

MS6391E

MAINBOARD
Socket 7

SIS 540 133MHz mainboard

series
MATSONIC®



MS6391D MANUAL AMENDMENT

Please note that due to printing error, the following changes are made to the user's Manual on Chapter 1,2:

The MS6391D mainboard uses the same manual as MS6391E mainboard does, Except LAN connector for built-in Ethernet LAN and Modem DAA module for built-in Fax/Modem Communications.

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Chapter 1

Introduction

This mainboard supports all **Socket 7** processors including newer designs which feature a **100 MHz system bus**. The mainboard firmware supports **CPU Plug and Play** so that the system will automatically adopt the correct configuration for the Socket-7 processor that you install.

This mainboard uses the SiS540 chipset which integrates a **3D AGP Graphics Accelerator** and has an embedded **10BaseT/100BaseTX Ethernet Network Interface**. The mainboard has a built-in **PCI 3D Sound System** and a **V.90 Fax/Modem DAA module** is shipped with the mainboard. There is an ADIMM slot onboard for either an optional **Video Bridge Card** or a **display buffer cache card**. The video bridge card connects to an external TV, a TFT LCD panel display, or a secondary CRT display monitor. In addition, the mainboard has a full set of **I/O Ports** and two expansion slots.

This mainboard has all the features you need to develop a powerful multimedia workstation that is network ready, and has built-in communications. The board is **Baby-AT** form factor and supports both **AT/ATX power supply**. If you use an ATX supply, it supports all of the ATX power management features including **ACPI** (Advanced Configuration and Power management Interface), **power saving modes** and **keyboard power on hot keys** feature.

Key Features

The key features of this mainboard include:

Socket-7 Processor Support

- ◆ Supports all recent socket-7 processors including the Intel **P55C** (Pentium MMX), the Cyrix/IBM **6x86L/6x86MX** /MII, the AMD **K6/K6-2/K6-III**, IDT **C6**, and **WinChip 2/2A** CPUs
- ◆ Supports socket-7 processors with system bus frequencies of **66/100 MHz**
- ◆ **CPU Plug and Play** support lets the firmware automatically configure the CPU

Memory Support

- ◆ Two DIMM slots for 168-pin SDRAM memory modules
- ◆ Support for 66MHz, 100MHz memory bus
- ◆ Maximum installed memory is 2 x 512MB = 1 GB

Expansion Slots

- ◆ Two 32-bit PCI slots
- ◆ One ADIMM slot for optional display cache card or video bridge card

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 33/66 modes

Power Supply and Power Management

- ◆ Provides AT/ATX power connector
- ◆ ACPI and previous PMU support, suspend switch, keyboard power on/off
- ◆ Supports Wake on Modem, Wake on LAN and Wake on Alarm

Built-in Graphics System

- ◆ Onboard 128-bit 2D/3D 100MHz Host interface **AGP Graphics Accelerator** Complies with AGP V2.0
- ◆ Shared memory architecture allows a maximum of 64 MB main memory to act as frame buffer
- ◆ Supports high resolutions up to 1920x1200 16M colors, up to 2048x2048 Texture size and Virtual screen up to 4096x4096
- ◆ Supports hardware DVD Accelerator

Sound System

- ◆ Complies with the PC98 audio specification
- ◆ 16-bit CODEC for full-duplex playback and recording
- ◆ HRTF 3D professional audio supports both Direct Sound 3D[®] and A3D[®]-compatible interfaces plus support for **4-channel speakers**
- ◆ Driver support for MS-DOS, Microsoft Windows 95/98/2000/NT 4.0
- ◆ Built-in 32ohm earphone buffer and 3D surround sound
- ◆ Provides MPU-401 Game/MIDI port and legacy Sound Blaster 16 support
- ◆ Downloadable Wave-table Synthesizer supports Direct Music[®]
- ◆ Stereo Mixer supports analog mixing from CD-Audio and Line In or digital mixing from voice, FM/Wave-table and digital CD-Audio

Onboard I/O Ports

- ◆ Provides PC99 Color Connectors for easy peripheral device connections
- ◆ Floppy disk drive connector with 1Mb/s transfer rate
- ◆ One serial port with 16550-compatible fast UART
- ◆ One parallel port with ECP and EPP support
- ◆ Optional ATX Form card provides two USB ports, a PS/2 port for mouse and a infrared port

Built-in Ethernet LAN

- ◆ **10BaseT/100BaseTX Ethernet LAN**
- ◆ LAN controller integrates Fast Ethernet MAC and PHY compliant with IEEE802.3u 100BASE-TX, 10BASE-T and ANSI X3.263 TP-PMD standards
- ◆ Compliant with ACPI 1.0 and the Network Device Class Power Management 1.0
- ◆ High Performance provided by 100Mbps clock generator and data recovery circuit for 100Mbps receiver

Fax/Modem DAA Module

- ◆ **56 Kbps Fax/Modem DAA module**
- ◆ Supports V.90, V.34, V.32bis, V.32, V.22bis, V.22
- ◆ Supports Auto Fallback and MNP 5, V.42bis data compression with 115,200-compatible Virtual UART
- ◆ Requires 16MB RAM and Microsoft Windows 95/98/NT

Onboard Flash ROM

- ◆ Automatic CPU and board configuration
- ◆ Supports Plug and Play configuration of peripheral devices and expansion cards
- ◆ Built-in virus protection using **Trend's ChipAwayVirus** provides boot process virus protection.

Bundled Software

- ◆ **PC-Cillin** provides automatic virus protection under Windows 95/98
- ◆ **SuperVoice** is data, fax and voice communication software
- ◆ **Gamut** provides professional audio features included MP3 encoding/playback
- ◆ **MediaRing Talk** provides PC to PC or PC to Phone internet phone communication
- ◆ **S-YXG50** is music synthesizer software to playback MIDI files on the system

Dimensions

- ◆ Baby-AT form factor (22cm x 22cm)

Package Contents

Your mainboard package ships with the following items:

- The mainboard
- This User's Guide
- 1 UDMA/66 IDE cable
- 1 Floppy disk drive cable
- Audio ports and Game/MIDI port extension bracket
- Serial/parallel ports extension bracket
- VGA extension bracket
- Support software on CD-ROM disc

Optional Accessories

You can purchase the following optional accessories for this mainboard.

- Fax/Modem DAA module
- ATX Form card (2 USB ports, IR port & PS/2 mouse Port)
- 10BaseT/100BaseTX network adapter extension bracket
- SiS301 video bridge card
- 8/32 MB display cache card

Static Electricity Precautions

Components on this mainboard can be damaged by static electricity. Take the following precautions when unpacking the mainboard and installing it in a system.

1. Keep the mainboard and other components in their original static-proof packaging until you are ready to install them.
2. During installation, 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. Handle the mainboard carefully by the edges. Avoid touching the components unless it is absolutely necessary. During installation put the mainboard on top of the static-protection packaging it came in with the component side facing up.

Pre-Installation Inspection

1. Inspect the mainboard for damage to the components and connectors on the board.
2. If you suspect that the mainboard has been damaged, do not connect power to the system. Contact your mainboard vendor and report the damage.

Chapter 2

Mainboard Installation

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

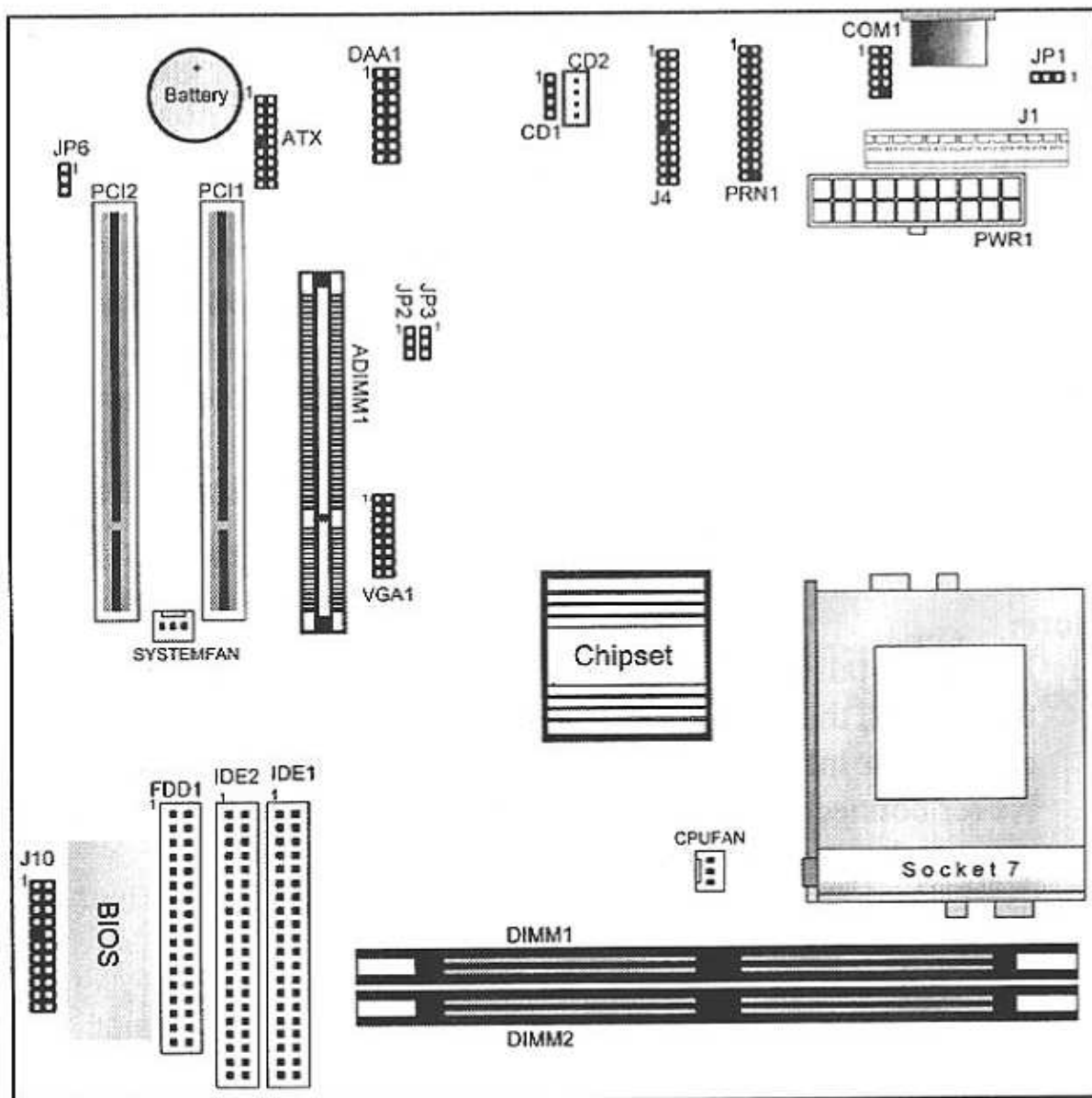
- ❑ Identify the mainboard components
- ❑ Install a CPU
- ❑ Install one or more system memory modules
- ❑ Verify that any jumpers or switches are set correctly
- ❑ Install the mainboard in a system chassis (case)
- ❑ Connect any extension brackets or cables to the mainboard connector headers
- ❑ Install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

