

AMD®

Motherboard

AMD® Socket A
NVIDIA nForce2 400 + MCP
u-ATX Motherboard

User's Manual

Version 1.0



Declaration of Conformity

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

The following designated product:

EQUIPMENT: MAINBOARD

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

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

This declaration is given to the manufacturer:

CHAINTECH-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 'Simon 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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Chapter 1 Introduction

1-1 Product Specifications

Processor

- Supports AMD Socket A Duron / Athlon / XP processors.
- System Clock supports 266 / 333 / 400 MHz Front Side Bus

Chipset

- NVIDIA nForce2 400 + nForce2 MCP.

Main Memory

- Supports three 184-pin DDR DIMMs up to 3GB.
- Supports PC1600/ PC2100/ PC2700/ PC3200 DDR modules.

Expansion Slots

- One Universal - AGP slot for both 4X / 8X AGP.
- Three 32 - bit PCI slots (v 2.2 compliant).

6 Channel audio subsystem via AC-Link

- With external high quality CMedia9739A 6 Channels 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 up to PIO Mode 4 up to 16.6MBps, Multi Mode 4 up to 66MBps, Multi Word Mode 5 up to 100MBps and Multi Word Mode 6 up to 133MBps with bus mastering.
- Bus Mastering software drivers for all common multi-tasking operating systems.

USB 2.0/1.1 Host Controller

- One EHCI USB 2.0 Controller and 2 OHCI USB 1.1 Controllers.
- Support total six USB ports (USB 1.1 compatible).
- Support USB 2.0 High-Speed Device @480Mb/s Transfer Rates

On-board Super I/O Controller

- ITE 8712 LPC I/O with system monitors hardware.
- 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 Controller with MII Interface

- Support 10/100Mb Fast Ethernet with External PHY.

Embedded System Monitoring

- 8 external voltage inputs.
- 2 temperature sensor for CPU.
- 1 Fan speed (CPU) monitoring.

Boot-Block Flash ROM

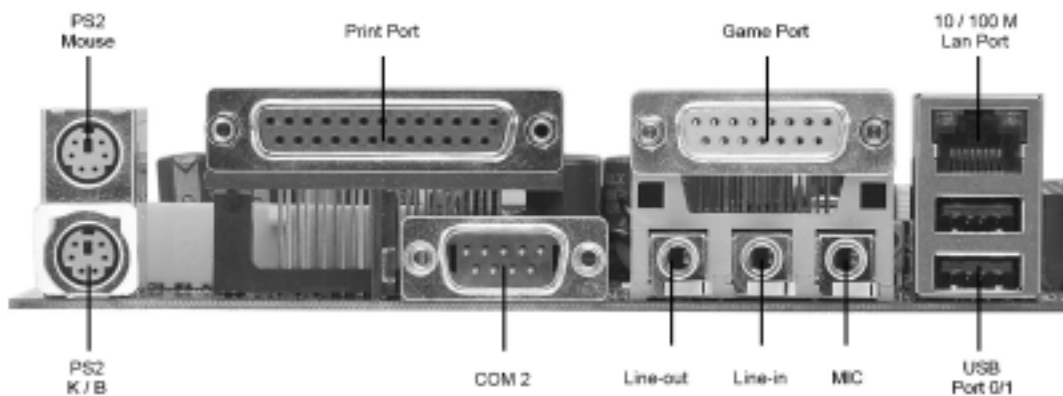
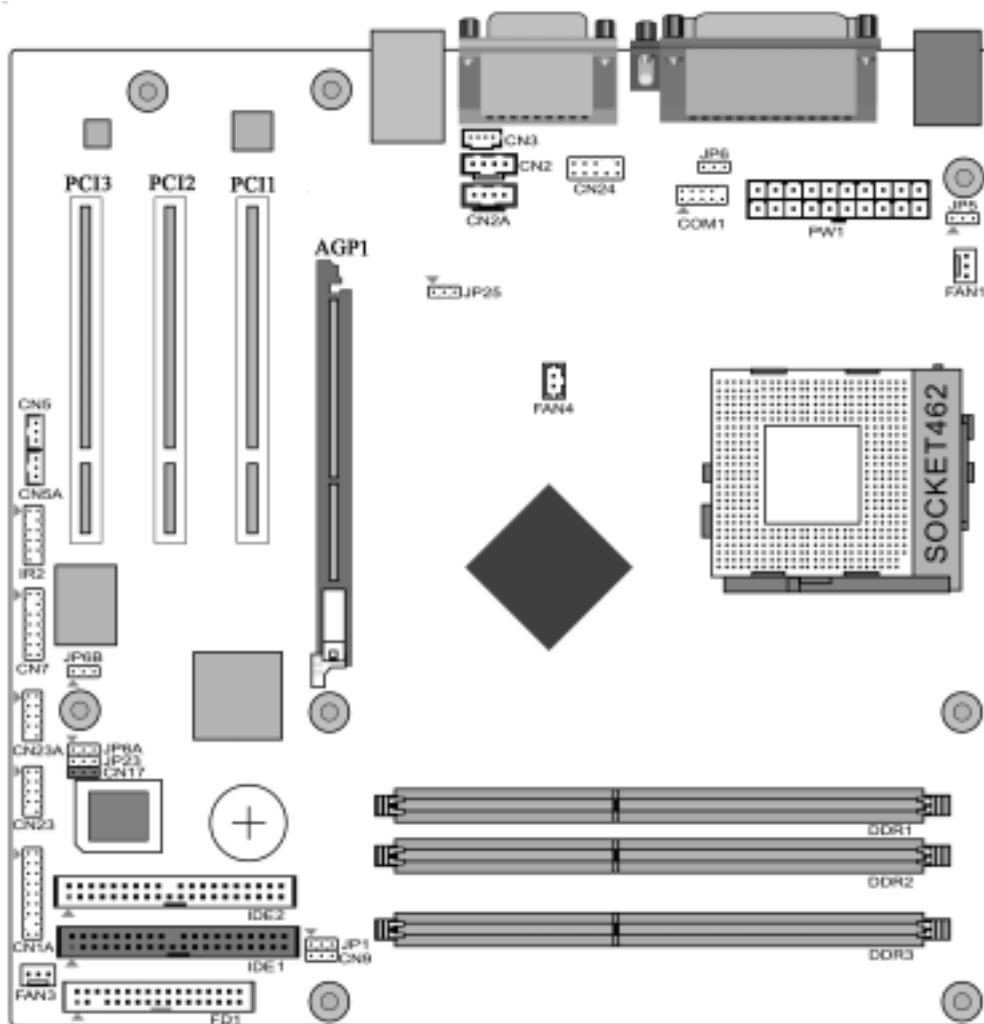
- Award system BIOS support PnP, APM, DMI, ACPI, & Multi-device booting features.

1-2 Package Contents

This product comes with the following components:

- | | |
|--|-----|
| 1. Motherboard | x 1 |
| 2. I / O Panel | x 1 |
| 3. 40-Pin UDMA-100 IDE Cable | x 1 |
| Blue to motherboard, Gray to Master and Black to Slave. | |
| 4. 34-Pin floppy Disk Drive Cable | x 1 |
| 5. Manual | x 1 |
| 6. Driver CD | x 1 |

1-3 Motherboard Layout



Chapter 2 Hardware Setup

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

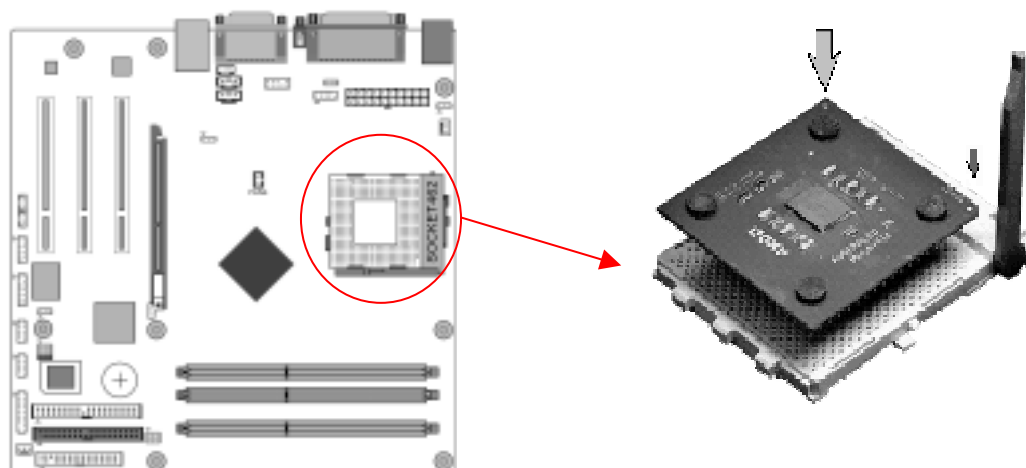


This motherboard is electrostatic sensitive. Do not touch without wearing proper safety gadget and make sure to disconnect the power cable from the power source before performing any work on your motherboard. Not doing so may result in electrical shock!

2-1 Installing a CPU Processor for Socket A

The Socket A, designed for AMD® Athlon/Duron/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 close to one of its corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.
2. Pull up the lever of Socket 462 so that it is perpendicular with the surface of the motherboard. Gently insert the CPU with Pin 1 at the same corner of Socket 462 that contains the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place.
3. 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:

If you install a CPU on this motherboard, you must set the [**Front Side Bus Frequency**] **JP25** according to your processor.

* **CPU Speed = Multiplier x FSB Frequency**



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

AMD (K7) Duron CPU

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

AMD Athlon CPU (K7/Thunderbird)

Model	CPU Speed	FSB Frequency	Multiplier	Vcore	L2 Cache	Micron process
700	700MHz	100	7.0	1.70V	256KB	0.18
750	750MHz	100	7.5	1.70V	256KB	0.18
800	800MHz	100	8.0	1.70V	256KB	0.18
850	850MHz	100	8.5	1.70V	256KB	0.18
900	900MHz	100	9.0	1.75V	256KB	0.18
950	950MHz	100	9.5	1.75V	256KB	0.18

1000	1000MHz	100	10.0	1.75V	256KB	0.18
1100	1100MHz	100	11.0	1.75V	256KB	0.18
1200	1200MHz	100	12.0	1.75V	256KB	0.18
1300	1300MHz	100	13.0	1.75V	256KB	0.18
1400	1400MHz	100	14.0	1.75V	256KB	0.18
1000	1000MHz	133	7.5	1.75V	256KB	0.18
1113	1113MHz	133	8.5	1.75V	256KB	0.18
1200	1200MHz	133	9.0	1.75V	256KB	0.18
1333	1333MHz	133	10.0	1.75V	256KB	0.18
1400	1400MHz	133	10.5	1.75V	256KB	0.18

AMD Athlon XP CPU (Palomino/Thoroughbred)

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

AMD Athlon XP CPU (Barton)

2500+	1833MHz	166	11.0	1.65V	512KB	0.13
2600+	1917MHz	166	11.5	1.65V	512KB	0.13
2800+	2075MHz	166	12.5	1.65V	512KB	0.13
3000+	2167MHz	166	13.0	1.65V	512KB	0.13
3000+	2100MHz	200	10.5	1.65V	512KB	0.13
3200+	2200MHz	200	11.0	1.65V	512KB	0.13

2-3 Main Memory Configuration

The DDR SDRAM memory system consists of three banks and each bank can support up to 1GB memory size. If you only use one bank it does not matter which one you use and if you use two or more banks, it does not matter which bank you install first.



DDR SDRAM Specifications

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

DRAM Specifications

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

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

Parity: Ether parity or non-parity.

DIMM Module Combination

Install at least one DIMM module on the slots. You can install either single- or double-sided modules in any order to meet your own needs. Memory modules can be installed in any combination as follows:

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

To install your DDR Modules please follow the steps below:

1. Unlock a DIMM socket by pressing the retaining clips outward. The DDR Modules has only one notch at the center of module. The DDR module will only fit in the right position.
2. Insert the DDR Module vertically into the DIMM slot, with the correct alignment. Then push it in until the golden finger on the memory module is deeply inserted into the socket.
3. The plastic clip on each side of the DIMM slot will automatically close to hold the DDR Modules in place.

