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Notice:

Owing to Microsoft's certifying schedule is various to every supplier, we might have some drivers not certified yet by Microsoft. Therefore, it might happen under Windows XP that a dialogue box (shown as below) pop out warning you this software has not passed Windows Logo testing to verify its compatibility with Windows XP. Please rest assured that our RD department has already tested and verified these drivers. Just click the "Continue Anyway" button and go ahead the installation.
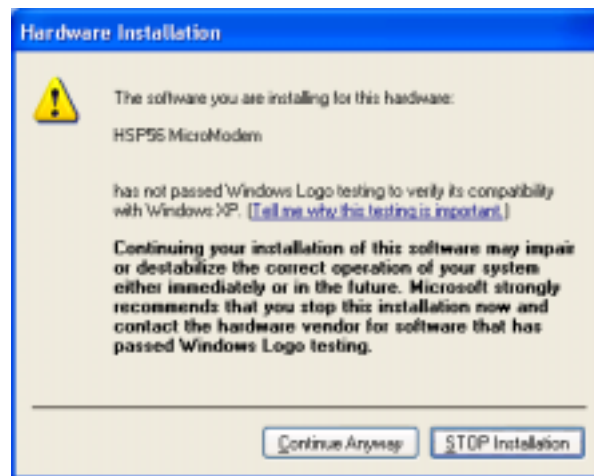
Table of Contents

Chapter 1

Introduction

This mainboard has a **Socket-462** processor socket for the **AMD K7** type of processors. You can install any of these processors on this mainboard. This mainboard supports front-side bus speed of **333MHz**.

This mainboard integrates the **SiS746** Northbridge along with **SiS963L** Southbridge chipsets that supports built-in **AC97 Codec** support 6-channel speak-out, **2 DDR333** modules up to 2GB system memory. This mainboard has one **CNR** (Communications and Networking Riser) slot to support Audio and Modem application, and built-in **10BaseT/100BaseTX Network Interface**.

There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, one serial port, one parallel port and maximum six USB2.0 ports – four back-panel ports and onboard USB header USB3 providing two extra ports by connecting the Extended USB Module to the mainboard.

This mainboard is an ATX mainboard that uses a 4-layer printed circuit board and measures 305 x 224 mm.

Key Features

The key features of this mainboard include:

Socket-462 Processor Support
♦ Supports AMD **Athlon XP/Athlon/Duron** processors
♦ Supports **333** MHz Front-Side Bus

Chipset
There are **SiS746 Northbridge** and **SiS963L Southbridge** in this chipset in accordance with an innovative and scalable architecture with proven reliability and performance.

Memory Support
♦ Two 184-pin DIMM slots for DDR memory modules
♦ Support DDR up to 333 MHz memory bus
♦ Maximum installed memory is 2GB

Expansion Slots
♦ One 8xAGP slot for AGP 2.0-compliant interface
♦ One CNR (Communications and Networking Riser) slot to insert special riser cards with Audio/Modem functionality
♦ Five 32-bit PCI slots for PCI 2.2-compliant bus interface

Onboard IDE channels
♦ Primary and Secondary PCI IDE channels
♦ Support for PIO (programmable input/output) modes
♦ Support for Multiword DMA modes
♦ Support for Bus Mastering and Ultra DMA ATA 100/**133** modes

Power Supply and Power Management
♦ ATX power supply connector
♦ Meets ACPI 1.0b and APM 1.2 requirements, keyboard power on/off
♦ Supports RTC Alarm, Wake On Modem, AC97 Wake-Up and USB Wake-Up

AC97 Audio Codec

- 6-CH hardware architecture allows multi-channel south bridge to playback 6CH audio
- Intel® AC'97 (REV. 2.2) compatible, meeting Microsoft® PC2001 requirements
- Built-in earphone buffer and internal PLL, the latter saving additionsl crystal
- Line-in/rear out share the same jack; Center/bass share the MIC jack
- CRL® 3D: HRTF based BS3D compatible audio engine

Onboard I/O Ports

The mainboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- Six USB2.0 ports (four back-panel ports, onboard USB headers providing two extra ports)
- Audio jacks for microphone, line-in and line-out

Hardware Monitoring

- Built-in hardware monitoring for CPU & System temperatures, fan speeds and mainboard voltages.

Onboard Flash ROM

- Supports Plug and Play configuration of peripheral devices and expansion cards

Built-in Ethernet LAN (optional)

- **10Base-TX/100Base-T Physical Layer Solution**
- Dual Speed – 100/10 Mbps
- MII Interface to Ethernet Controller/Configuration & Status
- Auto Negotiation: 10/100, Full/Half Duplex
- Meet All Applicable IEEE802.3, 10Base-T and 100Base-TX Standards

USB 2.0

- Compliant with Universal Serial Bus Specification Revision 2.0

- ♦ Compliant with Intel's Enhanced Host Controller Interface Specification Revision 0.95
- ♦ Compliant with Universal Host Controller Interface Specification Revision 1.1
- ♦ PCI multi-function device consists of two **UHCI Host Controller** cores for full-/low-speed signaling and one **EHCI Host Controller** core for high-speed signaling
- ♦ Root hub consists 4 downstream facing ports with integrated physical layer transceivers shared by **UHCI** and **EHCI** Host Controller
- ♦ Support PCI-Bus Power Management Interface Specification release 1.1
- ♦ Legacy support for all downstream facing ports

Bundled Software
- ♦ **PC-Cillin2002** provides automatic virus protection under Windows 98/ME/NT/2000/XP
- ♦ **MediaRing Talk** provides PC to PC or PC to Phone internet phone communication
- ♦ **3Deep** delivers the precise imagery and displays accurate color in your monitor
- ♦ **PC DJ** is a dual-MP3 player that enables users to actually mix music right on their own personal computers.
- ♦ **Adobe Acrobat Reader V5.0** is the software to help users read .PDF files.