Note:

1. Before installing this mainboard, make sure jumper JP6 is set to Normal, the default setting is set to Clear CMOS. See this chapter for information on locating JP6 and the setting options.
2. Never connect power to the system during installation. Doing so may damage the mainboard.

Mainboard Components

Use the diagram below to identify the major components on the mainboard.



Note: Any jumpers on your mainboard that do not appear in this illustration are for testing only.

Install A CPU

This mainboard has a Socket-7 which may be installed with any of the socket-7 processors including the Intel P55C (MMX) series, the Cyrix/IBM 6x86L/6x86MX/MII series, the AMD K6/K6-2/K-III series, the IDT C6/Winchip 2/2A series. The mainboard supports system bus speeds of 66, 100 MHz.

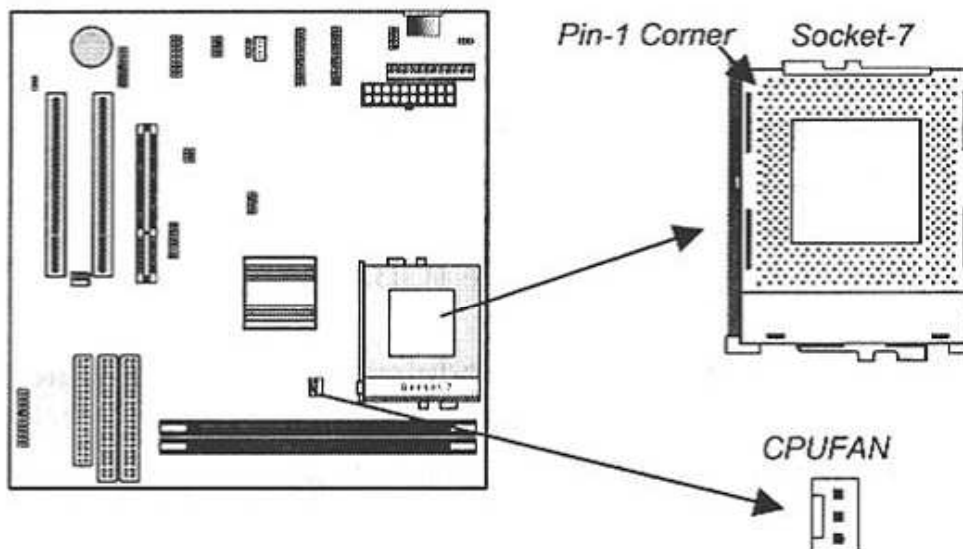
Do not try to install a Socket-370 processor in the Socket-7. A Socket-370 processor such as the PPGA Celeron or FCPGA Pentium III does not fit in the Socket-7.

The board supports CPU plug and play, so the system can automatically run the installed processor with the correct clock speed and the correct system bus frequency. To automatically configure the processor, use the BIOS setup program to select the clock speed and system bus frequency. See chapter three for more information.

To ensure reliability, make sure that your socket-7 processor is fitted with a heatsink/cooling fan assembly.

The socket-7 processor installs into the ZIF (Zero Insertion Force) socket-7 on the mainboard.

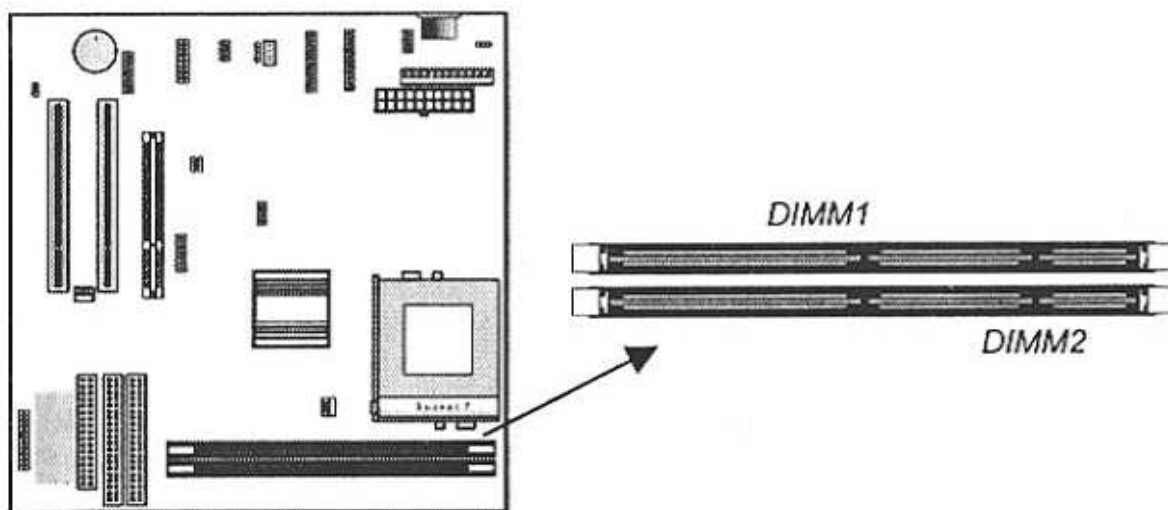
1. Locate the Socket-7 and CPUFAN. Pull the locking lever out slightly from the socket and raise it to the upright position.



2. On the processor, identify the Pin-1 corner by its beveled edge.
3. On the Socket-7, identify the Pin-1 corner. The Pin-1 corner is at the end of the locking lever when it is locked.
4. Match the Pin-1 corners and insert the processor into the socket. No force is required and the processor should drop into place freely.
5. Swing the locking lever down and hook it under the catch on the side of the socket. This secures the CPU in the socket.
6. All processors should be installed with a combination heatsink/cooling fan, connect the cable from the fan to the CPU fan power connector CPUFAN.

Install Memory

The mainboard has two DIMM sockets for system memory modules. You must install at least one memory module in order to use the mainboard.



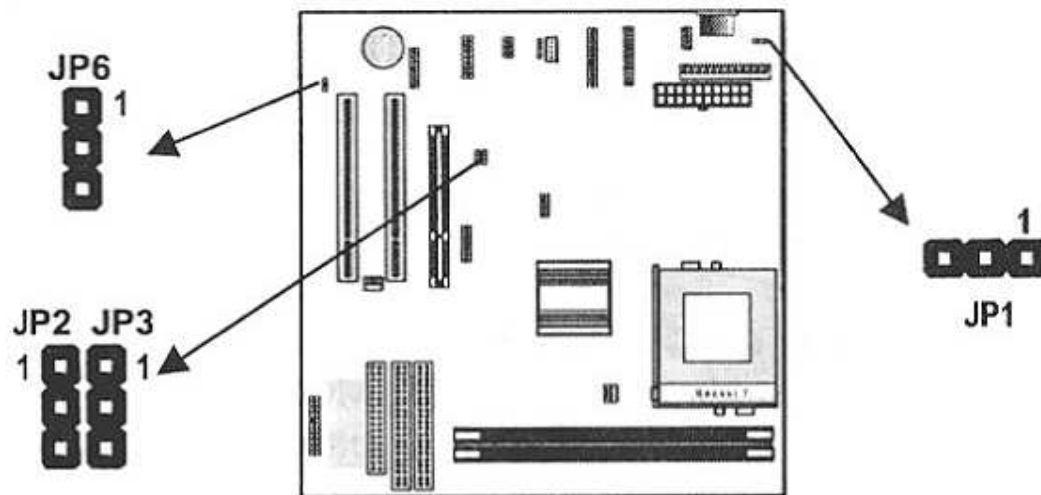
For this mainboard, you must use 168-pin, 3.3V unbuffered SDRAM memory modules. If the installed CPU uses a 100 MHz system bus, you must use PC100 memory. If the installed CPU uses a 66 MHz system bus, you must use PC66 memory. You can install any size memory module from 16 MB to 512MB, so the maximum memory size is $2 \times 512\text{MB} = 1\text{GB}$.

The edge connectors on the memory modules have cut outs, which coincide with spacers in the DIMM sockets so that memory modules can only be installed in the correct orientation.

To install a module, push the retaining latches at either end of the socket outwards. Position the memory module correctly and insert it into the DIMM socket. Press the module down into the socket so that the retaining latches rotate up and secure the module in place by fitting into notches on the edge of the module.

Setting Jumper Switches

Jumpers are sets of pins which can be 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**.



Jumper JP1: Keyboard Power On Selector

If you enable the keyboard power on feature, you can use hot keys on your keyboard as a power on/off switch for the system.

Note: The system must provide 1A on the +5VSB (+5V Standby) signal before using the Keyboard Power On function.

Function	Jumper Setting
Disable Keyboard Power On	Short Pins 1-2
Enable Keyboard Power On	Short Pins 2-3

Jumper JP2: Fax/Modem Enable/disable

Use this jumper to enable or disable the onboard Fax/Modem. Disable the Fax/Modem if you plan on using another Fax/Modem.

