



Declaration of Conformity

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

The following designated product:

7VJS

AMD Socket A
VIA KT400 + VT8235
ATX Motherboard

EQUIPMENT: MAINBOARD

MODEL NO.: CT-7VJS

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.
4427 Enterprise St. Fremont, CA 94538, U.S.A.

<http://www.chaintechusa.com>

Chaintech President: Simon Ho

Signature: 

User's Guide

Version 2.0

Federal Communications Commission Statement

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

* This device may not cause harmful interference.

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

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

* Reorient or relocate the receiving antenna.

* Increase the separation between the equipment and receiver.

* Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

* Consult the dealer or an experienced radio/TV technician for help.

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

Canadian Department of Communications Statement

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

Manufacturer's Disclaimer Statement

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Chapter 1 Introduction

1-1 Product Specifications

Processor

- Supports AMD Socket A Duron/Athlon/Athlon XP CPU
- System clock supports 200/266/333MHz

Chipset

- VIA KT400 + VT8235

Main Memory

- Four 184 pin DDR DIMMs up to 4GB
- Supports PC1600/2100/2700/3200 DDR SDRAM modules

Expansion Slots

- One universal-AGP slot for both 4X/8X AGP
- Six 32-Bit PCI slots (v2.2 compliant)

On-board audio CMedia 8738

- Full-duplex operation for simultaneous recording and playback
- 6 Channel speaker audio supports
- Embedded 32ohm 5w earphone amplifier
- Supports MIDI and dual game ports
- 32 Voice HRTF-3D positional audio, CRL-3D supports MS Direct
- Sound3D, Aureal A3D and Creative EAX APIs
- Support SPDIF (optional)

Audio Subsystem via AC-Link (Optional)

- With external high quality 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

On-board IDE RAID Controller (Optional)

- Promise PDC20276 IDE RAID controller extra two UltraDMA-66/100/133 IDE ports with RAID 0/1

Embedded USB 2.0 Host Controller

- Three EHCI USB 2.0 controller support total six USB 2.0 ports
- Supports USB 2.0 High-Speed Device @480 Mb/s Transfer Rates
- Optional USB adapter for additional USB 2.0 ports

On board ITE 8705 Super I/O Controller

- Two UARTs support serial ports and IR function (up to 115.2Kbps) for HPSIR and ASKIR
- One SPP/ECP/EPP parallel port
- One floppy disk drive connector supports up to 2.88MB
- Integrates smart card reader function and interface, to be qualified for meeting PC/SC standard

Fast Ethernet/Home Networking Controller with MII Interface

- Support 10/100Mb Fast Ethernet

Embedded system monitoring

- 8 external voltage inputs
- 2 temperature sensing for CPU and system
- 2 Fan speed (CPU and system) monitoring with on/off control in suspend

Boot-Block Flash ROM

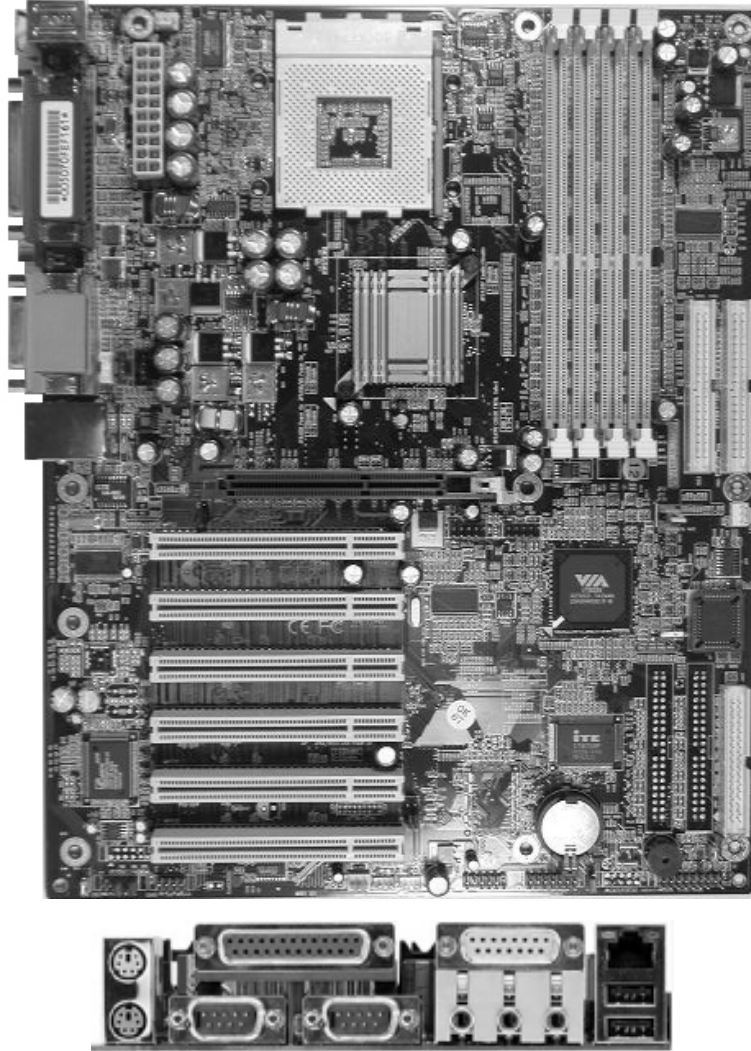
- Award system BIOS support PnP, APM, DMI, ACPI, & Multi-device.

1-2 Package Contents

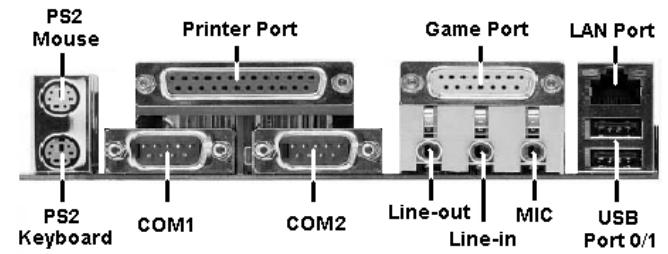
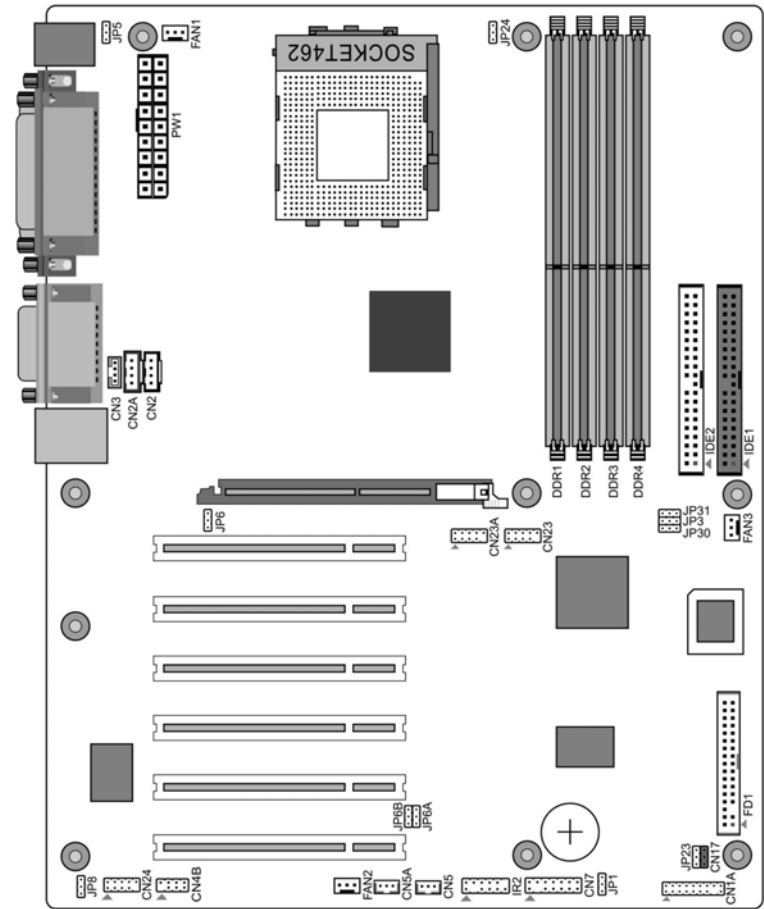
This product comes with the following components:

- | | |
|---|-----|
| 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. I/O Shield | x 1 |
| 5. User's Guide | x 1 |
| 6. Driver CD | x 1 |

1-3 7VJS Motherboard Diagram



1-4 7VJS 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!

