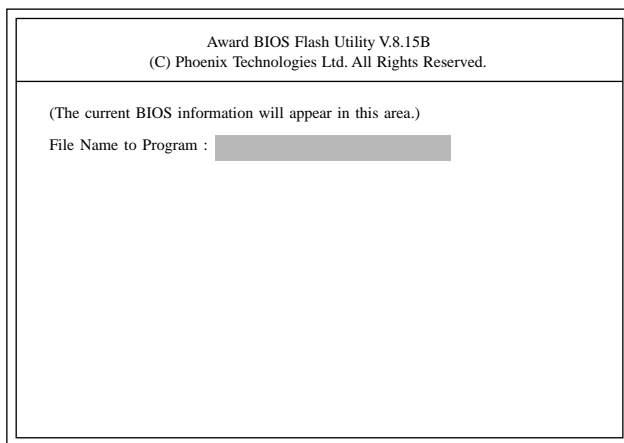


Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

## 3.2 Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility, AWDFLASH.EXE. You can download them from DFI's web site or contact technical support or your sales representative.

1. Save the new BIOS file along with the flash utility AWDFLASH.EXE to a floppy disk.
2. Reboot the system and enter the Award BIOS Setup Utility to set the first boot drive to "Floppy".
3. Save the setting and reboot the system.
4. After the system booted from the floppy disk, execute the flash utility by typing AWDFLASH.EXE. The following screen will appear:



5. Type the new BIOS file name onto the gray area that is next to "File Name to Program" then press <Enter>.

- The following will appear:

Do You Want to Save BIOS (Y/N)

This question refers to the current existing BIOS in your system. We recommend that you save the current BIOS and its flash utility; just in case you need to reinstall the BIOS. To save the current BIOS, press <Y> then enter the file name of the current BIOS. Otherwise, press <N>.

- The following will then appear:

Press "Y" to Program or "N" to Exit

- Press <Y> to flash the new BIOS.

## Chapter 4 - Supported Software

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### 4.1 Desktop Management Interface (DMI)

The system board comes with a DMI built into the BIOS. DMI, along with the appropriately networked software, is designed to make inventory, maintenance and troubleshooting of computer systems easier. With DMI, a network administrator or MIS engineer can remotely access some information about a particular computer system without physically going to it. Quite often a service call may be unnecessary as the problem can be solved remotely.

The DMI utility in the BIOS automatically records various information about your system configuration. Information about the type and speed of CPU, type and amount of memory for each memory slot, BIOS revision level, types of add-in PCI boards and components, certain revision numbers of hardware installed, etc. are automatically detected and stored in the DMI pool, which is a part of the mainboard's Plug and Play BIOS. Additional information, such as ISA based peripherals, which may not be automatically detected, can be manually recorded in the DMI pool by using the Add DMI menu. The DMI pool data is then verified or updated whenever the system hardware or setup is altered.

#### 4.1.1 Running the DMI Utility

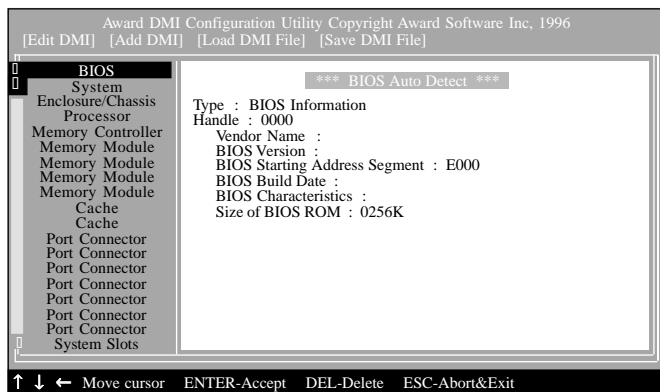
To run the DMI utility, type: DMICFG.EXE. You can download this utility from [ftp.dfiusa.com](http://ftp.dfiusa.com) - /utilities/DMI directory.

