

**AMD Socket A
VIA KT400A + VT8235
ATX Motherboard**

User's Guide

Version 2.0



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 COMPUTER INC. LTD

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.

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TABLE OF CONTENTS

Chapter 1 Introduction	1
1-1 Product Specifications.....	1
1-2 Package Contents	2
1-3 Motherboard Layout.....	3
Chapter 2 Hardware Setup.....	4
2-1 Installing a CPU Processor for Socket A	4
2-2 Setting Your CPU's Performance.....	5
2-3 Main Memory Configuration	7
2-4 Connector and Jumper Settings.....	10
Chapter 3 BIOS Setup Program	18
3-1 Standard CMOS Setup	19
3-2 Advanced BIOS Features	20
3-3 Advanced Chipset Features.....	22
3-4 Integrated Peripherals.....	27
3-5 Power Management Setup.....	29
3-6 PNP/PCI Configurations	31
3-7 Frequency/Voltage Control	32
3-8 Load Fail-Safe Defaults	33
3-9 Load Optimized Defaults	33
3-10 Supervisor Password & User Password Setting.....	33
3-11 Save and Exit Setup.....	33
3-12 Exit Without Saving	33
Chapter 4 DRIVER Setup	34
4-1 VIA Service Pack Setup.....	34
4-2 Audio Driver Setup	34
4-3 LAN Driver Setup	34
4-4 USB 2.0 Driver	34

Chapter 1 Introduction

1-1 Product Specifications

Processor

- Supports AMD Socket A Athlon XP/Athlon/Duron CPU
- Supports system clock at 200/266/333 MHz

Chipset

- VIA KT400A + VT8235

Main Memory

- Supports three 184 pin DDR DIMMs up to 3GB
- Supports PC 2100/2700/3200 DDR SDRAM modules

Expansion Slots

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

Audio Subsystem via AC-Link

- With external high quality 6-channel AC'97 Codec
- Complete software driver supports for Windows® OS

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

USB 2.0/1.1 Host Controller

- Three EHCI USB 2.0 and UHCI USB 1.1 controllers support total six 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 port
- One SPP/ECP/EPP parallel port
- One floppy disk drive connector supports up to 2.88MB

Fast Ethernet Controller with MII Interface (Optional)

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

Boot-Block Flash ROM

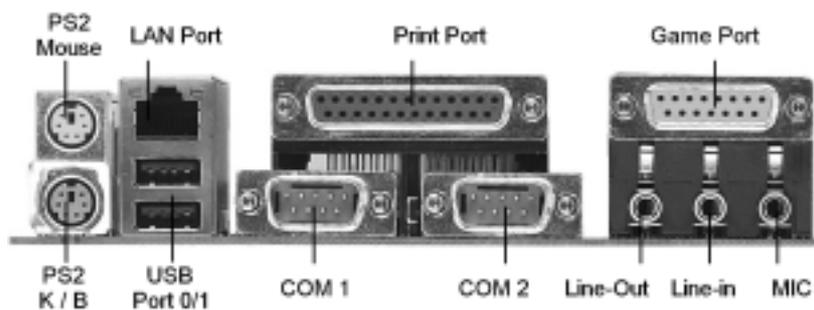
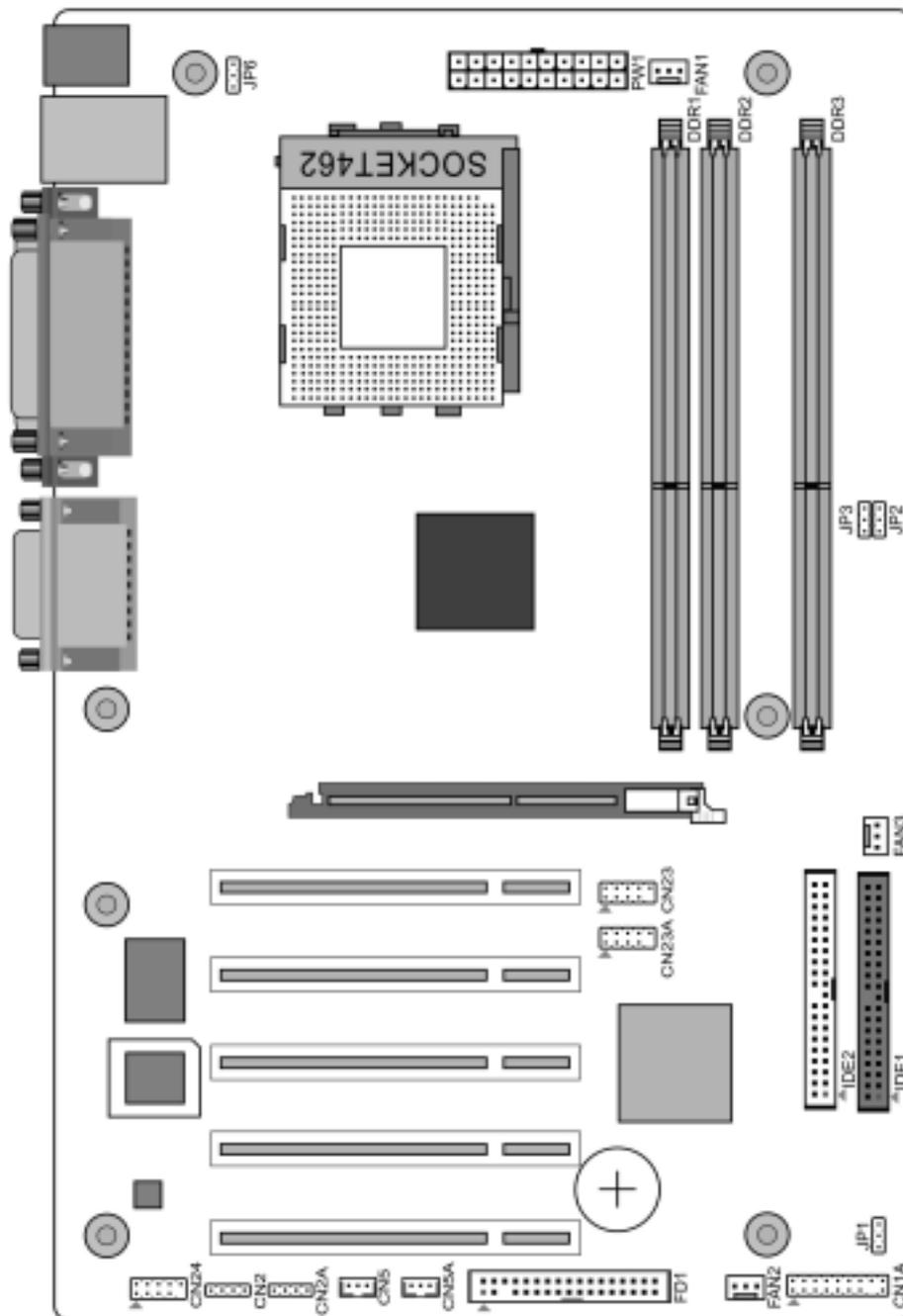
- Award system BIOS supports PnP, APM, DMI, ACPI, & Multi-device booting features.

