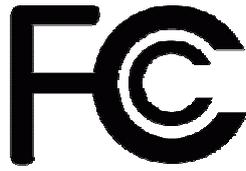


Intel

Motherboard

Intel Socket 478
VIA PT800/880 + VT8237
ATX Motherboard

User's Guide



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:

A handwritten signature in black ink, appearing to be 'S. Ho', written over a horizontal line.

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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July 2003
OST-CONSUMER
RECYCLED PAPER



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Revision History

Revision	Description	P/N
V.1S_E		9413430110
V.2S_E	Motherboard Layout Modified	9413430120

Introduction

Product Specifications

- Processor

Supports Intel Socket 478 CPU with Hyper-Threading Technology

Supports Intel Pentium 4/Celeron system bus at 400/533/800MHz

Supports Intel Socket 478 Prescott CPU at 533/800MHz

- Chipset

VIA PT800/880+VT8237, supports Hyper-Threading Technology

- Memory

Two 184-pin DDR DIMMs up to 2GB

Supports Dual-Channel DDR266/333/400 memory (SPT880 only)

- Expansion Slots

One AGP slot for 4 /8 AGP

Five 32-Bit PCI slots (v2.2 compliant)

- 5.1-Channel Audio

With external high quality 5.1-Channel AC ' 97 Codec

Complete software driver supports for windows OS

Optional S/PDIF out function

- IDE

Built-in VT8237 supports 2 Ultra DMA-33/66/100/133 IDE ports

- SATA RAID

Built-in VT8237 supports 2 Serial ATA devices for the highest data transfer rate (1.5Gbps burst) with RAID 0/1 solution.

- FDD

One FDD connector supports up to 2.88MB

- USB 2.0

Built-in VT8237 supports total 8 USB 2.0/1.1 ports

Supports USB 2.0 High-Speed Device @480 Mb/s Transfer Rates

- Fast Ethernet

Supports 10/100Mb Fast Ethernet with external VIA VT6103 PHY

- Boot-Block Flash ROM

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

- Rear Panel I/O ports

One PS/2 Mouse and Keyboard port

Two USB ports and one RJ45 connector

Two 9-pin D-Sub male Serial ports

One 25-pin D-Sub female Parallel ports

Three Audio I/O jacks (Line-in, Line-out and Mic-in)

One 15-pin D-Sub female Game/MIDI port

● Internal I/O connectors

Three 3x1 pin fan connector

Three 5x2 pin USB connectors for additional 6 USB ports

3x2 pin SPDIF connector for additional SPDIF-out adaptor

3x1 pin wake on LAN connector with housing

3x1 pin wake on Modem connector with housing

Two 4x1 pin CD-in connectors

9x2 pin front panel connector

5x2 pin front side audio connector

20 pin ATX power connector

4 pin ATX 12V power connector

● Form Factor

ATX Form Factor

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 |

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!

Installing a CPU processor in 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

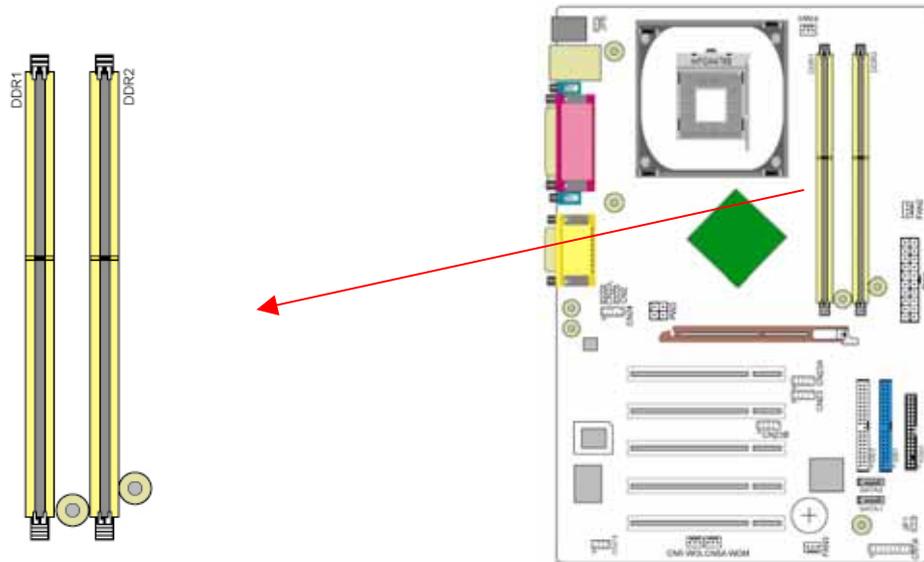
1. Locate the 478-pin CPU socket on the motherboard.
2. Unlock the socket by pressing the lever sideways, and then open it up to a 90-degree angle.
3. Locate a Gold Mark on the top surface of the CPU, which is close to one of the CPU corners. The same corner will also be cut off, leaving a noticeable 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 lever 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.

