K8SLI-AM2

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K8SLI-AM2

nVIDIA® nForce4 SLI
Supports Socket AM2
**AMD® Athlon™ 64 FX/ Athlon™ 64 x2 Dual-Core/
Athlon™ 64/ Sempron™ Processor**

User Manual

Dimensions (ATX Form-Factor):
- 244 mm x 305 mm (W x L)

Operating System:
- Windows® 2000/ XP

Things You Should Know

➥ The images and pictures in this manual are for reference only and may vary from the product you received depending on specific hardware models, third party components and software versions.

➥ This mainboard contains very delicate IC chips. Always use a grounded wrist strap when working with the system.

➥ Do not touch any IC chip, lead, connector or other components.

➥ Always unplug the AC power when you install or remove any device on the mainboard or when confuguring pins and switches.

Packing List

⊘ K8SLI-AM2 mainboard
⊘ FDC Cable
⊘ HDD Cable
⊘ I/O Bracket
⊘ Serial ATA Cable
⊘ K8SLI-AM2 Mainboard User Manual CD
⊘ K8SLI-AM2 Setup Driver CD
⊘ K8SLI-AM2 Mainboard Quick Installation Guide

Symbols

Attention- Important Information

Follow the procedures below…

Troubleshooting Tips

Refer to other sections in this manual…

Table of Contents

Chapter 1. Getting Started

Introduction

Congratulations on choosing the K8SLI-AM2 Mainboard. It is based on the nVIDIA® nForce4 SLI chipset. The mainboard supports the AMD Athlon™ 64 FX/ Athlon™ 64 X2 Dual-Core/ Athlon™ 64/ Sempron™ Processor with FSB (Front Side Bus) frequencies of 1000 MHz (2000 MT/s).

The K8SLI-AM2 provides four DIMM (Dual In-Line Memory Modules) sockets and which with Dual Channel Technology supported. The sockets allow you to install 240-pin, non-ECC & unbuffered DDR II 800 (PC2-6400)/ DDR II 667 (PC2-5300)/ DDR II 533 (PC2-4300)/ DDR II 400 (PC2-3200) SDRAM, and support a total memory capacity of 8GB.

This mainboard provides one PCI-E x16 slot for use with a graphics card. It also provides two PCI-E x8 slots which can be used with two identical SLI-ready PCI-Express graphics cards, enabling SLI Technology and significantly increasing graphics performance **<See Appendix III>**. There is also one PCI-E x1 slot provided for use with a PCI-E x1 compatible expansion card. Three standard PCI slots for use with standard PCI expansion cards are also allowed.

The K8SLI-AM2 provides one floppy disk drive connector that can be used with 360KB/ 720KB/ 1.2MB/ 1.44MB/ 2.88MB drive. It also has two IDE connectors for hard drives supporting Ultra ATA 133/ 100/ 66/ 33 IDE devices. In addition, the onboard Serial ATA II comes with four SATA II connectors, which the interface can provide up to 3 Gb/s transmit speed and also support RAID 0/ 1/ 0+1 mode **<See Appendix II>**.

The onboard AC' 97 Audio CODEC (ALC850) supports 8/6/4/2 channel audio play **<See Appendix I>**. The mainboard also supports the Sony/Philips Digital Interfaces (SPDIF) output/input function.

The K8SLI-AM2 also comes with an onboard 10/100/1000 Mbps Ethernet LAN PHY. There is a LAN port on the back panel of your case that you can directly plug into an internet cable.

In addition, there are maximal ten USB2.0/ 1.1 ports which can be set up on this mainboard.

All the information (including hardware installation and software installation) in this manual are for reference only. The contents in this manual may be updated without notice. The company will not assume any responsibility for any errors or mistakes within.

Specification

CPU:

■ Supports Socket AM2

■ Supports AMD Athlon^{TM} 64 FX/ Athlon^{TM} 64 x2 Dual-Core/ Athlon^{TM} 64/ Sempron^{TM} Processor

■ Supports Hyper-Transport^{TM} Link Technology

■ Supports 1000 MHz (2000MT/s) FSB (Front Side Bus) Frequencies

Chipset:

■ Chipset – nVIDIA® nForce4 SLI

■ I/O Controller – Fintek® F71872FG

■ AC' 97 Aduio Codec – Realtek® ALC850

■ LAN PHY – Marvell® 88E1115 10/100/1000 LAN PHY

Memory:

■ Four DIMM sockets with Dual Channel Technology supported

■ Supports a total memory capacity of 8GB

■ Supports to use the 240-pin, non-ECC & unbuffered DDR II 800 (PC2-6400)/ DDR II 667 (PC2-5300)/ DDR II 533 (PC2-4300)/ DDR II 400 (PC2-3200) SDRAM

Slots:

■ Four PCI-Express interface slots for graphics cards and expansion cards:

1. One PCI-E x16 slot: supports up to x16 mode with 4 GB/s one-way bandwidth

2. Two PCI-E x8 slots: supports up to x8 mode with 2 GB/s one-way bandwidth

3. One PCI-E x1 slot: supports up to x16 mode with 250 MB/s one-way bandwidth

■ Three PCI slots with 133 MB/s one-way bandwidth per channel for expansion cards

FDD Connector:

■ One floppy disk drive connector supporting up to two FDDs

■ Supports 360KB/ 720KB/ 1.2MB/ 1.44MB/ 2.88MB

Onboard IDE Connector:

■ Two IDE connectors that support up to four IDE devices

- Supports Ultra ATA 133/ 100/ 66/ 33
- Supports high capacity hard disk drives

Serial ATA II Connector:

- Four SATA II connectors that support up to four SATA II HDDs
- Supports SATA 2.0 specification which provides 3 Gb/s transmit rate
- Supports RAID 0/1/ 0+1 mode

I/O facility Connectors:

- One multi-mode Parallel Port is capable to support as the following:
    1. Standard & Bi-direction Parallel Port
    2. Enhanced Parallel Port (EPP)
    3. Extended Capabilities Port (ECP)
- Supports one PS/2 mouse port and one PS/2 keyboard port
- Supports one serial port（COM1）on back panel
- Supports one SPDIF IN port and one SPDIF OUT port on back panel
- Supports one IrDA（IR）header with external device connected

Universal Serial Bus:

- Four onboard USB 2.0/ 1.1 ports
- Three front USB headers come with this mainboard supporting six additional USB ports to be set
- Supports a maximum of ten USB 2.0/ 1.1 ports for compliant devices

Onboard AC' 97 Sound CODEC (ALC850):

- High performance CODEC with high S/N ratio (>90 db)
- Compliant with AC' 97 2.3 specification
- Supports 8/6/4/2 channel playback capability
- Support 3D stereo enhancement
- Supports jack sensing and re-tasking function
- Support Sony/ Philips Digital Interfaces (S/PDIF) functionality

Onboard LAN Chip:

■ Supports 10/100/1000 Mbps Ethernet LAN

■ Supports nVIDIA® Active Armor ™, it provides advanced data packet inspection

■ Supports nVIDIA® Firewall ™, it protects your system from intruders

BIOS:

■ Phoenix-Award™ BIOS

■ Supports APM 1.2

■ Supports ACPI 2.0 power management

Green Function:

■ Supports Phoenix-Award™ BIOS power management function

■ Supports system-wake-from-power-saving-mode by keyboard or mouse touching

Shadow RAM:

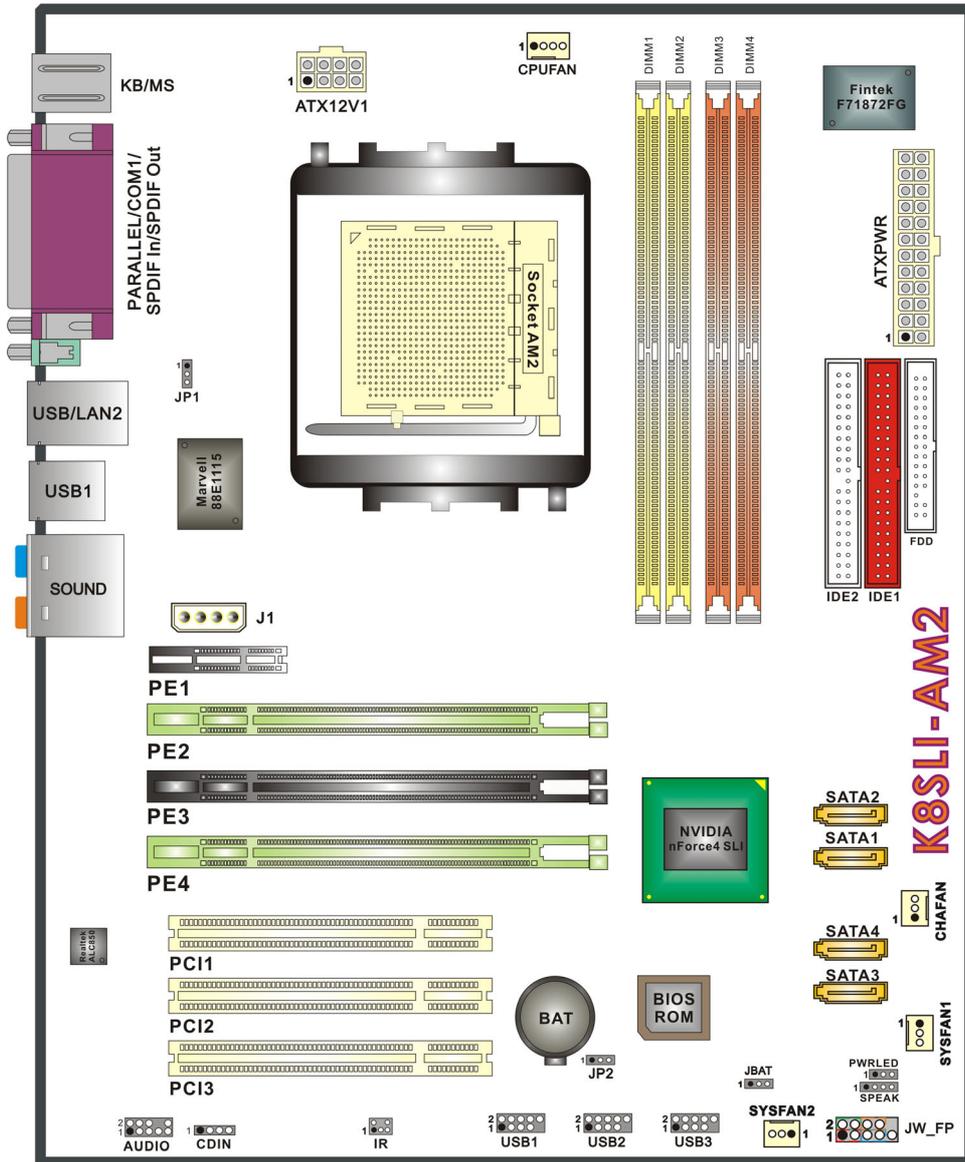■ Integrated memory controller provides shadow RAM functionality and supports ROM BIOS

Flash Memory:

■ Supports flash memory functionality

■ Supports ESCD functionality

Hardware Monitor Function:

■ Monitors CPU/ Chassis Fan Speed

■ Monitors CPU and system temperatures

■ Monitors system voltages

Configuration
Layout of K8SLI-AM2

Hardware Installation

This section will assist you in quickly installing your system hardware. Wear a wrist ground strap before handling components. Electrostatic discharge may damage your system components.

CPU Processor Installation

This mainboard supports AMD Athlon™ 64 FX/ Athlon™ 64 x2 Dual-Core/ Athlon™ 64/ Sempron™ processor and uses a Socket AM2. Before building your system, we suggest you visit the AMD website and review the processor installation procedures. http://www.amd.com

CPU Socket AM2 Configuration Steps:

Locate the CPU socket on your mainboard and nudge the locking lever away from the socket. Then lift the lever to a 90-degree angle.