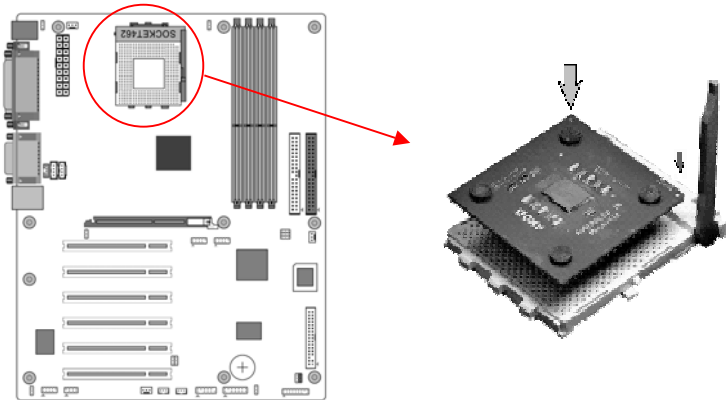
2-1 Installing a CPU Processor in Socket A

The Socket A, designed for AMD Duron/Athlon/Athlon XP 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, 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.
2. Pull up the lever of Socket A so that it is perpendicular with the surface of the motherboard. Gently insert the CPU with Pin 1 at the same corner of Socket A, 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. 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.



Notes: 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 Configuration:

This motherboard uses a new user-friendly technology that enables the user to setup a main board's CPU parameters through an easy to use BIOS setup procedure. It is no

longer necessary to make many jumper settings as on conventional motherboard.

After installing all your hardware into your PC system, you can manually configure your CPU clock according to your processor's specifications. By turning on your system's power. Enable the CMOS Setup Utility by pressing the delete key when your BIOS identification screen appears, then go to the Frequency/ Voltage control option and select your CPU clock speed (please refer to Chapter3 for more details).



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

2-3 Main Memory Configuration

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

DDR SDRAM Specifications

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

DIMM type: 2.5V, unbuffered 184 pin 64/128/256/512-bit DDR SDRAM

Module size: Single/double-sided 64/128/256/512MB/1GB

Parity: Either parity or non-parity

2-4 Connector and Jumper Reference Chart

Jump Connector	Function	Page
PW1	ATX Power Supply Connector	7
CN1A	Front Panel (Power / Rest / SPK...etc.) Connector	8
FD1	Floppy Connector	9
IDE1 / 2	IDE Hard-Disk Connector	9
JP1	CMOS Clear Jumper	10
JP8	Onboard Audio Enable Function Jumper	10
CN2 / 2A	CD Audio-in Connector	11
CN3	Aux-in Connector	11
CN4B	6 Channel KIT Connector	12
JP6	Disable/Enable USB 0/1 Device Power ON Jumper	12
JP6A / B	Disable/Enable USB 2/3,4/5 Device Power ON Jumper	13
CN23 / 23A	Front USB Connector	13
CN24	Front Audio Connector	14
FAN1 / 2 / 3	CPU/ System / Case FAN Connector (12V)	14
JP5	Keyboard Power on Function Jumper	15
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CN17	Blue LED Connector (5V)	17
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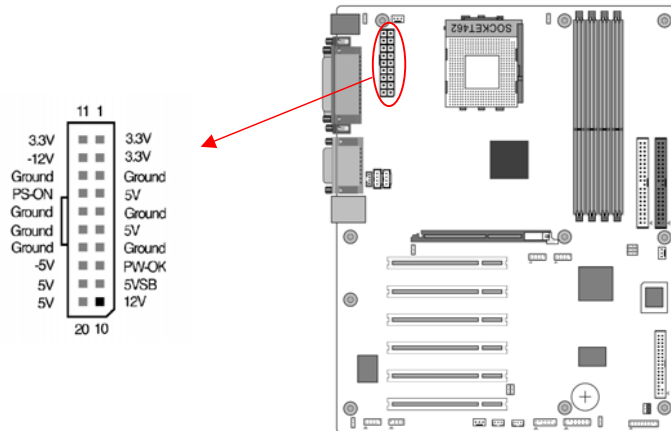
2-5 Connector and Jumper Settings

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.

Power-On By Modem

While in Soft-Off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section 3.5)

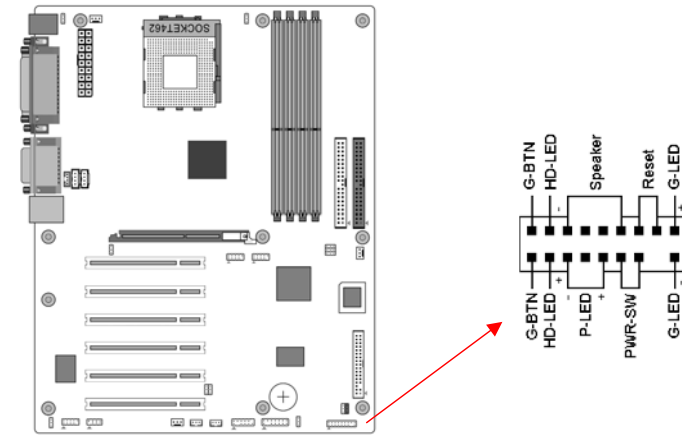
Blinking LED in Suspend Mode

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

Poly-fuse Over Current Protection

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

CN1A (Front Panel Connector) A through F



A. 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-BTN 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-BTN 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.

B. 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., not to reverse the order of these two connectors.)

C. 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 woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.

D. RESET (System Reset Switch Connector)

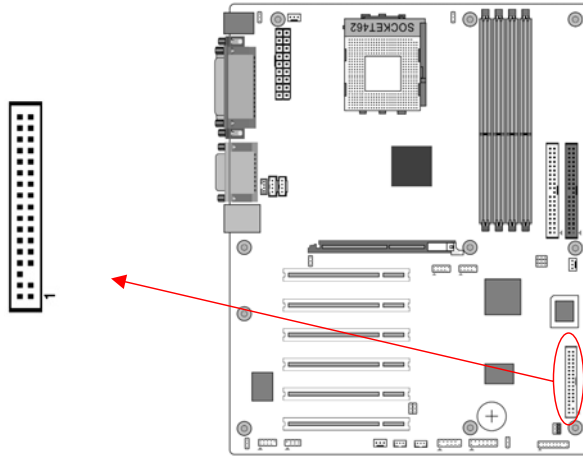
This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

E. SPEAKER (Speaker Connector)

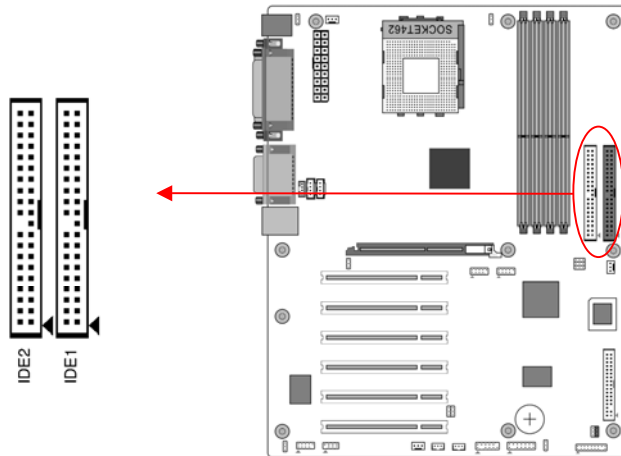
This 4-pin connector connects to the case-mounted speaker

F. HD-LED (IDE Activity LED Connector)

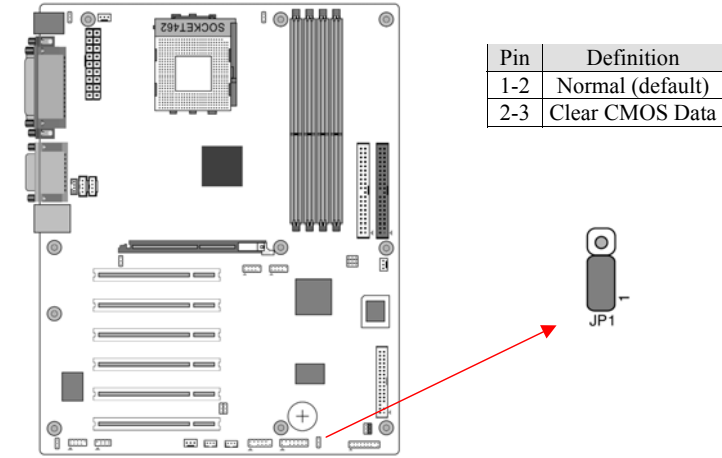
The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

FD1 (Floppy Disk Connector)

This connector is used to connect 34 pins of Floppy.

