



Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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 and, if not installed and used in accordance with instructions contained in this manual, may cause harmful interference to radio and television 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 THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

NOTE: Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

Copyright

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While every precaution has been taken in the preparation of this manual, no responsibility for errors or omissions is assumed. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Trademarks

All brand names, logos and registered trademarks mentioned are property of their respective owners.

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HARDWARE CONFIGURATION

Key Features :

Chipset

- ATI® RD400 +SB450 Chipset.

Processor

- Supports Intel® Celeron® , Pentium® 4, Pentium® D processors in the LGA775 -pin package **(with 0.8V~1.6V voltage)**.
- Supports 64-bit PSB (Processor System Bus) frequency of 533MHz /800MHz/1066MHz (133MHz/200MHz/266MHz bus clock).
- Supports Hyper-Threading Technology.

VRM 10.1 (Voltage Regulator Modules) on Board

- Flexible motherboard design with on board VRD 10.1, easy to upgrade with future Intel® Pentium® 4 processors.
- The Intel Pentium® 4 Processors built-in L2 Cache.

System Memory

- A total of four 184-pin DDR RAM sockets.
- DIMM size support from 64MB to 4GB.
- Supports dual channel 128-bit wide memory interface.
- Supports 266/333/400 DDR RAM memory types.

System BIOS

- PnP, APM, ATAPI and Windows® 2000/XP.
- Full support of ACPI & DMI.
- Auto detects and supports LBA harddisks with capacities over 160GB.
- Easy to upgrade BIOS.

Plug and Play

- Supports Plug and Play specification 1.1.
- Plug and play for Windows® 2000 and XP.
- Fully assignable PCI interrupts.

Onboard I/O

- Two onboard PCI fast IDE ports supporting up to four ATA, ATA2 , Ultra ATA33/66/100/133 IDE HDDs, CD-ROMs, ZIP drives and LS-120 drives as boot drive.
- One floppy port which supports two FDD of 1.44MB, 2.88MB capacity.
- Eight USB ports (four ports via two headers).
- PS/2 keyboard support.
- PS/2 mouse support.
- One front panel sound connector.
- Infrared (IrDA) support via a header.
- One ECP/EPP parallel port.

Extended USB Support

- Includes 4 OHCI host controllers, increasing the number of external ports to eight.
- Includes 2 OHCI USB2.0 host controllers that support all eight ports (Bandwidth is shared between the eight ports).
- This motherboard supports USB 2.0 only on Windows® 2000 (with SP4 or above) and Windows® XP (with SP1 or above) operating systems.

Onboard Marvell 88E8052 PCI Express Gigabit LAN

- Full compliance with IEEE 802.3u 100 Base-T specifications and IEEE 802.3X Full Duplex Flow Control.
- Supports 10 Mb/s, 100 Mb/s and 1000 Mb/s operation.
- Supports Wake-On-LAN function and remote wake-up.

PCI Express x16 Graphics Interface

- Two 16-lane (x16 port) PCI Express graphics ports, fully compliant with the PCI Express Base Specification revision 1.0a.
- A base PCI Express frequency of 4GB/s.
- PCI Express supported enhanced addressing mechanism.
- Supports ATI CrossFire (optional).

PCI Express x1 Ports

- Fully compliant to the PCI Express Base Specification revision 1.0a.
- Two virtual channel support for full unsynchronized data transfers.
- Support for full 2.5Gb/s bandwidth in each direction per x1 lane.

Power Management

- Supports SMM, APM and ACPI.
- Break switch for instant suspend/resume on system operations.
- Energy star "Green PC" compliant.
- Hardware monitoring circuit provides voltage, fan speed, etc. monitoring.
- Wake-On-LAN (WOL) support.
- Supports Suspend-to-RAM (STR).

Onboard ALC880 7.1 Audio

- Integrated Realtek ALC880 controller.
- Full Direct Sound and Sound Blaster compatible.
- Full-Duplex 4 24-bit two-channel DACs and 3 stereo 20-bit ADCs.
- PnP and APM 1.2 support.
- Windows® 2000/XP ready.
- Line-in, Line-out, Mic-in, SPDIF-in, SPDIF-out.
- Supports ALC880 codec for eight channel sound output.

Onboard IEEE1394

- Compliant with IEEE 1394 OHCI specifications v1.0 and v1.1.
- Integrated 400Mb 2-port PHY.

Onboard Serial ATA Host Controller

- Independent DMA operation on four ports.
- Data transfer rates of 150MB/s.
- RAID 0/1 feature support .

Expansion Slots

- 2 PCI Express x16 slots.
- 2 PCI Express x1 slots.
- 3 PCI slots - ver. 2.2 compliant.

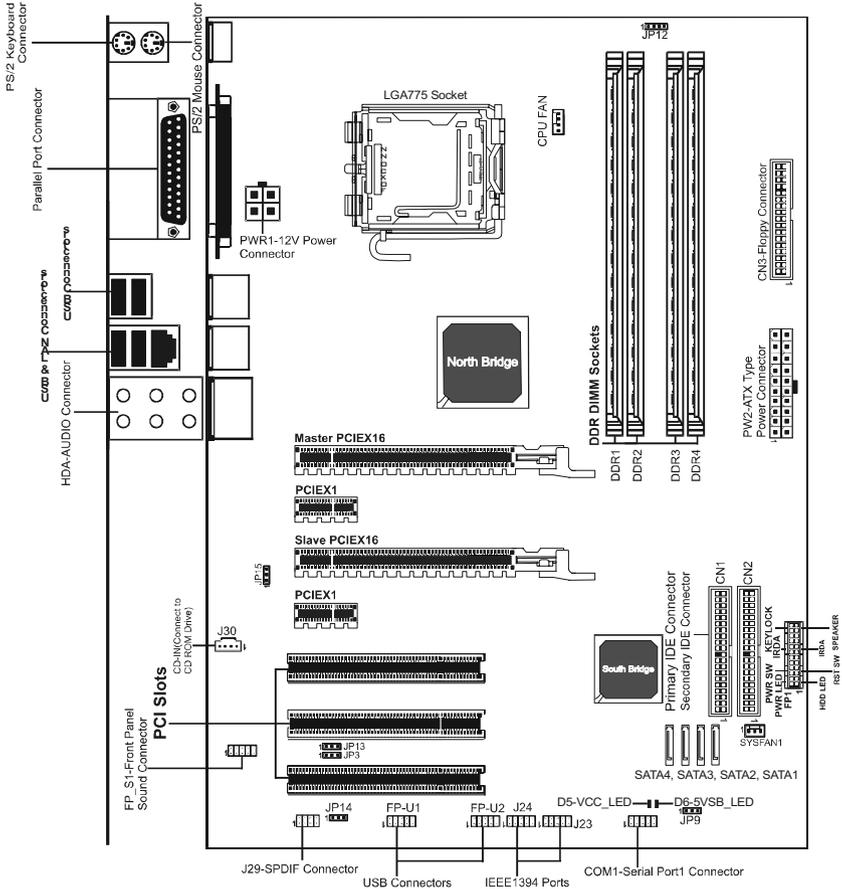
When installing CrossFire graphics cards onto the Sapphire CrossFire motherboard, we recommend use a 500 watt or higher power supply.



Static electricity can harm delicate components of the motherboard. To prevent damage caused by static electricity, discharge the static electricity from your body before you touch any of the computer's electronic components.

MOTHERBOARD LAYOUT

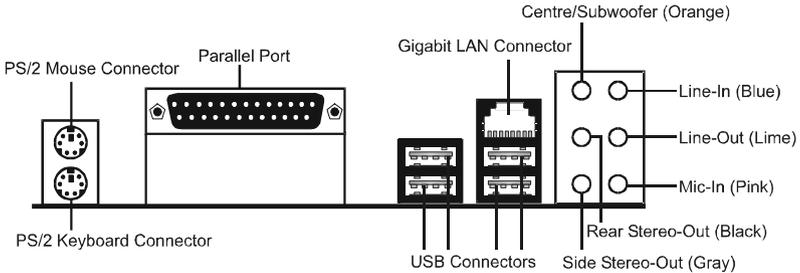
The following diagram shows the relative positions of the jumpers, connectors, major components and memory banks on the Sapphire motherboard.



- NOTE :**
- 1) Be sure to check the HDD cable orientation in order to match the colored strip to the pin 1 end of the connector.
 - 2) When you start up the system, please wait for 5 seconds after you power on AC.
 - 3) Adding a metal spaced plate to the back of the Socket 775 is not recommended as this will short motherboard components and damage the system.

