Declaration of Conformity

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

The following designated product:

EQUIPMENT: MAINBOARD

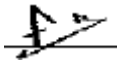
MODEL NO.: 9SIF8

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: 

9SIF8
Motherboard

Intel® Socket 478
SiS® 651 + 962L
u-ATX Motherboard

User's Guide

V1.0

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

The information in this document is subject to change without notice and does not represent a commitment on the part of the vendor. No warranty or representation, either expressed or implied, is made with respect to the quality, accuracy or fitness for any particular purpose of this document. The manufacturer reserves the right to make changes to the content of this document and/or the products associated with it at any time without obligation to notify any person or organization of such changes. In no event will the manufacturer be liable for direct, indirect, special, incidental or consequential damages arising out of the use or inability to use this product or documentation, even if advised of the possibility of such damages. Product names appearing in this document are mentioned for identification purposes only. All trademarks, product names or brand names appearing in this document are registered property of their respective owners.

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Chapter 1 Introduction

1-1 Product Specifications

Processor

- Supports the Intel® Pentium 4/Celeron socket 478 CPU with Hyper-Threading Technology
- Supports the Intel® Pentium 4 /Celeron system bus at 400/533 MHz

Chipset

- SiS® 651 + 962L, supports Hyper-Threading Technology

Main Memory

- Supports two 184-pin Double Data Rate (DDR) DIMMs up to 2GB
- Supports PC1600/2100/2700 DDR modules.

Expansion Slots

- One universal-AGP slot for 2X/4X APG (v2.0 compliant)
- Three 32-Bit PCI slots (v2.2 compliant)

Embedded video subsystem

- Integrated high performance 128/256-bit 2D/3D graphics engine
- Full frame DVD audio and video playback
- Shared system memory, up to 64MB

Audio subsystem via AC-Link

- 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 16.6 Mbps, Multi Word 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

USB2.0/1.1 Host Controller

- One EHCI USB 2.0 Controllers and 2 OHCI USB1.1 Controllers
- Support Total 6 USB 2.0/1.1 Ports
- Support USB 2.0 High-Speed Device @480 Mb/s Transfer Rates

On-board Super I/O IT8700 Controller

- One UARTs support two serial ports
- One SPP/ECP/EPP parallel port
- One floppy disk drive connector supports up to 2.88MB

Fast Ethernet Networking Controller

- On-Board PHY LAN supports 10/100Mb Fast Ethernet

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:

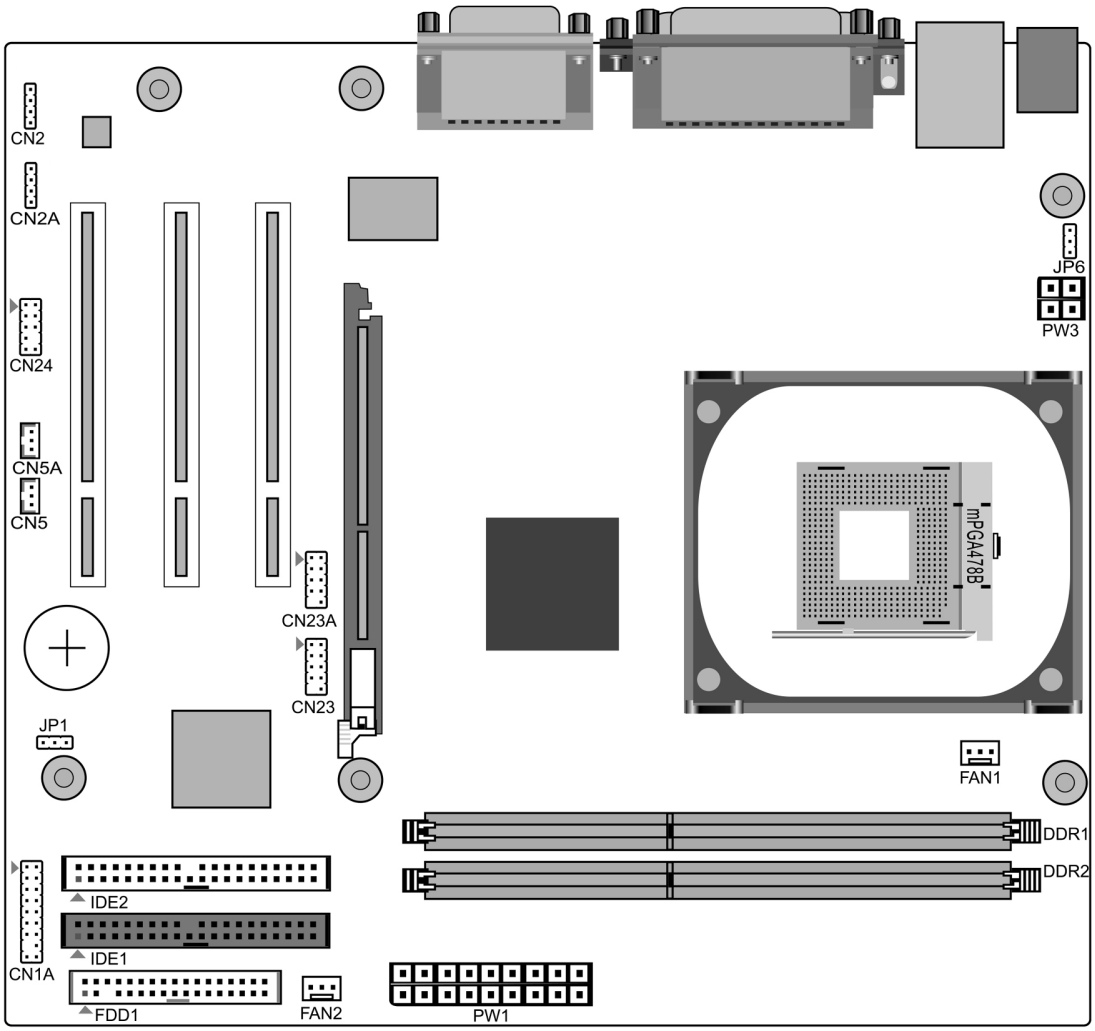
1. Motherboard x 1
2. 40-Pin UDMA-100 IDE Cable x 1

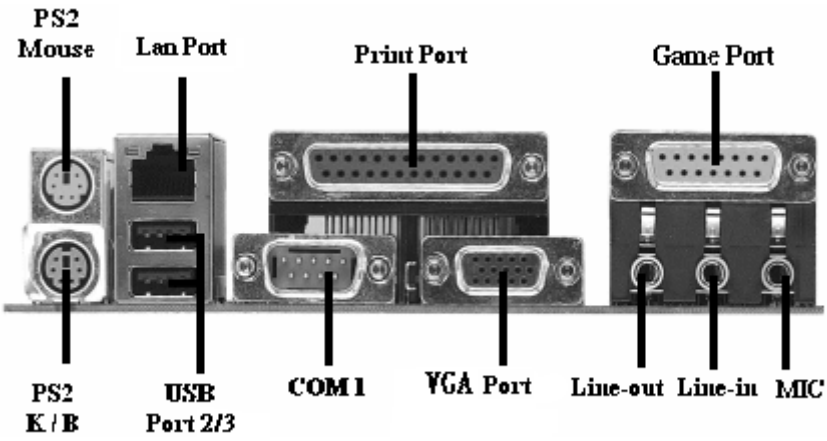
   Blue to motherboard, **Gray** to Master and **Black** to Slave.
3. 34-Pin floppy Disk Drive Cable x 1
4. Manual x 1
5. Driver CD x 1

   Includes:

- Award DMI Utility for DOS
- Audio and VGA drives and utility
- SiS® Chipset Software installation utility.

1-3 9SIF8 Motherboard Layout





Chapter 2 Hardware Setup

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

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

2-1 Installing a CPU Processor for Socket 478

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

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

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

2-2 Setting Your CPU's Performance

Frequency Configuration:

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

After turning on your system's power, enable the CMOS Setup Utility by pressing **delete key** when your BIOS identification screen appears. Then go to Frequency/ Voltage control option and select your CPU clock ratio and CPU clock speed (please refer to Chapter 3 for more details).

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

2-3 Main Memory Configuration

The DDR DRAM memory system consists of two banks and can support up to 1 GB per DIMM 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.

DRAM Specifications

DIMM type: 2.5V, unbuffered 184 pins 64/128/265/512-bit DDR DRAM.
Module size: Single/double-sided 64/128/256/512 Mbytes or 1GB.
Parity: Parity / Non-parity.

Types of DDR Memory modules for each particular DIMM are shown 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

2-4 Connector and Jumper Reference Chart

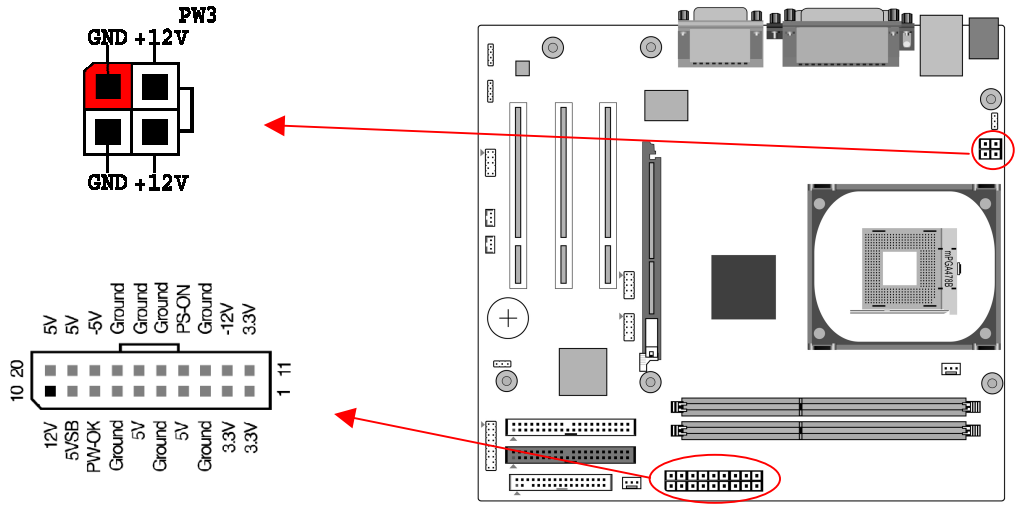
Jumper Connector	Function	Page
PW1 / 3	ATX Power Supply Connector	7
FDD1	Floppy Connector	8
IDE1 / 2	IDE Hard-Disk Connector	9
JP1	CMOS Clear Jumper	9
JP6	Disable/Enable USB 2/3 Device Power ON Jumper	10
FAN1 / 2	CPU/ System Cooling Fan Connector (12V)	10
CN1A	Front Panel (Power / Rest / SPK…etc.) Connector	11
CN2 / 2A	CD-ROM Audio-in Connector	12
CN5 / 5A	Wake on LAN / Modem Connector	12/13
CN23 / 23A	USB Connector for USB 0/1, 4/5	13
CN24	Front Audio Connector	14

2-5 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including power supply, 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.

PW1 / 3 (ATX Power Supply Connector)



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

The ATX 12V power supply has a new +12V (4-pin) and +5V / 3.3V (6-pin) auxiliary power connector to enable the delivery of more +12 VDC and + 5/ 3.3V VDC current to the motherboard

Software Power-Off Control

This motherboard can be powered down using Windows® 9x Software Power-Off function. To power off your computer, select from menu Start -> shut down the computer and the system turns off. The message "*It is now safe to turn off your computer*" will not be shown.

