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.

Table of Contents

HARDWARE CONFIGURATION

Key Features :

Chipset

- ATI® Express 3200+SB600 Chipset.

Processor

- Support for AMD™ K8 Processor in a Socket AM2 package.
- Supports Hypertransport interface bus.

VRM (Voltage Regulator Modules) on Board

- Flexible motherboard design with on board VRM, easy to upgrade with future AMD™ K8 processors.
- 0.800V to 1.55V in 25mV steps.

System Memory

- A total of four 240-pin DDRII RAM sockets.
- DIMM size support from 64MB to 4GB.
- Supports dual channel 128-bit wide memory interface.
- Supports 533/667/800 DDRII SDRAM memory types.

System BIOS

- PnP, APM, ATAPI and Windows® 2000/XP.
- Full support of ACPI & DMI.
- Auto detects and supports LBA hard disk 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.

On-board I/O

- One on board PCI fast IDE ports supporting up to two 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.
- Ten USB ports (six ports via three headers).
- PS/2 keyboard support.
- PS/2 mouse support.
- One front panel sound connector.

Expanded USB Support

- Includes 2 OHCI host controllers.
- Includes 1 EHCI USB2.0 Host Controller that supports all ports (Bandwidth is shared between the all ports).
- This motherboard supports USB 2.0 only on Windows® 2000 (with SP4 or above) and Windows® XP (with SP1 or above) operation systems.
- SB600 support ten ports.

On-board Marvell 88E8052 PCI Express Gigabit LAN(optional)

- 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(optional)

- Two 16-lane (x16) PCI Express port intended for external graphics.
- Fully compliant to 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.

PCI Express x1 Port

- Fully compliant to the PCI Express Base Specification revision 1.0a.
- One virtual channel support for full unsynchronized data transfers.
- Supports 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).

On-board IEEE1394 (optional)

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

On-board ALC882 7.1 Audio

- Integrated Realtek ALC882 controller.
- Full Direct Sound and Sound Blaster compatibility.
- 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 ALC882 codec for eight channel sound output.

On-board Serial ATAII Host Controller (for Sil3132&SB600)

- Independent DMA operation on four ports.
- Data transfer rates of 300Mb/s.
- RAID feature support .

Expansion Slots

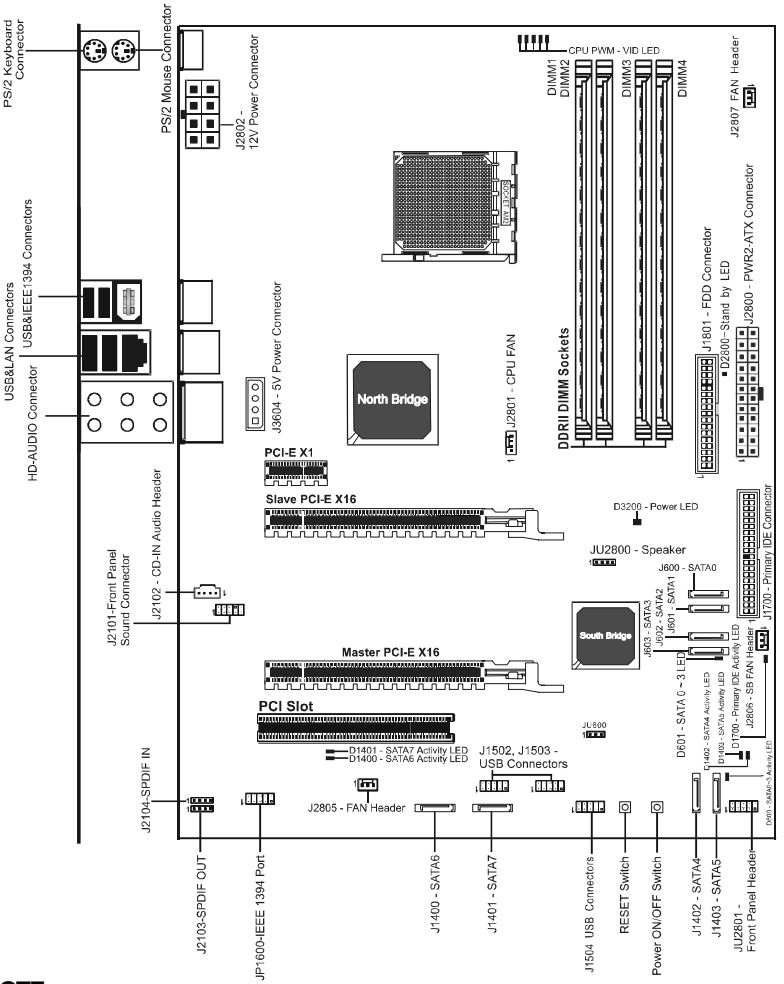
- 2 PCI Express X16 slots.
- 1 PCI Express X1 slot.
- 1 PCI slot - ver. 2.2 compliant.

When installing CrossFire graphics cards onto the motherboard, we recommend using 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 motherboard.

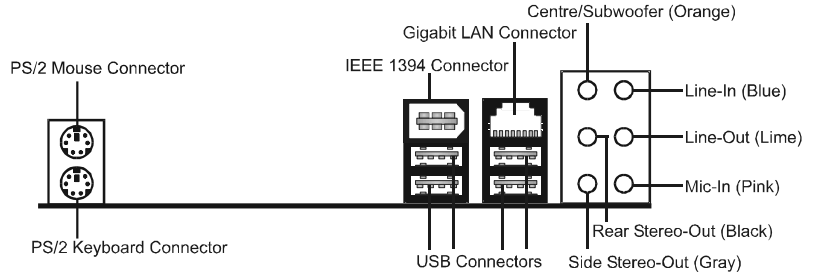


NOTE

1) Be sure to check the cable orientation in order to match the coloured 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 AM2 is not recommended as this will short motherboard components and damage the system.

REAR PANEL

The back panel provides the following connectors:

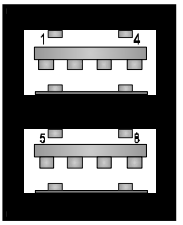


PS/2 Mouse Connector
The motherboard provides a standard PS/2 mouse mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse directly into this connector.

PS/2 Keyboard Connector
The 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 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

VIA VT6307 IEEE 1394 Connector (Optional)
The mainboard provides an IEEE 1394 Connector and allows you to connect an IEEE 1394 device directly to the connector.

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 ALC882 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:

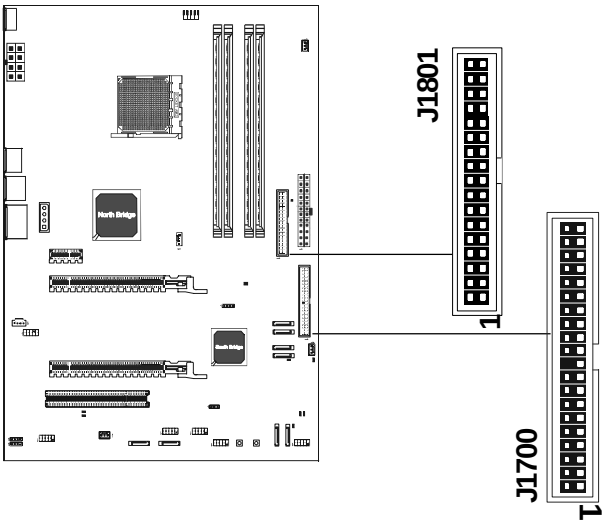
Audio Jack Color	2 Channel	6 Channel	8 Channel
Blue	Line-In	Line-In	Line-In
Lime	Line-Out	Front Stereo-Out	Front Stereo-Out
Pink	Mic-In	Mic-In	Mic-In
Gray	--	--	Side Stereo-Out
Black	--	Rear Stereo-Out	Rear Stereo-Out
Orange	--	Centre & Subwoofer	Centre & Subwoofer

CONNECTORS AND HEADERS

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

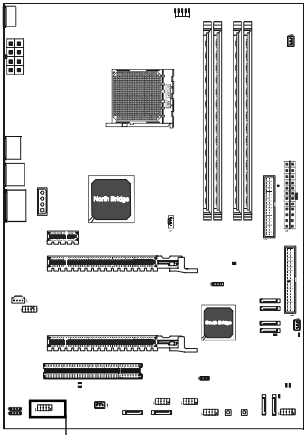
Floppy Disk Drive Connector - J1801
The motherboard provides a standard floppy disk drive connector that supports 1.44M, 2.88M floppy disk types.

Primary IDE Connector - J1700
The hard drive should always be connected to J1700. J1700 can connect a Master and a Slave drive. You must configure the second hard drive to Slave mode by setting the jumper accordingly.



