Motherboard 4S648FX/4S648FXN

Chapter 1
4S648FX/4S648FXN

1.4S648FX/FXN Specifications

1.1 Introduction

The 4S648FX/4S648FXN motherboard is an integration of Intel P4 CPUs in Socket-478 packaging and the North Bridge SiS648FX supporting 800/533/400 MHz Front Side Bus.

North Bridge SiS648FX on board also supports DDR 400/ 333/266/200 DRAMs and the integrated AGP 8X/4X Interface, while the South Bridge SiS963L provides stable supports of ULTRA ATA 133/100, 6-channel Audio playback, integrated Digital Audio Controller, LPC Super I/O, USB 2.0/1.1 interfac. PCI interface as well as integrated 10/100Mbit Fast Ethernet LAN Controller.

The resulting architecture will provide an ideal multi-task environment to support operating systems such as MS-DOS, Windows, Windows NT , Windows ME, Windows 2000, Novell, OS/2, Windows 95/98, Windows 98SE, Windows XP, UNIX, Liunx, SCO UNIX etc. This user-friendly manual is to describe in detail how to install, configure and use this motherboard with drivers and BIOS setup illustrations.

This manual is a general reference of the first release of this motherboard which is subject to update without notice. If any difference is found between this manual and the motherboard you are using, please refer to the Web Site.

1.2 Package Contents

- HDD UDMA66/100 Cable.
- FDD Cable.
- Flash Memory with BIOS
- Fully Setup Driver CD with built in utilities.
- User Manual.
- I/O Shielding.

1.3 Specifications and Features

CPU Processor

| Support 533/400MHz System Interface speed.
| Single Socket 478 for Intel P4™ (Northwood Processor) 1.6A to 3.06GHz or higher*
| Support Intel Netburst™ Micro-architecture.

*** The higher frequency CPU should be compatible with Intel CPU specificiation and the motherboard latest BIOS version which will be released on the web site.**

Chipset

| SiS648FX orth Bridge, supporting 800/533/400MHz FSB and AGP 2.0/3.0 interface
| SiS963L South Bridge.

PCI

| Supports 33MHz PCI Bus speed.
| 5 x PCI slots on board

DDR SDRAM Memory

| Supporting 64/128/256/512....MB DDR module
| Supporting Synchronous 400/333/266/200MHz DDR SDRAM
| Supporting a maximum memory size of 3GB DDR SDRAM or 2GB DDR 400 in 2 DIMMs..

Note: Only DDR 400/333 supports FSB 800MHz.

Integrated LAN Controller (for 4S648FXN only)

| Supporting 10/100Mbit Fast Ethernet LAN
| Supporting 1xRJ45 Connector (for 4S648FXN motherboard only)

Universal Serial Bus

| Supporting 4 on-board Universal Serial Bus(USB) Ports and 2 external Universal serial Bus(USB) Ports.
| Supporting USB 2.0/1.1

Award BIOS

| Supporting Plug & Play specification which detects the peripheral devices and expansion cards automatically
| Supporting CD-ROM, SCSI, LAN BOOT, Temperature sensor, LAN, Alarm Bus CLK setup
| Supporting Desktop Management Interface (DMI) function for recording mainboard specification

ATA 100/133 On Board

| Supporting four IDE devices with 2 x IDE connectors
| Supporting PIO Mode 5, Master Mode, high performance hard disk drives
| Dual -channel Ultra DMA 33/66/100/133 Bus Master Mode
| Supporting IDE interface with CD-ROM
| Supporting high capacity hard disk drives
| Supporting LBA mode

PCI-Based AC 97 Digital Audio Processor

| AC 97 2.2 compatible Codec, 6-channel Audio interface.
| 18-bit Stereo Full-Duplex Codec with up to 48 KHz sampling rate
| 4 Analog Line-level Stereo inputs for connection from Line, CD, Viedo and AUX
| 2 Analog Line-level Stereo inputs for speakerphone and PC beep

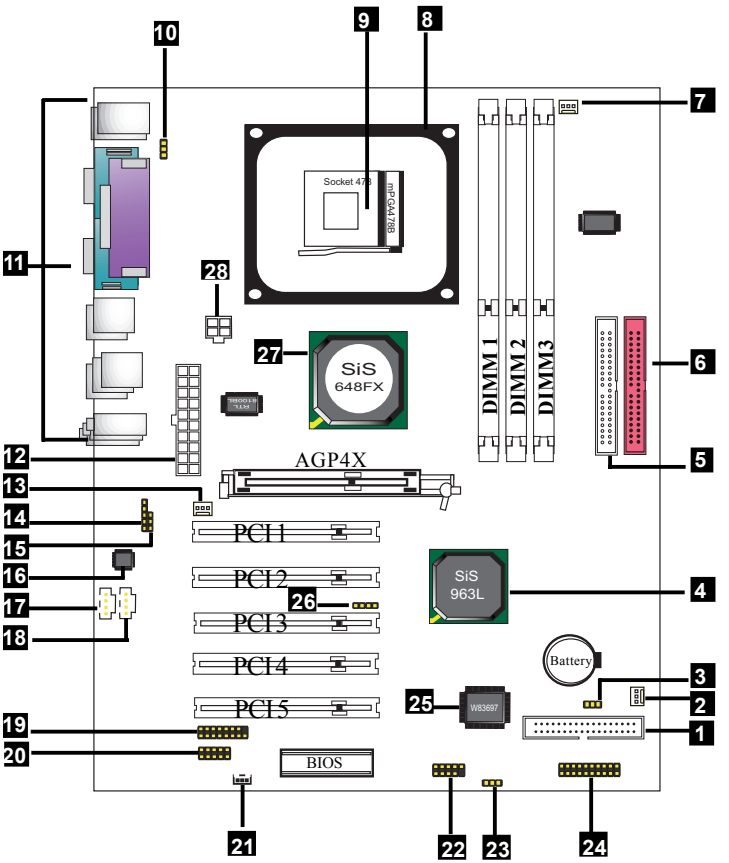
WOL (Wake On LAN)

| Supporting system power-on by LAN Ring-up signal.

AGP 4X/8X On Board

| AGP 66MHz, 1.5V for AGP4X/8X graphic card
| 1 x AGP slot supported

1.4 4S648FX/4S648FXN Layout



4S648FX/4S648FXN Component Layout Description:

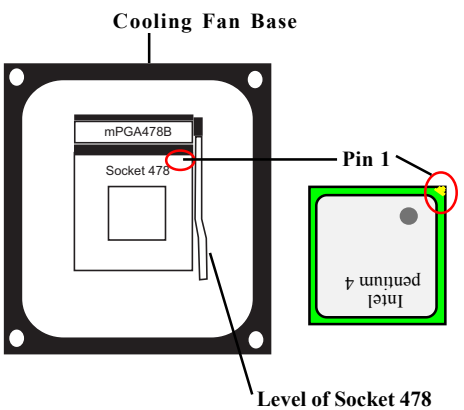
1. FDC1: Floppy Drive Connector
2. FAN3: Cooling Fan Connector
3. JP4: Jumper for clearing CMOS select
4. South Bridge SiS963L
5. IDE1: IDE Connector
6. IDE2: IDE Connector
7. FAN1: CPU Cooling Fan Connector
8. CPU Fan Base
9. Socket 478 for P4 CPU
10. JP5: Jumper for Keyboard/Mouse Wake-up function
11. Back Panel: Back Panel I/O Connectors (Mouse, Keyboard, COM1, COM2, Printer, USB2, USB1, Mic in, Line in, Speaker-out, RJ45 (for 4S648FXN motherboard only)
12. ATX2: ATX Main Power Connector
13. FAN2: Cooling Fan Connector
14. SPDIF1: SPDIF S/P Digital Interface Format) Connector
15. JP11: Jumper for USB2 Keyboard Mouse Wake-up function
16. Chip ALC650: Chip for AC'97 6-channel Audio Codec
17. AUXIN1: Audio-in Connector
18. CD1: Pin Header for CD Audio-in
19. GAME1: Game Port
20. IR1: Connector for Infrared signal transmission
21. WOL1: Connector for Wake-on-LAN function
22. USB3: Pin Header supporting 2 external USB Ports
23. JP10: Jumper for USB3 Keyboard/Mouse Wake-up function
24. Panel 1: Front Panel Connector
25. IT8705F: LPC Super I/O Chip
26. DEBUG1: Connector for Printer ERROR debug
27. North Bridge SiS 648FX
28. ATX2: +12V ATX Power Connector

1.5 CPU and CPU Fan Installation

This motherboard is designed with Socket 478 for Intel P4™ processor.

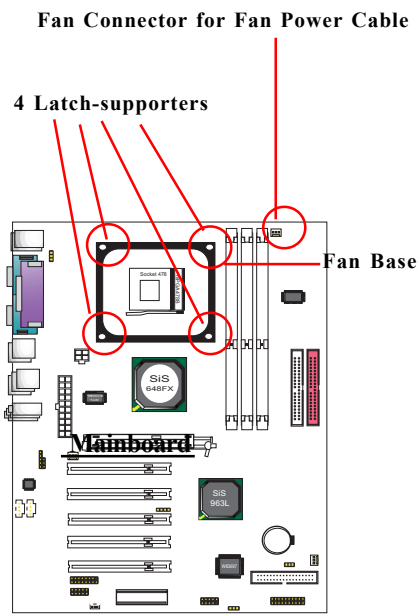
1.5.1 CPU Installation with Socket 478

1. Pull the lever sideways away from the socket then raise the lever to a 90-degree angle.
2. Locate Pin 1 in the socket Pin 1 of CPU is marked by the yellow corner or cut edge on the CPU. Match Pin 1 of Socket 478 and Pin 1 of CPU.
3. Pull up the lever of Socket 478 to let the CPU in and press the lever down to lock the CPU.
4. Make sure that Pin 1 of Socket 478 is matching with Pin 1 of CPU.
5. Make sure that all CPU pins are completely in socket before pressing down the socket lever.



1.5.2 CPU Fan Installation with P4 Fan Base

1. P4 CPU Fan is typically designed with 4 latches and mounted with a thick heatsink. Please do not use other type of CPU fan which cannot match the P4 Fan base on board.
2. Install the P4 CPU fan into the Fan base in such a way that the 4 latches of the CPU Fan match with the 4 Supporters of the CPU Fan Base.
3. Press down the latches to lock CPU Fan to the Fan Base.
4. Then connect the Fan Power Cable to one of the Fan connectors on board.
5. Make sure that the Fan Power Cable is correctly connected to Fan Connector.



