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Chapter 1

Introduction

This mainboard is a **SiS 620 100MHz** high-performance mainboard based on the Slot 1 microprocessor, and provides CPU Plug and Play feature for faster and easier CPU installation. The mainboard features with highly flexible configurations and is fully IBM PC/AT compatible.

The mainboard uses a highly integrated Slot 1 chipset with **3D video inside** that is built-in a high performance 64-bit **3D AGP Graphics Accelerator** with 8MB frame buffer shared from system memory. It supports the PCI/ISA and Green standards, it provides the Host/AGP bridge, and integrates all system control functions such as **ACPI** (Advanced Configuration and Power Interface). The ACPI provides more energy saving features for the OSPM(OS Direct Power Management) function.

The mainboard has an onboard **3D PCI Sound** to meet PC98 Audio requirement. It is also built-in **Hardware Monitor** circuit for abnormal CPU fan speed/temperature/voltages detection. The mainboard BIOS provides Trend's **ChipAway Virus** to ensure the entire boot process virus free.

Key Features

The advanced features of the mainboard include:

- ❑ Supports Pentium® II 233~450 MHz, Celeron 266~433 MHz and Pentium III (Katmai New Instruction) 450~500 MHz CPUs.
 - supports both 66.6MHz and **100MHz** FSB (Front Side Bus).
 - provides **CPU Plug and Play** feature for faster and easier CPU installation.
- ❑ Provides 3 DIMMs for SDRAM memory modules.
 - supports a maximum size of 768MB system memory.
- ❑ Provides 3 PCI and 1 ISA slots.
- ❑ Onboard 2 channel IDE,
 - supports four IDE devices maximum.
 - supports PIO, Bus Master and Ultra DMA 33/66 operation modes.
- ❑ Provides ATX power connectors and features of ATX power,
 - Power Button/Suspend Switch and **Keyboard Power On**.
 - Alarm Wake Up, Modem Wake Up and Wake On LAN.
- ❑ Onboard 64-bit **3D AGP Graphics Accelerator**,
 - AGP 2.0 spec. compliant.
 - built in 8-way/16-entry setassociative GART cache for AGP
 - maximum 8MB frame buffer share from system memory.
 - high resolution graphic modes up to 1600 x 1200.
- ❑ Onboard **PCI Sound** meets PC98' specifications,
 - full duplex playback and recording, built-in 16-bits CODEC.
 - HRTF 3D positional audio, supports both Direct Sound 3D® & A3D® interfaces, and support **four channel speakers** mode.
 - supports Windows 3.1/95/98 and Windows NT 4.0.
 - built-in 32 ohm earphone buffer and 3D surround.

- supports MPU-401 Game/Midi port and legacy audio SB16.
 - downloadable Wave-table Synthesizer support Direct Music®.
 - Digital Audio Interface(**SPDIF**) IN/OUT up to **24-bit stereo** 44KHz sampling rate voice and measured **120dB** audio quality.
 - Stereo Mixer supports analog mixing from CD-Audio, Line-In, and digital mixing from voice, FM/Wave-table and digital CD-Audio.
- Onboard Multi-I/O and Peripheral interface, include:
- 1 floppy port with 1 Mb/s transfer rate.
 - 2 serial ports with 16550 compatible Fast UART.
 - 1 parallel port with EPP and ECP capabilities.
 - 2 USB ports & PS/2 keyboard/mouse ports.
 - 1 IR interface.
- Built-in **Hardware Monitor** circuit,
- detects CPU temperature/fan speed and current voltages.
 - supports optional Intel LANDesk Client Manager.
- Onboard **2M Flash ROM** supports complete ACPI and Legacy PMU, and is fully compatible with PC97 and PC98.
- provides Plug & Play function which detects the peripheral devices and expansion cards automatically.
 - provides Trend's **ChipAway Virus** to ensure the entire boot process is virus free, no installation and configuration worries.
- Bundled **PC-cillin98** (OEM) provides automatic virus protection for Windows 95/98 and the Internet.
- Dimension: ATX Form Factor, 24.4cm(L) x 19cm(W).