The DMI utility must run in real mode with at least 180K of base memory. Memory managers like HIMEM.SYS (required by Windows) must not be installed. You may do this by using one of the 3 methods listed below.

1. Boot up from a system diskette without the AUTOEXEC.BAT and CONFIG.SYS files,
2. "REM" HIMEM.SYS in the CONFIG.SYS, or
3. Press <F5> during bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.



## 4.1.2 Using the DMI Utility



The four menus located on top of the DMI Configuration Utility screen are Edit DMI, Add DMI, Load DMI File and Save DMI File. Use the ← or → (left or right) arrow keys to select a menu from the Menu bar.

On the left side of the screen is a list of the system configuration items. Use the ↑ or ↓ (up or down) arrow keys to select an item.

The commands at the bottom of the screen will allow you to navigate through the various setup menus.

### Edit DMI

1. Use the ← or → arrow keys to select the Edit DMI menu.
2. Highlight the item on the left screen that you would like to edit by using the ↑ or ↓ arrow keys, then press <Enter>.
3. The cursor will move to the screen you select allowing you to edit information. The screen will also display the auto-detected information.
4. Press <F10> to update the edited information into the flash ROM.

## Add DMI

1. Use the ← or → arrow keys to select the Add DMI menu.
2. Highlight the item on the left screen that you would like to add by using the ↑ or ↓ arrow keys, then press <Enter>.
3. The cursor will move to the screen you select allowing you to enter information about the added item.
4. Press <F10> to save information into the flash ROM.

To view information about the added items, go to the Edit DMI menu.

## Load DMI File

1. Use the ← or → arrow keys to select the Load DMI File menu.
2. The following message will appear:

*Press [Enter] to select DMI file for load*

Press <Enter>.

3. The DMI files will appear on the screen. Select the file you would like to load and press <Enter>.
4. The following message will appear:

*Do you want to execute? (Y/N)*

Type <Y>. All previous DMI structures will be destroyed and the new file will be saved into the flash ROM.

## Save DMI File

1. Use the ← or → arrow keys to select the Save DMI File menu.
2. The following message will appear:

*Press [Enter] to select DMI file for save*

Press <Enter>.

3. Enter the directory and filename under which you would like the DMI file saved.

## 4.2 Drivers, Utilities and Software Applications

The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".



### 4.2.1 VIA® Service Pack

The VIA® Service Pack contains the following drivers.

- VIA ATAPI Vendor Support Driver
- AGP VxD Driver
- IRQ Routing Miniport Driver
- VIA INF Driver

To install VIA Service Pack, please follow the steps below.

1. On the left side of the autorun screen, click the “CHIPSET” icon.
2. Click “VIA Service Pack” on the main screen. The following screen will appear:



3. Click “Next”. Please read the “VIA Service Pack Readme” carefully before proceeding to step 3.
4. Follow the prompts on the screen to complete the installation.
5. Reboot the system for the drivers to take effect.

### VIA® Service Pack Installation Notes

The “AGP VxD Driver” and “VIA INF Driver” drivers in the “VIA Service Pack” are supported in Windows® 95, Windows® 98, Windows® 98 SE, Windows® ME and Windows® 2000.

You must first install VIA® Service Pack prior to installing any other drivers. However, this may not be the case for some AGP cards. Please read carefully the following information.



**Important:**

*The VGA driver that came with some AGP cards is already bundled with the AGP VxD driver. Since the version of the bundled VxD driver may be older than the one provided in the CD, installing the bundled VxD driver may cause problems. If you are using this type of card, we recommend that you install first the AGP card's VGA driver before installing the VIA Service Pack.*