REAR PANEL

The back panel provides the following connectors:



PS/2 Mouse Connector

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

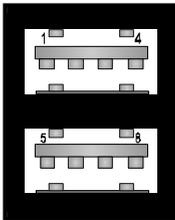
PS/2 Keyboard Connector

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

USB 2.0 Connector

The Sapphire motherboard provides an OHCI (Open Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into the connector.

USB 2.0 Connector



USB 2.0 - Pin Definition

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V/5VSB (optional)
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V/5VSB (optional)
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

LAN Connector

The Sapphire motherboard provides one standard RJ-45 jack for connecting to a LocalArea Network (LAN). You can connect the network cable to the LAN jack.

Gigabit LAN

The onboard Marvell 88E8052 PCI-E X1 controller supports 10/100/1000 Mb/s operations.

8 Channel HD Audio

Option select of 2, 6, or 8 channel audio from onboard ALC880 High Definition audio compliant CODEC with 20-bit ADC and 24-bit DAC resolution.

- Supports CD-In, SPDIF-in and SPDIF-out.
- Optical & Coaxial SPDIF-out available on rear panel.
- Supports jack detection for easy audio device installation.

Rear panel audio jacks configuration:

Audio Jack Color	2 Channel	6 Channel	8 Channel
Blue	Line-In	Line-In	Line-In
Lime	Line-Out	Front Stereo-Out	Front Stereo-Out
Pink	Mic-In	Mic-In	Mic-In
Gray	--	--	Side Stereo-Out
Black	--	Rear Stereo-Out	Rear Stereo-Out
Orange	--	Centre & Subwoofer	Centre & Subwoofer

CONNECTORS AND HEADERS

The Sapphire motherboard provides connectors to connect to the FDD, IDE HDD, USB Ports and to the CPU/System FAN etc.

Floppy Disk Drive Connector - CN3

The Sapphire motherboard provides a standard floppy disk drive connector that supports 1.44M, 2.88M floppy disk types.

IDE Connectors - CN1&CN2

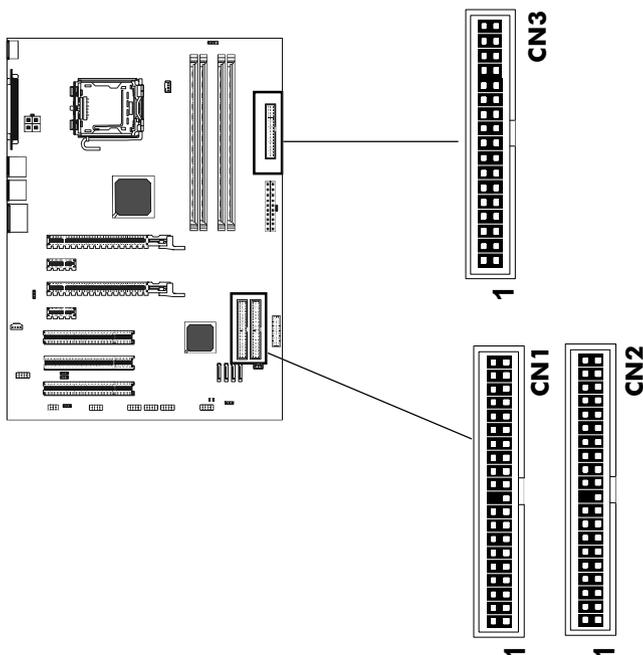
The Sapphire motherboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 function. You can connect up to four hard disk drives, CD-ROMs, 120MB Floppy (reserved for future BIOS) and other devices.

Primary IDE Connector - CN1

The first hard drive should always be connected to CN1. CN1 can connect a Master and a Slave drive. You must configure the second hard drive to Slave mode by setting the jumper accordingly.

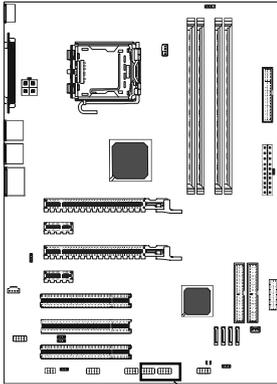
Secondary IDE Connector - CN2

CN2 can also connect a Master and a Slave drive.

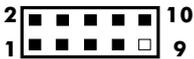


IEEE 1394 Header - J23,J24

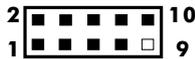
The Sapphire motherboard provides four 1394 pin headers that allow you to connect IEEE 1394 ports.



J24



J23



J24/J23 - Pin Definition

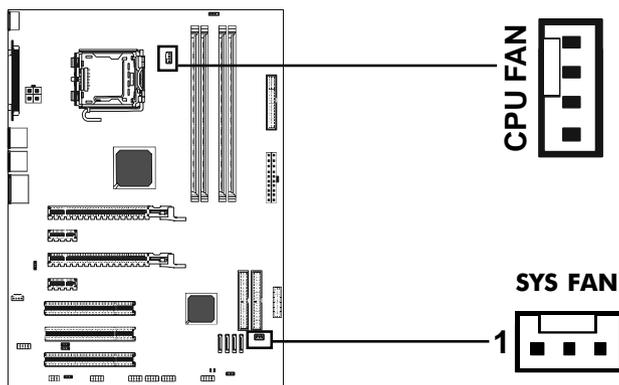
PIN	SIGNAL
1	TPA+
2	TPA-
3	Ground
4	Ground
5	TPB+
6	TPB-
7	Cable power
8	Cable power
9	Key (no pin)
10	Ground

IEEE 1394 Cable



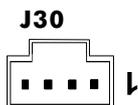
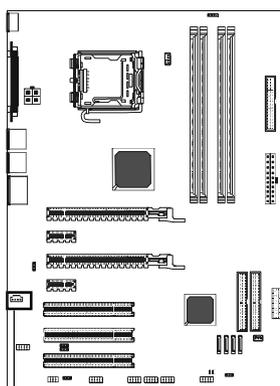
Fan Power Header - CPUFAN, SYSFAN

The CPUFAN1 (processor fan) and SYSFAN1 (system fan) support system cooling fans using +12V via a four/three-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



CD-IN Header - J30

This header allows for the connection of audio from CD-ROM drive.

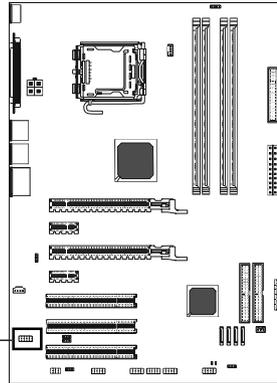
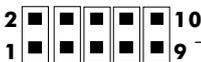


J30 - Pin Definition

PIN	SIGNAL
1	CD-L
2	GND
3	GND
4	CD-R

Front Panel Audio Header - FP-S1

FP-S1



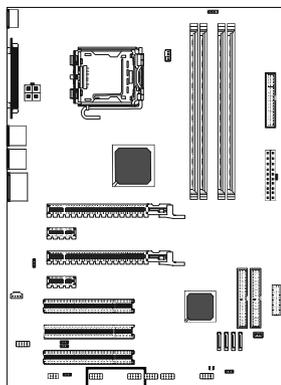
FP-S1 - Pin Definition

Pin	Signal	Description
1	PORT 1L	Analog Port 1 - Left channel
2	GND	Ground
3	PORT 1R	Analog Port 1 - Right channel
4	PRESENCE	Active low signal - signals BIOS that a High Definition Audio dongle is connected to the analog header. PRESENCE=0 when a High Definition Audio dongle is connected.
5	PORT 2R	Analog Port 2 - Right channel
6	SENSE1_RETIRN	Jack detection return from front panel JACK1
7	SENSE_SEND	Jack detection sense line from the High Definition Audio Codec jack detection resistor network
8	KEY	Connector Key
9	PORT 2L	Analog Port 2 - Left channel
10	SENSE2_RETIRN	Jack detection return from front panel JACK2

Note: In order to utilize the front audio header, your chassis must have a front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the motherboard header. To find out if the chassis you are buying supports front audio connection, please contact your dealer.

USB Header - FP-U1, FP-U2

This Sapphire motherboard has up to eight USB ports. Some computer cases have a special module that mounts USB ports at the front of the case. If you have this kind of case, use the auxiliary USB connector FP-U1/FP-U2 to connect the front mounted ports to the motherboard.