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.

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.

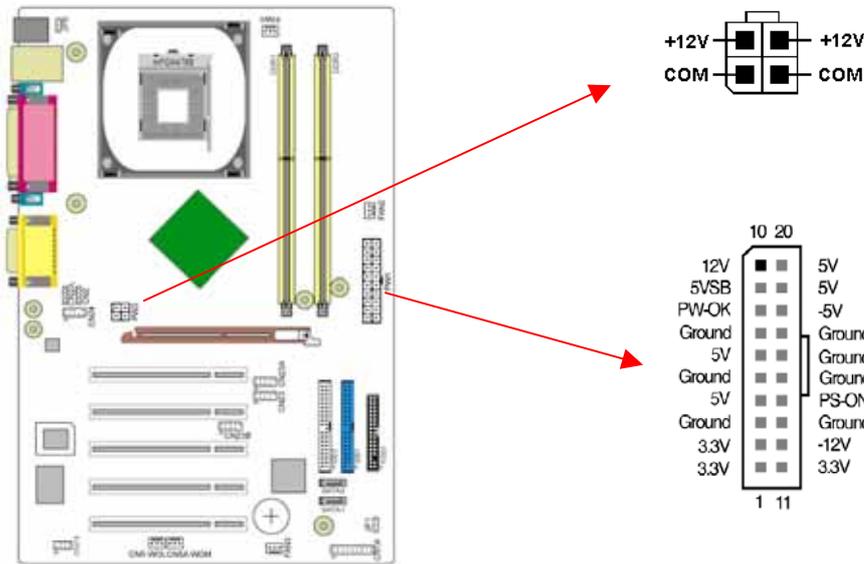


The power supply connector is the last connection to be made while installing a motherboard. Before connecting the power supply, please make sure it is not connected to the power source.



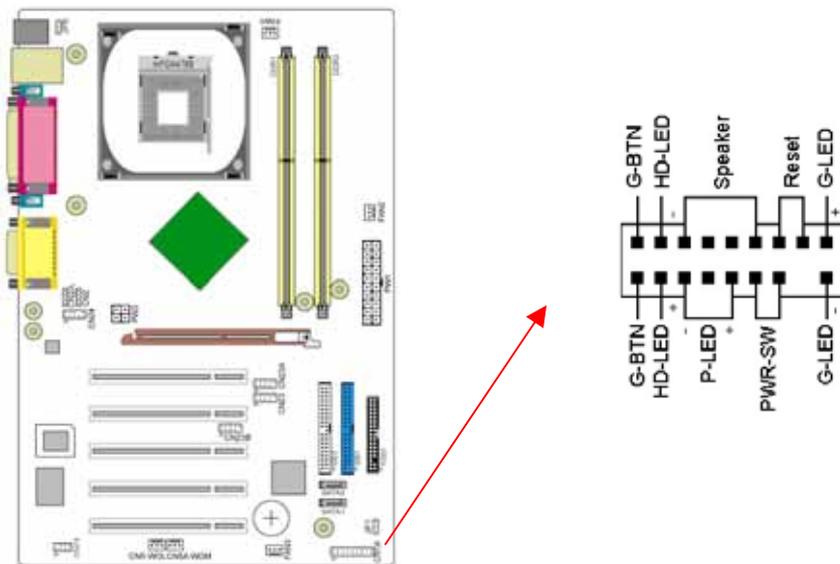
All cables come with a security-proof.

PW 1/3



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.

CN1A



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.

