Intel

Motherboard

Intel Socket 478

VIA PT800 + VT8237

ATX Motherboard

User's Guide

Version 1.0

FC

Declaration of Conformity

According to 47 CFR, Parts 2 and 15 of the FCC Rules

The following designated product:

EQUIPMENT: MAINBOARD

is a Class B digital device that complies with 47 CFR Parts 2 and 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that
 may cause undesired operation.

This declaration is given to the manufacturer:

CHAINTECH-EXCEL COMPUTER INC.

No. 7-1, Chung Shin Rd., Tu Cheng,

Taipei Hsien, Taiwan, ROC

http://www.chaintech.com.tw

Chaintech President: Simon Ho

Signature:

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

* This device may not cause harmful interference.

* This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the manufacturer's instructions, it 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 receiver.

* Connect the equipment to 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.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for audio noise emissions from digital apparatuses set out in the Radio Interference Regulations of the Canadian Department of Communications.

Manufacturer's Disclaimer Statement

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Chapter 1 Introduction

1-1 Product Specifications

Processor
- Supports Intel Celeron/Pentium 4 Socket 478 CPU with Hyper-threading Technology
- Supports Intel Celeron/Pentium 4 system bus at 400/533/800MHz

Chipset
- VIA PT800 + VT8237, supports Hyper-Threading Technology

Main Memory
- Supports two 184 pin DDR DIMMs up to 2GB
- Supports PC 2100/2700/3200 DDR SDRAM modules

Expansion Slots
- One AGP slot for 4X/8X AGP
- Five 32-Bit PCI slots (v2.2 compatible)

6-channel audio subsystem via AC-link
- With external high quality 6-channel AC97 Codec
- Complete software driver supports for Windows OS
- Optional SPDIF out function

Ultra DMA-66/100/133 PCI IDE Controller
- Supports two IDE ports up to 4 ATAPI devices
- Supports PIO Mode 4 up to 16.6MBps, Multi Mode 4 up to 66MBps, Multi Word Mode 5 up to 100MBps and Multi Word Mode 6 up to 133MBps with Bus Mastering
- Bus-Mastering software drivers for all common multi-tasking operating systems

Embedded SATA RAID Controller
- Build-in VT8237 supports 2 Serial ATA devices for the highest data transfer rates (1.5 Gbps burst) with RAID 0/1 solution

USB 2.0/1.1 Host Controller
- One EHCI and four UHCI Controllers support total 8 USB 2.0/1.1 ports
- Supports USB 2.0 high-speed device @480 Mb/s transfer rates

On board ITE 8700 Super I/O Functions
- Two UARTs support serial ports.
- One SPP/ECP/EPP parallel port

- One floppy disk drive connector supports up to 2.88MB

Fast Ethernet Controller with MII Interface

- Supports 10/100Mbps Fast Ethernet with external VIA VT6103 PHY

Boot-Block Flash ROM

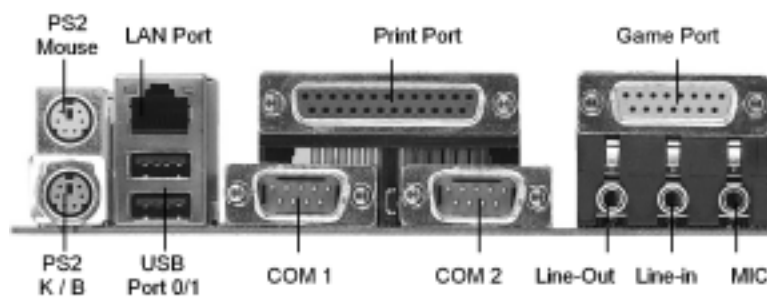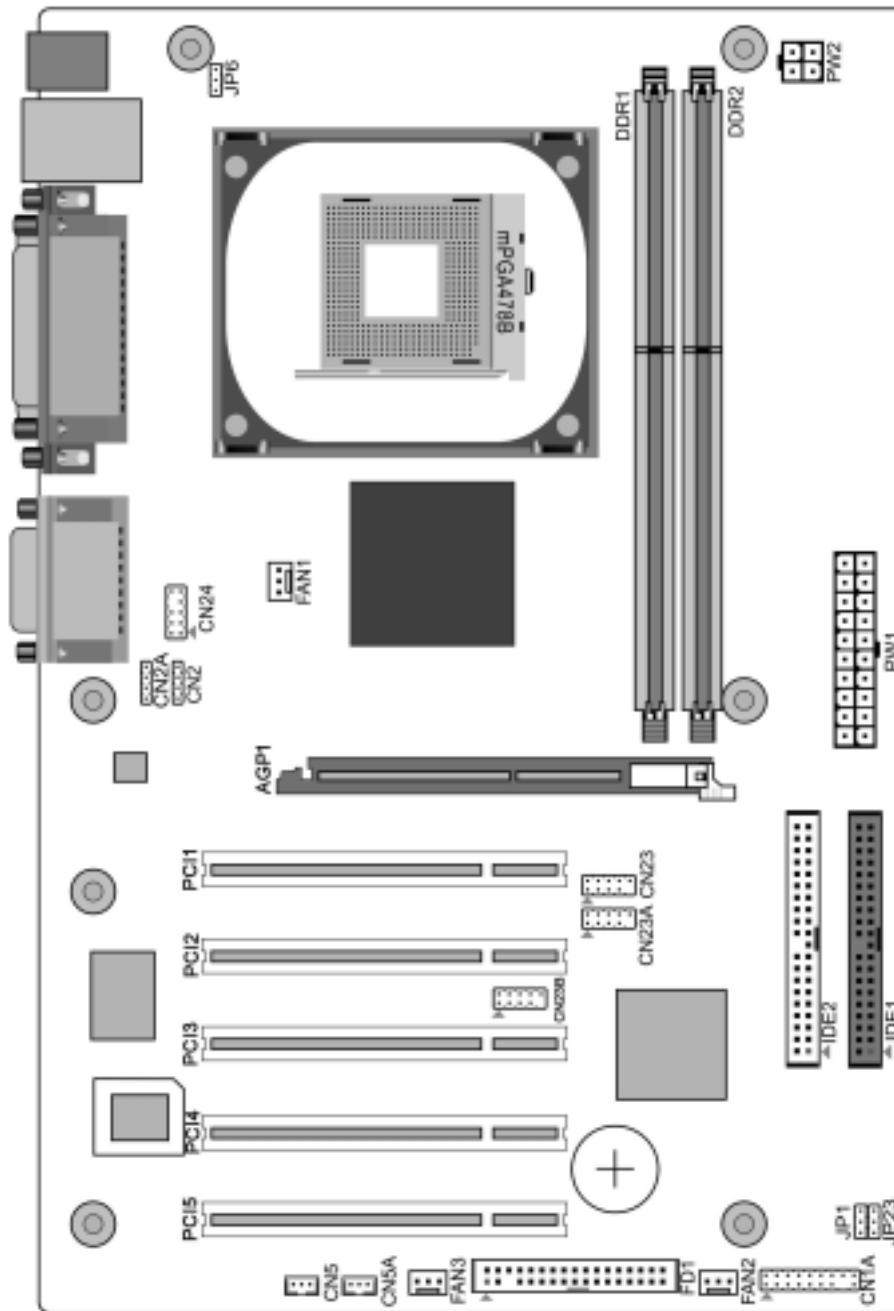- Award system BIOS supports PnP, APM, DMI, ACPI, & Multi-device booting features.

1-2 Package Contents

This product comes with the following components:

1. Motherboard   x 1
2. 40-Pin UDMA-100 IDE Cable   x 1
   Blue to motherboard, **Gray** to Master and **Black** to Slave
3. 34-Pin floppy Disk Drive Cable   x 1
4. User's Guide   x 1
5. Driver CD   x 1

1-3 Motherboard Layout

Chapter 2 Hardware Setup

If your motherboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

This motherboard is electrostatic sensitive. Do not touch without wearing proper safety gadget and make sure to disconnect the power cable from the power source before performing any work on your motherboard. Not doing so may result in electrical shock!

2-1 Installing a CPU Processor for Socket 478

The Intel® Socket 478, designed for the Pentium 4 processor, has been incorporated as a standard motherboard specification. To insert your CPU into Socket 478 please follow the steps below:

1. Locate the 478-pin CPU socket on the motherboard.
2. Unlock the socket by pressing the leaver sideways, and then open it up to a 90-degree angle.
3. Locate a Gold Mark on the top surface of the CPU, which is close to one of the CPU corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 on the CPU.
4. Gently insert the CPU with Gold Mark/Pin 1 at the same corner of Socket 478, which is located close to the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU.
5. When the CPU is correctly inserted, close the leaver with your finger on to of the CPU to make sure the CPU is properly embedded into the socket.
6. Insert an appropriate heat sink and fan for proper Heat dispatch.

Installing a standard Intel® specified heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burnout of your CPU.

2-2 Setting Your CPU's Performance

Frequency Configuration:

With the latest user-friendly technology this motherboard enables the user to set up main board's CPU parameters through an easy to use BIOS setup procedure. Now it is no longer necessary to make many jumper settings as on conventional motherboard. After installing all your hardware into your PC system, you can manually configure your CPU clock ratio and CPU clock according to your

processor's specifications: After turning on your system's power. Enable the CMOS Setup Utility by pressing [**Delete**] when your BIOS identification screen appears. Then go to the Frequency/ Voltage control option and select your CPU clock ratio and CPU clock speed (please refer to Chapter3 for more details).

> **You do not need to make voltage settings because this board will automatically set your CPU voltage.**

2-3 Main Memory Configuration

This motherboard provides two 184pin Double Data Rate (DDR) Dual-In-line Memory Modules (DIMM) slots, which supports PC2100/2700/3200 DDR SDRAM modules up to 2GB. Install at least one DIMM module on the slots. Memory modules can be installed on the slots in any order. You can install either single- or double-sided modules to meet your own needs.
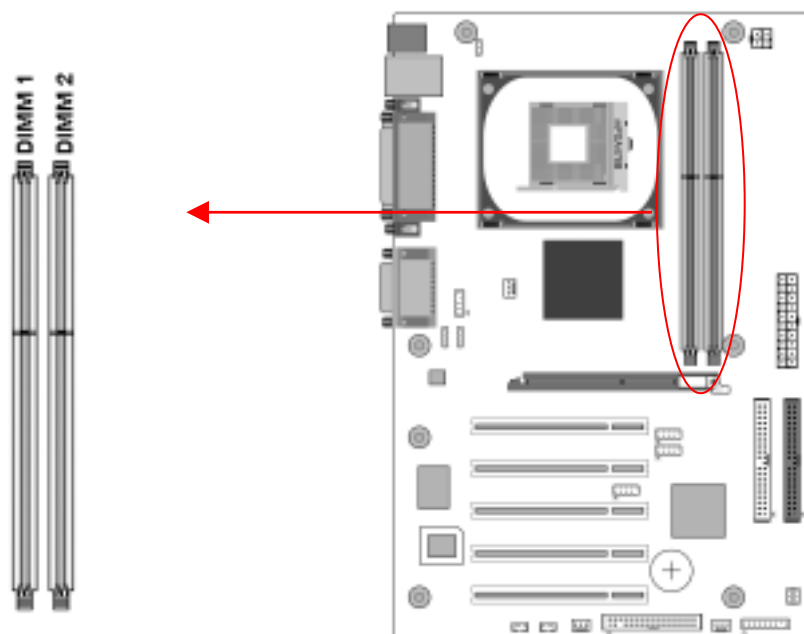
To install your DDR Modules please follow these steps below:

1. Unlock a DIMM socket by pressing the retaining clips outward. The DDR Modules has only one notch at the center of module. The DDR module will only fit in the right position.