## 4.2.2 Audio Drivers

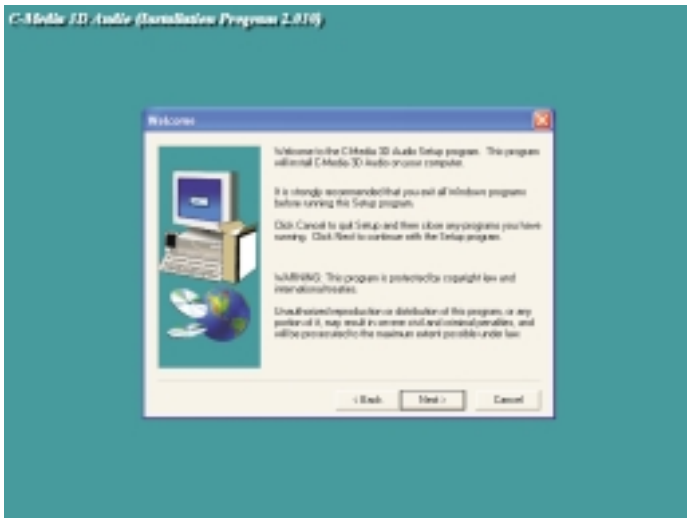
The audio drivers are supported in the following operating systems: Windows® 98, Windows® 98 SE, Windows® ME, Windows NT® 4.0, Windows® 2000 and Windows® XP.

To install the driver, please follow the steps below.

1. On the left side of the autorun screen, click the "AUDIO" icon.
2. Click "Audio Drivers" on the main menu. The following screen will appear: Click "Install Device Driver".



- The following screen will appear:



- Follow the prompts on the screen to complete installation.
- Reboot the system for the driver to take effect.



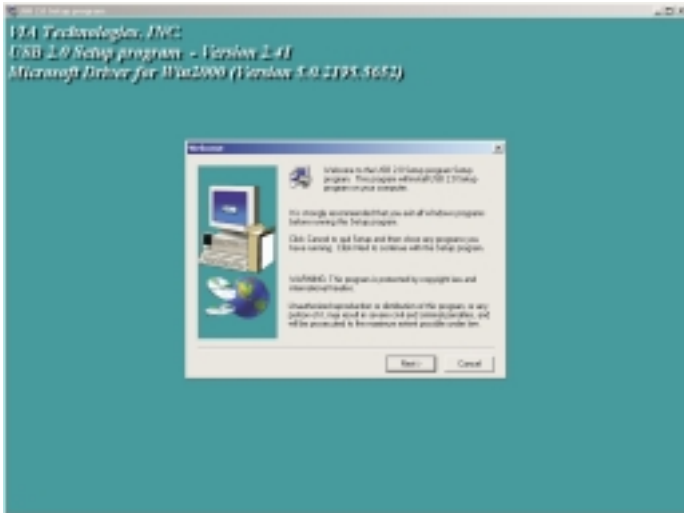
**Note:**

*The 3D Audio Configuration software, which is an audio panel for setting basic audio configurations, will at the same time be installed into your system. Refer to the “3D Audio Configuration” section in this chapter for more information.*

### 4.2.3 VIA USB 2.0 Drivers

To install the USB 2.0 driver, please follow the steps below.

1. On the left side of the autorun screen, click the "USB" icon.
2. Click "VIA USB 2.0 Drivers". The following screen will appear:



3. Follow the prompts on the screen to complete installation.
4. Restart the system.

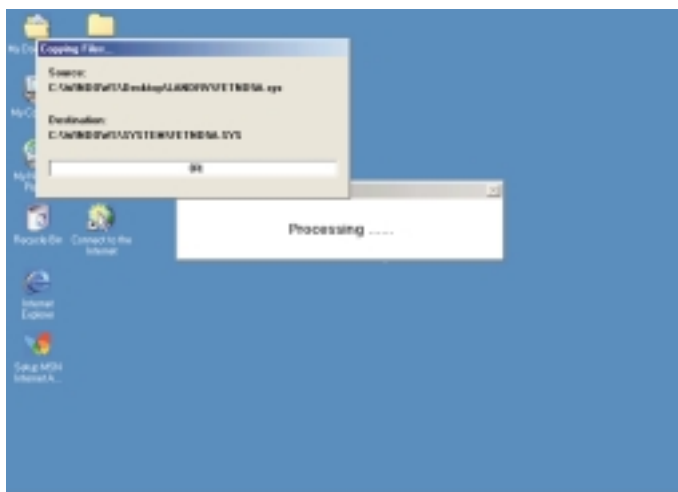


#### 4.2.4 VIA LAN Drivers (P4X400-AL only)

The LAN drivers for Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000 and Windows® XP support “Autorun”.