1.6 DDR SDRAM Installation

This motherboard supports a maximized 3GB DDR SDRAM. It provides 3 x184-pin unbuffered DDR sockets. It supports 64MB to 1GB DDR memory module.

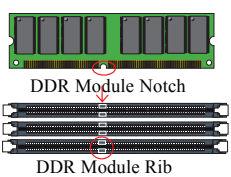
DDR SDRAM Installation Procedures:

1. The DDR socket has a "Plastic Safety Tab" and the DDR memory module has an asymmetrical notch", so the DDR memory module can only fit into the slot in one direction.
2. Push the tabs out. Insert the DDR memory modules into the socket at a 90-degree angle then push down the module vertically to fit it into place.
3. The Mounting Holes and plastic tabs should fit over the edge and hold the DDR memory modules in place.

Bank	Memory module
DIMM 1	64MB, 128MB, 256MB, 512MB, 1GB
	184 pin, 2.5V DDR SDRAM
DIMM 2	64MB, 128MB, 256MB, 512MB, 1GB
	184 pin , 2.5V DDR SDRAM
DIMM 3	64MB, 128MB, 256MB, 512MB, 1GB
	184 pin , 2.5V DDR SDRAM

Note: Maximum 2GB DDR400 SDRAMs are supported in 2 DIMMs only.

184-pin DDR Module

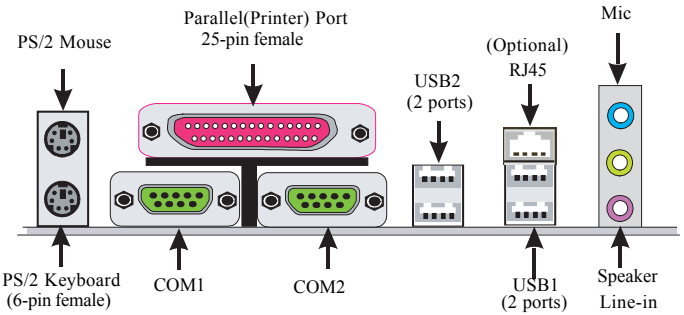


Warning: Be sure to turn off system power whenever to insert or remove a Memory Module. Otherwise, the power will damage the module or even the system.

1.7 Connectors & Jumpers Setting

1.7.1 Back Panel I/O Connectors

This motherboard provides the following back panel connectors:



1.7.1.1 PS/2 Mouse / Keyboard CONN.

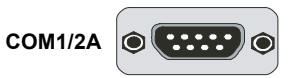
The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector.

1.7.1.2 USB Ports: USB1/2

The motherboard provides a OHCI(Open Host Controller Interface)Universal Serial Bus Roots for attaching USB devices such as a keyboard, mouse and other USB devices. You can plug the USB devices directly into this connector.

1.7.1.3 Serial Interface Port: COM1/COM2

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port. The serial port can also be used to connect computer systems together . If you like to transfer the contents of your hard disk to another system, it can be accomplished with serial port.



1.7.1.4 Parallel Interface Port

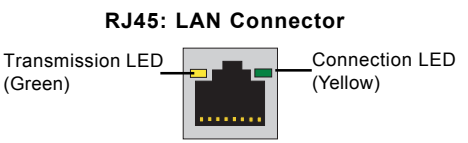
Unlike serial ports, parallel interface ports have been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called a Centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system is a 25-pin, DB 25 connector.

1.7.1.5 Audio Port Connectors

Speaker out is a connector for Speakers or Headphones. Line in is used for external CD player, Tape player, or other audio devices. Mic is a connector for the microphones.

1.7.1.6 LAN Connector (for 4S648FXN): RJ45

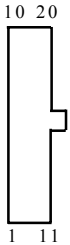
One RJ45 connector is on Back Panel for networking connection and also provides support for Wake On LAN function.



1.7.2 ATX Main Power Connectors: PW1/PW2

This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported on this motherboard . This power connector supports instant power-on functionality, which means that the system will boot up instantly when the power connector is inserted on the board. ATX 4-pin power connector only support +12V voltage.

Pin PW1	Signal	Pin PW1	Signal
1	GND	2	GND
3	+12V	4	+12V



Pin PW2	Signal	Pin PW2	Signal
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS-ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW-OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

Note:
When you set up P4 power supply, both PW1 and PW2 must be connected to power.

Important:
To switch on your power supply, please make sure:
1. Memory Module is properly installed.
2. Power supply setup is OK.

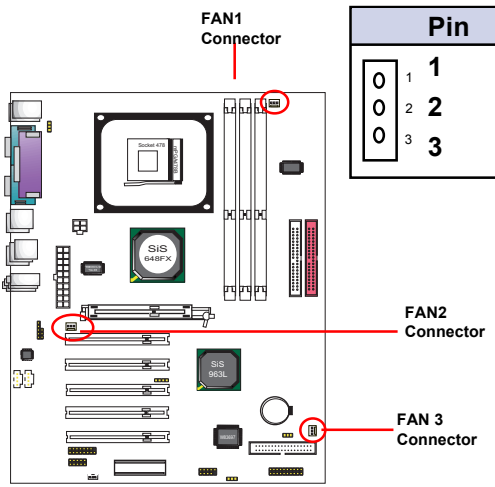
1.7.3 Floppy Disk Connector: FDD

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drives.

1.7.4 Hard Disk Connectors: IDE1/IDE2

These connectors are provided with IDE hard disk ribbon cable into the package . After connecting the end of cable with single connector to the mainboard, connect the other two connectors at the other end to your hard disk. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper settings. BIOS now supports SCSI device or IDE CD-ROM boot up (see "HDD Sequence SCSI/IDE First" & "Boot Sequence" in the BIOS Features Setup of the BIOS SOFTWARE).

1.7.5 Fan Connectors: FAN1~3



Pin	Definition
1	Ground
2	+12VDC
3	Signal

FAN1, FAN2 and FAN3 connectors

1.7.6 Audio-In Connectors: CD1/AUX In

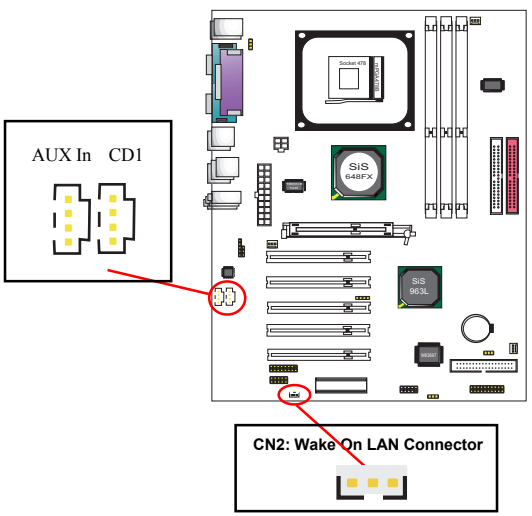
CDIN1 and CDIN2 are the connectors for CD-Audio Input signal. Please connect them to CD-ROM CD-Audio output connector. CDIN1 and CDIN2 have the same pin assignment but different pin pitch.

Pin CDIN1	Definition
1	CD-L
2	GND
3	GND
4	CD-R

Pin AUXIN	Definition
1	AUX-L
2	GND
3	GND
4	AUX-R

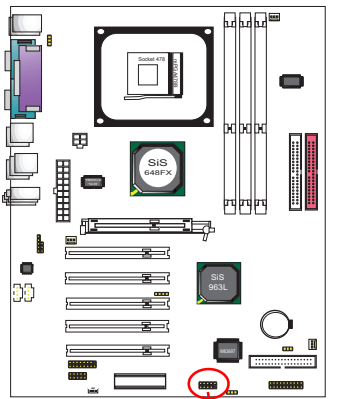
1.7.7 Wake On LAN Connector: WOL

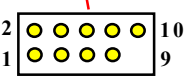
CN2 is an Wake On LAN (WOL) connector for transmitting the Ring signal from a PCI LAN card to wake up system. If you use a PCI LAN card for system networking, you can connect this Wake On LAN connector with the PCI LAN card on board for Wake On LAN function.



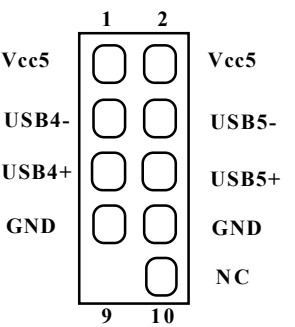
1.7.8 USB Pin Header: USB3

USB3 2x5 Pin Headers for support of external USB ports. Each USB pin header requires a USB cable for expansion of two USB ports. This optional USB cable is available from your motherboard dealer or vendor.

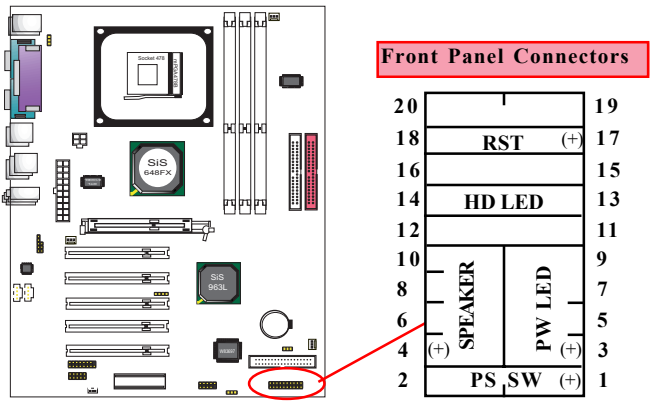




USB3



1.7.9 Front Panel Connectors: PANEL1



PSSW

The system power is controlled by a momentary switch connected to this lead. Pushing the button once will switch the system ON.

Power LED Lead (PW_LED)

The system power LED lights when the system power is on.

Speaker Connector (SPEAKER)

The speaker (onboard or offboard) provides error beep code information during the Power Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

Hard Drive LED Connector (HD_LED)

This connector supplies power to the cabinet IDE activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

SMI Suspend Switch Lead (G-BUN) (Disabled)

This allows the user to manually place the system into a suspend mode of Green mode. System activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the figure) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the "Turbo Switch" instead since it does not have a function. If you want to use this connector, the "Suspend Switch" in the Power Management Setup of the BIOS SOFTWARE section should be enabled.