Function	Jumper Setting
Enable Fax/Modem	Short Pins 1-2
Disable Fax/Modem	Short Pins 2-3

Note: If you have disabled the onboard audio system with jumper JP3, the Fax/Modem will not function even if it is enabled.

Jumper JP3: Audio System Enable/disable

Use this jumper to enable or disable the audio system integrated on this mainboard. Disable the built-in audio if you plan on using another audio system on an expansion card.

Function	Jumper Setting
Enable Audio	Short Pins 1-2
Disable Audio	Short Pins 2-3

Note: If you disable the onboard audio system, you cannot use the onboard Fax/Modem.

Jumper JP6: Clear CMOS Memory

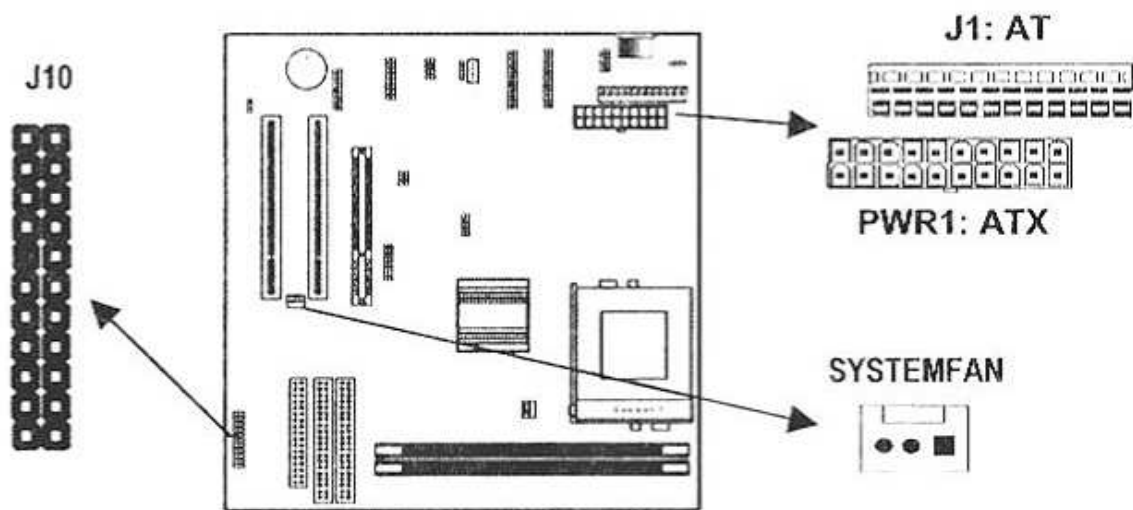
Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your mainboard from operating. To clear the CMOS memory, disconnect all the power cables from the mainboard and then move the jumper cap into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

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

Install the Mainboard

Install the mainboard in a system chassis (case). The board is a baby-AT size mainboard. However, the board supports an AT and an ATX power supply so you can use either an AT or ATX system case. If you use an AT case, some of the ATX power management features might not function.

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



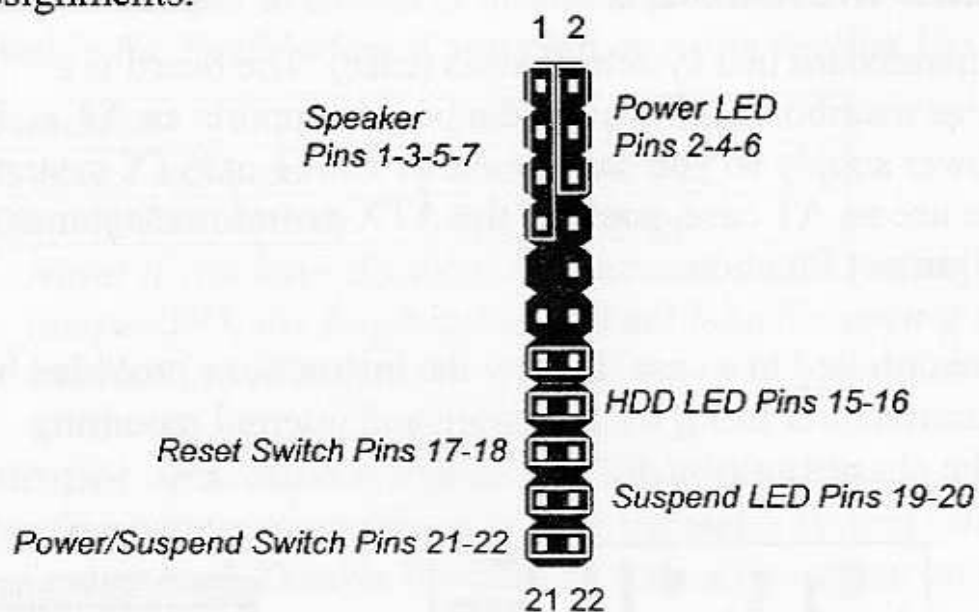
If you are using a case with an ATX power supply, connect the power cable from the ATX power supply unit to the power connector PWR1 on the mainboard.

If you are using a case with an AT power supply, connect the power cable from the AT power supply unit to the power connector J1 on the mainboard.

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

Connect the case switches and indicator LEDs to the J10 switch and LED connector header.

See the illustration below for a guide to the J10 connector pin assignments.



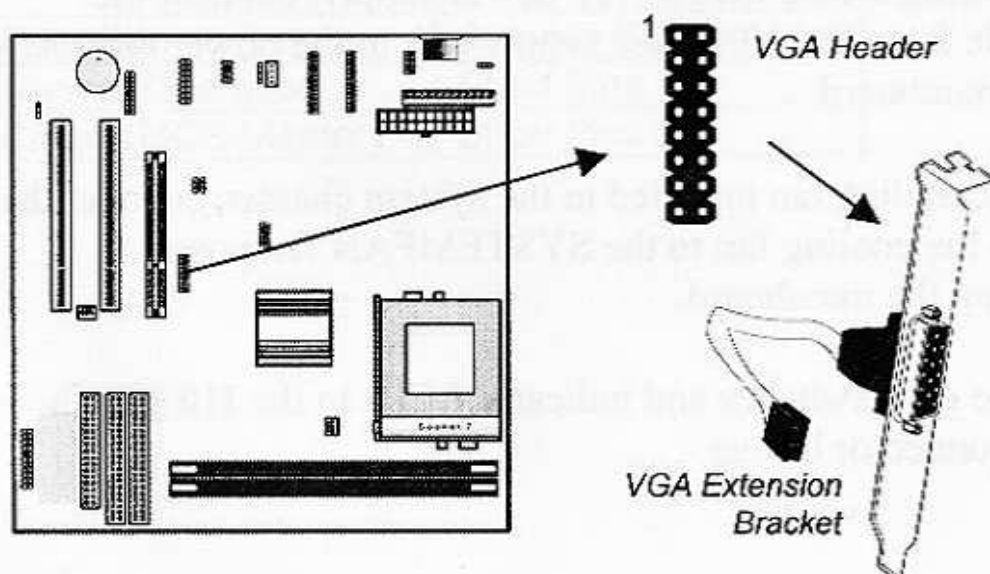
Install the Extension Brackets

The extension brackets are used to connect features on the mainboard to external connectors that can be attached to the system chassis. Follow the steps below to install the extension brackets.

Note: All the ribbon cables used on the extension brackets have a red stripe on the Pin-1 side of the cable.

VGA Extension Bracket

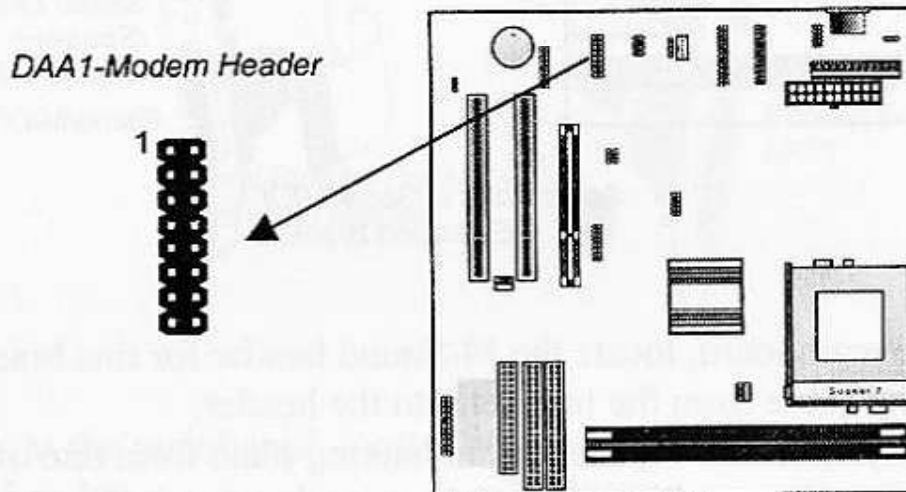
The VGA extension bracket has a 15-pin connector for an external monitor cable.