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.



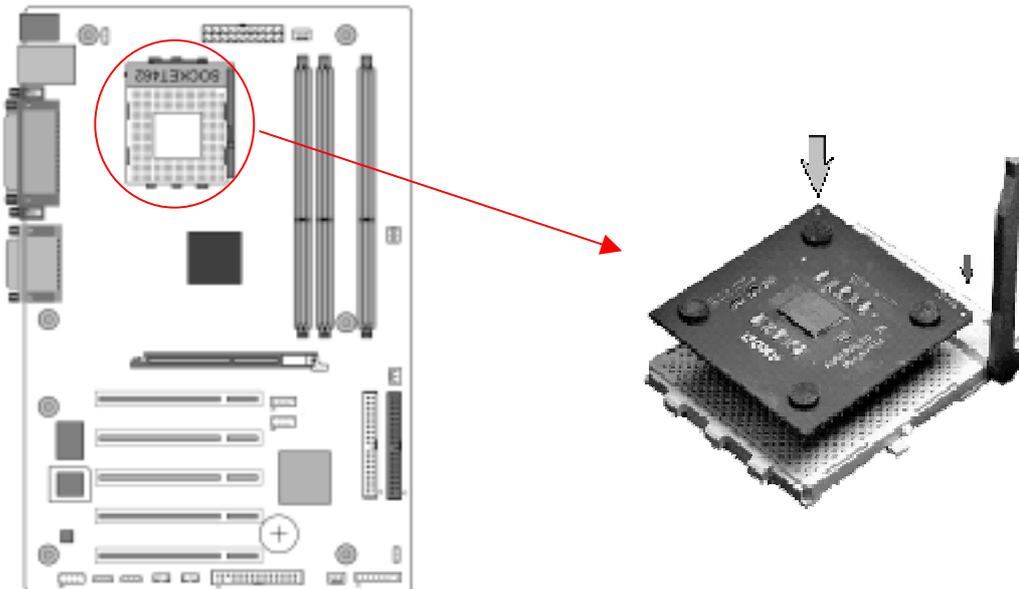
This motherboard is electrostatic sensitive. Do not touch without wearing proper safety gadget and make sure to disconnect the power cable from the power source before performing any work on your motherboard. Not doing so may result in electrical shock!

2-1 Installing a CPU Processor for Socket A

The Socket A, designed for AMD® Athlon XP/Athlon/Duron processors, has been incorporated as a standard motherboard specification. To insert your CPU into Socket A please do the following:

1. Locate a cut edge on the top surface of the CPU close to one of its corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.
2. Pull up the lever of Socket 462 so that it is perpendicular with the surface of the motherboard. Gently insert the CPU with Pin 1 at the same corner of Socket 462 that contains 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. Snap the lever back into place.

Installing an AMD® approved 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.



Note: In order to boot up with a newly installed CPU, AC Power must be switched off before installation.

2-2 Setting Your CPU's Performance

Frequency/Vcore Configuration:

If you install a CPU on this motherboard, you must set the [Front Side Bus Frequency] JP3 according to your processor.

* CPU Speed = Multiplier x FSB Frequency

For lists of AMD CPU's currently available in the market please refer below:

AMD (K7) Duron CPU

Model	CPU Speed	FSB Frequency	Multiplier	Vcore	L2 Cache	Micron process
600	600 MHz	100	6.0	1.6V	64KB	0.18
650	650 MHz	100	6.5	1.6V	64KB	0.18
700	700 MHz	100	7.0	1.6V	64KB	0.18
750	750 MHz	100	7.5	1.6V	64KB	0.18
800	800 MHz	100	8.0	1.6V	64KB	0.18
850	850 MHz	100	8.5	1.6V	64KB	0.18
900	900 MHz	100	9.0	1.6V	64KB	0.18
950	950 MHz	100	9.5	1.6V	64KB	0.18
1.0G	1.0 GHz	100	10.0	1.6V	64KB	0.18
1.1G	1.1 GHz	100	11.0	1.6V	64KB	0.18
1.2G	1.2 GHz	100	12.0	1.6V	64KB	0.18
1.3G	1.3 GHz	100	13.0	1.6V	64KB	0.18

AMD Athlon CPU (K7/Thunderbird)

Model	CPU Speed	FSB Frequency	Multiplier	Vcore	L2 Cache	Micron process
700	700MHz	100	7.0	1.70V	256KB	0.18
750	750MHz	100	7.5	1.70V	256KB	0.18
800	800MHz	100	8.0	1.70V	256KB	0.18
850	850MHz	100	8.5	1.70V	256KB	0.18
900	900MHz	100	9.0	1.75V	256KB	0.18
950	950MHz	100	9.5	1.75V	256KB	0.18
1000	1000MHz	100	10.0	1.75V	256KB	0.18
1100	1100MHz	100	11.0	1.75V	256KB	0.18
1200	1200MHz	100	12.0	1.75V	256KB	0.18
1300	1300MHz	100	13.0	1.75V	256KB	0.18
1400	1400MHz	100	14.0	1.75V	256KB	0.18

1000	1000MHz	133	7.5	1.75V	256KB	0.18
1113	1113MHz	133	8.5	1.75V	256KB	0.18
1200	1200MHz	133	9.0	1.75V	256KB	0.18
1333	1333MHz	133	10.0	1.75V	256KB	0.18
1400	1400MHz	133	10.5	1.75V	256KB	0.18