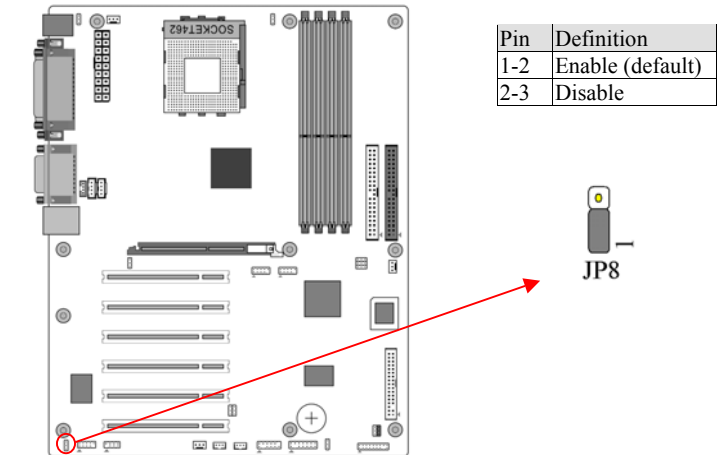
IDE1 / 2 (IDE Hard-Disk Connector)

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 (Clear CMOS Data)

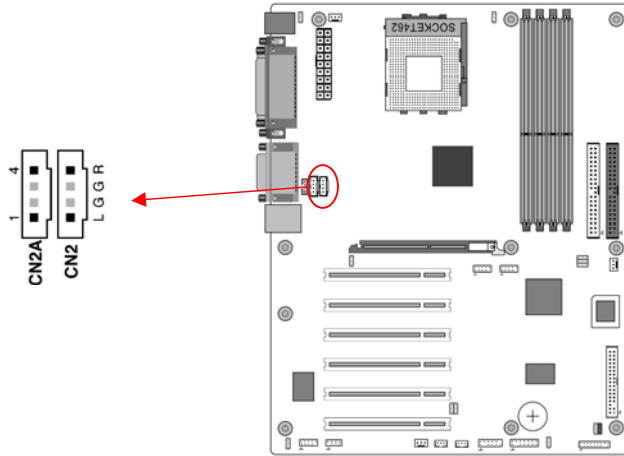
To clear the contents of the CMOS, please follow the steps below.

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 press [enter].
5. Set the system configuration in the Standard CMOS Setup menu.

JP8 (On board Audio Enable/Disable)

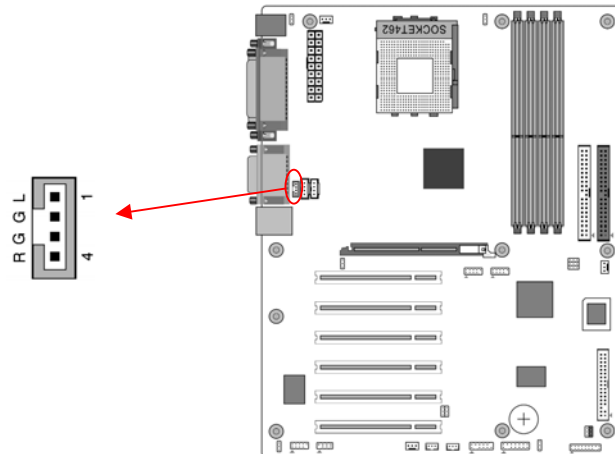
This function allows you to enable or disable the on board audio. You must set the jumper cap to pins **1-2** to **enable** or set pins **2-3** to **disable** this function.

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



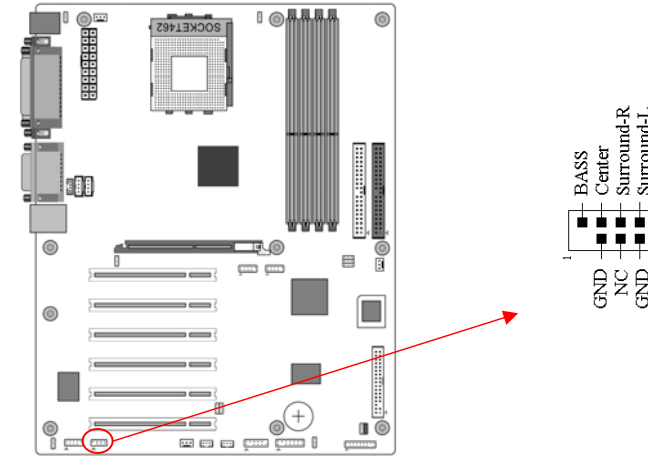
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your motherboard. This will enable your CD-ROM's audio function.

CN3 (Auxiliary Audio-in Connector):



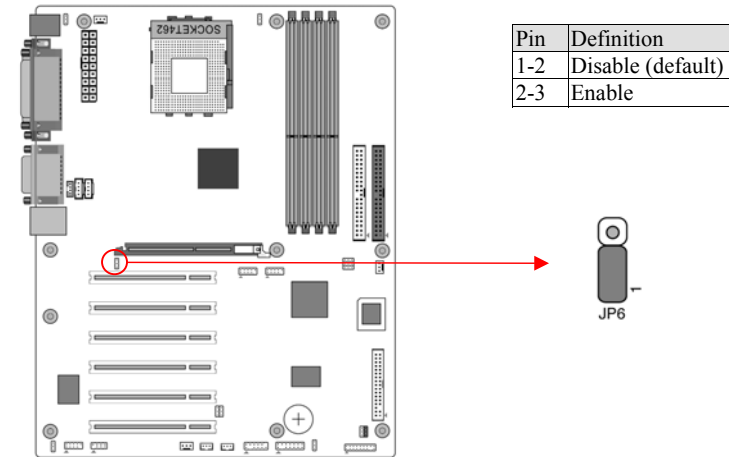
This connector is for AUX Audio Device.

CN4B (AC3 Center / Surround + Bass Connector)



This connector must be connected to a **6-channel bracket**. (Optional)

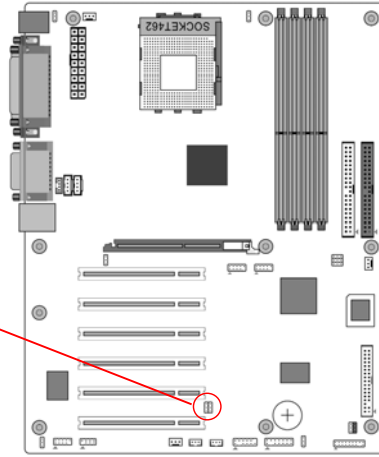
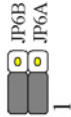
JP6 (Power On By USB 0/1)



A USB keyboard hot key or a USB mouse click can turn on this board. You must also set this jumper's cap to pins 2-3 to use this function.

JP6A & JP6B (Power On By USB 2/3 and 4/5)

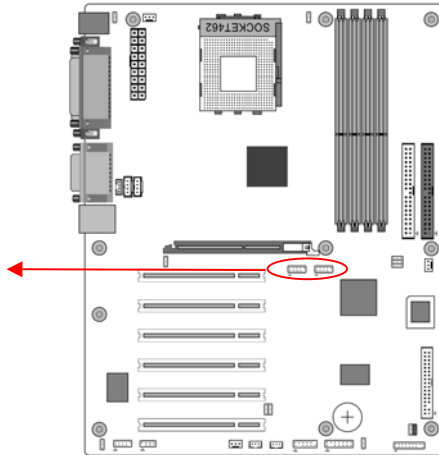
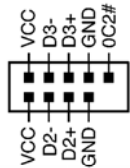
Pin	Definition
1-2	Disable (default)
2-3	Enable



JP6A → USB 2/3, JP6B → USB 4/5

A USB keyboard hot key or a USB mouse click can turn on this board. You must also set this jumper's cap to pins 2-3 to use this function.