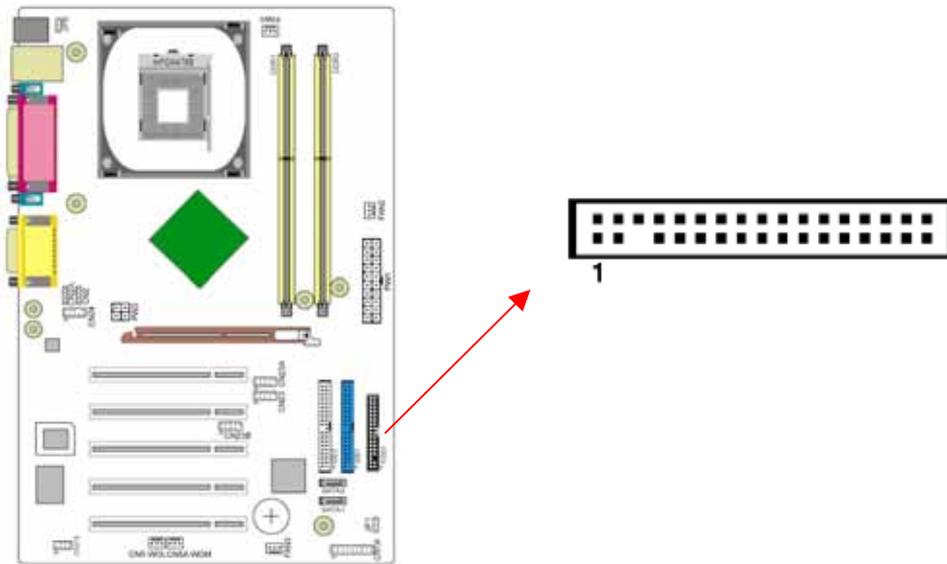
5. SPEAKER (Speaker Connector)

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

6. HD-LED (IDE Activity LED Connector)

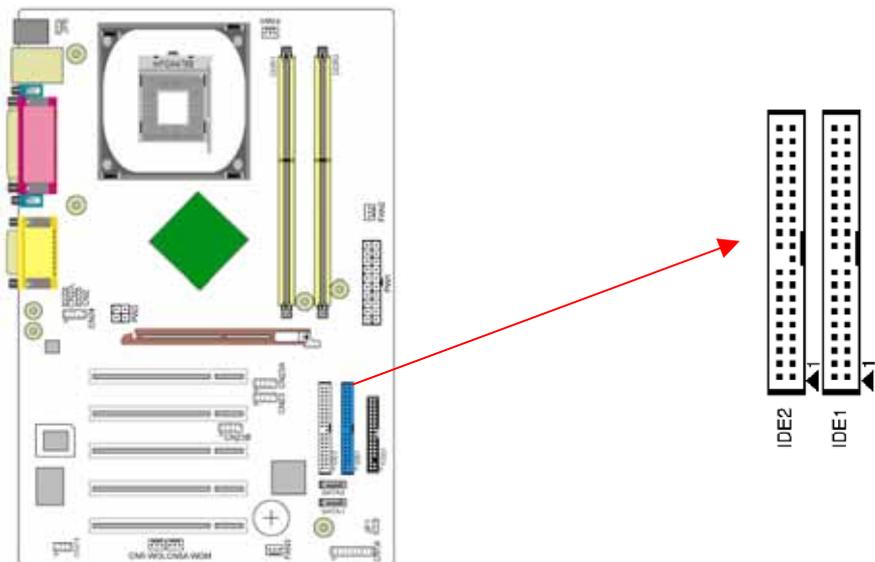
The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

FDD1



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



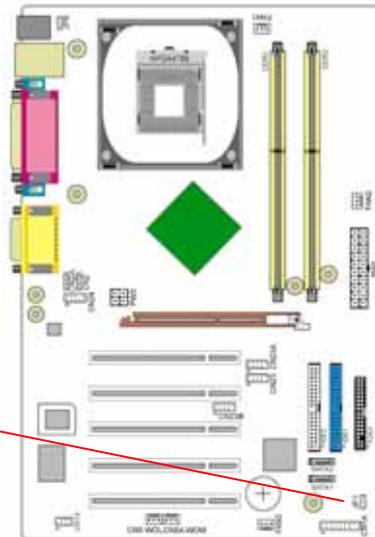
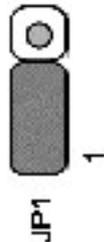
The motherboard has a 32-bit Enhanced PCI IDE and Ultra ATA66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra ATA66/100 function. This connector is used for connecting 40 pins of ATAPI devices.

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

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

JP1

Pin	Definition
1-2	Normal (default)
2-3	Clear CMOS Data

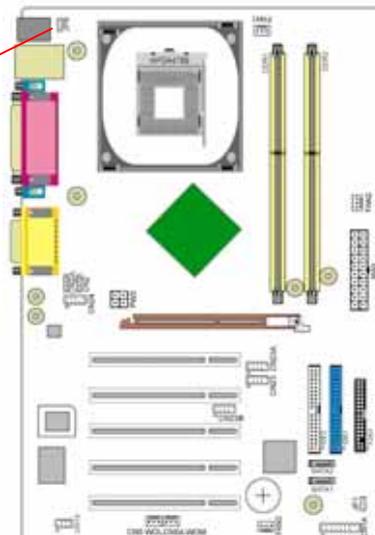
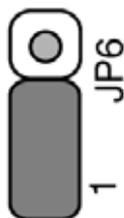