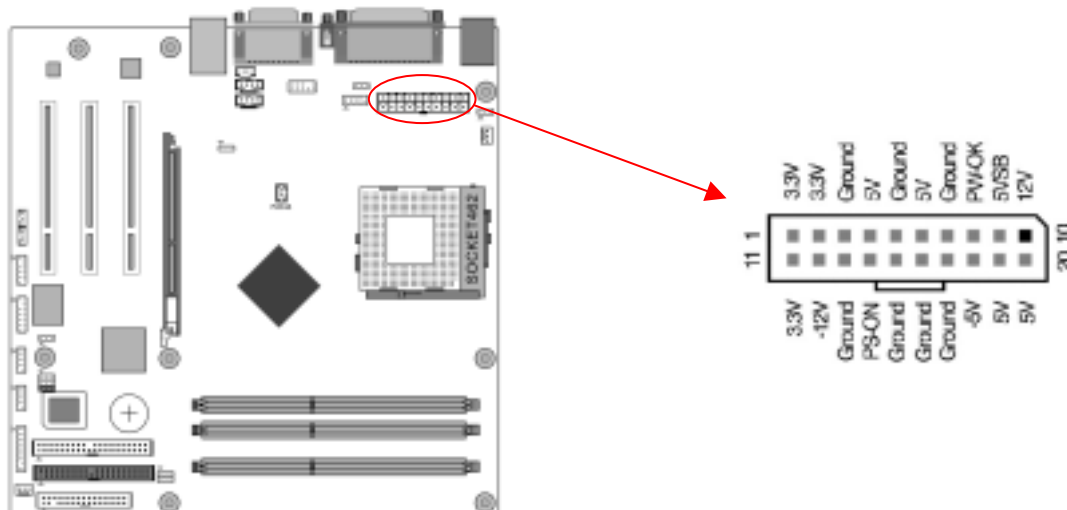
2-4 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.

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

Note: All cables are *security-proof*.

PW 1 (u-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 u-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.

Software Power-Off Control

This motherboard can be powered down using Windows® 9x Software Power-Off function. To power down your computer, click the START button on the Windows® 9x task bar. Select "Shut down the computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

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).

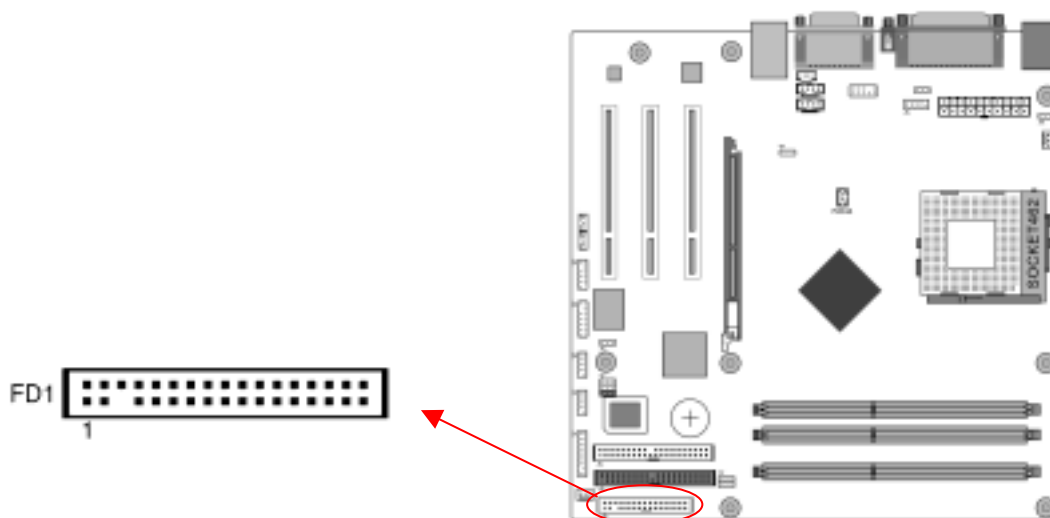
Blinking LED in Suspend Mode:

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).

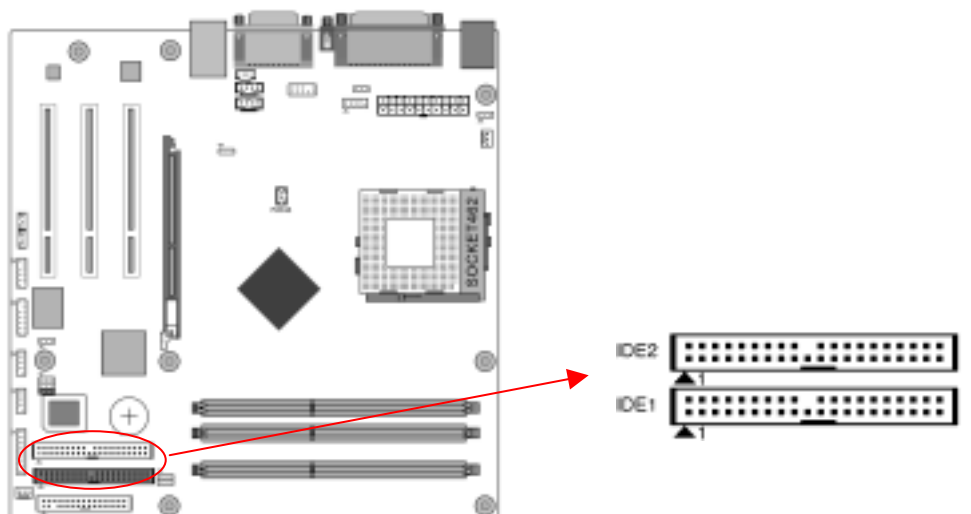
Poly-fuse Over Current Protection:

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

FD1 (Floppy Connector)



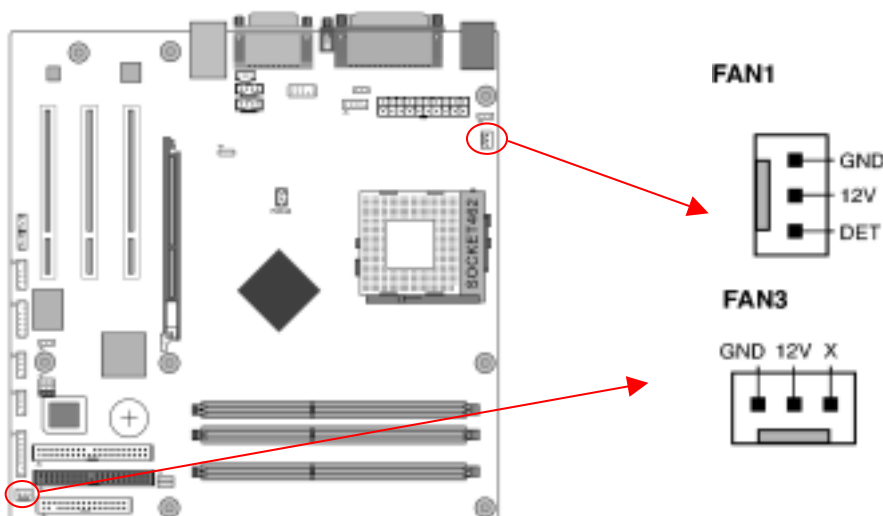
This motherboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector is used to connect to a Floppy disk drive of 34 pins.

IDE 1/2 (IDE Hard-Disk Connector)

This connector is used for connecting 40 pins of ATAPI devices.

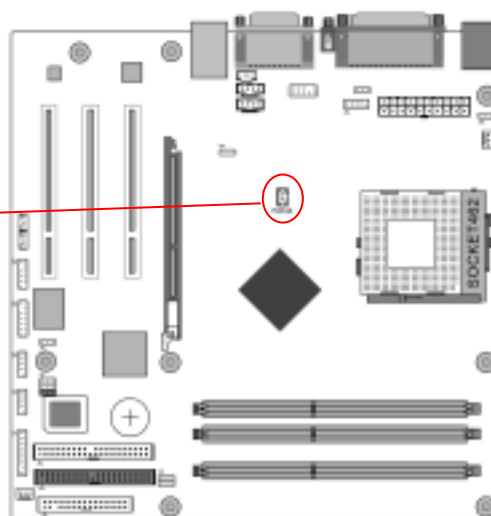
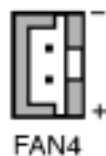
IDE 1 only connects two IDE devices. (**Primary** Master/Slave)

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

FAN1 /FAN3 (CPU/Case Cooling Fan Connectors [12V]):

The board's hardware management is able to detect the CPU 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.

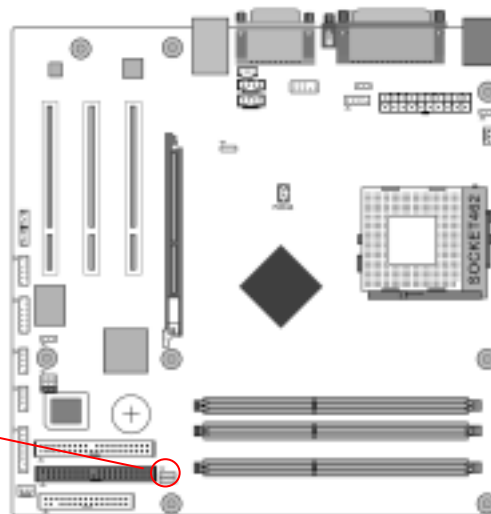
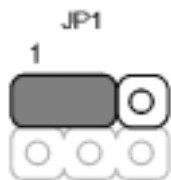
FAN 4 (North Bridge Cooling Fan Power)



It's the north-bridge cooling fan. The wiring and plugging may vary depending on the manufacturer. On standard fans, the red is positive (+12V), and the black is ground.

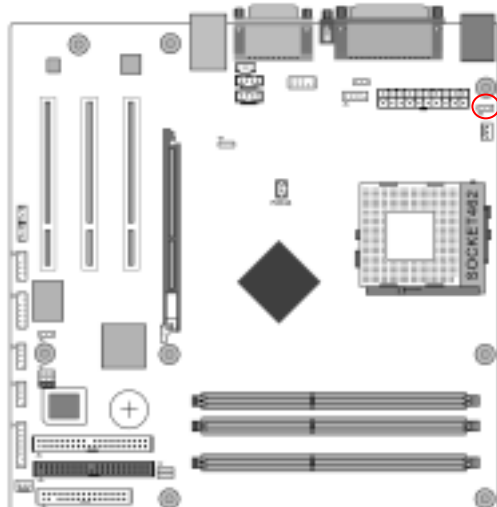
JP1 (CMOS Clear Jumper):

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

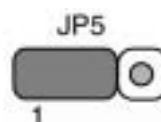


There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

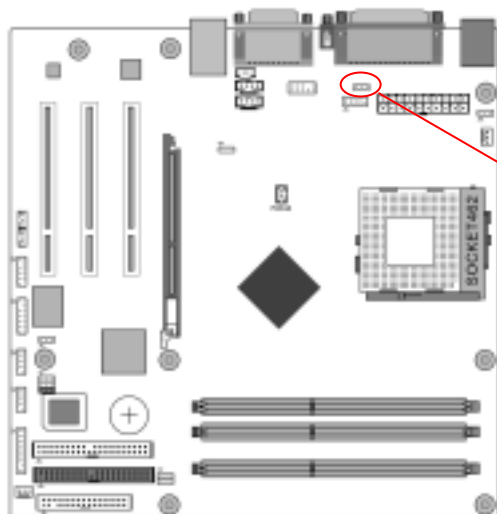
1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location [2-3] for <5 seconds>, and then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type [Y] and then press [Enter] to continue.
5. Set the system configuration in the Standard CMOS Setup menu.

JP5 (Keyboard Power On Function Jumper):

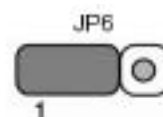
Pin	Definition
1-2	Disable (default)
2-3	Enable



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

JP6 (Enable/Disable USB 0/1 Device Power ON Jumper)

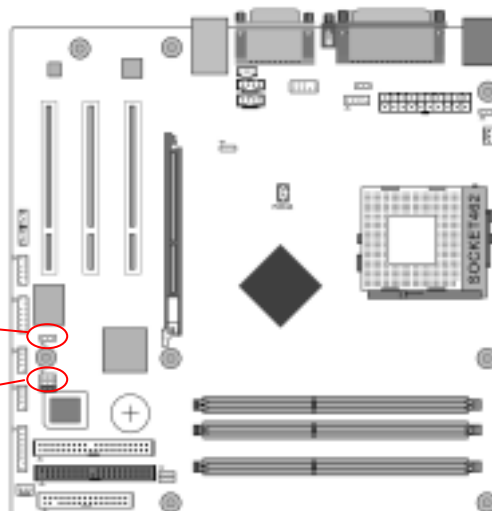
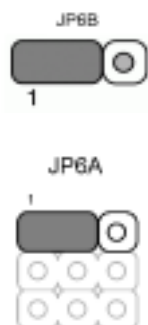
Pin	Definition
1-2	Disable (default)
2-3	Enable



An USB keyboard hot key or an USB mouse click can turn on this motherboard. To use this function, select [**Enabled**] from BIOS's Power Management setup screen -> Wake Up Events -> USB Resume from S3. You must also set this jumper's cap to pins [**2-3**] to use this function.

