⚠ WARNING! Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- REORIENT OR RELOCATE THE RECEIVING ANTENNA
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

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

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

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

Copyright

This manual is copyrighted with all rights reserved. No portion of this manual may be copied or reproduced by any means.

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

Trademarks

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

TABLE OF CONTENTS

HARDWARE CONFIGURATION

Key Features

Chipset
- ATI® RS400+SB400 Chipset.

Processor
- Supports Intel® Celeron® , Pentium® 4 processors in the LGA775 -pin package (with 0.8V~1.6V voltage).
- Supports 64-bit PSB (Processor System Bus) frequency of 400MHz/ 533MHz/800MHz (100MHz/133MHz/200MHz bus clock).

VRM 10.0 (Voltage Regulator Modules) on Board
- Flexible motherboard design with on board VRD 10.0, easy to upgrade with future Intel® Celeron, Pentium® 4 processors.
- 0.8375V to 1.600V in 12.5mV steps.

System Memory
- Supports four 184pin DDR RAM sockets.
- DIMM size support from 64MB to 4GB.
- Support Dual Channel 128-bit Wide Memory Interface.
- Support 266/333/400 DDR RAM memory type.

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

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

TV Out
- Integrated TV encoder.
- 10-bit DAC with 4-tap filter.
- PAL/NTSC TV Out with Composite and S-Video Output via header.
- ATI's exclusive "Composite Dot Crawl" freeze option for PAL and NTSC to improve the picture quality.
- TV-Out power management support.

Onboard I/O

- Onboard two PCI fast IDE ports supporting up to 4 ATA, ATA2 , Ultra ATA33/66/100/133 IDE HDDs, CD-ROMs, ZIP drives and LS-120 drives as boot drive.
- One ECP/EPP parallel port.
- One 16550 Compatible UART serial ports.(Via a header)
- One floppy port supports two FDD of 1.44MB, 2.88MB capacity.
- Eight USB ports (four ports via two headers).
- PS/2 keyboard connector.
- PS/2 mouse connector.
- One front panel sound connector.
- Infrared (IrDA) is supported via a header.

Extended USB Support

- Includes two OHCI host controllers,increasing the number of external ports to eight.
- Includes one OHCI USB2.0 Host Controller that supports all eight ports(Bandwidth shared between eight ports).
- This Sapphire motherboard support USB 2.0 feature only on Windows® 2000(with SP4 or above) and XP(with SP1 or above) OS.

Onboard VGA

- Integrated ATI PCI-E X300 graphics core.
- Supports display (CRT or TV out).
- Integrated DAC and CRT controllers.
- High resolution video playback.
- Up to 2048x1536,non-interlaced screen resolution for CRT.

Onboard Marvell 88E8052 PCI Express Gigabit LAN

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

Onboard IEEE1394

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

PCI Express Graphics Interface
- One 16-lane (x16 port) PCI Express port intended for Graphics Attach, Fully compliant to the PCI Express Base Specification revision 1.0a.
- A base PCI Express frequency of 2.5GB/s only.
- PCI Express supports and Enhanced Addressing Mechanism.

PCI Express x1 Port
- One 1-lane (x1 port) PCI Express port.
- Fully compliant to the PCI Express Base Specification revision 1.0a.
- Two virtual channel support for full unsynchronized data transfers.
- Supports full 2.5Gb/s bandwidth in each direction per x1 lane.

Power Management
- Supports SMM, APM and ACPI.
- Break switch for instant suspend/resume on system operations.
- Energy star "Green PC" compliant.
- Hardware monitoring circuit is supported, provide voltage, fan speed, etc. monitoring (optional).
- External Modem Ring-in Wake-up support.
- Supports suspend-to-RAM(STR)(optional).

Onboard AC97 6 Channel Sound
- Integrated AC97 controller with standard AC97 Codec.
- Direct Sound and Sound Blaster compatible.
- Full-Duplex 16-bit record and play back.
- PnP and APM 1.2 support.
- Windows® 2000/XP drivers ready.
- Line-in, Line-out, Mic-in.
- Supports ALC650/ALC655 AC97 codes for six sound channel output.

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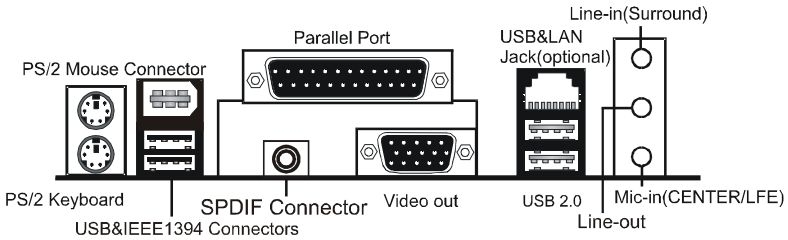- RAID 0/1 feature support .

Expansion Slots
- 1 PCI Express x16 slot.
- 1 PCI Express x1 slot.
- 5 PCI bus master slots - ver. 2.2 compliant.