On the socket, locate the corner which has the "diagonally cut-corner" on the rectangular shaped pattern of pinholes (see diagram below-left). Match that corner with the "gold triangle" on the CPU (see diagram below-right) and lower the CPU onto the socket. The bottom of the CPU should be flush with the face of the socket.

Lower the lever until it snaps back into position. This will lock down the CPU.
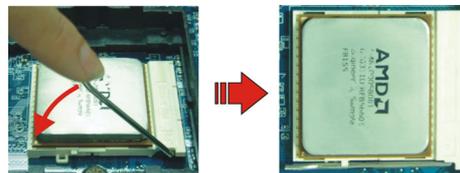
Smear thermal grease on top of the CPU. Lower the CPU fan onto the CPU and use the clasps on the fan to attach it to the socket. Finally, extend the power cable from the fan and insert it onto the "CPUFAN" adapter.
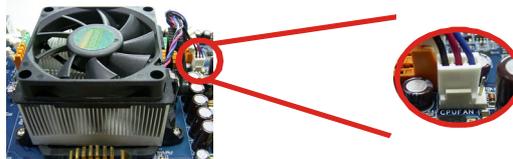
Attention

DO NOT touch the CPU pins in case they are damaged. Also, make sure that you have completed all installation steps before powered on the system. Finally, double-check that the cooling fan is properly installed and the CPU fan power cord is securely attached, in case your CPU and other sensitive components are damaged because of high temperatures.

FAN Headers: CPUFAN, CHAFAN, SYSFAN1, SYSFAN2

There are four fan headers available for cooling fans. The cooling fans play an important role in maintaining ambient temperatures in your system. The CPUFAN header is attached with a CPU cooling fan. The CHAFAN, SYSFAN1 and SYSFAN2 headers are attached with other cooling fans.

CPUFAN

CHAFAN/ SYSFAN1/ SYSFAN2
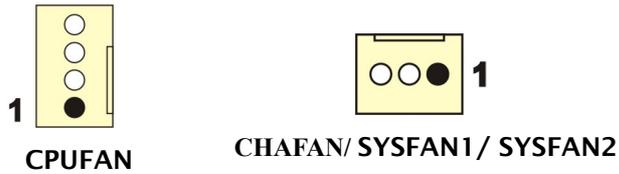
Attention

You can avoid damaging your CPU due to high temperatures with proper cooling equipment. It is recommended that attach a cooling fan on top of your CPU. Use the CPUFAN header to attach the fan cord.

On most fan power cord, the black wire of the fan cable is the "ground" and should be attached to pin-1 of the header.

Memory Installation: DIMM1/2/3/4

The K8SLI-AM2 provides four DIMM (Dual In-Line Memory Modules) sockets with Dual Channel Technology supported. The sockets allow you to install 240-pin, non-ECC & unbuffered DDR II 800 (PC2-6400)/ DDR II 667 (PC2-5300)/ DDR II 533 (PC2-4300)/ DDR II 400 (PC2-3200) SDRAM, and support to install a total memory capacity of 8GB.

DIMM1
DIMM2
DIMM3
DIMM4
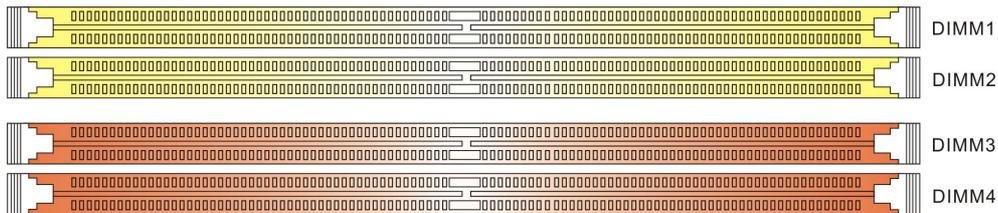
Attention

It is recommended that to install memories which are identical specifications (same timing specifications and same DDR II speed) to achieve the best effects. It may cause the failure of power-on or lower memory speed if installing different type, SPD (series presence detects) memories.

How to Enable Dual-Channel functionality:

1. This mainboard provides Dual-Channel functionality for the four DIMM sockets. Enabling Dual-Channel will significantly increase your data access rate than the before. DIMM1 and DIMM2 share one channel, and DIMM3 and DIMM4 share another channel.

2. To enable Dual-Channel, you need to install memories in different channels of DIMM sockets. According to the definition by Intel, once one channel of the memory capacity is the same with the other channel, the Dual-Channel will be enabled then.

    For example, if you install one 256 MB memory in DIMM1 and another in DIMM2 (256MB x 2 = 512MB), you must install a total of 512 MB memory in DIMM3 or DIMM4, so that the Dual-Channel can be enabled.

3. If you only need to install one memory, it is recommended to install it in DIMM1 or DIMM3.

Memory Installation Steps:

1. Pull the white plastic tabs at both ends of the slot away from the slot.
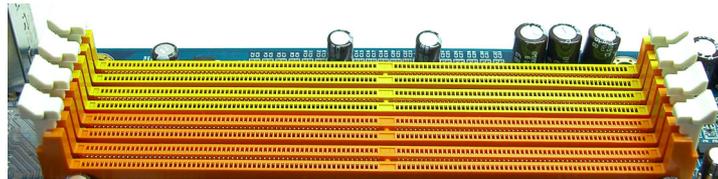
2. Match the notch on the RAM module with the corresponding pattern in the DIMM slot. This will ensure that the module will be inserted with the proper orientation.
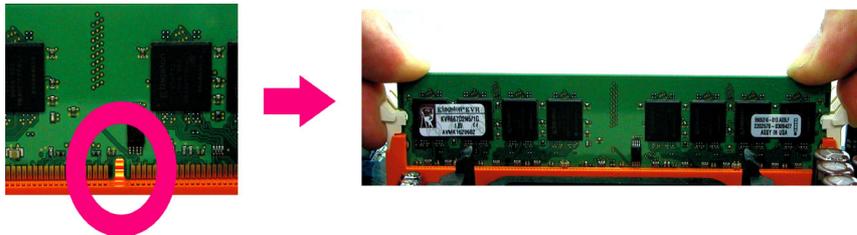
3. Lower the RAM module into the DIMM Slot and press firmly using both thumbs until the module snaps into place.
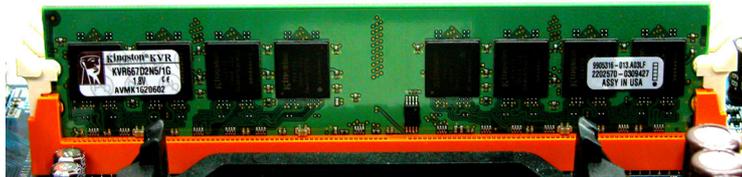
4. Repeat steps 1, 2 & 3 for the remaining RAM modules.