2. Insert the DDR Module vertically into the DIMM slot, with the correct alignment. Then push it in until the golden finger on the memory module is deeply inserted into the socket.

3. The plastic clip on each side of the DIMM slot will automatically close to hold the DDR Modules in place.

2-4 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.
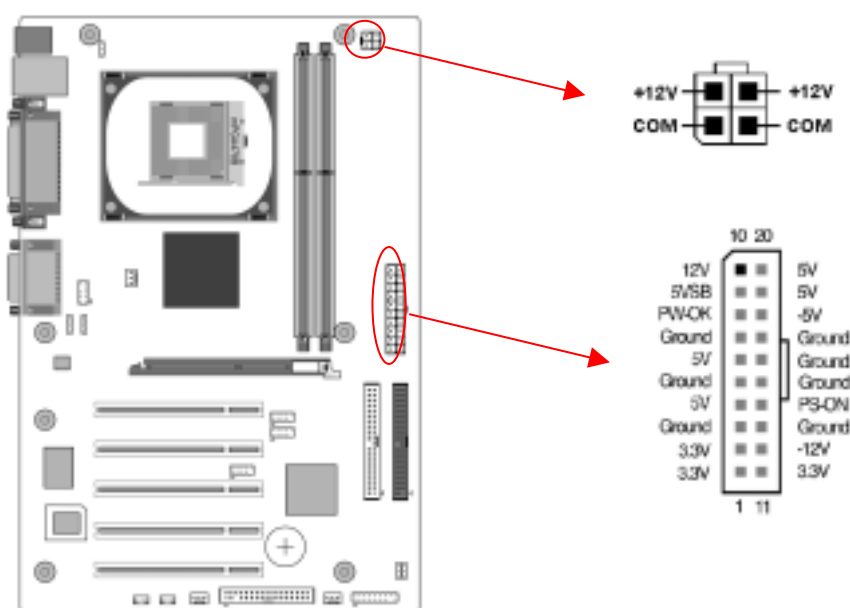
The power supply connector is the last connection to be made while installing a motherboard. Before connecting the power supply, please make sure it is not connected to the power source.

All cables that provided by CHAINTECH come with a security-proof.

PW 1 / 2 (ATX Power Supply Connector)

The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system. The ATX power supply provides a single 20-pin connector interface, which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in its minimum power state. The ATX 12V power supply has a new +12V (4-pin) and +5V/3.3V (6-pin) auxiliary power connector to enable the delivery of more +12 VDC and +5/3.3V VDC current to the motherboard.

Power-On By Modem

While in Soft-Off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section **3. 5**)

Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the <u>Override Power Button</u>, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section **3.5**)

Poly-fuse Over Current Protection

The poly-fuse protects the system from dangerous voltages that the system might be exposed to via the keyboard or USB connector. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state. Then the keyboard or USB connector can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user from such inconveniences.

CN1A (Front Panel Connector)
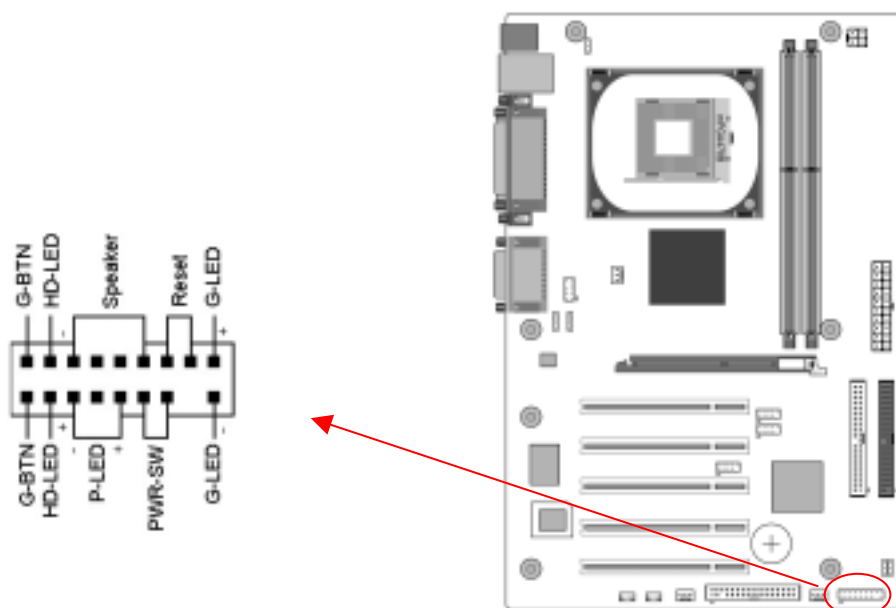
1. **PWR-SW** (Over-ride Power Button Connector)

>   The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to [**Delay 4 Sec.**] to activate this function.

>   When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more

than [**4 seconds**] will switch the system completely off. See Over-ride Power Button Operation diagram.

2. **P-LED** (Power LED Connector)

The power indicator LED shows the system's power status. It is important to pay attention to the correct cable and pin orientation (i.e. Be careful not to reverse the order of these two connectors.)

3. **G-BTN/G-LED** (Green Button Switch/LED Connector)

Some ATX cases provide a Green button switch, which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in its minimum power state. The system is activated whenever the keyboard or mouse is touched. The system resumes in various ways as defined by Power Management Setup screen in BIOS.

4. **RESET** (System Reset Switch Connector)

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

5. **SPEAKER** (Speaker Connector)

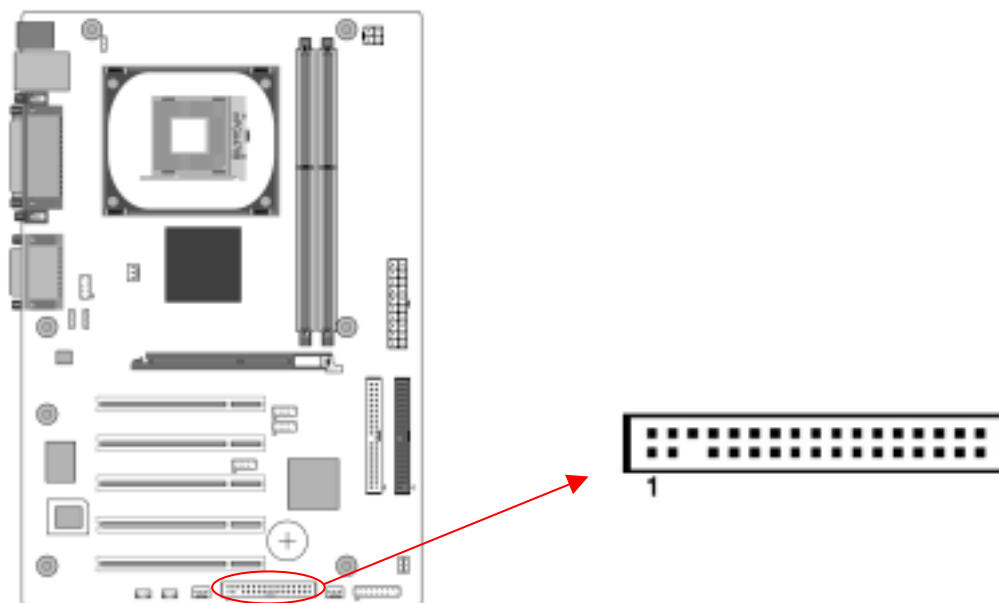This 4-pin connector connects to the case-mounted speaker.

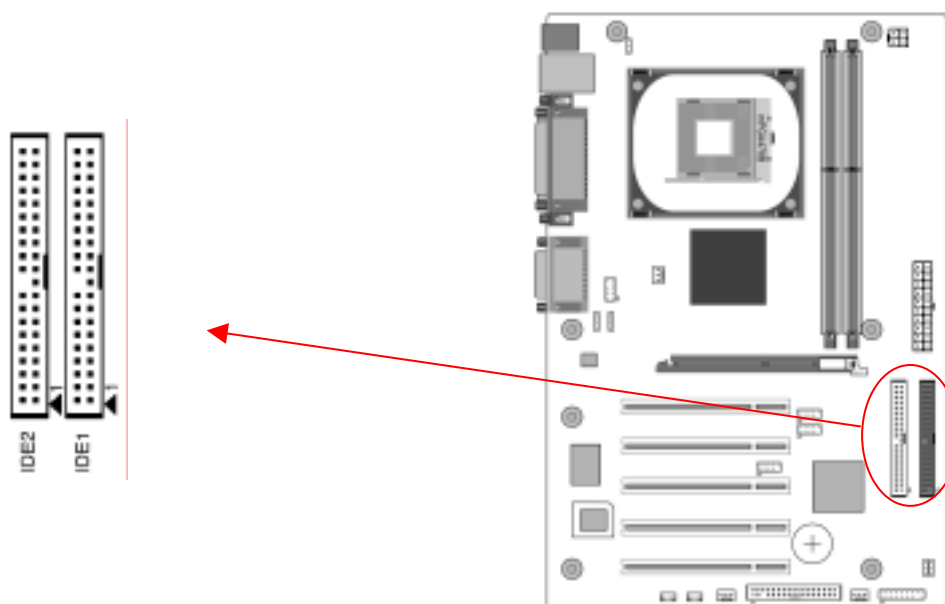6. **HD-LED** (IDE Activity LED Connector)

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

FD1 (Floppy Connector)

The motherboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. It is connected to a floppy disk drive of 34 pins.

IDE 1/2 (IDE Hard-Disk Connector)

The motherboard has a 32-bit Enhanced PCI IDE and Ultra ATA66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra ATA66/100 function. This connector is used for connecting 40 pins of ATAPI devices.

IDE 1 only connects two IDE devices. (**Primary** Master/Slave)

IDE 2 only connects two IDE devices. (**Secondary** Master/Slave)

JP1 (CMOS Clear Jumper)

Pin	Definition
1-2	Normal (default)
2-3	Clear CMOS Data
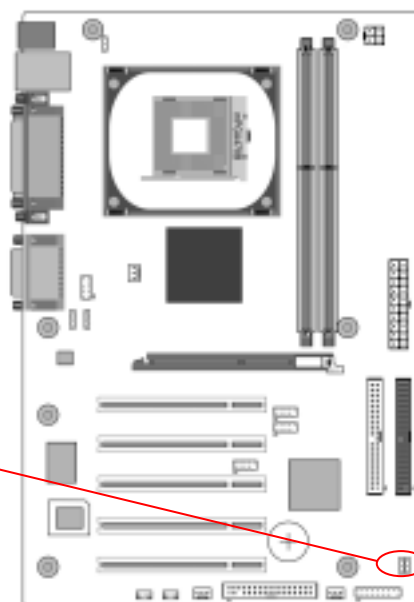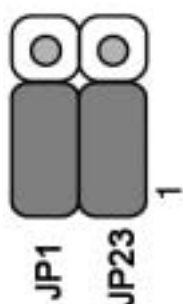
There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location [**2-3**] for <**5 seconds**>, and then set it back to the

default position.