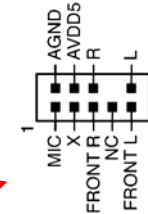
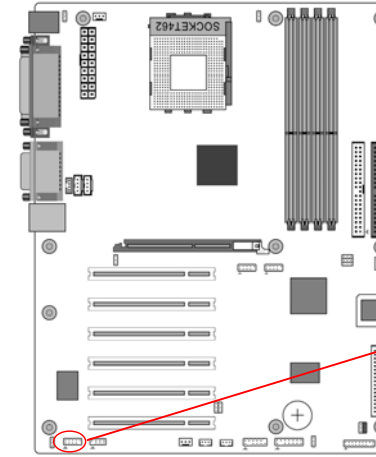
CN23/CN23A (USB 2/3 and 4/5 Connectors)



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 includes a root hub with two connector for optional USB Adaptor (USB 2/3 and 4/5).

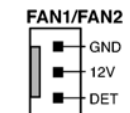
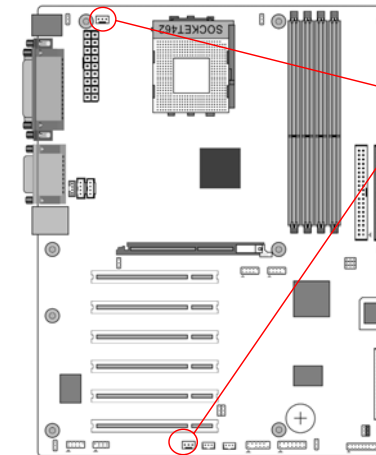
CN24 (Front Panel Audio Connector)



This connector give you the option of a front panel audio jack cable ext. to be plug 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.

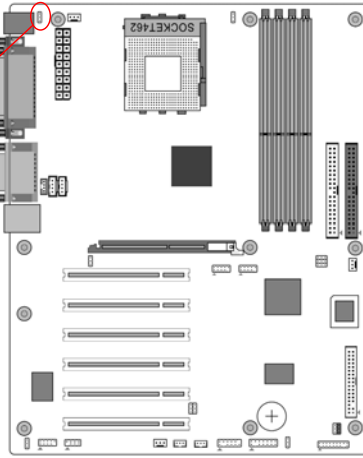
FAN1/FAN2/FAN3 (CPU/System/Case Cooling Fan Connectors)



The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). The wiring and plug 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.

JP5 (Power On By Keyboard)

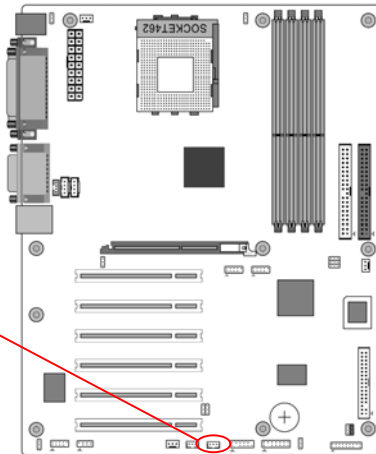
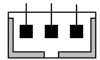
Pin	Definition
1-2	Disable (default)
2-3	Enable



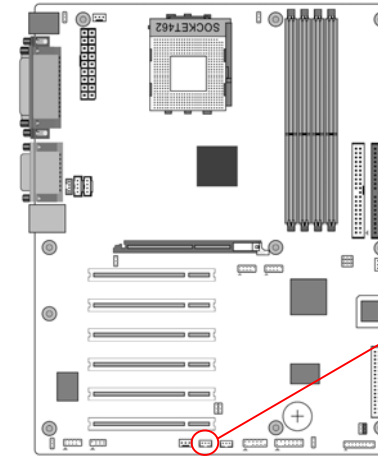
This board can be turned on by the PS / 2 keyboard (hot key). To use this function, select a hot key of your choice at the Hot Key Power On option under Wake Up Events in the BIOS's Power On Management screen. You must also set this jumper's cap to pins [2-3] to use this function.

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

5VSB G Wakeup



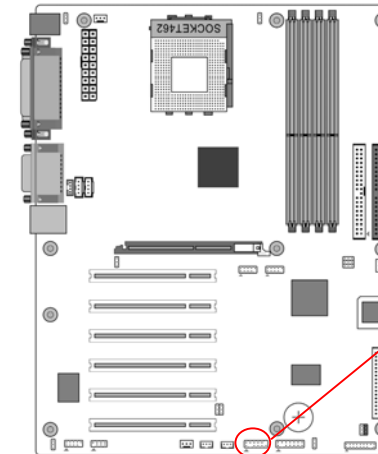
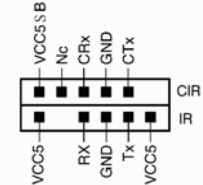
Enable the Power On by Ring selection in BIOS's Power Management Menu to use this function. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the motherboard.

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

5VSB G Wakeup



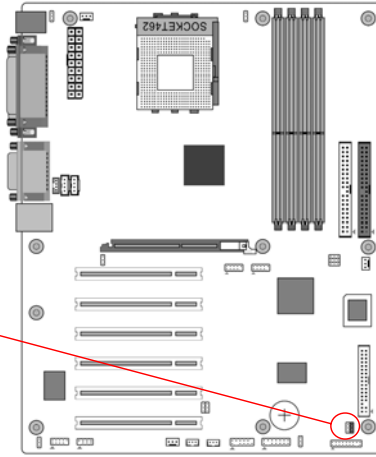
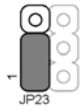
Enable the Power On by Ring selection in BIOS's Power Management Menu to use this function. This header is used to connect an add-in modem card which gives WOM capability to the motherboard.

IR 2 (IR & CIR Connector)**IR2 IR / CIR Connector**

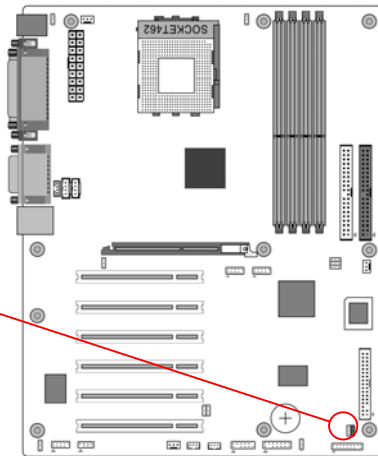
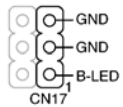
Select a UART Mode in BIOS's Integrated Peripherals menu the UART port to support IR function. (See section 3.4 Super I/O Device of **Integrated Peripherals**)

JP23 (Green Mode LED)

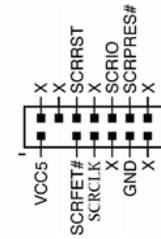
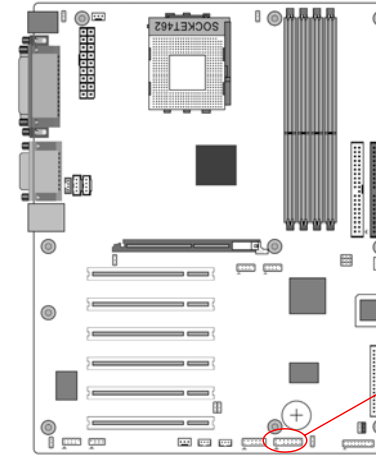
Pin	Definition
1-2	Default
2-3	OEM



This cap is to setup Green LED flash mode. (Optional)

CN17 (Blue LED Connector)

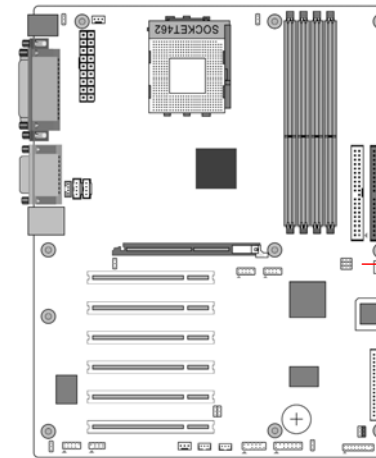
These features work entirely the same as the power indicator LED, both shows the system's power status. The only difference is that this one is blue while the other is red LED.