Dimensions
- ♦ ATX form factor 305 x 224 mm

Note: Hardware specifications and software items are subject to change without notification.

Package Contents

Attention: This mainboard serial has two models, M848LU(LAN, USB2.0), and M848U(USB2.0).
Please contact your local supplier for more information about your purchased model. Each model will support different specification listed as below:

Model	Specification
M848LU	Onboard LAN PHY chip, USB2.0 +RJ-45 LAN connector
M848U	USB 2.0

Your mainboard package contains the following items:
- ❏ The mainboard
- ❏ The User's Manual
- ❏ One diskette drive ribbon cable and bracket
- ❏ One IDE drive ribbon cable and bracket
- ❏ Software support CD

Optional Accessories
You can purchase the following optional accessories for this mainboard.
- ❏ Extended USB module
- ❏ CNR v.90 56K Fax/Modem card
- ❏ Card Reader (You can buy your own Card Reader from the third party, but please contact your local Card Reader vendor on any issues of the specification and compatibility.)

Static Electricity Precautions

Static electricity could damage components on this mainboard. Take the following precautions while unpacking this mainboard and installing it in a system.

1. Don't take this mainboard and components out of their original static-proof package until you are ready to install them.
2. While installing, please wear a grounded wrist strap if possible. If you don't have a wrist strap, discharge static electricity by touching the bare metal of the system chassis.
3. Carefully hold this mainboard by its edges. Do not touch those components unless it is absolutely necessary. Put this mainboard on the top of static-protection package with component side facing up while installing.

Pre-Installation Inspection

1. Inspect this mainboard whether there are any damages to components and connectors on the board.
2. If you suspect this mainboard has been damaged, do not connect power to the system. Contact your mainboard vendor about those damages.

Chapter 2

Mainboard Installation

To install this mainboard in a system, please follow the instructions in this chapter:

❑ Identify the mainboard components
❑ Install a CPU
❑ Install one or more system memory modules
❑ Verify that all jumpers or switches are set correctly
❑ Install the mainboard in a system chassis (case)
❑ Connect any extension brackets or cables to connecting headers on the mainboard
❑ Install other devices and make the appropriate connections to the mainboard connecting headers.

Note:
1. Before installing this mainboard, make sure jumper JP3 is under Normal setting. See this chapter for information about locating JP3 and the setting options.
2. Never connect power to the system during installation; otherwise, it may damage the mainboard.

Mainboard Components

Identify major components on the mainboard via this diagram underneath.
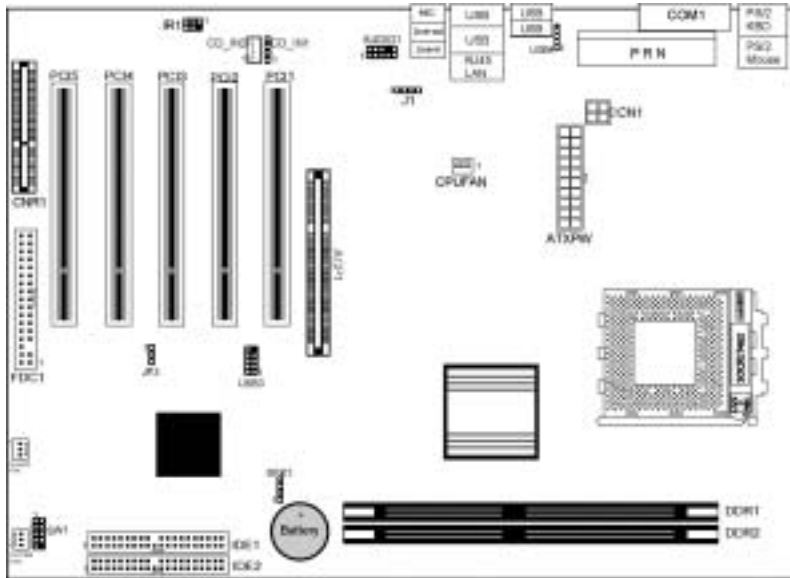
> **Note:** Any jumpers on your mainboard not appearing in the illustration above are for testing only.

I/O Ports

The illustration below shows a side view of the built-in I/O ports on the mainboard.

PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
Parallel Port (LPT1)	Use the Parallel port (LPT1) to connect printers or other parallel communications devices.
COM1	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
LAN Port (optional)	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
USB Ports	Use the USB ports to connect USB devices. *Note: The lower USB port located near the Parallel port is shared with the USB4 connector.*

Audio Ports	Use the three audio ports to connect audio devices. The first jack is for stereo Line-In signal. The second jack is for stereo Line-Out signal. The third jack is for Microphone. Here are the configurations of 2-channel, 4-channel and 6-channel speaker-out for the onboard audio system applications:
	 * 2-CH system:
	   Line-In
	   Line-Out➔ two Front Speakers
	   Microphone
	 * 4-CH system:
	   Line-In➔ two Front Speakers
	   Line-Out➔ two Rear Speakers
	   Microphone
	 * 6-CH system:
	   Line-In➔ two Rear Speakers
	   Line-Out➔ two Front Speakers
	   Microphone➔ Subwoofer/Center

Installing the Processor

This mainboard has a Socket 462 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

Follow these instructions to install the CPU:

1. Unhook the CPU socket's locking lever by pulling it away from socket and raising it to the upright position.
2. Match the pin 1 corner of CPU socket to the one of processor, and insert the processor into the socket. Do not use force.
3. Push the locking lever down and hook it under the latch on the edge of socket.
4. Apply thermal grease to the top of the CPU.
5. Lower the CPU fan/heatsink unit onto the CPU and CPU socket, and then use the retention module clamps to snap the fan/heatsink into place.
6. Plug the CPU fan power cable into the CPU cooling fan power supply (CPUFAN) on the mainboard.

Installing Memory Modules

This mainboard accommodates two 184-pin 2.5V unbuffered Double Data Rate SDRAM (DDR SDRAM) Dual Inline Memory Module (DIMM) sockets, and supports up to 2.0 GB of 333 MHz DDR SDRAM.