⚠ **CAUTION!** 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 computers electronic components.

MOTHERBOARD LAYOUT

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

NOTE

1) Be sure to check the cable orientation in order to match the colored strip to the pin1 end of the connector.
2) When you start up the system, please wait for 5 seconds after you power on AC.
3) It is not recommended to add a metal spacer plate on the back of the Socket775. Otherwise, some components will be short and damaged.

REAR PANEL

The back panel provides the following connectors:

PS/2 Mouse Connector

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

### PS/2 Keyboard Connector

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

USB 2.0 Connector

The Sapphire motherboard provides a 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
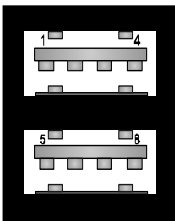
USB 2.0 Connector Description

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

The Sapphire motherboard provides a IEEE 1394 Connector and allows you to connect a IEEE 1394 device directly to the connector.

TV Out Connector

The Sapphire motherboard provides a Video out port to connect a 15-pin analog video monitor.

SPDIF Connector

The Sapphire motherboard provides a S-Bracket (SPDIF) Connector that allows you to connect a S-Bracket (coaxial) for a Digital Interface (SPDIF).

LAN Jack

The mainboard provides one standard RJ-45 jack for connection to Local Area Network(LAN).You can connect a network cable to the LAN jack.

Parallel Port Connector - LPT1

The Sapphire motherboard provides a 25-pin female centronic connector as LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

Audio Port Connector

Line_Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic In** is a connector for microphones.

The ALC650/655 embeds an internal analog switch (by driver software) to select LINE input or Surround output, and select MIC input or CENTER/ LFE output.

AUDIO CONFIGURATION

After installing the audio driver, you can select 2/4/6 channel surround audio output in software utility and then connect surround speakers to appropriate audio ports.
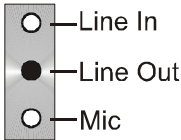
There are two ways to obtain 2/4/6 channel audio output:

1.   2/4/6 channel audio output of back panel only. All surround speakers connect to audio connector.

2.   S-Bracket (optional cable). You have installed S-Bracket into the computer, and then connect two front speakers to back panel's "Line-out" port, and the rest of speakers to S-Bracket. Please refer to page 13.
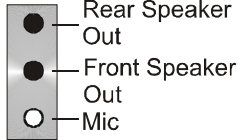
SPEAKER CONFIGURATION
Method 1: 2/4/6 Channel audio output on back panel only.
After installing the audio drivers, you can attach the speakers for 2/4/6 channel audio output. Always connect the speakers to the LINE OUT connectors. Different connector configurations for 2/4/6 channel operations are listed below:
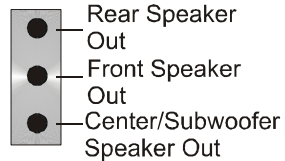
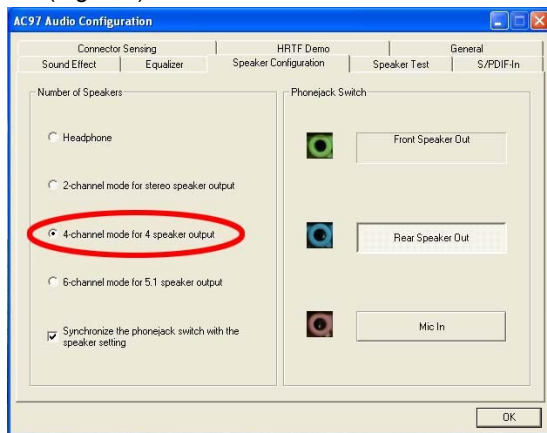| 2-Channel	4-Channel	6-Channel
Line In Line Out Mic	Rear Speaker Out Front Speaker Out Mic	Rear Speaker Out Front Speaker Out Center/Subwoofer Speaker Out
In 2-channel configuration, Line Out, Line In and MIC functions all exist.	When set to 4-channel configuration, Line In is replaced by Rear Speaker Out. Line in function does not exist.	When set to 6-channel configuration, Line In is replaced by Rear Speaker Out. Mic is replaced by Center/Subwoofer Speaker Out. Line in and Mic do not exist function.

In the audio software, please double click the "AC97 Audio configuration" icon from the window tray on the bottom right to launch the Audio Wizard.
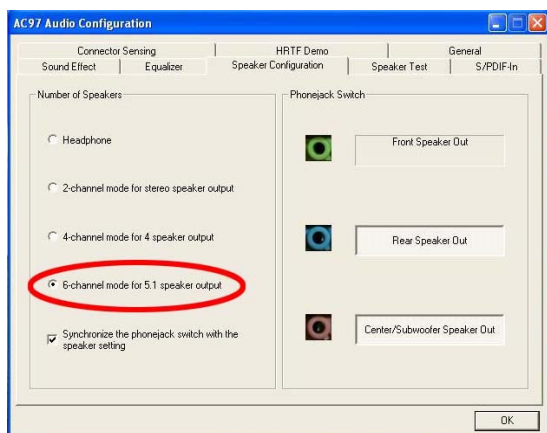
The "AC97 Audio Configuration" will appear. Click on the **Speaker Configuration** tab to select the audio mode.