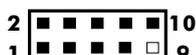
FP-U1, FP-U2 - Pin Definition

PIN	SIGNAL
1	VCC
2	VCC
3	USBP0-
4	USBP1-
5	USBP0+
6	USBP1+
7	GND
8	GND
9	KEY
10	OC#

FP-U1

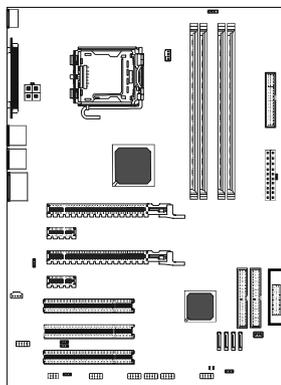


FP-U2



Front Panel Header - FP1

The Sapphire motherboard provides a front panel connector for the front panel switches and LEDs. FP1 is compliant with the Front Panel I/O Connectivity Design Guide.

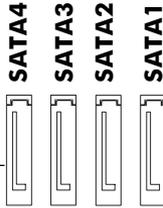
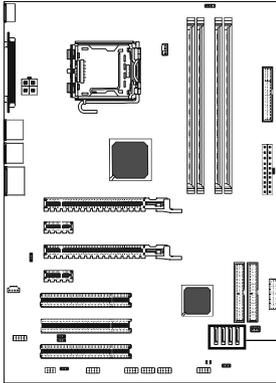


FP1

GND	24	23	VCC
KEYLOCK	22	21	GND
KEY	20	19	NC
KEY	18	17	SPEAKER
IRRX	16	15	IRTX
GND	14	13	VCC
KEY	12	11	NC
KEY	10	9	NC
GND	8	7	RESET
PWR_SW	6	5	GND
PW_LED-	4	3	HDD_LED-
PW_LED+	2	1	HDD_LED+

Serial ATA Hard Disk Connectors - SATA1, SATA2, SATA3, SATA4

The Sapphire motherboard has four SATA connectors: SATA1, SATA2, SATA3, SATA4. Each supports 1st generation SATA data rates of 150 MB/s. All connectors are fully compliant with Serial ATA 1.0 specifications. Each SATA connector can connect to one hard disk device. Please refer to SATA Raid Setup for details on software installation procedure.



SATA1, SATA2, SATA3, SATA4 - Pin Definition

PIN	SIGNAL
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

Serial ATA Cable

This cable is compatible for use with SATA devices.



Serial ATA Cable



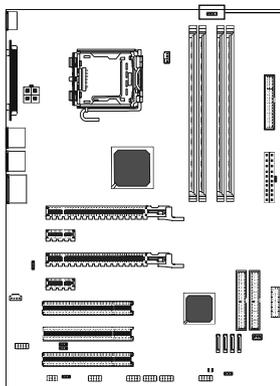
Serial ATA Devices
Power Cable (optional)



Please do not fold the serial ATA cable at a 90 degree angle as this will cause a loss of data during the transmission.

Chassis Alarm Lead - JP12 (optional)

This lead is for a chassis designed with an intrusion detection feature. This requires an external detection mechanism such as a chassis intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to this lead to record a chassis intrusion event.



JP12 - Pin Definition

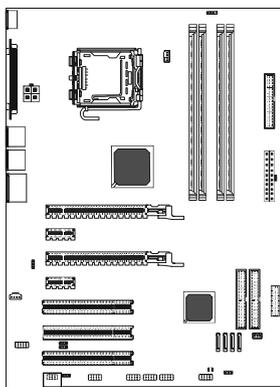
PIN	Assignment
1	+5VSB
2	KEY
3	Chassis Signal
4	GND

Note:

If you want to use “Chassis Alarm” Connector, you must remove 3-4 jumper.

SPDIF Header - J29

This header provides a SPDIF (Sony/Philips Digital Interface) output to digital multimedia device through fiber or coaxial connector.



J29 - Pin Definition

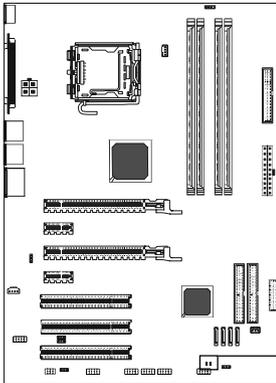
PIN	Assignment
1	SPDIF_OUTX
2	SPDIF_INX



Power LED: D5/D6 (optional)

The green LED lights when the system is in the power-on state.

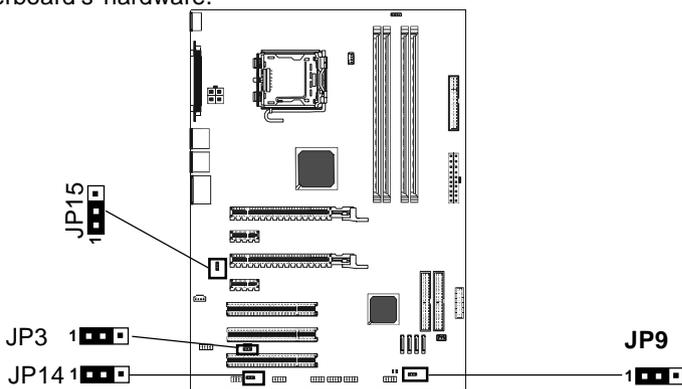
The red LED lights whenever AC power is attached, irrespective of whether the system is powered-on, powered-off or in standby mode.



D5-VCC_LED (Green)
D6-5VSB_LED (Red)

JUMPER SETTING

The Sapphire motherboard provides jumpers for enabling the configuration of the motherboard's hardware.



Clear CMOS Jumper - JP9

If you want to clear the system configuration, use the JP9 (Clear CMOS Jumper) to clear data.

JP9	Selection
1 <input checked="" type="checkbox"/> 1-2*	Normal*
1 <input type="checkbox"/> 2-3	CMOS Clear

JP14-Onboard AC97 Sound Select

JP14	Function
1 <input checked="" type="checkbox"/> 1-2*	AC97 Sound Enable*
1 <input type="checkbox"/> 2-3	AC97 Sound Disable

JP3-Onboard IEEE1394 Select

JP3	Selection
1 <input checked="" type="checkbox"/> 1-2*	IEEE1394 Enable*
1 <input type="checkbox"/> 2-3	IEEE1394 Disable

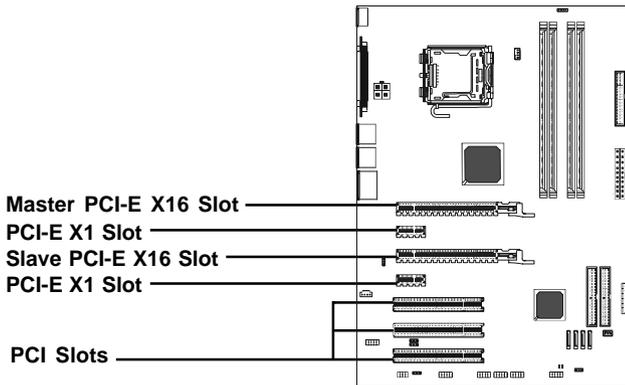
JP15-Onboard Gigabit LAN Select

JP15	Function
1 <input checked="" type="checkbox"/> 1-2*	Gigabit LAN Enable*
1 <input type="checkbox"/> 2-3	Gigabit LAN Disable

Close Open * = Default setting.

SLOTS

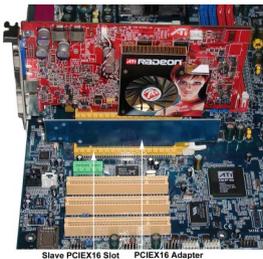
The Sapphire motherboard provides two PCI-E x16 slots, two PCI-E x1 slot and three 32-bit PCI slots.



PCI Express x16 Graphics Interface

- Two 16-lane (x16 port) PCI Express graphics ports, fully compliant with the PCI Express Base Specification revision 1.0a.
- A base PCI Express frequency of 4GB/s.
- PCI Express supported enhanced addressing mechanism.
- Supports ATI CrossFire (optional).

Note: This Sapphire motherboard is bundled with a PCI-E x16 Adapter. If you want to use one PCI-Ex16 graphic card only, please insert the bundled PCI-E x16 Adapter into the Slave PCI-E x16 slot simultaneously.



PCI Express x1 Ports

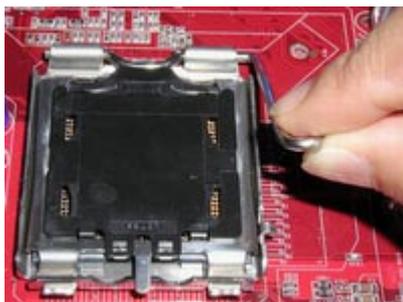
- Fully compliant to the PCI Express Base Specification revision 1.0a.
- Two virtual channel support for full unsynchronized data transfers.
- Supports full 2.5Gb/s bandwidth in each direction per x1 lane.