Power-On By Modem

While in Soft-Off state, if an external modem ring-up signal is detected, the system

will be activated and therefore can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section **3**)

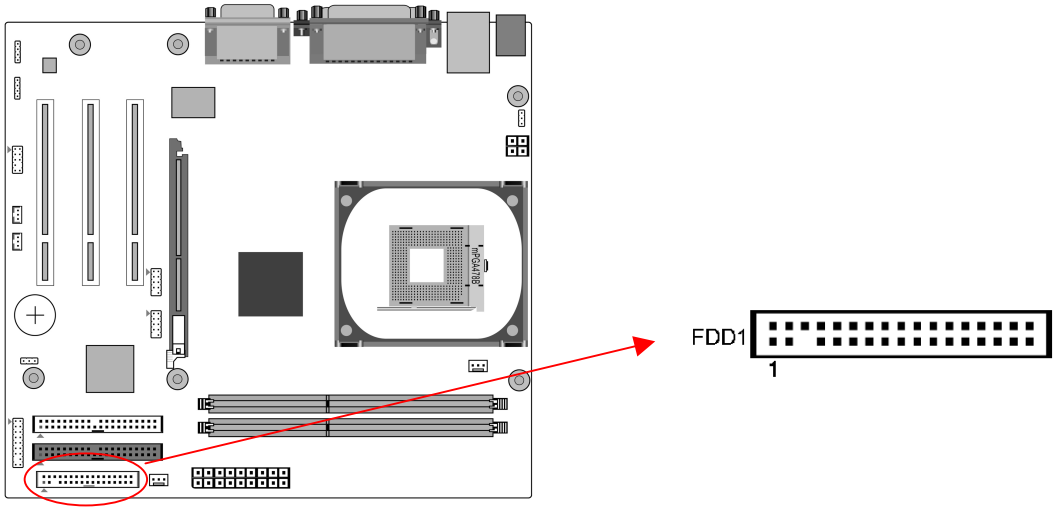
Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Green Override Power 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

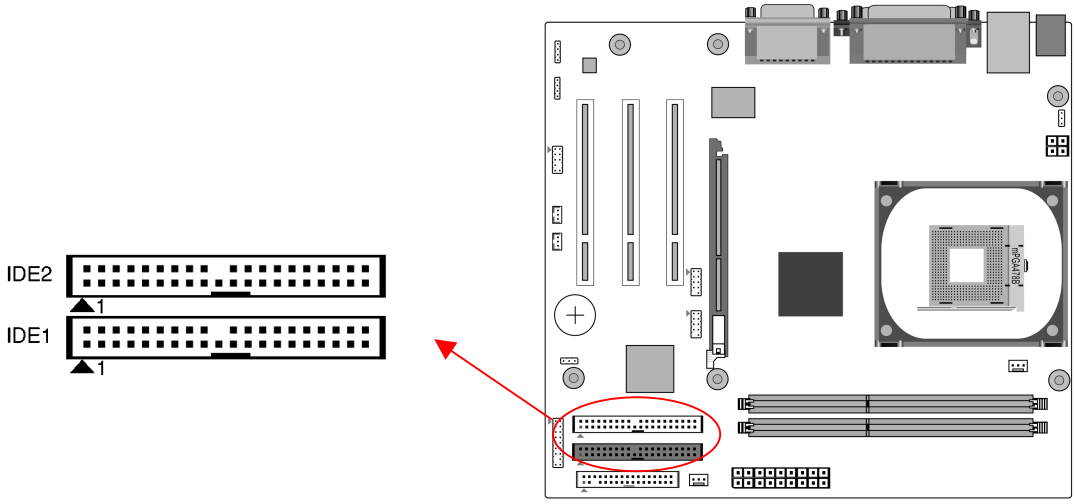
The poly-fuse protects the system from dangerous voltages that the system might be exposed to via keyboards or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the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

FDD1 (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. It is used to connect to a floppy disk drive of 34 pins.

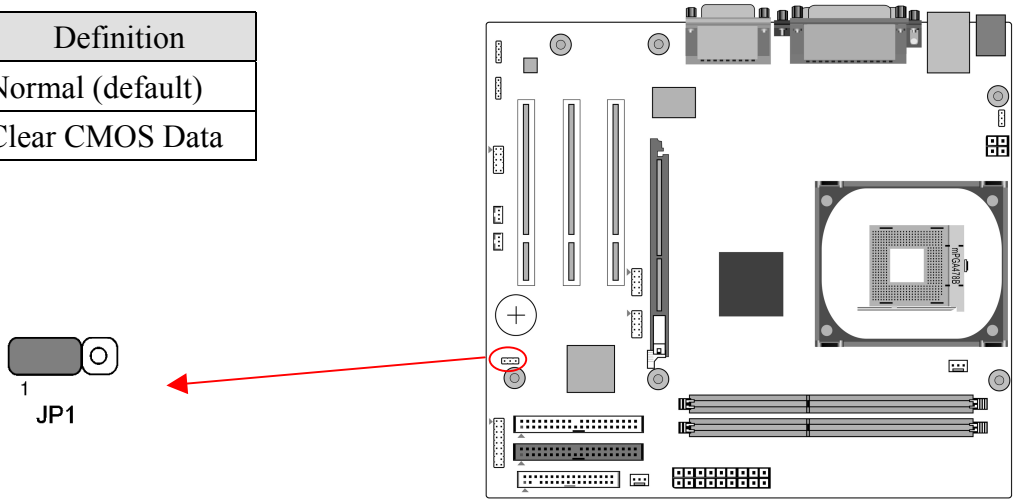
IDE1 / 2 (IDE Hard-Disk Connector)



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 (CMOS Clear Jumper)

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

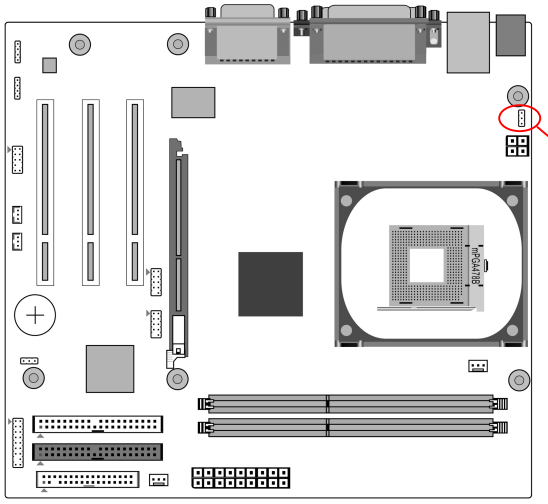


There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

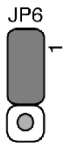
1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location [**2-3**] for <**5 seconds**>, and then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type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

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

JP6 (Enable/Disable USB 2/3 Device Power ON Jumper)

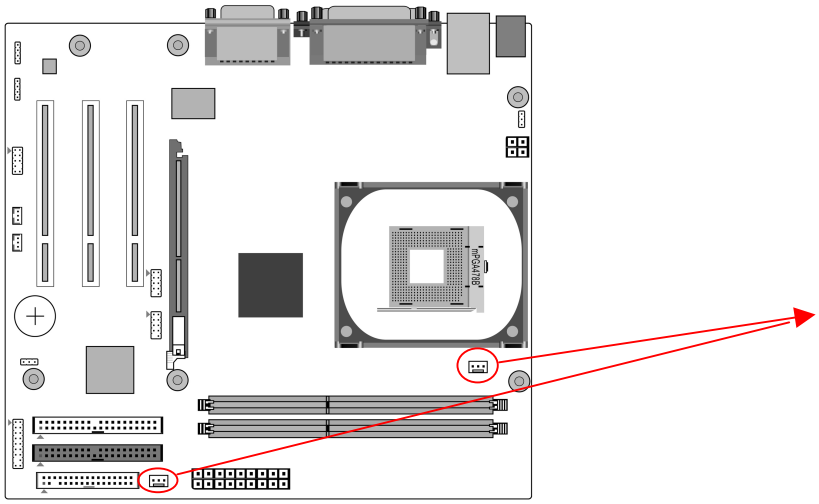


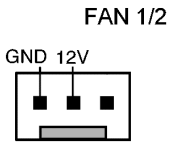
Pin	Definition
1-2	Normal (default)
2-3	Clear CMOS Data



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

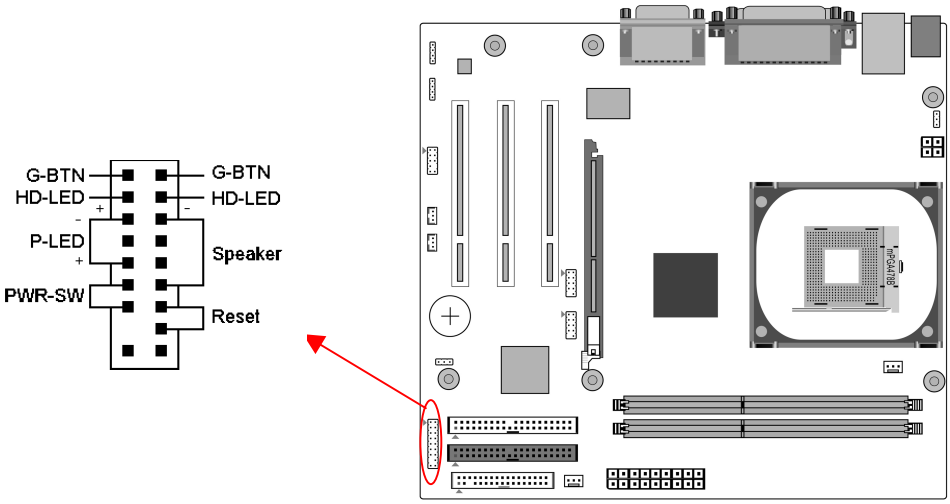
FAN1 / FAN2 (CPU/System Cooling Fan Connectors)





The board's hardware management is able to detect the CPU and system fan speed in rpm (revolutions per minute). The wiring and plugging may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal. Connect the north bridge-cooling fan to FAN2.

CN1A (Front Panel Connector)



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

   The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is idle for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to [**Delay 4 Sec.**] to activate this function.

   When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than [**4 seconds**] will switch the system completely off. See Over-ride Power Button Connector 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 orientations (i.e. Be careful not to reverse the order of these two connectors.)

3. **G-BTN** (Green Button Switch):

   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 various ways as defined from Power Management Setup screen in BIOS.

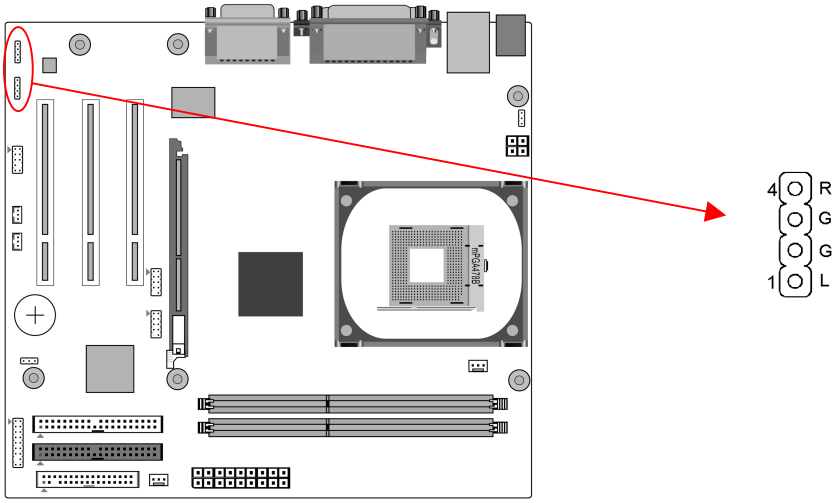
4. **RESET** (System Reset Switch Connector):

   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.