There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

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

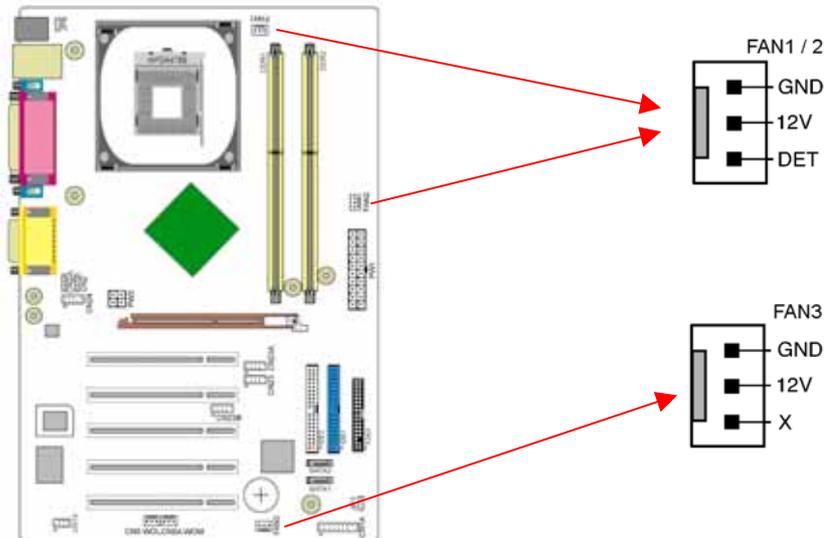
Pin	Definition
1-2	Disable (default)
2-3	Enable



An USB keyboard hot key or an USB mouse click can activate this board. To use this

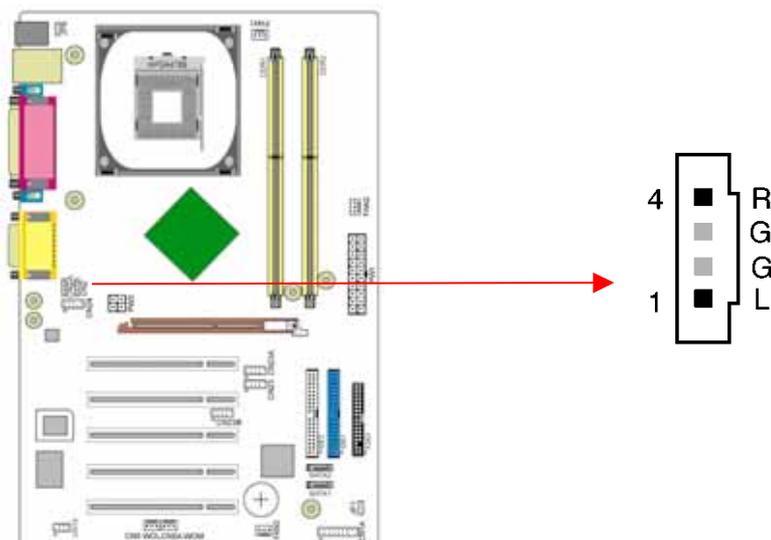
function, select a hot key of your choice from BIOS's Power On Management screen
-> Wake Up Events -> USB Resume from S3 option. You must also set this jumper's cap to pins **2-3** to use this function.

FAN1/2/3

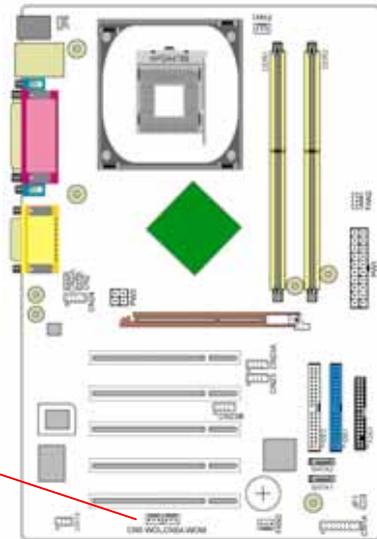
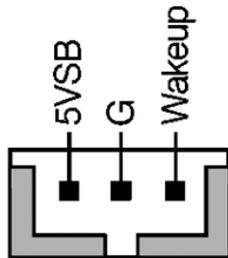


The board's hardware management is able to detect the CPU and system fan speed in rpm (revolutions per minute). The wiring and plugging may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal. Connect the case-cooling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

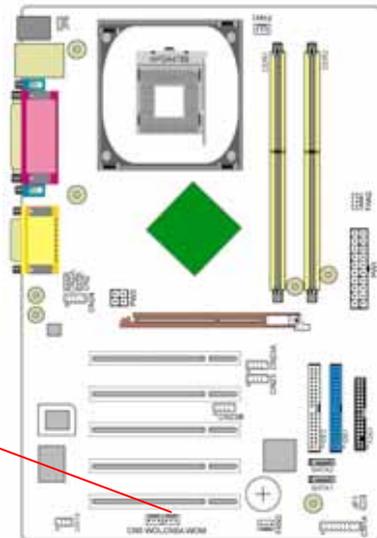
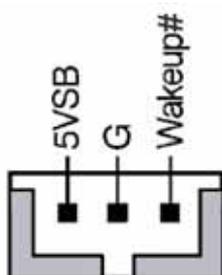
CN2/CN2A



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.