Unpacking the Mainboard & Static Electricity Precautions

This Mainboard package contains the following items:

1. This Mainboard and the Device Driver
2. The Slot1 holder and AT cables
3. This User's Guide
4. Optional Digital Audio cables/bracket

The mainboard is easily damaged by static electricity. Follow the precautions below while unpacking or installing the mainboard.

1. Do not remove the mainboard from its original package until you are ready to install it.
2. Frequently ground yourself to discharge any static electric charge that may build up in your body while working on installation and/or configuration. For example, you may ground yourself by grasping an unpainted portion of the system's metal chassis.
3. Remove the mainboard from its anti-static packaging and place it on a grounded surface, component side up.
4. Handle the mainboard by its edges or by the mounting bracket to avoid touching its components.
5. Check the mainboard for damage. If any integrated circuit appears loose, press carefully to seat it firmly in its socket.
6. Do not apply power if the mainboard appears damaged. If there is damage to the board contact your dealer immediately.

Notice :

Make sure the CMOS Clear jumper is set to Normal Mode before use.

The shipped mainboard is set to Clear CMOS that will be not boot the system.

See CMOS Clear Selector section.

Chapter 2

Hardware Configuration

Before you install the mainboard into the system chassis, you may find it convenient to first configure the mainboard's hardware. This chapter describes how to set jumpers and install memory modules, and where to attach components.

Mainboard Component Locations

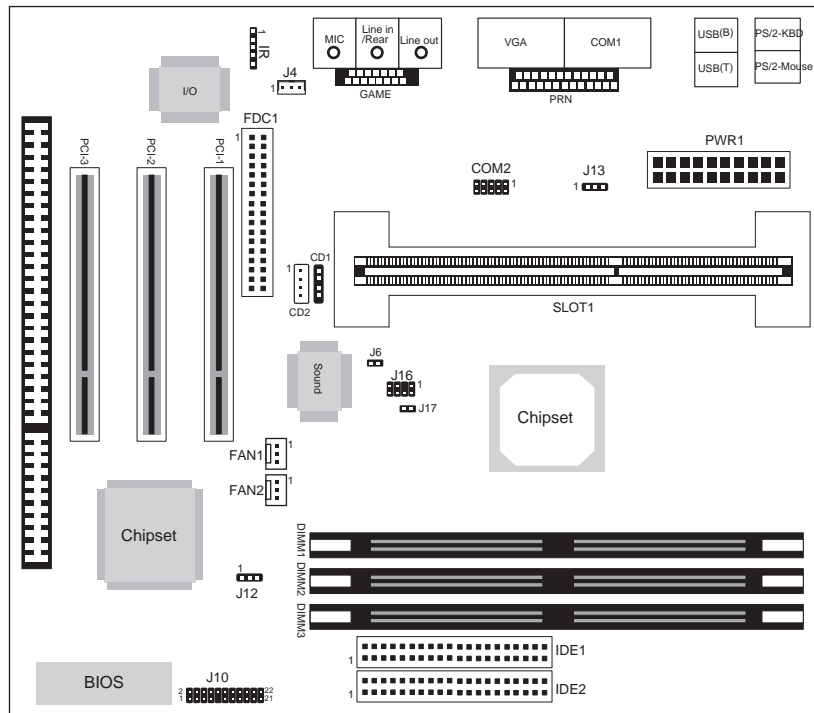
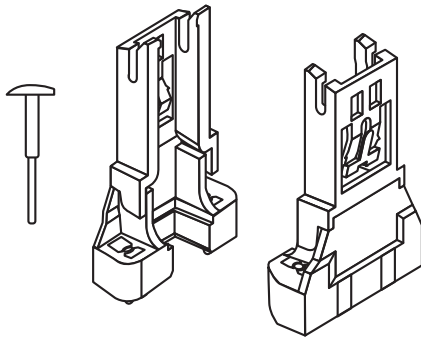


Figure 2-1. Mainboard Component Locations

CPU Installation

This mainboard supports Intel Pentium® II CPU by a Single Edge Contact(SEC) slot and a retention clip set which is fit for 3 different mechanical types of Intel CPU (SEPP, SECC and SECC2). The following drawing shows the retention clip set. It has been preinstalled before shipping to make the CPU installation easier for users. However, there are still a few more steps needed to complete the CPU installation, please refer to the following procedures.