> ∗ The pictures above are for reference only. Your actual installation may vary slightly from the pictures.

Back Panel Configuration
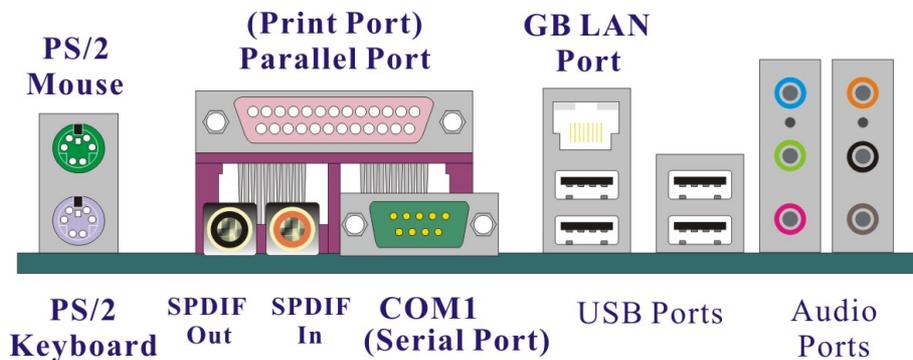
PS/2 Mouse & PS/2 Keyboard Ports: KB/MS

This mainboard provides a standard PS/2 mouse port and a PS/2 keyboard port. The pin assignments are described below.

Serial and Parallel Interface Ports

The mainboard provides one serial port and one parallel port on the back panel.

Parallel Interface Port: PARALLEL

The parallel port on your mainboard is a standard 25-pin one, and is used to connect a parallel printer.
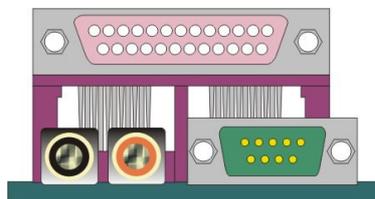
The Serial Interface: COM1

This mainboard provides a serial port COM1 on your back panel, and is used to connect mice, modem and other peripheral devices. Through this port, you can also transfer data from your computer hard disk drive to other computers.

S/PDIF IN/OUT Ports: SPDIF In/ SPDIF Out

The S/PDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder. Use this feature only when your stereo system has digital input function. Use S/PDIF In feature only when your device has digital output function.

USB Ports/LAN Port: USB1, USB/LAN

There are four onboard USB 2.0/ 1.1 ports on the back panel. These USB ports are used to attach with USB devices, such as keyboard, mice and other USB supported devices. There is also a 10/100/1000 Mbps Ethernet LAN port available for you to attach an Internet cable.

Audio Ports: SOUND

This mainboard provides six AC'97 Audio ports for 8/6/4/2 channel playback capability. With jack sensing, auto detecting and adjusting, the device will make it easier to Plug and Play for you.

Line-In (blue)
This port is for audio input and connects to external audio devices such as CD player, tape player or other audio devices when the 8/6/4/2 channel audio effects driver is enabled.

Line-Out (green)
This port is an output audio port used for connecting to speakers or a headset. A dual channel audio system is to provide basic audio functionality. When the 8/6/4/2 channel audio system is enabled, this port will output audio for the front speakers.

Mic-In (pink)

This port is for connecting to a microphone. When the 8/6/4/2 channel audio system is enabled, this port will be the input of your microphone.

Rear Surround-out (orange)

This port is only functional for the output of the surround sound rear speakers when the 8/6/4/2 channel audio driver is installed and enabled.

Center/ Subwoofer-out (black)

This port connects with the center/ subwoofer speakers. It will be functional when the 8/6 channel audio system is driven for center/ subwoofer output.

Side Surround-out (gray)

This port will be effective for the output of side surround speakers when the 8 channel audio system is set.

> This mainboard supports multi-channel audio system which allows you to transform your 2 speaker audio system into 8/ 6/ 4 speaker audio system. See **Appendix I** for more information.

Connectors

Floppy Disk Drive Connector: FDD

The mainboard provides a standard floppy disk drive connector (FDD) that supports 360KB/ 720KB/ 1.2MB/ 1.44MB/ 2.88 MB floppy disk drives using a FDD ribbon cable.

Hard Disk Drive Connectors: IDE1/IDE2

The mainboard provides two IDE connectors that support Ultra ATA 133/ 100/ 66/ 33 IDE devices. You can attach a maximum of four IDE devices, such as hard disk drive (HDD), CD-ROM, DVD-ROM, etc. using IDE ribbon cables.

Primary IDE Connector: IDE1

In general, two IDE devices can be attached onto one IDE connector. If you attach two IDE HDD, you must configure one drive as the master and the other one as the slave.

Secondary IDE Connector: IDE2

The IDE2 connector can also be attached with two IDE HDD, and remember to configure one drive as the Master and the other one as the Slave as well. In addition, it is recommended that attach the optical devices such as CD-ROM, DVD-ROM, etc. onto this IDE2 connector.

SATA II Connector: SATA 1/2/3/4

The four SATA II connectors support 3 Gbps transmission speeds and RAID 0/ 1/ 0+1 mode. One SATA connector only can attach one SATA HDD of each time using SATA cables.