PCI (Peripheral Component Interconnect) Slots

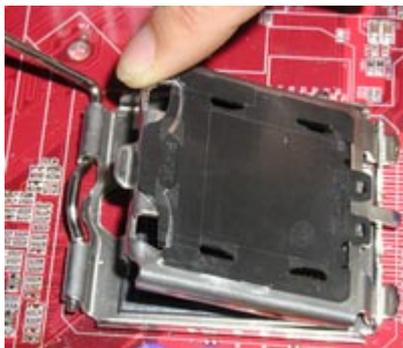
- Three 32-bit PCI ports for add-in card connections.

CPU INSTALLATION

Please follow the steps below to install the CPU.



1. Please turn off the power and unplug the power cord before installing the CPU. Use index finger and thumb to raise the metal lever so it is separated from the bottom steel shell grip hook.



2. Use index finger to lift the top steel shell.



3. Use index finger and thumb to place the CPU onto the socket (Look for the gold arrow. The gold arrow should point towards the lever pivot).



4. Use index finger and thumb to press down the metal lever. The cap will be pushed up by the CPU. This may also be done by removing the lid beforehand.

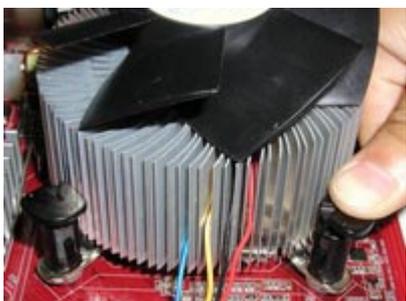


5. Press the metal lever so it is secured in the bottom steel shell grip hook.

6. It's recommended that the CPU heatsink be approved by Intel for use with the Prescott CPU. Choose the orientation of the thermal solution for optimal wire routing to the fan header on the motherboard, Position the thermal solution over the processor. Ensure the fan wiring is positioned to prevent wire pinching between the heatsink and the processor, or between the heatsink clip and the socket.



7. Align the fastener tips with the motherboard hole pattern, insert the fastener tips into the holes, guiding the wires to avoid pinching. The fasteners will slide through the Sapphire motherboard holes without applying too much force.



8. Engage the fastener caps. Apply thumb pressure to the top of each of the 4 fastener caps, there is no specific order of engagement, you will hear a “click” upon full engagement.



9. Gently rotate the cap clockwise 1/4 turn to fasten the heatsink onto the Sapphire motherboard.



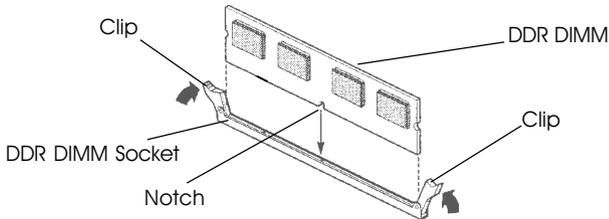
10. Lastly, attach the fan wire connector to the 4 pin fan header connector on the Sapphire motherboard labeled CPU FAN.

MEMORY CONFIGURATIONS

Install DDR DIMMs

Please follow steps below to install DDR DIMMs.

1. Hold the DDR DIMM module by the edges and remove it from its antistatic package.
2. Make sure the clips at either end of the DIMM socket are pushed away from the socket.



3. Position the DDR DIMM module above the socket and align the notch in the bottom edge of the module with the key in the socket.
4. Insert the bottom edge of the DDR DIMM module into the socket.
5. When the module is seated, press down on the top edge of the DDR DIMM module until the retaining clips at the ends of the socket snap into place.

Note: Please turn the system off before installing or removing any device, otherwise system damage can occur.

Memory Configurations

Please refer to the following recommended memory configurations.

Mode / (DIMM Type)	Case	Sockets			
		DDR1	DDR2	DDR3	DDR4
Single-channel / (DDR400/DDR333/DDR266)	1*	Populated	---	---	---
	2*	---	Populated	---	---
	3*	---	---	Populated	---
	4*	---	---	---	Populated
Dual-channel / (DDR400/DDR333/DDR266)	1#	Populated	---	Populated	---
	2#	---	Populated	---	Populated
	3#	Populated	Populated	Populated	Populated

- Note:**
- In dual channel mode, always install an identical (the same type and size) DDR DIMM pair in sockets.
 - It is not recommended to use a three DIMM configuration.
 - Memory channel speed is determined by slowest DIMM populated in system.

CrossFire SETUP

If you want to set up the CrossFire, the Master card should be inserted into the Master slot and the Slave card should be inserted into the Slave slot properly. Make sure that the card is inserted in correct slot.

Enter CMOS Setup Utility to set CrossFire

1. Press Key during POST.
2. Scroll to “Advance Chipset Features”, press enter.
3. Scroll to “Adjust PCIE Config.”, press enter again.
4. Set “PCIE GFX TWO PORT” to “Enable”, and the “GFX Link Width” to “x8”.



5. Press F10 to Save and Exit.

Installing Driver

After setting up the Windows, you need to install the 8.15 driver or later which must include the Catalyst Control Centre (CCC).



Step1

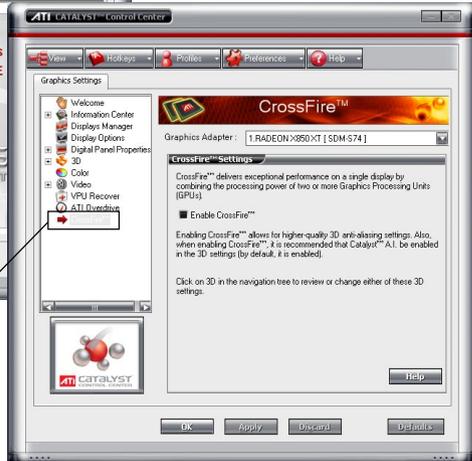
In the CCC advanced mode, you need to click the check box to enable the CrossFire.

Click "Standard View" as default



Step 2

Click "CrossFire™"



Step3



Select the check box

Step4

After CrossFire is enabled successfully, you will be able to see that CrossFire has started.

SATA RAID SETUP

Creating and deleting RAID sets is a function found in the RAID utility. During bootup, the following message will appear, pausing for a few seconds to allow the user to enter the RAID utility:

Press Ctrl+S or F4 to enter RAID utility

An easy-to-use screen will appear with the following choices:

Create RAID Set Delete RAID Set Rebuild RAID Set Resolve Conflicts

Below this will be a list of drives currently installed on the system.

Creating RAID Sets

SATA Raid supports two drives. Please follow the below mentioned steps.

1. Select "Create RAID Set" and choose either a "Striped" or "Mirrored" RAID Set.
2. Select if you want the utility to Auto Configure the RAID Set or if you want to manually configure the RAID Set. For Striped Sets, you can change the chunk size. For Mirrored Sets, you can assign Source and Target drives, as well as if you want Disk Copy.

What is a Striped RAID Set? Also known as RAID Level 0, a Striped RAID Set allows for high speed storage without redundancy. This requires 2 identical drives allowing for data to be split across the drives resulting in faster data throughput. Choose this selection if you want to gain performance.

What is a Mirrored RAID Set? Also known as RAID Level 1, a Mirrored RAID Set allows for both high speed storage and redundancy. This requires 2 identical drives allowing for data to be copied from a source drive and duplicated onto the second drive. Choose this selection if you prefer security options to prevent data loss.

What is a Disk Copy? In the case where you have a drive that already contains data and you would like to create a new RAID Set, you will need to purchase an identical drive and select Disk Copy to allow the contents of your source drive to be copied to your new destination drive.

Deleting RAID Sets

1. To remove one or more RAID sets, select "Delete RAID Set."
2. Select desired set and press Y when asked "Are You Sure?"

Rebuilding RAID Sets

In case your RAID set has encountered an error or it has been changed, you can recover the RAID set using this option.

Resolving Conflicts

When a RAID set is created, the metadata written to the disk includes drive connection information (Primary Channel, Secondary Channel). If, after a disk failure, the replacement disk was previously part of a RAID set (or used in another system), it may have conflicting metadata, specifically in reference to the drive connection information. If so, this will prohibit the RAID set from being either created or rebuilt. In order for the RAID set to function properly, this old metadata must be first overwritten with the new metadata. To resolve this, select “Resolve Conflict” and the correct metadata, including the correct drive connection information, will be written to the replacement disk.