AMD Athlon XP CPU (Palomino/Thoroughbred)

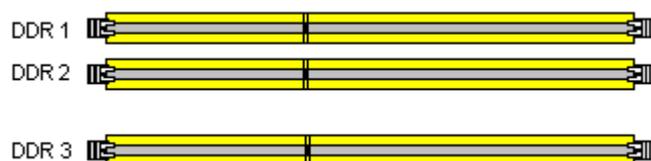
Model	CPU Speed	FSB Frequency	Multiplier	Vcore	L2 Cache	Micron process
1500+	1333MHz	133	10.0	1.7V	256KB	0.18
1600+	1400MHz	133	10.5	1.7V	256KB	0.18
1700+	1466MHz	133	11.0	1.7/1.6V	256KB	0.18/0.13
1800+	1533MHz	133	11.5	1.7/1.6V	256KB	0.18/0.13
1900+	1600MHz	133	12.0	1.7/1.6V	256KB	0.18/0.13
2000+	1666MHz	133	12.5	1.7/1.6V	256KB	0.18/0.13
2100+	1733MHz	133	13.0	1.7/1.6V	256KB	0.18/0.13
2200+	1800MHz	133	13.5	1.65V	256KB	0.13
2400+	2000MHz	133	15.0	1.65V	256KB	0.13
2600+	2133MHz	133	16.0	1.65V	256KB	0.13
2600+	2075MHz	166	12.5	1.65V	256KB	0.13
2700+	2166MHz	166	13.0	1.65V	256KB	0.13

AMD Athlon XP CPU (Barton)

2500+	1833MHz	166	11.0	1.65V	512KB	0.13
2600+	1917MHz	166	11.5	1.65V	512KB	0.13
2800+	2075MHz	166	12.5	1.65V	512KB	0.13
3000+	2167MHz	166	13.0	1.65V	512KB	0.13

2-3 Main Memory Configuration

The DDR SDRAM memory system consists of three banks, each bank supports up to 1GB of memory.



DDR SDRAM Specifications

Memory Frequency	Internal System BUS Frequency
133 MHz	266 MHz
166 MHz	333 MHz
200 MHz	400 MHz

DIMM type: 2.5V, unbuffered 184 pin 64/128/265/512-bit DDR SDRAM.

Module size: Single/double-sided 64/128/256/512Mbytes or 1GBbtes.

Parity: Ether parity or non-parity.

Location	64 MB	128 MB	256 MB	512 MB	1.0 GB
DDR 1	V	V	V	V	V
DDR 2	v	V	V	V	V
DDR 3	v	V	V	V	V

*In order to take effect of PC3200 DDR SDRAM modules please install memory modules on **DIMM1 + DIMM3** slots or **DIMM2 + DIMM3** slots .For PC 2700 DDR SDRAM modules you can install memory modules in all three DIMM slots.*

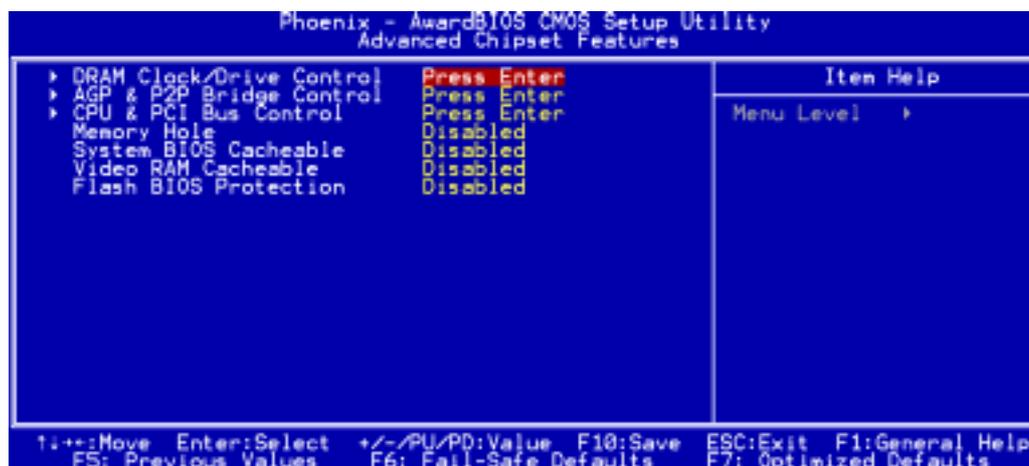
Note:

If you are using **DDR 400** and the brand of the module is **Winbond**, please adjust your BIOS setting according to the following instructions to avoid compatibility problem.

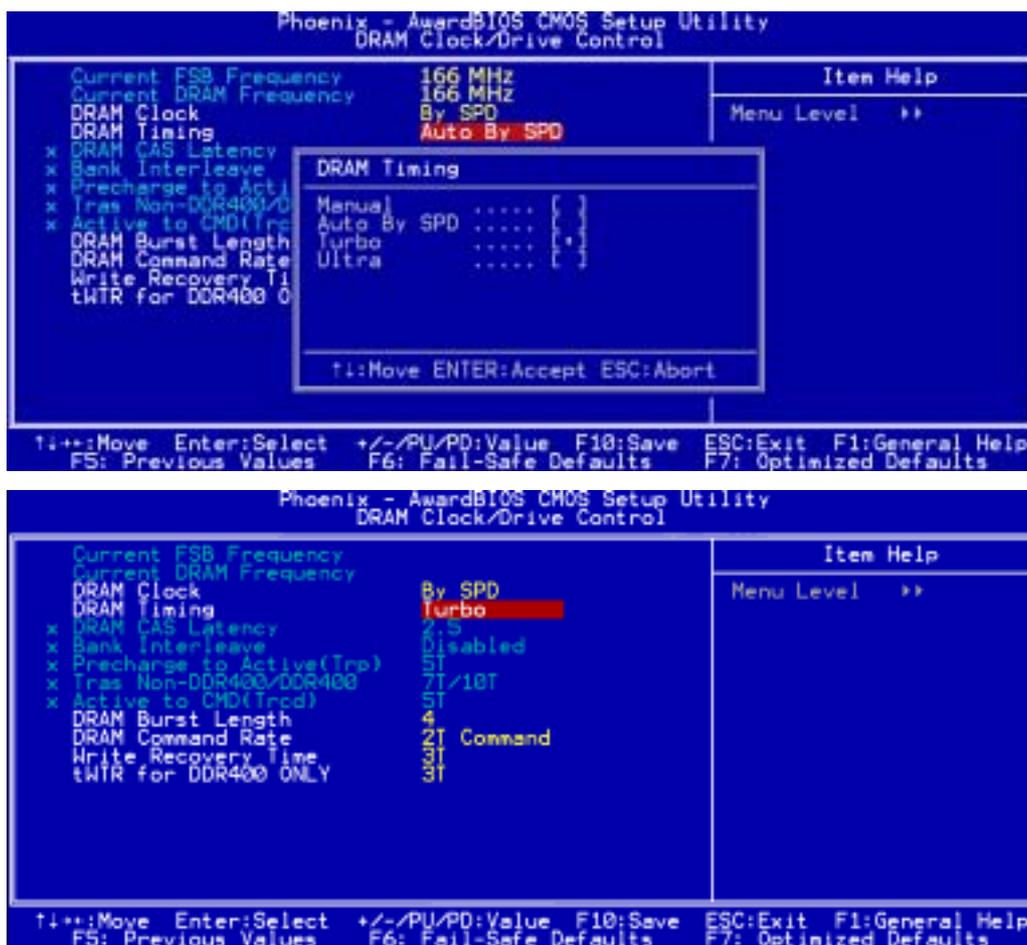
1. Press [**Delete**] to enter BIOS setup program when you turn on or reboot your system.
2. Select [**Advanced Chipset Features**].