JP6A/B (Enable/Disable USB 2/3, 4/5 Device Power ON Jumper)

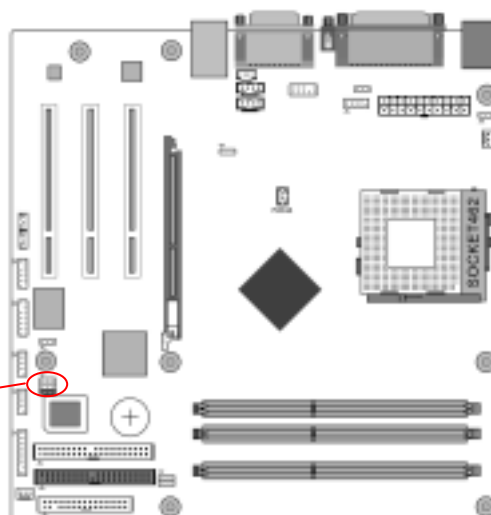
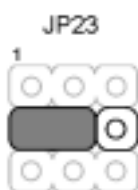
Pin	Definition
1-2	Disable (default)
2-3	Enable



An USB keyboard hot key or an USB mouse click can turn on this motherboard. To use this function, select **[Enabled]** from BIOS's Power Management setup screen -> Wake Up Events -> USB Resume from S3. You must also set this jumper's cap to pins **[2-3]** to use this function.

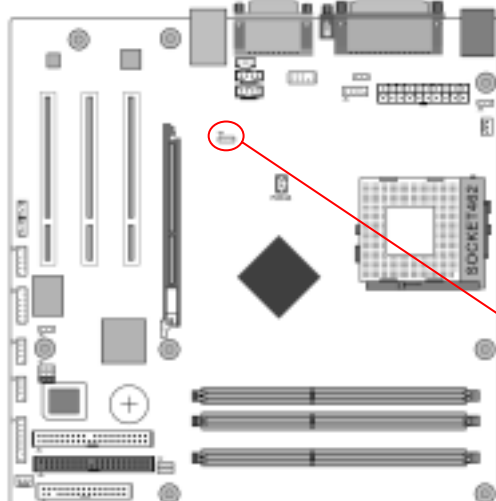
JP23 (Green LED Mode Jumper):

Pin	Definition
1-2	CHAINTECH (default)
2-3	OEM



This motherboard provides a Green LED flash Jumper. This cap is to setup Green LED flash mode. The default value is **[1-2]**, which is defined at manufacturing. For user-defend or OEM please set the jumper cap at **[2-3]**.

JP25 (Setup CPU FSB. Freq. Jumper)



Pin	Definition
1-2	133/166/200 MHz (default)
2-3	100 MHz

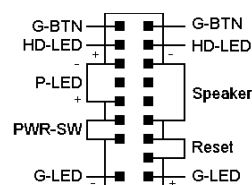
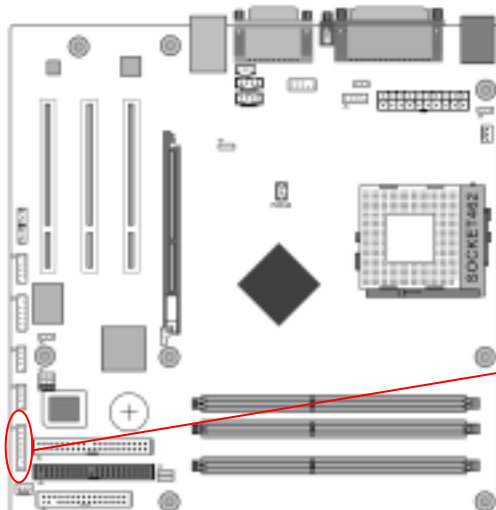


This cap setups up the CPU Ext. Clock Frequency.

1-2: The default value is **133/166/200** MHz (The will allow the CPU's Ext. Frequency and memory frequency to be adjusted through the BIOS.).

2-3: Set 100 MHz at CPU Ext. frequency. (The will allow the Memory frequency to be adjusted through the BIOS.).

CN1A (Front Panel Connector):



1. PWR-SW (Over-ride Power Button Connector):

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

When the Soft-OFF by PBTN 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. Remember 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 can be resumed in different ways as defined by Power Management Setup screen in BIOS.

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

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

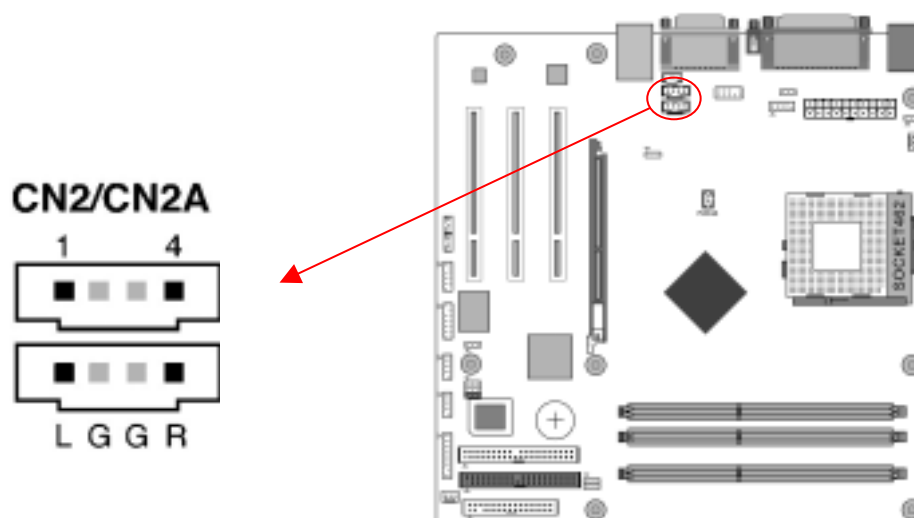
5. **SPEAKER** (Speaker Connector):

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

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

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

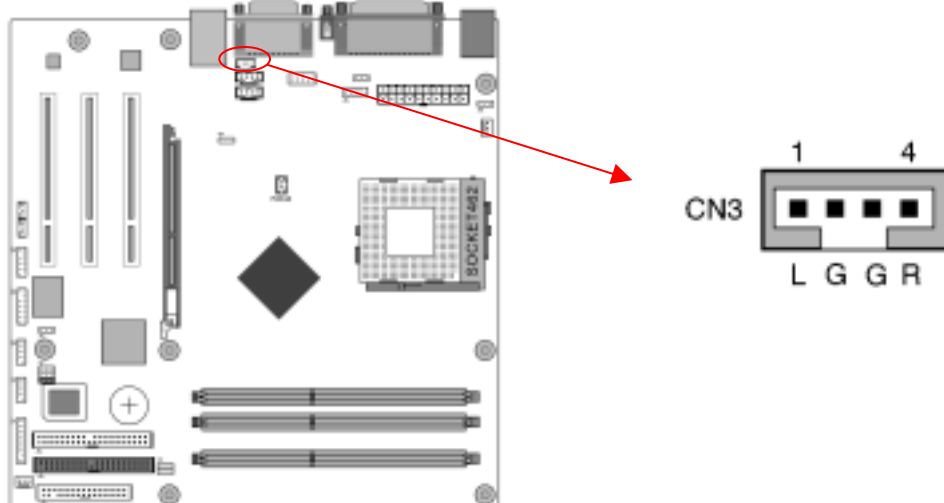
CN2/2A (CD-ROM Audio-in Connector):



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

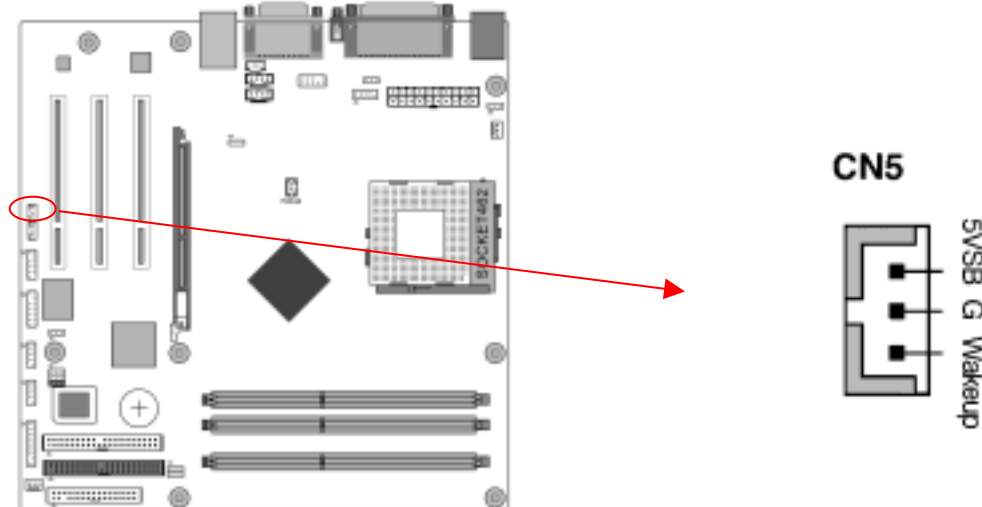
function.

CN3 (Auxiliary Audio-in Connector):

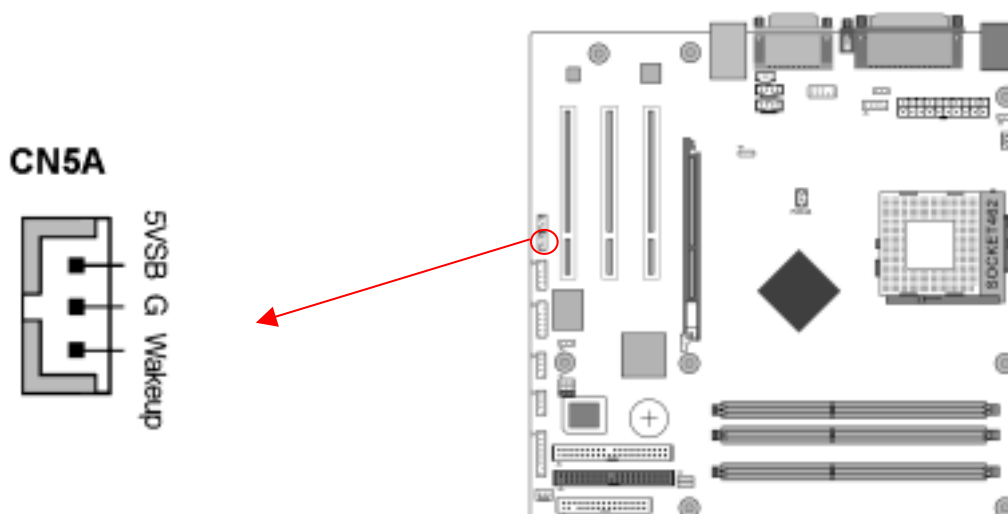


These connectors are for audio CD-ROM devices. It is for Auxiliary Audio-in Device, which will input the sounds sources into the motherboard.

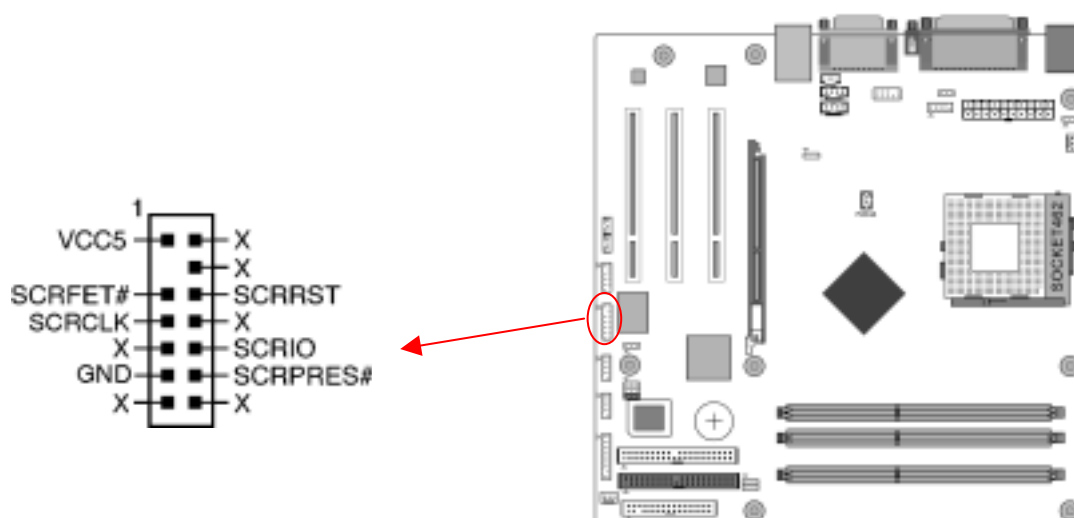
CN5 [WOL (Wake-on-LAN) Connector]:



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

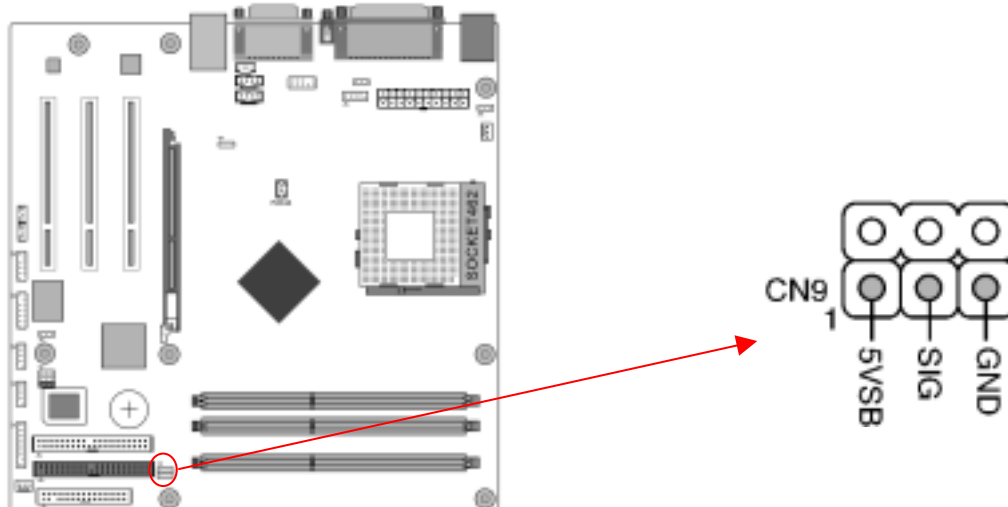
CN5A [WOM (Wake-on-Modem) Connector]:

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

CN7 (Smart Card Reader Connector):

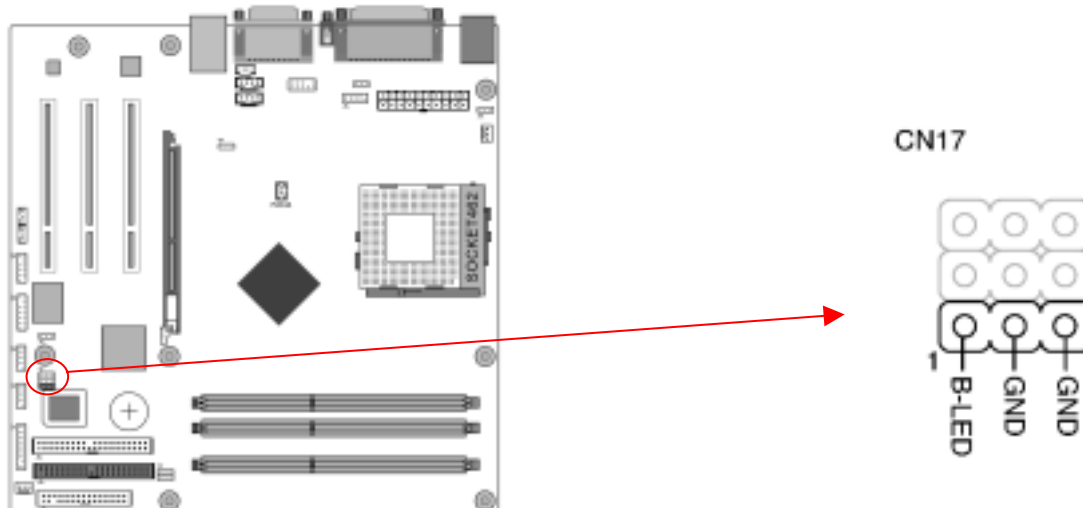
This connector must be connected to a Smart card reader, which allows you to transfer data through Smart Cards and Smart Card user interface software.

CN9 (Chassis Open Alarm Connector):



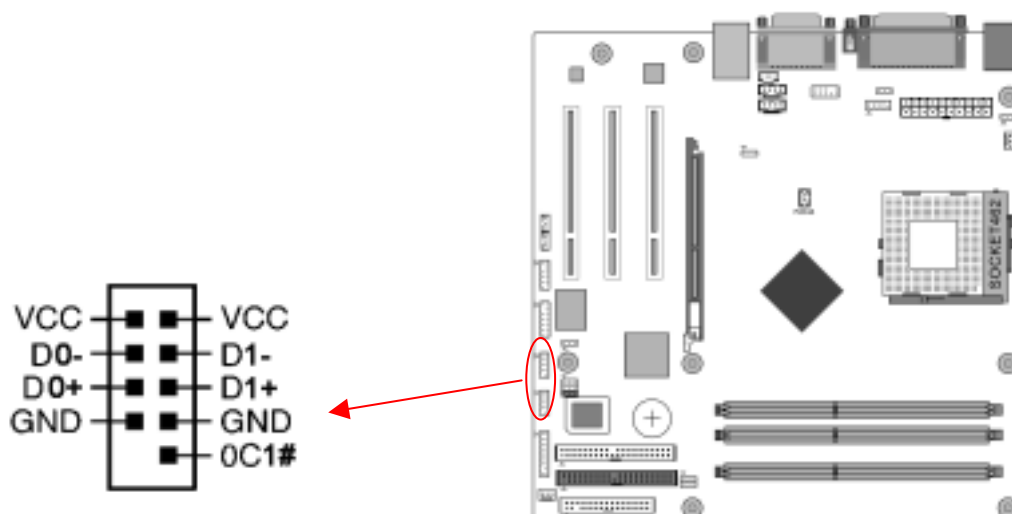
This connector is acted as an alarm when the chassis is opened; it gives a buzzer sound during an attempt to open the chassis.

CN17 (Blue LED Connector):



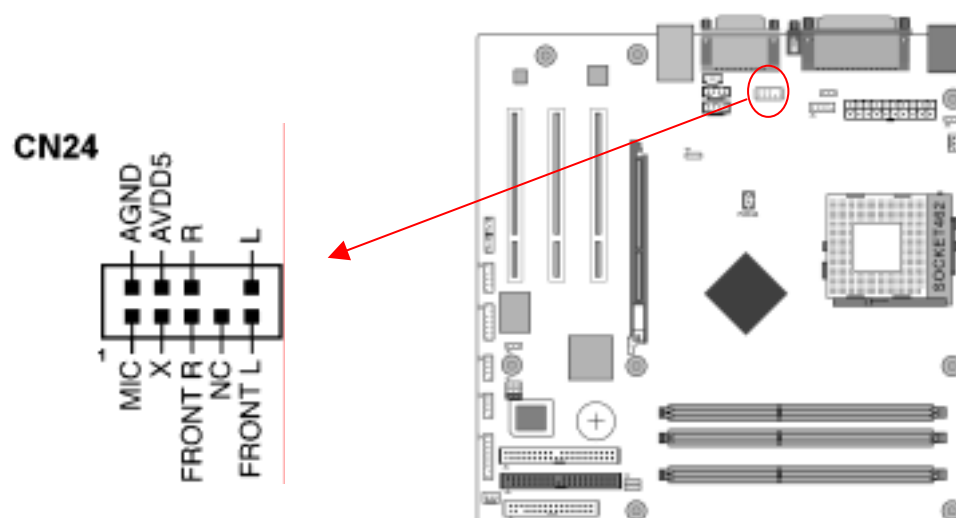
These features work entirely the same as the power indicator LED, both shows the system's power status. The only difference is that this one is blue while the other is red LED.

CN23/23A (USB Connector for USB 2/3 and 4/5)



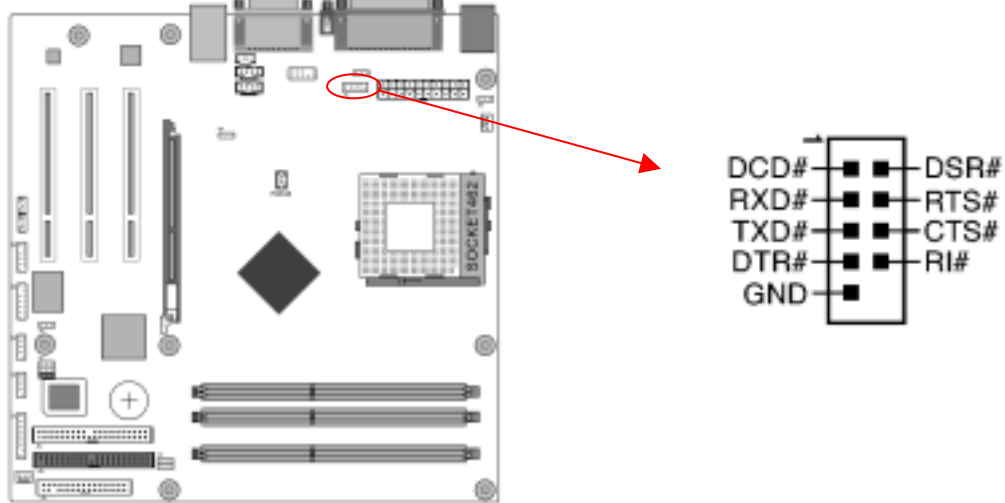
If you want to use a USB Keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3). This board contains a USB Host controller and a root hub connector is also included for an optional USB Adaptor (USB 2/3 and 4/5).

CN24 (Front Audio Connector):



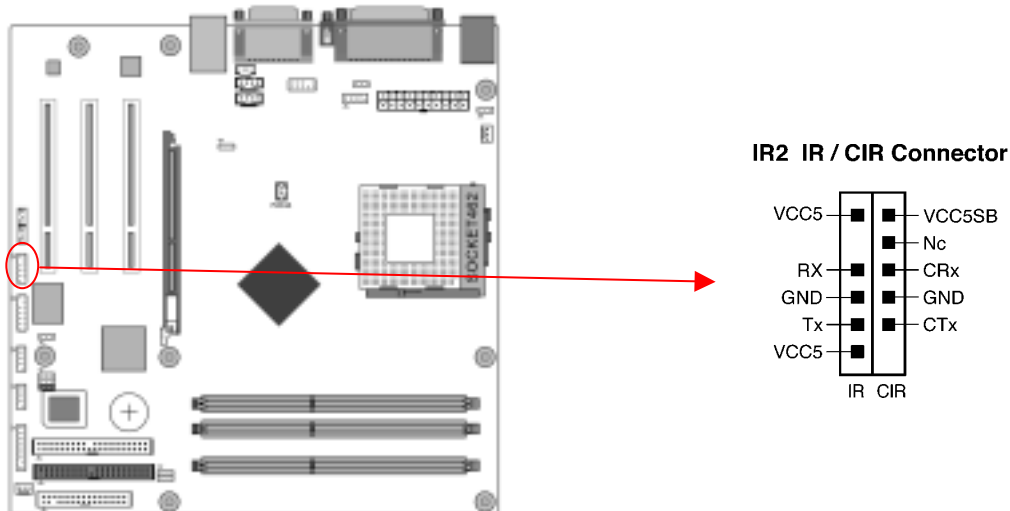
This connector gives you the option of a front-panel audio-jack cable ext. to be plugged into a special custom-designed system case. Simply remove the two jumper caps at pin [5-6] and [9-10] then plug it into the (optional) cable ext. connector. Pin [5-6] and [9-10] are shorted (default) to enable the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

COM 1 (Serial port / COM Headers)



This is an additional 9-pin connector is used to connect a serial-port ribbon cable. This will allow you to enable an additional COM Port.

IR 2 (IR & CIR Connector):



Select UART Mode in BIOS's Integrated Peripherals menu the UART port used to support an IR function. (See section 3 Super I/O Device of **Integrated Peripherals**)

Chapter 3 BIOS Setup Program

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

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

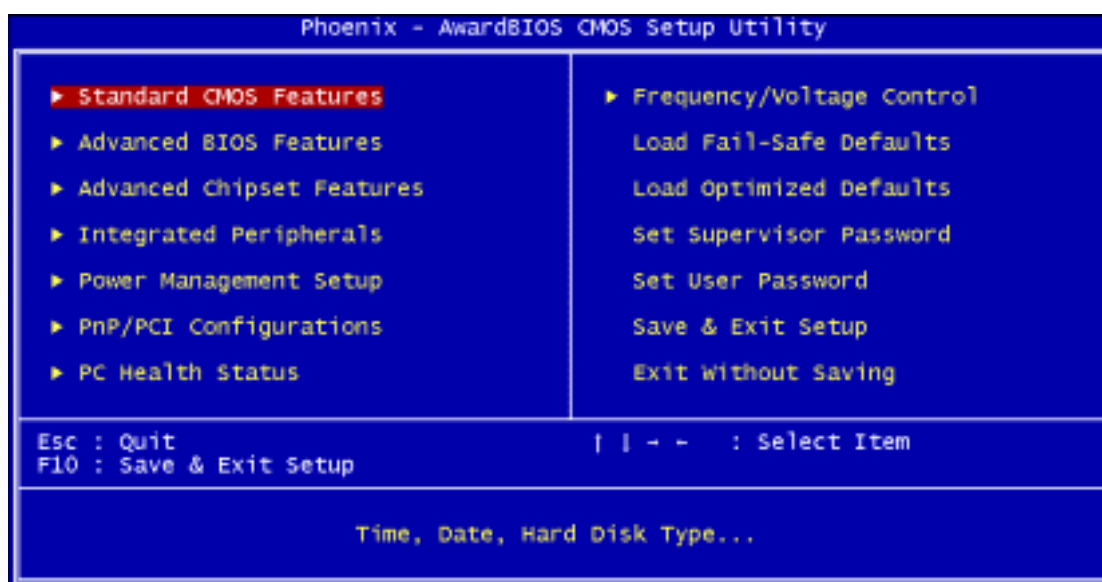


Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Features

The Standard CMOS Features 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 Features option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen.