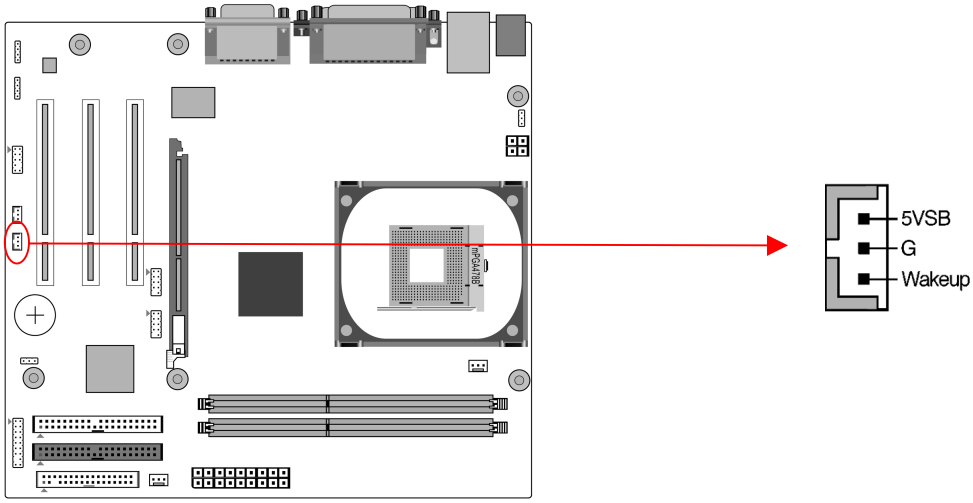
5. **SPEAKER** (Speaker Connector):
   This 4-pin connector connects to the case-mounted speakers.
6. **HD-LED** (IDE Activity LED Connector):
   The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

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



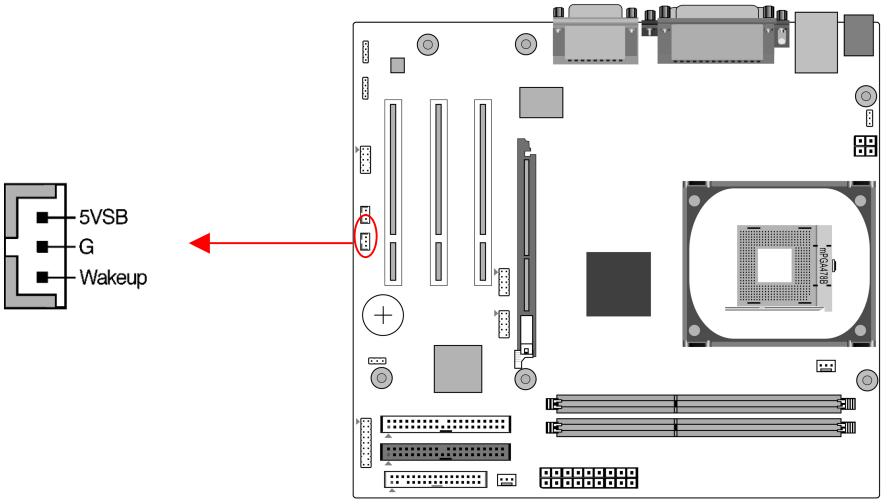
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your motherboard. This will enable audio functions of the CD-ROM player.

CN5 [WOM (Wake-on-Modem) Connector]



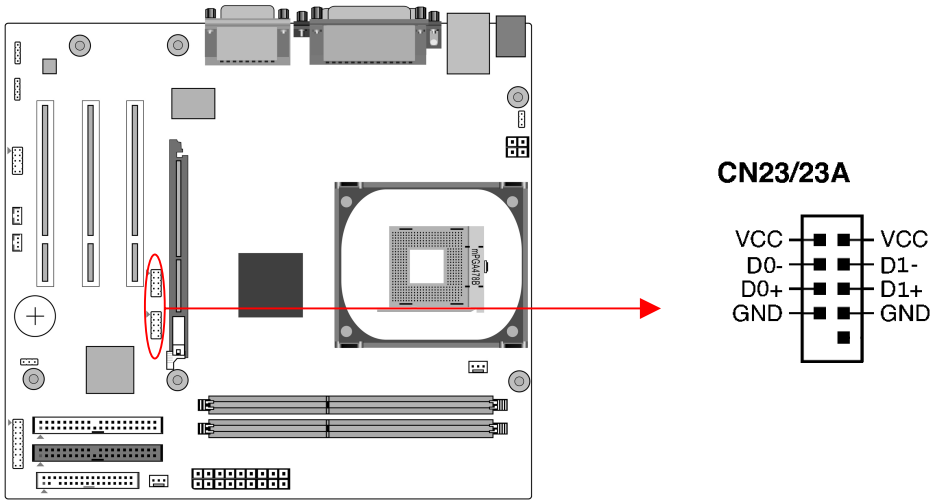
Enable the Wake Up On Modem selection in BIOS's Power Management Menu to use this function. This header is used to connect an add-in modem card, which provides WOM function to the motherboard.

CN5A [WOL (Wake-on-LAN) Connector]



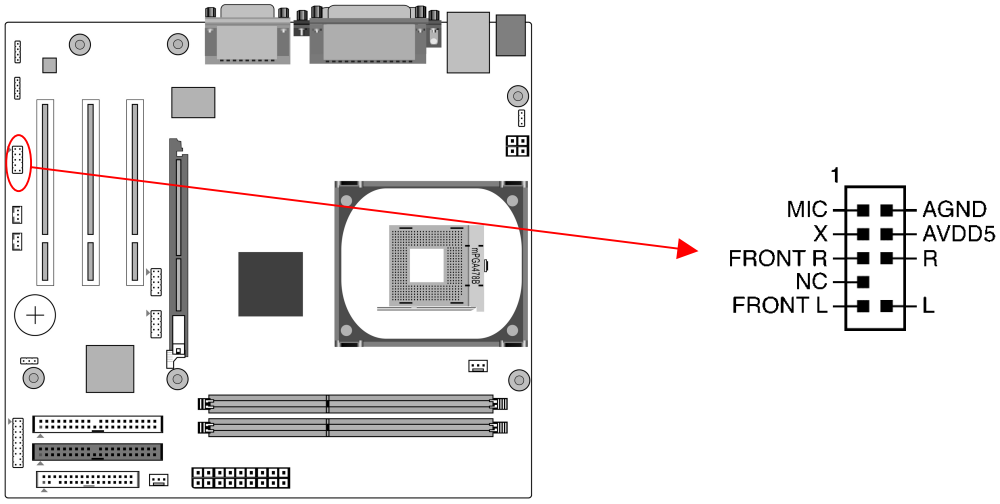
Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The ability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed with WOL function to LAN controllers. This header is used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

CN23 / 23A (USB Connector for USB 0/1, 4/5)



If you want to use an USB Keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3). This board contains an USB Host controller, and a root hub with two connectors is also included for an optional USB Adaptor (USB 0/1; 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 pins [**5-6**] and [**9-10**] then plug it into the (optional) cable ext. connector. Pins [**5-6**] and [**9-10**] are shorted (default) to enable the back panel audio function.

Chapter 3 BIOS Setup Program

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

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

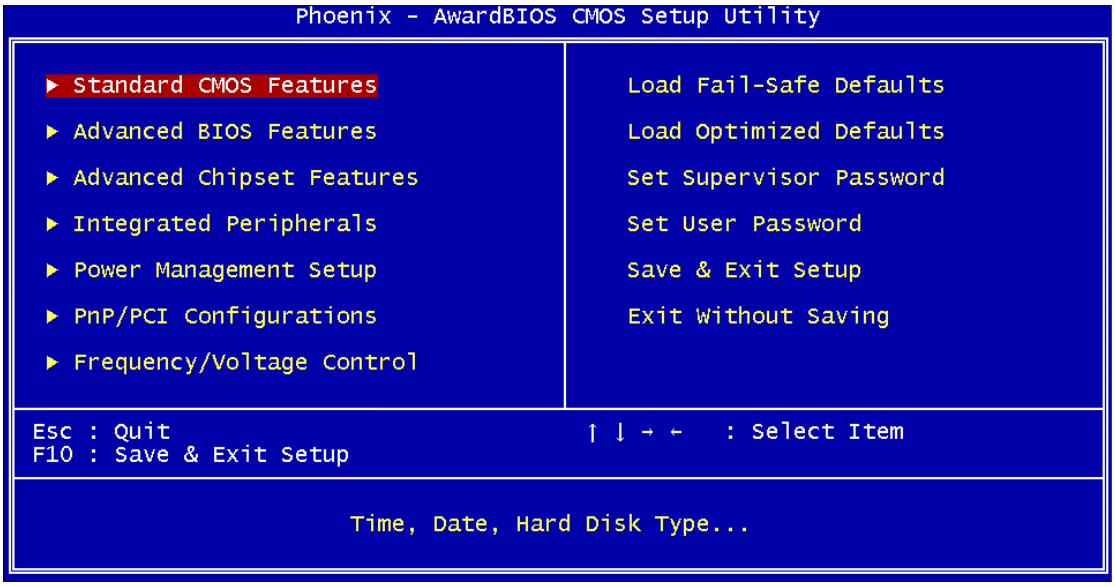


Figure 3-1 Setup Program Initial Screen

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

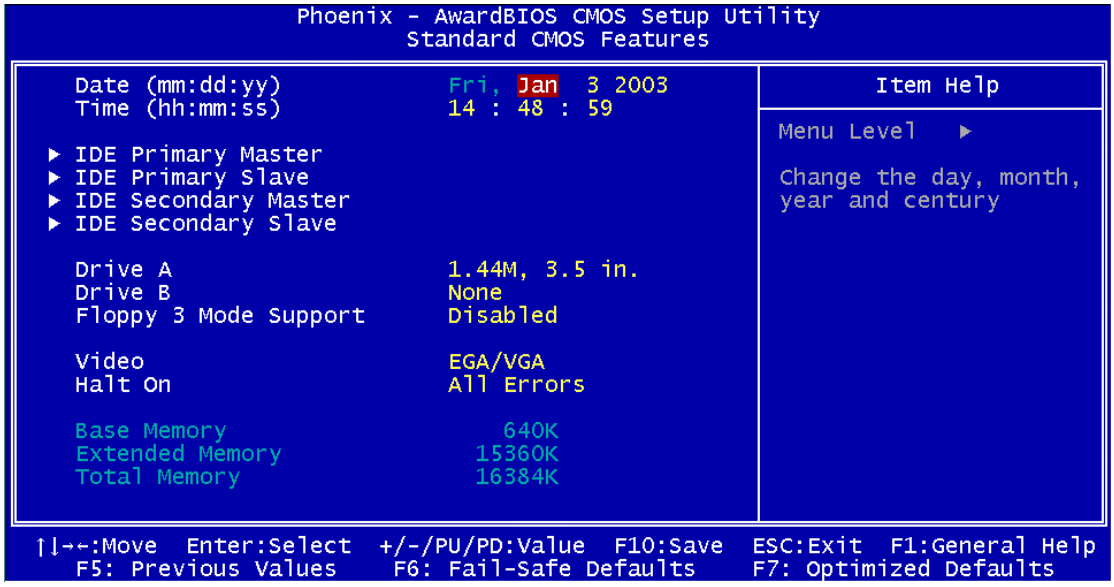


Figure 3-2 Standard CMOS Feature Screen

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 models. 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].

Floppy 3 Mode Support

This is required to support older Japanese floppy drives. The Floppy 3 Mode feature allows reading and writing of 1.2MB (as opposed to 1.44MB) on a 3.5-inch diskette.

Video

Select the types of video adapter presented 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 that lists the manufacturer's default values for the motherboard is displayed below.