CN7 (Smart Card Reader Connector)

This connector must be connected to an optional Smart card reader.

JP3 (External Clock Frequency)

Pin	Definition
1-2	100 MHz (default)
2-3	133 MHz



This jumper allows users to configure the CPU external clock frequency.

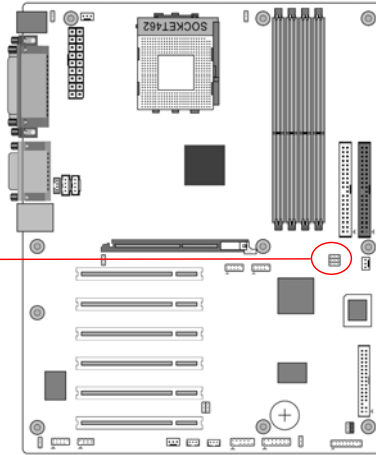
1-2: The default value is 100MHz.

2-3: Set 133MHz at CPU external clock frequency.

Please note that the 166MHz CPU clock(JP31) must be set to pin1-2 to enable this function.

JP31 (166MHz Clock Frequency)

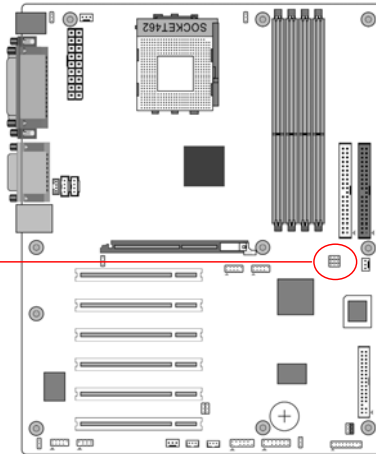
Pin	Definition
1-2	JP3 Enable
2-3	166 MHz



This jumper allows users to configure the CPU clock frequency at 166MHz. Setting the jumper to pin 2-3, the External Clock Frequency will automatically disable. To enable JP3 function, please set the jumper cap to pin 1-2.

JP30 (ROM SIP)

Pin	Definition
1-2	Hardware (default)
2-3	Boot ROM



The ROM Serial Initialization Packet (SIP) function is for advanced user to use the Boot ROM to boot up the system. For normal booting operation you must set the jumper cap to pin 1-2 Hardware(default).

Chapter 3 BIOS Setup Program

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

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

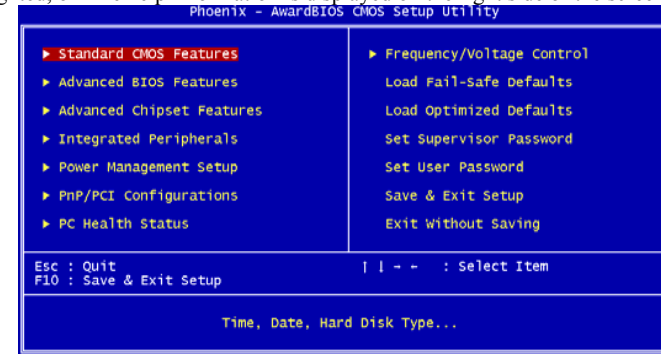


Figure 3-1

3-1 Standard CMOS Setup

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

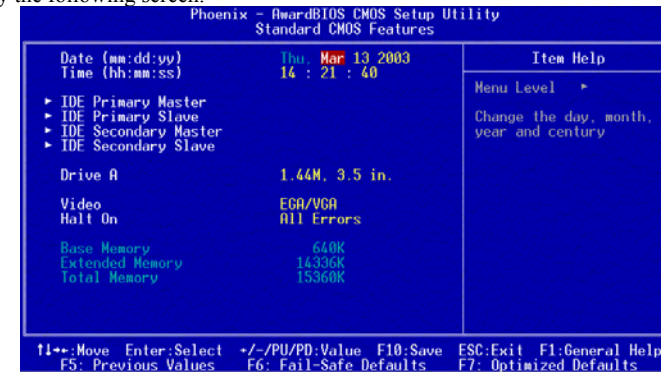


Figure 3-2

Date/Time

Set the date and time of the system.

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

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 since VGA BIOS automatically configures this setting.

Halt On

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

3-2 Advanced BIOS Features

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

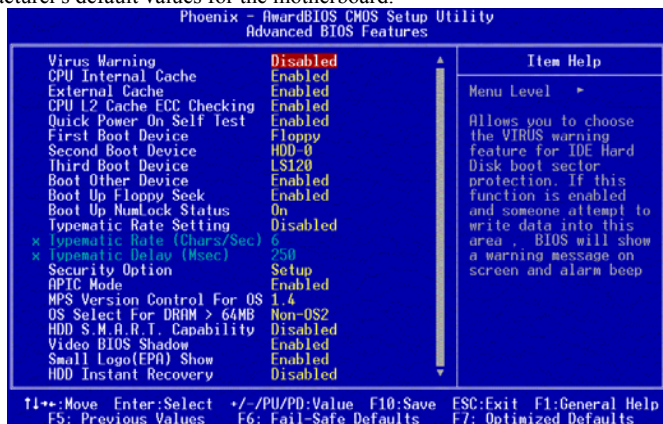


Figure 3-3

(1) Virus Warning

When you set 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.

NOTE:

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.

(2) 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 enabled to significantly increase the performance of your computer.

(3) CPU L2 Cache ECC Checking

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

(4) Quick Power On Self Test (POST)

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

(5) 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.

(6) Boot Up Floppy Seek

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

(7) 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.

(8) Keyboard Interface**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.

(9) 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.

(10) 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**].

(11) MPS Version Control 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 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].

(12) 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.

(13) 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 internal hard disk drive monitoring technology. This parameter is normally disabled because the resources used in the SMART monitoring feature may decrease system performance.

(14) Video BIOS Shadow

These fields allow you to enable/disable the shadow feature for the Video BIOS and the appropriate memory segment. Available options are [Disabled] and [Enabled].

(15) Small Logo(EPA) Show

This setup allows photo that is EPA Logo.

(16) HDD Instant Recovery

This setup allows you to Enable/Disable your Hard Drive Instant Recovery.

3-3 Advanced Chipset Features

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

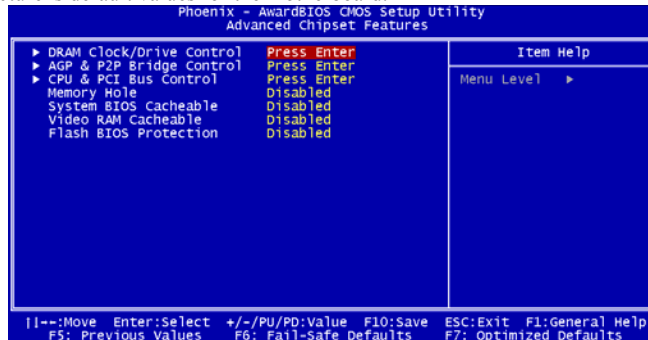


Figure 3-4 Advance Chipset Features

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

DRAM Clock/Drive Control

DRAM Clock

This selecting option allows you to control the DRAM speed.

Drive Control

The function allows you to enable or disable the DRAM timing by SPD. When

set to Manual, you can select the DRAM CAS Latency, Bank Interleave, Precharge to Active(Trp), Active to Precharge(Tras), Active to CMD(Trcd), DRAM Burst Length, DRAM Queue Depth, DRAM Command Rate, Write Recovery Time and DRAM tWTR configuration. It is recommended to keep the default setting for stable system operation.

Precharge to Active(Trp)

This item controls the idle clocks after issuing precharge command to the DRAM.

Active to Precharge(Tras)

This item controls the number of DRAM clocks used for DRAM parameters.

Active to CMD(Trcd)

This item controls the latency between DRAM active command and read/write command.