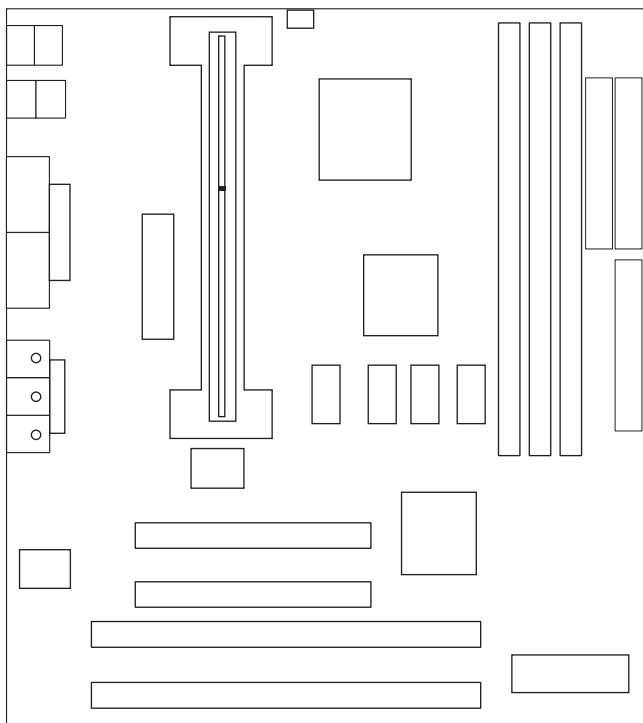


Installation Procedures

Follow the following steps in order to install your intel Pentium® II properly.

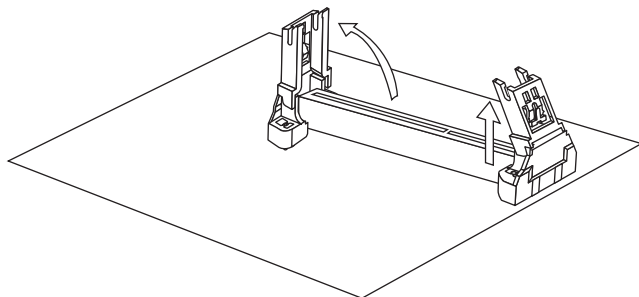
Step 1:

Make sure that the mainboard is set the same direction as the following drawing before doing any installation.

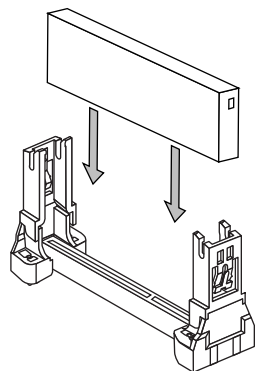


Step 2:

There is one set of Slot1 Holder retention that was installed on your motherboard, and the two chutes of Holder retention are screwed in. Lift up both of the Holder chutes as shown in the following drawing.

**Step 3:**

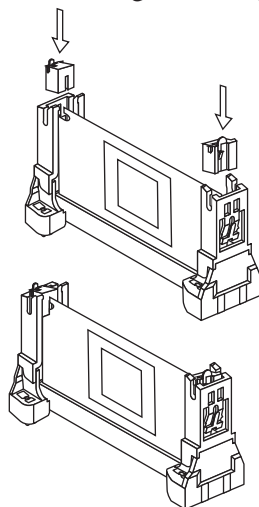
Flatten the two latches on the side of CPU. Insert the CPU into the Holder retention. Lock the two latches to secure the CPU.



If Celeron CPU is installed on CPU card, then, continue the following step.

Step 4:

After installing CPU card into the Holder retention, then push the retention locker downward to secure the CPU card as indicated in the following 2 drawings.

**CPU Speed Setting**

This mainboard provides CPU Plug and Play technology, so that there is no need to do the CPU jumper setting. Enter the BIOS Setup and select CPU Plug and Play Setup. Choose the correct CPU speed to match your CPU installed.

However, if you need to change a CPU, follow the below steps:

1. Power off system and unplug the power core.
2. Install a new CPU to Slot1.
3. Clear CMOS RAM (see Jumper Settings) then power on the system.
4. After power on the system, then enter the BIOS Setup to set the new CPU speed.

Note: If the CPU speed is set incorrectly and fails to boot up the system, then repeat steps 1, 3, 4 again.