IEEE 1394 Header - JP1600

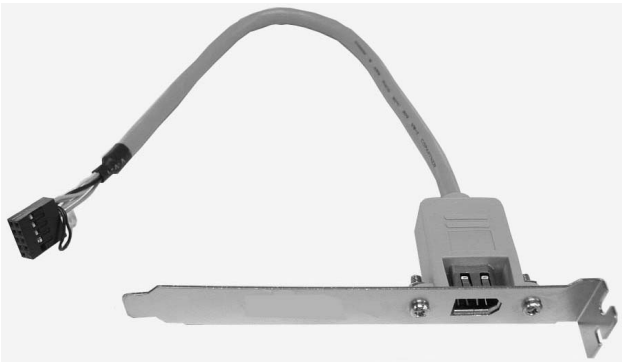
This motherboard provides one 1394 pin header that allow you to connect IEEE1394 port.



JP1600 - Pin Definition

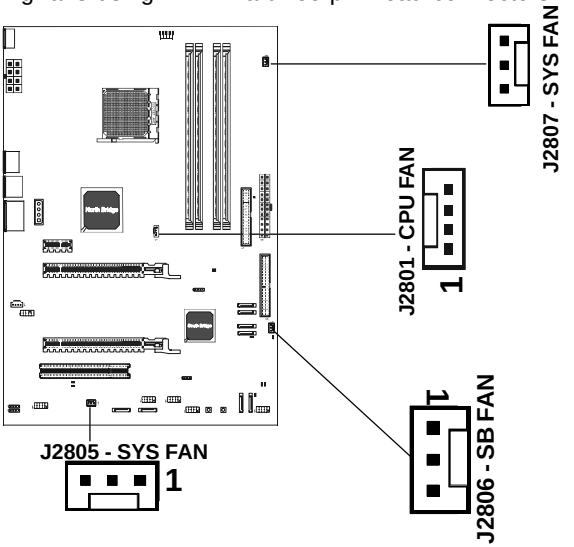
PIN	SIGNAL
1	TPA+
2	TPA-
3	Ground
4	Ground
5	TPB+
6	TPB-
7	Cable power
8	Cable power
9	Key (no pin)
10	Ground

IEEE 1394 Cable



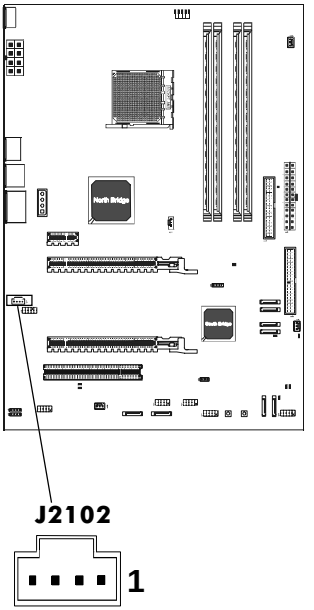
Fan Power Header - J2801, J2805, J2806,J2807

The CPUFAN (processor fan) and SYSFAN (system fan) support system cooling fans using +12V via three-pin head connectors.



CD-IN Header - J2102

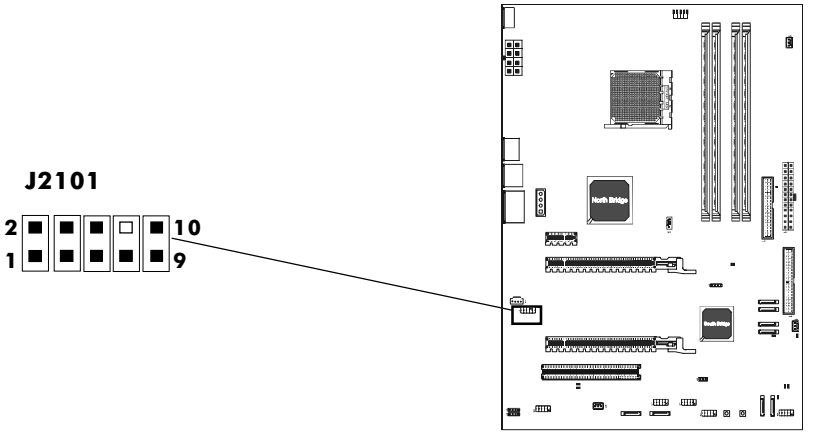
This header allows for the connection of audio from CD-ROM drive.



J2102 - Pin Definition

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

Front Panel Audio Header - J2101



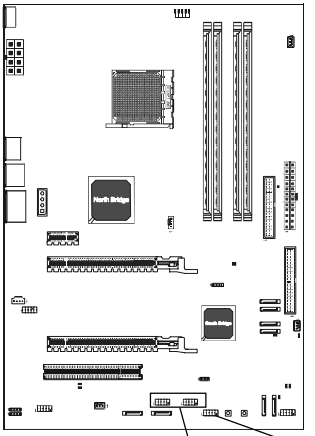
J2101 - Pin Definition

Pin	Signal	Description
1	PORT 1L	Analog Port1 - 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 Port2 - 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.

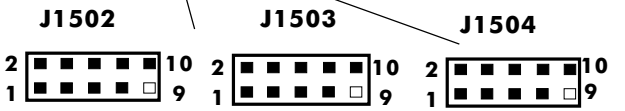
USB Headers - J1502, J1503,J1504

This motherboard has up to ten 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 J1502/J1503/J1504 to connect the front mounted ports to the motherboard.



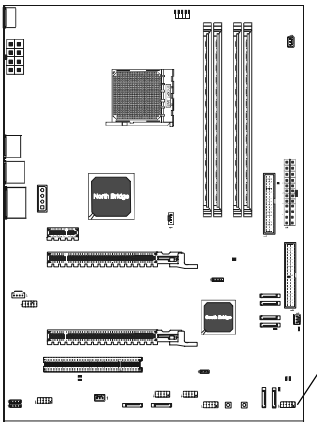
J1502,J1503,J1504 - Pin Definition

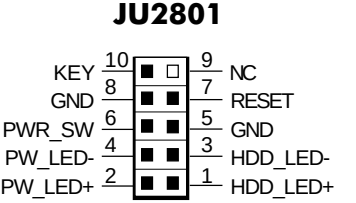
PIN	SIGNAL
1	VCC
2	VCC
3	USBP0-
4	USBP1-
5	USBP0+
6	USBP1+
7	GND
8	GND
9	KEY
10	OC#



Front Panel Header - JU2801

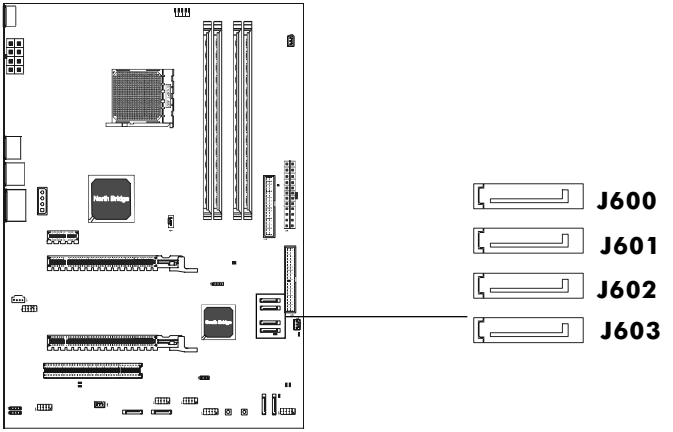
The motherboard provides a front panel connection to the front panel switches and LEDs. FP1 is compliant with the Front Panel I/O Connectivity Design Guide.





Serial ATA Hard Disk Connectors - J600, J601, J602, J603

The motherboard has four SATA connectors: J600, J601, J602, J603. Each supports 1st generation SATA data rates of 300MB/s. All connectors are fully compliant with Serial ATA 2.0 specifications. Each SATA connector can connect to one hard disk device. Please refer to SATA Raid Setup for details on software installation procedure.

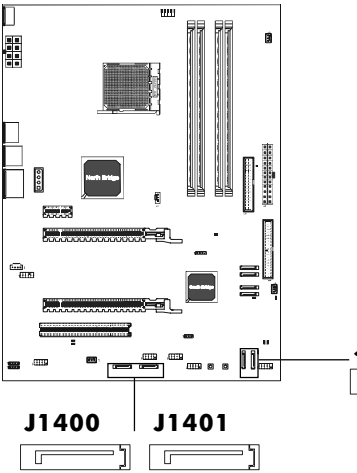


J600, J601, J602, J603 Pin Definition

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

Serial ATA-II Hard Disk Connectors - J1400, J1401, J1402, J1403

The motherboard has four SATA-II connectors: J1400, J1401, J1402, J1403. Each supports 2nd generation serial ATA data rates of 300 MB/s.All connectors are fully compliant with Serial ATA 2.0 specification. Each SATA-II connector can connect to 1 hard disk device.



J1400, J1401, J1402, J1403 - 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 and SATA-II devices.

Serial ATA Cable

Serial ATA Devices Power Cable (optional)

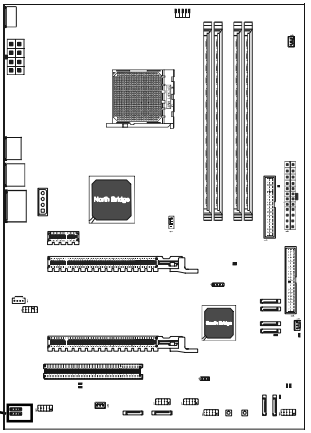
CAUTION!