A. If you choose 4-channel mode for 4 speaker output, the selected item is shown as below (Figure1).

(Figure1)

B. If you choose 6-channel mode for 5.1 speaker output, the selected item is shown as below (Figure2).


(Figure2)

Method 2: Using S-BRACKET connectors:

S-Bracket (The S-Bracket is showed in page 15) is an optional accessory. It gives access to analog and digital audio output by integrating both SPDIF and analog LINE OUT connectors. To use the S-Bracket, you should select correct setting in the software utility. For information about the setting, refer to selecting 4- or 6- Channel Setting later in the section.

Connector configurations for 4- and 6- channel using S-Bracket are described below:

4-Channel Analog Audio Output
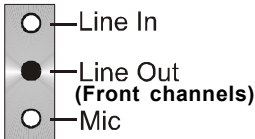
Back Panel   **S-Bracket**

Description:

*Connect two speakers to back panel's Line Out connector and two speakers to one Line Out connector of S-Bracket, or four speaker to connector of S-Bracket. If you want to use **Line In** function, please click the **Rear Speaker Out** button (shown below)*

6-Channel Analog Audio Output

Back Panel   **S-Bracket**

Line In
Line Out
(Front channels)
Mic

+

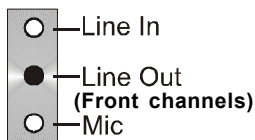*Rear Speaker Out*   *CEN/LEF Output*
FL/FR Out

Description:

*Connect two speakers to back panel Line Out connector and four speakers to both Line Out connectors of S-Bracket, or six speakers to the connector of S-Bracket. If you want to use **Line In** and **MIC** function at the same time, please click the **Rear Speaker Out** and **Center/Subwoofer Speaker Out** buttons. (shown below)*

CONNECTORS

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

Floppy Disk Drive Connector - CN3
The Sapphire motherboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.

IDE Connectors - CN1, CN2
The Sapphire motherboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices.

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

Secondary IDE Connector - CN2
CN2 can also connect a Master and a Slave drive.
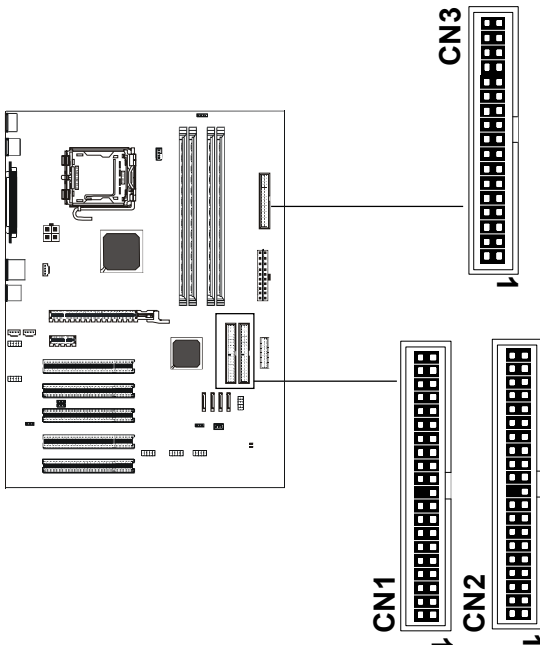
Six Channel Audio Output Connector - J19

The Sapphire motherboard provides six channel output(FL/FR,RL/RR,CEN/LEF) connector, that allows you to use the 6 channel audio output features at the same time.

J19
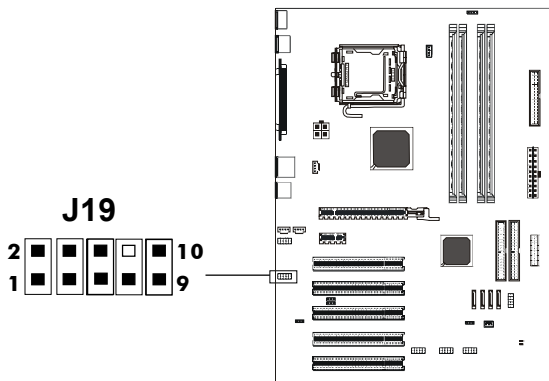
PIN	SIGNAL	DESCRIPTION
1	SOUT-L	Audio left surrounding output
2	SOUT-R	Audio right surrounding output
3	GND	Ground
4	GND	Ground
5	CET-OUT	Audio center output
6	LFE-OUT	Audio bass output
7	GND	Ground
8	NC	Key
9	SPK L	Front left output
10	SPK R	Front right output

S-Bracket Cable (optional)