To install the LAN driver, please follow the steps below.

1. On the left side of the autorun screen, click the “NETWORK” icon.
2. Click “VIA LAN Drivers”. The following screen will appear:



3. Follow the prompts on the screen to complete installation.
4. Reboot the system for the driver to take effect.

The LAN driver for Windows NT® 4.0 does not support “Autorun”. Once the system has detected the fast ethernet controller, it will prompt you to install the driver for Windows NT® 4.0. The driver is in the “LANDRV” root directory of the CD. Please refer to README for the exact location of the drivers.

### 4.2.5 Microsoft DirectX 8.1

To install, please follow the steps below.

1. On the left side of the autorun screen, click the "TOOLS" icon.
2. Click "Microsoft DirectX 8.1" on the main screen. The screen below will appear:



3. Click "Yes" to continue.
4. Follow the prompts on the screen to complete installation.
5. Restart the system.

### 4.2.6 McAfee VirusScan Online (English OS only)

The McAfee VirusScan Online is the most reliable and convenient way of protecting your PC from computer viruses. When you install McAfee VirusScan Online, your computer is safe because it automatically scans for viruses and checks for virus updates so that PC protection stays up-to-date.

To install, please follow the steps below.

1. On the left side of the autorun screen, click the "TOOLS" icon.
2. Click "McAfee VirusScan Online" on the main screen. The screen below will appear:



3. Click "Yes" to continue.
4. Follow the prompts on the screen to complete installation.
5. Restart the system.

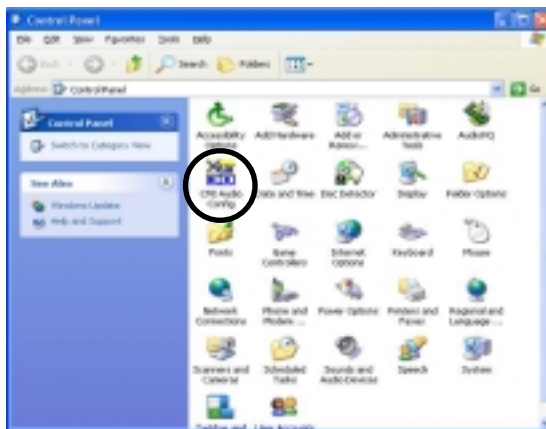
### 4.3 3D Audio Configuration

When you install the audio driver, the 3D Audio Configuration software will at the same time be installed into your system. 3D Audio Configuration is an audio panel for setting basic audio configurations. It allows you to configure 2-channel, 4-channel and 6-channel audio modes as well as configure the audio effects. After installing the audio driver and rebooting the system, you can run 3D Audio Configuration either from the taskbar or from the Control Panel.

- a. Right-click the 3D Audio Configuration icon which you will find in the taskbar at the lower right corner of the desktop screen.

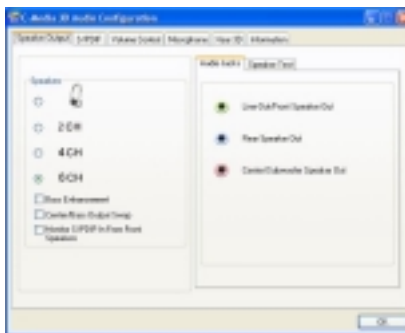


- b. On your Windows desktop, click Start, point to Settings then click Control Panel. The Control Panel dialog box will appear. Double-click CMI Audio Config.



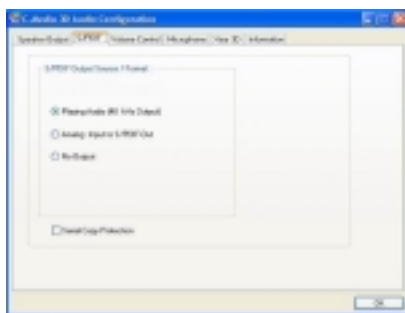
## Speaker Output

When you open 3D Audio Configuration, the default screen that appears is the Speaker Output. This is where you will configure analog output settings to speakers.