Memory Installation

The mainboard lets you add up to 768MB of system memory through 3 DIMM sockets on the board, that is divided into 3 banks: Bank 0, Bank 1, and Bank 2. Supports the following memory configuration.



Bank	Memory Module
Bank 0	
DIMM1	4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB
Bank 1	
DIMM2	4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB
Bank 2	
DIMM3	4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB
Total System Memory = Bank 0 + Bank 1 + Bank 2	

Notes: The speed of SDRAM modules have to be faster than 12ns("-12" parts). While 100 MHz clock speed used, the speed of SDRAM modules should meet the PC100 SDRAM specification (8ns or "-8" SDRAM at least).

Jumper Settings

J12 - CMOS Clear Selector



There is a battery on the mainboard, that is used to retain the system configuration in CMOS RAM.

Description	Setting
Normal Mode	
Clear CMOS (while shipping)	

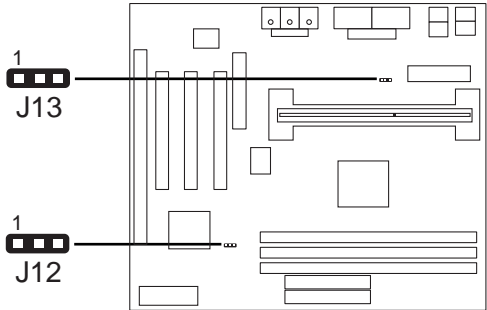
- Note: 1. Make sure the jumper is set to Normal Mode before use.*
- 2. Once you need to clear the CMOS, make sure your system is truned off and the power cord is unplugged.*

J13 – Keyboard Power On Selector

This jumper is designed for Keyboard Power On function.

Description	Setting
Disabled (default)	
Enabled	

Note: Make sure that the system power can provide 720mAon +5VSB(+5V Standby) signal.



ATX Functions & Connectors

This mainboard support ATX power and ACPI functions, these functions and connectors describe below.

Please refer to the Power Management Setup for more settings of them.

Software Power-Off

Follow the steps below to use the "Software Power-Off Control" function in Windows 95/98.

1. Click the START button on the Windows 95/98 task bar.
2. Select Shut Down The Computer to turn off the computer. The message "It is now safe to turn off your computer." will not be shown when using this function.

Modem Ring Power Up

While in Soft-off/Suspend state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. Make sure that the COM Ports option is set to activity.

Alarm Wake Up

If you want to auto boot the system at a certain time. Please set the Power Up by Alarm option to *Enabled* and the options of Alarm time properly in BIOS Setup.

Keyboard Power On

Press the hot key to power on the system by keyboard. Please enter BIOS Setup to set the KB Power On Function and set the Keyboard Power On jumper (see Jumper Settings).

PWR1 - ATX Power Connector

Connect the ATX power supply to this connector that provide all power for the mainboard.

J10(21,22) - Power Button/Suspend Switch Connector

Attach the ATX Power Button cable to this connector.

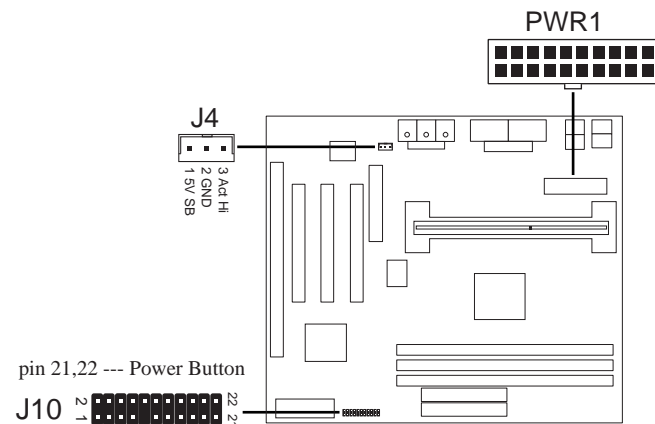
When the system is off, push the power button to turn the system on.

When the system is on, push the power button rapidly to switch the system to the Suspend mode, and, by push and hold the button for more than 4 seconds to turn the system completely off.

When the system is in the Suspend mode, push the power button rapidly to turn the system on.