DDR SDRAM is a type of SDRAM that supports data transfers on both edges of each clock cycle (the rising and falling edges), effectively doubling the memory chip's data throughput. DDR DIMMs can synchronously work with 100MHz, 133MHz or 166MHz memory bus.

DDR SDRAM provides 1.6 GB/s or 2.1 GB/s data transfer rate depending on whether the bus is 100MHz, 133MHz or 166MHz. DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM module.

DDR1
DDR2
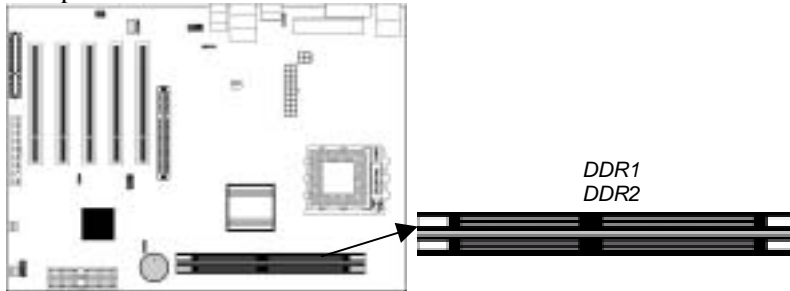
Installation Procedure

These modules can be installed with up to 2 GB system memory. Refer to the following to install the memory module.

1. Push the latches on each side of the DIMM socket down.

2. Align the memory module with the socket. The DIMM sockets are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.

3. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM socket.

4. Install the DIMM module into the socket and press it firmly down until it is seated correctly. The socket latches are levered upwards and latch on to the edges of the DIMM.

5. Install any remaining DIMM modules.

Setting Jumper Switches

Jumpers are sets of pins connected together with jumper caps. The jumper caps change the way the mainboard operates by changing the electronic circuits on the mainboard. If a jumper cap connects two pins, we say the pins are SHORT. If a jumper cap is removed from two pins, the pins are OPEN.

11
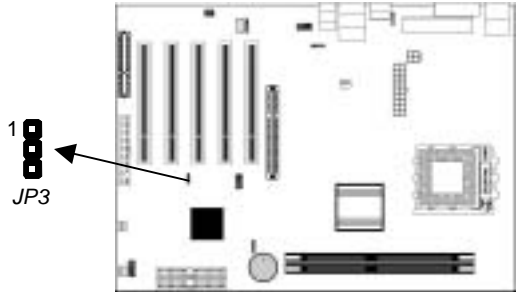
Jumper JP3: Clear CMOS Memory

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your mainboard from operating. To clear the CMOS memory, disconnect all the power cables from the mainboard and then move the jumper cap into the CLEAR setting for a few seconds.

Function	Jumper Setting
Clear CMOS	Short Pins 1-2
Normal Mode	Short Pins 2-3

Install the Mainboard

Install the mainboard in a system chassis (case). The board is an ATX size mainboard. You can install this mainboard in an ATX case. Ensure your case has an I/O cover plate that matches the ports on this mainboard.

Install the mainboard in a case. Follow the instructions provided by the case manufacturer using the hardware and internal mounting points on the chassis.

12
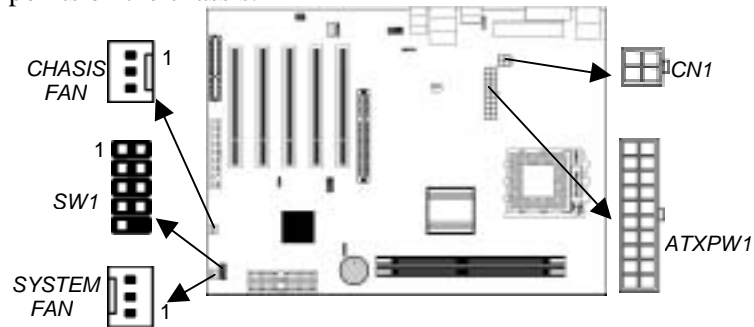
Connect the power connector from the power supply to the **ATXPW1** connector on the mainboard. **CN1** is the CPU Vcore power connector.

If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **SYSTEMFAN/CHASISFAN** fan power connector on the mainboard.

Connect the case switches and indicator LEDs to the **SW1** header.

Pin	Signal	Pin	Signal
1	HD_LED_P	2	FP PWR/SLP_LED_P
3	HD_LED_N	4	FP PWR/SLP_LED_N
5	RST_SW	6	PWR_BT
7	RST_SW	8	PWR_BT
9	RSVD_DNU	10	KEY

Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:
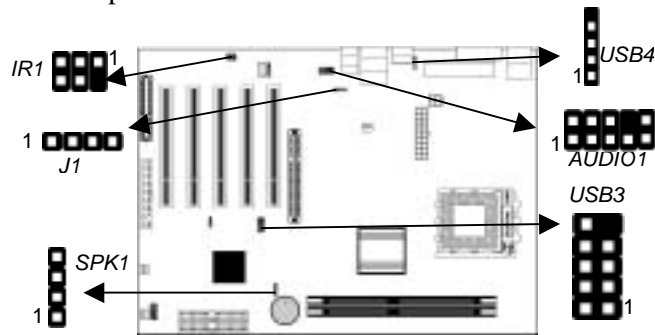
SPK1: Speaker Connector

Connect the cable from the PC speaker to the **SPK1** header on the mainboard.

Pin	Signal	Pin	Signal
1	SPKR	2	NC
3	GND	4	+5V

AUDIO1: Front Panel Audio Header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Here is a list of AUDIO1 header's pin assignment.

Pin	Signal	Pin	Signal
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	KEY
9	AUD_FPOUT_L	10	AUD_RET_L

USB3: Front panel USB Connector

The mainboard has USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector USB3 to connect the front-mounted ports to the mainboard.