Driver and RAID Software Installation

1. For Windows 2000 and XP, after Windows has finished booting up, the system will automatically find the newly installed adapter and prompt the **Found New Hardware Wizard** window. Click **Cancel** to skip it.



2. Insert the bundled driver CD DISC into your CD-ROM drive, select “**ATI Chipset\ATI_Raid Driver**” installation bar on the dialogue Window to begin the driver and software installation. (Please follow the instructions to finish the installation).

Install Windows 2000/XP

- Insert the bundled driver CD DISC into CD-ROM (G:). Copy all files from the directory (G:\ATI chipset\ATI_Raid) to a floppy disk.
- Install the OS from CD-ROM.
- Press “**F6**” at the prompt “Press **F6** if you need to install a third party SCSI or RAID driver...”.
- Insert the floppy disk.
- Choose the OS device driver to be loaded.
- Install the OS.
- Install the driver after OS is installed.

BIOS SETUP

About the Setup Utility

The mainboard uses the latest Award BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals**
- Video display type and display options**
- Password protection to prevent unauthorized use**
- Power Management features**
- Overclocking features**

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

Pressing the delete key accesses the BIOS Setup Utility:

Phoenix - Award Workstation BIOS CMOS Setup Utility	
<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc: Quit :	↑↓→←: Select Item
F10: Save & Exit Setup	
Time, Date, Hard Disk Type...	

(Note : The sample BIOS Setup Menu included here only shows a typical case, and may not be exactly the same as the one on your unit.)

BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
↑↓→←	Move
Enter	Select item or option
+/-/PU/PD	Value
ESC	Exit
F1	Display the General Help
F5	Restore the Previous Values
F6	Load the Fail-Safe Defaults
F7	Load the Optimized Defaults
F10	Save configuration

Updating the BIOS

You can download and install updated BIOS for this motherboard from manufacture's web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
2. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 1.
3. Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.) Also see page 54 for more information.
4. At the A:\ prompt, type the Flash Utility program name and press <Enter>.

5. Type the file name of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the motherboard BIOS.
6. When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute the option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to move the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle▶ .

Standard CMOS Features

This option displays basic information about your system.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Sun, July 10 2005	Item Help
Time (hh:mm:ss)	23 : 21 : 34	
▶ IDE Channel 0 Master	[ST380021A]	Menu Level ▶ Change the day, month, year and century
▶ IDE Channel 0 Slave	[None]	
▶ IDE Channel 1 Master	[SAMSUNG DVD-ROM SD-6]	
▶ IDE Channel 1 Slave	[GCR-8525B]	
▶ IDE Channel 2 Master	[None]	
▶ IDE Channel 3 Master	[None]	
▶ IDE Channel 4 Master	[None]	
▶ IDE Channel 5 Master	[None]	
Drive A	[1.44M, 3.5 in.]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	260096K	
Total Memory	261120K	

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

Date and Time

The Date and Time shows the current date and time on the computer. If you are running Windows, it is automatically updated whenever you make changes to the Windows Date and Time Properties utility.

IDE Devices (None)

Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel.

Press <Enter> to display the IDE submenu:

Phoenix - Award WorkstationBIOS CMOS Setup Utility
IDE Channel 0 Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Channel 0 Master	[Auto]	Menu Level ▶▶
Access Mode	[Auto]	To auto-detect the HDD's size, head... on this channel
Capacity	0MB	
Cylinder	0	
Head	0	
Precomp	0	
Lading Zone	0	
Sector	0	

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

IDE HDD Auto-Detection

Press <Enter> while this option is highlighted to prompt the Setup Utility to automatically detect and configure an IDE device on the IDE channel.

NOTE: If you are setting up a new hard disk drive that supports LBA mode, more than one line will appear in the parameter box. Choose the line that lists LBA for the LBA drive.

IDE Channel 0/1 Master/Slave (Auto)

Leave this option at Auto to enable the system to automatically detect and configure IDE devices on the channel. If it fails to find a device, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items described below. Refer to your drive's documentation or look on the drive casing if you need to obtain this information. If no device is installed, change the value to None.

NOTE: Before attempting to configure a hard disk drive, ensure that you have the configuration information supplied by the manufacturer of your hard drive. Incorrect settings can result in your system not recognizing the installed hard disk.

Access Mode (Auto)

This option defines ways that can be used to access IDE hard disks such as LBA (Large Block Addressing). Leave this value at Auto and the system will automatically decide the fastest way to access the hard disk drive.

Press <Esc> to return to the Standard CMOS Features Page

Drive A (1.44M, 3.5 in./None)

This option defines the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

Halt On (All Errors)

This option defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient for you to halt the system.

Base Memory, Extended Memory, and Total Memory

These options are automatically detected by the system at startup. They are display-only fields. You cannot make changes to these fields.

Advanced BIOS Features

This section defines advanced information about your system.

Phoenix - Award Workstation BIOS CMOS Setup Utility
Advanced BIOS Features

		Item Help
▶ CPU Feature	[Press Enter]	
▶ Hard Disk Boot Priority	[Press Enter]	Menu Level ▶
Virus Warning	[Disabled]	
CPU L1 & L2 Cache	[Enabled]	
Hyper-Treading Technology	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[Hard Disk]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Boot Up Floppy Seek	[Enabled]	
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	[Enabled]	
MPS Version Control For OS	[1.4]	

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

Hard Disk Boot Priority

Navigate to this section and press <Enter> to view the following screen:

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. Ch0 M. : ST380021A 2. Bootable Add-in Cards	Item Help Menu Level ▶▶ Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
---	---

↑↓→←: 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 (Disabled)

If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and an alarm will beep.

CPU L1&L2 Cache (Enabled)

All processors that can be installed in this motherboard use L1&L2 cache memory to improve performance. Leave this item at the default value for better performance.

Quick Power On Self Test (Enabled)

To allow the system to skip certain tests while booting. This will decrease the time needed to boot the system. You might like to enable this option when you are confident that your system hardware is operating smoothly.

Third Boot Device (LS120)

Use these three options to select the priority and order of the devices that your system searches for an operating system at start-up time.

Boot Other Device (Enabled)

When this option enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified among the First, Second, and Third boot devices.

Boot Up Floppy Seek (Enabled)

When this option is enabled, it checks the size of the floppy disk drives at start-up time.

Boot Up Num Lock Status (On)

This option defines if the keyboard Num Lock key is active when your system is started, default is on.

Gate A20 Option (Fast)

This option defines how the system handles legacy software that was written for an earlier generation of processors.

Typematic Rate Setting (Disabled)

If this option is enabled, you can use the following two options to set the typematic rate and the typematic delay settings for your keyboard.

- **Typematic Rate (Chars/Sec):**

This option defines how many characters per second are generated by a held-down key.

- **Typematic Delay (Msec):**

This option defines how many milliseconds must elapse before a held-down key begins generating repeat characters.

Security Option (Setup)

If you have installed password protection, this option defines if the password is required at system start up or if it is only required when a user tries to enter the Setup Utility.

APIC Mode (Enabled)

This option allows you to enable or disable the APIC (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multiprocessing (SMP) for systems, allowing support for up to 60 processors. It is recommended that this option be enabled.

MPS Version Control For OS (1.4)

This option can improve support for multiple PCI bus configurations and improve future expendability. The default is 1.4.