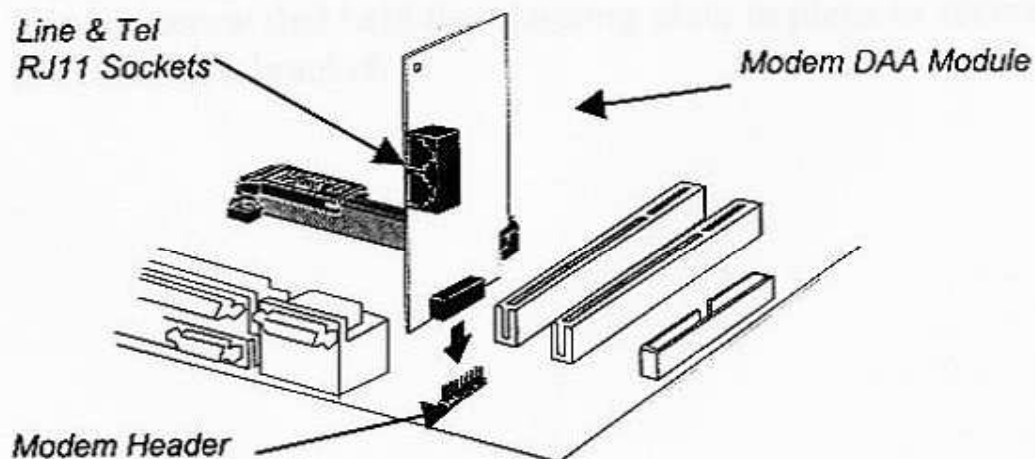
1. On the mainboard, locate the VGA header for this bracket.
2. Plug the cable from the bracket into the VGA header.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

Fax/Modem Module

The Fax/Modem DAA module plugs directly into the mainboard in line with to an expansion slot opening in the system chassis. When you remove the slot cover from the system chassis, you can access the LINE and TEL RJ11 connectors on the metal edge of the Fax/Modem DAA module.



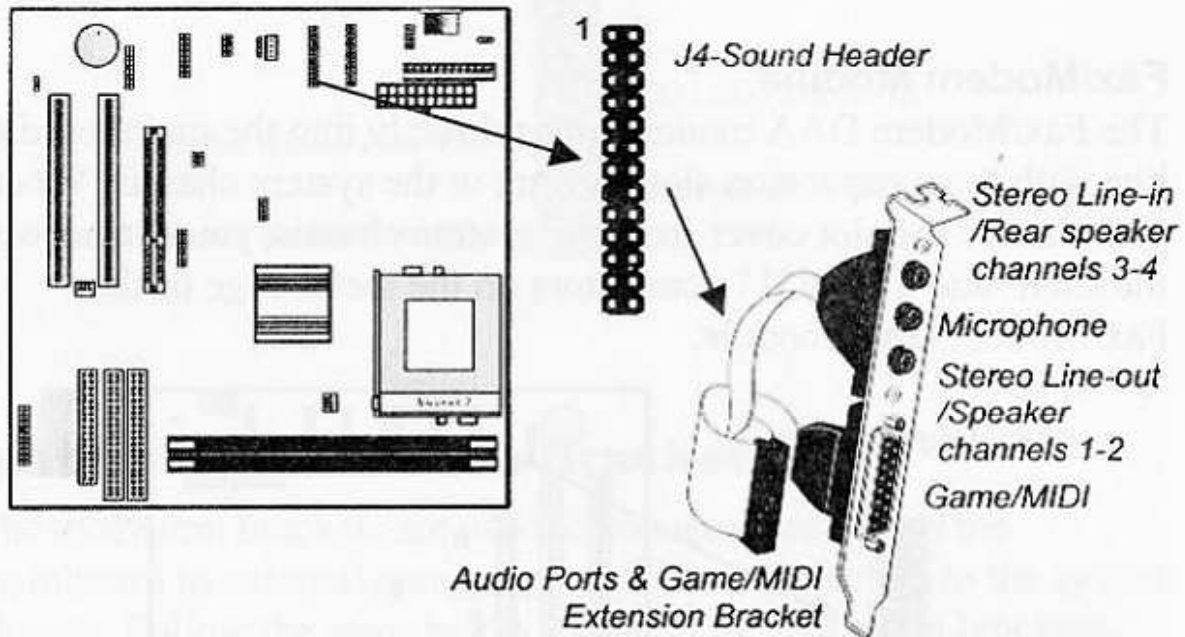
1. Locate the Modem header on the mainboard.
2. Plug the Fax/Modem DAA module into the Modem header.
3. Remove the modem header slot cover.



Audio Ports and Game/MIDI Port Extension Bracket

This bracket provides three audio jacks for stereo line in, stereo line out and microphone. In addition it has a 15-pin D-connector which can be used by either a joystick or a MIDI device.

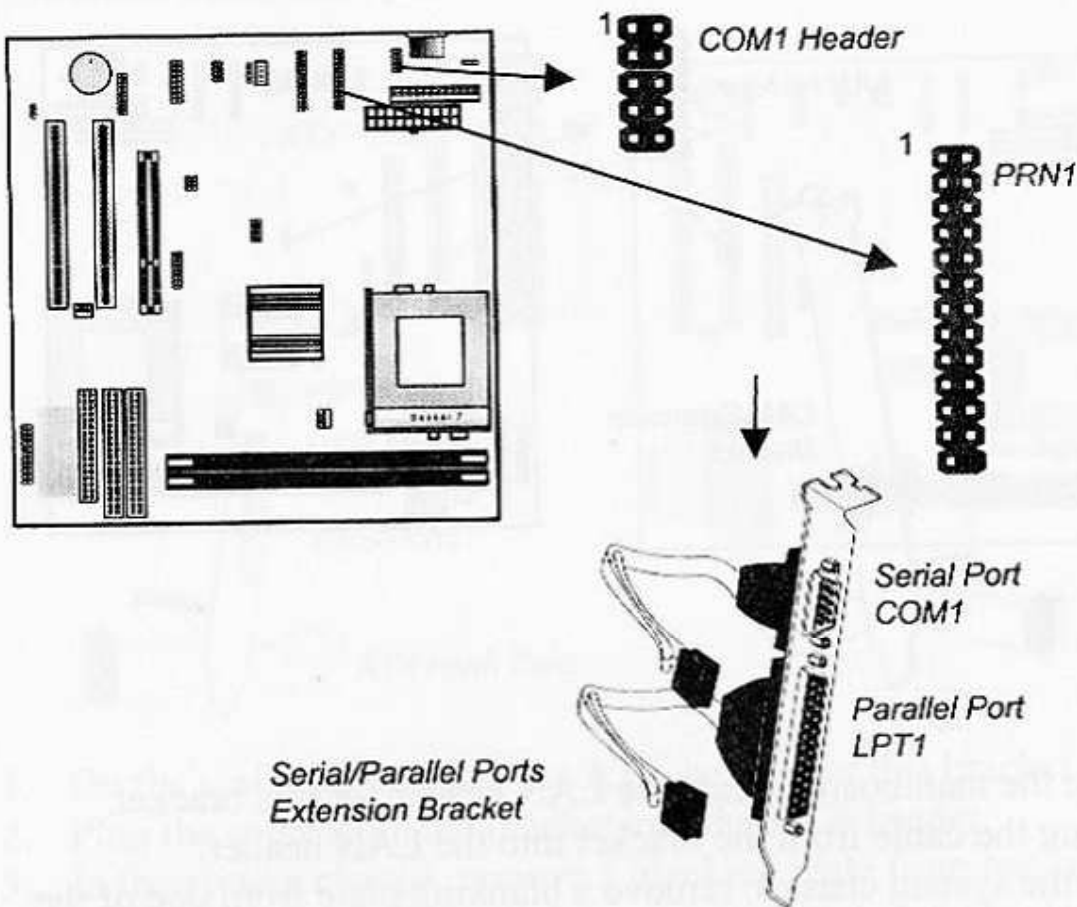
If you are using a four channel speaker system, channel one and two are output through the Stereo Line-out, and the rear speaker channels three and four are output through Stereo Line-in.



1. On the mainboard, locate the J4-Sound header for this bracket.
2. Plug the cable from the bracket into the header.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

Serial/Parallel Ports Extension Bracket

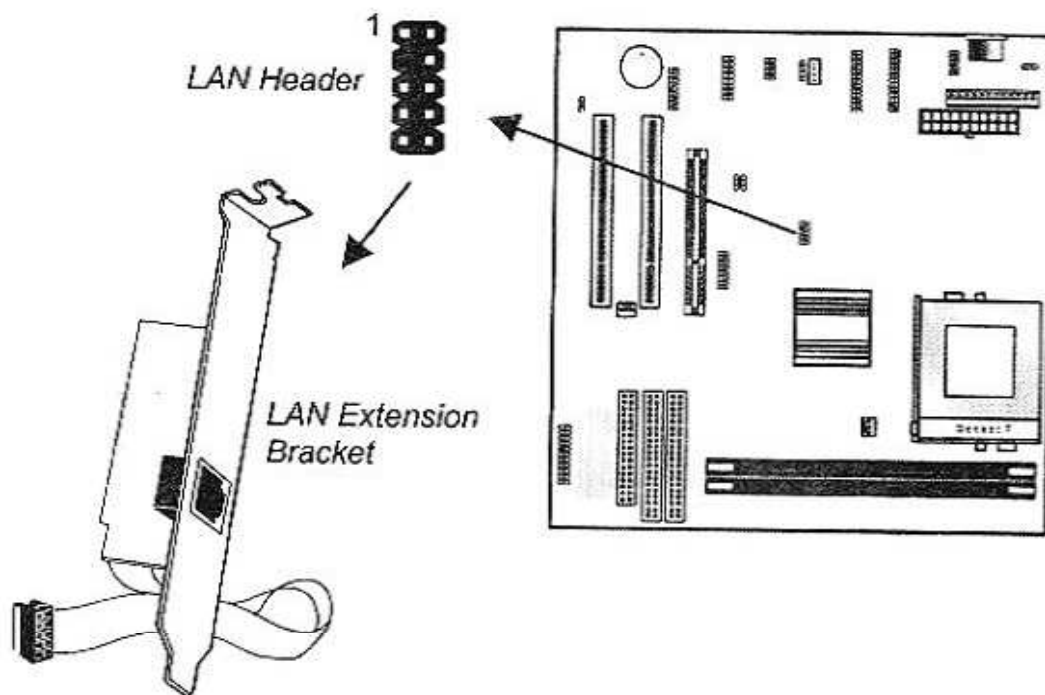
This bracket has one serial port - COM1 (9-pins) and one parallel port - LPT1 (25pins).