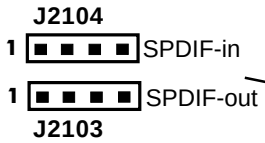
Please do not fold the serial ATA cable, which may lead to loss of data during transmission.

SPDIF Out Header - J2103
SPDIF In Header - J2104
This header provides a SPDIF (Sony/Philips Digital Interface) output to digital multimedia device through fiber or coaxial connector.

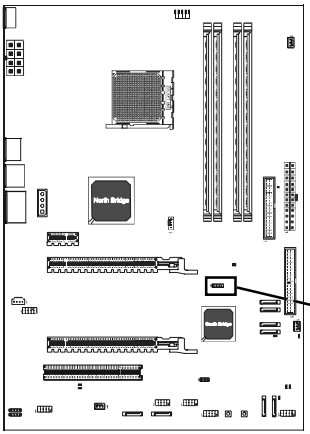
J2103, J2104 - Pin Definition

PIN	SIGNAL
1	SPDIF
2	+5VA
3	Key
4	GND



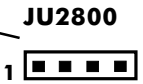


Speaker Header - JU2800
This motherboard provides a speaker connection to the external PC speaker.



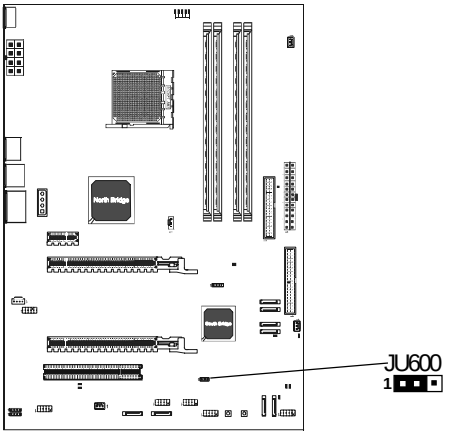
JU2800 - Pin Definition

PIN	SIGNAL
1	VCC
2	GND
3	GND
4	SPEAKER



JUMPER SETTING

This chapter explains how to configure the motherboard's hardware. Before using your computer, make sure all jumpers and DRAM modules are set correctly. Refer to this chapter whenever in doubt.



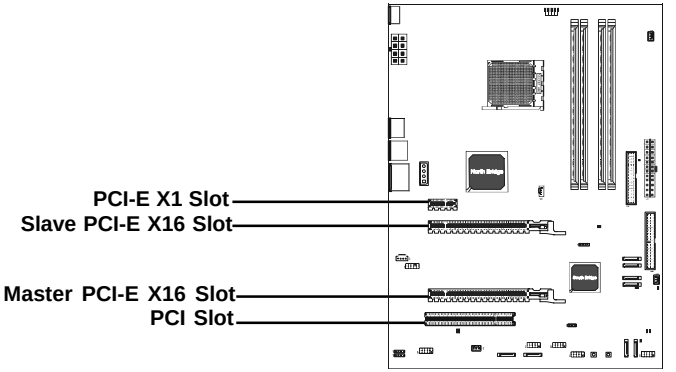
Clear CMOS Jumper: JU600

If you want to clear the system configuration, use the JU600 (Clear CMOS Jumper) to clear data.

JU600	Selection
1 1-2*	Normal*
1 2-3	CMOS Clear

SLOTS

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



PCI Express x16 Graphics Interface

- Two 16-lane (x16 port) PCI Express port intended for external graphics.
- Fully compliant to the PCI Express Base Specification revision 1.0a.
- The base PCI Express frequency of this interface is 4GB/s.
- PCI Express supported enhanced addressing mechanism.
- Support ATI CrossFire.

PCI Express x1 Port

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

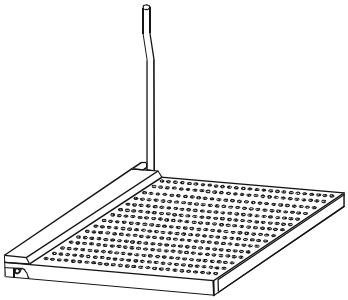
PCI (Peripheral Component Interconnect) Slots

- One 32-bit PCI port for add-in card connections.

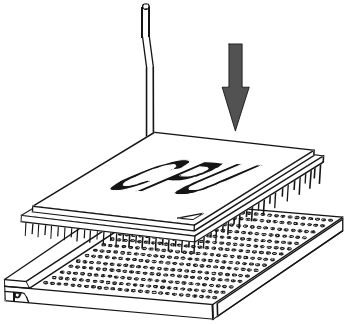
CPU INSTALLATION

Please refer to the steps below to install the CPU.

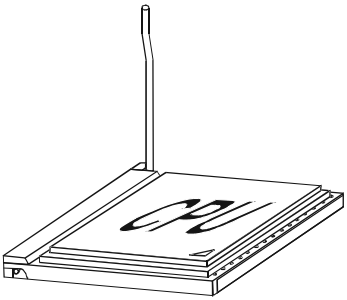
1. Please turn off the power and unplug the power cord before installing the CPU. Pull the lever up and away from the socket until it is at a 90 degree angle to the mainboard.



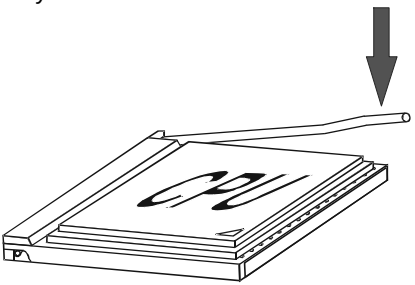
2. Look for the gold arrow on the CPU. The gold arrow should point away from the lever pivot. The CPU can only sit properly in the socket in the correct orientation.



3. If the CPU is correctly seated, the pins should be completely embedded in the socket and can not be seen. (Please note that any deviation from the correct installation procedures may cause permanent damage to your mainboard.)



4. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing firmly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.

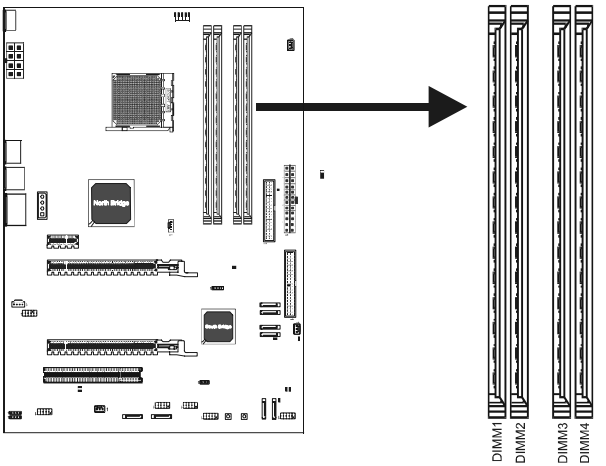


5. When you are installing the CPU, please make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating. If you do not have a heat sink or cooling fan, contact your dealer to purchase and install them before turning on the computer.

MEMORY CONFIGURATIONS

DDRII DIMM Sockets Location

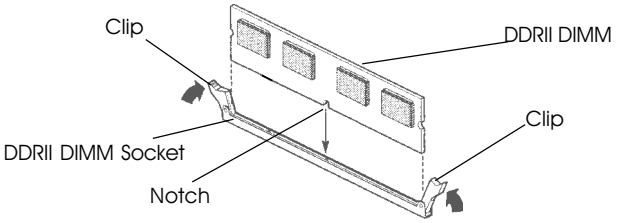
Please refer to the following figure for the location of the DDRII DIMM Sockets.



Install DDRII DIMMs

Please follow the steps below to install DDRII DIMMs.

1. Hold the DDRII 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 DDRII 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 DDRII DIMM module into the socket.
5. When the module is seated, press down on the top edge of the DDRII 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			
		DDRII1	DDRII2	DDRII3	DDRII4
Dual-channel /	1*	Populated	----	Populated	----
(DDRII553/DDRII667/DDRII800)	2*	----	Populated	----	Populated
	3*	Populated	Populated	Populated	Populated

You can install identical DIMMs in DDRII1 and DDRII3 and identical DIMMs in DDRII2 and DDRII4.