3. Connect the system's power and then start the system.

4. Enter BIOS's CMOS Setup Utility and choose Load Optimized Defaults. Type [**Y**] and then press [**Enter**] to continue.

5. Set the system configuration in the Standard CMOS Setup menu.

JP6 (Enable/Disable USB 0/1 Device Wake-Up Jumper)

Pin	Definition
1-2	Disable (default)
2-3	Enable
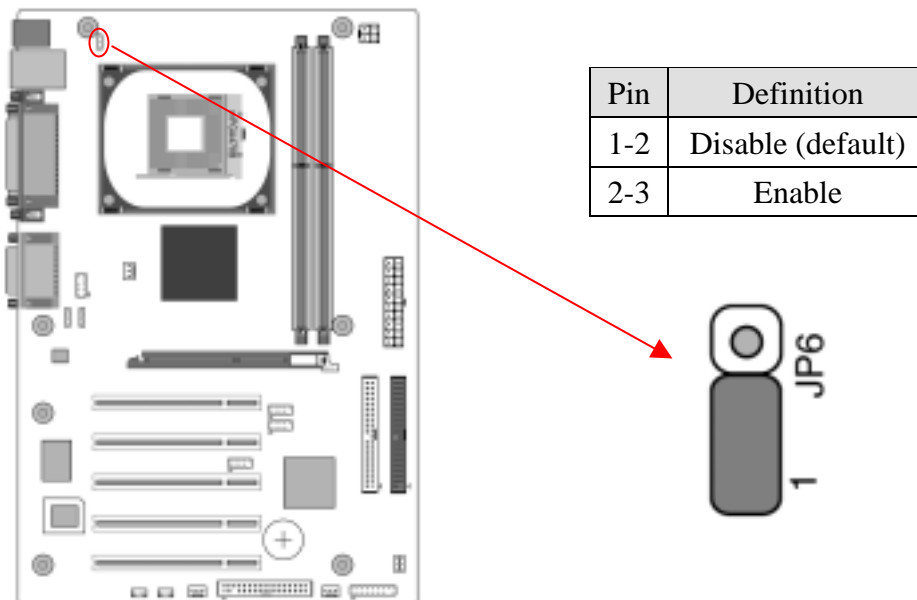
An USB keyboard hot key or an USB mouse click can activate this board. To use this function, select a hot key of your choice from BIOS's Power On Management screen -> Wake Up Events -> USB Resume from S3 option. You must also set this jumper's cap to pins **2-3** to use this function.

JP23 (Green LED Mode Jumper)

Pin	Definition
1-2	Normal (default)
2-3	Reserve
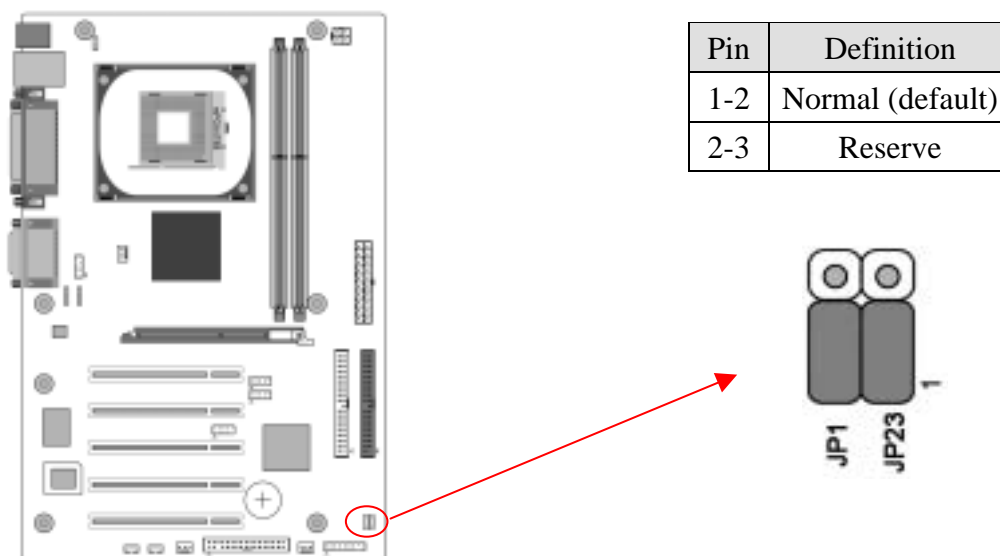
This cap is to setup Green LED flash mode. (Optional)

FAN1/FAN2/FAN3 (CPU/System/Case Cooling Fan Connectors)
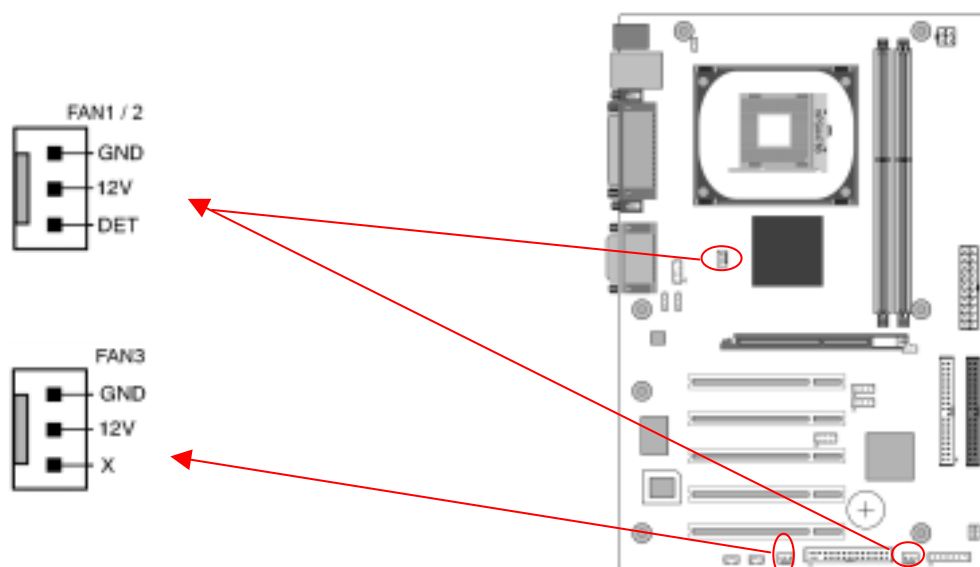
The board's hardware management is able to detect the CPU and system fan speed in rpm (revolutions per minute). The wiring and plugging may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal. Connect the case-cooling fan to FAN3. The wiring and plug may vary depending on the manufacturer. On standard fans, the red wire is positive (+**12V**) and the black wire is ground.

CN2/CN2A (CD-ROM Audio-in Connector)
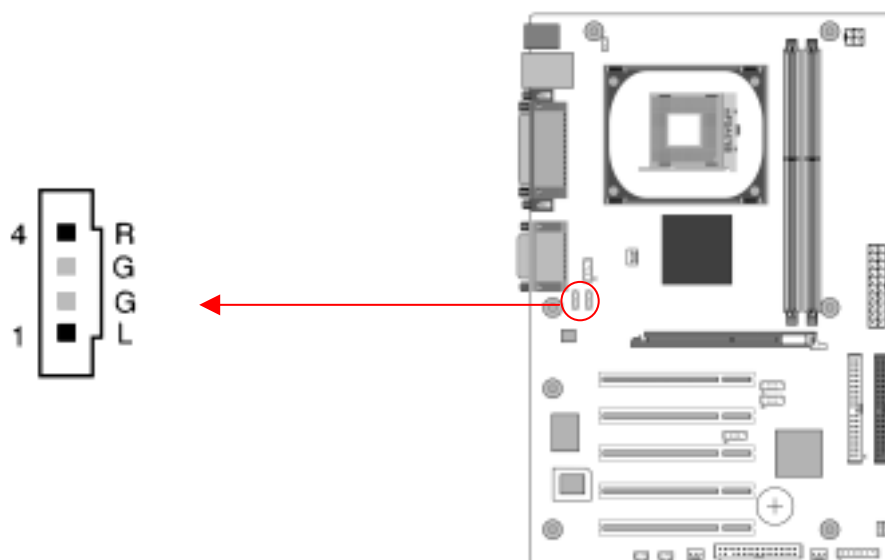
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your motherboard. This will enable your CD-ROM's audio function.

CN5 [WOL (Wake-on-LAN) Connector]
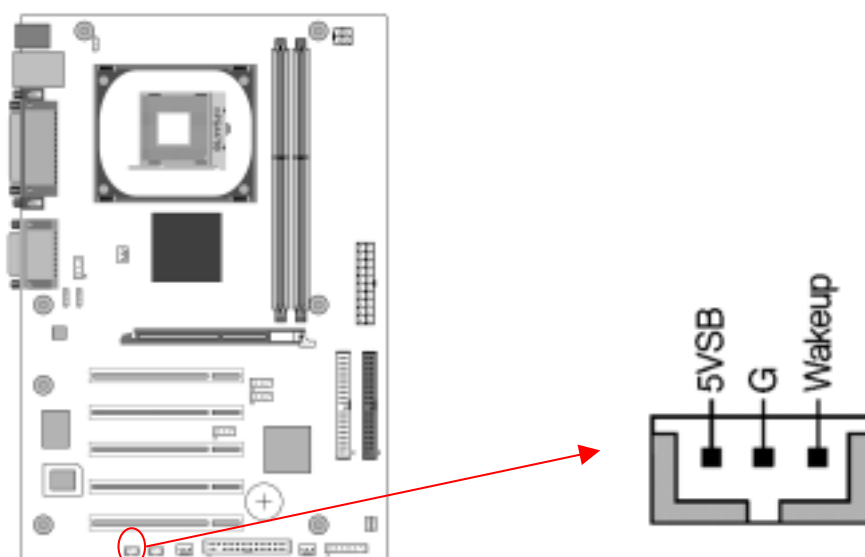
Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL capability to LAN controller. This header is used to connect an add-in NIC (Network Interface Card) that gives WOL capability to the motherboard.