J4 - Wake On LAN Connector

While in Suspend state, if an external LAN signal occurs, the system wakes up and can be accessed with the LAN card.



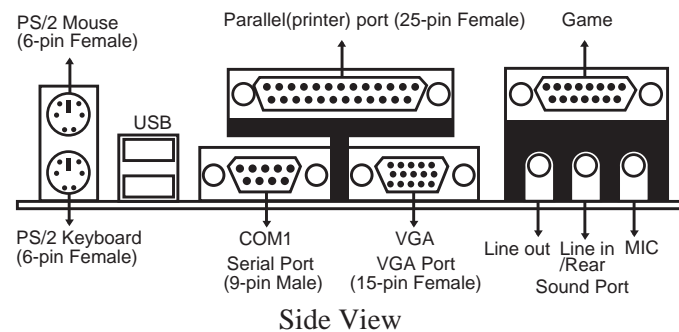
Connectors

Attach system components and case devices to the mainboard via the mainboard connectors. A description of each connector follows. See figure 2-1 for the location of the connectors on the mainboard.

Note: Make sure that the power is turned off before making any connection to the board.

External Connectors Location

There are some external connectors on the mainboard that will be used directly without any bracket, interface or adapter. As following drawing, that contains PS/2 Mouse, PS/2 Keyboard, 2 USB, Parallel port, COM1 port, VGA port, Game port, Sound port connectors. A description of Sound and Game is in the Onboard Sound section.



FDC1 - Floppy Disk Port

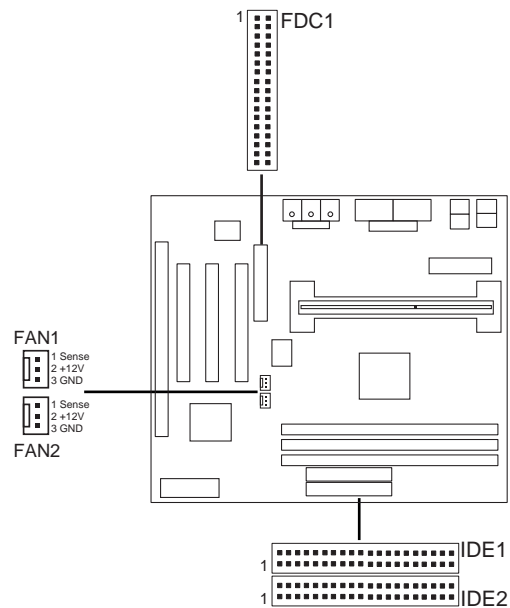
The mainboard provides a standard floppy disk port that supports two 360K/720K/1.2M/1.44M/2.88M floppy disks.

IDE1/IDE2 - Primary/Secondary IDE Ports

The mainboard has a 32-bit Enhanced PCI IDE Controller that provides two IDE port and supports PIO mode, PCI Bus Master and Ultra DMA 33/66 operation modes. Connect IDE ports to IDE devices, one IDE port can supports two devices that one set to Master and other one set to Slave. You can connect up to four IDE devices.

FAN1,FAN2 - Fan Power Connectors

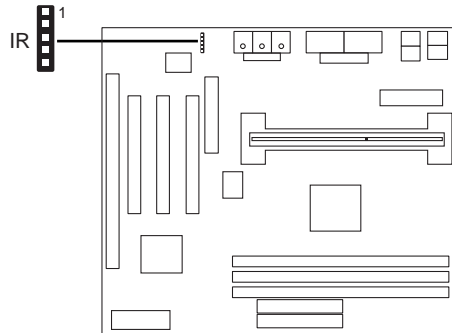
These connectors support CPU and chassis cooling fan with +12V.



IR - InfraRed Connector

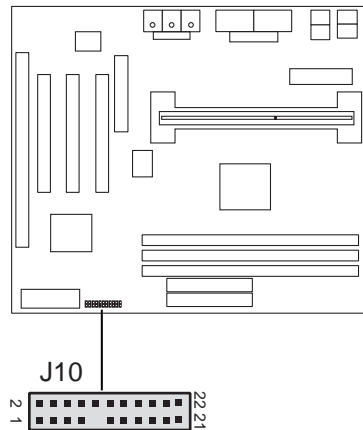
The mainboard provides the 5-pin Infrared connector for IR devices. You must configure the setting of IR device through the Peripheral Setup.