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

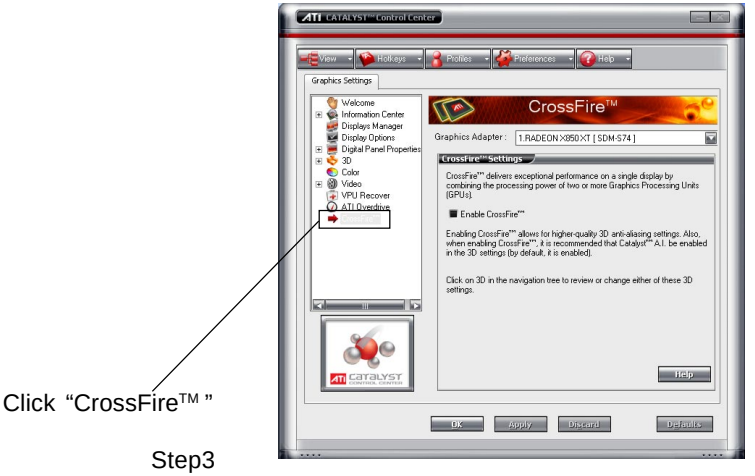
CrossFire SETUP

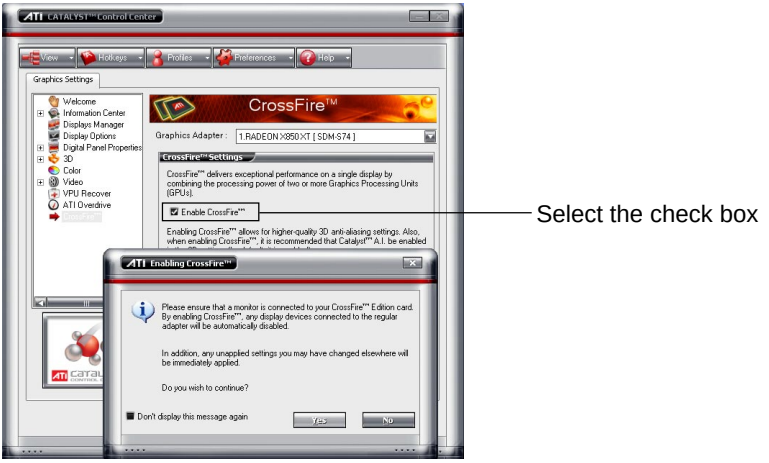
If you want to set up the CrossFire, the Master card should be inserted into the Master slot and the Slave card should be inserted into the Slave slot properly. Make sure that the card is inserted in correct slot. You need to install the 8.15 driver or later which must include the Catalyst Control Centre (CCC).

Step1

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

Step2





Step4
After CrossFire is enabled successfully, you will be able to see that CrossFire has started.

SATA RAID User Manual (for SB600)

BIOS Setup

Power on the computer, when the following message briefly appears at the bottom of the screen during the POST (Power On Self Test), press <Del> key to enter the AWARD BIOS CMOS Setup Utility.

Press Del to enter SETUP

Pressing the delete key accesses the BIOS Setup Utility:

Phoenix - Award WorkstationBIOS 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 :	↑↓→←: Select Item
F10: Save & Exit Setup	
Time, Date, Hard Disk Type...	

When you have entered, the Main Menu appears on the screen. Use the arrow keys to select the item “Integrated Peripherals” and press the <Enter> key to accept.
Set “ATI SATA Type” to [RAID] in the sub-menu “South OnChip PCI Device” of “Integrated Peripherals” . Then save the setup and exit.

Create a Bootable Logical Drive

Description

A logical drive appears to the computer as a single hard disk drive. As a result, you can install your operating system onto a logical drive and boot your computer from the logical drive. The following steps describe how to create a bootable logical drive.

Create a Logical Drive

You will now use the onboard FastBuild BIOS utility to create a logical drive.
1. Boot your system. If this is the first time you have booted with the disk drives installed, the ATI onboard BIOS will display the following screen (below).

```
AHCI (tm) BIOS Version 2.5.1540.12
(c) 2004-2005 ATI Technology, Inc, All rights reserved.
No Array is defined...
Press <Ctrl-F> to enter FastBuild (tm) Utility...
```

2. Press the **Ctrl-F** keys to display the FastBuild Utility Main Menu (below).

```
FastBuild (tm) Utility (c) 2004-2005 ATI Technology, Inc.

                    Main Menu
                Viov Drive Assignments.....[1]
                Define LD.....[2]
                Delete LD.....[3]
                Controller  Configuration.....[4]

                    Keys Available
            Press 1....4 to select option        [Esc]....Exit
```

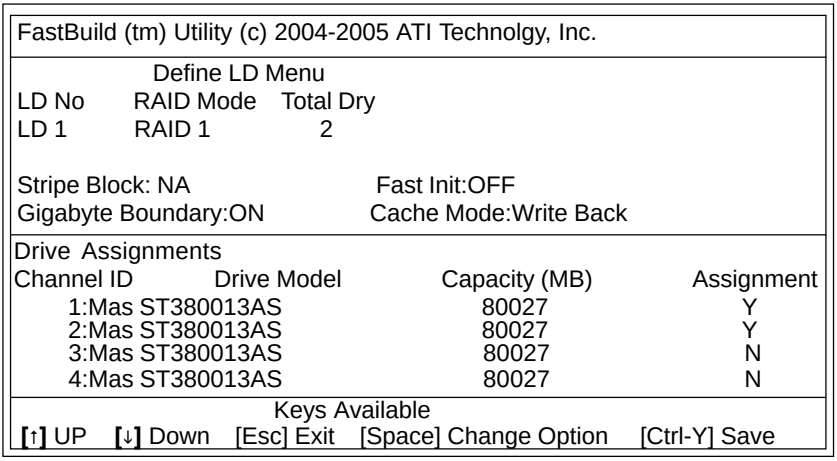
3. Press **2** on the Main Menu screen to display the Define LD Menu (below).

```
FastBuild (tm) Utility (c) 2004-2005 ATI Technology, Inc.

Define LD Menu
LD No       RAID Mode     Total Drv     Capacity (MB)     Status
LD 1        ----          ----          ----              ----
LD 2        ----          ----          ----              ----
LD 3        ----          ----          ----              ----
LD 4        ----          ----          ----              ----
LD 5        ----          ----          ----              ----
LD 6        ----          ----          ----              ----
LD 7        ----          ----          ----              ----
LD 8        ----          ----          ----              ----

                    Keys Available
          [↑] UP    [↓] Down      [Esc] Exit      [Enter] Select
```

4. Press the arrow keys to highlight an logical drive number you want to define and press **Enter** to select it.
The Define LD Menu for the logical drive number you selected will next appear (below).



5. Choose the RAID Level you want. In the Define LD Menu section, press the Spacebar to cycle through logical drive types:
• RAID 0 (Stripe)
• RAID 1 (Mirror)
• RAID 10 (Stripe / Mirror)

NOTE: While you can use any available RAID Level for your bootable logical drive, ATI recommends RAID 1 for most applications.

6. Press the arrow keys to move to the next option. Option choices depend on the RAID Level you selected.
• Initialize logical drive, zero the disk drives. RAID 1 or 10 only.
• Stripe Block Size, the default 64KB is best for most applications. RAID 0 or 10 only.
• Gigabyte Boundary, allows use of slightly smaller replacement drives.
• Cache Mode, WriteThru or WriteBack.
7. Press the arrow keys to move to Disk Assignments. Press the spacebar to toggle between N and Y for each available drive. Y means this disk drive will be assigned to the logical drive.
Assign the appropriate number of disk drives to your logical drive.
8. Press **Ctrl-Y** to save your logical drive configuration.

You have the option of using all of the disk drive capacity for one logical drive or allocating a portion to a second logical drive.

Press Ctrl-Y to Modify Array Capacity or press any other Key to use Maximum Capacity ...

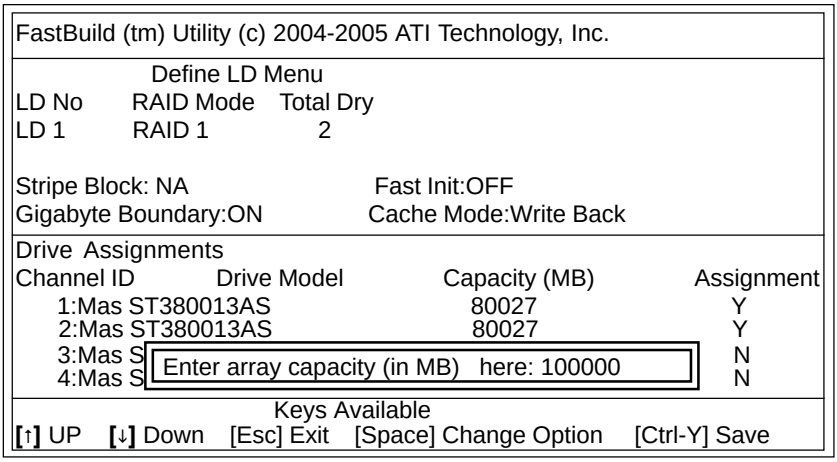
Choose one of the following actions:
• Use the full capacity of the disk drives for a single logical drive. Go to "One Logical Drive" below.
• Split the disk drives among two logical drives. Go to "Two Logical Drives" below.

One Logical Drive

Continued from *Create a Logical Drive* step 8, above.
1. Press any key (except for **Ctrl-Y**) to use the full portion of the logical drive for one logical drive.
2. Press **Esc** to exit to the Main Menu. Press **Esc** again to exit the Utility.
3. Press **Y** to restart the computer.
You have successfully created a new RAID logical drive.

Two Logical Drives

Continued from *Create Logical Drive* step 8, above.
1. Press **Ctrl-Y** to allocate a portion of the disk drives to the first logical drive.



2. Enter the desired capacity in MB for the first logical drive and press **Enter**. The Define LD Menu displays again.

FastBuild (tm) Utility (c) 2004-2005 ATI Technology, Inc.