Figure 3-2 Standard CMOS Feature Screen

Date/Time:

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

IDE (Primary/Secondary; Master/Slave):

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

Drive A/B:

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

Video:

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

Halt On:

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

3-2 Advanced BIOS Features

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

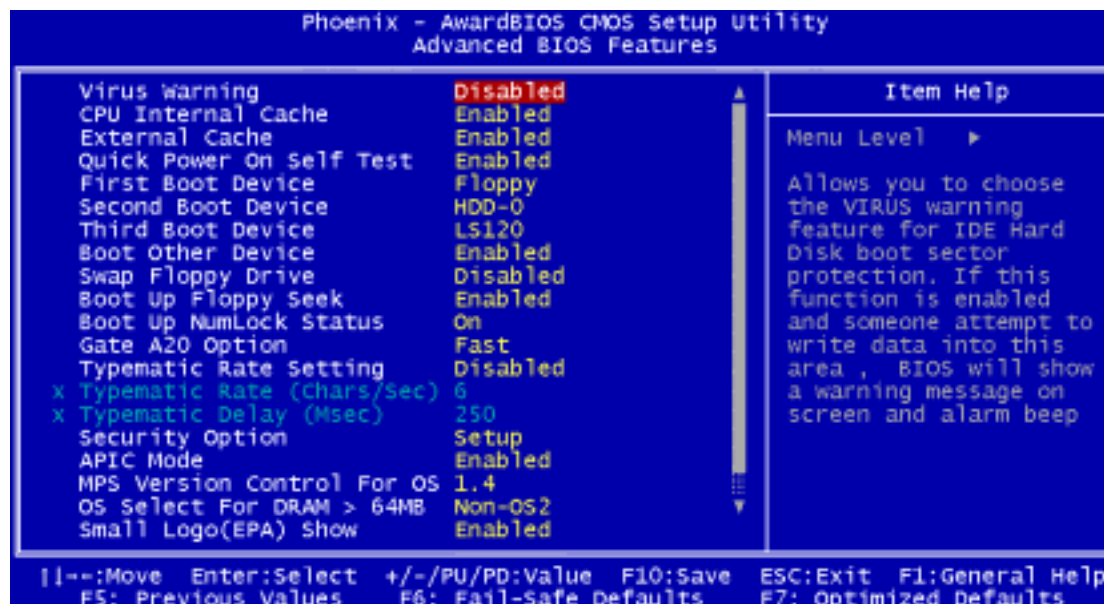


Figure 3-3 Advanced BIOS Feature Screen

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.



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

CPU Internal/External Cache:

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

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.

First/Second/Third/Boot Other Device:

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

Swap Floppy Drive

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

Boot up Floppy Seek:

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

Boot Up NumLock Status:

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

Gate A20 Option

Enabling Gate A20 will allow access pathway to HMA (High Memory Area). Please leave the default setting at **[Fast]** for better system performance. Available options are **[Fast]** and **[Normal]**.

Keyboard Interface :

1. Typematic Rate Setting

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

2. Typematic Rate (Chars/Sec)

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

3. Typematic Delay (Msec)

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

Security Option:

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to take advantage of this function. See Section 3.11 for password setting information. When the Security Option is set to System, a password must be entered to boot the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

APIC Mode

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

Show Post Code

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

Small Logo (EPA) Slow:

This setup allows photo that is EPA. Logo.

Chassis Intrusion Warning

Set to Enabled if you want the Chassis Intrusion Warning message during the BIOS POST procedure. If your computer case has been opened, you should set Disabled and restart. Then the warning message will be cleared.

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.

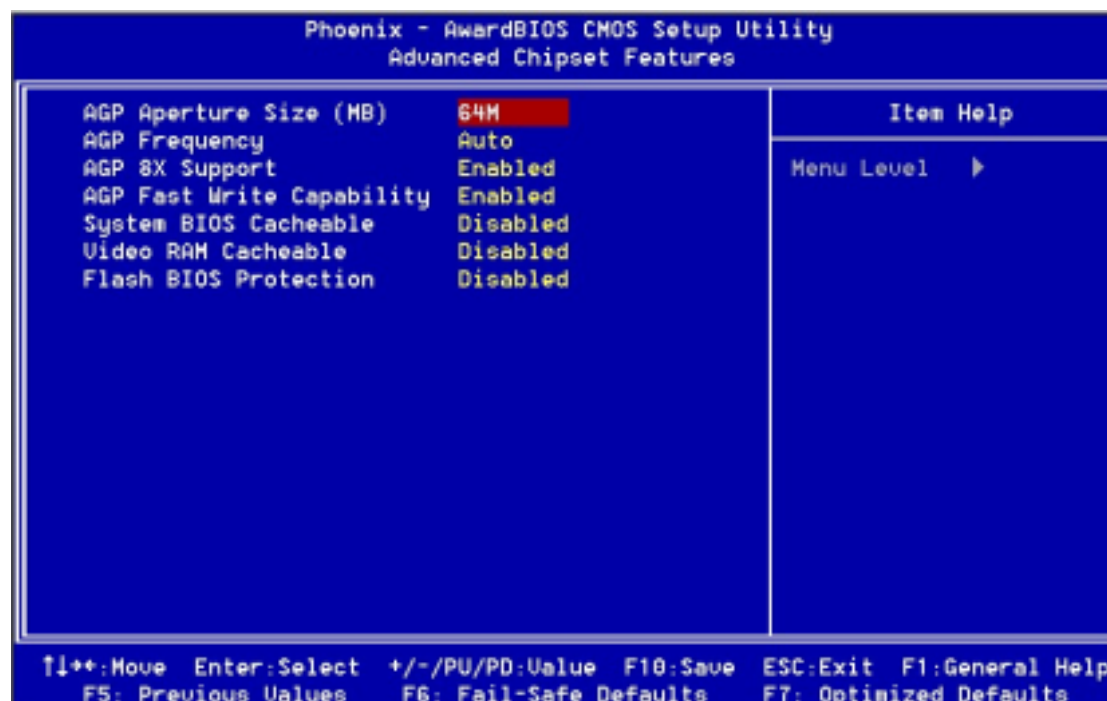


Figure 3-4 Advanced Chipset Features Screen



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. Explanations of the DRAM timing and chipset features setup are lengthy, highly technical and beyond the scope of this manual. Below are some brief descriptions of the functions in the Setup menu.

AGP Aperture Size (MB)

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

AGP Frequency

This function determines the amount of AGP frequency that is given to the AGP card. Options range from **50 MHz** to **100 MHz**. (default [Auto (66MHz)])

AGP 8X Support

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

AGP Fast Write Capability

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



Not all AGP cards support fast-write capability.

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. 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.

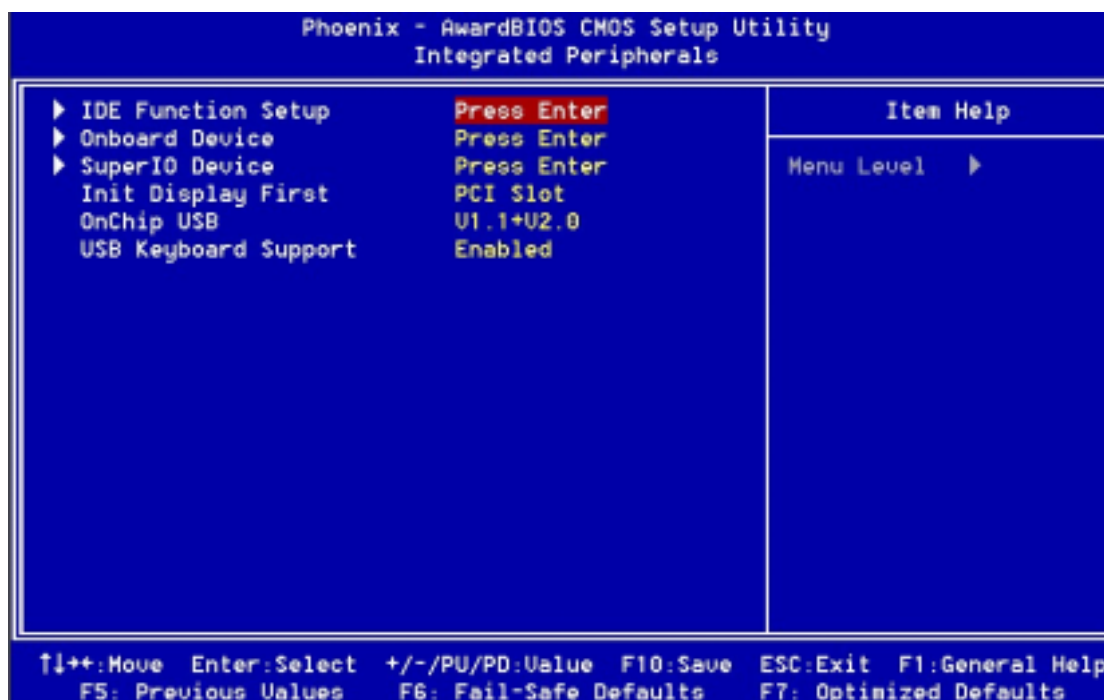


Figure 3-5 Integrated Peripherals Screen

IDE Function Setup

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

1. **On-Chip IDE Channel 0/1:**

You can set this to disable the On Chip IDE controller if you are going to add an extra higher performance IDE board.

2. **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.

3. **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.

4. IDE Prefetch Mode:

The onboard IDE drive interfaces support s prefetching, for faster drive accesses. Set to **[Disabled]** if this primary or secondary.

5. IDE HDD Block Mode:

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

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

1. AC 97 Audio:

This feature allows you to disable the on-board AC97 audio function.

2. AC 97 Modem:

This item allows you to disable the chipset's feature to support MC97 Modem.

3. MAC LAN (nVIDIA)

This feature allows you to enable the OnChip LAN function.

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

1. Onboard FDC Controller:

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

2. Onboard Serial Port 1/2:

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

3. UART Mode Select:

This function allows you to select an operating mode for the second serial port. Available options are **[Normal]**, **[IRDA]**, **[ASKIR]** and **[SCR]**.

4. UR2 Duplex Mode:

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

5. Onboard Parallel Port:

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

6. Parallel Port Mode:

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

7. ECP Mode Use DMA:

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

8. Game Port Address:

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

9. Midi Port Address:

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

10. Midi Port IRQ:

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

Init Display First:

This function allows users to choose between **[AGP]** or **[PCI slot]** to initialize display.

OnChipUSB:

Enable the on-board Universal Serial Bus (USB V1.1 or V2.0) controller if you want to connect an 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.

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.

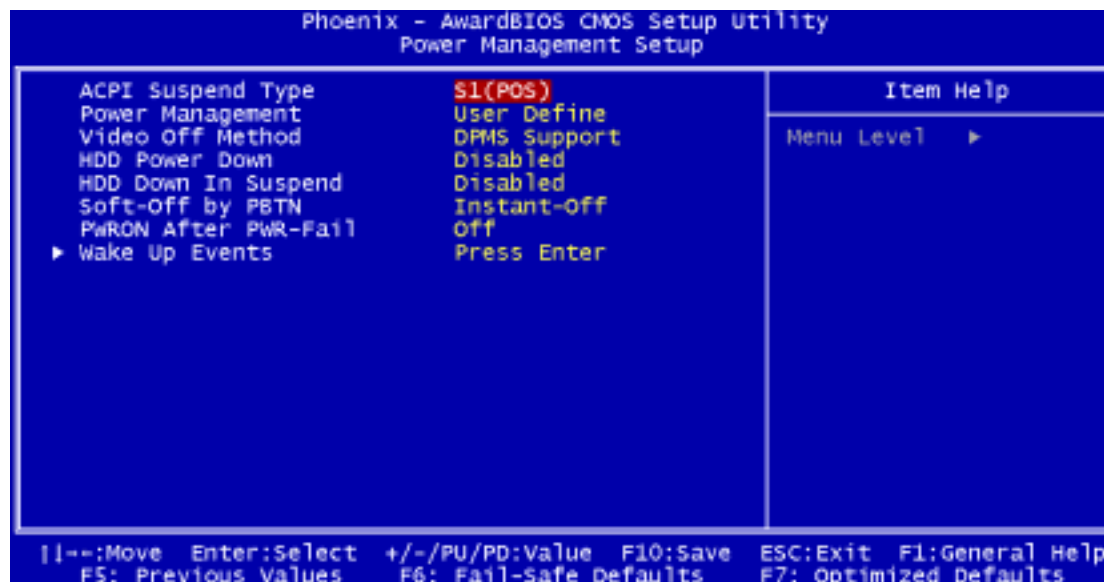


Figure 3-6 Power Management Setup

ACPI Suspend Type:

This item specifies the power saving modes for ACPI function. Available options are:

1. **S1 (POS)** - The S1 state is low power state. In this state, no system context (CPU or Chipset) is lost and the hardware maintains all system contexts.
2. **S3 (STR)** - The S3 state is a lower power state, where the information of system configuration and opened applications / files are saved to main memory. The remaining power of other hardware components are turn off to save energy.
3. **S1&S3** – The S1&S3 state will allow the BIOS to auto-detect the motherboard's power saving mode between S1 and S3.