Connect to J19

RL/RR　　**FL/FR**　　**CEN/LEF**
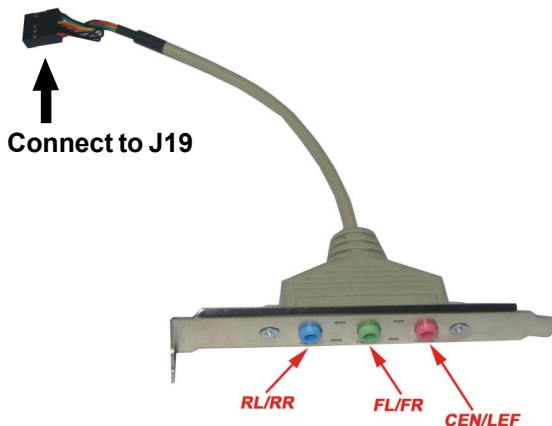
TV Out Header - J3

The Sapphire motherboard provides TV Out header.
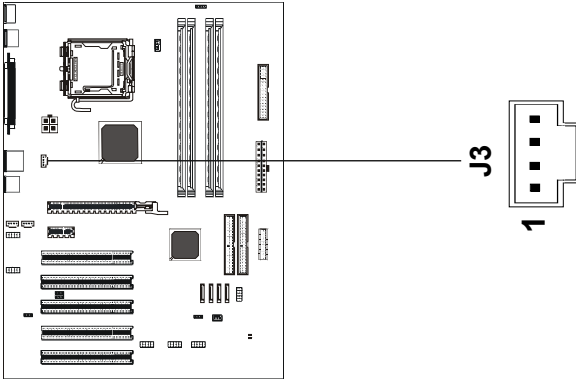
J3 - Pin Definition

PIN	Assignment
1	C
2	GND
3	COMP/B
4	Y

TV Out cable

IEEE 1394 Connector - J23

The Sapphire motherboard provides a 1394 pin header that allow you to connect IEEE 1394 ports.

J23

```
2 ■ ■ ■ ■ ■ 10
1 ■ ■ ■ ■ □ 9
```
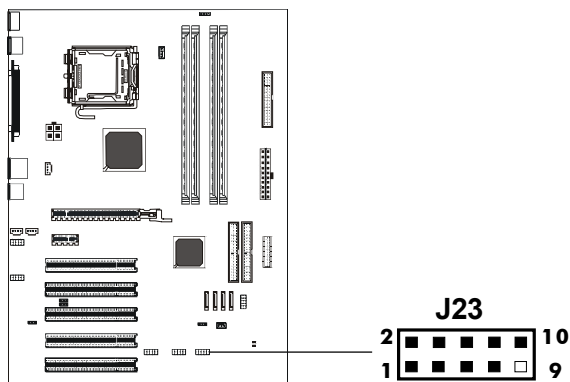
J23 - Pin Definition

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

IEEE 1394 Cable (optional)

Chassis Alarm Lead: JP12(optional)

This lead is for a chassis designed with intrusion detection feature.this requires an external detection mechanism such as a chassis intrusion sensor or microswitch.When you remove any chassis component,the sensor triggers and sends a high-level signal to this lead to record a chassis intrusion event.
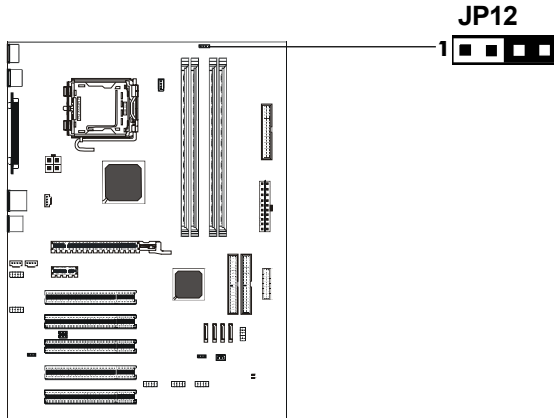
JP12

JP12 - Pin Definition

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

Note:
If you want to use "Chassis Alarm" Connector, please the jumper position 3-4.

Fan Power Headers - CPUFAN1, SYSFAN1

The CPUFAN1 (processor fan), SYSFAN1 (system fan) support system cooling fan with +12V. It supports three-pin head connector.

CPU FAN

SYSFAN1

1
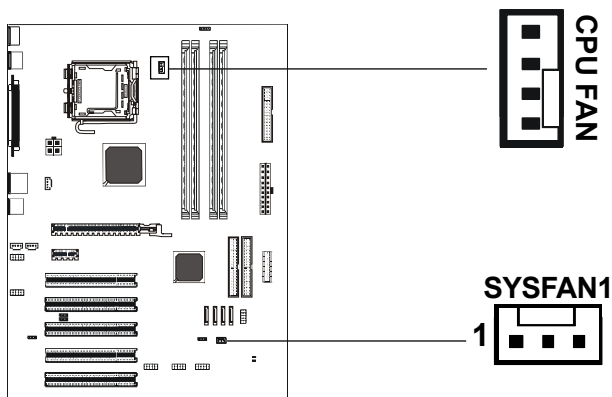
Power LEDs - D55, D54

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

D55-5VSB_LED (Red)