Reset Switch Lead (RST)

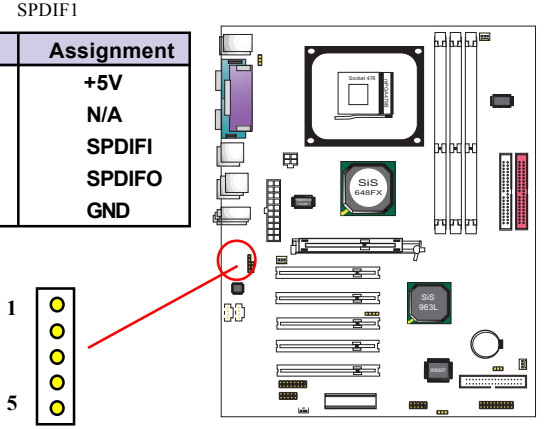
The connector can be connected to a reset switch. Press this reset switch to restart system.

1.7.10 SPDIF Connector: SPDIF1

SPDIF1 is designed on board for Digital Audio in/out.

SPDIF1

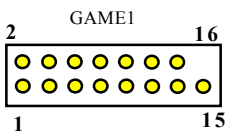
Pin	Assignment
1	+5V
2	N/A
3	SPDIFI
4	SPDIFO
5	GND



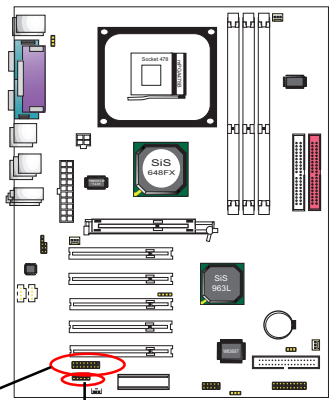
1.7.11 Infrared module & Game Port: IR1 & GAME1

IIR1 supports the optional wireless transmission and reception infrared module.. GAME1 supports a Game Port for Joystick or MIDI keyboard.

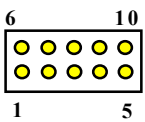
Pin	Assignment
2	+5V
4	GPBS1
6	GPBX1
8	MSO1
10	GPBY1
12	GPBS2
14	MSI1
16	GND



Pin	Assignment
1	+5V
3	GPAS1
5	GPAX1
7	GND
9	GND
11	GPAY1
13	GPAY2
15	+5V



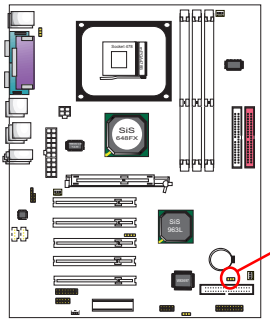
Pin	Assignment
6	NC
7	CIRRX
8	SB5V
9	GND
10	NC



Pin	Assignment
1	+5V
2	N/A
3	IRRX
4	GND
5	IRTX

1.7.12 CMOS Function Selector: JP4

When you have problem with booting system, you may clear CMOS to restore the optimum default BIOS data.

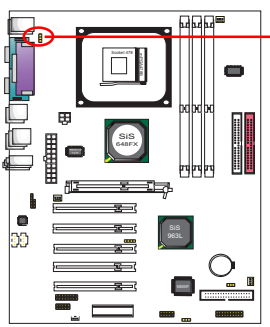


Pin JP4	Function
1-2 closed 	Normal (Default)
2-3 closed 	Clear CMOS

1. Remove the Jumper cap of Jp5 from 1-2.
2. After 1 or two seconds, set Jp5 to 2-3 closed with the jumper cap.
3. After 1 or two seconds, restore the Jp5 to 1-2 closed.
   Now, the CMOS RAM has restored to the optimum default setting.

1.7.13 Keyboard/Mouse Wake-up selector: Jp5

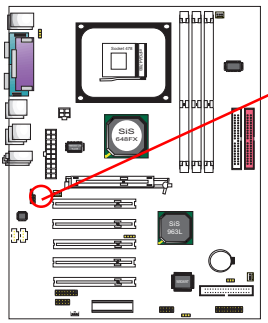
Jp5 is designed to wake up system by Keyboard/Mouse:



Pin Jp5	Function
2-3 closed 	Enabled
1-2 closed 	Disabled (default)

1.7.14 USB2 Wake-up Selector: Jp11

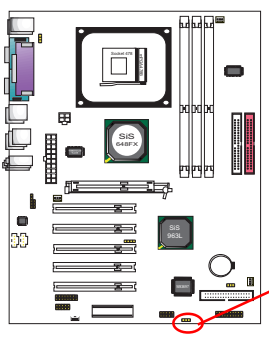
Jp11 is designed to select the USB2 wake up function:



Pin Jp11	Function
1-2 closed 	Disabled (Default)
2-3 closed 	Enabled

1.7.15 USB3 Wake-up Selector : Jp10

Jp10 is designed to select the USB1 wake up function:



Pin Jp10	Function
1-2 	Disabled (default)
2-3 	Enabled

Chapter 2
BIOS Setup

2. BIOS Setup

2.1 BIOS Support

This chapter discusses the Award BIOS Setup program built in the ROM BIOS. The Setup program allows the user to modify the basic system configuration. The modification is then stored in battery-backed RAM so that it can retain the setup information after the power is turned off. The Award BIOS installed in your computer system ROM (Read Only Memory)is a custom version of an industry standard BIOS. The BIOS provides critical low-level support for standard devices such as disk drives and serial and parallel ports. This chapter is intended for guiding you through the process of configuring your system BIOS.

Plug and Play Support

This AWARD BIOS supports the Plug and Play Version 1.0A specification. ESCD(Extended System Configuration Data) write is also supported.

EPA Green PC Support

This AWARD BIOS supports Version 1.03 of the EPA Green PC specification.

PCI Bus Support

This AWARD BIOS also supports Version 2.1 of the Intel PCI (Peripheral Component Interconnect)local bus specification.

APM Support

This AWARD BIOS supports Version 1.1&1.2 of the Advanced Power Management(APM) specification.Power management features are implemented via the System Management Interrupt(SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can be managed by this AWARD BIOS.

DRAM Support

DDR SDRAMs (Double Data Rate SDRAM) are supported.

CPU Support

This AWARD BIOS supports the Intel P4 Processor.

Setup Menu

In general, you use the arrow keys to highlight items of the Main BIOS Setup Menu, press <Enter>to select, use the <PgUp>and <PgDn>keys to change entries, press<F1>for help and press <Esc> to quit The following table provides more detail about how to navigate in the Setup program by using the keyboard.

Note:

(BIOS version 1.0 is for reference only. If there is a change in BIOS version, please use the actual version on the BIOS.)

Keystroke	**Function**
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left(menu bar)
Right arrow	Move to the item on the right(menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+Key	Increase the numeric value or make changes
-Key	Decrease the numeric value or make changes
Esc Key	Main menu-Quit and not save changes into CMOS Status Page Setup Menu and option Page Setup Menu-Exit Current page and return to Main Menu
F1 Key	General help on Setup navigation keys.
F5 Key	Load previous values from CMOS
F6 Key	Load the fail-safe defaults from BIOS default table
F7 Key	Load the optimized defaults
F10 Key	Save all the CMOS changes and exit

2.2 Main Menu

Once you enter AWARD BIOS CMOS Set up Utility, the Main Menu will appear on the screen and allows you to select from several setup function. Use the arrow keys to select the items and press<Enter> to enter the sub-menu.

Attention:
The information about BIOS defaults in this manual is just for reference, please refer to the BIOS installed on board for default BIOS confirmation.

Phoenix - AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management Setup	Set User Password
▶ PNP/PCI Configurations	Save & Exit Setup
▶ PC Health Status	Exit without Saving

Esc : Quit F9: Menu in BIOS ←→↑↓: Select Item
F10 : Save & Exit Setup

Time , Date , Hard Disk Type ...

Standard CMOS Features

This setup page includes all the items in standard compatible BIOS.

Advanced BIOS Features

This setup page includes all the items of the BIOS special enchanced features.

Advanced Chipset Features

This setup page includes all the items of the Chipset special enchanced features.

Integrated Peripherals

This selection page includes all the items of the IDE hard drive and Programmed Input/Output features.

Power Management Setup

This setup page includes all the items of the power manage ment features.

PnP/PCI Configurations

This setup page includes the user defined or default IRQ Setting.

PC Health Status

This page shows the hardware Monitor information of the system.

Frequency/Voltage Control

This setup page controls the CPU's clock and frequency ratio.

Load Fail-safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

These settings are for configuring a workable computer when something is wrong. If you cannot boot the computer successfully, select the BIOS Setup options and try to diagnose the problem after the computer boots. These settings do not provide optional performance.

Set Supervisor/User Password

Change, set, or, disable password. It allows you to limit access to the system and Setup, or just to Setup.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

2.3 Standard CMOS Features

This main option in the Standard CMOS Setup Menu is divided into 10 fields or items. Each field provides one or more setup choices. Use the arrow keys to highlight the field and then use the <PgUp> or <PgDn> keys to select the value or choice.

Phoenix - AwardBIOS CMOS Setup Utility

Standard CMOS Features

Date(mm:dd:yy)	Tue,Jun 6 2002	Item Help
Time (hh:mm:ss)	11:26:10	Menu Level
IDE Primary Master	None	
IDE Primary Slave		Change the day, month,year and century.
IDE Secondary Master		
IDE Secondary Master	None	
Drive A	1.44M,3.5 in	
Drive B	None	
Floppy 3	Disabled	
Video	EGA/VGA	
Halt On	All,But Keyboard	
Base Memory	640K	
Extended Memory	65472K	
Total	1024K	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Main Menu Selections

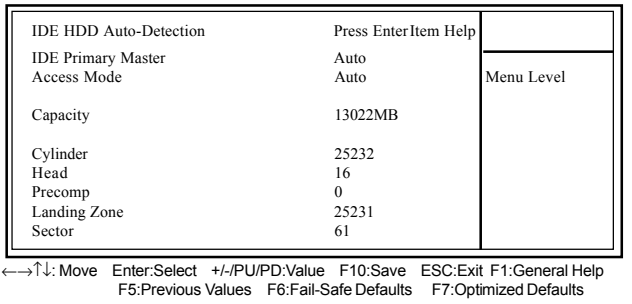
Item	Options	Description
Date (mm : dd :yy)	Month Day Year	Set the system,date. Note that the 'Day' automatically changes when you set the data.
Time (hh : mm : SS)	Hour Minute Second	Select the hour, minute and second of the time.
IDE Primary Master	Options are in its sub menu.	Press<Enter> to enter sub menu.
IDE Primary/ Slave	Options are in its sub menu.	Press<Enter> to enter sub menu.
IDE Second-ary Master	Options are in its sub menu.	Press<Enter> to enter sub menu.
IDE Second-ary Slave	Options are in its sub menu.	Press<Enter> to enter sub menu
Drive A Drive B	None 360K,5.25in, 1.2M,5.25in 720K,3.5M 1.44M,3.5in 2.88M,3.5in	Select the type of floppy disk drive installed in your system.
Floppy 3 Mode Support	Disabled Driver A Driver B Both	Disable or support the 3rd floppy mode in Drive A, or Drive B or both.
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device.