3. Select [**DRAM Clock**].



4. Adjust the setting of DRAM Timing to [Turbo]



If there is no incompatibility problem occurred while you use the module, then it's not necessary to change the memory setting.

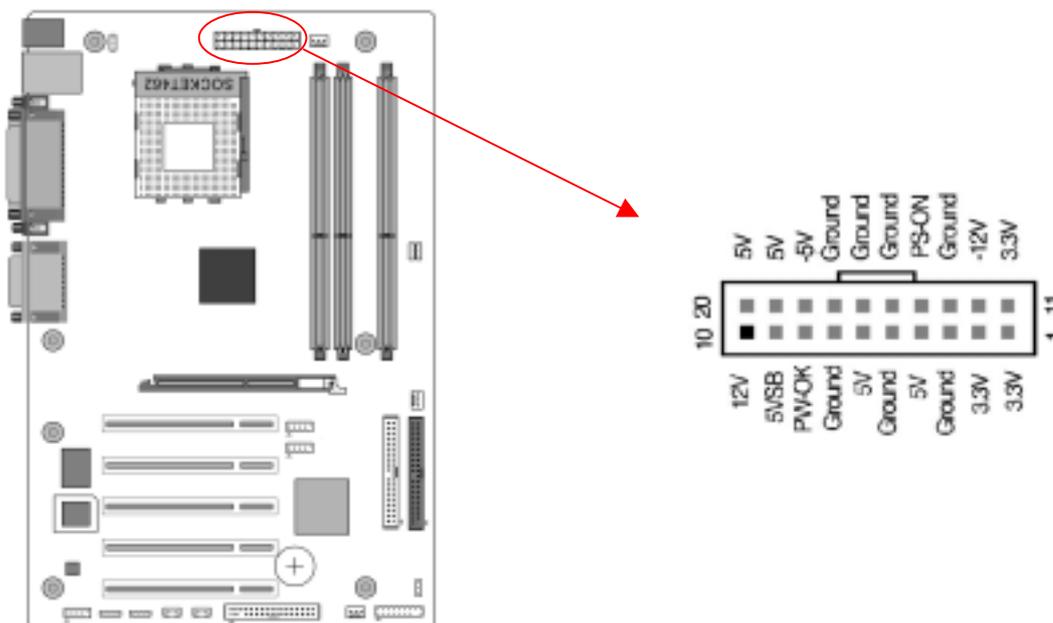
2-4 Connector and Jumper Settings

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.

Note: All cables are *security-proof*.

PW1 (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 in order 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 is detected, the system will be activated and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section 3. 5)

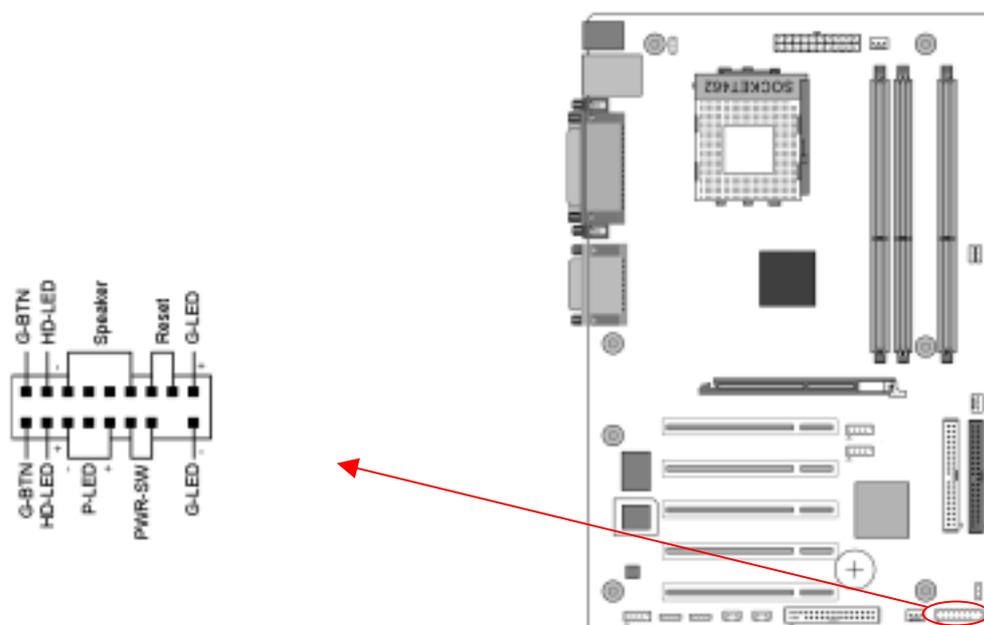
Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or by 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 keyboards or USB connectors. In case of such an 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 and the keyboard or USB connector can function properly again. Unlike conventional fuses, the poly-fuse will not need 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 is power-saving mode used for saving electricity when the computer is not in use for a long period 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 cables 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. While 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 different 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.