> This mainboard supports RAID 0/ 1/ 0+1 mode; refer **Appendix II** for more information.

> **Attention**
> The FDD/ IDE cable is designed and should be attached with a specific direction. One edge of the cable will usually in color such as red, to indicate that should line up with the header pin-1.

Front Panel Headers: JW_FP, PWRLED, SPEAK

JW_FP

Pin	Assignment	Function	Pin	Assignment	Function
1	VCC5 (+)	Hard Drive LED (HDLED)	2	VCC5 (+)	2-pin Power LED (PWR LED)
3	HDDLE (-)		4	PWRLED (-)	
5	GND	Reset Switch (RESET)	6	PWRBTN	Power-on Button (PWRBTN)
7	RSTSW		8	GND	
9	N/A		10	Key	

Hard Drive LED Header: HDLED

If your case front panel has a hard drive LED cable, attach it to this header. The LED will flicker when there is hard disk drive activity.

Reset Switch Header: RESET

This header can be attached to a momentary SPST switch (reset button) cable on your case front panel. The switch is normally left open. When the switch closed, it will cause the mainboard to reset and run the POST (Power-On Self Test).

Power-on Switch Header: PWRBTN

This header can be attached to a power switch cable on your case front panel. You can turn your system on or off by pressing the button attached to this power switch cable.

2-pin Power LED Header: PWR LED

The mainboard provides a 2-pin power LED header. If there is a 2-pin power LED cord on your case front panel, you can attach it to the 2-pin power LED header. Then the power LED will illuminate while the system is powered on.

3-pin Power LED Header: PWRLED

The mainboard also provides a 3-pin power LED header. If there is a 3-pin power LED cord on your case front panel, you can attach it to this 3-pin header instead of attach to the 2-pin one on the SW/LED header.

	Pin	Assignment	Pin	Assignment
1 ● ○ ○ **PWRLED**	1	PWR_LED (+)	2	Key
	3	PWR_LED (-)		

Speaker Header: SPEAK

A speaker cable on your case front panel can be attached to this header. When you reboot the computer, this speaker will issue a short audible (beep). If there are problems during the Power On Self-Test, the system will issue an irregular pattern of audible beeps through this speaker.

	Pin	Assignment	Pin	Assignment
1 ● ○ ○ ○ **SPEAK**	1	SPK	2	N/A
	3	Ground	4	VCC5

Headers & Jumpers
Front USB Header: USB1/USB2/USB3

This mainboard provides four onboard USB 1.1/2.0 ports on the back panel of your case that attach to USB devices. There are three additional USB headers that can be connected by cables to six more USB ports on your case front panel giving you a possible ten USB ports.
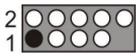
Pin	Assignment	Pin	Assignment
1	VCC	2	VCC
3	-DATA	4	-DATA
5	+DATA	6	+DATA
7	GND	8	GND
9	Key	10	N/A

USB1/USB2/USB3

Attention
If you are using a USB 2.0 device with Windows 2000/XP, you will need to install the USB 2.0 driver from the Microsoft® website. If you are using Service pack 1 (or later) for Windows® XP, and using Service pack4 (or later) for Windows® 2000, you will not have to install the driver.

IrDA Header: IR

The infrared sensing device attached to this header can support to provide wireless infrared. You can transfer data connectionless to or from the portable device (i.e., laptop, PDA, etc.) which with this header attached.

Pin	Assignment	Pin	Assignment
1	IRRX	2	GND
3	GND	4	N/A
5	IRTX	6	VCC

IR

USB Power On function Header: JP2

USB devices attached to the back panel USB ports can awaken the system from sleep mode. In order to enable this functionality, you must adjust the jumper caps on JP2 header for +5V or +5VSB mode depending on which USB port that the USB device is attached to.

JP2	Assignment	Assignment
1 ■ ○ ○ **Pin 1-2 Closed**	+5V	USB Power On Disable (Default)
1 ■ ○ ○ **Pin 2-3 Closed**	+5VSB	USB Power On Enabled

Note: Close stands for putting a jumper cap onto two header pins.

Keyboard/Mouse & USB Power On function Header: JP1

PS/2 Keyboard and PS/2 Mouse attached to the back panel can awaken the system from sleep mode. In order to enable this functionality, you must adjust the jumper caps on JP1 header as the table below.

JP1	Assignment
1 ○○■ **Pin 1-2 Closed**	KB/MS & USB Power ON Disable (Default)
1 ○○■ **Pin 2-3 Closed**	KB/MS & USB Power ON Enabled

Note: Close stands for putting a jumper cap onto two header pins.

Clear CMOS Jumper: JBAT

The "Clear CMOS" function is used when you are unable boot your system and need to reset the BIOS settings (CMOS settings) back to the manufacturer's original settings. This is also a way to reset the system password if you have forgotten it.

JBAT	Assignment
1 ■ ○ ○ **Pin 1-2 Closed**	Normal (Default)
1 ■ ○ ○ **Pin 2-3 Closed**	Clear CMOS Data

Note: Close stands for putting a jumper cap onto two header pins.

> The following steps explain how to reset your CMOS configurations when you forgot a system password.

1. Turn off your system and disconnect the AC power cable.
2. Set JBAT header to OFF (2-3 Closed).
3. Wait several seconds.
4. Set JBAT header to ON (1-2 closed).
5. Connect the AC power cable and turn on your system.
6. Reset your new password.

Audio Configuration

CD-ROM Audio-In Connector: CDIN

The CD-IN connector is used to attach an audio cable to audio devices such as CD-ROMs, DVD-ROMs etc.

CDIN

Front Audio Connector: AUDIO

If your case front panel has audio ports, you can connect them to the Front Audio Header of this mainboard. First, you must remove the jumper caps on this header and then attach the cables from the front panel to the pins on this header. You can use both the front audio panel and back panel audio simultaneously. If you are not using front panel audio ports, leave the jumper caps on the header pins (Note: pins 5-6 and 9-10) to avoid problems with the back panel audio ports.