Item	Options	Description
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify.
Base Memory	(640K)	The amount of conventional memory detected during boot up.
Extended Memory	(65472K)	The amount of conventional memory detected during boot up.
Total Memory	(1024K)	The total memory available in system.

IDE Primary(Master/Slave)/Secondary(Master/Slave)

Press Enter on these items to show the following sub-menu:

Primary Master/Secondary



IDE HDD Auto-Detection

Press Enter on this item to let BIOS auto-detect your Hard Disk and show all the Primary Hard Disk Parameters (Capacity, Cylinder, Head, Precomp, Landing Zone, Sector) on the menu.

IDE Primary(Master/Slave) / Secondary(Master/Slave)

This item allows you to detect the Hard Disk in 3 ways.

The Choices: Auto: BIOS Auto-detect HDD;
None: No Hard Disk detected;
Manual: Manually detect HDD

Access Mode

This item allows you to select the Access mode to the Hard Disk..

The Choices:

CHS: Select the Cylinder, Head, Sector addressing mode to access Hard Disk;

LBA: Select the Logical Block Addressing mode to access Hard Disk.

Large: Select Large Mode to access Hard Disk;

Auto: Allow BIOS to auto-access Hard Disk;

Capacity

Showing the capacity of Hard Disk in MB.

Cylinder

Showing the number of cylinder in the Hard Disk.

Head

Showing the number of heads in the Hard Disk.

Precomp

The number of Pre-compensation.

Landing Zone

Number of Landing zone in the Hard Disk.

Sector

The number of Sector in the Hard Disk.

2.4 Advanced BIOS Features

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

		Item Help
Virus Warning	Disabled	
CPU L1 & L2 Cache	Enabled	
Hyper-threading Technology	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floopy	
Second Boot Device	HDD-0	
Third Boot Device	LS-120	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Disabled	
x MPS Version Control For OS	1.4	
OS Select For DRAM >64MB	Non-OS2	
HDD S.M.A.R.T. Capability	Disabled	
Report No HDD for Win95	No	
Video BIOS Shadow	Enabled	
EPA / (H/W Monitor) Show	EPA Logo	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Virus Warning

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

The Choices:

Disabled(default), Enabled.

CPU L1 & L2 Cache

These fields allow you to Enable or Disable the CPU's L1(Internal) / L2(External) cache to provide better performance.

The choices: Enabled(default); Disabled

Hyper-threading Technology

Allows user to enable/disable Hyper-threading Technology for the onboard Hyper-threading CPU.

The Choices: Enabled, Disabled.

Quick Power On Self Test

This category speeds up Power on self-Test(POST) after you power up the computer. If it is set to Enabled, BIOS will shorten or skip some check items during POST.

The choices: Enabled; Disabled

First/Secondary/Third Boot Device

This BIOS attempts to load the operating system from the devices in the sequence selected in these items.

The Choices:

Floppy(default), LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, LAN, USB-FDD, USB-Zip, USB-CDROM, USB-HDD, Disabled.

Boot Other Device

Allows user to set booting from other devices.

The Choices: Enabled, Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments.

The Choices: Disabled, Enabled.

Boot Up Floppy Seek

If enabled, this item allows BIOS to test floppy drives to determine whether they have 40 or 80 tracks.

The Choices: Disabled(default), Enabled.

Boot Up NumLock Status

Select power on state for Numlock..

The Choices

On (default): Numpad is number keys;

Off: Numpad is arrow keys;

Gate A20 Option

Select if chipset or keyboard controller should control Gate A20.

The choices:

Normal: A pin in the keyboard controller controls Gate A20.

Fast (default): Lets chipset control Gate A20.

Typematic Rate Setting

Allows user to adjust the key stroke repeat rate.

The choices:

Enabled: Enabled this option to adjust the keystroke repeat rate; Disabled (default): Disabled.

Typematic Rate (Char/Sec)

Range between 6**(default)** and 30 characters per second. This option controls the speed of repeating keystrokes.

Typematic Delay (Msec)

This option sets the time interval for displaying the first and the second characters.

The Choices: 250(default), 500, 750, 1000.

Security Option

This category allows you to determine whether to use password access the system and Setup,or just Setup.

The choices:

System: To access system and BIOS Setup with correct password.

Setup (default): To access BIOS Setup with correct password.

APIC Mode
Allows user to disable/enabble the APIC mode
The Choices: Disabled; Enabled

x MPS Version Control For OS
If APIC mode is enabled, this item allows user to select the MPS Version Control For OS.
The choices: 1.4; 1.1

OS Select For DRAM >64MB
Select the operating system that is running with greater than 64MB of RAM on the system.
The Choices: Non-OS2(default), OS2.

HDD S.M.A.R.T. Capability
Allows user to choose the Self-monitoring Analysis and Reporting Technology for Hard Disk Drive.
The choices: Disabled(default); Enabled

Report No FDD for Win 95
Use this item to report no FDD for Win 95.
The choices: No; Yes

Video BIOS Shadow
Use this item to enable/disable the Video BIOS Shadow function
The choices: Enabled; Disabled

EPA / (H/W Monitor) Show
Use this item to enable/disable the Environmental Protection Association (EPA) / Hardware Monitor) logo on initiating screen..
The choices: H/W Monitor; EPA Logo

2.5 Advanced Chipset Features

This section allows you to configure the system based features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and external cache. It also coordinates communications of the PCI bus. It must be stated that these items should never be altered. The default settings are set up to provide the best operating conditions for your system. The time you might need to make any changes would be if you discover that data is lost while using your system.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

▶ DRAM Clock/Timing Control	Press Enter	Item Help
DRAM Timing Control	By SPD	
x DRAM CAS Latency	2.5T	
x RAS Active Time	6T	
x RAS Precharge Time	3T	
x RAS to CAS Delay (tRCD)	3T	
DRAM Addr/Cmd Rate		
▶ AGP & P2P Bridge Control	Press Enter	
AGP Aperture Size	64MB	
Graphic Window (Cache WC)	Disabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Enabled	
Memory Hole at 15M-16M	Disabled	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

▷ **DRAM Clock/Timing Control: Press <Enter> to reveal the following submenu.**

DRAM iming Control

Use this item to select the DRAM Clock/Timing mode.

The Choices:

By SPD: DRAM Timing is by Serial Presence Detect (SPD) which is located on the memory module itself.

Manual: DRAM Timing is set manually with the options following this item below.

X DRAM CAS Latency

This item is to set CAS (Column Access Stroke) Latency time.

The Choices: Auto; 1.5; 2; 2.5;

X RAS Active ,Time

This item is to set Active to Precharge Delay cycle.

The Choices: Auto; 7; 6; 5

X DRAM RAS# to CAS# Delay (tRCD)

This item is to set the DRAM RAS (Row Access Stroke) to CAS (Column Access Stroke) Delay cycle.

The Choices: Auto; 3; 2

X DRAM RAS# Precharge

This item is to set the DRAM RAS Precharge cycle.

The Choices: Auto; 3; 2

DRAM Addr/Cmd Rate

This item is to set the DRAM Addr/Command rate.

The Choices: Auto; 1T; 2T

▸ AGP & P2P BBridge Control: Press <Enter> to reveal the following submenu.

AGP Aperture Size

Select the size of the Accelerated Graphic Port(AGP) aperture . The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycle that hit the aperture range are forwarded to the AGP without any translation.

The Choices: 128MB(default); 64MB,;32MB; 16MB; 8MB; 4MB; 256MB

Graphic Window (Cache WC)

Use this item to enable/disable the Graphic Window Write Combin function.

The choices: Enabled; Disabled

System BIOS Cacheable

This item is to enable/disable the System BIOS Cacheable function.

Video RAM Cacheable

Enabled: Enable Video RAM Cacheable.

Disabled :Disable Video RAM Cacheable.

Memory Hole At 15-16M

In order to improve performace, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory's space below 16MB.

The Choices: Disabled; Enabled.

2.6 Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

		Item Help
▶SiS OnChip IDE Device	Press Enter	
Internal PCI/IDE	Both	
IDEPrimary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDESecondary Slave PIO	Auto	
Primary Master Ultra DMA	Auto	
Primary Slave Ultra DMA	Auto	
Secondary Master Ultra DMA	Auto	
Secondary Slave Ultra DMA	Auto	
IDE Burst Mode	Enabled	
▶SiS OnChip PCI Device	Press Enter	
SiS USB Controller	Enabled	
USB 2.0 Controller	Enabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
SiS AC97 Audio	Auto	
SiS 10/100M Ethernet(4S648FXN)	Enabled	
▶Onboard Super IO Device	Press Enter	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
x UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	ECP	
ECP Mode Use DMA	3	
Game Port Address	201	
MIDI Port Address	330	
MIDI Port IRQ	10	
IDE HDD Block Mode	Enabled	
Init Display First	PCI Slot	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

SiS On-Chip IDE Devicee: Press Enter to configure the following submenu:

Internal PCI/IDE
Use this item to choose the ePCI/IDE mode.
The choices: Both; Disabled; Primary; Secondary

IDE Primary Master/Slave PIO
Auto (default):BIOS will automatically detect the IDE HDD Accessing mode.
Mode 0~4: Manually set the IDE Accessing mode.

IDE Secondary Master/Slave PIO
Auto (default):BIOS will automatically detect the IDE HDD Accessing mode.
Mode 0~4: Manually set the IDE Accessing mode.

Primary Master/Slave Ultra DMA
Auto (default):BIOS will automatically enable Ultra DMA mode of the IDE HDD Accessing .
Disabled: UDMA mode is disabled

Secondary Master/Slave Ultra DMA
Auto (default):BIOS will automatically enable the Ultra DMA mode of the IDE HDD Accessing mode.
Disabled: Ultra DMA disabled.

IDE Burst Mode
Use this item to enable/disable the IDE Burst mode.