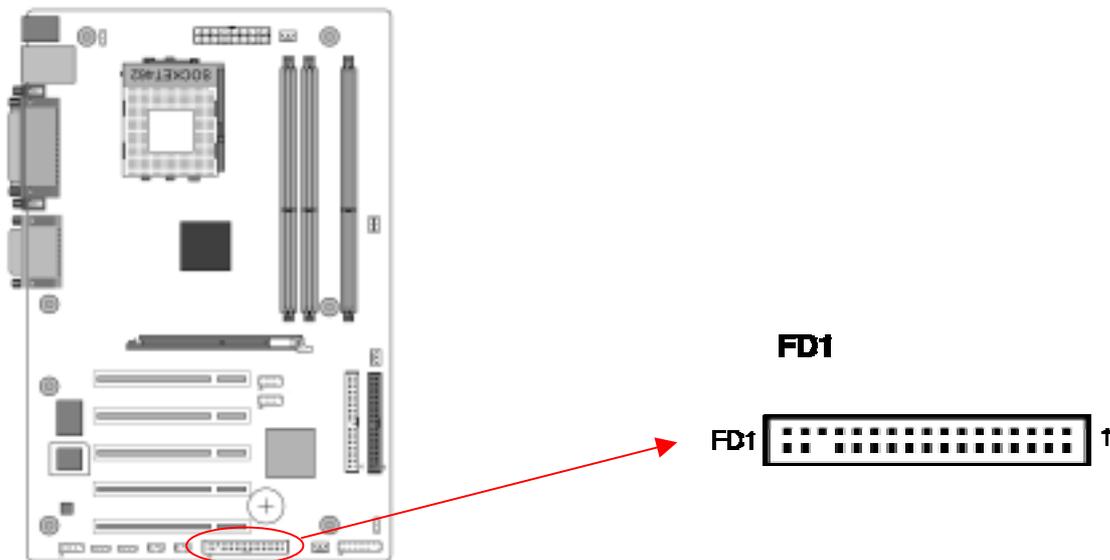
5. **SPEAKER** (Speaker Connector)

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

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

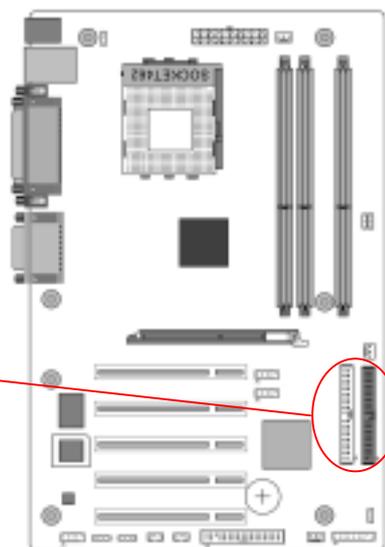
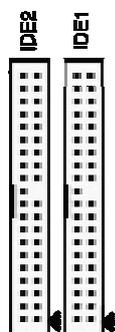
The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

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. Use this connector to connect to a Floppy disk drive of 34 pins .

IDE1 / 2 (IDE Hard-Disk Connector)



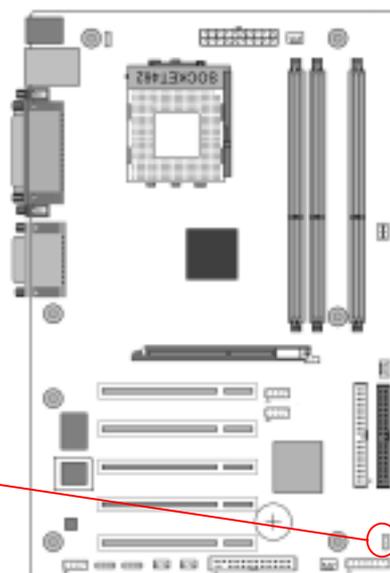
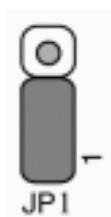
The motherboard has a 32-bit Enhanced PCI IDE and Ultra ATA66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra ATA66/100/133 function. This connector is used for connecting 40 pins of ATAPI devices.

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

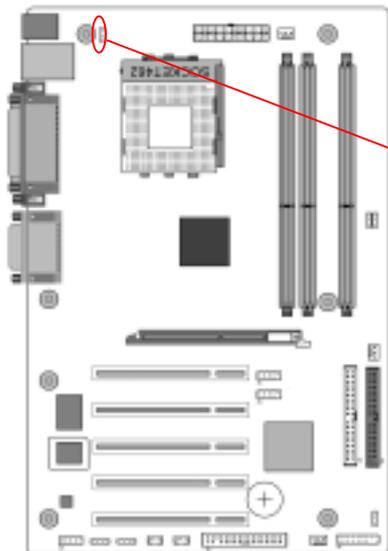


There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

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 Setup 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)

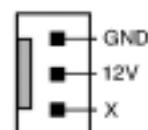
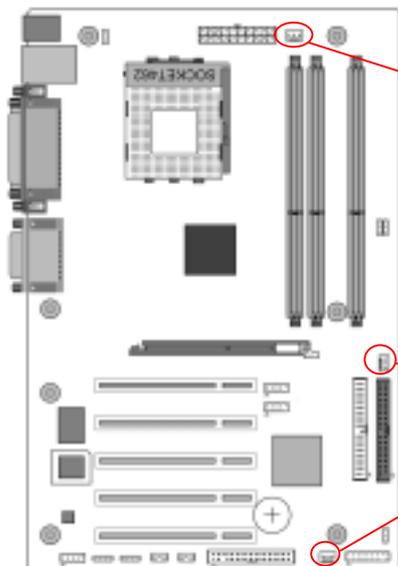


Pin	Definition
1-2	Disable (default)
2-3	Enable



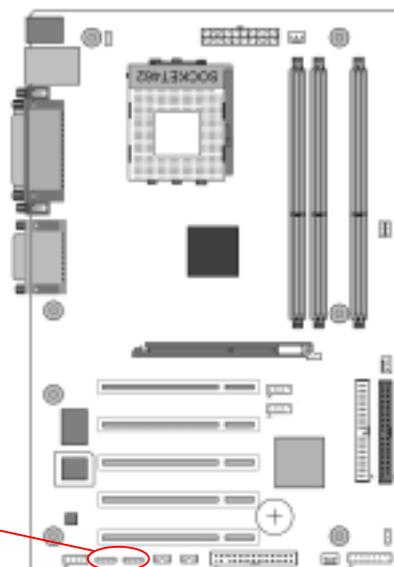
An USB keyboard hot key or an USB mouse click can activate this board. To use this function, select a hot key of your choice at the USB Resume from S3 option under Wake Up Events in the BIOS's Power On Management screen. You must also set this jumper's cap to pins 2-3 to use this function.