CN5A [WOM (Wake-on-Modem) Connector]
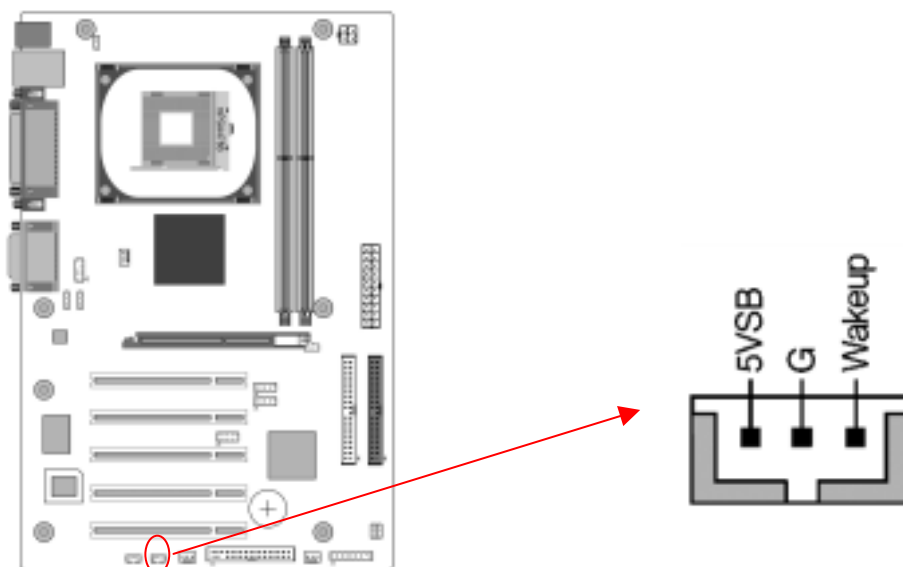
Enable the Wake Up On Modem selection in BIOS's Power Management Menu to use this function. This header is used to connect an add-in modem card, which gives WOM capability to the motherboard.

CN23/CN23A/CN23B (Front USB Connector for USB 2/3 , 4/5 and 6/7)
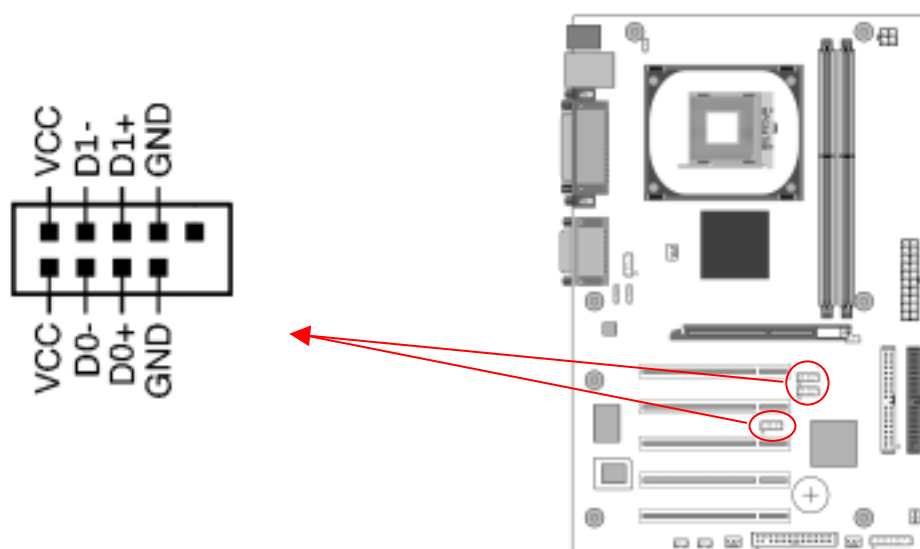
USB Port 2/3 → CN23,   USB Port 4/5 → CN23A, USB Port 6/7 → CN23B

If you want to use an USB Keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3.4). This board contains an USB Host controller and a root hub with two connectors is included for optional USB Adaptors (USB 2/3, 4/5 and 6/7).

CN24 (Front Audio Connector)
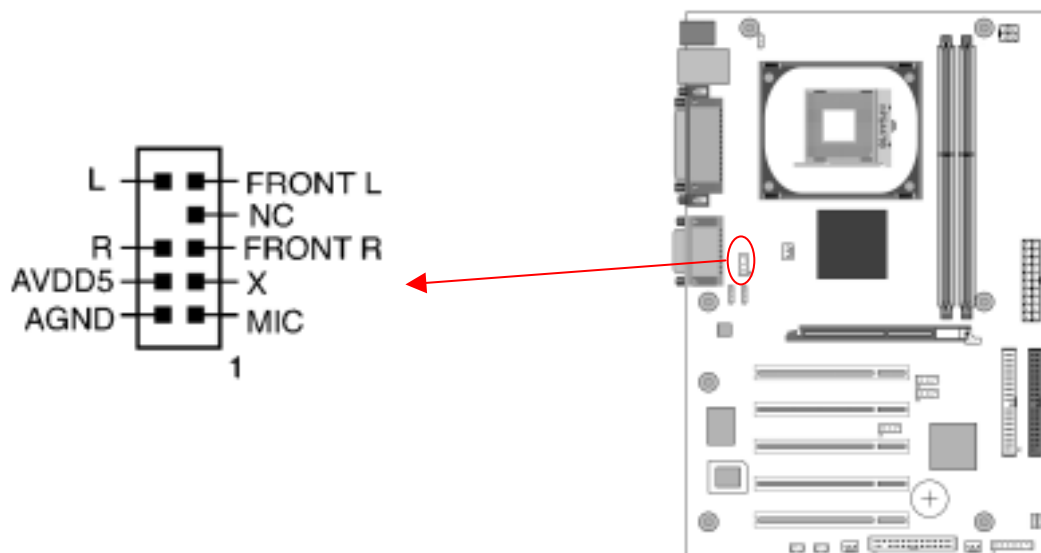
This connector gives you the option of a front-panel audio-jack cable ext. to be plugged into a special custom-designed system case. Simply remove the two jumper caps at pin [**5-6**] and [**9-10**] then plug it into the (optional) cable ext. connector. Pin [**5-6**] and [**9-10**] are shorted (default) to enable the back-panel audio function.

Chapter 3 BIOS Setup Program

Phoenix-Award BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in CMOS RAM so that it can retain the setup information, even when the power is turned off.