DRAM CAS Latency

This item controls the latency between DRAM read command and the time the data actually becomes available.

DRAM Command Rate

This item controls the DRAM Addr/Cmd Rates.

AGP & P2P Bridge Control

1. AGP Aperture Size

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

2. AGP Driving Control/Value

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

3. AGP Fast Write

Selecting [Enabled] to allow Fast Write Protocol for 4X/2X AGP to function.

4. AGP Master 1 WS Write/Read

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

5. DBI Output for AGP Trans

Available options: [Disabled]/[Enabled]

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

Available options: [Disabled]/[Enabled]

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.

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.

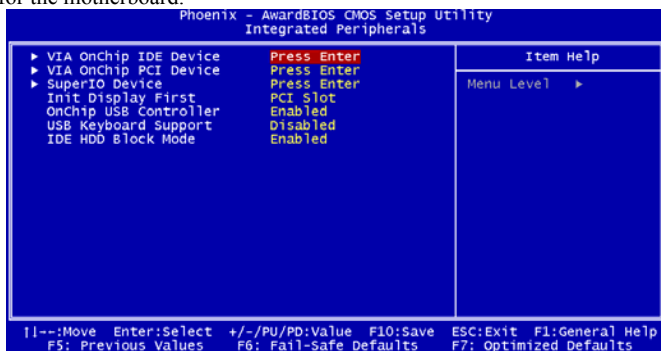


Figure 3-5 Integrated Peripherals Screen

VIA OnChip IDE Device:

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

- 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
- IDE Prefetch Mode**
Enabling this function will enhance the system efficiency.
- 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.

VIA OnChip PCI Device

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

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

- VIA AC97 Audio**
This feature allows you to enable/disable the onboard AC97 audio function.
- VIA OnChip LAN**
This feature allows you to enable/disable the onboard LAN function.
- Onboard CMedia Audio**
Available options: [4 Channels]/[6 Channels]
- Onboard Lan Boot ROM**
Decide whether to invoke the boot ROM of the onboard LAN chip.

Super IO Device

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

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

- 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].
- UART Mode Select**
This function allows you to select an operating mode for the second serial port. (Normal RS-232C serial port / IRDA / SCR / ASKIR 0.57-MB/sec infrared port)
- UR2 Duplex Mode**
Available options: [Half] and [Full].
- 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].

9. Midi Port Address

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

10. Midi Port IRQ

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

11. CIR Port Address

This item disables or assigns the address of the CIR port. Available options are [Disable], [310] and [320].

12. CIR Port IRQ

This item specifies an IRQ for the CIR port. Available options are [5] and [11].

Init Display First

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

OnChip USB Controller/USB 2.0 Support

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

USB 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.

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.

3-5 Power Management Setup

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

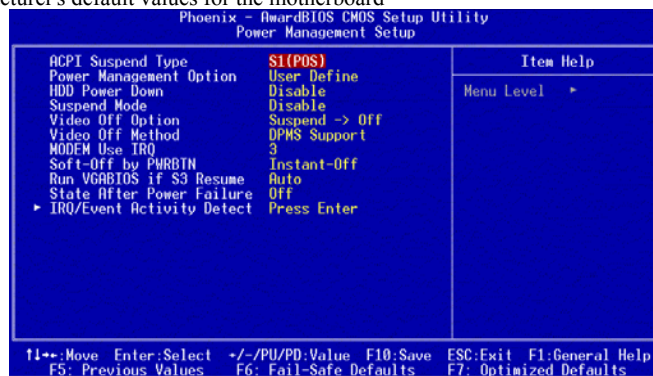


Figure 3-6 Power Management Setup

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 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.

- Blank Screen** - 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 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 complaint with the APM 1.2 complaint 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].

PWRON After PWR-Fail

This allows you to set whether you want your system to reboot after the power has been interrupted. [Off] leaves your system off and [On] reboots your system. Available

options include [Auto], [On], [Off].

IRQ/Event Activity Detect

- PS2KB Wakeup Select**
When enabled, the system can be turned on by a PS2 keyboard hot key.
- PS2KB Wakeup**
Available options: [Ctrl+F1] through [Ctrl+F12], [Power], [Wake Any Key].
- PS2MS Wakeup**
Available options: [Disabled]/[Enables]
- USB Resume S3**
When enabled, the system is able to resume form S3 mode by a USB keyboard hot key or mouse click.
- PowerOn by PCI Card**
When enabled, a PCI interface that receives a signal will wake up the system from soft off and green mode.
- PowerOn by Modem/LAN**
When enabled, a LAN/modem that receives a signal will wake up the system from soft off and green mode. You should connect the modem to the COM port and turn on the resume event in green mode.
- PowerOn by Alarm**
When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day. This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer. See the Software Power-Off feature in Section 2-3 of this manual for instructions.

IRQs Activities Monitoring

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

3-6 PNP/PCI Configurations

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

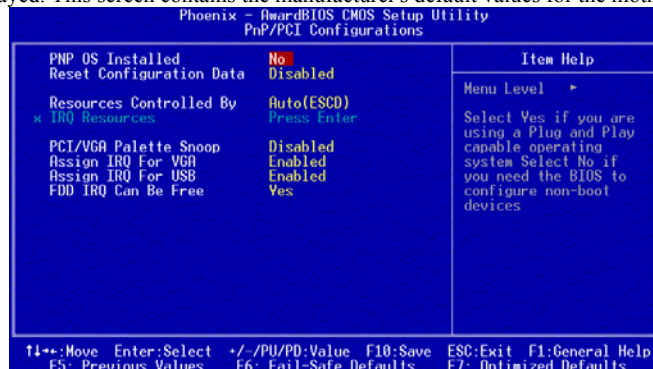


Figure 3-7 PNP/PCI Configurations

PNP OS Installed

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

Reset Configuration Data

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

Resources Controlled By

When set to Manual the system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to the ESCD for all legacy information.

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 PC Health Status

By choosing the PC Health Status option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This field shows you the current system temperature/external voltages input and the current CPU FAN and System FAN operating speed.

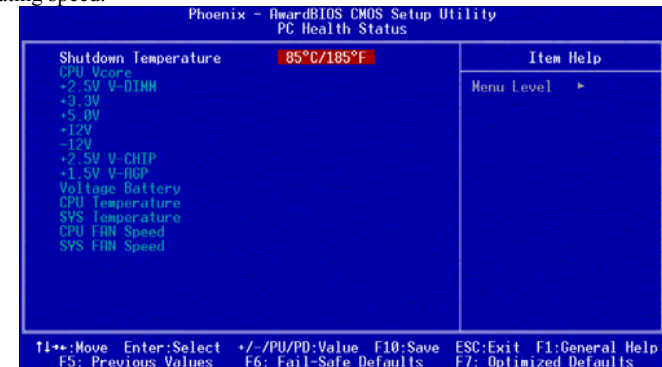


Figure 3-8 PC Health Status

Shutdown Temperature

This item allows you to set the shutdown temperature level for the processor. When the processor reaches the temperature you set, this will shutdown the system. This function only works in ACPI-aware OS (such as Windows 98 / ME / 2000).

Available options are [85°C/185°F], [90°C/194°F], [95°C/203°F], and [100°C/210°F].

3-8 Frequency/Voltage Control

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

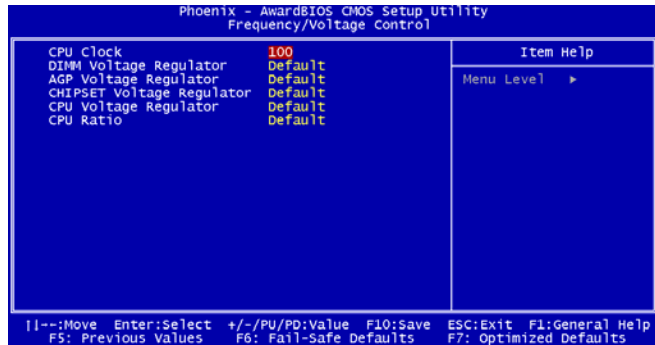


Figure 3-9 Frequency/Voltage Control

CPU Clock

It is recommended to keep the default setting for 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 doing overclocking. 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.

DIMM Voltage Regulator

This feature allows the system memory to run at Power ON of Voltage.