Define LD Menu

LD No	RAID Mode	Total Drr	Capaty (MB)	Status
LD 1	RAID 1	2	10000	Punctional
LD 2	----	----	----	----
LD 3	----	----	----	----
LD 4	----	----	----	----
LD 5	----	----	----	----
LD 6	----	----	----	----
LD 7	----	----	----	----
LD 8	----	----	----	----

Keys Available

[↑] UP **[↓]** Down [Esc] Exit [Enter] Select

3. Press the up and down arrow keys to select an available logical drive number and press **Enter**.

FastBuild (tm) Utility (c) 2004-2005 ATI Technology, Inc.

Define LD Menu

LD No	RAID Mode	Total Dry
LD 1	RAID 1	2

Stripe Block: NA Fast Init:OFF

Gigabyte Boundary:ON Cache Mode:Write Back

Drive Assignments

Channel ID	Drive Model	Capacity (MB)	Assignment
1:Mas	ST380013AS	39960	Y
2:Mas	ST380013AS	39960	Y
3:Mas	ST380013AS	80027	N
4:Mas	ST380013AS	80027	N

Keys Available

[↑] UP **[↓]** Down [Esc] Exit [Space] Change Option [Ctrl-Y] Save

4. Choose the RAID level and options for the second logical drive.
Note that the disk drives in Channels 1 and 2 reflect smaller capacities because a portion of their capacity belongs the first logical drive.
In this example the disk drives in Channels 3 and 4 are not assigned to a logical drive.
5. Press **Ctrl-Y** to save your logical drive configuration.
6. Press **Esc** to exit to the Main Menu. Press **Esc** again to exit the Utility.
7. Press **Y** to restart the computer.
You have successfully created a new RAID logical drive.

Driver and RAID Software Installation (for SB600)

Microsoft Windows Driver Installation

1. 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 into your CD-ROM drive and select **"ATI dipset \ ATI SB600"** 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

a. Insert the bundled driver CD DISC into CD-ROM (G:). Copy all files from the directory (G:**ATI chipset\ATI SB600**) to a floppy disk.(for SB600)
b. Install the OS from CD-ROM.
c. Press "**F6**" at the prompt "Press **F6** if you need to install a third party SCSI or RAID driver...".
d. Insert the floppy disk.
e. Choose the OS device driver to be loaded.
f. Install the OS.
g. Install the driver after OS is installed.

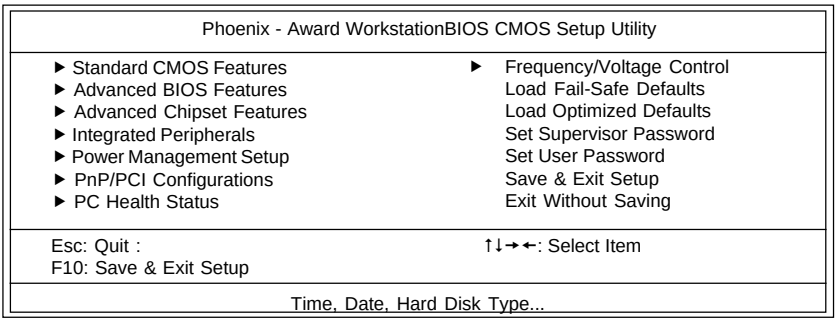
SATA RAID User Manual (for SIL3132)

BIOS Setup

Power on the computer, when the following message briefly appears at the bottom of the screen during the POST (Power On Self Test), press <Del> key to enter the AWARD BIOS CMOS Setup Utility.

Press Del to enter SETUP

Pressing the delete key accesses the BIOS Setup Utility:



When you have entered, the Main Menu appears on the screen. Use the arrow keys to select the item “Integrated Peripherals” and press the <Enter> key to accept.
Set “Onboard SIL3132 SATA TYPE” to [RAID] in the sub-menu “Onboard Device” of “Integrated Peripherals” . Then save the setup and exit.

Creating and deleting RAID sets is a function found in the BIOS. During bootup, the following message will appear, pausing for a few moments to allow the user to choose what to do:

Press Ctrl+S or F4 to enter RAID utility

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

Create RAID Set
Delete RAID Set
Rebuild RAID Set
Resolve Conflicts

Below this will be listed the drives currently installed on the system.

The top right half of the screen displays directions and comments for the user. The bottom right half lists the command keys:

Arrows up and down are Select Keys
ESC takes the user to the previous menu
Enter selects the user's choice
Ctrl-E exits the utility

Creating RAID Sets
Becuase SATA Raid supports two drives, creating RAID Sets is a simple procedure.

1. Select "Create RAID Set."
2. Choose either a "Striped" or "Mirrored" RAID Set.
3. 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 assign which is the Source and Target drives, as well as if you want Disk Copy.

SATA-II Driver and RAID Software Installation (for SIL3132)

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\SiL S_ATA II Raid Driver" installation** bar on the dialogue Window to begin the driver and software installation.

When you install a new Windows 2000 or XP operating system on your RAID set, please follow the below procedure:

1. Insert the bundled driver CD DISC into CD-ROM (D:).
If the SATA II is set as IDE mode, copy all files from directory
(D:**ATI chipset\SiL_SATA 3132\Non_Raid**) to a floppy disk.
If the SATA II is set as Raid mode, copy all files from directory
(D:**ATI chipset\SiL_SATA 3132\Raid\FDD**) to a floppy disk.
2. Install the OS from CD-ROM.
3. Press "**F6**" at the prompt "Press **F6** if you need to install a third party SCSI or RAID driver..."
4. Insert the floppy disk.
5. Choose the OS device driver wanted for loading.
6. Install the OS.
7. Install 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.

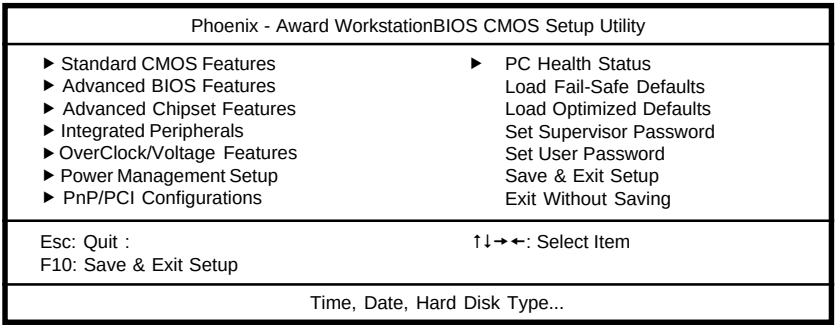
This Setup Utility should be used:

- 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:



(Note : The figures of BIOS Setup Menu included here only show 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 56 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 dis kette 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	
Time (hh:mm:ss)	23 : 21 : 34	Item Help
▸ IDE Channel 0 Master	[ST380021A]	Menu Level ▸
▸ IDE Channel 0 Slave	[None]	Change the day, month,
▸ IDE Channel 1 Master	[SAMSUNG DVD-ROM SD-6]	year and century
▸ 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]	
Capacity	0MB	To auto-detect the HDD's size, head… on this channel
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.

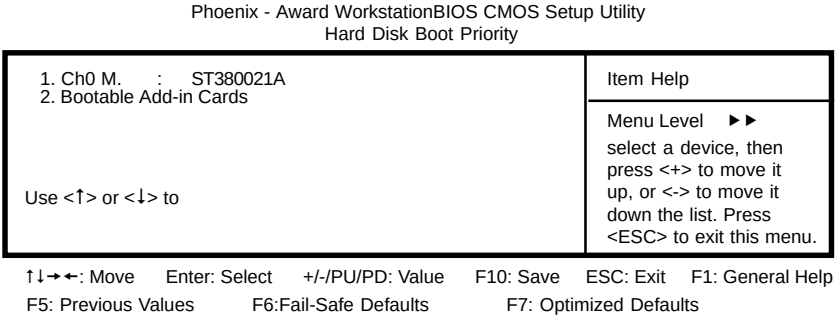
Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced BIOS Features

▶	Hard Disk Boot Priority	[Press Enter]	Item Help
	Virus Warning	[Disabled]	Menu Level ▶
	CPU Internal Cache	[Enabled]	
	External Cache	[Enabled]	
	Quick Power On Self Test	[Enabled]	Select Hard Disk
	First Boot Device	[Floppy]	Boot Device Priority
	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/Sec0X)	6	
x	Typematic Delay (Msec)	250	
	Security Option	[Setup]	
	APIC Mode	[Enabled]	
	MPS Version Control For OS	[1.4]	
	OS Select for DRAM > 64MB	[Non-OS2]	

↑↓→←: 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:



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 Internal Cache (Enabled)
All processors that can be installed in this motherboard use internal level 1 (L1) cache memory to improve performance. Leave this item at the default value for better performance.

External Cache (Enabled)
All processors that can be installed in this motherboard use an integrated Level2 cache. In older systems, the L2 cache was external and for easier differentiation from the Level1 cache the External Cache terminology is still widely used. Disabling the L2 cache will result in a significant performance hit and should only be used for debugging purposes

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.