To enter the **Phoenix-Award BIOS** setup program press [**Delete**] when you **Power on** or **reboot** the computer system. The primary screen as shown in Figure 3-1 is a list of the menus and functions available in the setup program. Select the desired item by your arrow keys and press enter to make the changes. Operating commands are located at the bottom of this and all other BIOS screens. When a field is highlighted, on-line help information is displayed on the right side of the screen.

```
         Phoenix - AwardBIOS CMOS Setup Utility

   ► Standard CMOS Features          Load Fail-Safe Defaults

   ► Advanced BIOS Features          Load Optimized Defaults

   ► Advanced Chipset Features       Set Supervisor Password

   ► Integrated Peripherals          Set User Password

   ► Power Management Setup           Save & Exit Setup

   ► PnP/PCI Configurations          Exit Without Saving

   ► Frequency/Voltage Control


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

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

Figure 3-1

3-1 Standard CMOS Setup

The Standard CMOS Setup allows users to configure system components such as hard disk drive, floppy disk drive and video display as well as date, time and boot-up error signaling. This configuration menu should be changed when installing a motherboard for the first time, or changing hardware such as the HDD, FDD, and video display in your system, or when the CMOS data is lost or corrupted. Choose the Standard CMOS Setup option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen.
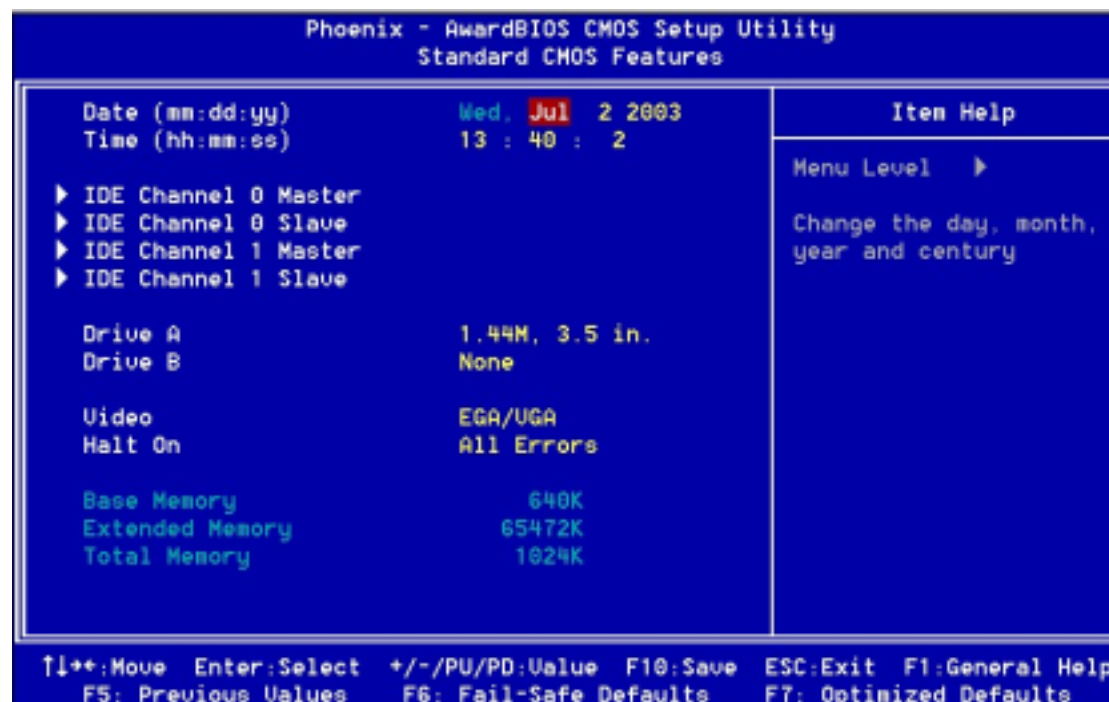
Figure 3-2

Date/Time

Set the date and time of the system. Do not skip this function as all of your timed events such as power management, saving files, etc are based on this timer.

IDE (Channel 0/1; Master/Slave)

This category identifies up to four IDE hard disk drives that have been installed in the computer. This section does not show information on other IDE devices such as CD-ROM drives or other hard drive type such as SCSI drives.

Drive A/B

Select different Floppy device Model. Available options are [None], [360K, 5-1/4 in], [1.2M, 5-1/4 in], [720k, 3-1/2 in], [1.44M, 3-1/2 in], and [2.88M, 3-1/2 in].

Video

Select the type of video adapter present in your system. You can ignore this setting if you are using a VGA monitor; VGA BIOS will automatically configure this setting.

Halt On

When the system is powered on, BIOS performs a series of diagnostic tests called POST (Power On Self Test). This function stops the computer if BIOS detects a hardware error. You can tell BIOS to halt on all errors, no errors, or not to halt on specific errors.

3-2 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.
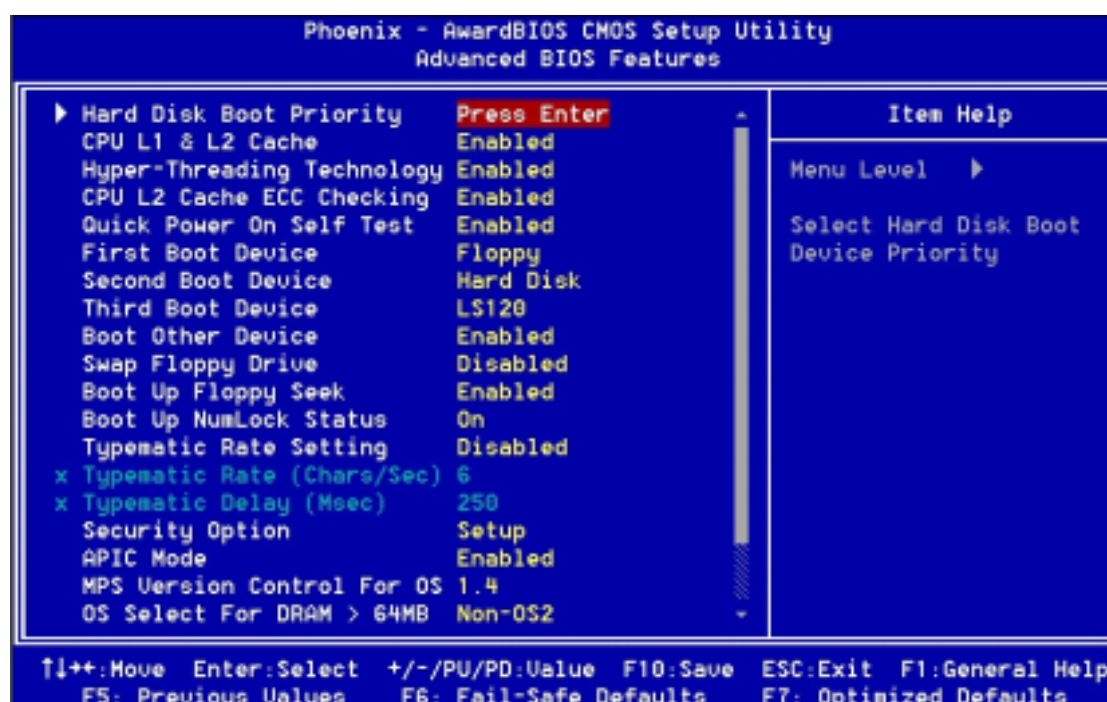
Figure 3-3

Hard Disk Boot Priority:

Select priority of the hard disk boot device.

CPU L1 & L2 Cache:

Cache memory is much faster than conventional DRAM system memory. These fields allow you to enable or disable the CPUs Level 1 built-in cache and Level 2 external cache. Both settings are left as Enabled to significantly increase the performance of your computer.

Hyper-Threading Technology

Available options are [**Enabled**] and [**Disabled**]. Select [**Enable**] to support Hyper-Threading Technology and vice versa.

CPU L2 Cache ECC Checking

Enable this function for the CPU L2 Cache Error Checking and Correcting (ECC) operation.

Quick Power On Self Test (POST)

Enable this function to reduce the amount of time required to run the POST (Power On Self Test). BIOS will save time by skipping some items during POST. It is recommended that you disable this setting. Discovering a problem during boot up is better than loosing data during your work.

First/Second/Third/Boot Other Device

This option sets the sequence of drives BIOS attempts to boot from after POST completes. BIOS will search these drives for an operating system.

Swap Floppy Drive

Enabling this function will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A. Note that the boot sequence assignment mentioned directly above does not include booting from floppy drive B. This function is useful if floppy drives B and A are of a different format and you want to boot from floppy drive B.

Boot up Floppy Seek

This is a set up check for floppy power-on after starting the computer system.

Boot Up NumLock Status

This function defines the keyboard's number pad as number keys or arrow keys. If it is set at on the number keys will be activated, if it is set at off the arrow keys will be activated.

Keyboard Interface

1. Typematic Rate Setting

   When enabled, you can set the following two-typematic control items. When disabled, the keyboard controller determines keystrokes arbitrarily in your system.

2. Typematic Rate (Chars/Sec)

   The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

3. Typematic Delay (Msec)

   The typematic delay sets how long after you press a key that a character begins repeating.

Security Option

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to

take advantage of this function. See Section 3.11 for password setting information. When the Security Option is set to System, a password must be entered to boot the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

APIC Mode

This item can enable or disable the APIC (**Advanced Programmable Interrupt Controller**). Due to compliance to PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQs resources for the system. Available options are [**Enabled**] and [**Disabled**].

MPS Version Control For OS

This item allows you to select which MPS (**Multi-Processor Specification**) version to be used for the operating system. You need to select the MPS version that is supported by your operating system. To find out which version to use, consult the vendor of your operating system. Available options are [**1.4**] and [**1.1**].

OS Select For DRAM >64MB

If your system's DRAM is larger than 64MB and you are running OS/2, select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating systems.

Video BIOS Shadow

Enabling this function will allow the Graphic card's BIOS setting to be imaged onto the RAM for a better performance. Leave the default setting at Enable for better system performance.

Small Logo (EPA) Show

This setup allows photo that is EPA. Logo.

Show POST CODE

Enabling this function can show POST error code on the screen before proceeding to operating system.

3-3 Advanced Chipset Features

By choosing the [**Advanced Chipset Features**] option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.
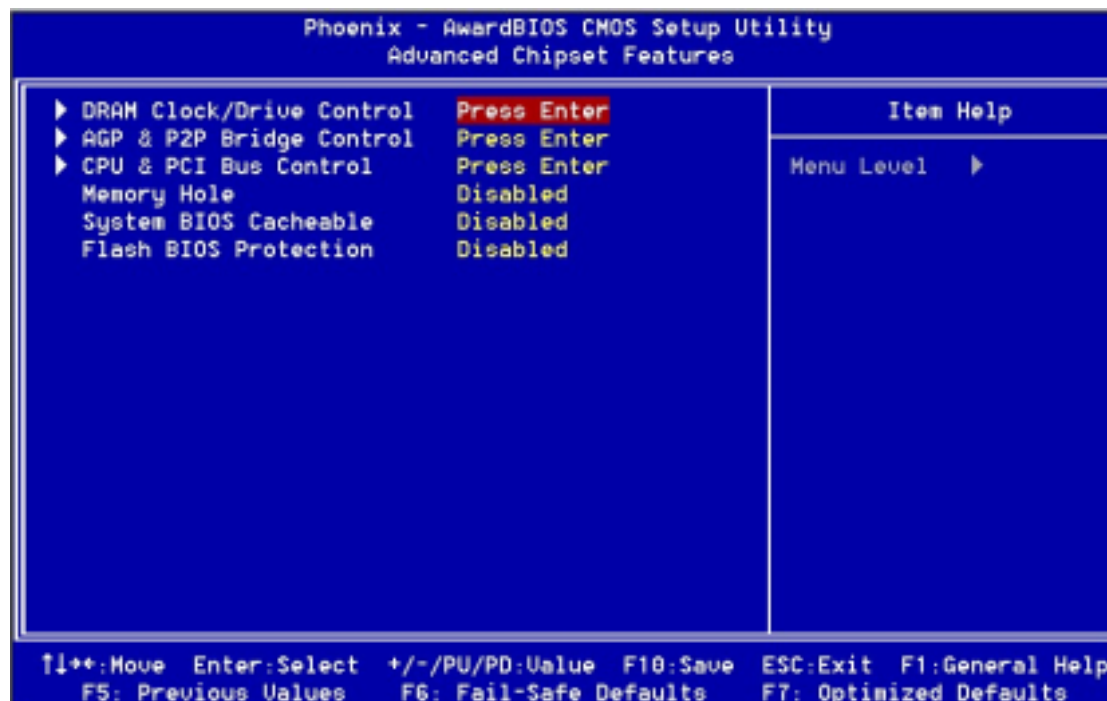
Figure 3-4

All of the above settings have been determined by the motherboard manufacturer and should not be changed unless you are absolutely sure of what you are doing. Explanation of the DRAM timing and chipset features setup is lengthy, highly technical and beyond the scope of this manual. Below are some abbreviated descriptions of the functions in this setup menu.

DRAM Clock/Drive Control

1. DRAM Clock

   This selecting option allows you to control the DRAM speed.

2. DRAM Timing

   The function allows you to enable or disable the DRAM timing by SPD. It is recommended to keep the default setting for a stable system operation.

3. DRAM Command Rate

   Please leave the default setting at [**2T command**] for a stable system operation.

   Available options: [2T command], [1T command].

4. DRAM Burst Len

   It is recommended to keep the default setting [**4**] for a stable system operation.

   Available options: [4], [8].

5. Write Recovery Time

Please leave the default setting at [**3T**] for a stable system operation.

Available options: [2T], [3T].

6. twTR for DDR400 only

Please leave the default setting at [**3T**] for a stable system operation.

Available options: [1T], [2T], [3T].

AGP & P2P Bridge Control

1. AGP Aperture Size

This function determines the amount of system memory that is given to the AGP card.   Options range from 4MB to 256MB. This is a dynamic memory allotment in that the AGP card will only use the amount of memory that it needs. The remaining memory not in use will be available for the system to use. For example, if 16MB is allotted to the AGP card and the card only needs 8MB, the remaining 8MB will be available for system use.

2. AGP Mode

Enable this setting to utilize the 4X mode (twice as fast as 2X) offered by advanced AGP cards. Your VGA card must support 4X mode in order to take advantage of the faster speed.

3. AGP Driving Control/Value

The [Manual] setting allows you to manually select the AGP driving value. However, it is recommended that you keep the default setting [Auto] to allow the system to automatically determine the appropriate AGP driving value.

4. AGP Fast Write

Select [**Enabled**] to allow Fast Write Protocol for 8X/4X AGP to function.

5. AGP Master 1 WS Write/Read

It is recommended to keep the default setting for stable system operation.

6. AGP 3.0 Calibration cycle

Available options: [disabled], [enabled].

CPU & PCI Bus Control

1. PCI Master 0 WS Write

When Enabled, writes to PCI bus are executed with zero wait states.

2. PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

3. VLink 8X Support

   Enable this setting to utilize the 8X mode (twice as fast as 4X) offered by advanced AGP cards. Your VGA card must support 8X mode in order to take advantage of the faster speed.

4. Delay Prior to Thermal

   Available options: [**4 Min**] through [**32 Min**].

Memory Hole

Enabling this function will reserve the memory address space between 15MB and 16MB for ISA expansion cards. However, enabling this function will result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled. The default setting is Disabled. If Auto Configuration is enabled, you must set the DRAM timing function to 60ns or 70ns, depending on the type of DRAM you install.

System BIOS Cacheable

Enabling this function allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. It is advised to leave this setting. Caching the system BIOS results in better performance than shadowing the system BIOS.

Flash BIOS Protection

The motherboard manufacturer developed BIOS protection technology that protects the System BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update BIOS with the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

3-4 Integrated Peripherals

This section provides information on setting peripheral devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.
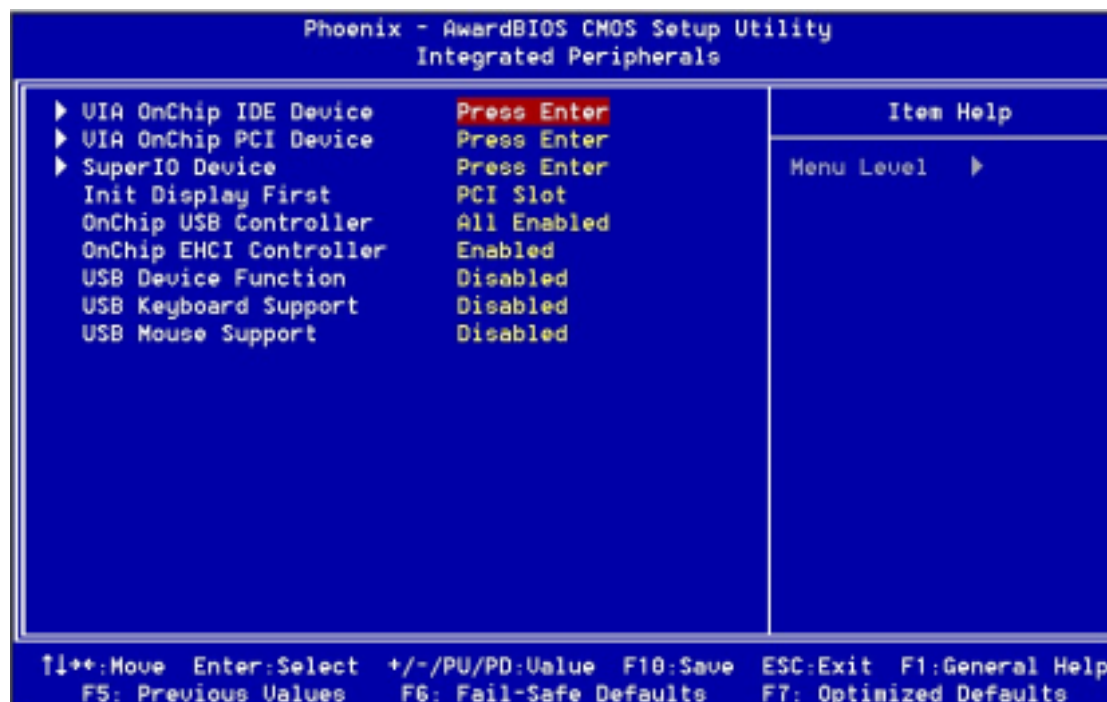
```
                    Phoenix - AwardBIOS CMOS Setup Utility
                            Integrated Peripherals