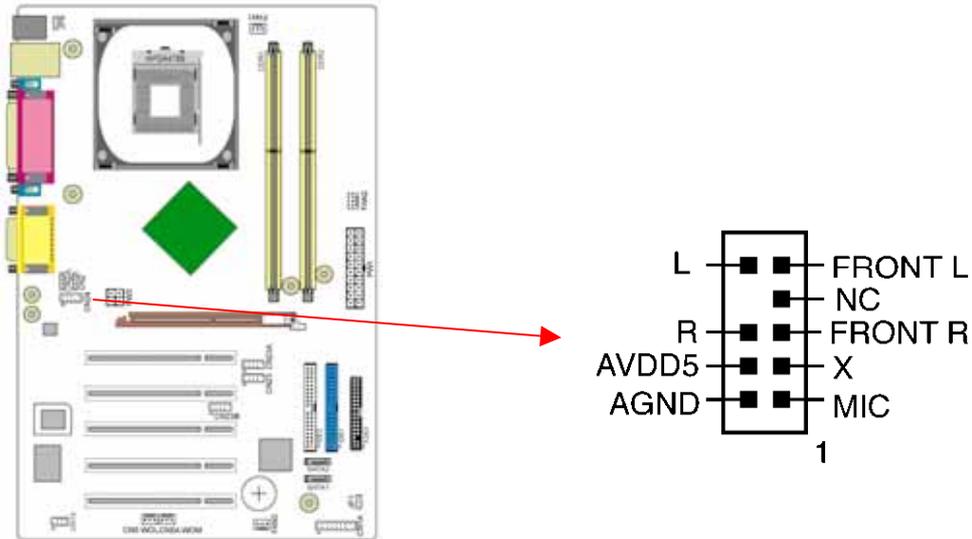
CN5 WOL

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

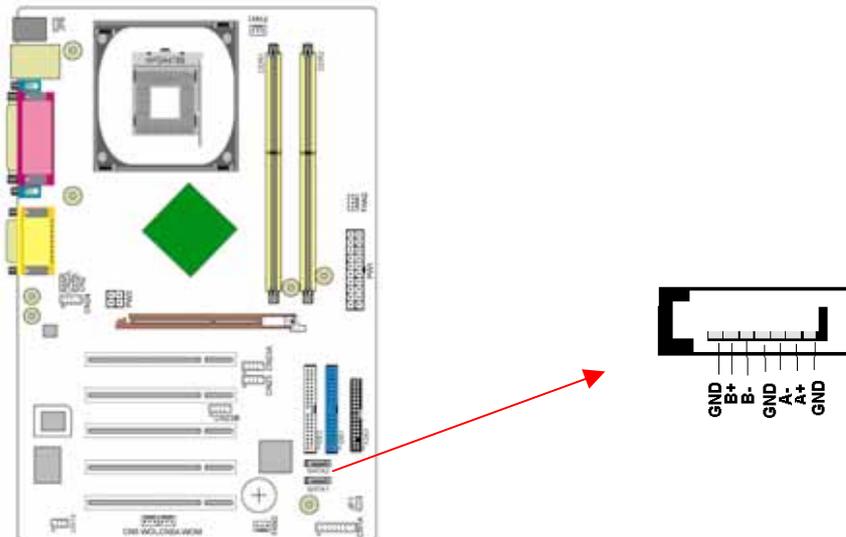
Enable the Wake Up On Modem selection in BIOS's Power Management Menu to use this function. This header is used to connect an add-in modem card, which gives WOM capability to the motherboard.