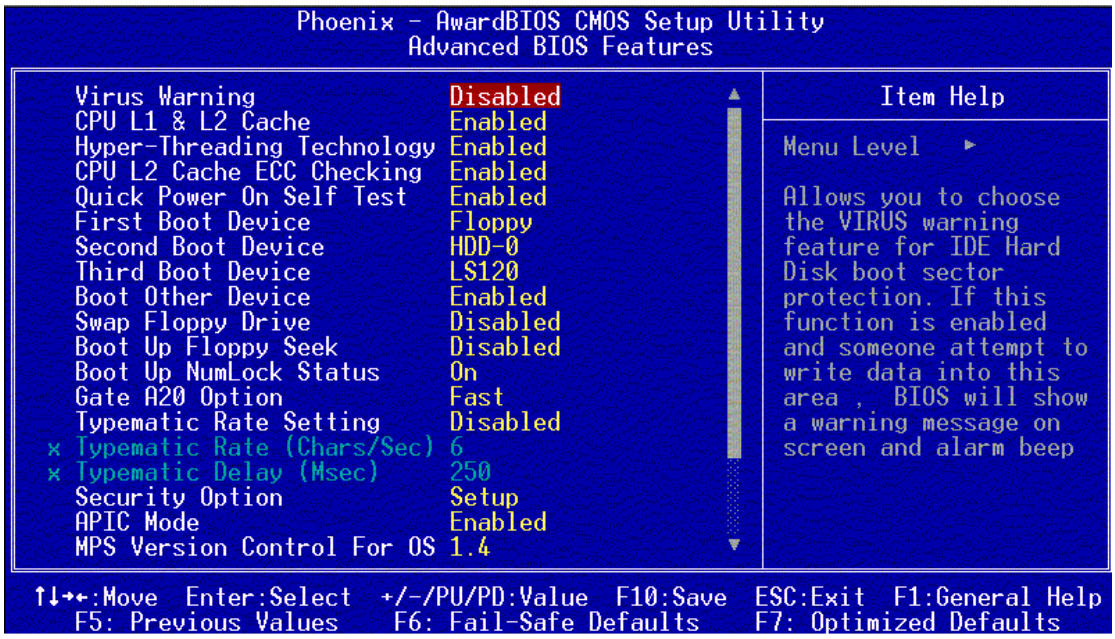


Figure 3-3 Advanced BIOS Feature Screen

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 L1 & L2 Cache

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

CPU L2 Cache ECC Checking

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

Quick Power On Self Test (POST)

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

First/Second/Third/Boot Other Device

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

Swap Floppy Drive

Enabling this option will allow you to swap between two drives.

Boot up Floppy Seek

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

Boot Up NumLock Status

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

Gate A20 Option

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

Keyboard Interface

1. Typematic Rate Setting

   When enabled, you can set the following two-typematic control items. When disabled, the keyboard controller determines keystrokes arbitrarily in your system.
2. Typematic Rate (Chars/Sec)

   The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.
3. Typematic Delay (Msec)

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

Security Option

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

APIC Mode

In order to comply with PC2001 standard, the system is designed to run in APIC (**Advanced Programmable Interrupt Controller**) mode. Enabling APIC mode will increase the available IRQ resources for the system. Available options are [**Enabled**] and [**Disabled**].

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 that is supported by your operating system. To find out which version to use, consult the vendor of your operating system. Available options are [**1.4**] and [**1.1**].

OS Select For DRAM > 64MB

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

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

S.M.A.R.T. or Self-Monitoring, Analysis, and Reporting Technology enables a drive's internal status to be monitored via diagnostic commands. The hard drives must support it and this function must set to Enabled in order to take advantage of this function. See brochures that come with your hard drive for more information.

Show POST CODE

Available options: Disabled and Enabled.

Video BIOS Shadow

Enabling this function will allow Graphic card’s BIOS setting to be mirrored onto the RAM .For a better performance, leave the default setting as Enabled.

Small Logo (EPA) Show

This setup allows photo that is EPA. Logo.

3-3 Advanced Chipset Features

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

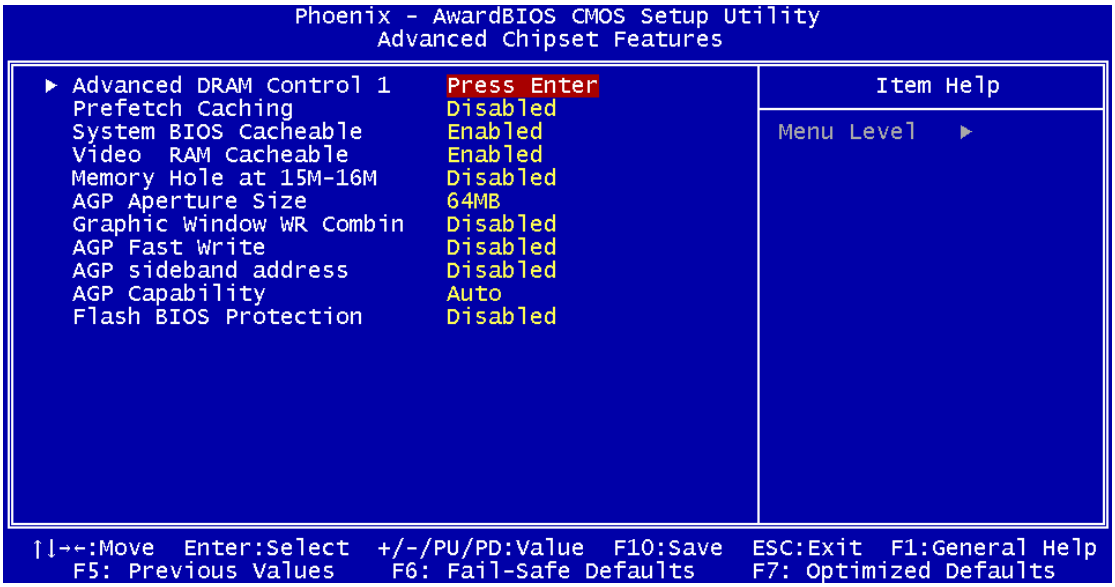


Figure 3-4 Advanced Chipset Features Screen

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 is lengthy, highly technical and beyond the scope of this manual. Below are some abbreviated descriptions of the functions in this setup menu.

Advanced DRAM Control 1

The function allows you to enable or disable the DRAM timing control by SPD. When set to Manual, you can select the RAS Precharge Time(tRP), RAS Active Time(tRAS), RAS to CAS Delay(tRCD), CAS Latency Setting, and DRAM Addr/Cmd Rate.

1. RAS Precharge Time(tRP):

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

2. RAS Active Time(tRAS):

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

3. RAS to CAS Delay(tRCD):

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

4. CAS Latency Setting:

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

5. DRAM Addr/Cmd Rates:

   This item controls the DRAM Addr/Cmd Rates. Available options are: [**AUTO**], [**1T**] and [**2T**].

Prefetch Caching

Enabling this function will advance the reading and writing efficiency of cache I/O.

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, it will result in system errors. It is advisable to leave this setting in default value. 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.

Memory Hole at 15M-16M

Enabling this function will reserve a 1MB memory space for ISA card usage. It is advisable to leave the default setting as Disabled for better performance. Available options include [**Disabled**] and [1**5M – 16M**].

AGP Aperture Size

This function determines the amount of system memory that is given to the AGP card Available options ranges from 4MB to 256MB. This is a dynamic memory allocation in that the AGP card will only use the amount of memory that it needs. The remaining unused memory is also available for system usage. For example, if 16MB is allocated to the AGP card and the card only needs 8MB, the remaining 8MB will be available for system usage.

Graphic Window WR Combin

It refers to the Write Combine Function of the MTRR Program for P6 class CPUs (for example Pentium Pro & II). It enhances 3D Graphic performance. Available options: Disable/Enable.

AGP Fast Write

Select [**Enabled**] to allow Fast Write Protocol of AGP.

Not all AGP cards support fast write.

AGP sideband address

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

AGP Capability

This function allows you to select the mode of the onboard AGP slots. Available options are: [**Auto**], [**2X**] and [**4x**].

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 the peripheral devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the screen that lists the manufacturer's default values for the motherboard is displayed below.

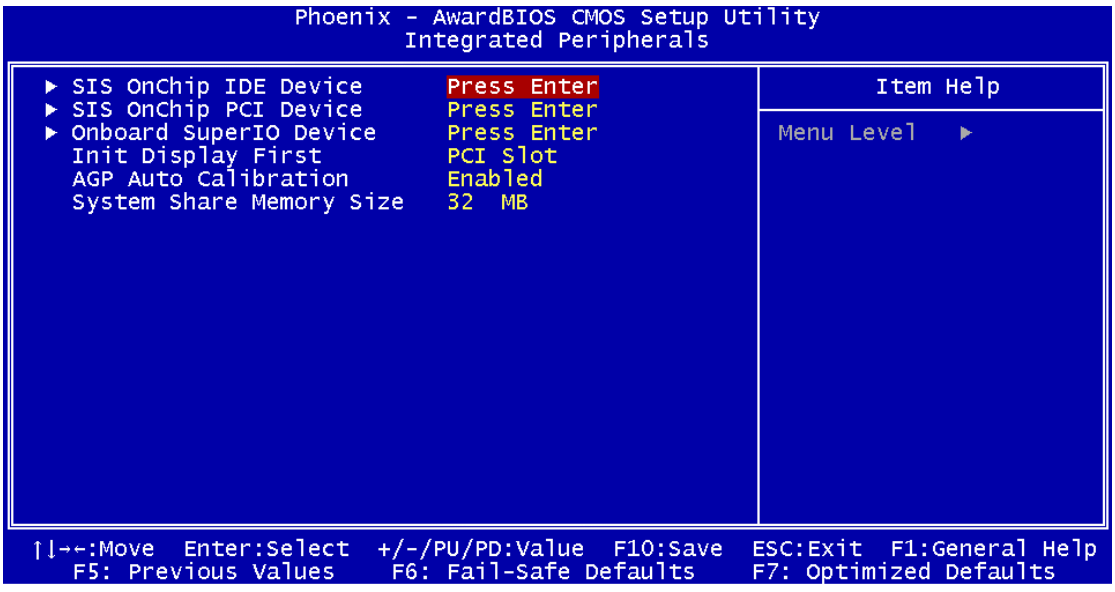


Figure 3-5 Integrated Peripherals Screen

SiS OnChip IDE Device

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

1. **Internal PCI/IDE**

   This field allows you to enable either the primary IDE channel or secondary IDE channel, or both.

2. **IDE 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 UltraDMA**

   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 Burst Mode**

   Enabling this function will accelerate data transfer.

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.

6. **IDECH0/1 Access Interface**

   Select option [**EDB Bus**] will improve the efficiency. Available options are: [**EDB Bus**] and [**PCI Bus**].

SiS OnChip PCI Device

This section provides information for setting the OnChip PCI Devices. Press [**Enter**] to enter the sub-menu, which contains the following items for advanced control:

1. **SIS USB Controller**

   This feature allows you to enable or disable USB controller.

2. **USB Ports Number**

   This option allows you to adjust the port numbers of USB. Available options are: [**6Ports**], [**5Ports**], [**4Ports**] and [**3Ports**].

3. **USB 2.0 Supports**

   Enabling this option to activate the USB 2.0 function.

4. **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.

5. **SIS AC97 Audio**

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

6. **SIS 10/100M ETHERNET**

   This option allows you to enable or disable the on-board LAN.

7. **USB 0/1/2/2.0 Access Interface**

   Select option [**EDB Bus**] will improve the efficiency.

8. **MAC Access Interface**

   Select option [**EDB Bus**] will improve the efficiency.

9. **Audio Access Interface**

   Select option [**EDB Bus**] will improve the efficiency.