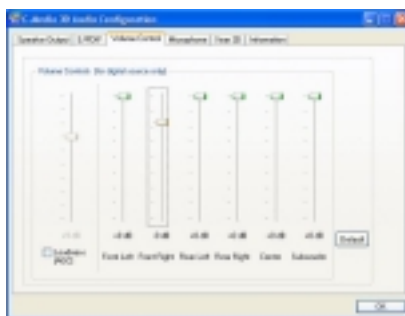
## S/PDIF

This panel is used to configure S/PDIF output which provides a low-distortion digital data transfer between audio devices.



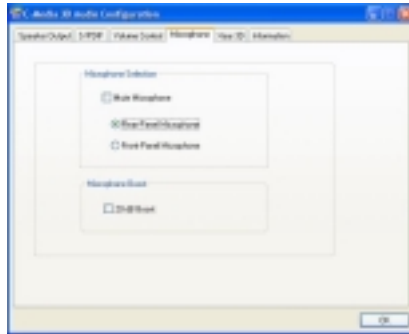
## Volume Control

This panel provides digital volume control for all 6 channels. You can regulate each volume to the speaker when playing digital sound sources.



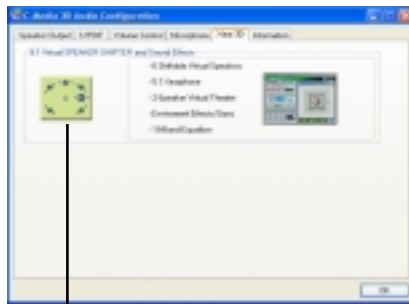
### Microphone

This panel is used to configure the microphone.



### Xear 3D

Xear 3D is a sound technology for 2-channel virtual surround, adjustable multi-channel sound field, innovative listening mode, amazing sound effects and 3D positional audio. It has 3 functional blocks: Virtual Speaker Shifter; Sound Effect and Multi-channel Music Demo.



A complete version of the 3D Audio Configuration manual is provided in the CD.

## 4.4 Installation Notes

1. "Autorun" ONLY supports the Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000, Windows NT® 4.0 and Windows® XP operating systems. If after inserting the CD, "Autorun" did not automatically start (which is, the Main Board Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".
2. All steps or procedures to install software drivers are subject to change without notice as the softwares are occasionally updated. Please go to DFI's web site at "<http://www.dfi.com/support1/download2.asp>" for the latest version of the drivers or software applications.

## Appendix A - Enabling Hyper-Threading Technology

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### A.1 Enabling Hyper-Threading Technology

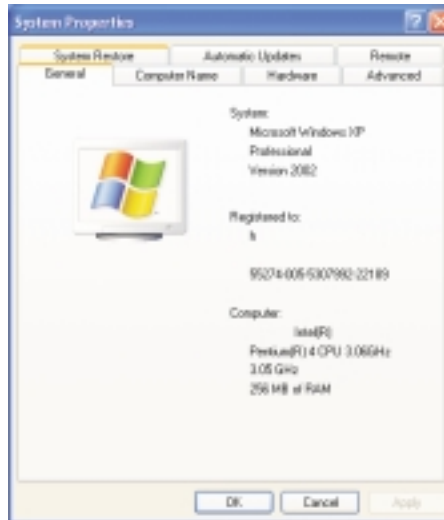
To enable the functionality of the Hyper-Threading Technology, please follow the requirements and steps below. Basically, the following presumes that you have already installed an Intel® Pentium® 4 Processor with Hyper-Threading Technology.