The information stored in memory will be used to restore the system when [**wake up**] event occurs

Power Management Option:

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

Video Off Method:

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

1. **Blank 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 idle.
2. **V/H SYNC+Blank** - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires a monitor with Green features in order to take advantage of the power saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both screen and power savers.
3. **DPMS Support** - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., If you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

HDD Power Down:

In this user configurable field, any IDE hard disk drives are shut down in the system after dormant period. This feature does not affect SCSI hard drives.

HDD Down In Suspend

In this user configurable field, any IDE hard disk drives in the system are set in Suspend mode after dormant period. This feature does not affect SCSI hard drives.

Soft-Off by PBTN

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.

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. [**Former-Sts**] sets your system back to the state it is before the power interruption. Available options include [**Off**], [**On**], [**Former-Sts**].

Wake up Events

1. Power On 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.

2. Power On by Ring/WOL/WOM:

When enabled, a Modem (**PCI Card or Ext. Modem**) will be able to receive a

signal and wake up the system from soft off and green mode. You should connect the modem to the COM port and call your PC to power on.

3. **USB Resume from S3**

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

4. **Power On 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.

5. **POWER ON Function:**

This control show the PS/2 mouse or keyboard can power on the system. Available settings are [**Password**], [**Hot KEY**], [**Mouse Move**], [**Mouse Click**], [**Any Key**], [**BUTTON ONLY**] and [**Keyboard 98**].

6. **KB Power ON Password:**

If POWER ON Function is set to [**Password**], then you can set a password in the field for the PS/2 keyboard to power on the system.

7. **Hot Key Power ON:**

If POWER ON Function is set to [**Hot KEY**], you can assign a hot key combination in the field for the PS/2 keyboard to power on the system.

Settings:[**Ctrl-F1**] through [**Ctrl-F12**].

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.

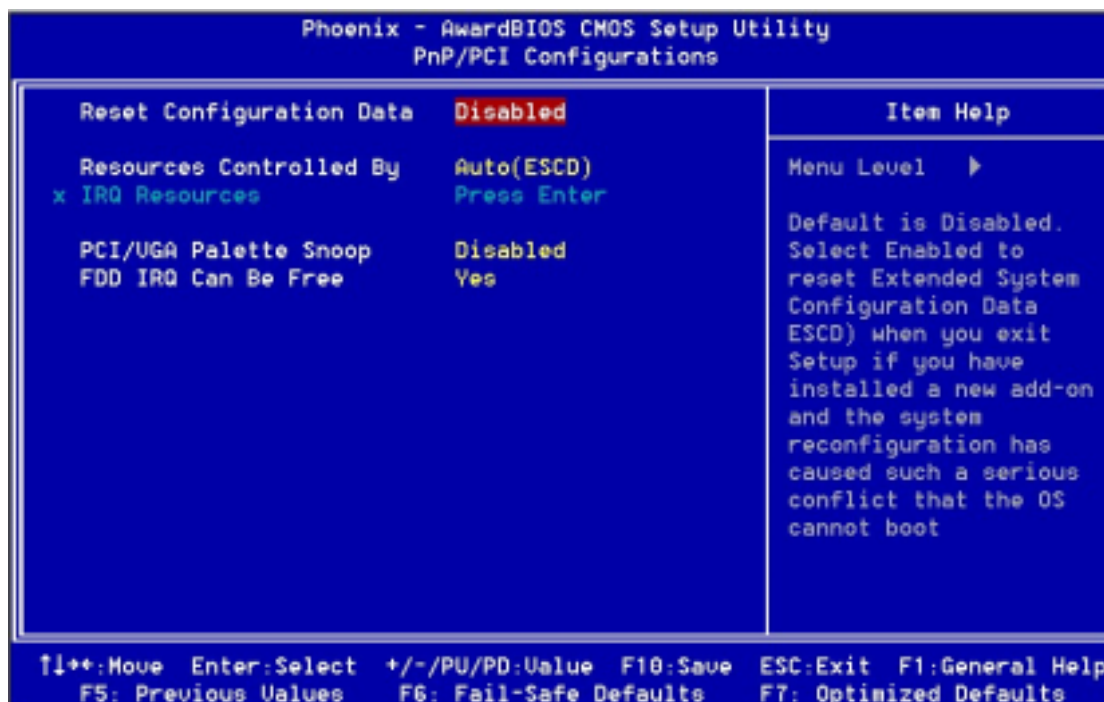


Figure 3-7 PNP/PCI Configurations

Reset Configuration Data:

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

Resources Controlled By:

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

PCI/VGA Palette Snoop:

When set to **[Enabled]**, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). Available options are **[Enabled]** and **[Disabled]**.

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 CPU temperature/external voltages input and the current CPU FAN operating speed.

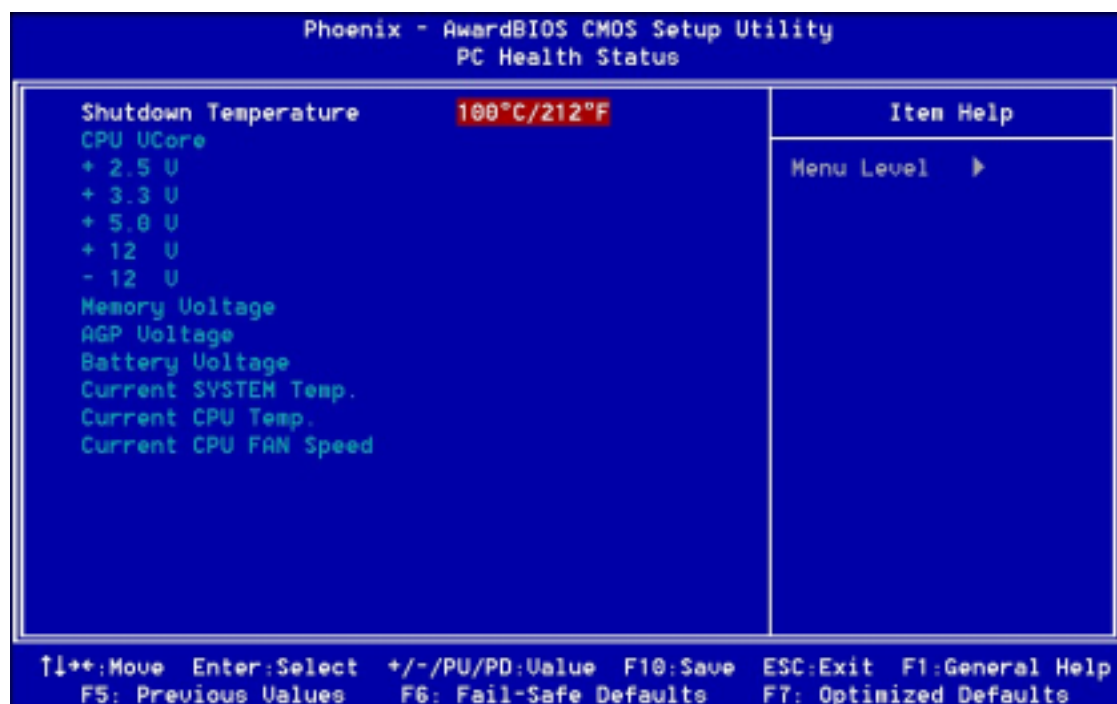


Figure 3-8 PC Health Status

Shutdown Temperature:

This item allows you to set the shutdown temperature level for the processor. When the processor reaches the temperature you set, the system will shutdown. 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°C] 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.

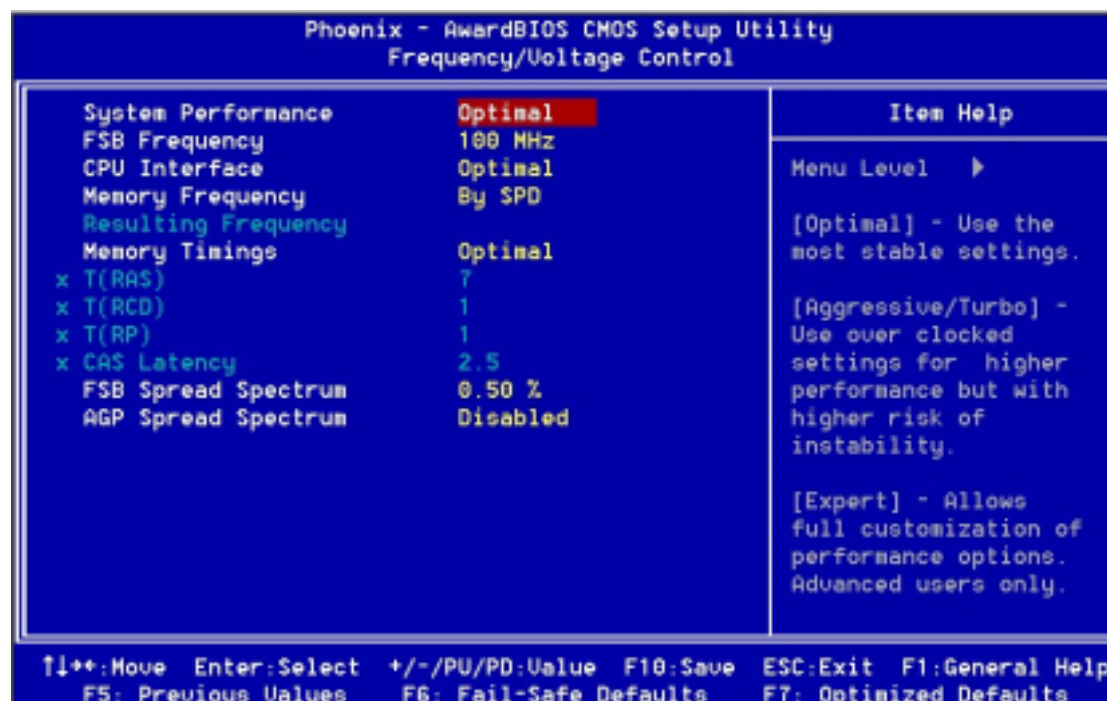


Figure 3-9 Frequency/Voltage Control

System Performance

This option allows you to configure and determine your systems performance according to your needs. Available options are: **[Optimal]**, **[Aggressive]**, **[Turbo]** and **[Expert]**, there details are as follows:

Optimal: Select this option will let the system automatically detect its performance.

Aggressive: Select this option for better system performance. It increases a bit of the system performance.

Turbo: Select this option for a faster system performance. It will increase the system performance, but it might result in an unstable system.

Expert: Select this option only if you are a professional user. This will allow you to set the system performance according to your choice.

FSB Frequency

This feature allows the configuration of systems FSB frequency speed. Available options include **100 MHz (200 MHz)** to **250 MHz (500 MHz)**.

CPU interface

This option allows you to determine how your CPU interface performs. Available options are: [**Optimal**] and [**Aggressive**]. Their details are as follows:

Optimal: Select this option will let the system automatically detect its performance.

Aggressive: Select this option for a better system performance. It increases a bit of the system performance.

Memory Frequency

This option will allow you to adjust the Memory Frequency. Available options are [**By SPD**], [**50% ~200%**], [**Auto**]. Their details are as follows:

By SPD: It automatically detects the memory frequency.

Auto: This will automatically detect CPU's Ext. frequency.

Memory Timings

This function allows you to adjust the DRAM timing. Available options are: [**Optimal**], [**Aggressive**], [**Turbo**] and [**Expert**], there details are as follows:

Optimal: Select this option will let the memory timing to automatically detect its performance.

Aggressive: Select this option for better memory timing. It increases a bit of the system performance.

Turbo: Select this option for faster memory timing. It will increase the memory timing, but it might result in an unstable system.

Expert: Select this option only if you are a professional user. This will allow you to manually adjust the memory timing according to your needs.