D54-VCC_LED (Green)
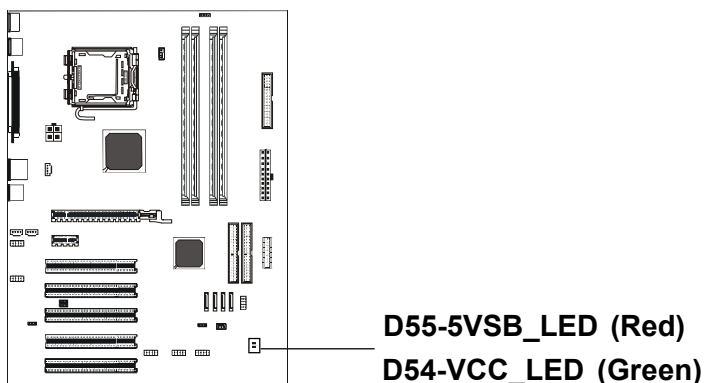
CD-IN Header - J18

This header allows for connection from the CD-ROM Drive.

AUX-IN Header - J20

This header allows for connection from the Audio Device.
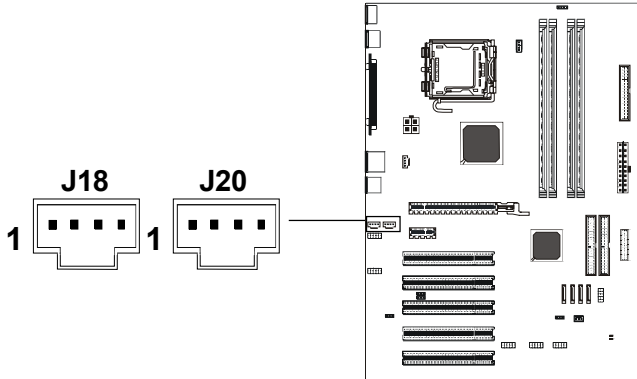
J18 - Pin Definition

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

J20 - Pin Definition

PIN	Assignment
1	AUX-L
2	GND
3	GND
4	AUX-R

Front Panel Audio Header - FP-S1

This Sapphire motherboard supports front panel microphone and speaker out ports. If your computer case has these ports,connect them to FP-S1.
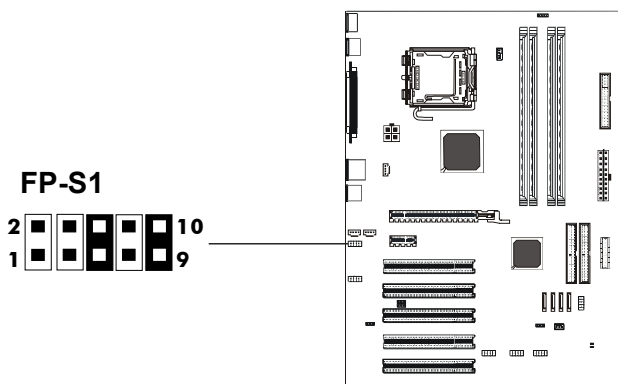
FP-S1

FP-S1 - Pin Definition

PIN	Assignment
1	MIC
2	GND
3	REF
4	POWER
5	Front Audio(R)
6	Rear Audio(R)
7	Reserved
8	Key(No pin)
9	Front Audio(L)
10	Rear Audio(L)

Note:

In order to utilize the front audio header, your chassis must have a front audio header. 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 contract your dealer.

USB Headers - FP-U1, FP-U2

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

FP-U1

```
2 ■ ■ ■ ■ ■ 10
1 ■ ■ ■ ■ □  9
```

FP-U2

```
2 ■ ■ ■ ■ ■ 10
1 ■ ■ ■ ■ □  9
```
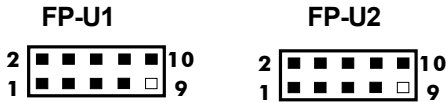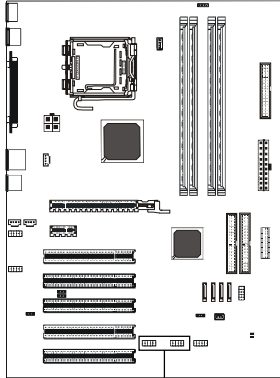
FP-U1, FP-U2 - Pin Definition

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

Front Panel Header - FP1

The Sapphire 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.
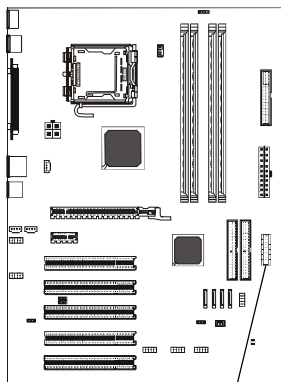
FP1