Pin	Signal
1	VCC
2	IRRXH
3	IRRXL
4	GND
5	IRTX



J10 - Case Connectors

The case connectors contain Speaker, Power LED, Keylock, HDD LED, Reset Switch, ACPI LED and Power Button.
See below drawing for the location on the mainboard.



pin1,3,5,7 - Speaker

pin2,4,6 - Power LED

pin8,10 - Keylock

pin15,16 - HDD LED

pin17,18 - Reset Switch

pin19,20 - ACPI LED

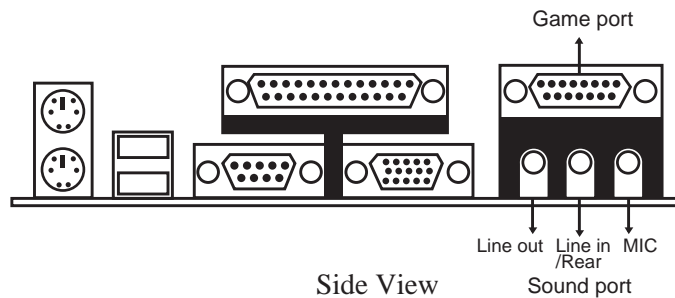
pin21,22 - Power Button

(refer to ATX Functions & Connectors)

Onboard PCI Sound

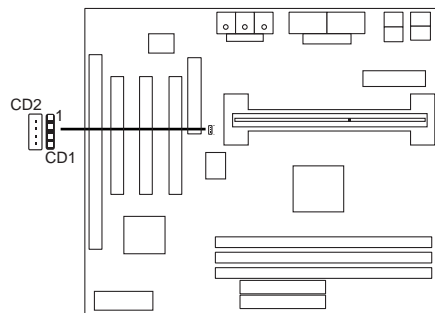
Sound and Game(on the External Connectors)

The board provides Line-In/Rear, MIC(Microphone), Line-Out(Speaker) signals for audio jack and Game port(which is also used for the Joystick/MIDI port) signals.



CD1/CD2 - Analog Audio from CD-ROM



Connect "AUDIO" output of the CD-ROM drive to these connectors. Panasonic compatible CD-ROM should connect to CD2 (pin signals assignment is G-L-G-R), Sony compatible CD-ROM should connect to CD1 (pin signals assignment is L-G-G-R).



J16 – Digital Audio Connector

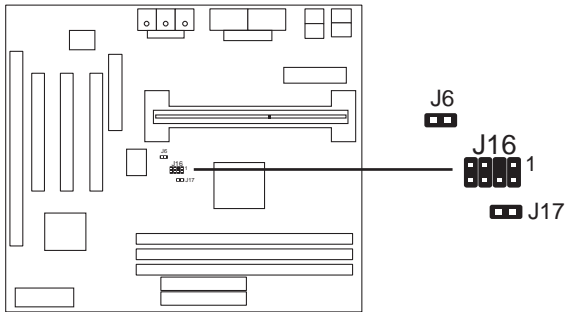
Connect this connector to the Digital Audio ribbon cable/ bracket that contains 3 jacks for Aux IN, SPDIF IN and SPDIF OUT device. Aux IN is used for the second Line-in port. SPDIF IN is used for input the external digital audio. Connect SPDIF OUT to the AC3 Audio Amplifier or Mini-Disk to play, and set the following jumper to select 5V or 0.5V signal level for used device.

J6 – SPDIF OUT Signal Level Selector

Description	J6
5V	
0.5V (default)	

J17 – Internal SPDIF IN Connector

Use SPDIF/IN cable to connect to the “DIGITAL AUDIO” port for the CD-ROM. This will give you non-distorted digital audio from CD-ROM.



Notice that you should **avoid** to use the SPDIF IN jack and the internal SPDIF IN connector simultaneously. i.e. if one of them is connected, you should unplug the other one.