CN24 Front Audio

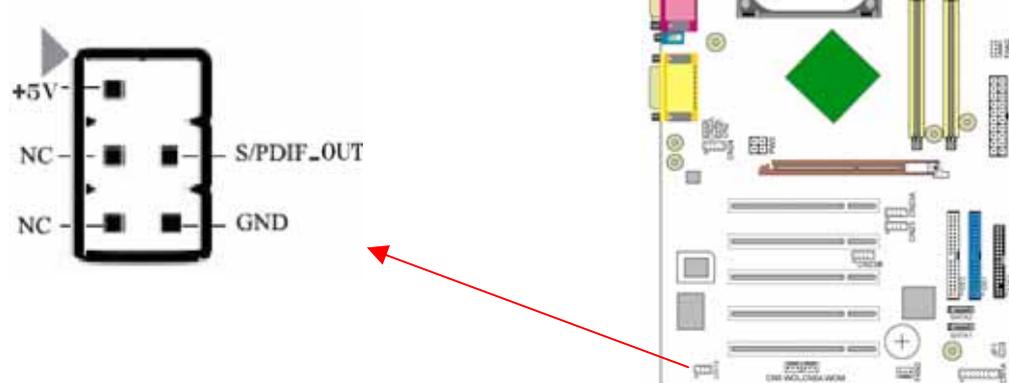


This connector gives you the option of a front-panel audio-jack cable ext. to be plugged into a special custom-designed system case. Simply remove the two jumper caps at pin [5-6] and [9-10] then plug it into the (optional) cable ext. connector. Pin [5-6] and [9-10] are shorted (default) to enable the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

SATA1/2



This can connect to new IDE device; it supports ATA 150MB/sec.

CN13 SDIF

This connector must be connected to a **SDIF bracket**. This will allow you to use the SDIF function.

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. (i.e. After the Intel Pentium 4 logo appears at the center of the screen, please press **Delete** to enter the BIOS setup program).

The primary screen as shown in the following Figure is a list of the menus and functions available in the setup program. Select the desired item by using 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.



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.

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 0/1/2/3; Master/Slave)

This category identifies up to 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.

Advanced BIOS Features

Hard Disk Boot Priority

Select priority of the hard disk boot device.

Virus Warning

Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area. BIOS will show a warning message on screen and alarm beep.

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.

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

These options set the order of drives BIOS attempts to boot from.

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.

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.

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.

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 3.12 for password setting information. When the Security Option is set to System, a password must be entered to boot up 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.

Advanced Chipset Features

DRAM Clock/Drive Control

Press **Enter** to enter the submenu.

DRAM Clock

There will be five options for the DRAM Clock settings. They are **By SPD, 100MHz, 133MHz, 166MHz** and **200MHz**. The first is strongly recommended.

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.

SDRAM CAS Latency

CAS is short for column address strobe, which is a kind of signals. When the CPU needs data from SDRAM, CAS signals will be sent via the CAS line to specify the column where the data is needed. This controls the time delay (in clock cycles - CLKs) that passes before the SDRAM starts to carry out a read command after receiving it. This also determines the number of CLKs for the completion of the first part of a burst transfer. In other words, the lower the latency, the faster the transaction.

Note that some SDRAM modules may not be able to handle the lower latency and will become unstable and lose data. Therefore, set the DRAM CAS Latency Time to 2 for optimal performance if possible but increase it to 2.5 if your system becomes unstable.

Interestingly, increasing the CAS latency time does have an advantage in that it will enable the SDRAM to run at a higher clockspeed, thereby giving you an edge in overclocking your system. So, if you hit a snag while overclocking, try increasing the CAS latency time.

Bank Interleave

This feature enables you to set the interleave mode of the DRAM interface.

Interleaving allows banks of SDRAM to alternate their refresh and access cycles. One bank will undergo its refresh cycle while another is being accessed. This improves performance of the SDRAM by masking the refresh time of each bank. A closer examination of interleaving will reveal that since the refresh cycles of all the SDRAM banks are staggered, this produces a kind of pipelining effect. Whether you set this option to 2-bank or 4-bank is determined by the type of SDRAM you have and how many banks are on your DIMMs. Most SDRAM in use today (sticks 64 MB of higher) are 4-bank, so setting this option to 4-bank is usually right. If you are unsure, you can look up the specs of your SDRAM. Otherwise, just disable the option.

Precharge to Active (Trp)

Setup the minimum row precharge time.

The Choice: 2T, 3T, 4T and 5T.

Active to Precharge (Tras)

Setup the minimum RAS pulsewidth.

The Choice: 6T, 7T, 8T and 9T.

Active to CMD (Trcd)

Setup the minimum CAS to RAS delay.

The Choice: 2T, 3T, 4T and 5T.

REF to ACT/REF to REF (Trfc)

Refresh row cycle time.

The Choice: 12T, 13T, 14T and 15T.

ACT (0) to ACT(1) (TRRD)

The Choice: 2T and 3T.

DRAM BUS Selection

Allows the user to force the system to access the memory in Single or Dual Channel mode.

The Choice: Auto, Single Channel and Dual Channel.