Advanced Chipset Features

These options define critical timing parameters of the Sapphire motherboard. You should leave the options on this page at their default values unless you are familiar with the technical specification of your system hardware. Changing the values to an incorrect setting may result in fatal errors or may cause your system to run unstable.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced Chipset Features

Current MRC Version	5.2	Item Help
Memory Frequency For	[AUTO]	
UMA Frame Buffer Size	[64MB]	Menu Level ▶
▶ Adjust DRAM Timing	[Press Enter]	
▶ Adjust PCIE Confg.	[Press Enter]	
Video Display Devices	[Auto]	
Tv Standard	[NTSC]	
Memory Hole	[Disabled]	
System BIOS Cacheable	[Disabled]	
Multi-Function	[Disabled]	

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

Integrated Peripherals

This section displays options that define the operation of peripheral components on the system's input/output ports.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Integrated Peripherals

▶ South OnChip IDE Device	[Press Enter]	Item Help
▶ South OnChip PCI Device	[Press Enter]	
Init Display First	[PCIEx]	Menu Level ▶
X Surroundview	[Disabled]	
USB EHCI Controller	[Enabled]	
OnChip USB Controller	[Enabled]	
USB Legacy Support	[Disabled]	
USB Mouse Support	[Disabled]	
IDE HDD Block Mode	[Enabled]	
POWER ON Function	[BUTTON ONLY]	
X KB Power On Password	Enter	
X Hot Key Power ON	Ctrl - F1	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[IrDA]	
UR2 Duplex Mode	[Full]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[ECP]	

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

South OnChip IDE Device

Navigate to this option and press <Enter> to view the following screen:

Phoenix – Award WorkstationBIOS CMOS Setup Utility
South OnChip IDE Device

IDE DMA transfer access	[Enabled]	Item Help
OnChip IDE Channel0	[Enabled]	
OnChip IDE Channel1	[Enabled]	
IDE Prefetch Mode	[Disabled]	Menu Level ▶▶
Primary Master	PIO	[Auto]
Primary Slave	PIO	[Auto]
Secondary Master	PIO	[Auto]
Secondary Slave	PIO	[Auto]
Primary Master	UDMA	[Auto]
Primary Slave	UDMA	[Auto]
Secondary Master	UDMA	[Auto]
Secondary Slave	UDMA	[Auto]

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

IDE DMA transfer access (Enabled)

This option allows you to enable the transfer access of the IDE DMA. If you disable this function you will only have PIO modes 1-4 available.

OnChip IDE Channel 0/1 (Enabled)

Use this option to enable or disable the PCI IDE channels that are integrated on the motherboard.

IDE Prefetch Mode (Enabled)

The onboard IDE drive interface supports IDE prefetching for faster drive access. If you install a primary and secondary add-on interface, set this field to Disable if the interface does not support prefetching.

Primary/Secondary Master/Slave PIO (Auto)

Each IDE channel supports a master device and a slave device. These four items let you assign the kind of PIO (Programmed Input/Output) was used by the IDE devices. Choose Auto to let the system auto detect which PIO mode is best, or select a PIO mode from 0 to 4.

Primary/Secondary Master/Slave UDMA (Auto)

Each IDE channel supports a master device and a slave device. This motherboard supports UltraDMA technology, which provides faster access to IDE devices. If you install a device that supports UltraDMA, change the appropriate item on this list to Auto.

IDE HDD Block Mode (Enabled)

Enable this option if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support. It also improves the speed of access to IDE devices.

Press <Esc> to return to the Standard CMOS Features Page

South OnChip PCI Device

Navigate to this option and press <Enter> to view the following screen:

Phoenix - Award WorkstationBIOS CMOS Setup Utility
South OnChip PCI Device

Onboard Azalia Audio	[Auto]	Item Help
Onboard Azalia Clock	[UsbClk48]	
Onboard SATA Controller	[Both]	Menu Level ▶▶
Onboard SATA Type	[RAID Controller]	

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

Onboard Azalia AUDIO (Auto)

This option allows you to control the onboard Azalia (High Definition) audio. Disable this option if you do not need the high definition onboard sound.

Onboard SATA Controller (Both)

This option allows you to enable or disable the Serial ATA controller.

Onboard SATA Type (RAID Controller)

This option allows you to control the Serial ATA controller as RAID mode.

Press <Esc> to return to the Standard CMOS Features Page

Init Display First

Use this option to specify whether your graphics adapter is installed in one of the PCI slots.

OnChip USB Controller (Enabled)

This option allows you to enable or disable the onboard USB controller.

USB Mouse Support (Disabled)

This option allows you to enable or disable the USB mouse support.

Onboard FDC Controller (Enabled)

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

Onboard Serial Port 1 (3F8/IRQ4)

Select a logical COM port name and matching address for the first and second serial ports. Select an address and corresponding interrupt for the first and second serial ports.

Parallel Port Mode (ECP)

Select an operating mode for the onboard parallel (printer) port. Select a DMA channel for the port when you choose ECP or ECP+EPP mode for the Parallel Port Mode.

Power Management Setup

This option lets you control system power management. The system has various power-saving modes including powering down the hard disk, turning off the video, suspending to RAM, and software power down that allows the system to be automatically resumed by certain events.

Phoenix-Award Workstation BIOS CMOS Setup Utility Power Management Setup

ACPI function	[Enabled]	Item Help
ACPI Suspend Type	[S1 (POS)]	
C2 Disable/Enable	[Disabled]	
Power Management Option	[User Define]	
HDD Power Down	[Disabled]	Menu Level ▶
Doze Mode	[Disabled]	
Video Off Option	[Suspend -> Off]	
Video Off Method	[V/H SYNC+Blank]	
MODEM Use IRQ	[3]	
Soft-Off by PWRBTN	[Instant-Off]	
Power-on by PCI Card/LAN	[Enabled]	
Modem Ring Resume	[Disabled]	
RTC Alarm Resume	[Disabled]	
* Date (of Month)	0	
* Resume Time (hh:mm:ss)	0 : 0 : 0	
▶ IRQ/Event Activity Detect	[Press Enter]	

↑↓←→: 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 (Enabled)

Select Enabled only if your computer's operating system supports the Advanced Configuration and Power Interface (ACPI) specification.

ACPI Suspend Type S1 (POS)

Use this item to define the suspend mode for your system.

Power Management Option (User Define)

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes.

- User Define – Select time-out period in the section for each mode stated below.
- Max Saving – Maximum power savings. Inactivity period is 1 minute in each mode.
- Min Saving – Minimum power savings. Inactivity period is 1 hour in each mode (except the hard driver)

HDD Power Down (Disabled)

The IDE hard drive will spin down if it is not accessed within a specified length of time. Options are from 1 Min to 15 Min and Disabled.

Video Off Option (Suspend—> Off)

This option defines if the video is powered down when the system is put into suspend mode.

Video Off Method (V/H SYNC+Blank)

This item defines how the video is powered down to save power.

MODEM Use IRQ (3)

If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the motherboard Wake On Modem connector for this feature to work.

Soft-Off by PWRBTN (Instant Off)

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This option lets you install a software power down that is controlled by the power button on your system. If you select Instant-Off, then the power button causes a software power down. If you select Delay 4 Sec, then holding the power button down for four seconds is required to cause a software power down.

Power-on by PCI Card/LAN (Enabled)

This options allows the system to be awakened from power saving modes when activity or input signal of the PCI Card is detected.

RTC Alarm Resume (Disabled)

When set to Enabled, you can set the date (day of the month), hour, minute and second to turn on your system. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time.

- **Date of Month:** Use this field to define the date of month when using the RTC alarm to resume the system.
- **Resume Time:** Use this field to define the time when using the RTC alarm to resume the system.

PNP/PCI Configurations

This section configures how PnP (Plug and Play) and PCI expansion cards operate in your system. The PCI bus on the motherboard uses system IRQs (Interrupt ReQuests) and DMAs (Direct Memory Access). You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configurations Setup utility for the motherboard to work properly. This screen appears after entering:

Phoenix-AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Reset Configuration Data	[Disabled]	Item Help
Resources Controlled By	[Auto (ESCD)]	Menu Level ►
* IRQ Resources	Press Enter	Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Enabled]	
Assign IRQ For USB	[Enabled]	
PCI Latency Timer (CLK)	[64]	
** PCI Express relative items **		
Maximum Payload Size	[4096]	

↑↓←→: 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 (Disabled)

If you enable this option and restart the system, any Plug and Play configuration data stored in the BIOS Setup is cleared from memory.

Resources Controlled By (Auto(ESCD))

You should leave this option at the default (Auto (ESCD)). When enabled, the system dynamically allocates resources to Plug and Play devices as they are required. If you cannot get a legacy ISA (Industry Standard Architecture) expansion card to work properly, you might be able to solve the problem by changing this item to Manual, and then opening up the IRQ Resources submenu.

* IRQ Resources:

In the IRQ Resources submenu, if you assign an IRQ to Legacy, then that Interrupt Request Line is reserved for a legacy ISA expansion card. In the Memory Resources submenu, use the first item Reserved memory Base to set the start address of the memory you want to reserve for the ISA expansion card. Use the second item Reserved Memory Length to set the amount of reserved memory. Press <Esc> to close the Memory Resources submenu.

PCI/VGA Palette Snoop [Disabled]

This option is designed to overcome problems that can be caused by some nonstandard VGA cards.

Assign IRQ For VGA [Enabled]

This option assigns an interrupt request (IRQ) to the VGA on your system. Activity of the selected IRQ always awakens the system.

Assign IRQ For USB [Enabled]

This option assigns an interrupt request (IRQ) to the USB on your system. Activity of the selected IRQ always awakens the system.