1. On the mainboard, locate the headers COM1 and PRN1 for this bracket.
2. Plug the serial cable into COM1 and the parallel cable into PRN1.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

LAN Network Adapter Extension Bracket

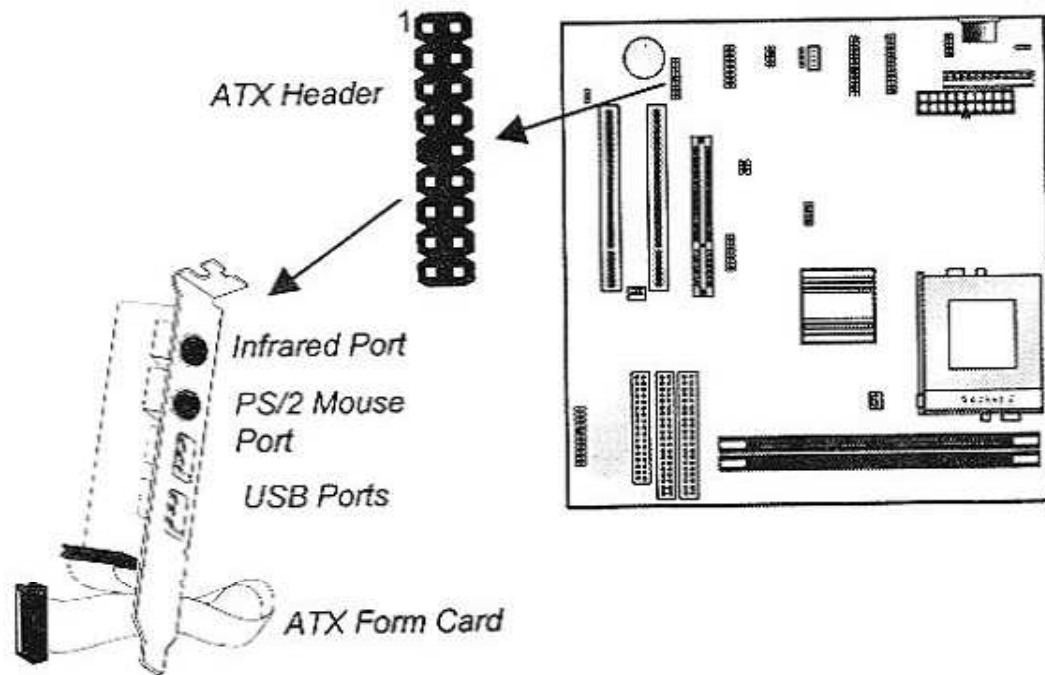
This bracket supports an RJ45 network connector and connects to the built in LAN header LAN1 on the mainboard.



1. On the mainboard, locate the LAN header for this bracket.
2. Plug the cable from the bracket into the LAN header.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

ATX Form Card

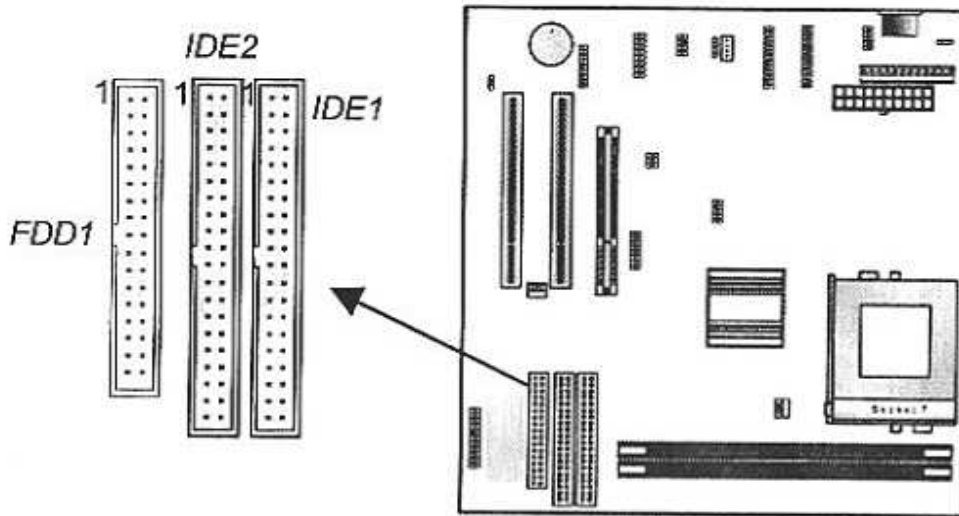
This ATX Form card provides a mini-DIN port for infrared, one mini-DIN port for a PS/2 mouse. In addition it has two USB (Universal Serial Bus) ports.



1. On the mainboard, locate the ATX header for this bracket.
2. Plug the cable from the bracket into the ATX header.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

Install Other Devices

Install and connect any other devices in the system following the steps below.



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 header **FDD1**.

IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.

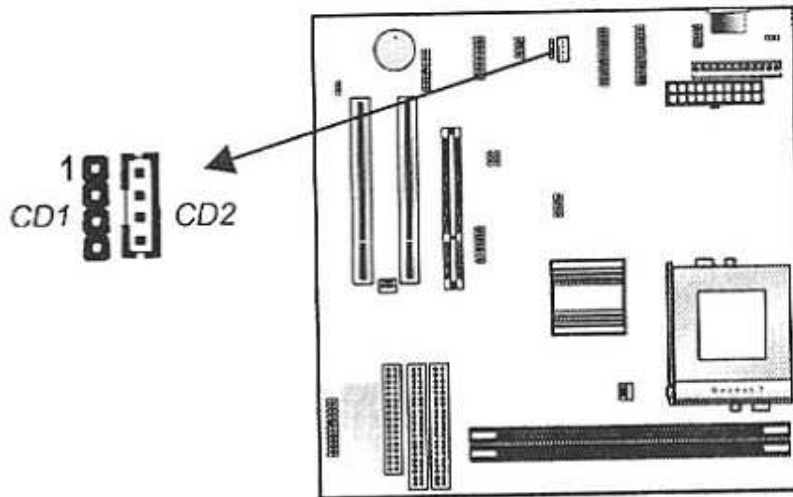
The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure the device as a Master or Slave 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.

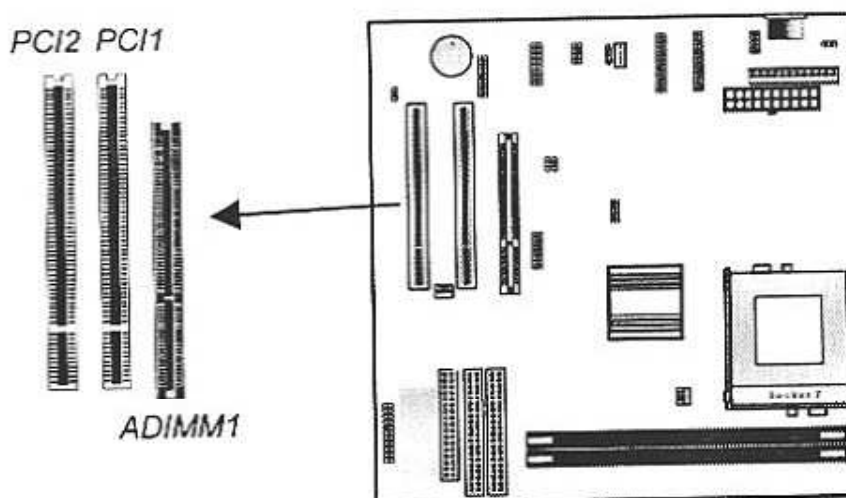
Internal Sound Connections

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system. On the mainboard, locate the two 4-pin connectors CD1 and CD2. There are two kinds of connector because different brands of CD-ROM drive have different kinds of audio cable connectors. Connect the cable to the appropriate connector.



Expansion Slots

This mainboard has two 32-bit PCI expansion slots and one optional ADIMM slot. The PCI slot PCI2 is shared with the USB port. It means that you can use either one of shared both but you cannot use the both at the same time.



Follow the steps below to install a PCI or ADIMM expansion card.

1. Select a free PCI or ADIMM slot on the mainboard.
2. Remove the slot cover for the expansion slot from the system chassis.
3. Insert the expansion card edge connector into the slot and press it firmly down into it so that it is fully inserted.
4. Secure the expansion card bracket to the system chassis using the screw that held the slot cover in place.

ADIMM slot

ADIMM stands for Advanced Double In-line Memory Module. Use this slot to install a display cache card or video bridge card.

You can purchase an optional SiS301 video bridge card which supports an NTSC/PAL video encoder with a Macrovision V7.1.L1 option for TV display, a TMDS[®] transmitter with bi-linear scaling capability for a TFT LCD panel display, or an analog RGB port to support a secondary CRT monitor display. These functions support dual-display features. The second display can display independent resolutions, color depths and frame rates different from the primary VGA display. The card receives digital video signals and control signals from the VGA circuitry and transforms them into composite or component video output for a TV display, TMDS[®] signals for an LCD display or analog RGB signals for a secondary CRT display.

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, or you can hold down the **Page Up** key while you reboot your computer. Holding down the **Page Up** key also clears the CPU PnP Setup information, you may need to set the CPU speed again.

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 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 1.20e ©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	

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 which require 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.

Standard CMOS Setup Page

Use this page to set basic information such as the date and 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										
©2000 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yy) : Mon May 22, 2000										
Time (hh/mm/ss) : 14:26:53										
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	: Auto									On
Pri Slave	: Auto									On
Sec Master	: Auto									On
Sec Slave	: Auto									On
Floppy Drive A : 1.44MB 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	Use these items to configure devices connected to the Primary and Secondary IDE channels. To configure an IDE hard disk drive, choose <i>Auto</i> . If the <i>Auto</i> setting fails to find a hard disk drive, set it to <i>User</i> , and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting <i>CDROM</i> . If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120) select <i>Floptical</i> .
Pri Slave	
Sec Master	
Sec Slave	
Floppy Drive A	Use these items to set the size and capacity of the floppy diskette drive(s) installed in the system.
Floppy Drive B	

Advanced Setup Page

Use this page to set more advanced information about your system. Take some care with this page. Making changes can affect the operation of your computer.