Onboard Super IO Device

This section provides information on setting the Super I/O device. Press [**Enter**] to enter the sub-menu, which contains the following items for advanced control:

1. **Onboard FDC Controller**

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

2. **Onboard Serial Port 1**

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

3. **Onboard Parallel Port**

   Select a logical LPT port address and corresponding interrupt for the physical parallel port. Available options are [**378/IRQ7**], [**278/IRQ5**], [**3BC/IRQ7**], and [**Disabled**].

4. **Parallel Port Mode**

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

5. **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.

6. **Game Port Address**

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

7. **Mini Port Address**

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

8. **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 and PCI slot to initialize display.

AGP Auto Calibration

Available options: Disable/Enable.

System Share Memory Size

This feature sets the size of shared memory for VGA graphic data.

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 that lists the manufacturer's default values for the motherboard is displayed below.

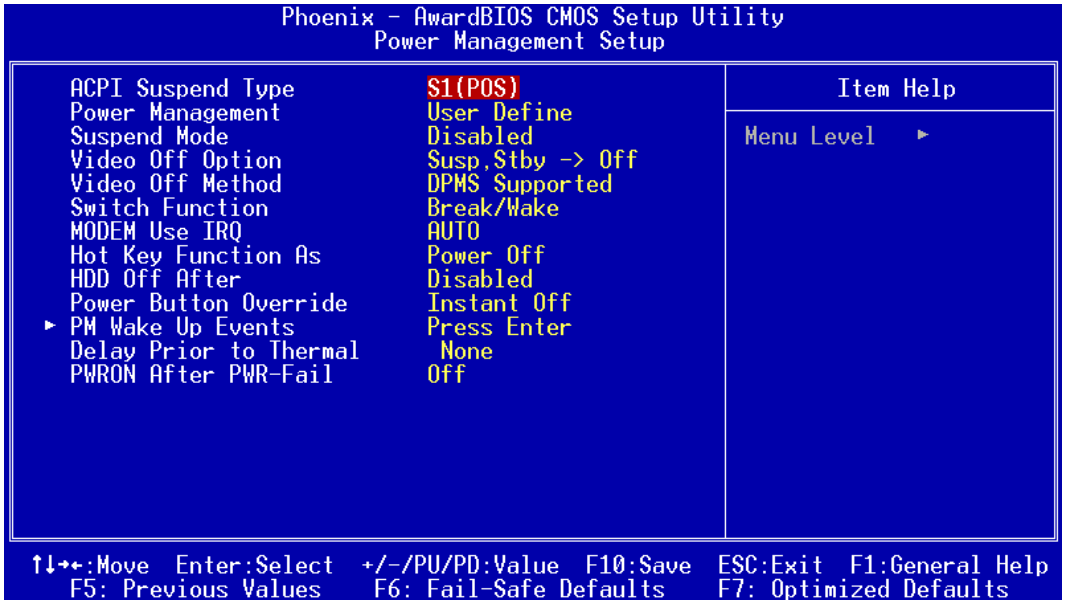


Figure 3-6 Power Management Setup

ACPI Suspend Type

This feature allows user to select a suspend type for the operating system to turn off unused peripherals devices such as CD-ROM players.

Power Management

Power management saves electricity under power- saving modes while the system is idle.

Suspend Mode

The Power Management function is set as [**Enabled**] to activate this function. If the system runs in Standby mode and the Suspend timer expires, all devices regulated by power management will shut down and the CPU speed will be 0 MHz.

Video Off Option/Method

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

1. **Blank Screen** - BIOS will switch the monitor's screen to blank. 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 a screen saver and a power saver.
3. **DPMS** - 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.

Switch Function

Available options: [**Disable**] and [**Break/Wake**]

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 activate the system on order to perform tasks. This assignment is compliant with the APM 1.2 operating systems.

Hot Key Function As

This controls the hot keys that you use to power on/off the system.

HDD Off After

Shuts down any IDE hard disk drives in the system after an idle period. This feature does not affect SCSI hard drives.

Power Button Override

When set to Delay 4 Sec., this will leave the system in Suspend, which is a power saving mode when the power button is pressed. 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.

PM Wake up Events

1. **IRQ [3-7,9-15],NMI/IRQ & Break Suspend:**
   [**Enable**] the IRQ will allow the system to stay awake/online if any activity or signals passed these IRQ. [**Disable**] the IRQ will allow the system to go into suspend mode when signals passed these IRQ.
2. **RING/MACPME/PCIPME Power Up Control**
   This allows powering up the computer system in Soft-off mode when the external/internal modem receives a call.
3. **USB Port Wake Up Control**
   It allows USB (2/3) ports to activate the system.
4. **PS2KB/PS2MS Wakeup from S3/S4/S5**
   It allows PS/2 keyboard or mouse to activate the system.
5. **Power Up by Alarm**
   When enabled, this setting allows the system to turn back on at a designated date 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 is used to turn off the computer.
6. **Primary/Secondary IDE**
   [**Enable**] this option will affect the suspend function of your system.
7. **FDD, COM, LPT Port**
   When enabled, this option will affect the suspend function of your system.
8. **PCI PIRQ [A-D]＃**
   Enabling this option will affect the suspend function of your system.

Delay Prior to Thermal

Available options: None, 1, 2, 4, 8, 16, 32, and 64 min.

PWRON After PWR-Fail

Available options: Off, On, and Former-Sts(Former Status).

3-6 PNP/PCI Configurations

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

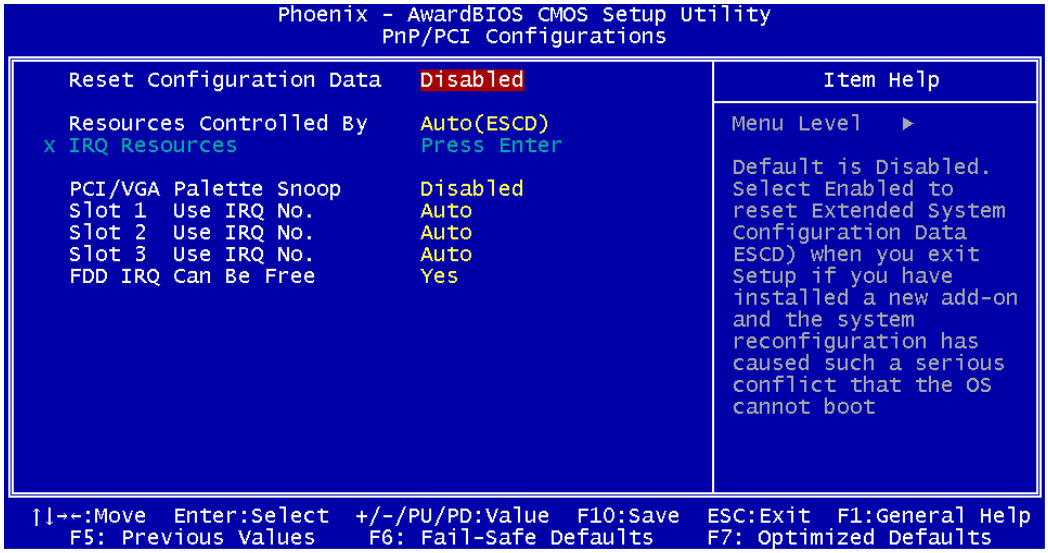


Figure 3-7 PNP/PCI Configurations

Reset Configuration Data

If you want to reset CMOS IRQ division hardware device, please select [**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 CPU to 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**].

3-7 Frequency/Voltage Control

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

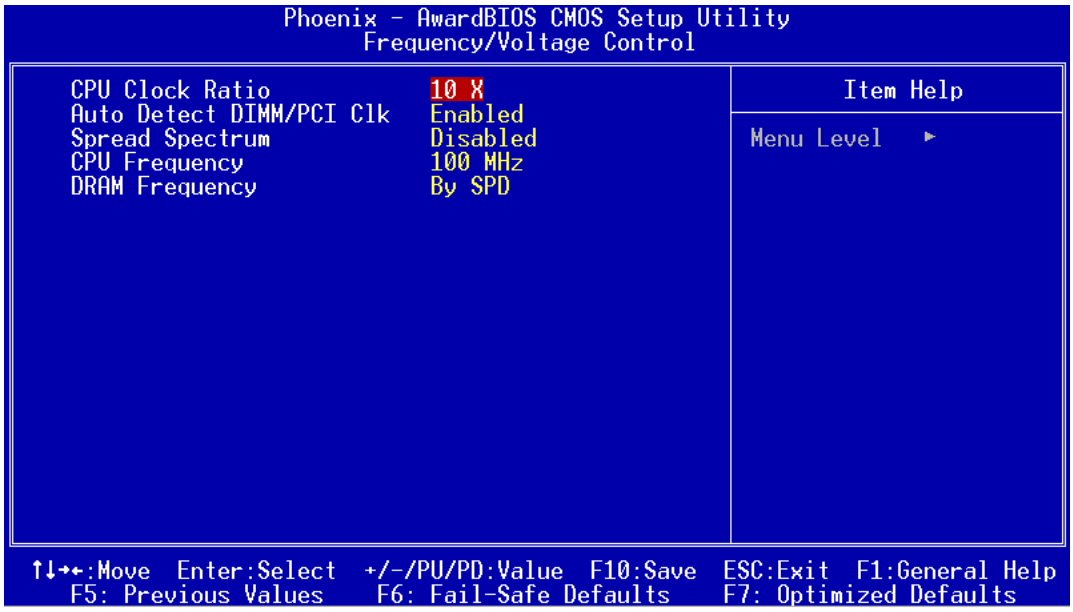


Figure 3-8 Frequency/Voltage Control

CPU Clock Ratio

This feature allows user to manually configure your CPU clock ratio according to your processor's specifications.

Auto Detect DIMM/PCI Clk

Enabling this option to allow DIMM/PCI to automatically detect its Clock.

Spread Spectrum

Options: Enabled/Disabled.

CPU/DRAM Frequency

This feature allows the system memory to run at CPU clock speed. The default setting is 100Mhz.

This motherboard can support memory overclocking up to 353 MHz, provided that, the CPU clock must be set to run at 133Mhz FSB.

Overclockability:

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.

3-8 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the CMOS Setup Utility menu (Figure3-1). If user-defined BIOS settings are corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

3-9 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the CMOS Setup Utility menu (Figure3-1). If user-defined BIOS settings are corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

3-10 Supervisor Password & User Password Setting

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

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

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

3-11 Save and Exit Setup

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

3-12 Exit Without Saving

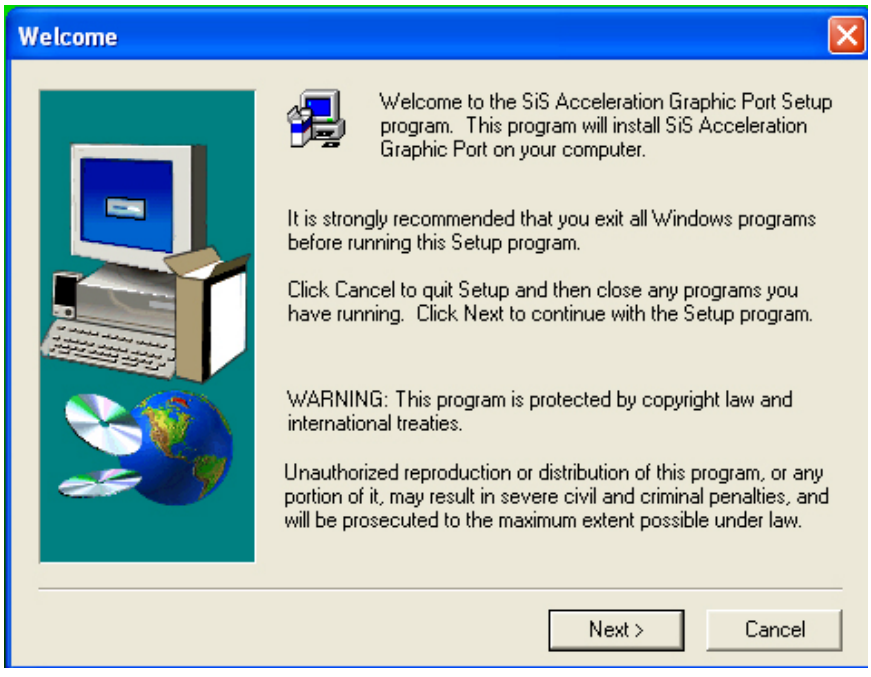
Selecting this option and pressing [**Y**] followed by [**Enter**] lets you exit the Setup program without recording any new values or changing old ones.