PC Health Status

Your Sapphire motherboard supports hardware monitoring; this section lets you monitor the parameters for critical voltages, temperatures and fan speeds.

Phoenix-AwardBIOS CMOS Setup Utility
PC Health Status

Case Opened Warning	[Disabled]	
CPU Fan Speed Control	[Smart]	
Shutdown Temperature	[Disabled]	Item Help
+1.8V Voltage	1.80v	Menu Level ▶
CPU Voltage	1.31v	
+3.3V Voltage	3.34v	
+5V Voltage	5.13v	
+12V Voltage	12.16v	
DDR Voltage	2.64v	
Chipset Voltage	1.23v	
Battery Voltage	3.24v	
CPU Temperature	38 °C	
CPU Fan	2109 RPM	
System Fan	0 RPM	

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

Shutdown Temperature [Disabled]

Enables you to set the maximum temperature the system can reach before powering down.

System Component Characteristics

These fields provide you with information about the system's current operating status. You cannot make changes to these fields.

- +1.8V Voltage
- CPU Voltage
- +3.3V Voltage
- +5V Voltage
- +12V Voltage
- DDR Voltage
- Chipset Voltage
- Battery Voltage
- CPU Temperature
- CPU Fan
- System Fan

Load Fail-Safe Defaults

If you select this item and press Enter a dialog box will appear. If you select [OK], and then Enter, the Setup Utility loads a set of performance default values. These default settings are quite demanding and your system might not function properly if you are using slower CPU, memory, or other low-performance components.

Note: Loading Performance settings may cause your system to become unstable or unbootable. When loading the Performance Defaults fails, users can use either method below to return the motherboard to its default BIOS:

1. Power on the system and press "Insert" key. The system will bypass the previous BIOS setting and automatically reload the default BIOS.
2. Locate the Clear CMOS jumper on the motherboard and proceed with the "Clear CMOS" to recover the default BIOS setting. Please refer to Chapter 2, page 18, to complete the clear CMOS action. (This procedure requires opening the chassis!)

Load Optimized Defaults

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.

Note: Please use the factory BIOS default setting "Load Optimized Defaults" when installing the Operating System.

Set Supervisor/User Password

When this function is selected, the following message appears at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password typed 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. To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter BIOS Setup freely.

PASSWORD DISABLED

If you have selected “**System**” in “Security Option” of “BIOS Features Setup” menu, you will be prompted for the password every time the system reboot or any time you try to enter BIOS Setup. If you have selected “**Setup**” at “Security Option” from “BIOS Features Setup” menu, you will be prompted for the password only when you enter BIOS Setup.

Supervisor Password has higher priority than User Password. You can use Supervisor Password when booting the system or entering BIOS Setup to modify all settings. Also you can use User Password when booting the system or entering BIOS Setup but can not modify any setting if Supervisor Password is enabled.

Save & Exit Setup

Navigate to this option and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, press <Y> to save and exit, or press <N> to return to the main menu.

Exit Without Saving

Navigate to this option and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, press <Y> to discard changes and exit, or press <N> to return to the main menu.

Note: If you have made settings that you do not want to save, use the “Exit Without Saving” item and press <Y> to discard any changes you have made.

Realtek HD Audio Driver Setup

Getting Started

After installing the Realtek HD Audio Driver (insert the driver CD and follow the onscreen instructions), “Realtek HD Audio Manager” icon will show in System tray as below. Double click the icon and the control panel will appear:



Double click to enable
Realtek HD Audio Manager

Sound Effect

After clicking on the “Sound Effect” tab, 3 sections “Environment”, “Equalizer” and “Karaoke” are available for selection.



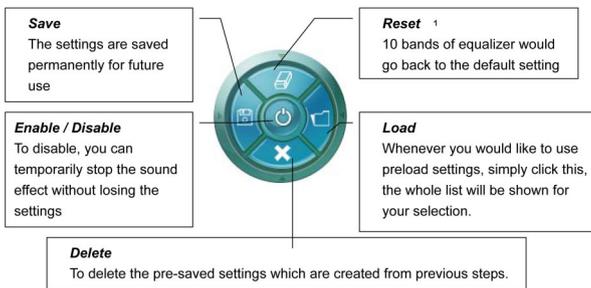
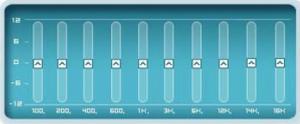
Environment Simulation

You will be able to enjoy different sound experiences by pulling down the arrow, a total of 23 sound effects will be shown for selection. Realtek HD Audio Sound Manager also provides five popular settings “Stone Corridor”, “Bathroom”, “Sewer pipe”, “Arena” and “Audio Corridor” for quick enjoyment.

Equalizer Selection

The Equalizer section allows you to create your own preferred settings by utilizing this tool.

In standard 10 bands of equalizer, ranging from 100Hz to 16KHz are available:



Frequently Used Equalizer Setting

Realtek recognizes the needs that you might have. By leveraging our long experience in the audio field, Realtek HD Audio Sound Manager provides you certain optimized equalizer settings that are frequently used for your quick enjoyment.

How to Use

Other than the buttons “Pop” “Live” “Club” & “Rock” shown on the page, to pull down the arrow in “Others” , you will find more optimized settings available to you.

Karaoke Mode

Karaoke mode brings Karaoke fun back home by simply using the music you usually play, Karaoke mode can help you eliminate the vocal of the song or adjust the key to accommodate your range.

Vocal Cancellation: Single click on “Voice Cancellation”, the vocals of the songs will be erased, while the background music is still playing which lets you take over the vocal part.

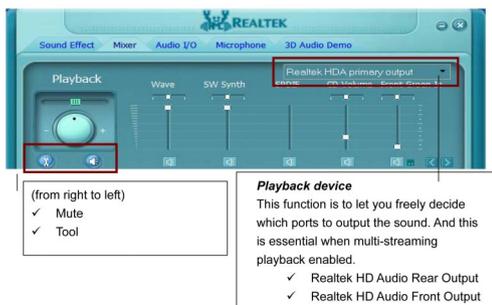
Key Adjustment: Using “Up / Down Arrow” to find a key which better fits your vocal range.

Mixer

Realtek HD Audio Sound Manager integrates Microsoft's "Volume Control" functions into the Mixer page. This gives you the ability to create your favorite sound effect in one single tool.



Playback control



Mute

You may choose to mute single or multiple volume controls or to completely mute sound output.

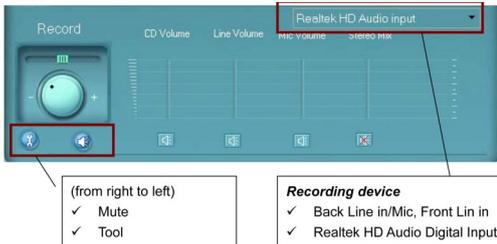
Tool

- **Show the following volume control**
This is to let you freely decide which volume control items to be displayed, total 13 items to be chosen.
- **Advanced controls**
- **Enable playback multi-streaming**

With this function, you will be able to have an audio chat with your friends via headphone (stream 1 from front panel) while still have music (stream 2 from back panel) playing. At any given period, you can have maximum 2 streams operating simultaneously.



Recording control



Mute

You may choose to mute single or multiple volume controls or to completely mute sound input.

Tool

☐ Show the following volume controls

This is to let you freely decide which volume control items to be displayed.

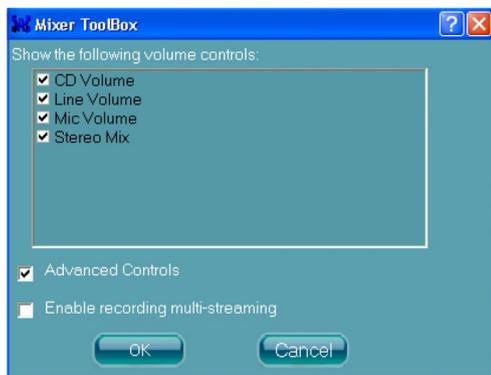
☐ Advanced controls.

Advanced control is a “Microphone Boost” icon.

Once this item is checked, you will find “advanced” icon beside “Front Pink In” & “Mic Volume”. With this, the input signal into “Front Pink In” & “Mic Volume” will be strengthened.

☐ Enable recording multi-streaming

At any given period, you can have maximum 2 streams operating simultaneously.



Audio I/O

Realtek HD Audio Manager frees you from default speaker settings. Jacks are no longer limited to a specific function. Instead, each jack can now be assigned either an output (i.e. playback) function or input (i.e. Recording) function. We call this "Retasking".