1. The system requires a minimum of 300 Watt ATX 12V power supply.
2. Aside from installing a CPU fan on the Intel® Pentium® 4 Processor with Hyper-Threading Technology, make sure to install cooling fans. The system requires adequate airflow throughout the chassis to prevent overheating the processor.
3. The “CPU Hyper-Threading” field in the Advanced BIOS Features submenu of the Award BIOS setup will appear. Make sure this field is set to Enabled.
4. Currently, only Windows® XP supports the Hyper-Threading Technology. If this OS has been previously installed, you must **REINSTALL** it.
5. After installing Windows® XP, please check the following to ensure that the operating system has been properly installed.
  - a. Click Start, point to Settings then click Control Panel.
  - b. Double-click the System icon. The System Properties dialog box will appear.

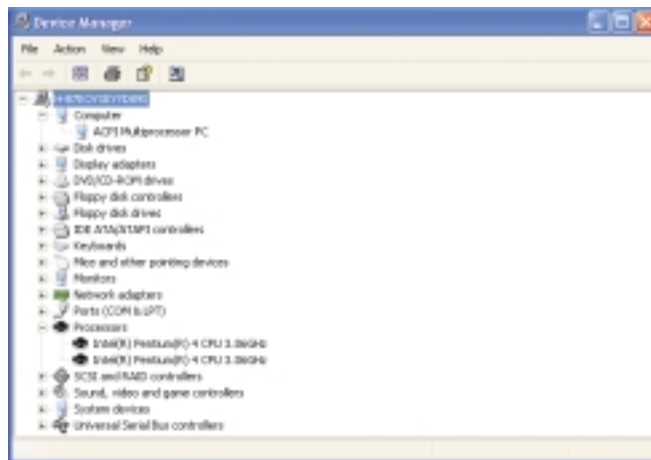


## Enabling Hyper-Threading Technology

- c. Click the General tab. The processor shown under Computer should resemble the one shown below.

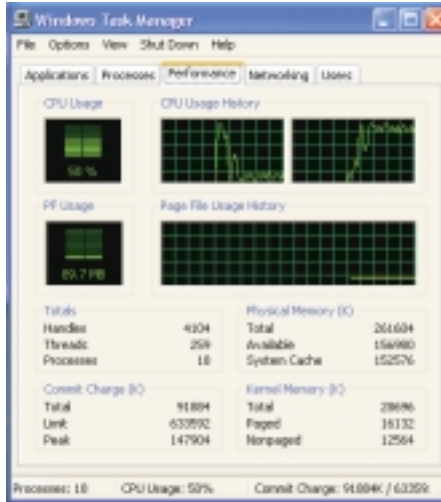


- d. Now click the Hardware tab then click Device Manager. The items shown under Computer and Processors should resemble the ones shown below.



## Enabling Hyper-Threading Technology .....

- e. Lastly, press the <Ctrl> <Alt> and <Del> keys simultaneously. The Windows Task Manager dialog box will appear. Click the Performance tab. The diagram under CPU Usage History should resemble the one shown below.

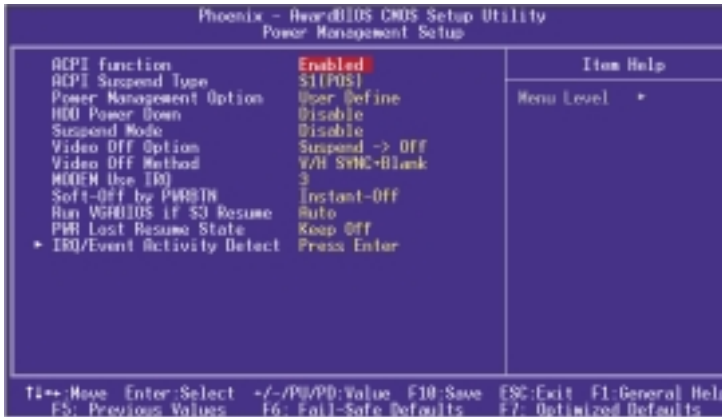


## Appendix B - Using the Suspend to RAM Function

### B.1 Using the Suspend to RAM Function

If you are using the Windows® 98 operating system, please follow the steps below.