AUDIO

Pin	Assignment	Pin	Assignment
1	AUD_MIC	2	AUD_GND
3	AUD_MIC_BIAS	4	AUD_VCC
5	AUD_FPOUT_R	6	AUD_RET_R
7	HP_ON	8	N/A
9	AUD_FPOUT_I	10	AUD_RET_L

Slots

PCI-Express x16 Slot: PE3

This mainboard is able to install a graphics card, which the PCI-Express x16 interface, supporting one-way bandwidth up to 4 GB/s, is compatible to this PE3 slot.

PE3

PCI-Express x8 Slots: PE2/ PE4

This mainboard provides two PCI-Express x8 slots which support one-way bandwidth up to 2 GB/s. They are also allowed to install two identical SLI-ready PCI-Express graphics cards to enable SLI Technology for better graphics performance.

PE2/ PE4

Attention
When you are installing two graphics cards, please attach VGA （=D-Sub） connector onto the graphics card on the PE4 slot.

This mainboard supports SLI Technology. Please refer **Appendix III** for more information.

PCI-Express x1 Slot: PE1

This mainboard is able to install an expansion card which the PCI-Express x1 interface compatible such as network card, SCSI card, etc. to this PE1 slot.
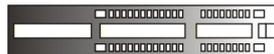
PE1

PCI Slots: PCI1/2/3

PCI stands for Peripheral Component Interconnect, a standard bus for installing expansion cards such as network card, SCSI card, etc. to these PCI slots.
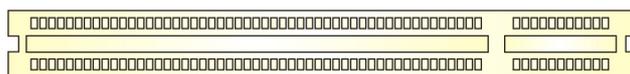
PCI

Power Supply Attachments

PCIE Power Connector: J1

The 4-pin connector provides an extra +12V for the PCI-E x16 slot in order to increase the stability of your graphics card. You can attach the 4-pin connector to power supply directly.

ATX Power Connector: ATXPWR, ATX12V1

This mainboard provides two ATX power connectors, a 24-pin ATXPWR connector and an 8-pin ATX12V1 connector. You must use a power supply that has both of these connectors and both connectors must be attached before the system is powered on. These power connectors support several power management functions such as the instant power-on function. The connector pins are described below.

ATXPWR

| Pin	Assignment	Pin	Assignment
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	Ground
4	+5V	16	PS_ON
5	Ground	17	Ground
6	+5V	18	Ground
7	Ground	19	Ground
8	PW_ON	20	-5V
9	+5V standby voltage	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	Ground

ATX12V1

Pin	Assignment	Pin	Assignment
1	Ground	5	+12V
2	Ground	6	+12V
3	Ground	7	+12V
4	Ground	8	+12V

Attention
In general, power cords are designed and should be attached with a specific direction. The black wire of the power cord is Ground and should be attached onto the header location of Ground.

Chapter 2. BIOS Setup

Introduction

This section describes PHOENIX-AWARD™ BIOS Setup program which resides in the BIOS firmware. The Setup program allows users to modify the basic system configuration. The configuration information is then saved to CMOS RAM where the data is sustained by battery after power-down.

The BIOS provides critical low-level support for standard devices such as disk drives, serial ports and parallel ports. As well, the BIOS control the first stage of the boot process, loading and executing the operating system.

The PHOENIX-AWARD^{TM} BIOS installed in your computer system's ROM is a custom version of an industry standard BIOS. This means that it supports the BIOS of AMD based processors.

This version of the PHOENIX-AWARD^{TM} BIOS includes additional features such as virus and password protection as well as special configurations for fine-tuning the system chipset. The defaults for the BIOS values contained in this document may vary slightly with the version installed in your system.

Key Function

In general, you can use the arrow keys to highlight options, press <Enter> to select, use the <PgUp> and <PgDn> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate within the BIOS Setup program.

Keystroke	Function
Up arrow	Move to previous option
Down arrow	Move to next option
Left arrow	Move to the option on the left (menu bar)
Right arrow	Move to the option on the right (menu bar)
Esc	Main Menu: Quit without saving changes
	Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the option you desire
PgUp key	Increase the numeric value or enter changes
PgDn key	Decrease the numeric value or enter changes
+ Key	Increase the numeric value or enter changes
- Key	Decrease the numeric value or enter changes
Esc key	Main Menu – Quit and do not save changes into CMOS
	Status Page Setup Menu and Option Page Setup Menu – Exit
	Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the defaults from BIOS default table

Main Menu

```
        Phoenix - AwardBIOS CMOS Setup Utility

 Standard CMOS Features        Thermal Throttling Options

 Advanced BIOS Features        Power User Overclock Settings

 Advanced Chipset Features     Password Settings

 Integrated Peripherals        Load Optimized Defaults

 Power Management Setup         Load Standard Defaults

 Miscellaneous Control          Save & Exit Setup

 PC Health Status               Exit Without Saving

 Esc : Quit   F9 : Menu in BIOS    ↑ ↓ → ← : Select Item

 F10 : Save & Exit Setup

                Time, Date, Hard Disk Type...
```

Standard CMOS Features

Include all the adjustable items in standard compatible BIOS.

Advanced BIOS Features

Include all the adjustable items of Award special enhanced features.

Advanced Chipset Features

Include all the adjustable items of chipset special features.

Integrated Peripherals

Include all onboard peripherals.

Power Management Setup

Include all the adjustable items of Green function features.

Miscellaneous Control

It is for you to specify settings for Miscellaneous Control, such as the CPU clock and frequency ratio.

Attention

Before going to update BIOS, please change the item, 【Miscellaneous Control】 → 【Flash Write Protect】 , from 【Enabled】 to 【Disabled】 . When the BIOS update is done, please adjust the item from 【Disabled】 to 【Enabled】 .

PC Health Status

It is for monitoring the system status such as temperature, voltage, and fan speeds.

Thermal Throttling Options

Set the function to low down the CPU temperature being at high workload to protect processor from damage or accidental shutdown when CPU temperature is over the value.

Power User Overclock Settings

It allows you to change the CPU Host/ DRAM clock for overclock demand.