AMIBIOS SETUP – ADVANCED SETUP	
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Trend ChipAwayVirus	Enabled
Frame Buffer Cache Control	Auto
Share Memory Size	8MB
1 st Boot Device	IDE-0
2 nd Boot Device	Floppy
3 rd 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
Password Check	Setup
Boot To OS/2 > 64MB	No
Internal Cache	Enabled
External Cache	Enabled
System BIOS Cacheable	Disabled
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 Color F6 : Load Optimal values F7 : Load Best performance values	

Trend ChipAway Virus	This mainboard has built-in virus protection in the firmware. Use this item to enable or disable the built-in virus protection.
Frame Buffer Cache Control	This item appears when a Frame Buffer Cache card is installed in the ADIMM socket. The default setting, Auto, automatically sets the display memory size. The Manual setting uses the next item to manually set display memory size.
Share Memory Size	This item lets you allocate a portion of the main memory for use by the onboard VGA display.
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 items 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 (<i>Setup</i>) or required both at start-up and to enter the Setup Utility (<i>Always</i>).
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.
Internal Cache	Leave this item enabled since all the processors that can be installed on this board have internal cache memory.
External Cache	Leave this item enabled since all the processors that can be installed on this board have external cache memory.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be cached to main memory for faster execution.

Power Management Setup Page

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

AMIBIOS SETUP – POWER MANAGEMENT SETUP	
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Power Management/APM	Disabled
Standby Time Out (Minute)	Disabled
Suspend Time Out (Minute)	Disabled
Hot Key Power On	Disabled
LAN Card Power On	Disabled
Ring On Power On	Disabled
RTC Alarm Power On	Disabled
RTC Alarm Date	15
RTC Alarm Hour	12
RTC Alarm Minute	30
RTC Alarm Second	30
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load Optimal values F7 : Load Best performance values	

Power Management/APM	Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Both APM and ACPI are supported.
Standby Time Out (Minute)	This sets the timeout for Standby mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Standby mode.
Suspend Time Out (Minute)	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.
Hot Key Power On	If you enable this item, you can turn the system on by pressing hot keys (Ctrl + Alt + Back Space) on the keyboard. You must connect an ATX power supply and enable this function jumper in order to use this feature.

LAN Card 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 traffic on the network adapter. You must use an ATX power supply in order to use this feature.
Ring On 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 Fax/Modem. You must use an ATX power supply in order to use this feature.
RTC Alarm Power On /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.

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

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 or 98.
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.
Reserved Memory Size	This item lets you reserve a block of memory for any device that requires it.

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.

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 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	SPP
Parallel Port IRQ	7
Parallel Port DMA	N/A
OnBoard PCI IDE	Both
Ultra DMA Support	Disabled
OnBoard Audio/Modem	Enabled
OnBoard LAN	Enabled
USB Function	Disabled
USB Function for DOS	Disabled
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load Optimal values F7 : Load Best performance values	

OnBoard FDC

Use this item to enable or disable the onboard floppy disk drive interface.

OnBoard Serial PortA	Use this item to enable or disable the onboard COM1 serial port, and to assign a port address
OnBoard IR Port	Use this item to define the protocol for an infrared port if you have installed an optional IR port. The choices are IrDA and ASKIR.
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.
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.
Ultra DMA Support	Use this item to set Ultra DMA support for IDE devices on the Primary or Secondary IDE channels. You must enable this or UDMA devices will not work at their intended speed.
Onboard Audio/Modem	Use this item to enable or disable the onboard audio/modem chip.
Onboard LAN	Use this item to enable or disable the onboard network interface.
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.

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.

Note: If you manually set the wrong speed and the system won't run properly, press the **Page Up** key while the system is booting and a default setting will replace the incorrect CPU setting.

AMIBIOS SETUP – CPU PnP SETUP	
©2000 American Megatrends, Inc. All Rights Reserved	
CPU Plug and Play	Auto
CPU Brand	
VCCore Voltage	2.0V
CPU Speed	450 MHz
CPU Base Frequency	100 MHz
CPU Multiple Factory	X4.5
E-Plus CPU installed	Disable
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 Plug and Play	Use this item to select the CPU Plug and Play function by auto-detect or user-define.
CPU Brand; VCCore Voltage	These items display the CPU brand and CPU core voltage by the system automatic detecting.
CPU Speed	The item displays the internal clock speed of the CPU, based on the next two items.
CPU Base Frequency	Use this item to set the external clock frequency for the CPU. Set the CPU clock based on the requirements of the CPU installed on the board.
CPU Multiple Factor	Use this item to set a multiplier for the CPU external frequency. The multiplier times the external CPU frequency sets the internal clock speed of the CPU, e.g. 100 MHz (external clock or "FSB") x 4.5 (multiplier) = 450 MHz (internal clock speed of the installed CPU).
E-Plus CPU installed	Enable this item if you plan to use the AMD E-Plus CPU on this mainboard.

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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--- Hardware Monitor ---	
CPU Temperature	30°C/86°F
System Temperature	30°C/86°F
CPU Fan Speed	
Chassis Fan Speed	
Vcore	2.000 V
+1.800V	1.800 V
Vcc3	3.300 V
Vcc	5.000 V
+12V	12.000 V
SB5V	5.000 V
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 / System Temperature	These items display CPU/system temperature measurement.
FAN Speeds & 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.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.20 (C)1998 American Megatrends, Inc. All Rights Reserved			
Standard CMOS Setup		Features Setup	
Advanced Setup		CPU Fan Setup	
Power Management Setup		Hardware Monitor	
PCI / Plug and Play			
Load Optimal Defaults			
Load Best Performance			
Save current settings and exit (Y/N) ? Y			
ESC: Quit	↑↓←→: Select Item	<Shift>F2: Change Color	F5: Old Values
F6: Optimal values		F7: Best performance values	F10: Save&Exit
Exit Or, Save CMOS setting and exit			

Chapter 4

Software & Applications

Introduction

The support software CD-ROM that is included in the mainboard package contains all the drivers and utility programs needed to properly run our products. Please check all the README files for the latest information on installing and using the software.

Using the PCI Sound Application

1. Before you install the PCI Sound drivers, make sure your Operating System has been installed, otherwise the PCI Sound might be detected as “Other device” by the device manager of your OS.
2. After the drivers are properly installed, choose the MULTIMEDIA icon in the CONTROL PANEL when you need to use the Software Wave-Table drivers as a MIDI output device. Select the MIDI page and click on “C-media SoftMidi Synthesis (Win98) / Driver (Win95)”, then click “OK” to confirm.
3. A Windows application named Audio Rack is provided with the PCI Sound drivers, which gives you control over all the audio functions through a user interface that is as simple to use as a home stereo system. We recommend that you use the System Mixer in the Audio Rack software to control your computer’s audio volume, recording device and the recording gain.

4. If the devices that you are using require the MIDI port as the control interface, you need to select the MULTIMEDIA icon in the CONTROL PANEL. Select the MIDI page and click on "CM8738 MPU-401" (Win98) or "CM8738/C3DX PCI Audio External MIDI Port" (Win95), and then click "OK" to confirm.
5. For more information, refer to the PCI Sound manual in the CD which ships with this mainboard.

The Four Speakers System

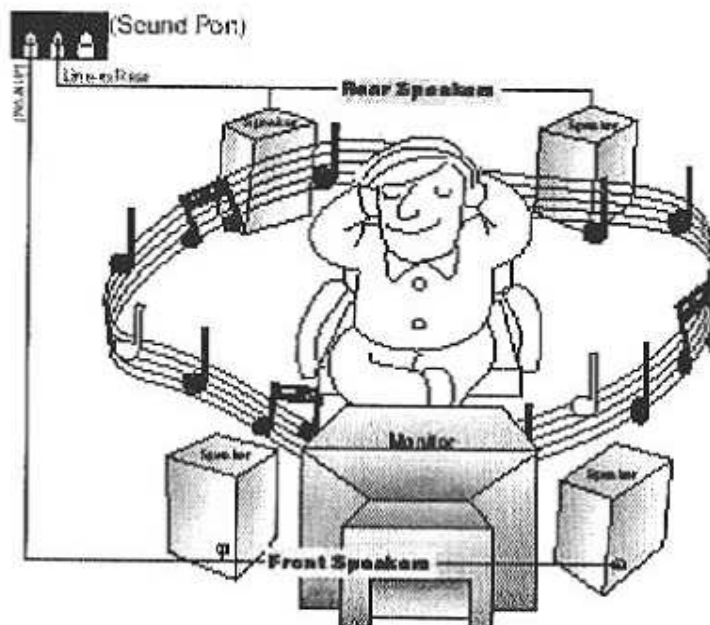
The onboard Sound Pro audio system supports 2 wave channels (front/rear) known as the 4 speaker system. If you are running applications which use the DirectSound® 3D or A3D® audio interface, your system can simulate realistic 3D sound through a 4 speaker setup. Follow the steps below to install a 4-speaker setup.

Speaker Installation

Connect the front two speakers to the Line-out jack on the sound ports extension bracket. Connect the rear two speakers to the Line-in/Rear jack on the sound ports extension bracket. The original Line-in can be moved to Aux.

Speaker Position

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



A picture on the 4 speakers application.

Mixer Setup

There is a 4-speakers option in the Volume Control of the Mixer when you are setting up the PCI Audio Application. Click on the 4 SPK icon to enable this option. This means that the output to the rear speakers is sent through the Line-in/Rear jack. In order to avoid hardware conflicts, **DO NOT** enable this option when the Line-in/Rear jack is connected with a line-in device. While the 4 speakers mode is enabled, turn on/off the output of the front speakers and adjust the volume of the speakers so that the front/rear speakers have the same volume.

Demo

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

GAMUT

OEM Bundle Version



WELCOME

Thank you for using FORMOSOFT GAMUT OEM Bundle Version. It provides users with high compression audio CD recording, incredible music playing quality, and versatile music management for various applications. The recording, playing, and music management capabilities of GAMUT lead to a completely new audio experience, and turns your computer into a piece of professional audio equipment. Welcome to the GAMUT club.