1. Select "Power Management Setup" in the main menu screen and press <Enter>.
2. In the "ACPI Function" field, select "Enabled".
3. In the "ACPI Suspend Type" field, select "S3(STR)".



The settings on the screen are for reference only. Your version may not be identical to this one.

4. Press <Esc> to return to the main menu.
5. Select "Save & Exit Setup" and press <Enter>. Type <Y> and press <Enter>.
6. Install Windows® 98 by typing the following parameter. This is to ensure that the ACPI function is supported.

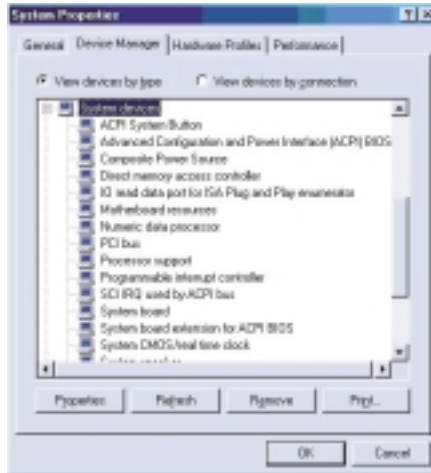
[drive]:>setup /p j

If you have previously installed Windows® 98, you need to upgrade the system in order to support ACPI. Please contact Microsoft for upgrade information.

## Using the Suspend to RAM Function .....

7. Boot Windows® 98. In the Windows® 98 desktop, click the Start button. Move the cursor to Settings, then click Control Panel.

To check whether ACPI was properly installed, double-click the System icon. In the System Properties dialog box, click the “Device Manager” tab. In “View devices by type”, click “System devices”.

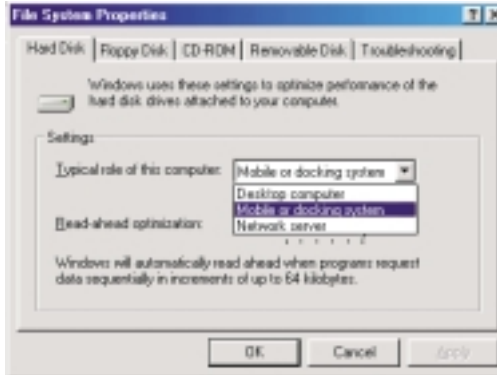


8. Double-click the System icon. In the System Properties dialog box, click the Performance tab.

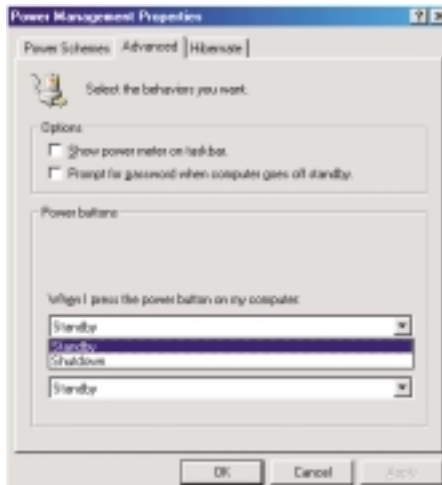


## Using the Suspend to RAM Function

- Click File System. In the “Typical role of this computer” field, select “Mobile or docking system”. Click Apply, then click OK. Restart the computer.



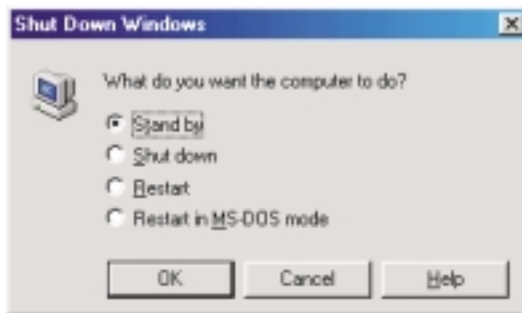
- Repeat step 7 to open the Control Panel dialog box. Double-click the Power Management icon.
- Click the Advanced tab. In the “When I press the power button on my computer” field, select “Standby”.