First / second 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 startup 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 startup 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)
APIC is the acronym for advanced programmable interrupt controller. The APIC was developed originally for multiprocessor systems to overcome the limitations of the standard 15 interrupts available along with the conflicts arising from two processors simultaneously trying to generate interrupt requests. For any modern operating systems, APIC should be enabled, only in legacy operating systems could there be a need to disable APIC and run in legacy PIC mode.

MPS Version control for OS (1.4)
This setting specifies the APIC lookup table used for best compatibility with the OS. In Microsoft operating systems, Windows NT 3.51 and older should be configured to Version 1.1, any more recent operating system should be set to 1.4.

OS Select for DRAM > 64 MB (Non-OS2)
This setting only applies if you are running OS2 and are using more than 64 MB of system memory. All current DDR modules as those required in your motherboards are of greater density than 64 MB. Therefore, in the rare case you are running OS2, this setting has to be changed to the OS2 tab in order to support the higher memory space.

HDD S.M.A.R.T Capability (Disabled)
The S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance S.M.A.R.T. Software resides on both the disk drive and the host computer. The disk drive software monitors the internal performance of the motors, media, heads and electronics of the drive. The host software monitors the overall reliability status of the drive. If a device failure is predicted, the host software warns the user of the impending condition and advises appropriate actions to protect the data.

Delay for HDD (secs) (0)
This item allows you set the HDD delay time.

Full screen logo show (Enable)
This option allows you Enable or disable Full sceen logo show.

Small logo (EPA) show (Enable)
This option allows you Enable or disable Small logo(EPA) show.

Advanced Chipset Features

These options define critical timing parameters of the 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 a incorrect setting may result in fatal errors or may cause your system to run unstable.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced Chipset Features

▶DRAM Configuration	[Press Enter]	Item Help
▶LDT & PCI Bus Control	[Press Enter]	
▶PCIE Configuration	[Press Enter]	Menu Level ▶
AGP Aperture Size	[64MB]	
Memory Hole	[Disabled]	
System BIOS Cacheable	[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 Configuration

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

Phoenix - Award WorkstationBIOS CMOS Setup Utility
DRAM Configuration

	Timing Mode	[Auto]	Item Help
x	Menory Clock value or Lini	DDR 400	Menu Level ►►
x	CAS# Latency (Tcl)	Auto	
	Register Setting	CL=5	
x	RAS# Active-CAS# r/w Delay	Auto	Auto, no user linit
	Register Setting	5 clocks	MaxMemClk, limit by
x	Row precharge Time (Trp)	Auto	Memory Clock value
	Register Setting	5 clocks	
x	Read-Precharge Time (Trtp)	Auto	
	Register Setting	2 or 4 clocks	
x	Min RAS# Active Time (Tras)	Auto	
	Register Setting	13 clocks	
x	Row Cycle Time (Trc)	Auto	
	Register Setting	19 clocks	
x	Write Recovery Time (Twr)	Auto	
	Register Setting	5 clock	
x	RAS#-RAS# Delay (Trrd)		
	Register Setting	3 clock	
x	R-W Turnaround (Trwt TO)	Auto	

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

Timing Mode (Auto)

In Auto mode, the system reads the electronic data sheet of the memory modules as provided within the serial presence detect (SPD) ROM on each module and adjusts the timings accordingly.
Most overclockers will prefer the Manual settings that allow manual configuration of the following parameters.

- **Memclock Index Value (Mhz) (200MHz)**: This tab allows the user to manually specify the memory clock frequency independent of the system bus frequency.

- **CAS# Latency (tCL) (2.5):** CAS latency specifies the number of clock cycles between a read command and the time when data are output on the memory data bus. CAS# latency needs to be supported by the DRAM components by having the necessary pipeline stages available in the output path. It is necessary, therefore, to check whether the la tency selected is actually supported by the memory module, if not, the memory may run at higher latencies than those specified.

- **Min RAS# to Active Time (tRAS) (6T):** The so-called RAS Pulse Width specifies the number of memory clock cycles necessary to stabilize the data in the sense amplifiers before they can be restored back to the memory cells of origin. Undercutting the minimum RAS pulse width will inevitably lead to data corruption that is not necessarily apparent to the user but that will also result incorruption of the data on the hard disc.
  In dual channel systems, it is often better to use a tRAS higher than the minimum time supported by the memory components since increasing tRAS
  will extend the bank open time if no idle counter is implemented.

- **RAS# to CAS# Delay (tRCD) :** The RAS# to CAS# delay specifies the waiting period necessary after a bank activate command before a read command can be issued. In low latency memory, tRCD values of 2 is supported but often, a higher latency may be necessary to ensure proper functionality of the memory components. TRCD is the most important la tency for overall performance of the memory subsystem.

- **Row Precharge Time (tRP)** :In order to be able to receive a new set of data, the sense amplifiers and the bitlines in a row need to be restored to an empty state, that is, to a state before they are charged with data. Restor ing a native, pre-charged state requires disconnecting the wordlines and shorting the complementary bitlines to get rid of any electrical potential between the bitline pairs. If the equalization is not complete, residual charge leftovers from the preceding transaction can falsify the next set of data that are read by the sense amplifiers, thereby causing data corruption and system crashes. Next to tRCD, tRP is the most important latency for sys tem performance.

- **Row Cycle Time (tRC) :** Historically, the row cycle time has been tRCD + tCL + tRP, meaning a Active to Read latency followed by a Read latency and a Precharge latency. In modern memory components, tRAS is more impor tant than a simple addition of tRCD and tCL. As a result, the minimum tRC value should be no less than tRAS + tRP.

- **Write Recovery Time (tWR) (3 bus clocks):** This option specifies the time measured from the last write datum is safely registered by the DRAM.

- **Read Percharge time (Trtp)/(2 clock)**:This option specifies the Read Percharge time.
- **R-W Turnaround(TrwTo)/(4 clock)**:This option specifies the R-W Turn around time.
- **W-R Command Delay(Twtr)/(2 clock)**:This option specifies the W-R Command Delay time.
- **Write-Write Timing(Twrwr)/(1 clock)**:This option specifies the Write-write timing.
- **Read-Read Timing(Tref)/(2 clock)**:This option specifies the Read-Read timing.
- **Refresh Rate Usec(instead of psec)**:Memory cells can hold data roughly 64 msec before they need to be refreshed. That means that within 64 msec all 8192 rows of data have to be refreshed but every row has to be re freshed by itself. Therefore, refresh rate equals 64 ms/8192 or 7.8 µsec. In other words, every 7.8 µsec, all memory transactions are interrupted in order to refresh one row of memory. Setting the refresh rate to a higher value (for example 15.6 µsec) incurs risk that the memory cells will have lost their data already and will cause system crashes.
- **Row Refresh Cycle Time (tRFC):**
  Auto Refresh cycle time. DRAM cells lose charge over time and there fore, the contents need to be refreshed by reading them out from the memory cells to the sense amplifiers and then restoring the data in the memory cells of origin. This process requires one entire row cycle time at minimum, however since often more than one row is refreshed by modern controllers, on average, two additional cycles are necessary to complete the refresh in all banks scheduled.
- **DQS Training Control (Skip DQS)**
  This option allows users to control DQS Training.
- **CKE base power down mode(Enabled)**
  This option allows users to Enable or disable CKE base power down mode.
- **CKE base powerdown(Per Channel)**
  This option allows users to set CKE base power down.
- **Memclock tri-stating(Disabled)**
  This option allows user to Enable or disable Memclock tri-stating.
- **Memory Hole Remapping(Disabled)**
  This option allow users to Enable or disable Memory Hole Remapping.

LDT & PCI Bus Control

Navigate to this option and press <Enter> to view the following screen: LDT is the abbreviation for Lightning Data Transport.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
LDT & PCI Bus Control

LDT Configuration	[Enabled]	Item Help
Upstream LDT Bus Width	[16 bit]	
Downstream LDT Bus Width	[16 bit]	Menu Level ►►
LDT Bus Frequency	[Auto]	
PCIE Reset Delay	[Disabled]	
RD580 HT Drive Strength	[Auto]	
RD580 HT Receive Comp	[Auto]	

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

LDT is the acronym for Lightning Data Transport, which was the original name for the bus protocol now known as HyperTransport. HyperTransport uses a highly scalable bus interface in full duplex mode, which means that there is one dedicated bus for upstream and one for downstream data transfer (to and from the CPU, respectively). Each bit uses a low voltage differential signaling (LVDS) scheme, which means that there are two complementary data lines with mirror-symmetric signals that are compared against each other. Each HT signaling pair provides 2000 Mbit/sec data bandwidth using a DDR protocol on a 1000 MHz clock rate. Therefore, a 16 bit interface will support as much as 4 GB/sec data bandwidth. Since concurrent upstream and downstream data transports are supported, the theoretical maximum bandwidth is 8 MB/sec

The maximum HT interface width supported by current AMD processors is 16 bit wide in each direction, however, the interface is scalable and allows selective disabling of eight of the 16 data lines in each direction. For optimal performance, all 16 lanes in both upstream and downstream signal pathways should be enabled.