Overclocking:

This motherboard is designed to support overclocking ability.



However, please make sure your peripherals are able to tolerate such abnormal setting, while CPU clock speed is overclocked. Any attempt to operate beyond product specifications is not recommended. We are not responsible for damages caused by inadequate operation or settings beyond product specifications.

FSB Spread Spectrum:

This item is used to enable or disable the clock generator's Spread Spectrum feature. Please leave it as *Disabled* when the processor is over-clocked. Available options: [**0.5%**], [**1.00%**], and [**Disabled**].

AGP Spread Spectrum:

This item is used to enable or disable the clock generator's Spread Spectrum feature. Please leave it as *Disabled* when the processor is over-clocked. Available options:

[0.5%], and [Disabled].



Overclocking:

This motherboard is designed to support overclocking ability. However, please make sure your peripherals are able to tolerate such abnormal setting, while CPU clock speed is overclocked. Any attempt to operate beyond product specifications is not recommended. We are not responsible for damages caused by inadequate operation or settings 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 Supervisor Password & User Password Setting

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

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



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

A screenshot of a BIOS password prompt. The text "Enter Password:" is displayed in a white, monospaced font on a solid black rectangular background.

3-12 Save and Exit Setup

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

A screenshot of a BIOS prompt asking to save to CMOS and exit. The text "SAVE to CMOS and EXIT (Y/N)? Y" is displayed in a white, monospaced font on a solid black rectangular background.

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.

A screenshot of a BIOS prompt asking to quit without saving. The text "Quit without Saving (Y/N)? N" is displayed in a white, monospaced font on a solid black rectangular background.

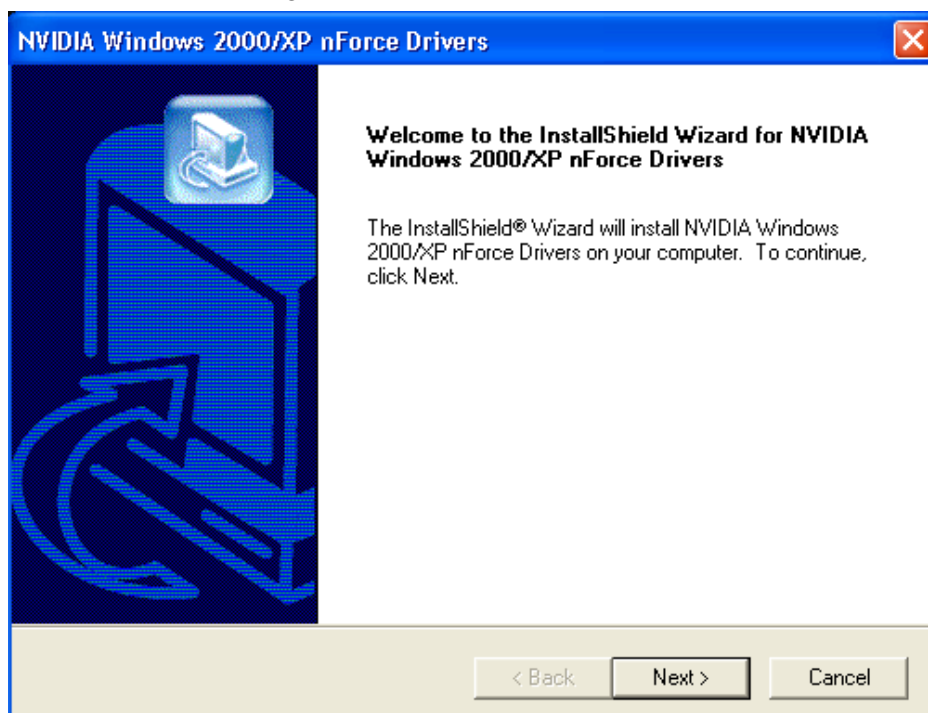
Chapter 4 DRIVER Setup

Please insert the nVidia Serial driver CD into the CD-ROM drive.

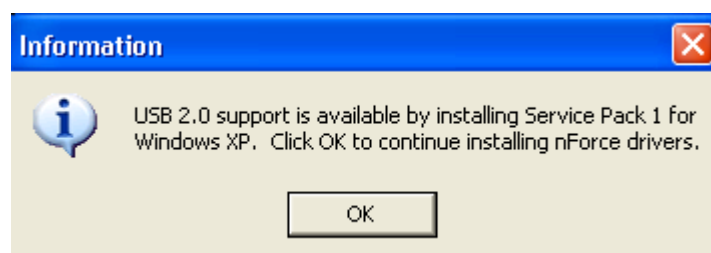


4-1 Nvidia Driver Package Setup

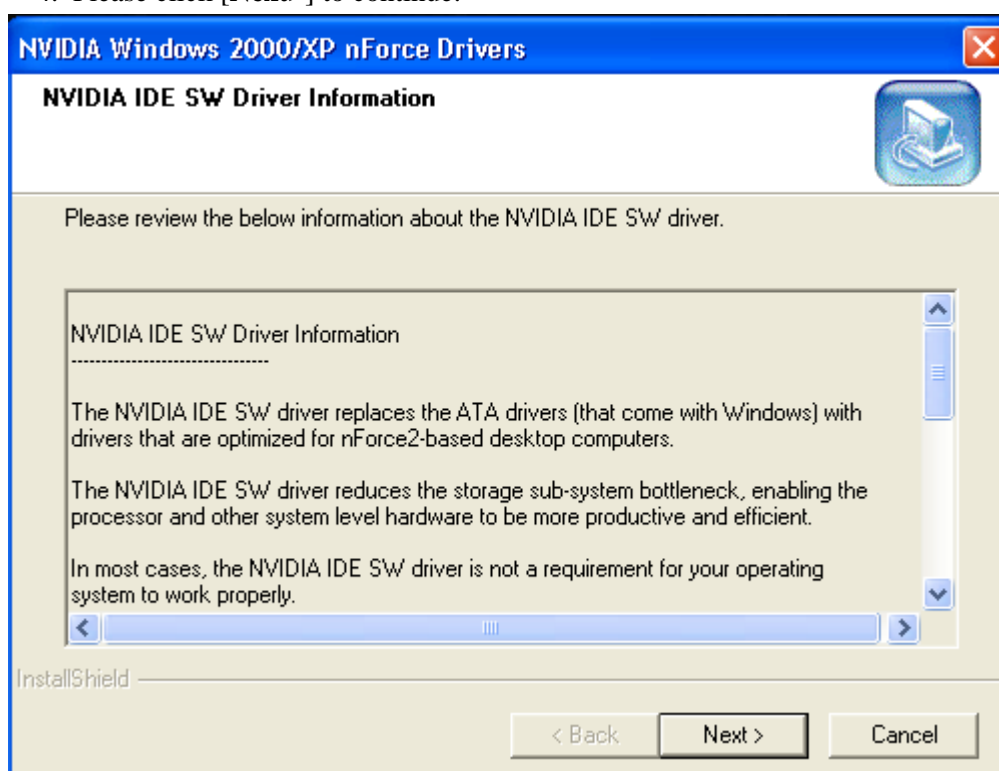
1. Click [Nvidia Driver Package].
2. Click [Next >] to begin software installation.



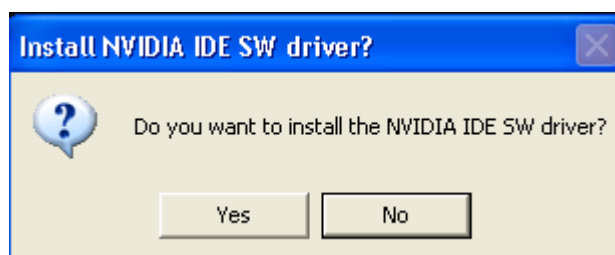
3. Please, click **[OK]** to continue.



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



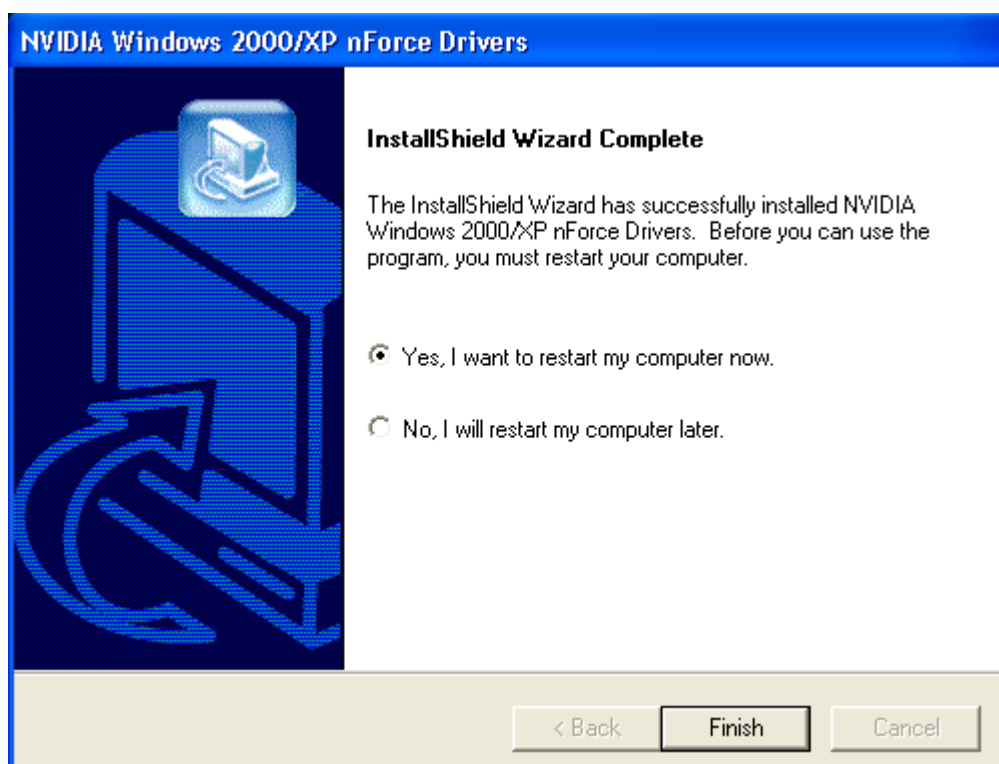
5. If you want to install the NVIDIA IDE SW drive please click **[Yes]** to continue, or click **[No]** if you don't want to install the NVIDIA IDE SW drive.



6. Click [**Continue Anyway**] to continue installing Nvidia Driver.



7. To restart your computer now, select [**Yes, I want to restart my computer now.**] then please click [**Finish**] to restart your computer. If you do not want to restart your computer select [**No, I will restart my computer later.**] then click [**Finish**] to continue.



4-2 Audio driver

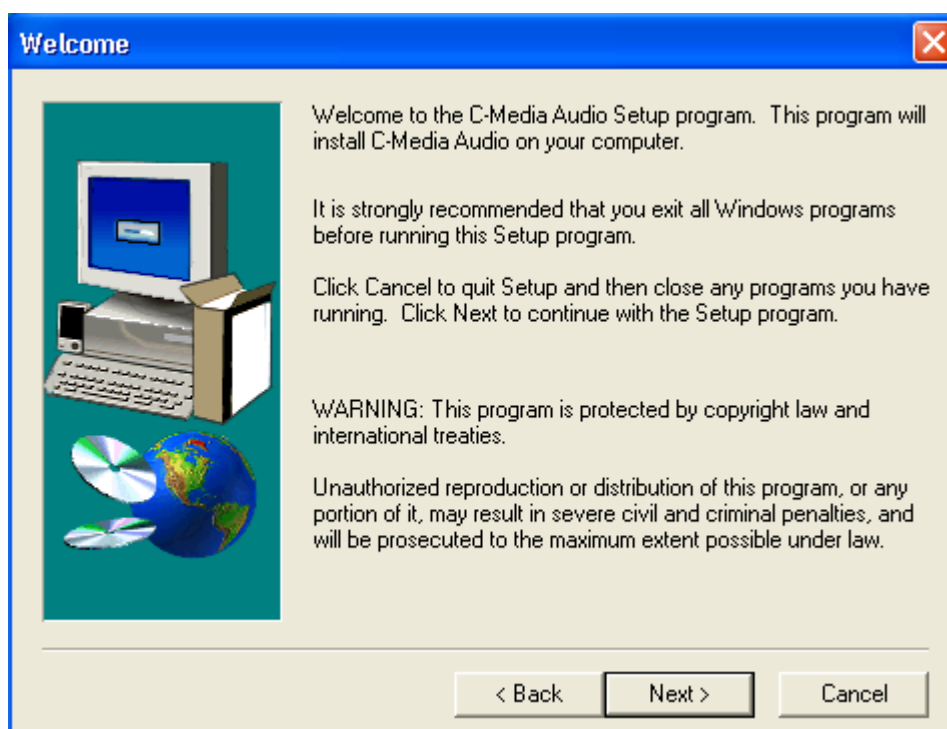
1. Click [Audio Driver].