Chapter 4 Driver Setup

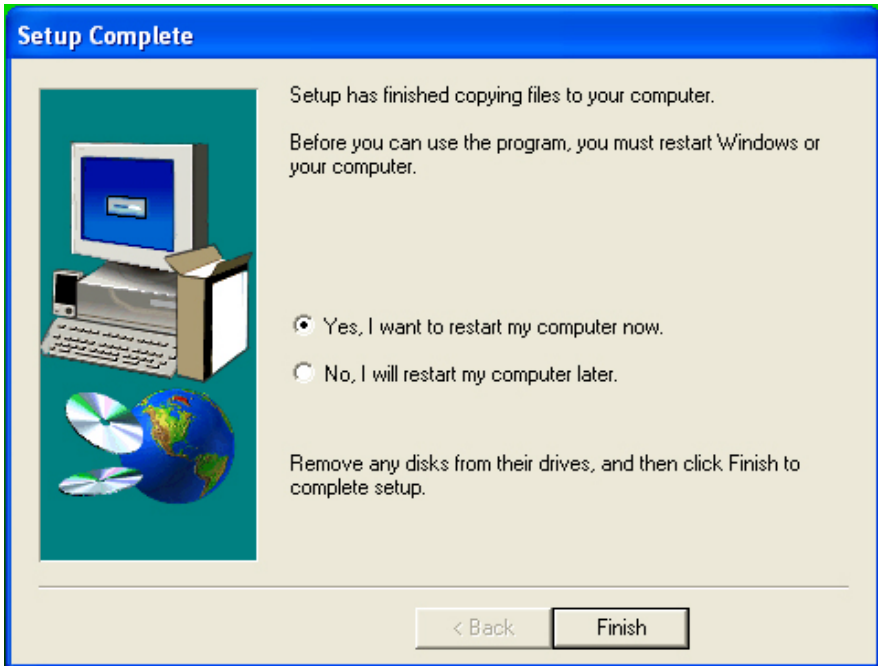
Insert the support CD that come with your motherboard into your CD-ROM driver or double-click the CD drive icon in [**My computer**] to enter the setup screen.

4-1 SiS AGP Driver

1. Select [**SiS AGP Driver**].
2. Click [**Next>**] to begin installation.



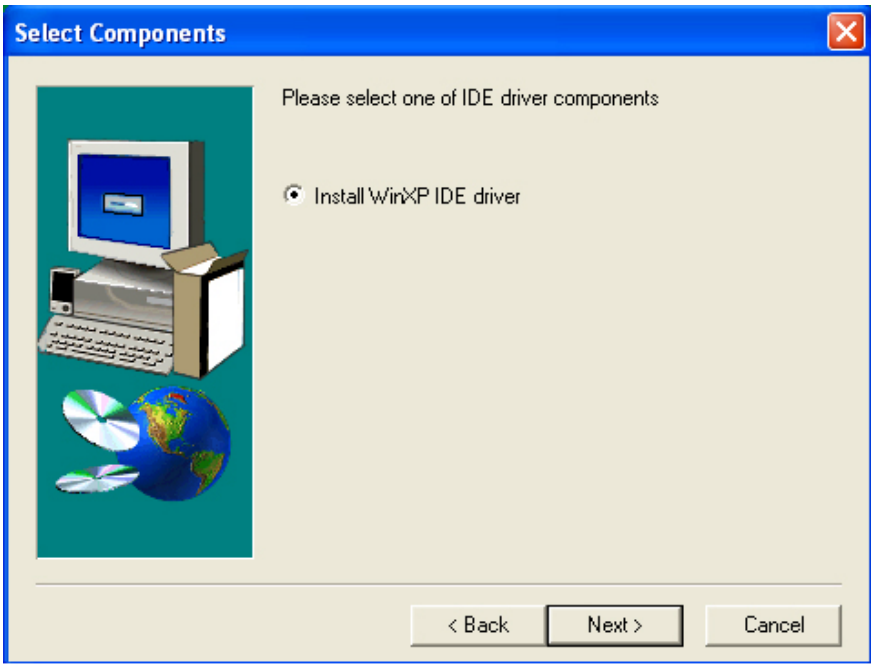
3. Please select [**Yes**] to restart computer now or [**No**] to restart later, and then click on [**Finish**] to complete the installation.



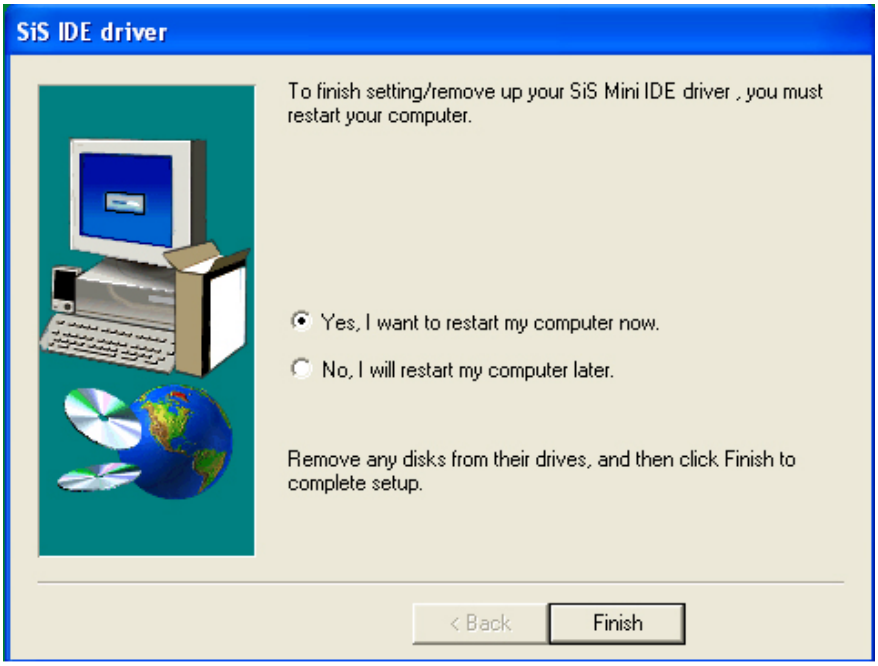
4-2 SiS IDE Driver (Windows 2000/Windows XP only)

1. Select [**SiS IDE Driver**].
2. Click [**Next>**] to begin installation.

3. Click [**Next>**] to continue installing SiS IDE Driver.

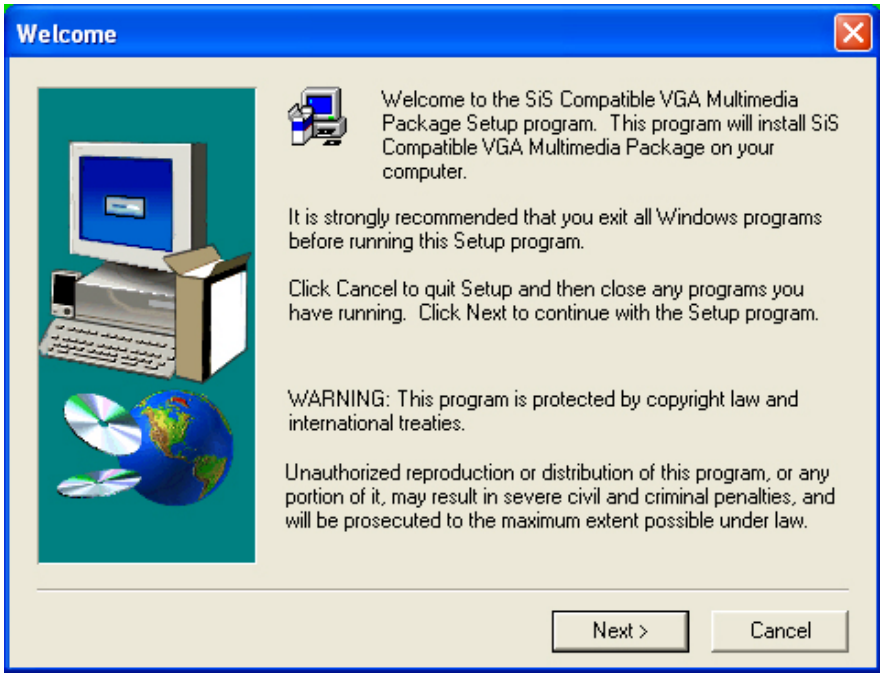


4. Please select [**Yes**] to restart computer now or [**No**] to restart later, and then click on [**Finish**] to complete the installation.

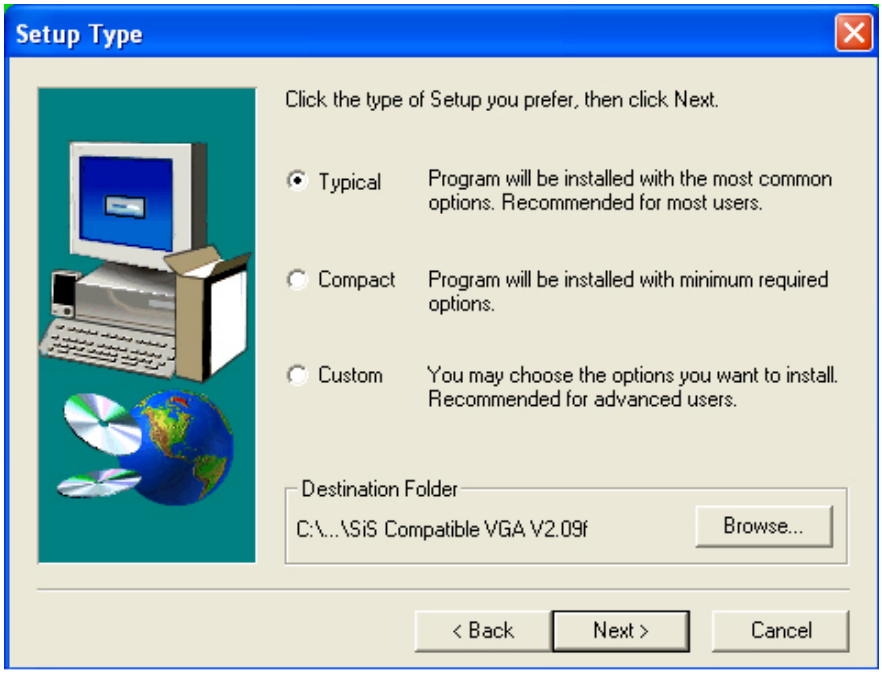


4-3 Video Application

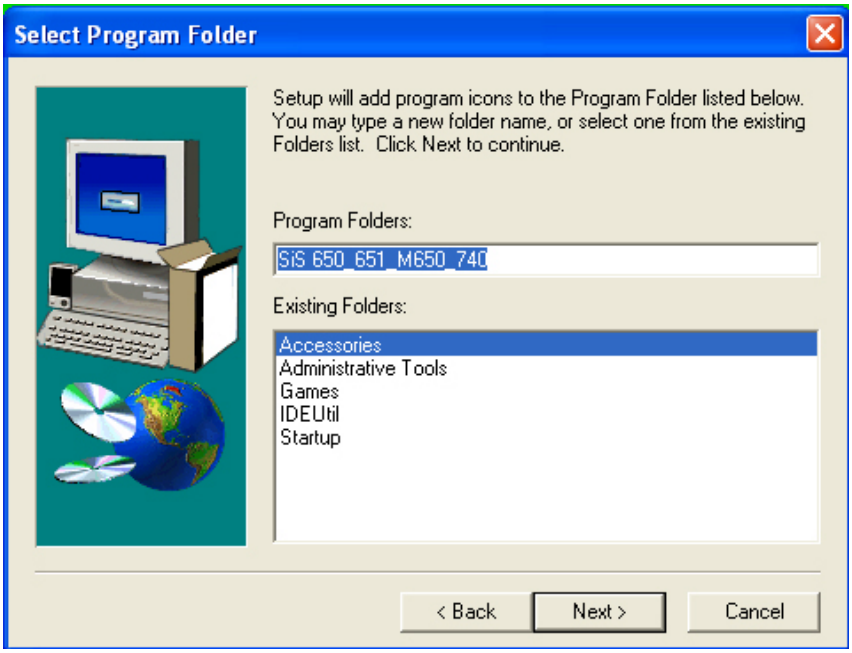
1. Select [**Video Application**].
2. Click [**Next>**] to begin installation.