DRAM Command Rate

Setup the timing at each cycle.

The Choice: 1T Command, 2T Command.

AGP & P2P Bridge Control

Press **Enter** to see what this contains.

AGP Aperture Size

This function determines the amount of system memory that is given to the AGP card. Available options ranges from 32MB to 256MB. This is a dynamic memory allocation in that the AGP card will only use the amount of memory that it needs. The remaining unused memory is also available for system usage.

AGP 2.0 Mode

Allows you to control the type of AGP used: 1X, 2X, and 4X, depending on the specs supported by your motherboard. Set it to the highest your video card will support.

AGP Driving Control

Enables or disables the use of the following setting. Called AGP Comp. Driver in AMIBIOS. See next option.

AGP Driving Value

A feature of Via chipsets that allows manual control over the strength/timing of the AGP signal to the video card. It is more or less a workaround by Via to accommodate some areas of AGP that it is just not as good at as Intel. On 1X and 2X AGP cards, this is a non-issue. With higher-speed cards, it can become an issue. The available values are in hex format. Usually, this is left set to AUTO. If you need to use it to make your video card stable, the best bet is to contact the manufacturer to see what

they recommend for a driver value.

AGP Fast Write

Allows data to be sent directly from the corelogic (i.e. chipset) to the AGP master (graphics chip) instead of keeping a copy in system memory and making the AGP master fetch it. Can be enabled on 4X and higher cards for better performance.

AGP Master 1 WS Write/Read

When enabled, writes/reads to the AGP port are executed with one wait state. Usually, two are used, although some motherboards come with no wait states used, in which case this setting can hinder performance.

AGP 3.0 Calibration cycle

Available options: disabled, enabled.

CPU & PCI Bus Control

PCI Master 0 WS Write

Controls whether writes to the PCI bus are done with zero wait states or not. Enabled by default on many boards.

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

An old feature that allowed you to set off 1 MB of memory for use by an ISA card. Most ISA cards, if you can still find them, don't use this anyway.

System BIOS Cacheable

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

Init Display First

This function allows users to choose between **AGP** or **PCI Slot** to initialize Display first.

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.

Integrated Peripherals

VIA Onchip IDE Device

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

OnChip SATA

Available options are Disabled, Enabled.

SATA Mode

Available options are IDE and RAID.

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.

OnChip IDE Channel 10/11

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

IDE Prefetch Mode

The onboard IDE drive interfaces support prefetching for faster drive accesses. Set to Disabled if this primary or secondary.

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.

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.

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 the drive can support.

VIA OnChip PCI Device

Press **Enter** to enter the submenu, which contains the following items for some advanced controls

VIA-3058 AC97 Audio

Options-Auto, Disabled

VIA-3043 OnChip LAN

Options-Enabled, Disabled

OnChip USB Controller

Options-Enabled, Disabled

Enable the on-board Universal Serial Bus (USB) 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 USB keyboard will no longer work.

OnChip EHCI Controller

Options-Enabled, Disabled

USB Keyboard Support

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

Super IO Device

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.

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**.

Onboard Parallel Port

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

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.

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.

Game Port Address

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

Mini Port Address

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

Mini Port IRQ

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

Power Management Setup

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.

- **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.
- **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.
- **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: [**Former-Sts**], [**On**], [**Off**]. Please leave the default setting [**Off**] for a stable system operation.

Delay Prior to Thermal

It allows you to determine when the [Pentium](#) 4's Thermal Monitor should be activated in automatic mode after the [system](#) boots. For example, with the default value of **16 Minutes**, the BIOS activates the Thermal Monitor in automatic mode 16 minutes after the system starts booting up.

IRQ/Event Activity Detect

PS2KB Wakeup Select

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

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 and Any Key.

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.

USB Resume from S3

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

VGA

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

LPT & COM

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

HDD & FDD

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

PCI Master

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

PowerOn by PME/Onboard LAN

When enabled, the nVidia LAN, which is on Board, will be able to receive a signal and wake up the system from soft off and suspend mode. You should connect the LAN to the RJ45 port and turn on the resume event in suspend mode.

PowerOn by Ring/WOL

When enabled, a Modem/LAN will be able to receive a signal and activate the system from soft off and green mode. You should connect the modem to the COM port and signal your PC to power on.

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.

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.

PnP/PCI Configurations

PnP OS Installed

If all your operating systems support Plug & Play (PnP), select Yes so that they can take over the management of device resources. If you are using a non-PnP-aware OS or not all of the operating systems you are using support PnP, select No to let the BIOS handle it instead. Some say that it is best to leave this option set to No regardless of whether your OS is PNP-capable or not. The reason is that when it is set to No, the BIOS will attempt to resolve any resource conflicts. If it is set to Yes, even if a conflice is detected, the BIOS will ignore it. So, setting it to Yes provide a bit of a safety net, and it will not affect the ability of the OS to perform PNP on its own.