SiS On-Chip PCI Devicee: Press Enter to configure the following submenu:

SiS USB Controller
Use this item to enable or disable the USB Controller.
The Choices: Enabled; Disabled

USB 2.0 Controller
If USB Controller is enabled, use this item to enable or disable USB 2.0 controller.
The Choices: Enabled ; Disabled

USB Keyboard Support
If USB Controller is enabled, use this item to enable or disable the USB Keyboard Support.
The Choices: Enabled; Disabled

USB MouseSupport
If USB Controller is enabled, use this item to enable or disable the USB Mouse Support.
The Choices: Enabled ; Disabled

SiS 10/100M ETHERNET (for 4S648FXN only)
Use this item to enable or disable the 10/100 Ethernet controller.
The Choices: Enabled; Disabled

Onboard Super IO Devicee: Press Enter to configure the following submenu:

Onboard FDC Controller
The choices: Enabled (default) Disbled

Onboard Serial Port 1/2
Select an address and corresponding interrupt for the first and second serial ports.
The Choices: Auto; 3F8/IRQ4; 2F8/IRQ3; 3E8/IRQ4; 2E8/ IRQ3; Disabled.

UART Mode Select
This item allows you to select which Infra Red(IR) function of the onboard I/O chip you wish to use.
The Choices: Normal(default), IrDA, SCR, ASKIR.

UR2 Duplex Mode
This item allows you to select which Infra Red(IR) function of the onboard I/O chip you wish to use.
The Choices: Half (default), Full.

Onboard Parallel Port
This item allows you to select the onboard parallel port and IRQ.
The Choices: 378/IRQ7; 278/IRQ5; 3BC/IRQ7; Disabled

Parallel Port Mode
The choices are for Parallel Port Mode select:
The choices: SPP; EP;: ECP; ECP+EPP

ECP Mode Use DMA
The Choices: 3(default), 1.

Game Port Address
The choices are for setting Game Port Address:
201 (default); 209; Disabled

MIDI Port Address
The choices are for setting MIDI Port Address:
300; 330 (default); Disabled.

MIDI Port IRQ
The choices are for setting MIDI Port IRQ:
10 (default): 5

IDE HDD Block Mode

If your IDE HDD supports block mode select, enabled is for automatic detection of the optimal number of block read/write per sector the drive can support..

The Choices: Enabled(default); Disabled

Init Display First

Use this item to enable or disable the onboard USB controller.

The Choices: PCI Slot(default); Onboard/ AGP

2.7 Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility

Power Management Setup

		Item Help
ACPI Function	Enabled	
ACPI Suspend Type	S1(POS)	
Power Management	User Define	
Suspend Mode	Disabled	
Video Off Option	Suspend --> Off	
Video Off Method	V/H Sync+Blank	
Modem Use IRQ	3	
Hot Key Function As	Power Off	
HDD Off After	Disabled	
Power Button Override	Instant-off	
▶PM Wake Up Events	Press Enter	
Power On By Modem Ring	Disabled	
Power On By MAC	Disabled	
Power On by PME/WOL	Disabled	
Power On By USB	Disabled	
Power On by PS/2KB	Password	
X Power On by PS2MS	Disabled	
RTC Alarm Resume	Disabled	
X Month Alarm	NA	
\X Date (of Month) Alarm	0	
X Time(hh:mm:ss) Alarm	0 : 0 : 0	
** Reload Global Timer Events **		
Primary IDE	Disabled	
Secondary IDE	Disabled	
FDD,COM, LPT Port	Disabled	
PCI PIRQ [A-D]#	Disabled	
Delay Prior to Thermal	None	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

ACPI Function

The choices are for enabling or disabling the Advanced Configuration and Power Management (ACPI).

ACPI Function
Use this item to enable/disable the ACPI function.
The choices: Stop Grant(default); Power On Suspend

ACPI Suspend Type
The choices are for setting the ACPI Suspend Type.
S1(Power On Suspend)(default); S3(Suspend To RAM); S1&S3

Power Management
The choices are for setting the Power management mode:
User Define (default); Min Saving; Max Saving.

Suspend Mode
Use this item to set the Suspend time.
The choices: Disabled(default); 1~60 min.

Video Off Option
The choices are for setting the Video Off option:
Suspend --> Off; Susp, Stby --> Off; All Modes --> Off;
Always On

Video Off Method
The choices are for determining the manner in which the monitor is blanked.
The choices:
V/H SYNC+Blank (default): Turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen: Writes blanks to the video buffer.
DPMS Supported: Initial display power management signaling.

Modem Use IRQ
This determines the IRQ, which can be applied in Modem use.
The choices: 3 (default); 4;5; 7; 9; 10; 11; NA

Hot Key Function As
Use this item to set the Hot Key Function.
The choices: Disabled; Power Off; Suspend

HDD Off After
Use this item to set the HDD Off After time.
The choices: Disabled; 1~15 min..

Power Button Override
Use this item to set the Power Button Override mode
The Choices: Instant off(; Delay 4 Sec.

▷ PM Wake Up Events: Press <Enter> to configure the following:

Power On By Modem Ring
Use this item to enable/disable the Power On by Modem Ring signal.

Power On By MAC
Use this item to enable/disable the Power On by MAC function.

Power On By PME/WOL
Use this item to enable/disable the Power On by PME/WOL function.

Power On By USB
Use this item to enable/disable the Power On by USB function..

Power On By PS/2 KB
Use this item to enable/disable the Power On by PS/2 Keyboard function.

x Power On By PS/2 MS
Use this item to enable/disable the Power On by PS/2 Mouse.

RTC Alarm Resume
Use this item to enable/disable the RTC Alarm Resume function.
Date: If RTC Alarm Resume is enabled, set the date with this item.
Time: If RTC Alarm Resume is enabled, set the time with this item.

**** Reload Global Timer Events ****

Primary IDE
Use this item to enable/disable the Primary IDE

Secondary IDE
Use this item to enable/duisable the Secondary IDE.

FDD,COM,LPT Port
Use this item to enable/disable the HDD/COM/LPT port.

PCI PIRQ [A-D]#
Use this item to enable/disable the PCI PIRQ [A-D].

Delay Prior to Thermal
Use this item to set the Delay time prior to thermal.
The choices: None; 1min; 2min; 4min; 8min; 16min; 32min; 64min

2.8 PnP/PCI Configurations

This section describes configuration of the PCI bus system. PCI or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself when communicating with the components on board. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - AwardBIOS CMOS Setup Utility

PnP/PCI Configurations

Reset Configuration Data	Disabled	Item Help
Resources Controlled By	Auto(ESCD)	
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Reset Configuration Data

The system BIOS supports the PnP feature so the system needs to record which resource is assigned and proceeds to get rid of resource conflict. Every peripheral device has a node, which is called ESCD (Extended System Configuration Data. This node records which resources are assigned to it. If Disabled (Default) is chosen, the system ESCD will update only when the new configuration varies from the last one. If Enabled is chosen, the system is forced to update ESCDs and then is automatically reset to the "Disabled" mode.

Resources Controlled By

By Choosing "Auto"(default), the system BIOS will detect the system resources and automatically assign the relative IRQ and DMA channel for each peripheral. By choosing "Manual", the user will need to assign IRQ & DMA for add-on cards. Be sure that no IRQ/DMA and I/O port conflict exists.

IRQ Resources :

Press Enter to configure the following Submenus

IRQ Resources

		Item Help
IRQ-3 assigned to	: PCI Device	
IRQ-4 assigned to	: PCI Device	
IRQ-5 assigned to	: PCI Device	
IRQ-7 assigned to	: PCI Device	
IRQ-9 assigned to	: PCI Device	
IRQ-10 assigned to	: PCI Device	
IRQ-11 assigned to	: PCI Device	
IRQ-12 assigned to	: PCI Device	
IRQ-14 assigned to	: PCI Device	
IRQ-15 assigned to	: PCI Device	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

PCI / VGA Palette Snoop

Choose Disabled or Enabled. Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provideboot information and VGA compatibility.

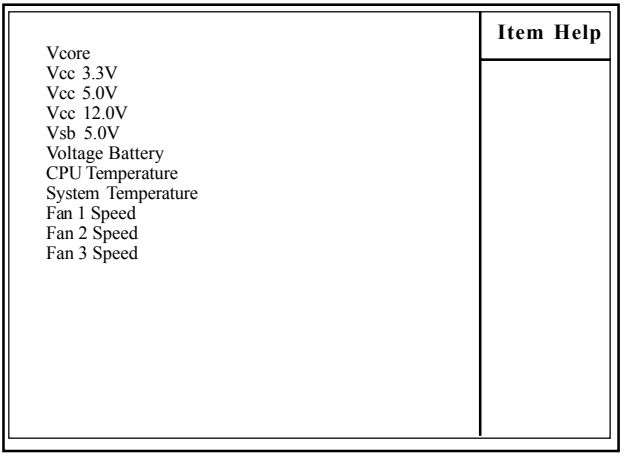
However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the write access to the VGA palette and registers the snoop data. In PCI based systems, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Write.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphi controller can then snoop the data on the ISA bus.Unless you have the above situation, you should disable this option.

The choices: Disabled (default); Enabled

2.9 PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status



This menu shows the current status of the system, CPU and CPU Fan. No value in this menu can be changed manually.

Vcore /+3.3V/+5V/12V/5Vsb
These items show the respective voltage running on board.

Voltage Battery
These items show the battery voltage used on board.

CPU /System Temp
This item shows the current System/CPU temperature.

FAN1/2/3 Speed
This item shows the fan speed running on board.

2.10 Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

		Item Help
Auto Detect DIMM/PCI CLK	Ensabled	
Spread Spectrum	Disabled	
CPU Frequency	100	
CPU:DRAM Frequency Ratio	SPD	
DRAM Frequency	133 MHz	
DDR Voltage Regulator	2.5V	

←→↑↓: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Auto Detect DIMM/PCI CLK

This item allows you to enable/disable auto detect PCI CLOCK.
The Choices: Disabled; Enabled (default)

Spread Spectrum

This function is designed for the EMI test only.
The Choices: Disabled(default); +/- 0.25; +/- 0.35; +/- 0.45; -0.5

CPU Frequency

Use this item to set CPU Clock .
The Choices: 100~132 MHz in 1MHz stepping

CPU:DRAM Frequency Ratio

Use this item to set the CPU:DRAM Frequency Ratio.
The choices: 1:1; 1:2; 3:4; 3:5

x DRAM Frequency

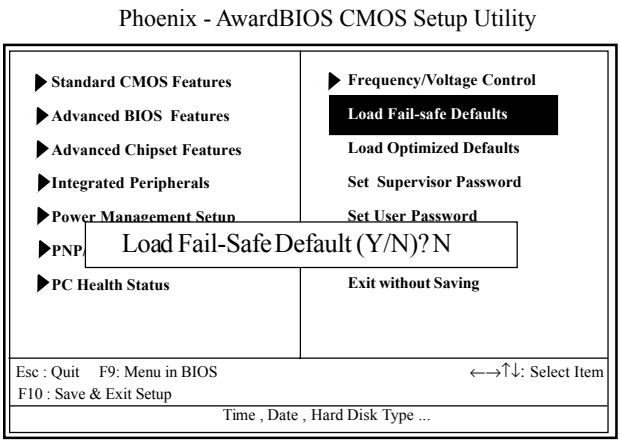
This item will show the DRAM Frequency with the CPU:DRAM frequency Ratio.