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Introduction

GAMUT OEM Bundle Version is a musical integration software designed to combine high-tech digital sound effects with state-of-the-art audio encoding and decoding technology. It will definitely make your PC be the control center of your audio equipment at home by functioning magnificent data management in PC and experiencing you with terrific music playing pleasure.

With high compression rate MP3 technology, GAMUT OEM Bundle Version performs efficiently on music store and management. It was designed to exploit the latest MP3 technology, and dynamically synchronize process MP3 files with friendly "Wizard" interface. It uses enhancement technology with digital method to improve the sound effect, enables the music enjoyment as being in the hall or concert.

GAMUT OEM Bundle Version consists of six tools: Musician, CD-Cashier, Music-Box, 3D_{FS}-ACD, Midier, Voice-Catcher, and Mixer.



《Musician》

To play MP3 files and provide digital sound effect functions.

《CD-Cashier》

The easy tool of compression and producing MP3 files.

《Music-Box》

Help user to manager their MP3 file.

《3D_{FS}-ACD》

To play audio CD and provide digital sound effect functions.

《Midier》

Designed to play MIDI music with high quality and offer the convenient play list to control the playing order.

《Voice-Catcher》

The easy tool of recording compression audio files.

《Mixer》

Help to check the functions and control all the audio option about computer environment.

Before Installation

Make sure your system meet the following requirements before you install the Gamut.

1. System Requirements :
200 MHz CPU speed or higher, 8 MB Memory,
10 MB HD Space for Program,
50 MB HD Space for Temporary,
16 Bits Sound Card, CD-ROM Drive, Stereo Speaker
2. Operating System :
Windows 95/98, Windows NT with SP4
3. CD-ROM Drive Specification
CD-ROM Drive should provide CDDA audio track capture function to enable digital audio track technology in MP3 files. Otherwise user can only use analog compression technology to produce MP3 files and can not result in the best audio quality. However, if user insists on analog compression technology, please check the connection of sound card and the audio connectors behind CD-ROM Drive. The connection way please refers to the instruction manual of sound card or CD-ROM Drive.
4. Sound card Specification
16 bits sound card is essential for GAMUT's digital stereo sound effects technology. <Musician> will automatically detect and transfer to 4-channels sound effects for some sound cards with particular sound chips such as C-Media, ESS, etc. When applying those particular 4-channels sound cards, GAMUT will lead you to experience the 4-channels surround sound field enjoyment. Also please check the drivers needed for your operating system.
5. If there is any other GAMUT previous version, please kindly remove the old ones and then install this version.

Installation

Part 1 Uninstall previous version

Please make sure it's the first time to install GAMUT, if not, please remove the previous version and then install this new version.

Step 1.

Click Start/Select Settings/Select Control Panel, double-click Add/Remove programs.

Step 2.

Select Formosoft GAMUT and click "OK" button to automatically uninstall GAMUT

Step 3.

After uninstalling, click "OK" button.

Part 2 First time installation

Step 1.

Place the driver CD into CD-ROM drive, executing the setup.exe program in \Sound\Gamut\AudioPlayer\english.

Step 2.

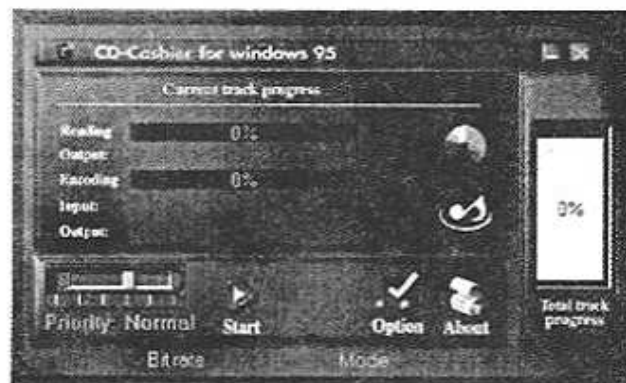
There is a welcome window shows "GAMUT OEM Version" and you can finish the installation by following the instructions step by step.

Step 3.

After installation, there will be GAMUT Link both on Desktop and in Start menu and also a GAMUT directory in the list of Program files. You could select each habitual method to start GAMUT.

Produce MP3 file—Use CD-Cashier

Start CD-Cashier from “Menu Bar” or “Start Menu/Program Files/ GAMUT/ CD-Cashier”.



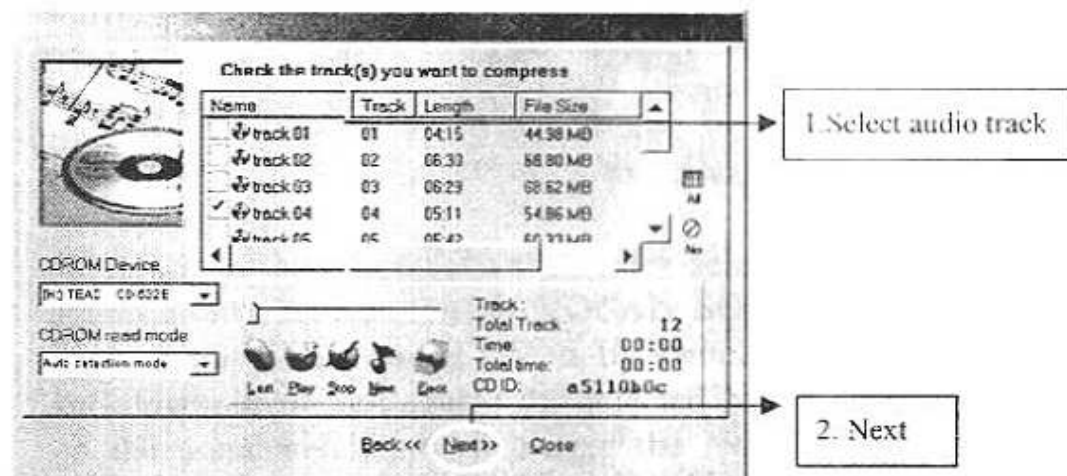
Step 1. Place Audio CD into CD-ROM drive and click Start button on panel. Step by step follow the “Wizard” instruction.

Step 2. Select 「Digital recording from Audio CD」 to capture the audio track with high quality digital technology to keep the beauty of original audio CD.

If the CD-ROM drive doesn't provide CDDA audio track capture function, select 「Analog recording from Audio CD」 to record MP3 files with analog technology. However, analog technology may not result in good quality as digital technology does.

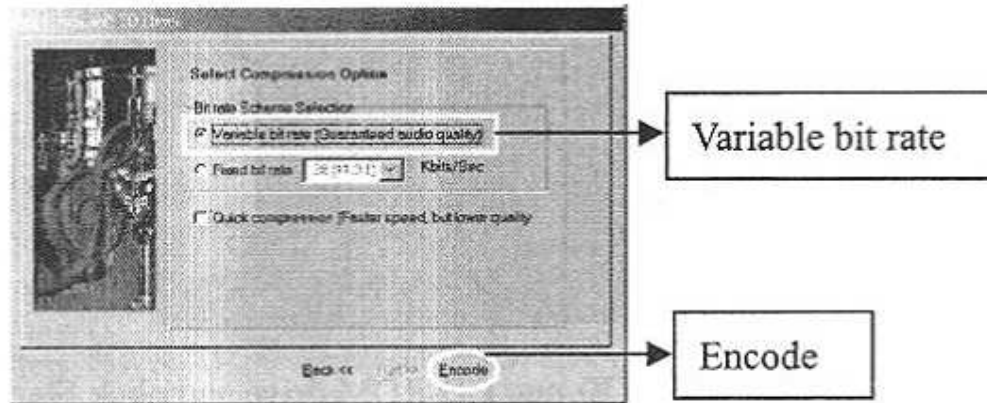
Click Next to the following step after select either digital or analog technology.

Step 3. Select the audio tracks in 「Check the track(s) you want to compress」 window. Click Next to the next instruction.

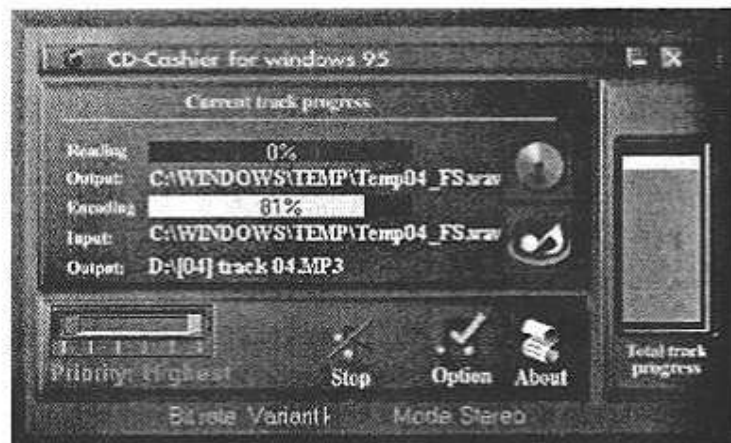


Step 4. Choose directory for MP3 files and then click Next.

Step 5. Select the default 「Variable bit rate (Guaranteed audio quality)」 to enable exclusive “Psycho Acoustic Model” technology to compress audio data with fine quality. Then click Encode to begin the production of MP3 files.