      ▶ VIA OnChip IDE Device      Press Enter          Item Help
      ▶ VIA OnChip PCI Device      Press Enter
      ▶ SuperIO Device             Press Enter       Menu Level    ▶
        Init Display First         PCI Slot
        OnChip USB Controller      All Enabled
        OnChip EHCI Controller     Enabled
        USB Device Function        Disabled
        USB Keyboard Support       Disabled
        USB Mouse Support          Disabled




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

Figure 3-5

VIA OnChip IDE Device:

Press [**Enter**] to enter the sub-menu, which contains the following items for advanced control:

1. **OnChip SATA**

   Available options are [Disabled], [Enabled].

2. **SATA Mode**

   Available options are [IDE] and [RAID].

3. **IDE DMA Transfer access**

   The onboard IDE drive interfaces supports Prefetching for faster drive accesses. Set it to [**Disabled**] if this is a primary or secondary function.

4. **OnChip IDE Channel 0/1**

   You can set this to disable the OnChip IDE controller if you are going to add a higher performance IDE board

5. **IDE Prefetch Mode**

   Enabling this function will enhance the system efficiency.

6. **Primary/Secondary Master/Slave PIO**

The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

7. **Primary/Secondary Master/Slave UDMA**

Ultra DMA implementation is possible only if your IDE device supports it and your operating environment contains a DMA driver. If both your hard drive and software support Ultra DMA, select [**Auto**] to enable BIOS support.

8. **IDE HDD Block Mode**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode, select Enabled to auto-detect the optimal number of block read/writes per sector.

VIA OnChip PCI Device

This section provides information for setting onboard device. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-5), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard

Press [**Enter**] to enter the sub-menu, which contains the following items for advanced control:

1. **VIA AC97 Audio**

This feature allows you to enable/disable the onboard AC97 audio function.

2. **VIA OnChip LAN**

This feature allows you to enable/disable the onboard LAN function.

3. **Onboard Lan Boot ROM**

Decide whether too invoke the boot ROM of the onboard LAN chip.

Super IO Device:

This section provides information on setting Super I/O device. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-5), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.

Press [**Enter**] to enter the sub-menu, which contains the following items for advanced control:

1. **Onboard FDC Controller**

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has

no floppy drive, select Disabled in this field.

2. **Onboard Serial Port 1/2**

    Select an address and corresponding interrupt for the first and second serial ports. Available options are [**3F8/IRQ4**], [**2E8/IRQ3**], [**3E8/IRQ4**], [**2F8/IRQ3**], [**Disabled**], and [**Auto**].

3. **UART Mode Select**

    This function allows you to select an operating mode for the second serial port. (Normal RS-232C serial port / IRDA / SCR / ASKIR 0.57-MB/sec infrared port)

4. **UR2 Duplex Mode**

    Available options: [**Half**] and [**Full**].

5. **Onboard Parallel Port**

    Select a logical LPT port address and corresponding interrupt for the physical parallel port.

6. **Parallel Port Mode**

    Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain your hardware and software support one of the other available modes.

7. **ECP Mode Use DMA**

    This item automatically specifies a DMA channel **1** or **3** for the parallel port when it is set to [**EPP**] or [**ECP+EPP**] mode.

8. **Game Port Address**

    This item disables or assigns the address of the Game port. Available options are [**Disable**], [**201**] and [**209**].

9. **Midi Port Address**

    This item disables or assigns the address of the Midi port. Available options are [**Disable**], [**300**] and [**330**].

10. **Midi Port IRQ**

    This item specifies an IRQ for the Midi port. Available options are [**5**] and [**10**].

Init Display First

This function allows users to choose AGP or PCI slot to initialize display.

OnChip USB Controller

Enable the on-board Universal Serial Bus (USB V1.1 or V2.0) controller if you want to connect a USB device to your system. Note that if this setting is disabled, you can still temporarily use a USB keyboard during boot up so that you can enter BIOS and enable this setting. If you pass the boot up stage without enabling this function, your PS/2 keyboard will no longer work.

USB Device Function

This function enables/ disables the USB devices. Available functions : [Enabled], [Disabled].

OnChip EHCI Controller

Enable the on-board Universal Serial Bus (USB 2.0) controller if you want to connect a USB device to your system. Note that if this setting is disabled, you can still temporarily use a USB keyboard during boot up so that you can enter BIOS and enable this setting. If you pass the boot up stage without enabling this function, your PS/2 keyboard will no longer work.

USB Keyboard Support

Select Enabled if your system has a USB keyboard installed on the system board. If your system has no USB keyboard, select Disabled in this field.

USB Mouse Support

Select Enabled if your system uses an USB mouse. If there is no USB mouse, select Disabled in this field.

3-5 Power Management Setup

This section provides information on the Green PC power management functions. By choosing the Power Management Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard

Figure 3-6

NB Power Management

Power management allows the computer to save electricity when it is idle by entering power saving modes.

ACPI Suspend Type

This feature allows user to select a suspend type for the operating system to turn off peripherals devices, such as CD-ROM players, when they are not in use.

Power Management Option

Power management allows the computer to save electricity when it is idle by entering power saving modes.

HDD Power Down:

Shuts down any IDE hard disk drives in the system after a period of inactivity as set in this user configurable field. This feature does not affect SCSI hard drives.

Suspend Mode

The Power Management function must not be set to disabled to enable this function. If the system runs in Standby mode and the Suspend timer expires, all devices regulated by power management will shut off and the CPU speed will be 0 MHz.

Video Off Option

This setting allows you to select the power-saving modes during which the monitor goes blank.

Video Off Method

This function serves as both a screen saver and power saver for monitors. See the next function, Video Off After, for setting the video timer.

1. **Blank** - BIOS will only blank the monitor's screen. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is on but not in use.

2. **V/H SYNC+Blank** - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires a monitor with Green features in order to take advantage of the power saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both a screen saver and a power saver.

3. **DPMS Supported** - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

Modem Use IRQ

If your computer has a modem use this function to tell BIOS which IRQ is being occupied by the modem card. When the system is in Green mode, the modem requires an IRQ assignment to wake up the system and perform tasks. This is compliant with APM 1.2 operating systems.

Soft-Off by PWRBTN

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. When set to Instant-Off the Soft-Off by PWR-BTN function is disabled and the computer turns completely off when the power button is pressed.

Run VGABIOS if S3 Resume

Available options: [**Auto**], [**Yes**], [**No**].

Ac Loss Auto Restart

Available options: [**Auto**], [**On**], [**Off**]. Please leave the default setting [**Off**] for a stable system operation.

IRQ/Event Activity Detect

1. **PS2KB Wakeup Select**

   When enabled, a PS2 keyboard can turn on the system.

2. **PS2 KB Wakeup from S3/S4/S5**

   This function allows the keyboard to activate the system from S3/S4/S5 power saving modes. Available options: [Ctrl+F1] through [Ctrl+F12], [Power], [Wake], [Any Key].

3. **PS2MS Wakeup from S3/S4/S5**

   This function allows the PS/2 mouse to activate the system from S3/S4/S5 power saving modes. Available Options: [Disabled] and [Enabled].

4. **USB Resume from S3**

   When enabled, the system is able to resume form S3 mode by a USB keyboard hot key or mouse click.

5. **VGA**

   VGA function is activated when option [**On**] is selected. Available options: [On], [Off].

6. **LPT & COM**

   Both LPT and COM ports are activated when [**LPT/COM**] is selected. Available options: [None], [LPT], [COM], [LPT/COM].

7. **HDD & FDD**

   Both HDD and FDD are activated when it is set to [**On**]. Available options: [On],

[Off].

8. **PCI Master**

   This options control the activation of PCI slots. Available options: [On], [Off].

9. **PowerOn by PCI Card**

   When enabled, a PCI interface that receives a signal will wake up the system from soft off and green mode.

10. **Wake Up On LAN/Ring**

    When enabled, a LAN/modem that receives a signal will wake up the system from soft off and green mode. You should connect the modem to the COM port and turn on the resume event in green mode.

11. **RTC Alarm Resume**

    When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day. This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer. See the Software Power-Off feature in Section 2-3 of this manual for instructions.