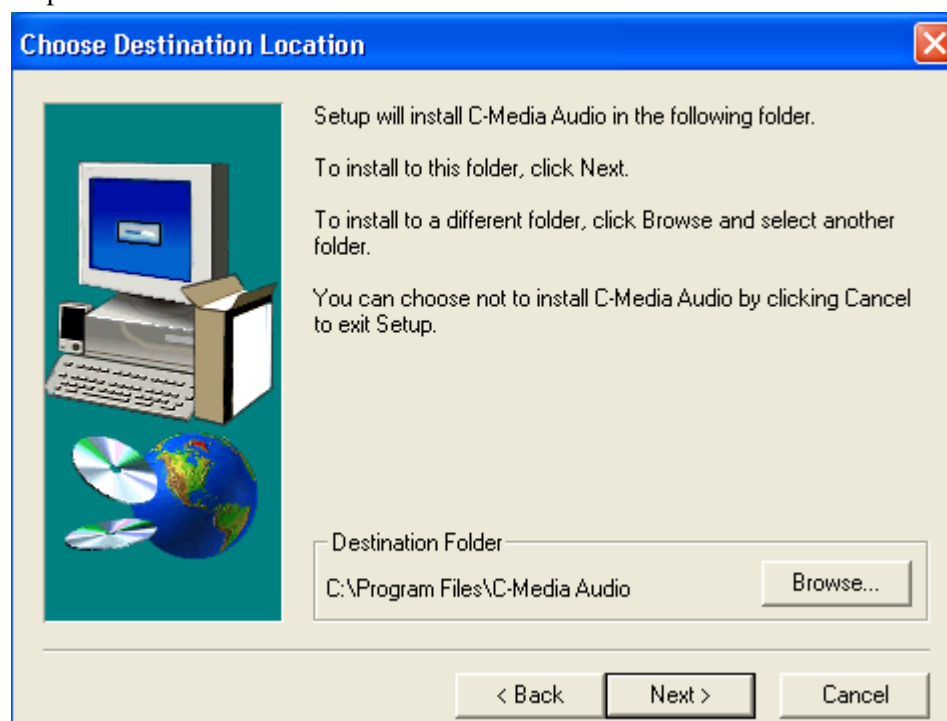
2. Click [Next >] to begin software installation.



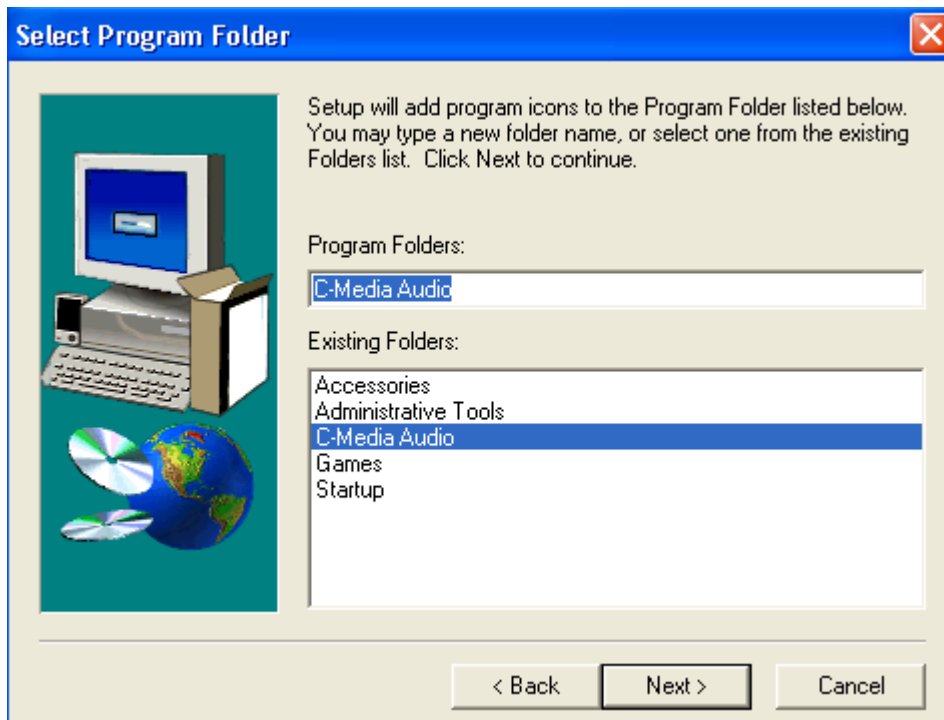
3. Click [**Next >**] to continue installing C-Media Audio driver.



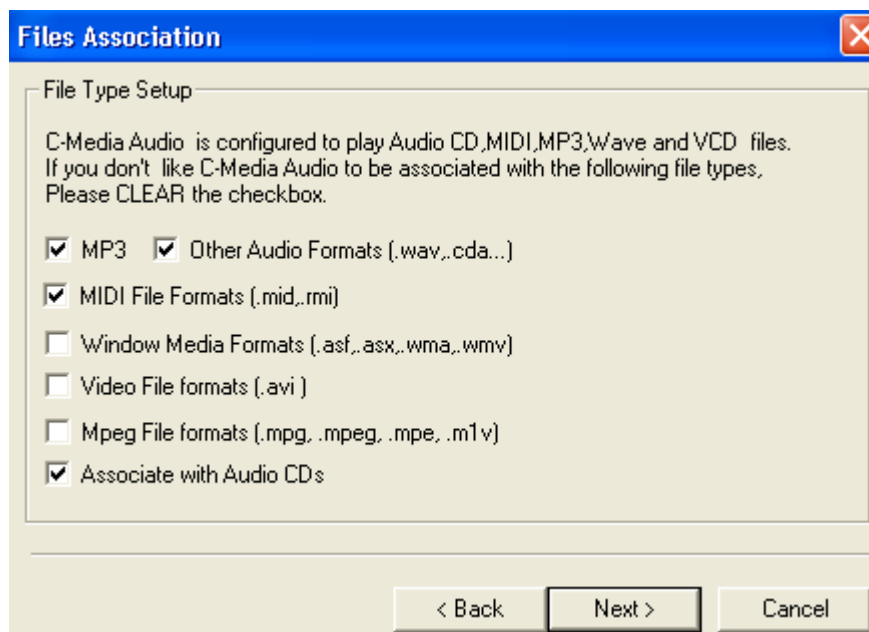
4. Please select a folder where the program will be installed and click [**Next >**] to proceed.



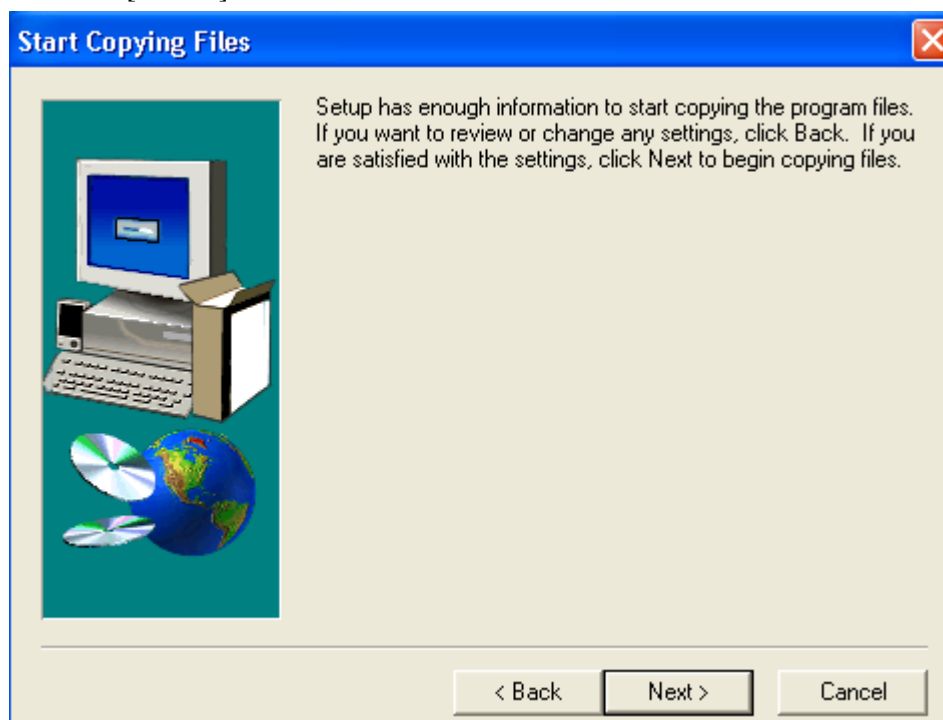
- Please select one folder name from existing folders list and click [**Next >**] to proceed.



- Click [**Next >**] to continue installing C-Media Audio driver.



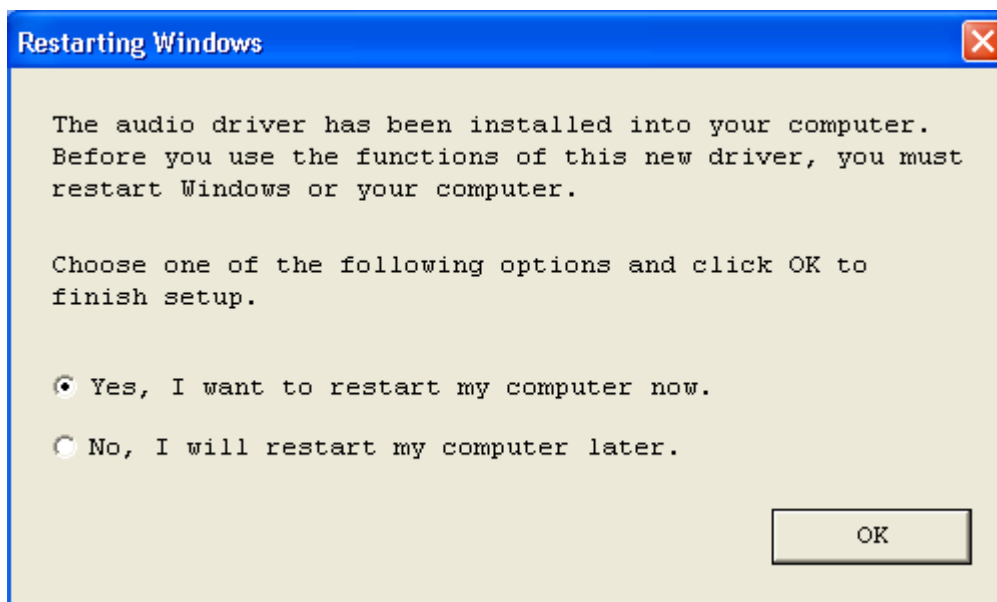
7. Click [**Next >**] to continue.



8. Click [**Continue Anyway**] to continue installing C-Media Audio driver.



- To restart your computer now, select [**Yes, I want to restart my computer now.**] then Please Click [**OK**] to restart your computer. If you do not want to restart your computer select [**No, I will restart my computer later.**] then click [**OK**] to continue.



4-3 USB 2.0 Driver Setup

By Choosing [**USB 2.0 Driver**] from the main menu it will provide all the necessary information that is required to install the USB 2.0 Drive.



USB 2.0 only support Windows 2000 / XP operation system

For Windows XP/2000 installation:

- Open Device Manager and open the properties for the USB 2.0 host controller.
- Select [**Update Driver**].
- Select the USB 2.0 driver folder.
- Select **USB2X.inf** from **CDROM:\NVUSB20\W2K** and then install the system files.
- The host controller should be properly installed when Device Manager is updated accordingly.

Chapter 5 How to update your BIOS?

Embedded Flash Utility

This motherboard is equipped with an Erasable Flash ROM and an Embedded Flash Utility, which allows the user to update the BIOS to a newer version. Embedded Flash Utility eases BIOS upgrade and eliminate the compatibility issue between different Flash ROM type and version of Flash utility.

Update Your System BIOS

1. Start the computer, upon post, press ALT+F2 Keys to enter AWDFLASH setup.
2. Insert the floppy disk with the latest BIOS file into the floppy drive A or B and then press Enter to start programming.



Make sure that your floppy diskette has only one BIN file to avoid confusion.

AwardBIOS Flash Utility V X.XX		
(C) Phoenix Technologies Ltd. All Right Reserved		
For XXXX-XXXXXX-XXXXXXXXXX-X DATE: XX/XX/2002		
Flash Type- XXXXXX XXXXXXXXX / 3.xV (1MB)		
File Name to Program :	XXXXXXXXX.BIN	
Programming Flash Memory		
	Write OK	
	No Update	
		Write Fail
Warning : Don't Turn Off Power Or Rest System !		

3. When finished, the system will automatically restart.

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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