Pin	Signal	Pin	Signal
1	VERG_FP_USBPWR0	2	VERG_FP_USBPWR0
3	USB_FP_P0-	4	USB_FP_P1-
5	USB_FP_P0+	6	USB_FP_P1+
7	GROUND	8	GROUND
9	KEY	10	USB_FP_OC0

1. Locate the USB3 header on the mainboard.
2. Plug the bracket cable onto the USB3 header.
3. Remove a slot cover from one of the expansion slots on the system chassis. Install an extension bracket in the opening. Secure the extension bracket to the chassis with a screw.

USB4: USB Card Reader Connector (optional)

This connector is for connecting internal USB card reader. You can use a card reader to read or transfer files and digital images to your computer.

Pin	Signal	Pin	Signal
1	VCC	2	USB-
3	USB+	4	GND
5	KEY		

The JUSBC is shared with one of the USB ports of the I/O back panel. The USB port is located beside the serial port connectors. See "I/O Ports" for more information.

> ⚠ Please check the pin assignment of the cable and the USB header on the mainboard. Make sure the pin assignment will match before plugging in. Any incorrect usage may cause unexpected damage to the system. The vendor won't be responsible for any incidental or consequential damage arising from the usage or misusage of the purchased product.

IR1: Infrared Port

The infrared port allows the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal	Pin	Signal
1	NC	2	KEY
3	+5V	4	GND
5	IRTX	6	IRRX

1. Locate the infrared port **IR1** header on the mainboard.
2. If you are adding an infrared port, connect the ribbon cable from the port to the IR1 header and then secure the port to an appropriate place in your system chassis.

J1: Onboard LAN LED Indicator

This connector is attached to LAN device that needs a LED indicator.

Device	Pins
Link LED	1, +2
ACT LED	+3, 4

Note: A plus sign (+) indicates the pin must be connected to the positive voltage.

Install Other Devices

Install and connect other devices in the system as steps below.

FDC1

IDE1

1

1 1

IDE2
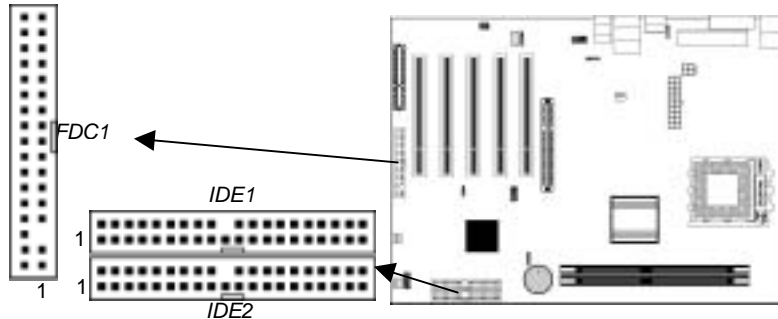
Floppy Disk Drive

The mainboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.
Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive connector **FDC1**.

IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.
The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure the device as a Master or Slave device. The Master device connects to the end of the cable.
Install the device(s) and connect power from the system power supply. Use the cable provided to connect the device(s) to the Primary IDE channel connector **IDE1** on the mainboard.
If you want to install more IDE devices, you can purchase a second IDE cable and connect one or two devices to the Secondary IDE channel connector **IDE2** on the mainboard. If you have two devices on the cable, one must be Master and one must be Slave.

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Internal Sound Connections

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system.
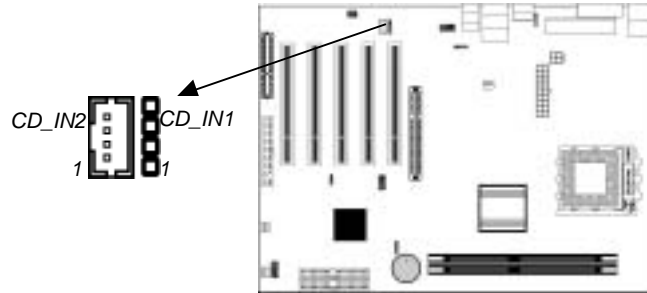
When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the mainboard, locate the two 4-pin connectors **CD_IN1** and **CD_IN2**.

CD_IN1

Pin	Signal
1	CD IN L
2	GND
3	GND
4	CD IN R

CD_IN2

Pin	Signal
1	GND
2	CD IN R
3	GND
4	CD IN L

Expansion Slots

This mainboard has one AGP, one CNR and five 32-bit PCI slots.

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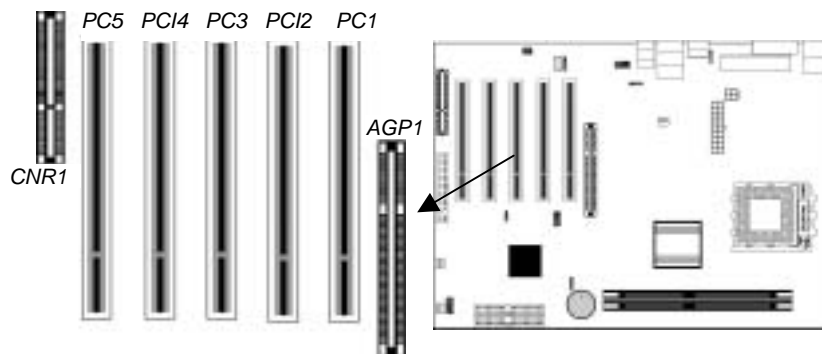
Follow the steps below to install an AGP/CNR/PCI expansion card.
1. Locate the AGP, PCI or CNR slot on the mainboard.
2. Remove the slot cover from the system chassis.
3. Insert the expansion card edge connector into the slot and press it firmly down until fully inserted.
4. Secure the expansion card bracket in the system chassis with a screw.

PCI (Peripheral Components Interconnect) Slots
You can install the 32-bit PCI interface expansion cards in the slots.

AGP (Accelerated Graphics Port) Slot
You can install a graphics adapter supporting 8xAGP specification in the AGP slot. This slot has one 8xAGP edge connector.