Notice for PCI Sound application

1. Before you install PCI Sound drivers, make sure your operating system has already been installed. Otherwise the PCI Sound might be detect as "Other Device" by the device manager.
2. After the drivers installed, if you wants to use Software Wave-Table drivers as MIDI output device. Select MULTIMEDIA icon in the CONTROL PANEL. Select MIDI page, and click on the "C-media SoftMidi Synthesis(Win98)/Driver(Win95)" then click "OK" to confirm.
3. A Windows application named Audio Rack is provided within PCI Sound drivers, will give you control over all audio functions through a user's interface. This is as simple to use a home stereo system. We recommended that users use the System Mixer in the Audio Rack to control the volume, select recording device to record.
4. If the Midi port is used as the control interface, you need to select MULTIMEDIA icon in the CONTROL PANEL. Select MIDI page, click on the "CM8338 MPU-401"(Win98) or the "CMI8338/C3DX PCI Audio External MIDI port"(Win95) then click "OK" to confirm.
5. Please refer to the attached CD for more information on PCI Sound.

The Four Speakers System

Onboard Sound provides 2 wave channels (front/rear), known as the 4 speakers system. When application programs via DirectSound® 3D or A3D® interface locate the sound sources to the listener's back, the two rear speakers will work to enhance the rear audio positional effect, so as to complement the insufficiency of using only two front speakers to emulate the audio effect. The following is the hardware installation and the software setups:

1. Speaker Installation

Connect the front pair speakers to the Line-out jack on the Sound port, and then, connect rear pair speakers to Line-in/Rear jack. The original Line-in can be moved to Aux-in.

2. Speaker Position

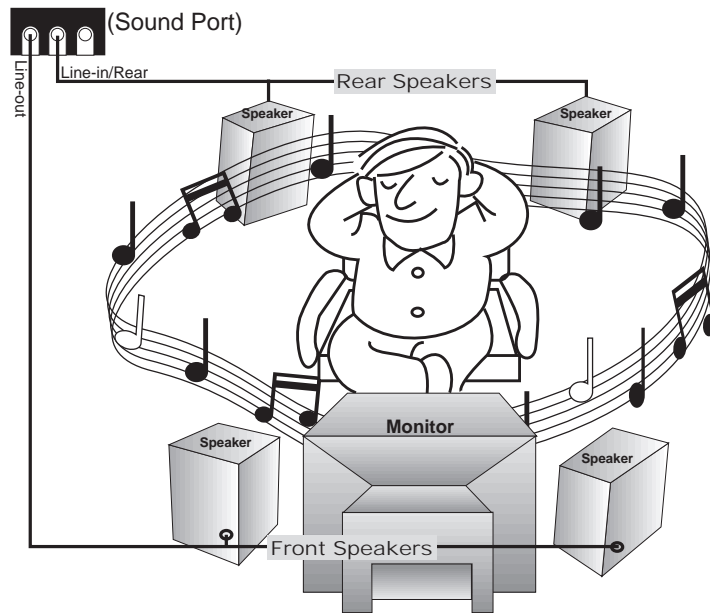
Set up your speakers similar to the following figure to get the best audio result.

3. Mixer Setup

When user was setup the PCI Audio Application, there is a 4 speakers option in the Volume Control of the Mixer. Click on the 4 SPK icon to enable this option. This means that the rear speakers are connected to Line-in/Rear jack. However, in order to avoid hardware conflicts, **DO NOT** enable this option when Line-in/Rear jack is connected to other external Line-in sources. Turn on/off the output of the front speakers and adjust the volume of speakers to the same volume for the rear speakers.

4. Demo

Execute the "Helicopter" demo within the C3D HRTF Positional Audio Demos of the PCI Audio Application. When the helicopter flies behind you, it means that the rear speakers are working properly.



A picture on the 4 speakers application

Onboard VGA

The mainboard onboard SiS 6326 chip provides high performance 64-bit 3D AGP Graphics Accelerator with 8MB frame buffer share from system memory.

It supports following features,

- AGP 2.0 compliant configuration
- 133MHz AGP operation
- MPEG-2 ISO/IEC 13818-2 MP@ML and MPEG-1 ISO/IEC 11172-2 standards
- two 196 x 64 video line buffers for MPEG video playback
- 175MHz pixel clock
- super high resolution graphics modes up to 1600 x 1200
- virtual screen up to 2048 x 2048
- 80/132 columns text modes

Chapter 4

Software Driver

The support software CD-ROM came with the package is free of charge. It includes all our products' drivers.

Please first go to the CD-ROM to view "readme.txt" for each software program location.