Password Settings

Set change or disable password. It allows you to limit access to the system and/or BIOS setup.

Load Optimized Defaults

It can load the preset system parameter values to set the system in its best performance configurations.

Load Standard Defaults

It can load the preset system parameter values to set the system in its stable performance configurations.

Save & Exit Setup

Save CMOS value settings to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Chapter 3: Software Setup

Software List

Category	Platform
Microsoft® DirectX 9.0c	Windows 2000 /XP
nForce® Chipset Driver	Windows 2000 /XP
nVIDIA® Firewall	Windows 2000 /XP
Realtek® Audio Driver	Windows 2000 /XP
Adobe® Acrobat Reader 6	Windows 2000 /XP
Trend PC-Cillin® 2005	Windows 2000 /XP
Drive Clone	Windows 2000 /XP
Restore IT	Windows 2000 /XP

Attention: You don't need to install the driver for USB 2.0 version if you are using Windows® XP with Service Pack 2 (or more advanced), or Windows® 2000 with Service Pack 4 (or more advanced).

Software Installation

Place the Driver CD into the CD-ROM drive and the Installation Utility will auto-run. You can also launch the Driver CD Installation Utility manually by executing the Intel.exe program located on the Driver CD. (For more details, please refer to the Readme.txt files that in each folder of the Driver.)

◎ The pictures shown below are for your reference only. The version of the software you received and shown on the screen may vary depending on models.

1. When you insert the driver CD into the CD-ROM, you'll see the screen as the picture below. There are several driver buttons displayed in the "Driver Menu" screen, and you can click on the drivers to install.

- ◆ **Microsoft DirectX 9.0c** – provides the software of Microsoft DirectX 9.0c.
- ◆ **nForce Chipset Driver** – provides all the drivers needed for the chipset.
- ◆ **nVIDIA Firewall** – provides firewall to protect your system from hackers and viruses.
- ◆ **Realtek Audio Driver** – provides the driver for being able to input/output audio.

Attention
Please install Microsoft DirectX 9.0c (or the latest version), and then install the nForce Chipset Driver.

2. Click on the "Utility Menu" button, you can choose the software to install.

- ◆ **Adobe Acrobat Reader 6** – Installing the Adobe Acrobat Reader program, you can browse files with PDF styled.
- ◆ **Trend PC-Cillin 2005** – It provides the software of Trend PC-Cillin 2005 (Anti-virus program).
- ◆ **Drive Clone** – It provides the software of Drive Clone which is used to back up or clone hard drives or partitions.
- ◆ **Restore IT** – It provides the software of Restore IT to help you recover lost data or restore files.

3. Click on the "User Manual" button, you can choose the manual to read.

Attention: Before you read manuals, you must install the driver of Adobe Acrobat Reader 6 to browse PDF files.

4. If you click the "Browse CD" button, you can browse all the files in the Driver CD.

Chapter 4: Troubleshooting

Problem 1:

No power to the system. Power light does not illuminate. Fan inside power supply does not turn on. Indicator lights on keyboard are not lit.

Causes:

1. Power cable is unplugged.

2. Defective power cable.

3. Power supply failure.

4. Faulty wall outlet; circuit breaker or fuse blown.

Solutions:

1. Make sure power cable is securely plugged in.

2. Replace cable.

3.Contact technical support.

4.Use different socket, repair outlet, reset circuit breaker or replace fuse.

Problem 2:

System inoperative. Keyboard lights are on, power indicator lights are lit, hard drive is active but system seems "hung"

Causes: Memory DIMM is partially dislodged from the slot on the mainboard.

Solutions:

1. Power Down

2. Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.

Problem 3:

System does not boot from the hard disk drive but can be booted from the CD-ROM drive.

Causes:

1. Connector between hard drive and system board unplugged.

2. Damaged hard disk or disk controller.

3. Hard disk directory or FAT is corrupted.

Solutions:

1. Check the cable running from the disk to the disk controller board. Make sure both ends are securely attached. Check the drive type in the standard CMOS setup.

2. Contact technical support.

3. Backing up the hard drive is extremely important. Make sure your periodically perform backups to avoid untimely disk crashes.

Problem 4:

System only boots from the CD-ROM. The hard disk can be read and applications can be used but booting from the hard disk is impossible.

Causes: Hard Disk boot sector has been corrupted.

Solutions: Back up data and applications files. Reformat the hard drive. Re-install applications and data using backup disks.

Problem 5:

Error message reading "SECTOR NOT FOUND" displays and the system does not allow certain data to be accessed.

Causes: There are many reasons for this such as virus intrusion or disk failure.

Solutions: Back up any salvageable data. Then performs low level format, partition, and then a high level format the hard drive. Re-install all saved data when completed.

Problem 6:

Screen message says "Invalid Configuration" or "CMOS Failure."

Causes: Incorrect information entered into the BIOS setup program.

Solutions: Review system's equipment. Reconfigure the system.

Problem 7:

The Screen is blank.

Causes: No power to monitor.

Solutions: Check the power connectors to the monitor and to the system.

Problem 8:

Blank screen.

Causes:

1. Memory problem.
2. Computer virus.

Solutions:

1. Reboot computer. Reinstall memory. Make sure that all memory modules are securely installed.
2. Use anti-virus programs to detect and clean viruses.

Problem 9:

Screen goes blank periodically.

Causes: Screen saver is enabled.

Solutions: Disable screen saver.

Problem 10:
Keyboard failure.
Causes: Keyboard is disconnected.
Solutions: Reconnect keyboard. Replace keyboard if you continue to experience problems.

Problem 11:
No color on screen.
Causes:
1. Faulty Monitor.
2. CMOS incorrectly set up.
Solutions:
1. If possible, connect monitor to another system. If no color appears, replace monitor.
2. Call technical support.

Problem 12:
The screen displays "C: drive failure."
Causes: Hard drive cable not connected properly.
Solutions: Check hard drive cable.