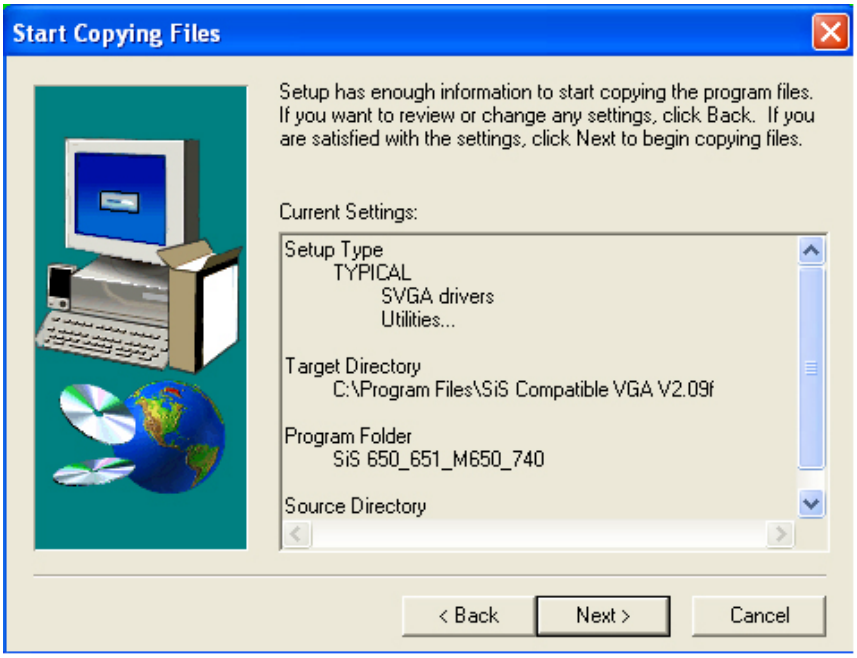
3. Select setup type as either [**Typical**], [**Compact**] or [**Custom**] and select a folder where the program will be installed. Then click [**Next>**] to continue.



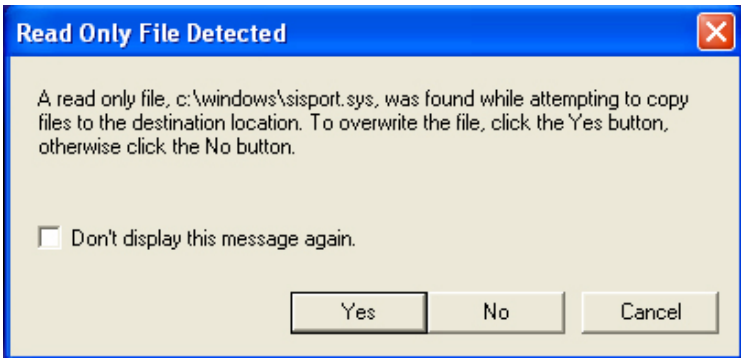
4. Please select one folder from existing list of folders and click on [**Next >**] to proceed.



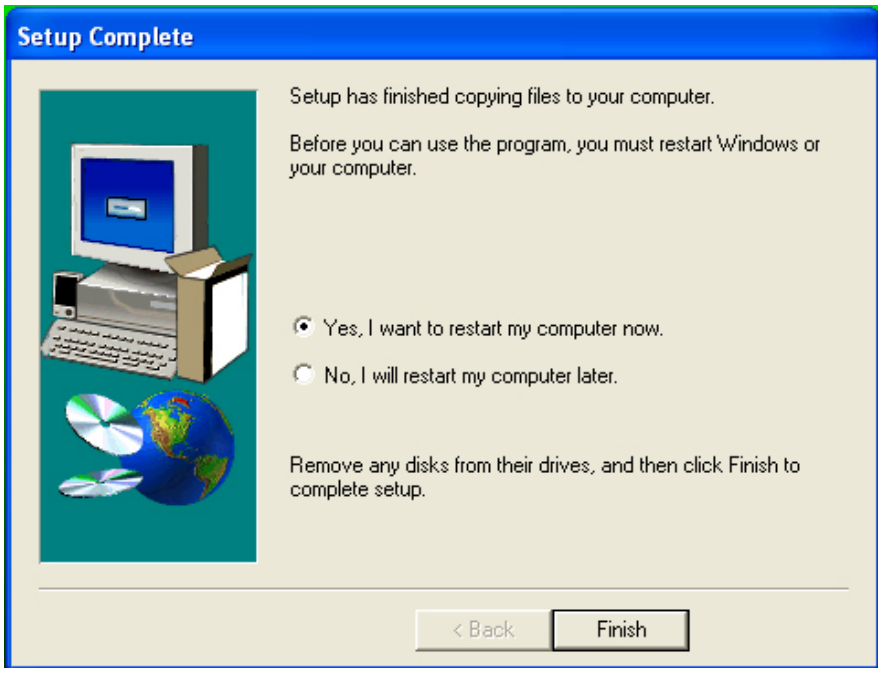
5. Click [**Next**>] to continue.



6. Click [**Yes**>] to continue installing the Video Application.

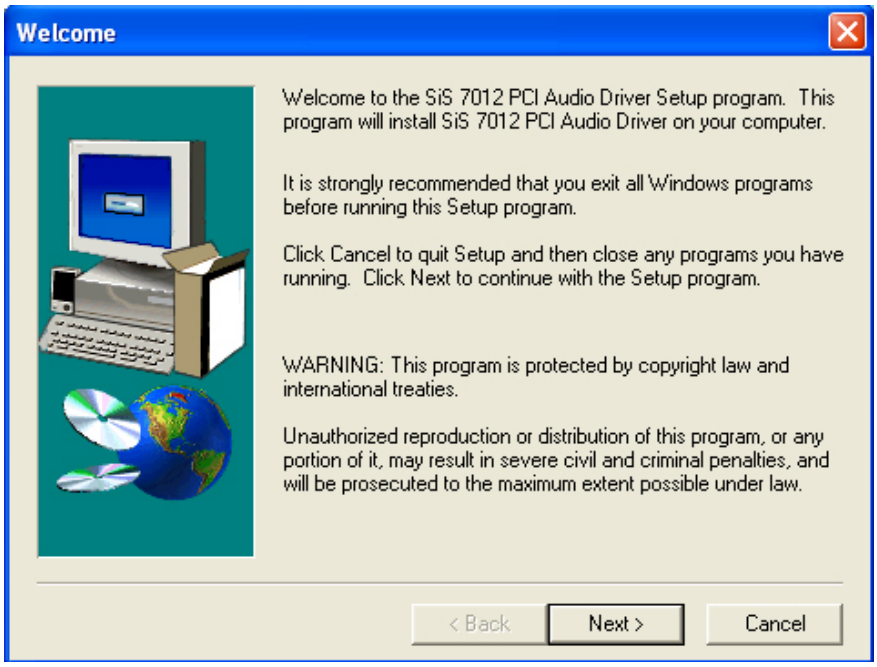


7. Please select [**Yes**] to restart computer now or [**No**] to restart later, and then click on [**Finish**] to complete the installation.

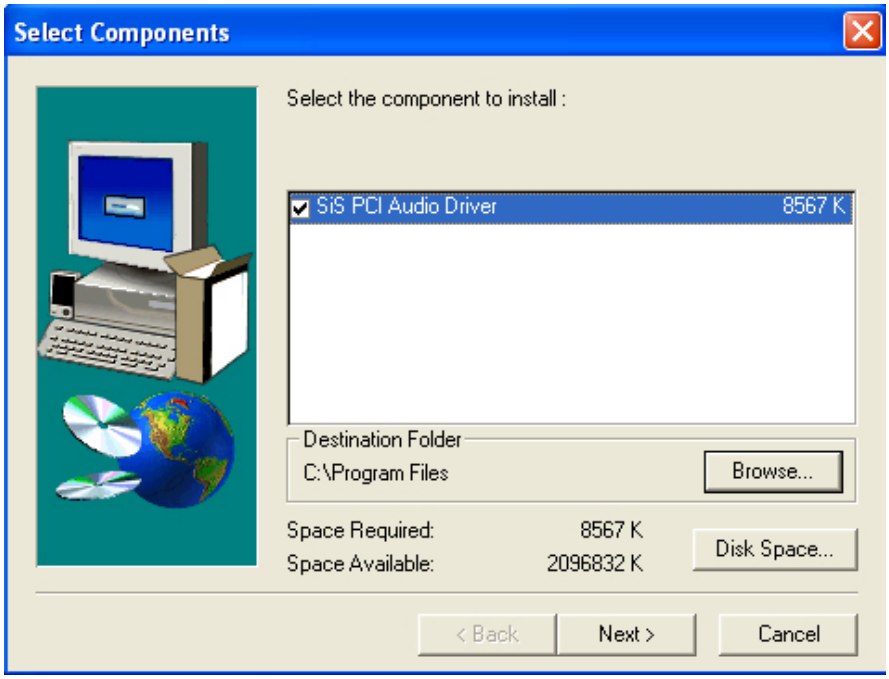


4-4 Audio Driver

1. Select [**Audio Driver**].
2. Click [**Next>**] to begin installation.



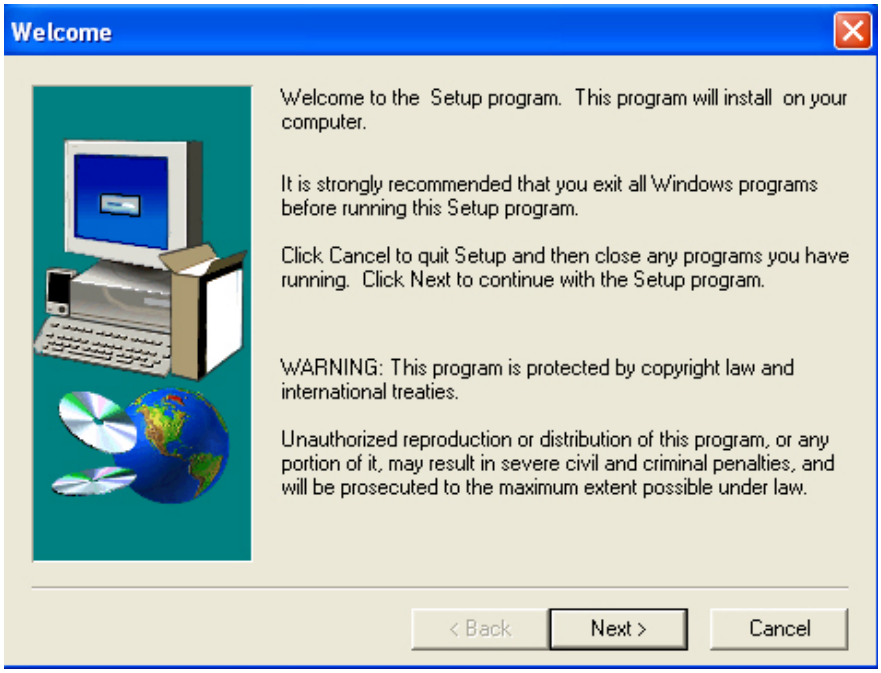
3. Check the required components and select a folder where the program will be installed. Click on [**Next >**] to proceed.