AGP Voltage Regulator

This feature allows the AGP bus to working of Voltage.

CHIPSET Voltage Regulator

This feature allows the CHIPSET to working of Voltage.

CPU Voltage Regulator

This feature allows the CPU to working of Voltage.

WARNING *Overclocking*
This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. 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.

3-9 Load Fail-Safe Defaults

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

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

3-10 Load Optimized Defaults

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

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

3-11 Set 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.

Note: that when there is no supervisor password set, the user password controls access to all BIOS settings.

Enter Password:

3-12 Save and Exit Setup

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

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

3-13 Exit Without Saving

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

Quit without Saving (Y/N)? **N**

Chapter 4 DRIVER Setup

Please, insert VIA Series CD to CDROM.



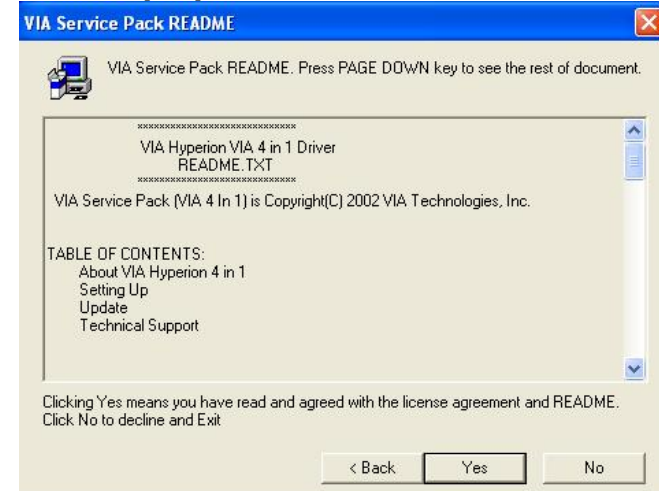
Figure 4-1

4-1 VIA Service Pack Setup

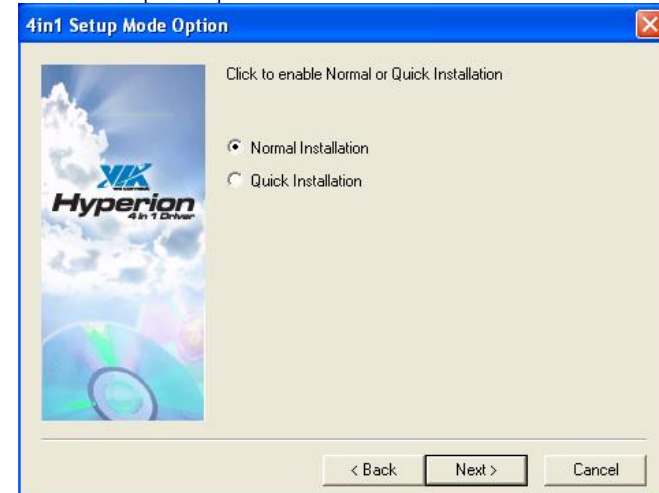
1. Please select [VIA Service Pack]
2. Please select [NEXT >]



3. Please select [YES]



4. Please select [Next >]



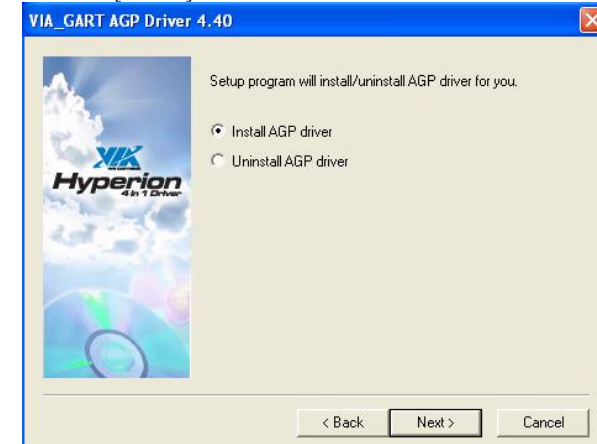
5. Please select [Next >]



6. Please select [Next >]



7. Please select [Next >]



8. Please select [OK] to finish setup.



4-2 Audio Driver Setup

1. Click [Audio Drivers]



2. Click **[Install Device Driver and Applications]** to start software installation



3. Please select the language to continue.



4. Please select **[Next >]**



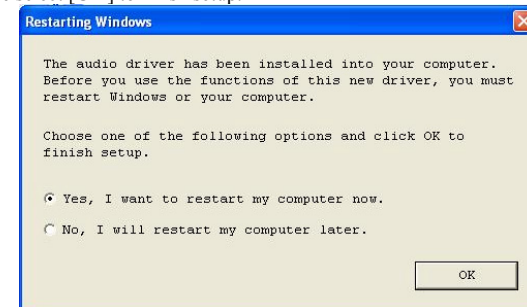
5. Please select **[Next >]** to continue.



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



7. Please select **[OK]** to finish setup.



4-3 LAN Driver Setup

1. Click [LAN Driver]
2. Please select [OK] to complete setup.

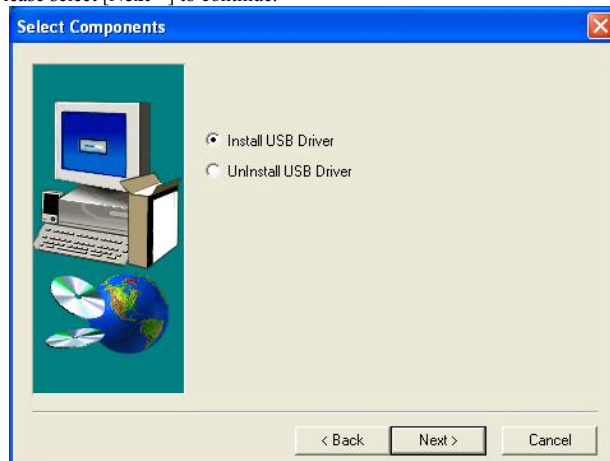


4-4 USB 2.0 Driver

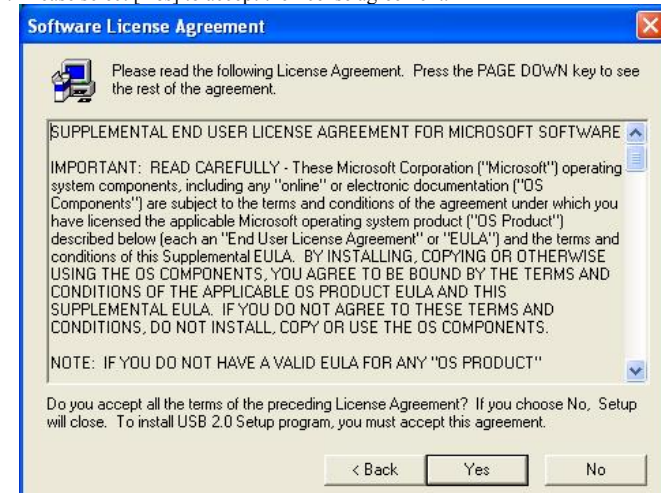
1. Click [USB 2.0 Driver]
2. Click [Next >] to start software installation.



3. Please select [Next >] to continue.



4. Please select [Yes] to accept the license agreement.



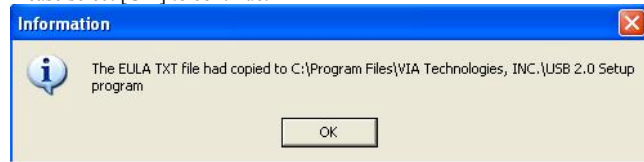
5. Please select [OK] to continue.



6. Please select [Print to File] to continue.



7. Please select **[OK]** to continue.



8. Please select **[Finish]** to complete setup.



Chapter 5 Audio Device Application

This sound card supports Windows 95/98/ME/NT4.0/2000 operating systems. To start the Audio Application Program simply select the **[Start]→[Program Files]→[PCI Audio Applications]→[Audio Rack]**

It includes the following options:

- (1) **Audio Rack**
Which includes Audio Rack, CD Player, MIDI Player, Mixer and MP3 Player.
- (2) **Multi-Channel Audio Demo**
(Does not support Windows NT4.0)
A demonstration for the Multi-Channel Audio.
- (3) **Uninstall Applications**
Which uninstalls the driver and all application programs for the Sound card.