Reset Configuration Data

ESCD (Extended System Configuration Data) is a feature of the Plug & Play BIOS that stores the IRQ, DMA, I/O and memory configurations of all the ISA, PCI and AGP cards in the system (PnP or otherwise). Normally, you should leave the setting

as Disabled. If you encounter serious problems with the installation of a new PCI card, this settings can help bail you out. Such a conflict would be serious enough that the OS may not start. If this happens, you can go into the BIOS and enable this option. Next time the PC boots, the BIOS will go and re-configure the settings for all PNP cards. The BIOS will automatically reset this setting to DISABLED next time you boot.

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

This option is only useful if you use an MPEG card or an add-on card that makes use of the graphics card's Feature Connector. It corrects incorrect colour reproduction by "snooping" into the graphics card's framebuffer memory and modifying (synchronizing) the information delivered from the graphics card's Feature Connector to the MPEG or add-on card. It will also solve the problem of display inversion to a black screen after using the MPEG card.

Assign IRQ For VGA

Many high-end graphics accelerator cards now require an IRQ to function properly. Disabling this feature with such cards will cause improper operation and/or poor performance. Thus, it's best to make sure you enable this feature if you are having problems with your graphics accelerator card.

Assign IRQ For USB

Assigns an IRQ to the USB controller. It enables or disables IRQ allocation for the USB (Universal Serial Bus). If you are using AGP, this should be enabled. If you are not, you can disable this to free up an IRQ.

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.

Frequency/Voltage Control

CPU Clock Ratio

The **BIOS** will autodetect the processor speed and set it accordingly.

Auto Detect PCI Clk

This BIOS feature determines whether the BIOS should actively reduce EMI (Electromagnetic Interference) and reduce power consumption by turning off unoccupied or inactive expansion slots.

When **enabled**, the BIOS will monitor PCI slots and turn off clock signals to all unoccupied and inactive slots.

When **disabled**, the BIOS will not monitor PCI slots. All clock signals will remain active even to unoccupied or inactive slots.

It is recommended that you **enable** this feature to save power and reduce EMI.

Spread Spectrum

Displays the default value as Enabled.

CPU Host/AGP/PCI Clock

Allows you to set the frequency of CPU, AGP and PCI

Options: Default, 100/60/33MHz, 105/70/35MHz, 110/73/37MHz and 115/76/38 MHz.

Load Fail-Safe Defaults

To avoid errors, this option allows you to recover the original defaults of BIOS. In fact, this is the first skill you should know when you try to set other defaults of BIOS.

Load Optimized Defaults

This option has the similar function to the previous one. The difference between them is that the first is more efficient in settings, and this has the disadvantage of potentially making the system unstable. So, the decision is up to you.

Supervisor Password

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 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 users and supervisors is to allow only the supervisor to have control over the BIOS settings. The user, on the other

hand, is only allowed to access computer's operating system and change the user password in BIOS.



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

User Password Setting

This option assures you of the security of the computer if you do not want anyone to use your private computer without permission. Following is to motivate the code function.

1. Select **Set User Password** then press **Enter**
2. Enter your secret passport. Note that if the code you enter contains **letters**, the **capital** and **small** ones are distinct to BIOS
3. Enter the same code in **Confirm Password** then press **Enter** to motivate the code function
4. Back to the **Setup Utility** screen, select Advanced BIOS Features then press **Enter** to enter the submenu.
5. Select **Security Option** then press **Enter** to enter.
6. Now there are two ways to go: if you want to enter the code when entering the BIOS, select **Setup**, press **Enter** then **Esc** to go back to the **Setup Utility** screen; if you select **System**, the computer will request that you enter the code once the computer is turned on.

Select Save & Exit Setup then press Enter to save the previous defaults. After the computer is restarted, you will find that the settings you requested have been motivated.

Save and Exit Setup

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

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.

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.

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

DirectX 9.0b

1. If the system has an older version of DirectX, please click **DIRECTX 9.0b** to upgrade to the latest version
2. After reading the license agreement, please click **Next** to continue
3. Please click **Next** to continue
4. Please click **Finish** to complete the setup process

Audio Driver

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 exiting folders list and click **Next** to proceed
6. Please click **Next** to begin the file copy process

LAN Driver

1. Click **LAN Driver**
2. Click **OK** to complete setup

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

VIA RAID Driver

1. Click **VIA RAID Driver**
2. Click **OK** to complete the installation

Note

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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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