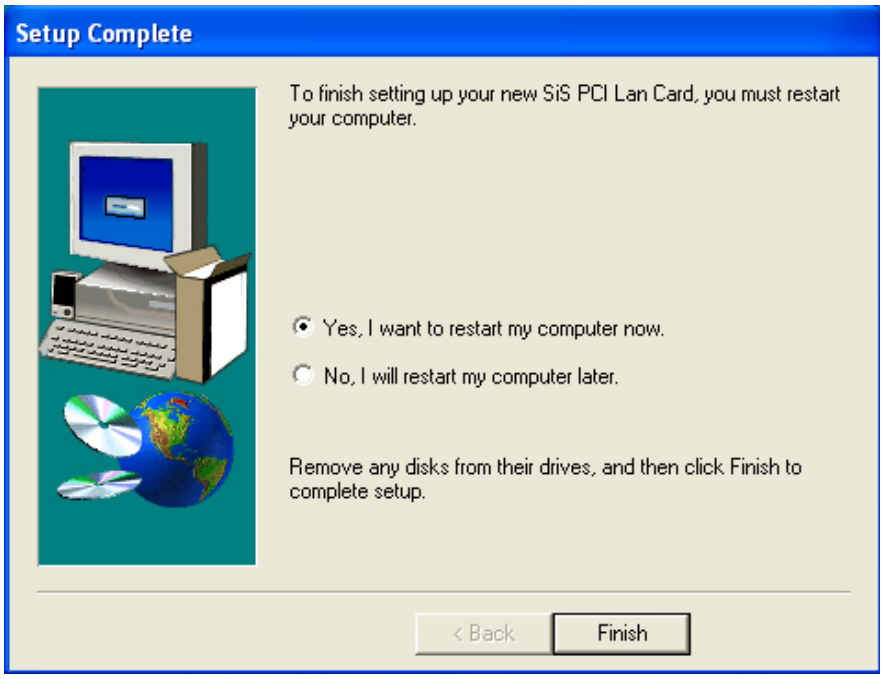
3. Please select [**Yes**] to restart computer now or [**No**] to restart later, and then click on [**Finish**] to complete the installation.

4-5 LAN Driver

1. Select [**LAN Driver**].
2. Click [**Next>**] to begin installation.

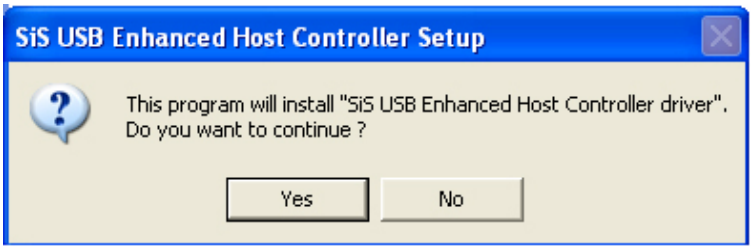


3. Please select [**Yes**] to restart computer now or [**No**] to restart later, and then click on [**Finish**] to complete the installation.

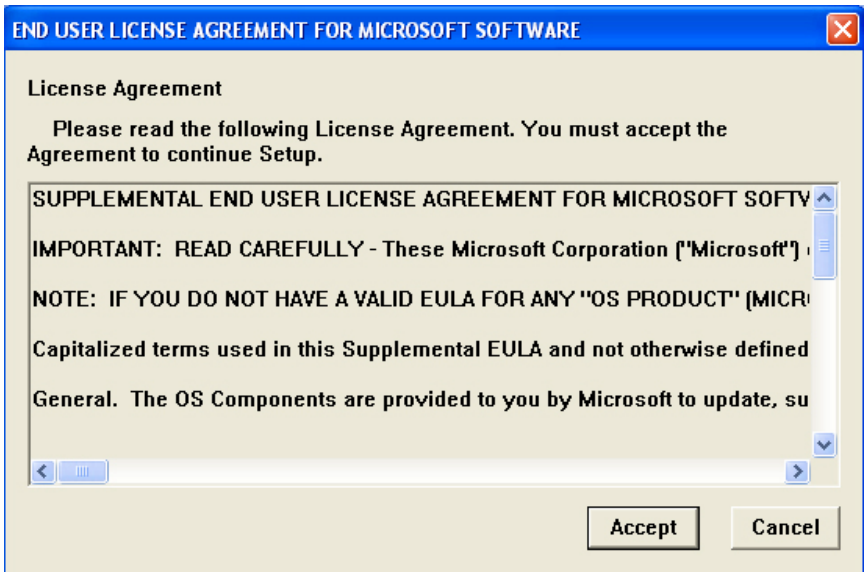


4-6 USB 2.0 Driver

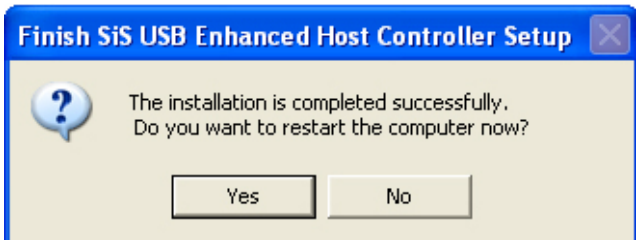
1. Select [**USB 2.0 Driver**].
2. Click [**Yes**] to continue.



3. After reading the license agreement, please click [**Accept**] to continue.



4. Select [**Yes**] to restart your computer.



Chapter 5 How to update your BIOS?

Updating BIOS may result in an unstable system since the new BIOS will replace the data of the old BIOS. Should anything go wrong during the update process, your system will end up crashed. Please refer to your supplier or manufacture for support on this matter. DO NOT UPDATE YOUR BIOS UNTIL YOU HAVE CAREFULLY READ THE FOLLOWING INSTRUCTIONS.

Update Your System BIOS

1. **Find out the exact model name of your motherboard**

   There are different updates for different versions of your motherboard. For example, the 9SIF0 uses different BIOS to the one for 9SIF1. You will need to know whether your motherboard is a `0` or `1` version (or higher). You can find out the model name, which is written between or around one of the PCI slots on the motherboard.

2. **Obtain the latest BIOS update.**

   Obtain the latest BIOS update from supplier or from the manufacture. You can refer to their website for the latest version of BIOS.

3. **Use the correct FLASH utility**

   The FLASH utility has many versions. It is recommended to use the version that came with your motherboard. Only when you experience problems updating the BIOS or if you do not have the FLASH utility, then you should download one of the versions available on the Internet.

4. **Disable the FLASH BIOS Protection in the BIOS**

   Some motherboards have [**Flash BIOS Protection**] option in the BIOS [**CHIPSET SETUP**]. Please [**Disable**] the option before attempting to update the BIOS.

5. **Unpack the BIOS Update file**

   The file you downloaded in step 2. is most likely to be an executable file. (*.EXE) You can only update your BIOS using a binary file (*.BIN). Unpack the file by double-click on it. The file should automatically unpack into a binary file.

6. **Startup your system under DOS without any TSR's installed**

   The FLASH utility can only work well when there are no memory drivers or other TSR`s installed. It is recommended to start up your system from a floppy disk, (run *FORMAT A: /S* under DOS to create a start up disk which only has the system COMMAND.COM); or press F8 to bypass the AUTOEXEC.BAT and CONFIG.SYS startup files.

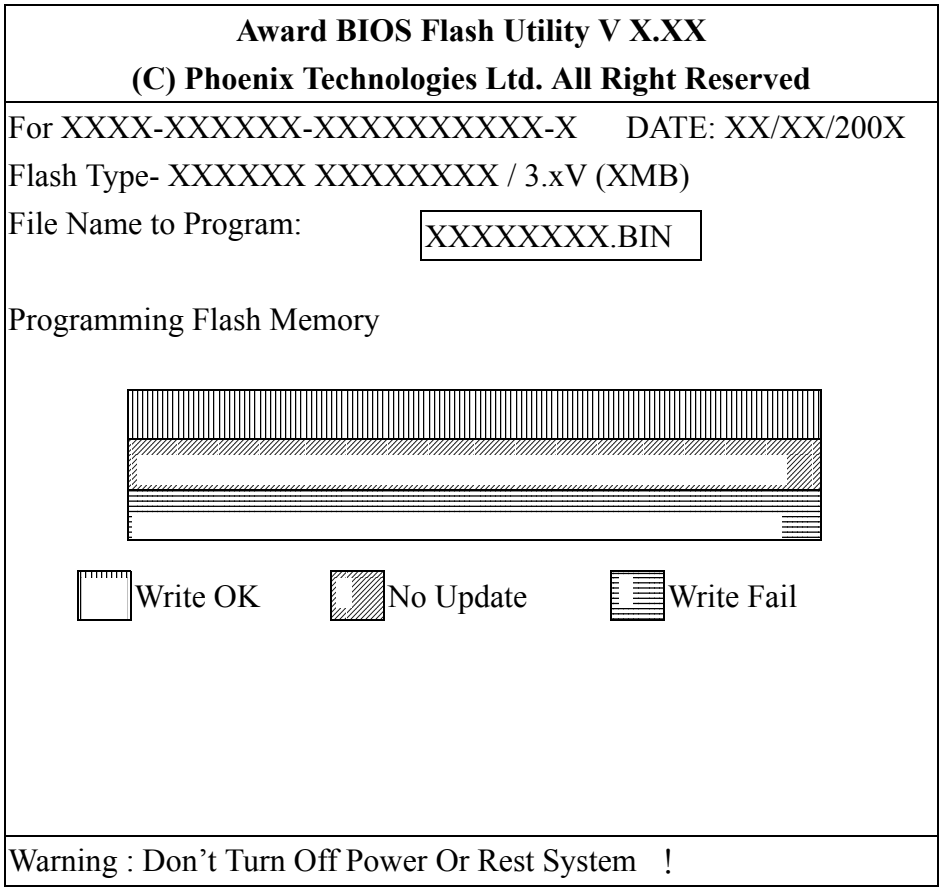
7. **Run the FLASH utility**

   Make sure the BIOS update binary file is in the same directory as the FLASH utility. Remember the exact name of the BIOS update file. (Please pay attention to `0`(zero) and o (letter `O`)). Then run the flash utility.

On the screen the program will ask for the [File Name to Program]. Type in the exact name of the BIOS update binary file, including the *.BIN, and press [**ENTER**]. The program will now ask you if you want to save your current BIOS version. Choose [**ENTER**] and type a filename for your current BIOS version, for example OLDBIOS.BIN.

Press [**ENTER**] and the program will save the current BIOS data to your current path. Now the program will ask you to confirm whether you wish to update the BIOS using the file you mentioned earlier. Press [**Y**] to confirm.

The update process will now begin. Screens below that indicate the progress of the updating process will appear.



8. **Wait until the system finishes the updating process and the message: [*Please Power Off Or Reset System!*] appears.**

Now you can power off your system. Wait for a few seconds and turn on your system again. You should now be able to see the new BIOS date code appears on the left upper corner of the screen.

NOTE

How To Contact CHAINTECH

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

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