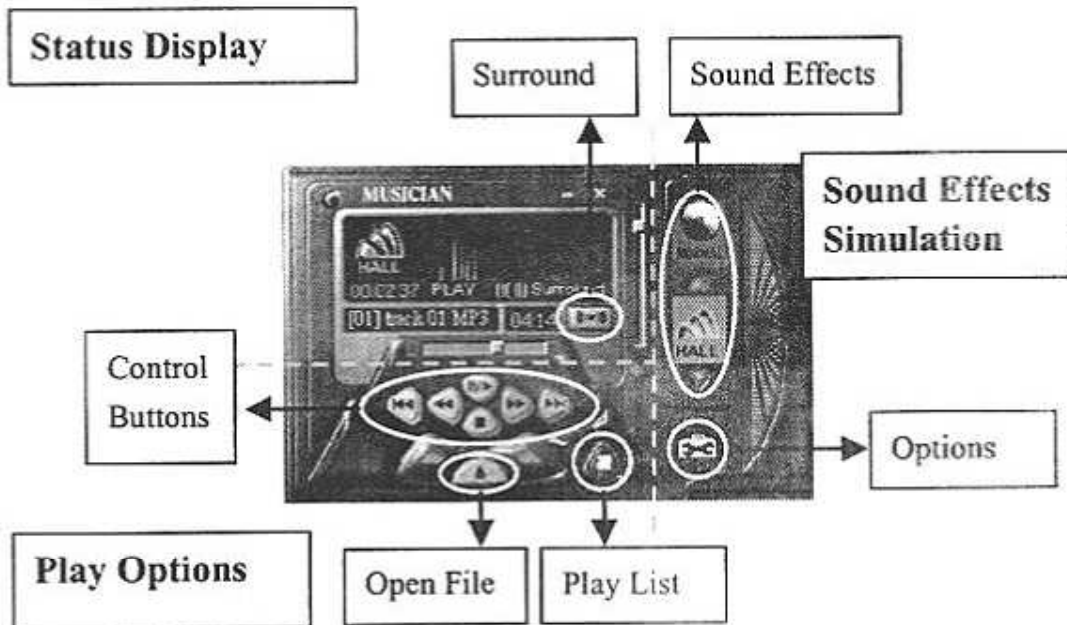


Step 6. After all steps are done, there will be a MP3 compression execution window of CD-Cashier in which you can track the progress of encoding.



Play MP3 files—Use Musician

Start Musician from “Menu Bar” or “Start Menu/Program Files/GAMUT/ Musician”.



The panel consists of 3 individual parts that are Status Display, Play Options and Sound Effects Simulation. Status Display shows the current progress of playing, selected sound effects and sound filed. Play Options consists of control buttons alike real audio panel. Sound Effects Simulation is functional to set up the sound effects in need.

Step 1. Press “ Open File “ button to select MP3 files. For example, open the [04] track 04.MP3 file.

Step 2. After open the selected MP3 files, Musician will play the music directly and we can easily know the playing progress such as track name and time from “Status Display”. We can also execute the control buttons in need.

Step 3. Press ” Surround” button to activate 4-channels surround field experience.

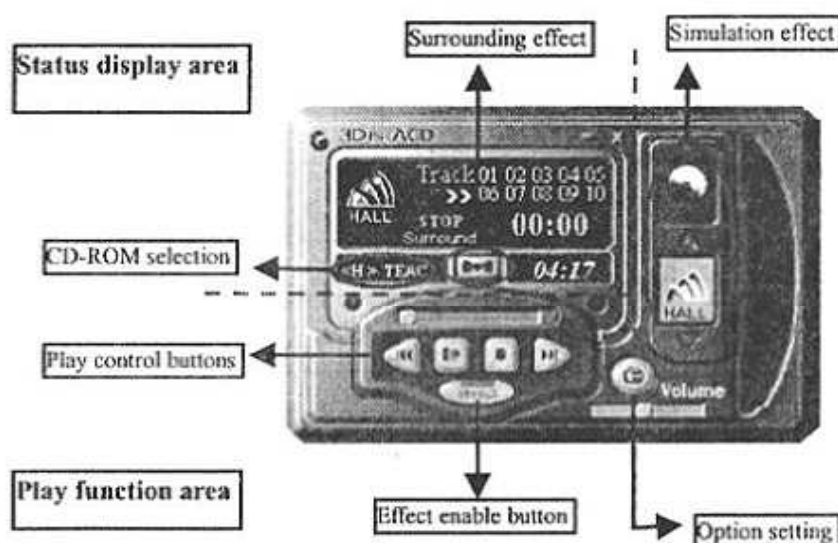
Sound Effects Simulation provides selective simulated digital sound effects such as HALL, VOCAL, SOFT, ROCK and BASS. View the available sound effects by switching the blue up-arrow and down-arrow and enable the selected sound effect by clicking on the associated icons. Selecting the Normal icon disables all sound effects.

Play music CD—Use 3D_{FS}-ACD

Start 3D_{FS}-ACD from “Menu Bar” or “Start Menu/Program Files/Gamut/3DFS-ACD” to active the program.

Step 1. After 3D_{FS}-ACD is activated, the program will detect the CD in the CD-ROM automatically, and the number of tracks will be shown in the “status display area”. You may start the music by clicking on the track number.

Step 2. Through the control buttons (play, stop, rewind, and forward) , users gain the fully control of music playing.



Step 3. Click on the “Effect” enable button to selecting the simulation effects. After the effect is enabled, users may click on the “surrounding effect” in the play function area to enable the surrounding function.

On the right side of the main panel—“simulation effect” selection area, users can find various digital effect options including : HALL, VOCAL, SOFT, ROCK and BASS. The “NORMAL” picture is provided for users to get “normal” effect.

HALL : Simulate the concert hall effect.

VOCAL : Enhance vocal clarity and the quality of the voice.

SOFT : Enhance the hearing effect, especially suitable for Jazz and New age music.

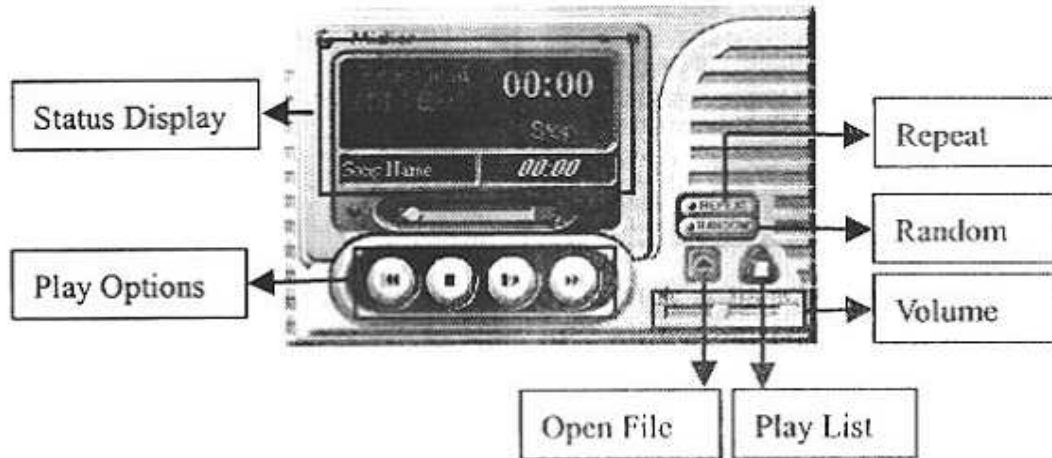
ROCK : Create Rock effect, suitable for dancing music or dynamic music.

BASS : Enhance the bass effect of the music.

When users are using “Effect enable mode”, or switching from one effect to another, there is a 1~3 seconds “Delay Buffer”. The delay time differs from one sound card to another.

Play MIDI files—Use Midier

Start Midier from “Menu Bar” or “Start Menu/Program Files/GAMUT/ Midier”.



Step 1. Press “Open File” button to select the required MIDI files by order.

Step 2. Midier will automatically play the selected files and display current status such as track name and time on panel. “Play Options” allow us to activate each functional buttons.

Step 3. “Play List” is designed to manage the selected playing tracks. It’s easy to add or delete tracks of the list and control the playing order.

Regulate the audio sources—Use Mixer

Start Mixer from “Menu Bar” or “Start Menu/Program Files/GAMUT/ Mixer”.

Mixer is used to control the audio sources for playing and recording in computer environments. The sound sources include Wave-out, CD, MIDI, etc. The categories of the audio sources vary with sound cards. Mixer can automatically detect and show the sound sources for the specific sound card in a computer.

The “Mute” button can enable or disable the associated audio source. For each sound source, the vertical scrollbar is volume control and the horizontal scrollbar is balance control. You can also select “Playback” or “Record” to regulate your audio conditions.

Recording audio data—Use Voice-Catcher

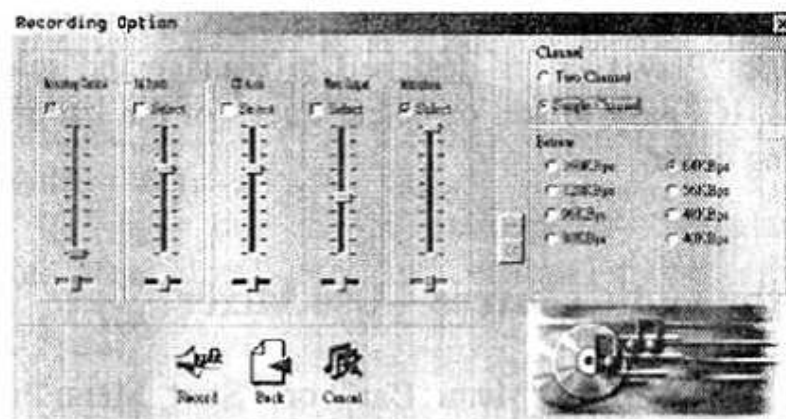
Start Voice catcher from “Menu Bar” or “Start Menu /Program Files/Gamut/Voice Catcher”.



Step 1. Make sure your recording environment setup is ready, click on the 『Start recording』 to start the process.

Step 2. Once the recording process is started, users may decide whether or not to compress the source. The system default GM2 recording file is a compressed format. Users may also need to type in the name of the recorded files (users can use 『Browser』 button to select the desired file for recording. After the file name is typed in, click 『Next』 for the next step.

Step 3. Select the recording source, and adjust the volume, then select the desired recording mode and compression ratio.



Generally speaking, when recording vocal data, select Single Channel · 64K BPS you will get a good result. A one-hour-data will take only 28MB of the memory. While recording common music files, Two Channel · 128K BPS is suggested for better result. A one-hour-data will take 56Mb of the memory

After the selection is done, single click 『Record』 button to start recording.

Step 4. Once you have finished the recording task, just click on the 『stop』 button. Then, users may click on the 『Player』 button to play the recorded file.



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