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

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

The Sapphire motherboard has four SATA connectors. Each supports
1st generation SATA data rates of 150 MB/s. Both connectors are fully
compliant with Serial ATA 1.0 specifications. Each SATA connector can
connect to one hard disk device. Please refer to SATA Raid setup (Page 38) for
detail software installation procedure.
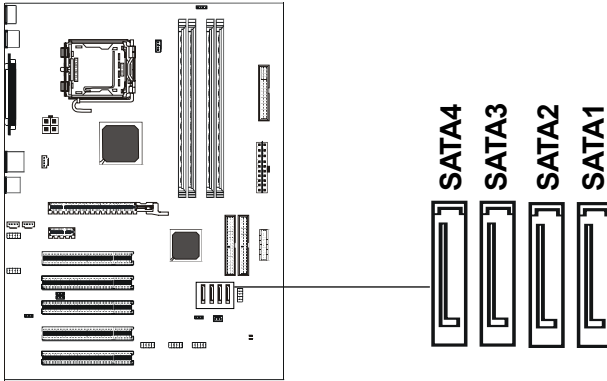
PIN	SIGNAL
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

Serial ATA Cable

Connect one end of the SATA cable to the Sapphire motherboard and connect the other end to the SATA Hard Disk.

> ⚠️ CAUTION! Please do not fold the serial ATA cable in a 90-degree angle, which will cause the loss of data during the transmission.

Serial ATA Hard Disk Devices Power Cable (optional)
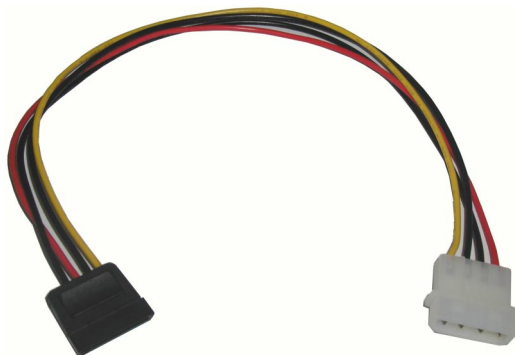
JUMPER SETTING

The Sapphire motherboard provides jumpers enabling configuration of the hardware.
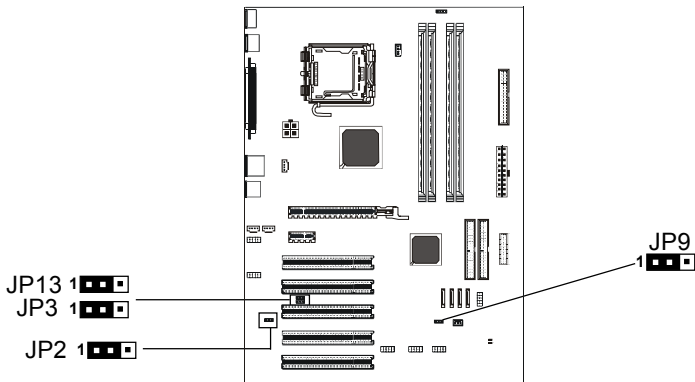
Clear CMOS Jumper - JP9

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

JP9		Selection
1 ▣ 1-2*		Normal*
1 ▣ 2-3		CMOS Clear

Onboard AC97 Sound Select - JP2

JP2		Function
1 ▣ 1-2*		AC97 Sound Enable*
1 ▣ 2-3		AC97 Sound Disable

On Board LAN Select (optional) - JP13

JP13		Function
1 ▣ 1-2*		LAN Enable*
1 ▣ 2-3		LAN Disable

Onboard IEEE1394 Select (optional) - JP3

JP3		Selection
1 ▣ 1-2*		IEEE1394 Enable*
1 ▣ 2-3		IEEE1394 Disable

▣ Close   ▯ Open   *= *Default setting.*

SLOTS

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

PCI-E x16 Slot
PCI-E x1 Slot

PCI Slots
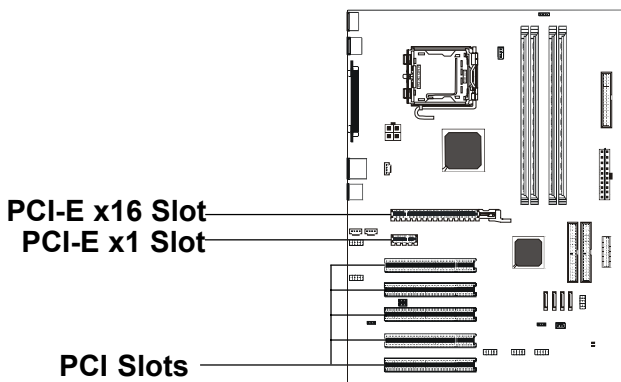
PCI Express x16 Graphics Interface
- One 16-lane (x16 port) PCI Express port intended for external graphics.
- Fully compliant to the PCI Express Base Specification revision 1.0a.
- The base PCI Express frequency of this interface is 4GB/s.
- PCI Express supports an enhanced addressing mechanism.