FAN1 / FAN2 / FAN3 (CPU/System/Case Cooling Fan Connectors)



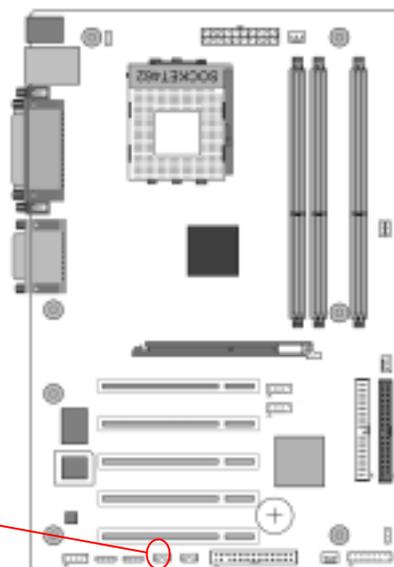
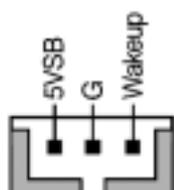
The board's hardware management is able to detect the CPU and system fan speed in rpm (revolutions per minute). The wiring and plugging may vary depending on the manufacturer. On standard fans, the red is positive (+12V) and the black is ground.

CN2/CN2A (CD-ROM Audio-in Connector)



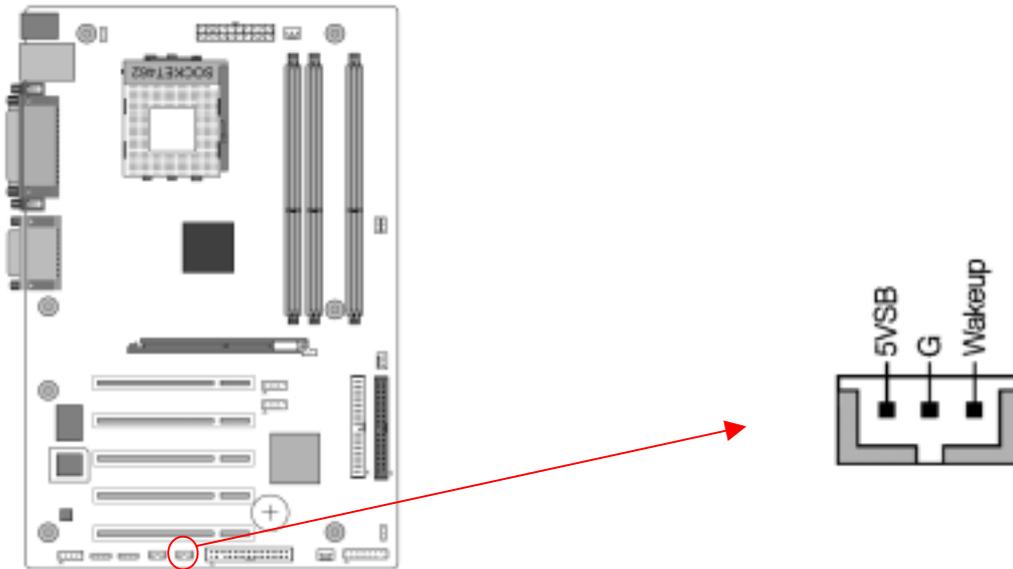
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your motherboard. This will enable your CD-ROM's audio function.

CN5 [WOL (Wake-on-LAN) Connector]



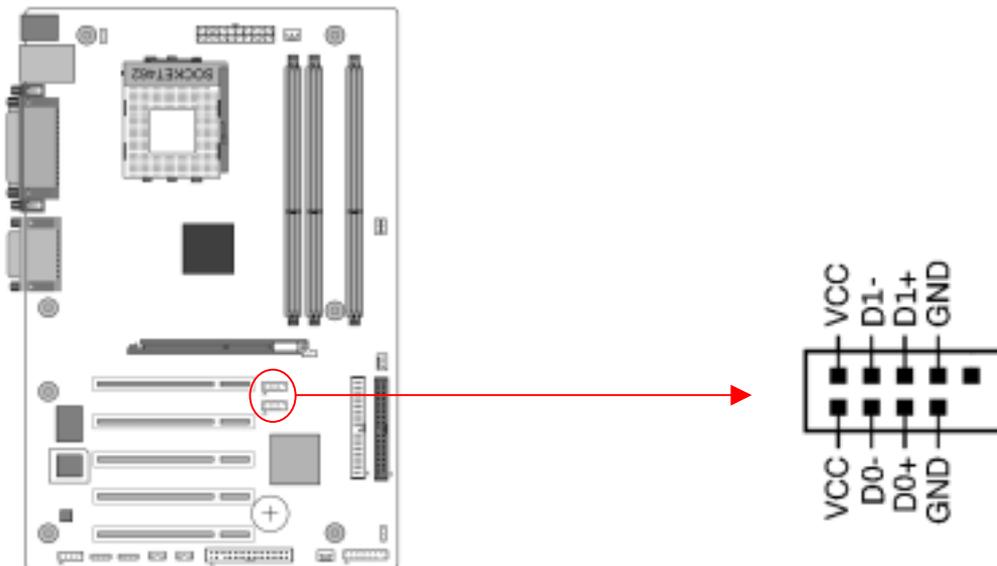
Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL capability to LAN controller. This header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

CN5A [WOM (Wake-on-Modem) Connector]



Enable the Wake Up On Modem selection in BIOS's Power Management Menu to activate this function. This header is used to connect an add-in modem card, which gives WOM capability to the motherboard.