IRQs Activities Monitoring

This feature allows you to monitor a list of IRQ, Interrupt ReQuests. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

3-6 PNP/PCI Configurations

This section provides IRQ and DMA setting information. By choosing the PNP/PCI Configuration option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This screen contains the manufacturer's default values for the motherboard.
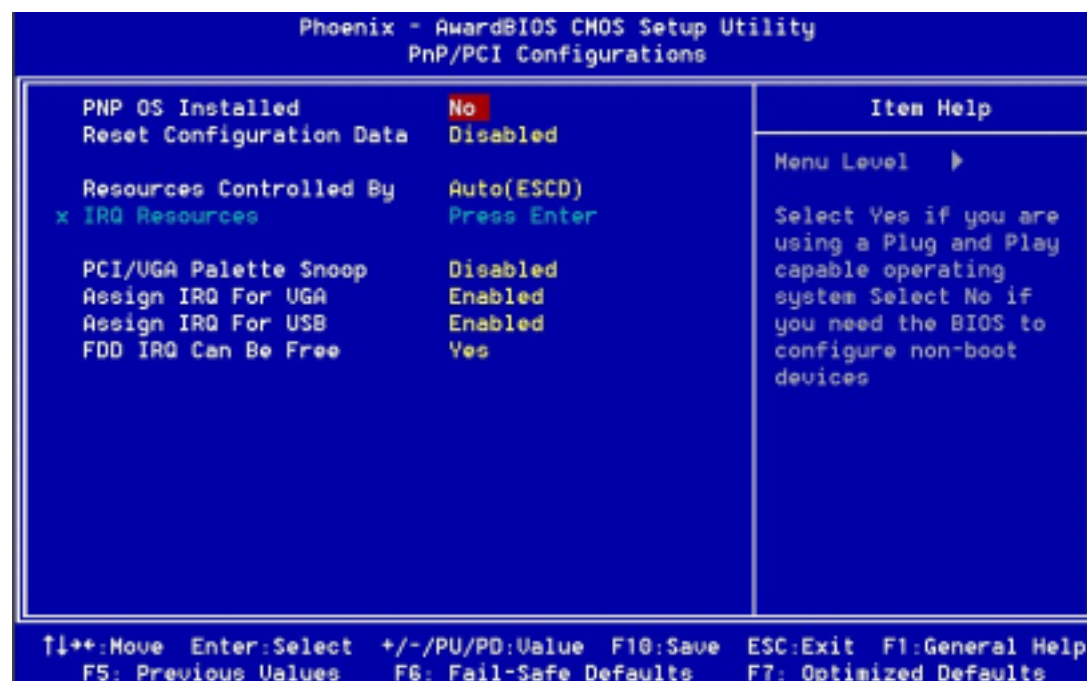
```
        Phoenix - AwardBIOS CMOS Setup Utility
                 PnP/PCI Configurations

   PNP OS Installed          No             │      Item Help
   Reset Configuration Data  Disabled       │
                                            │  Menu Level   ▶
   Resources Controlled By   Auto(ESCD)     │
 x IRQ Resources             Press Enter    │  Select Yes if you are
                                            │  using a Plug and Play
   PCI/VGA Palette Snoop     Disabled       │  capable operating
   Assign IRQ For VGA        Enabled        │  system Select No if
   Assign IRQ For USB        Enabled        │  you need the BIOS to
   FDD IRQ Can Be Free       Yes            │  configure non-boot
                                            │  devices




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults
```
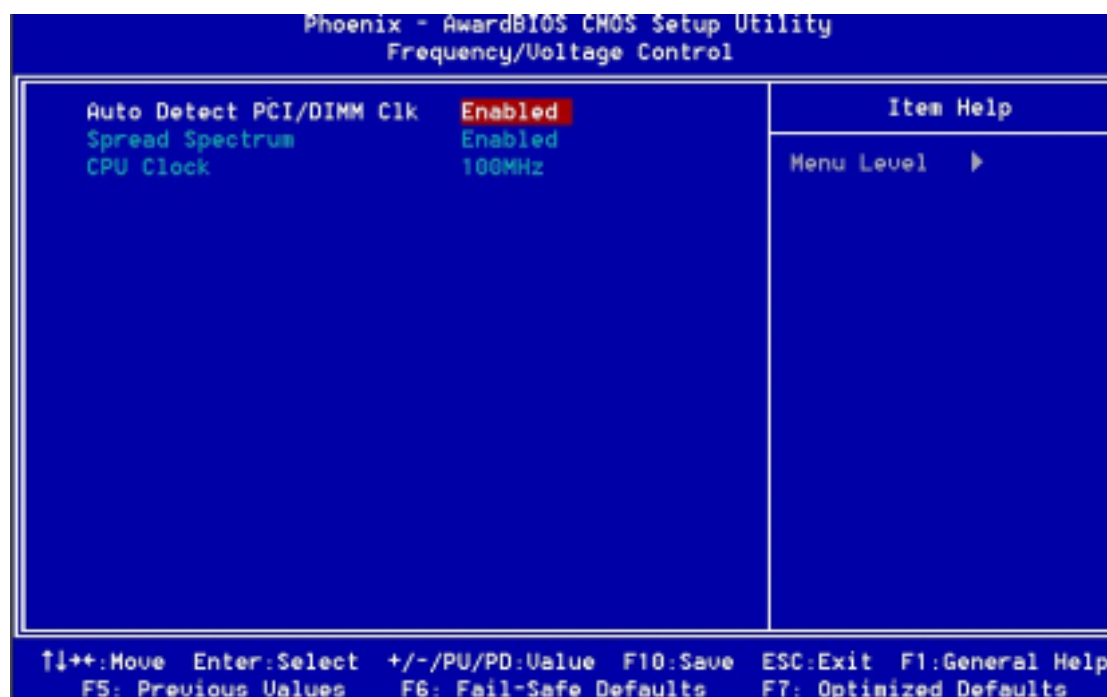
Figure 3-7

PNP OS Installed

If you want to install a PNP compatible OS (such as Windows 95) set to Yes.

Reset Configuration Data:

If you want to reset CMOS IRQ divide hardware device, please selected to [**Enabled**].

Resources Controlled By:

When set to Manual the system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA.   When set to Auto the system BIOS will refer to the ESCD for all legacy information. ESCD (**Extended System Configuration Data**) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

PCI/VGA Palette Snoop:

When set to [Enabled], multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit

5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). Available options are [**Enabled**] and [**Disabled**].

Assign IRQ For VGA/USB

Available options: [**Enabled**] and [**Disabled**].

FDD IRQ Can Be Free:

This function allows user to choose if the FDD IRQ can be freed up. The default setting is [Yes] and this does not allow the IRQ to be free.

3-7 Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.

Figure 3-8

Auto Detect PCI/DIMM Clk:

Enabling this function will auto-detect PCI/DIMM clock.

Spread Spectrum

Displays the default value as [Enabled].

CPU Clock

Displays the default CPU FSB frequency.

> *Overclocking:*
>
> **This motherboard is designed to support overclocking ability. However, please make sure your components are able to tolerate such abnormal setting, while CPU clock speed is overclocked. Any attempt to operate beyond product specifications is not recommended. <u>We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.</u>**

3-8 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the CMOS Setup Utility menu (Figure3-1).   If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

```
Load Fail-Safe Defaults (Y/N)? N
```

3-9 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the CMOS Setup Utility menu (Figure3-1).   If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

```
Load Optimized Defaults (Y/N)? N
```

3-10 Supervisor Password & User Password Setting

There are four different variables that control password settings.   The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-1).   When the Security Option function is set to **Setup**, a password is required to enter BIOS and change BIOS settings. When the Security Option function is set to **System**, a password is required to enter both BIOS and the computer's operating system (for example Windows 98) found on the boot drive.

The third and fourth variables are user password and supervisor password selected in BIOS (Figure 3-1). The main purpose of separating user and supervisor is to allow only the supervisor to have control over the settings in BIOS.   The user, on the other hand, is only allowed to access the computer's operating system and change the user password in BIOS.

When there is no supervisor password set, the user password controls access to all BIOS settings.

```
Enter Password:
```

3-11 Save and Exit Setup

If you select this and type [**Y**] (for Yes) followed by [**Enter**], the values entered in the setup utilities will be recorded in the CMOS memory of the BIOS chip.

```
SAVE to CMOS and EXIT (Y/N)? Y
```

3-12 Exit Without Saving

Selecting this option and pressing Y followed by [**Enter**] lets you exit the Setup program without recording any new values or changing old ones.

```
Quit Without Saving (Y/N)? N
```

Chapter 4 DRIVER Setup

Insert the support CD that come with your motherboard into your CD-ROM driver or double-click the CD drive icon in [**My computer**] to open the setup screen.
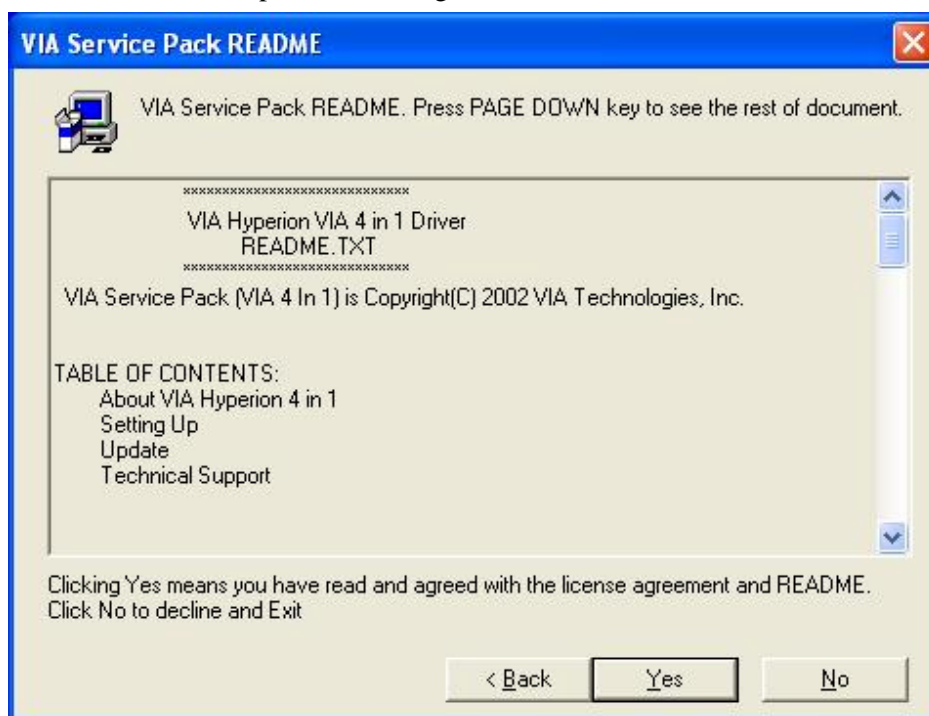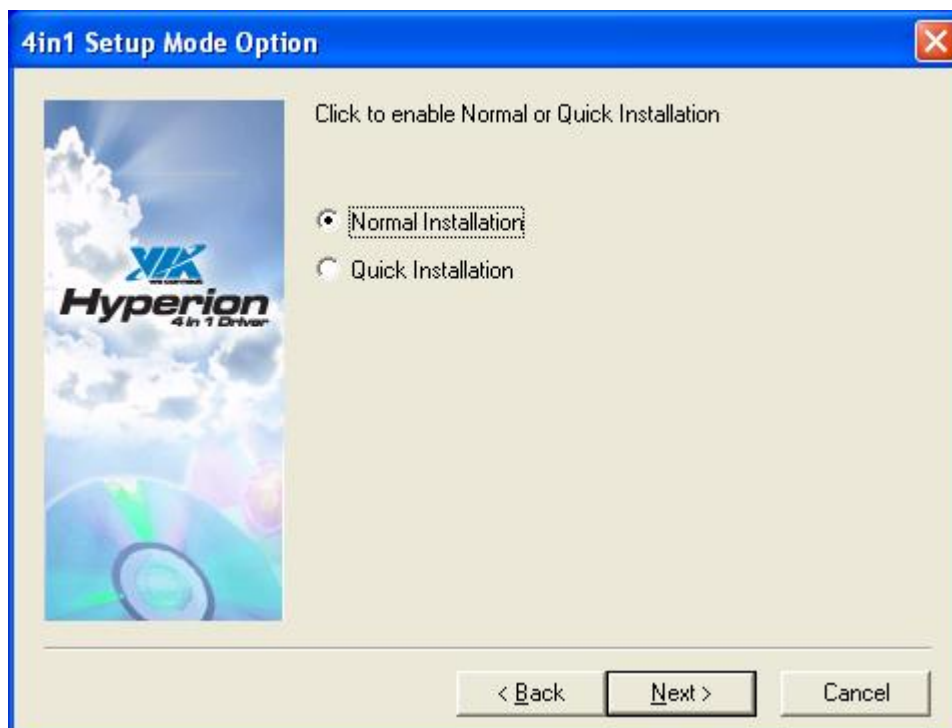
4-1 VIA Service Pack Setup