CNR (Communications Networking Riser) Slot
The CNR (Communications Networking Riser) slot is an industry standard slot that allows for the installation of a special audio/ modem riser card. Different territories have different regulations regarding the specifications of a modem card. You can purchase an approved CNR card in your area and install it directly into the CNR slot.

Chapter 3

BIOS Setup Utility

Introduction

The BIOS Setup Utility records settings and information about your computer such as the date and time, the kind of hardware installed, and various configuration settings. Your computer uses this information to initialize all the components when booting up and functions as the basis for coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer from booting properly. If this happens, you can use the clear CMOS jumper to clear the CMOS memory used to store the configuration information.

You can run the setup utility and manually make changes to the configuration. You might need to do this to configure some of the hardware that you install on or connect to the mainboard, such as the CPU, system memory, disk drives, etc.

Running the Setup Utility

Each time your computer starts, before the operating system loads, a message appears on the screen that prompts you to "*Hit <DEL> if you want to run SETUP*". When you see this message, press the **Delete** key and the Main menu page of the Setup Utility appears on your monitor.

AMIBIOS SIMPLE SETUP UTILITY – VERSION 1.21.12
(C) 2000 American Megatrends, Inc. All Rights Reserved

Standard CMOS Setup	Features Setup
Advanced Setup	CPU PnP Setup
Power Management Setup	Hardware Monitor
PCI / Plug and Play Setup	Change Password
Load Optimal Settings	Exit
Load Best Performance Settings	

Esc : Quit ↑ ↓ ← →: Select Item (Shift)F2 : Change Color F5 : Old Values
F6 : Optimal values F7 : Best performance values F10 : Save&Exit

Standards COMOS setup for changing time, date, hard disk type, etc.

You can use the cursor arrow keys to highlight any of the options on the main menu page. Press **Enter** to select the highlighted option. To leave the setup utility, press the **Escape** key. To cycle through the Setup Utility's optional color schemes hold down the **Shift** key and press **F2**.

Some of the options on the main menu page lead to tables of items with installed values. In these pages, use the cursor arrow keys to highlight the items, and then use the **PgUp** and **PgDn** keys to cycle through the alternate values for each of the items. Other options on the main menu page lead to dialog boxes requiring you to answer Yes or No by hitting the **Y** or **N** keys.

If you have already made changes to the setup utility, press **F10** to save those changes and exit the utility. Press **F5** to reset the changes to the original values. Press **F6** to install the setup utility with a set of default values. Press **F7** to install the setup utility with a set of high-performance values.

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Standard CMOS Setup Page

This page sets up basic information such as the date, the time, the IDE devices, and the diskette drives. If you press the F3 key, the system will automatically detect and configure the hard disks on the IDE channels.

```
                    AMIBIOS SETUP – STANDARD CMOS SETUP
              (C) 2000 American Megatrends, Inc. All Rights Reserved

Date  (mm/dd/yy) : Mon Mar 24, 2003
Time  (hh/mm/ss) : 11:52:04
                                                   LBA   Blk   PIO   32Bit
              Type          Size Cyln Head WPcom Sec Mode  Mode  Mode  Mode
Pri Master  : Auto                                                     On
Pri Slave   : Auto                                                     On
Sec Master : Auto                                                      On
Sec Slave   : Auto                                                     On

Floppy Drive A : 1.44 MB 3 1/2
Floppy Drive B : Not Installed


Month : Jan – Dec                             ESC  :  Exit
  Day : 01 – 31                               ↑↓  :  Select Item
  Year : 1901 – 2099                          PU/PD/+/-  :  Modify
                                              (Shift)F2  :  Color
                                              F3  :  Detect All HDD
```

Date & Time	Use these items to set the system date and time
Pri Master Pri Slave Sec Master Sec Slave	Use these items to configure devices connected to the Primary and Secondary IDE channels. To configure an IDE hard disk drive, choose *Auto*. If the *Auto* setting fails to find a hard disk drive, set it to *User*, and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting *CDROM*. If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120) select *Floptical*.
Floppy Drive A Floppy Drive B	Use these items to set the size and capacity of the floppy diskette drive(s) installed in the system.

Advanced Setup Page

This page sets up more advanced information about your system. Take care of this page with more caution. Any changes can affect the operation of your computer.

```
┌─────────────────────────────────────────────────────────────────────┐
│            AMIBIOS SETUP – ADVANCED SETUP                           │
│        (C) 2000 American Megatrends, Inc. All Rights Reserved        │
├─────────────────────────────────────┬───────────────────────────────┤
│ Quick Boot                 Enabled  │                               │
│ Card Reader Boot Function   Disabled │                               │
│ 1st Boot Device             IDE-0    │                               │
│ 2nd Boot Device             Floppy   │                               │
│ 3rd Boot Device             CDROM    │                               │
│ Try Other Boot Devices      Yes      │                               │
│ S.M.A.R.T. for Hard Disks   Disabled │                               │
│ BootUp Num-Lock             On       │                               │
│ Floppy Drive Swap           Disabled │                               │
│ Floppy Drive Seek           Disabled │ ESC : Quit    ↑↓←→ : Select Item │
│ Password Check              Setup    │                               │
│ Boot To OS/2 > 64MB         No       │ F1  : Help    PU/PD/+/- : Modify │
│ L2 Cache                    Enabled  │                               │
│ System BIOS Cacheable       Enabled  │ F5  : Old Values (Shift)F2 : Color │
│ Graphic Win Size            4MB      │                               │
│ DRAM CAS# Latency           Reserved │ F6  : Load BIOS Defaults      │
│ Timing Setting Mode         Normal   │ F7  : Load Setup Defaults     │
│ Auto Detect DIMM/PCI Clk    Enabled  │                               │
│ Spread Spectrum             Disabled │                               │
└─────────────────────────────────────┴───────────────────────────────┘
```

Quick Boot	If you enable this item, the system starts up more quickly be elimination some of the power on test routines.
Card Reader Boot Function	If this item is enabled, you can use this device to boot up the system.
1st Boot Device 2nd Boot Device 3rd Boot Device	Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.
Try Other Boot Device	If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.