DDR Voltage Regulator

Use this item to adjust the DDR Voltage.
The Choices: 2.5V; 2.7V; 2.9V

2.11 Load Fail-Safe Defaults

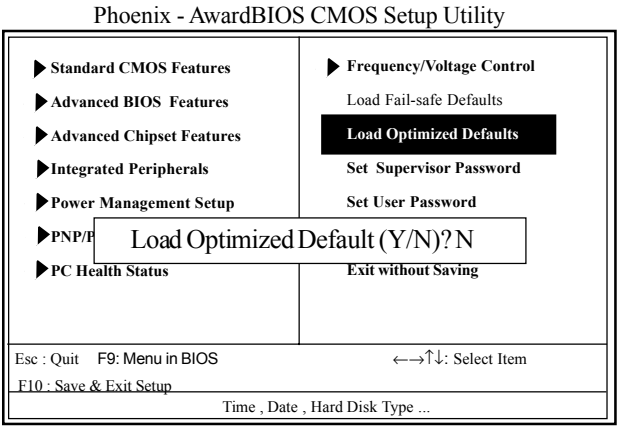
When you press <Enter> on this item, you get a confirmation dialog box with a message similar to below:



Pressing 'Y' loads the default values that are factory settings for optimal performance of system operations.

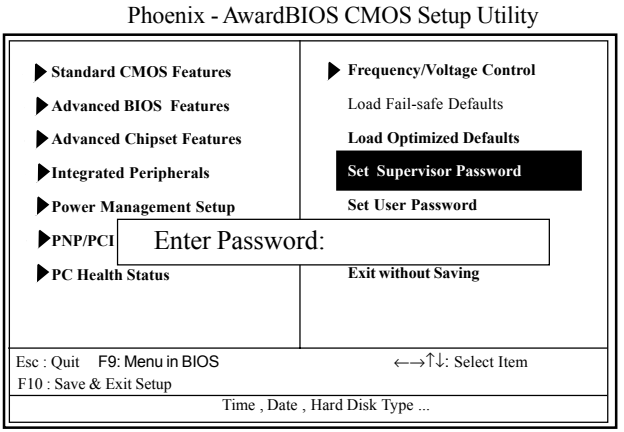
2.12 Load Optimized Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:



Pressing 'Y' loads the default values that are factory settings for optimal performance of system operations.

2.13 Set Supervisor / User Password



When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

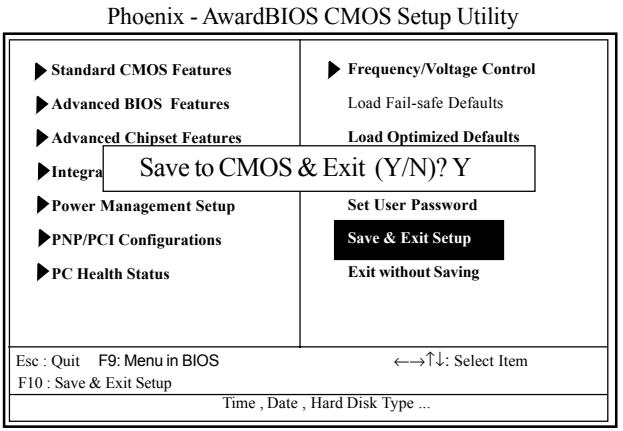
Enter Password (for Supervisor/User)

Type a password, up to eight characters, and press <Enter>.The password you type now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <ESC> to abort the selection and not enter a password. To disable the password, just press <Enter> when you are prompted to enter a password. A message will confirm that you wish to disable the password. Once the password is disabled, the system will boot without asking user to enter a password.

Password for System or BIOS Setup

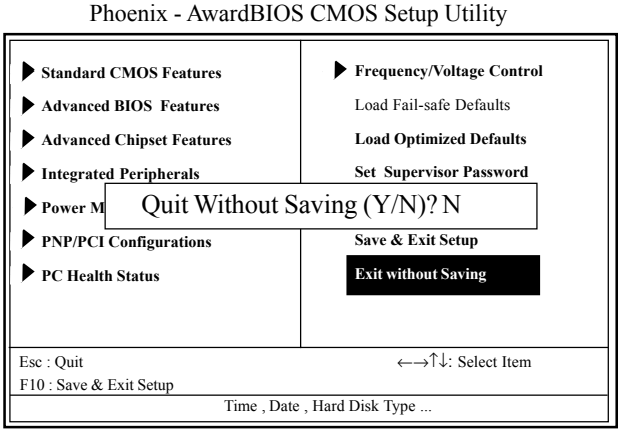
If you select "System" at the Security Option of BIOS Features Setup Menu, you will be prompted for the password every time when the system is rebooted, or any time when you try to enter Setup. If you select "Setup" at the Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

2.14 Save & Exit Setup



Typing "Y" will quit the Setup Utility and save the user setup value to RTC CMOS RAM.
Typing "N" will return to the Setup Utility.

2.15 Exit Without Saving



Typing “Y” will quit the Setup Utility without saving to RTC CMOS RAM.
Typing “N” will return to the Setup Utility.

Chapter 3
Drivers & Utilities

3. Drivers & Utilities

There are motherboard drivers and utilities included in the disc attached in this motherboard package. You don't have to install all of them for booting your system. But after you have finished the hardware installation, you have to install an operation system (such as windows XP) before you are able to install any drivers or utilities.

Note: Please be aware of the different Procedures for installing drivers for Windows 98/ME/XP/2000 .

3.1 Auto-run Menu

You can use the auto-run menu in the driver CD attached in the motherboard package. Then choose the utility or driver and select model name. The autorun starting screen looks like below:

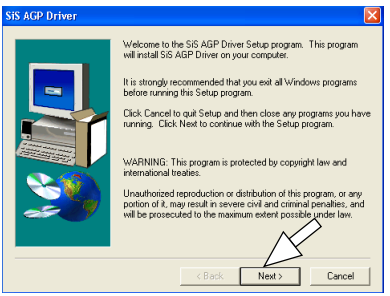
(1) The SiS Auto-run CD Main Menu

(2) SiS DriverSetup Main Menu: Point to the "Driver" button with the mouse for SiS Drivers Setup.

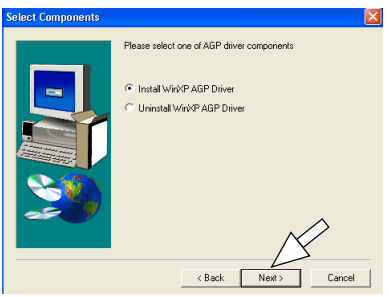
(3) Click to the "Driver" button and the Drivers Setup List will appear as below:

3.2 Install Acceleration Graphics Driver

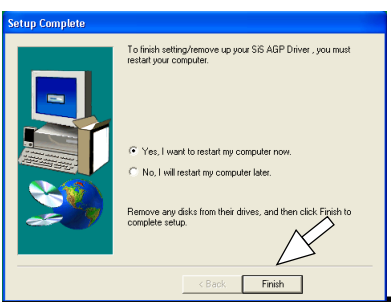
On the SiS Drivers Setup List, mouse-click the "Acceleration Graphics Driver" bar, and the InstallShield Wizard starts to run instantly:



(1)
Click "Next" button on the screen.



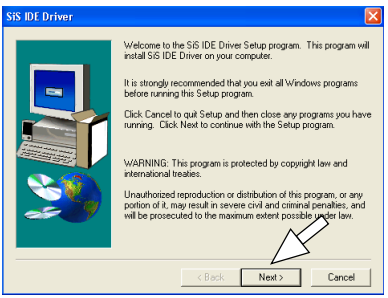
(2)
Click "Next" button to continue.



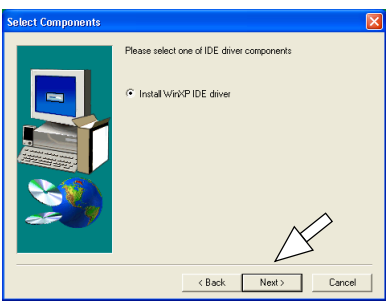
(3)
Click "Finish" button to restart the system and complete the installation.

3.3 Installing SiS IDE PCI Driver

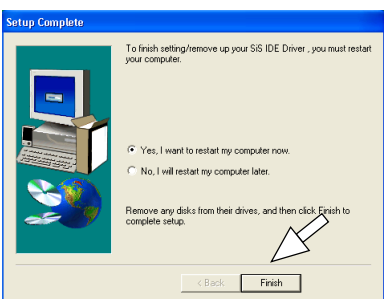
Moiuse-click on the "SiS IDE PCI Driver" bar to install the SiS IDE drivers, and the InstallShield Wizard will start to run instantly.



(1)
Click "Next" button to continue.

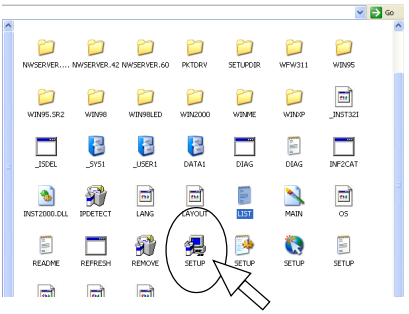


(2)
Click "Next" button to continue.

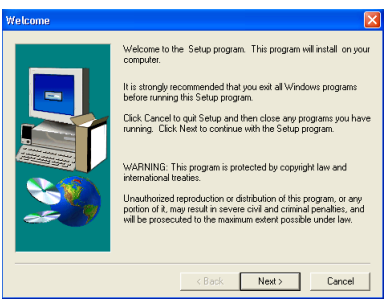


3.4 PCI LAN Driver (for 4S648FXN)

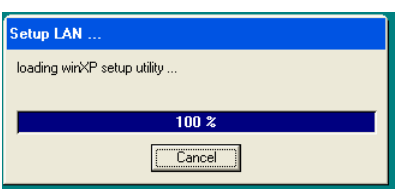
Mouse click the "SiS PCI LAN" bar to install the built in LAN driver. The InstallShield Wizard will start to run instantly.