The LDT or HT interface is specified for optimal signal characteristics when running at 1000 MHz, that is, the trace layout is optimized for 1 GHz clock rate. Any frequency above or below the nominal value will generate resonance to a certain extend and signal reflexions known as ringing. Therefore, it is advisable to keep the LDT or HT frequency as close as possible to 1000 MHz. Since the actual Hypertransport frequency is derived from the external bus frequency and the multiplier, this means that if the external clock is overclocked, the ratio of the LDT bus multiplier needs to be lowered to bring the resulting LDT frequency back to 1000 MHz.

PCIE Configuration

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

Phoenix – Award WorkstationBIOS CMOS Setup Utility
PCIE Configuration

Link Width GFX1	[x16]	Item Help
..... GFX2	[x16]	
Payload Size .....GFX	[64 Bytes]	Menu Level ►►
.....SB	[64 Bytes]	
Lane Reversal GFX1	[Disabled]	
.....GFX2	[Disabled]	
PowerDown Unused Port GFX	[Enabled]	
GPP	[Enabled]	
Hide Empty PCIE Port	[Enabled]	
Reset GFX Slot	[Enabled]	
Reset GFX2 Slot	[Enabled]	
Reset GPP Slots	[Enabled]	
Delay after PCIE Reset (mS)	[0]	
GFX Card WorkAround	[Enabled]	
TXCLK Gating	[Disabled]	
P2P Write Between GFX1/2	[Disabled]	
PCIE Common Clock	[Disabled]	
ASPM L1 ..... GFX	[Disabled]	
..... GPP	[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]	
► Onboard Device	[Press Enter]	Menu Level ►
USB EHCI Controller	[Enabled]	
OnChip USB Controller	[Enabled]	
OnChip USB KBC Controller	[Enabled]	
USB Mouse Support	[Disabled]	
IDE HDD Block Mode	[Enabled]	
Onboard Lan Boot ROM	[Enabled]	
Onboard FDC Controller	[3F8/IRQ4]	
Onboard Parallel Port	[3F8/IRQ7]	
Parallel Port Mode	[SPP]	
x ECP Mode Use DMA	3	
Pwron after power fail	[off]	

↑↓→←: 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]	
Primary Master	PIO	[Auto]	Menu Level ►►
Primary Slave	PIO	[Auto]	
Primary Master	UDMA	[Auto]	
Primary 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 Ultra DMA technology, which provides faster access to IDE devices. If you install a device that supports Ultra DMA, 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

SouthBridge 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

ATI Azalia Audio	[Auto]	Item Help
ATI Azalia Clock	[UsbClk48]	
ATI AC97 Audio	[Auto]	Menu Level ►►
ATI MC97 Modem	[Auto]	
ATI SATA Controller	[Enabled]	
ATISATA Type	[Native IDE]	
SB600 Spread Spectrun	[Disabled]	

↑↓→←: 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 IDE mode or RAID mode.

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

SB600 Spread spectrun (Disabled)
This option allows you to Enable or disable SB600 Spread Spectrun.

OnChip USB Controller (Enabled)
This option allows you to enable or disable the onboard USB controller.

OnChip USB KBC Controller (Enabled)
This option allows you to enable or disable the USB Keyboard support.

USB Mouse Support (Enabled)
This option allows you to enable or disable the USB mouse support.

IDE HDD Block Mode (Enabled)
Block mode is also called block transfer or multiple sector read/write. If your IDE hard drive supports block mode, select Enabled for automatic detection of the optimal number of block read/write per sector the drive can 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.

PWRON After PWR-Fail (Off)
This option enables your computer to automatically restart or return to its operating status after a power down.

Onboard Devices

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

Phoenix – Award WorkstationBIOS CMOS Setup Utility
Onboard Devices

Onboard PCIE SIL3132 SATA	[Both]	Item Help
Onboard SIL3132 SATA Type	[IDE Controller]	
Single Option ROM Feature	[Enabled]	Menu Level ►►
Onboard Marvel PCIE NIC	[Enabled]	
Onboard 1394	[Enabled]	

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

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

On board PCIE SIL3132 SATA (Both)
This option allow user to Enable SATA0 or SATA1 controller SATA6, 7 is control by SATA0 controller, SATA4, 5 is control by SATA1 controller.

On board SIL3132 SATA Type (IDE contorller)
This option allow user select SATA TYPE.

Overclocking Features (Expert only)

Phoenix – Award WorkstationBIOS CMOS Setup Utility
OverClock/Voltage Features

Over Clock/Voltage Control	[Enabled]	Item Help
CPU Fid control	[Auto]	Menu Level ►►
CPU Vid control	[Auto]	
AMD CPU Cool&Quiet control	[Auto]	
CPU/HT Reference Clk (MHz)	[200]	
PCIE Graphics Clock	[100]	
RD580 Voltage	[1.201 V (Nominal)]	
HT Link Voltage	[1.201 V (Nominal)]	
PCIE Voltage	[1.201 V (Nominal)]	
SB Voltage	[1.201 V (Nominal)]	
CPU PWM	[Level 11]	
Cpuvid + CpuPwm =	1.178 V	
DRAM VDDQ PWM	[1.793 V]	
DRAM VTT PWM	[0.902 V]	
DRAM Drive Strength (N)	[Level 6]	
DRAM Drive Strength (p)	[Level 10]	

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

Over Clock/Voltage Control (Enabled)
This item allow you Enable disable over clock/vottage cantrol features.

CPU FID Control (Startup)
FID stands for Frequency ID, a value that is part of the CPUID string.
This field allows to manually configure the CPU multiplier or else leave it at startup, meaning that the system BIOS will read the CPUID value and automatically use the Frequency ID to configure the multiplier.
In most AMD processors, multipliers lower than those officially specified for a particular model are accessible for manual settings.

AMD CPU Cool&Quiet contruol(Auto)
This Item allow wsers to Enable or disable AMD CPU Cool&Quiet contruol.

CPU/HT Reference Clock (MHz) (200)
The CPU derives its core clock from an externally supplied reference clock that is internally multiplied by the multiplier value according to the FID value in the CPUID string. The result is the CPU core clock. Increasing the reference clock above the nominal value of 200 MHz will result in overclocking of the CPU unless the multiplier is manually lowered in the CPU FID field (see above).

PCIe Clock (100)
The PCIe specifications are optimized for a 100 MHz reference clock, using partial overlay of the signals and their reflections for increased signal to noise ratio. Increasing the PCIe frequency above the reference frequency as a side effect of overclocking the reference clock can result in resonance and partial signal cancellation and is, therefore, not recommended.

RD580 Vottage(1.22v)
Increasing the voltage may allow to reach higher bus frequencies but will also result in higher thermal dissipation of the NorthBridge. In turn, this can mitigate the improvements achieved by the voltage increase.

HT Link Vottage(1.22v)
The HyperTransport link uses a supply voltage of 1.22 V. Increasing the voltage above the nominal value may help with overclocking, However, in the majority of cases, this setting should be left at default.

RD580 HT PII cantrol(Auto)
This field specifies how long it will take for the slowest HT clock Phase Lock Loop to ramp up speed to the new frequency and lock in on this frequency. Since the HT PLLs are transparent to the user, this setting should be left at "Auto" which allows locking in on new frequencies of the variable current oscillators (clock generators). This field is relevant especially for dynamic overclocking where changes in the base frequency are incurred.

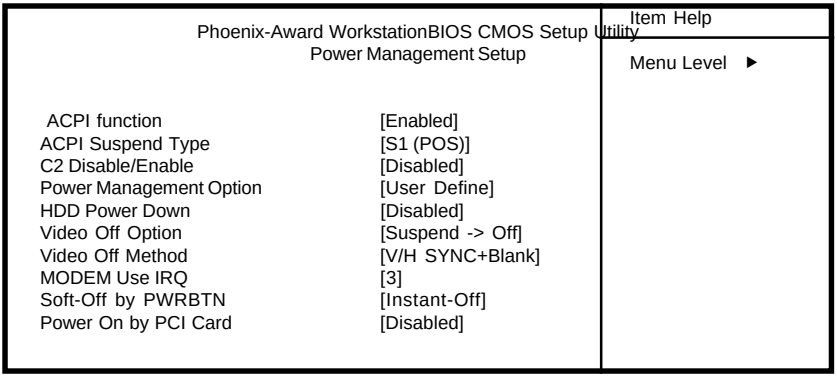
- PLL High Speed mode (Low Speed)
- PLL Stability Calibration (00)

Spread spectrum(Disable)
This field allow you Enable or disable sptead spectrum.

Boot Failure Ratry count(5)
If the system does not boot for the specified number of times, then the overclocking defaults will be loaded automatically. Set to "0" to disable this feature.

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.



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

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

	Init Display First	[AGP]	Item Help
	Reset Configuration Data	[Disabled]	
	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

Init Display First (PCI Slot)

This setting is used if multiple graphics adapters are in the system for multi-display support and allows the specification of the primary display adapter. If a single graphics adapter is used, this setting is inconsequential.