S.M.A.R.T. for Hard Disks	Enable this item if any IDE hard disks support the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) feature.
BootUp Num-Lock	This item determines if the Num Lock key is active or inactive at system start-up time.
Floppy Drive Swap	If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.
Floppy Drive Seek	If you enable this item, your system will check all floppy disk drives at start up. Disable this item unless you are using an old 360KB drive.
Password Check	If you have entered a password for the system, use this item to determine, if the password is required to enter the Setup Utility (*Setup*) or required both at start-up and to enter the Setup Utility (*Always*).
Boot to OS/2 > 64MB	Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.
L2 Cache	Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be copied to main memory for faster execution.
Graphic Win Size	This item defines the size of aperture if you use a graphic adapter.

DRAM CAS# Latency	This item determines the operation of DRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 3T setting requires faster memory that specifically supports this mode.
Timing Setting Mode	This item determines the timing setting mode of the memory. We recommend you leave this item at the default value.
Auto detect DIMM/PCI Clk	When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.
Spread Spectrum	If you enable spread spectrum, it can significantly reduce the EMI(Electro-Magnetic Interference) generated by the system.

Power Management Setup Page

This page sets some of the parameters for system power management operation.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                  AMIBIOS SETUP – POWER MANAGEMENT SETUP                   │
│             (C) 2000 American Megatrends, Inc. All Rights Reserved        │
├──────────────────────────────────┬──────────────────────────────────────┤
│ ACPI Aware O/S          Yes       │                                      │
│ Power Management        Enabled   │                                      │
│ Suspend Time out        Disabled  │                                      │
│ Hard Disk Time out      Disabled  │                                      │
│ Resume On RTC Alarm     Disabled  ├──────────────────────────────────────┤
│ RTC Alarm Date          15        │                                      │
│ RTC Alarm Hour          12        │ ESC : Quit        ↑↓←→ : Select Item  │
│ RTC Alarm Minute        30        │ F1  : Help      PU/PD/+/- : Modify    │
│ RTC Alarm Second        30        │ F5  : Old Values (Shift)F2 : Color    │
│ LAN/Ring Power On       Disabled  │                                      │
│ Keyboard Power On       Disabled  │ F6  : Load BIOS Defaults              │
│                                   │ F7  : Load Setup Defaults             │
└──────────────────────────────────┴──────────────────────────────────────┘
```

ACPI Aware O/S	Enable this item if you are using an O/S that supports ACPI function such as Windows 98/ME /2000.
Power Management	Use this item to select a power management scheme. Both APM and ACPI are supported.
Suspend Time Out	This sets the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.
Hard Disk Time Out	This sets the timeout to power down the hard disk drive, if the time selected passes without any hard disk activity.
Resume On RTC Alarm Date / Hour / Minute / Second	The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

LAN/Ring Power On	The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.
KeyBoard Power On	If you enable this item, you can turn the system on and off by pressing hot keys on the keyboard. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.

PCI / Plug and Play Setup Page

This page sets some of the parameters for devices installed on the PCI bus and devices that use the system plug and play capability.

```
          AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP
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Plug and Play Aware O/S      Yes
Primary Graphics Adapter     PCI
Allocate IRQ to PCI VGA      Yes
PCI IDE BusMaster            Disabled

                            ESC : Quit        ↑↓←→ : Select Item
                            F1  : Help        PU/PD/+/- : Modify
                            F5  : Old Values  (Shift)F2 : Color
                            F6  : Load BIOS Defaults
                            F7  : Load Setup Defaults
```

Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95/98/ME.

Primary Graphics Adapter	This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default PCI setting still lets the onboard display work and allows the use of a second display card installed in a PCI slot.
Allocate IRQ to PCI VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.
PCI IDE BusMaster	This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.
Note: It is highly recommended that users enter this option to load optimal values for accessing the best performance.

Load Best Performance Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of best-performance default values. These default values are quite demanding and your system might not function properly if you are using slower memory chips or other low-performance components.

Features Setup Page

This page sets some of the parameters for peripheral devices connected to the system.

```
AMIBIOS SETUP – FEATURES SETUP
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OnBoard FDC                Enabled
OnBoard Serial PortA       3F8h/COM1
OnBoard IR Port            Disabled
OnBoard Parallel Port      378h
  Parallel Port Mode       EPP+ECP
   Parallel Port IRQ       7
   Parallel Port DMA       3
OnBoard PCI IDE            Both         ESC  : Quit        ↑↓←→  : Select Item
Audio Device               Enabled
Modem Device               Enabled      F1   : Help       PU/PD/+/-  : Modify
Ethernet Device            Enabled      F5   : Old Values  (Shift)F2  : Color
IEEE1394 Device            Enabled
Onboard USB Function       Enabled      F6   : Load BIOS Defaults
USB Function for DOS       Disabled     F7   : Load Setup Defaults
ThumbDrive for DOS         Disabled
```

OnBoard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
OnBoard Serial PortA	Use these items to enable or disable the onboard COM1 serial port, and to assign a port address.
OnBoard IR Port	Use this item to enable or disable the onboard infrared port, and to assign a port address.
OnBoard Parallel Port	Use this item to enable or disable the onboard LPT1 parallel port, and to assign a port address. The Auto setting will detect and available address.
Parallel Port Mode	Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.
Parallel Port IRQ	Use this item to assign either IRQ 5 or 7 to the parallel port.

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Parallel Port DMA	Use this item to assign a DMA channel to the parallel port. The options are 0, 1 and 3.
Onboard PCI IDE	Use this item to enable or disable either or both of the onboard Primary and Secondary IDE channels.
Audio Device	This item enables or disables the onboard AC'97 audio chip.
Modem Device	This item enables or disables the onboard AC'97 modem chip.
Ethernet Device	This item enables or disables the onboard Ethernet LAN.
*IEEE1394 Device	This item enables or disables the onboard IEEE1394 chip. ***Note**: This option only appears when the mainboard supports IEEE1394 function.
Onboard USB Function	Enable this item if you plan to use the USB ports on this mainboard.
USB Function for DOS	Enable this item if you plan to use the USB ports on this mainboard in a DOS environment.
ThumbDrive for DOS	Enable this item to make a small portion of memory storage device for the USB ports.

CPU PnP Setup Page

This page lets you manually configure the mainboard for the CPU. The system will automatically detect the kind of CPU that you have installed and make the appropriate adjustments to the items on this page.