Problem 13:
Cannot boot the system after installing a second hard drive.
Causes:
1. Master/slave jumpers not set correctly.
2. Hard drives are not compatible / different manufacturers.
Solutions:
1. Set master/slave jumpers correctly.
2.Run SETUP program and select the correct drive types. Call drive manufacturers for possible compatibility problems with other drives.

Problem 14:
Missing operating system on hard drive.
Causes: CMOS setup has been changed.
Solutions: Run setup and select the correct drive type.

Problem 15:
Certain keys do not function.
Causes: Keys jammed or defective.
Solutions: Replace keyboard.

Appendix I: 8/6/4/2 Channel Setup

Channels Setup

1. After into the system, click the audio icon ⬤ from the Windows screen.
2. Click Speaker Configuration button, you can see the screen like the picture below.
3. You can choice 2, 4, 6 or 8 channels by your speakers.
4. You can click the "Auto test" button to test your audio devices.

2 Channel

4 Channel

6 Channel

8 Channel

Attention

To take advantage of 8 Channel Audio Effects, you must use audio software that supports this functionality. You must also make sure your software is specifically configured for 8 Channel Audio Effect supoort.

Appendix II: RAID Setup

Introduction to RAID

RAID (Redundant Array of Independent Disks) technology is a sophisticated disk management system that manages multiple disk drives. It enhances I/O performance and provides redundancy in order to prevent the loss of data in case of individual disk failure. The RAID facility on this board provides RAID 0, RAID 1, RAID 0+1, RAID JBOD, and RAID 5.

Disk Striping (RAID 0)

Striping is a performance-oriented, non-redundant disk storage technology. With RAID striping, multiple disks are used to form a larger virtual disk. Data is then striped or mapped across all the physical disks. In this way, multiple I/O operations can be executed in parallel, enhancing performance. Striping does not provide fault tolerance. The minimum number of hard drives for RAID 0 is 2.

Disk Mirroring (RAID 1)

With Disk Mirroring there are redundant disks that mirror the primary disks. Data that is written to the primary disks are also written to the redundant disks. This redundancy provides fault tolerant protection from a single disk failure. If a read/write failure occurs on one drive, the system can still read and write data using the other drive. The minimum number of drives for a RAID 1 configuration is 2. You are required to use an even number of drives.

Disk Striped Mirroring (RAID 0+1)

This mode combines both the performance benefits of RAID 0 with the fault tolerance of RAID 1. The minimum number of drives for RAID 0+1 configuration is 4 drives. This configuration also requires an even number of drives.

Note: All mirrored configurations or striped/mirrored configurations should use drives of the same size.

# Appendix III: SLI (Scalable Link Interface)

Introduction

nVIDIA® SLI (Scalable Link Interface) technology allows your computer to use two identical nVIDIA® SLI-ready PCI Express™ graphics cards at once. Combining two nVIDIA® SLI-certified graphics cards in a single system could essentially double your graphics performance (up to 2x).

Requirements

1. Two identical SLI-ready graphics cards.
2. The driver of graphics cards must support the SLI technology. (You can download the newest version of your graphic card driver from ***http://www.nvidia.com***)
3. The nVIDIA® SLI technology supports only the Windows® XP operating system.

Installation

When installing two identical SLI-ready graphics cards, they are needed to be connected by the golden fingers between two graphics cards with the bridge PCB. You can only connect the monitor with the graphics card which is in the PE4 slot.
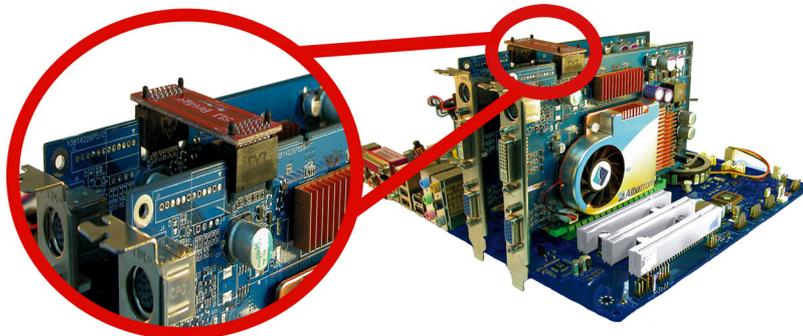
Make sure that you have already installed your chipset driver and your SLI-ready graphics card driver. Then just follow the instructions below to set up your SLI function.

1. Click on the little green icon of NVIDIA in the system tray and select the "NVIDIA Display", the automatically detected monitor brand-model will show up. Just click on it.
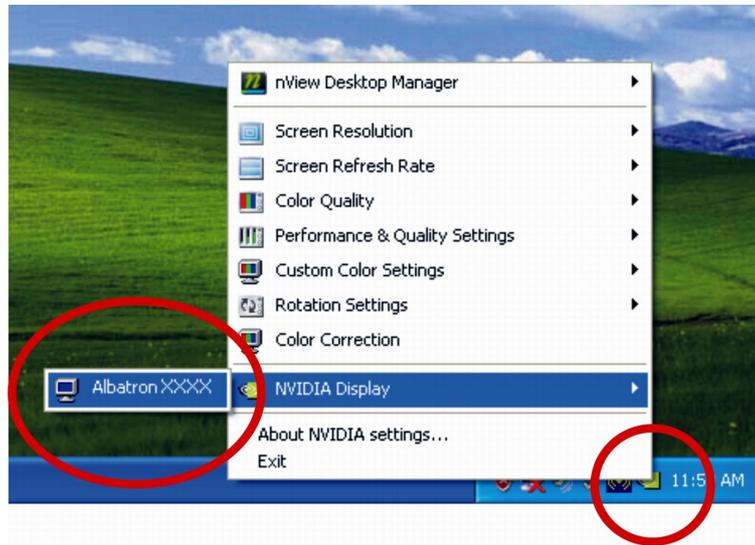
2. On the next screen（below）, select the "SLI multi-GPU" item which is on the left of the sub window. And select the checkbox of "Enable SLI multi-GPU" in the main screen. Click on the "Apply" button to complete the configuration.