5-1 Audio Rack

Audio Rack includes 4 control panels:

- C-Media Mixer Volume
- CD Player
- MIDI Player
- MP3 Wave Player

You can start the Audio Rack by selecting **[Start] → [Program] → [PCI Audio Applications] → [Audio Rack]**



1. C-Media Mixer Volume

A. Volume Control



You can simply double click the icon  located at button right corner of Windows to open the C-Media Mixer volume control.

This control panel includes Master Volume, CD Audio, Microphone, WAVE,

SW Synth, A/V (AUX) In, MONO IN, and LINE IN.

B. Mixer Recording Control

This control panel includes CD Audio, Microphone, WAVE, Stereo Mix, A/V (AUX IN), and LINE IN.



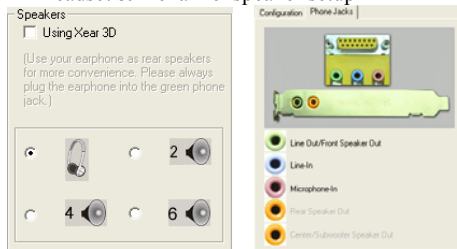
C. [Help]



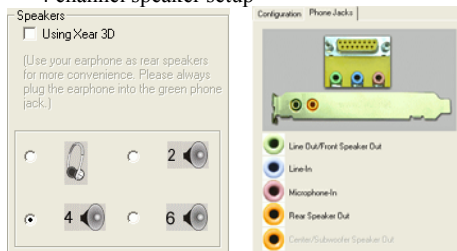
D. Mixer Advance Setting

(1) Speakers

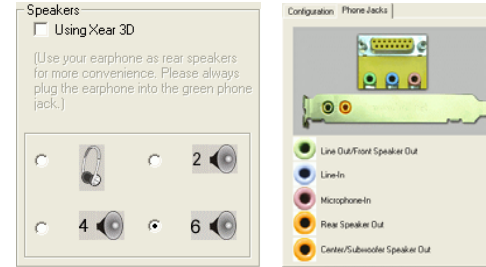
- Headset & 2 channel speaker setup



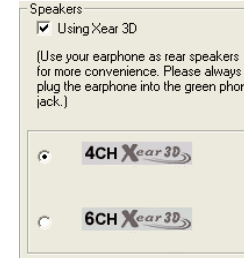
- 4 channel speaker setup



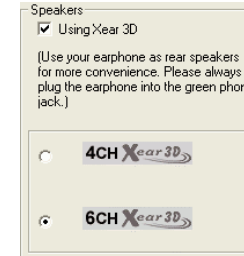
- 6 channel speaker setup



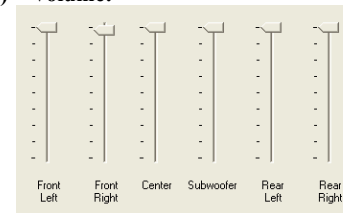
- User 4ch XeaR mode setup



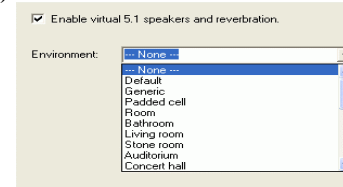
- User 6ch XeaR mode setup



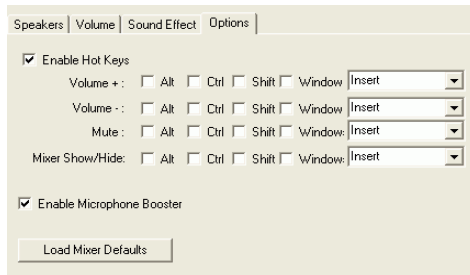
(2) Volume:



(3) Sound Effect:



(4) Option:



【Enable Hot Keys】

This provides settings for Hot-Keys for Volume control, Mute, and Display.

【Enable Microphone Booster】

Enable the microphone's electrical circuit to increase the sensitivity of the microphone. When designing the audio chip, it limits the type of microphones that are available. The audio chip only supports Active or Capacitive types of Microphone. These microphones are those standard microphones we get on the market, or those earphones that come with a microphone. The one that Karaoke uses does not work on this chip.

【Load Mixer Defaults】

This loads the original factory setting for the Sound Effects. (It restores Volume, Wave, and MIDI.)

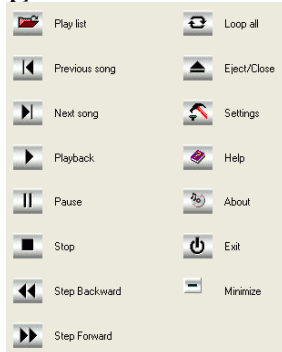
2. CD Player Output Configuration:



Setup

- (1) Enable to choose the Audio CD drive of your system.

【Help】



3. MIDI Player Output Configuration:



Setup:

A. Under Win 95 / 98

3 options available for Output device: [Default MidiOut Device], [MPU-401], [Microsoft GS Wavetable SW Synth].

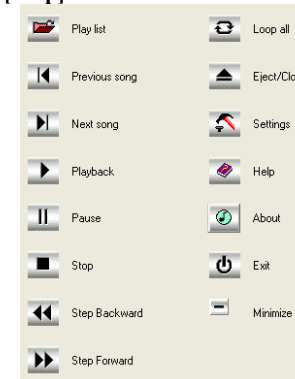
B. Under Windows NT4.0

Only CMPCI MIDI device is available.

C. Under Windows 2000 / ME / XP

3 options available for Output device: [MidiOut Device], [Microsoft GS Wavetable SW Synth], [Roland MPU-401]

【Help】:



4. MP3 WAVE Player Configuration:



Sound Effector Setting Button:

- (1) **Reverberation:**
This is to setup the depth of the sound environment.
- (2) **Equalizer:**
This is to setup the high and low pitch of the sound frequency output.
- (3) **Surround:**
This is for setting up speaker output mode.
- (4) **Playback Mode**
To select the music playback mode provided.



Configuration:

Playback:

Playback delay time for Mini-Disk recording. Please use default setting.

Recording Configuration:

Recording Format:

Quality:

(1) Name:

This is to setup the recording format. There are 3 selections: CD Quality, Radio Quality, and Telephone Quality. The default setting is CD Quality.

(2) Format:

Only PCM format is available while recording with audio card.

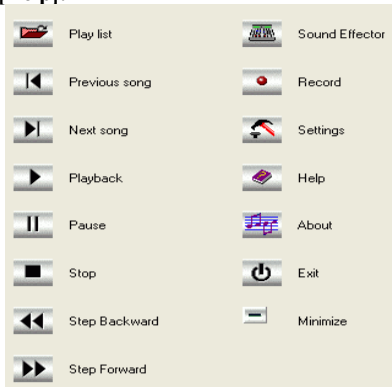
(3) Attributes:

Enabling to setup recording quality. The default is set at 44.100 kHz 16Bit Stereo 172 kb/sec

(4) File Name:

Enable to setup the recording source. Type in the file name you plan to record or click on the [BROWSE] icon and select the desired file save destination.

[Help]:



5-2 Multi- Channel Demo

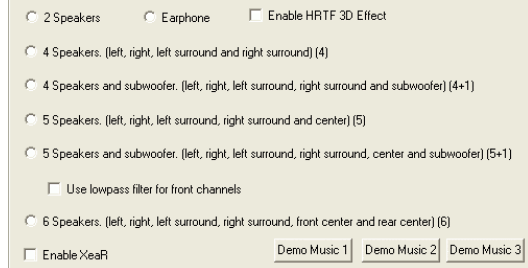
[STAR] → [Program] → [PCI Audio Applications] → [Multi-Channel Demo]



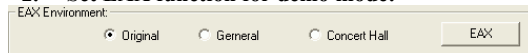
Click on the **wide-screen TV** in the center to get into [Advance] screen

1. Set speaker function for demo mode

Speakers' configuration for Demo1, Demo2 and EAX:



2. Set EAX function for demo mode:



In Advance mode, here you can configure according to your system hardware or personal preference.

NOTE

WARNING *Overclocking*

This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. 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.

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