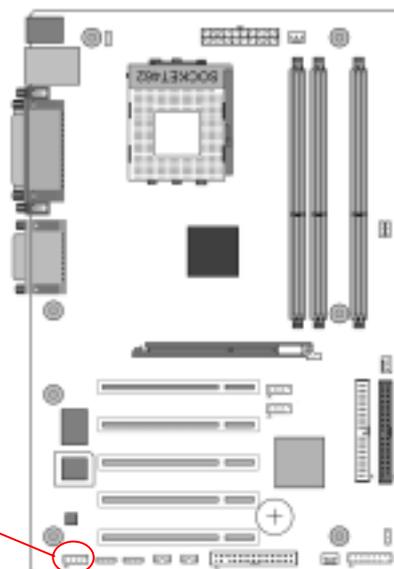
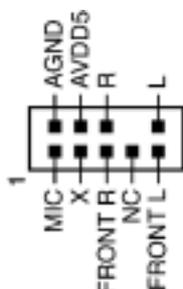
CN23/CN23A (Front USB Connector for USB 2/3 and 4/5)



USB Port 2/3 → CN23, USB Port 4/5 → CN23A

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

CN24 (Front Audio Connector)

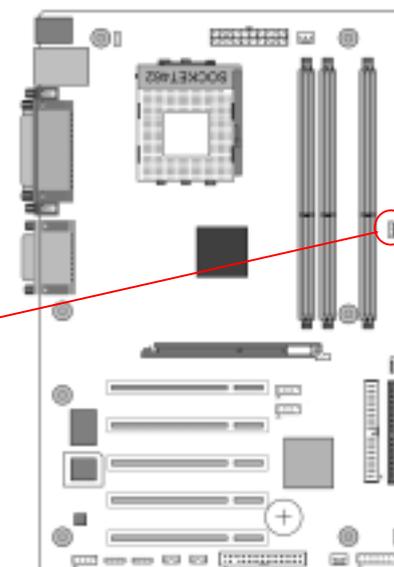
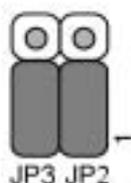


This connector gives you the option of a front-panel audio jack cable ext. to be plugged into a special custom-designed system case.

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.

JP2/3 (CPU Front Side Bus setting)

JP2	JP3	Definition
2-3	1-2	100 MHz
1-2	1-2	133 MHz
1-2	2-3	166 MHz



This cap setups up the CPU Ext. Clock Frequency. This function allows you to set the CPU's FSB. The default setting is at pin [1-2], and your CPU's FSB will be automatically detected.



It is recommended that you leave the default settings to prevent any burnout on your CPU.

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, changing hardware in your system such as the HDD, FDD, video display, or when the CMOS data was lost or corrupted. Choose the Standard CMOS Setup option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen.

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 (Primary/Secondary; 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.

Virus Warning

When you set it as enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive.



Many disk diagnostic programs that access the boot sector table can trigger the virus-warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

CPU Internal Cache / External 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.

CPU L2 Cache ECC Checking

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

Quick Power On Self Test

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 losing 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.

Gate A20 Option

This allows you to set the Gate A20 status. When set to **[Fast]**, Gate A20 is controlled by chipset. When set to **[Normal]**, Gate A20 is controlled by a specific pin from the keyboard controller. Available options are **[Fast]** and **[Normal]**.

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

In order to comply with PC2001 standard, the system is designed to run in APIC (Advanced Programmable Interrupt Controller) 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 is used for the operating system. You need to select the MPS version which 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.

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

This field allows you to Enable or Disable the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system that utilizes the internal hard disk drive monitoring technology. This parameter is normally set as Disabled because the resources used in the SMART monitoring feature may decrease the system performance.

Video BIOS Shadow

Enabling this function will allow the BIOS setting of the VGA card to be saved in RAM for better performances.

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.



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 brief 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 Burst Length / DRAM Command Rate / Write Recovery Time / tWTR for DDR 400 only

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

AGP & P2P Bridge Control

1. AGP Aperture Size

This feature allows users to select the size of the AGP aperture. It also determines the maximum amount of system RAM that can be allocated to the graphics card for texture storage. The required AGP aperture size will become smaller as the graphics card's memory increases in size. But increase in size of the aperture does not correspond to increase in performance. It is recommended that the AGP aperture size is left around 64MB to 128 MB in size unless instructed otherwise by your video card manufacturer.

2. AGP Mode

Available options: [8X]/ [4X]

3. AGP Driving Control

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

Selecting [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 a stable system operation.

6. DBI Output for AGP Trans

Please leave the default setting [Disabled] for a stable system operation.

CPU & PCI Bus Control

1. PCI 1/2 Master 0 WS Write

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

2. PCI 1/2 Post Write

Enabling this function will enhance the system efficiency.

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. 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.

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.

Video RAM Cacheable

Enabling this function will allow caching of the video RAM, resulting in better system performance. However, if any programs write to this memory area, a system error may occur.

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.

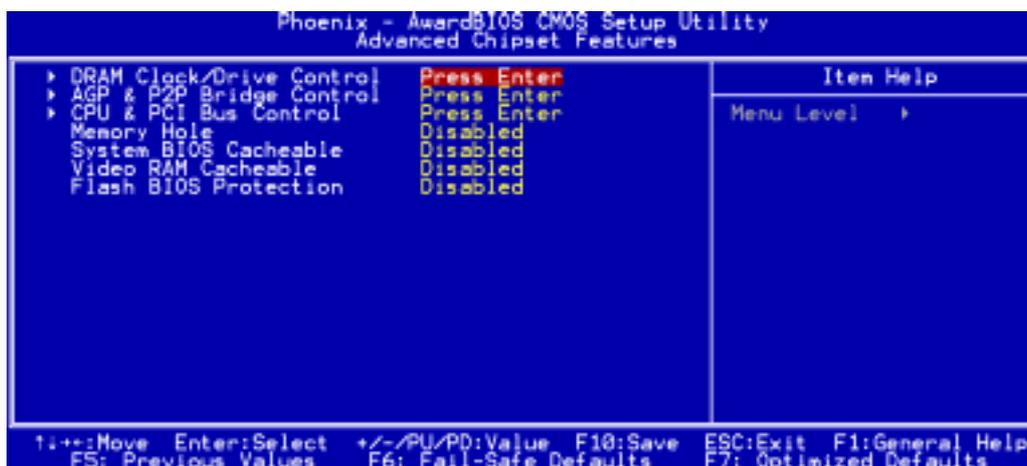
Note:

If you are using **DDR 400** and the brand of the module is **Winbond**, please adjust your BIOS setting according to the following instructions to avoid compatibility problem.