```
                  AMIBIOS SETUP – CPU PnP SETUP
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 CPU Type                   AMD K7
 CPU Frequency              100 MHz
 CPU Over-Clocking Freq.    100 MHz
 CPU/DRAM Frequency Ratio   [ 1 : 1 ]
 DRAM Frequency             100 MHz
 CPU Ratio                  Locked


                                     ESC : Quit       ↑↓←→ : Select Item
                                     F1  : Help       PU/PD/+/- : Modify
                                     F5  : Old Values (Shift)F2  : Color
                                     F6  : Load Optimal values
                                     F7  : Load Best performance values
```

CPU Type/ Frequency/Ratio	These items show the type, frequency and ratio the installed CPU in your system.
CPU/DRAM Frequency Ratio	This item adjusts the CPU/DRAM frequency installed in your system.
CPU Over-Clocking Frequency	This item decides CPU over-clocking frequency installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the PageUp key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.

Hardware Monitor Page

This page sets some of the parameters for the hardware monitoring function of this mainboard.

```
         AMIBIOS SETUP – HARDWARE MONITOR
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*** System  Hardware  ***
CPU Vcore                1.616V
Vcc 2.5V                 2.496V
+3.3V                    3.392V
+5V                      4.945V
+12V                     12.032V
SB+3.3V                  3.472V
SB+5V                    5.026V
CHS Fan Speed            0 RPM
SYSTEM Fan Speed         0 RPM        ESC : Quit       ↑↓←→ : Select Item
CPU Fan Speed            1308 RPM
Vcore Temperature        59°C/138°F   F1  : Help       PU/PD/+/- : Modify
SYSTEM Temperature       39°C/102°F
CPU Temperature          32°C/89°F    F5  : Old Values (Shift)F2  : Color