1. Click [VIA Service Pack]

2. Click [**Next >**] to start software installation.

3. Click [**Yes**] to accept the license agreement.

4. Please select the type of installation and click [**Next >**] to continue.

5. Please select [**Next >**] to continue.

6. Please select [**Next >**] to continue installing VIA PCI IDE Bus Driver.

7. Please select [**Next >**] to continue installing AGP Driver.

8. Please select [**Yes**] for restarting computer now or [**No**] for restart later, then click [**OK**] to complete the installation.
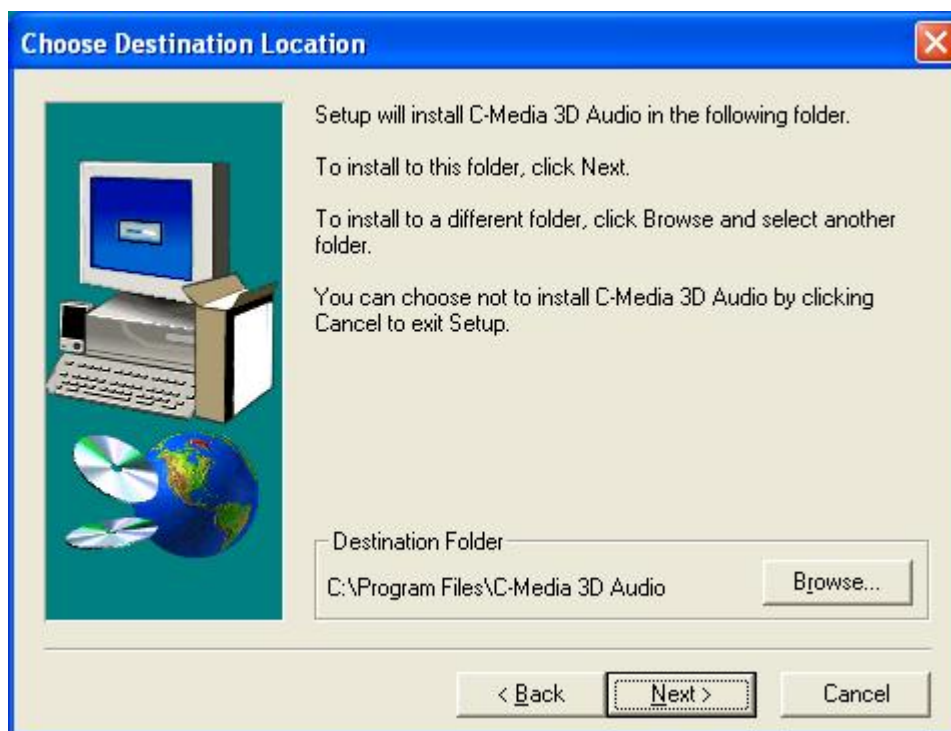
4-2 Audio Driver Setup

1. Click [**Audio Driver**]

2. Click [**Next >**] to start software installation

3. Click [**Next >**] to continue.

4. Please select a folder where the program will be installed and click [**Next >**] to proceed.

5. Please select one folder name from existing folders list and click [**Next >**] to proceed.

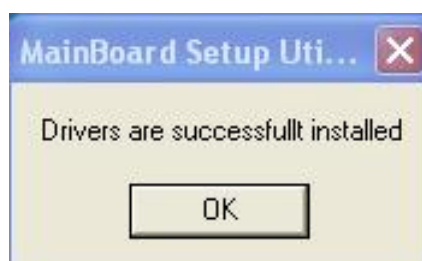6. Please click [**Next >**] to begin the file-copy process.

4-3 LAN Driver Setup

1. Click [**LAN Driver**]

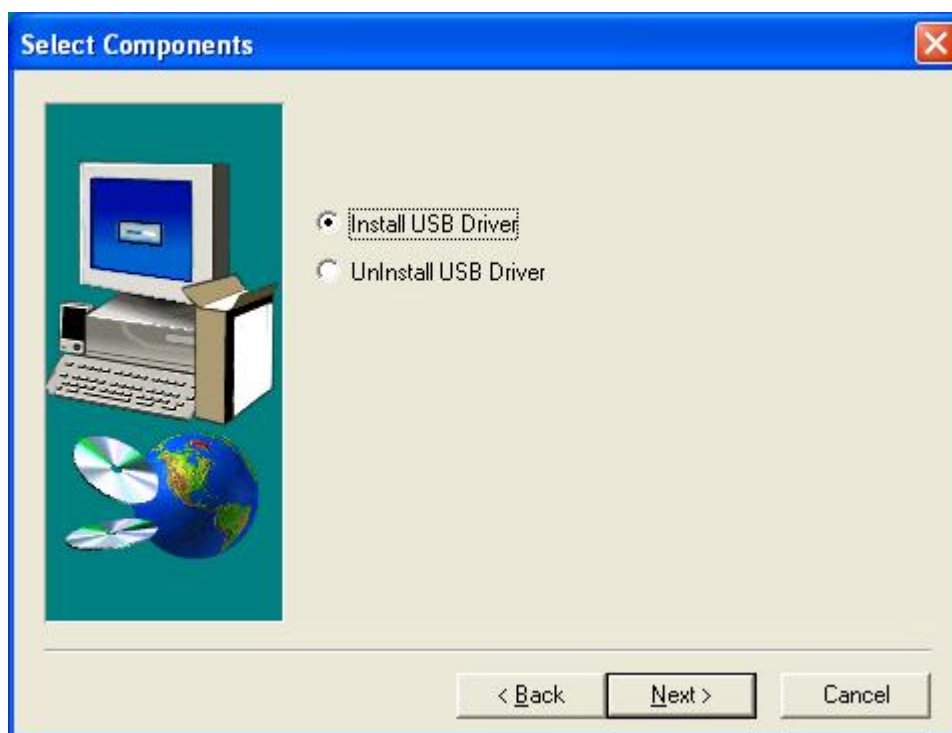2. Click [**OK**] to complete setup.

4-4 USB 2.0 Driver
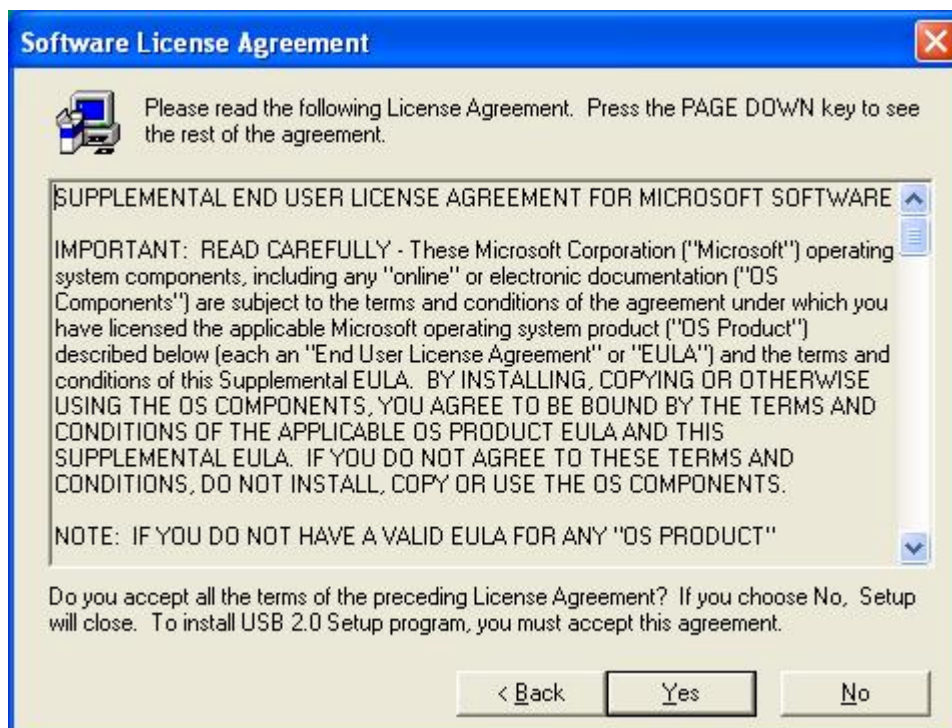
1. Click [**USB 2.0 Driver**]

2. Click [**Next >**] to start software installation.

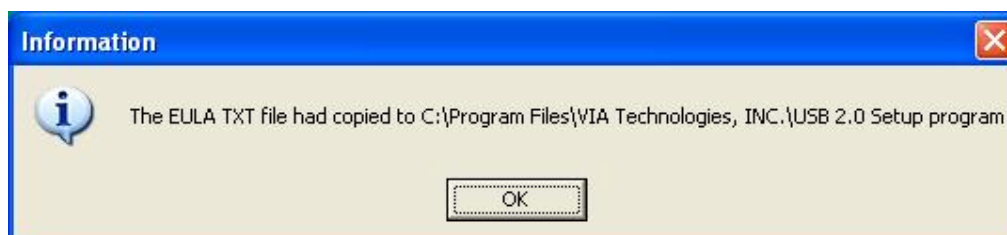3. Please click [**Next >**] to continue.

4. Please click [**Yes**] to accept the license agreement.

5. Please click [**Print to File**] to continue.

6. Please click [**OK**] to continue.

7. Please select [**Yes**] for restarting computer now or [**No**] for restart later, then click [**Finish**] to complete the installation.

NOTE

How To Contact CHAINTECH

Please do not hesitate to contact us if you have any problem about our products. Any opinion will be appreciated.

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For UK: **CHAINTECH UK., LTD.** 7200 The Quorum, Oxford Business Park North Oxford, OX42JZ, UK **Tel**: 44-1865-487-165 **Fax**: 44-1865-481-482 **E-Mail:** phil@chaintech.nl	**For China** **CHAINTECH, SHENZHEN** Room 301, Nanguang Building, No.1004, Huafu Rd, Futian District,Shenzhen, China 518041 **Tel**: +86-755-8368-9072 **Fax**: +86-755-8368-9053 **CHAINTECH, BEIJING** 403, Building A, No.118, Zhichun Rd, Haidian District, Beijing, China 100086 **Tel:** +86-10-6265-1626 **Fax:** +86-10-6262-0267 **URL:** http://www.chaintech.com.cn **E-MAIL:** service@chaintech.com.cn
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For Italy and Southern Europe: **CELT COMPUTER s.r.l.** Via Privata Mulino 3 I-20090 Buccinasco, Milano, Italy **Tel:** +39-2-4510-9108 **Fax:** +39-2-4510-1354 **E-Mail:** celt@libero.it	**For Korea:** **CHAINTECH KOREA CO., LTD.** 14F, Mi-Won B/D, Yeouido-Dong 43, Youngdeunpo-Gu, Seoul, Korea **Tel:** +82-2-6332-3377 **Fax:** +82-2-6332-3379 **E-Mail:** erin@chaintechkorea.com