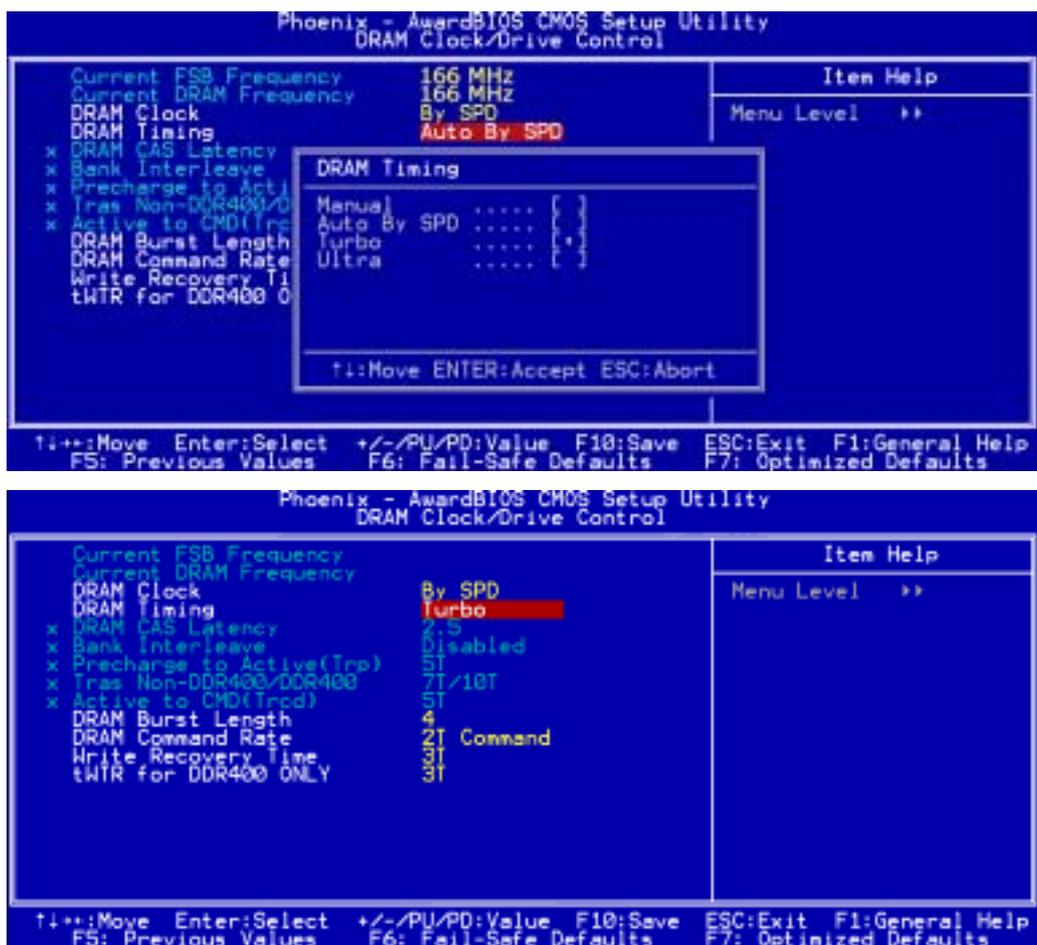
1. Press [**Delete**] to enter BIOS setup program when you turn on or reboot your system.
2. Select [**Advanced Chipset Features**].



3. Select [**DRAM Clock**].



4. Adjust the setting of DRAM Timing to [Turbo]



If there is no incompatibility problem occurred while you use the module, then it's not necessary to change the memory setting.

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.

VIA OnChip IDE Device:

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

1. **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.

2. **IDE Prefetch Mode**

Enabling this function will enhance the system efficiency.

3. **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.

4. **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.

5. **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 the on-board devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-5), the following options are shown:

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 to invoke the boot ROM of the onboard LAN chip or not.

4. **OnChip USB Controller**

Enable the on-board Universal Serial Bus (USB 1.1) 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.

5. **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.

6. **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.

Super IO Device:

This section provides information on setting Super I/O device. 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. **Onboard Parallel Port**

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

4. **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.

5. **Game Port Address**

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

6. **Midi Port Address**

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

7. 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.

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.

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 not in use by entering increasingly deep 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 Support** - 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 assignment 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 hot key can turn on the system.

2. **PS2KB 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 from 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. Power On by PCI card

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

10. Wake Up On LAN / Ring

When enabled, a LAN/modem that receives a signal will activate 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.

12. IRQs Activity 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.

PNP OS Installed:

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

Auto Detect PCI/DIMM Clk

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

Spread Spectrum

Available options: [Disabled], [Enabled].

Linear Spread Range

Please leave the default setting [**1**] for a stable system operation.

CPU Clock

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



Overclocking:

This motherboard is designed to support overclocking. 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. We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.

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.

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.

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.

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.

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.

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 begin software installation.
3. Please select [**Yes**] to accept the license agreement.
4. Please select [**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 [**OK**] to restart your computer.

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 copying process.
7. Please select [**OK**] to complete setup.

4-3 LAN Driver Setup

1. Click [**LAN Driver**]
2. Please select [**Next >**] to continue.
3. Please click [**Finish**] to complete the setup process.

4-4 USB 2.0 Driver

1. Click [**USB 2.0 Driver**]
2. Please select [**Next >**] to continue.
3. Please select [**Next >**] to continue.
4. Please select [**Yes**] to accept the license agreement.
5. Please select [**OK**] to continue.
6. Please select [**Print to File**] to continue.
7. Please click [**OK**] to complete the setup process.
8. Please select [**Yes**] for restarting computer now or [**No**] for restart later, then click [**Finish**] to complete the installation.

NOTE

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We reserve all the rights to change this manual. All information is subject to change without notice.

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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