                                      F6  : Load BIOS Defaults

                                      F7  : Load Setup Defaults
```

CPU/CHS/System Temperature	These items display CPU, chassis and system temperature measurement.
FANs & Voltage Measurements	These items indicate cooling fan speeds in RPM and the various system voltage measurements.

Change Password

If you highlight this item and press **Enter**, a dialog box appears which lets you enter a Supervisor password. You can enter no more than six letters or numbers. Press **Enter** after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press **Enter** after you have retyped it correctly. The password is then required to access the Setup Utility or for that and at start-up, depending on the setting of the Password Check item in Advanced Setup.

Change or Remove the Password

Highlight this item, press Enter and type in the current password.
At the next dialog box, type in the new password, or just press
Enter to disable password protection.

Exit

Highlight this item and press **Enter** to save the changes that you
have made in the Setup Utility configuration and exit the program.
When the Save and Exit dialog box appears, press **Y** to save and
exit, or press **N** to exit without saving.

Chapter 4

Software & Applications

Introduction

This chapter describes the contents of the support CD-ROM that comes with the mainboard package.

The support CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

To run the support CD, simply insert the CD into your CD-ROM drive. An Auto Setup screen automatically pops out, and then you can go on the auto-installing or manual installation depending on your operating system.

If your operating system is Windows 98/ME/2000/XP, it will automatically install all the drivers and utilities for your mainboard; if Windows NT or manual installation, please follow the instructions described as the Installing under Windows NT or Manual Installation section.

Installing Support Software

1.Insert the support CD-ROM disc in the CD-ROM drive.
2.When you insert the CD-ROM disc in the system CD-ROM
  drive, the CD automatically displays an Auto Setup screen.
3.The screen displays three buttons of **Setup**, **Browse CD** and **Exit**
  on the right side, and three others **Setup**, **Application** and
  ReadMe at the bottom. Please see the following illustration.

The **Setup** button runs the software auto-installing program as
explained in next section.
The **Browse CD** button is a standard Windows command that you
can check the contents of the disc with the Windows 98 file
browsing interface.
The **Exit** button closes the Auto Setup window. To run the
program again, reinsert the CD-ROM disc in the drive; or click the
CD-ROM driver from the Windows Explorer, and click the Setup
icon.
The **Application** button brings up a software menu. It shows the
bundled software that this mainboard supports.
The **ReadMe** brings you to the Install Path where you can find out
path names of software driver.

Auto-Installing under Windows 98/ME/2000/XP

If you are under Windows 98/ME/2000/XP, please click the **Setup** button to run the software auto-installing program while the Auto Setup screen pops out after inserting the support CD-ROM:

1. The installation program loads and displays the following screen. Click the **Next** button.

2. Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.

3. The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You need to follow the onscreen instructions, confirm commands and allow the computer to restart as few times as needed to complete installing whatever software you selected. When the process is finished, all the support software will be installed and start working.

Installing under Windows NT or Manual Installation

If you are under Windows NT, the auto-installing program doesn't work out; or you have to do the manual installation, please follow this procedure while the Auto Setup screen pops out after inserting the support CD-ROM:

1. Click the **ReadMe** to bring up a screen, and then click the Install Path at the bottom of the screen.
2. Find out your mainboard model name and click on it to obtain its correct driver directory.
3. Install each software in accordance with the corresponding driver path.

Bundled Software Installation

All bundled software available on the CD-ROM is for users' convenience. You can install bundled software as follows:

1. Click the **Application** button while the Auto Setup screen pops out after inserting the support CD-ROM.
2. A software menu appears. Click the software you want to install.
3. Follow onscreen instructions to install the software program step by step until finished.

Set Up the Audio System

Set up the Audio configuration of 2-channel, 4-channel and 6-channel speaker-out system through the audio driver. It also provides users with **Xear Technology**, the virtual rear sound effect compensation for any multi-channel audio systems simply by using a pair of open-aired headphones.

- An ear/headphone-like device, capable of delivering the rear audio in a multi-channel audio system.
- Structurally comprising two housing units for receiving the rear signal, wherein the housings are opposite each other. Both housing units may be joined by a headband or other unification device.
- Open-aired design, allowing the listener to perceive the front signal at the same time.

- Rear output adjustable in position, height, and width via C-Media's user friendly API, capable of offering a freely defined cyberspace to the listener.
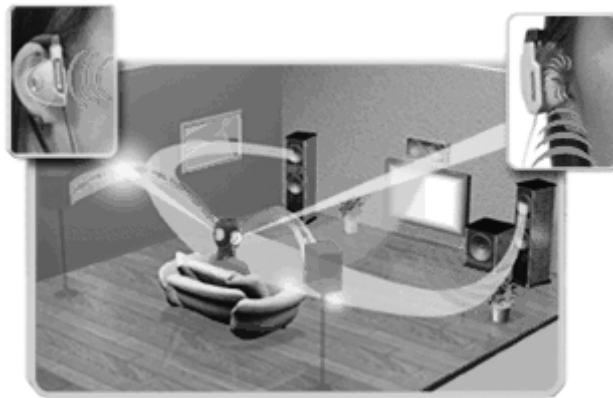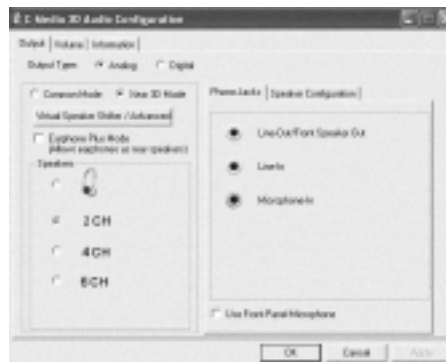
Xear 3D Mode

In Xear 3D Mode, there are Virtual Speaker Shifter/Advance and Earphone Plus Mode options and channel selections. Each channel has a corresponding position of phone jacks and description. **(Three audio jacks on the screen show these colors: top-- lime, middle-- light blue, bottom-- pink)**
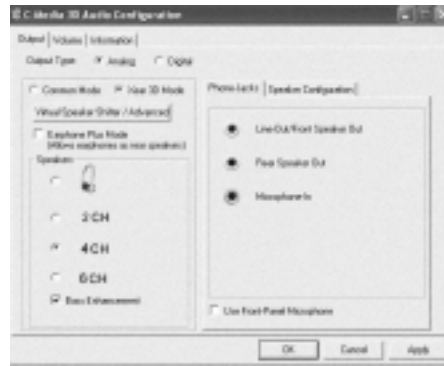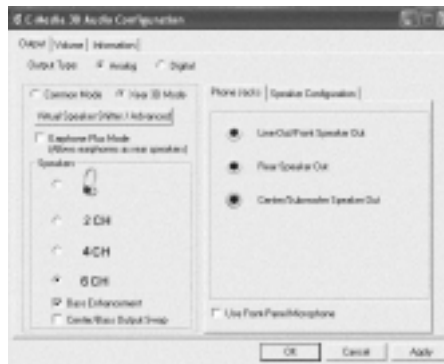
EARPHONE
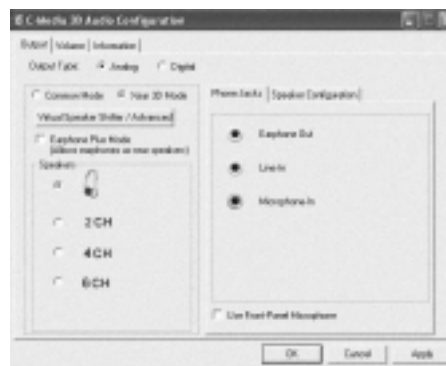
2-CHANNEL

FOUR-CHANNEL

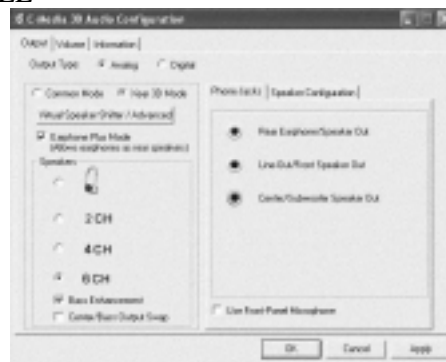SIX-CHANNEL

Earphone Plus Mode

While enabling Earphone Plus Mode, it activates the Xear function; moreover, original Front Out and Rear Out positions will be exchanged in Multi-Channel mode. EARPHONE and 2-CHANNEL don't support Xear function.
(Three audio jacks on the screen show these colors: top-- lime, middle-- light blue, bottom-- pink)

FOUR-CHANNEL
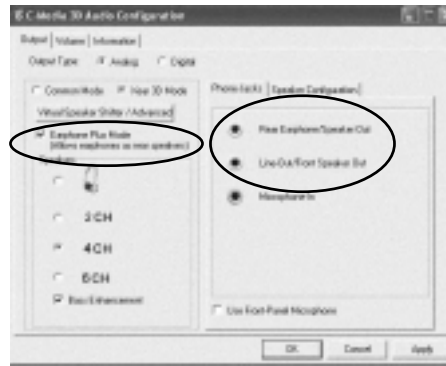
SIX-CHANNEL

Virtual Speaker Shift/Advance

Click the Virtual Speaker Shift/Advance button, it provides some
3D Sound Effect and DEMO program for testing.