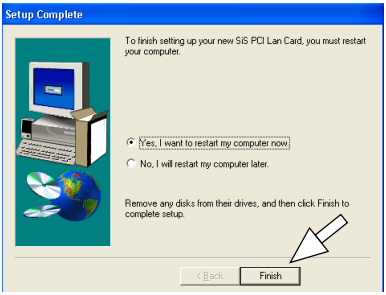
(1)
The InstallShield Wizard will instantly find out the Setup file and expose it on the screen. Click on the "Setup" icon to start setup LAN driver.
Path: MB\LAN



(2)
Click "Next" button to continue.



(3)
You can see the Setup is in progress.

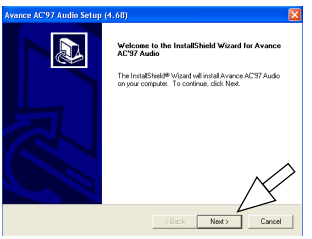


(4)
In a few seconds, Setup completes. Click "Finish" button to restart system and complete setup.

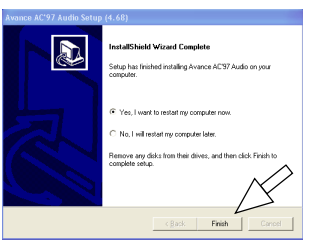
3.4 Installing Audio Driver

Mouse click the "Audio Driver" bar on the Main Menu to set up the Audio driver. The InstallShield Wizard will start to run instantly.

3.4.1 Installing 6-channel Driver



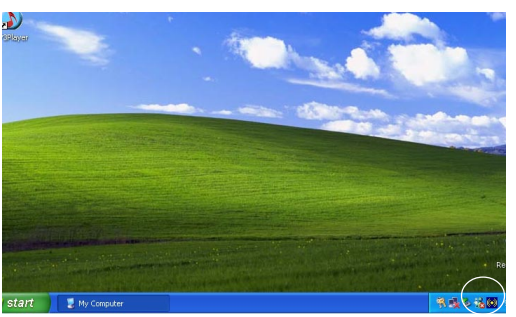
(1)
Click "Next" button to continue.

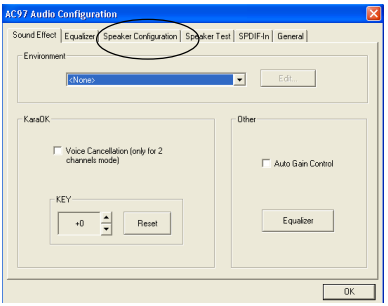


(2)
In a few seconds, setup completes. Click the "Finish" button to restart system and complete setup.

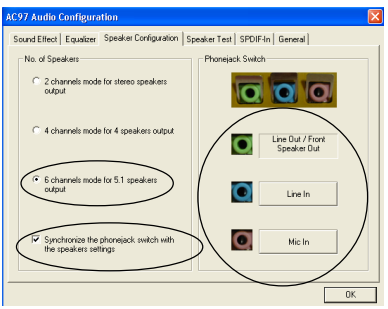
3.4.2 Verifying 6-channel Driver

(1) Click the Audio Manager "Sound Effect" on the Start Screen.

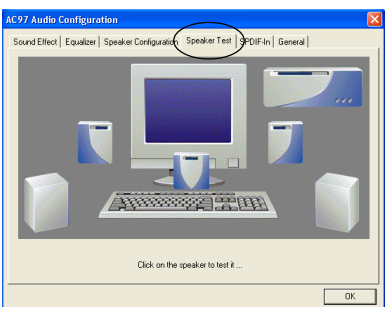




(2)
Click "Speaker Configuration" button to configure the Audio connectors on mainboard.



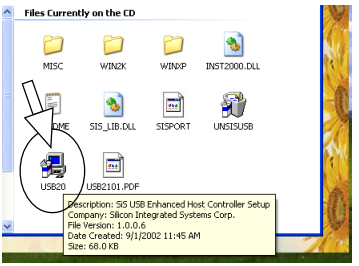
(3)
Follow the instructions on the screen to configure the Audio connectors on board.



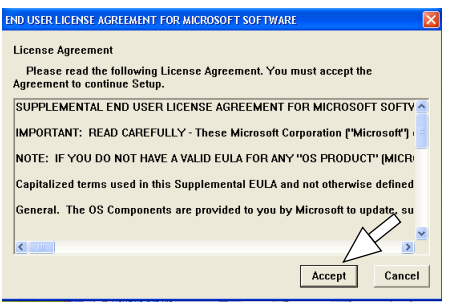
(4)
Click "Speaker Test" button to test the 6-channel speakers.

3.5 Installing USB 2.0 Driver

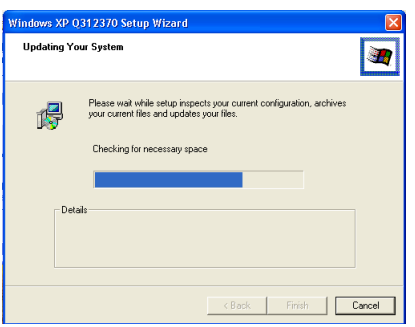
Mouse click the "USB2.0" bar to install the SiS USB 2.0 driver. Thge InstallShield Wizard will start to run instantly.



(1)
Instantly, the "Setup files are exposed on screen. Click the "Setup" icon to install USB 2.0 driver. " item.
Path: MB\USB2.0\USB20

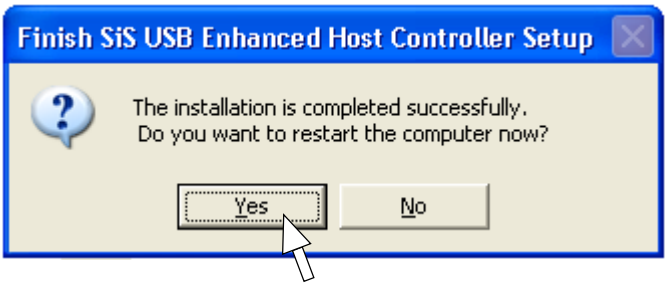


(2)
Click the "Accept" button to agree to the License Agreement and continue.



(2)
You can see the Setup Program is updating system.

(4) In a few seconds, Setup completes. Click "Yes" button to resatart system and complete setup.



Appendices

Motherboard Compatibility Test

(1) CPU Compatibility Test

System Configuration	Workstation - 1	Workstation - 2	Workstation - 3	Workstation - 4
Memory	Nanya	Armas Sumsung	Transcend Samsung	Samsung
	NT5DS16M8AT-7K	K4H280838B-TCB0	K4H560838BC-TCB3	K4H28038B-TCB0
	DDR266 256MB*3	DDR266 256MB*3	DDR266 256MB*3	DDR266 256MB*2
Display Card	Winfast	MSI	MSI	Matrox
	S320V	GF2MX200	GF2MX200	G550
Hard Drive	Seagate	IBM	IBM	IBM
	ST320414A	30.7G	30.7G	30.7G
CD-ROM	Afreey	Genuine	Genuine	Creative
	52X	52X	52X	52X
Power Supply	High Power	HIGH POWER	HIGH POWER	CHANNEI WELL
	Hpc-400	HPC-300	HPC-300	CWT-300AX12

Nucleus	Model	CLK	Voltage	Bus Speed	CPU S.P.E.C	Stepping	RESET 10 Time	PW On/Off 10 Time	CC WS 2002 Test
Northwood	3.06G		1.45V	800	QWN3ES		Pass	Pass	38.6
Northwood	3.06G		1.45V	533	SL6S5		Pass	Pass	43.2
Northwood	2.8G		1.45V	533	SL6HL		Pass	Pass	38.8
Northwood	2.6G		1.45V	800	QWK0ES		Pass	Pass	35.9
Northwood	2.4G		1.45V	400	SL67R		Pass	Pass	37.3
Northwood	2.4B		1.45V	533	SL648		Pass	Pass	35.9
Northwood	2.26G		1.45V	533	SL683		Pass	Pass	26.8
Northwood	2.2G		1.45V	400	SL5YS		Pass	Pass	24.6
Northwood	2.0A		1.45V	400	SL5YR		Pass	Pass	32
Northwood	1.8A		1.45V	400	SL680		Pass	Pass	26.3
Northwood	1.6A		1.45V	400	SL668		Pass	Pass	24.2
Willamette	2.0G		1.75V	400	SL5TL		Pass	Pass	24
Willamette	1.9G		1.75V	400	SL5WG		Pass	Pass	24.6
Willamette	1.8G		1.75V	400	SL5UK		Pass	Pass	19.5
Willamette	1.7G		1.75V	400	SL59X		Pass	Pass	24.7
Willamette	1.5G		1.75V	400	SL5N8		Pass	Pass	18.9
Celeron	2.4G		1.45V	400	QWV8ES		Pass	Pass	28.2
Celeron	2.4G		1.45V	400	QVW5ES		Pass	Pass	27.2
Celeron	2.2G		1.45V	400	QWV2		Pass	Pass	23.5
Celeron	2.0G		1.45V	400	QPF7ES		Pass	Pass	17.7
Celeron	1.7G		1.75V	400	SL68C		Pass	Pass	22.2

(2) Memory Compatibility Test

System Configuration	Workstation - 1	Workstation - 2	Workstation - 3	Workstation - 4
Processor	Intel P4 2.6G/800	Intel P4 3.06G/533	Intel P4 2.8 HT /533	
Display Card	Matrox G550	Matrox G550	Matrox G550	
Hard Drive	Quantum Fireball AS 40GB	Quantum Fireball LM 20GB	Quantum Fireball LM 20GB	
CD-ROM	Asus 52X	Lemel 52X	Lemel 52X	
Power Supply	High Power HPC-400 110V	Seventeam ST-300BLV	Seventeam ST-300BLV	

Module Vender	IC_Vender	IC_Serial Numbers	CAPACITY	SIDE	DRAM CLK	Location	Memtest 1.04	WS 2001 Business
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 1,2,3,4		
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 1,2,3,4		
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 1,2,3,4		
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 1,2,3,4		
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 1,2,3,4		
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 1,2,3,4		
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 1,2,3,4		
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 1,2,3,4		
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 1,2,3,4		
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 1,2,3,4		
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 1,2,3		
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 1,2,3		
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 1,2,3		
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 1,2,3	PASS	48.4
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 1,2,3	PASS	51.1
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 1,2,3	PASS	59.9
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 1,2,3	PASS	62.7
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 1,2,3	PASS	63.4
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 1,2,3	PASS	56.5
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 1,2,3	PASS	57.1
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 1,2	PASS	60.1
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 1,2	PASS	51.5
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 1,2	PASS	52.6
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 1,2	PASS	58.7
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 1,2	PASS	50.6
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 1,2	PASS	57.4
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 1,2	PASS	57.5
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 1,2	PASS	61.9
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 1,2	PASS	54.7
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 1,2	PASS	46.3