Audio I/O helps you to setup the jacks as you wish. Moreover, other than blue to blue, pink to pink, the way that you used to do, Audio I/O would guide you to other right jacks that can also serve as microphone / speaker / headphone.



Speaker Configuration

Step 1: Plug in the device in any available jack.

Step 2: Dialogue “connected device” will pop up for your selection. Please select the device you are trying to plug in.

* If the device is being plugged into the correct jack, you will be able to find the icon beside the jack changed to the one that is same as your device.

* If not correct, Realtek HD Audio Manager will guide you to plug the device into the correct jack.



Indicates pull-out
(Find the arrow is at opposite direction to the jack?)

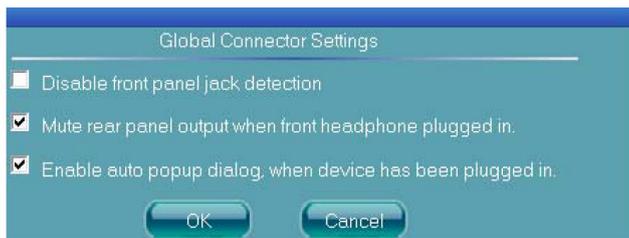
Indicates plug in
(Find the arrow is exactly into the jack?)

Warning
This device type is not supported!

The warning message to hint you the device was plugged into a wrong jack.

Global Connector Settings

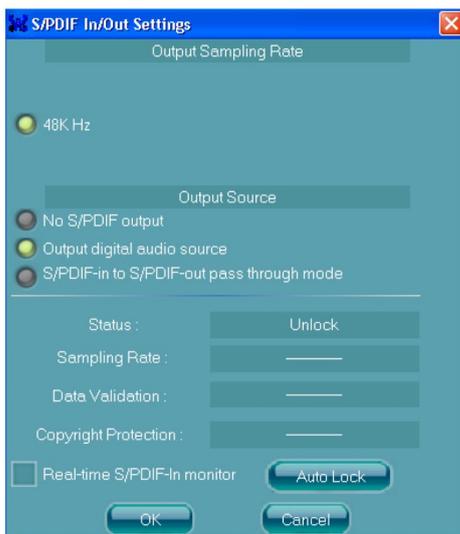
Click  to access global connector settings



- **Mute rear panel when front headphone plugged in**
Once this option is checked, whenever front headphone is plugged, the music that is playing from the back panel, will be stopped.
- **Disable front panel jack detection (option)**
Did not find any function on front panel jacks?
Please check if front jacks on your system are so-called AC'97 jacks. If so, please check this item to disable front panel jack detection.
- **Enable auto popup dialogue, when device has been plugged in.**
Once this item checked, the dialog “Connected device”, would not automatically pop up when device plugged in.

S/PDIF

Short for *Sony/Philips Digital Interface*, a standard audio file transfer format. S/PDIF allows the transfer of digital audio signals from one device to another without having to be converted first to an analog format. Maintaining the viability of a digital signal prevents the quality of the signal from degrading when it is converted to analog.



□ Output Sampling Rate

- 44.1KHz: This is recommended while playing CD
- 48KHz: This is recommended while playing DVD or Dolby.
- 96KHz: This is recommended while playing DVD-Audio.

□ Output Source

- Output digital audio source: The digital audio format (such as .wav, .mp3,.midi etc) will come out through S/PDIF-Out.
- S/PDIF-in to S/PDIF -out pass through mode: The data from S/PDIF-In can be real-time played from S/PDIF-Out.

S/PDIF In Status

Lock:

This is to determine if the S/PDIF In data has been successfully caught by codec Sampling Rate.

Data Validation:

This indicates if the input data is known to Realtek HD Audio Manager.

Copyright protection:

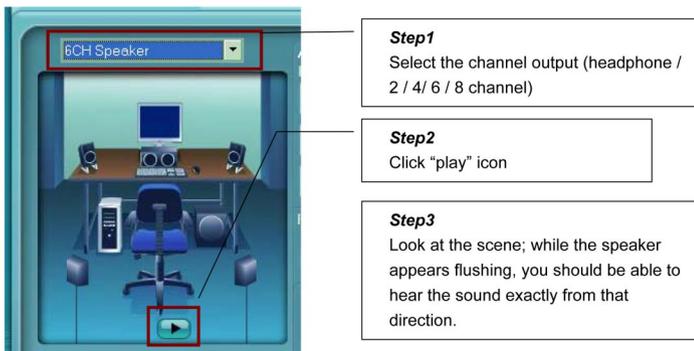
The input data can only be copied while “Copy Free” is shown; while “No Copy” indicates the data is read only.

Real time S/PDIF-in monitor:

Not only S/PDIF out, but also other analog out (such as front /side/surround speakers) can also output S/PDIF-in data real-time.

Speaker Calibration

After you have successfully plugged in speakers and assigned them to the right jacks, there is only one more step to enjoy the desired sound quality. We provide “Speaker Calibration” to help you check if the speakers are located in the correct position.



Step1
Select the channel output (headphone / 2 / 4/ 6 / 8 channel)

Step2
Click “play” icon

Step3
Look at the scene; while the speaker appears flushing, you should be able to hear the sound exactly from that direction.

Microphone

This page is designed to provide you better microphone / recording quality.

Below picture indicates both “Noise Suppression” & “Acoustic Echo Cancellation” are both enabled.



Noise Suppression

If you feel that the background noise, especially the sound generated from the fan inside PC is too loud, try “Noise Suppression”. This allows you to cut off and suppress disturbing noise.

Beam Forming

Also known as “directional recording”, this option lets you do the following: Once beam forming is enabled; only the sound from certain direction will be recorded. You will get the best quality if you chose 90° position, which we recommend you to use, this effectively means that you speak right into the microphone.

Note: A Stereo Microphone is required when using Beam Forming function.

Acoustic Echo Cancellation

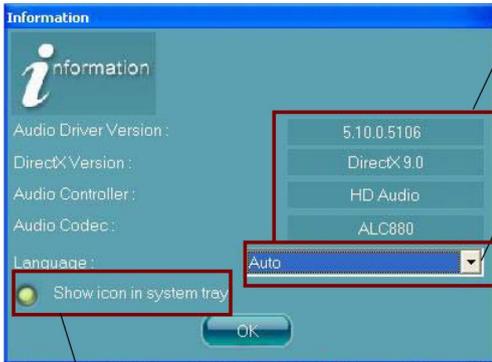
This function prevents playback sound from being recorded by microphone together with your sound. For example, you might have chance to use VOIP function through Internet with your friends. The voice of your friend will come out from speakers (playback). However, the voice of your friend might also be recorded into your microphone then go back to your friend through Internet. In that case, your friend will hear his/her own voice again. With AEC (Acoustic Echo Cancellation) enabled at your side, your friend can enjoy the benefit with less echo.

Audio Demo

The section “3D Audio Demo” grants you another possibility to enjoy your sound. The Audio Demo allows you to listen to sound in an extraordinary way.



Information



Hardware / Software information of your audio system

Language setting
When “Auto” is chosen, this language setting would accommodate to OS language on your systems

Quick launch button at System tray

This section provides information about your current system audio device.

BIOS Update Procedure

The program AWDFLASH.EXE is included on the driver CD (D:\Utility\AWDFLASH.EXE). Please follow the recommended procedure to update the flash BIOS, as listed below:

1. Create a DOS-bootable floppy diskette. Copy the new BIOS file (just obtained or downloaded) and the utility program AWDFLASH.EXE to the diskette.
2. Allow the PC system to boot from the DOS diskette.
3. At the DOS prompt, type

AWDFLASH<ENTER>

4. Enter the file name of the new BIOS.
5. The question: "Do you want to save BIOS (Y/N)?" is displayed.

***Press "N" if there is no need to save the existing BIOS.
Press "Y" if a backup copy of the existing BIOS is needed.
(A file name has to be assigned to the existing BIOS binary file.)***

6. The message : "Press "Y" to program or "N" to exit" is displayed. Type

"Y"<ENTER>

7. Wait until the flash-update is completed.
8. Restart the PC.

Warning : - Do not turn off or RESET the computer during the flash process.
- If you are not sure how to upgrade the BIOS, please take your computer to an Authorized Service Center and have a trained technician do the work for you.

Note to User:

The bundled driver CD contains all the drivers that the motherboard needs. Each driver will install automatically once it is selected. Please select the drivers that you want to install by clicking on the driver's button.