PCI Express x1 Ports
- One 1-lane (x1 port) PCI Express ports intended for external graphics.
- Fully compliant to the PCI Express Base Specification revision 1.0a.
- Two virtual channel support for full unsynchronized data transfers.
- Supports full 2.5Gb/s bandwidth in each direction per x1 lane.

PCI (Peripheral Component Interconnect) Slots
- Five 32-bit PCI ports for add-in card connections.

CPU INSTALLATION

Please refer to the following steps to install the CPU.

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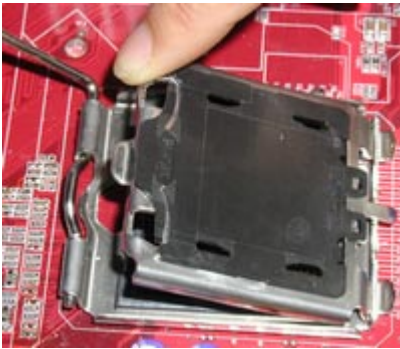
2. Use index finger to lift the top steel shell.

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

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

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

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

7. Align the fastener tips with the Sapphire motherboard hole pattern, insert the fastener tips into the holes, guiding the wires to avoid pinching. The fasteners will slide through the motherboard holes with no insertion force.
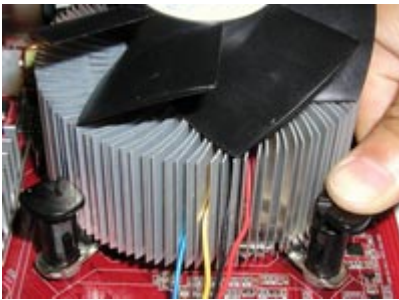
8.Engage the fasteners caps. Apply thumb pressure to the top of each of the 4 fastener caps, there is no specific order of engagement, you will hear a "click" upon full engagement.

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

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

MEMORY CONFIGURATIONS

1.DDR DIMM Sockets Location
Please refer to the following figure for the location of the DDR DIMM Sockets.
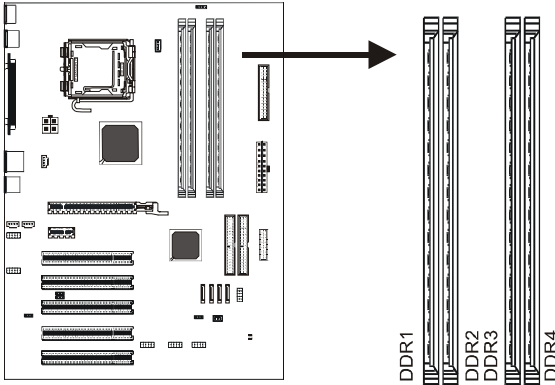
2.Install DDR DIMMs

Please follow the below mentioned steps to install DDR DIMMs.
1. Hold the DDR DIMM module by the edges and remove it from its antistatic package.
2. Make sure the clips at either end of the DIMM socket are pushed away from the socket.
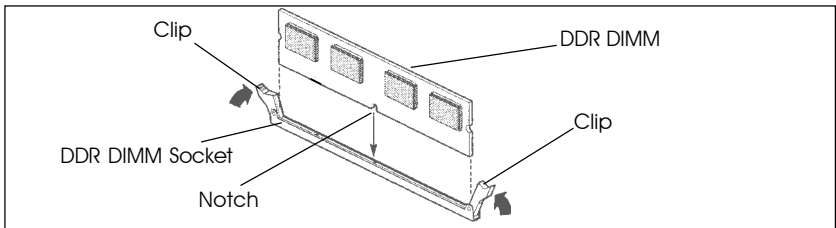
d. Position the DDR DIMM above the socket. Align the small notch in the bottom edge of the DDR DIMM with the keys in the socket.
e. Insert the bottom edge of the DDR DIMM into the socket.
f. When the DDR DIMM is seated, push down on the top edge of the DDR DIMM until the retaining clips at the ends of the socket snap into place. Make sure the clips are firmly in place.

> ⚠ **CAUTION!** **Please unplug the power supply before installing and removing any device, otherwise you will cause the system damage.**

3. Memory Configurations

Please refer to the following recommended memory configurations in Table1.

Recommended Memory Configurations

Mode/(DIMM Type)	Case	Sockets - DDR1	DDR2	DDR3	DDR4
Single-channel/	1	Populated	----	----	----
	2	----	Populated	----	----
	3	----	----	Populated	----
	4	----	----	----	Populated
	5	Populated	Populated	----	----
	6	----	----	Populated	Populated
Dual-channel/	1	Populated	----	Populated	----
	2	----	Populated	----	Populated
	3	Populated	Populated	Populated	Populated

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

BIOS SETUP

About the Setup Utility
The computer 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 from unauthorized use**
>
> **Power Management 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:

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. It allows you to select from various setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Phoenix - Award WorkstationBIOS CMOS Setup Utility

```
  ‣ Standard CMOS Features
  ‣ 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 ... ...
```

(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.)

Note that a brief description of each highlighted item will appear at the bottom of the screen.