(2) Memory Compatibility Test (Continued)

Module Vender	IC_Vender	IC_Serial Numbers	CAPACITY	SIDE	DRAM CLK	Location	Memtest 1.04	WS 2001 Business
Adata	Adata	ADD8608A8A-4.5B	256	S	450	DIMM 1,2	Pass	56.3
Adata	Adata	ADD8608A8A-4.5B	256	S	450	DIMM 2,3	Pass	53
Adata	Adata	ADD8608A8A-4.5B	256	S	450	DIMM 1	Pass	52.3
Adata	Adata	ADD8608A8A-4.5B	256	S	450	DIMM 2	Pass	54.1
Adata	Adata	ADD8608A8A-4.5B	256	S	450	DIMM 3	Pass	44.7
Adata	Winbond	W942508CH-5	256	S	400	DIMM 1,2	Pass	36.3
Adata	Winbond	W942508CH-5	256	S	400	DIMM 2,3	Pass	57.9
Adata	Winbond	W942508CH-5	256	S	400	DIMM 1	Pass	54.5
Adata	Winbond	W942508CH-5	256	S	400	DIMM 2	Pass	51.8
Adata	Winbond	W942508CH-5	256	S	400	DIMM 3	Pass	53.2
Adata	Sumsung	K4H560838D-TCCC	256	S	400	DIMM 1,2	Pass	55.8
Adata	Sumsung	K4H560838D-TCCC	256	S	400	DIMM 2,3	Pass	57.2
Adata	Sumsung	K4H560838D-TCCC	256	S	400	DIMM 1	Pass	43.2
Adata	Sumsung	K4H560838D-TCCC	256	S	400	DIMM 2	Pass	52.3
Adata	Sumsung	K4H560838D-TCCC	256	S	400	DIMM 3	Pass	52.4
Adata	Hynix	HY5DU56822BT-D43	256	S	400	DIMM 1,2	Pass	57.1
Adata	Hynix	HY5DU56822BT-D43	256	S	400	DIMM 2,3	Pass	59.9
Adata	Hynix	HY5DU56822BT-D43	256	S	400	DIMM 1	Pass	47.3
Adata	Hynix	HY5DU56822BT-D43	256	S	400	DIMM 2	Pass	55
Adata	Hynix	HY5DU56822BT-D43	256	S	400	DIMM 3	Pass	54.8
Adata	Adata	ADD8608A8A-5B	256	S	400	DIMM 1,2	Pass	53.6
Adata	Adata	ADD8608A8A-5B	256	S	400	DIMM 2,3	Pass	59.9
Adata	Adata	ADD8608A8A-5B	256	S	400	DIMM 1	Pass	50.2
Adata	Adata	ADD8608A8A-5B	256	S	400	DIMM 2	Pass	56.8
Adata	Adata	ADD8608A8A-5B	256	S	400	DIMM 3	Pass	28

(2) Memory Compatibility Test (Continued)

Module Vender	IC_Vender	IC_Serial Numbers	CAPACITY	SIDE	DRAM CLK	Location	Memtest 1.04	WS 2001 Business
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 2,3	PASS	58
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 2,3	PASS	51.5
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 2,3	PASS	39.7
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 2,3	PASS	58.1
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 2,3	PASS	61.1
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 2,3	PASS	60
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 2,3	PASS	58
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 2,3	PASS	61.5
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 2,3	PASS	54.8
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 2,3	PASS	56.4
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 1	PASS	53.5
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 1	PASS	56.5
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 1	PASS	56.3
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 1	PASS	58.2
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 1	PASS	58.7
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 1	PASS	29.7
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 1	PASS	50.2
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 1	PASS	56.8
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 1	PASS	50.2
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 1	PASS	53.4
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 2	PASS	34.1
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 2	PASS	49.2
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 2	PASS	58.1
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 2	PASS	36.2
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 2	PASS	56.8
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 2	PASS	55.4
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 2	PASS	48.7
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 2	PASS	56.7
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 2	PASS	32.4
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 2	PASS	43.2
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 3	PASS	53.3
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 3	PASS	56.1
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 3	PASS	59.1
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 3	PASS	57.2
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 3	PASS	57.4
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 3	PASS	29.9
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 3	PASS	44.8
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 3	PASS	56.4
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 3	PASS	50.9
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 3	PASS	52.5
Kingmax	KINGMAX	KDL684T4AA-50	256M	D	400	DIMM 4		
Adata	WINBOND	W942508BH-5	512M	D	400	DIMM 4		
Adata	SAMSUNG	K4H560838D-TCC4	512M	D	400	DIMM 4		
Transcend	SAMSUNG	K4H560838C-TCB3	512M	D	333	DIMM 4		
TwinMos	WINBOND	W942508AH-6	512M	D	333	DIMM 4		
Kingmax	KINGMAX	KDL684T4A2A-05	256M	D	333	DIMM 4		
China	Hynix	HY5DU56822AT-H	512M	D	266	DIMM 4		
Retail	NANYA	NT5DS16M8AT-7K	512M	D	266	DIMM 4		
Weblink	ELIXIR	N2DS12880AT-75B	256M	D	266	DIMM 4		
Apacer	INFINEON	HYB25D256800AT-7	256M	D	266	DIMM 4		

(3) AGP Display Card Compatibility Test

System Configuration	Workstation - 1	Workstation - 2	Workstation - 3	Workstation - 4
Processor	Intel P4	Intel P4	Intel P4	
	3.06G/533	2.4G/100	2.6G/400	
Memory	Apacer Nanya	Armas Samsung	Hynix	
	NT5DS16M8AT-7K	K4H280838B-TCB0	HY5DU56822AT-h	
	DDR266 256MB*2	DDR266 256MB*3	DDR266 256MB*3	
Hard Drive	Quantum	IBM	Quantum	
	Fireball lct 40GB	30.7GB	Fireball lct 40GB	
CD-ROM	Creative	Genuine	Pionner	
	52X	52X	DVD-116	
Power Supply	High Power	High Power	Enligh	
	HPC-400 220V	HPC-300 110V	HPC-340 220V	

1. Win98 SE 1024 x 768 x 32 bit

AGP Model	Vendor	AGP Mode	Dirver Version	3DMARK 2001SE Bench Mode	Quake III Demo 001		
					frames	seconds	fps
GF2 MX400 GV-1280	GigaByte	4X	4.13.01.3082	2523	1346	17.4	77.3
GF2 TI 64MB	Cndata	4X	4.13.01.3082	4095	1346	13.9	97.1
GF4 TI4200 NVG28AL	Prolink	8X	4.13.01.4109	7425	1346	12.7	105.6
GF4 MX440	Prolink	4X	4.13.01.4109	4772	1346	13.3	100.9
GH4 TI4600	Winfast	4X	4.13.01.4109	7905	1346	12.5	107.3

2. Win98 SE 800 x 600 x 16 bit

AGP Model	Vendor	AGP Mode	Dirver Version	3DMARK 2001SE Bench Mode	Quake III Demo 001		
					frames	seconds	fps
GF4 MX440	Acorp	8X	4.13.01.3090	5775	1346	13.1	103
Xabre	Triplex	8X	4.13.01.3090	6034	1346	10.4	129.7
GF3 920	Elsa	4X	4.13.01.4109	6974	1346	13	103.3
GF3 TI500	Winfast	4X	4.13.01.4109	7474	1346	12.9	104.7
G550	Matrox	4X	4.12.01.1201	1585	1346	17.8	75.5

3. Win 2000 1024 x 768 x 32 bit

AGP Model	Vendor	AGP Mode	Dirver Version	3DMARK 2001SE Bench Mode	Quake III Demo 001		
					frames	seconds	fps
GF2 GTS	MSI	4X	3.0.8.2	3369	1346	6	226.1
GF2 MX400	MSI	4X	3.0.8.2	2390	1346	6.8	197.2
GF4 TI4200 8X	Winfast	8X	4.1.0.9	10009	1346	5.8	230.4
8500LE	ATI	4X	6.14.1.6307	8012	1346	10.5	128.5
9700	ATI	8X	6.14.1.6307	11317	1346	10.4	130.3

(3) AGP Display Card Compatibility Test (Continued)

4. Win 2000 800 x 600 x 16 bit

AGP Model	Vendor	AGP Mode	Dirver Version	3DMARK 2001SE Bench Mode	Quake III Demo 001		
					frames	seconds	fps
GF2 GTS Ultra	Creative	4X	3.0.8.2	5048	1346	5.9	228.1
GF2 GTS	Elsa	4X	3.0.8.2	4263	1346	6.5	207.2
GF2 GTS PRO	Elsa	4X	3.0.8.2	4562	1346	6.2	216.9
GF2 MX400 511	Elsa	4X	3.0.8.2	3256	1346	8.9	150.8
GF2 MX400	Winfast	4X	3.0.8.2	3291	1346	8.8	152.3

5. Win XP 1024 x 768 x 32 bit

AGP Model	Vendor	AGP Mode	Dirver Version	3DMARK 2001SE Bench Mode	Quake III Demo 001		
					frames	seconds	fps
GA-2560	GigaByte	4X	3.0.8.2	2627	1346	7.5	178.8
Rage Fury Pro	ATI	Fail	6.13.3279.0	1137	1346	26.8	50.3
V3800 TNT2	Winfast	4X	3.0.8.2	763	1346	45.8	29.4
GF2 GTS V7700	Asus	4X	3.0.8.2	4217	1346	6.4	209.5
GF2 MX400	Asus	4X	3.0.8.2	3488	1346	7.6	177.1

6. Win XP 800 x 600 x 16 bit

AGP Model	Vendor	AGP Mode	Dirver Version	3DMARK 2001SE Bench Mode	Quake III Demo 001		
					frames	seconds	fps
GF256 V6600	Asus	4X	3.0.8.2	3739	1346	9.4	143.4
GF4 MX440	Asus	4X	3.0.8.2	6890	1346	5.9	227.6
Quadro 2EX	Elsa	4X	3.0.8.2	4050	1346	10.9	123.6
GF3 822	Msi	4X	3.0.8.2	8523	1346	5.7	234.5
GF4 MX420	Ennyah	4X	3.0.8.2	2975	1346	12.9	104.5