Reset Configuration Data (disabled)

Enabling this setting will clear the memory of the auto-negotiation of installed devices in expansion slots, which results in the need for the device to renegotiate the system resources, that is base memory addresses and IRQ on every reset. Therefore, unless there are unsolvable conflicts, this setting should be left at “Disabled”

Resources Controlled by (Auto(ESCD))

ESCD stands for Extended System Configuration Data and has been implemented with the PnP specifications. The ESCD are stored in a dedicated part of the CMOS memory. The ESCD contains information about the system configuration at the last time the system was booted, keeping a record of the peripheral device configuration that was negotiated with the system and resulting in a conflict-free setup. Keeping a record of these data helps to speed up the boot time since there is no need for re-negotiation of resource allocation unless changes in the hardware have occurred.

* **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 re serve 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.

PCI Latency Timer (CLK) (64)
The PCI bus is shared between all interrupts. In order to get access to the bus, each device needs to arbitrate and to capture the bus, which excludes other devices from using it at the same time. Different Interrupt Request Lines that are assigned to the different devices have different priorities which can lead to starvation of a lower priority device by a higher priority device. In order to avoid this problem, fairness algorithms have been implemented, that, for example, define how long any device can occupy the bus before it has to relinquish it and check whether there are other system requests that need to be serviced. This interval is called the PCI latency.

Each PCI bus access also needs a certain number of cycles, usually around eight, for the arbitration, including the setup of the device on the bus. The number of setup cycles is fairly constant. Therefore, a higher number of cycles assigned to the PCI latency will only increase the number of transfer cycles and directly translate into better device performance. On the other hand, with more PCI devices in the system, more devices will vie for the bus and, therefore, very high latencies could result in data starvation of one or the other device.

In most modern systems, the empirically found best performance across the board is between 64 and 96 cycles.

PC Health Status

Your mainboard 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

Shutdown	Temperature	[Disabled]	Item Help
VDDHT	Voltage	1.20v	
VDDA	Voltage	1.20v	Menu Level ►►
VCCNB2V	Voltage	2.00v	
CPUVTT	Voltage	0.88v	
CPU	Voltage	1.21v	
VCCNB	Voltage	1.20v	
VCCSB	Voltage	1.20v	
VDDRII	Voltage	1.72v	
Volatge Rattery		2.96v	
CPU Temperature		31°C	
System Temperature		32°C	
CPU FAN Speed		3068 RPM	
SYS FAN Speed		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.

-VDDHT Voltage
-VDDA Voltage
-VCCNB2V Voltage
-CPUVTT Voltage
-CPU Voltage
-VCCNB Voltage
-VCCSB Voltage
-VDDRII Voltage
-Volatge Rattery
-CPU Temperature
-System Temperature
-CPU FAN Speed
-SYS FAN Speed

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 defaults 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 reboots 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.

BIOS Update Procedure

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

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.

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:

Sound Effect

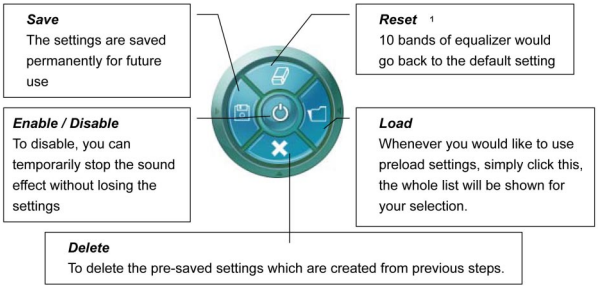
After clicking on the “Sound Effect” tab, 3 sections “Environment”, “Equalizer” and “Karaoke” are available for selection.

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.

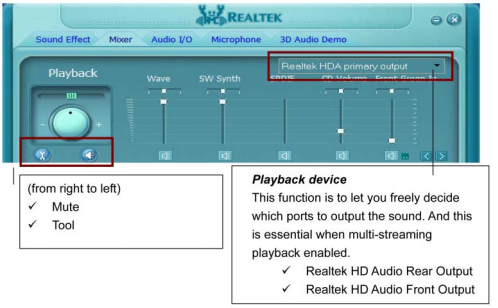
Vocal Cancellation: Single click on “Voice Cancellation”, the vocals of the songs will be erased, while the background music is still playing which lets you take over the vocal part.

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

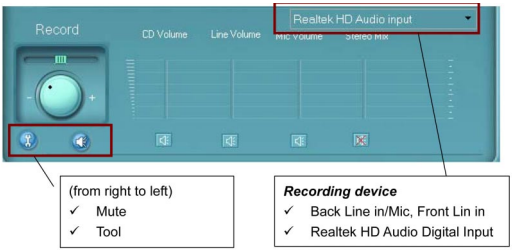
✓ **Show the following volume control**
This is to let you freely decide which volume control items to be displayed, total 13 items to be chosen.

✓ **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 intput.

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 strengthen.

✓ **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”.

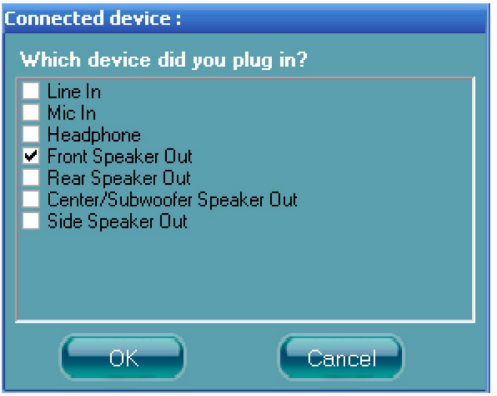
Audio I/O helps you to setup the jacks as you wish. Moreover, other than blue to blue, pink to pink, the way that you used to do, Audio I/O would guide you to other right jacks that can also serve as microphone / speaker / headphone.

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.



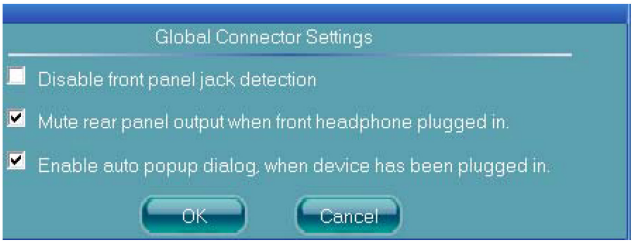
Indicates ***pull-out***
(Find the arrow is at opposite direction to the jack?)

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

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

Global Connector Settings

Click  to access global connector settings

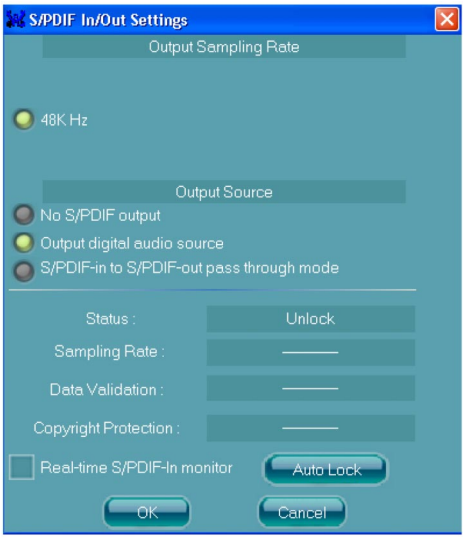


✓ **Mute rear panel when front headphone plugged in**
Once this option is checked, whenever front headphone is plugged, the music that is playing from the back panel, will be stopped.

✓ **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 ***S**ony/**P**hilips **D**igital **I**nter**f**ace*, 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 recommend 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 though 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.

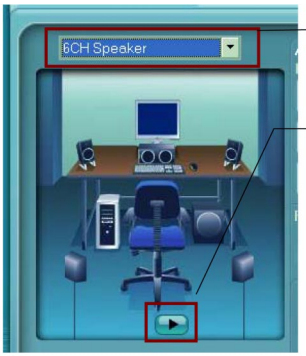
Data Validation:
This indicates if the input data is known to Realtek HD Audio Manager.

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.

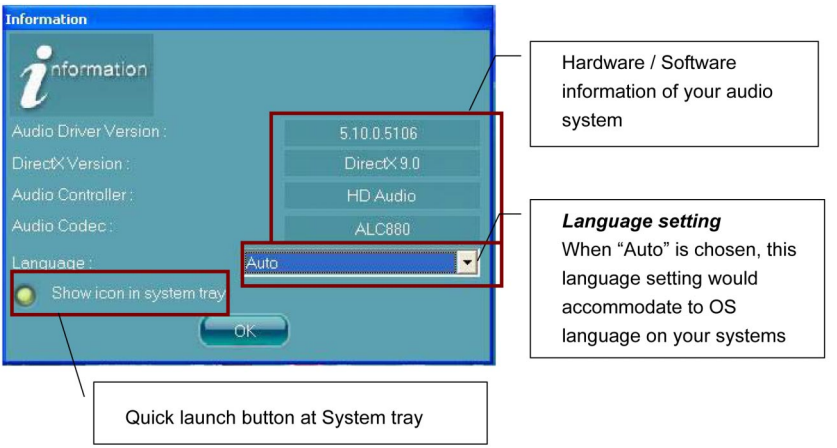
Acoustic Echo Cancellation

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



This section provides information about your current system audio device.

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.