12. After completing the steps above and you want to power-off the computer; you do not need to go through the process of closing files, applications and operating system. You can power-off the computer at once by pressing the power button or selecting "Standby" when you shut down Windows® 98.

To power-on the computer; just press the power button. The operating session where you left off when you power-off the computer will resume in not more than 8 seconds.

If you have changed the color or resolution (in the Display Properties dialog box), do not apply the settings without restarting. You must restart the computer.



**Important:**

*If you are unable to use the Suspend to RAM function (after performing the steps above in Windows® 98 or when you are in Windows® 2000/ME/XP), please check whether your add-in cards or devices support this function. If this function is not supported, you need to download the appropriate driver from their respective website.*

## Appendix C - System Error Message

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When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message, PRESS F1 TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

### C.1 POST Beep

There are two kinds of beep codes in the BIOS. One code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps. The other code indicates that a DRAM error has occurred. This beep code consists of a single long beep.

### C.2 Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list indicates the error messages for all Awards BIOSes:

#### CMOS BATTERY HAS FAILED

The CMOS battery is no longer functional. It should be replaced.



**Caution:**

*Danger of explosion if battery incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the battery manufacturer's instructions.*

#### CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

#### DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the mainboard can be set to either monochrome or color. This indicates the switch is set to a different

setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

#### FLOPPY DISK(S) fail (80)

Unable to reset floppy subsystem.

#### FLOPPY DISK(S) fail (40)

Floppy type mismatch.

#### Hard Disk(s) fail (80)

HDD reset failed.

#### Hard Disk(s) fail (40)

HDD controller diagnostics failed.

#### Hard Disk(s) fail (20)

HDD initialization error.

#### Hard Disk(s) fail (10)

Unable to recalibrate fixed disk.

#### Hard Disk(s) fail (08)

Sector-Verify failed.

#### Keyboard is locked out - Unlock the key

The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

#### Keyboard error or no keyboard present

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

#### Manufacturing POST loop

System will repeat POST procedure infinitely while the keyboard controller is pull low. This is also used for the M/B burn in test at the factory.

#### BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

#### Memory test fail

The BIOS reports memory test fail if the memory has error(s).



## Appendix D - Troubleshooting

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### D.1 Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

1. The power switch of each peripheral device is turned on.
2. All cables and power cords are tightly connected.
3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.
4. The monitor is turned on.
5. The display's brightness and contrast controls are adjusted properly.
6. All add-in boards in the expansion slots are seated securely.
7. Any add-in board you have installed is designed for your system and is set up correctly.

#### Monitor/Display

**If the display screen remains dark after the system is turned on:**

1. Make sure that the monitor's power switch is on.
2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.
3. Check that the video input cable is properly attached to the monitor and the system's display adapter.
4. Adjust the brightness of the display by turning the monitor's brightness control knob.

### The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
3. Make sure your video card's output frequencies are supported by this monitor.

### The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

## Power Supply

### When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

## Floppy Drive

### The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.
2. The diskette may be write-protected. Use a diskette that is not write-protected.
3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

## Hard Drive

### Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.
2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

### Excessively long formatting period.

1. If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

## Parallel Port

### The parallel printer doesn't respond when you try to print.

1. Make sure that your printer is turned on and that the printer is on-line.
2. Make sure your software is configured for the right type of printer attached.
3. Verify that the onboard LPT port's I/O address and IRQ settings are configured correctly.
4. Verify that the attached device works by attaching it to a parallel port that is working and configured correctly. If it works, the printer can be assumed to be in good condition. If the printer remains inoperative, replace the printer cable and try again.

## Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

1. Make sure that the serial device's power is turned on and that the device is on-line.
2. Verify that the device is plugged into the correct serial port on the rear of the computer:
3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.
4. Make sure the COM settings and I/O address are configured correctly.

## Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.
2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

## Mainboard

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.
2. Check the jumper settings to ensure that the jumpers are properly set.
3. Verify that all memory modules are seated securely into the memory sockets.
4. Make sure the memory modules are in the correct locations.
5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.
6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.