Standard CMOS Features	This setup page includes all the items of Award™ special standard features.
Advanced BIOS Features	This setup page includes all the items of Award™ special enhanced features.
Advanced Chipset Features	This setup page includes all the items of chipset special features.
Integrated Peripherals	This section page includes all the items of IDE hard drive and Programmed Input / Output features.
Power Management Setup	This entry only appears if your system supports Power Management "Green PC" standards.
PnP/PCI Configurations	This entry appears if your system supports PnP/PCI.
PC Health Status	Display CPU and Case Fan Speed, temperature, etc.

Load Fail-Safe Defaults	The BIOS defaults have been set by Sapphire and represent settings which provide the minimum requirements for your system to operate.
Load Optimized Defaults	The chipset defaults are settings which provide for maximum system performance. Sapphire has assigned these values to provide optimized performance.
Set Supervisor/ User Password	Changes, sets, or disables password. It allows you to limit access to the system and the Setup Program.
Save & Exit Setup	Saves value changes to CMOS and exits setup.
Exit Without Saving	Abandons all CMOS value changes and exits setup.

Standard CMOS Features

The options in Standard CMOS Setup Menu are divided into 10 categories. Each category includes one or more setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> key to select the desired value in each item.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features

```
 Date    (mm :d d :y y)      Sat. Jan 01 2005          Item Help
 Time    (h h :mm:ss)        11 : 1  : 35
                                                   Menu Level      ▶
▸ IDE Primary Master         [Press Enter 4303 MB]
▸ IDE Primary Slave          [None]                Change the day, month,
▸ IDE Secondary Master       [None]                year and century
▸ IDE Secondary Slave        [None]

  Drive A                    [1.44M, 3.5 in.]
  Drive B                    [None]

  Video                      [EGA/VGA]
  Halt on                    [All, but keyboard]

  Base Memory                     640K
  Extended Memory               30720K
  Total Memory                  31744K
```

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

(Note : The figures of BIOS Setup Menu included here only show a typical setup, and may not be exactly the same as the one on your system.)

Date	The date format is <day-of-the-week> <month> <day> <year>.
Time	The time format is <hour> <minute> <second> displayed in 24-hour system.
Primary and Secondary Master, Slave	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 options to configure ach device.
Drive A Type / Drive B Type	This category identifies the types of floppy disk drive A or drive B that has been installed in the computer.
Video	The default setting is EGA/VGA.
Halt on	You can select which type of error will cause the system to halt.

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Advanced Chipset Features

The Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It must be stated that these items should not be altered. The default settings have been chosen because they provide the best operating conditions for your system.

Integrated Peripherals

The Integrated Peripherals Setup allows the user to configure the onboard IDE controller, floppy disk controller, the printer port and the serial ports.

Power Management Setup

The Power Management Setup Menu allows you to configure your system to most save energy while operating in a manner consistent with your own style of computer use.

PnP/PCI Configurations

This section describes how to configure the PCI bus system. This section covers some very technical items and it is recommended that only experienced users should make any changes to the default settings.

PC Health Status

The PC Health Status display CPU and Case Fan Speed.

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

BIOS Update Procedure

A program AWDFLASH.EXE is included in the utility diskette or CD (X:\Utility\ AWDFLASH.EXE). The user is recommended to follow the procedure below to update the flash BIOS.

(X: your CD driver letter).

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, key in

    > ***AWDFLASH***
    > ***and hit <ENTER>***

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

    > ***Key in "N" if there is no need to save the existing BIOS content..***
    > ***Key in "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.

    > ***Key in "Y"***

7. Wait until the flash-update is completed.
8. Power down the PC system.
9. Restart the PC.

Warning:

Do not turn off or RESET the computer during the flash process. If you are unsure how to upgrade the BIOS, it is best to take your computer to an Authorized Service Center and have a trained technician do the work for you.

SATA RAID SETUP

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

Press Ctrl+S or F4 to enter RAID utility

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

Create RAID Set   Delete RAID Set   Rebuild RAID Set   Resolve Conflicts

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

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

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

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

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

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

Rebuilding RAID Sets

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

Resolving Conflicts

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

DRIVER AND SOFTWARE INSTALLATION

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

2. Insert the bundled driver CD DISC into your CD-ROM drive, select **"ATI Chipset\ATI_Raid Driver"**installation bar on the dialogue Window to begin the driver and software installation. (Please follow the instruction to finish the 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:).
    Copy all files from directory (D:**ATI chipset\ATI_Raid**) to a floppy disk.
2. Install OS from CD-ROM.
3. Press "**F6**" when display "Press **F6** if you need to install a third party SCSI or RAID driver..."
4. Insert floppy disk.
5. Choose the OS device driver wanted for loading.
6. Install OS.
7. Install driver after OS is installed.

APPENDIX

Note to User:

The bundled driver CD attached an Auto-Run feature for all the drivers that the Sapphire motherboard needs. Please select the drivers that you want to install and click the button on the installation panel.

44